STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5008	1	36

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
WBS 41141.1.1		P.E.
WBS 41141.2.2		R/W & UTIL.

NOTE: SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *41141.1.1* F.A. PROJ. *N/A*

COUNTY *MECKLENBURG*

PROJECT DESCRIPTION *SUGAR CREEK ROAD AND NCRR/NSRR CROSSING NO. 715 352H GRADE SEPARATION*

RECOMMENDATIONS

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

S. Gollamudi

S. Protopappas

C. Baldwin

S. Gower

W. Trapp

INVESTIGATED BY *AMEC E&I, Inc.*

CHECKED BY *S. Johnson*

SUBMITTED BY *S. Gollamudi*

DATE *February, 2014*

NORTH CAROLINA PROFESSIONAL SEAL 038977 2/25/14 ENGINEER SHARAT C. GOLLAMUDI

amec

AMEC E&I, Inc.
4021 STIRRUP CREEK DRIVE, SUITE 100
DURHAM, NORTH CAROLINA 27703
(919) 381-9900

SEAL G. Sharatchand SIGNATURE

NC Engineering F-1253 NC Geology C-247

ID: U-5008

CONTRACT:

DRAWN BY: *R. Rahie*

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.
U-5008	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-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		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 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
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	OTHER MATERIAL	
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	>10%	>20%	HIGHLY	35% AND ABOVE

GROUND WATER

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

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 - DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT, 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:
- [X] MOBILE B- 57
- [ ] CME-55
- [ ] CME-45C
- [ ] CME-550
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 2 7/8" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT
- [X] 2 1/2" HSA

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [X] -N Q
- [ ] -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: BORING ELEVATIONS OBTAINED FROM TIN FILE.

ELEVATION: FT.

NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING
BT - BORING TERMINATED

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

REVISED 09/23/09

09/08/99

DGN

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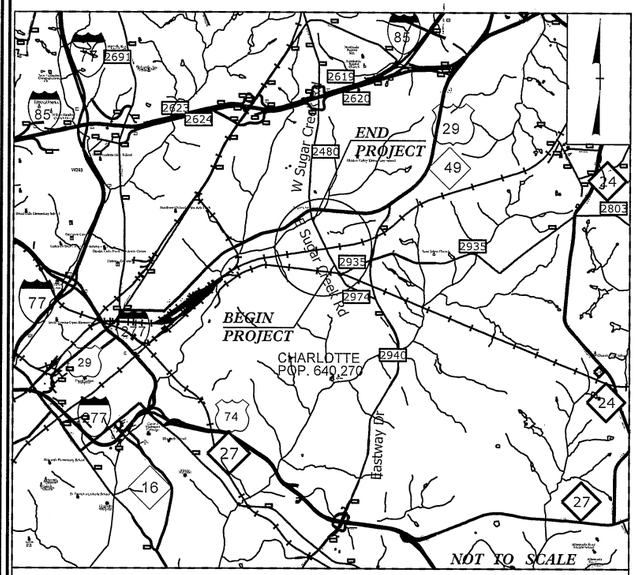
royarahle AT DG713738

CONTRACT:

TIP PROJECT: U-5008

See Sheet 1-A For Index of Sheets



PROJECT VICINITY MAP

STATE OF NORTH CAROLINA
RAIL DIVISION

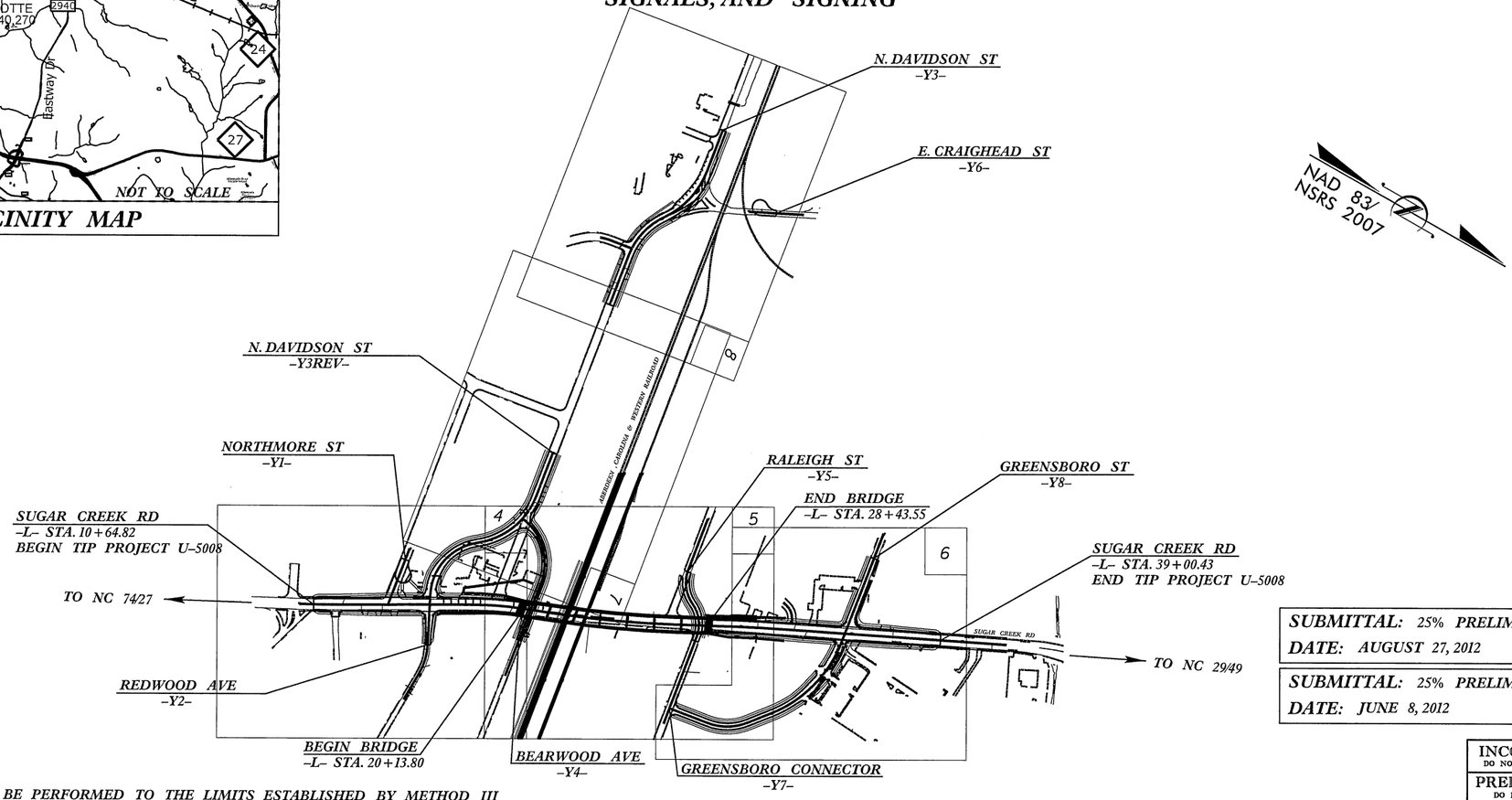
MECKLENBURG COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5008	3	36

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
WBS 41141.1.1		PE
WBS 41141.2.2		ROW/UTIL

LOCATION: *SUGAR CREEK ROAD AND NCRR/NSRR CROSSING NO. 715 352H GRADE SEPARATION*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, STRUCTURE, CURB & GUTTER, SIGNALS, AND SIGNING*



SUBMITTAL: 25% PRELIMINARY PLANS DATE: AUGUST 27, 2012
SUBMITTAL: 25% PRELIMINARY PLANS DATE: JUNE 8, 2012

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
THIS PROJECT IS WITHIN MUNICIPAL BOUNDARIES OF CHARLOTTE

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2010 = 24,300
ADT 2035 = 30,300
DHV = 8 %
D = 55 %
T = 12 % *
V = 50 MPH
* TTST = 4% DUAL = 8%
FUNC CLASS =
URBAN COLLECTOR
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-5008 = .381 MI
LENGTH OF STRUCTURE TIP PROJECT U-5008 = .156 MI
TOTAL LENGTH OF TIP PROJECT U-5008 = .537 MI

DESIGN EXCEPTIONS REQUIRED: DESIGN SPEED

Prepared In the Office of:
SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9991
License: C-2197

FOR THE NORTH CAROLINA DEPT. OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: June 2013

LETTING DATE: November 2014

STEVE THOMAS, PE
PROJECT ENGINEER

DAVID CLODGO, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
1556 MAIL SERVICE CENTER
RALEIGH, NC 27699-1556

PROJECT REFERENCE NO.	SHEET NO.
U-5008	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

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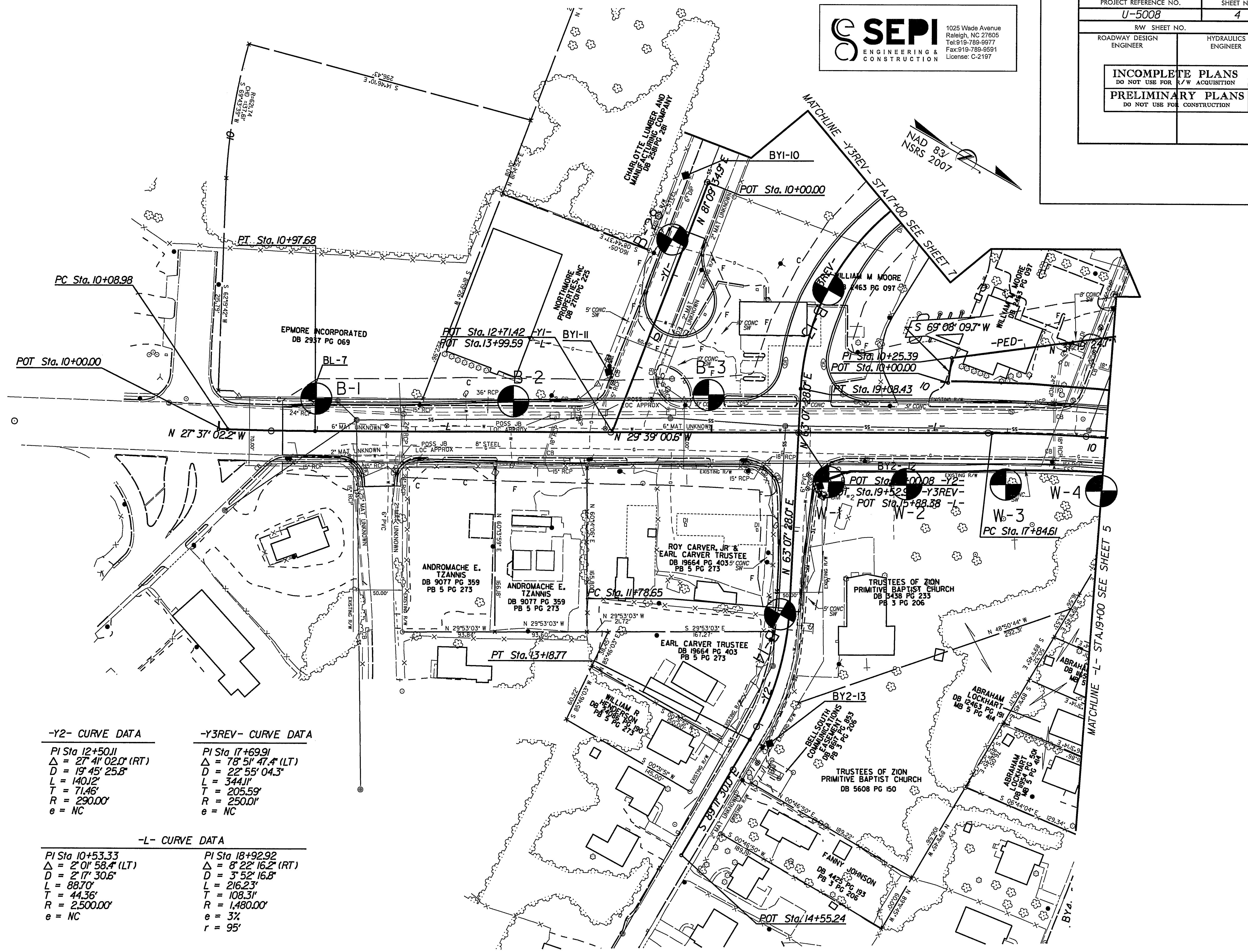
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9591
License: C-2197



-Y2- CURVE DATA

PI Sta 12+50.11
Δ = 27° 41' 02.0" (RT)
D = 19° 45' 25.8"
L = 140.12'
T = 71.46'
R = 290.00'
e = NC

-Y3REV- CURVE DATA

PI Sta 17+69.91
Δ = 78° 51' 47.4" (LT)
D = 22° 55' 04.3"
L = 344.11'
T = 205.59'
R = 250.01'
e = NC

-L- CURVE DATA

PI Sta 10+53.33
Δ = 2° 01' 58.4" (LT)
D = 2° 17' 30.6"
L = 88.70'
T = 44.36'
R = 2,500.00'
e = NC

PI Sta 18+92.92
Δ = 8° 22' 16.2" (RT)
D = 3° 52' 16.8"
L = 216.23'
T = 108.31'
R = 1,480.00'
e = 3%
r = 95'

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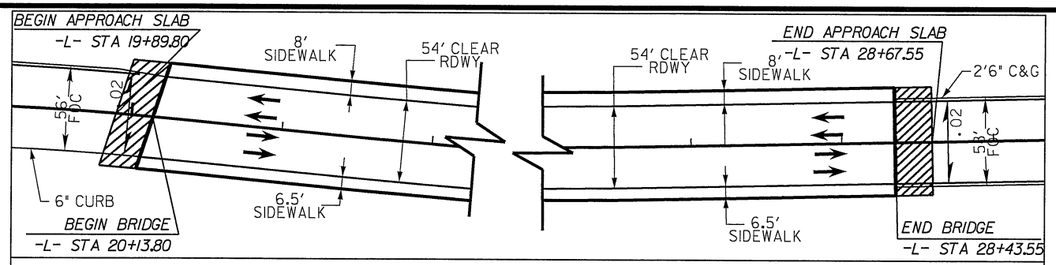

Sketch showing Dimensions of Pavement and Shoulder in Relation to Proposed Bridge Width

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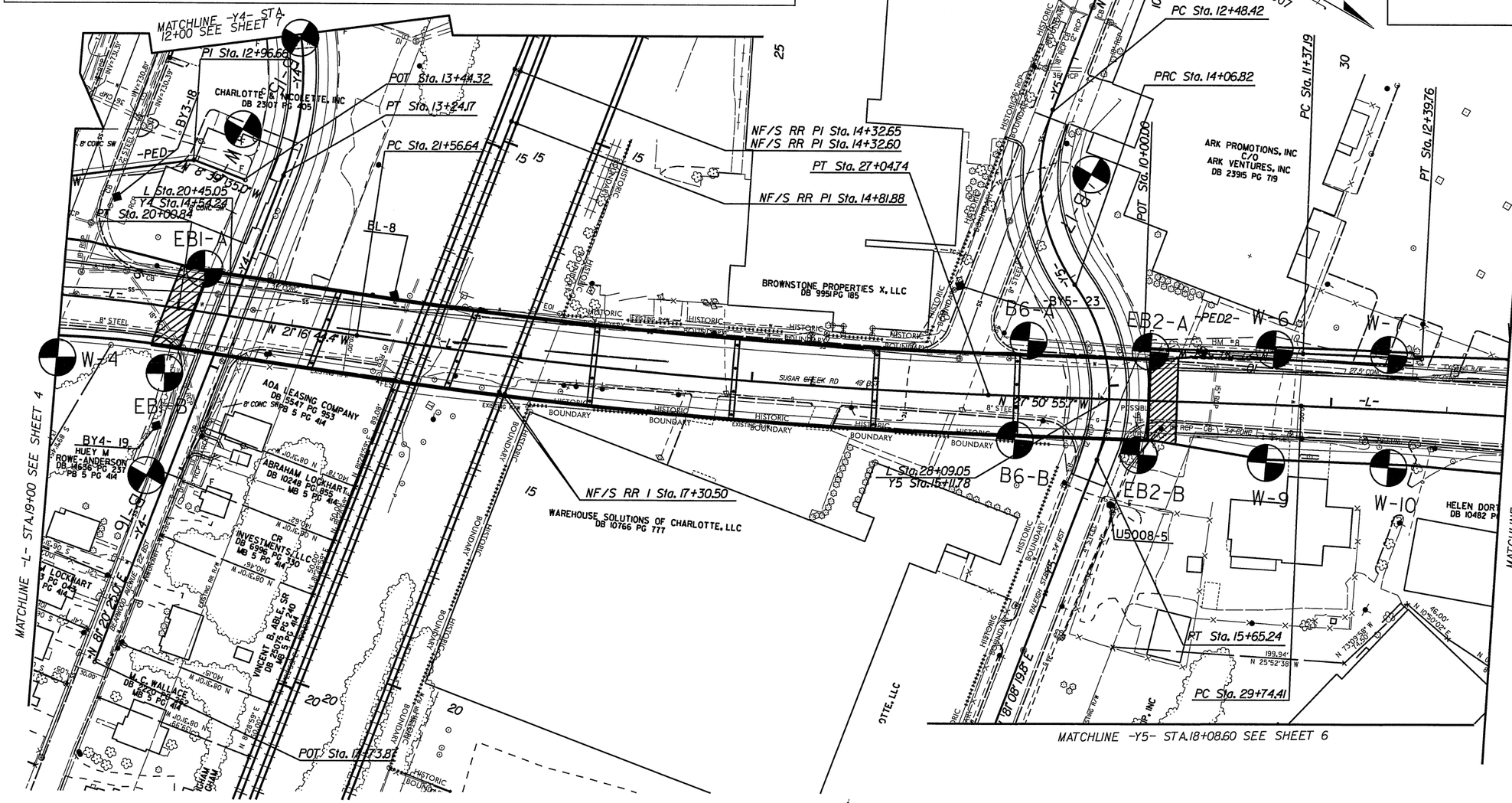
Fax:919-789-9591
License: C-2197

PROJECT REFERENCE NO.	SHEET NO.
U-5008	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



-Y4- CURVE DATA

PI Sta 11+94.56
Δ = 69° 18' 55.3" (RT)
D = 22° 55' 05.9"
L = 302.45'
T = 172.84'
R = 250.00'
e = NC

-L- CURVE DATA

PI Sta 18+92.92
Δ = 8° 22' 16.2" (RT)
D = 3° 52' 16.8"
L = 216.23'
T = 108.31'
R = 1,480.00'
e = 3%
r = 95'

PI Sta 24+30.99
Δ = 6° 34' 11.2" (LT)
D = 1° 11' 55.2"
L = 548.10'
T = 274.35'
R = 4,780.00'
e = NC

PI Sta 30+85.30
Δ = 2° 07' 03.0" (RT)
D = 0° 57' 17.7"
L = 221.74'
T = 110.88'
R = 6,000.00'
e = NC

-Y5- CURVE DATA

PI Sta 13+34.72
Δ = 56° 28' 22.2" (LT)
D = 35° 39' 11.6"
L = 158.39'
T = 86.30'
R = 160.70'
e = NC

PI Sta 14+93.12
Δ = 56° 25' 09.9" (RT)
D = 35° 36' 48.3"
L = 158.42'
T = 86.30'
R = 160.88'
e = NC

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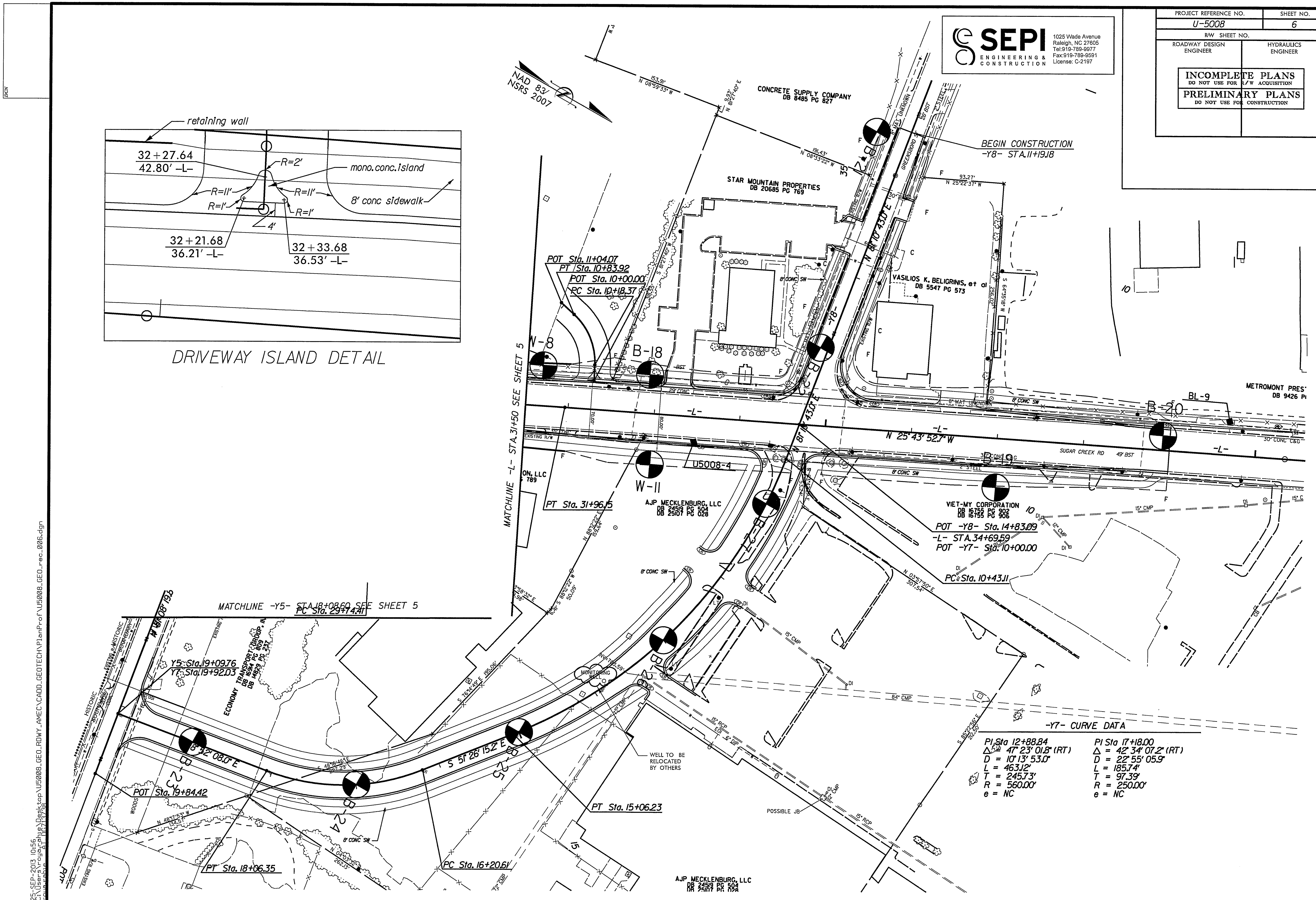

PROJECT REFERENCE NO. U-5008
SHEET NO. 6
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9591
License: C-2197
NAD 83/ NSRS 2007
retaining wall
32+27.64
42.80' -L-
R=2'
mono.conc.island
R=11'
R=1'
8' conc sidewalk
4'
32+21.68
36.21' -L-
32+33.68
36.53' -L-
DRIVEWAY ISLAND DETAIL
CONCRETE SUPPLY COMPANY
DB 8485 PG 827
STAR MOUNTAIN PROPERTIES
DB 20685 PG 769
BEGIN CONSTRUCTION
-Y8- STA.11+19.18
VASILIOS K. BELIGRINIS, et al
DB 5547 PG 573
METROMONT PRES
DB 9426 P
POT Sta. 11+04.07
PT Sta. 10+83.92
POT Sta. 10+00.00
PC Sta. 10+18.37
MATCHLINE -L- STA.31+50 SEE SHEET 5
W-8
B-18
BL-9
B-20
B-19
W-11
U5008-4
N 25° 43' 52.7" W
SUGAR CREEK RD
PT Sta. 31+96.15
AJP MECKLENBURG, LLC
DB 24519 PG 504
DB 25107 PG 028
VIET-MY CORPORATION
DB 16755 PG 902
DB 16755 PG 906
POT -Y8- Sta. 14+83.09
-L- STA.34+69.59
POT -Y7- Sta. 10+00.00
PC Sta. 10+43.11
MATCHLINE -Y5- STA.18+08.60 SEE SHEET 5
PC Sta. 29+74.41
Y5 Sta.19+09.76
Y7 Sta.19+92.03
ECONOMY TRANSPORT GROUP, INC
MONITORING WELL
WELL TO BE RELOCATED BY OTHERS
S 51° 26' 15.2" E
POT Sta. 19+84.42
PT Sta. 15+06.23
PT Sta. 18+06.35
PC Sta. 16+20.61
POSSIBLE JB
84" CMP
AJP MECKLENBURG, LLC
-Y7- CURVE DATA
PI Sta 12+88.84
Δ = 47° 23' 01.8" (RT)
D = 10° 13' 53.0"
L = 463.12'
T = 245.73'
R = 560.00'
e = NC
PI Sta 17+18.00
Δ = 42° 34' 07.2" (RT)
D = 22° 55' 05.9"
L = 185.74'
T = 97.39'
R = 250.00'
e = NC
25-SEP-2013 10:56

PROJECT REFERENCE NO.	SHEET NO.
U-5008	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

SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
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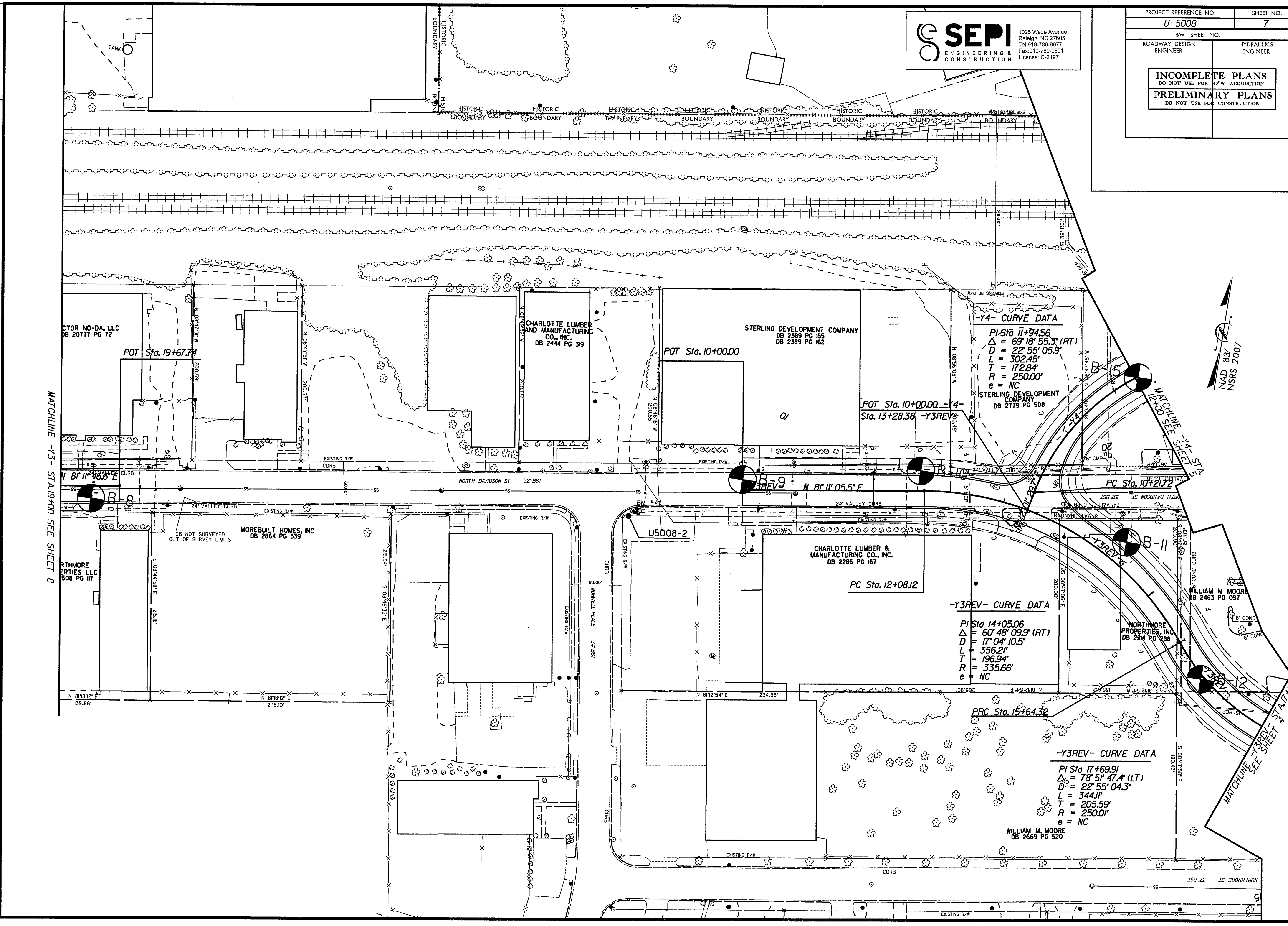
Tel:919-789-9977
Fax:919-789-9591
License: C-2197



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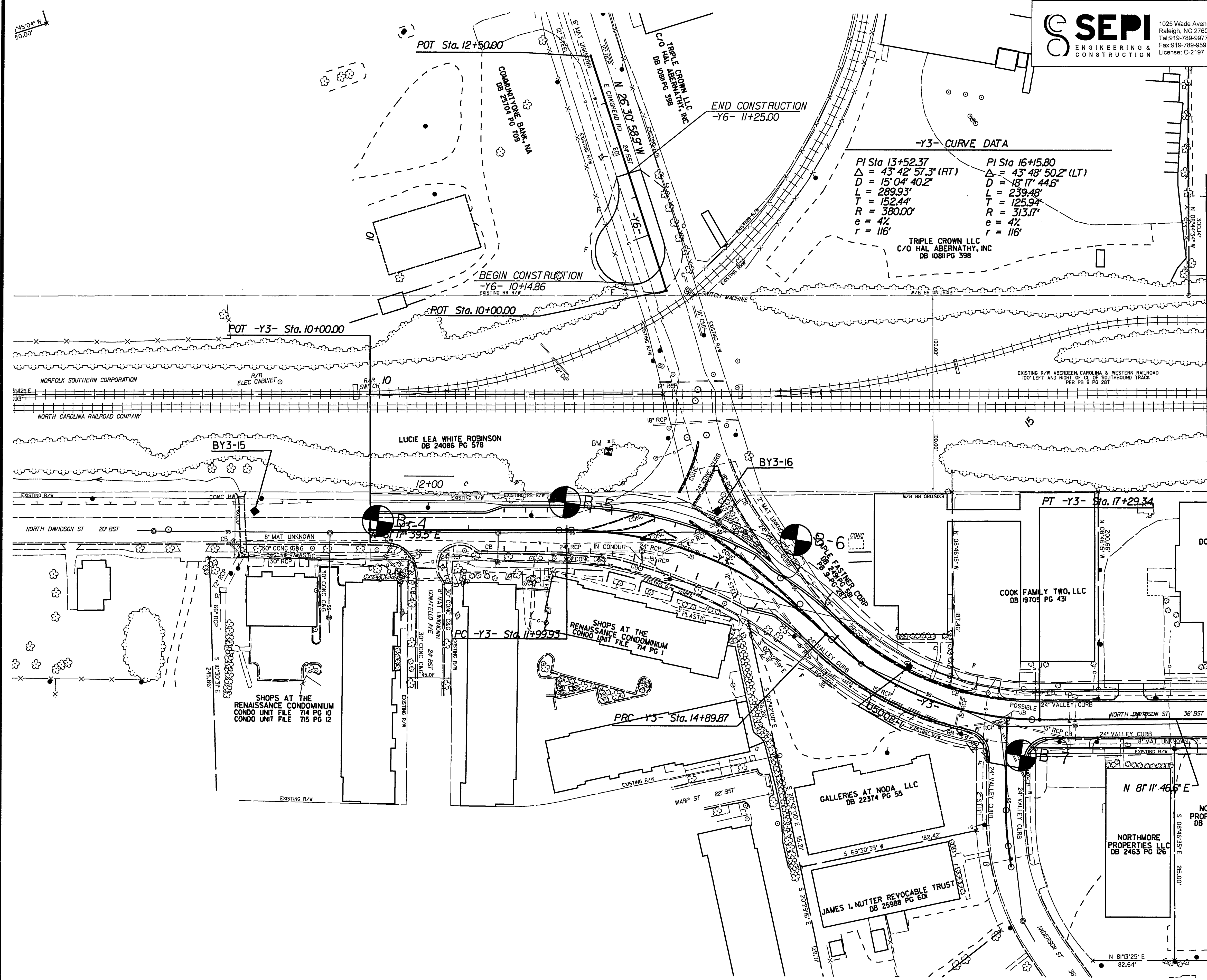
PROJECT REFERENCE NO.	SHEET NO.
U-5008	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9591
License: C-2197



POT Sta. 12+50.00
END CONSTRUCTION -Y6- 11+25.00
BEGIN CONSTRUCTION -Y6- 10+14.86
POT Sta. 10+00.00
POT -Y3- Sta. 10+00.00
N 26°30' 58.9" W
COMMUNITYONE BANK, NA DB 25704 PG 705
TRIPLE CROWN LLC C/O HAL ABERNATHY, INC DB 10811 PG 398
-Y3- CURVE DATA
PI Sta 13+52.37
Δ = 43° 42' 57.3" (RT)
D = 15° 04' 40.2"
L = 289.93'
T = 152.44'
R = 380.00'
e = 4%
r = 116'
PI Sta 16+15.80
Δ = 43° 48' 50.2" (LT)
D = 18° 17' 44.6"
L = 239.48'
T = 125.94'
R = 313.17'
e = 4%
r = 116'
TRIPLE CROWN LLC C/O HAL ABERNATHY, INC DB 10811 PG 398
NORFOLK SOUTHERN CORPORATION
NORTH CAROLINA RAILROAD COMPANY
EXISTING R/W ABERDEEN, CAROLINA & WESTERN RAILROAD 100' LEFT AND RIGHT OF CL OF SOUTHBOUND TRACK PER PB 9 PG 287
LUCIE LEA WHITE ROBINSON DB 24086 PG 578
BY3-15
BY3-16
B-4
B-5
B-6
B-7
NORTH DAVIDSON ST 20' BST
PT -Y3- Sta. 17+29.34
COOK FAMILY TWO, LLC DB 19705 PG 431
SHOPS AT THE RENAISSANCE CONDOMINIUM CONDO UNIT FILE 714 PG 10 CONDO UNIT FILE 715 PG 12
SHOPS AT THE RENAISSANCE CONDOMINIUM CONDO UNIT FILE 714 PG 1
PC -Y3- Sta. 11+99.95
PRC -Y3- Sta. 14+89.87
GALLERIES AT NODA, LLC DB 22374 PG 55
JAMES L. NUTTER REVOCABLE TRUST DB 25988 PG 601
NORTHMORE PROPERTIES LLC DB 2463 PG 126
N 81° 11' 46.6" E
MATCHLINE -Y3- STA.19+00 SEE SHEET 7
NAD 83/ NSRS 2007

25-SEP-2013 10:56

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5008	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

℄ -Y1-
12+071.42

℄ -Y3REV-
19+52.92

℄ -Y2-
10+00.08

℄ -Y4-
14+54.24

SS 299
B-1
10+99
33 ft LT

SS 295
B-2
12+99
31 ft LT

SS 301
B-3
14+97
38 ft LT

SS 305
SS 306
SS 310
W-1
16+19
50 ft RT

SS 314
SS 315
W-2
16+98
52 ft RT

SS 323
SS 324
W-3
17+99
52 ft RT

SS 380
SS 382
SS 383
SS 384
W-4
19+00
54 ft RT

EBI-B
19+97
57 ft RT

BT
DRY
FIAD
06/13

BT
FIAD
06/13

BT
06/13

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

860 850 840 830 820 810 800 790 780 770 760 750 740 730 720 710 700 690 680 670 660

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5008	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

(1) ROADWAY EMBANKMENT FILL: STIFF TO VERY STIFF, RED,ORANGE-RED,SILTY CLAY AND SANDY CLAY,MOIST

(2) ASPHALT AND ABC

SS 236
B-4
10+08
9 ft LT
BT
DRY
FIAD
06/13

SS 228
B-5
11+98
28 ft LT
BT
FIAD
06/13

SS 283
B-6
14+13
57 ft LT
BT
DRY
FIAD
06/13

B-7
17+12
37 ft RT
BT
FIAD
06/13

SS 279
B-8
19+35
14 ft RT
BT
FIAD
06/13

RESIDUAL: SOFT TO STIFF, RED, ORANGE, TAN, SANDY SILTY CLAY, SANDY CLAY, SANDY SILT AND CLAYEY SILT, MOIST TO WET

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

-Y3-

830 820 810 800 790 780 770 760 750 740 730 720 710 700 690 680 670 660 650 640 630

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00

12-NOV-2013 13:48
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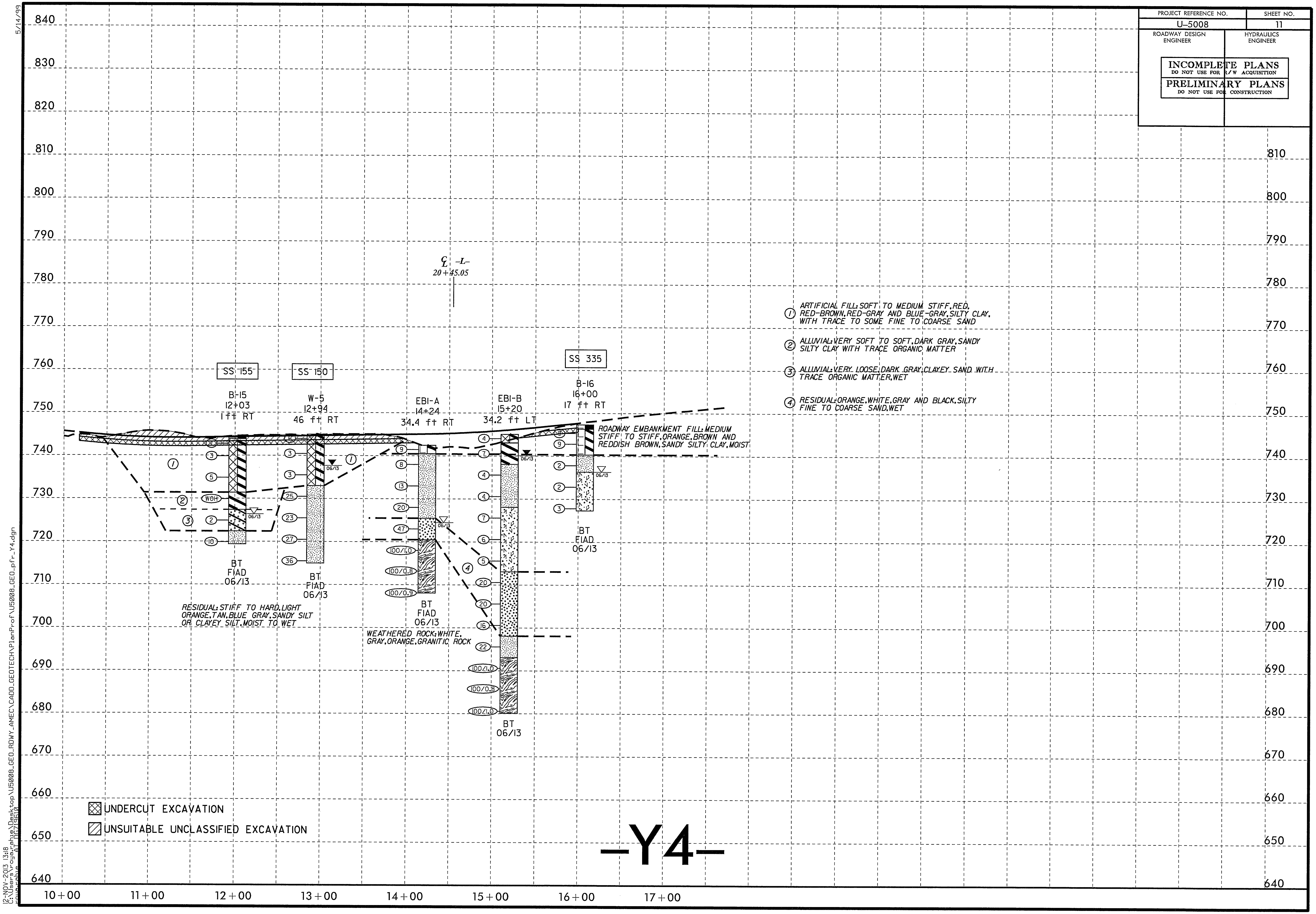
PROJECT REFERENCE NO.
U-5008
SHEET NO.
11
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
5/14/99
CL -L- 20+45.05
SS 155
B-15 12+03 1 ft RT
SS 150
W-5 12+94 46 ft RT
EBI-A 14+24 34.4 ft RT
EBI-B 15+20 34.2 ft LT
SS 335
B-16 16+00 17 ft RT
ROADWAY EMBANKMENT FILL: MEDIUM STIFF TO STIFF, ORANGE, BROWN AND REDDISH BROWN, SANDY SILTY CLAY, MOIST
1 ARTIFICIAL FILL: SOFT TO MEDIUM STIFF, RED, RED-BROWN, RED-GRAY AND BLUE-GRAY, SILTY CLAY, WITH TRACE TO SOME FINE TO COARSE SAND
2 ALLUVIAL: VERY SOFT TO SOFT, DARK GRAY, SANDY SILTY CLAY WITH TRACE ORGANIC MATTER
3 ALLUVIAL: VERY LOOSE, DARK GRAY, CLAYEY SAND WITH TRACE ORGANIC MATTER, WET
4 RESIDUAL: ORANGE, WHITE, GRAY AND BLACK, SILTY FINE TO COARSE SAND, WET
RESIDUAL: STIFF TO HARD, LIGHT ORANGE, TAN, BLUE GRAY, SANDY SILT OR CLAYEY SILT, MOIST TO WET
WEATHERED ROCK: WHITE, GRAY, ORANGE, GRANITIC ROCK
BT FIAD 06/13
BT 06/13
UNDERCUT EXCAVATION
UNSUITABLE UNCLASSIFIED EXCAVATION
-Y4-
840 830 820 810 800 790 780 770 760 750 740 730 720 710 700 690 680 670 660 650 640
10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5008	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

℄ -L-
28+09.05

℄ -Y7-
19+92.03

① ARTIFICIAL FILL: STIFF TO SOFT, BROWN, DARK RED, SANDY CLAY AND SILTY CLAY, MOIST

② RESIDUAL: MEDIUM DENSE TO VERY DENSE, ORANGE, LIGHT TAN, CLAYEY SAND, MOIST TO WET

B-17
13+05
44 ft LT

EB2-A
14+78
38.4 ft LT

EB2-B
15+51
32.7 ft LT

ROADWAY EMBANKMENT FILL: MEDIUM STIFF TO STIFF, LIGHT BROWN, REDDISH BROWN, SANDY CLAY, SILTY CLAY AND MEDIUM DENSE, LIGHT BROWN, CLAYEY SAND

RESIDUAL: MEDIUM STIFF TO HARD, GRAY, ORANGE, BLACK AND WHITE, SANDY CLAY, SILTY CLAY, SANDY SILT AND CLAYEY SILT, MOIST TO WET

RESIDUAL: MEDIUM STIFF TO HARD, GRAY, ORANGE, BLACK AND WHITE, SANDY CLAY, SILTY CLAY, SANDY SILT AND CLAYEY SILT, MOIST TO WET

DENSE, ORANGE, SILTY SAND, WET

WEATHERED ROCK: ORANGE, WHITE AND BLACK, META QUARTZ DIORITE

BT
DRY
FIAD
05/13

BT
05/13

BT
05/13

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

-Y5-

830 820 810 800 790 780 770 760 750 740 730 720 710 700 690 680 670 660 650 640 630

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00

12-NOV-2013 13:18
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roupahie

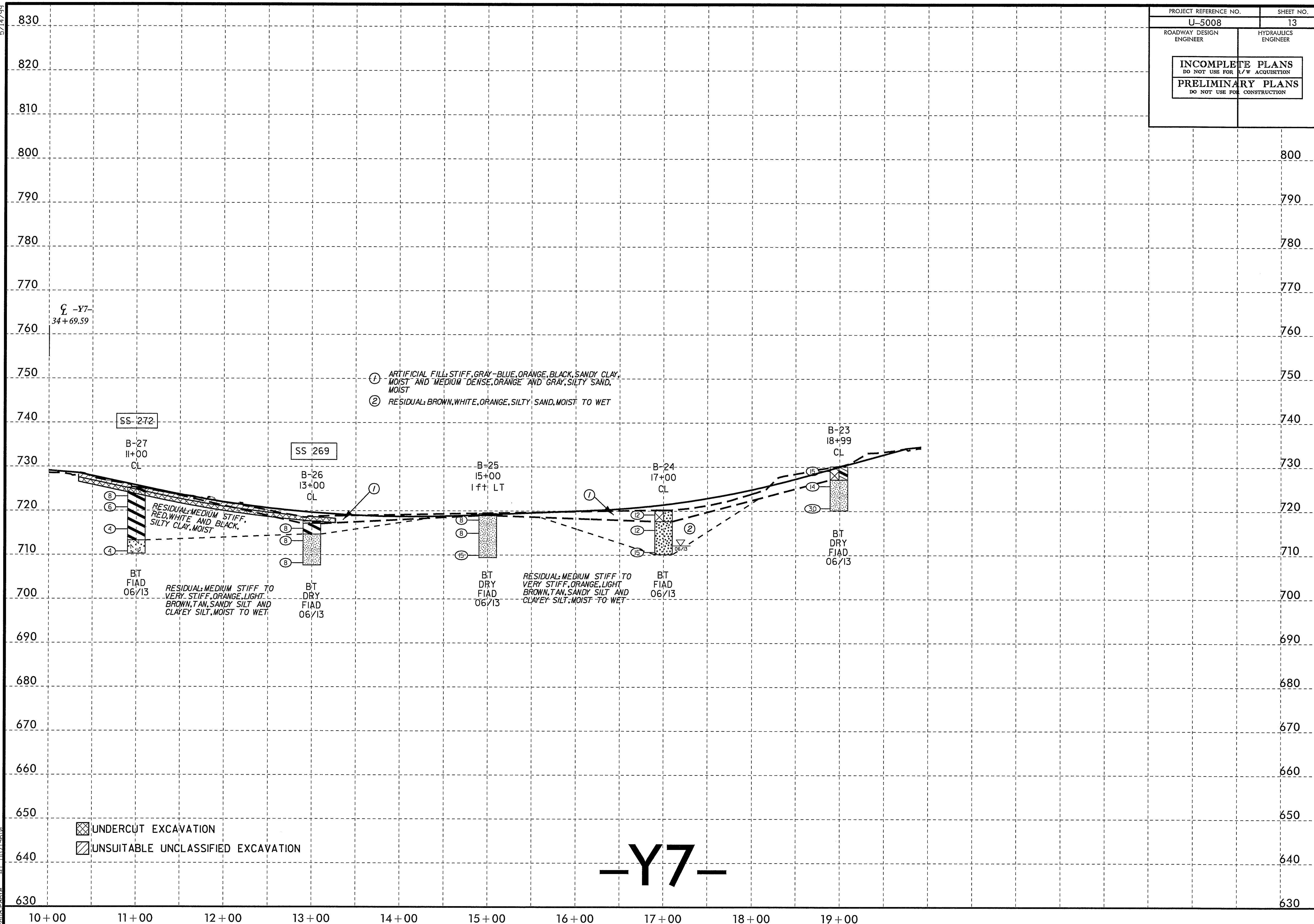
PROJECT REFERENCE NO.	SHEET NO.
U-5008	13

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	14

SS 299

B-1
10+99
33 ft LT

S.S. 756.68
2.00%
752.13
0.020
0.020
752.15
S.S. 753.51
2.%

RESIDUAL: STIFF, LIGHT ORANGE AND TAN, SILTY CLAY WITH SOME SAND, MOIST

LOOSE, LIGHT TAN, CLAYEY SAND, MOIST

BT
DRY
FIAD
06/13

① ARTIFICIAL FILL AND ROADWAY EMBANKMENT FILL: STIFF, ORANGE AND BLACK, SANDY CLAY, MOIST

11+00.00

BEGIN SHALLOW UNDERCUT -L- AT STA. 10+64

BEGIN UNSUITABLE UNCLASSIFIED EXCAVATION -L- AT STA. 10+64

10+50.00

10+00.00

-L-

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

25-FEB-2014 15:36
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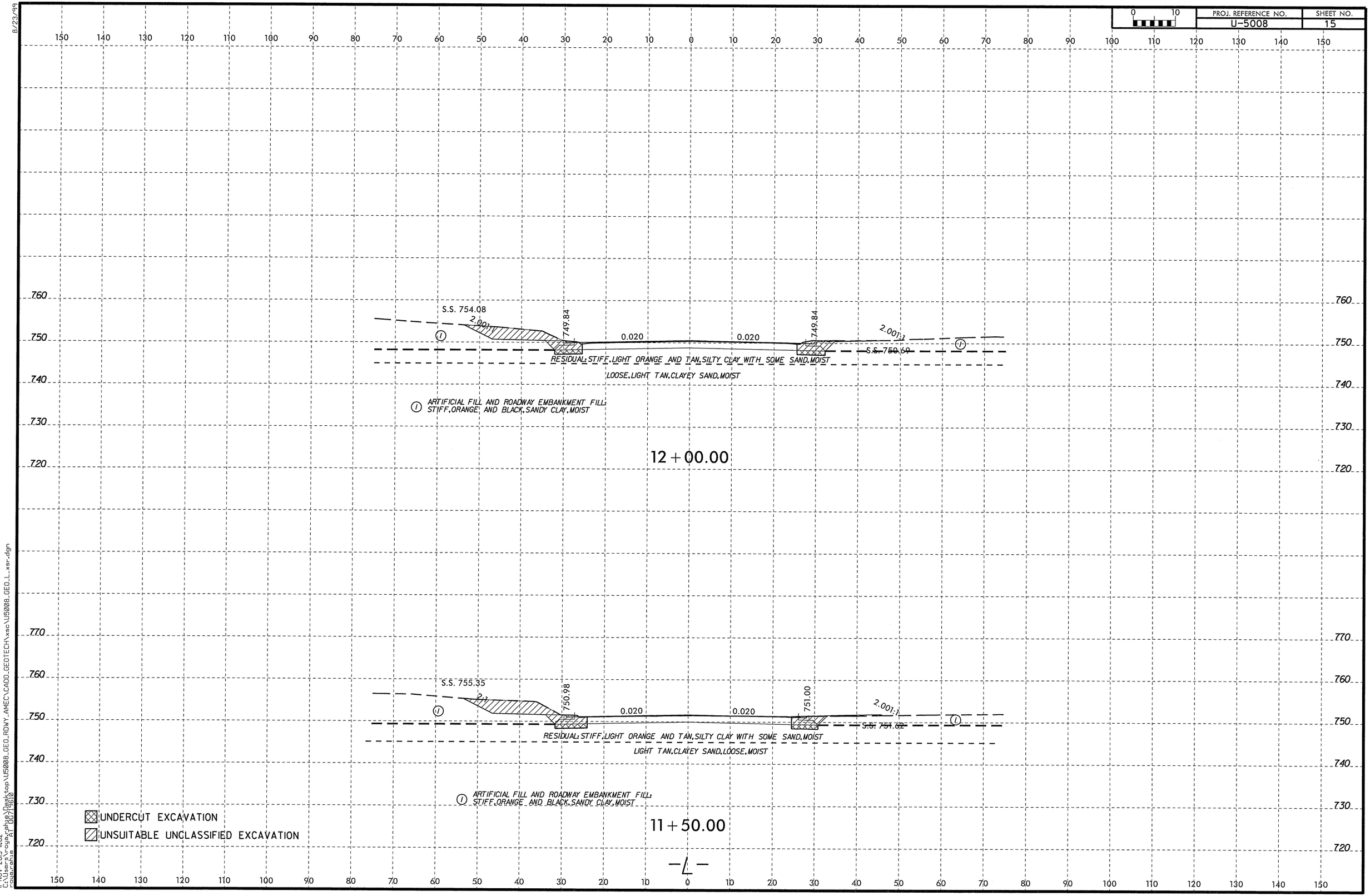
roua.ahie
AT DG7196.10

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	15



11-NOV-2013 11:02
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roya.rahe
AT 06/16/10

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	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

770 760 750 740 730 720 710 700

SS 295

B-2
12+99
31ft LT

S.S. 750.76
2.00:1
747.65
0.020
0.020
747.65
2.00:1
S.S. 748.32

ARTIFICIAL FILL: MEDIUM STIFF, REDDISH BROWN, LIGHT BROWN AND GRAY, SANDY CLAY, MOIST

ROADWAY EMBANKMENT

ARTIFICIAL FILL: MEDIUM STIFF, REDDISH BROWN, LIGHT BROWN AND GRAY, SANDY CLAY, MOIST

RESIDUAL: MEDIUM STIFF, BLUE-GRAY, SANDY SILTY CLAY, MOIST

BT
DRY
FIAD
06/13

13+00.00

S.S. 752.76
2.00:1
748.68
0.020
0.020
748.68
2.00:1
S.S. 749.70

ARTIFICIAL FILL: MEDIUM STIFF, REDDISH BROWN, LIGHT BROWN AND GRAY, SANDY CLAY, MOIST

ROADWAY EMBANKMENT

ARTIFICIAL FILL: MEDIUM STIFF, REDDISH BROWN, LIGHT BROWN AND GRAY, SANDY CLAY, MOIST

RESIDUAL: MEDIUM STIFF, BLUE-GRAY, SANDY SILTY CLAY, MOIST

12+50.00

UNDERCUT EXCAVATION

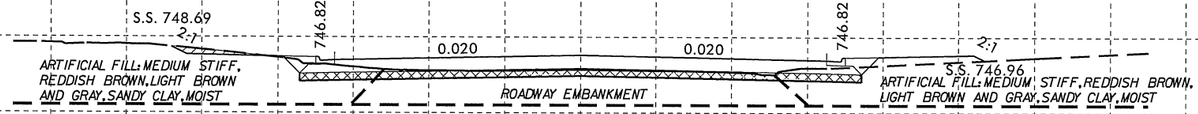
UNSUITABLE UNCLASSIFIED EXCAVATION

11-NOV-2013 11:02
C:\Users\roua-rahie\Desktop\U5008_GEO_RDWY_AMEC\CADD_GEOTECH\xsec\U5008_GEO_L_xsr.dgn
roua-rahie AT DOT9610

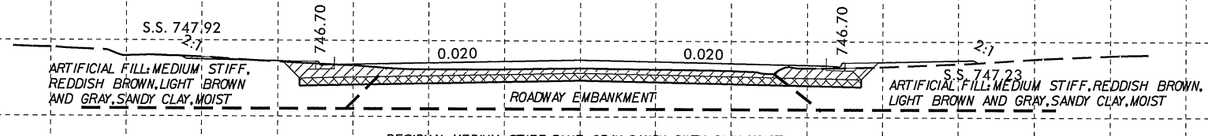
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-5008	17

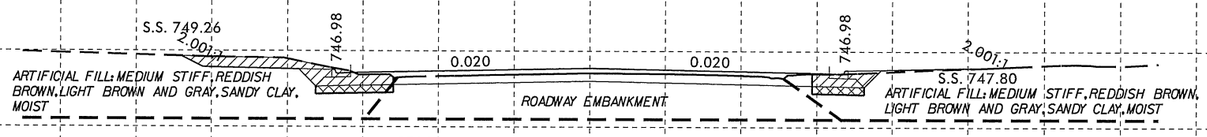
END UNSUITABLE UNCLASSIFIED EXCAVATION -L- AT STA. 14+75



14+50.00



14+00.00



13+50.00

-L-

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

11-NOV-2013 11:02
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royal.phillips
AT 1067/1610

8/23/99

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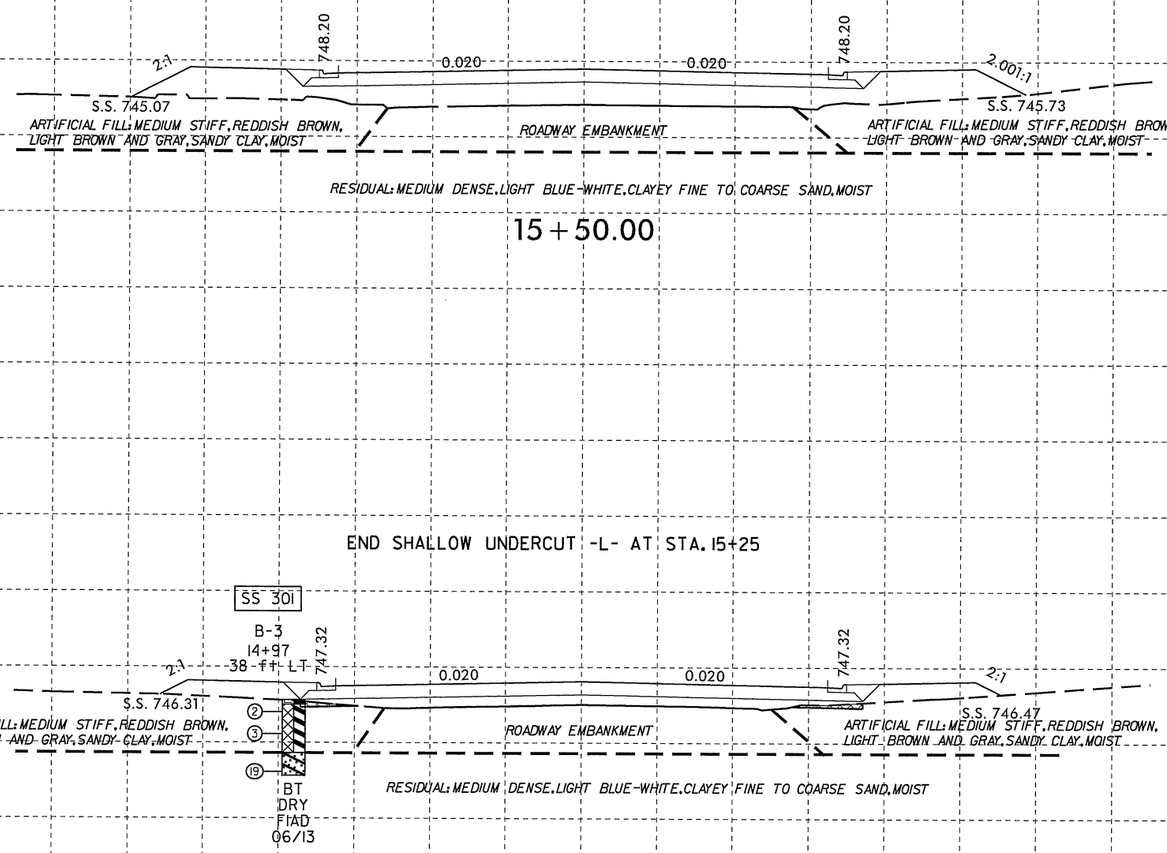
	U-5008	18



11-NOV-2013 11:02
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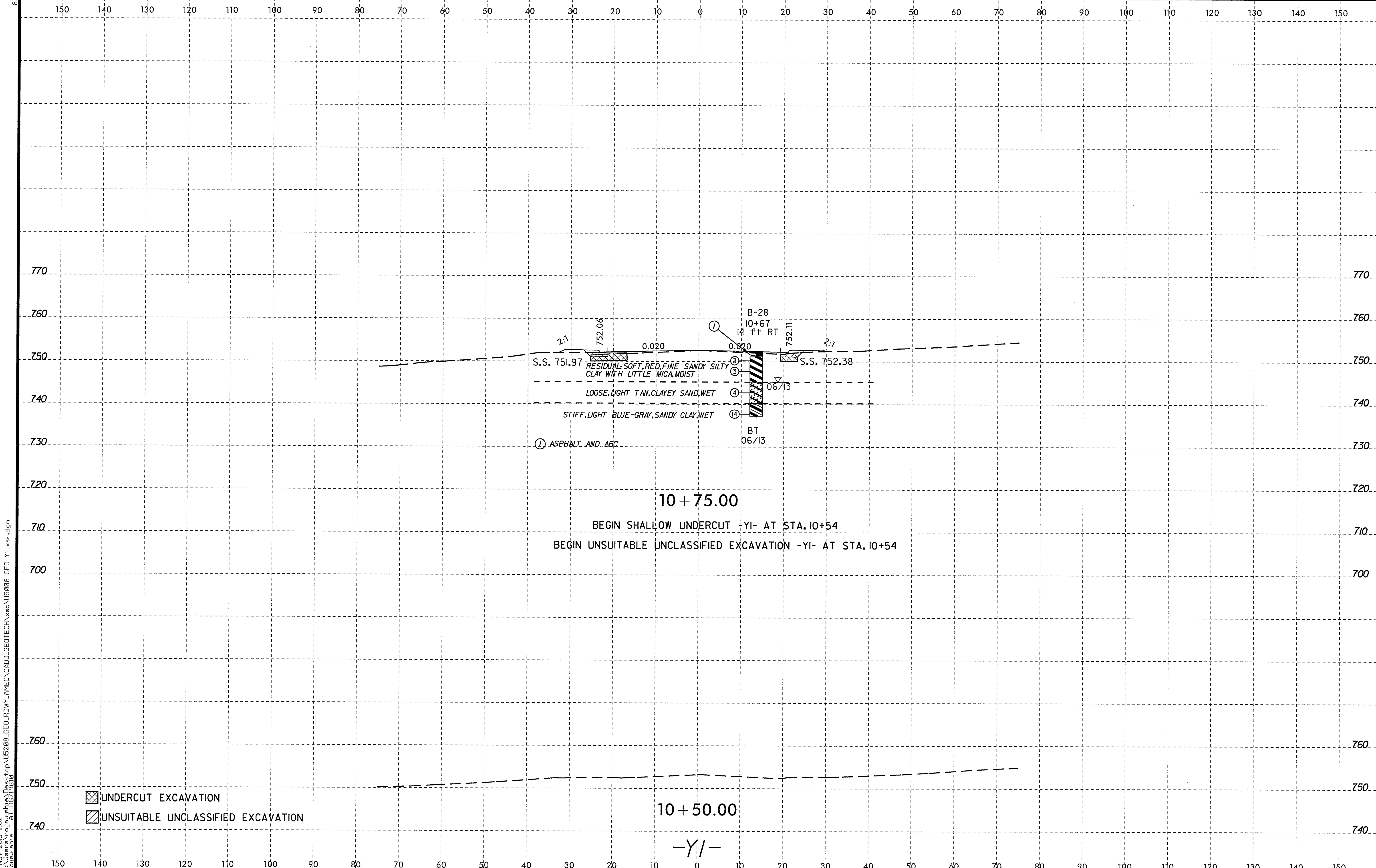
roupahie AT DOT/9610

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	19



8/23/99

11-NOV-2013 11:02
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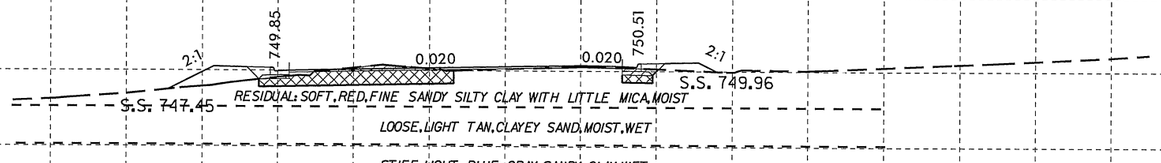
roya.rahie AT DG719610

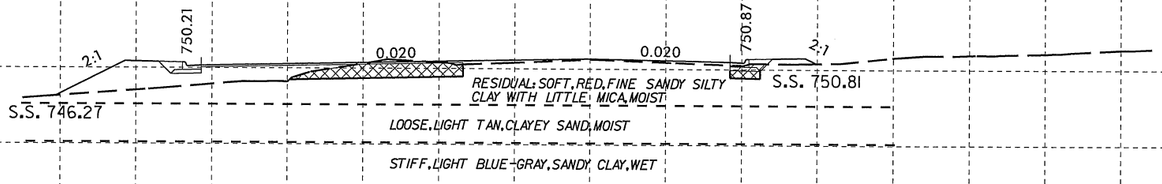
8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	20

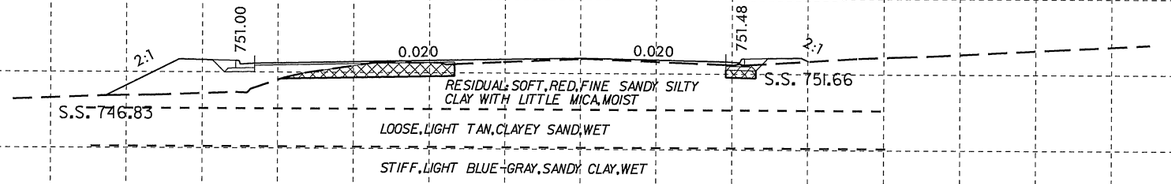
END UNSUITABLE UNCLASSIFIED -Y1- AT STA. 11+62
END SHALLOW UNDERCUT -Y1- AT STA. 11+62



11+50.00



11+25.00



11+00.00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

-Y1-

11-NOV-2013 11:02
C:\Users\royster\Desktop\U5008_GEO_RDWY_AMEC\CADD_GEOTECH\xsec\U5008_GEO_Y1.xsr.dgn
roysterhe
AT 06/19/10

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
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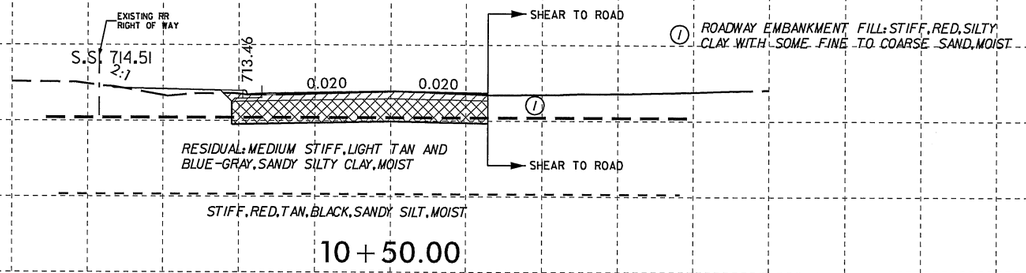

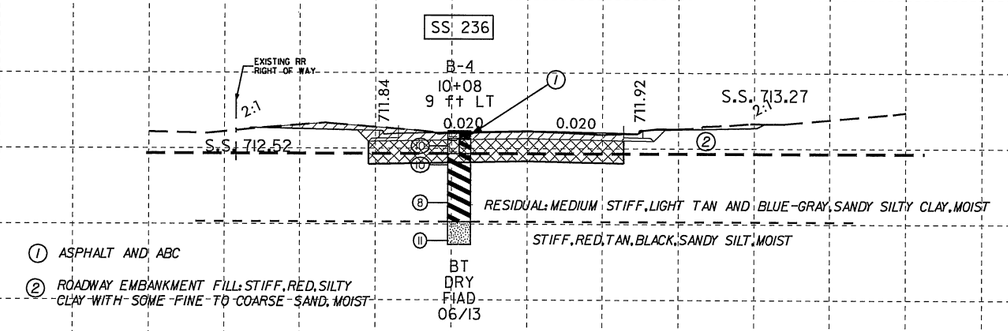

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

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rgupchurch AT 06/19/13

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	22

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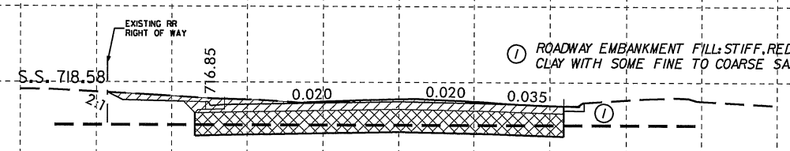
730 720 710 700 690

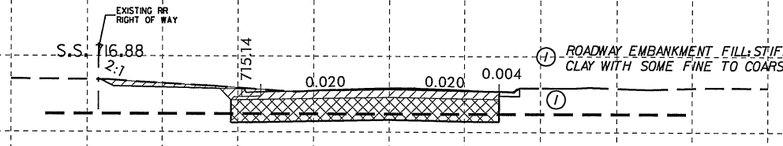


1 ROADWAY EMBANKMENT FILL: STIFF, RED, SILTY CLAY WITH SOME FINE TO COARSE SAND, MOIST

RESIDUAL: MEDIUM STIFF, LIGHT TAN AND BLUE-GRAY, SANDY SILTY CLAY, MOIST

STIFF, RED, TAN, BLACK, SANDY SILT, MOIST

11+50.00



1 ROADWAY EMBANKMENT FILL: STIFF, RED, SILTY CLAY WITH SOME FINE TO COARSE SAND, MOIST

RESIDUAL: MEDIUM STIFF, LIGHT TAN AND BLUE-GRAY, SANDY SILTY CLAY, MOIST

STIFF, RED, TAN, BLACK, SANDY SILT, MOIST

11+00.00

-Y3-

730 720 710 700 690

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

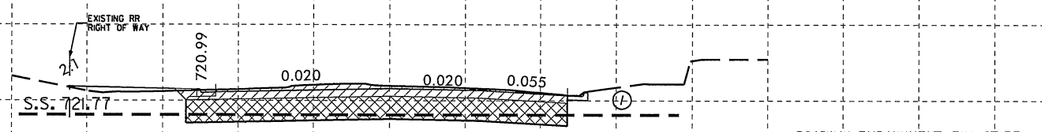
UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

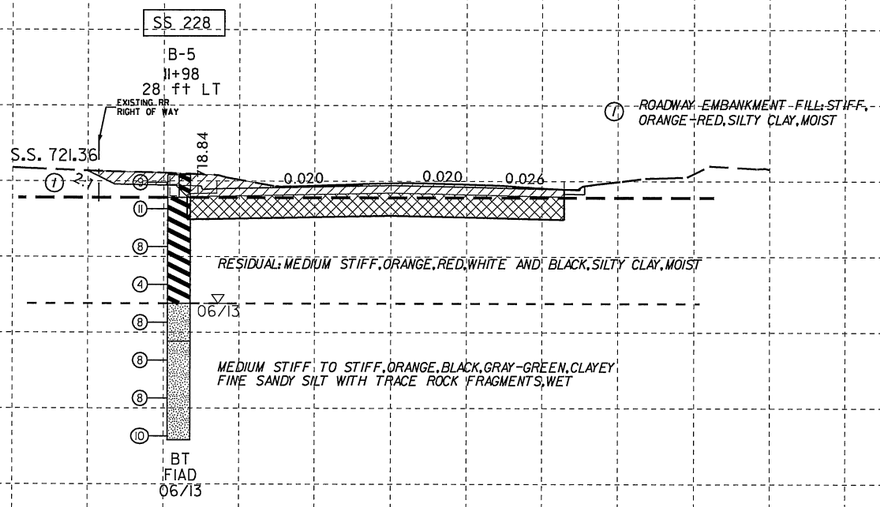
11-NOV-2013 11:02
C:\Users\roua-rahe\Desktop\U5008_GEO_RDWY_AMEC\CADD_GEOTECH\xsc\U5008_GEO_Y3.xsr.dgn
roua-rahe AT DOT9610

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	23



12 + 50.00



12 + 00.00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

-Y3-

11-NOV-2013 11:02
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ai D6719610

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	24

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

740 730 720 710 700 690

S.S. 728.30

2:1

725.53

0.020 0.020 0.023

1

RESIDUAL: MEDIUM STIFF, ORANGE, RED, WHITE AND BLACK, SILTY CLAY, MOIST

1 ROADWAY EMBANKMENT FILL: STIFF, ORANGE-RED, SILTY CLAY, MOIST

MEDIUM STIFF TO STIFF, ORANGE, BLACK, GRAY-GREEN, CLAYEY FINE SANDY SILT WITH TRACE ROCK FRAGMENTS, WET

13+50.00

EXISTING RR RIGHT OF WAY

2:1

723.26

0.020 0.020 0.050

S.S. 723.96

1

RESIDUAL: MEDIUM STIFF, ORANGE, RED, WHITE AND BLACK, SILTY CLAY, MOIST

1 ROADWAY EMBANKMENT FILL: STIFF, ORANGE-RED, SILTY CLAY, MOIST

MEDIUM STIFF TO STIFF, ORANGE, BLACK, GRAY-GREEN, CLAYEY FINE SANDY SILT WITH TRACE ROCK FRAGMENTS, WET

13+00.00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

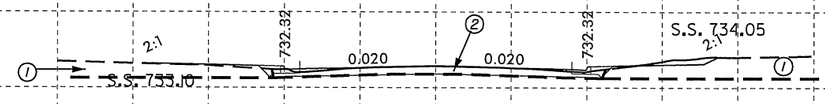
-Y3-

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

11-NOV-2013 11:02
C:\Users\rquarshie\Desktop\U5008_GEO_RDWY_AMEC\CADD_GEOTECH\xsc\U5008_GEO_Y3_xsr.dgn
rquarshie
AT DGN10

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	25



RESIDUAL: SOFT TO STIFF, RED, ORANGE AND TAN, SANDY SILT, MOIST

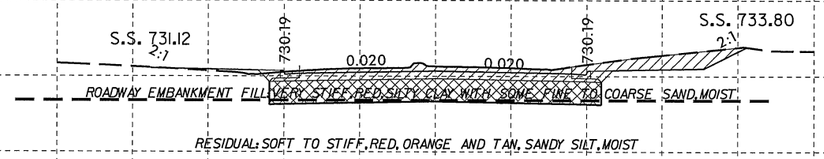
15+00.00

① ROADWAY EMBANKMENT FILL: VERY STIFF, RED, SILTY CLAY WITH SOME FINE TO COARSE SAND, MOIST

② ASPHALT AND ABC

END UNSUITABLE UNCLASSIFIED -Y3- AT STA. 14+50

END UNDERCUT -Y3- AT STA. 14+50



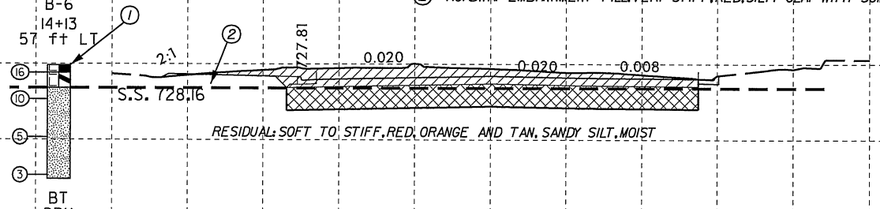
ROADWAY EMBANKMENT FILL: VERY STIFF, RED, SILTY CLAY WITH SOME FINE TO COARSE SAND, MOIST

RESIDUAL: SOFT TO STIFF, RED, ORANGE AND TAN, SANDY SILT, MOIST

14+50.00

SS 283

B-6
14+13
57 ft LT



① ASPHALT AND ABC

② ROADWAY EMBANKMENT FILL: VERY STIFF, RED, SILTY CLAY WITH SOME FINE TO COARSE SAND, MOIST

RESIDUAL: SOFT TO STIFF, RED, ORANGE AND TAN, SANDY SILT, MOIST

BT
DRY
FIAD
06/13

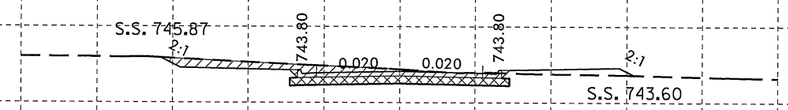
UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

14+00.00
-Y3-

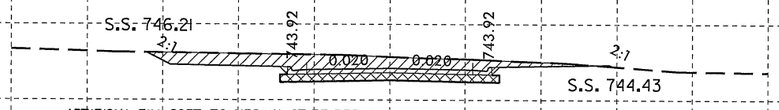
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-5008	26



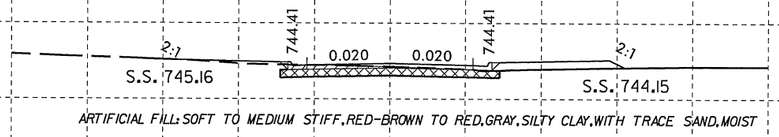
ARTIFICIAL FILL: SOFT TO MEDIUM STIFF, RED-BROWN TO RED, GRAY, SILTY CLAY, WITH TRACE SAND, MOIST

11+50.00



ARTIFICIAL FILL: SOFT TO MEDIUM STIFF, RED-BROWN TO RED, GRAY, SILTY CLAY, WITH TRACE SAND, MOIST

11+00.00

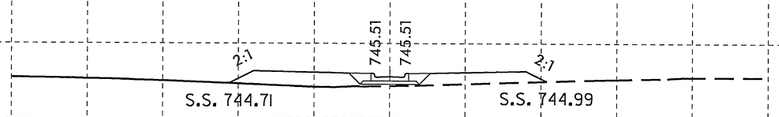


ARTIFICIAL FILL: SOFT TO MEDIUM STIFF, RED-BROWN TO RED, GRAY, SILTY CLAY, WITH TRACE SAND, MOIST

10+50.00

BEGIN SHALLOW UNDERCUT -Y4- AT STA. 10+18

BEGIN UNSUITABLE UNCLASSIFIED -Y4- AT STA. 10+18



10+00.00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

-Y4-

11-NOV-2013 11:02
C:\Users\roya.rahe\Desktop\U5008_GEO_RDWY_AMEC\CADD_GEOTECH\xsc\U5008_GEO_Y4_xsr.dgn
roya.rahe
AT DG/19610

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
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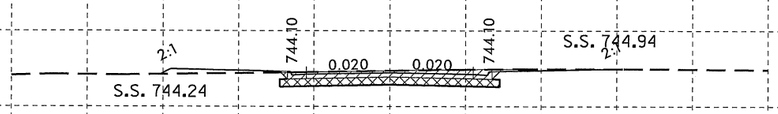
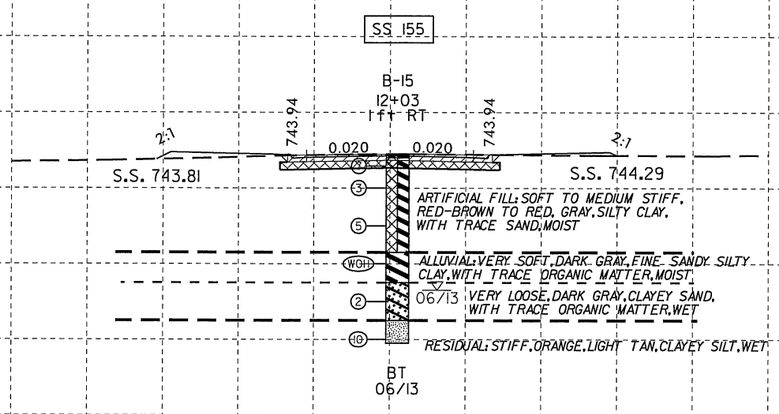
760
750
740
730



ARTIFICIAL FILL: SOFT TO MEDIUM STIFF, RED-BROWN TO RED, GRAY, SILTY CLAY, WITH TRACE SAND, MOIST

12+50.00

770
760
750
740
730
720
710



ARTIFICIAL FILL: SOFT TO MEDIUM STIFF, RED-BROWN TO RED, GRAY, SILTY CLAY, WITH TRACE SAND, MOIST

ALLUVIAL: VERY SOFT, DARK GRAY, FINE SANDY SILTY CLAY, WITH TRACE ORGANIC MATTER, MOIST

VERY LOOSE, DARK GRAY, CLAYEY SAND, WITH TRACE ORGANIC MATTER, WET

RESIDUAL: STIFF, ORANGE, LIGHT TAN, CLAYEY SILT, WET

12+00.00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

-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

11-NOV-2013 11:02
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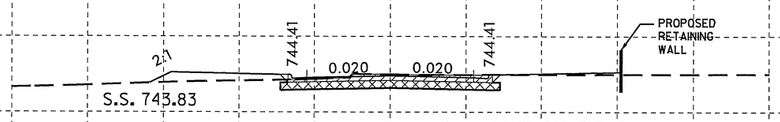
rouse.rehg AT DG7961O

8/23/99

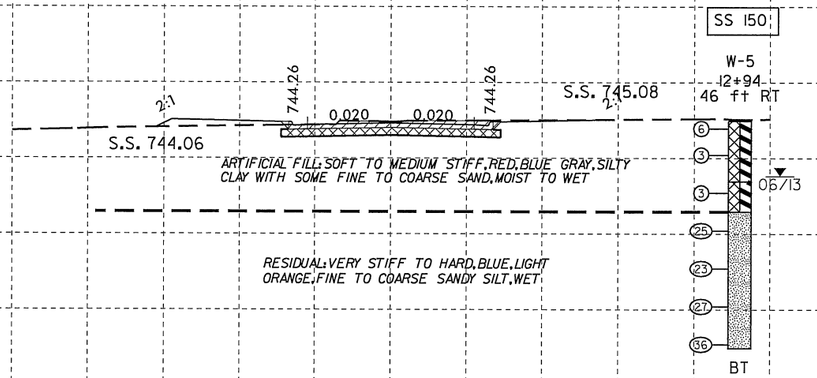
0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	28

END UNSUITABLE UNCLASSIFIED -Y4- AT STA. 13+90



ARTIFICIAL FILL: SOFT TO MEDIUM STIFF, RED, BLUE GRAY, SILTY CLAY WITH SOME FINE TO COARSE SAND, MOIST TO WET

13+50.00



ARTIFICIAL FILL: SOFT TO MEDIUM STIFF, RED, BLUE GRAY, SILTY CLAY WITH SOME FINE TO COARSE SAND, MOIST TO WET

RESIDUAL: VERY STIFF TO HARD, BLUE, LIGHT ORANGE, FINE TO COARSE SANDY SILT, WET

13+00.00

-Y4-

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

11-NOV-2013 14:02
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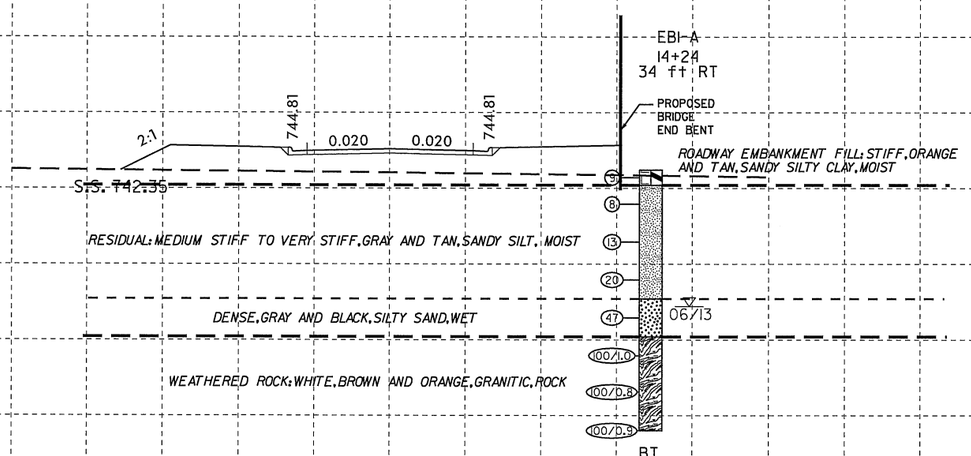
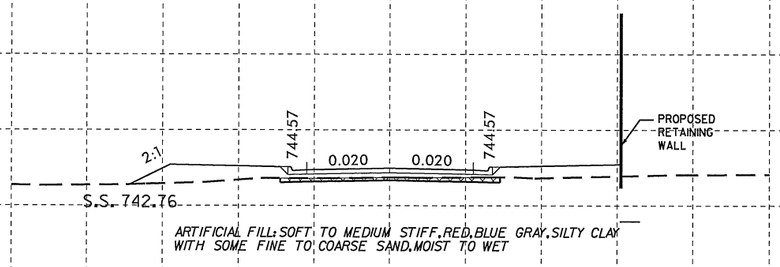
rouge.rahe
AT DG719610

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	29



14+50.00



14+00.00

UNDERCUT EXCAVATION

-Y4-

11-NOV-2013 11:02
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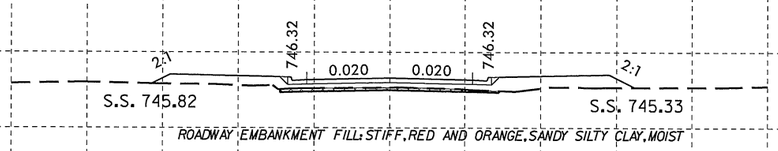
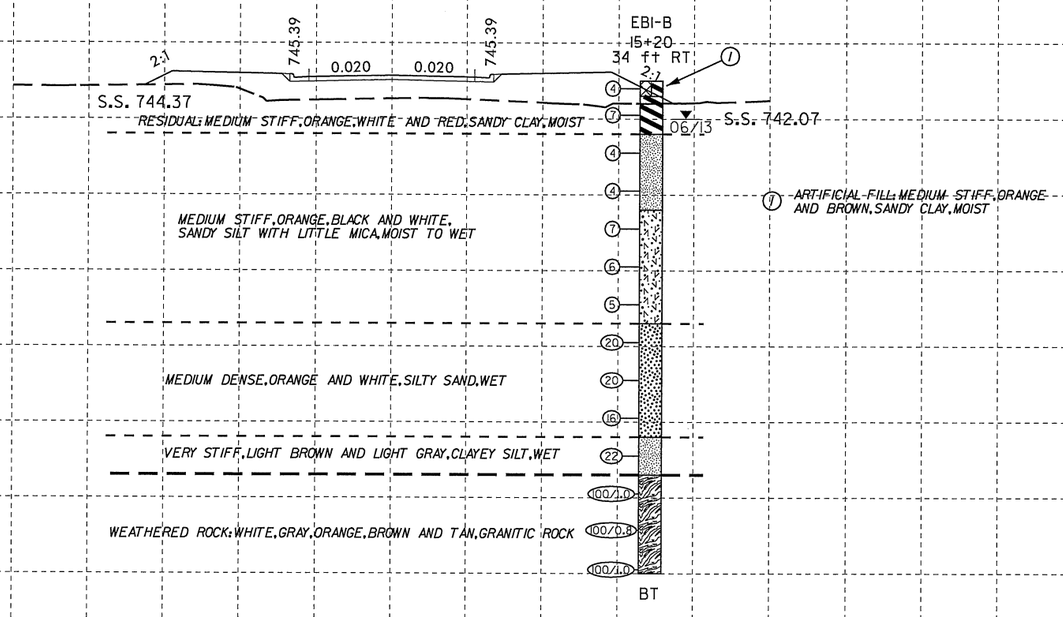
ryaphie AT 06/13/10

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	30



15+50.00



15+00.00

UNDERCUT EXCAVATION

-Y4-

11-NOV-2013 11:02
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rouquerahe
AT 06/19/10

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	U-5008	31

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

800 790 780 770 760 750 740 730 720

END UNSUITABLE UNCLASSIFIED -Y4- AT STA. 16+00
END SHALLOW UNDERCUT -Y4- AT STA. 16+00

SS 335

B-16
16+08
7 ft RT

747.44 747.44

2:1 exist exist 2:1

S.S. 747.21 S.S. 746.56

ROADWAY EMBANKMENT FILL: STIFF, RED AND ORANGE, SANDY SILTY CLAY, MOIST

RESIDUAL: SOFT, REDDISH BROWN, TAN, CLAYEY SANDY SILT WITH LITTLE MICA, MOST TO WET

4 9 2 2 3

06/13

BT
06/13

16+00.00

BEGIN UNSUITABLE UNCLASSIFIED -Y4- AT STA. 15+75

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

-Y4-

11-NOV-2013 11:02
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rogerahe
AT 06/19/10

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-5008	32

0 10

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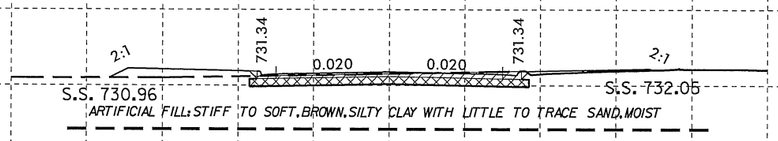
740 730 720 710 780 770 760 750 740 730 720 710 700 740 730 720



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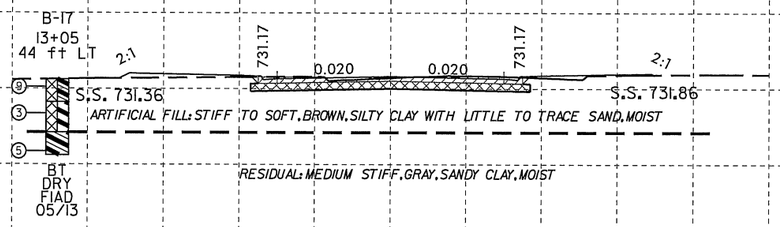

13+00.00

BEGIN SHALLOW UNDERCUT -Y5- AT STA. 12+56

BEGIN UNSUITABLE UNCLASSIFIED -Y5- AT STA. 12+56

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

12+56.01

-Y5-

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11-NOV-2013 11:02
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AT 10/7/2010

8/23/99

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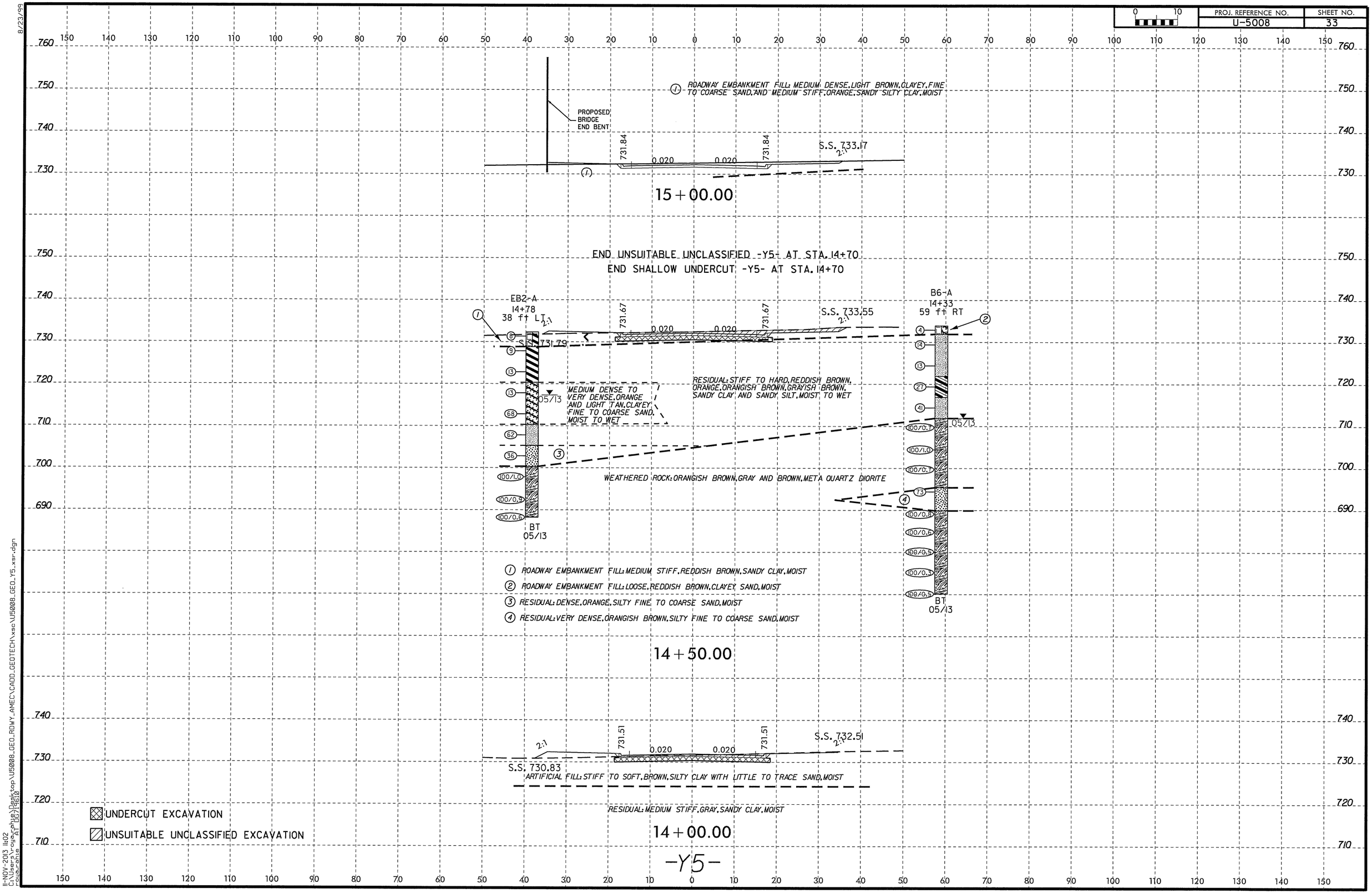

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8/23/99

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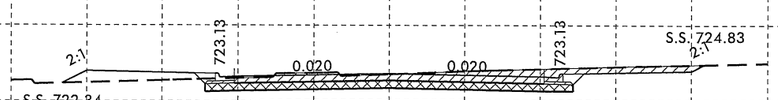

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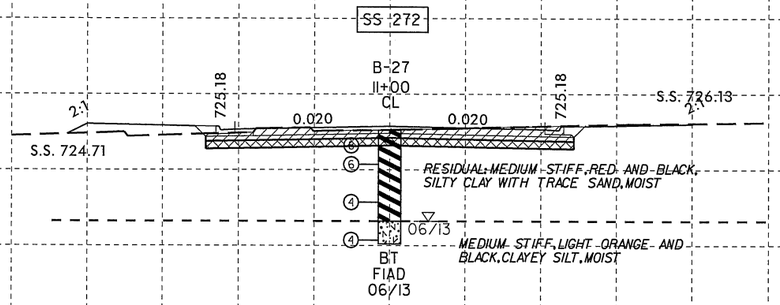

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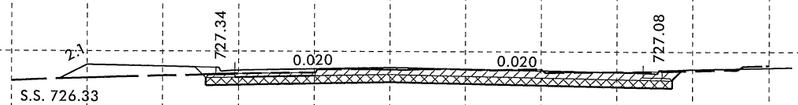

10+50.00

BEGIN SHALLOW UNDERCUT -Y7- AT STA. 10+34

BEGIN UNSUITABLE UNCLASSIFIED -Y7- AT STA. 10+34

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

10+00.00

-Y7-

11-NOV-2013 11:02
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rougerhie AT 0671961O

0 10	PROJ. REFERENCE NO.	SHEET NO.
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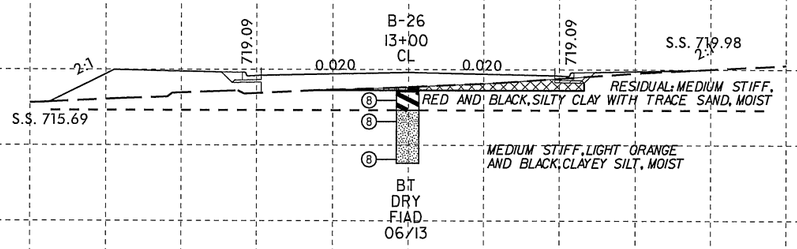
END UNSUITABLE UNCLASSIFIED -Y7- AT STA. 13+25

END SHALLOW UNDERCUT -Y7- AT STA. 13+25

SS 269



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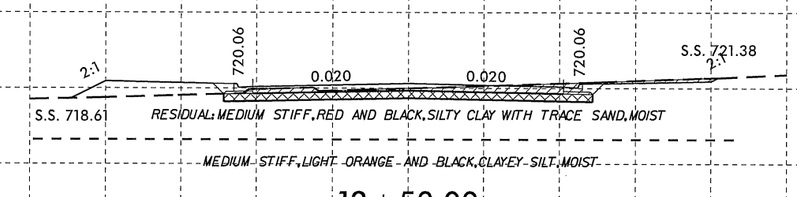

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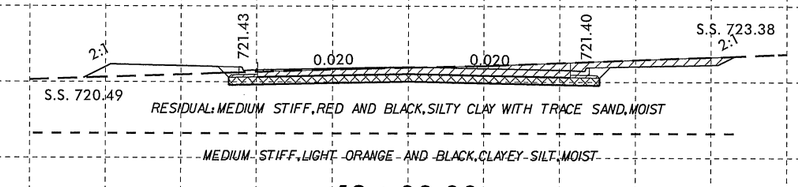

12+00.00

UNDERCUT EXCAVATION

UNSUITABLE UNCLASSIFIED EXCAVATION

-Y7-

SOIL TEST RESULTS

Boring	SAMPLE			DEPTH	AASHTO			% BY WEIGHT				% PASSING (SIEVES)			%	%	
I.D.	NO.	OFFSET	STATION	INTERVAL	CLASS.	L.L.	P.I.	C.SAND	F.SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC	Alignment
B-1	SS 299	33 LT	10+99	3.5-5.0	A-7-5(44)	83	50	15.6	7.2	32.4	44.8	100	88.5	78.6	28.6		L
B-2	SS 295	31 LT	12+99	0.0-1.5	A-7-6(10)	45	22	33.1	21.1	21.5	24.4	98.8	77.2	55.8	20.8		L
B-3	SS 301	38 LT	14+97	0.5-2.0	A-7-6(21)	53	26	9.3	12.3	45.5	32.9	95.5	91.9	77.0	30.9		L
B-4	SS 236	9 LT	10+08	1.0-2.5	A-7-6(27)	58	33	9.1	13.7	25.1	52.1	99.8	95.1	78.8	23.2		Y3
B-5	SS 228	28 LT	11+98	0.0-1.5	A-7-5(26)	62	30	11.7	11.6	32.2	44.5	100	93.8	78.6	27.2		Y3
B-6	SS 283	57 LT	14+13	1.0-2.5	A-7-5(24)	62	26	9.7	14.3	57.5	18.5	100	96.6	79.9	26.2		Y3
B-8	SS 279	14 RT	19+35	1.0-2.5	A-5(14)	49	10	3.8	11.3	66.5	18.3	99.8	96.5	91.8	28.8		Y3
B-10	SS 208	23 LT	12+04	0.8-2.3	A-5(2)	42	9	38.0	14.7	37.3	10.1	93.4	63.6	47.5	26.5		Y3REV
B-11	SS 162	26 LT	14+41	3.5-5.0	A-7-6(10)	47	23	35.2	12.6	32.7	19.5	98.9	73.2	53.6	24.7		Y3REV
B-13	SS 292	1 LT	18+03	3.5-5.0	A-7-5(10)	55	25	37.7	13.1	20.4	28.8	99.0	69.7	51.3	29.0		Y3REV
B-14	SS 332	9 RT	11+85	1.0-2.5	A-7-6(14)	47	24	22.3	13.8	33.8	30.1	99.6	85.9	65.9	25.4		Y2
B-15	SS 155	1 RT	12+03	0.6-2.1	A-7-5(28)	57	25	1.6	0.6	46.2	51.6	95.0	94.1	93.2	32.5		Y4
B-16	SS 335	17 RT	16+08	1.0-2.5	A-7-5 (17)	62	27	27.8	15.5	32.4	24.3	99.3	78.4	62.6	26.6		Y4
B-20	SS 249	17 LT	38+92	1.0-2.5	A-7-5 (24)	52	22	0.1	0.5	60.6	38.8	91.8	91.7	91.7	29.1		L
B-21	SS 240	38 RT	11+33	0.8-2.3	A-7-6 (12)	41	20	20.3	14.1	38.8	26.7	98.4	84.7	67.5	20.9		Y8
B-26	SS 269	CL	13+00	0.7-2.2	A-7-6 (21)	52	23	6.8	15.8	46.2	31.2	98.9	95.7	81.2	35.7		Y7
B-27	SS 272	CL	11+00	1.0-2.5	A-7-5 (50)	82	44	5	3.1	37.2	54.7	98.1	94.7	93.1	65.3		Y7
W-1	SS 305	50 RT	16+19	3.5-5.0	A-7-5(19)	65	27	26.2	8.4	38.5	26.9	98.0	78.0	65.8	29.2		L
W-1	SS 306	50 RT	16+19	8.5-10.0	A-7-5(4)	50	14	36.8	16.6	36.4	10.2	92.9	66.3	46.6	36.5		L
W-1	SS 310	50 RT	16+19	28.5-30.0	A-7-5 (10	46	14	17.5	16.2	55.1	11.2	99.3	85.6	70.1	32.1		L
W-2	SS 314	52 RT	16+98	3.5-5.0	A-7-5(17)	60	23	23.4	9.5	41.0	26.1	97.8	79.9	67.8	35.6		L
W-2	SS 315	52 RT	16+98	8.5-10.0	A-5(6)	50	10	30.1	15.4	42.5	11.9	97.3	75.3	57.0	40.9		L
W-3	SS 323	52 RT	17+99	13.5-15.0	A-7-6(6)	41	14	26.9	20.6	43.6	8.9	96.9	77.2	58.0	38.1		L
W-3	SS 324	52 RT	17+99	18.5-20.0	A-7-5(6)	44	13	29.5	17.0	42.9	10.7	96.7	75.1	56.6	39.7		L
W-4	SS 380	54 RT	19+00	3.5-5.0	A-7-5(11)	51	18	27.7	12.6	40.2	19.5	98.5	77.6	61.9	34.1		L
W-4	SS 382	54 RT	19+00	13.5-15.0	A-7-5(10)	50	19	27.3	18.1	44.5	10.1	97.3	76.9	58.5	43.4		L
W-4	SS 383	54 RT	19+00	18.5-20.0	A-5(7)	42	10	15.9	22.6	51.5	10.0	100	92.6	67.6	41.6		L
W-4	SS 384	54 RT	19+00	23.5-25.0	A-4(3)	38	8	28.6	23.6	40.8	6.9	98.2	78.0	53.7	33.0		L
W-5	SS 150	46 RT	12+94	8.5-10.0	A-7-6 (19)	56	29	24.9	10.5	35	29.6	100	80.1	67.6	35.0		Y4
W-6	SS 26	48 LT	29+50	3.5-5.0	A-7-6 (15)	52	27	25.7	16.7	33.6	24	98.3	80.1	60.6	23.1		L
W-7	SS 35	47 LT	30+48	8.5 -10.0	A-7-6 (14)	44	15	5.3	20.3	54.2	20.2	100	97.7	82.2	31.8		L
B6-A	SS 2	48 LT	27+38	3.5-5.0	A-4(6)	38	10	16.8	26.7	45.9	10.6	100	90.9	64.9	22.3		L
B6-A	SS 3	48 LT	27+38	13.5-15.0	A-6(6)	39	11	15.4	29.3	44.0	11.3	99.6	91.7	63.5	16.7		L