STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	42252.1.1 (B-5114)	1	21

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
		P.E.
		RW & UTIL.

NOTE: SEE SHEET 1A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	12+00 TO 28+20	4-5	8-9	12
-RPI-	10+00 TO 12+00	4	N/A	13
-RP2-	10+00 TO 12+05	4-5	10	N/A
-Y4-	10+00 TO 34+35.45	4-7	11	14-17

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 42252.1.1 (B-5114) F.A. PROJ. BRZ-1619(5)

COUNTY RANDOLPH

PROJECT DESCRIPTION BRIDGE NO. 136 OVER US-29-70/I-85 BUSINESS ON SR 1619 (PROSPECT ST.) IN HIGH POINT

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. 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.

PERSONNEL

R. TOOTHMAN

D. ADAMS

INVESTIGATED BY T. WELLS

CHECKED BY X. BARRETT

SUBMITTED BY KLEINFELDER

DATE JULY 2013

NORTH CAROLINA PROFESSIONAL SEAL 15741 ENGINEER XAVIER C. BARRETT

7/22/13

ID: B-5114

CONTRACT:

DRAWN BY: W. FELDER

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

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.
42252.1.1 (B-5114)	2 OF 21

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-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
LIQUID LIMIT PLASTIC INDEX	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	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/FT²)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	<4 4 TO 10 10 TO 30 30 TO 50 >50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	<2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 >30	<0.25 0.25 TO 0.50 0.5 TO 1.0 1 TO 2 2 TO 4 >4

TEXTURE OR GRAIN SIZE

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

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

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

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
PLASTIC RANGE (PI): LL — LIQUID LIMIT		
	- 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
- SPT / DPT / 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
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
- [ ] CME-45C
- [ ] CME-550
- [ ] PORTABLE HOIST
- [X] CME-55
- [ ] _____

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

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [ ] -N_____
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] HAND AUGER
- [X] 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: N/A

ELEVATION: N/A

NOTES: FIAD - FILLED IN AFTER DRILLING

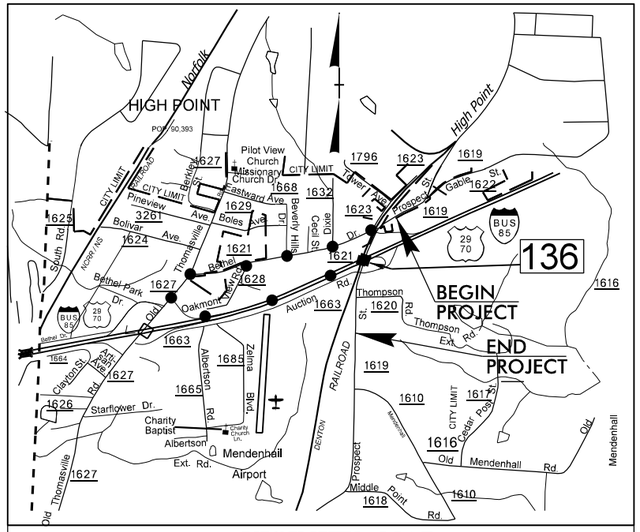
BORING ELEVATIONS OBTAINED USING B5114_LS_TIN.TIN DATED 2/2/12

REVISED 09/23/09

09/08/99

CONTRACT: TIP PROJECT: B-5114

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



VICINITY MAP

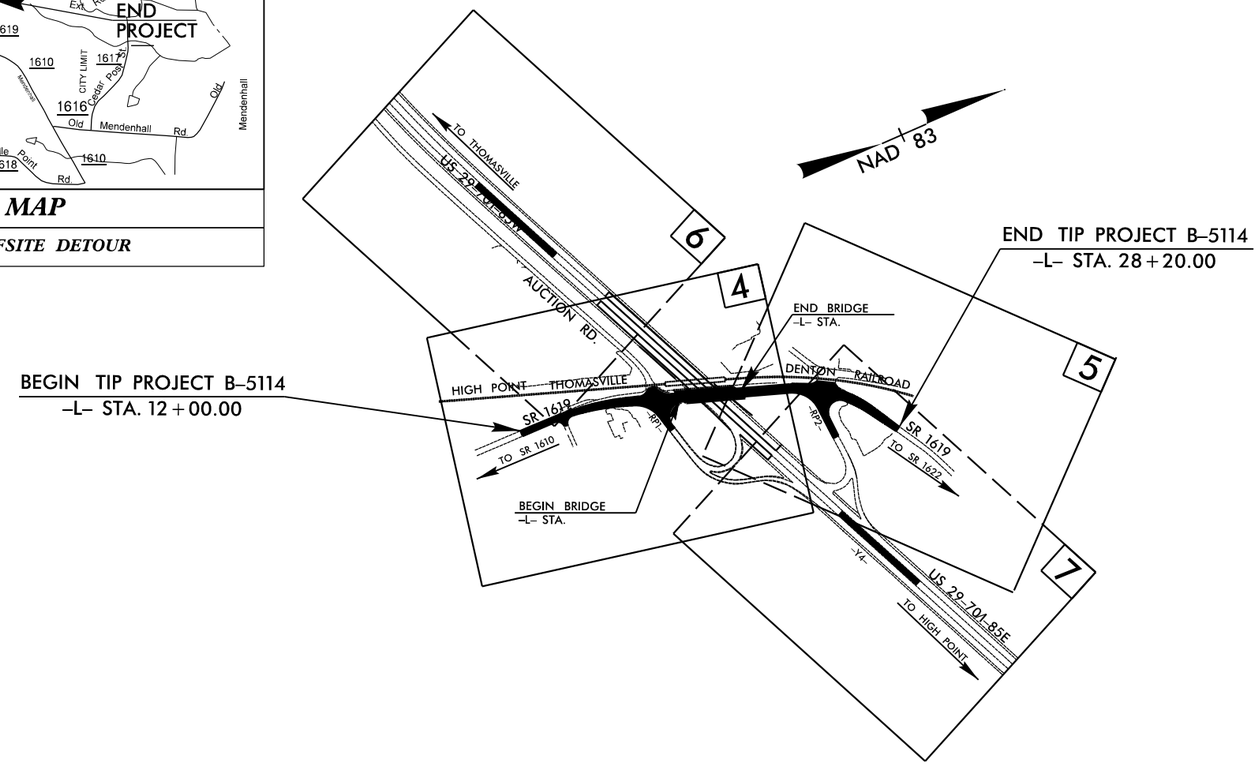
OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

LOCATION: BRIDGE 136 OVER US 29-70/I-85 BUSINESS ON SR 1619 (PROSPECT STREET) IN HIGH POINT

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF HIGH POINT.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5114	2A	21

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42252.1.1	BRZ-1619(5)	PE

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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 2015 = 8,300
ADT 2035 = 12,300
DHV = 11 %
D = 70 %
T = 8 % *
V = 40 MPH
* TTST 3% DUAL 5%
FUNC CLASS = MINOR ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5114 = MI
LENGTH STRUCTURE TIT PROJECT B-5114 = MI
TOTAL LENGTH OF TIP PROJECT B-5114 = 0.307 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 21, 2014

LETTING DATE: MARCH 17, 2015

JAMES A. SPEER, PE
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

July 22, 2013

STATE PROJECT: 42252.1.1 (B-5114)
FEDERAL PROJECT: BRZ-1619(5)
COUNTY: Randolph
DESCRIPTION: Bridge No. 136 over US 29-70/I-85 Business on SR 1619 (Prospect St.) in High Point

SUBJECT: Geotechnical Report - Inventory

Project Description

The project is located in High Point in northern Randolph County, North Carolina. This project consists of the realignment and widening of 1,620 feet of Prospect Street (-L-) which is a two-lane roadway. The project is located at the grade crossing over US 29-70/I-85 Business. Also proposed is the realignment and widening of -RP1- and -RP2- which are approximately 200 and 205 feet, respectively. US 29-70/I-85 Business (-Y4-) will be widened and the median will be paved as part of this project for approximately 2.435 feet. The grade of (-Y4-) will be lowered up to 3 feet to accommodate traffic beneath the existing rail bridge.

The geotechnical investigation was conducted during May 2013. One drill machine, a CME 55 with an automatic hammer, was used during the investigation. Standard Penetration Tests were performed at selected locations. Hand augers borings and rod soundings were utilized to investigate the subsurface conditions in areas that the drill rig could not access. Representative soil samples were collected in the field for laboratory analysis by Kleinfelder Southeast, Inc.

The following alignments, totaling 0.9 mile, were investigated. Profiles and cross sections of these alignments are included in this report.

Line	Stations
-L-	12+00 to 28+20
-RP1-	10+00 to 12+00
-RP2-	10+00 to 12+05
-Y4-	10+00 to 34+35.45

Areas of Special Geotechnical Interest

High Plasticity Soils: The following location was found to have soils with a plasticity index greater than 25.

Line	Stations	Offset
-Y4-	10+00 to 10+75	CL

Alluvial Soils: The following location was found to have very soft to soft alluvial soils.

Line	Stations	Offset
-Y4-	28+25 to 29+75	RT

Physiography and Geology

The project is located in the Piedmont Physiographic Province. The project corridor is comprised primarily of commercial and industrial properties. The general topography of the site consists of rolling hills with flat to moderate slopes along the existing roadways.

Geologically, the project is located within the Carolina Slate Belt based on the 1985 Geologic Map on North Carolina. Soils are derived from the underlying bedrock which consists of early Cambrian or late Precambrian age metamorphic rocks with generally consisting of metamorphosed granite The overlying residual soils are the product of the physical and chemical weathering of the underlying Crystalline rock.

Soil Properties

Soils encountered during this investigation are separated into five categories based on origin. They consist of roadway embankment, alluvial, residual soils, weathered rock, and crystalline rock.

Roadway Embankment soils are present along the existing roadways (-L- and –Y4-) and ramp (-RP2-) to depths ranging from 4.0 to 14.0 feet below the existing ground surface in the project. The majority of these soils consist of moist to wet, low to medium plasticity, medium stiff to stiff, red-brown, brown, and light brown, sandy, silty clays (A-6, A-7-5, A-7-6). Minor amounts of moist to wet, low plasticity, medium stiff to hard, gray-brown and light brown, clayey, sandy silts (A-4, A-5) were also encountered.

Alluvial soils are soils that have been transported and deposited by water; these soils are present along a portion of the existing roadway (-Y4-) to a depth of 3.0 feet below the existing ground surface. The alluvial soils encountered consist of wet, medium plasticity, very soft to medium stiff, brown-gray, sandy, silty clays (A-7-5) and wet, gray, sandy silts (A-4).

Residual soils are present along the existing roadways (-L- and –Y4-) and ramps (-RP1- and -RP2-) in the project. Residual soils are derived from the weathering of the underlying metamorphosed granite. The majority of these soils consist of moist to wet, low to medium plasticity, medium stiff to very stiff, red, brown, and light brown, sandy, silty clays (A-6, A-7-5, A-7-6) and moist to wet, low plasticity, soft to hard, light brown, red-brown, brown, and gray, clayey, sandy silts (A-4, A-5). Minor amounts of moist, non-plastic, medium dense to very dense, light brown, brown, and gray, silty sand (A-2-4).

Weathered rock was encountered along the existing roadways (-L- and –Y4-) and ramp (-RP1-) at elevations ranging from 919.3 to 936.5 feet (MSL). The weathered rock consists of brown, gray, and light brown metamorphosed granite.

Crystalline rock was encountered along the existing roadways (-L- and –Y4-) at elevations ranging from 909.9 to 946.1 feet (MSL). The crystalline rock consists of light gray metamorphosed granite.

Groundwater

Groundwater was generally encountered at several locations along the existing roadways (-L- and –Y4-) at depths ranging from 1.5 to 24.3 feet below the top of boring elevation.

Prepared by,

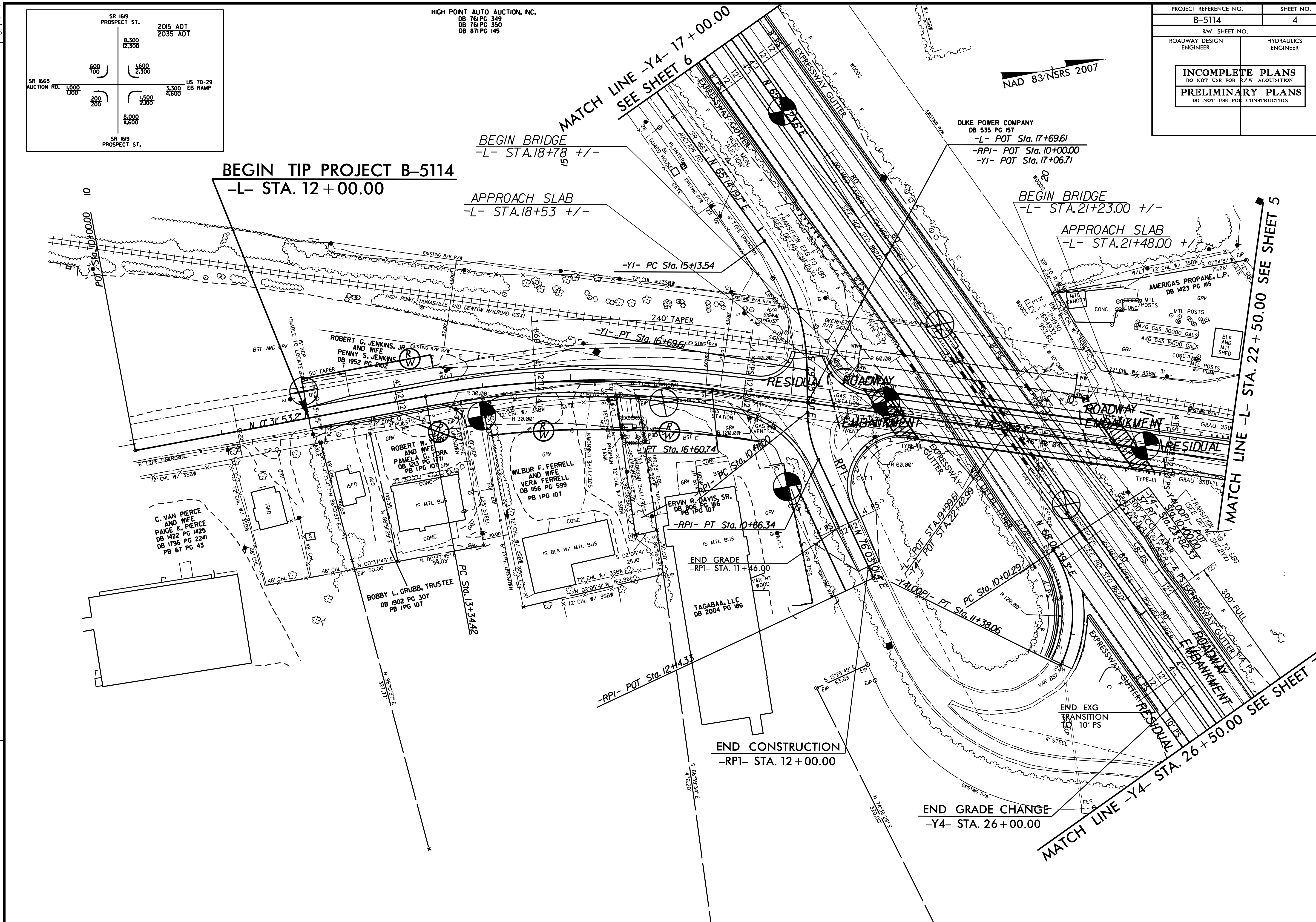
Thomas R. Wells, P.E.
Senior Professional

Xavier C. Barrett, P.E.
Principal Professional

PROJECT REFERENCE NO.	SHEET NO.
B-5114	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



SR 1619 PROSPECT ST.
2015 ADT
2035 ADT
SR 1663 AUCTION RD.
US 70-29 EB RAMP
HIGH POINT AUTO AUCTION, INC.
DB 761 PG 349
DB 761 PG 350
DB 871 PG 145
MATCH LINE -Y4- 17+00.00 SEE SHEET 6
NAD 83/NSRS 2007
BEGIN BRIDGE -L- STA.18+78 +/-
BEGIN TIP PROJECT B-5114 -L- STA. 12+00.00
APPROACH SLAB -L- STA.18+53 +/-
DUKE POWER COMPANY
DB 535 PG 157
-L- POT Sta. 17+69.61
-RP1- POT Sta. 10+00.00
-Y1- POT Sta. 17+06.71
BEGIN BRIDGE -L- STA.21+23.00 +/-
APPROACH SLAB -L- STA.21+48.00 +/-
MATCH LINE -L- STA. 22+50.00 SEE SHEET 5
AMERIGAS PROPANE, L.P.
DB 1423 PG 115
-Y1- PC Sta. 15+13.54
HIGH POINT THOMASVILLE AND DENTON RAILROAD (CSX)
240' TAPER
-Y1- PT Sta. 16+69.61
ROBERT G. JENKINS, JR. AND WIFE PENNY S. JENKINS
DB 1952 PG 202
RESIDUAL
ROADWAY
EMBANKMENT
ROBERT W. AND WIFE PAMELA G. YORK
WILBUR F. FERRELL AND WIFE VERA FERRELL
DB 1156 PG 599
PB 1 PG 107
ERVIN R. DAVIS, SR.
DB 806 PG 166
PB 1 PG 107
-RP1- PT Sta. 10+86.34
C. VAN PIERCE AND WIFE PAIGE K. PIERCE
DB 1422 PG 1425
DB 1796 PG 2241
PB 67 PG 43
BOBBY L. GRUBB, TRUSTEE
DB 1902 PG 307
PB 1 PG 107
PC Sta. 13+34.42
END GRADE -RP1- STA. 11+46.00
TAGABAA, LLC
DB 2004 PG 186
-RP1- POT Sta. 12+14.33
-Y4- POT STA. 22+42.99
-Y4- PC Sta. 10+01.29
-Y4- PT Sta. 11+38.06
END EXG TRANSITION TO 10' PS
END CONSTRUCTION -RP1- STA. 12+00.00
END GRADE CHANGE -Y4- STA. 26+00.00
MATCH LINE -Y4- STA. 26+50.00 SEE SHEET 7
EXPRESSWAY GUTTER
REVISIONS

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5114	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

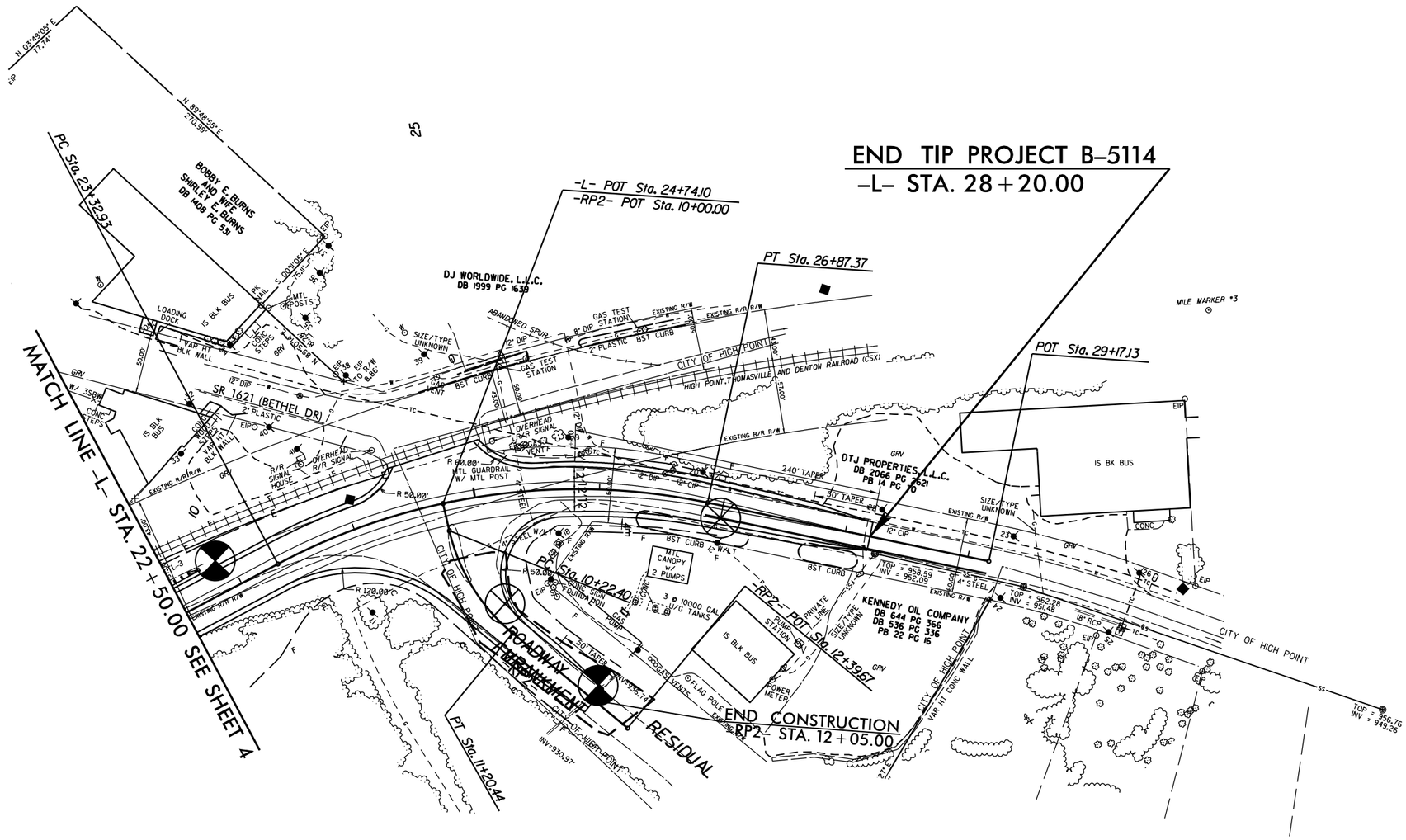
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

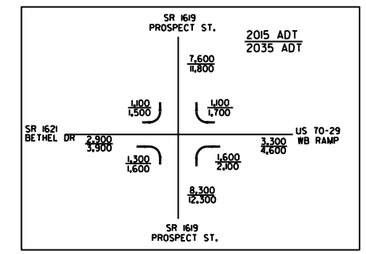
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

25

END TIP PROJECT B-5114
-L- STA. 28+20.00





PROJECT REFERENCE NO.	SHEET NO.
B-5114	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

8/17/99

REVISIONS

NAD 83/NSRS 2007

SHIPWASH ENTERPRISES, L.L.C.
DB 2000 PG 1463

-Y4- POT Sta. 10+00.00

BEGIN GRADE CHANGE
-Y4- STA. 16+50.00

N 00°29'54" W
217.50'

S 04°41'12" W
216.10'

IGLESIA NUEVA VIDA
OF HIGH POINT
DB 2024 PG 2416

WOODS

72" CHL

DIRECTIONAL ONLY
END OF PIPE N/A

18" HDPE

RIP RAP ROCK

EXISTING R/W

72" CHL W/ 3SBW

18" RCP

FES

RESIDUAL

ROADWAY EMBANKMENT

MEDIAN CROSSOVER (SEE TYP. SECTION. NO. 7)

N 65° 47' 23.6" E

+50

+80

24" RCP

CB
TOP=940.01'

18" RCP

24" RCP

EOI

6" TYPE UNKNOWN

S W/
BK FOUNDATION

EIP

EIP TO
R/W 1.28'

GATE

4" PLASTIC

N 65° 14' 19.7" E

MATCH LINE -Y4- 17+00.00 SEE SHEET 4

MENDENHALL AUCTION COMPANY, INC.
DB 1147 PG 347

S 03°39'27" E
796.39'

S 03°38'39" E
827.47'

FORREST A. MENDENHALL
DB 1090 PG 335

-Y1- POT Sta. 10+00.00

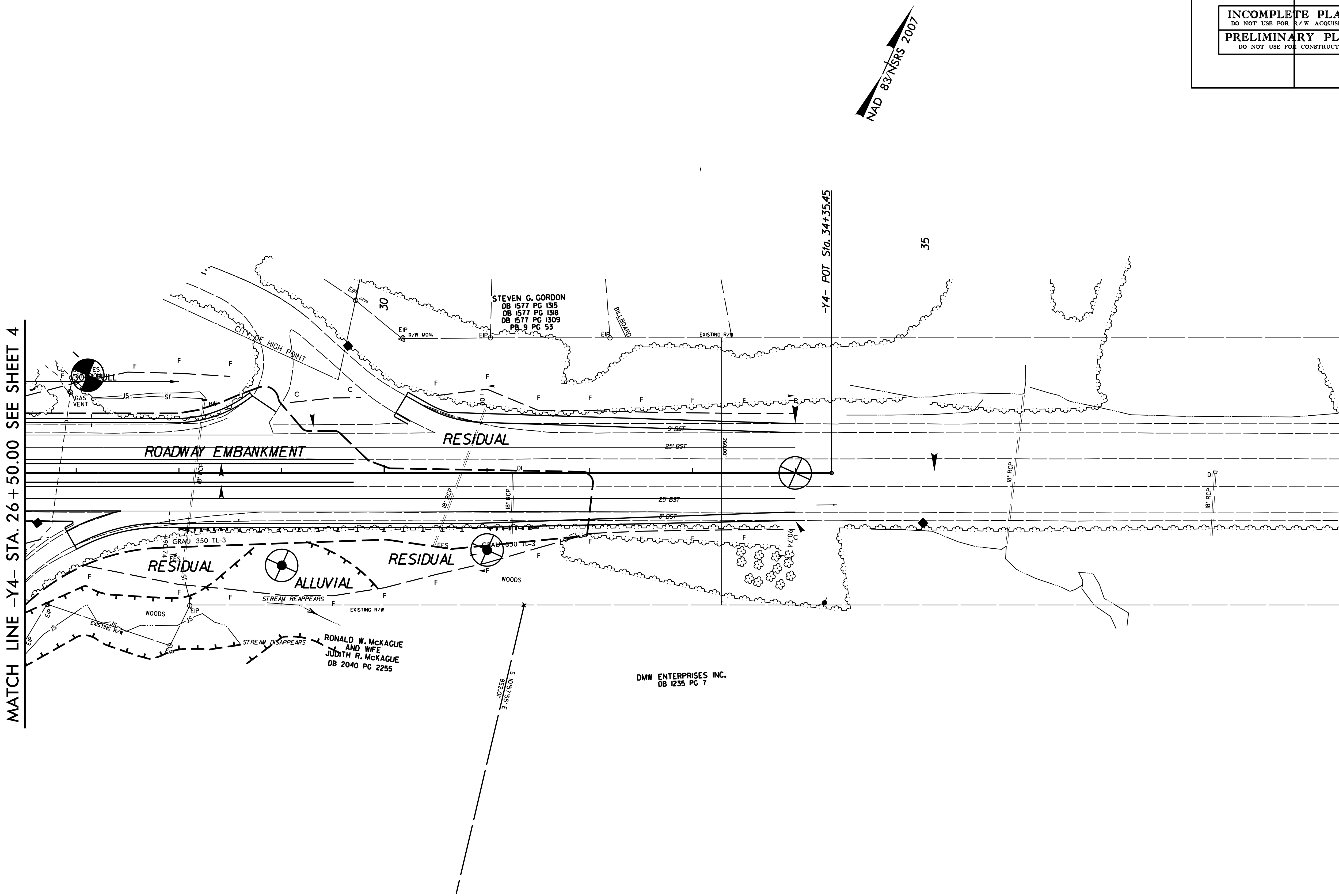
8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5114	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



5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5114	8

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

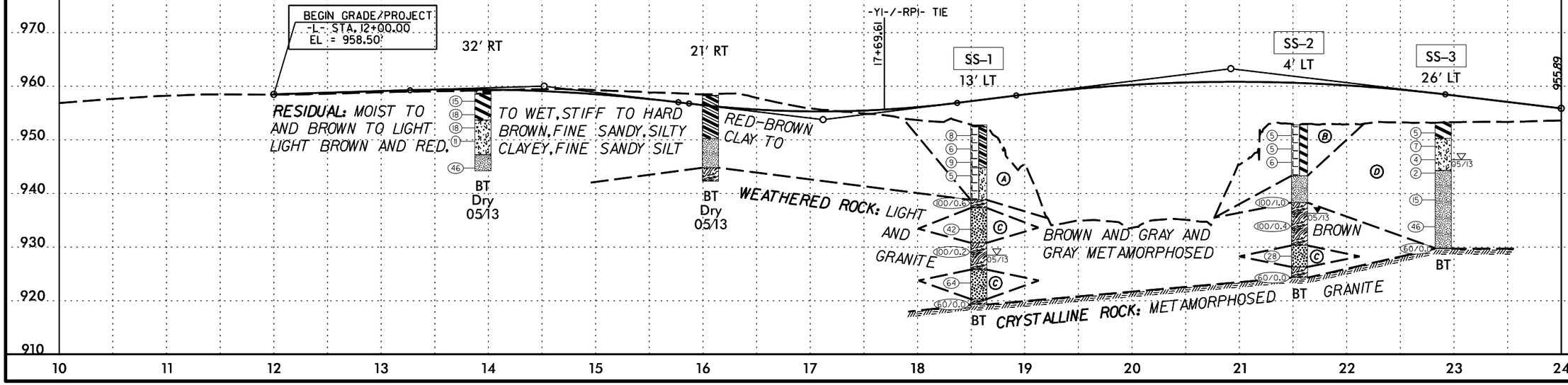
Ⓐ **ROADWAY EMBANKMENT:** MOIST TO WET, MEDIUM STIFF AND STIFF, RED-BROWN, COARSE TO FINE SANDY, SILTY CLAY WITH TRACE GRAVEL TO GRAY-BROWN, CLAYEY, FINE SANDY SILT

Ⓑ **ROADWAY EMBANKMENT:** MOIST TO WET, MEDIUM STIFF, RED-BROWN TO LIGHT BROWN, FINE SANDY, SILTY, CLAY

Ⓒ **RESIDUAL:** MOIST, MEDIUM DENSE TO VERY DENSE, BROWN AND GRAY, SILTY COARSE TO FINE SAND

Ⓓ **RESIDUAL:** WET TO MOIST, SOFT TO HARD, RED-BROWN, FINE, SANDY, SILTY, CLAY TO GRAY TO LIGHT BROWN AND BROWN, CLAYEY, FINE SANDY SILT

-L-



5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5114	9

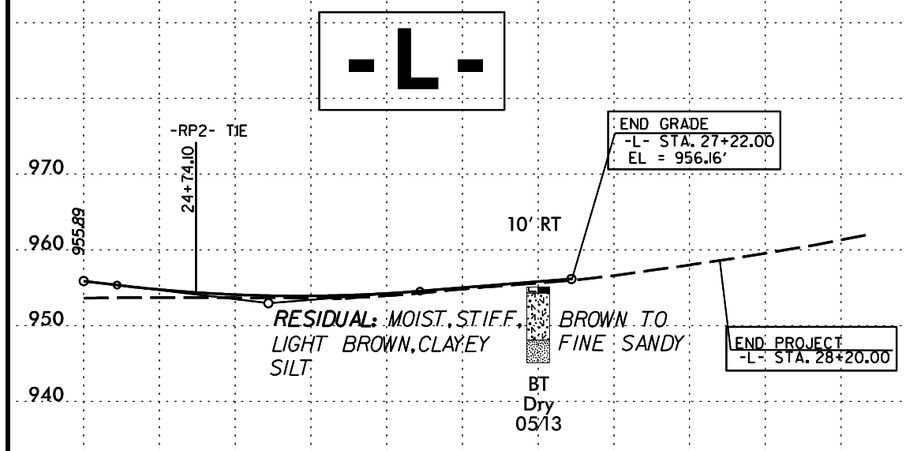
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-



5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5114	10

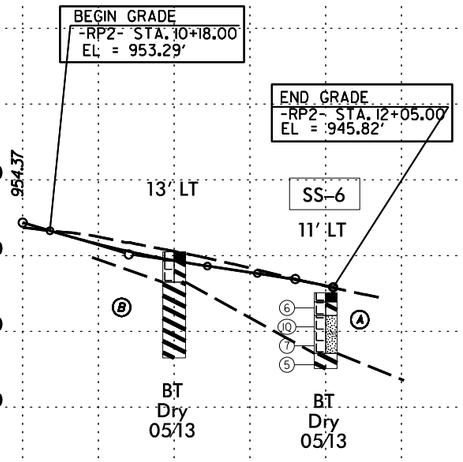
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RP2-



Ⓐ ***ROADWAY EMBANKMENT:*** *MOIST, MEDIUM STIFF AND STIFF, RED-BROWN TO BROWN, FINE SANDY, SILTY CLAY TO LIGHT BROWN, FINE SANDY SILT*

Ⓑ ***RESIDUAL:*** *WET, MEDIUM STIFF, BROWN TO GRAY BROWN, COARSE TO FINE SANDY, SILTY CLAY WITH A TRACE OF ORGANIC MATTER*

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-5114	11

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

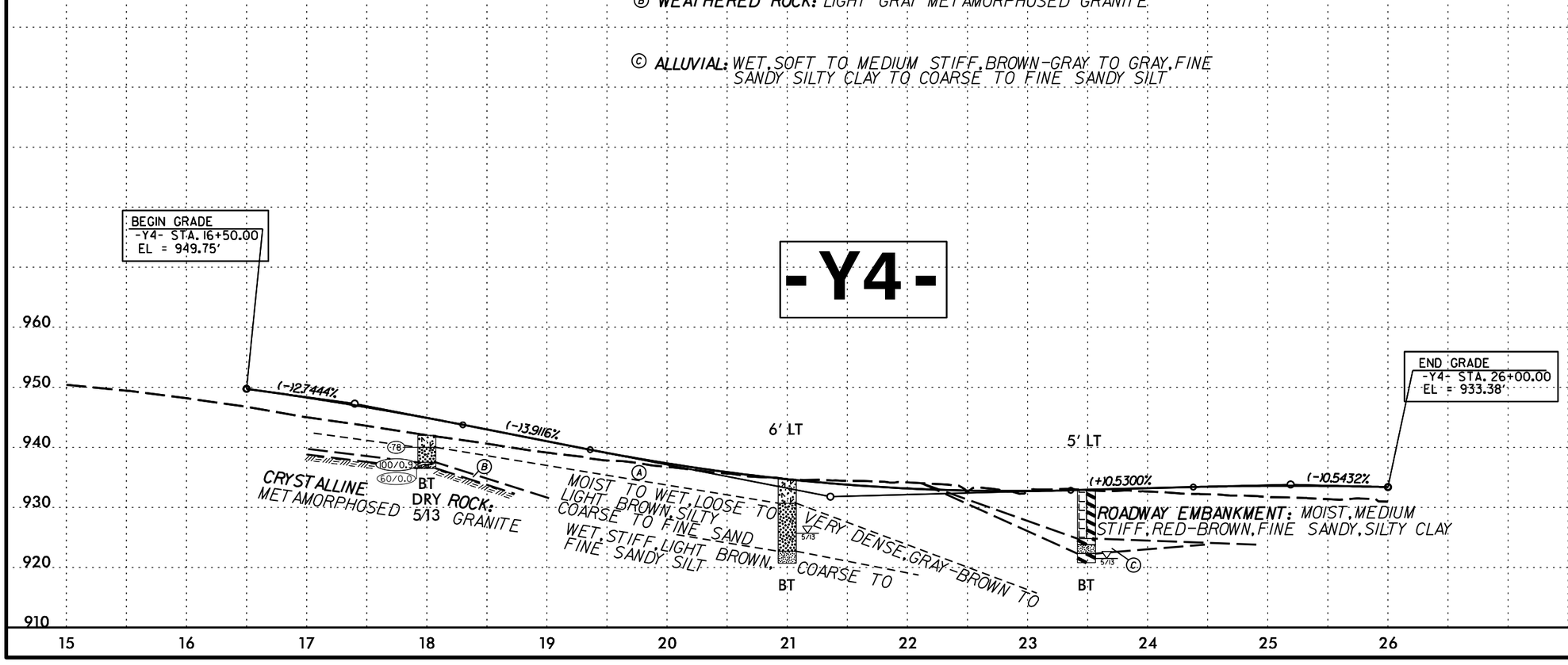
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Ⓐ **RESIDUAL:** MOIST TO WET, HARD TO MEDIUM STIFF, RED-BROWN TO BROWN, CLAYEY, FINE SANDY SILT TO COARSE TO FINE SANDY, SILTY CLAY

Ⓑ **WEATHERED ROCK:** LIGHT GRAY METAMORPHOSED GRANITE

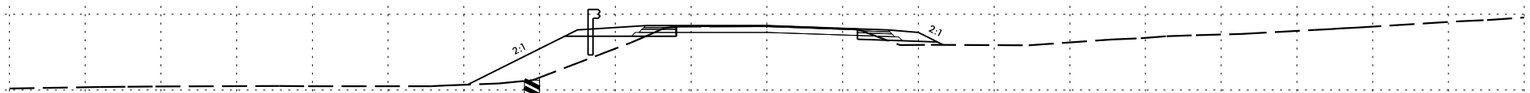
Ⓒ **ALLUVIAL:** WET, SOFT TO MEDIUM STIFF, BROWN-GRAY TO GRAY, FINE SANDY SILTY CLAY TO COARSE TO FINE SANDY SILT



0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5114	12

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

970
960
950
940
930



RESIDUAL: *MOIST TO WET. STIFF. BROWN TO LIGHT BROWN, FINE SANDY, SILTY CLAY TO CLAYEY, FINE SANDY SILT*

BT
DRY
05/13

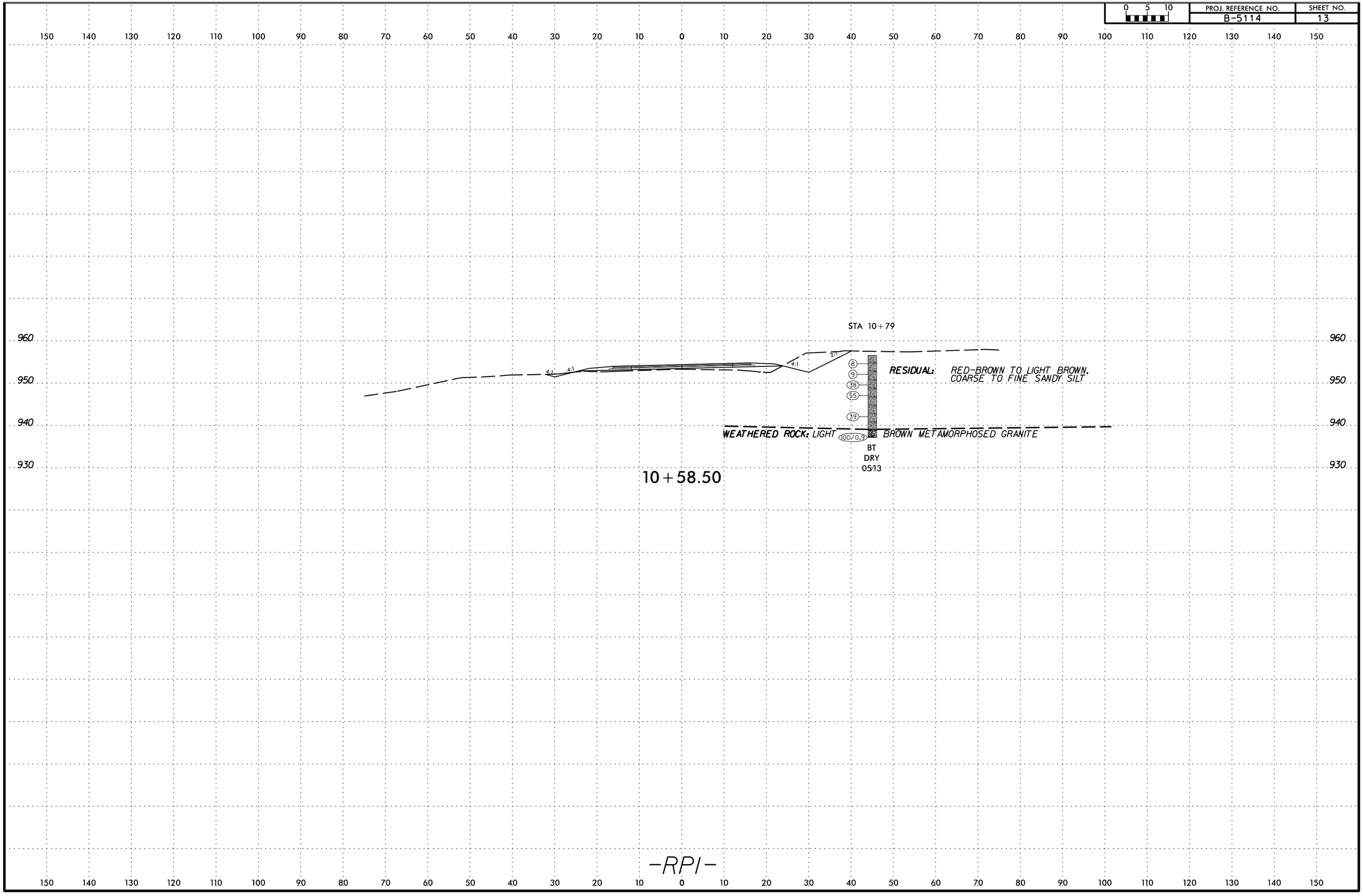
12 + 00.00

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5114	13



-RP1-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5114	14

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

960
950
940

4:1

ROADWAY EMBANKMENT: RED-BROWN, FINE SANDY, SILTY CLAY
WEATHERED ROCK: LIGHT GRAY METAMORPHOSED GRANITE

11+00.00

960
950
940

4:1

ROADWAY EMBANKMENT: WET, HIGH PLASTICITY, RED-BROWN, FINE SANDY, SILTY CLAY
WEATHERED ROCK: LIGHT GRAY METAMORPHOSED GRANITE

10+50.00

960
950
940

SS-4

4:1 4:1

ROADWAY EMBANKMENT: WET, HIGH PLASTICITY, RED-BROWN, FINE SANDY, SILTY CLAY
WEATHERED ROCK: LIGHT GRAY METAMORPHOSED GRANITE

7
100/0.8
100/0.3

BT
DRY
05/13

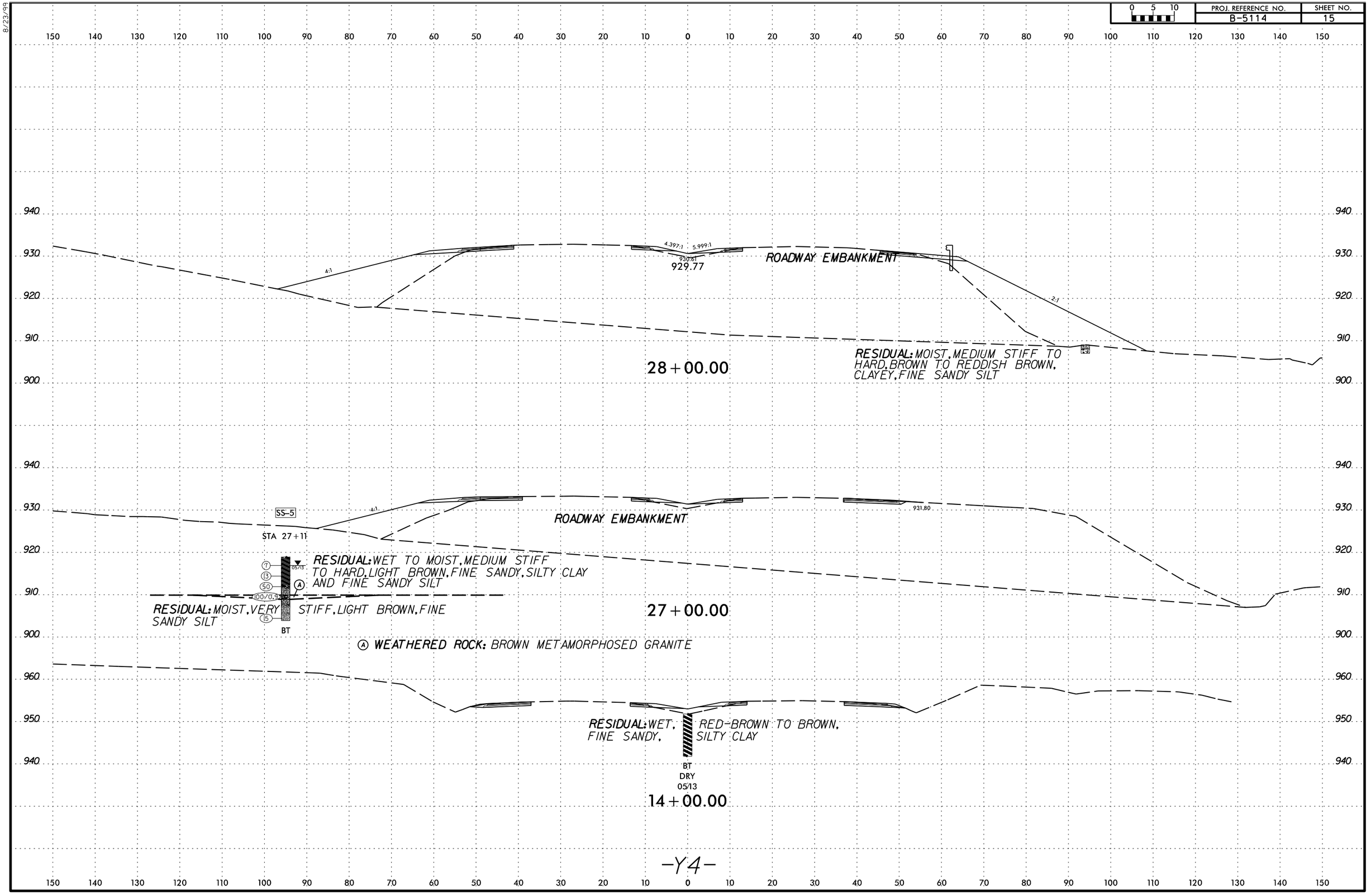
10+00.00

-Y4-

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

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5114	15



8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5114	16

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

940 930 920 910 900 890

2:1 6:1 928.73 4.611:1 5.998:1 929.63 928.89

ROADWAY EMBANKMENT

RESIDUAL

2:1

Ⓐ

RESIDUAL: WET, HARD, BROWN, SILTY COARSE TO FINE SAND

29+50.00

940 930 920 910 900 890

2:1 6:1

ROADWAY EMBANKMENT

Ⓐ ALLUVIAL: WET, VERY SOFT TO MEDIUM STIFF, SOFT, GRAY-BROWN, FINE SANDY, SILTY CLAY

2:1

RESIDUAL

Ⓐ

2 1 5 50/0.5

BT

RESIDUAL: WET, HARD, BROWN, SILTY COARSE TO FINE SAND

29+00.00

940 930 920 910 900 890

4:1

ROADWAY EMBANKMENT

2:1

RESIDUAL

Ⓐ

RESIDUAL: WET, HARD, BROWN, SILTY COARSE TO FINE SAND

28+50.00

-Y4-

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

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5114	17

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

950 940 930 920

4:1

RESIDUAL: MOIST, MEDIUM BROWN, FINE SANDY SILT

STIFF TO STIFF,

2:1

BT
DRY
5/13

34+00.00

930 920 910 900

4:1

ROADWAY EMBANKMENT

2:1

RESIDUAL: MOIST, MEDIUM STIFF TO HARD, BROWN TO REDDISH BROWN, CLAYEY, FINE SANDY SILT

18 50 30 15 26 37

BT
DRY
5/13

31+00.00

940 930 920 910 900 890

2:1 6:1

928.49

ROADWAY EMBANKMENT

2:1

RESIDUAL: MOIST, MEDIUM STIFF TO HARD, BROWN TO REDDISH BROWN, CLAYEY, FINE SANDY SILT

30+00.00

-Y4-

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

NCDOT GEOTECHNICAL ENGINEERING UNIT
BOREHOLE REPORT

WBS 42252.1.1	**TIP** B-5114	**COUNTY** RANDOLPH	**GEOLOGIST** Wells, T. R.	
SITE DESCRIPTION Bridge No. 136 over US 29-70/I-85 Business on SR 1619				**GROUND WTR (ft)**
BORING NO. Y4_2900	**STATION** 29+00	**OFFSET** 90 ft RT	**ALIGNMENT** -Y4-	**0 HR.** 1.5
COLLAR ELEV. 905.1 ft	**TOTAL DEPTH** 3.5 ft	**NORTHING** 790,025	**EASTING** 1,695,587	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD Hand Auger/Rod Sounding	HAMMER TYPE N/A	
DRILLER N/A	**START DATE** 05/21/13	**COMP. DATE** 05/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
910										
905			1	1		2				905.1 GROUND SURFACE 0.0
			0	1		1				**ALLUVIAL**
			2	3		5				Gray-Brown, Fine Sandy, Silty CLAY
			50/0.5			50/0.5				902.1 3.0
										901.6 3.5
										RESIDUAL
										Brown, Silty Coarse to Fine SAND
										Boring Terminated at Elevation 901.6 ft in Silty SAND
										Notes:
										1: Soil Descritions based on Hand Auger

WBS 42252.1.1	**TIP** B-5114	**COUNTY** RANDOLPH	**GEOLOGIST** Wells, T. R.	
SITE DESCRIPTION Bridge No. 136 over US 29-70/I-85 Business on SR 1619				**GROUND WTR (ft)**
BORING NO. Y4_3100	**STATION** 31+00	**OFFSET** 75 ft RT	**ALIGNMENT** -Y4-	**0 HR.** Dry
COLLAR ELEV. 918.3 ft	**TOTAL DEPTH** 6.0 ft	**NORTHING** 790,120	**EASTING** 1,695,763	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD Hand Auger/Rod Sounding	HAMMER TYPE N/A	
DRILLER N/A	**START DATE** 05/21/13	**COMP. DATE** 05/21/13	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV (ft) DEPTH (ft)
920										
			9	9		18				918.3 GROUND SURFACE 0.0
915			9	10		19				917.3 **RESIDUAL** 1.0
			15	15		30				916.3 Brown, Fine Sandy SILT 2.0
			13	13		26				Reddish Brown, Clayey, Fine Sandy SILT
			15	15		30				
			18	19		37				Boring Terminated at Elevation 912.3 ft in Sandy SILT
										Notes:
										1: Soil Descritions based on Hand Auger

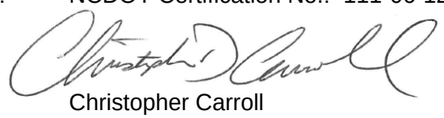
SUMMARY OF LABORATORY TEST DATA

PROJECT NO. 42252.1.1 (B-5114)
FA NO. BRZ-1619(5)
COUNTY: RANDOLPH
BRIDGE NO. 136 OVER US 29-70/I-85 BUSINESS ON SR 1619 IN HIGH POINT

						Atterberg Limits			Gradation Results							
Boring Number	Sample Depth (ft.)	Sample No.	Natural Moisture Content (%)	AASHTO Class (Group Index)	N-Value (blows/ ft.)	L.L.	P.L.	P.I.	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Retained #270 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
L_1857	1.0 – 2.5	SS-1	10.9	A-6 (5)	8	32	21	11	92.5	92.7	66.7	39.1	13.4	25.7	33.7	27.2
L_2156	3.5 -- 5.0	SS-2	32.3	A-7-5 (19)	5	51	32	19	99.7	98.0	84.2	18.5	4.1	14.4	40.7	40.8
L_2290	1.0 – 2.5	SS-3	33.0	A-7-6 (17)	5	46	28	18	97.8	97.1	86.3	17.0	5.0	12.0	40.3	42.7
Y4_1000	1.0 – 2.5	SS-4	36.0	A-7-6 (31)	7	59	26	33	94.8	96.0	89.4	12.8	5.5	7.3	31.2	56.0
Y4_2711	1.0 – 2.5	SS-5	18.1	A-6 (11)	7	34	15	19	93.3	88.5	74.4	30.0	14.9	15.1	37.0	33.0
RP2_1200	1.0 – 2.5	SS-6	41.0	A-7-5 (13)	6	49	37	12	99.7	97.2	83.3	21.5	5.3	16.2	46.0	32.5

SS = Split-Barrel Sample (ASTM-D-1586) ST = Shelby Tube (Undisturbed) Sample
S = Grab Sample
NP -- Non Plastic NA-- Non Applicable

Lab Technician: NCDOT Certification No.: 111-06-1203



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