STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5797	1	74

REFERENCE: R-5797

PROJECT: 44997

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *COLUMBUS*

PROJECT DESCRIPTION *US 74 AT SR 1506 (OLD BOARDMAN ROAD/MACEDONIA CHURCH ROAD)*

INVENTORY

CAUTION NOTICE

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

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

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

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

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DATE *NOVEMBER 2019*

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PROJECT REFERENCE NO.	SHEET NO.
R-5797	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

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

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	< 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 SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

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

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

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

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT, 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
- [ ] _____
- [ ] _____

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

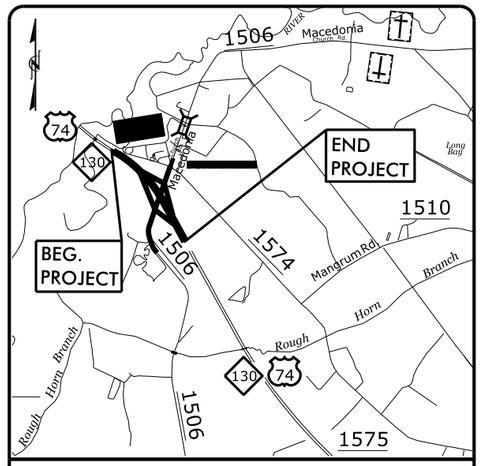
ELEVATION: N/A FEET

NOTES:

BORING ELEVATIONS FOR WALL 1, WALL 2, YIB_2950, YIB_3070, & YIB_3180 OBTAINED USING SURVEY GRADE GPS. ALL OTHER BORING ELEVATIONS OBTAINED FROM .TIN FILE RECIEIVED FROM WETHERILL ON 9/05/2019

DATE: 8-15-14

See Sheet 1A For Index of Sheets
See Sheet 1B For Symbols Sheet
See Sheet 1C For Survey Control Sheet



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

COLUMBUS COUNTY

LOCATION: US 74 AT SR 1506 (OLD BOARDMAN RD/ MACEDONIA CHURCH RD.)

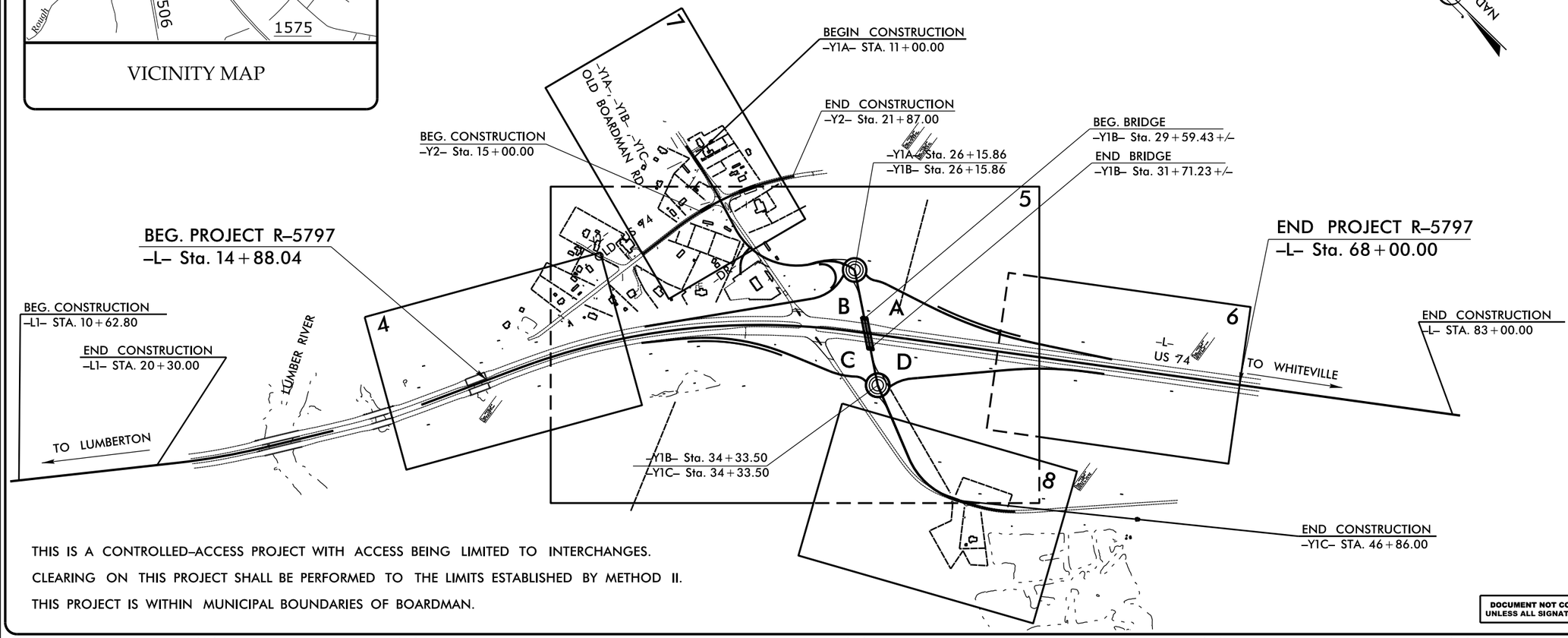
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R–5797	3	74

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44997.1.1		PE
44997.2.1	NHPP–0074(215)	ROW/UTIL.

ROW PLANS
OCTOBER 31, 2018

NAD 83 /2011



THIS IS A CONTROLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

THIS PROJECT IS WITHIN MUNICIPAL BOUNDARIES OF BOARDMAN.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TIP PROJECT: R–5797

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2020 = 13,700
ADT 2040 = 20,110
K = 9 %
D = 55 %
T = 19 % *
V = 70 MPH
* TTST = 15% DUAL = 4%
FUNC. CLASS = FUTURE INTERSTATE

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R–5797 = 1.066 MILES

TOTAL LENGTH TIP PROJECT R–5797 = 1.066 MILES

Prepared in the Office of:
WETHERILL ENGINEERING
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License No. F-0377
Bus: 919.851.8077 Fax: 919.851.8107

Prepared for:
DIVISION OF HIGHWAYS DIVISION 6
549 Transportation Drive Fayetteville NC, 28301

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 31,2018

LETTING DATE:
OCTOBER 20, 2020

GREG PURVIS, PE
PROJECT ENGINEER

ROBERT O'DELL, JR.
PROJECT DESIGN ENGINEER

NCDOT CONTACT: JOHN GAUTHIER
DIVISION PROJECT MANAGER

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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TWalker AT 66026102

FROEHLING & ROBERTSON, INC.

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November 13, 2019

State Project No.: 44997.1.1
TIP No.: R-5797
F.A. Number: N/A
County: Columbus
Description: US 74 at SR 1506 (Old Boardman Road / Macedonia Church Road)

SUBJECT: Geotechnical Report – Inventory

Project Description

This project primarily consists of a grade separation at the intersection of US 74 with SR 1506 (Old Boardman Road) in Boardman, Columbus County, North Carolina. Currently, the interchange is an at-grade intersection. This conversion will result in the widening of US 74 from about 0.5 mile west of the intersection to about 0.5 mile east of the intersection – a distance of about 1 mile (-L- station 14+88.14 to 68+00). The grade separation will necessitate the construction of a two-span bridge over US 74 approximately 400 feet east of the existing intersection. Roundabouts are proposed just off the ends of the bridge. Two retaining walls are also proposed: one is located on the north side of the existing gas station at the intersection of Y1A and DR1 and is about 250 feet in length; the second is located on the south side of the gas station along Ramp B from about 17+00 to 20+00 and is about 300 feet in length.

The majority of the proposed road widening extends across several wetland areas that are delineated on the provided plans. The largest wetland area east of the existing interchange is a swamp known as McColskey Bay. Other portions of the project site traverse mixed-use areas consisting of farmland, residences, churches, and small businesses.

The geotechnical field investigation was performed from August 2018 to November 2019. During this time period, a total of 54 Standard Penetration Test (SPT) borings were advanced with ATV- and track-mounted CME-55 drill rigs with automatic hammers. In addition, 4 push probes, 12 sounding rods, and 10 hand auger borings with sounding rods were completed due to restrictive drill rig access. Representative soil samples were collected from the split spoon or hand auger cuttings for visual classification in the field and for analysis by F&R's testing laboratory.

The following alignments were investigated:

Alignment	Station (±)
-L-	14+88.04 to 68+00
-Y1A-	11+00 to 26+15.86
-Y1B-	26+15.86 to 34+33.50
-Y1C-	34+33.50 to 46+86
-RPA-	10+00 to 28+28.84
-RPB-	10+00 to 24+70.05
-RPC-	10+00 to 26+22.25
-RPD-	10+00 to 25+13.83
-DR1-	10+00 to 12+12.12
-RAB-	10+00 to 15+15.22
-RCD-	10+00 to 15+15.22

Areas of Special Geotechnical Interest

1) Groundwater: The following areas exhibited groundwater within six feet of the proposed subgrade:

Alignment	Station (±)
-L-	21+75 to 25+25, right
-L-	47+75 to 48+25
-L-	51+25 to 58+25
-L-	60+75 to 64+25, left
-Y1C-	42+75 to 43+25
-RPA-	10+75 to 17+25
-RPC-	17+75 to 18+25

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

Alignment	Station (±)
-L-	14+88.04 to 25+75
-L-	40+75 to 68+00, left
-L-	43+25 to 68+00, right
-Y1A-	20+75 to 21+25, right
-Y1A-	22+75 to 23+25
-Y1B-	26+75 to 29+25
-Y1B-	34+00 to 34+34
-Y1C-	34+34 to 43+25
-RPA-	10+00 to 16+50, right
-RPA-	16+50 to 28+28.84
-RPD-	10+00 to 14+50, left
-RPD-	14+50 to 25+13.83
-RAB-	12+75 to 14+05
-RCD-	10+00 to 15+15.22

2) Soft, Loose and/or Wet Soils: The following areas contain relatively soft or loose (SPT N<6 bpf) and/or wet, near-surface soils that have the potential to cause subgrade problems during construction:

Alignment	Station (±)
-L-	14+88.04 to 18+75
-L-	18+75 to 20+75, right
-L-	24+75 to 25+75
-L-	27+75 to 28+25
-L-	30+75 to 31+25
-L-	40+75 to 68+00, left
-L-	43+25 to 68+00, right
-Y1A-	16+75 to 26+15.86
-Y1B-	26+75 to 29+25
-Y1B-	34+00 to 34+33.5
-Y1C-	34+33.5 to 43+25
-RPA-	10+00 to 16+50, right
-RPA-	16+50 to 28+28.84
-RPB-	16+75 to 19+75, left
-RPB-	22+75 to 24+70.05
-RPC-	17+50 to 18+25, left
-RPD-	10+00 to 14+50, left
-RPD-	14+50 to 25+13.83
-DR1-	10+25 to 10+75, right
-RAB-	12+75 to 14+05
-RCD-	10+00 to 15+15.22

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

Alignment	Station (±)
-L-	54+75 to 58+25, left
-RPB-	17+75 to 18+25, left

4) Artificial Fill: The following location contains artificial fill. These soils have the potential to be highly variable, which could cause subgrade problems during construction if undetected pockets of organics, debris, or soft/loose/wet soils are present.

Alignment	Station (±)
-RPC-	20+75 to 23+00

5) Highly Organic Soils: The following areas contain highly organic soils (>10%), standing water, and soft loose soils. These areas have the potential to cause subgrade problems during construction, embankment instability, and/or long-term settlement problems:

Alignment	Station (±)
-L-	15+75 to 20+75, right
-L-	58+75 to 60+25, left
-L-	51+25 to 67+25, right
-Y1B-	26+75 to 29+25
-RPA-	16+75 to 28+28.84
-RPD-	10+00 to 24+10
-RAB-	12+75 to 14+05

Physiography and Geology

The existing road in the area of this project generally runs in a west-to-east direction, and primarily through undeveloped farmland areas. The existing ground surface along the centerline of -L- generally slopes gently downward from an elevation (EL) of ±85 feet at the beginning of the project to EL ±83 feet near station -L- 21+50 and then upward to EL ±89 feet near station 48+50. The ground surface then generally slopes downward to EL ±87 feet at the end of the project.

Drainage across the site is generally poor, though surface water across the project is generally drained by the Lumber River.

The project site is geologically located in Coastal Plain physiographic province of North Carolina. The Coastal Plain Province is a broad flat plain with widely spaced low rolling hills where the near surface soils have their origin from the deposition of sediments several million years ago during the period that the ocean receded from this area to its present location along the Atlantic Coast. According to the Geologic Map of North Carolina (1985), the site is within an area mapped as Tertiary period deposits and is comprised of sediments that are identified as being located within the Duplin Formation, Undivided. The Duplin Formation is described as shelly, medium to coarse grained sand, sandy marl and limestone, bluish gray.

Soils Properties

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

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

Roadway Embankment: Roadway embankment (RE) soils were encountered at the surface of 18 borings. The RE extended to depths ranging from 0 to 7 feet, with most about 2 feet or less. The fill was typically described as moist to wet, loose to medium dense silty SAND (A-2-4). Most of the samples contained trace organic matter.

Artificial Fill: Artificial fill (AF) was encountered at the surface of boring RPC_2019 and extended to a depth of 2 feet. The AF was associated with a rough-graded working area adjacent to a farm. The artificial fill was typically described as moist, medium dense silty SAND (A-2-4).

Alluvial Soils: Alluvial soils were encountered at the surface of 11 borings and 4 push probes. The alluvial soils extended to a depth of about 2 to 3 feet and were typically described as wet to saturated, MUCK. In addition to these borings, alluvial soils were observed and mapped in wetland areas as noted earlier in this report as "Highly Organic Soils". Hand auger borings were attempted along these alignments, but samples were unable to be obtained due to standing water and very loose sandy soils.

Coastal Plain Soils: A majority of the soils encountered on this project were coastal plain soils. Most of the soils were typically described as moist to saturated, very loose to medium dense silty SAND (A-2-4) and were encountered in the upper 30 to 35 feet. Isolated zones of sandy and clayey SILT (A-4 & A-5), and sandy and silty CLAY (A-6 & A-7) were encountered between 7 to 10 feet and below 25 feet. A majority of the samples contained trace amounts of organics. Some of the surficial loose/soft soils were located in the agricultural fields and most likely disturbed due to farming activities.

Groundwater Properties

Generally, groundwater measurements were attempted in a majority of the borings along the project immediately upon their completion and after a stabilization period of approximately 24 hours. Six borings were backfilled immediately upon their completion. Immediately upon completion, groundwater was encountered in 26 borings at depths ranging from 1 to 9 feet, and elevations ranging from about 76.9 to 84.5 feet. Stabilized groundwater was encountered in 45 borings at depths ranging from ground surface to 9.8 feet, and elevations ranging from 76.8 to 86.4 feet. Groundwater was either not measured or not encountered in the remaining borings. The recovered soil samples were generally described as moist above the groundwater level and wet or saturated below the groundwater level. It should be noted that the groundwater levels fluctuate depending upon seasonal factors such as precipitation and temperature. As such, soil moisture and groundwater conditions at other times may vary or be different from those described in this report.

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

Sincerely,
FROEHLING & ROBERTSON, INC.

Derick Racey
Geotechnical Project Manager

W. Patrick Alton, P.E.
Transportation Services Manager

Appendix A

Undisturbed Samples

One undisturbed Shelby tube was attempted at RPB_1950L but was unable to be retrieved.

Bulk Samples

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

Sample No.	Boring No.	Line	Station	Offset	Depth (ft)	Test(s) Performed
CBR-1	L_6350L	-L-	63+50	60' Lt.	0.0 – 2.0	Standard Proctor, CBR
CBR-2	RPA_1698	-RPA-	16+98	35' Lt.	0.0 – 2.0	Standard Proctor, CBR
CBR-3	RPC_1792	-RPC-	17+92	10' Lt.	0.0 – 2.0	Standard Proctor, CBR
CBR-4	L_2200R	-L-	22+00	65' Rt.	0.0 – 2.0	Standard Proctor, CBR

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PROJECT REFERENCE NO.	SHEET NO.
R-5797	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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ROY IVEY
JOHN K. BENTON
DONNIE M. WILLIAMSON
LOUISE LAWSON
MARY IVEY, ET AL
RUSSELL D. TURBEVILLE
TOWN OF BOARDMAN
DukeNet Communications LLC
AT&T Corp.

SR 1574 OLD US 74
8" TOWN OF BOARDMAN
6" HDPE
72" CHL & 35BW
48" WW & ISBW
10" CONC HW
30" RCP
12" CONC WW
TYPE B-77
CONC BRIDGE DECK
CONC CURB
TEL CABINETS
LIFT STATION
PWR. METER
BYI-156
BL-102
BL-103
BMP
CAT-1
INV=76.36'
EXISTING R/W
WOODS
GRASS
R/W VARIES
MCNC
MTL
GREU TL-3
US 74 WEST
US 74 EAST

COASTAL PLAIN
ALLUVIAL
ROADWAY EMBANKMENT

L_1600L
L_1900L
L_2200L
L_2500L
L_1600R
L_1900R
L_2200R
L_2500R

BEGIN PROJECT R-5797
-L- POT STA. 14+88.04

MATCHLINE -L- STA.26+00.00 SEE SHEET 5

GRAPHIC SCALE
50 25 0 50 100
PLANS

REVISIONS
8/17/99

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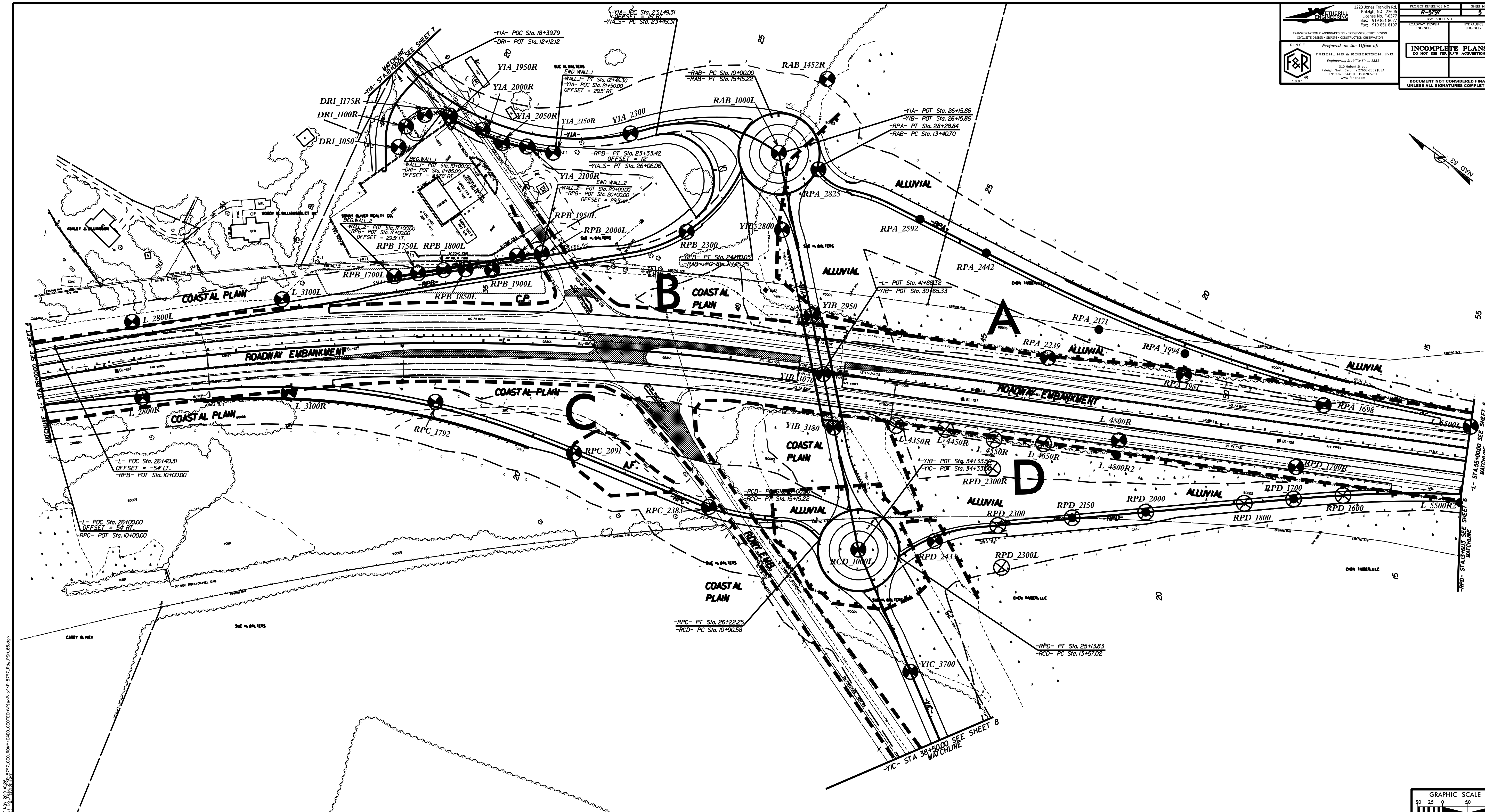
TWalker AT ROD26102



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PROJECT REFERENCE NO.	SHEET NO.
R-5797	5
R/W SHEET NO.	
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PROJECT REFERENCE NO.	SHEET NO.
R-5797	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS 8/17/99

CHEN TIMBER, LLC

55 60 65

EXISTING R/W

-L- POT Sta. 59+00.00
OFFSET = 54' LT.
-RPA- POT Sta. 10+00.00

WOODS ALLUVIAL WOODS

-RPA-

L_5500L L_5800L L_6100L L_6400L

US 74 WEST

CABLE GRASS DI CONC BL-109 DI CONC ROADWAY EMBANKMENT BL-110 R/W VARIES CABLE DI CONC BM3 GRASS

R-5797 GPS-6

L_5500R -RPD- L_5800R US 74 EAST

15" RCP 15" RCP MITL MITL 15" RCP GREU TL-3

L_5800R2 L_6100R ALLUVIAL L_6350R WOODS WOODS

-RPD- STA.13+61.3 SEE SHEET 5 MATCHLINE

-L- STA.55+00.00 SEE SHEET 5 MATCHLINE

EXISTING R/W EXISTING R/W EXISTING R/W

-L- PT Sta.58+60.65
OFFSET = 54' RT.
-RPD- ST Sta. 10+00.00

CHEN TIMBER, LLC

END PROJECT R-5797
-L- POT STA. 68+00.00

GRAPHIC SCALE
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PLANS

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PROJECT REFERENCE NO.	SHEET NO.
R-5797	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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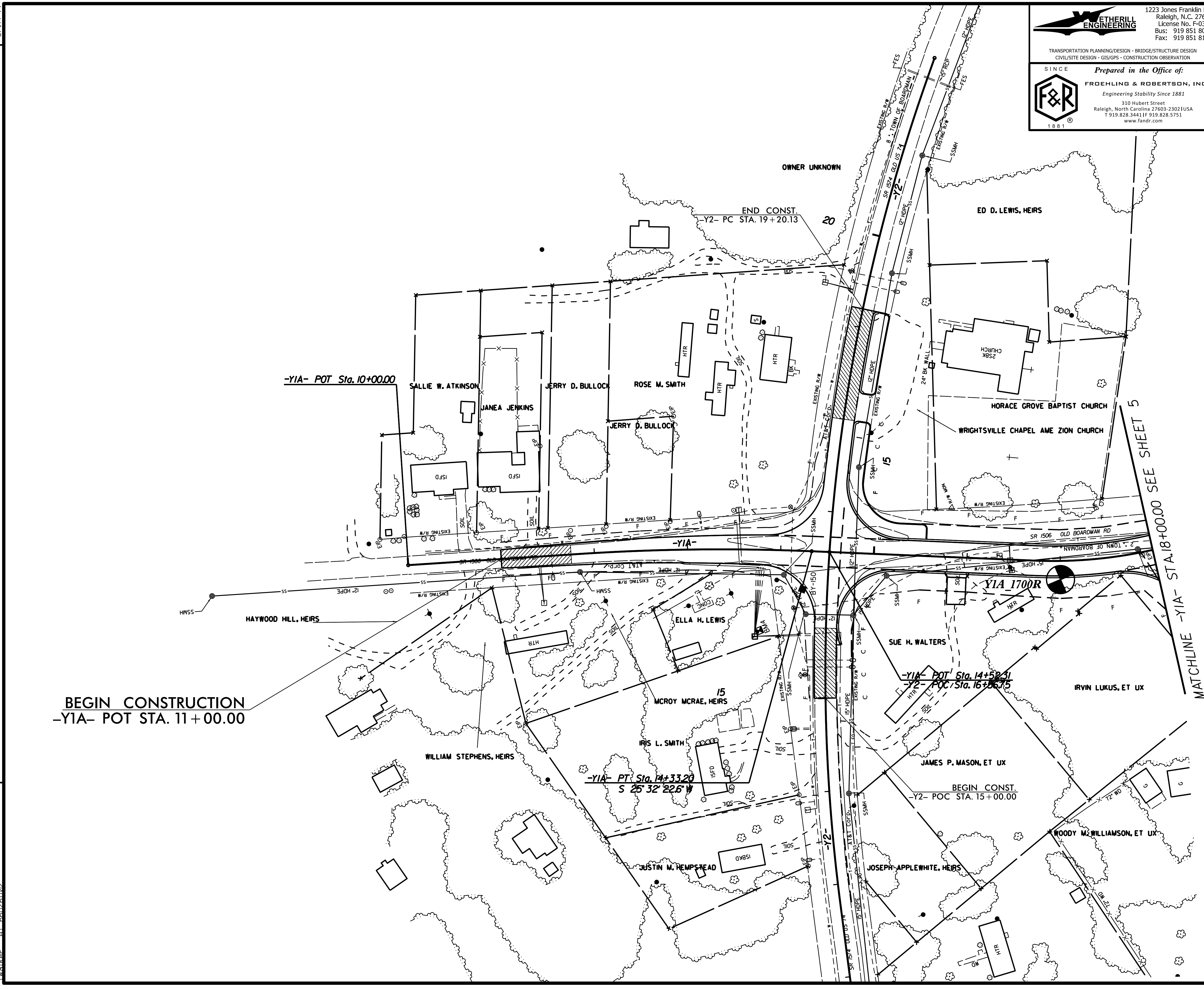

INCIDENTAL MILLING

PAVEMENT REMOVAL

GRAPHIC SCALE
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PLANS

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PROJECT REFERENCE NO.	SHEET NO.
R-5797	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-YIC- STA 38+50.00 SEE SHEET 5

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CHEN TIMBER, LLC

SUE H. WALTERS

SUE H. WALTERS

LOUISE LAWSON

LOUISE LAWSON

RICHARD W. INMAN

JAG & ASSOCIATES, LLC

YIC_4000

YIC_4300

-YIC-

ROADWAY EMBANKMENT

COASTAL PLAIN

COASTAL PLAIN

WOODS

WOODS

WOODS

EXISTING R/W

EXISTING R/W

EXISTING R/W

EXISTING R/W

24" RCP

24" RCP

BY-154

AT&T Corp.

SR 1506 MACEDONIA CHURCH RD

SOIL

SOIL

SOIL

ISRD

S

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END CONSTRUCTION
-Y1C- POT STA. 46+86.00

INCIDENTAL MILLING

GRAPHIC SCALE
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PLANS

REVISIONS

8/17/99

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kwalker at 66026102

140 120 100 80 60 40 20 0 20 40 60 80

90 80 70

4:1 6:27.1 8:1 3:1

Roadway Embankment: Very Loose to Loose, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

Ground Surface

Coastal Plain:

Very Loose to Medium Dense, Moist to Wet, Dark Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel

(DUPLIN FORMATION)

17+00.00

4:1 6:28.1 8:1 3:1

Roadway Embankment: Very Loose to Loose, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

Ground Surface

Coastal Plain:

Very Loose to Medium Dense, Moist to Wet, Dark Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel

(DUPLIN FORMATION)

16+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-1	60' LT	16+00	0.3-1.5	-	-	-	-	-	-	-	-	-	6.9	11.5	1.1

(A) **Alluvial:** Very Loose, Saturated, Gray-Brown, MUCK

SS-1

L_1600L

4:1 8:1

Roadway Embankment:

Very Loose to Loose, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

Coastal Plain:

Very Loose to Medium Dense, Moist to Wet, Dark Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel

(DUPLIN FORMATION)

5 1 23 BT 08/18

L_1600R

3:1

2 15 8 34 26 SRT 01/19 1 6 16 21 60

Ground Surface

Note:
Hand auger terminated at 1.3' due to borehole cave in

16+00.00

4:1 7.29:1 8:1 9.98:1

Roadway Embankment:

Very Loose to Loose, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

Coastal Plain:

Very Loose to Medium Dense, Moist to Wet, Dark Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel

(DUPLIN FORMATION)

Ground Surface

15+50.00

-L-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

PROJ. REFERENCE NO.	SHEET NO.
R-5797	10

0 5 10

140 120 100 80 60 40 20 0 20 40 60 80

100 90 80 70 60

Ⓐ **Alluvial:** Very Loose, Saturated, Gray-Brown, MUCK

L_1900L

Ground Surface

Roadway Embankment: Loose to Medium Dense, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

Coastal Plain: Medium Dense, Moist, Gray, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

4:1 5.87:1 8:1 3:1

8 19 13 BT DRY CAVE @ 7.1'

L_1900R

Water Surface 01/19

5 19 22 38 65 1 3 28 31 63 SRT

Note: No sample retrieved due to standing water

19+00.00

4:1 6.29:1 8:1 3:1

Roadway Embankment: Loose to Medium Dense, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

Coastal Plain: Medium Dense, Moist, Gray, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

Ground Surface

18+50.00

4:1 6.45:1 8:1 3:1

Roadway Embankment: Loose to Medium Dense, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

Coastal Plain: Very Loose to Medium Dense, Moist to Wet, Dark Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel (DUPLIN FORMATION)

Ground Surface

18+00.00

4:1 6.44:1 8:1 3:1

Roadway Embankment: Loose to Medium Dense, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

Coastal Plain: Very Loose to Medium Dense, Moist to Wet, Dark Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel (DUPLIN FORMATION)

Ground Surface

17+50.00

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

-L-

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

07-NOV-2019 10:58
File: Project No. 66566V-0246 (WEI-R-5797 Columbus Co Task 2\VR-5797_GEO_RDWY\CADD_GEOTECH\xsc\VR-5797_geo_xsLL.dgn
User: AT 6602611109
DRacey

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	11

140 120 100 80 60 40 20 0 20 40 60 80

Ⓐ **Alluvial:** *Very Loose, Saturated, Gray-Brown, MUCK*

90 / 80 / 70

4:1 — 4.74:1 — 8:1 — 3:1

Roadway Embankment: *Loose to Medium Dense, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4)*

Coastal Plain:
Medium Dense, Moist, Gray, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

Ground Surface Ⓐ

20+50.00

90 / 80 / 70

4:1 — 5.06:1 — 8:1 — 3:1

Ground Surface

Roadway Embankment: *Loose to Medium Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4)*

Coastal Plain:
Medium Dense, Moist, Gray, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

Ⓐ

20+00.00

90 / 80 / 70

4:1 — 5.43:1 — 8:1 — 3:1

Roadway Embankment: *Loose to Medium Dense, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4)*

Coastal Plain:
Medium Dense, Moist, Gray, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

Ground Surface Ⓐ

19+50.00

—L—

GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

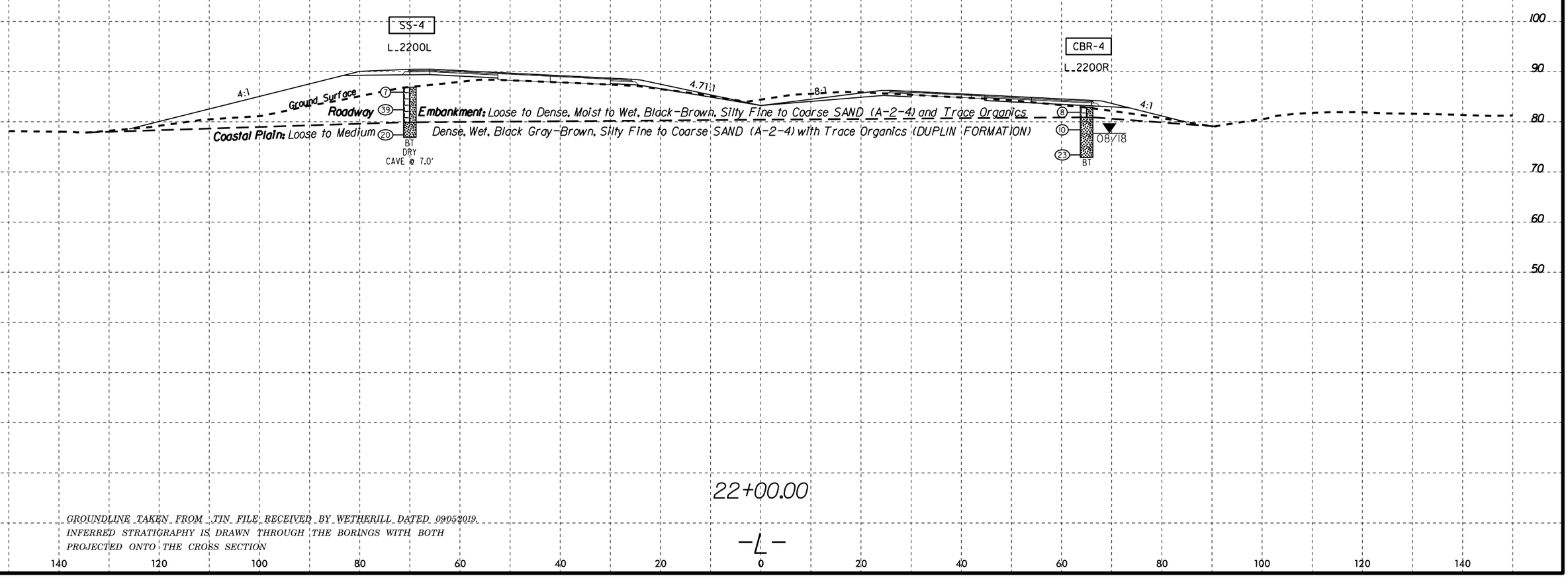
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	12

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-4	70' LT	22+00	0.1-1.5	-	-	-	-	-	-	-	-	-	3.8	6.9	0.8
CBR-4	65' LT	22+00	0.0-2.0	A-2-4(0)	NP	NP	77.7	10.5	2.9	8.9	99.9	52.4	12.5	13.9	-



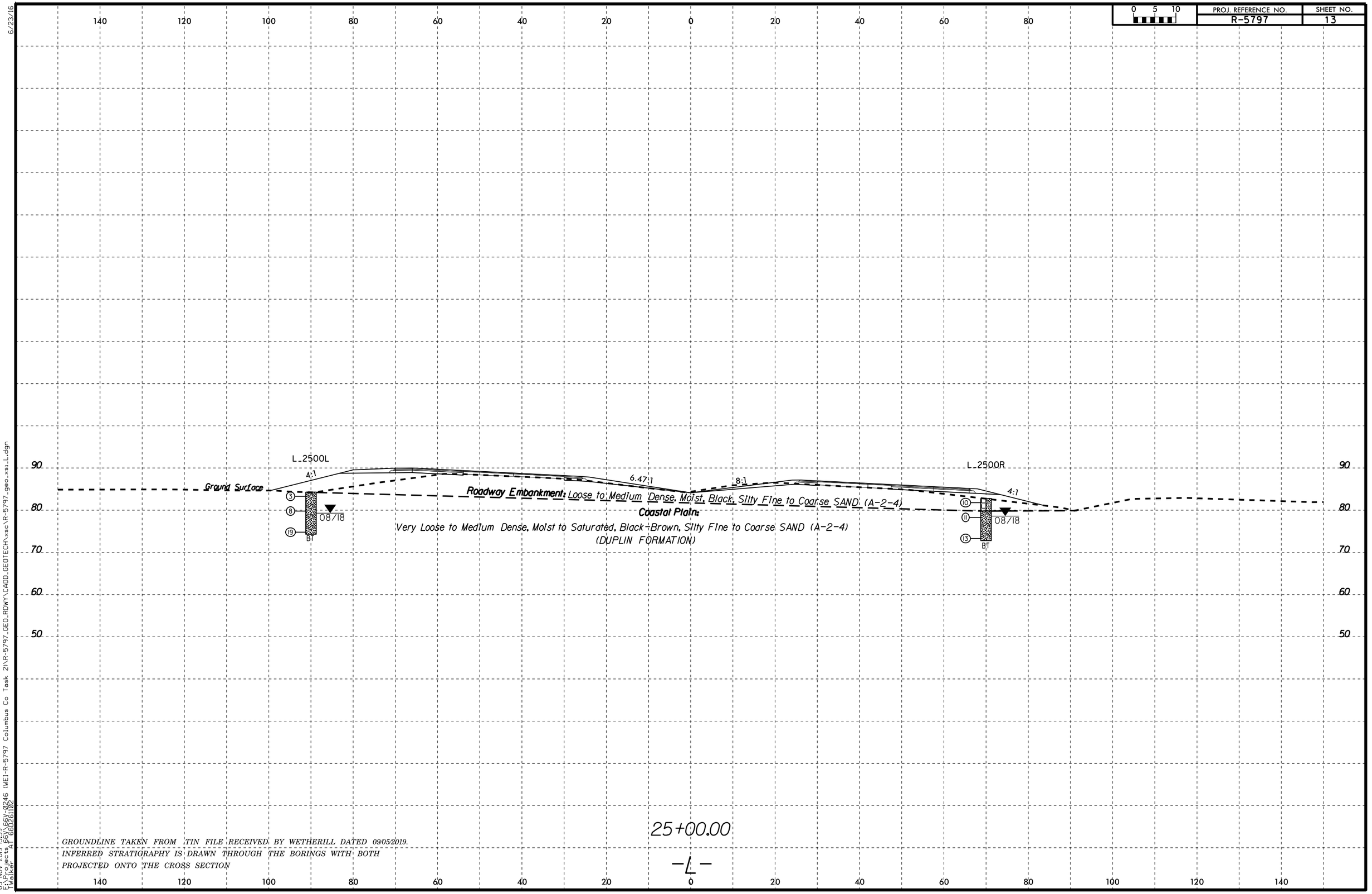
22+00.00

—L—

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

07-NOV-2019 15:20
F:\Projects\66V-0246 (WEI-R-5797 Columbus Co Task 2\VR-5797_GEO_RDWY\CADD_GEOTECH\xsc\VR-5797_geo_xsLL.dgn
DRacey at "6602611109"

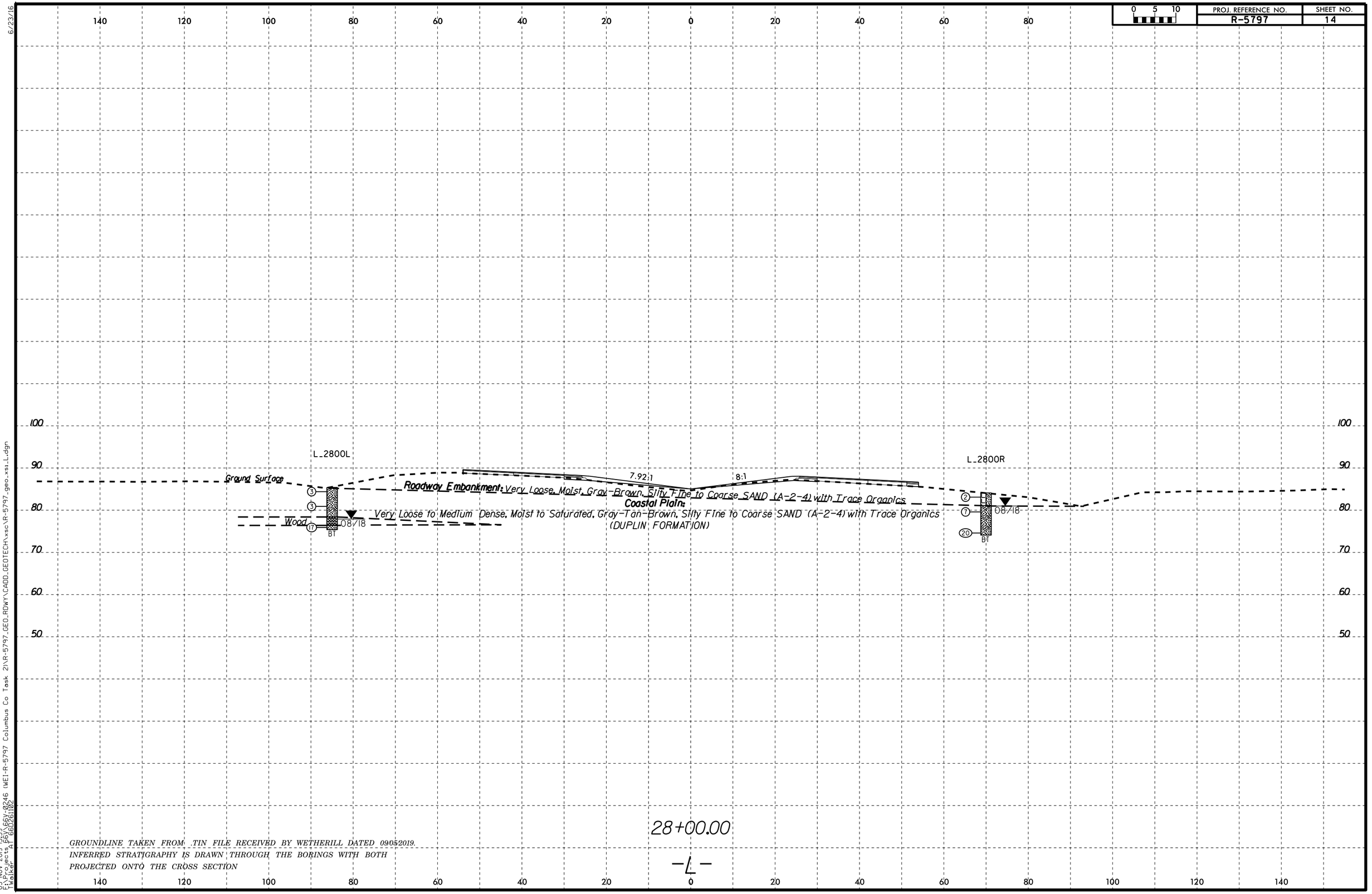
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	13



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5797	14

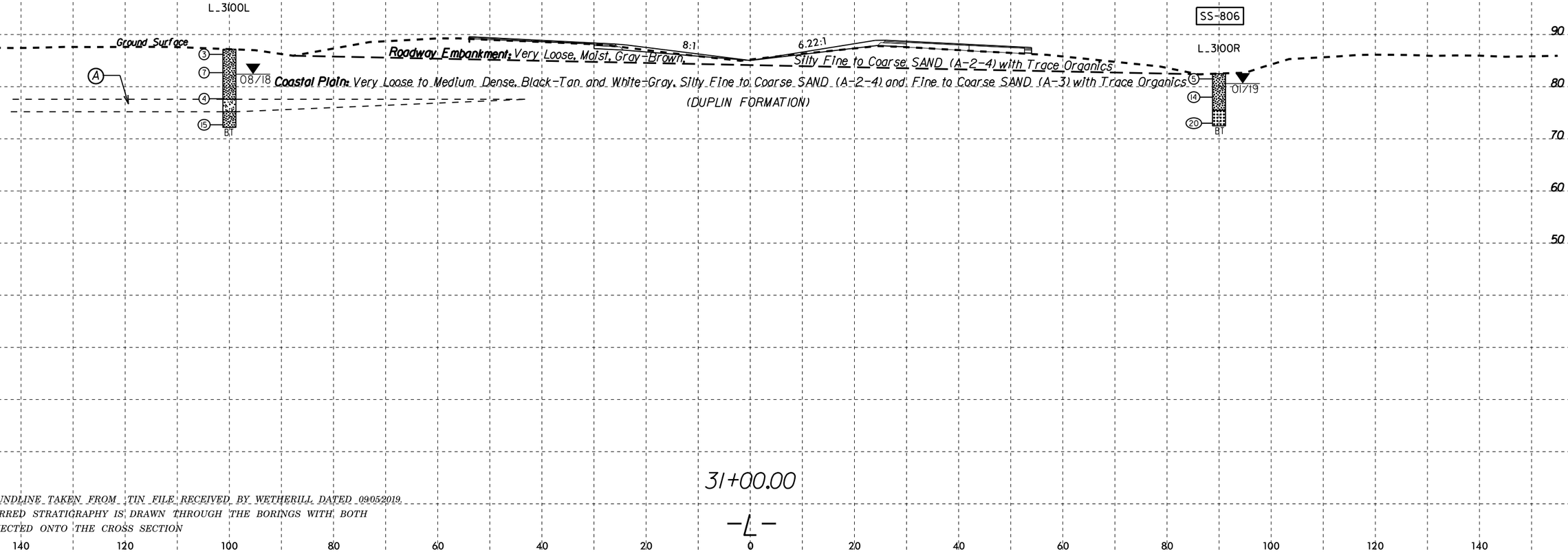


GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-806	90' RT	31+00	0.0-1.5	A-2-4	-	-	-	-	-	-	-	-	7.9	19.4	1.2

Ⓐ **Coastal Plain:** Soft to Medium Stiff, Wet, Black, Silty Fine Sandy Clayey SILT (A-5) (DUPLIN FORMATION)

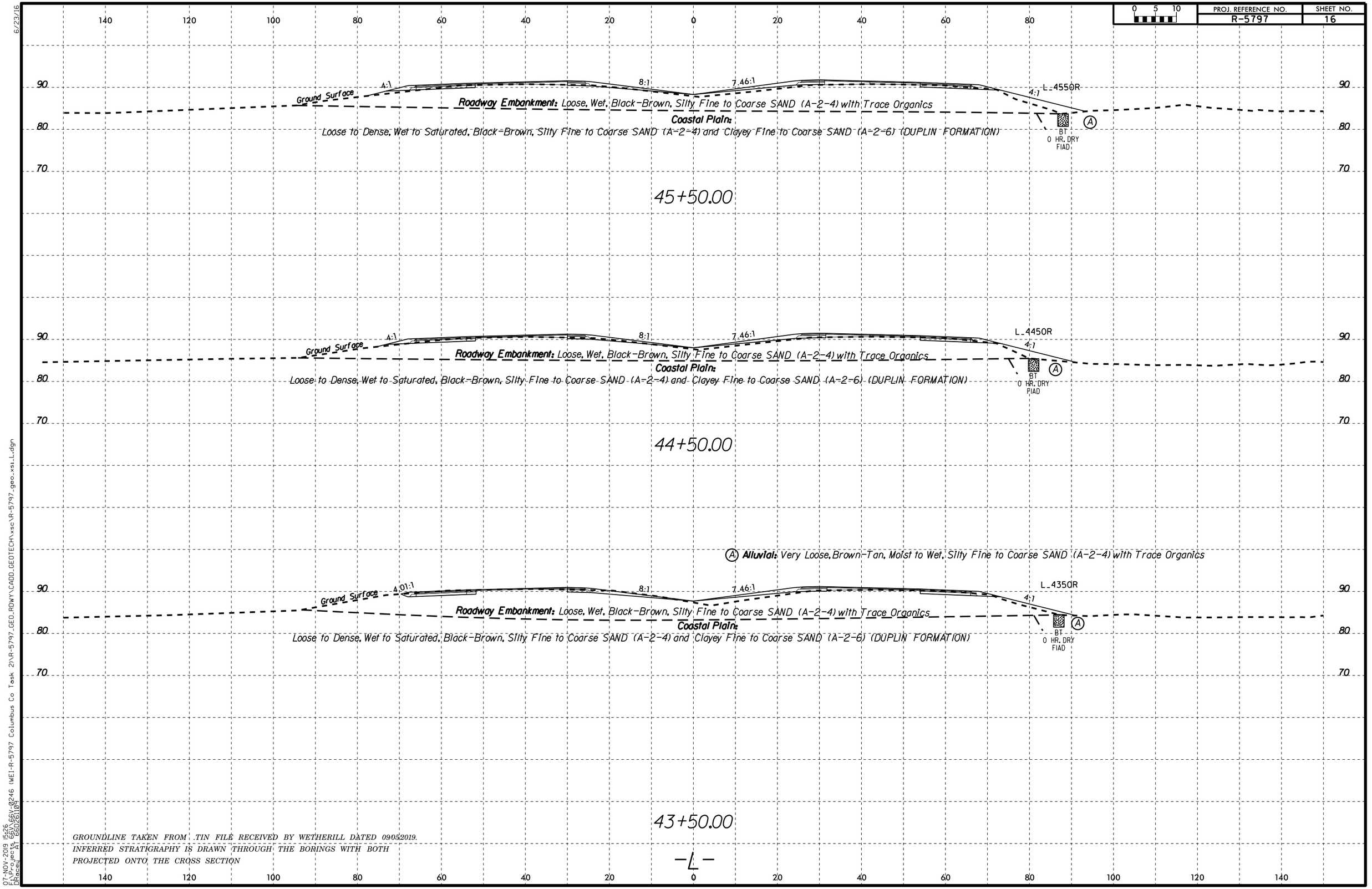


31+00.00

-L-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	16



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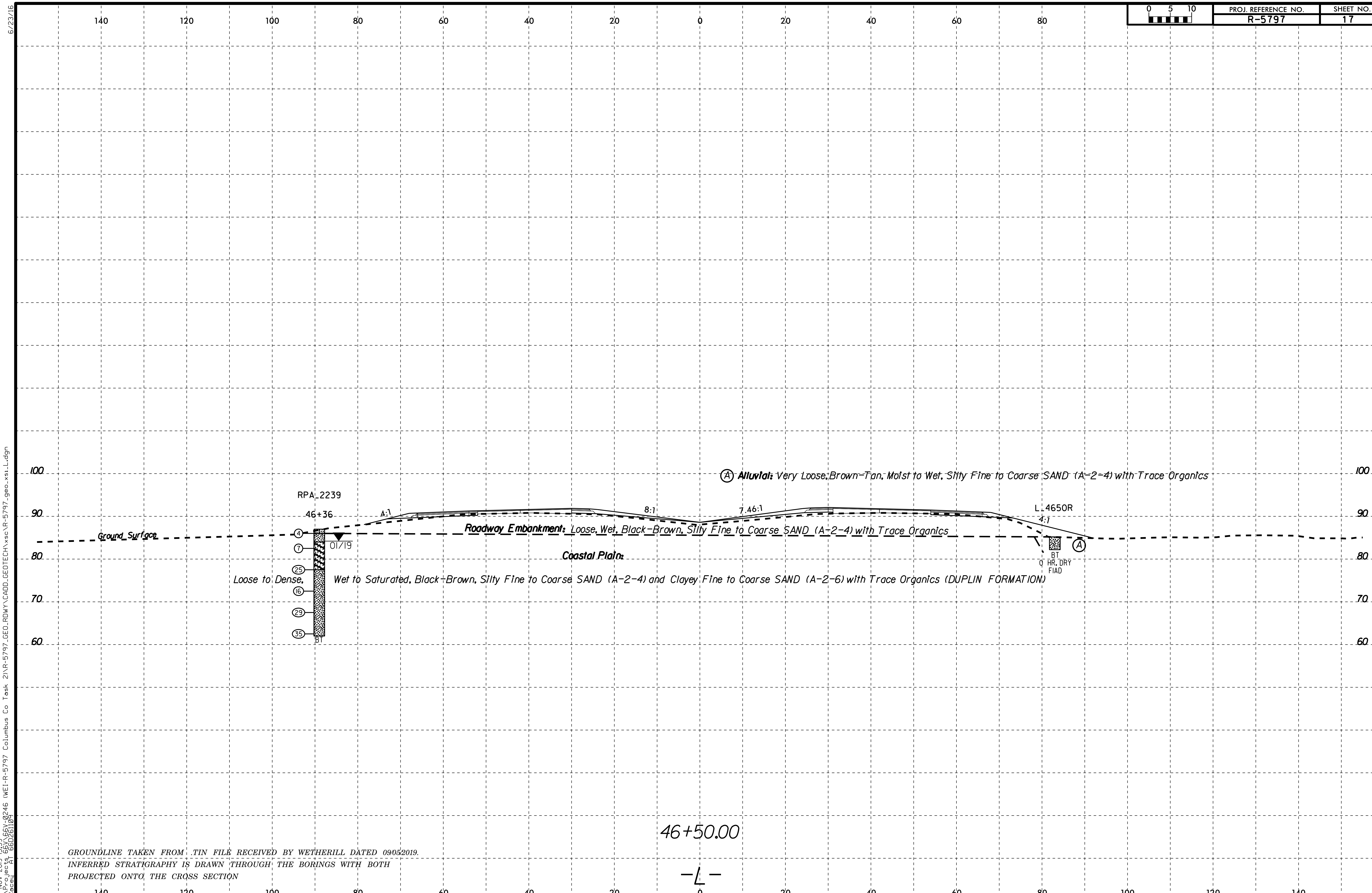
DRocel_AT_66D261109

PROJ. REFERENCE NO.	SHEET NO.
R-5797	17

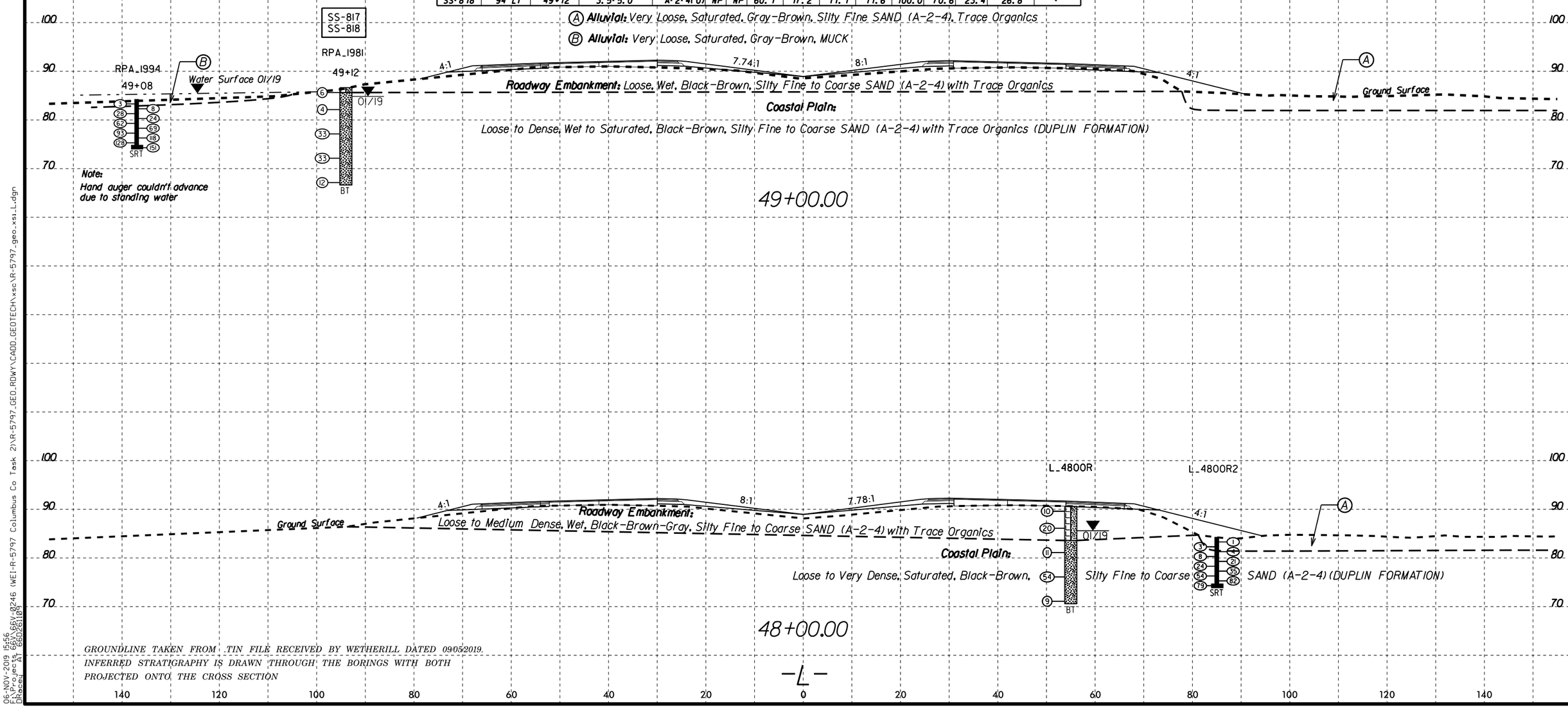


GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09/05/2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

6/23/16
07-NOV-2019 15:39
F:\Projects 66V\66V-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xsi_L.dgn

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-817	94' LT	49+12	0.2-1.5	A-2-4	-	-	-	-	-	-	-	-	6.5	13.7	0.8
SS-818	94' LT	49+12	3.5-5.0	A-2-4(0)	NP	NP	60.1	17.2	11.1	11.6	100.0	70.6	23.4	26.8	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09/05/2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

PROJ. REFERENCE NO.	SHEET NO.
R-5797	19

0 5 10

140 120 100 80 60 40 20 0 20 40 60 80

100 90 80 70 60

RPA_1698
52+00

A:1 8:1 7.31:1 8:1 4.02:1

RPD_16+58.80

Ground Surface

Roadway Embankment: Loose, Moist, Brown-Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Organics

Coastal Plain:

Loose, Wet, Dark Brown to Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Organics (DUPLIN FORMATION)

08/18

52+00.00

Ⓐ Alluvial: Very Loose, Saturated, Black, MUCK

RPD_17+08.37

RPD_1700R
51+62

RPD_1700
51+66

4:1 7.04:1 8:1 4:1

Ground Surface

Roadway Embankment: Loose to Medium Dense, Wet, Brown-Gray, Silty Fine SAND (A-2-4) with Trace Organics

Coastal Plain:

Loose to Medium Dense, Wet to Saturated, (DUPLIN FORMATION) Black-Brown, Silty Fine to Coarse SAND (A-2-4)

Stiff to Very Stiff, Wet, Brown, Fine Sandy CLAY (A-6) with Trace Gravel

Medium Dense, Saturated, Brown-Gray, Silty Fine to Coarse SAND (A-2-4)

01/19

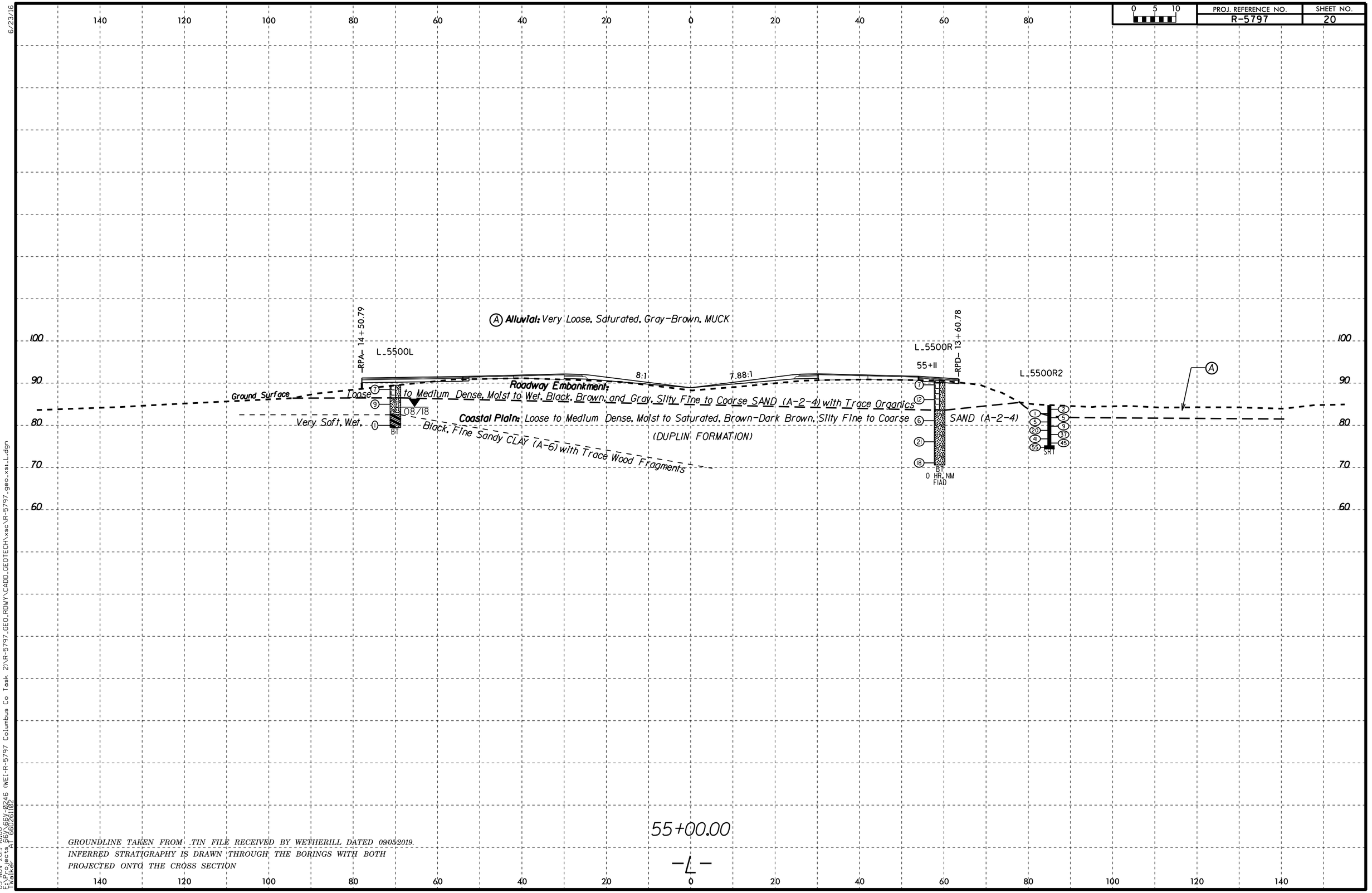
SRT

Note:
Hand auger terminated @ 3.3'.
0 hour water dry, boring FIAD.

51+50.00

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140



PROJ. REFERENCE NO.	SHEET NO.
R-5797	21

0 5 10

140 120 100 80 60 40 20 0 20 40 60 80

90
80

Ⓐ

Ground Surface

4:1

7.65:1

8:1

4:1

Ⓐ

Roadway Embankment: *Very Loose to Loose, Moist to Wet, Black-Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel*

Coastal Plain:
Very Loose to Medium Dense, Moist to Saturated, Gray-Brown, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coarse SAND (A-2-6) with Trace Organics (DUPLIN FORMATION)

59+50.00

90
80

Ⓐ

Ground Surface

4:1

7.66:1

8:1

4:1

Ⓐ

Roadway Embankment: *Very Loose to Loose, Moist to Wet, Black-Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel*

Coastal Plain:
Very Loose to Medium Dense, Moist to Saturated, Gray-Brown, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coarse SAND (A-2-6) with Trace Organics (DUPLIN FORMATION)

59+00.00

100
90
80

RPA- 10+49.81

Ground Surface

7.67:1

8:1

4:1

Ⓐ

Roadway Embankment: *Very Loose to Loose, Moist to Wet, Black-Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel*

Coastal Plain:
Very Loose to Medium Dense, Moist to Saturated, Gray-Brown, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coarse SAND (A-2-6) with Trace Organics (DUPLIN FORMATION)

58+50.00

100
90
80
70
60

RPA- 10+99.94

Ⓐ **Alluvial:** *Very Loose, Saturated, Gray-Brown, MUCK*

L-5800L

7.70:1

8:1

RPD- 10+60.34

L-5800R
58+06

L-5800R2

Ⓐ

Ground Surface

Roadway Embankment:
Very Loose to Loose, Moist to Wet, Black-Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Gravel
Medium Dense, Moist to Saturated, Gray-Brown, Silty Fine to Coarse SAND (A-2-4) and Clayey SAND (A-2-6) with Trace Organics (DUPLIN FORMATION)

Coastal Plain: *Very Loose to Soft to Medium Stiff, Moist, Black, Fine Sandy CLAY (A-6) with Trace Wood Fragments*

Fine to Coarse

6 8 4 — 08/18 — BT

7 8 3 16 26 — BT — 0 HR. NM — FIAD

1 1 2 5 52 33 — 1 4 6 27 33 — SRT

58+00.00

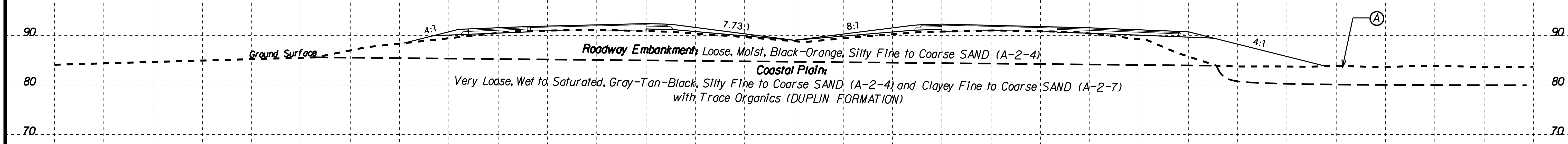
GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

—L—

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

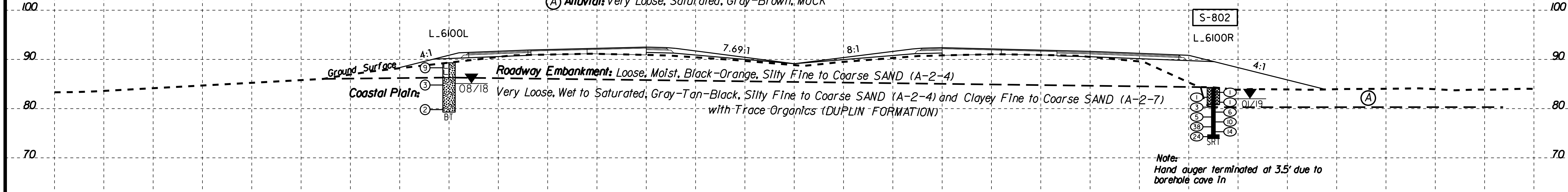
05-NOV-2019 16:01
F:\Projects\66\66V\66V-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xs1_L.dgn
T.Walker
AT 6602611102



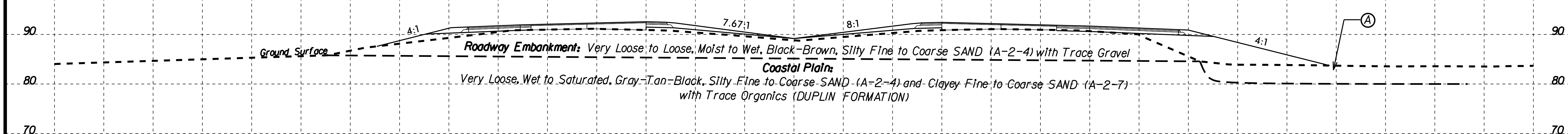
61+50.00

SOIL TEST RESULTS																
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-802	85' RT	61+00	1.0-3.5	A-2-7	45	16	-	-	-	-	-	-	34.4	33.5	-

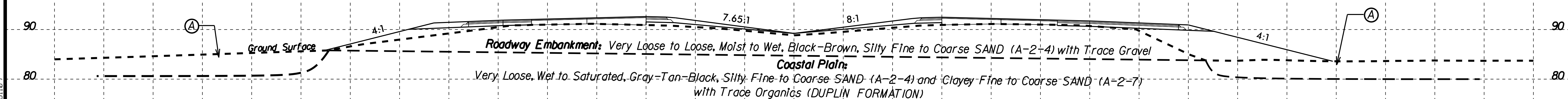
(A) **Alluvial:** Very Loose, Saturated, Gray-Brown, MUCK



61+00.00



60+50.00

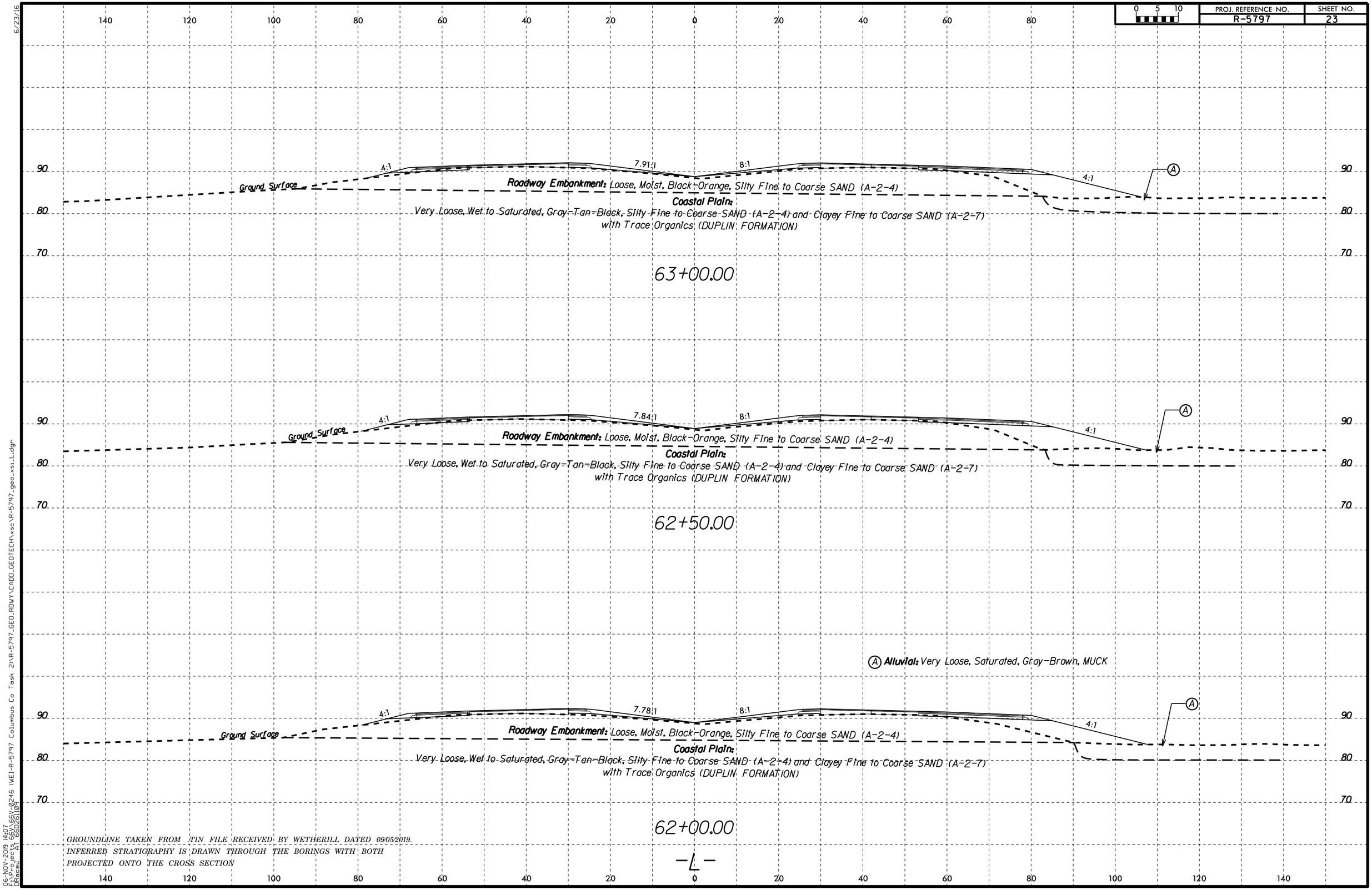


60+00.00

-L-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09/05/2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	23



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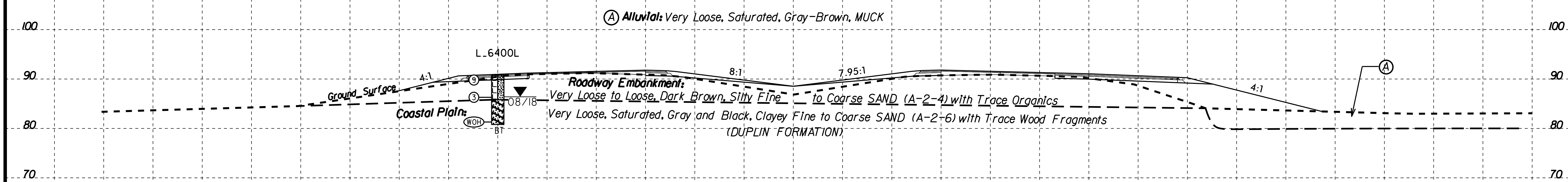
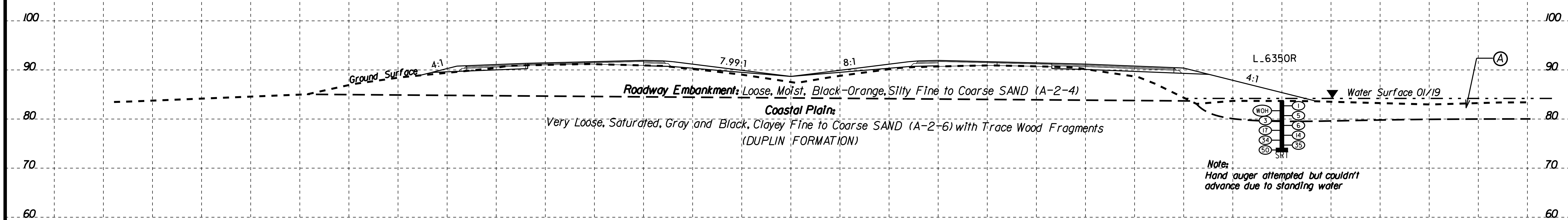
ES Project 60166V-0246 (WEI-R-5797 Columbus Co Task 2\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xsLL.dgn
DRacey



64+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
CBR-4	65' LT	22+00	0.0-2.0	(A-2-4)	NP	NP	77.7	10.5	2.9	8.9	99.9	52.4	12.5	13.9	-



63+50.00

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

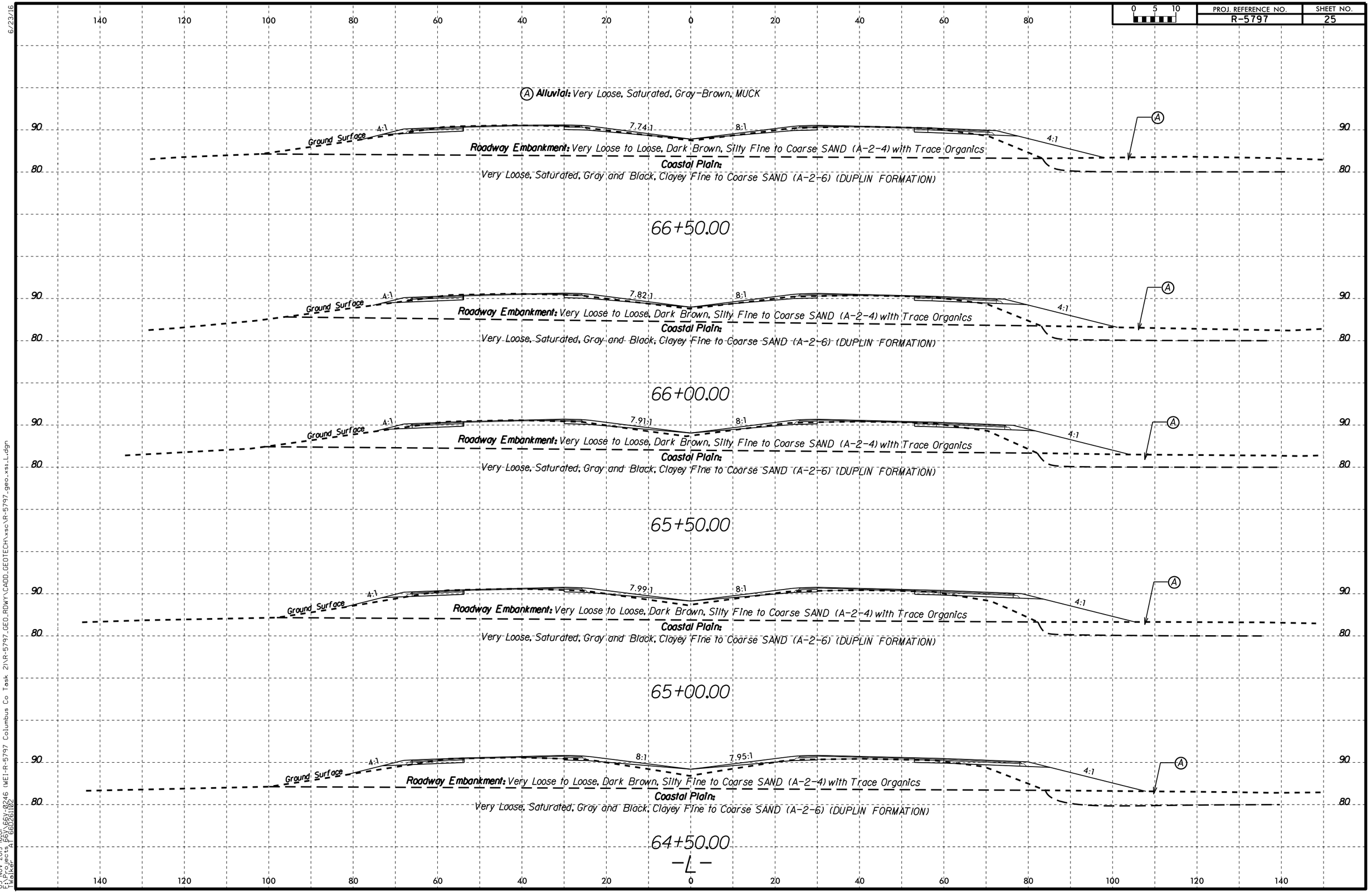
-L-

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

PROJ. REFERENCE NO.	SHEET NO.
R-5797	25

0 5 10

140 120 100 80 60 40 20 0 20 40 60 80



05-NOV-2019 16:01
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Walker
AT 66026102

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	26

140 120 100 80 60 40 20 0 20 40 60 80

Ⓐ **Alluvial:** *Very Loose, Saturated, Gray-Brown, MUCK*

90 / 80 / 70

Ground Surface — 4:1 — 7.50:1 — 8:1 — Ⓐ

Roadway Embankment: *Very Loose to Loose, Dark Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Organics*

Coastal Plain:

Very Loose, Saturated, Gray and Black, Clayey Fine to Coarse SAND (A-2-6) (DUPLIN FORMATION)

68+00.00

90 / 80 / 70

Ground Surface — 4:1 — 7.58:1 — 8:1 — 4:1 — Ⓐ

Roadway Embankment: *Very Loose to Loose, Dark Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Organics*

Coastal Plain:

Very Loose, Saturated, Gray and Black, Clayey Fine to Coarse SAND (A-2-6) (DUPLIN FORMATION)

67+50.00

90 / 80 / 70

Ground Surface — 4:1 — 7.66:1 — 8:1 — 4:1 — Ⓐ

Roadway Embankment: *Very Loose to Loose, Dark Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Organics*

Coastal Plain:

Very Loose, Saturated, Gray and Black, Clayey Fine to Coarse SAND (A-2-6) (DUPLIN FORMATION)

67+00.00

-L-

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

05-NOV-2019 16:01
F:\Projects_66\66V_0246 (WE1-R-5797 Columbus Co Task 2)\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xsL_L.dgn
F. Walker AT 6602611002

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	27

140 120 100 80 60 40 20 0 20 40 60 80

110
100
90
80
70

YIA_1700R

3:1 3:1 3:1 4:1

Ground Surface

Coastal Plain:

Very Loose to Dense, Moist to Wet, Black and Tan, Silty Fine to Coarse SAND (A-2-4)(DUPLIN FORMATION)

3
7
08/18
42
BT

17+00.00

-YIA-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

05-NOV-2019 16:07
F:\Projects\66\66Y-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797.GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xs1_YIA.dgn
Walker AT 66026102

PROJ. REFERENCE NO.	SHEET NO.
R-5797	28

0 5 10

140 120 100 80 60 40 20 0 20 40 60 80

110 100 90 80 70

YIA_2050R(RWI-3)

20+48

Ground Surface

3:1 4:1 3:1 3:1

12/18

Coastal Plain:

Loose to Dense, Moist to Saturated, Orange-Brown-Black, Silty Fine to Coarse SAND (A-2-4) with Trace Organics (DUPLIN FORMATION)

15 7 32 10 6 13

BT

20+50.00

YIA_2000R(RWI-2)

20+04

Ground Surface

3:1 4:1 3:1 3:1

01/19

Coastal Plain:

Loose to Medium Dense, Moist to Saturated, Tan-Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

6 8 20 16 10 19

BT

20+00.00

YIA_1950R(RWI-1)

19+35

Ground Surface

3:1 4:1 3:1 3:1

Coastal Plain:

Loose to Medium Dense, Moist to Saturated, Gray-Tan, Silty Fine to Coarse SAND (A-2-4) with Trace Organics (DUPLIN FORMATION)

10 9 24 14 15

BT
DRY
CAVE @ 2.3'

19+50.00

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

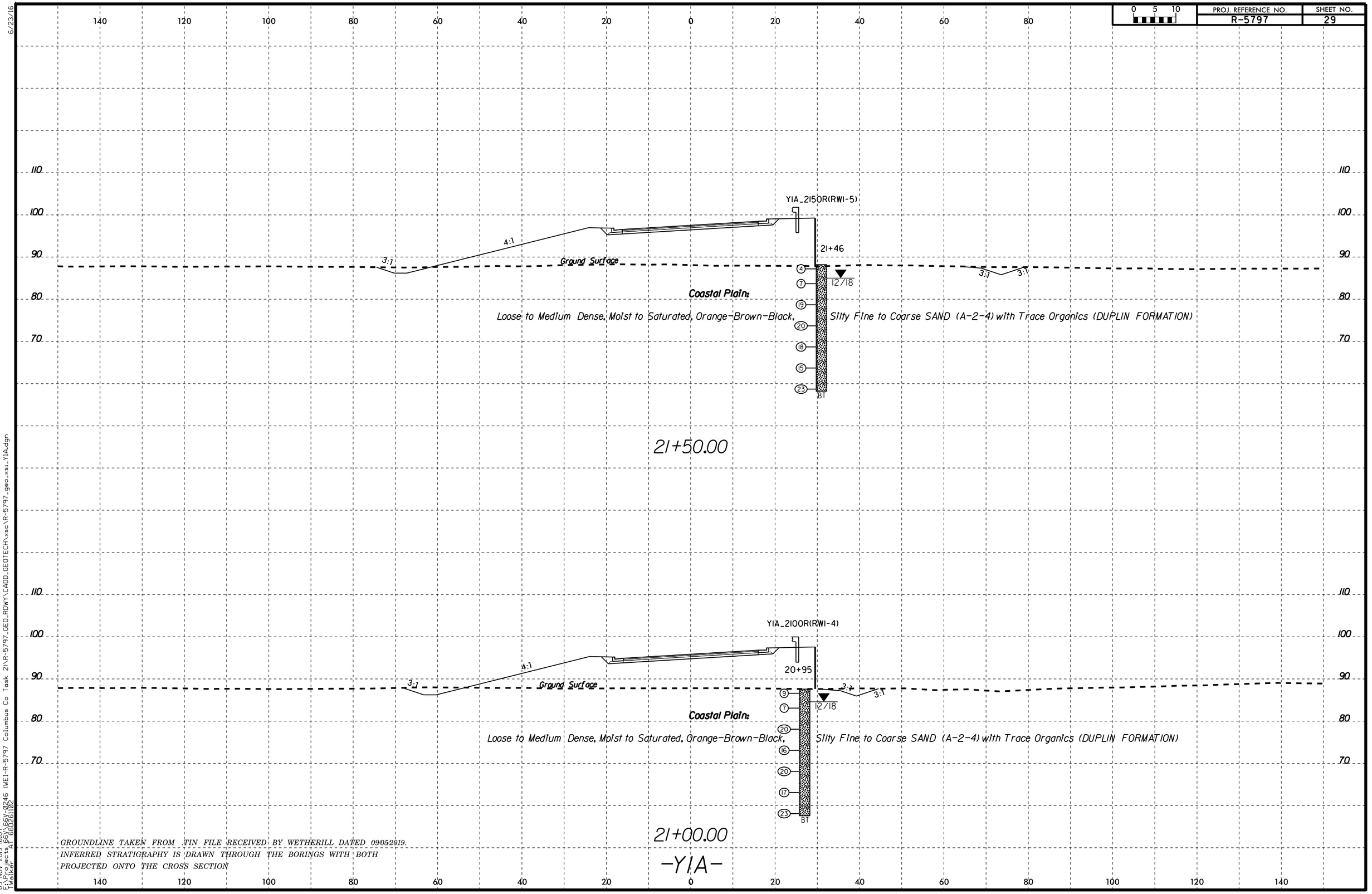
-YIA-

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

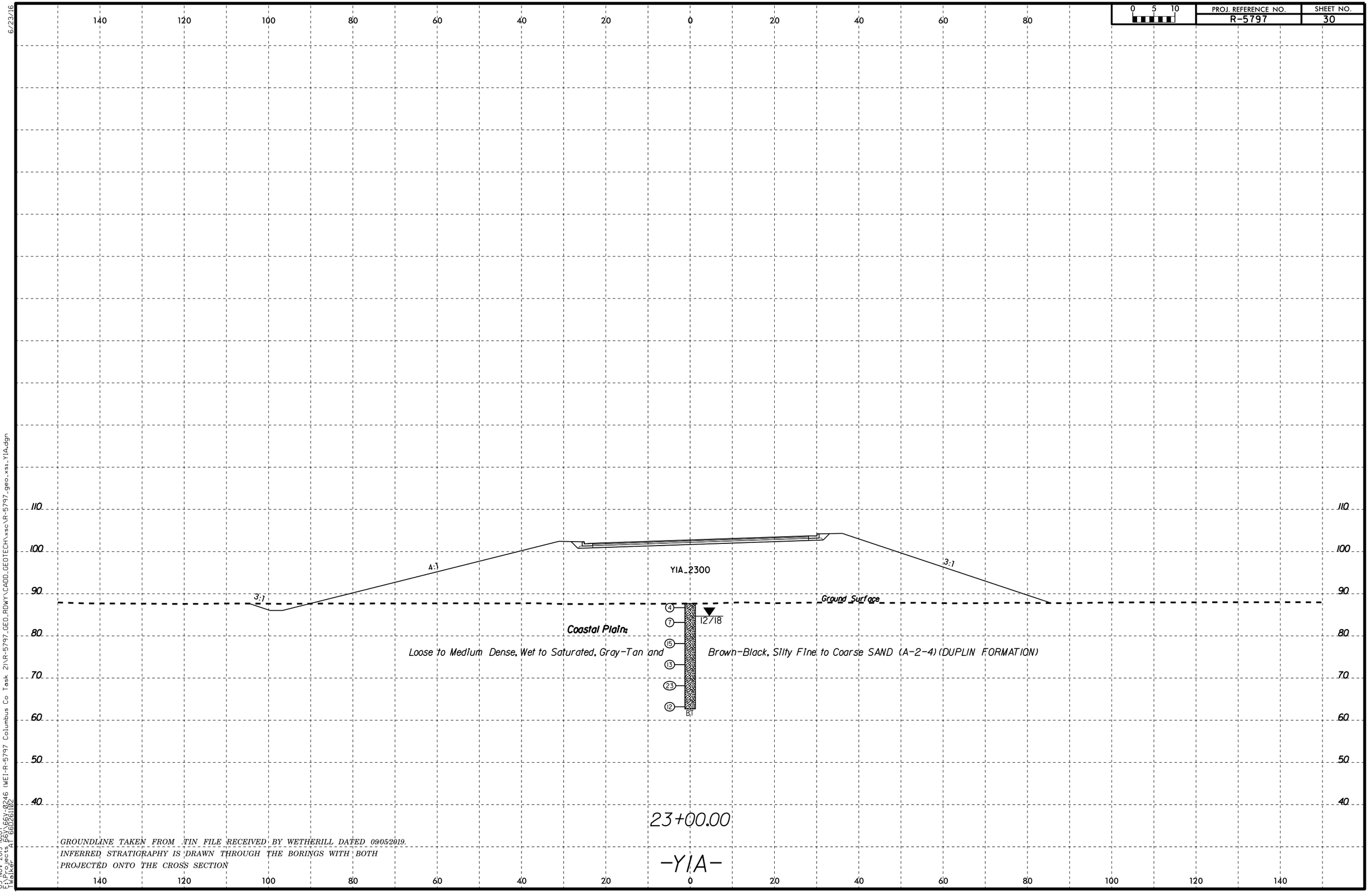
07-NOV-2019 11:45
E:\Projects\66026109\WEI-R-5797 Columbus Co Task 2\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xsl_YIA.dgn
DRacel_A1 66026109

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	29

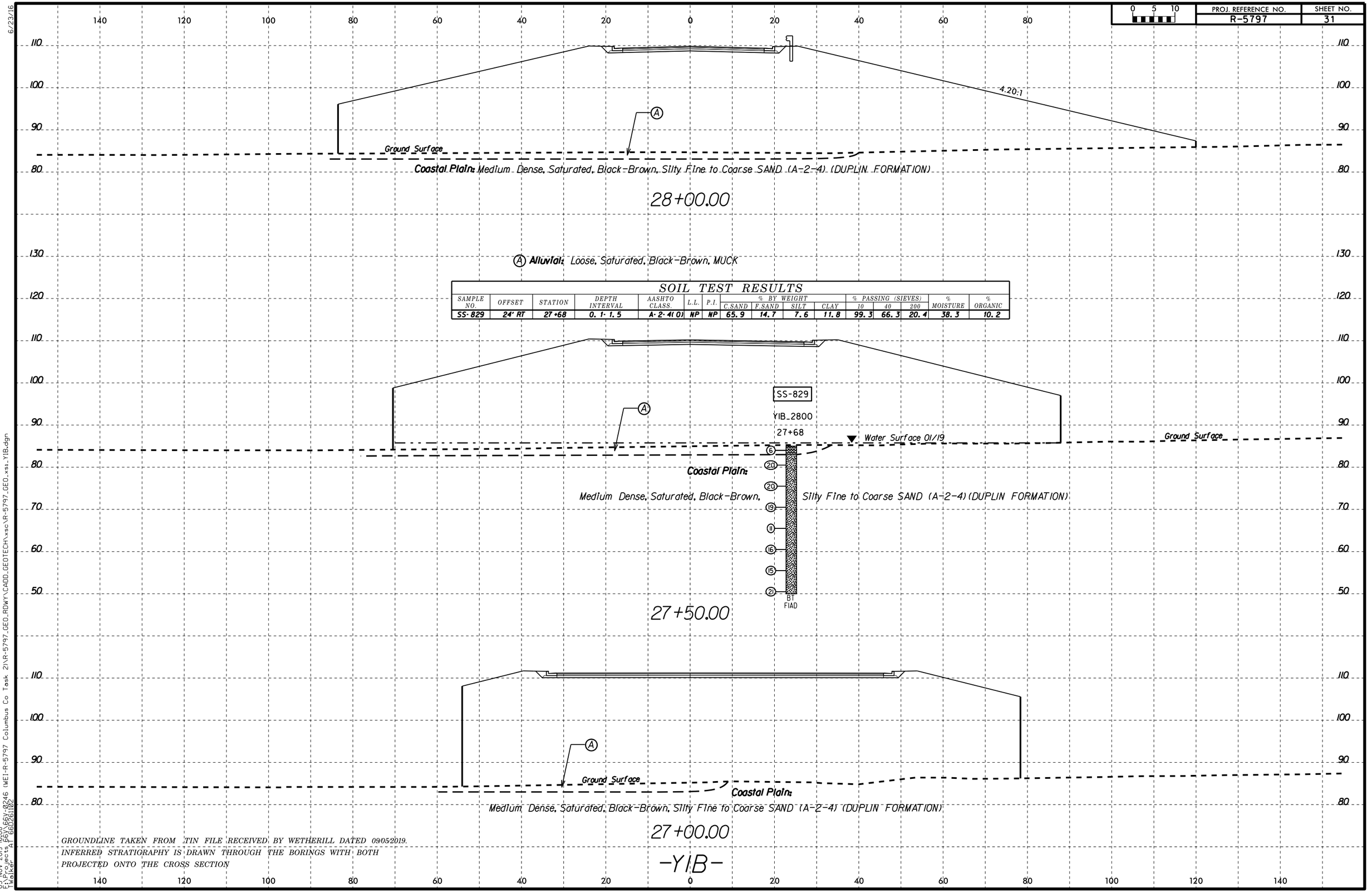


GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	30



GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-829	24' RT	27+68	0.1-1.5	A-2-4(0)	NP	NP	65.9	14.7	7.6	11.8	99.3	66.3	20.4	38.3	10.2

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	32

140 120 100 80 60 40 20 0 20 40 60 80

110
100
90
80
70

Ⓐ **Alluvial:** Loose, Saturated, Black-Brown, MUCK

4:1

Ⓐ

Ground Surface

Coastal Plain: Medium Dense, Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

29+00.00

4.62:1

4:1

Ⓐ

Ground Surface

Coastal Plain: Medium Dense, Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

28+50.00

-Y1B-

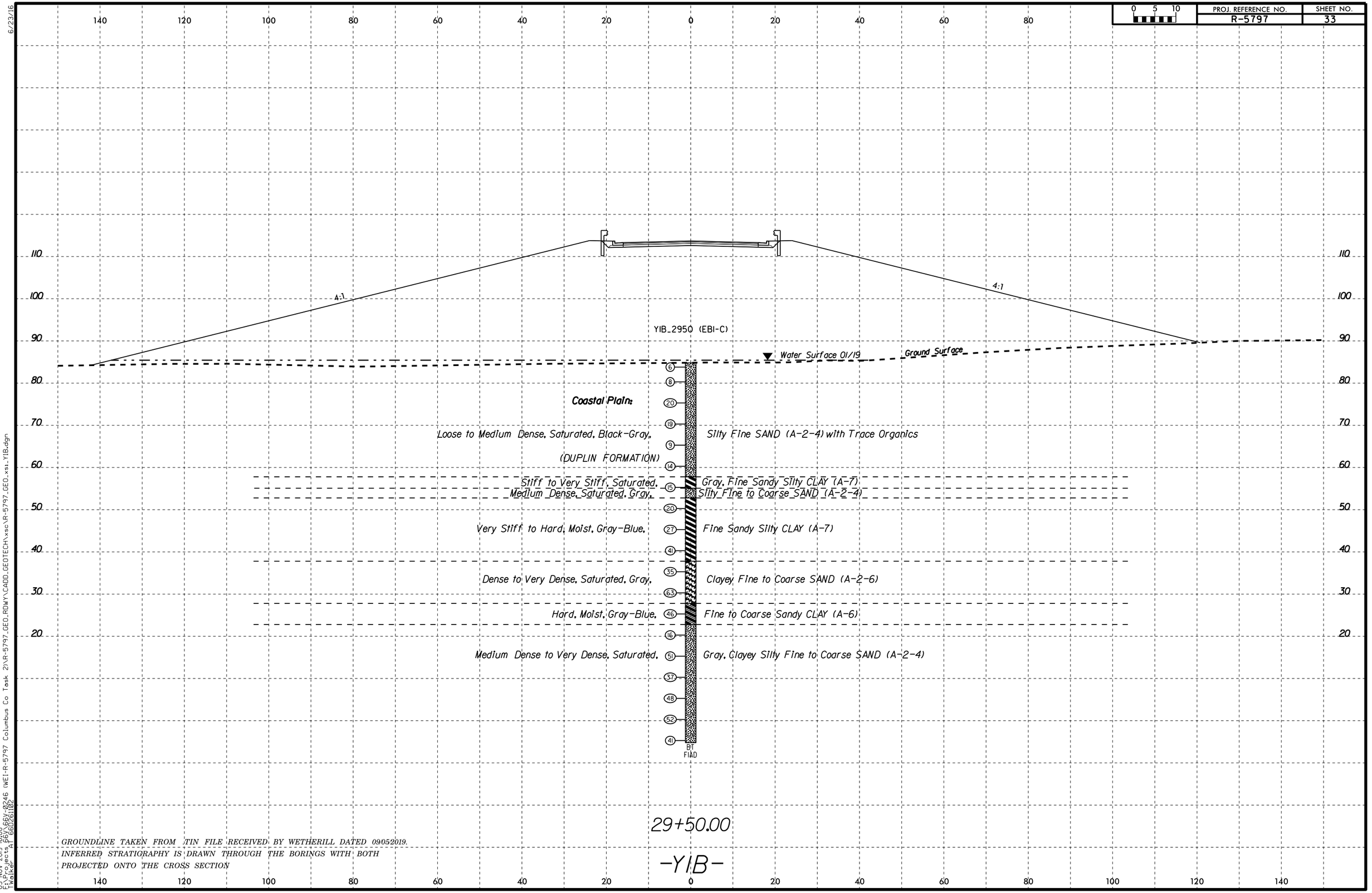
GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

05-NOV-2019 16:08
F:\Projects_66\66Y-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797.GEO.RDWY\CADD.GEOTECH\xsc\R-5797.GEO.xs1.Y1B.dgn
Walker AT 66026102

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	33



29+50.00

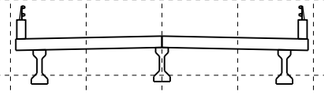
-YIB-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	34

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-714	CL	30+70	43.5-45.0	A-7-5 (7)	46	13	11.5	41.7	35.1	11.7	100.0	94.8	61.6	20.7	-



SS-714

YIB_3070

30+70

Ground Surface

Water Surface 01/19

(12) (6) (35) (13) (16) (32) (24) (10) — Loose to Dense, Wet to Saturated, — Black-Dark Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

Coastal Plain:

(19) (25) — Very Stiff, Moist to Wet, — Blue-Green, Fine Sandy Silty CLAY (A-7-5)

(33) (33) — Dense, Saturated, — Blue-Green, Clayey Fine to Coarse SAND (A-2-6)

(17) (20) — Very Stiff, Saturated, — Blue-Green, Fine Sandy Silty CLAY (A-7-5)

(31) (41) (40) — Dense, Saturated, Blue-Green, Clayey Fine to Coarse — SAND (A-2-6) and Silty Fine to Coarse SAND (A-2-4)

(25) — Very Stiff, Saturated, — Brown-Gray, Silty CLAY (A-7)

(54) — Very Dense, Saturated, — Blue-Green, Clayey Silty Fine to Coarse SAND (A-2-4)

BT FIAD

30+50.00

-YIB

GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

05-NOV-2019 16:08
F:\Projects\66V\0246 (WEI-R-5797 Columbus Co Task 2\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_GEO_xsl_YIB.dgn
Walker, AT 6626161002

PROJ. REFERENCE NO.	SHEET NO.
R-5797	35

0 5 10

140 120 100 80 60 40 20 0 20 40 60 80

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

Ⓐ ***Coastal Plain:*** *Dense, Saturated, Gray-Brown, Silty Fine to Coarse SAND (A-2-4)*

4:1

4:1

YIB_3180 (EB2-C)
31+80

Ground Surface

01/19

Coastal Plain:

Loose to Medium Dense, Wet to Saturated, — *Black-Brown, Silty Fine SAND (A-2-4) and Fine to Coarse*

SAND (A-3) with Trace Organics — *(DUPLIN FORMATION)*

Very Stiff, Moist, Gray-Blue, — *Fine Sandy Silty CLAY (A-7)*

Hard, Moist, Gray-Blue, — *Silty CLAY (A-7) and Fine Sandy CLAY (A-6) with Trace Mica*

Medium Dense to Very Dense, Saturated, Gray, Clayey — *Fine to Coarse SAND (A-2-6) and Clayey Silty Fine to Coarse SAND (A-2-4)*

7 9 12 17 19 28 8 22 22 34 32 48 42 36 56 72 25 75 78

BT

Ⓐ Ⓐ

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

32+00.00
-YIB-

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

05-NOV-2019 16:08
F:\Projects\6611-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_GEO_xsi_YIB.dgn
Walker, AT 6602611002

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	36

140 120 100 80 60 40 20 0 20 40 60 80

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

Ⓐ **Roadway Embankment:** *Loose, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Organics*

4:1

4:1

YIC_3700

Ground Surface

01/19

6.0H:1V

82.58

Ⓐ

Coastal Plain:

Very Loose to Medium Dense, Moist to Saturated, *Brown and Gray, Silty Fine SAND (A-2-4) with Trace Wood Fragments*

(DUPLIN FORMATION)

Very Stiff, Saturated, *Blue-Green, Silty CLAY (A-7)*

②	
⑩	
⑱	
⑩	
⑪	
⑱	
⑪	
⑮	
⑯	BT

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.

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

37+00.00

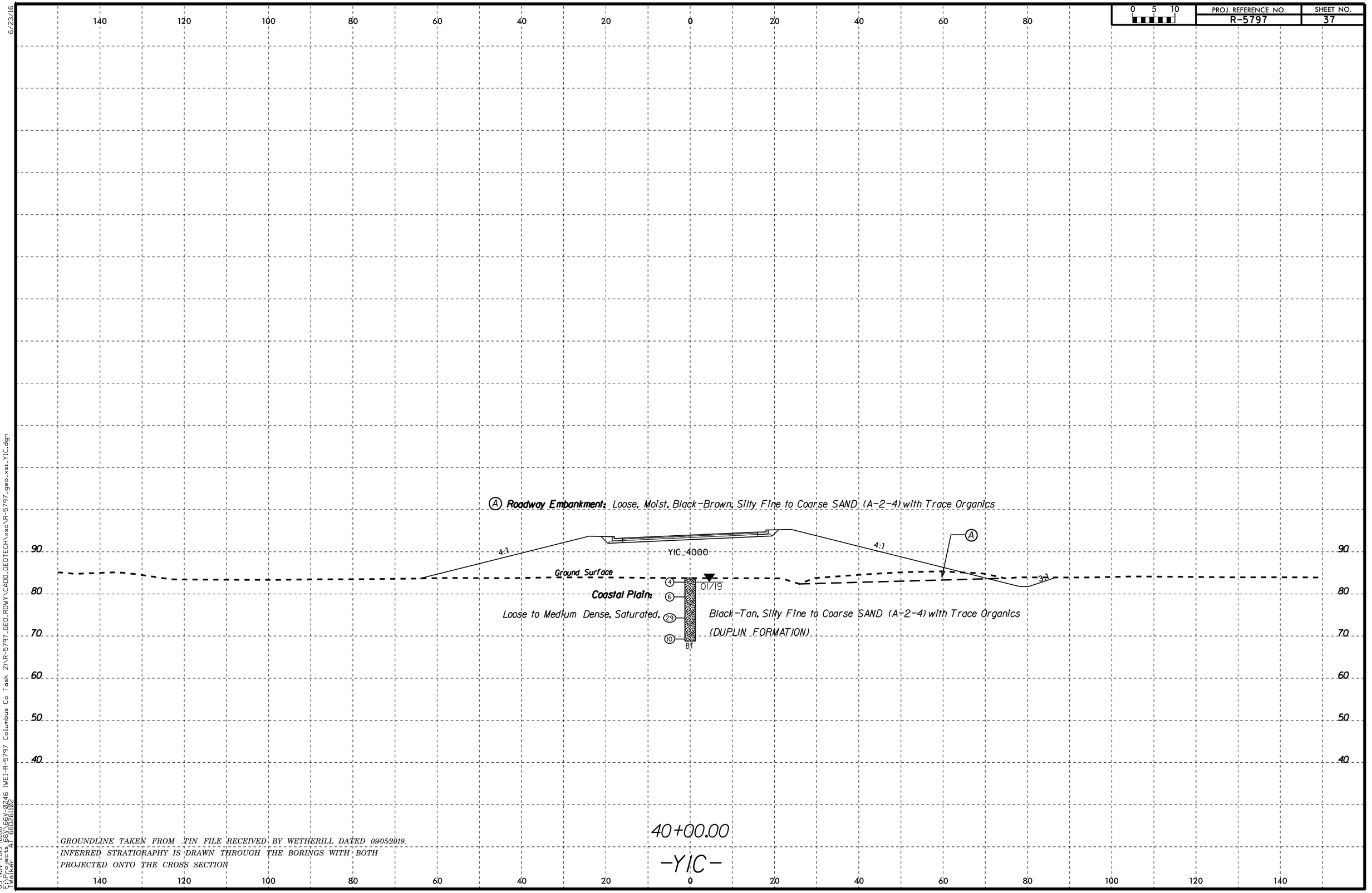
-YIC-

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

05-NOV-2019 16:08
F:\Projects_66\66Y-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797.GEO.RDWY\CADD_GEOTECH\xsc\R-5797_geo_xs1_YIC.dgn
Walker AT 66026102

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	37



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

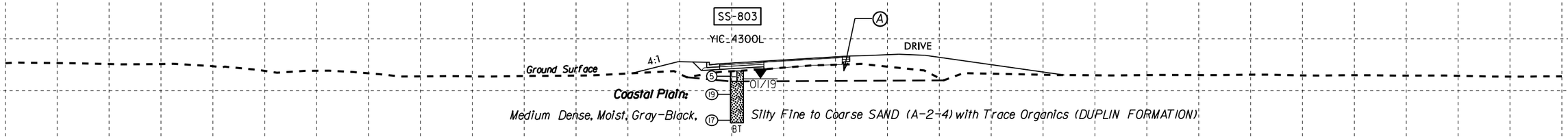
PROJ. REFERENCE NO.	SHEET NO.
R-5797	38

0 5 10

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-803	9' LT	43+00	0.2- 1.5	A-2-4	-	-	-	-	-	-	-	-	13.1	18.6	2.7

Ⓐ **Roadway Embankment:** Loose, Moist, Black-Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Organics



43+00.00

-YIC-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

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05-NOV-2019 16:08
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Walker AT 66026102
6/23/16

PROJ. REFERENCE NO.	SHEET NO.
R-5797	39

0 5 10

140 120 100 80 60 40 20 0 20 40 60 80

100 90 80

Ⓐ Alluvial: Very Loose, Saturated, Gray-Brown, MUCK

Ⓑ Roadway Embankment: Loose, Moist, Black-Orange, Silty Fine to Coarse SAND (A-2-4)

-L- 56+50

Ground Surface

Ⓑ

3.01:1

Ⓐ

Coastal Plain: Loose, Moist, Dark Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

12+50.30

-L- 57+00

Ground Surface

Roadway Embankment: Loose, Moist, Black-Orange, Silty Fine to Coarse SAND (A-2-4)

3.01:1

Ⓐ

Coastal Plain: Loose, Moist, Dark Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

12+00.18

-L- 57+50

Ground Surface

Roadway Embankment: Loose, Moist, Black-Orange, Silty Fine to Coarse SAND (A-2-4)

3.01:1

Ⓐ

Coastal Plain: Loose, Moist, Dark Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

11+50.06

-L- 58+00

L_5800L

10+55

Ground Surface

Roadway Embankment: Loose, Moist, Black-Orange, Silty Fine to Coarse SAND (A-2-4)

3.01:1

Ⓐ

Coastal Plain:

Loose, Moist, Dark Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

Soft to Medium Stiff, Moist, Black, Fine Sandy CLAY (A-6) with Trace Organics

⑥ ⑧ ④ 08/13 BT

10+99.94

-L- 58+50

Ground Surface

Roadway Embankment: Loose, Moist, Black-Orange, Silty Fine to Coarse SAND (A-2-4)

3.01:1

Ⓐ

Coastal Plain: Loose, Moist, Dark Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

10+49.81

-RPA-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.

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

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

05-NOV-2019 16:08
F:\Projects\66V\66V-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xs1_RPA.dgn
Walker AT 66026102

PROJ. REFERENCE NO.	SHEET NO.
R-5797	40

0 5 10

140 120 100 80 60 40 20 0 20 40 60 80

100 90 80

14+99.88

℄ 54+00

Ground Surface

3:1

Ⓐ

Roadway Embankment: Loose, Moist, Black-Orange, Silty Fine to Coarse SAND (A-2-4)

Coastal Plain: Loose, Moist, Dark Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

14+50.79

℄ 54+50

Ground Surface

3.01:1

Ⓐ

Roadway Embankment: Loose, Moist, Black-Orange, Silty Fine to Coarse SAND (A-2-4)

Coastal Plain: Loose, Moist, Dark Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

Ⓐ **Alluvial:** Very Loose, Saturated, Gray-Brown, MUCK

14+00.67

L_5500L 14+00

℄ 55+00

Ground Surface

3.01:1

Ⓐ

Roadway Embankment: Loose, Moist, Black-Orange, Silty Fine to Coarse SAND (A-2-4)

Coastal Plain: Loose, Moist, Dark Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

Very Soft, Wet, Black, Fine Sandy CLAY (A-6) with Trace Organics

⑦ ⑨ ① BT 08/18

13+50.55

℄ 55+50

Ground Surface

3.01:1

Ⓐ

Roadway Embankment: Loose, Moist, Black-Orange, Silty Fine to Coarse SAND (A-2-4)

Coastal Plain: Loose, Moist, Dark Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

13+00.42

℄ 56+00

Ground Surface

3.01:1

Ⓐ

Roadway Embankment: Loose, Moist, Black-Orange, Silty Fine to Coarse SAND (A-2-4)

Coastal Plain: Loose, Moist, Dark Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.

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

-RPA-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
CBR-2	35' LT	16+98	0.0-2.0	A-2-4(0)	NP	NP	69.9	20.2	1.2	8.7	100.0	67.6	10.6	9.0	-

Ⓐ **Roadway Embankment:** Loose, Moist, Brown-Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Organics

Ⓑ **Alluvial:** Very Loose, Saturated, Gray-Brown, MUCK

CBR-2
RPA_1698
16+98

Ground Surface
4.01:1
3:1
08/18
BT
Coastal Plain: Loose, Wet, Dark Brown to Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Organics (DUPLIN FORMATION)

16+99.42

-L- 52+50
4:1
3:1
Ground Surface
Coastal Plain: Loose, Wet, Dark Brown to Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Organics (DUPLIN FORMATION)

16+49.68

-L- 53+00
3:1
Ground Surface
Coastal Plain: Loose, Wet, Dark Brown to Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Organics (DUPLIN FORMATION)

15+99.83

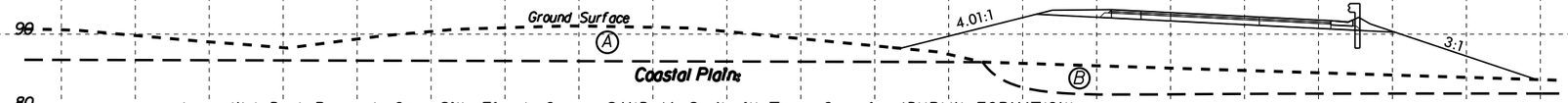
-L- 53+50
3:1
Ground Surface
Coastal Plain: Loose, Wet, Dark Brown to Gray, Silty Fine to Coarse SAND (A-2-4) with Trace Organics (DUPLIN FORMATION)

15+49.89

-RPA-

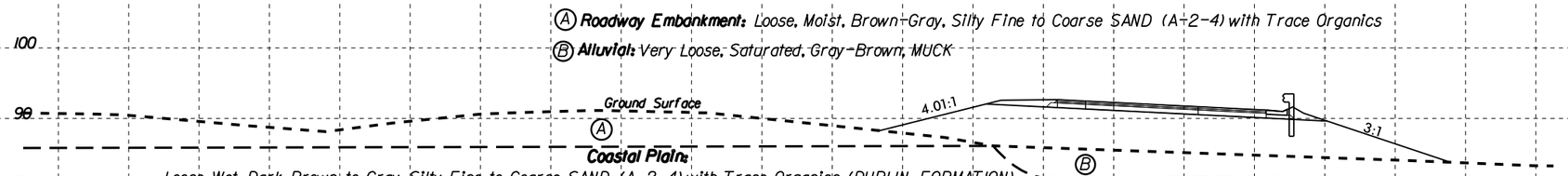
GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80



90
80

17+98.61



100
90
80
70

17+49.07

-RPA-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

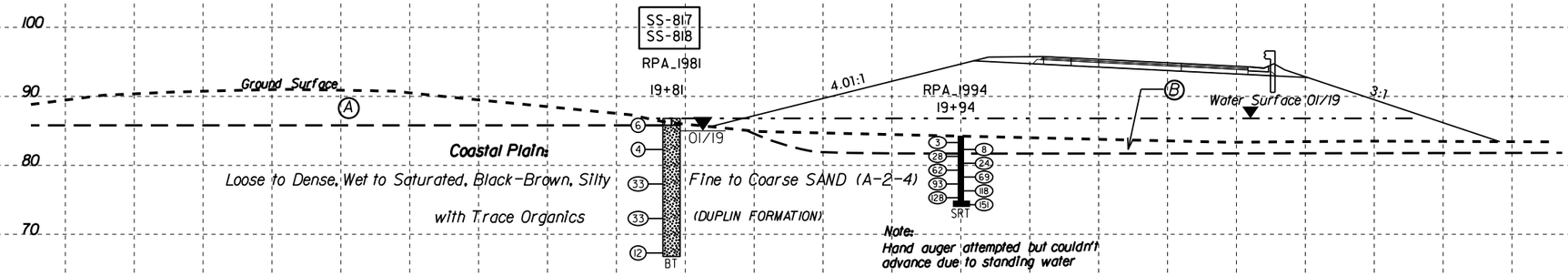
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

SOIL TEST RESULTS

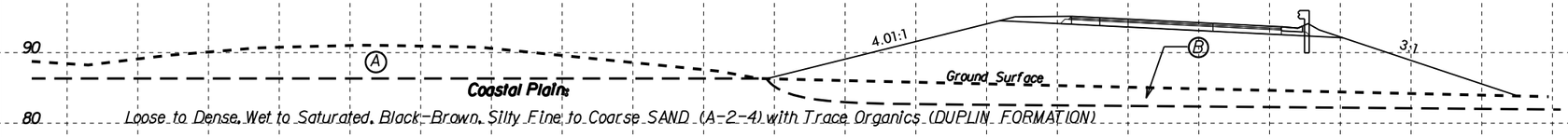
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-817	61' LT	19+81	0.2-1.5	A-2-4	-	-	-	-	-	-	-	-	6.5	13.7	0.8
SS-818	61' LT	19+81	3.5-5.0	A-2-4(0)	NP	NP	60.1	17.2	11.1	11.6	100.0	70.6	23.4	26.8	-

Ⓐ **Roadway Embankment:** Loose, Wet, Black-Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Organics

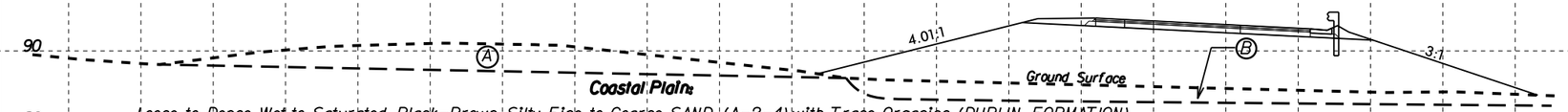
Ⓑ **Alluvial:** Very Loose, Saturated, Gray-Brown, MUCK



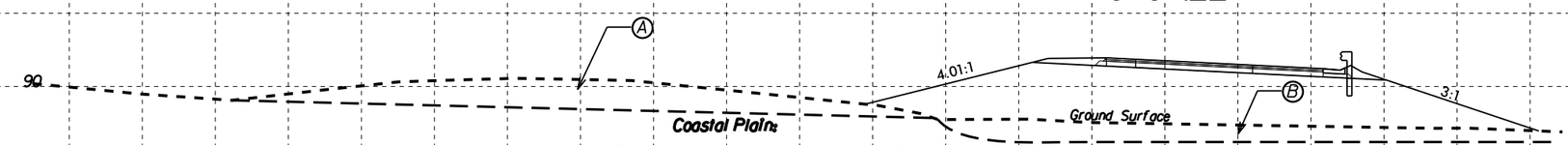
19+95.04



19+46.24



18+97.22

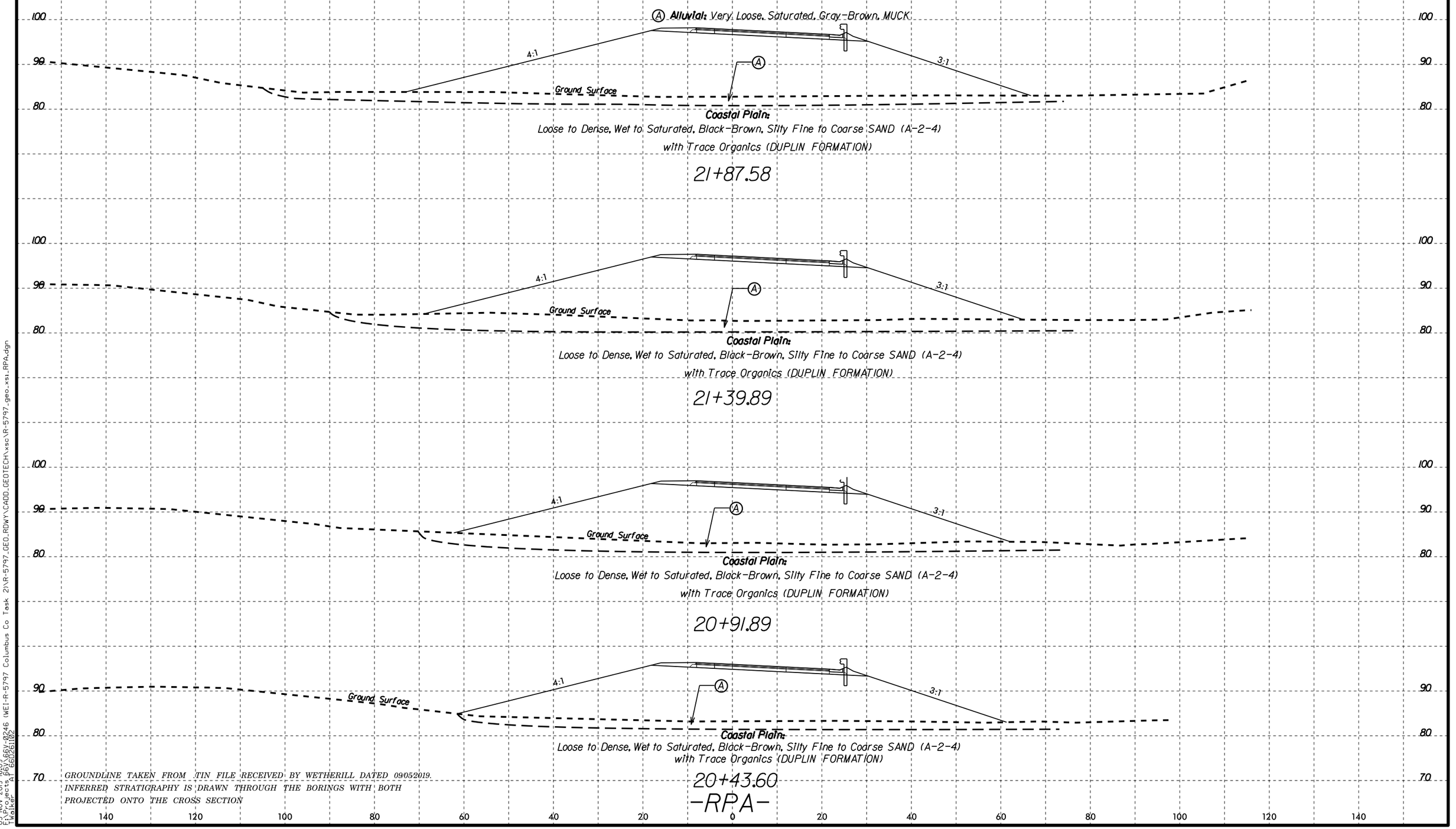


18+48.00

-RPA-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80



GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

-RPA-

140 120 100 80 60 40 20 0 20 40 60 80

100 / 90 / 80

4:1 3:1

Ground Surface

Ⓑ

Coastal Plain:
Loose to Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coasre SAND (A-2-6) with Trace Organics (DUPLIN FORMATION)

23+29.44

100 / 90 / 80

4:1 3:1

Ground Surface

Ⓑ

Coastal Plain:
Loose to Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coasre SAND (A-2-6) with Trace Organics (DUPLIN FORMATION)

22+82.14

Ⓐ **Roadway Embankment:** *Loose, Wet, Black-Brown, Silty Fine to Coarse SAND (A-2-4) with Trace Organics*
Ⓑ **Alluvial:** *Very Loose, Saturated, Gray-Brown, MUCK*

100 / 90 / 80 / 70 / 60

Ⓐ RPA_2239
22+39
4 7 25 16 29 35
01/19
BT

Ⓑ

4:1 3:1

Ground Surface

RPA_2171
21+71
WOH WOH 7 8 20 25 52 50 63
SRT

Water Surface 02/19

Ⓑ

Coastal Plain:
Loose to Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (DUPLIN FORMATION)
(A-2-4) and Clayey Fine to Coarse SAND (A-2-6) with Trace Organics

Note:
No sample retrieved due to standing water

22+34.97

-RPA-

GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

140 120 100 80 60 40 20 0 20 40 60 80

Ⓐ **Alluvial:** Very Loose, Saturated, Gray-Brown, MUCK

4:1 3:1

Ground Surface

Water Surface 02/19

RPA-2592
25+92

(10) (17) (54) (84) (141) SRT (WOH) (17) (33) (77) (108)

Coastal Plain:
Loose to Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coasre SAND (A-2-6) with Trace Organics (DUPLIN FORMATION)

Note:
No sample retrieved due to standing water

25+50.00

4:1 3:1

Ground Surface

Alluvial: Very Loose, Saturated, Gray-Brown, MUCK

Coastal Plain:
Loose to Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coasre SAND (A-2-6) with Trace Organics (DUPLIN FORMATION)

25+00.00

4:1 3:1

RPA-2442
24+42

Water Surface 02/19

Ground Surface

Alluvial: Very Loose, Saturated, Gray-Brown, MUCK

(WOH) (12) (37) (69) (96) SRT (WOH) (8) (25) (54) (82)

Coastal Plain:
Loose to Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coasre SAND (A-2-6) with Trace Organics (DUPLIN FORMATION)

Note:
No sample retrieved due to standing water

24+24.77

4:1 3:1

Ground Surface

Alluvial: Very Loose, Saturated, Gray-Brown, MUCK

Coastal Plain:
Loose to Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coasre SAND (A-2-6) with Trace Organics (DUPLIN FORMATION)

23+76.93
-RPA-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

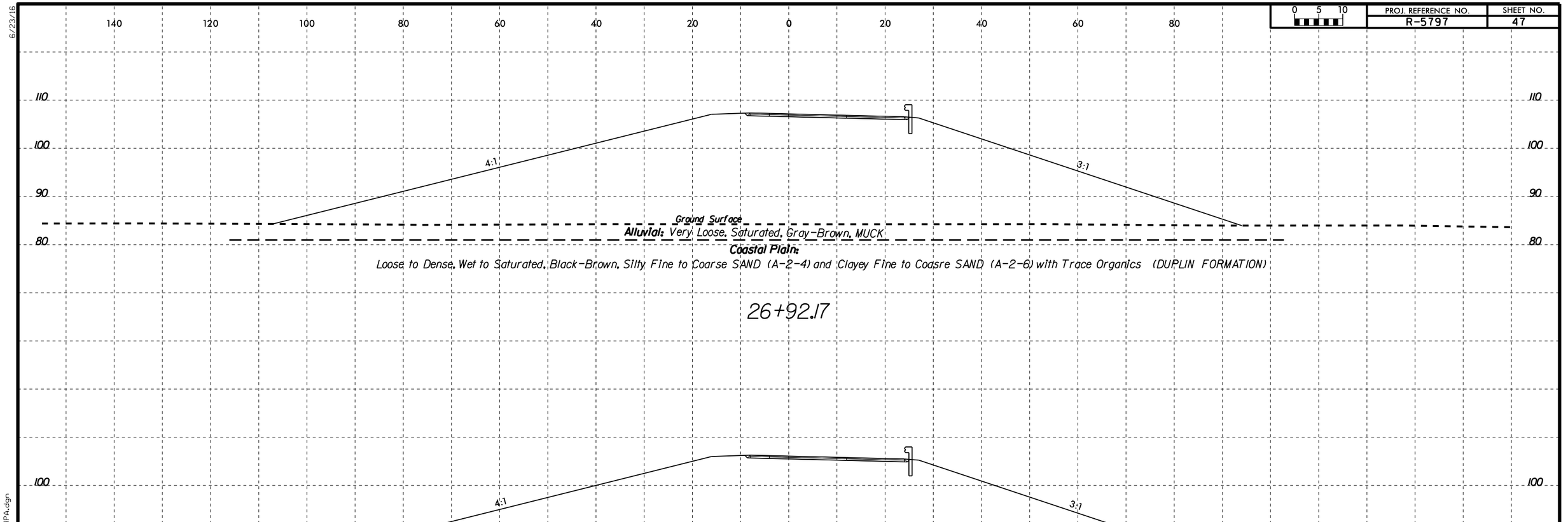
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

100 90 80

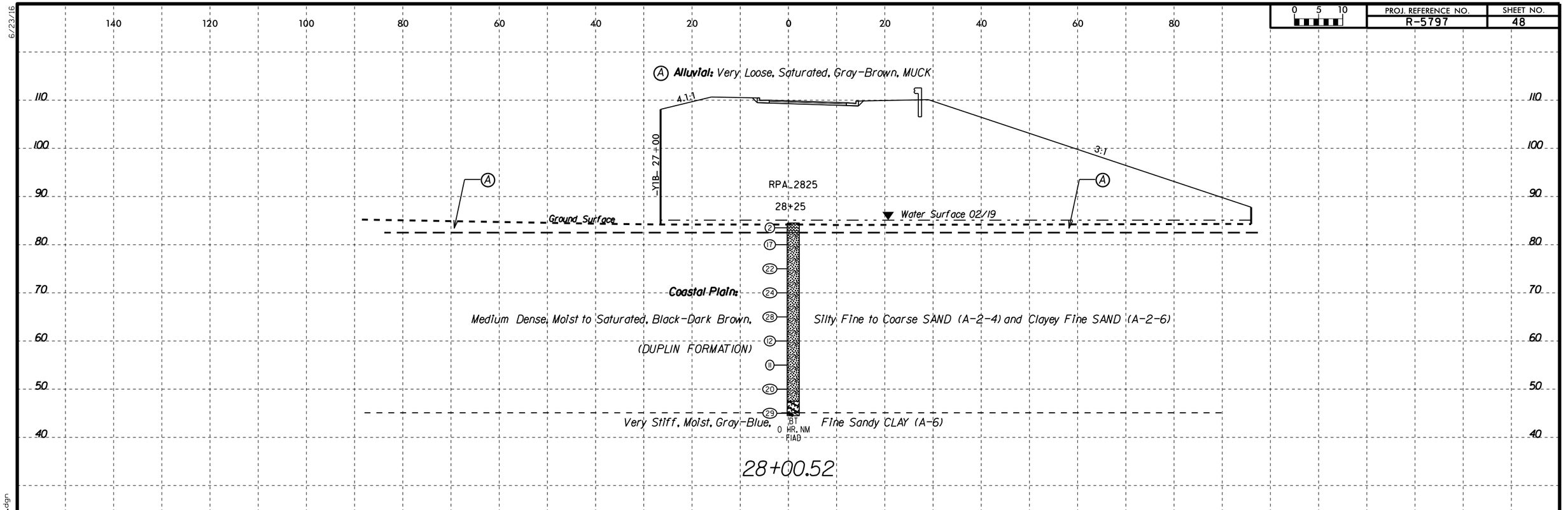
6/23/16

05-NOV-2019 16:09
F:\Projects\66V\66V-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xsi_RPA.dgn
Walker, A1 66026102

PROJ. REFERENCE NO.	SHEET NO.
R-5797	47



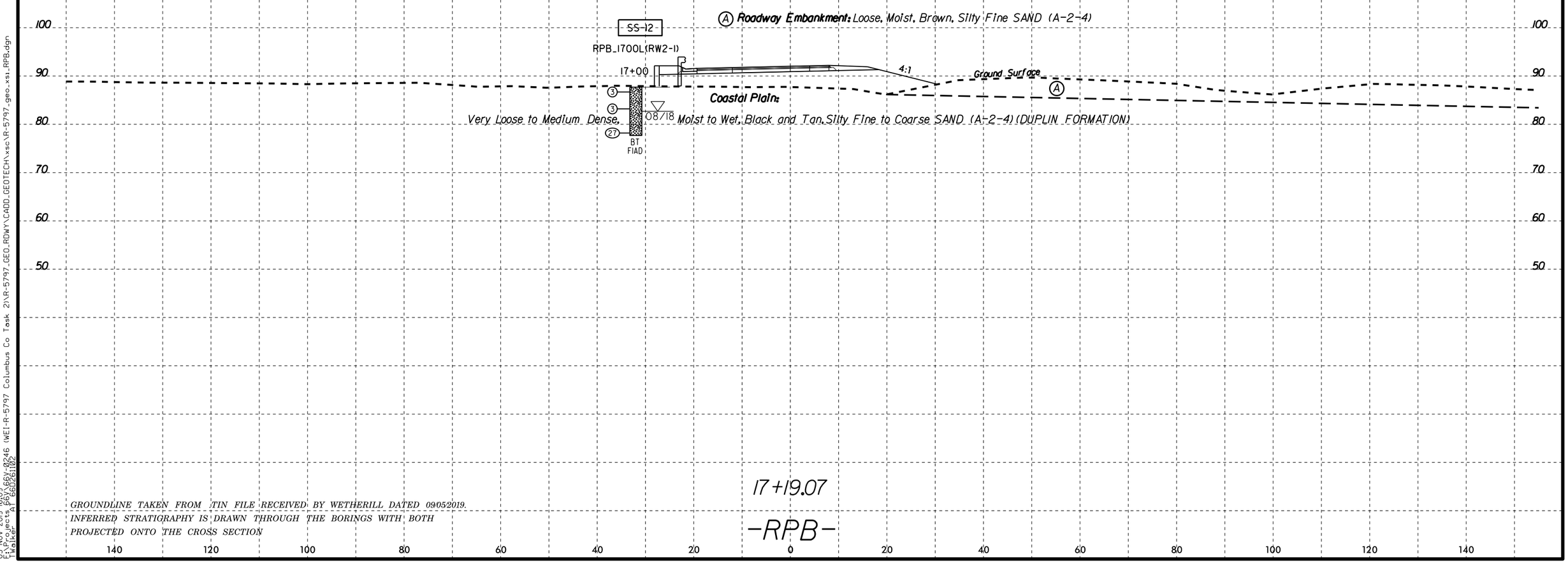
GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION



0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	49

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-12	32' LT	17+00	3.5-5.0	-	-	-	-	-	-	-	-	-	2.7	20.1	1.5



17+19.07

-RPB-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80

110 100 90 80 70 60 50 40

Ⓐ **Roadway Embankment:** Loose, Moist, Brown, Silty Fine SAND (A-2-4)

RPB_I75QL(RW2-2)
17+48
4:1
Ground Surface
Ⓐ
4
5
12
08/18
B1
Coastal Plain:
Loose to Medium Dense, Moist to Wet, Black and Tan, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

17+69.92
-RPB-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

PROJ. REFERENCE NO.	SHEET NO.
R-5797	51

0 5 10

140 120 100 80 60 40 20 0 20 40 60 80

Ⓐ ***Roadway Embankment:*** *Loose, Moist, Brown, Silty Fine SAND (A-2-4)*

RPB_1800L(RW2-3)

18+00

4:1

Coastal Plain:

Loose, Moist to Wet, Black and Tan, Silty Fine to Coarse SAND (A-2-4)

(DUPLIN FORMATION)

Very Soft to Hard, Moist to Wet, Black, Fine Sandy Clayey SILT (A-5)

Dense, Wet, Gray, Silty Fine to Coarse SAND (A-2-4)

4 6 0 31

08/18

BT

FIAD

Ground Surface

Ⓐ

90 80 70 60 50 40 30 20 10

18+20.86

-RPB-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.

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

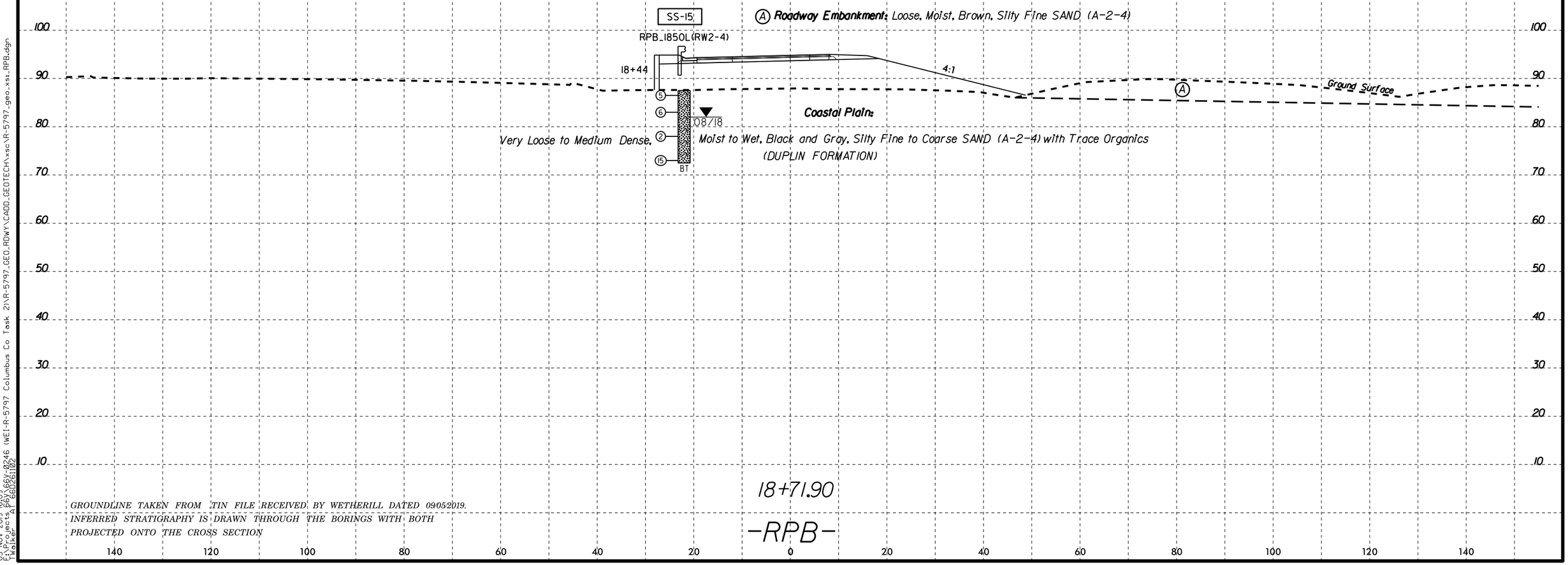
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

05-NOV-2019 16:09
E:\Projects_66V\66V.0246 (WEI-R-5797 Columbus Co Task 2)\R-5797.GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xs1_RPB.dgn
Walker, AT 6602611102

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-15	22' LT	18+44	8.5-10.0	A-2-4	NP	NP	67.2	19.1	4.2	9.5	99.9	67.2	14.5	63.2	-



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

18+71.90

-RPB-

140 120 100 80 60 40 20 0 20 40 60 80

100 90 80 70 60 50 40 30 20 10

Ⓐ **Roadway Embankment:** *Loose, Moist, Brown, Silty Fine SAND (A-2-4)*

RPB_I900L(RW2-5)

4:1

I8+97

Ground Surface

Ⓐ

3
3
WOH
15
BT

08/18

Coastal Plain:

Very Loose to Medium Dense, Moist to Wet, Black, Tan, and Gray, Fine to Coarse SAND (A-2-4)
(DUPLIN FORMATION)

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

19+23.05

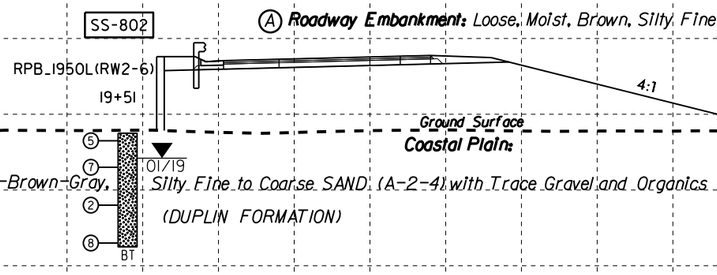
-RPB-

6/23/16

05-NOV-2019 16:09
F:\Projects\66V\66V-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xsl_RPB.dgn
Walker, AT 6602611002

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-802	32' LT	19+51	8.5- 10.0	A-2-4(0)	NP	NP	47.0	20.0	17.8	15.2	99.3	75.5	34.9	123.5	-



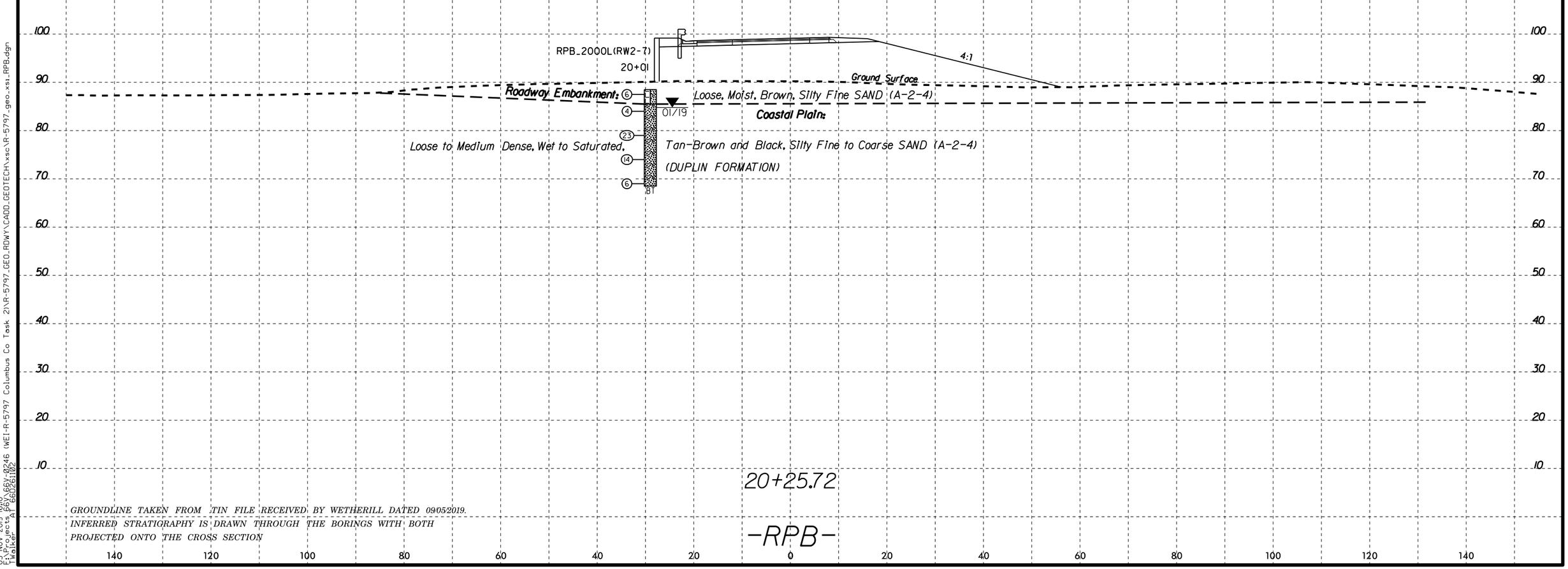
GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

19+74.32
-RPB-

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	55

140 120 100 80 60 40 20 0 20 40 60 80



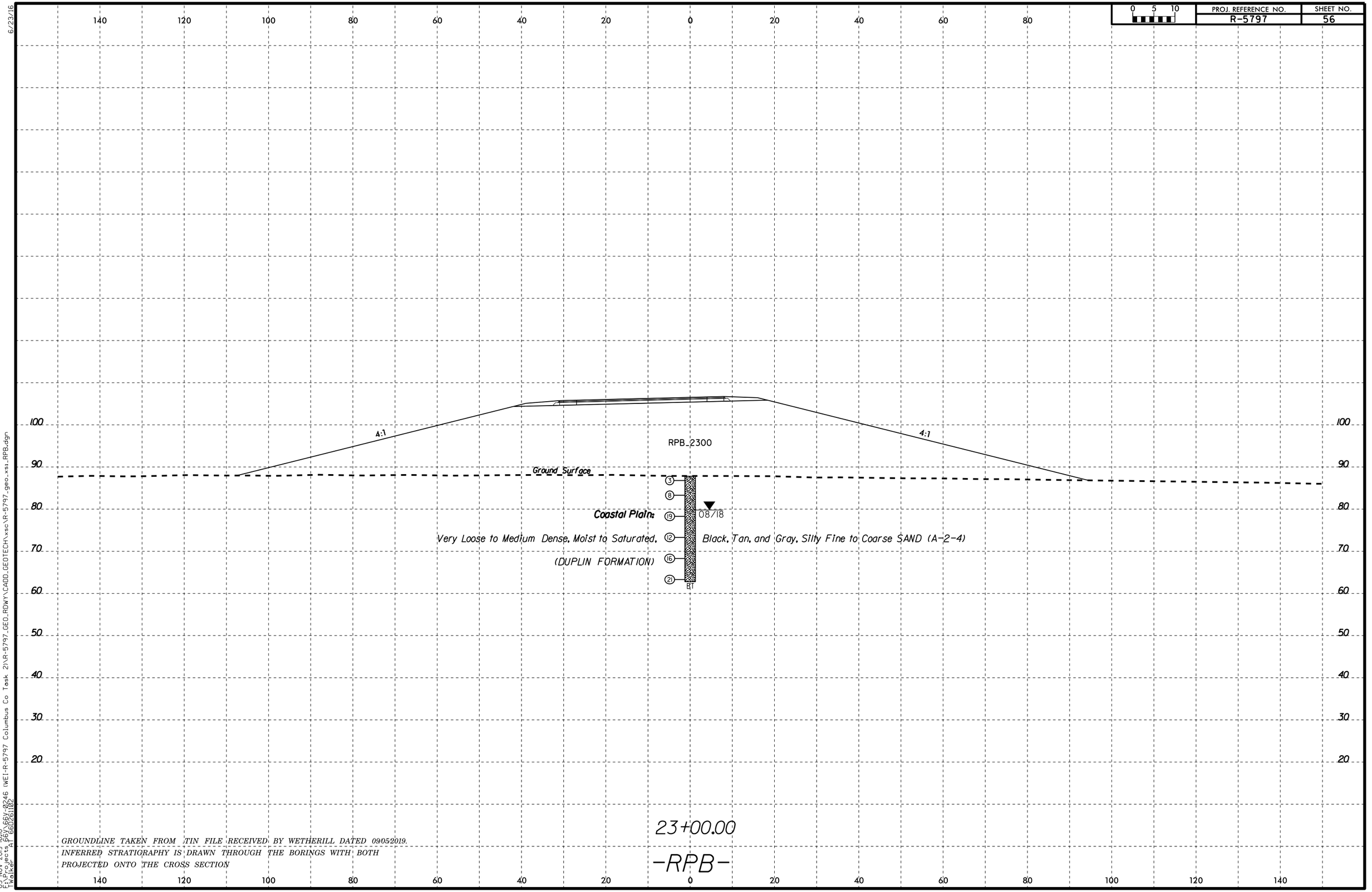
20+25.72

-RPB-

GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

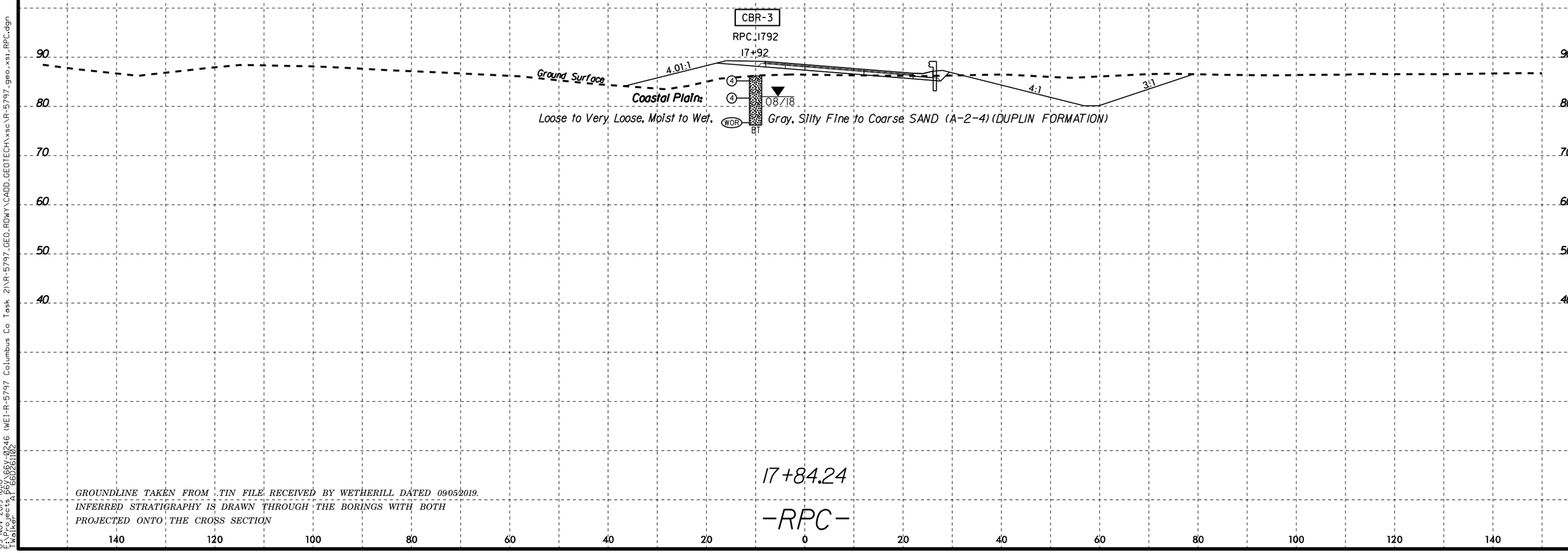
05-NOV-2019 16:10
E:\Projects_AI_66\26102\66V-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xs1_RPB.dgn
Walker



GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
CBR-3	10' LT	17+92	0.0-2.0	A-2-4(0)	NP	NP	73.7	14.2	3.0	9.1	100.0	62.0	12.8	11.0	-

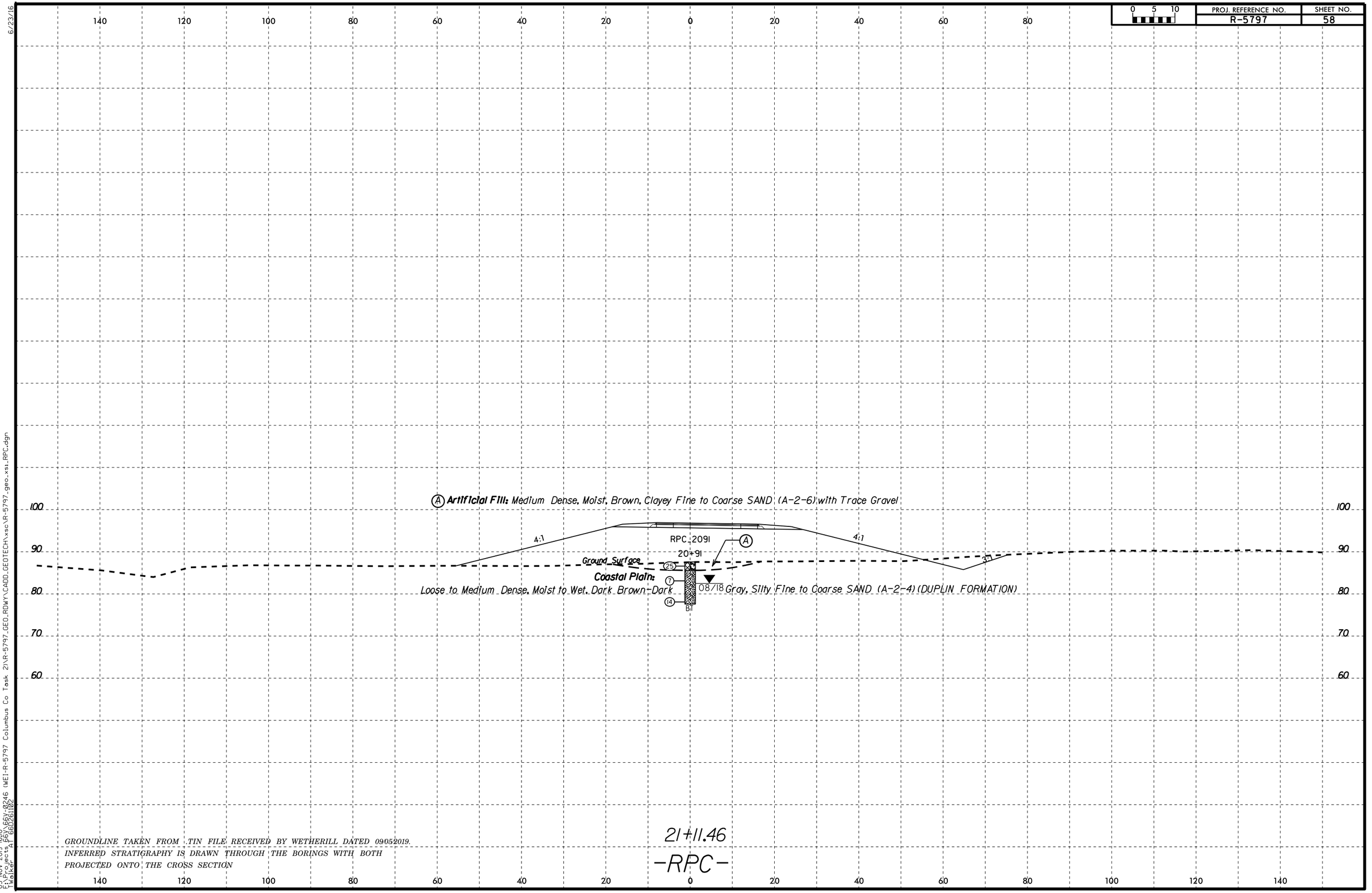


17+84.24

-RPC-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	58



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	59

140 120 100 80 60 40 20 0 20 40 60 80

110 100 90 80 70 60 50 40

4:1

4:1

Ground Surface

RPC_2383
23+83

6 12 24 18 21 14
01/19
BT

Coastal Plain:

Loose to Medium Dense, Moist to Saturated, White-Gray-Brown, Silty Fine SAND (A-2-4) and Fine to Coarse SAND (A-3) with Trace Organics

(DUPLIN FORMATION)

24+00.00

-RPC-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

05-NOV-2019 16:10
F:\Projects\66V\66V-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xsl_RPC.dgn
Walker, A1 66026102

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	60

140 120 100 80 60 40 20 0 20 40 60 80

100 90 80 70

Ground Surface
Roadway Embankment:
Loose, Wet, Brown-Gray, Silty Fine SAND (A-2-4) with Trace Gravel
Coastal Plain:
Very Loose to Medium Dense, Saturated, Brown-Gray, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coarse SAND (A-2-6) with Trace Organics
(DUPLIN FORMATION)

3:1

Ⓐ

11+10.34

Ⓐ **Alluvial:** *Very Loose, Saturated, Black, MUCK*

L_5800R2
10+60

L_5800R
10+55

Ground Surface
Roadway Embankment:
Loose, Wet, Brown-Gray, Silty Fine SAND (A-2-4) with Trace Gravel
Coastal Plain:
Very Loose to Medium Dense, Saturated, Brown-Gray, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coarse SAND (A-2-6) with Trace Organics
(DUPLIN FORMATION)

SRT: 1, 2, 5, 52, 33 / 1, 4, 6, 27, 33
BT: 7, 8, 3, 16, 26
0 HR NM
FIAD

10+60.34

Ground Surface
Roadway Embankment:
Loose, Wet, Brown-Gray, Silty Fine SAND (A-2-4) with Trace Gravel
Coastal Plain:
Very Loose to Medium Dense, Saturated, Brown-Gray, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coarse SAND (A-2-6) with Trace Organics
(DUPLIN FORMATION)

10+10.34

GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

-RPD-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	61

140 120 100 80 60 40 20 0 20 40 60 80

Ⓐ **Alluvial:** Very Loose, Saturated, Gray-Brown, MUCK

Ⓑ **Roadway Embankment:** Loose, Wet, Brown-Gray, Silty Fine SAND (A-2-4) with Trace Gravel

100 90 80

Ⓐ 3:1

Ground Surface

Roadway Embankment:
Loose, Wet, Brown-Gray, Silty Fine SAND (A-2-4) with Trace Gravel

Coastal Plain:
Very Loose to Medium Dense, Saturated, Brown-Gray, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coarse SAND (A-2-6) with Trace Organics
(DUPLIN FORMATION)

13+10.57

100 90 80

Ⓐ 3:1

Ground Surface

Ⓑ

Coastal Plain:
Very Loose to Medium Dense, Saturated, Brown-Gray, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coarse SAND (A-2-6) with Trace Organics
(DUPLIN FORMATION)

12+60.44

100 90 80

Ⓐ 3:1

Ground Surface

Ⓑ

Coastal Plain:
Very Loose to Medium Dense, Saturated, Brown-Gray, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coarse SAND (A-2-6) with Trace Organics
(DUPLIN FORMATION)

12+10.38

100 90 80

Ⓐ 3:1

Ground Surface

Roadway Embankment: Loose, Wet, Brown-Gray, Silty Fine SAND (A-2-4) with Trace Gravel

Coastal Plain:
Very Loose to Medium Dense, Saturated, Brown-Gray, Silty Fine to Coarse SAND (A-2-4) and Clayey Fine to Coarse SAND (A-2-6) with Trace Organics
(DUPLIN FORMATION)

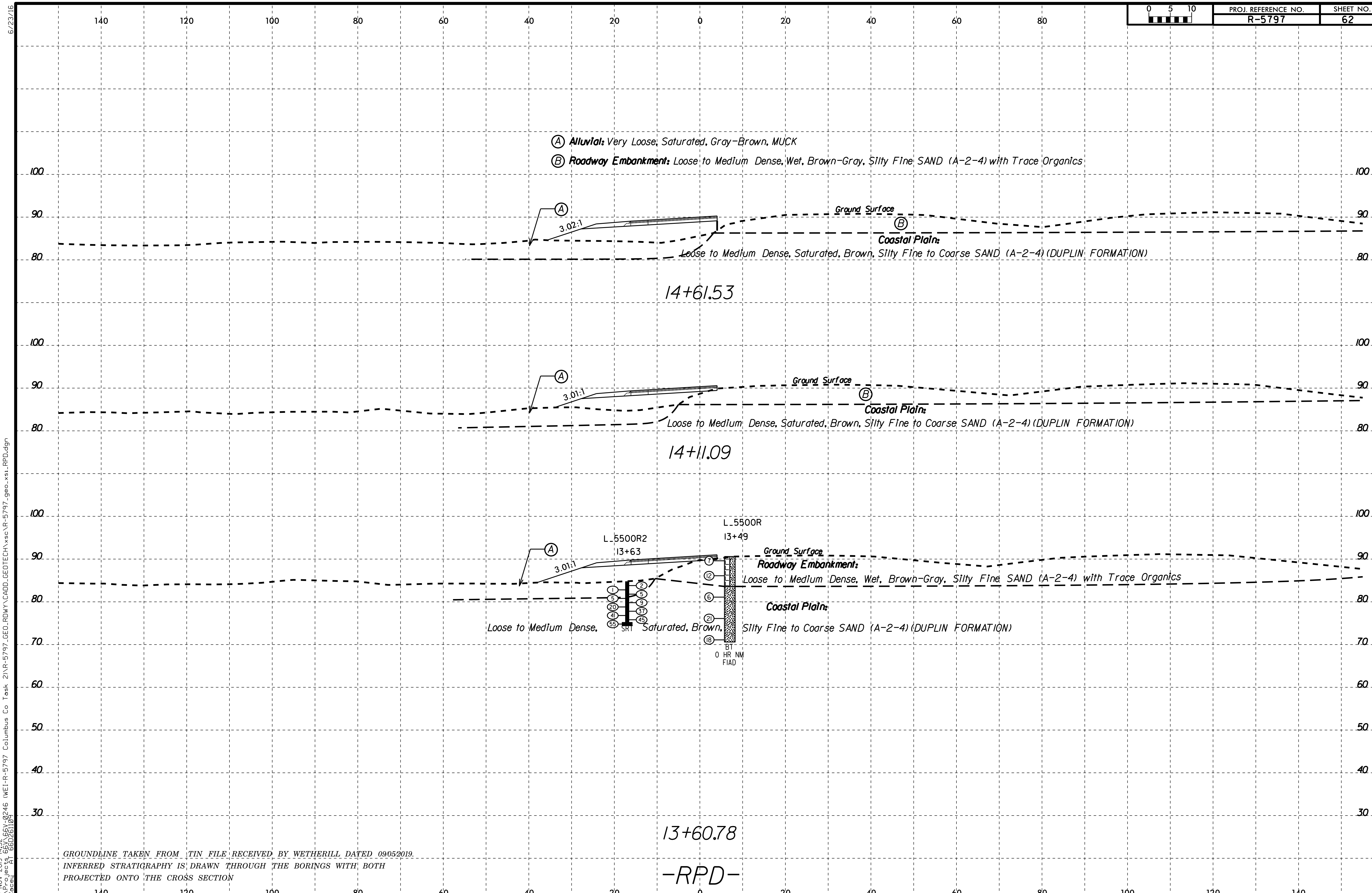
11+60.35

-RPD-

70

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09/05/2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140



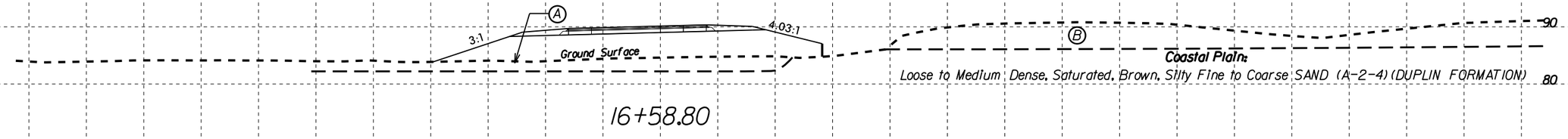
GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

-RPD-

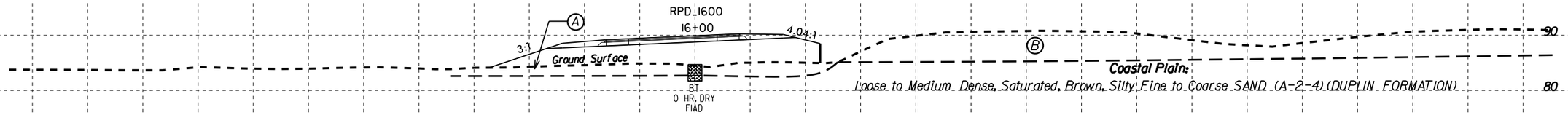
PROJ. REFERENCE NO.	SHEET NO.
R-5797	63

Ⓐ **Alluvial:** *Very Loose, Saturated, Black, MUCK*

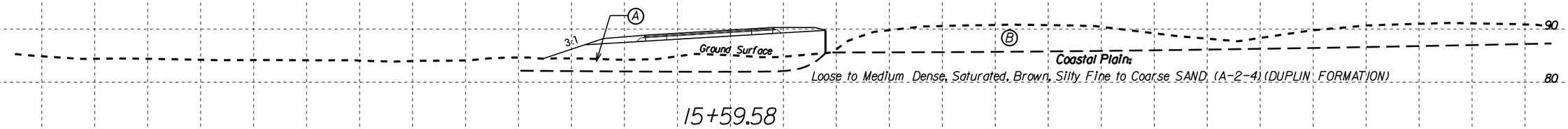
Ⓑ **Roadway Embankment:** *Loose to Medium Dense, Wet, Brown-Gray, Silty Fine SAND (A-2-4) with Trace Organics*



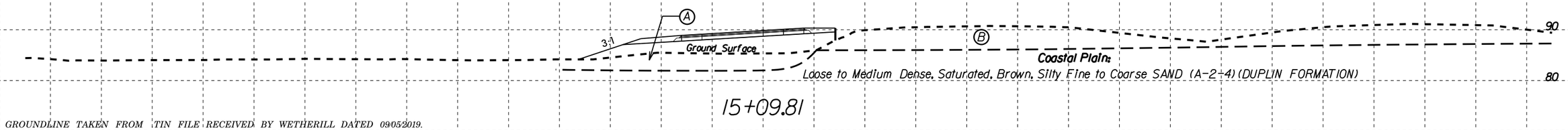
16+58.80



16+09.22



15+59.58



15+09.81

-RPD-

GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09/05/2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

PROJ. REFERENCE NO.	SHEET NO.
R-5797	64

0 5 10

140 120 100 80 60 40 20 0 20 40 60 80

90 80

3:1 4:1 B Ground Surface

Coastal Plain:
Loose to Medium Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4)
(DUPLIN FORMATION)

19+07.38

90 80

3:1 4:1 B Ground Surface

Coastal Plain:
Loose to Medium Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4)
(DUPLIN FORMATION)

18+57.58

RPD_1800

90 80

3:1 4:1 B

18+00

Ground Surface

Coastal Plain: BT FIAD 11/19 Loose to Medium Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

18+07.78

B **Alluvial:** Very Loose, Saturated, Black, MUCK

90 80

3:1 4:1 B Ground Surface

Coastal Plain:
Loose to Medium Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4)
(DUPLIN FORMATION)

17+58.01

100 90 80 70

A **Roadway Embankment:** Loose to Medium Dense, Wet, Brown-Gray, Silty Fine SAND (A-2-4) with Trace Organics

RPD_1700 RPD_1700R

3:1 4.01:1 B

17+00 16+90

Ground Surface

SRT: 1 2 12 62 100 / 7 6 25 89 179

BT: 6 11 10 24 15 / 01/19

A

Coastal Plain:
Loose to Medium Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4)
(DUPLIN FORMATION)
Stiff to Very Stiff, Wet, Brown, Fine Sandy CLAY (A-6) with Trace Gravel
Medium Dense, Saturated, Brown-Gray, Silty Fine to Coarse SAND (A-2-4)

Note:
Hand auger terminated @ 3.3'.
0 hour water dry, boring FIAD.

17+08.37

-RPD-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09/05/2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

07-NOV-2019 17:28
E:\Projects\6660-66V-0246 (WEI-R-5797 Columbus Co Task 2\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xs1_RPD.dgn
DRacey
A1 6602611109

140 120 100 80 60 40 20 0 20 40 60 80

Ⓐ **Alluvial:** *Very Loose, Saturated, Black, MUCK*

3:1 4:1

Ⓐ

Ground Surface

Coastal Plain:

Loose to Medium Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

(DUPLIN FORMATION)

100 90 80

21+06.58

3:1 4:1

Ⓐ

Ground Surface

Coastal Plain:

Loose to Medium Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

(DUPLIN FORMATION)

100 90 80

20+56.78

RPD_2000

3:1 4:1

20+00

Ⓐ

Ground Surface

Coastal Plain:

Loose to Medium Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

(DUPLIN FORMATION)

11/19

90 80 70

20+06.98

Note:
Hand auger terminated @ 3.0', FIAD.

3:1 4:1

Ⓐ

Ground Surface

Coastal Plain:

Loose to Medium Dense, Wet to Saturated, Black-Brown, Silty Fine to Coarse SAND (A-2-4)

(DUPLIN FORMATION)

90 80

19+57.18

-RPD-

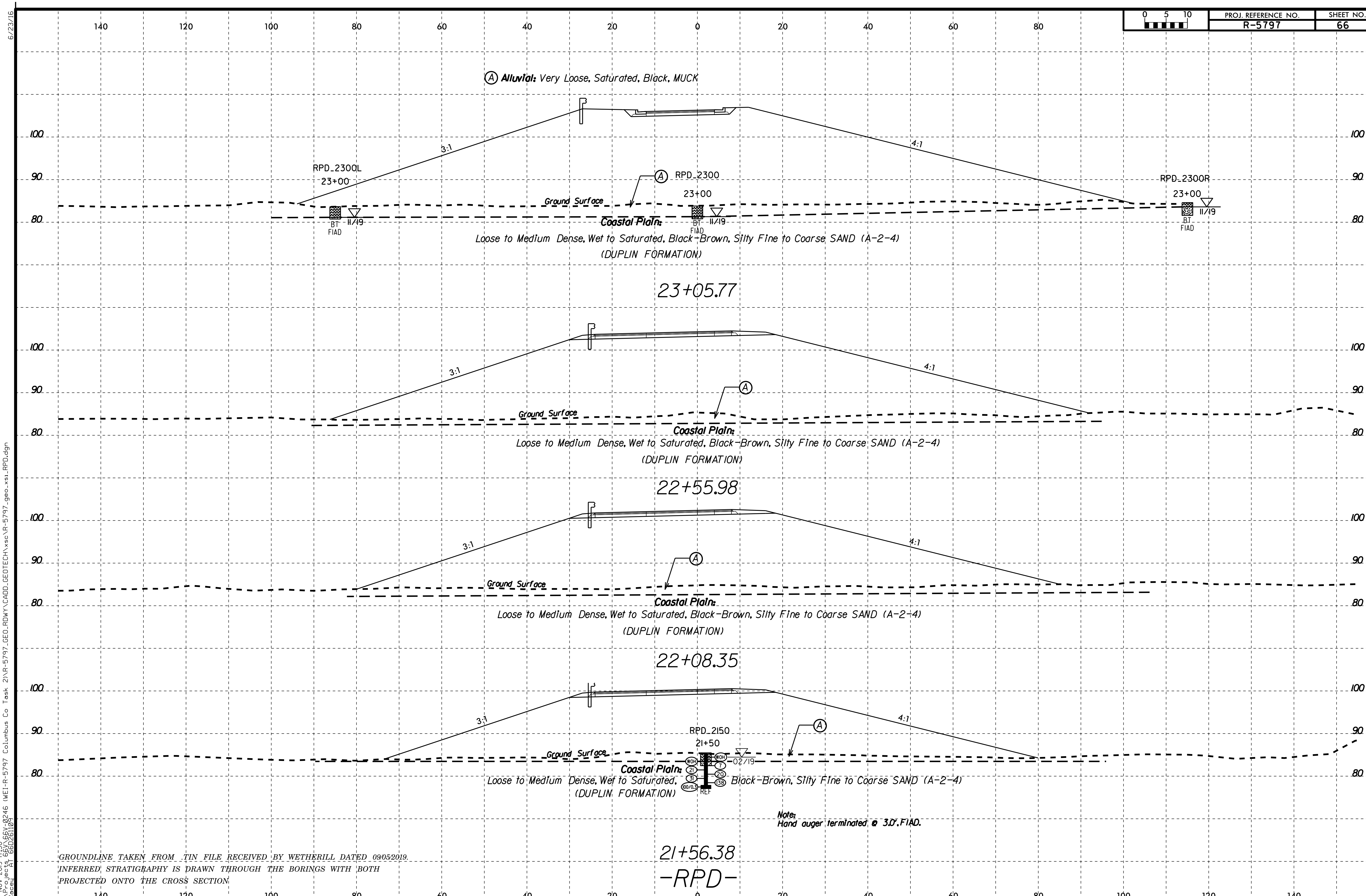
GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09/05/2019.

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

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

PROJ. REFERENCE NO.	SHEET NO.
R-5797	66



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09/05/2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

07-NOV-2019 17:30
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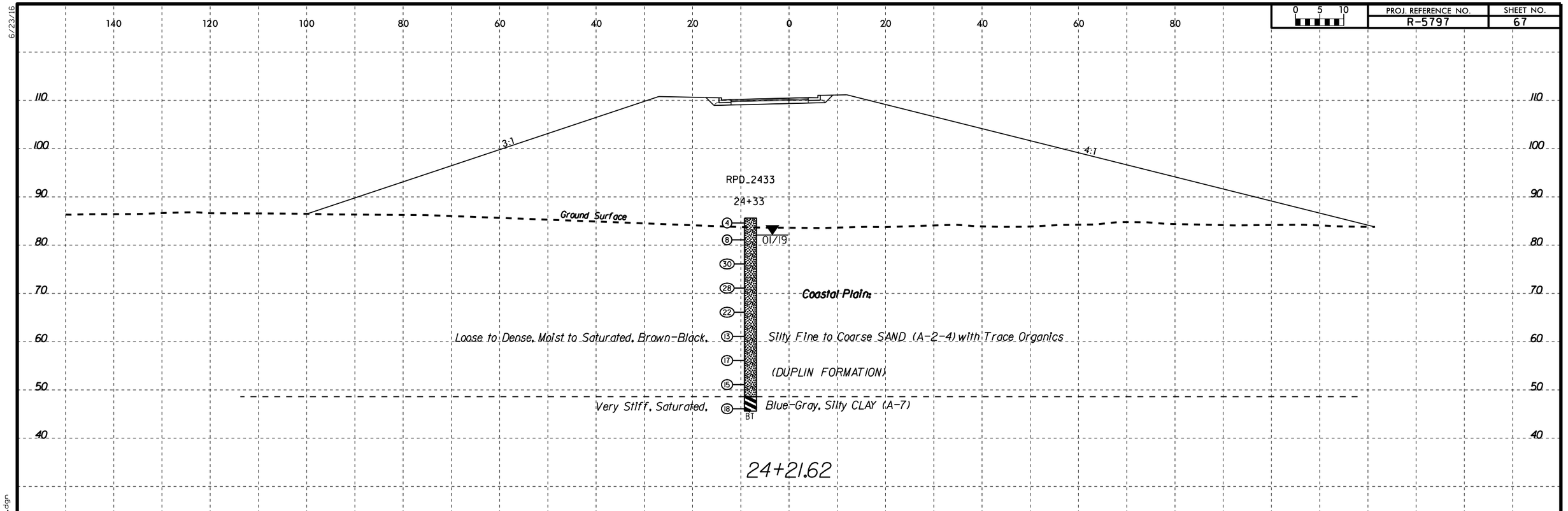
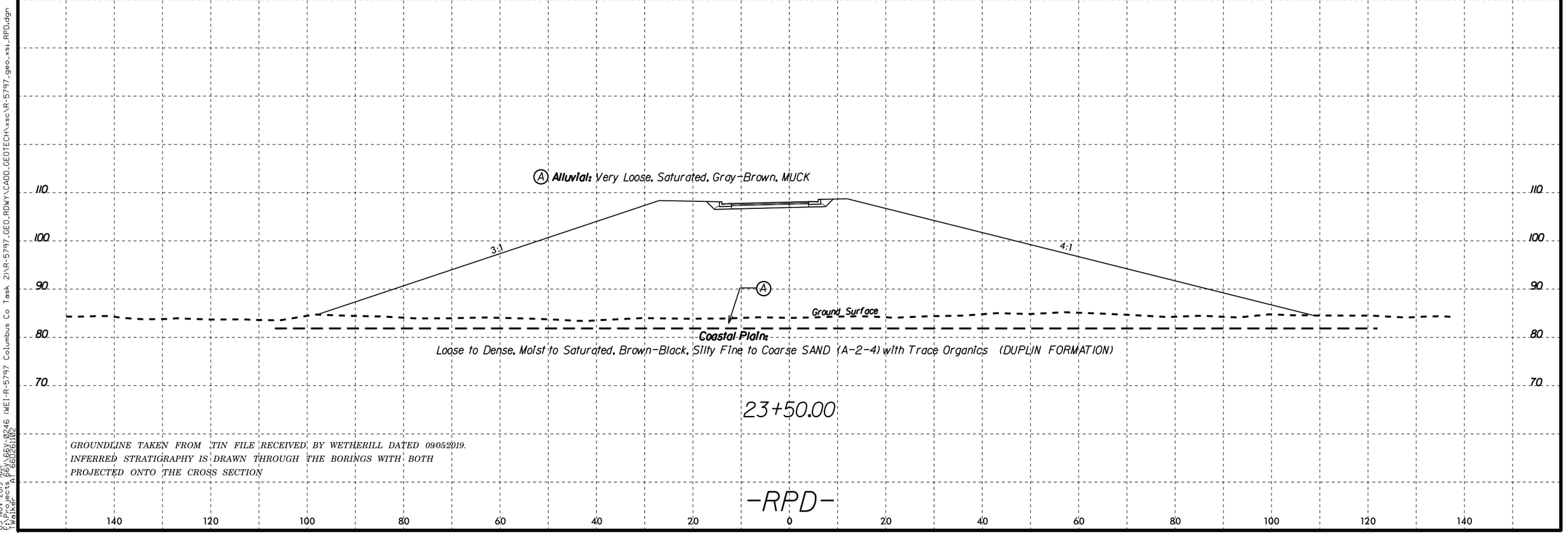
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	67





GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH
PROJECTED ONTO THE CROSS SECTION

-RPD-

6/23/16

05-NOV-2019 16:11
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Walker, A 66026102

PROJ. REFERENCE NO.	SHEET NO.
R-5797	68

0 5 10

140 120 100 80 60 40 20 0 20 40 60 80

100 90 80 70 60 50

DRI_1050R
10+49

4:1

Ground Surface

Coastal Plain:

Loose, Moist to Wet, Dark Brown and Gray, Silty Fine to Coarse SAND (A-2-4)(DUPLIN FORMATION)

4
4
5
BT 08/18

10+50.00

-DRI-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH
PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

05-NOV-2019 16:11
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TWalker AT 6602611102

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	69

140 120 100 80 60 40 20 0 20 40 60 80

DRI_1100R
11+01

4:1 3:1

Ground Surface

6
7
2

08/18
BT

Coastal Plain:

Very Loose to Loose, Moist, Dark Brown and Gray, Silty Fine to Coarse SAND (A-2-4) (DUPLIN FORMATION)

100 90 80 70 60 50

11+00.00

-DRI-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

6/23/16

05-NOV-2019 16:11
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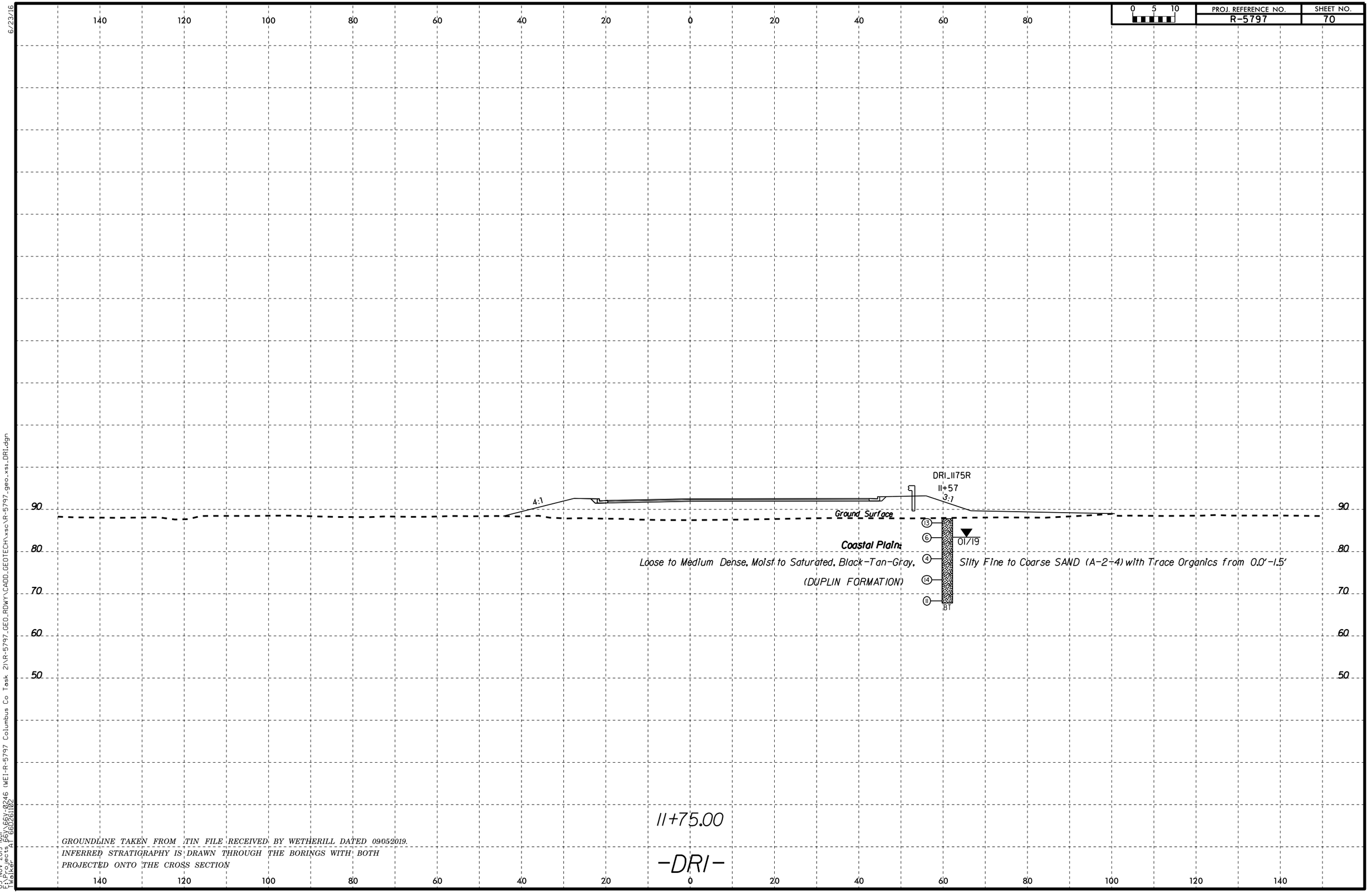
TIMaker AT 6602611102

PROJ. REFERENCE NO.	SHEET NO.
R-5797	70

0 5 10



6/23/16

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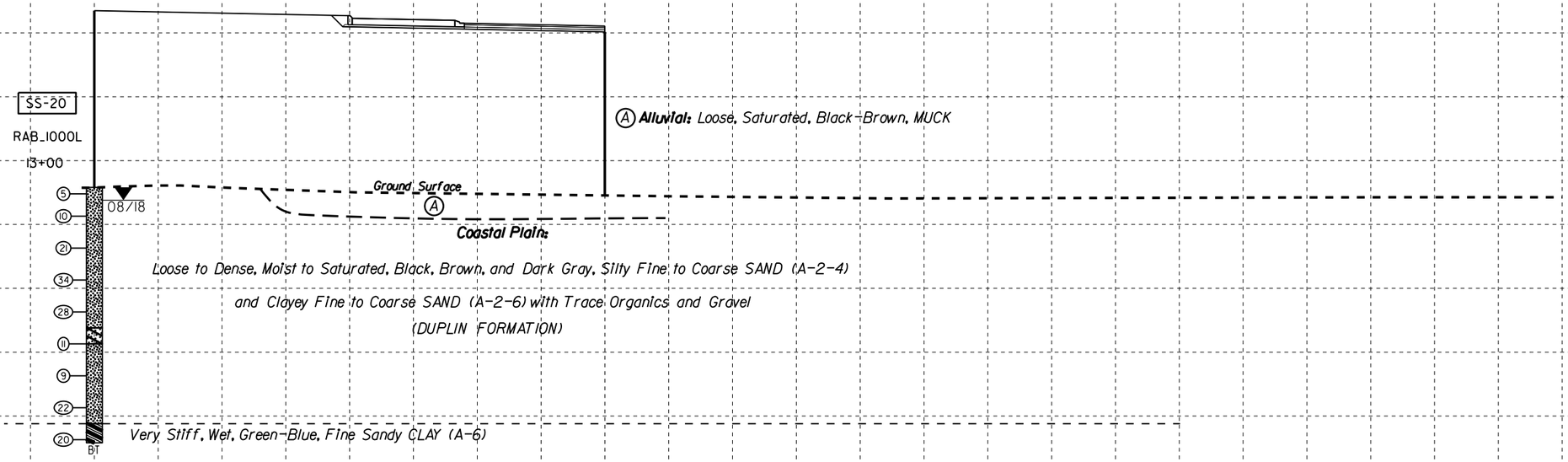
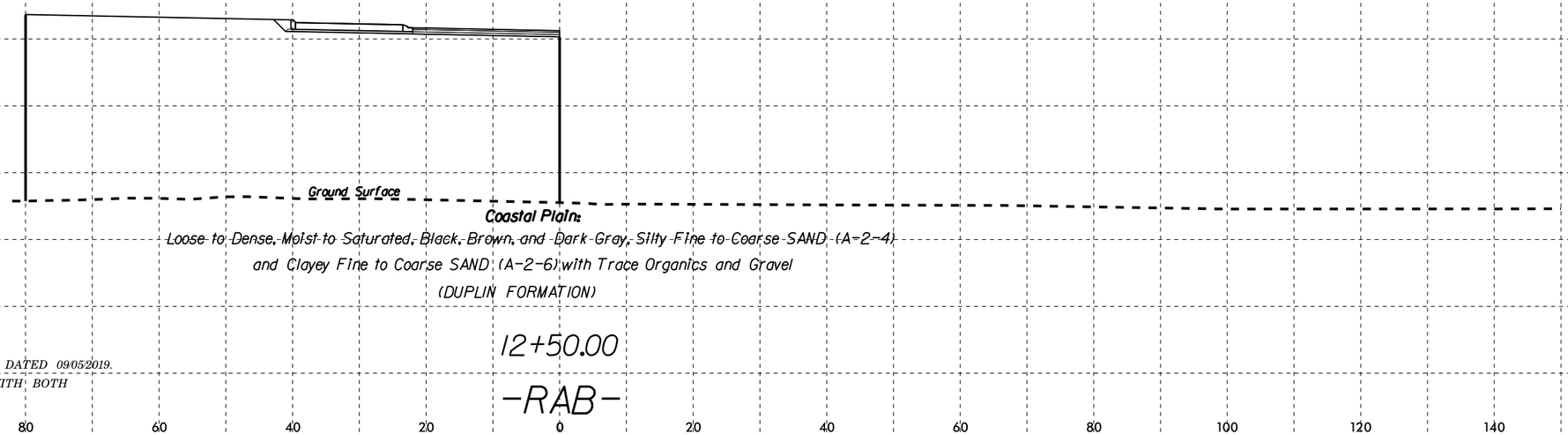
Tlwalker AT 6602611102

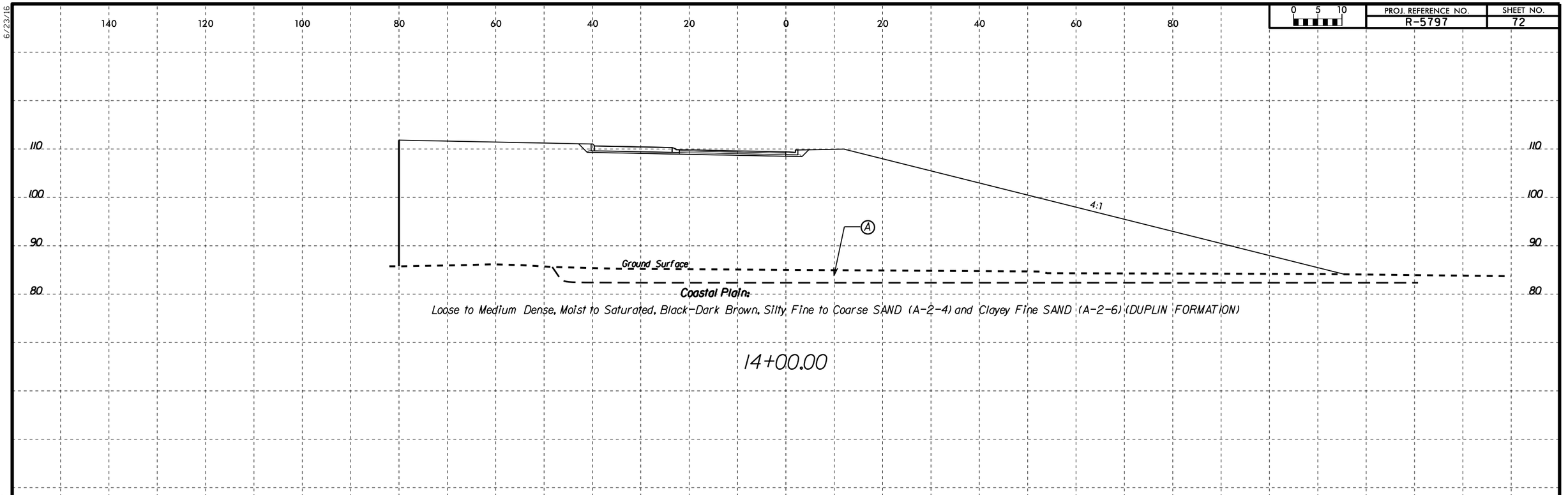
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-20	80' LT	13+00	0.0- 1.0	-	-	-	-	-	-	-	-	-	-	8.1	1.8



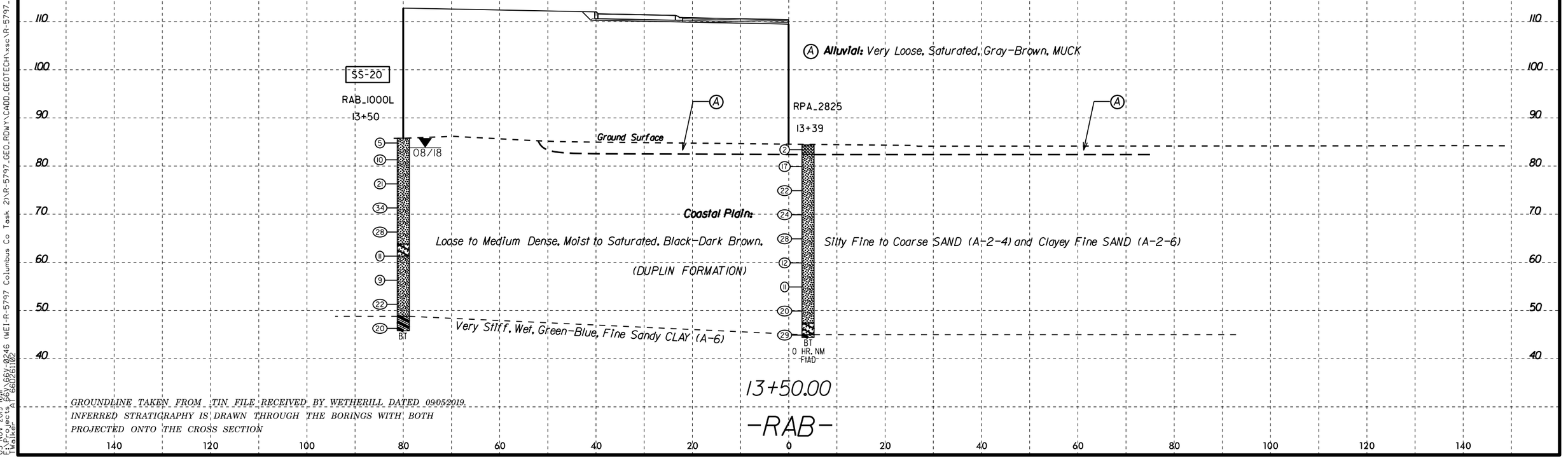


GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-20	80' LT	13+50	0.0-1.0	-	-	-	-	-	-	-	-	-	-	8.1	1.8

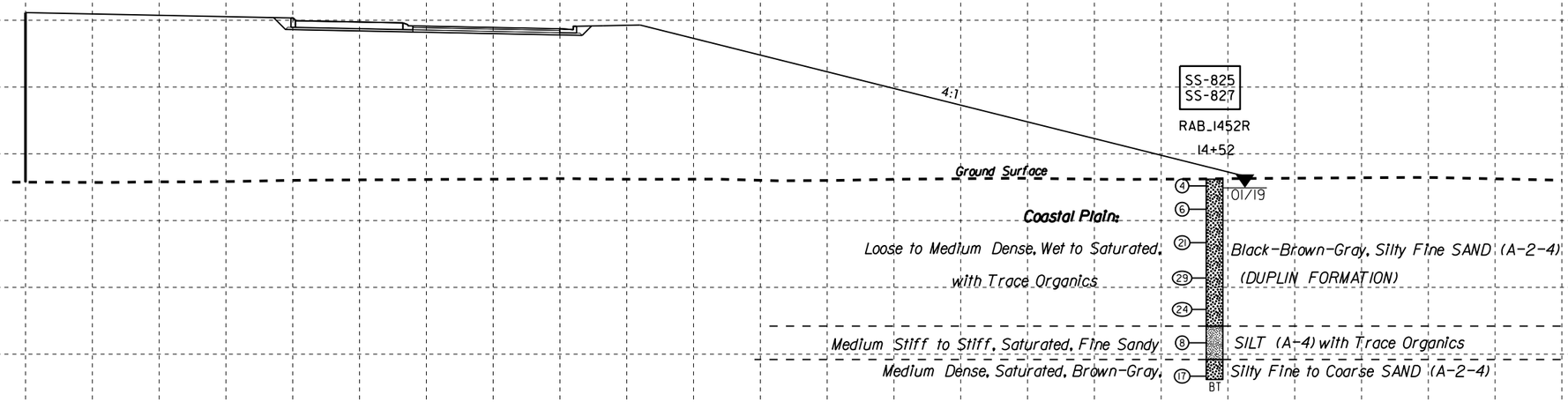


GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-825	98' RT	14+52	0.1-1.5	A-2-4	-	-	-	-	-	-	-	-	6.4	21.7	2.2
SS-827	98' RT	14+52	23.5-25.0	A-4 (2)	29	6	9.1	36.1	29.9	24.9	99.9	95.7	67.6	31.9	-



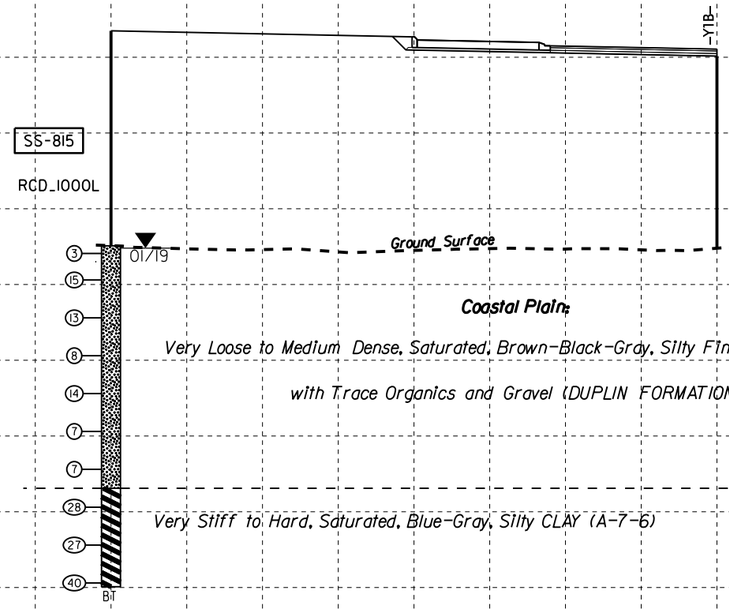
GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09052019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

14+50.00
-RAB-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5797	74

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-815	80' LT	10+00	33.5-35.0	A-7-6 (16)	41	23	12.7	18.3	45.5	23.5	99.6	92.4	75.5	21.4	-



110 100 90 80

Coastal Plain:

Very Loose to Medium Dense, Saturated, Brown-Black-Gray, Silty Fine to Coarse SAND (A-2-4)

with Trace Organics and Gravel (DUPLIN FORMATION)

Very Stiff to Hard, Saturated, Blue-Gray, Silty CLAY (A-7-6)

10+00.00

-RCD-

GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY WETHERILL DATED 09/05/2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

05-NOV-2019 lgill
F:\Projects\66V\66V-0246 (WEI-R-5797 Columbus Co Task 2)\R-5797_GEO_RDWY\CADD_GEOTECH\xsc\R-5797_geo_xsl_RCD.dgn
Walker, A1 660261102