DCN

CONTRACT: C203143 ID: P-5206A

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. P-5206A F.A. PROJ. _____

COUNTY ROWAN

PROJECT DESCRIPTION PEELER ROAD (SR 2538)/CEDAR SPRINGS ROAD (SR 1560)

GRADE SEPARATION OVER NS/NCRR AND US 29

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	P-5206A	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
52000.1.STR03T1B		P.E., UTIL P.E.
52000.1.STR04T3		P.E., UTIL P.E.
43219.2.STR08P5206		R/W
52000.3.STR01T4A		UTIL. CONST.
52000.3.STR01T4A		CONST.

CONTENTS

LINE	STATION	PLAN	PROFILE
-Y2-	11+50 TO 51+48	4-7	18, 19
-Y23-	10+00 TO 34+90	7, 9-11	20
-20-	10+00 TO 60+37	12-15	21-23
-Y21-	22+00 TO 30+50	6, 16	23, 24

CROSS SECTIONS

LINE	STATION	SHEET NO.
-Y2-	16+50 TO 33+00	25-33
-Y2-	34+50 TO 37+00	34, 35
-Y2-	38+50 TO 39+00	36
-Y2-	41+00 TO 41+50	37
-Y2-	46+50 TO 51+00	38-40
-Y20-	41+50 TO 56+91.07	41,48
-Y20-	59+00 TO 60+00	49
-Y21-	20+50 TO 26+00	50-52
-Y23-	10+50 TO 12+00	53
-Y23-	14+00 TO 16+00	54
-Y23-	23+50 TO 27+00	55,56

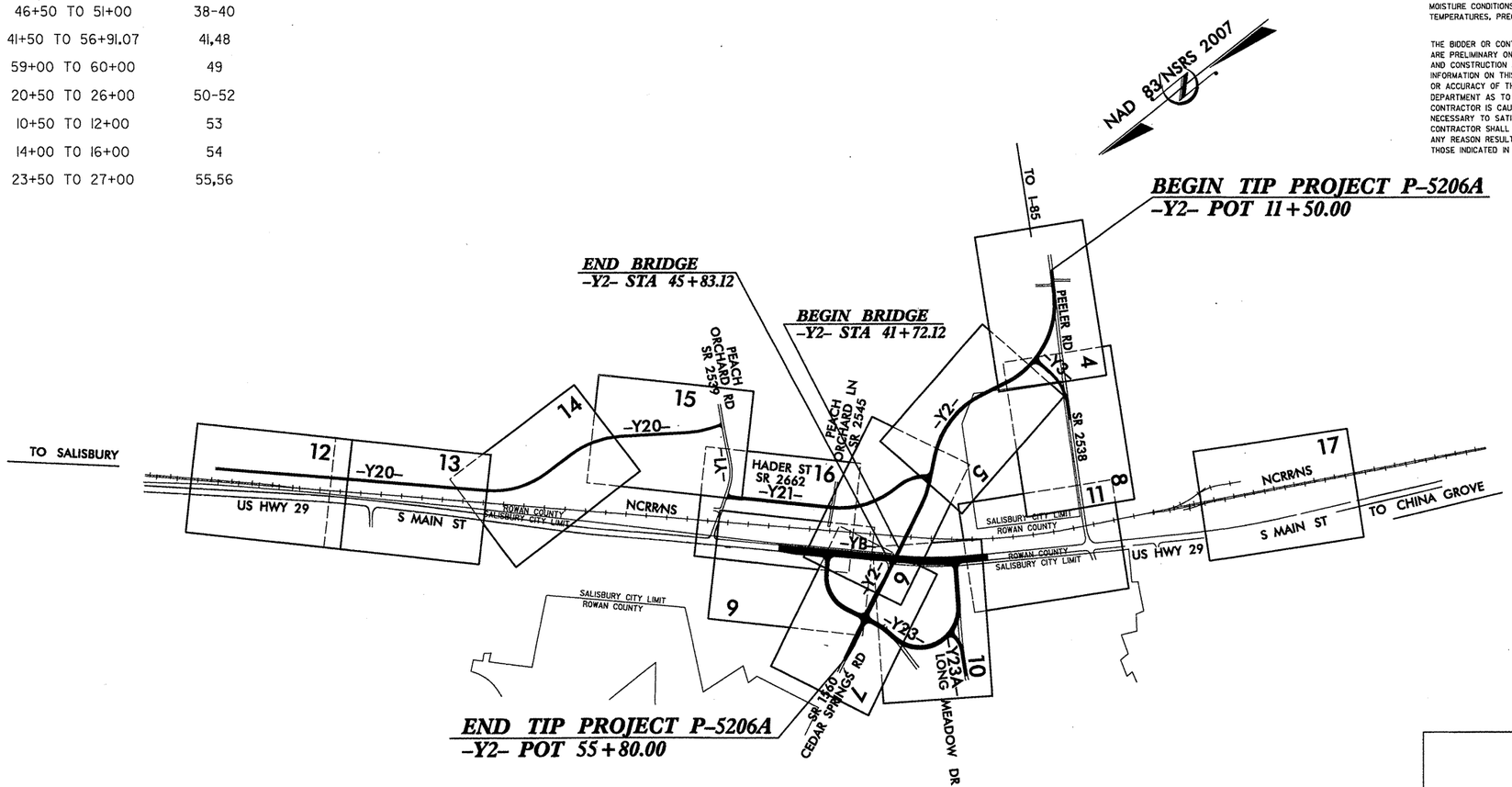
INVENTORY

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 THIS 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.



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DATE OCTOBER 2012

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5 DEC 12

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NOTE - 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.

PROJECT REFERENCE NO.	SHEET NO.
P-5206.A	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 TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. 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-7-5, A-7-6)	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							
SYMBOL														
% PASSING #10	50 MX													
#40	30 MX	50 MX	51 MN											
#200	15 MX	25 MX	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
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	No MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS A 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	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>4

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

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

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES 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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
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
- INFERRED BASE ROADWAY EMBANKMENT
- 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 W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

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
FIAD - FILLED IN AFTER DRILLING
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:
- [ ] MOBILE B-___
- [ ] BK-51
- [x] CME-45C
- [ ] CME-550
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

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

HAMMER TYPE:
- [x] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [x] -N Q2
- [ ] -H_____

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

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. 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, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS 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 FEET
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 THE 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, 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:

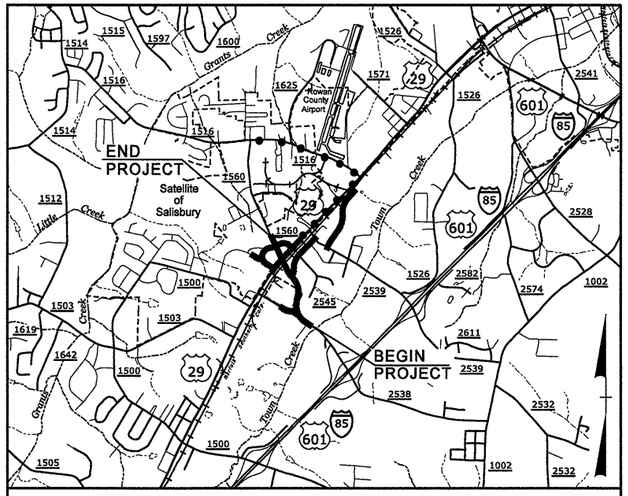
ELEVATION: FT.

NOTES:

- POTENTIAL UNCLASSIFIED EXC. UNSUITABLE MATERIALS
- POTENTIAL UNDERCUT EXC.

REVISED 09/23/09

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



VICINITY MAP
OFF-SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
NCDOT RAIL DIVISION

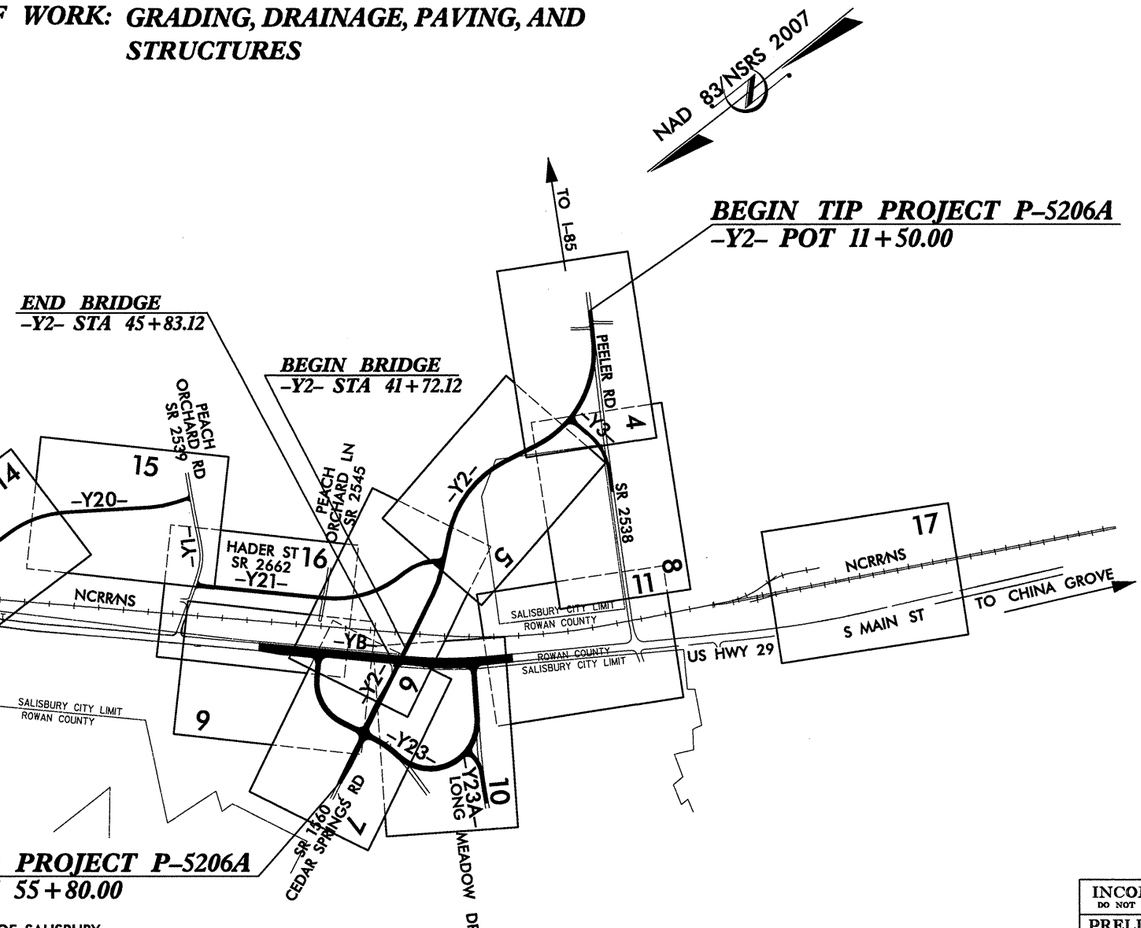
ROWAN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	P-5206A	2A	52

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
52000.1.STR03T1B		P.E.

LOCATION: PEELER ROAD (SR 2538)/CEDAR SPRINGS ROAD (SR 1560) GRADE SEPARATION OVER NCRR/NS

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF SALISBURY.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ___.

NDOT RAIL DIVISION CONTACT: SANDRA STEPNEY, PE

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DESIGN DATA

ADT 2009 = ?
ADT 2035 = ?
DHV = 8 %
D = 55 %
T = 4 % *
V = 50 MPH
* 2% TTST + 2% DUALS
FUNC CLASS = LOCAL

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PROJECT LENGTH

LENGTH RDWY (-Y2-) TIP PROJECT P-5206A = 0.761 MILES
LENGTH STR (-Y2-) TIP PROJECT P-5206A = 0.078 MILES
TOTAL LENGTH (-Y2-) TIP PROJECT P-5206A = 0.839 MILES

SUBMITTAL: FINAL DESIGN FIELD INSPECTION PLANS
DATE: FEB. 17, 2012

Prepared In the Office of:
Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0268

2012 STANDARD SPECIFICATIONS

BRIAN A. WILES, PE
PROJECT ENGINEER

LETTING DATE: MARCH 19, 2013
RIGHT OF WAY DATE: MARCH 16, 2012

ROADWAY ENGINEER
P.E.
SIGNATURE:

HYDRAULICS ENGINEER
P.E.
SIGNATURE:

NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
1546 MAIL SERVICE CENTER
RALEIGH, NC 27699-1546

TIP PROJECT: P-5206A

CONTRACT:

12/5/2012
R:\Geotech\InvestigationDesign\PlanProf\P5206A_GEO_Inv_001_roadway title.dgn
Florence & Hutcheson, Inc.

Florence & Hutcheson
CONSULTING ENGINEERS

October 17, 2012 (REV December 4, 2012)

Sandra A. Stepney, PE, CPM
Engineering and Safety Unit
North Carolina Department of Transportation
862 Capital Boulevard
Raleigh, North Carolina 27603

Reference: **Roadway Inventory Report**
Peeler Road - Grade Separation Over
North Carolina Railroad/
Norfolk Southern Corporation
From Reid to North Kannapolis
Rowan County, North Carolina
Project No. P-5206A
F&H Project No. 11201

Dear Ms. Stepney:

Florence & Hutcheson (F&H) has completed the authorized subsurface investigation and roadway inventory report for the above referenced project in Rowan County, North Carolina, and we submit the following information.

PROJECT DESCRIPTION

This project consists of the construction of a roadway bridge to separate the at-grade intersection of SR 2538 (-Y2-, Peeler Road) with North Carolina Railroad/Norfolk Southern Corporation railroad line (-YB-) in the town of Salisbury. The proposed bridge will carry the two lanes of the relocated Peeler Road over the single track of the NCRR/NS Corp. and the four lanes of U.S. Highway 29/South Main Street. The project begins southeast of the intersection of Peeler Road and Southwood Road/Pleasant Place Road and extends northwest 0.85 miles to intersect with Cedar Springs Road (SR 1560) north of U.S. Highway 29/South Main Street.

The geotechnical field investigation was conducted between February and June 2012. An F&H drilling crew performed the investigation of the subsurface using a tracked ATV-mounted CME-45 drilling rig. An F&H geologist worked with the drilling crew to sample and log the borings. Standard Penetration Tests (SPT) were performed at regular intervals in the borings. Representative soil samples were collected for visual classification in the field and submitted for laboratory analysis by F&H's soils laboratory.

The following alignments, totaling 2.0 miles, were investigated. Subsurface soil profiles and cross-sections of these alignments are included in this report:

Line	Station
-Y2-	10+00 to 55+80
-Y20-	35+00 to 60+37
-Y21-	20+31 to 30+50

5121 Kingdom Way, Suite 100 • Raleigh, NC 27607 • (919) 851-6066 • fax (919) 851-6846
e-mail: fhraleigh@flohut.com

-Y23-	10+00 to 34+90

AREAS OF SPECIAL GEOTECHNICAL INTEREST

1) Occurrences of highly plastic silts and clays (Plasticity Index greater than 25) are noted in the following sections:

Line	Station
-Y2-	26+50 to 27+50
-Y20-	45+50 to 46+50
-Y21-	23+50 to 25+00

There is a possibility that areas of high plasticity soils near subgrade may exist elsewhere along the project.

2) Occurrences of soft cohesive soils which have the potential to cause embankment stability and/or long-term settlement problems are noted in the following sections:

Line	Station
-Y2-	38+00 to 41+50
-Y2-	46+00 to 49+50
-Y21-	27+50 to 30+50

3) Artificial fill was encountered between Station 43+25 to Station 46+50 (-Y2-) with up to 13.5 feet of silty clay, rock fragments, and gravel.

PHYSIOGRAPHY AND GEOLOGY

The various proposed alignments lie within the Charlotte Belt as defined within North Carolina. The Charlotte Belt contains plutonic rock, large areas of metavolcanic rock, and very few metasedimentary rocks.

Published mapping indicates the following lithologic units may be anticipated underlying the proposed alignments: undivided Metavolcanic rocks composed of felsic, mafic, or intermediate types, probably interbedded and may be correlative in some part to the Battleground Formation. Immediately west lie soils developed upon the Churchland Pluton (Permian and Pennsylvanian) primarily composed of porphyritic, biotite monzogranite but may also be fine-grained. Artificial fill is anticipated within small localized accumulations.

Intercepted rock units are anticipated to exhibit steeply dipping bedding and foliation throughout the proposed alignment. A bedding dip value of 70° NW and foliation dip of 80°WNW are indicated on published mapping near the proposed alignments.

SOIL PROPERTIES

Borings advanced during the subsurface investigation generally exhibited thick residual soils with penetration to 71.0 feet without Standard Penetration Test (SPT) sampler or auger refusal encountered. Penetrated soils were predominantly residual in origin, soft to stiff, silty clay with varying fractions of fine- to coarse-grain sand and limited fractions of rock fragments, mineral or

quartz veining, and root fragments near the surface. Within deeper advanced borings, layers of very soft to hard, very sandy silt and fine- to coarse-grain sand and silt in relatively equal fractions were intercepted. Plasticity characteristics varied from low to high within silty clays while silts and sand and silt layers generally exhibited low to non-plastic characteristics.

Penetration of artificial fill was interpreted at Station 43+25 to Station 46+50 with up to 13.5 feet of silty clay, rock fragments, and gravel. Artificial fill overlies previously described residual silty clay.

Weathered rock was encountered within one (1) boring, R-12, at a depth of 54.8 feet. This one instance of weathered rock encountered was 0.5 feet in thickness, and the boring terminated within the unit. Though not apparently typical, thin, weathered rock intervals may occur between the advanced borings

One (1) boring, R-5, reported auger refusal at 11.2 feet on crystalline rock. Crystalline rock may be intercepted within three (3) feet of proposed grade between the indicated boring locations, or, as at Station 25+00, throughout the proposed alignment profile. These two instances were the only indications of rock indicated by the advanced borings.

ROCK PROPERTIES

While crystalline rock apparently caused auger refusal within boring R-5, advancement of the remaining borings suggests that rock or weathered rock lies sufficiently below proposed cut excavations. As with weathered rock, however, crystalline rock or large rock boulders may occur between the advanced boring locations throughout the proposed alignment profiles.

GROUNDWATER

Groundwater was not encountered in the borings completed for this project. The subsurface investigation was conducted during the typically wetter Winter/early Spring season of the year. We would expect groundwater to vary in depth across the entire project site. However, based on our investigation, we do not anticipate that groundwater will be a problem during construction on this project.

UNDISTURBED SAMPLES

Undisturbed thin-wall Shelby tube samples were collected at the following locations and submitted for testing:

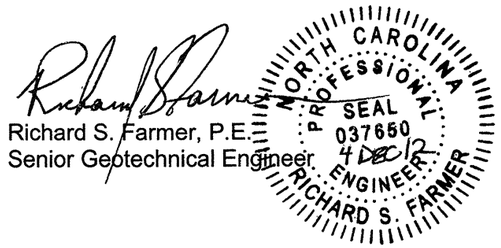
Line	Station	Depth	Test
-Y2-	21+00, 20' LT	15.0-16.5	Classification
-Y2-	27+00, 30' LT	5.0-5.5	Classification
-Y2-	27+00, 30' LT	20.0-21.8	Classification
-Y2-	31+00, 20' RT	4.9-5.6	Classification
-Y2-	39+00, 23' LT	9.8-10.3	Classification/Consolidation
-Y2-	41+00, 23' RT	19.5-20.6	Class./Unconf. Compress.
-Y2-	41+00, 23' RT	39.5-41.5	Classification
-Y2-	41+00, 23' RT	59.5-60.8	Classification
-Y2-	49+00, 35' RT	29.9-31.0	Classification
-Y20-	44+00, 13' RT	10.0-11.5	Classification
-Y20-	46+00, 26' RT	5.0-6.2	Classification
-Y20-	48+00, 18' LT	9.8-10.3	Classification
-Y20-	50+00, 31' LT	15.0-16.4	Classification
-Y20-	54+00, 18' RT	5.0-6.3	Classification
-Y21-	26+00, 23' RT	10.0-11.3	Classification
-Y23-	27+00, 22' RT	10.0-11.5	Classification

CLOSURE

Florence & Hutcheson appreciates the opportunity to provide geotechnical services to the Engineering and Safety Unit of the North Carolina Department of Transportation. If you have any questions, comments, or require additional information, please feel free to contact us.

Sincerely,

FLORENCE & HUTCHESON – AN ICA COMPANY



Richard S. Farmer, P.E.
Senior Geotechnical Engineer

PROJECT: P-5206A COUNTY: Rowan Volumes in Cubic Yards DATE: 1/21/2013 COMPILED BY: BAW SHEET__ OF __ SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +20%		ROCK	SUITABLE	UNSUIT.	TOTAL
-Y2- 11+50	-Y2- 41+72.12	12,680		7,465	375	12,305	106,828		106,828	128,194	115,889			7,840	7,840
-Y3- 10+12	-Y3- 17+00	818				818	2,162		2,162	2,594	1,776				
-Y21- 10+12.50	-Y21- 30+50.30	397		3,030		397	27,879		27,879	33,455	33,058			3,030	3,030
	SUBTOTAL	13,895		10,495	375	13,520	136,869		136,869	164,243	150,723			10,870	10,870
-Y20- 33+50	-Y20- 60+26	4,154		210	90	4,064	9,953		9,953	11,944	7,880			300	300
	SUBTOTAL	4,154		210	90	4,064	9,953		9,953	11,944	7,880			300	300
-Y2- 45+83.12	-Y2- 55+80	558		3,335		558	28,651		28,651	34,381	33,823			3,335	3,335
-Y23- 10+42.00	-Y23- 18+01.07	55				55	6,398		6,398	7,678	7,623				
-Y23- 18+49.07	-Y23- 34+48.09	1,629				1,629	10,443		10,443	12,532	10,903				
-Y23A- 10+18.00	-Y23A- 13+55	294				294	167		167	200			94		94
-YB- 11+00	-YB- 31+25	783				783	1,538		1,538	1,846	1,063				
	SUBTOTAL	3,319		3,335		3,319	47,197		47,197	56,636	53,411		94	3,335	3,429
TOTAL		21,368		14,040	465	20,903	194,019		194,019	232,823	212,013		94	14,505	14,599
MATERIAL FOR SHOULDER CONSTRUCTION							3,384		3,384	4,061	4,061				
LOSS DUE TO CLEARING & GRUBBING														2,200	2,200
ADDITIONAL UNDERCUT				2,200			2,200		2,200	2,640	2,640				
ROCK WASTE TO REPLACE BORROW															
ADJUST FOR ROCK WASTE											-94		-94		-94
WASTE IN LIEU OF BORROW															
PROJECT TOTAL		21,368		16,240	465	20,903	199,603		199,603	239,524	218,621			16,705	16,705
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT											10,931				
GRAND TOTAL		21,368		16,240	465	20,903	199,603		199,603	239,524	229,552			16,705	16,705
SAY		21,400									229,600				

BACKFILL UNDERCUT WITH SELECT GRANULAR MATERIAL.

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

PLATINUM CONSTRUCTION CORP.
DB 1107 PG 874

LINDA CHAPMAN RINEHART
RONNIE CARLEE RINEHART
DB 813 PG 522

VIRDIE K. RITCHIE
RUTH T. RITCHIE
DB 122 PG 834
PB 9995 PG 6452

PAMELA W. PEELER
DT 402 PG 30

DAVID L. PARRIS
DB 991PG 649
PB 9995 PG 4834

BEGIN TIP PROJECT P-5206A
-Y2- POT 11+50.00

-Y2- POT 10+00.00

-Y2- PC 13+77.66

PEELER RD SR 2538 26' BST

N 58° 23' 37.3" W

-Y3- PC 11+81.49

-MATCHLINE- STA. 12+00.00 -Y3- SEE SHEET NO. 8

LESTER WAYNE HONEYCUTT
LOUISE PAGE HONEYCUTT
DB 618 PG 158

ALFRED RAY CAUBLE, JR.
BETTY H. CAUBLE
DB 560 PG 214
DB 565 PG 802

JOSE PEDRO COLOCHO-GONZALEZ
MARTA ALFARO DE COLOCHO
DB 1079 PG 376

THOMAS EUGENE GRUBB
VICKIE LYNN SPRY GRUBB
DB 565 PG 759

WILLIAM MARSHALL ISENHOUR
DB 647 PG 546

-Y2- POC 20+53.35 =
-Y3- POT 10+00.00

-MATCHLINE- STA. 22+00.00 -Y2- SEE SHEET NO. 5

-Y2-
PI Sta 19+60.26
Δ = 69° 29' 17.9" (RT)
D = 6° 49' 15.3"
L = 1,018.75'
T = 582.60'
R = 840.00'
SE = .06

-Y3-
PI Sta 13+77.18
Δ = 42° 45' 00.8" (RT)
D = 11° 27' 33.0"
L = 373.01'
T = 195.70'
R = 500.00'
SE = .06

FOR -Y2- PROFILE SEE SHEET 18
FOR -Y3- PROFILE SEE SHEET 20

LEGEND
- PAVED SHOULDER
- PAVEMENT REMOVAL

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NC License No: P-0258

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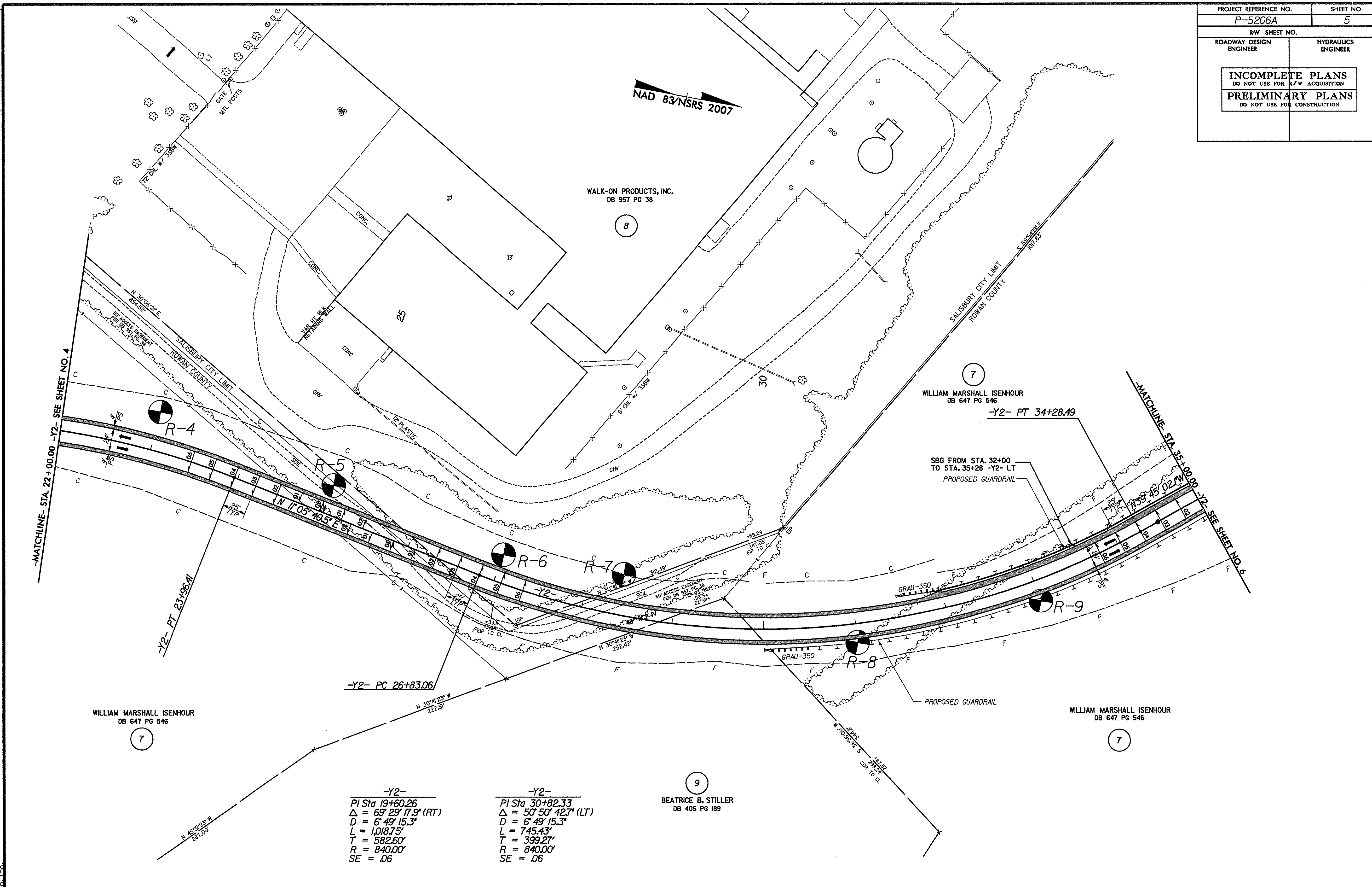
PROJECT REFERENCE NO.	SHEET NO.
P-5206A	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-Y2-	-Y2-
PI Sta 19+60.26	PI Sta 30+82.33
Δ = 69° 29' 17.9" (RT)	Δ = 50° 50' 42.7" (LT)
D = 6° 49' 15.3"	D = 6° 49' 15.3"
L = 1,018.75'	L = 745.43'
T = 582.60'	T = 399.27'
R = 840.00'	R = 840.00'
SE = .06	SE = .06

FOR -Y2- PROFILE SEE SHEET 18

LEGEND

PAVED SHOULDER

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PROJECT REFERENCE NO.	SHEET NO.
P-5206A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

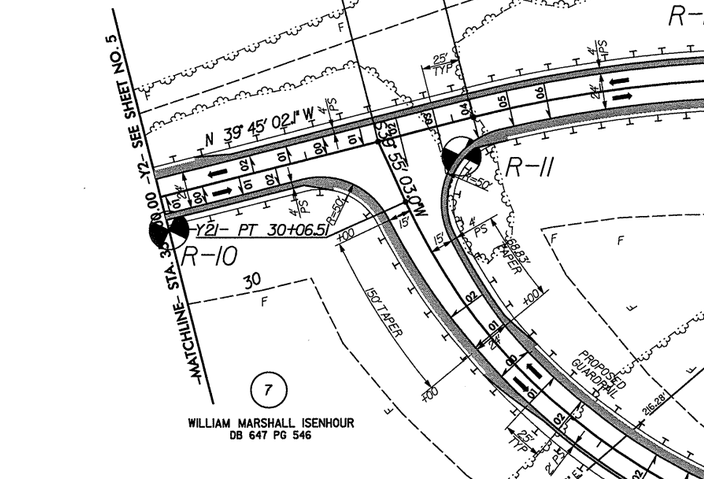
NAD 83/NSRS 2007

-Y2-
PI Sta 38+20.77
Δ = 14° 29' 58.6" (RT)
D = 6° 49' 15.3"
L = 212.58'
T = 106.86'
R = 840.00'
SE = .06

-YB-
PI Sta 26+05.03
Δ = 10° 52' 17.2" (LT)
D = 1° 36' 50.3"
L = 673.59'
T = 337.81'
R = 3,550.00'
SE = .02

-Y21-
PI Sta 23+92.15
Δ = 45° 59' 56.9" (LT)
D = 6° 44' 26.4"
L = 682.41'
T = 360.80'
R = 850.00'
SE = .06

PI Sta 28+67.10
Δ = 42° 07' 12.8" (RT)
D = 14° 23' 16.7"
L = 292.75'
T = 153.34'
R = 398.22'
SE = .02



PAVEMENT-BRIDGE RELATIONSHIP SKETCH

FOR -Y2- PROFILE SEE SHEET 19
FOR -YB- PROFILE SEE SHEET 21
FOR -Y21- PROFILE SEE SHEET 26

LEGEND
PAVED SHOULDER

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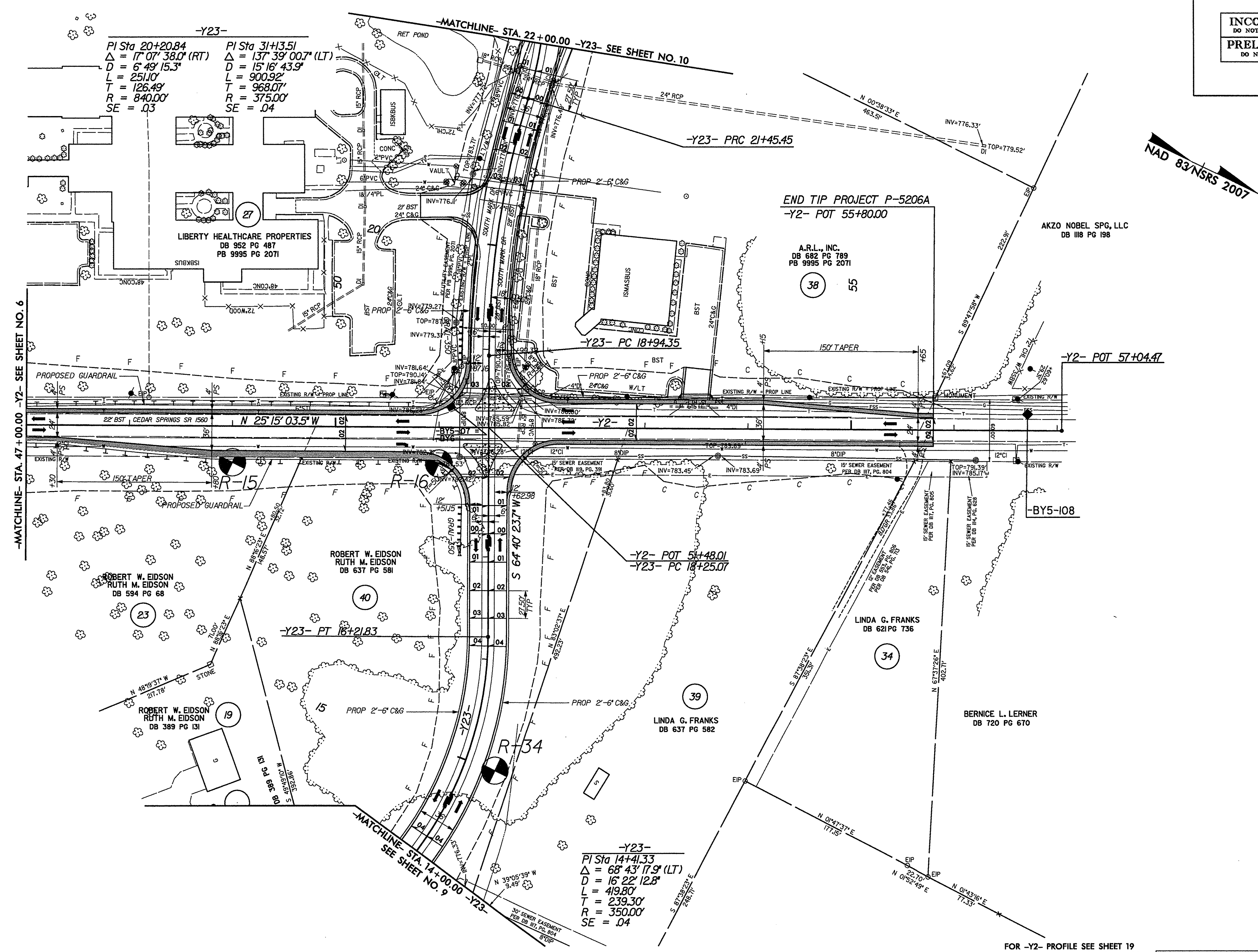
Florence & Hutcheson, Inc.

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -Y2- PROFILE SEE SHEET 19
FOR -Y23- PROFILE SEE SHEET 22

LEGEND

PAVED SHOULDER

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NC License No: F-0268

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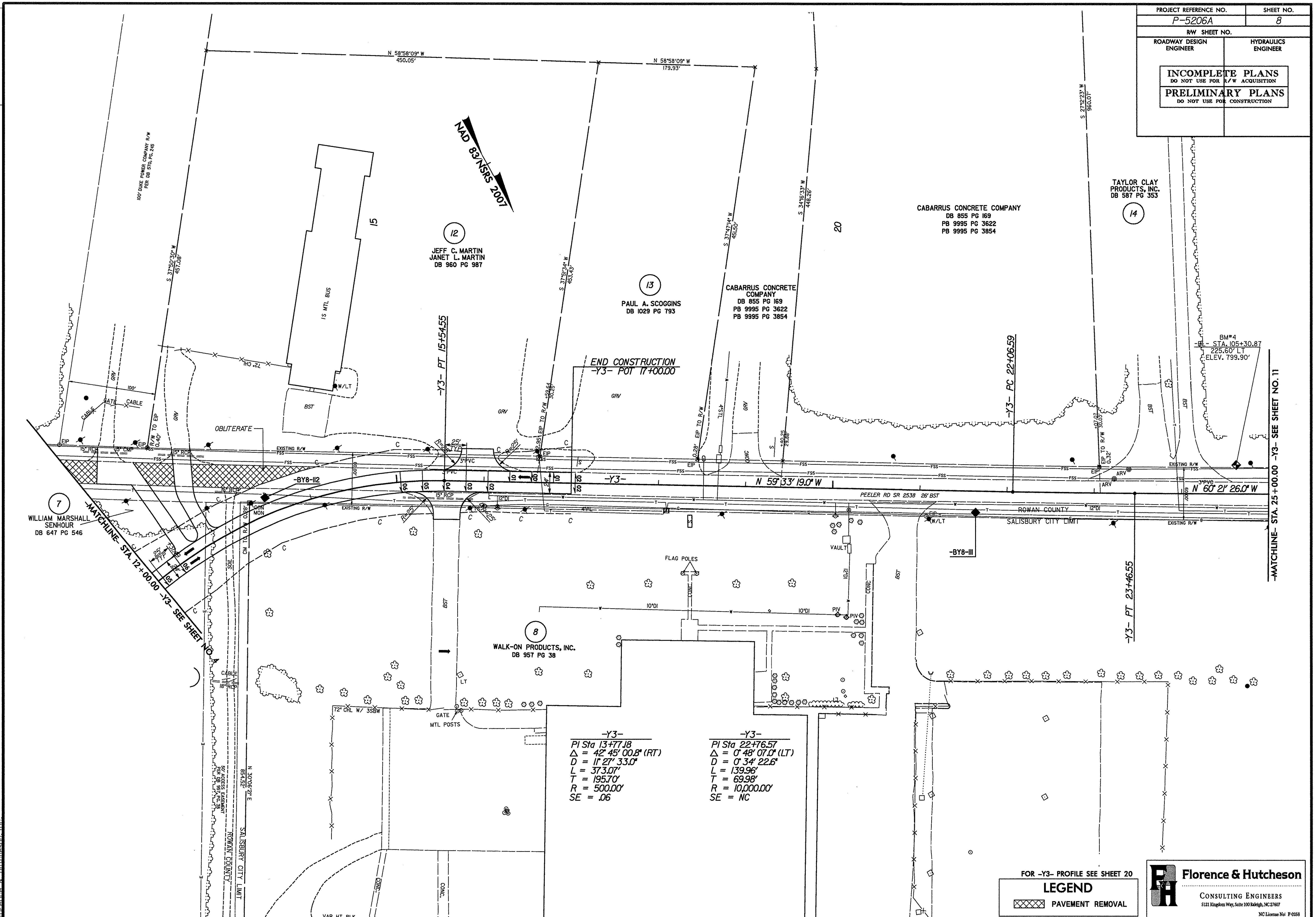
Florence & Hutcheson, Inc.



-Y3-	-Y3-
PI Sta 13+77.18	PI Sta 22+76.57
Δ = 42° 45' 00.8" (RT)	Δ = 0° 48' 07.0" (LT)
D = 11° 27' 33.0"	D = 0° 34' 22.6"
L = 373.07'	L = 139.96'
T = 195.70'	T = 69.98'
R = 500.00'	R = 10,000.00'
SE = .06	SE = NC

FOR -Y3- PROFILE SEE SHEET 20

LEGEND

PAVEMENT REMOVAL

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0358

12/5/2012
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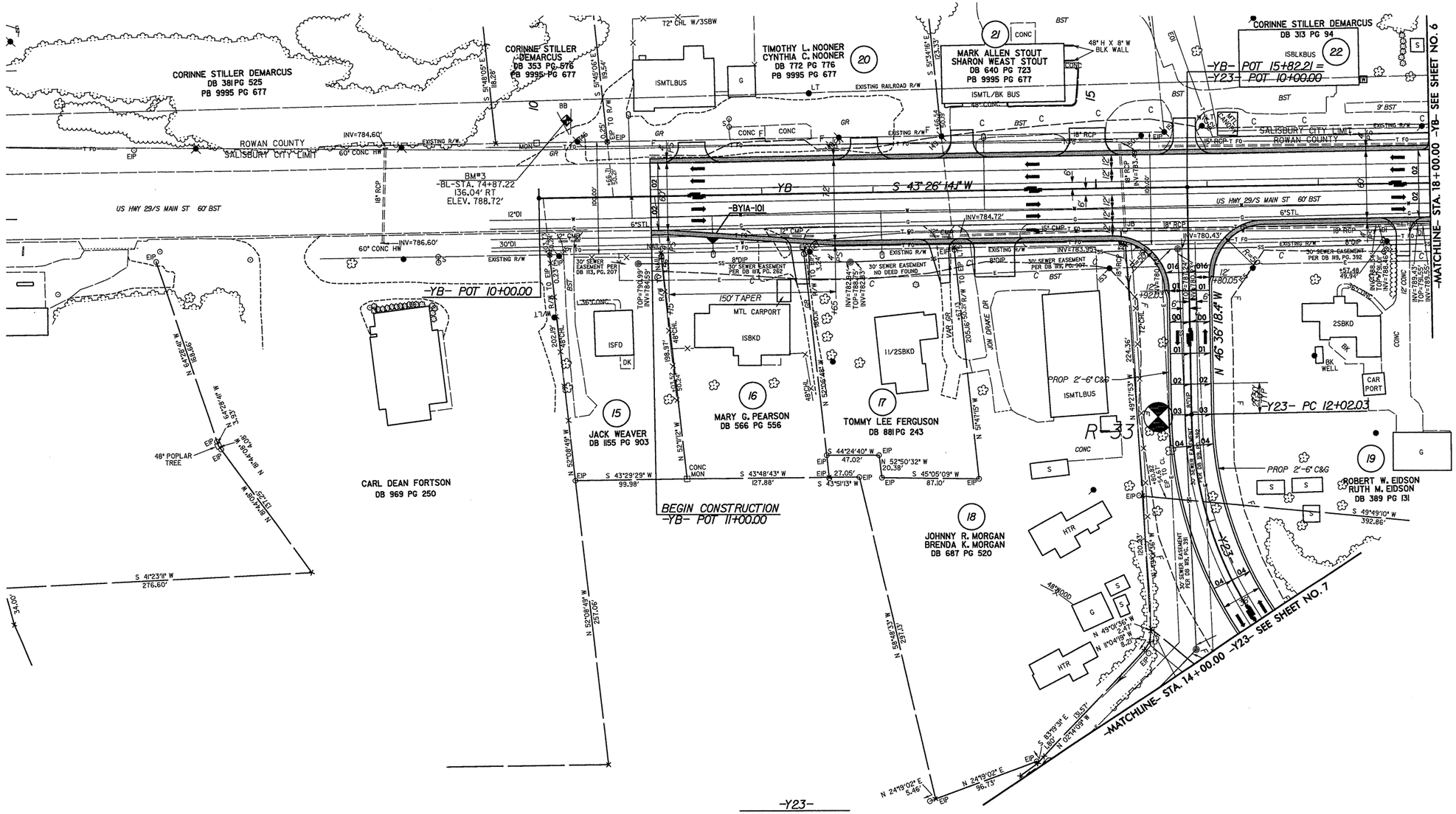
Florence & Hutcheson, Inc.

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007



FOR -YB- PROFILE SEE SHEET 21
FOR -Y23- PROFILE SEE SHEET 22

LEGEND
PAVED SHOULDER

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NC License No: F-0258

12/5/2012
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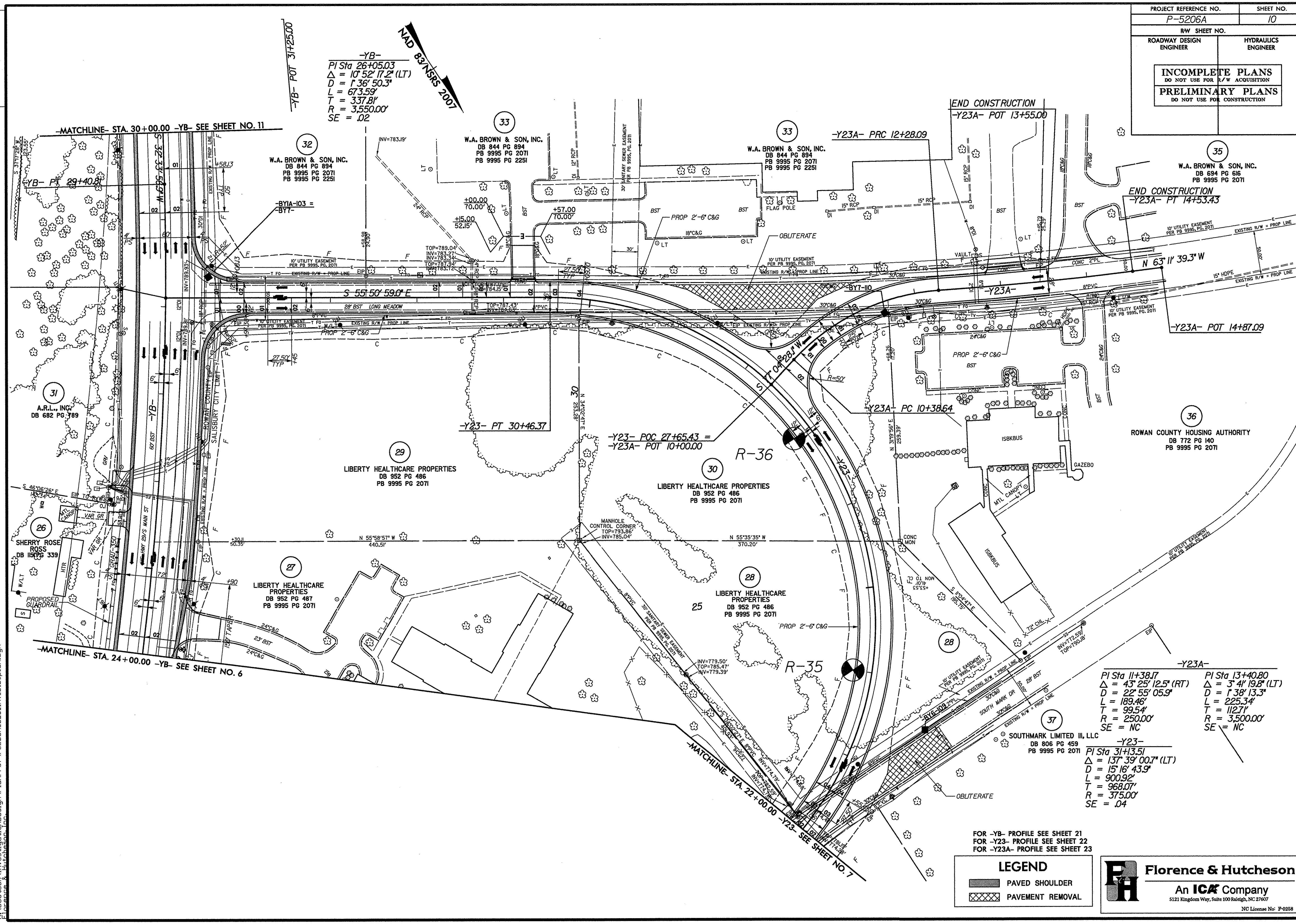
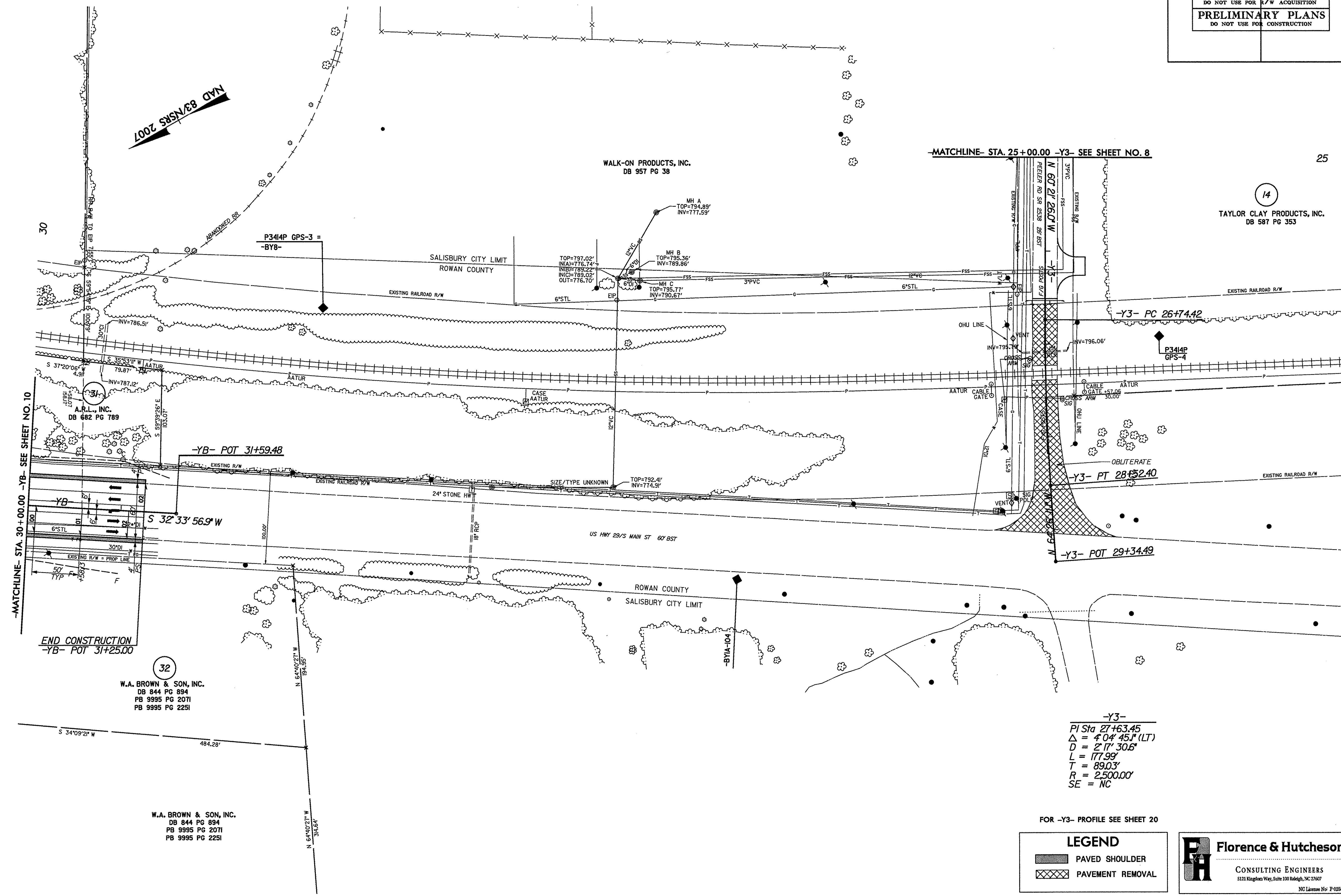
Florence & Hutcheson, Inc.


PROJECT REFERENCE NO.
P-5206A
SHEET NO.
10
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83/NSRS 2007
-YB- POT 31+25.00
-YB-
PI Sta 26+05.03
Δ = 10° 52' 17.2" (LT)
D = 1° 36' 50.3"
L = 673.59'
T = 337.81'
R = 3,550.00'
SE = .02
-MATCHLINE- STA. 30+00.00 -YB- SEE SHEET NO. 11
-YB- PT 29+40.81
-BY1A-103 = -BY7-
W.A. BROWN & SON, INC.
DB 844 PG 894
PB 9995 PG 2071
PB 9995 PG 2251
-Y23A- PRC 12+28.09
END CONSTRUCTION
-Y23A- POT 13+55.00
END CONSTRUCTION
-Y23A- PT 14+53.43
W.A. BROWN & SON, INC.
DB 694 PG 616
PB 9995 PG 2071
N 63° 11' 39.3" W
S 55° 50' 59.0" E
-Y23A- POT 14+87.09
-Y23A- PC 10+38.64
-Y23- PT 30+46.37
-Y23- POC 27+65.43 =
-Y23A- POT 10+00.00
R-36
R-35
A.R.L., INC.
DB 682 PG 789
LIBERTY HEALTHCARE PROPERTIES
DB 952 PG 486
PB 9995 PG 2071
LIBERTY HEALTHCARE PROPERTIES
DB 952 PG 487
PB 9995 PG 2071
ROWAN COUNTY HOUSING AUTHORITY
DB 772 PG 140
PB 9995 PG 2071
SHERRY ROSE ROSS
DB 1150 PG 339
SOUTHMARK LIMITED III, LLC
DB 806 PG 459
PB 9995 PG 2071
MANHOLE CONTROL CORNER
TOP=793.86'
INV=785.04'
N 55°58'57" W
440.51'
N 55°35'35" W
370.20'
OBLITERATE
PROPOSED GUARDRAIL
-MATCHLINE- STA. 24+00.00 -YB- SEE SHEET NO. 6
-MATCHLINE- STA. 22+00.00 -Y23- SEE SHEET NO. 7
-Y23A-
PI Sta 11+38.17
Δ = 43° 25' 12.5" (RT)
D = 22° 55' 05.9"
L = 189.46'
T = 99.54'
R = 250.00'
SE = NC
PI Sta 13+40.80
Δ = 3° 41' 19.8" (LT)
D = 1° 38' 13.3"
L = 225.34'
T = 112.71'
R = 3,500.00'
SE = NC
-Y23-
PI Sta 31+13.51
Δ = 137° 39' 00.7" (LT)
D = 15° 16' 43.9"
L = 900.92'
T = 968.07'
R = 375.00'
SE = .04
FOR -YB- PROFILE SEE SHEET 21
FOR -Y23- PROFILE SEE SHEET 22
FOR -Y23A- PROFILE SEE SHEET 23
LEGEND
PAVED SHOULDER
PAVEMENT REMOVAL
Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258
12/5/2012

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-Y3-
PI Sta 27+63.45
Δ = 4° 04' 45.1" (LT)
D = 2° 17' 30.6"
L = 177.99'
T = 89.03'
R = 2,500.00'
SE = NC

FOR -Y3- PROFILE SEE SHEET 20

LEGEND

PAVED SHOULDER
PAVEMENT REMOVAL

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No F-0258

12/5/2012
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PROJECT REFERENCE NO.	SHEET NO.
P-5206A	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

10 15 20

NAD 83/NSRS 2007

42 41

BEGIN CONSTRUCTION
-Y20- POT 10+00.00

+50.00
75.00'

+15.00
50.77'

TDE TDE

+00.00
51.07'

-Y20-

S 42° 46' 15.2" W

EXISTING RAILROAD R/W

OBLITERATE EXIST. DRIVE AND REMOVE RR CROSSING

NORFOLK SOUTHERN

P3414P GPS-2

OHU LINE

ANTENNA

BUNGALOW

A/C PROPANE TANK

AATUR

CONC

SIG

18" PLASTIC

FROG

SWITCH

END OF RAIL

EOI

-BL-21

ROWAN COUNTY
SALISBURY CITY LIMIT

GRAVEL

W/LT

T FO

16'DI

42"RCP

US HWY 29/S MAIN ST 60' BST

-MATCHLINE- STA. 22+00.00 -Y20- SEE SHEET NO. 13

CB

18" RCP

48" CONC

GROCK

BST

BM#1
-BL- STA. 24+39.10
175.96' RT
ELEV. 785.02'

FOR -Y20- PROFILE SEE SHEET 23

LEGEND

PAVEMENT REMOVAL

DRIVEWAY AND RR CROSSING REMOVAL

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

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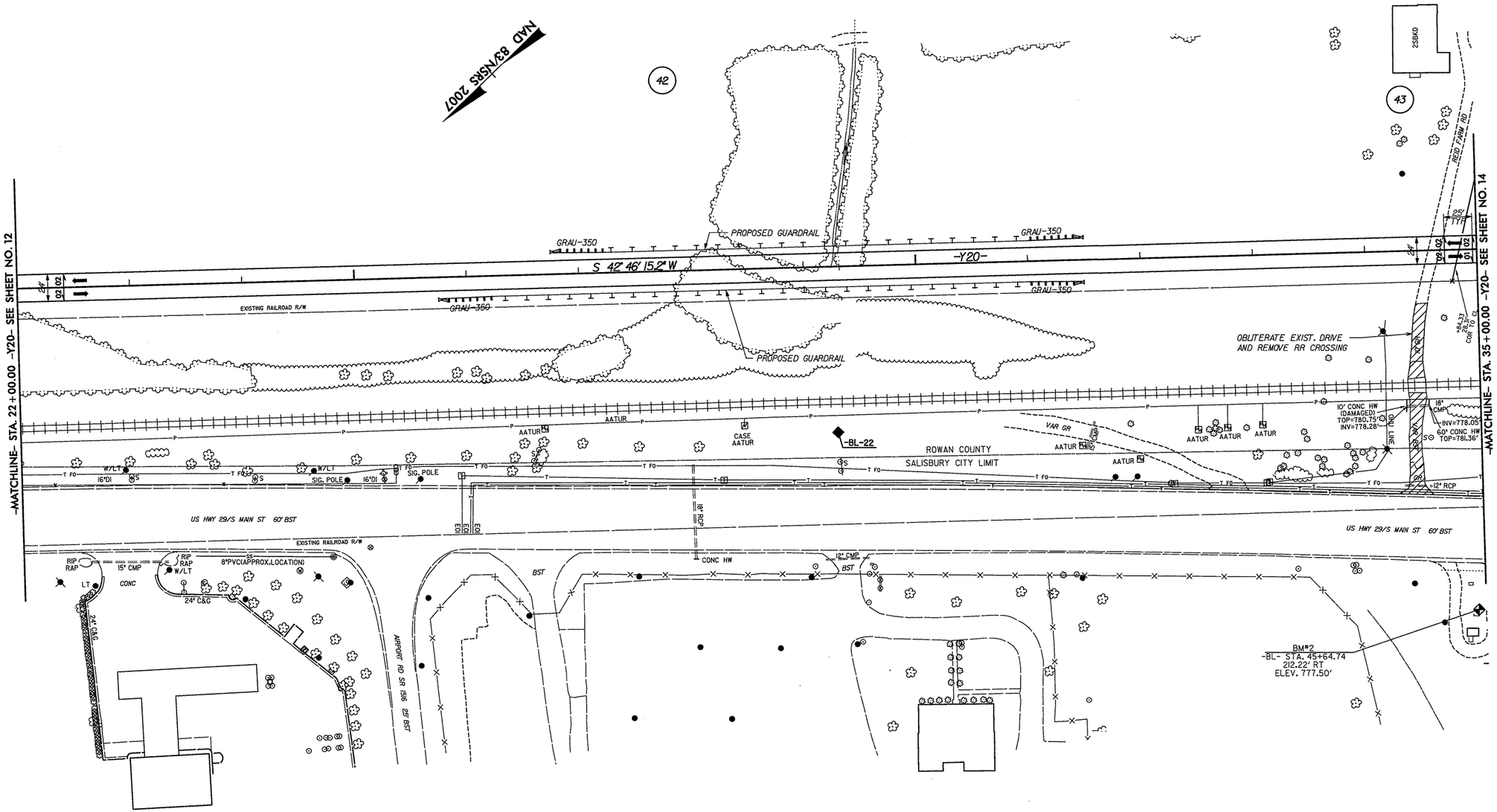
Florence & Hutcheson, Inc.

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -Y20- PROFILE SEE SHEET 24

LEGEND

- PAVEMENT REMOVAL
- DRIVEWAY AND RR CROSSING REMOVAL

Florence & Hutcheson
CONSULTING ENGINEERS
3121 Kingdom Way, Suite 100 Raleigh, NC 27609
NC License No: P-0268

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

-Y20-
PI Sta 39+46.29
Δ = 41° 50' 37.4" (LT)
D = 6° 44' 26.4"
L = 620.76'
T = 324.96'
R = 850.00'
SE = .06

-Y20-
PI Sta 47+91.32
Δ = 33° 55' 13.5" (RT)
D = 6° 44' 26.4"
L = 503.22'
T = 259.23'
R = 850.00'
SE = .06

-MATCHLINE- STA. 35+00.00 -Y20- SEE SHEET NO.13

-Y20- PC 36+21.33

-Y20- PT 42+42.10

-Y20- PC 45+32.10

-MATCHLINE- STA. 48+00.00 -Y20- SEE SHEET NO. 15

S 42° 46' 15.2" W

S 50° 55' 37.8" W

CORY REID ORBISON
DB 816 PG 514
PB 9995 PG 2960

EDWARD E. ORBISON, JR.
DB 545 PG 77

MARTIN MARIETTA MATERIALS, INC
DB 1137 PG 59

ISLAND

DOG LOT

CABLE GATE

GRAU-350

AATUR

R-20

R-21

R-22

R-23

PROPOSED GUARDRAIL

ROWAN COUNTY
SALISBURY CITY LIMIT

US HWY 29/S MAIN ST 60' BST

EXISTING RAILROAD R/W

CONC HW

36" RCP

30"x30" CURB INLET
30" CMP

INV=758.93'
INV=758.80'

INV=758.35'

6x4 CONC HW
TOP=764.43'
INV=758.13'

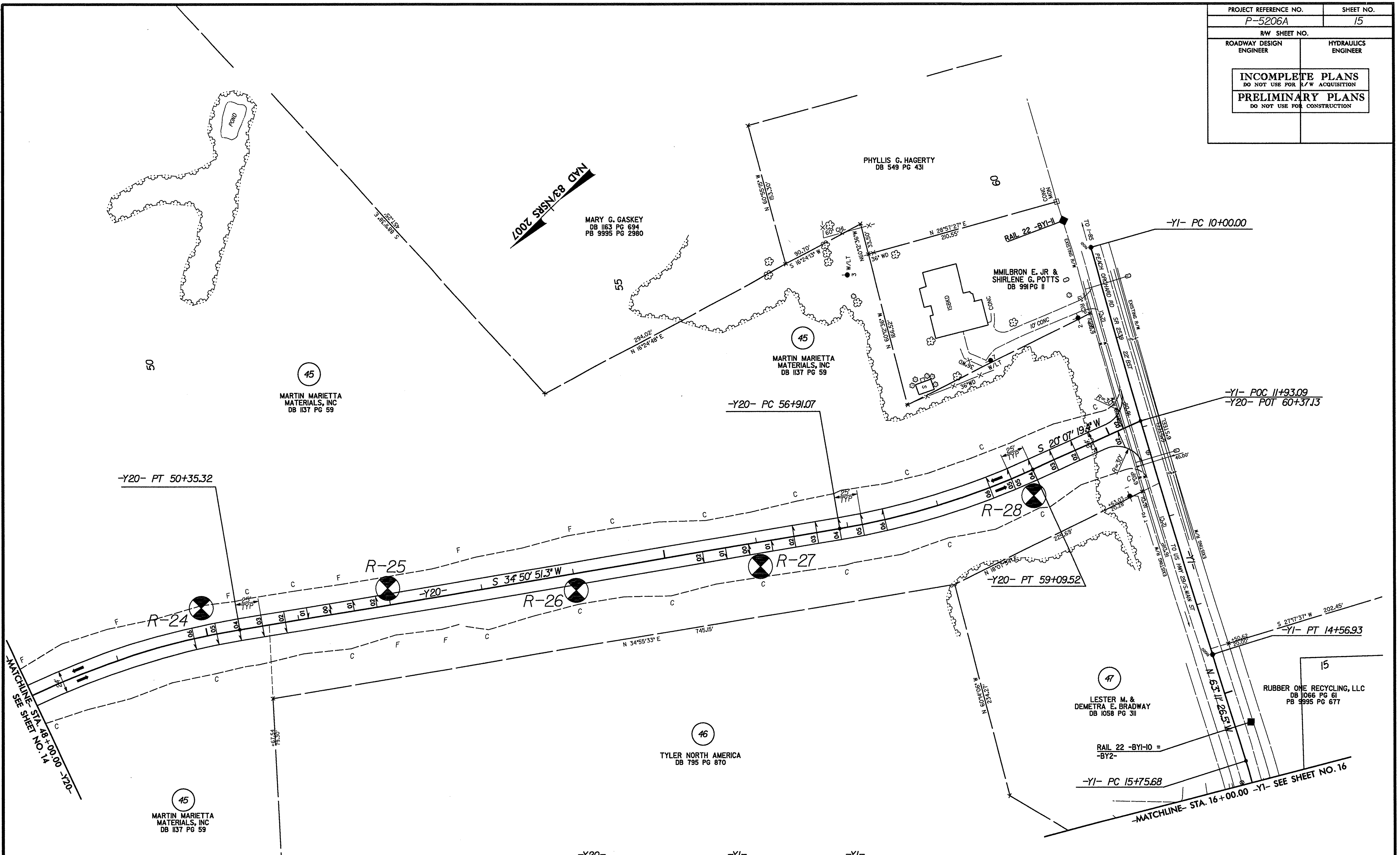
FOR -Y20- PROFILE SEE SHEET 24

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-Y20-
PI Sta 47+91.32
Δ = 33° 55' 13.5" (RT)
D = 6° 44' 26.4"
L = 503.22'
T = 259.23'
R = 850.00'
SE = .06

-Y20-
PI Sta 58+00.90
Δ = 14° 43' 31.9" (LT)
D = 6° 44' 26.4"
L = 218.46'
T = 109.83'
R = 850.00'
SE = .06

-Y1-
PI Sta 12+28.49
Δ = 1° 54' 39.5" (LT)
D = 0° 25' 05.6"
L = 456.93'
T = 228.49'
R = 13,700.00'

-Y1-
PI Sta 16+73.78
Δ = 24° 35' 48.2" (RT)
D = 12° 43' 56.6"
L = 193.18'
T = 98.10'
R = 450.00'

FOR -Y20- PROFILE SEE SHEET 25
FOR -Y1- PROFILE SEE SHEET 26

Florence & Hutcheson
An ICA Company
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NC License No: F-0258

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Florence & Hutcheson, Inc.

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

-MATCHLINE- STA. 16+00.00 -Y1- SEE SHEET NO. 15

-Y1-
PI Sta 16+73.78
Δ = 24° 35' 48.2" (RT)
D = 12° 43' 56.6"
L = 193.18'
T = 98.10'
R = 450.00'

PI Sta 18+29.70
Δ = 6° 06' 36.6" (RT)
D = 5° 01' 33.4"
L = 121.57'
T = 60.84'
R = 1,140.00'

-Y21-
PI Sta 23+92.15
Δ = 45° 59' 56.9" (LT)
D = 6° 44' 26.4"
L = 682.41'
T = 360.80'
R = 850.00'
SE = .06

-Y1- PCC 17+68.86

-Y1- PT 18+90.43

-Y1- POT 19+05.92 =
-Y21- POT 10+00.00

-Y21- PC 20+31.35

-Y1- POT 23+27.04

-BL-25 =
-BY1A-
-BY2-

-BL-26 =
-BY4-

-BY1A-100 =
-BY2-

-BY3-105
-BY4-

-BY3-106

-MATCHLINE- STA. 22+00.00 -Y21- SEE SHEET NO. 6

46 TYLER NORTH AMERICA
DB 795 PG 870

48 RUBBER ONE RECYCLING, LLC
DB 1066 PG 61
PB 9995 PG 677

49 CARLA G. HOWELL
PATRICIA G. FULCHER
KATHY G. CLYBURN
DB 993 PG 256
PB 9995 PG 677

50 ROBERT DEL POWERS
DB 925 PG 957
PB 9995 PG 677

51 RONNIE K. GAULTNEY
DB 765 PG 412
PB 9995 PG 677

52 HECTOR DELGADO
DB 1148 PG 400
PB 9995 PG 677

53 BETTY DONAHUE
DB 1148 PG 401
PB 9995 PG 677

54 APRIL D. DONAHUE
CRYSTAL M. DONAHUE
DB 1074 PG 326
PB 9995 PG 677

11 RANDY LEE BEACH
DB 147 PG 172
DB 1164 PG 705
PB 9995 PG 6926

CORINNE STILLER DEMARCUS
DB 381PG 525
PB 9995 PG 677

ROWAN COUNTY
SALISBURY CITY LIMIT

US HWY 29/S MAIN ST 60' BST

HADER ST SR 2662

PEACH ORCHARD LN SR 2545

EXISTING RAILROAD R/W

FOR -Y21- PROFILE SEE SHEET 25
FOR -Y1- PROFILE SEE SHEET 26

LEGEND
PAVED SHOULDER
PAVEMENT REMOVAL

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DICN

NAD 83/NSRS 2007

ISBKBUS
ISBKBUS
ISBKBUS
CB FILLED
CONC
CONC
GR
GR
GR
GR
BST
12"W BK WALL
G
10' CONC WALL
15' GR
EXISTING RAILROAD R/W
VAR BST
BST
BST
GR
VAR SOIL
VAR SOIL
OBLITERATE EXIST. DRIVE AND REMOVE RR CROSSING
PROPOSED 8'
4"STL
-BL-29
TANK SHED
R/R MILEPOSTS *339
END OF RAIL
FROG
SWITCH
10' WD WALL
72' CHL W/3SBW
72' CHL W/3SBW
72' CHL W/3SBW
4"STL
BM#23
-BL- STA. 125+32.13
122.56' RT
ELEV. 800.09'
GR
CONC
8' CMP
12' CMP
12'CONC W/LT
GR
GR
GAZEBO
48" STONE
48" CONC
BK
BK
BK
SEPTIC LID
S
CANOPY
GR
GR
S
ISBK/MTLBUS
CONC
GR
S
ISBKAPT
EXISTING RAILROAD R/W
GR
GR
BST
CONC
CONC
CONC
ISMTLBUS

LEGEND

- PAVEMENT REMOVAL
- DRIVEWAY AND RR CROSSING REMOVAL

Florence & Hutcheson
CONSULTING ENGINEERS
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NC License No: F-0258

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NC License No: F-0268

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

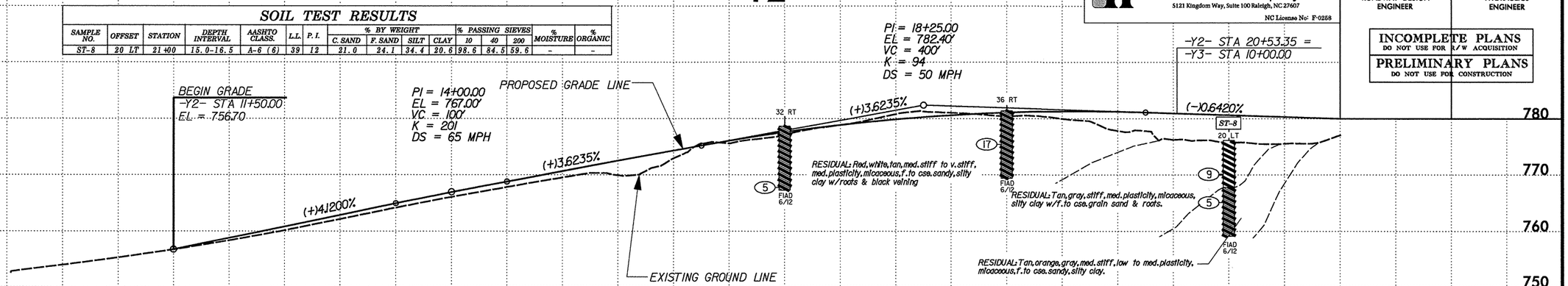
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y2-

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		
ST-8	20 LT	21+00	15.0-16.5	A-6 (6)	39	12	21.0	24.1	34.4	20.6	98.6	84.5	59.6	-	-

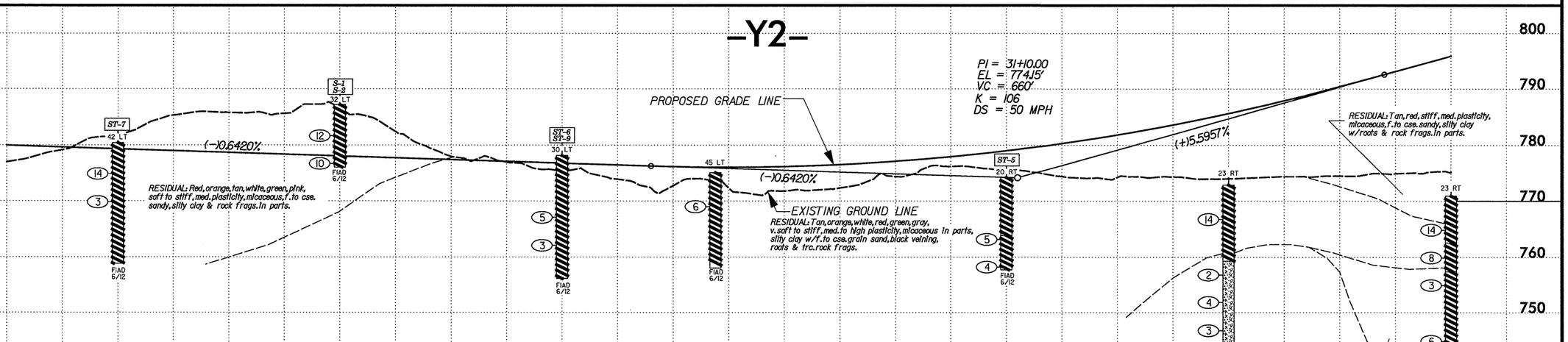


(FOR -Y2- PLAN SEE SHEET 4)

-Y2-

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		
ST-7	45 LT	28+38	9.6-10.1	A-7-5(16)	56	18	10.5	19.9	35.8	33.8	99.7	93.3	74.9	-	-
S-1	32 LT	25+00	0.0-7.0	A-7-6(14)	48	25	15	22.2	18.3	44.6	93.4	85.0	62.2	-	-
S-2	32 LT	26+00	7.0-11.5	A-7-6(6)	41	17	22	26.5	17.2	35.3	90.5	78.1	51.0	-	-
ST-6	30 LT	27+00	6.0-5.5	A-7-6(23)	53	28	7.5	16.3	22.9	53.3	99.8	96.2	79.1	-	-
ST-9	30 LT	27+00	20.0-21.8	A-7-5(30)	64	29	4.8	11.6	41.5	42.1	99.8	97.1	86.6	-	-
ST-5	20 RT	31+00	4.9-5.6	A-7-6(29)	60	32	6.3	13.8	27.1	52.8	99.0	95.7	82.2	-	-



(FOR -Y2- PLAN SEE SHEET 5)

DGN

1/6/2013
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Florence & Hutcheson, Inc.

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An ICA Company
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NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DRN

-Y2- STA 36+48.82 =
-Y21- STA 30+50.30

PI = 42+60.00
EL = 838.50'
VC = 920'
K = 86
DS = 50 MPH

-Y2-

PROPOSED GRADE LINE

(+)5.5957%

(-)5.0556%

-Y2- STA 45+02.23 =
-YB- STA 22+29.73

EXISTING GROUND LINE

RESIDUAL: Tan, orange, white, red, green, gray, soft to stiff, med. to high plasticity, micaceous in parts, silty clay w/f. to cse. grain sand, black veining, & frc. rock frags.

RESIDUAL: Tan, red, stiff, med. plasticity, micaceous, f. to cse. sandy, silty clay w/rock frags. in parts.

RESIDUAL: Tan, green, white, orange, red-brown, pink, gray, soft to stiff, med. plasticity, micaceous, f. to cse. sandy, silty clay w/black veining, rock frags. & roots in parts.

RESIDUAL: Tan, white, green, black, stiff, low to med. plasticity, micaceous, f. to cse. sandy, calcareous, saprolitic, silty clay w/rock frags. & black veining.

ST-10
ST-11
23 RT
23 LT

ARTIFICIAL FILL: Red, orange, stiff, med. plasticity, silty clay w/black cse. rock frags. & gravel.

S-3
S-4
23 RT

RESIDUAL: Red, tan, white, green, orange, soft to stiff, med. to high plasticity, micaceous, silty clay w/f. to cse. grain sand, black rock frags.

RESIDUAL: Green, white, red-brown, black, gray, tan, clear, v. soft to v, stiff, low plasticity, micaceous, v. sandy, saprolitic silt, calcareous in parts w/rock frags. & quartz veins.

RESIDUAL: Green, black, white, red-brown, tan, pink, v. stiff to hard, micaceous, saprolitic, f. to cse. grain sand & silt w/rock frags. & calcareous in parts.

FIAD 5/12

(FOR -Y2- PLAN SEE SHEET 6)

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		
ST-10	23 RT	41+00	39.5-40.5	A-5(7)	51	7	5.4	34.8	50.0	9.9	99.9	97.4	69.5	-	-
ST-11	23 RT	41+00	59.5-60.8	A-4(1)	36	7	29.5	34.2	28.1	8.2	99.2	80.0	43.2	-	-
S-3	23 RT	47+00	0.5-24.7	A-7-5(40)	77	32	1.9	5.8	27.0	65.3	99.7	98.6	94.0	-	-
S-4	23 RT	47+00	24.7-45.9	A-7-5(20)	61	21	3.7	24.6	40.5	31.2	100.0	98.6	78.6	-	-

-Y2-

PI = 51+60.00
EL = 793.00'
VC = 460'
K = 98
DS = 50 MPH

-Y2- STA 51+48.01 =
-Y23- STA 18+25.07

PROPOSED GRADE LINE

(-)5.0556%

(-)0.3571%

END GRADE
-Y2- STA 55+80.00
EL = 791.50

EXISTING GROUND LINE

ST-14
23 RT

RESIDUAL: Red, tan, white, green, orange, soft to stiff, med. to high plasticity, micaceous, silty clay w/f. to cse. grain sand, black rock frags.

35 RT

RESIDUAL: Tan, orange, white, med. stiff, micaceous, f. to cse. grain sand & silt w/black rock frags.

RESIDUAL: Green, white, red-brown, black, gray, tan, clear, v. soft to v, stiff, low plasticity, micaceous, v. sandy, saprolitic silt, calcareous in parts w/rock frags. & quartz veins.

FIAD 5/12

(FOR -Y2- PLAN SEE SHEET 7)

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		
ST-14	35 RT	49+00	29.9-31.0	A-5(6)	51	9	8.3	40.4	37.2	14.2	100.0	97.8	60.4	-	-

12/5/2012
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Microstation V8

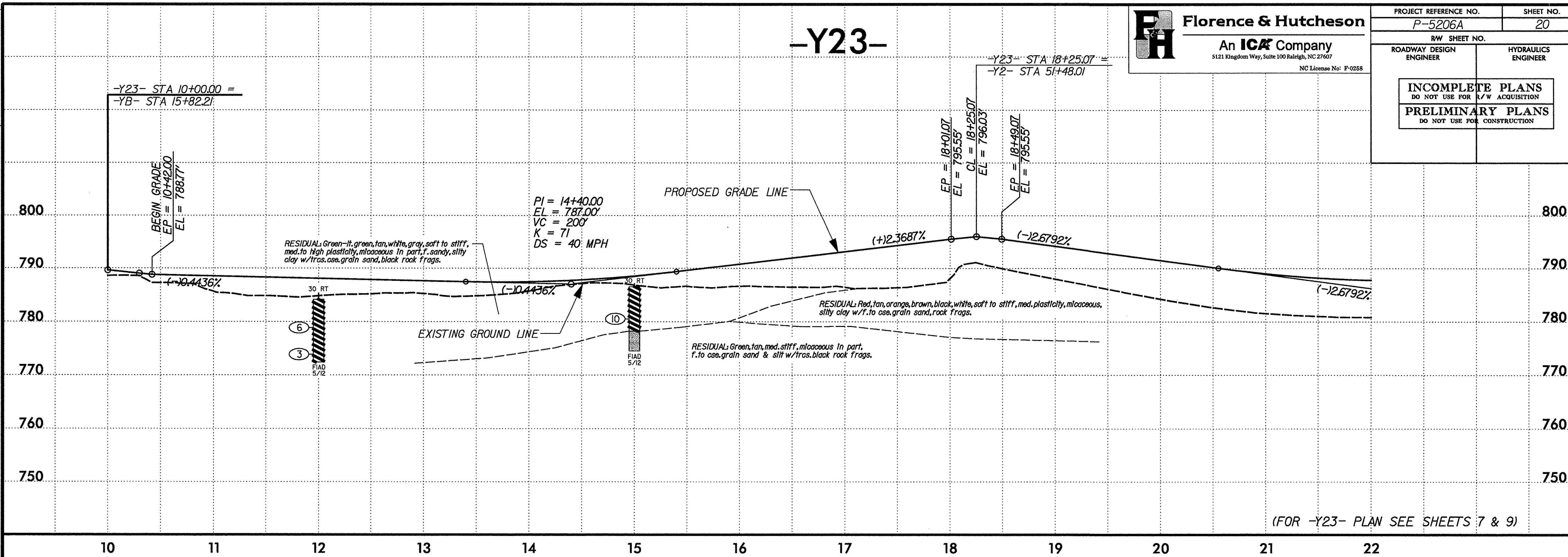
PROJECT REFERENCE NO.	SHEET NO.
P-5206A	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

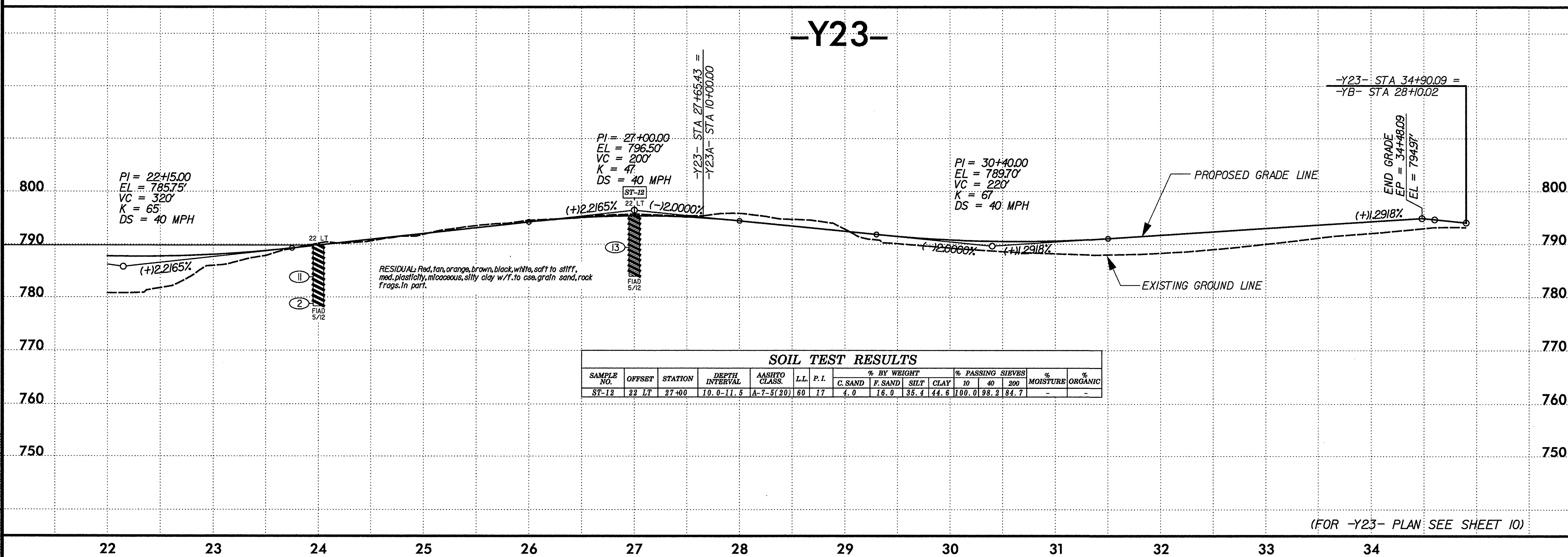
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y23-



-Y23-



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		
ST-12	22 LT	27+00	10.0-11.5	A-7-5(20)	60	17	4.0	16.0	35.4	44.6	100.0	98.2	84.7	-	-

12/5/2012
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Florence & Hutcheson, Inc.

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An ICA Company
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

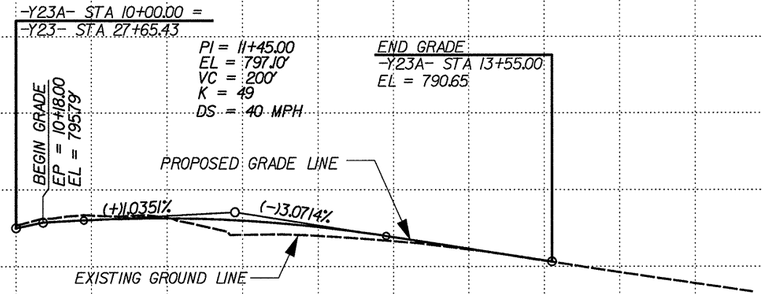
PROJECT REFERENCE NO.	SHEET NO.
P-5206A	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

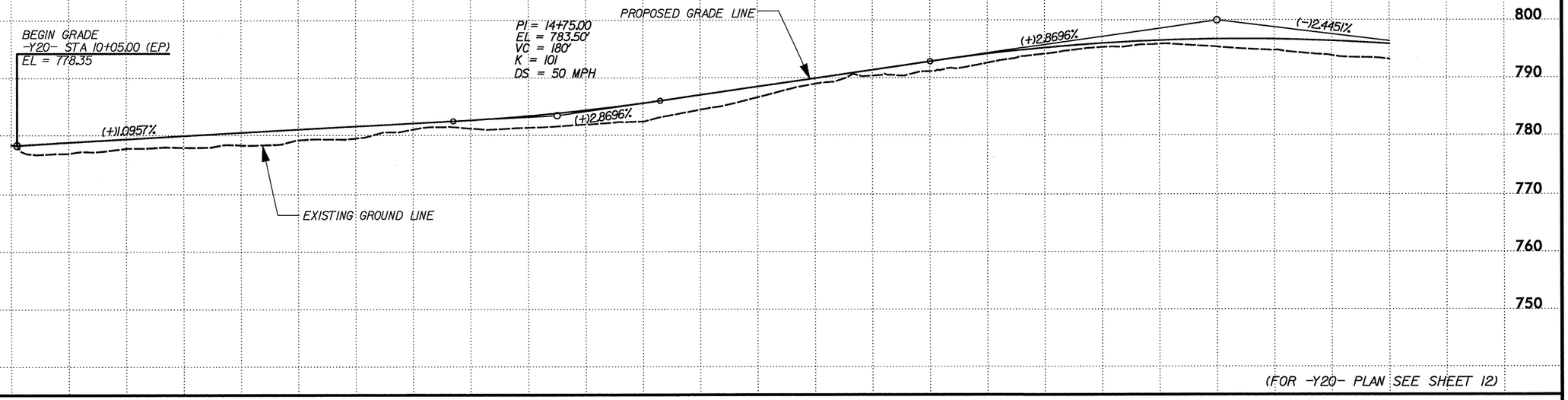
DGN

-Y23A-



(FOR -Y23A- PLAN SEE SHEET 10)

-Y20-



(FOR -Y20- PLAN SEE SHEET 12)

12/5/2012
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Florence & Hutcheson

Florence & Hutcheson
An ICA Company
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y20-

BM#2
-Y20- STA. 34+93
320' RT
ELEV. 777.50'

PROPOSED GRADE LINE

(-)2.4451%

PI = 29+60.00
EL = 777.75'
VC = 300'
K = 103
DS = 50 MPH

(-)2.4451%

(+)0.4770%

(+)0.4770%

EXISTING GROUND LINE

800 790 780 770 760 750

22 23 24 25 26 27 28 29 30 31 32 33 34 35

(FOR -Y20- PLAN SEE SHEET 13)

-Y20-

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
ST-4	13 RT	44+00	10.0-11.5	A-7-5(9)	63	12	16.1	23.3	37.3	23.3	99.5	90.7	66.1	-	-
S-5	26 RT	46+00	0.0-11.0	A-7-5(39)	69	30	9.5	11.9	24.8	54.8	98.2	94.5	80.4	-	-
ST-2	26 RT	46+00	5.0-6.2	A-7-6(30)	67	26	3.1	11.4	37.0	48.5	100.0	98.9	89.0	-	-
ST-15	18 LT	48+00	9.8-10.3	A-7-6(11)	46	16	16.5	18.1	36.8	28.5	99.8	90.5	70.4	-	-

PROPOSED GRADE LINE

PI = 44+80.00
EL = 785.00'
VC = 150'
K = 98
DS = 50 MPH

(+)0.4770%

(+)0.4770%

(-)1.0526%

EXISTING GROUND LINE

ST-4
13 RT
12
FIAD 6/12

21 RT
9
4
FIAD 6/12

S-5
ST-2
26 RT
5
FIAD 6/12

ST-15
18 LT
12
FIAD 6/12

RESIDUAL: Red-brown, red, tan, white, green-lt. green, pink, med. stiff to stiff, micaceous, low to high plasticity, silty clay w/f. to cse. grain sand, black rock frags, saprolitic in lower part.

800 790 780 770 760 750

35 36 37 38 39 40 41 42 43 44 45 46 47 48

(FOR -Y20- PLAN SEE SHEET 14)

12/5/2012
R:\Geotech\InvestigationDesign\PlanProf\P5206A_GEO_pfi_Y20_profile sheet 22.dgn
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NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

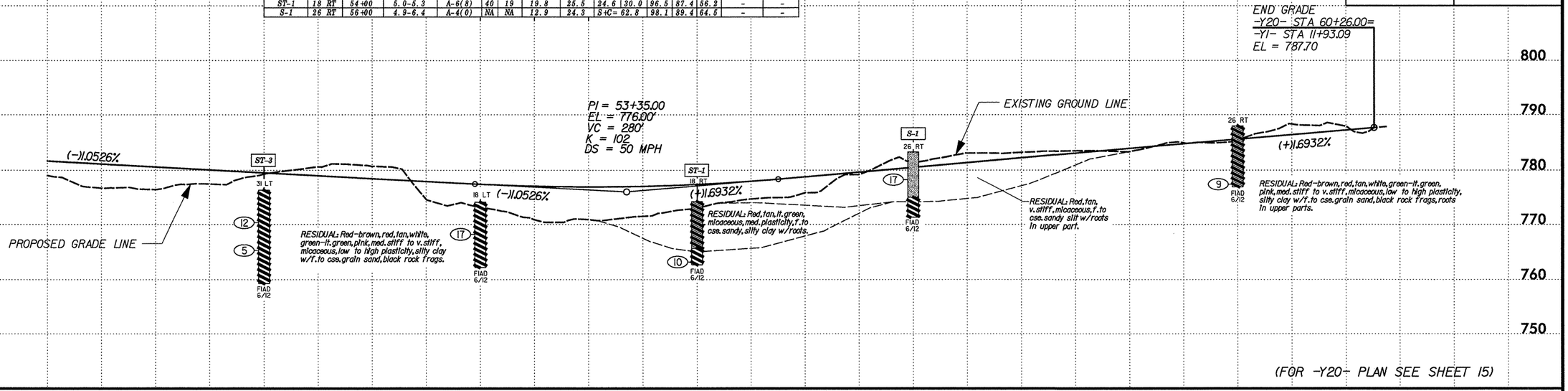
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y20-

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		
ST-3	31 LT	50+00	15.0-16.4	A-7-5(16)	62	13	8.5	17.0	42.2	32.3	100.0	96.6	79.6	-	-
ST-1	18 RT	54+00	5.0-5.3	A-6(8)	40	19	19.8	25.5	24.6	30.0	96.5	87.4	56.2	-	-
S-1	26 RT	56+00	4.9-6.4	A-4(0)	NA	NA	13.9	24.3	SHC= 62.8		98.1	89.4	64.5	-	-

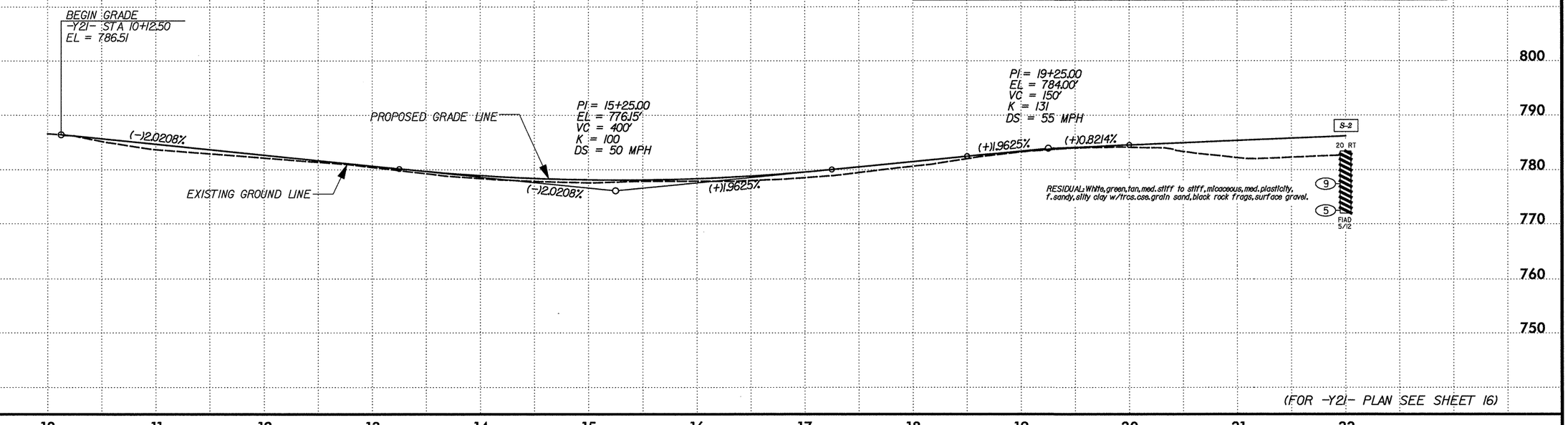


(FOR -Y20- PLAN SEE SHEET 15)

-Y21-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-2	20 RT	22+00	5.0-11.5	A-7-5(10)	46	15	7.2	34.4	39.8	18.6	99.5	94.6	68.9	-	-



(FOR -Y21- PLAN SEE SHEET 16)

12/5/2012
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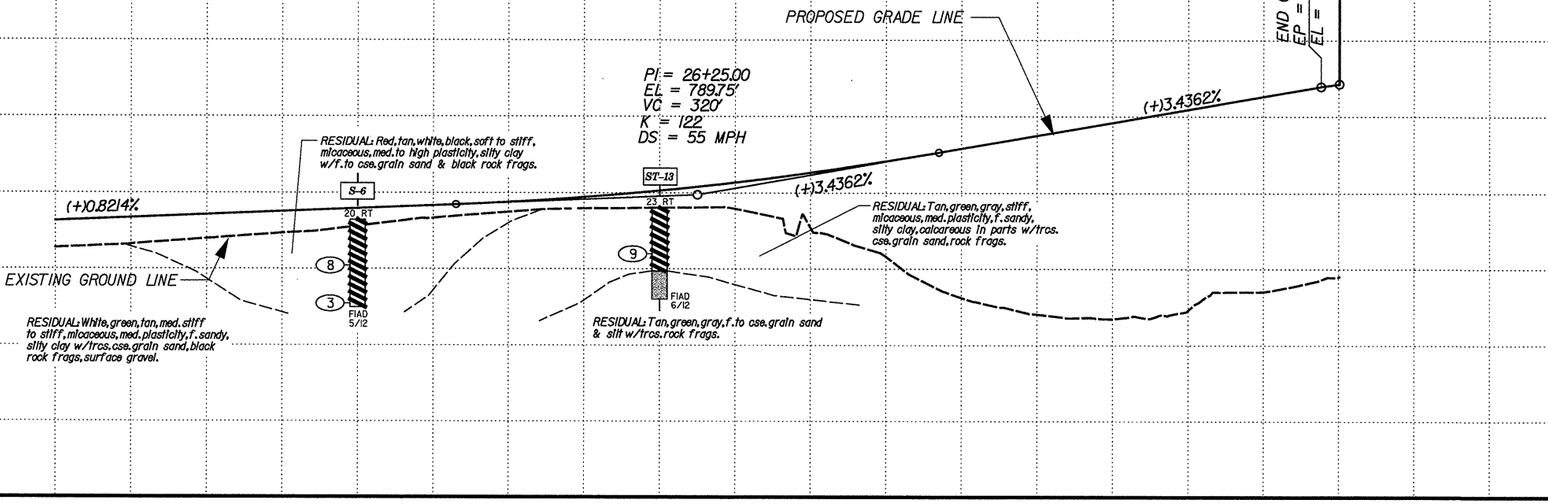
Florence & Hutcheson, Inc.

DGN

-Y21-

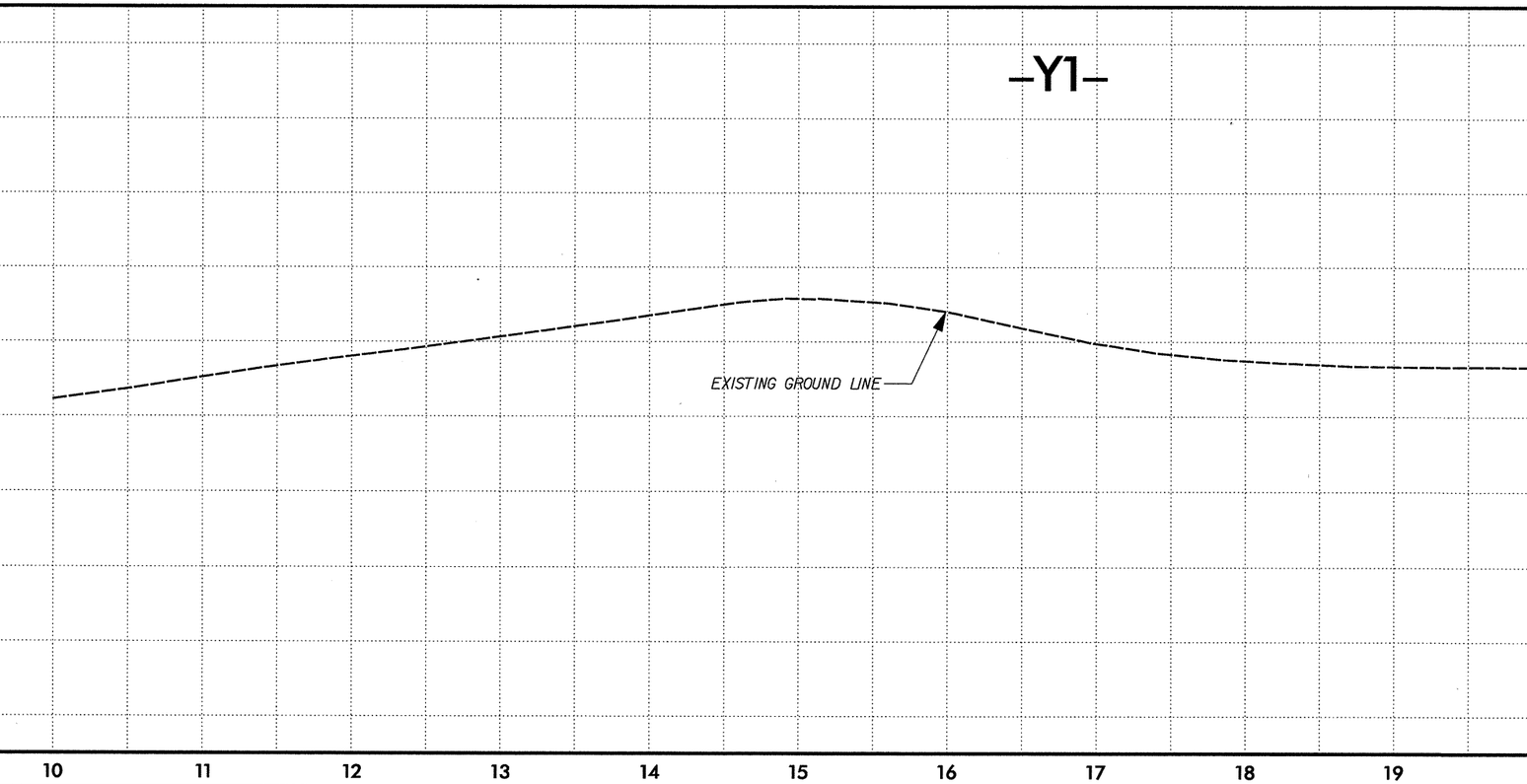
SOIL TEST RESULTS

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-6	20 RT	24+00	1.5-10.0	A-7-5(56)	91	48	2.8	5.9	24.0	67.3	100.0	98.2	93.0	-	-
ST-13	23 RT	26+00	10.0-11.0	A-4(1)	40	4	8.4	44.1	27.2	20.3	90.8	87.7	52.2	-	-



(FOR -Y21- PLAN SEE SHEET 6)

-Y1-



(FOR -Y1- PLAN SEE SHEETS 15 & 16)

Florence & Hutcheson
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NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
P-5206A	24
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	25

DGN

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

790
780
770

780.80

18+00.00

790
780
770

EP

778.85

17+50.00

790
780
770
760

EP
EP

32 RT

777.00

5

RESIDUAL: Red, white, tan, med. stiff to v. stiff, med. plasticity, micaceous, f. to cse. sandy, silty clay w/ black veining

17+00.00

790
780
770
760

EP
EP

775.53

16+50.00

–Y2–

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

12/5/2012
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Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	26

DGN

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

790
780
770

776.21

20+50.00

776.32

777.79

20+00.00

779.98

19+50.00

36 RT

780.42

17

RESIDUAL: Red, white, tan, med. stiff to v. stiff, med. plasticity, micaceous, f. to cse. sandy, silty clay w/ black veining

19+00.00

781.05

18+50.00

–Y2–

2/5/2012
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Terracon Incorporated

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	27

DGN

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

790
780
770

779.18

22+50.00

790
780
770

777.00

22+00.00

790
780
770
760

775.50

21+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		
ST-8	20 LT	21+00	15.0-16.5	A-6-(6)	39	12	21.0	24.1	34.4	20.6	98.6	84.5	59.6	-	-

790
780
770
760

ST-8
20 LT

RESIDUAL: Tan, gray, stiff, med. plasticity, micaceous, silty clay w/f. to cse. grain sand.

9

775.77

5

RESIDUAL: Tan, orange, gray, med. stiff, low to med. plasticity, micaceous, f. to cse. sandy, silty clay.

21+00.00

-Y2-

790
780
770
760

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

12/5/2012
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Florence & Hutcheson, Inc.

PROJ. REFERENCE NO.	SHEET NO.
P-5206A	28

0 5 10

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

800 790 780 770

785.86

24+00.00

800 790 780 770

785.90

23+96.41

800 790 780 770

785.40

23+50.00

790 780 770

ST-7
42 LT
14
3

781.89

23+00.00

RESIDUAL: Red, orange, tan, white, green, pink, soft to stiff, med. plasticity, micaceous, f. to cse. sandy, silty clay w/rock frags. In parts.

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		
ST-7	45 LT	28+38	9.6-10.1	A-7-5(16)	56	18	10.5	19.9	35.8	33.8	99.7	93.3	74.9	–	–

–Y2–

12/5/2012
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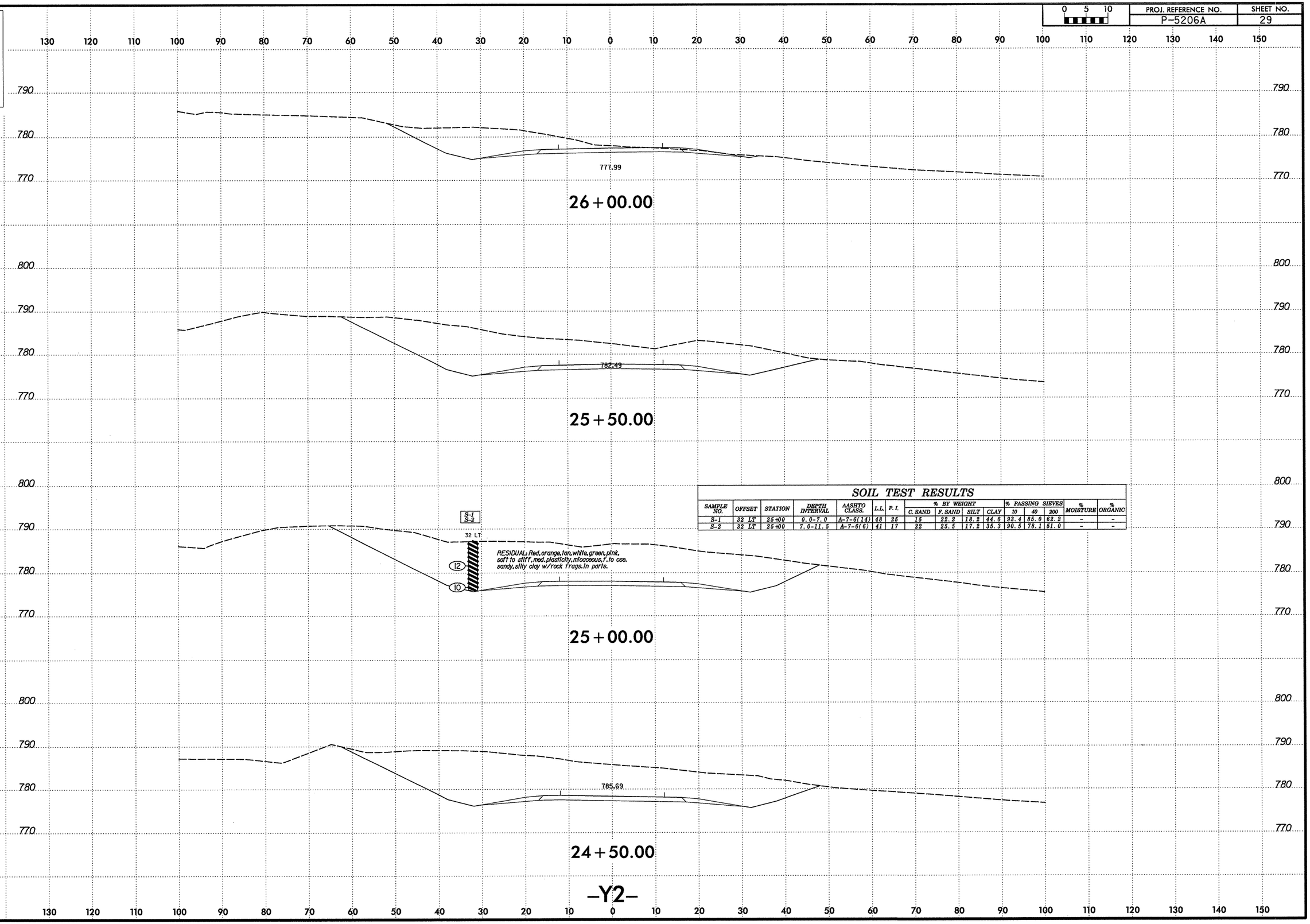
Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	29



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-1	32 LT	25+00	0.0-7.0	A-7-6(14)	48	25	15	22.2	18.2	44.6	93.4	85.0	62.2	-	-
S-2	32 LT	25+00	7.0-11.5	A-7-6(6)	41	17	22	25.5	17.2	35.3	90.5	78.1	51.0	-	-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	30

DRN

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

790 780 770 760

773.84

27+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		
ST-6	30 LT	27+00	5.0-5.5	A-7-6 (23)	53	28	7.5	16.3	22.9	53.3	99.8	96.2	79.1	-	-
ST-9	30 LT	27+00	20.0-21.8	A-7-5(30)	64	29	4.8	11.6	41.5	42.1	99.8	97.1	86.6	-	-

790 780 770 760

ST-6
ST-9
30 LT

775.33

RESIDUAL: Tan, orange, white, red, green, gray, soft to stiff, med. to high plasticity, micaceous in parts, silty clay w/f. to cse. grain sand, black veining, & trc. rock frags.

5
3

27+00.00

790 780 770 760

775.64

26+83.06

790 780 770 760

776.98

26+50.00

-Y2-

790 780 770 760

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

12/5/2012
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Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	31

DRAWN

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

790 780 770 760

772.31

29+50.00

790 780 770 760

771.77

29+00.00

790 780 770 760

RESIDUAL-Tan,orange,white,red,green,gray,soft to stiff, med.to high plasticity,micaceous in parts,silty clay w/f.to cse. grain sand,black veining,& trc.rock frags.

6

772.29

28+50.00

790 780 770 760

772.71

28+00.00

–Y2–

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

I:\Geotech\Investigation\Design\XSC\P5206A_GEO_xsi_Y2_sections.dgn
Lawrence & Nicholson, Inc.
1/6/2013

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	32

DGN

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

790 780 770 760

774.41

31+50.00

790 780 770 760

775.52

31+00.00

ST-5
20 RT

5
4

RESIDUAL-Tan,orange,white,red,green,gray,soft to stiff, med.to high plasticity,micaceous in parts,silty clay w/f.to cse. grain sand,black veining,& frc.rock frags.

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		
ST-5	20 RT	31+00	4.9-5.6	A-7-6(29)	60	32	6.3	13.8	27.1	52.8	99.0	95.7	82.2	-	-

790 780 770 760

776.21

30+50.00

790 780 770 760

774.35

30+00.00

-Y2-

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

12/5/2012
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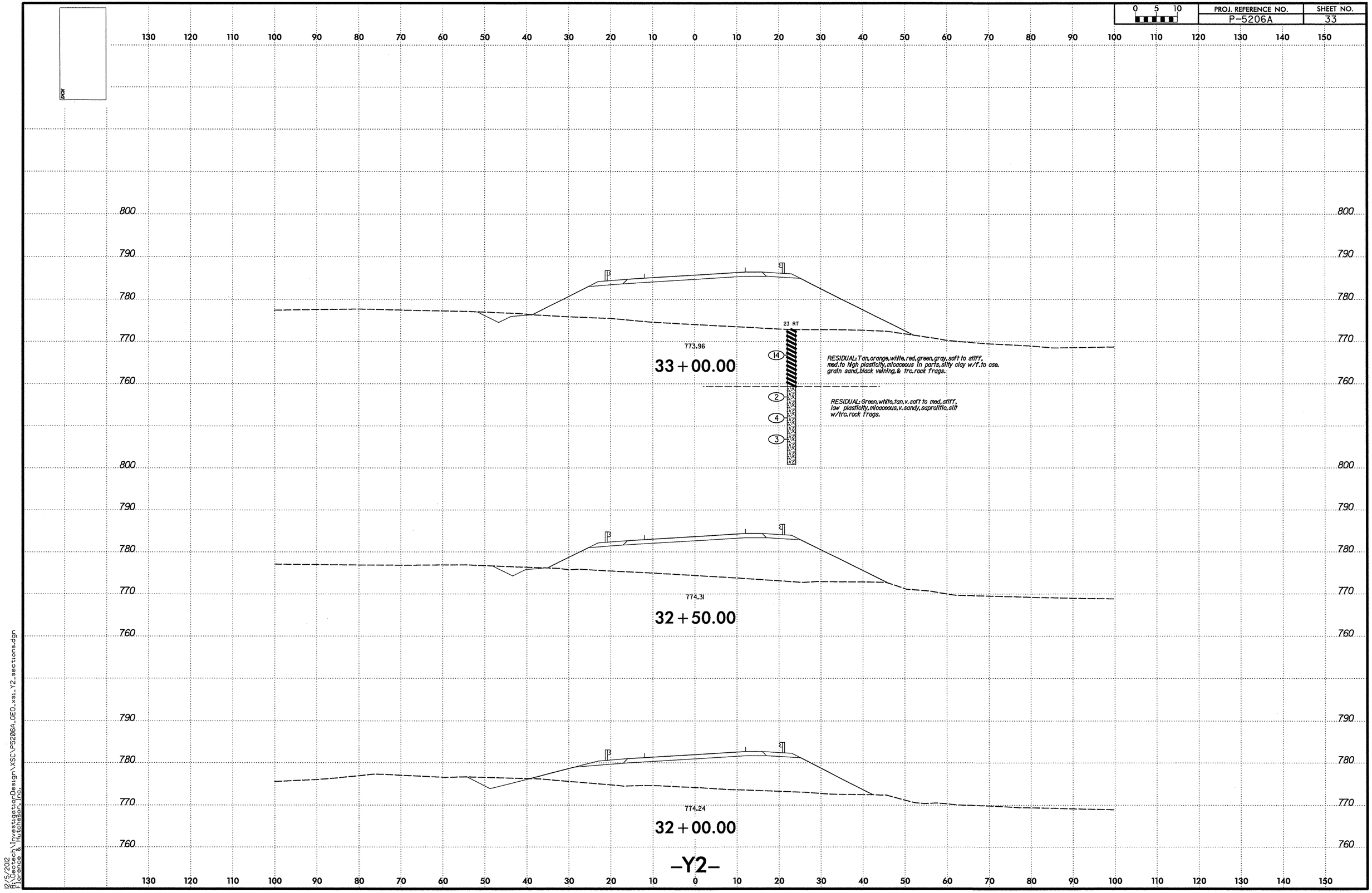
Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	33

DRN



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Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	34

DCN

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

810
800
790
780
770

776.70

35+50.00

775.18

35+00.00

23 RT

14 RESIDUAL: Tan, red, stiff, med. plasticity, micaceous, f. to cse. sandy, silty clay w/rock frags. in parts.

8 RESIDUAL: Tan, orange, white, red, green, gray, soft to stiff, med. to high plasticity, micaceous in parts, silty clay w/f. to cse. grain sand, black veining & trc. rock frags.

3

6 RESIDUAL: Tan, green, white, orange, soft to stiff, med. plasticity, micaceous, f. to cse. sandy, silty clay, saprolitic in parts w/black veining & rock frags. in parts.

12

7 RESIDUAL: Green, white, tan, v. soft to med. stiff, low plasticity, micaceous, v. sandy, saprolitic, silt w/trc. rock frags.

WOH

774.91

34+50.00

-Y2-

760

12/5/2012
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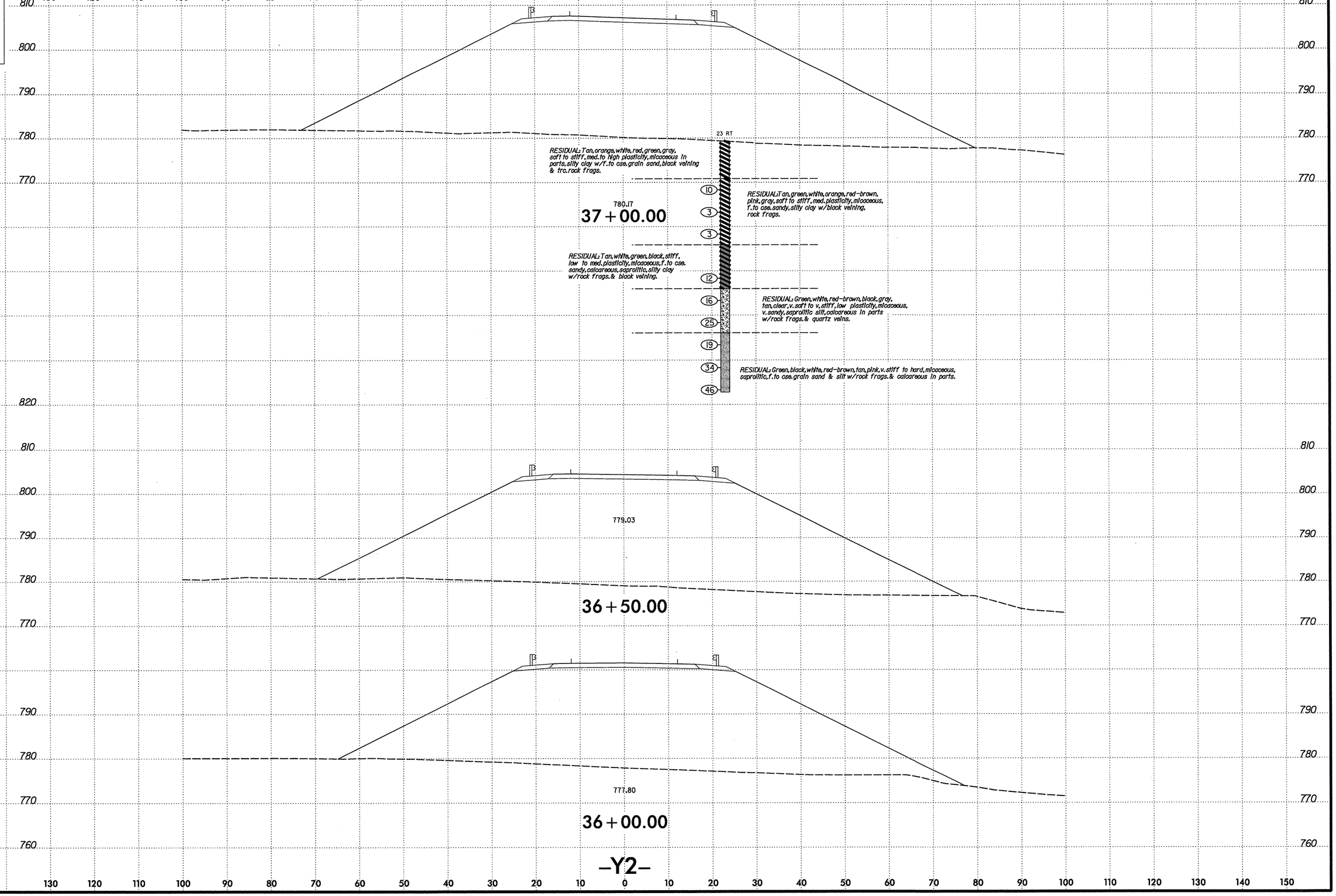
Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	35

DGN



–Y2–

12/5/2012
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Florence & Hutchison, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	36

DGN

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

830 820 810 800 790 780 770

23 LT

RESIDUAL: Tan, green, white, orange, red-brown, pink, gray, soft to stiff, med. plasticity, micaceous, f. to cse. sandy, silty clay w/black veining, rock frags.

4

39+00.00

2
4
12

RESIDUAL: Green, white, red-brown, black, gray, tan, clear, v. soft to v. stiff, low plasticity, micaceous, v. sandy, saprolitic silt, calcareous in parts w/rock frags. & quartz veins.

12
19
25
55
11/0.5

783.44

RESIDUAL: Green, black, white, red-brown, tan, pink, v. stiff to hard, micaceous, saprolitic, f. to cse. grain sand & silt w/rock frags. & calcareous in parts.

830 820 810 800 790 780 770

782.94

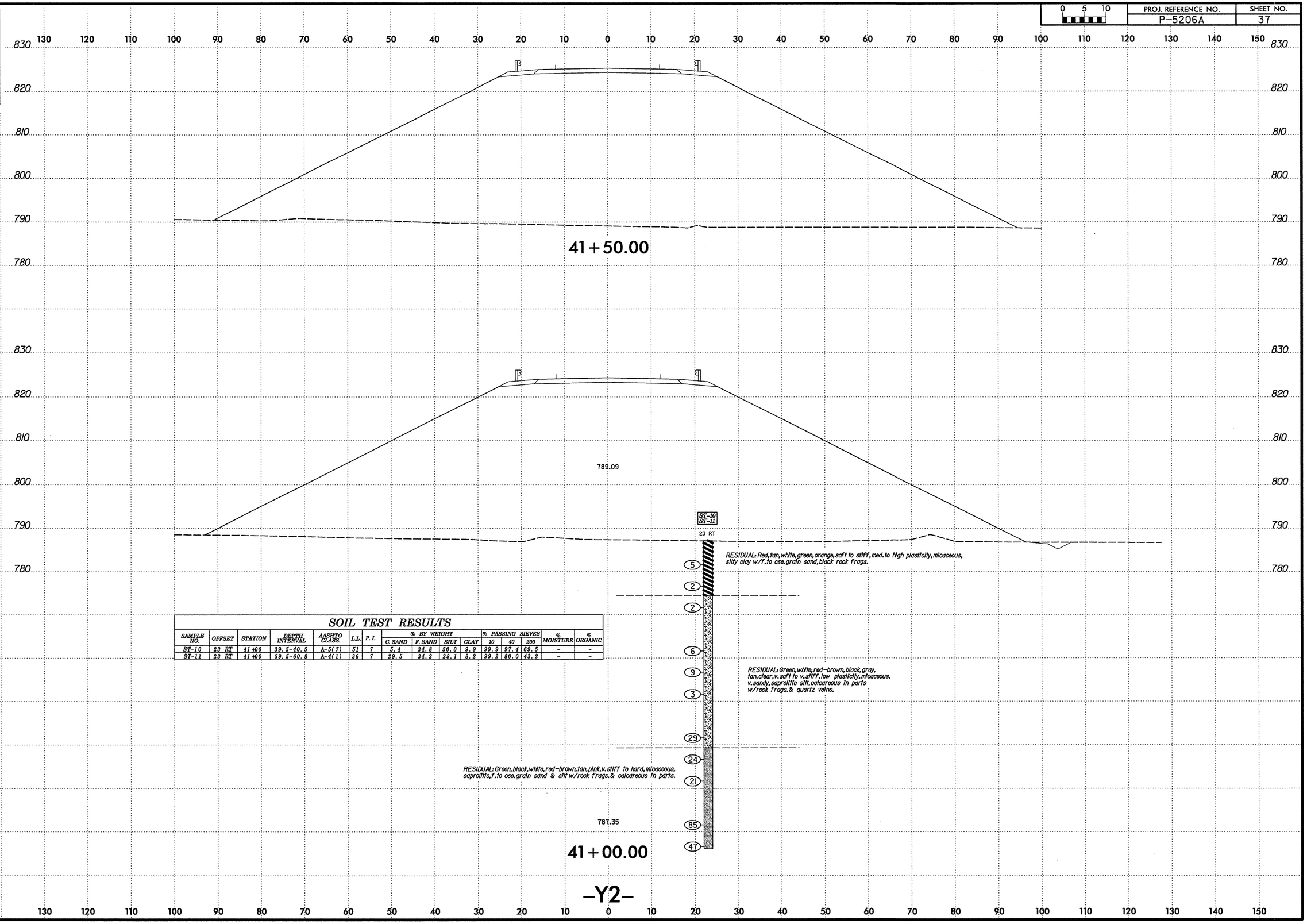
38+50.00

-Y2-

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

12/5/2012
R:\Geotech\InvestigationDesign\XSC\P5206A_GEO_xs1_Y2_sections.dgn
Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	37

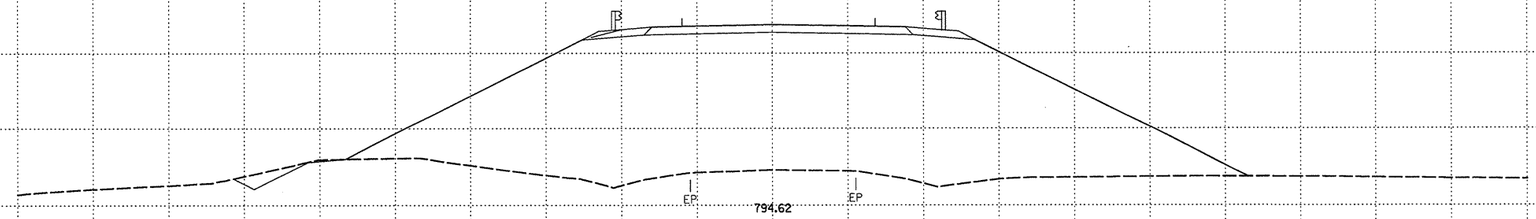


SOIL TEST RESULTS

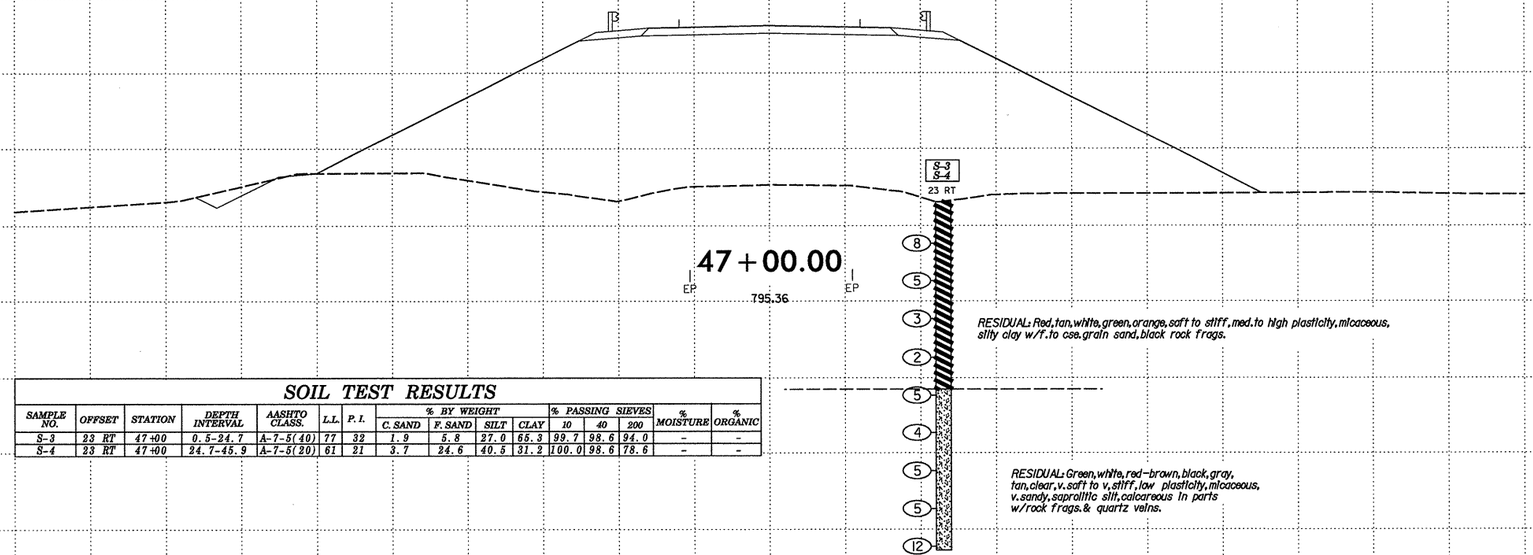
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
ST-10	23 RT	41+00	39.5-40.5	A-5(7)	51	7	5.4	34.8	50.0	9.9	99.9	97.4	69.5	-	-
ST-11	23 RT	41+00	59.5-60.8	A-4(1)	36	7	39.5	34.2	28.1	8.2	99.2	80.0	43.2	-	-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	38

DRGN



47+50.00



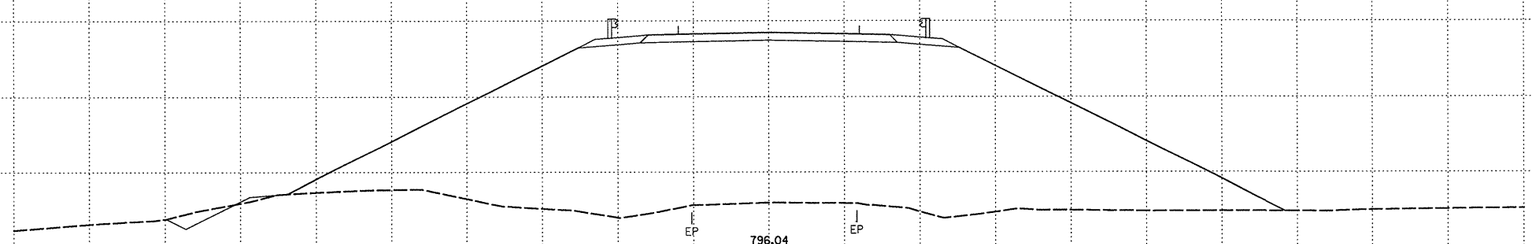
47+00.00

RESIDUAL: Red, tan, white, green, orange, soft to stiff, med. to high plasticity, micaceous, silty clay w/f. to cse. grain sand, black rock frags.

RESIDUAL: Green, white, red-brown, black, gray, tan, clear, v. soft to v. stiff, low plasticity, micaceous, v. sandy, saprolitic silt, calcareous in parts w/rock frags. & quartz veins.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-3	23 RT	47+00	0.5-24.7	A-7-5(40)	77	32	1.9	5.8	27.0	65.3	99.7	98.6	94.0	-	-
S-4	23 RT	47+00	24.7-45.9	A-7-5(20)	61	21	3.7	24.6	40.5	31.2	100.0	98.6	78.6	-	-



46+50.00

-Y2-

12/5/2012
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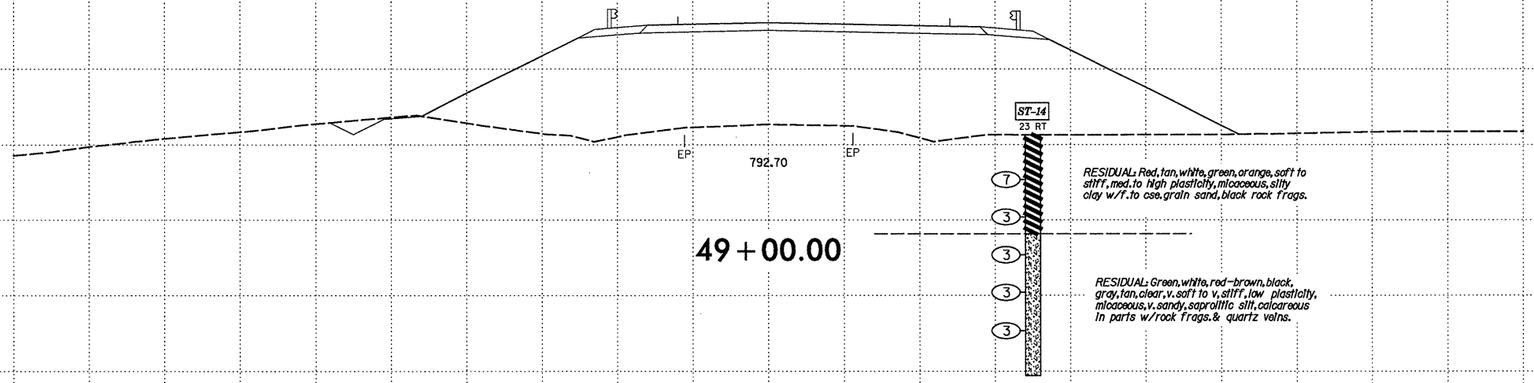
Florence & Hutcheson, Inc.

PROJ. REFERENCE NO.	SHEET NO.
P-5206A	39

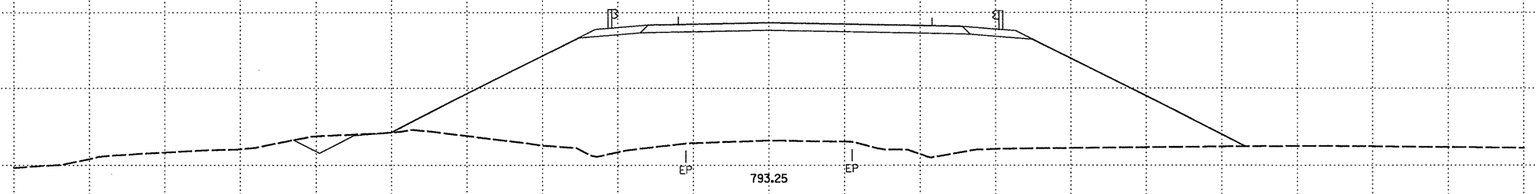
DGN

SOIL TEST RESULTS

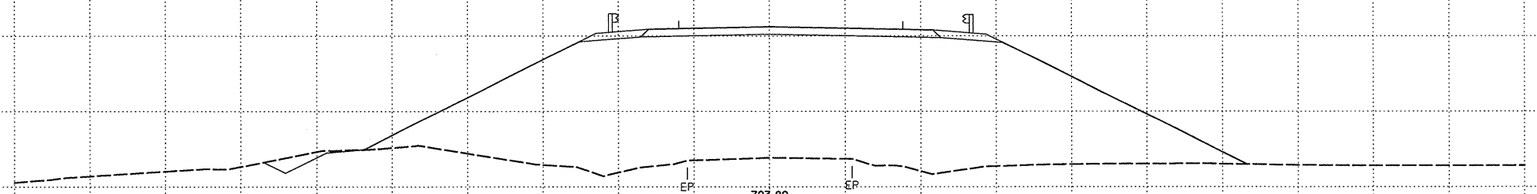
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
ST-14	35 RT	49+00	29.9-31.0	A-5(6)	51	9	8.3	40.4	37.2	14.2	100.0	97.8	60.4	-	-



49+00.00



48+50.00



48+00.00

-Y2-

12/5/2012
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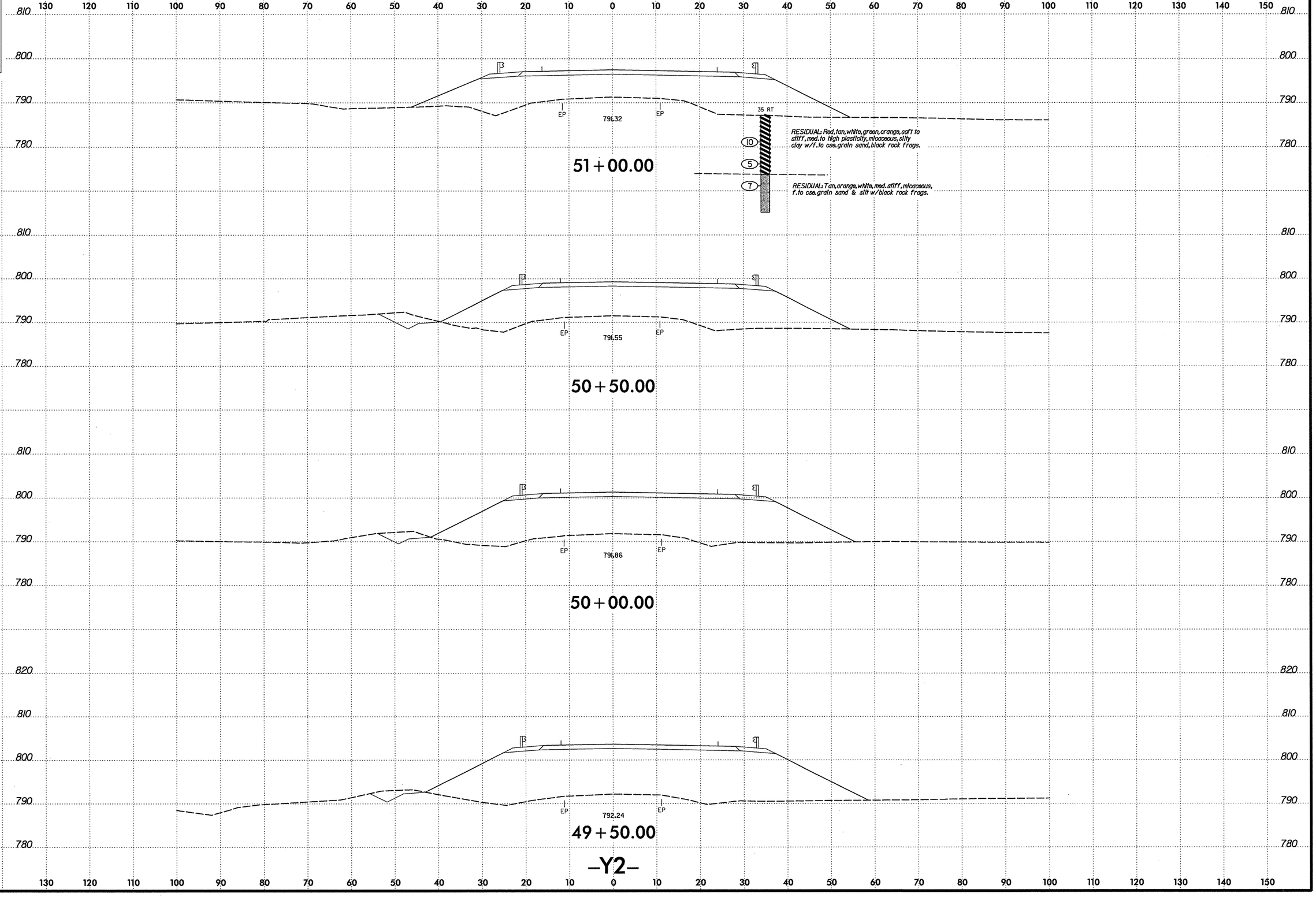
Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	40

DGN



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Terrance & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	41

DRN

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

800
790
780
770

779.52

42 + 50.00

779.29

42 + 42.10

2 RT

778.68

9

4

RESIDUAL: Red-brown, red, tan, white, green-lt. green, pink, med. stiff to stiff, micaceous, low to high plasticity, silty clay w/t. to osa. grain sand, black rock frags, saprolitic in lower part.

42 + 00.00

778.39

41 + 50.00

–Y20–

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

12/5/2012
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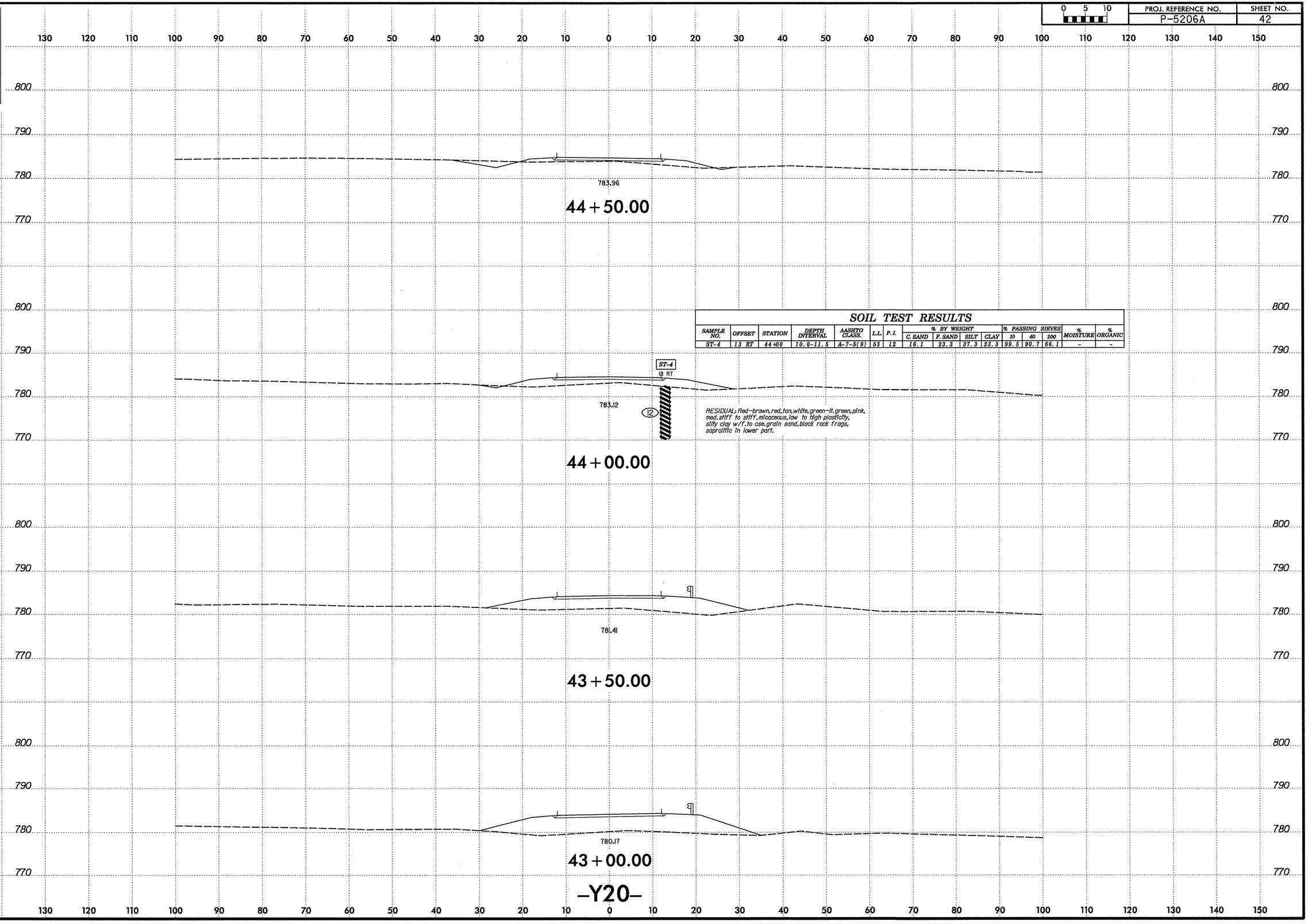
Terracon & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	42

DCN



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		
ST-4	13 RT	44+00	10.0-11.5	A-7-5(9)	53	12	16.1	23.3	37.3	23.3	99.5	90.7	66.1	-	-

RESIDUAL: Red-brown, red, tan, white, green-lt. green, pink, med. stiff to stiff, micaceous, low to high plasticity, silty clay w/f. to cse. grain sand, black rock frags, saprolitic in lower part.

12/5/2012
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Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	43

DCN

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

800 790 780 770

S-5
ST-2
26 RT

782.89

5

RESIDUAL: Red-brown, red, tan, white, green-lt. green, pink, med. stiff to stiff, micaceous, low to high plasticity, silty clay w/f. to cse. grain sand, black rock frags, saprolitic in lower part.

46+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		
S-5	26 RT	46+00	0.0-11.0	A-7-5(29)	69	30	8.5	11.9	24.8	54.8	98.2	94.5	80.4	-	-
ST-2	26 RT	46+00	5.0-6.2	A-7-5(30)	67	26	3.1	11.4	37.0	48.5	100.0	98.9	89.0.	-	-

800 790 780 770

783.54

45+50.00

800 790 780 770

783.56

45+32.10

800 790 780 770

783.81

45+00.00

–Y20–

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

12/5/2012
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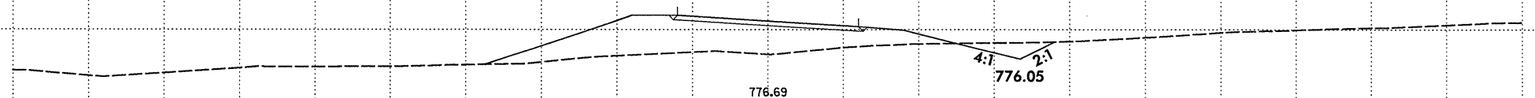
Florence & Hutcheson, Inc.

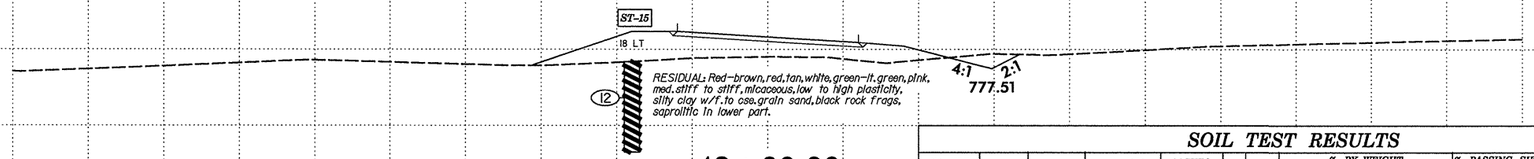
DGN

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

790 780 770



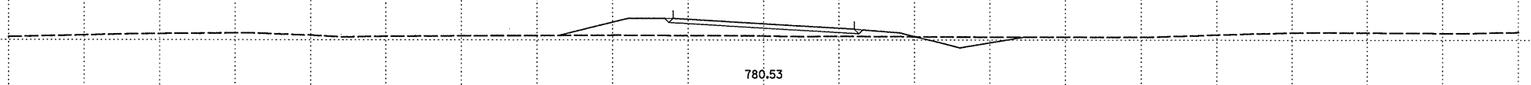
48+50.00



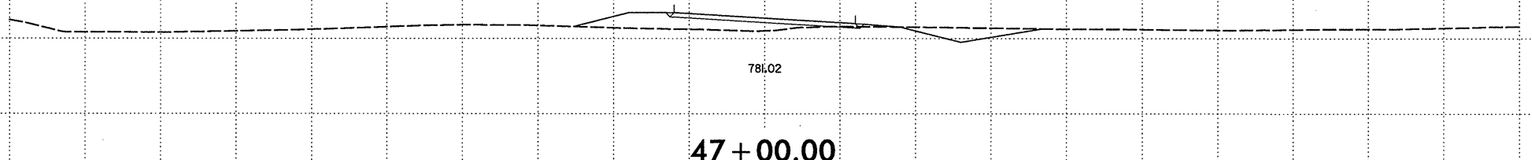
48+00.00

SOIL TEST RESULTS

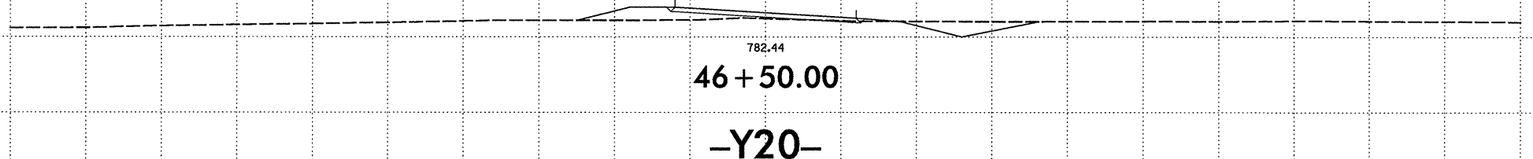
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
ST-15	18 LT	48+00	9.8-10.3	A-7-6(11)	46	16	16.5	18.1	36.8	28.5	99.8	90.5	70.4	-	-



47+50.00



47+00.00



46+50.00

–Y20–

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Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	45

DRN

50+50.00

780.60

4:1 2:1

775.35

50+35.32

780.22

4:1 2:1

775.28

50+00.00

ST-3

31 LT

779.29

4:1 2:1

775.10

(12)

(5)

RESIDUAL: Red-brown, red, tan, white, green-lt.green, pink, med. stiff to v.stiff, micaceous, low to high plasticity, silty clay w/f.to cse.grain sand, black rock frags.

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		
ST-3	31 LT	50+00	15.0-16.4	A-7-5(16)	62	13	8.5	17.0	42.2	32.3	100.0	96.6	79.6	-	-

49+50.00

777.45

4:1 2:1

774.85

49+00.00

776.42

4:1 2:1

774.60

-Y20-

12/5/2012
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Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	46

DGN

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

790
780
770
760

770.86

52+50.00

18 LT

RESIDUAL: Red-brown, red, tan, white, green-lt.green, pink, med. stiff to v.stiff, micaceous, low to high plasticity, silty clay w/f.to cse.grain sand, black rock frags.

17

773.18

52+00.00

4:1

775.85

774.63

51+50.00

780.69

775.60

2:1

51+00.00

–Y20–

12/5/2012
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Terrance & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	47

DKN

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

790 780 770 760

4:1
2:1
772.06
774.68

54+50.00

ST-1
18 RT
4:1
2:1
773.69

RESIDUAL: Red, tan, lt. green, micaceous, med. plasticity, f. to cse. sandy, silty clay w/ roots.

RESIDUAL: Red-brown, red, tan, white, green-lt. green, pink, med. stiff to v. stiff, micaceous, low to high plasticity, silty clay w/f. to cse. grain sand, black rock frags.

10

54+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		
ST-1	18 RT	54+00	5.0-5.3	A-6(8)	40	19	19.8	25.5	24.6	30.0	96.5	87.4	56.2	–	–

4:1
2:1
772.13
771.47

53+50.00

4:1
2:1
770.56
770.85

53+00.00

–Y20–

12/5/2012
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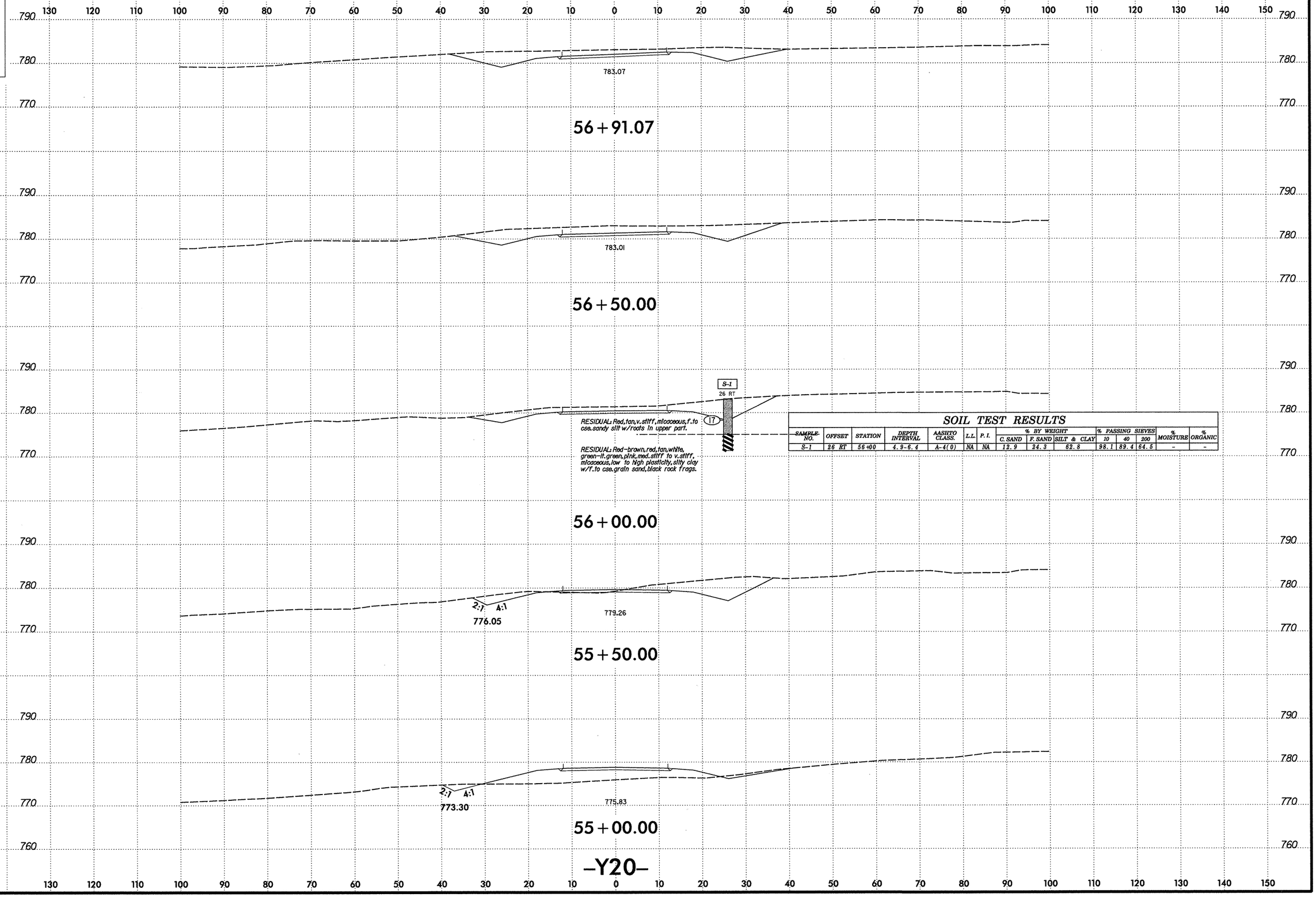
Florence & Hutcheson, Inc.

DGN



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT			% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT & CLAY	10	40	200		
S-1	26 RT	56+00	4.9-6.4	A-4(0)	NA	NA	12.9	24.3	62.8	98.1	89.4	64.5	-	-

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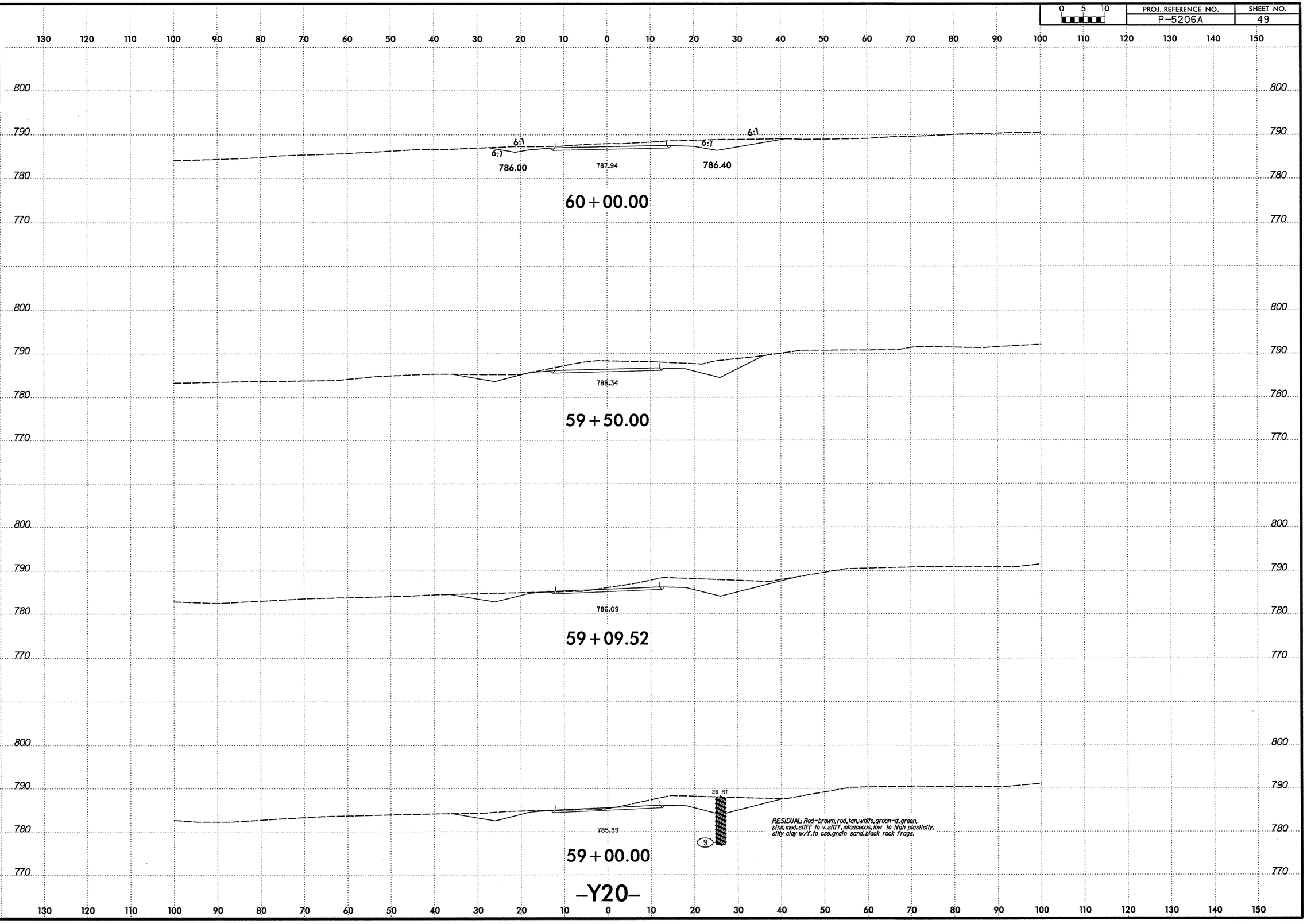
Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	49

DKN



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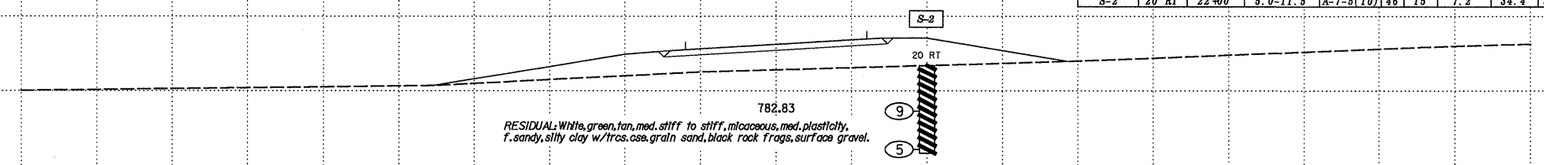
Terrence & Hutchinson, Inc.

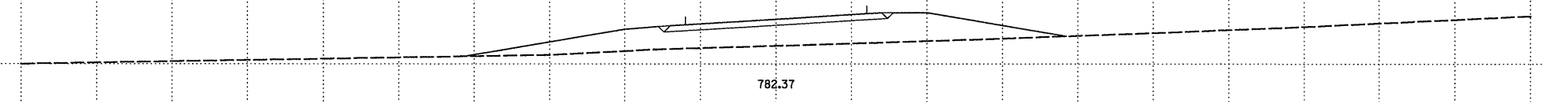
DGN

SOIL TEST RESULTS

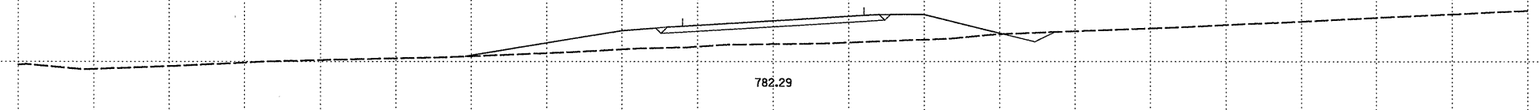
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-2	20 RT	22+00	5.0-11.5	A-7-5(10)	46	15	7.2	34.4	39.8	18.6	99.5	94.6	68.9	-	-



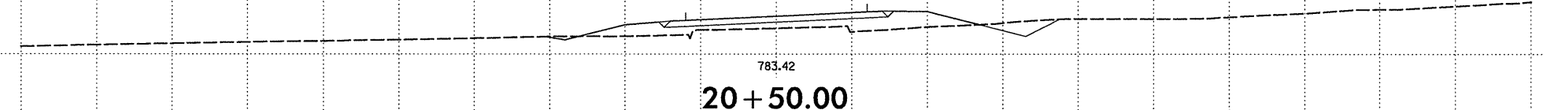
22+00.00



21+50.00



21+00.00



20+50.00

–Y21–

12/5/2012
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Terracon & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	51

DGN

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

800 790 780 770

S-6

20 RT

8

3

RESIDUAL: Red,tan,white,black,soft to stiff, micaceous,med.to high plasticity,silty clay w/f.to css.grain sand & black rock frags.

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-6	20 RT	24+00	1.5-10.0	A-7-5(56)	91	48	2.8	5.9	24.0	67.3	100.0	98.2	93.0	-	-

24+00.00

800 790 780 770

784.69

23+50.00

800 790 780 770

784.01

23+00.00

800 790 780 770

783.24

22+50.00

–Y21–

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

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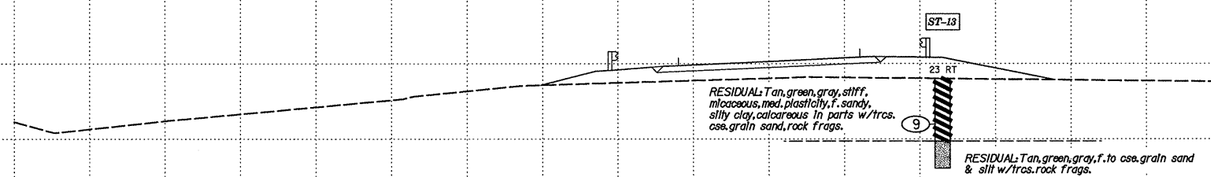
Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	52

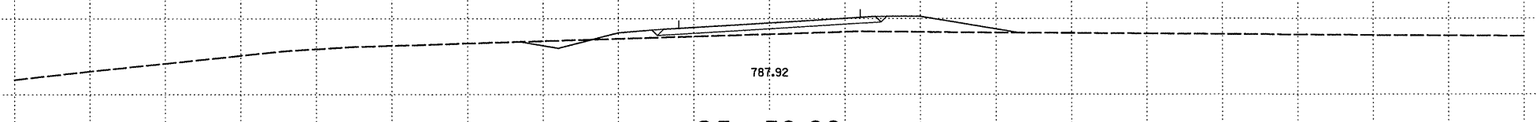
DICN

SOIL TEST RESULTS

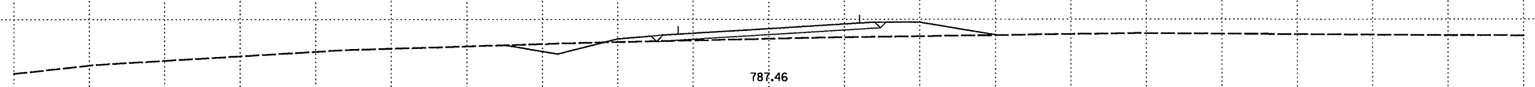
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
ST-13	23 RT	26+00	10.0-11.0	A-4(1)	40	4	8.4	44.1	27.2	20.3	90.8	87.7	52.2	-	-



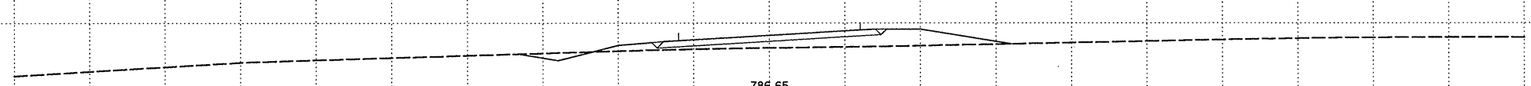
26+00.00



25+50.00



25+00.00



24+50.00

–Y21–

12/5/2012
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Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	53

DRN

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

800
790
780
770

784.77

30 RT

6

3

RESIDUAL: Green-lt.green,tan,white,gray, soft to stiff, med.to high plasticity, micaceous in part, f.sandy, silty clay w/trcs.cse.grain sand, black rock frags.

12+00.00

784.81

11+50.00

785.60

11+00.00

10+50.00

–Y23–

12/5/2012
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Florence & Hutcheson, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	54

DIGN

800 790 780

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

786.56

16+00.00

786.56

15+50.00

30 RT

RESIDUAL: Green-lt.green,tan,white,gray,soft to stiff, med.to high plasticity,micaceous in part,f.sandy,silty clay w/tros.cse.grain sand,black rock frags.

10

RESIDUAL: Green,tan,med.stiff,micaceous in part, f.to cse.grain sand & silt w/tros.black rock frags.

15+00.00

787.07

14+50.00

785.61

14+00.00

–Y23–

12/5/2012
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Florence & Hutchison, Inc.

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	P-5206A	55

DGN

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

810
800
790
780

791.88

25+00.00

800
790
780

790.64

24+50.00

800
790
780

22 LT

790.17

RESIDUAL: Red, tan, orange, brown, black, white, soft to stiff, med. plasticity, micaceous, silty clay w/f. to cse. grain sand, rock frags. in part.

II
2

24+00.00

800
790
780

787.81

EP

23+50.00

–Y23–

770

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

12/5/2012
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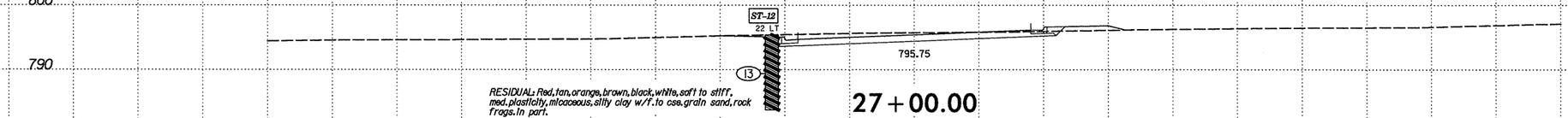
Florence & Hutcheson, Inc.

DGN

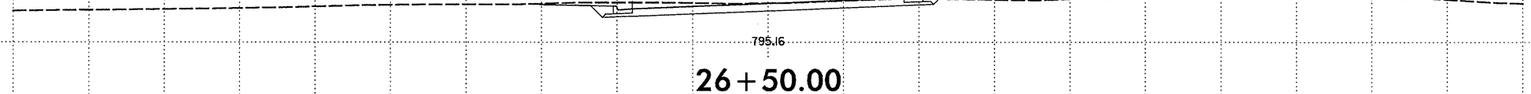


RESIDUAL: Red, tan, orange, brown, black, white, soft to stiff, med. plasticity, micaceous, silty clay w/f. to cse. grain sand, rock frags. In part.

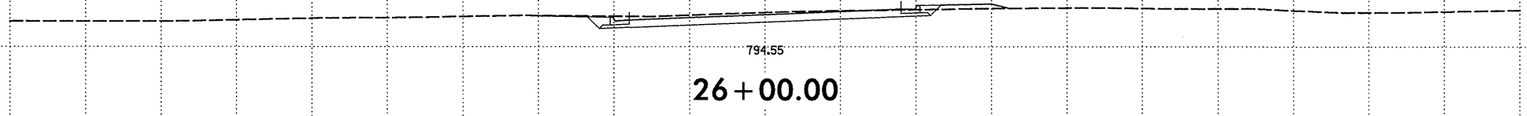
27+00.00

SOIL TEST RESULTS

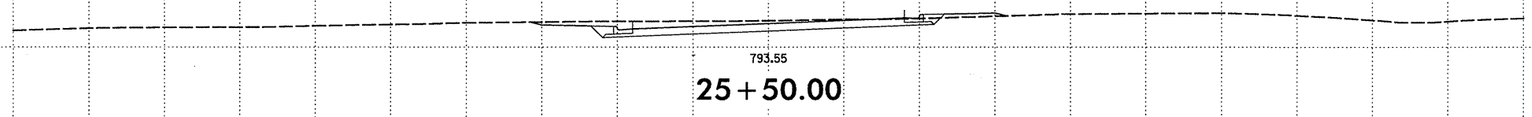
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
ST-12	22 LT	27+00	10.0-11.5	A-7-5(20)	60	17	4.0	16.0	35.4	44.6	100.0	98.2	84.7	-	-



26+50.00



26+00.00



25+50.00

–Y23–

12/5/2012
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Terrence & Hutcheson, Inc.