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REFERENCE: B-5121 /B-5317

PROJECT: 42263 /46031

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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-Y5-	10+00 to 14+19	4	11
-Y6-	12+60 to 20+00	4-5	11
-YIRPC-	10+00 to 19+16	4-5	11
-YIRPD-	10+00 to 17+27	5	12
-DR2-	10+00 to 11+50	5	12
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *WAKE*

PROJECT DESCRIPTION *REPLACE BRIDGE NO. 227 ON US 70/US 401/NC 50 (CAPITAL BOULEVARD) OVER PEACE STREET AND REPLACE BRIDGE NO. 213 ON US 70/NC 50 (WADE AVENUE) OVER US 401 (CAPITAL BOULEVARD)*

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5121 /B-5317	1	48

CAUTION NOTICE

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

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

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

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

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SUBMITTED BY *TERRACON CONSULTANTS*

DATE *AUGUST 2015*

NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 040231 ENGINEER MATTHEW J. ALEXANDER

DocuSigned by:
Matthew J. Alexander 8/20/2015
0FB0038EEA08452
SIGNATURE DATE

PROJECT REFERENCE NO.	SHEET NO.
B-5121 /B-5317	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

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

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE 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 0.5 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 SL — SHRINKAGE LIMIT	- MOIST-(M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY-(D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

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

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

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

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

RECOMMENDATION SYMBOLS

- UNDERCUT EXCAVATION
- SHALLOW UNDERCUT
- UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
- UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
- UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

ABBREVIATIONS

AR-AUGER REFUSAL
BT-BORING TERMINATED
CL.-CLAY
CPT-CONE PENETRATION TEST
CSE.-COARSE
DMT-DILATOMETER TEST
DPT-DYNAMIC PENETRATION TEST
e - VOID RATIO
F-FINE
FOSS.-FOSSILIFEROUS
FRAC.-FRACTURED, FRACTURES
FRAGS.-FRAGMENTS
HI.-HIGHLY
MED.-MEDIUM
MICA.-MICACEOUS
MOD.-MODERATELY
NP-NON PLASTIC
ORG.-ORGANIC
PMT-PRESSUREMETER TEST
SAP.-SAPROLITIC
SD.-SAND, SANDY
SL.-SILT, SILTY
SLI.-SLIGHTLY
TCR-TRICONE REFUSAL
w-MOISTURE CONTENT
V-VERY
VST-VANE SHEAR TEST
WEA.-WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S-BULK
SS-SPLIT SPOON
ST-SHELBY TUBE
RS-ROCK
RT-RECOMPACTED TRIAXIAL
CBR-CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [ ] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] D-50
- [X] CME-75

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [X] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 2 15/16 " STEEL TEETH
- [X] TRICONE 2 15/16 " TUNG.-CARB.
- [X] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B ____ [ ] -H ____
- [X] -N Q2

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

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FOOT
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	4 FEET
THICKLY BEDDED	1.5-4 FEET
THINLY BEDDED	0.16-1.5 FEET
VERY THINLY BEDDED	0.03-0.16 FEET
THICKLY LAMINATED	0.008-0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.)-SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER-A WATER BEARING FORMATION OR STRATA.

ARENACEOUS-APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS-APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.

ARTESIAN-GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.)-SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM-ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.)-TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE-A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP-THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH)-THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT-A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE-A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT-ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP)-LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.)-A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT-FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE-A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS-A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.)-IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER-WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL-SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD)-A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.)-RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL-AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE-POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)-NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.)-TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD)-A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.)-SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: TOP OF ROADWAY BORINGS ESTIMATED USING PROJECT TIN FILE (B5121_B5317_ls_tin.tin). STRUCTURE BORINGS SURVEYED USING MULTIPLE PROJECT BENCHMARKS. ELEVATION: N/A FEET

NOTES:

CT - CORING TERMINATED
FIAD - FILLED IN AFTER DRILLING

DATE: 8-15-14

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5121/B-5317	3	48

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42263.1.1	BRNHS-0070(119)	P.E. (B-5121)
46031.1.1	BRNHS-0070(149)	P.E. (B-5317)

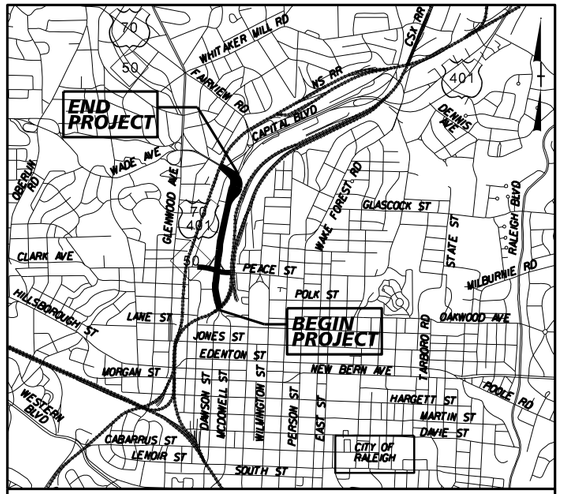
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

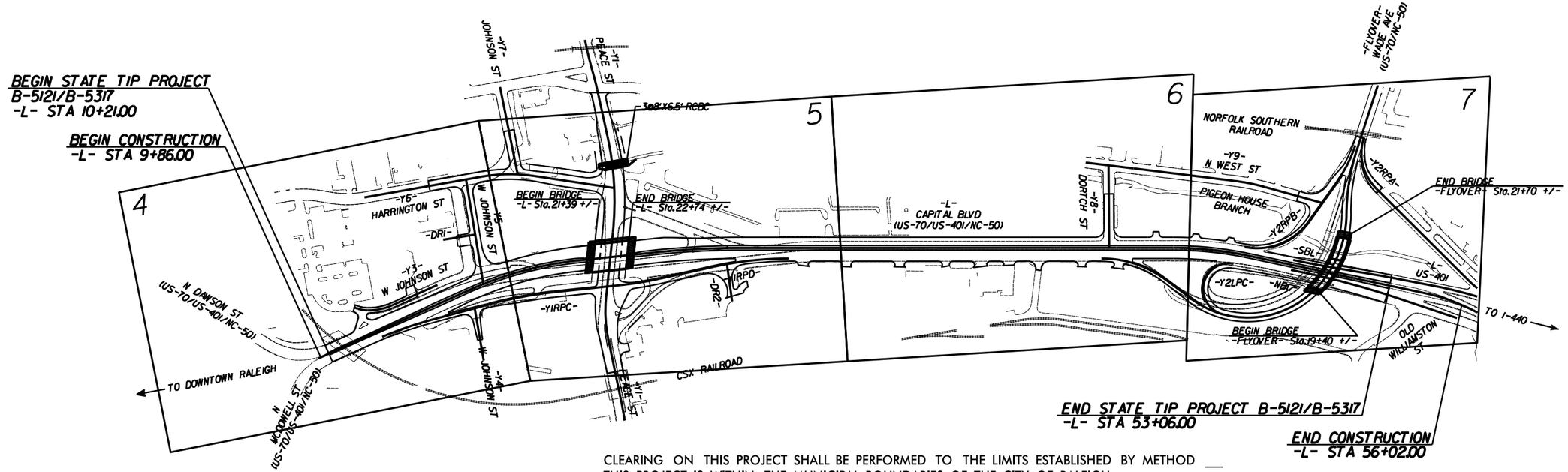
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

CONTRACT: TIP PROJECT: B-5121 / B-5317



NAD 83/
NSRS 2007



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ___
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF RALEIGH

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 5 2.5 0 5 10

DESIGN DATA

AADT 2016	=	58,083
AADT 2036	=	70,416
K	=	10%
D	=	55%
T	=	5%*
V	=	40 MPH

CLASSIFICATION: URBAN ARTERIAL

* 1% TTST 4% DUAL

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5121/B-5317	=	0.786 MILES
LENGTH STRUCTURE TIP PROJECT B-5121/B-5317	=	0.026 MILES
TOTAL LENGTH TIP PROJECT B-5121/B-5317	=	0.812 MILES

PLANS PREPARED FOR THE NCDOT BY: Kimley»Horn

NC LICENSE #F-0102
P.O. BOX 33068
RALEIGH, NORTH CAROLINA 27636
PHONE: (919) 677-2000

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 19, 2015

LETTING DATE: JUNE 21, 2016

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

J. JASON PACE, P.E.
PROJECT DESIGN ENGINEER

BRENDA L. MOORE, P.E., CPM
PROJECT ENGINEER
NCDOT ROADWAY DESIGN
ENGINEERING COORDINATION SECTION

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

$FILE$

$DATE$

Date: August 2015
WBS Number: 42263.1.1 / 46031.1.1
TIP Number: B-5121 / B-5317
F.A. Number: BRNHS-0070(119) / BRNHS-0070(149)
County: Wake
Description: Replace Bridge No. 227 on US 70/US 401/NC 50 (Capital Boulevard) over Peace Street and Replace Bridge No. 213 on US 70/NC 50 (Wade Avenue) over US 401 (Capital Boulevard)

Subject: **Roadway Geotechnical Report - Inventory**

Project Description

The project is located within the city limits of Raleigh in Wake County. The project begins just south of the CSX Railroad bridge over Capital Boulevard and just north of the Dawson Street and McDowell Street split near downtown. The project continues north for approximately 0.8 miles to a point 275 feet north of the existing Wade Avenue bridge over Capital Boulevard. The project also includes the realignment of several secondary alignments. The project corridor is in an urban setting that has experienced substantial development over hundreds of years.

The geotechnical subsurface investigation was performed in January through April of 2015. Diedrich D-50 and CME 75 rotary drills were utilized to advance the soil test borings. All of the drilling equipment utilized on this project was equipped with automatic Standard Penetration Test (SPT) hammers. In addition to soil test borings performed along the corridor, historic maps were reviewed in order to better understand the development that has taken place along the corridor.

The following alignments were investigated by soil testing or visual reconnaissance:

Alignment	Stations
-L-	10+21 to 53+06
-Y5-	10+00 to 14+19
-Y6-	12+60 to 20+00
-Y1RPC-	10+00 to 19+16
-Y1RPD-	10+00 to 17+27
-DR2-	10+00 to 11+50
-Y2RPB-	10+00 to 16+43
-Y2LPC-	10+00 to 13+11
-FLYOVER-	10+00 to 25+76

Areas of Special Geotechnical Interest

1. High Plasticity Clays

High plasticity clays were encountered in proposed cuts at the following location:

Alignment	Stations
-Y1RPD-	15+80 to 16+90

High plasticity clays were encountered near proposed subgrade or in fill sections at the following locations:

Alignment	Stations
-L-	33+50 to 38+00
-FLYOVER-	22+26 to 24+00

2. Artificial Fill

Artificial fill was encountered at the following locations:

Alignment	Stations
-Y5-	10+25 to 13+48
-Y6-	10+22 to 19+55
-DR2-	10+34 to 11+50
-FLYOVER-	14+04 to 17+68

3. Weathered Rock

Weathered rock was encountered in cut sections or near proposed subgrade at the following location:

Alignment	Stations
-Y1RPC-	12+54 to 15+50

Physiography and Geology

The project is located in the Piedmont Physiographic Province. The residual soils in the area were derived from the weathering of the parent bedrock encountered at depth along the corridor. Geologically, the project corridor is mapped as being underlain by an injected gneiss formation in the Raleigh Belt. The formation consists of biotite gneiss and schist intruded by sills and dikes of granite, pegmatite, and aplite. The existing topography along the project consists of a ridgeline along the east of the corridor with the CSX Railroad at the top and, in general, slopes gently toward Pigeon House Branch to the west. Pigeon House Branch meanders to the west of Capital Boulevard and flows into an existing box culvert at Peace Street which continues outside of the project limits. There is approximately 50 feet of elevation difference between the upland and lowland portions of the project.

Soil Properties

Soils encountered during the investigation along the corridor consist predominately of roadway embankment, artificial fill, alluvial, and residual.

The roadway embankment soils predominately consist of sandy silts (A-4), sandy clays (A-6) and clayey sands (A-2-6). The silts encountered in the approaches to the existing bridge at Peace Street were very soft to medium stiff. The roadway embankment soils encountered along the -L- alignment from the Peace Street interchange north consisted of clayey sands and sandy clays with a majority of this material being encountered as utility trench backfill. The material encountered was very loose to medium dense clayey sands and soft to very stiff sandy clays.

Artificial fill was encountered in developed areas surrounding the existing roadways. The material encountered varied across the project consisting of silty to clayey sands (A-2-4 and A-2-6, respectively) and sandy clays (A-6). The artificial fill encountered along the -Y6- alignment contained concrete and brick rubble. Glass and metal debris was encountered in the boring on the -DR2- alignment The borings performed at the proposed retaining wall along the -FLYOVER- alignment encountered wood throughout the fill. The artificial fill ranged in thickness from surficial fill for landscape areas to approximately 15 feet.

Alluvial soils were encountered beneath artificial fill and roadway embankments soils and consist of silty and clayey sands (A-2-4 and A-2-6) and clayey silt (A-5). These soils are not anticipated to impact embankment stability because the amount and duration of overburden pressure.

The residual soils encountered on a majority of the project were saprolitic. The residual soils consist of medium to high plasticity silty clays (A-7), low to medium plasticity sandy clays (A-6), fine sandy and clayey silts (A-4 and A-5), and silty and clayey sands (A-2-4 and A-2-6, respectively). The high plasticity clay soils (PI>25) were encountered near the surface at the locations indicated above. In general the silty and sandy layers were encountered alternating to the top of weathered rock. The residual soils were observed to have alternating layers of fine and coarse grained soils before transitioning into weathered rock.

Rock Properties

Weathered rock along the corridor is derived from the underlying gneiss and schist. The weathered rock along the project corridor is suitable for use as fill. Weathered rock was encountered in proposed cut sections at the approximate location listed in the “Areas of Special Geotechnical Interest” section.

The crystalline rock gneiss was encountered during the investigation. Where encountered, the rock was blue-gray with white and black. The rock was cored at the Wade Avenue overpass location (-FLYOVER-) and RQD values of approximately 85% were reported. The crystalline rock was not encountered within 6 feet of proposed grades during the investigation along the corridor.

Groundwater

In general, the corridor drains to Pigeon House Branch which runs to the west of Capital Boulevard for the length of the project. Drainage is accomplished by surface runoff of developed areas and existing stormwater management infrastructure.

Groundwater was not encountered within 6 feet of proposed grades during the investigation.

Respectfully Submitted,
Terracon Consultants, Inc.

DocuSigned by:
Matthew J. Alexander
0FB0038EEA06452...
Matthew J. Alexander, PE
Project Geotechnical Engineer

DocuSigned by:
Andrew A. Nash
671DA68582E04FE...
Andrew A. Nash, PE
Geotechnical Department Manager

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	4

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 50 100
FEET

-Y5- POT Sta. 10+00.00
Δ = 90°37'18.3"

-Y6- POT Sta. 10+00.00

-Y6- HARRINGTON ST
N 2°09'08.9" E

-Y6- HARRINGTON ST
N 2°09'08.9" E

N HARRINGTON ST 44' BST

CONC DRAIN

ARTIFICIAL FILL

ROADWAY EMBANKMENT

ARTIFICIAL FILL

ARTIFICIAL FILL

ROADWAY EMBANKMENT

-Y5-
N 87°13'33.8" E

-DRI- POT
Sta. 10+00.00

-DRI-
Δ = 90°

-Y3- POT Sta. 13+53.00
N 12°13'57.4" W

-Y3- PCC Sta. 10+58.23

-Y3- PC Sta. 10+18.24
N 30°16'29.9" E

-Y3- PT Sta. 11+58.12

-L- PC
Sta. 16+28.10

-Y3-
W JOHNSON ST

-Y4-
W JOHNSON ST
S 87°13'33.8" E

ARTIFICIAL FILL

ROADWAY EMBANKMENT

ROADWAY EMBANKMENT

-L- POT Sta. 9+75.00

DAWSON ST
US-70/US-401/NC-50

MCDOWELL ST
US-70/US-401/NC-50

-L-
US-70/US-401/NC-50
N 12°13'57.4" W

N 2°48'46.3" W

N 2°48'46.3" W

-YIRPC-

-YIRPC- PT Sta. 12+00.12

RESIDUAL

RESIDUAL

-YIRPC- PC Sta

-Y4- POT

-YIRPC- PC
Δ = 84.37

S 87°26'20.5" E

-Y4- POT Sta. 12+10.00

-YIRPC- PC Sta. 10+00.00 =
-L- POT Sta. 12+40.94 (26.73' RT)

10+00 (-YIRPC-)

10+00 (-L-)

15+00 (-L-)

MATCH LINE -L- 18+00 (SEE SHEET 5)

BST
WOODS
CONC
GRASS
SOIL
F
C
2.0' C&G
2.5' C&G
24' BST
34' BST
36' BST
CAPITAL BLVD

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	5

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 50 100
FEET

-YIRPD-
PI Sta 11+42.15
Δ = 12° 28' 49.9" (
D = 4° 24' 26.5"
L = 283.17'
T = 142.15'
R = 1,300.00'

R = 650.00'
SE = RC
RO = 60'

-Y7- POT Sta. 13+53.40 =
-Y6- POC Sta. 16+14.60
Δ = 75°50'46.9"

-Y1- PC Sta. 13+92.98

-Y1RPD- PT Sta. 11+28.90 =
-Y1RPD- PC Sta. 12+20.99

-Y5- POT Sta. 14+19.45 =
-L- POC Sta. 16+91.83
Δ = 77°35'35.5"

-L- PT Sta. 20+76

-Y6- POT Sta. 20+00.00 =
-Y1- POC Sta. 15+99.17
Δ = 101°01'04.2"

-Y1- PT Sta. 17+74.94

-L- POT Sta. 22+06.91 =
-Y1- POT Sta. 18+73.48
Δ = 78°01'55.8"

-L- PT Sta. 27+21.45

-L- PC Sta. 23+80.48 -YIRPD-
S 0° 11' 59.8" E

-YIRPC- PT Sta. 17+04.12

-Y1- POT Sta. 19+90.38 =
-YIRPC- POT Sta. 19+15.86 =
-YIRPD- POT Sta. 17+27.42
Δ = 78°01'55.8"
-Y1- PC Sta. 20+34.92

-Y1- PT Sta. 22+00.10

-YIRPD- PT Sta. 16+73.22

-YIRPD- PT Sta. 12+98.42

-YIRPD- PC Sta. 15+19.86

-DR2- POT Sta. 10+00.00 =
-YIRPD- POC Sta. 12+45.23
Δ = 87°41'10.3"

END CONSTRUCTION
-DR2- POT Sta. 11+44.00

-DR2- POT Sta. 11+50.00

-YIRPD- PC Sta. 10+00.00 =
-L- POT Sta. 29+13.95 (42' RT)

Sta. 10+00.00 =
OT Sta. 13+83.71
34.2'

MATCH LINE -L- 18+00 (SEE SHEET 4)

MATCH LINE -L- 31+19 (SEE SHEET 6)

ROADWAY EMBANKMENT

CAPITAL BLVD
(US-70/US-401/NC-50)

ARTIFICIAL FILL

RESIDUAL

RETAIN WALL

PROP PEDESTRIAN RAIL

8' x 12' CURB

8' x 18' CURB

14' SIDEWALK

6' SIDEWALK

2'-6" C&G

6'-6" C&G

SINGLE FACED PRECAST CONCRETE BARRIER

PEACE ST

WOODS

GRASS

CONC WALL

CANOPY

BST

48' TYP

80' TAPER

15+00 (-Y6-)

15+00 (-Y1-)

20+00 (-L-)

25+00 (-L-)

30+00 (-L-)

10+00 (-YIRPD-)

15+00 (-YIRPD-)

A

B

C

D

RE : ROADWAY EMBANKMENT

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	6

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 50 100
FEET

MATCH LINE -L- 31+19 (SEE SHEET 5)

MATCH LINE -L- 45+00 (SEE SHEET 7)

RESIDUAL

RESIDUAL

RESIDUAL

RESIDUAL

RESIDUAL

ROADWAY EMBANKMENT

ROADWAY EMBANKMENT

ARTIFICIAL FILL

CITY OF RALEIGH
DB 12531 - PG 472
BM 2007 - PG 117

ABBOTT & AHLEE LLC
DB 10933 - PG 728
BM 1959 - PG 262

THEODORE C HOFFMANN
DB 4561
PG 483
BM 1959
PG 262

FRED W & JOYCE C PIPER
DB 3345
PG 887
BM 1959
PG 262

CITY OF RALEIGH
DB 3069 - PG 510
BM 1982 - PG 1070

HOBCO AUTO SALES
DB 14908 - PG 1234
BM 1959 - PG 262

WINNERS PLACE INC
DB 14020 - PG 225
BM 1959 - PG 262

U HAUL REAL ESTATE CO
DB 4561 - DB 910

AMERCO REAL ESTATE CO
DB 12059 - DB 1274
BM 1959 - PG 104

WILCOXESS JC
DB 8964 - DB 1944
BM 1959 - PG 104

STATE OF NORTH CAROLINA
DB 9858 - PG 518
BM 2003 - PG 116

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 13987 - PG 2518
BM 1992 - PG 93
BM 1963 - PG 34

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 11107 - PG 523
BM 1992 - PG 93

HENRY J VANPALA
DB 3865 - PG 46
BM 2008 - PG 2034

-Y9- POT Sta. 10+00.00

-Y9- POT Sta. 10+91.30 =
-Y8- POT Sta. 10+00.00
Δ 97°31'09.6"
BEGIN CONSTRUCTION

-Y8- POT Sta. 10+67.00
END MILLING AND RESURFACING

BEGIN MILLING AND RESURFACING
-Y8- POT Sta. 11+13.00

-Y9- N WEST ST
N 19°14' 25.8" E

-Y8- POT Sta. 13+26.88 =
-L- POT Sta. 41+82.23
Δ 89°32'26.1"

-L- PC Sta. 41+82.23

-L-
CAPITAL BLVD (US-401)
N 12°10'50.1" E

-FLYOVER- PT Sta. 12+72.42

-FLYOVER- PC Sta. 10+00.00 =
-L- POT Sta. 41+51.75 (42' RT)

-FLYOVER- PC Sta. 14+00

BM6
N 743993
E 2108874
ELEVATION = 359.28
FROM SE HOR-ASY TO BM 51
N 67°20'57.69" W 437.84
BENCH TIE SET IN POWER POLE

BENCH TIE SET IN

PROJECT REFERENCE NO.	SHEET NO.
B-5121 / B-5317	7

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 50 100
FEET

MATCH LINE -L- 45+00 (SEE SHEET 6)

-Y9- PC Sta. 15+91.30

-Y9- PT Sta. 17+18.30

-Y2RPB- PC Sta. 14+79.90

-Y9- POT Sta. 15+50.00 =
-Y2RPB- POT Sta. 13+78.09
Δ = 109°52'30.1"

BEGIN CONSTRUCTION
-Y9- POT Sta. 18+52.00

-Y2RPB- PT Sta. 12+86.47

END PEDESTRIAN RAIL
-Y2RPB- STA 12+50.00

BEGIN PEDESTRIAN RAIL
-Y2RPB- STA 11+00.00

-L- PT Sta. 47+34.35

-Y2RPB- PC Sta. 10+00.00 =
-L- POC Sta. 47+14.03 (31' LT)

END CONSTRUCTION
-FLYOVER- POT Sta. 25+76.00

-Y2RPB- PT Sta. 16+42.72 =
-FLYOVER- POT Sta. 25+02.49 (11.50' LT)

-FLYOVER- PT Sta. 25+26.33

-Y2RPA- PT Sta. 18+96.38 =
-FLYOVER- POT Sta. 25+43.37 (11.50' RT)

-Y2RPA- PC Sta. 16+76.10

BEGIN CONSTRUCTION
-Y2RPA- POT Sta. 16+63.00

-Y2RPA- PT Sta. 11+56.60

-Y2RPA- PC Sta. 10+00.00
-SBL2- POC Sta. 18+44.77

-L- PT Sta. 56+51.84

-SBL- PC Sta. 13+27.46

-SBL- PT Sta. 14+20.66

-SBL- PC Sta. 15+78.99

-L- PC Sta. 54+38.96

-NBL- PT Sta. 14+26.69

-NBL- POT Sta. 16+83.91

END CONSTRUCTION
-L- POC Sta. 56+02.00

PCC Sta. 13+10.98 =
-FLYOVER- POC Sta. 15+34.34

-FLYOVER- POC Sta. 18+96.01

END STATE TIP PROJECT B-5121/B-5317
-L- POT Sta. 57+06.00

ROADWAY EMBANKMENT

RESIDUAL
-FLYOVER- PRC Sta. 22+65.32
-L- POT Sta. 50+59.47
-FLYOVER- POC Sta. 20+19.94
Δ = 111°30'59.0"

ALLUVIAL

ARTIFICIAL FILL

A

B

C

63 THOMAS CONCRETE OF CAROLINA INC
DB 2755 - PG 493
BM 1959 - PG 262

66 JOYNERS REAL ESTATE HOLDINGS V LLC
DB 2795 - PG 647
BM 1959 - PG 262

67 ISABEL HUFMEYER
DB 15087 - PG 2007
BM 1959 - PG 262

68 GEORGE W & NANCY W MORDECAI
DB 2352 - PG 370
BM 1988 - PG 1647

71 KRISTEN HENLEY
DB 11369 - PG 2380
BM 1988 - PG 273

72 JULIAN M SPIVEY
DB 15102 - PG 91
BM 1988 - PG 273

73 SUE ANN HALE
DB 4817 - PG 21
BM 1988 - PG 273

75 JENNA M PERTERSON & RAYMOND KEVIN SHORR
DB 13270 - PG 1332
BM 1988 - PG 273

76 SUZANNE ISBKBUS WERNETH WILLIAM R RUDGLES
DB 13227 - PG 452
BM 1958 - PG 10

77 MILLSTREAM PROPERTIES LLC
DB 14906 - PG 2390
BM 1958 - PG 10

78 GRAYBARE ELECTRIC COMPANY
DB 1285 - PG 385
BM 1958 - PG 10

79 ROSCOE H RAMM JAMES D RAMM PAULAND
DB 1402 - PG 305
BM 1955 - PG 91

57 LISTON E & SUSAN S MALPASS
DB 5007 - PG 382
BM 2003 - PG 964

83 MURPHY-BROWN PROPERTY GROUP LLC
DB 14246 - PG 2496
BM 2002 - PG 186

ROY R SMITH
DB 6548
PG 320

-L- CAPITAL BOULEVARD
N 39°02'41" E

S 51°04'08" W

N 24°08'40.0" E

N 23°15'52.8" E

N 30°44'20" E

N 27°48'06.4" E

N 27°55'46.7" E

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B5121 /B5317	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

320
310
300
290
280
270
260
250
240
230

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 24+00

PROPOSED GRADE

EXISTING GRADE

(A) ROADWAY EMBANKMENT, GRAY, SATURATED, LOOSE, SILTY SAND

(B) RESIDUAL, TAN, MOIST, MEDIUM STIFF TO STIFF, MEDIUM TO HIGH PLASTICITY SILTY CLAY

46' RT

ROADWAY EMBANKMENT, TO WET, VERY SOFT TO MICACEOUS, FINE SANDY SILT

(B)

RESIDUAL, ORANGE-TAN, MOIST, MEDIUM DENSE, MICACEOUS, SILTY SAND

RESIDUAL, ORANGE-BROWN, TAN, AND GRAY, MOIST, MEDIUM STIFF, MICACEOUS FINE SANDY SILT

02/15

RESIDUAL, BROWN, GRAY, AND TAN, MOIST, DENSE, MICACEOUS, SILTY SAND

100/0.5

WEATHERED ROCK (GNEISS)

100/0.3

100/0.3

60/0.0

BT

CRYSTALLINE ROCK (GNEISS)

48' RT

BROWN, MOIST MEDIUM STIFF,

(A)

(B)

100/0.1

100/0.3

100/0.2

100/0.1

60/0.1

BT

FIAD 02/15

12-AUG-2015 11:33
N:\Projects\2015\7015013\B5121_B5317\B5121_B5317_GEO_RDWY\CADD_GEOTECH\Plan-pf\B5121_B5317_PFI-8.dgn
mstevens ST_WZ_2001.1250

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B5121 /B5317	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

300
290
280
270
260
250
240
230
220
210

PROPOSED GRADE
EXISTING GRADE

59' LT
ROADWAY EMBANKMENT, BROWN AND ORANGE-BROWN, MOIST, VERY LOOSE TO MEDIUM DENSE, CLAYEY SAND, WITH COBBLES
(6) (WOH) (6) (23)
(B) (4) (C)
(100/0.3)
(100/0.4)
BT
FIAD 03/15

46' LT
(17) (16) (32) (37) ▽02/15
RESIDUAL, ORANGE-BROWN AND GRAY, MOIST
(39)
WEATHERED ROCK (GNEISS)
(100/0.4)
(60/0.0)
BT
CRYSTALLINE ROCK (GNEISS)

50' LT
(7) (4) (7) (7) ▽02/15
RESIDUAL, GRAY AND TAN, FINE SANDY CLAY TO SATURATED,
(29)
(100/0.9)
RESIDUAL, DENSE, (35) BROWN, MOIST, MICACEOUS SILTY SAND
BT

52' LT
(F) (8) (18) (10) ▽02/15
MOIST, MEDIUM STIFF, LOOSE TO DENSE, WEATHERED ROCK (GNEISS)
(100/0.5)
BT

26' LT
(D) (E) (10) (14) (12)
(100/0.3)
BT
FIAD 02/15

29' LT
PAVEMENT (ASPHALT, CONCRETE AND ABC)
RESIDUAL, GRAY AND HIGH PLASTICITY ORANGE, MOIST, STIFF, SILTY CLAY
(D) (48)
MICACEOUS SILTY AND CLAYEY SAND
(100/0.9)
(73)
WEATHERED ROCK
GRAY, MOIST, MEDIUM DENSE TO MICACEOUS, SILTY SAND
BT
FIAD 02/15

SS-1

25' LT
(14) (18)
(100/0.8)
(15)
(GNEISS) VERY DENSE,
BT
FIAD 02/15

RESIDUAL, ORANGE-BROWN AND

(B) RESIDUAL, TAN, MOIST, MEDIUM STIFF TO STIFF, HIGH PLASTICITY SILTY CLAY

(C) ALLUVIAL, BLACK AND GRAY, MOIST, LOOSE, MICACEOUS SILTY SAND

(D) ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL), BROWN, MOIST, STIFF, SANDY CLAY

(E) ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL), ORANGE-BROWN, MOIST, MEDIUM DENSE, SILTY SAND WITH LITTLE GRAVEL

(F) ARTIFICIAL FILL, RED-BROWN AND BROWN, MOIST, LOOSE, SILTY SAND

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

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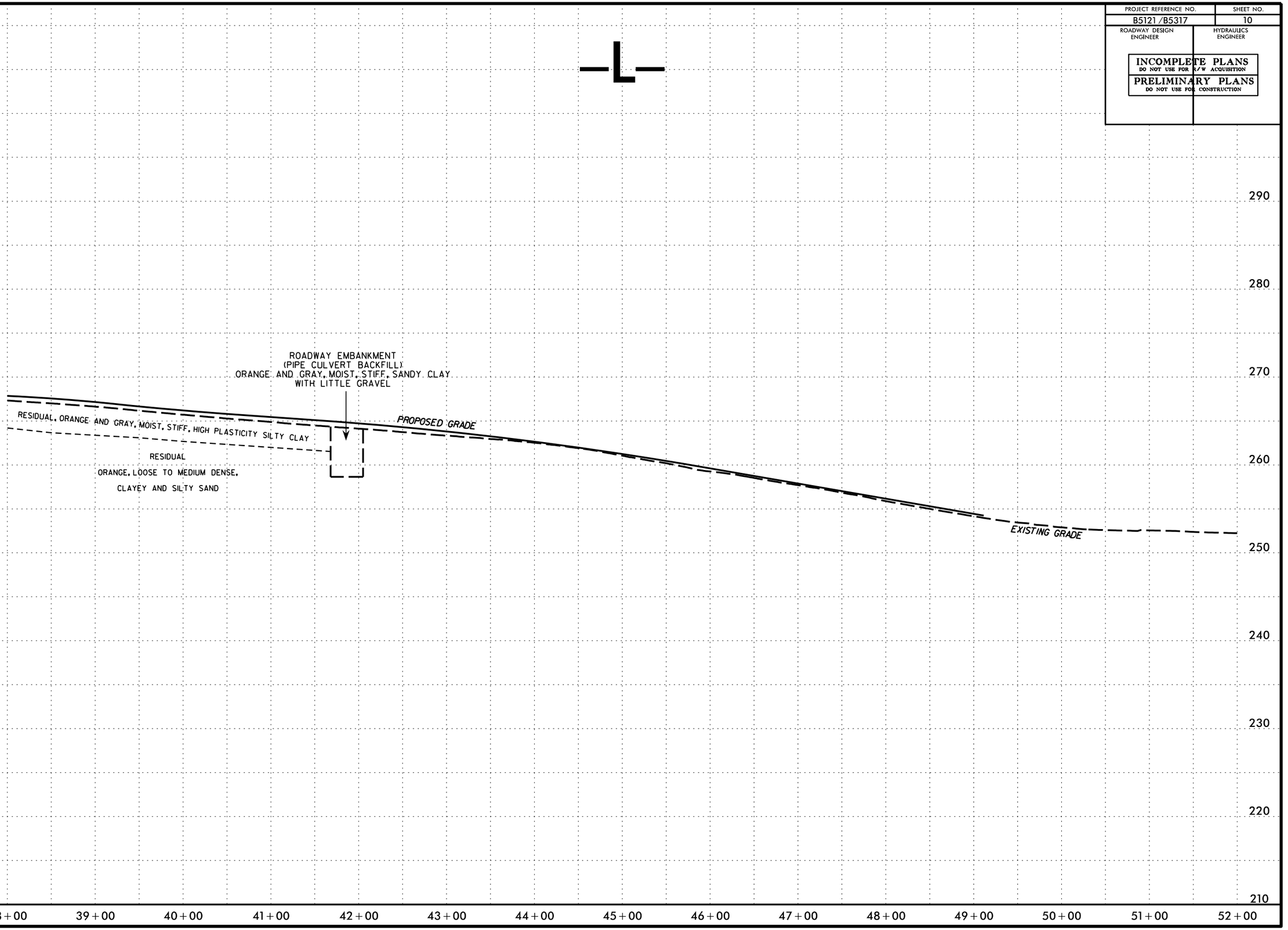
mdavenport
ATLWZ-701_1200

PROJECT REFERENCE NO.	SHEET NO.
B5121 /B5317	10
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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mjlexander
$I_WE_ZONE_3200

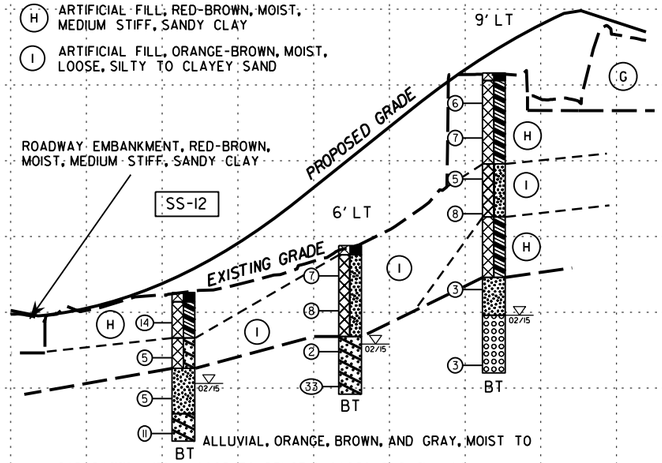
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B5121 /B5317	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

12

–Y5–



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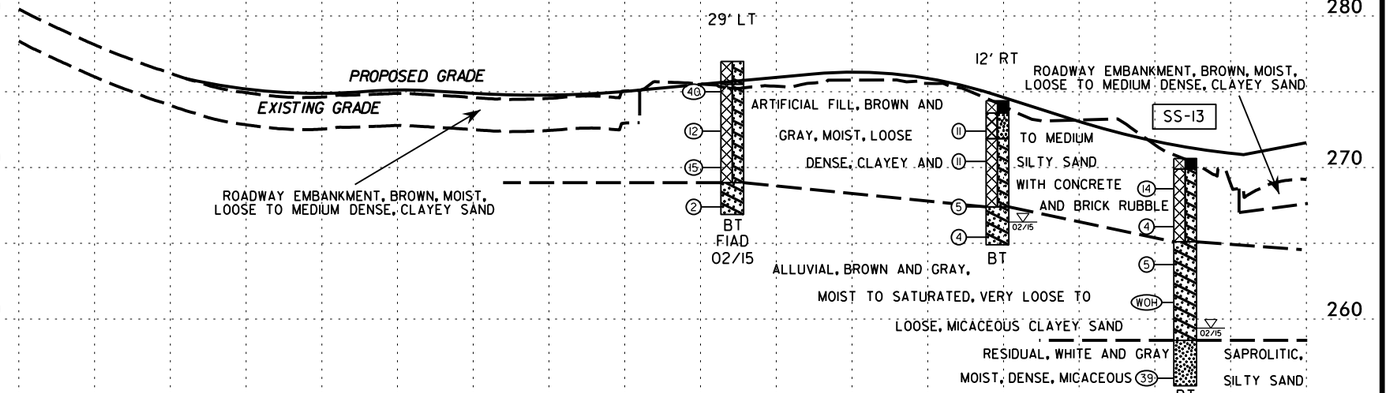

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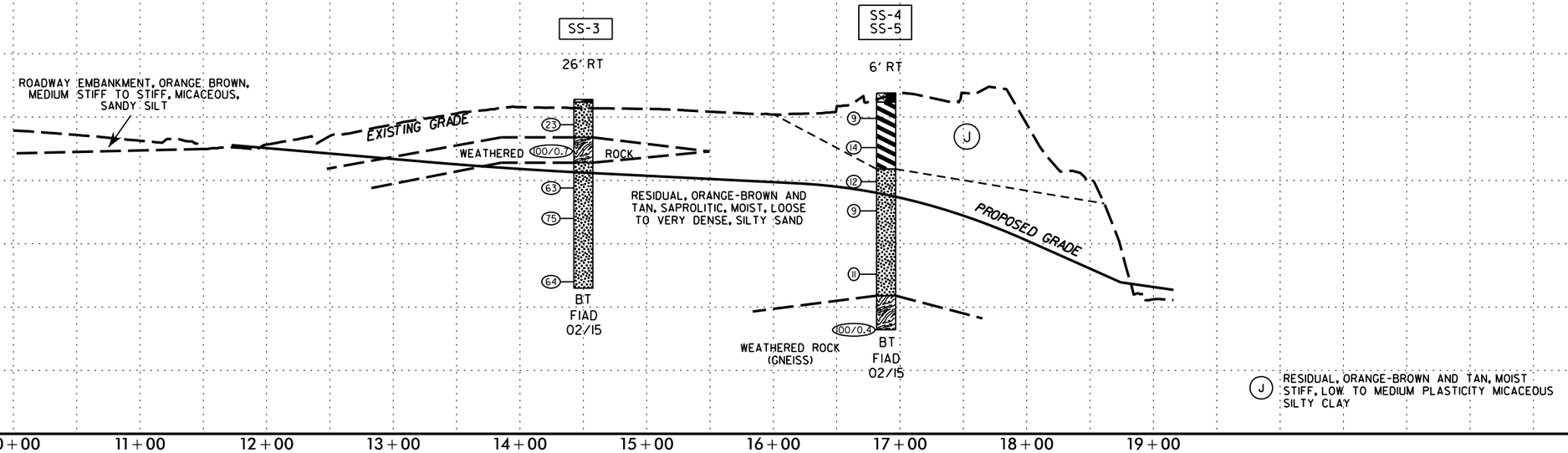
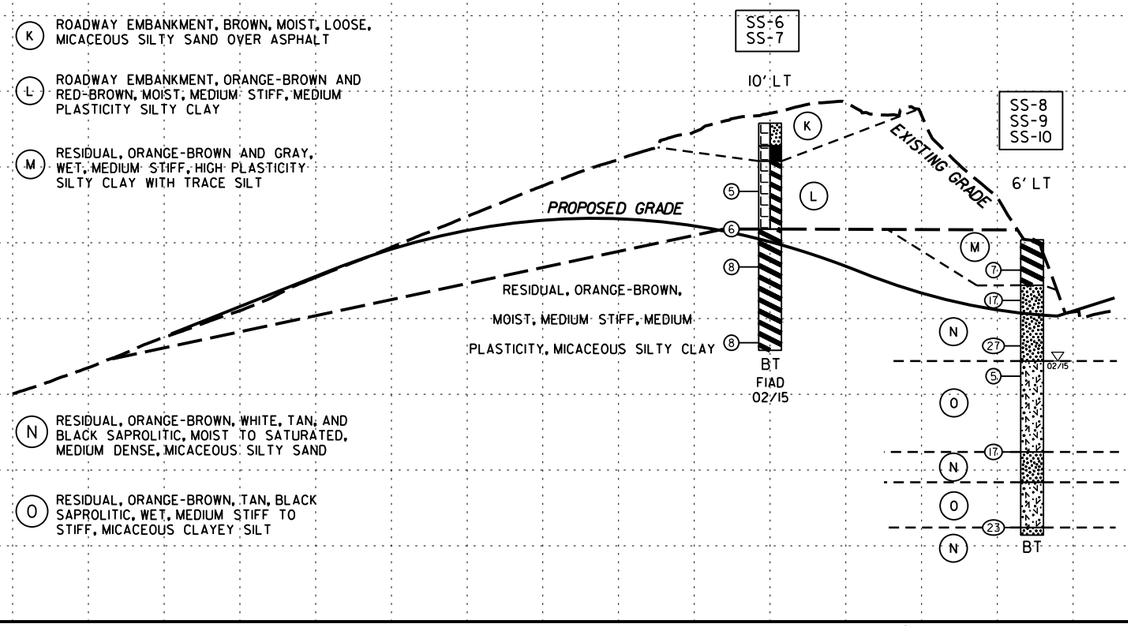


5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B5121 /B5317	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-Y1RPD-



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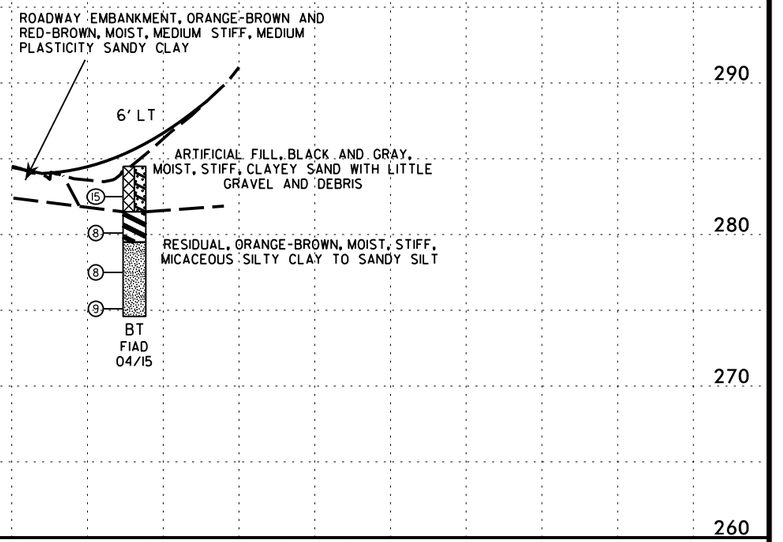

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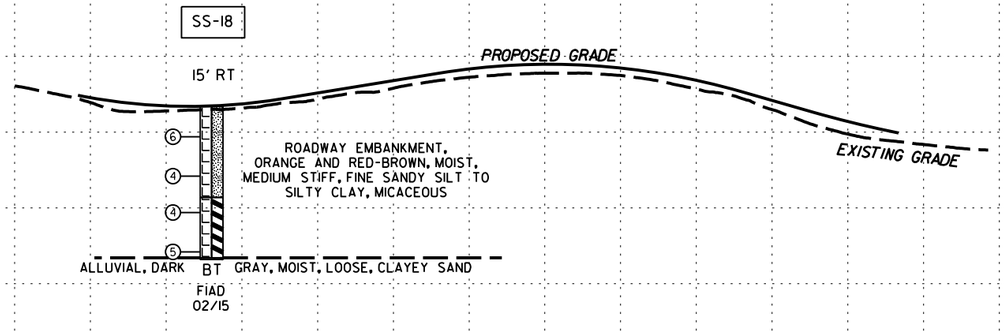

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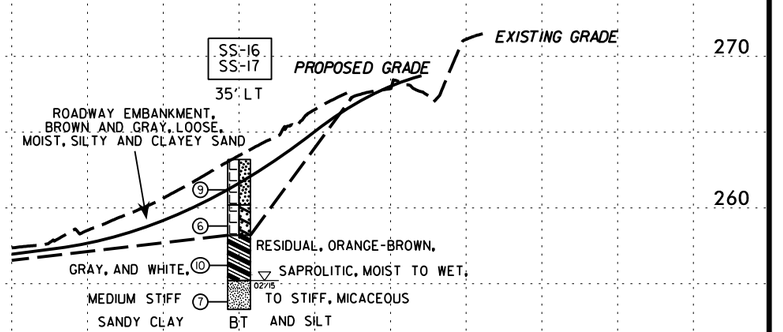

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mclaycomb
ET WE-ZONE 3240

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B5121 /B5317	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-FLYOVER-

290 280 270 260 250 240 230 220 210 200

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 24+00

ARTIFICIAL FILL, BROWN, BLACK, AND GRAY, MOIST, LOOSE TO MEDIUM DENSE, SILTY AND CLAYEY SAND WITH WOOD DEBRIS, GRAVEL, AND COBBLES

SS-15

PROPOSED GRADE

EXISTING GRADE

20' RT

RESIDUAL, ORANGE-BROWN, MOIST, STIFF, MICACEOUS SANDY CLAY

RESIDUAL, ORANGE-BROWN, WHITE, AND BLACK, SAPROLITIC, MOIST, LOOSE TO MEDIUM DENSE, MICACEOUS SILTY AND CLAYEY SAND

WEATHERED ROCK (GNEISS)

BT FIAD 04/15

BT FIAD 02/15

24' LT

23' LT

20' LT

6' LT

30' RT

ROADWAY EMBANKMENT, TAN-BROWN AND RED-BROWN, MOIST, LOOSE TO MEDIUM DENSE, MICACEOUS CLAYEY SAND

ST-1
ST-2

WEATHERED ROCK (GNEISS)

CRYSTALLINE ROCK (GNEISS)

CT FIAD 02/15

REC = 93%
ROD = 82%
RMR = 61

RESIDUAL, GRAY, WHITE, AND BLACK, TO, BLUE-GRAY AND TAN, MOIST, LOOSE TO VERY DENSE, MICACEOUS SILTY FINE SAND

(P) ROADWAY EMBANKMENT, BROWN, MOIST, STIFF, SANDY CLAY

(Q) ROADWAY EMBANKMENT, TAN-BROWN, MOIST, MEDIUM DENSE, SILTY FINE TO COARSE SAND WITH TRACE GRAVEL

(R) ROADWAY EMBANKMENT, ASPHALT OVER RED-BROWN AND ORANGE-BROWN MOIST, STIFF, MICACEOUS SILTY CLAY AND ORANGE-BROWN, MOIST, SOFT TO MEDIUM STIFF, MICACEOUS FINE SANDY SILT WITH COBBLES

(S) RESIDUAL, TAN, GRAY, AND BLUE-GRAY, MOIST TO WET, SOFT TO VERY STIFF, HIGH PLASTICITY CLAY AND MICACEOUS CLAYEY SILT

(T) ALLUVIAL, DARK-GRAY AND ORANGE-BROWN, WET, VERY SOFT TO SOFT, MICACEOUS CLAYEY SILT WITH THIN SILTY SAND LAYERS

(U) ALLUVIAL, BROWN AND GRAY, SATURATED, VERY LOOSE TO LOOSE, MICACEOUS COARSE SAND WITH SOME GRAVEL AND LITTLE SILT AND CLAYEY SAND WITH GRAVEL NEAR THE RESIDUAL INTERFACE

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mdavenport ATT_WZE_2001_2200

PROJECT REFERENCE NO.	SHEET NO.
B5121 /B5317	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

–FLYOVER–

300
290
280
270
260
250
240
230
220
210

ROADWAY EMBANKMENT, TAN-BROWN AND RED-BROWN,
MOIST, LOOSE TO MEDIUM DENSE, MICACEOUS CLAYEY SAND

RESIDUAL, TAN, GRAY, AND BLUE-GRAY, MOIST
TO WET, SOFT TO VERY STIFF, HIGH PLASTICITY
SILTY CLAY AND MICACEOUS CLAYEY SILT

RESIDUAL, GRAY, WHITE, AND BLACK,
TO, BLUE-GRAY AND TAN,
MOIST, LOOSE TO MEDIUM DENSE,
MICACEOUS SILTY FINE SAND

24+00 25+00 26+00 27+00

5/14/99

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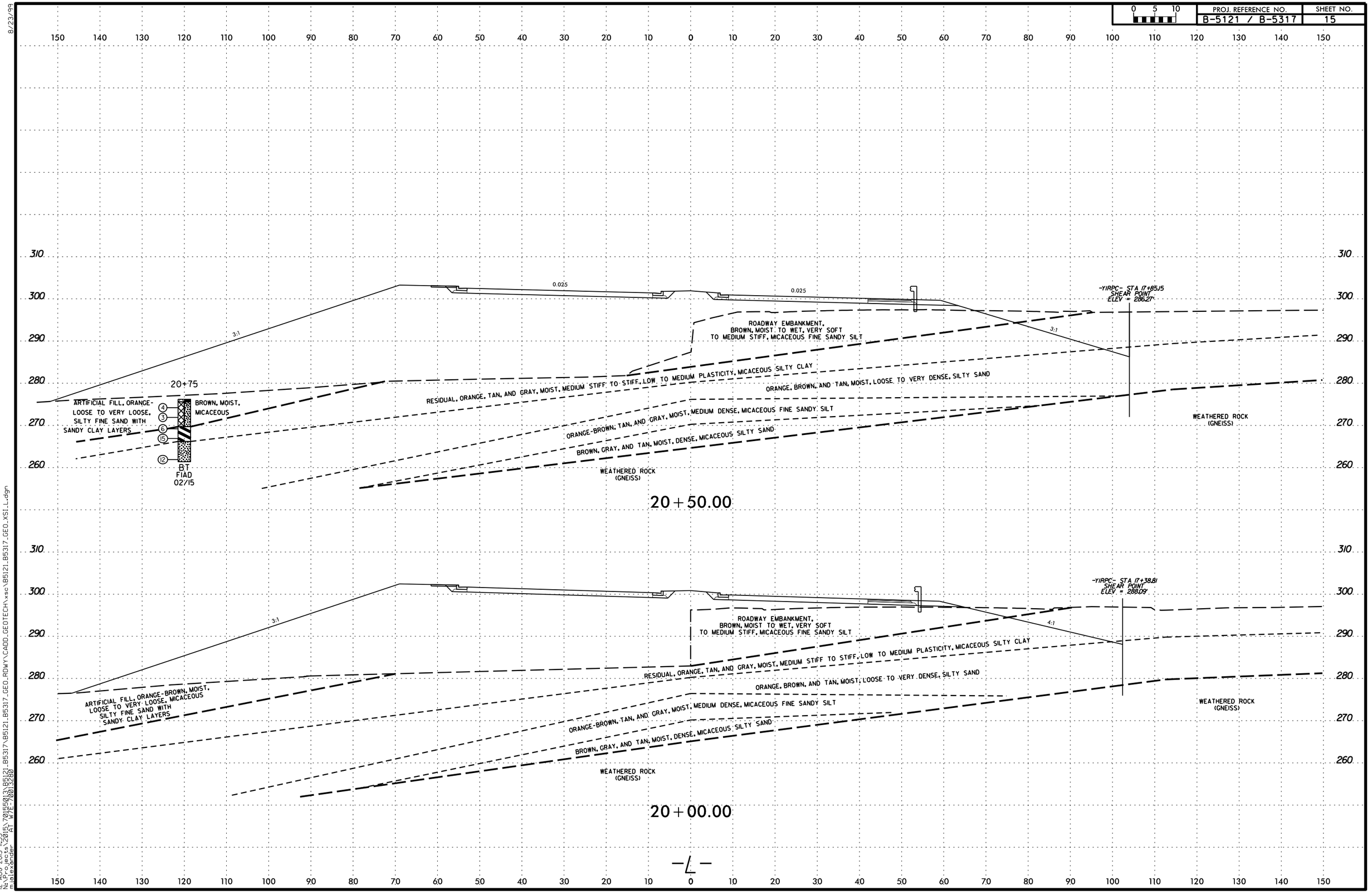

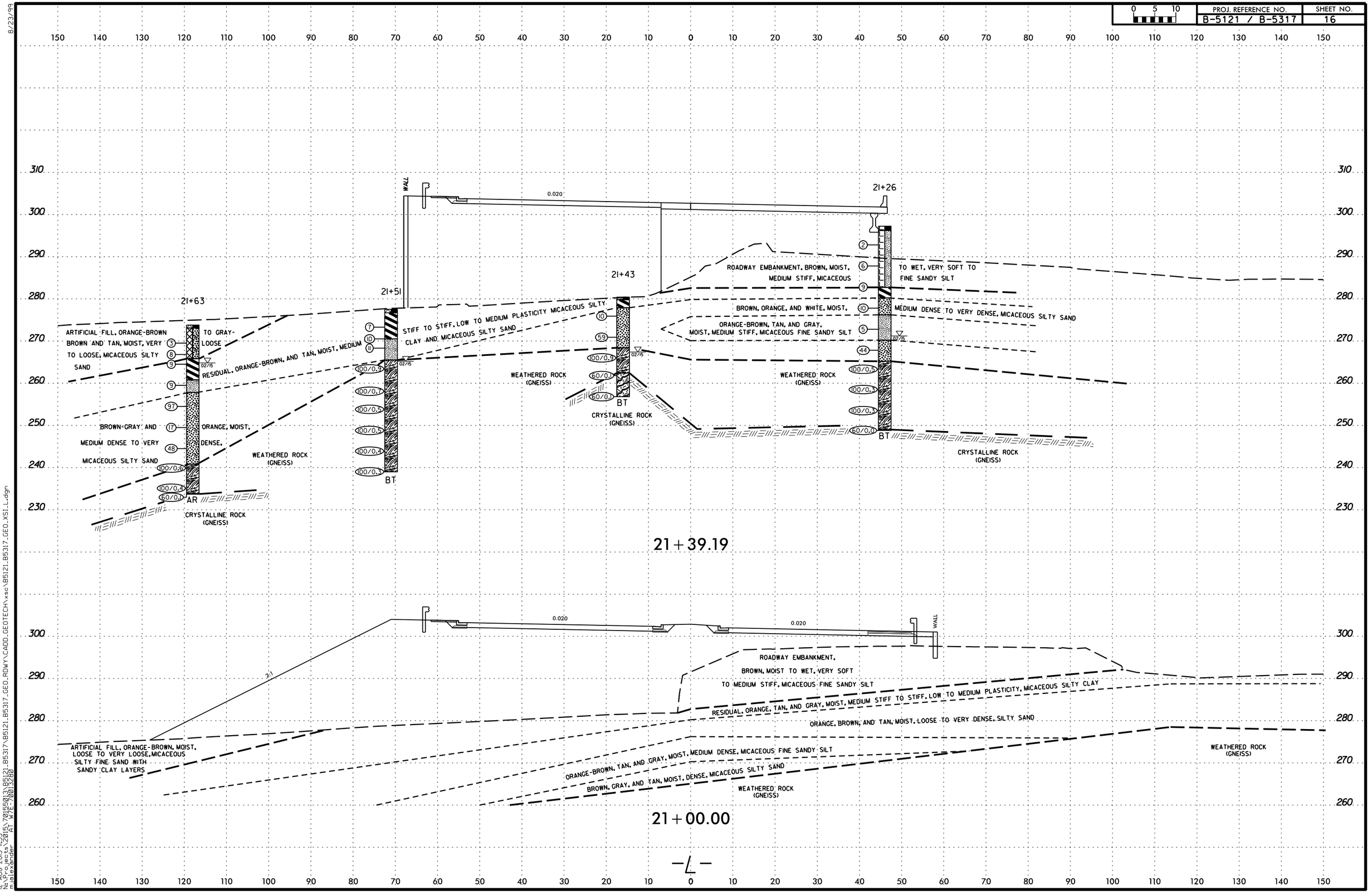

8/23/99

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	B-5121 / B-5317	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

310 300 290 280 270 260

WALL

ROADWAY EMBANKMENT, BROWN, MOIST TO WET, VERY SOFT TO MEDIUM STIFF, MICACEOUS FINE SANDY SILT AND MEDIUM PLASTICITY SILTY CLAY

2:1

-YIRPD- STA 16+09.61
SHEAR POINT
ELEV = 281.73'

RESIDUAL, ORANGE-BROWN, WHITE, TAN, AND BLACK, SAPROLITIC, MOIST TO SATURATED, MEDIUM DENSE, MICACEOUS SILTY SAND

RESIDUAL, ORANGE-BROWN, TAN, AND BLACK, SAPROLITIC, WET, MEDIUM STIFF, MICACEOUS, CLAYEY SANDY SILT WITH MEDIUM DENSE SILTY SAND LAYERS

GRAY, SATURATED, LOOSE, SILTY SAND

RESIDUAL, TAN AND ORANGE-BROWN, MOIST, MEDIUM STIFF, MEDIUM TO HIGH PLASTICITY, MICACEOUS SILTY CLAY

ORANGE, GRAY, AND WHITE, MOIST, MEDIUM DENSE TO VERY DENSE, MICACEOUS SILTY SAND

ORANGE AND TAN, MOIST, SOFT, MICACEOUS FINE SANDY SILT

WEATHERED ROCK (GNEISS)

23+00.00

310 300 290 280 270 260 250 240 230

22+71

WALL

PAVEMENT (ASPHALT AND CONCRETE)

ROADWAY EMBANKMENT, BROWN-RED, MICACEOUS FINE, MEDIUM PLASTICITY

4 2 1 WET, VERY SOFT TO SOFT, SANDY SILT AND SILTY CLAY

22+81

22+88

23+06

9 32 5 13 20 MICACEOUS SILTY TO CLAYEY SAND

5 8 26 SATURATED, VERY LOOSE TO DENSE, MEDIUM DENSE TO VERY DENSE, MICACEOUS SILTY SAND

TAN, MOIST TO WET, MEDIUM STIFF TO STIFF, HIGH PLASTICITY, MICACEOUS SILTY CLAY

8 100/0.7 100/0.3 100/0.2 60/0.1

ORANGE-BROWN, WHITE, TAN, AND BLACK, SAPROLITIC, MOIST TO SATURATED, MEDIUM DENSE, MICACEOUS SILTY SAND AND MEDIUM STIFF, MICACEOUS CLAYEY SILT

5 3 3 7 55 13 3 100/0.3 100/0.2 60/0.0 AR

03/15

ROADWAY EMBANKMENT, RED-BROWN, BROWN, AND GRAY, MOIST TO MOIST,

RESIDUAL, GRAY AND TAN, MEDIUM STIFF, SILTY CLAY

ORANGE AND TAN, MOIST, SOFT, MICACEOUS FINE SANDY SILT

ORANGE, GRAY, AND WHITE, MOIST,

100/0.4 100/0.5 100/0.3 100/0.3 60/0.1 BT

02/15

100/0.4 100/0.2 100/0.2 100/0.1 BT

02/15

100/0.7 100/0.3 100/0.2 100/0.7 60/0.1 BT

FIAD 02/15

WEATHERED ROCK (GNEISS)

CRYSTALLINE ROCK (GNEISS)

22+79.00

—℄—

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mlalexander AT WE-7001320

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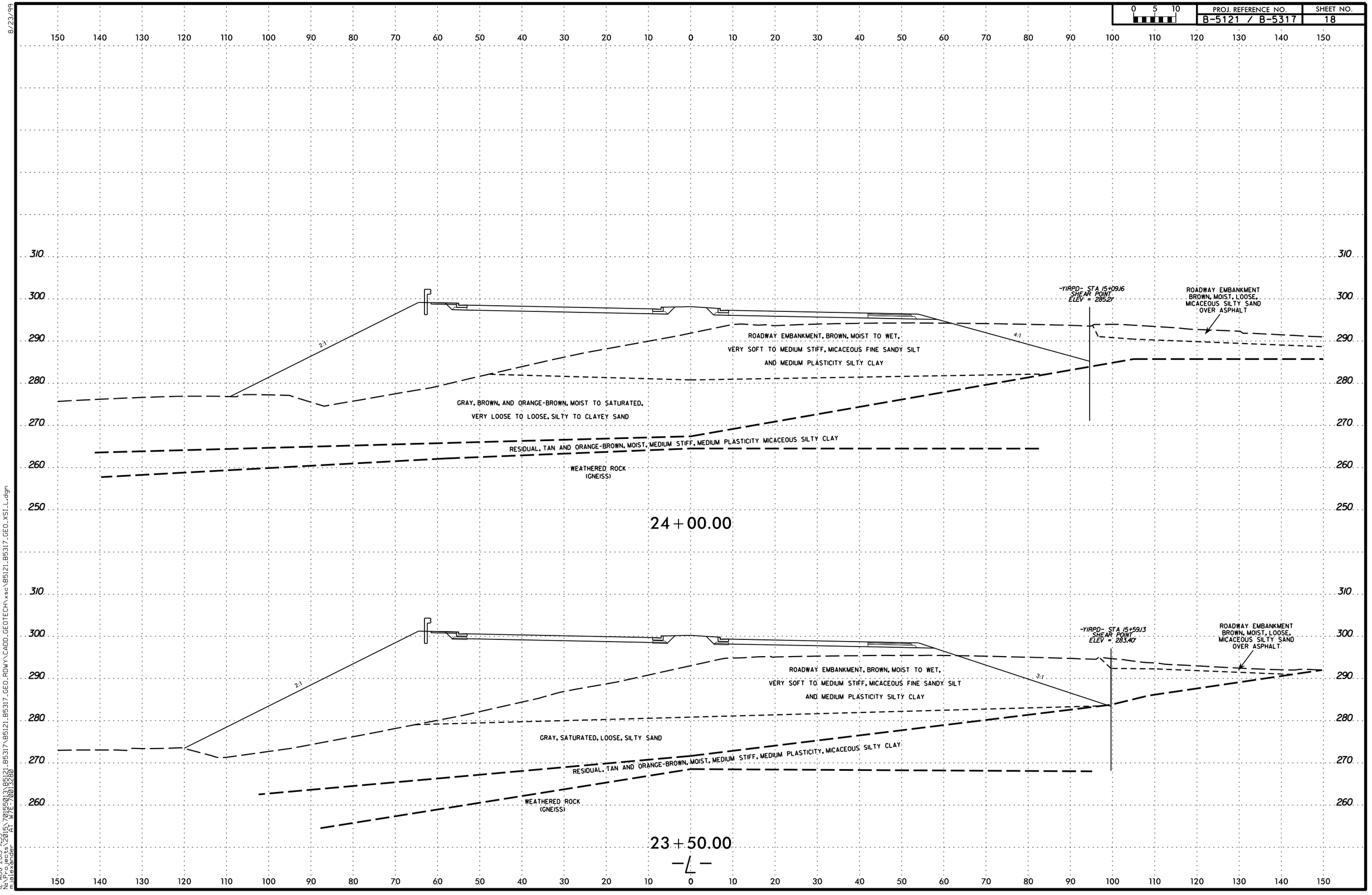

8/23/99

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malexander AT WE-7001.3260

8/23/99

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	B-5121 / B-5317	19

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310 300 290 280 270 260 250

-YIRPD- STA 14+11.03
SHEAR POINT
ELEV. = 287.13'

2:1

6:1

ROADWAY EMBANKMENT, BROWN-ORANGE, MOIST, VERY LOOSE TO LOOSE, CLAYEY SAND

ROADWAY EMBANKMENT
ORANGE-BROWN, MOIST, MEDIUM STIFF,
SANDY CLAY

RESIDUAL, ORANGE-BROWN, MOIST, MEDIUM STIFF,
MICACEOUS SILTY CLAY

RESIDUAL, ORANGE-BROWN AND GRAY, MOIST TO SATURATED, LOOSE TO DENSE, MICACEOUS SILTY SAND

WEATHERED ROCK
(GNEISS)

25+00.00

-YIRPD- STA 14+60.20
SHEAR POINT
ELEV = 286.48'

2:1

4:1

24+50

ROADWAY EMBANKMENT, BROWN-ORANGE, MOIST,
VERY LOOSE TO LOOSE, CLAYEY AND SILTY SAND

ORANGE-BROWN, MOIST, MEDIUM STIFF, MEDIUM PLASTICITY SANDY CLAY

RESIDUAL, ORANGE-BROWN, MOIST,
MEDIUM STIFF, MICACEOUS, SILTY CLAY

6
WOH
6
23

COBBLES NEAR BOTTOM OF STRATA
IN BORING AT -L- 24+50

4

TO LOOSE, MICACEOUS SILTY SAND

ALLUVIAL, BLACK AND GRAY, MOIST, VERY LOOSE

100/0.3

WEATHERED ROCK
(GNEISS)

100/0.4

B1
FIAD
03/15

24+50.00

-L-

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mlalexander AT WE-70013280

8/23/99

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	B-5121 / B-5317	20

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280 270 260 250

ARTIFICIAL FILL, RED-BROWN AND BROWN, MOIST, STIFF, SILTY SAND

2:1

30+78

8
18
10
100/0.8
100/0.9

02/15

RESIDUAL, GRAY, TAN, AND ORANGE-BROWN, MOIST, VERY STIFF, FINE SANDY CLAY

GRAY, TAN, AND ORANGE-BROWN, CLAYEY FINE TO COARSE SAND WITH TRACE QUARTZ GRAVEL

WEATHERED ROCK (GNEISS)

BT

4:1

31+00.00

290 280 270 260 250 240

-YIRPD- STA 10+13.95

2:1

PAVEMENT (ASPHALT AND ABC)

ROADWAY EMBANKMENT, ORANGE-BROWN, MOIST, MEDIUM STIFF TO STIFF, SANDY CLAY

RESIDUAL, GRAY AND TAN, MOIST, SOFT TO

7
4
7
7
29
100/0.5
35

MEDIUM STIFF, FINE SANDY CLAY

02/15

RESIDUAL, GRAY AND ORANGE-BROWN, MOIST TO MICACEOUS SILTY

SATURATED, LOOSE TO MEDIUM DENSE, FINE SAND

WEATHERED ROCK (GNEISS)

RESIDUAL, BROWN, SATURATED, DENSE, MICACEOUS SILTY SAND

BT

29+00.00

290 280 270 260 250 240

-YIRPD- STA 11+63.86
SHEAR POINT
ELEV = 281.47'

2:1

ROADWAY EMBANKMENT, ORANGE BROWN, MOIST, MEDIUM STIFF, MEDIUM PLASTICITY SANDY CLAY

RESIDUAL, ORANGE-BROWN, MOIST, MEDIUM STIFF, MICACEOUS SILTY CLAY

RESIDUAL, GRAY, BROWN, AND TAN, SAPROLITIC,

17
16
32
37
39
100/0.4
60/0.0

02/15

MOIST, MEDIUM DENSE TO DENSE, MICACEOUS SILTY SAND

WEATHERED ROCK (GNEISS)

BT

CRYSTALLINE ROCK (GNEISS)

27+50.00

-L-

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mlalexander AT WE-7001-3260

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	21

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280 270 260

(A) ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL), BROWN AND ORANGE-BROWN, MOIST, STIFF, SANDY CLAY AND MEDIUM DENSE, SILTY SAND WITH LITTLE GRAVEL

PAVEMENT (ASPHALT, CONCRETE AND ABC)

2:1

RESIDUAL, ORANGE (A) AND GRAY STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE-BROWN AND GRAY, MOIST, MEDIUM DENSE, HIGHLY MICACEOUS SILTY FINE SAND

WEATHERED ROCK (GNEISS)

33+50.00

(A) PAVEMENT (ASPHALT, CONCRETE AND ABC) OVER ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL), BROWN AND ORANGE-BROWN, MOIST, STIFF, SANDY CLAY AND MEDIUM DENSE, SILTY SAND WITH LITTLE GRAVEL

(A) 32+95

2:1

3:1

RESIDUAL, GRAY AND (10/14) ORANGE, MOIST, STIFF, HIGH PLASTICITY SILTY CLAY

RESIDUAL, ORANGE-BROWN AND GRAY, MOIST, (12) MEDIUM DENSE, HIGHLY MICACEOUS SILTY FINE SAND

100/0.3 BT FIAD 02/15 WEATHERED ROCK (GNEISS)

33+00.00

2:1

ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL) BROWN, MOIST, STIFF, SANDY CLAY

ORANGE-BROWN, MOIST, MEDIUM DENSE, SILTY SAND WITH LITTLE GRAVEL

3:1

RESIDUAL, GRAY AND TAN, MOIST, MEDIUM STIFF, FINE SANDY CLAY

RESIDUAL, ORANGE-BROWN AND GRAY, MOIST TO SATURATED, MEDIUM DENSE TO DENSE, MICACEOUS SILTY AND CLAYEY SAND

WEATHERED ROCK (GNEISS)

32+50.00

2:1

3:1

RESIDUAL, GRAY AND TAN, MOIST, MEDIUM STIFF, FINE SANDY CLAY

ORANGE-BROWN AND GRAY, MOIST TO SATURATED, MEDIUM DENSE TO DENSE, MICACEOUS SILTY AND CLAYEY SAND

WEATHERED ROCK (GNEISS)

32+00.00

—L—

12-AUG-2015 11:33
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mlalexander AT WE-7001320

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	22

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280 270 260

PAVEMENT (ASPHALT, CONCRETE AND ABC)

RESIDUAL, ORANGE AND GRAY, MOIST, STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE-BROWN AND GRAY, SAPROLITIC, MOIST, DENSE, SILTY SAND

WEATHERED ROCK (GNEISS)

RESIDUAL, ORANGE-BROWN AND GRAY, SAPROLITIC, MOIST, MEDIUM TO VERY DENSE, SILTY SAND

35 + 50.00

PAVEMENT (ASPHALT, CONCRETE AND ABC)

RESIDUAL, ORANGE AND GRAY, MOIST, STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE-BROWN AND GRAY, (48) SAPROLITIC, MOIST, DENSE, SILTY SAND

WEATHERED ROCK (100/0.9) (GNEISS)

(73) RESIDUAL, ORANGE-BROWN AND GRAY, SAPROLITIC, MOIST, VERY DENSE, SILTY SAND

BT
FIAD
02/15

35 + 00.00

(A) ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL), BROWN AND ORANGE-BROWN, MOIST, STIFF, SANDY CLAY AND MEDIUM DENSE, SILTY SAND WITH LITTLE GRAVEL

PAVEMENT (ASPHALT, CONCRETE AND ABC)

RESIDUAL, ORANGE AND GRAY STIFF, HIGH PLASTICITY SANDY CLAY

RESIDUAL, ORANGE (A) AND GRAY STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE-BROWN AND GRAY, MOIST, MEDIUM DENSE, HIGHLY MICACEOUS SILTY FINE SAND

WEATHERED ROCK (GNEISS)

RESIDUAL, ORANGE-BROWN AND GRAY, MOIST, MEDIUM DENSE TO VERY DENSE, MICACEOUS, SILTY SAND

34 + 50.00

(A) ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL), BROWN AND ORANGE-BROWN, MOIST, STIFF, SANDY CLAY AND MEDIUM DENSE, SILTY SAND WITH LITTLE GRAVEL

PAVEMENT (ASPHALT, CONCRETE AND ABC)

RESIDUAL, ORANGE (A) AND GRAY STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE-BROWN AND GRAY, MOIST, MEDIUM DENSE, HIGHLY MICACEOUS SILTY FINE SAND

WEATHERED ROCK (GNEISS)

RESIDAUL, ORANGE-BROWN AND GRAY, MOIST, MEDIUM DENSE TO VERY DENSE, MICACEOUS, SILTY SAND

34 + 00.00

$-L-$

12-AUG-2015 11:33
N:\Projects\2015_70\50\3\B5121_B5317\B5121_B5317_GEO_RDWY\CADD_GEOTECH\xsc\B5121_B5317_GEO_XS1_L.dgn
mlalexander
AT WE-7001/3280

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

280 270 260

(B) ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL), ORANGE AND GRAY, MOIST, STIFF, SANDY CLAY WITH LITTLE GRAVEL

PAVEMENT (ASPHALT, CONCRETE AND ABC)

2:1

RESIDUAL, ORANGE AND GRAY, MOIST.

(B) STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE-BROWN AND GRAY, SAPROLITIC, MOIST, DENSE, SILTY SAND

WEATHERED ROCK (GNEISS)

RESIDUAL, ORANGE-BROWN AND GRAY, SAPROLITIC, MOIST, MEDIUM DENSE, SILTY SAND

4:1

37 + 50.00

SS-1

PAVEMENT (ASPHALT, CONCRETE AND ABC)

2:1

RESIDUAL, ORANGE AND GRAY, MOIST, (14) STIFF, HIGH PLASTICITY SILTY CLAY

RESIDUAL, ORANGE-BROWN AND GRAY, (18) SAPROLITIC, MOIST, DENSE, SILTY SAND

WEATHERED ROCK (100/0.8) (GNEISS)

RESIDUAL, ORANGE-BROWN AND GRAY, (15) SAPROLITIC, MOIST, MEDIUM DENSE, SILTY SAND

3:1

BT
FIAD
02/15

37 + 00.00

PAVEMENT (ASPHALT, CONCRETE AND ABC)

2:1

RESIDUAL, ORANGE AND GRAY, MOIST, STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE-BROWN AND GRAY, SAPROLITIC, MOIST, DENSE, SILTY SAND

WEATHERED ROCK (GNEISS)

RESIDUAL, ORANGE-BROWN AND GRAY, SAPROLITIC, MOIST, MEDIUM TO VERY DENSE, SILTY SAND

36 + 50.00

PAVEMENT (ASPHALT, CONCRETE AND ABC)

2:1

RESIDUAL, ORANGE AND GRAY, MOIST, STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE-BROWN AND GRAY, SAPROLITIC, MOIST, DENSE, SILTY SAND

WEATHERED ROCK (GNEISS)

RESIDUAL, ORANGE-BROWN AND GRAY, SAPROLITIC, MOIST, MEDIUM TO VERY DENSE, SILTY SAND

4:1

36 + 00.00

-L-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	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

280 270 260

(B) ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL), ORANGE AND GRAY, MOIST, STIFF, SANDY CLAY WITH LITTLE GRAVEL

RESIDUAL, ORANGE AND GRAY, MOIST, STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE-BROWN AND GRAY, (B) SAPROLITIC, MOIST, LOOSE TO MEDIUM DENSE

CLAYEY SAND

2:1 4:1

39+50.00

(B) ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL), ORANGE AND GRAY, MOIST, STIFF, SANDY CLAY WITH LITTLE GRAVEL

CONCRETE SIDEWALK

RESIDUAL, ORANGE AND GRAY, MOIST, (13) (21) (B) STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE, MOIST, MEDIUM (3) (14) DENSE, CLAYEY SAND

BT FIAD 02/15

2:1 2% 12%

39+00.00

(B) ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL), ORANGE AND GRAY, MOIST, STIFF, SANDY CLAY WITH LITTLE GRAVEL

PAVEMENT (ASPHALT, CONCRETE AND ABC)

RESIDUAL, ORANGE AND GRAY, MOIST, (B) STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE-BROWN AND GRAY, SAPROLITIC, MOIST, LOOSE TO MEDIUM DENSE

CLAYEY SAND

2:1 4:1

38+50.00

(B) ROADWAY EMBANKMENT (PIPE CULVERT BACKFILL), ORANGE AND GRAY, MOIST, STIFF, SANDY CLAY WITH LITTLE GRAVEL

PAVEMENT (ASPHALT, CONCRETE AND ABC)

RESIDUAL, ORANGE AND GRAY, MOIST, (B) STIFF, HIGH PLASTICITY SILTY CLAY

ORANGE-BROWN AND GRAY, SAPROLITIC, MOIST, LOOSE TO MEDIUM DENSE

SILTY AND CLAYEY SAND

2:1 2% 8%

38+00.00

—L—

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mlalexander
AT WE-7001/3280

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
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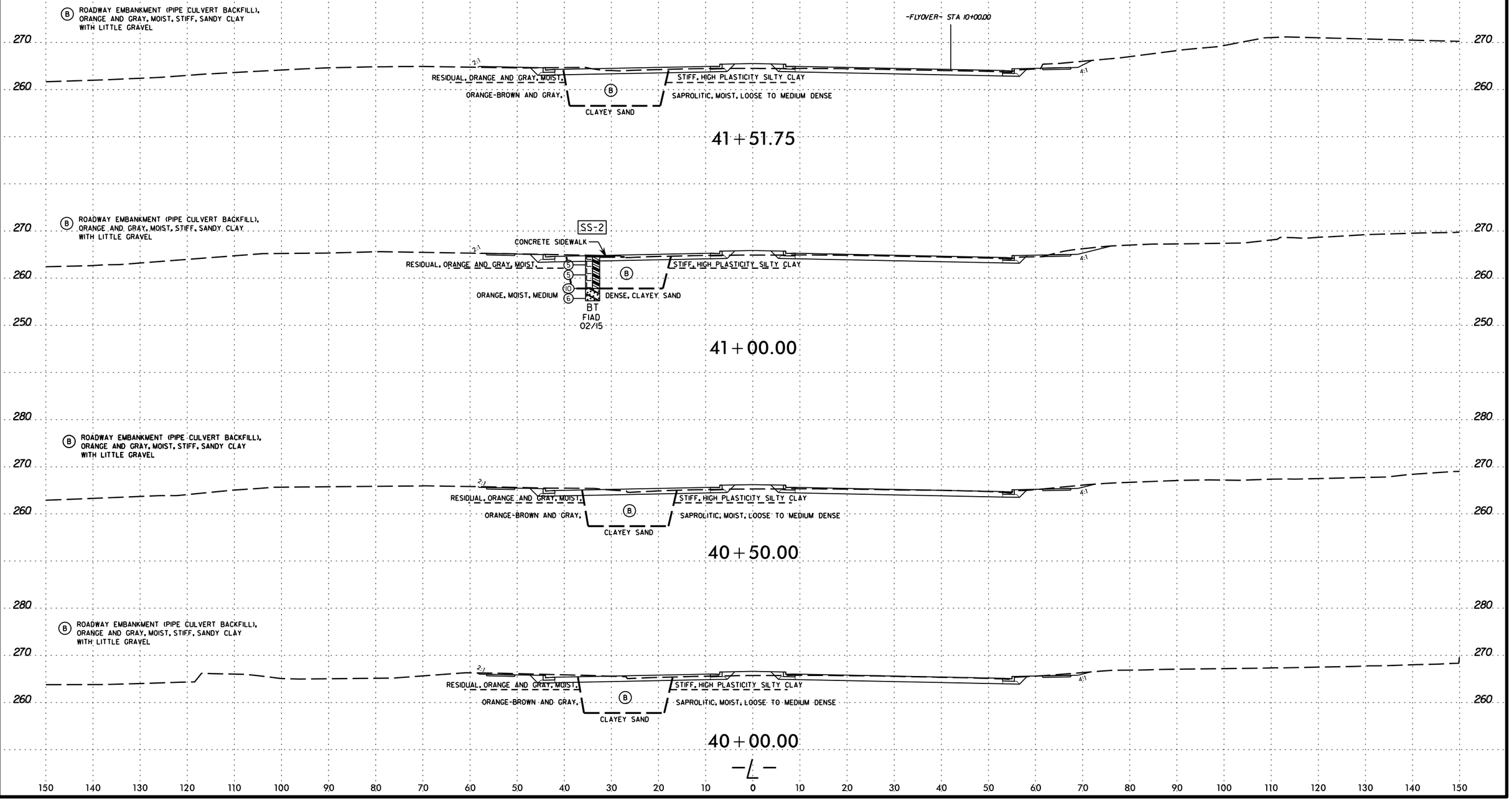

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malexander AT WE-70013260

8/23/99

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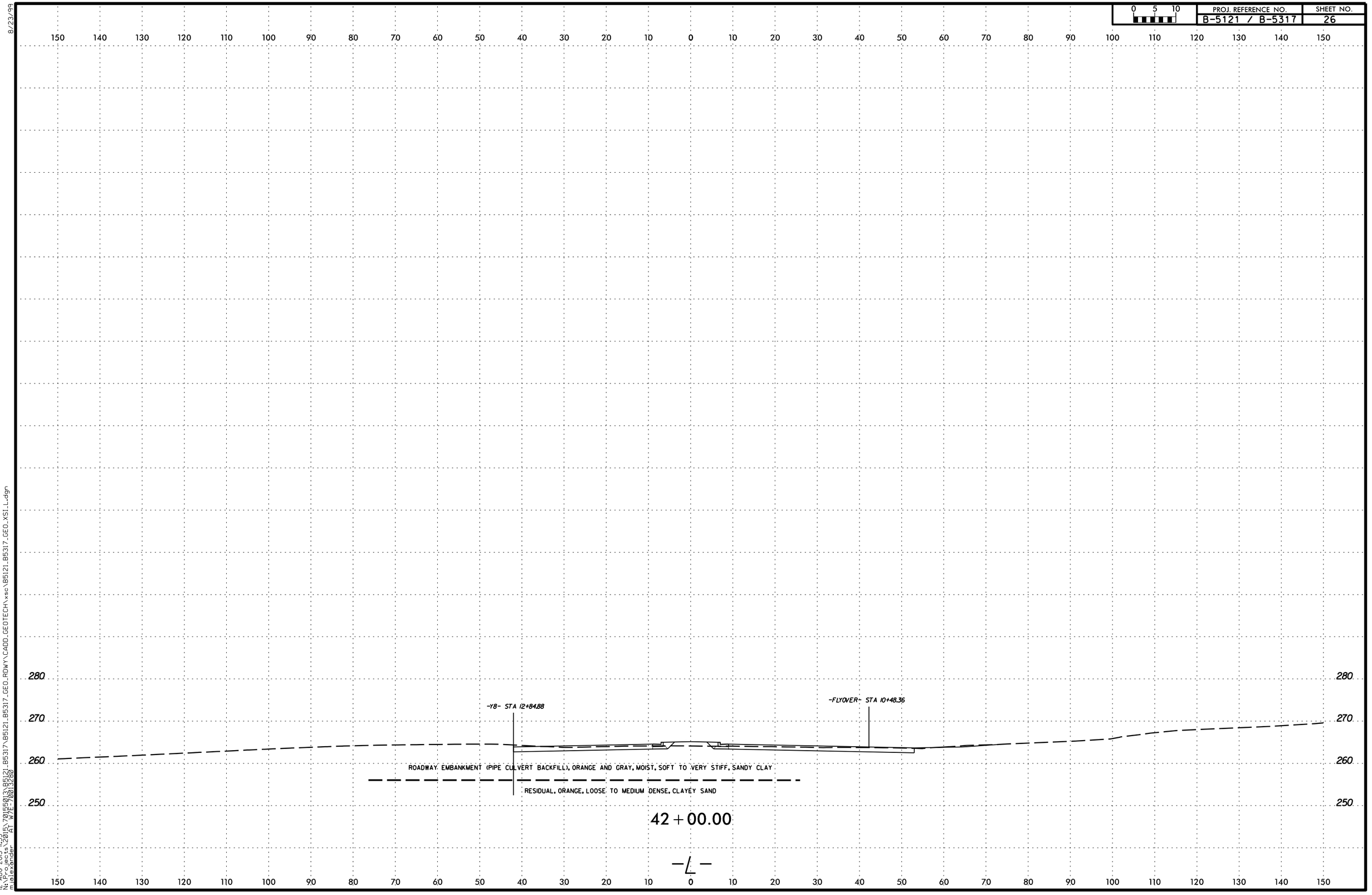

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molexander AT WE-7001320

8/23/99

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	B-5121 / B-5317	27

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290 280 270

2:1 2:1

ARTIFICIAL FILL, ORANGE-BROWN, MOIST, LOOSE, MICACEOUS SILTY SAND WITH CONCRETE RUBBLE

ALLUVIAL, ORANGE AND GRAY, MOIST TO SATURATED, VERY LOOSE TO DENSE, MICACEOUS CLAYEY SAND WITH LITTLE GRAVEL

12+50.00

12+24

2:1 2:1

ABC

ARTIFICIAL FILL, ORANGE-BROWN, MOIST, WITH ⑦ ⑧ LOOSE, MICACEOUS SILTY SAND CONCRETE RUBBLE

ALLUVIAL, ORANGE AND GRAY, MOIST ② 02/15 TO SATURATED, VERY LOOSE TO DENSE, MICACEOUS CLAYEY SAND ③③ WITH LITTE GRAVEL

BT

12+00.00

290 280 270

2:1 2:1

DRIVEWAY 4% 16% 25%

ARTIFICIAL FILL, RED-BROWN, MOIST, STIFF, SANDY CLAY

BROWN, MOIST, LOOSE, CLAYEY SAND

ALLUVIAL, TAN-GRAY AND GRAY, MICACEOUS SILTY TO CLAYEY SAND WITH LITTLE GRAVEL

11+50.00

290 280 270 260

SS-12

11+14

PAVEMENT (ASPHALT AND ABC)

2:1 2:1

ARTIFICIAL FILL, RED-BROWN, MOIST, ⑭ STIFF, SANDY CLAY

BROWN, MOIST, ⑤ LOOSE, CLAYEY SAND

ALLUVIAL, TAN-GRAY AND GRAY, ⑤ 02/15 SATURATED, SILTY TO CLAYEY SAND ⑪ WITH LITTLE GRAVEL, MICACEOUS

BT

11+00.00

280 270

2:1 2:1

ARTIFICIAL FILL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

BROWN, MOIST, LOOSE, CLAYEY SAND

ALLUVIAL, TAN-GRAY AND GRAY, SATURATED, VERY LOOSE TO DENSE, SILTY TO CLAYEY SAND WITH LITTLE GRAVEL, MICACEOUS

10+50.00

-Y5-

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

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mlalexander AT WE-70013280

8/23/99

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
B-5121 / B-5317	28

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

290
280
270

PAVEMENT (ASPHALT AND ABC)

13+19

2:1

ARTIFICIAL FILL, RED-BROWN, SANDY (6) MOIST, MEDIUM STIFF CLAY (7)

ARTIFICIAL FILL, ORANGE-BROWN, (5) MOIST, LOOSE, SILTY SAND (8)

ARTIFICIAL FILL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY (3)

ALLUVIAL, ORANGE AND WHITE, MOIST TO SATURATED, VERY LOOSE, SILTY SAND (3) AND FINE TO COARSE SAND WITH LITTLE GRAVEL

02/15

BT

13+25.00

300
290
280
270

2:1

ARTIFICIAL FILL, RED-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

ORANGE-BROWN, MOIST, LOOSE SILTY SAND

RED-BROWN, MOIST, MEDIUM STIFF, SANDY CLAY

ALLUVIAL, ORANGE AND WHITE, MOIST TO SATURATED, VERY LOOSE, SILTY SAND AND FINE TO COARSE SAND WITH LITTLE GRAVEL

13+00.00

-Y5-

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

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molexander AT WE-70013280

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	29

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

280 270 260 290

2:1

ARTIFICIAL FILL, BROWN, MOIST, MEDIUM DENSE, CLAYEY SAND WITH CONCRETE RUBBLE

ALLUVIAL, BROWN-GRAY, MOIST, VERY LOOSE, MICACEOUS CLAYEY FINE SAND

16+50.00

16+21

40 12 15 2

BT FIAD 02/15

ARTIFICIAL FILL, BROWN, MOIST, MEDIUM DENSE, CLAYEY SAND WITH CONCRETE RUBBLE

ALLUVIAL, BROWN-GRAY, MOIST, VERY LOOSE, MICACEOUS CLAYEY FINE SAND

16+00.00

ROADWAY EMBANKMENT, BROWN, MOIST, LOOSE TO MEDIUM DENSE, CLAYEY SAND

ARTIFICIAL FILL, BROWN, MOIST, MEDIUM DENSE, CLAYEY SAND WITH CONCRETE RUBBLE

ALLUVIAL, BROWN-GRAY, MOIST, VERY LOOSE TO LOOSE, MICACEOUS CLAYEY FINE SAND

15+50.00

DRIVEWAY

8% 2%

ROADWAY EMBANKMENT, BROWN, MOIST, LOOSE TO MEDIUM DENSE, CLAYEY SAND

ARTIFICIAL FILL, BROWN AND GRAY, MOIST, LOOSE TO MEDIUM DENSE, CLAYEY SAND

ALLUVIAL, BROWN AND GRAY, MOIST, TO SATURATED, VERY LOOSE TO LOOSE, MICACEOUS CLAYEY SAND

15+00.00

-Y6-

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molexander AT WE-700113280

8/23/99

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	B-5121 / B-5317	30

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

280
270
260

ARTIFICIAL FILL, BROWN AND GRAY, MOIST, LOOSE TO MEDIUM DENSE, SILTY AND CLAYEY SAND WITH BRICK RUBBLE

ALLUVIAL, BROWN AND GRAY, MOIST TO SATURATED, LOOSE TO VERY LOOSE, MICACEOUS CLAYEY SAND

RESIDUAL, WHITE AND GRAY, SAPROLITIC MOIST, DENSE, MICACEOUS SILTY SAND

18+50.00

17+96

ARTIFICIAL FILL, BROWN AND GRAY, MOIST, LOOSE TO MEDIUM DENSE, SILTY AND CLAYEY SAND WITH BRICK RUBBLE

ALLUVIAL, BROWN AND GRAY, MOIST TO SATURATED, LOOSE TO VERY LOOSE, MICACEOUS CLAYEY SAND

BT

18+00.00

ARTIFICIAL FILL, BROWN, MOIST, MEDIUM DENSE, CLAYEY SAND WITH BRICK RUBBLE

ALLUVIAL, BROWN-GRAY, MOIST TO SATURATED, VERY LOOSE, MICACEOUS CLAYEY SAND

17+50.00

ARTIFICIAL FILL, BROWN, MOIST, MEDIUM DENSE, CLAYEY SAND WITH CONCRETE RUBBLE

ALLUVIAL, BROWN-GRAY, MOIST, VERY LOOSE, MICACEOUS CLAYEY FINE SAND

17+00.00

-Y6-

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malexander AT WZE-7001\1200

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	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

280
270
260
250

SS-13
19+20

2:1 2:1

ARTIFICIAL FILL, BROWN AND GRAY, MOIST, LOOSE TO MEDIUM DENSE, SILTY AND CLAYEY SAND WITH BRICK RUBBLE (14, 4)

ALLUVIAL, BROWN AND GRAY, MOIST TO SATURATED, LOOSE TO VERY LOOSE, MICACEOUS CLAYEY SAND (5, WOH)

RESIDUAL, WHITE AND GRAY SAPROLITIC, MOIST, DENSE, MICACEOUS SILTY SAND (39)

BT

19+27.00

2:1 2:1

ARTIFICIAL FILL, BROWN AND GRAY, MOIST, LOOSE TO MEDIUM DENSE, SILTY AND CLAYEY SAND WITH BRICK RUBBLE

ALLUVIAL, BROWN AND GRAY, MOIST TO SATURATED, LOOSE TO VERY LOOSE, MICACEOUS CLAYEY SAND

RESIDUAL, WHITE AND GRAY SAPROLITIC, MOIST, DENSE, MICACEOUS SILTY SAND

19+00.00

-Y6-

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mlalexander AT WE-70013280

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	32

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

310
300
290
280

-L- 16+00.00
SHEAR POINT
ELEV = 291.69'

RESIDUAL, ORANGE-BROWN AND TAN SAPROLITIC, MOIST, MEDIUM DENSE, SILTY SAND
WEATHERED ROCK (GNEISS)
RESIDUAL, ORANGE-BROWN, WHITE, AND BROWN SAPROLITIC, MOIST, VERY DENSE, SILTY SAND

2:1

13+61.02

-L- 15+50.00
SHEAR POINT
ELEV = 291.58'

RESIDUAL, ORANGE-BROWN AND TAN SAPROLITIC, MOIST, MEDIUM DENSE, SILTY SAND
WEATHERED ROCK (GNEISS)
RESIDUAL, ORANGE-BROWN, WHITE, AND BROWN SAPROLITIC, MOIST, VERY DENSE, SILTY SAND

2:1

13+11.33

-L- 15+00.00
SHEAR POINT
ELEV = 292.11'

RESIDUAL, ORANGE-BROWN AND TAN SAPROLITIC, MOIST, MEDIUM DENSE, SILTY SAND
WEATHERED ROCK (GNEISS)
RESIDUAL, ORANGE-BROWN AND TAN, SAPROLITIC, MOIST, VERY DENSE, SILTY SAND

2:1

12+60.64

-YIRPC-

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molexander AT WE-7001328O

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	33

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

310 300 290 280

-L- 17+50.00
SHEAR POINT
ELEV = 291.06'

RESIDUAL, ORANGE-BROWN AND TAN SAPROLITIC, MOIST, MEDIUM DENSE, SILTY SAND

WEATHERED ROCK (GNEISS)

2:1

RESIDUAL, ORANGE-BROWN, WHITE, AND BROWN SAPROLITIC, MOIST, VERY DENSE, SILTY SAND

15+05.59

-L- 17+00.00
SHEAR POINT
ELEV = 291.30'

SS-3

14+50

RESIDUAL, ORANGE-BROWN AND TAN SAPROLITIC, MOIST, (23) MEDIUM DENSE, SILTY SAND

WEATHERED ROCK (GNEISS) (100/0.7)

2:1

(63)

RESIDUAL, ORANGE-BROWN, WHITE, AND BROWN SAPROLITIC, MOIST, (75) VERY DENSE, SILTY SAND

(64)

BT
FIAD
02/15

14+58.39

-L- 16+50.00
SHEAR POINT
ELEV = 291.56'

RESIDUAL, ORANGE-BROWN AND TAN SAPROLITIC, MOIST, MEDIUM DENSE, SILTY SAND

WEATHERED ROCK (GNEISS)

2:1

RESIDUAL, ORANGE-BROWN, WHITE, AND BROWN SAPROLITIC, MOIST, VERY DENSE, SILTY SAND

14+10.60

-YIRPC-

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melexander AT WZE-7001200

8/23/99

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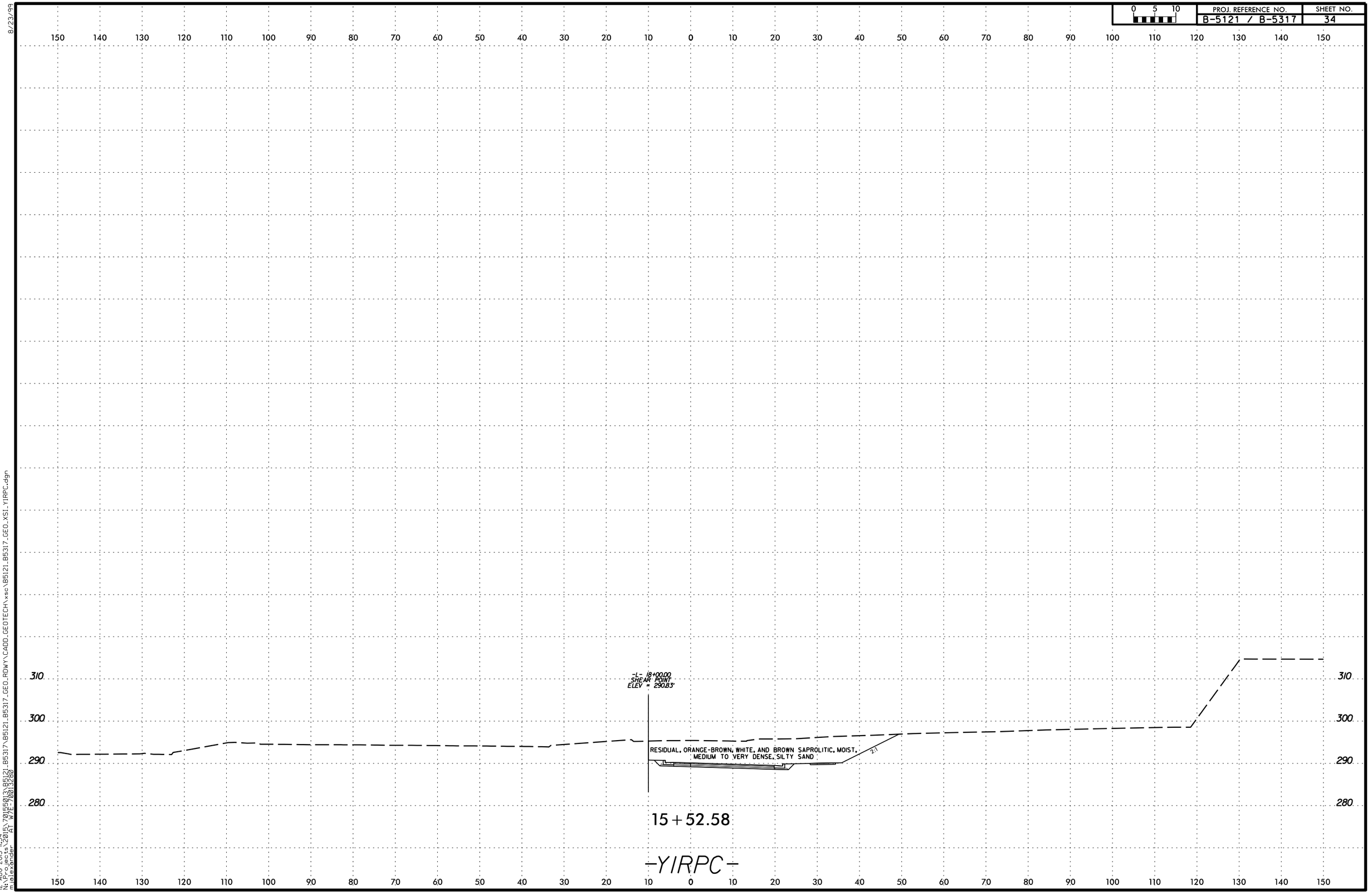

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mlalexander AT WE-70013280

8/23/99

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	B-5121 / B-5317	35

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300
290
280
270

-YIRPD- STA 16+09.61
SHEAR POINT
ELEV = 281.73'

-L- STA 23+00.00
SHEAR POINT
ELEV = 281.73'

2:1

ORANGE-BROWN, WHITE, TAN, AND BLACK,
SAPROLITIC, MOIST TO SATURATED, MEDIUM DENSE, MICACEOUS SILTY SAND

ORANGE-BROWN, TAN, AND BLACK, SAPROLITIC,
WET, MEDIUM STIFF, MICACEOUS CLAYEY SILT
WITH MEDIUM DENSE SILTY SAND LAYERS

ROADWAY EMBANKMENT, BROWN, MOIST TO WET,
VERY SOFT TO MEDIUM STIFF, MICACEOUS FINE SANDY SILT AND CLAY

RESIDUAL, ORANGE-BROWN AND GRAY, WET, MEDIUM STIFF, MEDIUM TO HIGH PLASTICITY SILTY CLAY

GRAY, SATURATED, LOOSE, SILTY SAND

WEATHERED ROCK
(GNEISS)

16+09.61

300
290
280
270
260

ROADWAY EMBANKMENT
BROWN, MOIST, LOOSE,
MICACEOUS SILTY SAND
OVER ASPHALT

-L- STA 23+50.00
SHEAR POINT
ELEV = 283.40'

2:1

ROADWAY EMBANKMENT, BROWN, MOIST TO WET,
VERY SOFT TO MEDIUM STIFF, MICACEOUS FINE SANDY SILT AND CLAY

GRAY, SATURATED, LOOSE, SILTY SAND

RESIDUAL, TAN AND ORANGE-BROWN, MOIST, MEDIUM STIFF, MEDIUM PLASTICITY MICACEOUS SILTY CLAY

WEATHERED ROCK
(GNEISS)

15+59.13
-YIRPD-

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malexander AT WZE-7001\3200

8/23/99

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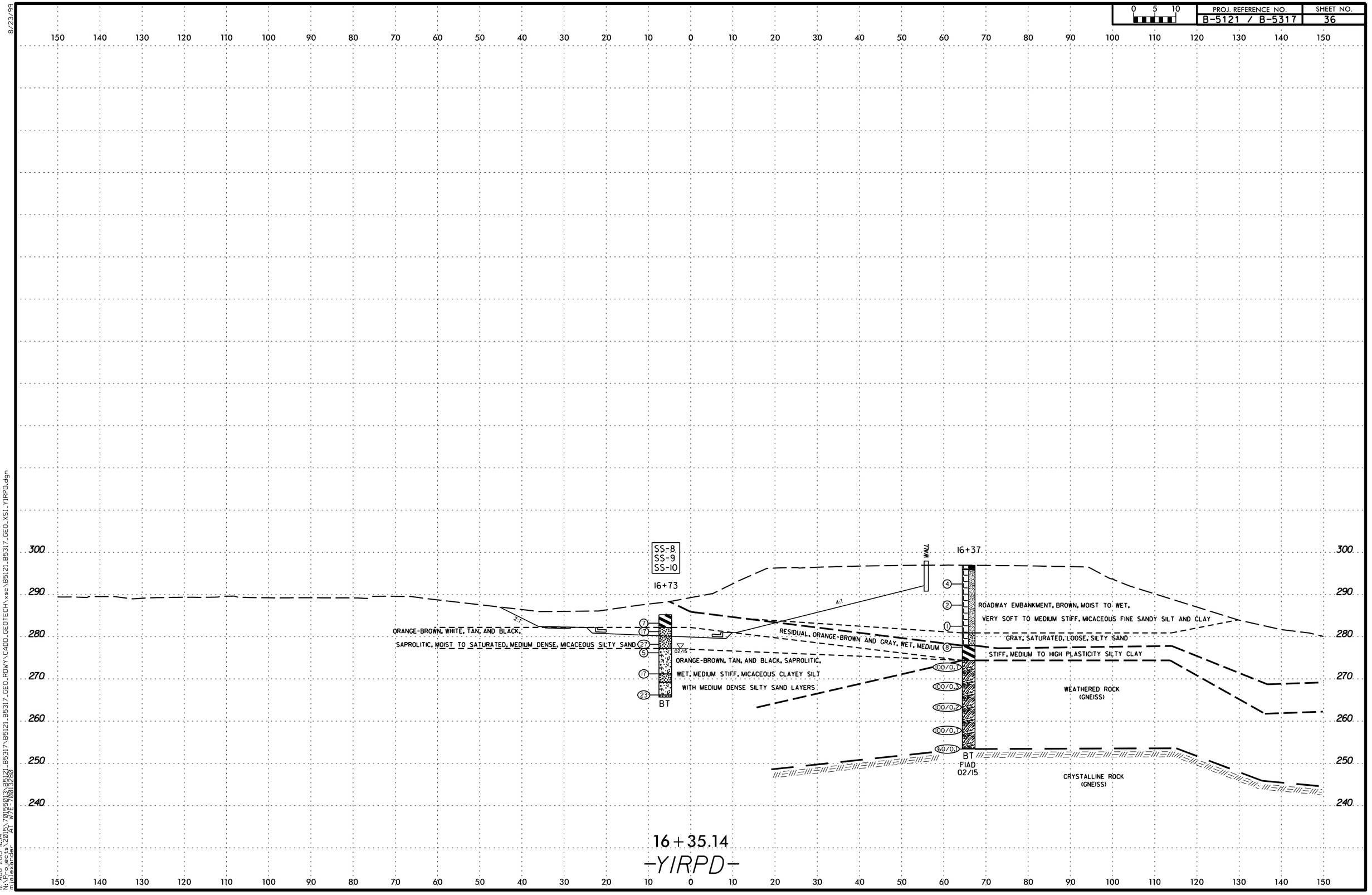

16+35.14

-YIRPD-

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mlalexander AT WE-70013280

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	37

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

300
290
280

PRIVATE DRIVEWAY

2:1

ARTIFICIAL FILL, BLACK AND GRAY, MOIST, STIFF, CLAYEY SAND WITH LITTLE GRAVEL AND DEBRIS

RESIDUAL, ORANGE-BROWN WITH BLACK, MOIST TO WET, MEDIUM STIFF TO STIFF, MICACEOUS SILTY CLAY TO FINE SANDY SILT

11+20.00

290
280
270

10+81

2:1 2:1

(15) (8) (8) (9)

BT
FIAD
04/15

ARTIFICIAL FILL, BLACK, GRAY, AND BROWN, MOIST TO WET, MEDIUM STIFF TO STIFF, CLAYEY SAND AND SANDY CLAY WITH LITTLE GRAVEL AND DEBRIS

RESIDUAL, ORANGE-BROWN, MEDIUM STIFF TO STIFF, MICACEOUS SILTY CLAY TO SANDY SILT

SS-II
10+93

(8) (4) (5) (5)

BT
FIAD
02/15

11+00.00

300
290
280
270

ARTIFICIAL FILL, BLACK AND GRAY, MOIST, MEDIUM STIFF TO STIFF, CLAYEY SAND WITH LITTLE GRAVEL AND DEBRIS

GRADE TO DRAIN

2:1 2:1

RESIDUAL, ORANGE-BROWN WITH BLACK, MOIST, STIFF, MICACEOUS SILTY CLAY TO FINE SANDY SILT

10+50.00

-DR2-

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

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malexander AT WE-70013280

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	38

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

290
280
270
260
250

ARTIFICIAL FILL, GRAY AND BLACK, MOIST, LOOSE, CLAYEY SAND WITH WOOD DEBRIS

STIFF, MICACEOUS SANDY CLAY, SILTY CLAY, AND SANDY SILT

3:1

ROADWAY EMBANKMENT, BROWN AND GRAY, LOOSE, MOIST, SILTY AND CLAYEY SAND

RESIDUAL, ORANGE-BROWN, GRAY, AND WHITE, MOIST TO WET, MEDIUM STIFF TO

ORANGE-BROWN WITH BLACK, SAPROLITIC, MOIST, MEDIUM DENSE, SILTY SAND

WEATHERED ROCK (GNEISS)

15+34.34

300
290
280
270
260

-Y2LPC- STA 12+76.43

ARTIFICIAL FILL, GRAY AND BLACK, MOIST, LOOSE, CLAYEY SAND WITH WOOD DEBRIS

RESIDUAL, ORANGE-BROWN WITH BLACK, MOIST, STIFF, MICACEOUS, SILTY CLAY AND SANDY SILT

3:1

2:1

ROADWAY EMBANKMENT, BROWN AND GRAY, LOOSE, MOIST, SILTY AND CLAYEY SAND

RESIDUAL, ORANGE-BROWN, GRAY AND WHITE, SAPROLITIC, MOIST TO WET, MEDIUM STIFF TO STIFF, MICACEOUS SANDY CLAY AND SILT

ORANGE-BROWN WITH BLACK, SAPROLITIC, MOIST, MEDIUM DENSE, SILTY SAND

WEATHERED ROCK (GNEISS)

15+00.00

-FLYOVER-

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

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mlalexander AT WPE-7001320

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	39

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

290 280 270 260 250

RETAINING WALL

ARTIFICIAL FILL, GRAY AND BLACK, MOIST, LOOSE TO MEDIUM DENSE, CLAYEY SAND WITH WOOD DEBRIS

3:1

ROADWAY EMBANKMENT, BROWN AND GRAY, LOOSE, MOIST, SILTY AND CLAYEY SAND

RESIDUAL, ORANGE-BROWN AND GRAY WITH BLACK AND WHITE, MOIST TO WET, MEDIUM STIFF TO STIFF, MICACEOUS SANDY CLAY AND SANDY SILT

RESIDUAL, ORANGE-BROWN WITH BLACK, MOIST, LOOSE TO MEDIUM DENSE, MICACEOUS SILTY SAND

WEATHERED ROCK (GNEISS)

16+50.00

SS-14

RETAINING WALL

5 7 6 8 17

ARTIFICIAL FILL, GRAY AND BLACK, MOIST, LOOSE, CLAYEY SAND WITH WOOD DEBRIS

MOIST, MEDIUM DENSE, SILTY SAND

100/0.5 100/0.2

WEATHERED ROCK (GNEISS)

BT

3:1

ROADWAY EMBANKMENT, BROWN AND GRAY, LOOSE, MOIST, SILTY AND CLAYEY SAND

RESIDUAL, ORANGE-BROWN AND GRAY WITH BLACK AND WHITE, MOIST TO WET, MEDIUM STIFF TO STIFF, MICACEOUS, SANDY CLAY, SILTY CLAY, AND SANDY SILT

ORANGE-BROWN WITH BLACK, SAPROLITIC,

16+00.00

-FLYOVER-

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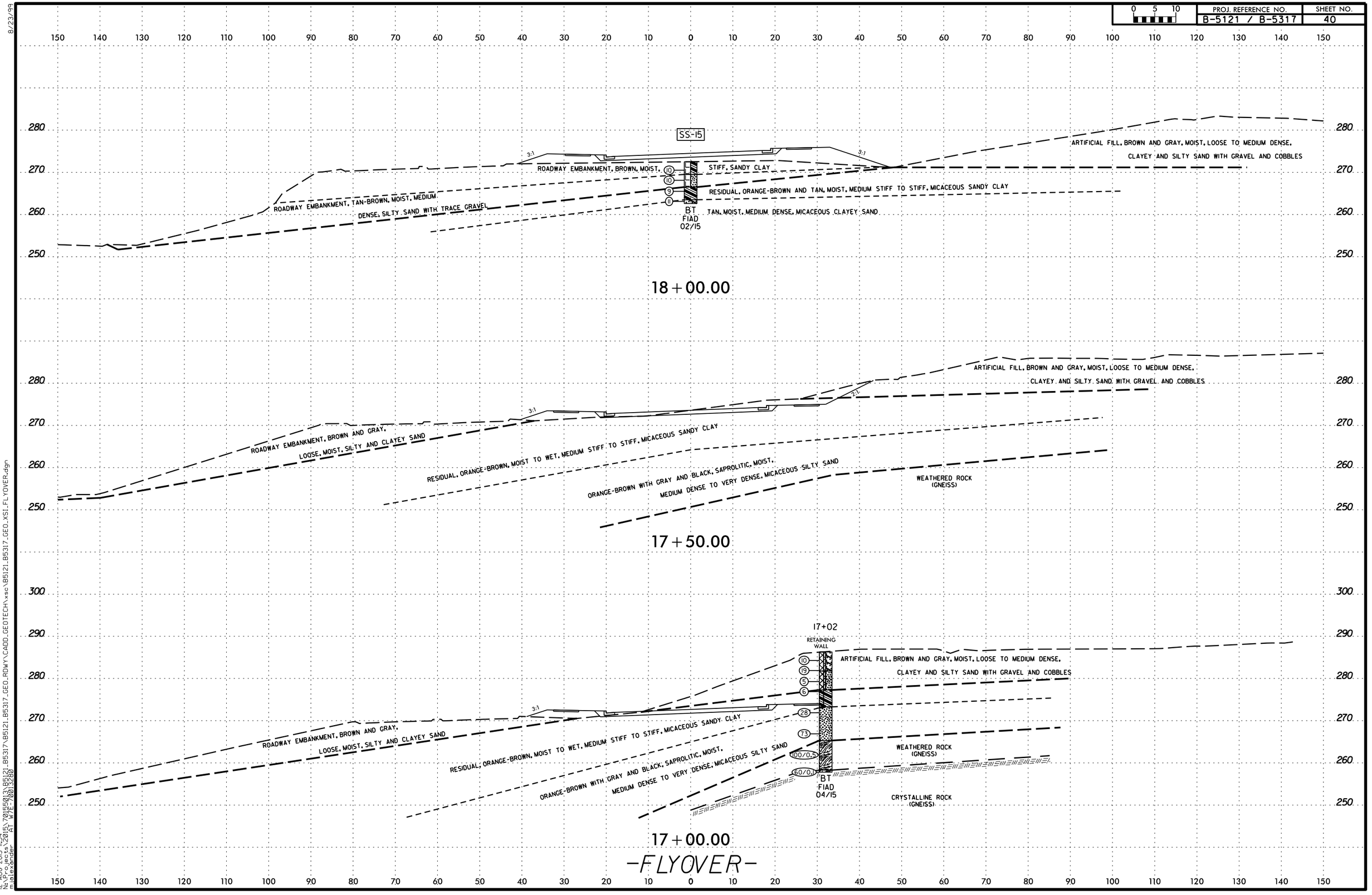
mjalexander
FILE: 7001320



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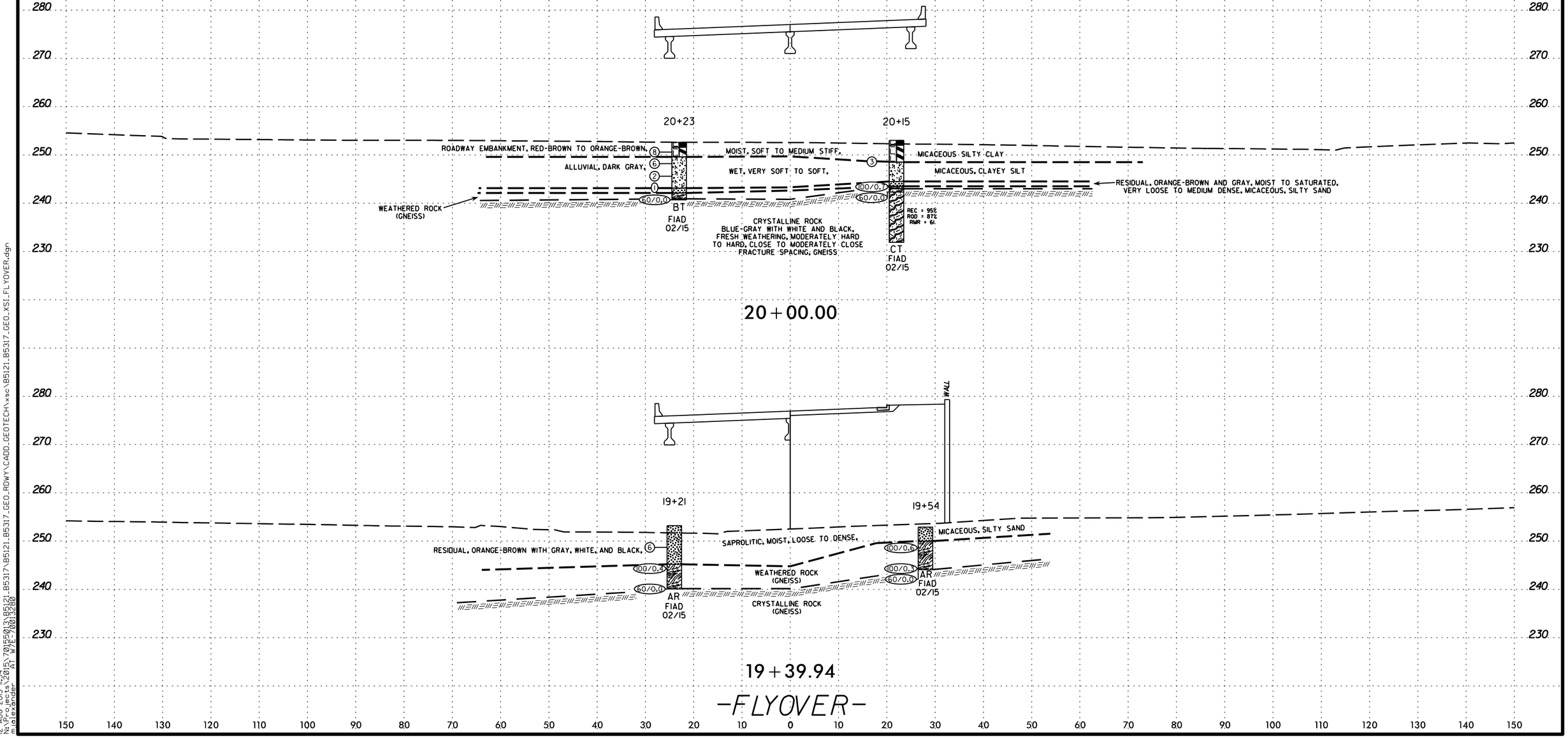

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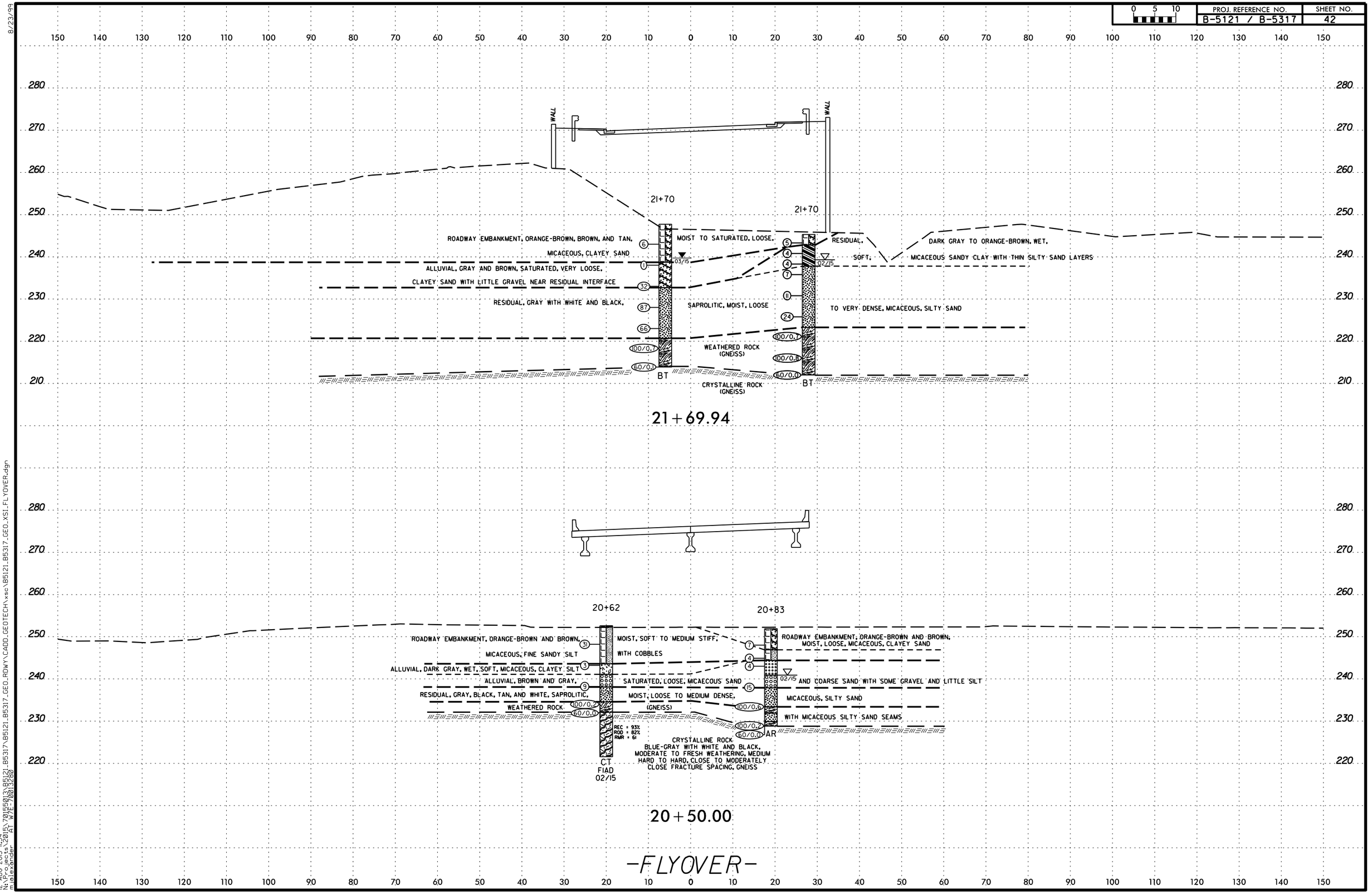
	B-5121 / B-5317	42



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mlalexander AT WE-70013280

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5121 / B-5317	43

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

270 260 250 240 230

4:1

ROADWAY EMBANKMENT, TAN-BROWN
AND RED-BROWN, MOIST, LOOSE TO MEDIUM DENSE,
CLAYEY SAND

2:1 12:1 3:1 3:1

RESIDUAL, TAN, GRAY, AND BLUE-GRAY, MOIST TO WET, MEDIUM STIFF TO VERY STIFF,
SANDY CLAY, MEDIUM TO HIGH PLASTICITY SILTY CLAY, AND MICACEOUS CLAYEY SILT

GRAY, WHITE, AND BLACK TO BLUE-GRAY AND TAN, MOIST, LOOSE TO MEDIUM DENSE, MICACEOUS SILTY FINE SAND

22+50.00

280 270 260 250 240 230 220 210

4:1

ROADWAY EMBANKMENT, TAN-BROWN
AND RED-BROWN, MOIST, LOOSE TO MEDIUM DENSE,
CLAYEY SAND

2:1 12:1 3:1 3:1

ALLUVIAL, GRAY AND BROWN, SATURATED, VERY LOOSE,
CLAYEY SAND

RESIDUAL, TAN, GRAY, AND BLUE-GRAY, MOIST TO WET, MEDIUM STIFF TO VERY STIFF,
MEDIUM TO HIGH PLASTICITY SILTY CLAY AND MICACEOUS FINE SANDY SILT

RESIDUAL, GRAY, WHITE, AND BLACK TO BLUE-GRAY AND TAN, MOIST, LOOSE TO VERY DENSE, MICACEOUS SILTY FINE SAND

WEATHERED ROCK
(GNEISS)

CRYSTALLINE ROCK
(GNEISS)

22+00.00

-FLYOVER-

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

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mlalexander AT WE-70013280

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

270 260 250 240 230

-Y2RPB- STA 15+02.00
SHEAR POINT
ELEV = 2577'

4:1

ROADWAY EMBANKMENT, TAN-BROWN AND RED-BROWN, MOIST, LOOSE, CLAYEY SAND

RESIDUAL, TAN, GRAY, AND BLUE-GRAY, MOIST TO WET, MEDIUM STIFF TO VERY STIFF, SANDY CLAY; MEDIUM TO HIGH PLASTICITY SILTY CLAY, AND MICACEOUS CLAYEY SILT

GRAY, WHITE, AND BLACK TO BLUE-GRAY AND TAN, MOIST, LOOSE TO MEDIUM DENSE, MICACEOUS SILTY FINE SAND

24+00.00

4:1 2:1 12:1 3:1 3:1

ROADWAY EMBANKMENT, TAN-BROWN AND RED-BROWN, MOIST, LOOSE TO MEDIUM DENSE, CLAYEY SAND

RESIDUAL, TAN, GRAY, AND BLUE-GRAY, MOIST TO WET, MEDIUM STIFF TO VERY STIFF, SANDY CLAY, MEDIUM TO HIGH PLASTICITY SILTY CLAY, AND MICACEOUS CLAYEY SILT

GRAY, WHITE, AND BLACK TO BLUE-GRAY AND TAN, MOIST, LOOSE TO MEDIUM DENSE, MICACEOUS SILTY FINE SAND

23+50.00

4:1 2:1 12:1 3:1 3:1

ROADWAY EMBANKMENT, TAN-BROWN AND RED-BROWN, MOIST, LOOSE TO MEDIUM DENSE, CLAYEY SAND

ST-1
ST-2

7 10 5 24 3 11

03/15

RESIDUAL, TAN, GRAY, AND BLUE-GRAY, MOIST TO WET, MEDIUM STIFF TO VERY STIFF, SANDY CLAY, MEDIUM TO HIGH PLASTICITY SILTY CLAY, AND MICACEOUS CLAYEY SILT

GRAY, WHITE, AND BLACK TO BLUE-GRAY AND TAN, MOIST, LOOSE TO MEDIUM DENSE, MICACEOUS SILTY FINE SAND

BT

23+00.00

-FLYOVER-

PROJECT REFERENCE NO.	SHEET NO.
B–5121 /B–5317	45

REFERENCE: B–5121 /B–5317

PROJECT: 42263 /46031

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX A
LABORATORY RESULTS

INITIALS DATE

SOIL LABORATORY TESTING SUMMARY

PROJECT NUMBER: 42263.1.1 / 46031.1.1 **ID (TIP):** B-5121 / B-5317 **COUNTY:** Wake

DESCRIPTION: Replace Bridge 227 over Peace Street on US 70 / Replace Bridge over US 401 on US 70 / NC 50

Boring No.	Sample No.	Alignment	Station	Offset (feet)	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Retained #4 Sieve	% Passing (sieves)			% Moisture	% Organic
									Coarse Sand	Fine Sand	Silt	Clay		#10	#40	#200		
L3700	SS-1	-L-	37+00	30' LT	1.1 - 2.6	A-7-6 (10)	49	28	23.7	27.2	5.4	43.7	0	98	90	50	21.5	-
L4100	SS-2	-L-	41+00	34' LT	1.0 - 2.5	A-6 (6)	40	20	27.3	21.6	19.7	31.4	3	92	77	48	18.2	-
Y1RPC1450	SS-3	-Y1RPC-	14+50	26' RT	1.0 - 2.5	A-2-4 (0)	31	5	42.8	34.0	11.5	11.7	2	94	70	26	11.7	-
Y1RPC1689	SS-4	-Y1RPC-	16+89	6' RT	1.0 - 2.5	A-7-6 (11)	53	25	27.6	20.0	9.7	42.7	1	97	84	54	25.7	-
Y1RPC1689	SS-5	-Y1RPC-	16+89	6' RT	3.3 - 4.8	A-7-5 (6)	50	14	22.2	32.5	10.9	34.4	0	100	90	52	22.6	-
Y1RPD1500	SS-6	-Y1RPD-	15+00	10' LT	3.5 - 5.0	A-7-5 (7)	51	19	27.2	18.3	17.1	37.4	5	92	75	50	26.7	-
Y1RPD1500	SS-7	-Y1RPD-	15+00	10' LT	6.0 - 7.0	A-7-5 (9)	49	19	25.3	21.3	13.2	40.2	1	98	82	55	26.3	-
Y1RPD1673	SS-8	-Y1RPD-	16+73	6' LT	1.0 - 2.5	A-7-6 (12)	50	26	21.9	20.6	9.2	48.3	1	93	81	57	25.6	-
Y1RPD1673	SS-9	-Y1RPD-	16+73	6' LT	6.0 - 7.5	A-2-4 (0)	27	NP	43.4	40.4	9.3	6.9	0	100	77	21	11.0	-
Y1RPD1673	SS-10	-Y1RPD-	16+73	6' LT	8.0 - 9.5	A-5 (1)	45	5	21.9	41.3	25.6	11.2	0	100	91	46	46.5	-
DR2-1093	SS-11	-DR2-	10+93	CL	3.3 - 4.8	A-7-6 (6)	47	19	27.1	27.6	7.0	38.3	0	100	87	49	33.1	-
Y5-1114	SS-12	-Y5-	11+14	CL	1.0 - 2.5	A-6 (3)	37	18	29.4	26.7	11.7	32.2	8	88	73	42	18.9	-
Y6-1920	SS-13	-Y6-	19+20	CL	1.0 - 2.5	A-2-6 (0)	31	12	38.2	27.6	10.7	23.5	7	85	65	32	12.7	-
FLY1600	SS-14	-FLYOVER-	16+00	30' RT	8.2 - 9.5	A-7-5 (18)	55	24	9.2	24.1	16.9	49.8	0	100	96	71	36.7	-
FLY1800	SS-15	-FLYOVER-	18+00	CL	1.0 - 2.5	A-6 (3)	34	14	23.7	28.4	18.2	29.7	6	87	75	44	16.9	-
Y2LPC1150	SS-16	-Y2LPC-	11+50	35' LT	1.0 - 2.5	A-2-4 (0)	30	8	43.4	26.5	13.3	16.8	28	61	44	21	11.6	-
Y2LPC1150	SS-17	-Y2LPC-	11+50	35' LT	3.4 - 4.9	A-2-6 (0)	31	11	39.5	25.9	10.0	24.6	12	80	60	30	20.0	-
Y2RPB1130	SS-18	-Y2RPB-	11+30	15' RT	1.0 - 2.5	A-4 (0)	35	6	23.6	37.1	12.8	26.5	1	95	84	43	20.0	-
																		-
FLY2305	ST-1	-FLYOVER-	23+05	30' RT	4.5 - 6.3	A-6 (3)	36	15	20.9	37.9	14.2	27.0	2	92	92	45	19.2	-
FLY2305	ST-2	-FLYOVER-	23+05	30' RT	6.5 - 8.3	A-7-6 (17)	50	29	12.7	24.7	12.0	50.6	1	97	96	65	39.2	-

CLASSIFICATIONS FOR SHELBY TUBE SAMPLES ST-1 AND ST-2 WERE PERFORMED BY GEOTECHNICS IN ACCORDANCE WITH NCDOT SPECIFICATIONS.

Stephanie H. Huffman

Certified Lab Technician Signature

114-01-1203

Certification Number

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5121	1	9

REFERENCE: B-5121

PROJECT: 42263

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

SUBSURFACE INVENTORY

COUNTY *WAKE*

PROJECT DESCRIPTION *REPLACE BRIDGE NO. 227 ON CAPITAL BOULEVARD OVER PEACE STREET AND BRIDGE NO. 213 ON WADE AVENUE OVER CAPITAL BOULEVARD – TEMPORARY SHORING*

CONTENTS

CAUTION NOTICE

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

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

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

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

PERSONNEL

TURNAGE, J. R.

CORY, K. W.

ALEXANDER, M. J.

INVESTIGATED BY *TERRACON CONSULTANTS*

DRAWN BY *FIELDS, W. D.*

CHECKED BY *ALEXANDER, M. J.*

SUBMITTED BY *TERRACON CONSULTANTS*

DATE *DECEMBER 2015*

NORTH CAROLINA PROFESSIONAL SEAL 040231 ENGINEER MATTHEW J. ALEXANDER

DocuSigned by: Matthew J. Alexander AC113DDE6101413... 12/22/2015

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Terracon
Consulting Engineers & Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

PROJECT REFERENCE NO.	SHEET NO.
B-5121	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

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

SOIL LEGEND AND AASHTO CLASSIFICATION

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

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

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE 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 0.5 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 SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

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

COLOR

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

GRADATION

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

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

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

PERCENTAGE OF MATERIAL

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

GROUND WATER

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

MISCELLANEOUS SYMBOLS

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

RECOMMENDATION SYMBOLS

- UNDERCUT
- SHALLOW UNDERCUT
- UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
- UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
- UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [ ] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] CME-75 (TER6847)
- [ ] _____

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

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B _____ [ ] -H _____
- [ ] -N _____

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

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FOOT
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER - A WATER BEARING FORMATION OR STRATA.

ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: SEE NOTE BELOW

ELEVATION: N/A FEET

NOTES:

BM-NCGS-PEACE N:742150; E:2105885; ELEV. 295.77'
BL-102 N:741863; E:2105854; ELEV.296.16'
BL-103 N:74220I; E:2105642; ELEV. 269.07'
BL-106 N:744668; E:2106393; ELEV. 256.54'

FIAD - FILLED IN AFTER DRILLING

DATE: 8-15-14

PROJECT REFERENCE NO.	SHEET NO.
B–5121	3

0 50 100
FEET

BST
GATE
HE LINWOOD
ESSOR KING
RUSTEE
WOOD WALL
CONC
SOIL
GRASS
CURB
MARGIE
MARIE
FULLER
EXISTING R/W
1' CURB
W. PEACE STREET
TO BLOUNT ST.
CONC ISL
5' CONC WALK
6' CHLK W/3BW
2.0' C&G
39.5' BST
4' CONC WALK
17+00
(-Y1-)
25+00
(-T-)
20+00
(-T-)
4' CONC WALK
SOIL
BL-102
NCGS-PEACE
TO WADE AVENUE
TO DOWNTOWN RALEIGH
CAPITAL BLVD 33' BST
CONC WALL
MTL
2.5' C&G
20+00
(-Y1-)
EXISTING R/W
18+00
(-YIRPC-)
16+00
(-YIRPC-)
BILLBOARD
RIPRAP
7' CHLK W/3 BW
MORRIS COMMUNICATIONS
TO GLENWOOD AVE.
17+00
(-YIRPD-)
RAMP 23' BST
RAMP 18' BST
CONC ISL
15+00
(-YIRPD-)
6' CHL
STATE OF
NORTH
CAROLINA
CONC WALK

PROJECT REFERENCE NO.	SHEET NO.
B–5121	4

0 50 100
FEET

TO BLOUNT ST.

N HARRINGTON ST 44' BST

5' CONC WALK
SOIL
2.0' C&G
BST
5' CONC WALK
2' C&G
2.0' C&G
BST
15+00
(-Y7)
THE CROSSLAND COMPANY
RICHARD GARDNER
BST
SOIL
MARGARET ALTMAN MANN
BST
5' CONC WALK
CONC
BST
2' C&G
BST
CONC WALK
2' C&G
CONC
BST
13+00
(-Y7)
2.0' C&G
CHAUCER INVESTMENTS INC
BST
6' CONC WALK
17+00
(-Y6-)
2.0' C&G
2.0' C&G
CHAUCER INVESTMENTS LLC
19+00
(-Y6-)
BST
4' CONC WALK
CONC
CONC
BST
2.0' C&G
2.0' C&G
FAMILY
RTIES OF
EIGH
BST
SOIL
CONC
BST
BST
2.0' C&G

W PEACE ST 52.7' BST

STEPS
CONC
LEWIS
CONC
N.WEST STREET 40' BST
SOIL
SOIL
EDWIN E FLYTHE, JR
CONC
EDWIN E FLYTHE, JR
5' CONC WALK
13+00
(-Y1-)
CONC
SOIL
6' CHLK W/3BW
SOIL
JAMES H ANDERSON CO
SOIL
2.0' C&G
BST
BOL
BOL
15+00
(-Y1-)
6' CHLK W/3BW
2.0' C&G
2.0' C&G
BST
GATE
2.0' C&G
CONC WALK
STEPS
2.0' C&G
BST
BL-103

TO CAPITAL BLVD.

PROJECT REFERENCE NO.	SHEET NO.
B-5121	5

0 50 100
FEET

TO PEACE ST.

106
256.54

49+00
(-L-)

6'CONC WALK

6'CONC WALK

MTL

92' BST

10+00

10+00
(-NBL-)

CONC BRIDGE

11+00
(-SBL-)

51+00
(-L-)

13+00
(-SBL-)

CAPITAL BLVD 34' BST

CAPITAL BLVD BST VARIES

20+00
(-FLYOVER-)

13+00
(-NBL-)

US 401

WADE AVE

145' BST

EXISTING R/W

BST

CONC

LISTON E &
SUSAN S MALPASS

15+00
(-FLYOVER-)

8'CHL W/3BW

17+00
(-FLYOVER-)

BST

8'CHL W/3BW

22' BST

ROY R SMITH

RIP-RAP

BST

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 42263	**TIP** B-5121	**COUNTY** WAKE	**GEOLOGIST** ALEXANDER, M. J.	
SITE DESCRIPTION REPLACE BRIDGES NO. 227 AND 213 - TEMPORARY SHORING				**GROUND WTR (ft)**
BORING NO. L_2279RT	**STATION** 22+79	**OFFSET** 21 ft RT	**ALIGNMENT** -L-	**0 HR.** 28.0
COLLAR ELEV. 296.4 ft	**TOTAL DEPTH** 40.6 ft	**NORTHING** 742,136	**EASTING** 2,105,893	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 93% 05/20/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER TURNAGE, J. R.	**START DATE** 11/15/15	**COMP. DATE** 11/15/15	**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)
300											
										296.4 GROUND SURFACE	0.0
295										295.2 **PAVEMENT** 0.4' ASPHALT, 0.8' CONCRETE	1.2
	293.3	3.1	WOH	1	2	3	SS-1	M		RED-BROWN, SILTY CLAY, MICACEOUS	
290								M		289.4	7.0
	288.3	8.1	2	2	2	4				RED-BROWN, SANDY SILT, MICACEOUS	
285								M			
	283.3	13.1	1	1	2	3		W			
280											
	278.3	18.1	3	7	9	16		M		277.4	19.0
275										GRAY-BROWN AND BLACK, SANDY CLAY, MICACEOUS	
	273.3	23.1	6	6	8	14		M		274.4	22.0
270										**RESIDUAL** ORANGE, TAN AND GRAY, SAPROLITIC, SILTY SAND, MICACEOUS	
	268.3	28.1	13	13	15	28		Sat.			
265											
	263.3	33.1	10	17	42	59		Sat.			
260										260.4	36.0
	258.3	38.1	55	45/0.2		100/0.7				**WEATHERED ROCK** (GNEISS)	
	255.9	40.5	60/0.1			60/0.1				255.9 / 255.8	40.5 / 40.6
										CRYSTALLINE ROCK GNEISS	
										Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 255.8 ft IN CRYSTYALLINE ROCK (GNEISS)	

Other Samples:
ST-1 (10.1 - 12.9)

WBS 42263	**TIP** B-5121	**COUNTY** WAKE	**GEOLOGIST** ALEXANDER, M. J.	
SITE DESCRIPTION REPLACE BRIDGES NO. 227 AND 213 - TEMPORARY SHORING				**GROUND WTR (ft)**
BORING NO. L_2335RT	**STATION** 23+35	**OFFSET** 23 ft RT	**ALIGNMENT** -L-	**0 HR.** 28.2
COLLAR ELEV. 295.5 ft	**TOTAL DEPTH** 33.6 ft	**NORTHING** 742,191	**EASTING** 2,105,901	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 93% 05/20/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER TURNAGE, J. R.	**START DATE** 11/16/15	**COMP. DATE** 11/16/15	**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
300										
										295.5 GROUND SURFACE 0.0
295										294.0 **PAVEMENT** 0.4' ASPHALT, 0.6' CONCRETE AND 0.5' AGGREGATE BASE COURSE 1.5
	292.3	3.2	1	1	3	4		M		BROWN AND RED-BROWN, SILTY CLAY, MICACEOUS
290										
	287.3	8.2	2	2	2	4		M		
285										
	282.3	13.2	2	5	6	11	SS-2	M		WITH BRICK RUBBLE FROM 16 TO 21 FT
280										
	277.3	18.2	4	14	9	23		M		
275										274.5 21.0
	272.3	23.2	20	29	25	54		M		**RESIDUAL** ORANGE, TAN AND GRAY, SILTY SAND, MICACEOUS
270										269.5 26.0
	267.3	28.2	28	50	50/0.3	100/0.8				**WEATHERED ROCK** (GNEISS)
265										
	262.3	33.2	100/0.4			100/0.4				261.9 33.6
										Boring Terminated at Elevation 261.9 ft IN WEATHERED ROCK (GNEISS)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 42263	**TIP** B-5121	**COUNTY** WAKE	**GEOLOGIST** ALEXANDER, M. J.	
SITE DESCRIPTION REPLACE BRIDGES NO. 227 AND 213 - TEMPORARY SHORING				**GROUND WTR (ft)**
BORING NO. Y1RPC_1736	**STATION** 17+36	**OFFSET** 29 ft LT	**ALIGNMENT** -Y1RPC-	**0 HR.** 24.4
COLLAR ELEV. 296.5 ft	**TOTAL DEPTH** 34.6 ft	**NORTHING** 741,854	**EASTING** 2,105,928	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 93% 05/20/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER TURNAGE, J. R.	**START DATE** 11/16/15	**COMP. DATE** 11/16/15	**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)
300										
										296.5 — GROUND SURFACE — 0.0
295										295.1 — **PAVEMENT** 0.2' ASPHALT, 0.7' CONCRETE AND 0.5' AGGREGATE BASE COURSE — 1.4 **RESIDUAL** ORANGE-BROWN AND ORANGE, SILTY CLAY, MICACEOUS
	293.4	3.1	3	3	4	7		M		
290										
	288.4	8.1	15	9	6	15		M		
285										285.5 — 11.0 BROWN, TAN AND GRAY, SILTY SAND, MICACEOUS
	283.4	13.1	6	9	10	19		M		
280										
	278.4	18.1	10	19	28	47	SS-3	M		
275										
	273.4	23.1	14	22	32	54		▽		
270										
	268.4	28.1	30	52	48/0.4	100/0.9				268.0 — 28.5 **WEATHERED ROCK** (GNEISS)
265										264.5 — 32.0 **RESIDUAL** BROWN, WHITE AND BLACK, SAPROLITIC, SILTY SAND, MICACEOUS
	263.4	33.1	25	28	38	66		M		261.9 — 34.6 Boring Terminated at Elevation 261.9 ft IN RESIDUAL (SILTY SAND)

WBS 42263	**TIP** B-5121	**COUNTY** WAKE	**GEOLOGIST** ALEXANDER, M. J.	
SITE DESCRIPTION REPLACE BRIDGES NO. 227 AND 213 - TEMPORARY SHORING				**GROUND WTR (ft)**
BORING NO. Y1_1493RT	**STATION** 14+93	**OFFSET** 3 ft RT	**ALIGNMENT** -Y1-	**0 HR.** 11.0
COLLAR ELEV. 271.3 ft	**TOTAL DEPTH** 24.9 ft	**NORTHING** 742,149	**EASTING** 2,105,495	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 93% 05/20/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER TURNAGE, J. R.	**START DATE** 11/16/15	**COMP. DATE** 11/16/15	**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
275										
										271.3 — GROUND SURFACE — 0.0
270										269.3 — **PAVEMENT** 1.4' ASPHALT, 0.6' CONCRETE — 2.0 **ROADWAY EMBANKMENT** ORANGE-BROWN, SILTY CLAY, MICACEOUS
	267.9	3.4	1	1	1	2		M		
265										263.3 — 8.0 **ALLUVIAL** DARK GRAY AND BROWN, SANDY GRAVEL WITH TRACE CLAY
	262.9	8.4	WOH	1	1	2		Sat.		
260										259.3 — 12.0 **RESIDUAL** ORANGE, BLACK AND WHITE, SAPROLITIC, FINE SILTY SAND, MICACEOUS
	257.9	13.4	2	2	3	5	SS-4	W		
255										
	252.9	18.4	10	14	26	40	SS-5	W		WITH TRACE GRAVEL BELOW 20 FT
250										
	247.9	23.4	9	14	27	41		Sat.		246.4 — 24.9 Boring Terminated at Elevation 246.4 ft IN RESIDUAL (SILTY SAND)

WBS 42263	**TIP** B-5121	**COUNTY** WAKE	**GEOLOGIST** ALEXANDER, M. J.
SITE DESCRIPTION REPLACE BRIDGES NO. 227 AND 213 - TEMPORARY SHORING			**GROUND WTR (ft)**
BORING NO. FLY_1855	**STATION** 18+55	**OFFSET** 28 ft LT	**ALIGNMENT** -FLYOVER- / **0 HR.** 21.5
COLLAR ELEV. 270.2 ft	**TOTAL DEPTH** 34.1 ft	**NORTHING** 744,684	**EASTING** 2,106,589 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 93% 05/20/2015		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER TURNAGE, J. R.	**START DATE** 11/17/15	**COMP. DATE** 11/17/15	**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
275										
270										270.2 GROUND SURFACE 0.0
										ROADWAY EMBANKMENT
										BROWN, SANDY CLAY, MICACEOUS
	266.8	3.4	1	1	2	3		W		
265										
	261.8	8.4	7	7	9	16	SS-6	D		262.2 8.0
260										**RESIDUAL**
										ORANGE-BROWN TO ORANGE AND TAN, SILTY CLAY, MICACEOUS WITH SEAMS OF WHITE, SANDY GRAVEL
	256.8	13.4	9	12	13	25		D		
255										
	251.8	18.4	6	7	8	15	SS-7	M		253.2 17.0
250										BROWN, ORANGE-TAN AND GRAY, SILTY SAND, MICACEOUS WITH SEAMS OF WHITE SANDY GRAVEL
	246.8	23.4	5	9	21	30		Sat.		
245										
	241.8	28.4	100/0.2			100/0.2				243.2 27.0
240										**WEATHERED ROCK**
										(GNEISS)
	236.8	33.4	56	44/0.2		100/0.7				236.1 34.1
										Boring Terminated at Elevation 236.1 ft IN WEATHERED ROCK (GNEISS)

LABORATORY TESTING SUMMARY

PROJECT NUMBER: 42263 **ID (TIP):** B-5121 **COUNTY:** WAKE

DESCRIPTION: REPLACE BRIDGE NO. 227 ON CAPITAL BLVD. OVER PEACE ST. AND BRIDGE NO. 213 ON WADE AVE. OVER CAPITAL BLVD. - TEMPORARY SHORING

Sample No.	Alignment	Station	Offset (feet)	Depth Interval (feet)	AASHTO Class.	L.L.	P.I.	% by Weight				% Retained #4 Sieve	% Passing (sieves)			% Moisture	% Organic
								Coarse Sand	Fine Sand	Silt	Clay		#10	#40	#200		
SS-1	-L-	22+79	21 RT	3.1 - 4.6	A-7-6 (12)	53	30	28.7	20.0	14.0	37.3	1	98	79	53	25.9	--
SS-2	-L-	23+35	23 RT	13.2 - 14.7	A-7-6 (5)	47	25	36.7	26.8	11.9	24.6	1	97	75	39	20.7	--
SS-3	-Y1RPC-	17+36	29 LT	18.1 - 19.6	A-2-4 (0)	26	NP	38.8	43.0	12.4	5.8	0	100	84	24	12.6	--
SS-4	-Y1-	14+93	3 RT	13.4 - 14.9	A-2-4 (0)	34	NP	36.7	43.8	14.0	5.5	0	100	81	25	39.6	--
SS-5	-Y1-	14+93	3 RT	18.4 - 19.9	A-2-4 (0)	26	NP	39.5	45.3	12.4	2.8	0	100	84	20	16.2	--
SS-6	-FLYOVER-	18+55	28 LT	8.4 - 9.9	A-7-5 (22)	67	34	19.9	16.7	9.1	54.3	0	100	90	65	23.8	--
SS-7	-FLYOVER-	18+55	28 LT	18.4 - 19.9	A-2-4 (0)	27	NP	43.9	36.6	10.9	8.6	3	92	70	22	11.8	--
ST-1*	-L-	22+79	21 RT	10.1 - 12.9	A-4(0)	43	NP	24.8	31.2	20.9	23.1	0	100	87	49	27.5	--
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* ST-1 classification testing performed by Geotechnics																	--
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Stephanie H. Huffman

Certified Lab Technician Signature

114-01-1203

Certification Number