

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-------|-----------------------------|-----------|--------------|
| N.C. | 33035.1.1 (B-3404) | 1 | 15 |

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

STRUCTURE
SUBSURFACE INVESTIGATION

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PROJ. REFERENCE NO. 33035.1.1 (B-3404) F.A. PROJ. BRZ-1127(6)
COUNTY ANSON
PROJECT DESCRIPTION BRIDGE NO. 314 ON SR 1127 OVER SOUTH
FORK JONES CREEK

SITE DESCRIPTION _____

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

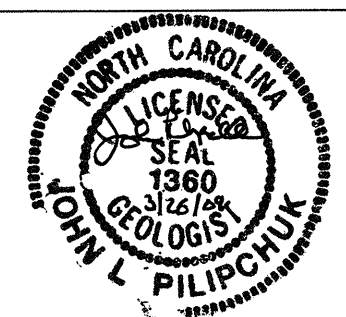
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE, THE LABORATORY SAMPLE DATA AND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

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

PROJECT: 33035.1.1 ID: B-3404

PERSONNEL
R.W. TODD
M.L. SMITH
A.C. SMITH

INVESTIGATED BY J.P. ROGERS
CHECKED BY J.P. ROGERS
SUBMITTED BY J.L. PILIPCHUK
DATE MARCH 2009



DRAWN BY: J.P. ROGERS

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

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

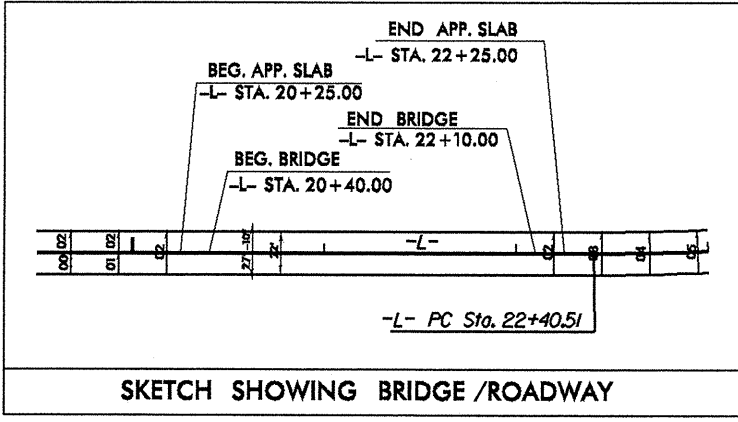
**DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT**

SUBSURFACE INVESTIGATION

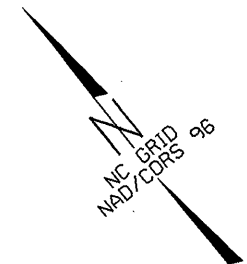
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

| SOIL DESCRIPTION | GRADATION | ROCK DESCRIPTION | TERMS AND DEFINITIONS |
|---|--|--|--|
| SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (ASHFTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE ASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, ASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, CUMULATIVE GRAIN SIZE DISTRIBUTION, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGH PLASTIC, A-7-6</i> | WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR , SUBANGULAR , SUBROUNDED , OR ROUNDED . | HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: WEATHERED ROCK (WR) - NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. CRYSTALLINE ROCK (CR) - FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. NON-CRYSTALLINE ROCK (NCR) - FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD 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. | ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED 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. |
| SOIL LEGEND AND ASHTO CLASSIFICATION | MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KADLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE. | | |
| GENERAL CLASS. GRANULAR MATERIALS ($\leq 35\%$ PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS | COMPRESSIONIBILITY SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE | WEATHERING FRESH VERY SLIGHT (V SLI.) SLIGHT (SLI.) MODERATE (MOD.) MODERATELY SEVERE (MOD. SEV.) SEVERE (SEV.) VERY SEVERE (V SEV.) COMPLETE | WEATHERING ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. 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. 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. 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. 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 ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, YIELDS SPT N VALUES > 100 BPF ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF 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. |
| GROUP CLASS. A-1, A-1-b, A-3, A-2, A-2-4, A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7 | PERCENTAGE OF MATERIAL ORGANIC MATERIAL TRACE OF ORGANIC MATTER LITTLE ORGANIC MATTER MODERATELY ORGANIC HIGHLY ORGANIC | | |
| SYMBOL | GROUND WATER WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP | | |
| % PASSING 10 40 200 | 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 DIP & DIP DIRECTION OF ROCK STRUCTURES SOUNDING ROD | | |
| LIQUID LIMIT PLASTIC INDEX | 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 HL - HIGHLY MED. - MEDIUM MICA - MICACEDOUS 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 w _u - UNIT WEIGHT w _d - DRY UNIT WEIGHT | | |
| GROUP INDEX | EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: MOBILE B- BK-51 CME-45C CME-550 PORTABLE HOIST | | |
| USUAL TYPES OF MAJOR MATERIALS | ADVANCING TOOLS: CLAY BITS 6" CONTINUOUS FLIGHT AUGER 8" HOLLOW AUGERS HARD FACED FINGER BITS TUNG-CARBIDE INSERTS CASING w/ ADVANCER TRICONE STEEL TEETH TRICONE 2 1/8" TUNG-CARB. | | |
| GEN. RATING AS A SUBGRADE | HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: B N-XWL H HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST | | |
| CONSISTENCY OR DENSENESS | FRACTURE SPACING TERM: VERY WIDE, WIDE, MODERATELY CLOSE, CLOSE, VERY CLOSE SPACING: MORE THAN 10 FEET, 3 TO 10 FEET, 1 TO 3 FEET, 0.16 TO 1 FEET, LESS THAN 0.16 FEET | | |
| PRIMARY SOIL TYPE | BEDDING TERM: VERY THICKLY BEDDED, THICKLY BEDDED, THINLY BEDDED, VERY THINLY BEDDED, THICKLY LAMINATED, THINLY LAMINATED THICKNESS: > 4 FEET, 1.5 - 4 FEET, 0.16 - 1.5 FEET, 0.03 - 0.16 FEET, 0.008 - 0.03 FEET, < 0.008 FEET | | |
| COMPACTNESS OR CONSISTENCY | INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE MODERATELY INDURATED INDURATED EXTREMELY INDURATED | | |
| RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) | | | |
| RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT²) | | | |
| TEXTURE OR GRAIN SIZE | | | |
| SOIL MOISTURE - CORRELATION OF TERMS | | | |
| PLASTICITY | | | |
| COLOR | | | |
| SOIL MOISTURE SCALE (ATTERBERG LIMITS) | | | |
| FIELD MOISTURE DESCRIPTION | | | |
| GUIDE FOR FIELD MOISTURE DESCRIPTION | | | |
| LIQUID LIMIT (SAT.) | | | |
| WET - (W) | | | |
| MOIST - (M) | | | |
| DRY - (D) | | | |
| PLASTIC LIMIT | | | |
| OPTIMUM MOISTURE SHRINKAGE LIMIT | | | |
| PLASTICITY INDEX (PI) | | | |
| DRY STRENGTH | | | |
| NONPLASTIC | | | |
| LOW PLASTICITY | | | |
| MED. PLASTICITY | | | |
| HIGH PLASTICITY | | | |
| 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. | | | |

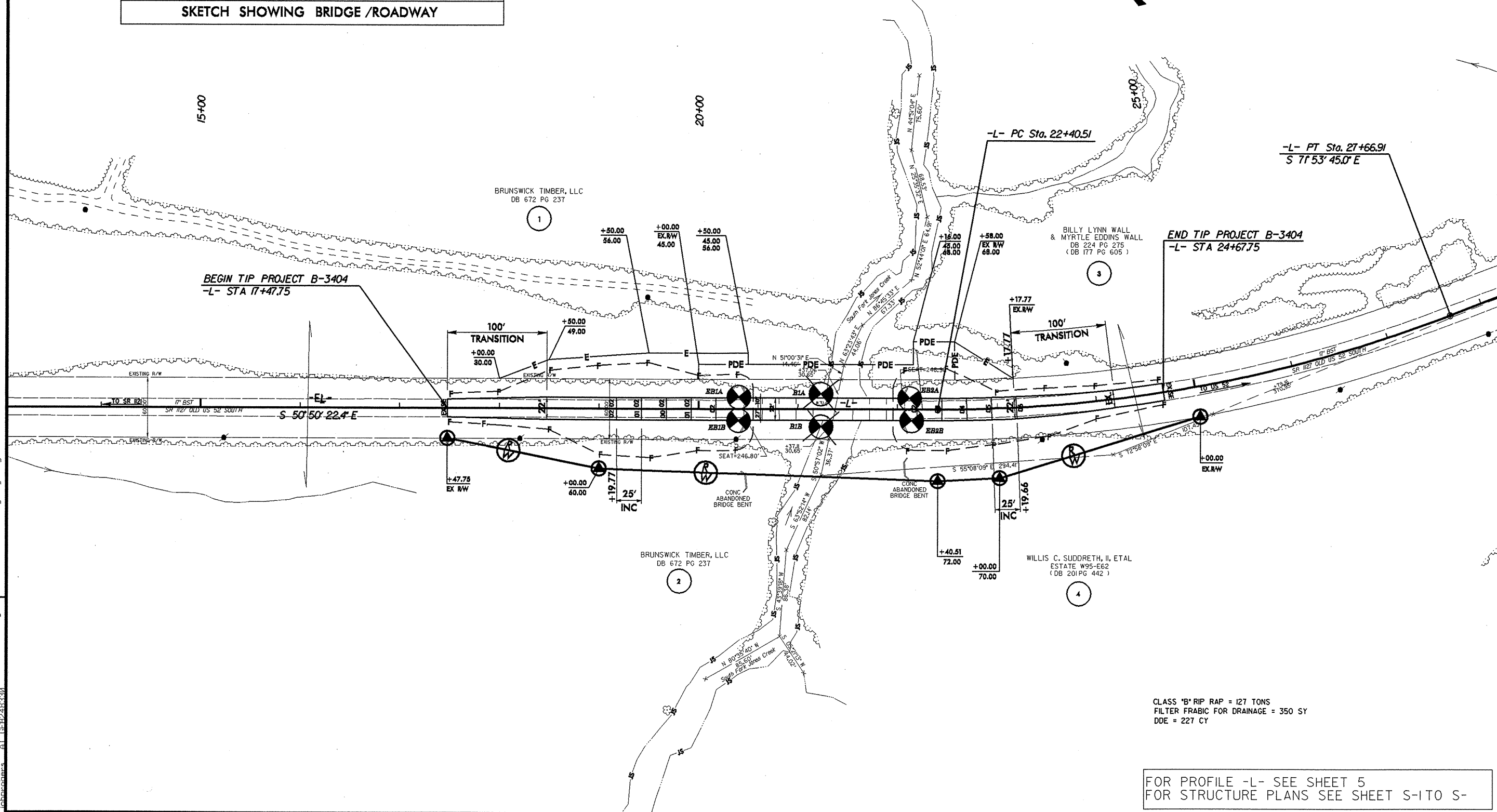
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|--|---------------------|
| PROJECT REFERENCE NO. B-3404 | SHEET NO. 43 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |



-L-
 PI Sta 25+06.71
 $\Delta = 2^\circ 03' 22.6" (LT)$
 $D = 4' 00" 00.0"$
 $L = 526.41'$
 $T = 266.21'$
 $R = 1,432.39'$
 $SE = .06$
 $V_b = 60 \text{ mph}$



REVISIONS



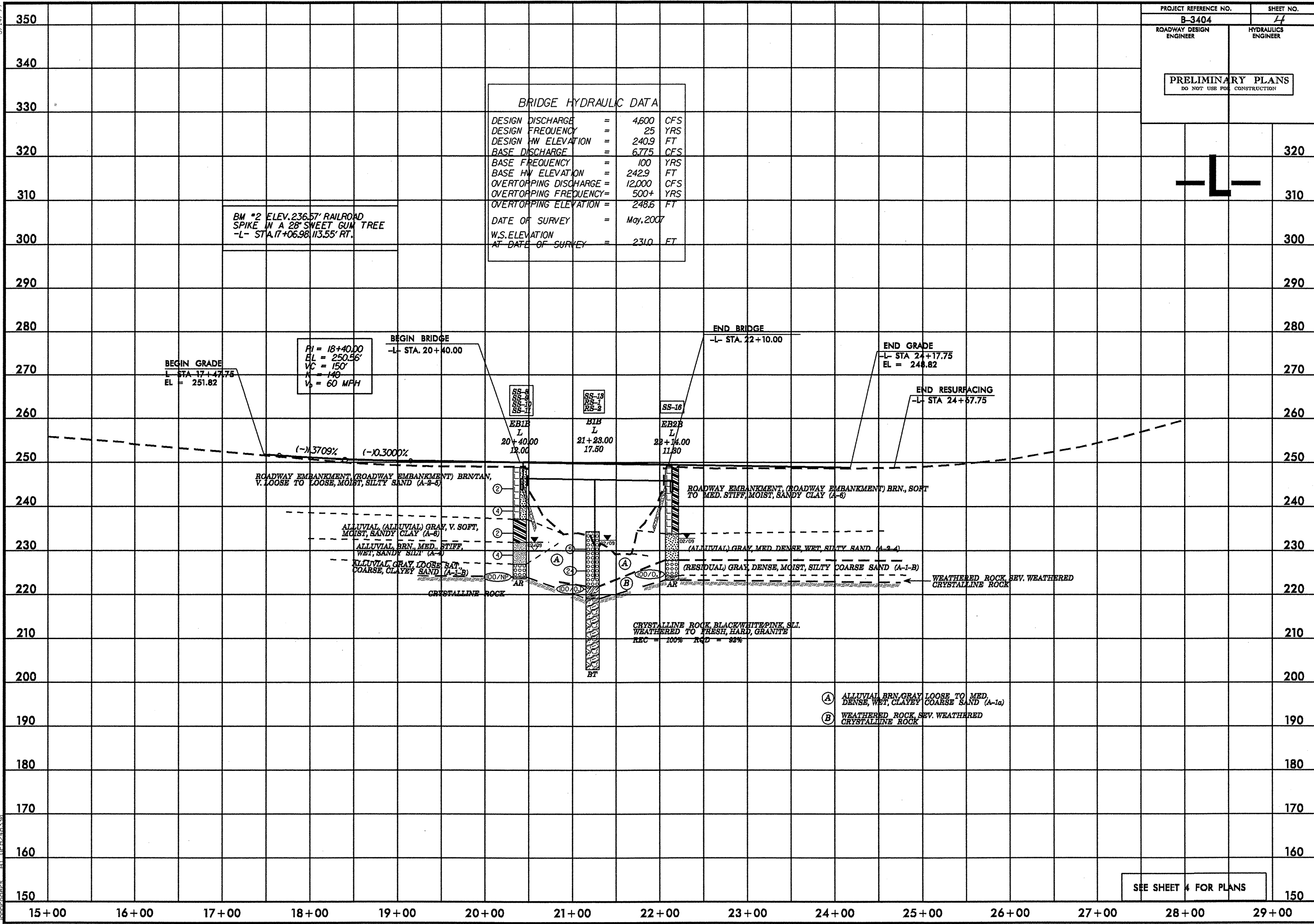
CLASS "B" RIP RAP = 127 TONS
 FILTER FABRIC FOR DRAINAGE = 350 SY
 DDE = 227 CY

FOR PROFILE -L- SEE SHEET 5
 FOR STRUCTURE PLANS SEE SHEET S-1 TO S-

8/17/99
 31-MAR-2009 08:42
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| BRIDGE HYDRAULIC DATA | |
|----------------------------------|--------------|
| DESIGN DISCHARGE | = 4,600 CFS |
| DESIGN FREQUENCY | = 25 YRS |
| DESIGN HW ELEVATION | = 240.9 FT |
| BASE DISCHARGE | = 6,775 CFS |
| BASE FREQUENCY | = 100 YRS |
| BASE HW ELEVATION | = 242.9 FT |
| OVERTOPPING DISCHARGE | = 12,000 CFS |
| OVERTOPPING FREQUENCY | = 500+ YRS |
| OVERTOPPING ELEVATION | = 248.6 FT |
| DATE OF SURVEY | = May, 2007 |
| W.S. ELEVATION AT DATE OF SURVEY | = 231.0 FT |

BM #2 ELEV. 236.57' RAILROAD SPIKE IN A 28' SWEET GUM TREE
-L- STA. 17+06.98 113.55' RT.



PI = 18+40.00
EL = 250.56'
VC = 150'
K = 140
V_p = 60 MPH

BEGIN GRADE
-L- STA. 17+47.75
EL = 251.82

BEGIN BRIDGE
-L- STA. 20+40.00

END BRIDGE
-L- STA. 22+10.00

END GRADE
-L- STA. 24+17.75
EL = 248.82

END RESURFACING
-L- STA. 24+57.75

SS-8
SS-9
SS-10
SS-11

SS-13
RS-1
RS-2

SS-16

EB1B
L
20+40.00
12.00

BIB
L
21+23.00
17.50

EB2B
L
22+14.00
11.80

ROADWAY EMBANKMENT (ROADWAY EMBANKMENT) BRNTAN, V. LOOSE TO LOOSE, MOIST, SILTY SAND (A-2-E)

ROADWAY EMBANKMENT (ROADWAY EMBANKMENT) BRN., SORT TO MED. STIFF, MOIST, SANDY CLAY (A-6)

ALLUVIAL (ALLUVIAL) GRAY, V. SOFT, MOIST, SANDY CLAY (A-8)

ALLUVIAL BRN. MED. STIFF, WET, SANDY SILT (A-7)

ALLUVIAL GRAY, LOOSE SAT. COARSE, CLAYEY SAND (A-1-B)

(ALLUVIAL) GRAY, MED DENSE, WET, SILTY SAND (A-2-4)

(RESIDUAL) GRAY, DENSE, MOIST, SILTY COARSE SAND (A-1-B)

WEATHERED ROCK, SEV. WEATHERED CRYSTALLINE ROCK

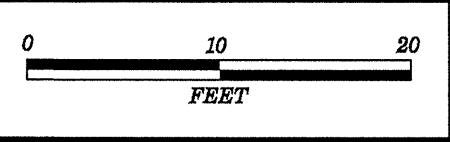
CRYSTALLINE ROCK

CRYSTALLINE ROCK, BLACK/WHITE/PINK SLI. WEATHERED TO FRESH, HARD, GRANITE
REC = 100% RCD = 92%

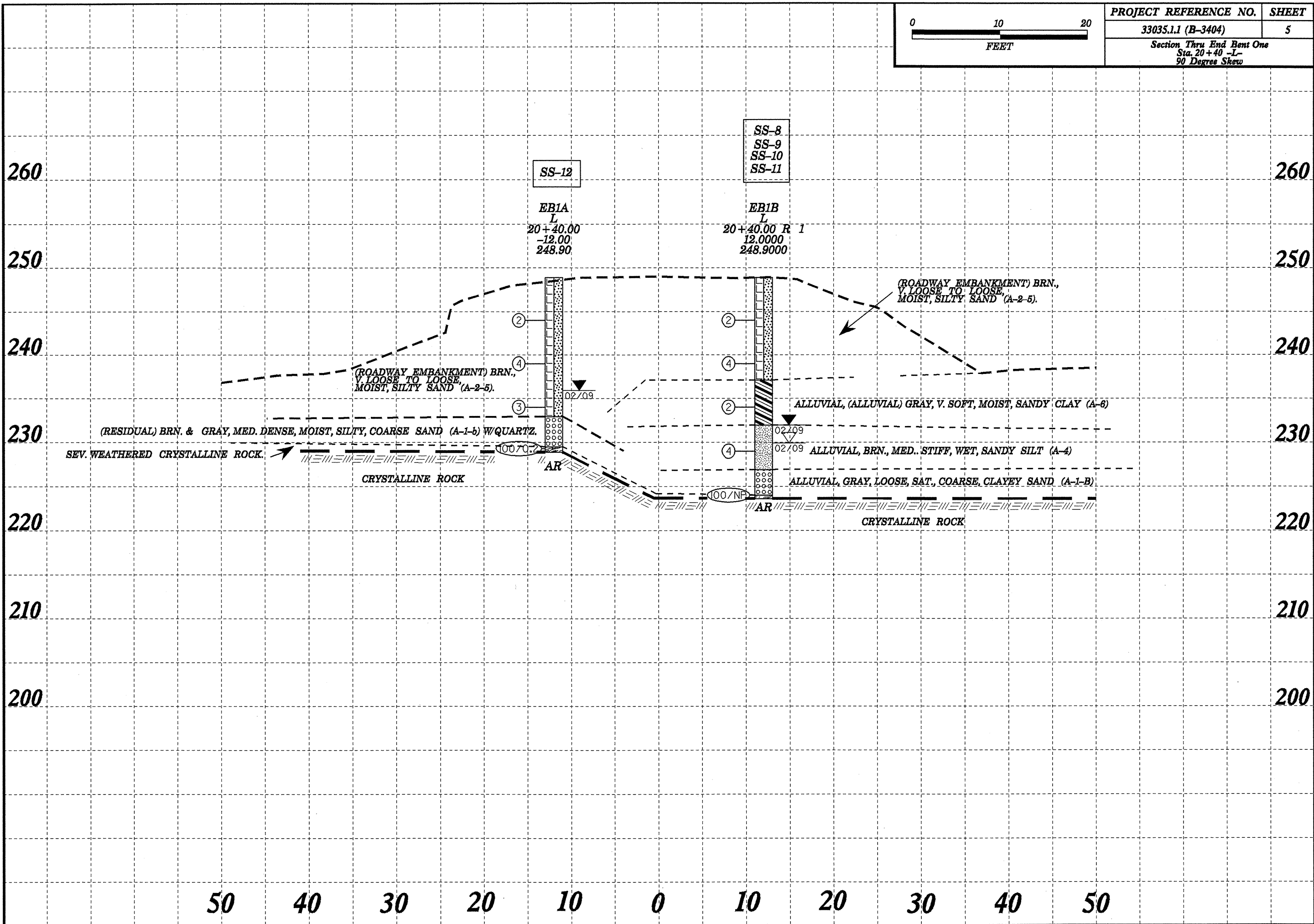
- (A) ALLUVIAL BRN. GRAY LOOSE TO MED. DENSE, WET, CLAYEY COARSE SAND (A-1a)
- (B) WEATHERED ROCK, SEV. WEATHERED CRYSTALLINE ROCK

SEE SHEET 4 FOR PLANS

5/14/99
15-MAR-2009 15:34
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| PROJECT REFERENCE NO. | SHEET |
|---|-------|
| 33035.1.1 (B-3404) | 5 |
| Section Thru End Bent One Sta. 20+40 -L- 90 Degree Skew | |



260

260

250

250

240

240

230

230

220

220

210

210

200

200

50

40

30

20

10

0

10

20

30

40

50

SS-12

SS-8
SS-9
SS-10
SS-11

EB1A
L
20+40.00
-12.00
248.90

EB1B
L
20+40.00 R 1
12.0000
248.9000

(ROADWAY EMBANKMENT) BRN.,
V. LOOSE TO LOOSE,
MOIST, SILTY SAND (A-2-5).

(ROADWAY EMBANKMENT) BRN.,
V. LOOSE TO LOOSE,
MOIST, SILTY SAND (A-2-5).

(RESIDUAL) BRN. & GRAY, MED. DENSE, MOIST, SILTY, COARSE SAND (A-1-b) W/QUARTZ.

SEV. WEATHERED CRYSTALLINE ROCK.

CRYSTALLINE ROCK

ALLUVIAL, (ALLUVIAL) GRAY, V. SOFT, MOIST, SANDY CLAY (A-6)

ALLUVIAL, BRN., MED. STIFF, WET, SANDY SILT (A-4)

ALLUVIAL, GRAY, LOOSE, SAT., COARSE, CLAYEY SAND (A-1-B)

CRYSTALLINE ROCK

AR

AR

100/70-2

100/NP

02/09

02/09

02/09

02/09

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④

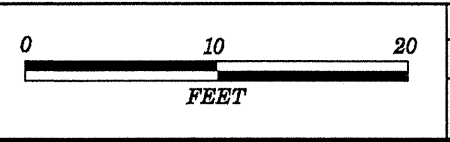
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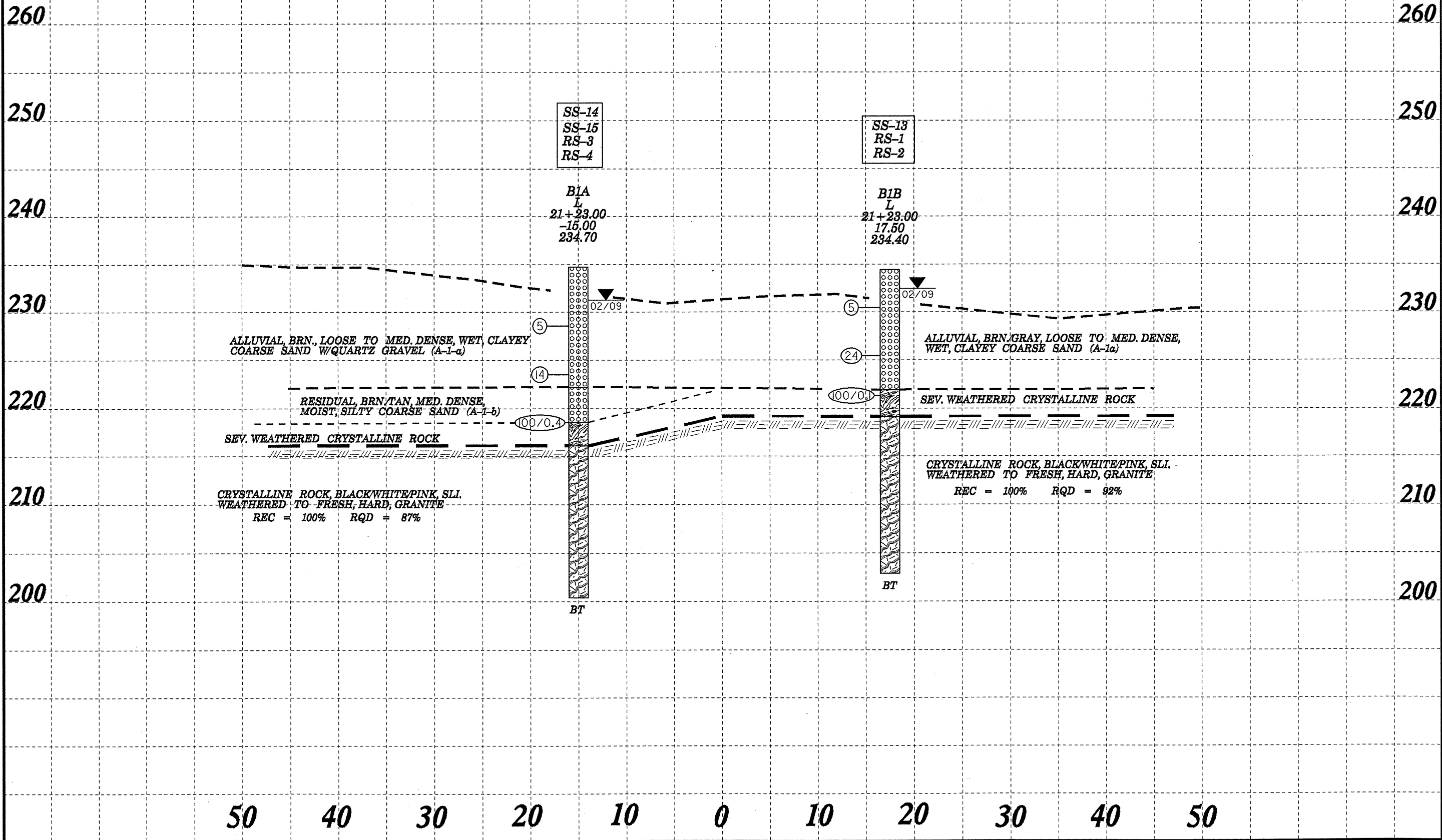
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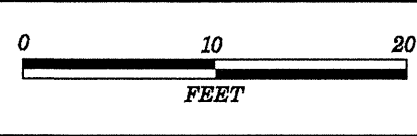
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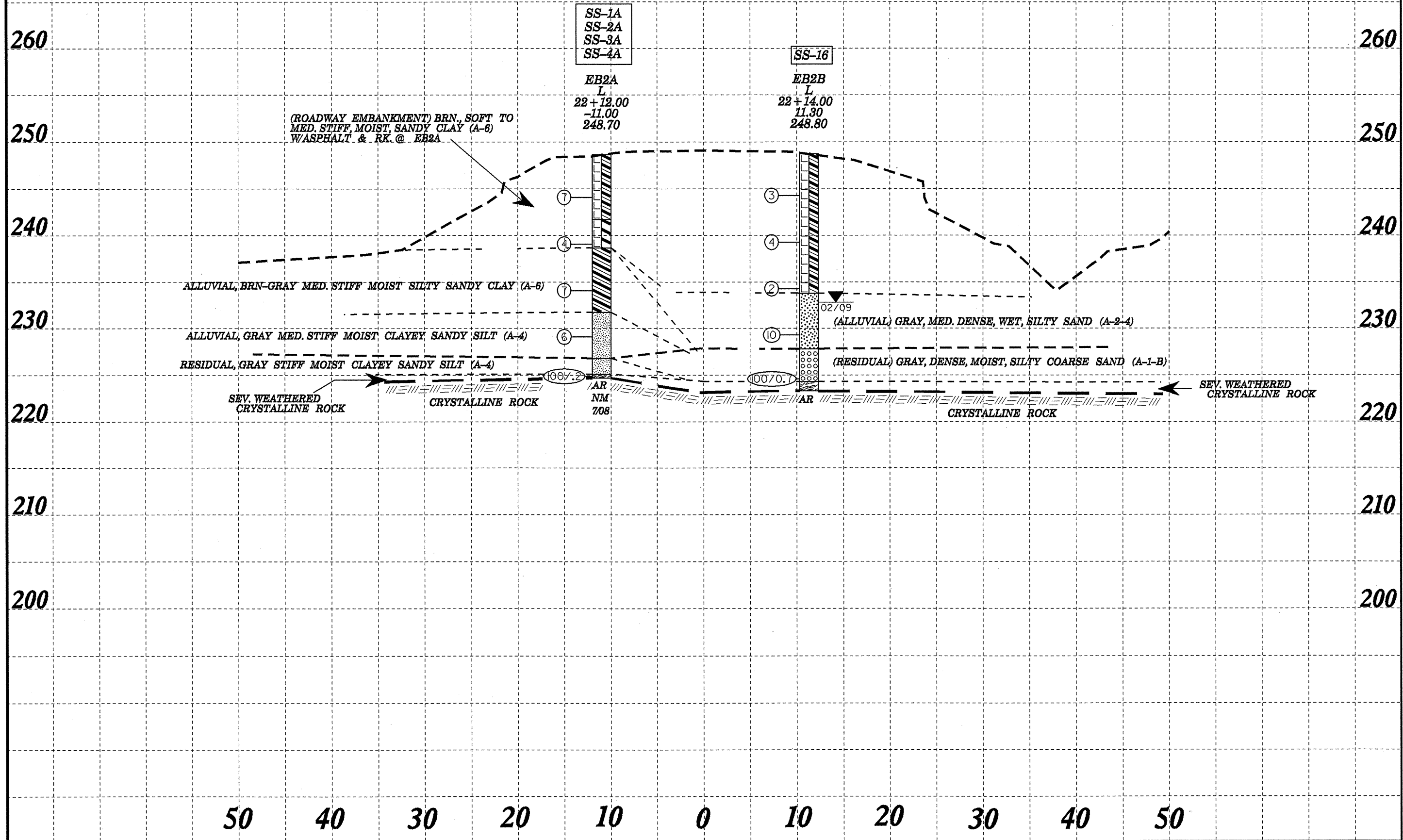


| PROJECT REFERENCE NO. | SHEET |
|---|-------|
| 33035.1.1 (B-3404) | 6 |
| Section Thru Bent One Sta. 21+25 -L- 90 Degree Skew | |





| PROJECT REFERENCE NO. | SHEET |
|--|-------|
| 33035.1.1 (B-3404) | 7 |
| Section Thru End Bent Two Sta. 22+10.1- 90 Degree Skew | |



| PROJECT NO. 33035.1.1 | | ID. B-3404 | | COUNTY ANSON | | GEOLOGIST Todd, R. W. | | | | | | | | | |
|--|-----------------|--------------------------|------------|-------------------------|-------|-----------------------|-----------------|----|----|-----|-----------|-------|---------------------------|--|------|
| SITE DESCRIPTION BRIDGE NO.314 OVER SOUTH FORK JONES CREEK ON SR 1127. | | | | | | | GROUND WTR (ft) | | | | | | | | |
| BORING NO. EB1A | | STATION 20+40 | | OFFSET 12ft LT | | ALIGNMENT L | | | | | | | | | |
| COLLAR ELEV. 248.9 ft | | TOTAL DEPTH 20.0 ft | | NORTHING 415,427 | | EASTING 1,693,212 | | | | | | | | | |
| DRILL MACHINE CME-550X | | DRILL METHOD H.S. Augers | | HAMMER TYPE Automatic | | | | | | | | | | | |
| START DATE 02/12/09 | | COMP. DATE 02/12/09 | | SURFACE WATER DEPTH N/A | | DEPTH TO ROCK 20.0 ft | | | | | | | | | |
| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | L O G | SOIL AND ROCK DESCRIPTION | DEPTH (ft) | |
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | |
| 250 | | | | | | | | | | | | | | 248.9 | 0.0 |
| 245 | 245.0 | 3.9 | 1 | 2 | 0 | | | | | | | M | | ROADWAY EMBANKMENT (ROADWAY EMBANKMENT) BRN., V. LOOSE TO LOOSE, MOIST, SILTY SAND (A-2-5). | |
| 240 | 240.0 | 8.9 | 1 | 2 | 2 | | | | | | | M | | | |
| 235 | 235.0 | 13.9 | 1 | 2 | 1 | | | | | | | M | | | |
| 230 | 230.0 | 18.9 | 17 | 100/0.2 | | | | | | | | SS-12 | | RESIDUAL (RESIDUAL) BRN. & GRAY, MED. DENSE, MOIST, SILTY, COARSE SAND (A-1-b) W/ QUARTZ. | 19.4 |
| 225 | | | | | | | | | | | | | | WEATHERED ROCK SEV. WEATHERED CRYSTALLINE ROCK. Boring Terminated BY AUGER REFUSAL at Elevation 228.9 ft BLACK/WHITE/PINK, SLI. WEATHERED TO FRESH, HARD, GRANITE. | 20.0 |

NCDOT BORE SINGLE B3404_GEO.GPJ NC_DOT.GDT 03/18/09

| PROJECT NO. 33035.1.1 | | ID. B-3404 | | COUNTY ANSON | | GEOLOGIST Todd, R. W. | | | | | | | | | |
|--|-----------------|--------------------------|------------|-------------------------|--------|-----------------------|-----------------|----|----|-----|-----------|-------|---------------------------|---|------|
| SITE DESCRIPTION BRIDGE NO.314 OVER SOUTH FORK JONES CREEK ON SR 1127. | | | | | | | GROUND WTR (ft) | | | | | | | | |
| BORING NO. EB1B | | STATION 20+40 | | OFFSET 12ft RT | | ALIGNMENT L | | | | | | | | | |
| COLLAR ELEV. 248.9 ft | | TOTAL DEPTH 25.3 ft | | NORTHING 415,408 | | EASTING 1,693,197 | | | | | | | | | |
| DRILL MACHINE CME-550X | | DRILL METHOD H.S. Augers | | HAMMER TYPE Automatic | | | | | | | | | | | |
| START DATE 02/12/09 | | COMP. DATE 02/12/09 | | SURFACE WATER DEPTH N/A | | DEPTH TO ROCK 24.9 ft | | | | | | | | | |
| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | L O G | SOIL AND ROCK DESCRIPTION | DEPTH (ft) | |
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | |
| 250 | | | | | | | | | | | | | | 248.9 | 0.0 |
| 245 | 245.0 | 3.9 | 1 | 1 | 1 | | | | | | | SS-8 | M | ROADWAY EMBANKMENT (ROADWAY EMBANKMENT) BRN/TAN, V. LOOSE TO LOOSE, MOIST, SILTY SAND (A-2-5) | |
| 240 | 240.0 | 8.9 | 1 | 2 | 2 | | | | | | | M | | | |
| 235 | 235.0 | 13.9 | 1 | 1 | 1 | | | | | | | SS-9 | M | ALLUVIAL (ALLUVIAL) GRAY, V. SOFT, MOIST, SANDY CLAY (A-6) | 11.8 |
| 230 | 230.0 | 18.9 | 1 | 2 | 2 | | | | | | | SS-10 | W | ALLUVIAL BRN., MED. STIFF, WET, SANDY SILT (A-4) | 17.0 |
| 225 | 225.0 | 23.9 | 1 | 4 | 100/NP | | | | | | | SS-11 | Sat. | ALLUVIAL GRAY, LOOSE, SAT., COARSE, CLAYEY SAND (A-1-B) | 22.0 |
| 220 | | | | | | | | | | | | | | CRYSTALLINE ROCK Boring Terminated BY AUGER REFUSAL at Elevation 223.6 ft BLACK/WHITE/PINK, SLI. WEATHERED TO FRESH, HARD, GRANITE. | 25.3 |

NCDOT BORE SINGLE B3404_GEO.GPJ NC_DOT.GDT 03/18/09

| | | | |
|--|------------------------------------|-------------------------|-----------------------|
| PROJECT NO. 33035.1.1 | ID. B-3404 | COUNTY ANSON | GEOLOGIST Todd, R. W. |
| SITE DESCRIPTION BRIDGE NO.314 OVER SOUTH FORK JONES CREEK ON SR 1127. | | | GROUND WTR (ft) |
| BORING NO. B1A | STATION 21+23 | OFFSET 15ft LT | ALIGNMENT L |
| COLLAR ELEV. 234.7 ft | TOTAL DEPTH 34.3 ft | NORTHING 415,377 | EASTING 1,693,278 |
| DRILL MACHINE CME-550X | DRILL METHOD NW Casing w/ SPT Core | HAMMER TYPE Automatic | |
| START DATE 02/11/09 | COMP. DATE 02/11/09 | SURFACE WATER DEPTH N/A | DEPTH TO ROCK 18.6 ft |

| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | MOI | LOG | SOIL AND ROCK DESCRIPTION | DEPTH (ft) |
|-----------|-----------------|------------|------------|-------|---------|----------------|----|----|----|-----|-----------|-----|------|---|------------|
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | |
| 235 | | | | | | | | | | | | | | | 234.7 |
| | | | | | | | | | | | | | | GROUND SURFACE | 0.0 |
| | | | | | | | | | | | | | | BRN., LOOSE TO MED. DENSE, WET, CLAYEY COARSE SAND W/ QUARTZ GRAVEL (A-1-a) | |
| 230 | 229.5 | 5.2 | 2 | 3 | 2 | | | | | | | | W | | |
| 225 | 224.5 | 10.2 | 7 | 5 | 9 | | | | | | | | W | | |
| 220 | 219.5 | 15.2 | 7 | 11 | 100/0.4 | | | | | | | | M | | |
| | | | | | | | | | | | | | | RESIDUAL BRN./TAN, MED. DENSE, MOIST, SILTY COARSE SAND (A-1-b) | 12.5 |
| | | | | | | | | | | | | | | WEATHERED ROCK SEV. WEATHERED CRYSTALLINE ROCK | 16.2 |
| 215 | | | | | | | | | | | | | RS-3 | CRYSTALLINE ROCK BLACK/WHITE/PINK, SLI. WEATHERED TO FRESH, HARD, GRANITE | 18.6 |
| 210 | | | | | | | | | | | | | | | |
| 205 | | | | | | | | | | | | | | | |
| 200 | | | | | | | | | | | | | RS-4 | | |
| | | | | | | | | | | | | | | Boring Terminated at Elevation 200.4 ft BLACK/WHITE/PINK, SLI. WEATHERED TO FRESH, HARD, GRANITE. | 34.3 |

| | | | |
|--|------------------------------------|-------------------------|-----------------------|
| PROJECT NO. 33035.1.1 | ID. B-3404 | COUNTY ANSON | GEOLOGIST Todd, R. W. |
| SITE DESCRIPTION BRIDGE NO.314 OVER SOUTH FORK JONES CREEK ON SR 1127. | | | GROUND WTR (ft) |
| BORING NO. B1A | STATION 21+23 | OFFSET 15ft LT | ALIGNMENT L |
| COLLAR ELEV. 234.7 ft | TOTAL DEPTH 34.3 ft | NORTHING 415,377 | EASTING 1,693,278 |
| DRILL MACHINE CME-550X | DRILL METHOD NW Casing w/ SPT Core | HAMMER TYPE Automatic | |
| START DATE 02/11/09 | COMP. DATE 02/11/09 | SURFACE WATER DEPTH N/A | DEPTH TO ROCK 18.6 ft |

| ELEV (ft) | RUN ELEV (ft) | DEPTH (ft) | RUN (ft) | DRILL RATE (Min/ft) | RUN | | SAMP. NO. | STRATA | | LOG | DESCRIPTION AND REMARKS | DEPTH (ft) |
|-----------|---------------|------------|----------|---------------------|----------|---------|-----------|----------|---------|-----|---|------------|
| | | | | | REC. (%) | RQD (%) | | REC. (%) | RQD (%) | | | |
| 216.1 | | | | | | | | | | | Begin Coring @ 18.6 ft | |
| 215 | 216.1 | 18.6 | 6.2 | | (6.2) | (4.9) | | (15.7) | (13.7) | | CRYSTALLINE ROCK (CRYSTALLINE ROCK) BLACK/WHITE/PINK, SLI. WEATHERED TO FRESH, HARD, GRANITE | 18.6 |
| 210 | 209.9 | 24.8 | 4.8 | | (4.8) | (4.8) | | | | | | |
| 205 | 205.1 | 29.6 | 4.7 | | (4.7) | (4.0) | | | | | | |
| 200 | 200.4 | 34.3 | | | | | | | | | Boring Terminated at Elevation 200.4 ft BLACK/WHITE/PINK, SLI. WEATHERED TO FRESH, HARD, GRANITE. | 34.3 |
| 195 | | | | | | | | | | | | |
| 190 | | | | | | | | | | | | |
| 185 | | | | | | | | | | | | |
| 180 | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | |
| 170 | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | |
| 160 | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | |

NCDOT BORE SINGLE B3404_GEO.GPJ NC_DOT.GDT 03/18/09

NCDOT BORE SINGLE B3404_GEO.GPJ NC_DOT.GDT 03/18/09

| | | | |
|--|------------------------------------|-------------------------|-----------------------|
| PROJECT NO. 33035.1.1 | ID. B-3404 | COUNTY ANSON | GEOLOGIST Todd, R. W. |
| SITE DESCRIPTION BRIDGE NO.314 OVER SOUTH FORK JONES CREEK ON SR 1127. | | | GROUND WTR (ft) |
| BORING NO. B1B | STATION 21+23 | OFFSET 18ft RT | ALIGNMENT L |
| COLLAR ELEV. 234.4 ft | TOTAL DEPTH 31.5 ft | NORTHING 415,352 | EASTING 1,693,258 |
| DRILL MACHINE CME-550X | DRILL METHOD NW Casing w/ SPT Core | HAMMER TYPE Automatic | |
| START DATE 02/10/09 | COMP. DATE 02/10/09 | SURFACE WATER DEPTH N/A | DEPTH TO ROCK 15.3 ft |

| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | MOI | LOG | SOIL AND ROCK DESCRIPTION | ELEV. (ft) | DEPTH (ft) |
|-----------|-----------------|------------|------------|-------|---------|----------------|----|----|----|-----|-----------|-----|-----|--|----------------|------------|
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | | |
| 235 | | | | | | | | | | | | | | | 234.4 | 0.0 |
| | | | | | | | | | | | | | | | GROUND SURFACE | |
| | 231.4 | 3.0 | 1 | 2 | 3 | | | | | | | | | BRN./GRAY, LOOSE TO MED. DENSE, WET, CLAYEY COARSE SAND (A-1a) | | |
| 230 | | | | | | | | | | | | | | | | |
| | 226.4 | 8.0 | | | | | | | | | | | | | | |
| 225 | | | | | | | | | | | | | | | | |
| | 221.4 | 13.0 | | | | | | | | | | | | | | |
| 220 | | | 0 | 0 | 100/0.1 | | | | | | | | | WEATHERED ROCK | 12.5 | |
| | | | | | | | | | | | | | | SEV. WEATHERED CRYSTALLINE ROCK | 15.3 | |
| 215 | | | | | | | | | | | | | | CRYSTALLINE ROCK | | |
| | | | | | | | | | | | | | | BLACK/WHITE/PINK, SLI. WEATHERED TO FRESH, HARD, GRANITE | | |
| 210 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 205 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 200 | | | | | | | | | | | | | | | | |
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| 195 | | | | | | | | | | | | | | | | |
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| 190 | | | | | | | | | | | | | | | | |
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| 185 | | | | | | | | | | | | | | | | |
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| 180 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | | | | |
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| 170 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | | |
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| 160 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | | |

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| PROJECT NO. 33035.1.1 | ID. B-3404 | COUNTY ANSON | GEOLOGIST Todd, R. W. |
| SITE DESCRIPTION BRIDGE NO.314 OVER SOUTH FORK JONES CREEK ON SR 1127. | | | GROUND WTR (ft) |
| BORING NO. B1B | STATION 21+23 | OFFSET 18ft RT | ALIGNMENT L |
| COLLAR ELEV. 234.4 ft | TOTAL DEPTH 31.5 ft | NORTHING 415,352 | EASTING 1,693,258 |
| DRILL MACHINE CME-550X | DRILL METHOD NW Casing w/ SPT Core | HAMMER TYPE Automatic | |
| START DATE 02/10/09 | COMP. DATE 02/10/09 | SURFACE WATER DEPTH N/A | DEPTH TO ROCK 15.3 ft |

| ELEV (ft) | RUN ELEV (ft) | DEPTH (ft) | RUN (ft) | DRILL RATE (Min/ft) | RUN | | SAMP. NO. | STRATA | | LOG | DESCRIPTION AND REMARKS | DEPTH (ft) |
|-----------|---------------|------------|----------|---------------------|----------|---------|-----------|----------|---------|-----|---|------------|
| | | | | | REC. (%) | RQD (%) | | REC. (%) | RQD (%) | | | |
| 219.1 | | | | | | | | | | | Begin Coring @ 15.3 ft | |
| | 219.1 | 15.3 | 4.4 | | (4.4) | (3.4) | | (16.2) | (14.9) | | CRYSTALLINE ROCK | 15.3 |
| | | | | | 100% | 77% | RS-1 | 100% | 92% | | BLACK/WHITE/PINK, SLI. WEATHERED TO FRESH, HARD, GRANITE | |
| 215 | | | | | | | | | | | | |
| | 214.7 | 19.7 | 4.8 | | (4.8) | (4.5) | | | | | | |
| | | | | | 100% | 94% | | | | | | |
| 210 | | | | | | | | | | | | |
| | 209.9 | 24.5 | 7.0 | | (7.0) | (7.0) | RS-2 | 100% | 100% | | | |
| | | | | | 100% | 100% | | | | | | |
| 205 | | | | | | | | | | | | |
| | 202.9 | 31.5 | | | | | | | | | Boring Terminated at Elevation 202.9 ft | 31.5 |
| | | | | | | | | | | | BLACK/WHITE/PINK, SLI. WEATHERED TO FRESH, HARD, GRANITE. | |
| 200 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 195 | | | | | | | | | | | | |
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| 190 | | | | | | | | | | | | |
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| 185 | | | | | | | | | | | | |
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| 180 | | | | | | | | | | | | |
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| 175 | | | | | | | | | | | | |
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| 170 | | | | | | | | | | | | |
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| 165 | | | | | | | | | | | | |
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| 160 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | |

NCDOT BORE SINGLE B3404_GEO.GPJ NC_DOT.GDT 03/18/09

NCDOT CORE SINGLE B3404_GEO.GPJ NC_DOT.GDT 03/19/09

| | | | |
|--|--------------------------|-------------------------|---------------------------|
| PROJECT NO. 33035.1.1 | ID. B-3404 | COUNTY ANSON | GEOLOGIST Stickney, J. K. |
| SITE DESCRIPTION BRIDGE NO. 314 OVER S. FORK JONE'S CREEK ON SR 1127 | | | GROUND WTR (ft) |
| BORING NO. EB2A | STATION 22+12 | OFFSET 11ft LT | ALIGNMENT -L- |
| COLLAR ELEV. 248.7 ft | TOTAL DEPTH 24.0 ft | NORTHING 415,317 | EASTING 1,693,345 |
| DRILL MACHINE CME-550X | DRILL METHOD H.S. Augers | HAMMER TYPE Automatic | |
| START DATE 07/23/08 | COMP. DATE 07/23/08 | SURFACE WATER DEPTH N/A | DEPTH TO ROCK 24.0 ft |

| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | L O G | SOIL AND ROCK DESCRIPTION | DEPTH (ft) |
|-----------|-----------------|------------|------------|-------|-------|----------------|----|----|----|-----|-----------|-------|---|------------|
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | |
| 250 | | | | | | | | | | | | | GROUND SURFACE | 0.0 |
| 245 | 245.1 | 3.6 | 1 | 5 | 2 | | | | | | SS-1 | M | ROADWAY EMBANKMENT RED-BRN MED. STIFF MOIST LOW (PI=15) PLASTIC SILTY SANDY CLAY (A-6) W/ RK & ASPHALT | 7.0 |
| 240 | 240.1 | 8.6 | 3 | 2 | 2 | | | | | | SS-2 | M | ROADWAY EMBANKMENT RED-BRN SOFT TO MED. STIFF MOIST HIGH (PI=26) PLASTIC SILTY SANDY CLAY (A-7-6) | 10.0 |
| 235 | 235.1 | 13.6 | 3 | 3 | 4 | | | | | | SS-3 | M | ALLUVIAL BRN-GRAY MED. STIFF MOIST LOW (PI=13) PLASTIC SILTY SANDY CLAY (A-6) | 17.0 |
| 230 | 230.1 | 18.6 | 1 | 3 | 3 | | | | | | SS-4 | M | ALLUVIAL GRAY MED. STIFF MOIST CLAYEY SANDY SILT (A-4) | 21.9 |
| 225 | 225.1 | 23.6 | | | | | | | | | | | RESIDUAL GRAY STIFF MOIST CLAYEY SANDY SILT (A-4) | 23.6 |
| 220 | | | | | | | | | | | | | WEATHERED ROCK (SEV. WEATH. CRYSTALLINE ROCK) Boring Terminated BY AUGER REFUSAL at Elevation 224.7 ft ON HARD CRYSTALLINE ROCK | 24.0 |

| | | | |
|---|--------------------------|-------------------------|-----------------------|
| PROJECT NO. 33035.1.1 | ID. B-3404 | COUNTY ANSON | GEOLOGIST Todd, R. W. |
| SITE DESCRIPTION BRIDGE NO. 314 OVER SOUTH FORK JONES CREEK ON SR 1127. | | | GROUND WTR (ft) |
| BORING NO. EB2B | STATION 22+14 | OFFSET 11ft RT | ALIGNMENT L |
| COLLAR ELEV. 248.8 ft | TOTAL DEPTH 25.5 ft | NORTHING 415,299 | EASTING 1,693,332 |
| DRILL MACHINE CME-550X | DRILL METHOD H.S. Augers | HAMMER TYPE Automatic | |
| START DATE 02/12/09 | COMP. DATE 02/12/09 | SURFACE WATER DEPTH N/A | DEPTH TO ROCK 25.5 ft |

| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | L O G | SOIL AND ROCK DESCRIPTION | DEPTH (ft) |
|-----------|-----------------|------------|------------|-------|--------|----------------|----|----|----|-----|-----------|-------|--|------------|
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | |
| 250 | | | | | | | | | | | | | GROUND SURFACE | 0.0 |
| 245 | 245.3 | 3.5 | 1 | 2 | 1 | | | | | | | | ROADWAY EMBANKMENT (ROADWAY EMBANKMENT) BRN., SOFT TO MED. STIFF, MOIST, SANDY CLAY (A-6) | 7.0 |
| 240 | 240.3 | 8.5 | 1 | 2 | 2 | | | | | | | | ROADWAY EMBANKMENT RED-BRN SOFT TO MED. STIFF MOIST HIGH (PI=26) PLASTIC SILTY SANDY CLAY (A-7-6) | 10.0 |
| 235 | 235.3 | 13.5 | 1 | 1 | 1 | | | | | | | | ALLUVIAL BRN-GRAY MED. STIFF MOIST LOW (PI=13) PLASTIC SILTY SANDY CLAY (A-6) | 15.0 |
| 230 | 230.3 | 18.5 | 4 | 5 | 5 | | | | | | SS-16 | | ALLUVIAL (ALLUVIAL) GRAY, MED. DENSE, WET, SILTY SAND (A-2-4) | 21.0 |
| 225 | 225.3 | 23.5 | 18 | 35 | 65/0.2 | | | | | | | | RESIDUAL (RESIDUAL) GRAY, DENSE, MOIST, SILTY COARSE SAND (A-1-B) | 24.5 |
| 220 | | | | | | | | | | | | | WEATHERED ROCK SEV. WEATHERED CRYSTALLINE ROCK Boring Terminated BY AUGER REFUSAL at Elevation 223.3 ft BLACK/WHITE/PINK, SLI. WEATHERED TO FRESH, HARD, GRANITE. | 25.5 |

NCDOT BORE SINGLE B3404_GEO_BH_RDWY_ANSON.GPJ NC_DOT_GDT_03/19/09

NCDOT BORE SINGLE B3404_GEO.GPJ NC_DOT_GDT_03/18/09



**FIELD
 SCOUR REPORT**

WBS: 33035.1.1 TIP: B-3404 COUNTY: ANSON

DESCRIPTION(1): BRIDGE NO. 314 ON SR 1127 OVER SOUTH FORK JONES CREEK.

EXISTING BRIDGE

Information from: Field Inspection Microfilm _____ (reel _____ pos: _____)
 Other (explain) _____

Bridge No.: 314 Length: _____ Total Bents: 9 Bents in Channel: 1 Bents in Floodplain: 9
 Foundation Type: END BENTS - , INTERIOR BENTS - FOOTINGS

EVIDENCE OF SCOUR(2)

Abutments or End Bent Slopes: NONE

Interior Bents: NONE

Channel Bed: NONE

Channel Bank: NONE

EXISTING SCOUR PROTECTION

Type(3): NONE

Extent(4): N/A

Effectiveness(5): NO SCOUR AT BRIDGE SITE.

Obstructions(6): NONE

INSTRUCTIONS

- 1 Describe the specific site's location, including route number and body of water crossed.
- 2 Note scour evidence at existing end bents or abutments (e.g. undermining, sloughing, degradations).
- 3 Note existing scour protection (e.g. rip rap).
- 4 Describe extent of existing scour protection.
- 5 Describe whether or not the scour protection appears to be working.
- 6 Note obstructions such as dams, fallen trees, debris at bents, etc.
- 7 Describe the channel bed material based on observation and/or samples. Include any lab results with report.
- 8 Describe the channel bank material based on observation and/or samples. Include any lab results with report.
- 9 Describe the material covering the banks (e.g. grass, trees, rip rap, none).
- 10 Determine the approximate floodplain width from field observation or a topographic map.
- 11 Describe the material covering the floodplain (e.g. grass, trees, crops).
- 12 Use professional judgement to specify if the stream is degrading, aggrading, or static.
- 13 Describe potential and direction of the stream to migrate laterally during the bridge's life (approx. 100 years).
- 14 Give the design scour elevation (DSE) expected over the life of the bridge (approx. 100 years). This elevation can be given as a range across the site, or for each bent. Discuss the relationship between the Hydraulics Unit theoretical scour and the DSE. If the DSE is dependent on scour counter measures, explain (e.g. rip rap armoring on slopes). The DSE is based on the erodability of materials, giving consideration to the influence of joints, foliation, bedding characteristics, % core recovery, % RQD, differential weathering, shear strength, observations at existing structures, other tests deemed appropriate, and overall geologic conditions at the site.

DESIGN INFORMATION

Channel Bed Material(7): BRN. SILTY CLAY AS SS-18.

Channel Bank Material(8): BRN. COARSE SAND AS SS-17.

Channel Bank Cover(9): TREES

Floodplain Width(10): APP. 500'

Floodplain Cover(11): WOODED.

Stream is(12): Aggrading _____ Degrading _____ Static

Channel Migration Tendency(13): NONE APPARENT

Observations and Other Comments: ENTIRE BRDG. IN BAD CONDITION. MUCH ROT ON ALL WOOD MEMBERS. CONCRETE MEMBERS IN BAD CONDITION, TOO.

DESIGN SCOUR ELEVATIONS(14)

Feet Meters _____

| 100 YR. SCOUR | BENTS | | | | | | | | | |
|---------------|-------|--|--|--|--|--|--|--|--|--|
| | B1 | | | | | | | | | |
| | 224 | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

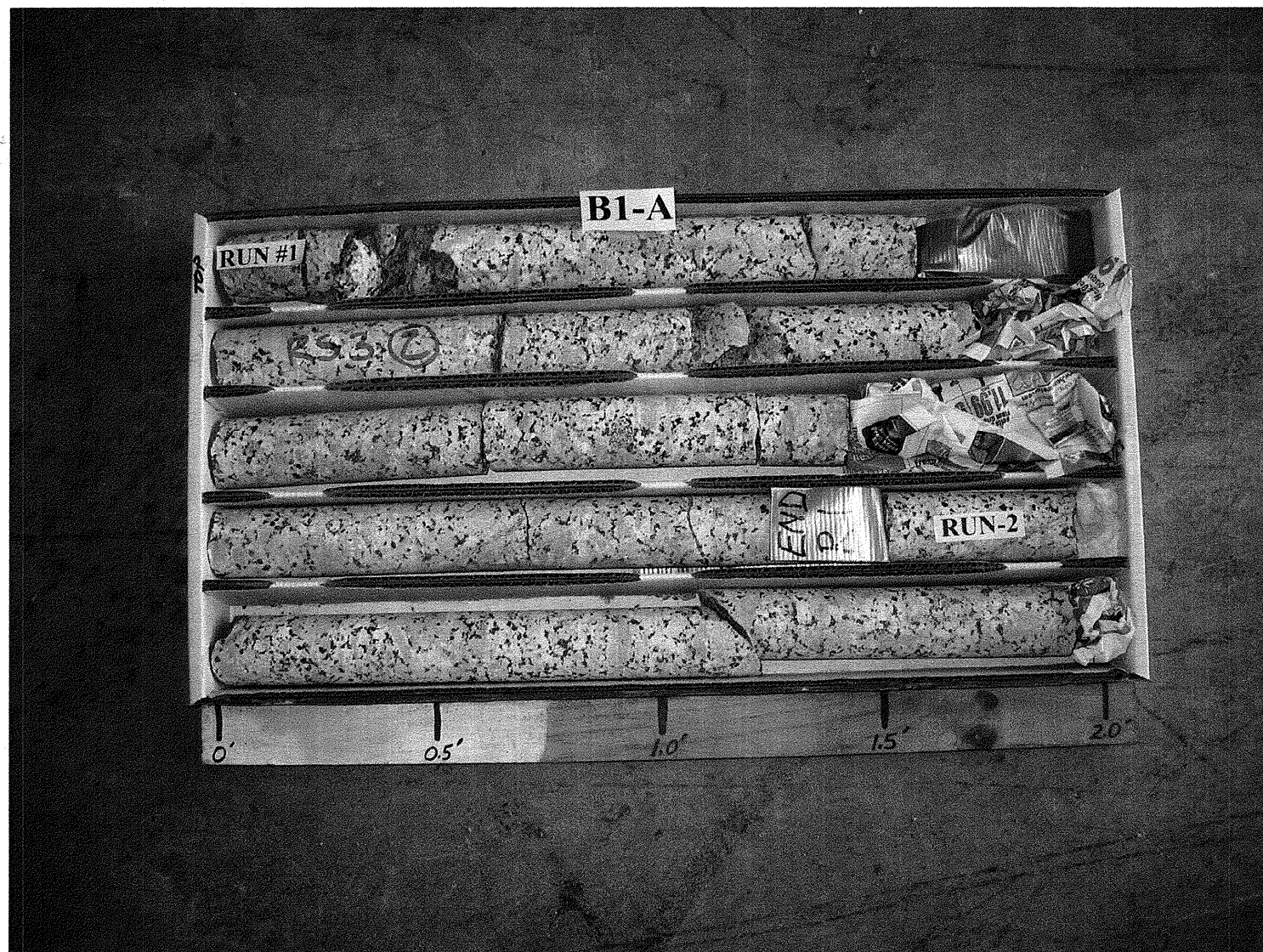
Comparison of DSE to Hydraulics Unit theoretical scour:
 DSE IS EQUAL TO THE HYDRAULICS UNIT THEORETICAL SCOUR. END BENTS WILL NOT BE IMPACTED.

SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL

| Bed or Bank | SEE | SAMPLE | RESULTS | | | |
|-------------|-----|--------|---------|--|--|--|
| Sample No. | | | | | | |
| Retained #4 | | | | | | |
| Passed #10 | | | | | | |
| Passed #40 | | | | | | |
| Passed #200 | | | | | | |
| Coarse Sand | | | | | | |
| Fine Sand | | | | | | |
| Silt | | | | | | |
| Clay | | | | | | |
| LL | | | | | | |
| PI | | | | | | |
| AASHTO | | | | | | |
| Station | | | | | | |
| Offset | | | | | | |
| Depth | | | | | | |

33035.1.1 (B-3404)
BRIDGE NO. 314 ON SR 1127 OVER SOUTH FORK JONES CREEK

B1-A



33035.1.1 (B-3404)
BRIDGE NO. 314 ON SR 1127 OVER SOUTH FORK JONES CREEK

B1-B

