

CONTRACT: ID: B-4070

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL UNIT

STRUCTURE SUBSURFACE INVESTIGATION

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	33433.1.1 (B-4070)	1	9
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
		P.E.	
		CONST.	

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CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WAS 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 UNIT @ (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA IS 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-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.

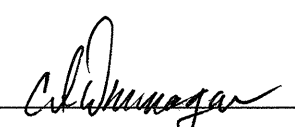

STATE PROJECT 33433.1.1 I.D. NO. B-4070
 F.A. PROJECT BRZ-1347(2)
 COUNTY CHEROKEE
 PROJECT DESCRIPTION BRIDGE NO. 112
ON SR-1347 OVER HANGING
DOG CREEK
 SITE DESCRIPTION _____

INVESTIGATED BY C A DUNNAGAN PERSONNEL T B DANIEL
 CHECKED BY W D FRYE, Jr C J COFFEY
 SUBMITTED BY W D FRYE, Jr R D CHILDERS
 DATE FEBRUARY 2006

DRAWN BY: C A DUNNAGAN

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

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

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

PROJECT REFERENCE NO. 33433.I.I(B-4070) SHEET NO. 2

OF 9

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS																																																	
<p>SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i></p>		<p>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.</p> <p style="text-align: center;">ANGULARITY OF GRAINS</p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>		<p>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:</p>		<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (ROD) - 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 (SROD) - 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.</p>																																																	
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<p>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.</p>		<p>FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</p> <p>MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</p> <p>INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</p> <p>EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>		<p>BENCH MARK: #1 - RR SPIKE IN 18" PINE TREE RIGHT OF APPROXIMATE</p> <p style="text-align: center;">-L- STATION 5+00</p> <p style="text-align: right;">ASSUMED ELEVATION: 100.00 FT.</p> <p>NOTES:</p>																																																			



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 9, 2006

STATE PROJECT: 33433.1.1 (B-4070)
F. A. PROJECT: BRZ-1347(2)
COUNTY: Cherokee

DESCRIPTION: Bridge No. 112 on SR-1347 over Hanging Dog Creek

SUBJECT: Geotechnical Report – Foundation Investigation

Introduction

This project is located in central Cherokee County, approximately 3.0 miles north of the town of Murphy. The proposed construction will replace the existing 3-span bridge with a single-span bridge. The span length will be 118.0 feet and the skew will be 90 degrees. The alignment will be shifted 40.0 feet downstream. The subsurface investigation was conducted using a CME-550 drill machine and 8-inch hollow stem augers. Standard Penetration Tests were performed at intervals of five feet. Soil samples were collected and submitted for testing for quality. The sample results were not available at the time of this writing.

Geology and Rock Characteristics

Rock "core" was obtained from the hollow stem augers from three of the four borings. This rock is a mica schist. Below a thin (± 1.0 foot) layer of weathered rock, the schist recovered is hard and fresh. The alluvial soils encountered in this project were deposited directly upon the weathered rock. In some cases, it is difficult to discern while drilling between the basal gravel/boulder layers and the weathered rock. Therefore, it is possible that the contact between alluvium and weathered rock may be as much as 1.0 foot higher in elevation as is indicated in the boring logs.

Foundation Materials

End Bent One

Alluvium is present from the surface at End Bent One. It is comprised of 5.0 to 6.0 feet of silty sand underlain by 1.0 to 4.0 feet of gravel and boulders. In the boring for EB1-A, weathered rock was encountered at 9.5 feet (elevation 62.02). Hollow auger refusal on rock occurred at 10.0 feet (elevation 61.52). At EB1-B, weathered rock was noted at 7.0 feet (elevation 66.37). Refusal on rock was at 10.4 feet (elevation 62.97). Groundwater was measured in both borings immediately after drilling. In EB1-A, it was measured at 5.6 feet (elevation 65.92); in EB1-B, it was at 7.6 feet (elevation 65.77).

End Bent Two

The boring for EB2-A encountered fill material at the surface. Emplaced for a private access road, it consists of 6.5 feet of silty sand with boulders. Alluvium is present below this fill, and from the surface at EB2-B. The alluvial horizon is 7.5 to 11.0 feet of sandy silt. The basal gravel layer was not noted in EB2-A. In EB2-B, the gravel layer is approximately 2.0 feet thick. Weathered rock is directly below the alluvium. In the boring for EB2-A, it is at 14.0 feet (elevation 63.91). Hollow auger refusal on rock occurred in EB2-A at 15.1 feet (elevation 62.81). At the EB2-B site, weathered rock was recorded at 13.5 feet (elevation 62.47); refusal on rock occurred at 14.1 feet (elevation 61.87). Groundwater was not recorded from either boring.

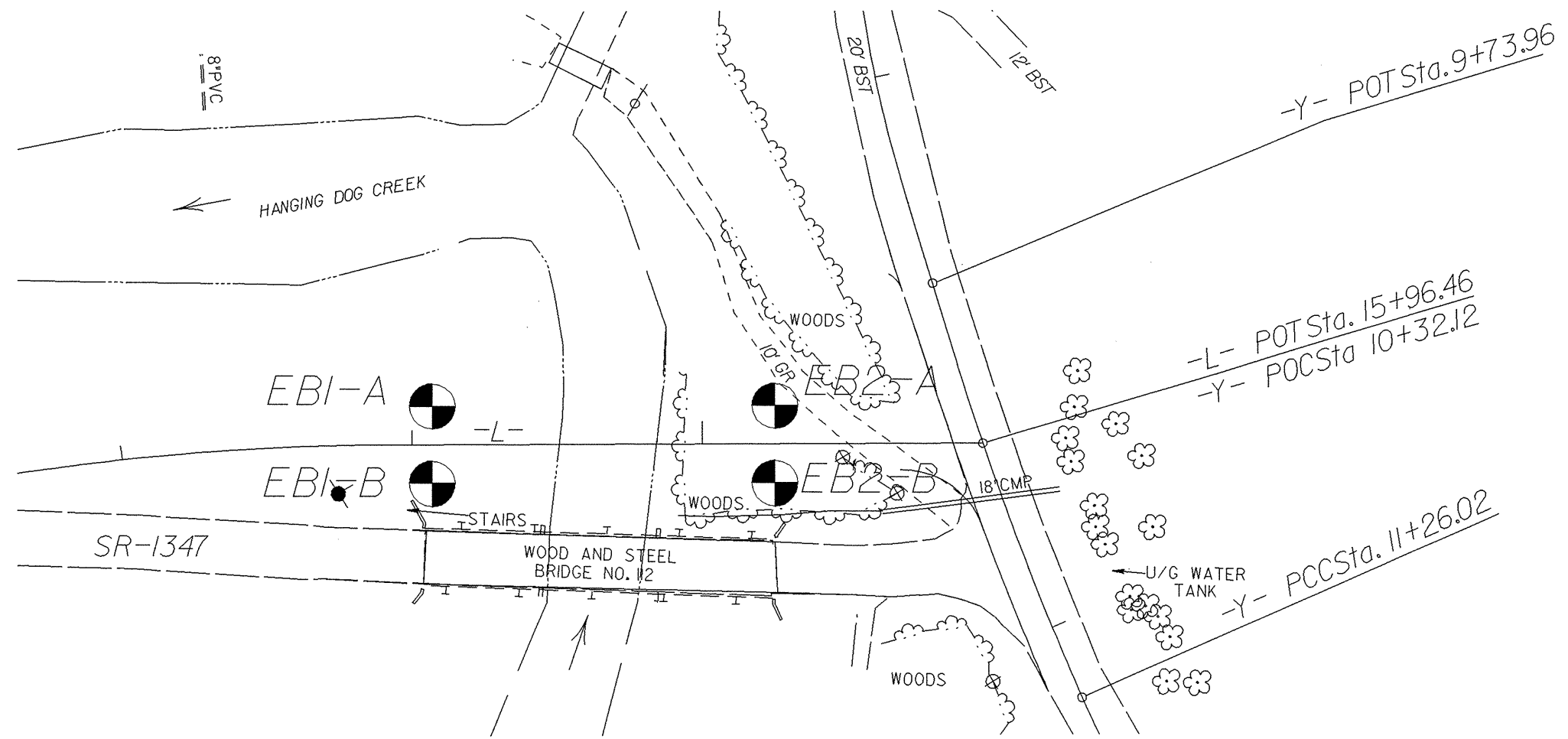
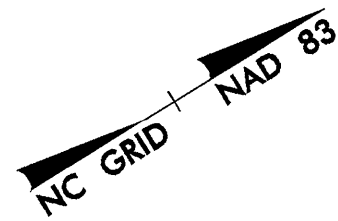
Comments

If steel H-piles are used at this site, pile tip protection should be used. This is because of the gravel/boulder layer encountered.

Respectfully Submitted,

Charles A. Dunnagan, L.G.
Project Engineering Geologist

BRIDGE NO. 112 ON SR-1347 OVER HANGING DOG CREEK

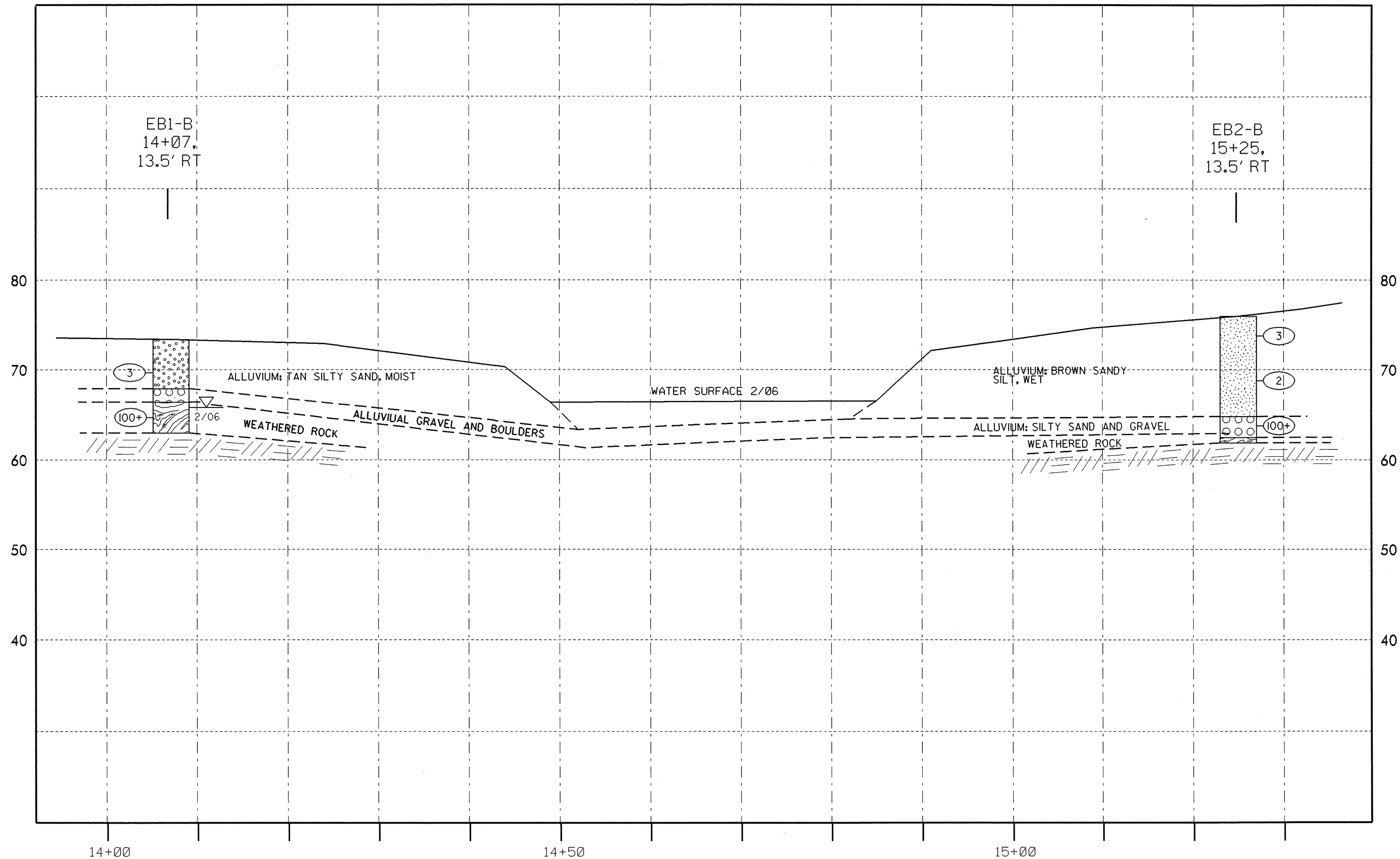


13+00

14+00

15+00

PROFILE 13.5 FEET RIGHT OF CENTERLINE



EB1-B
14+07,
13.5' RT

EB2-B
15+25,
13.5' RT

80

80

70

70

60

60

50

50

40

40

14+00

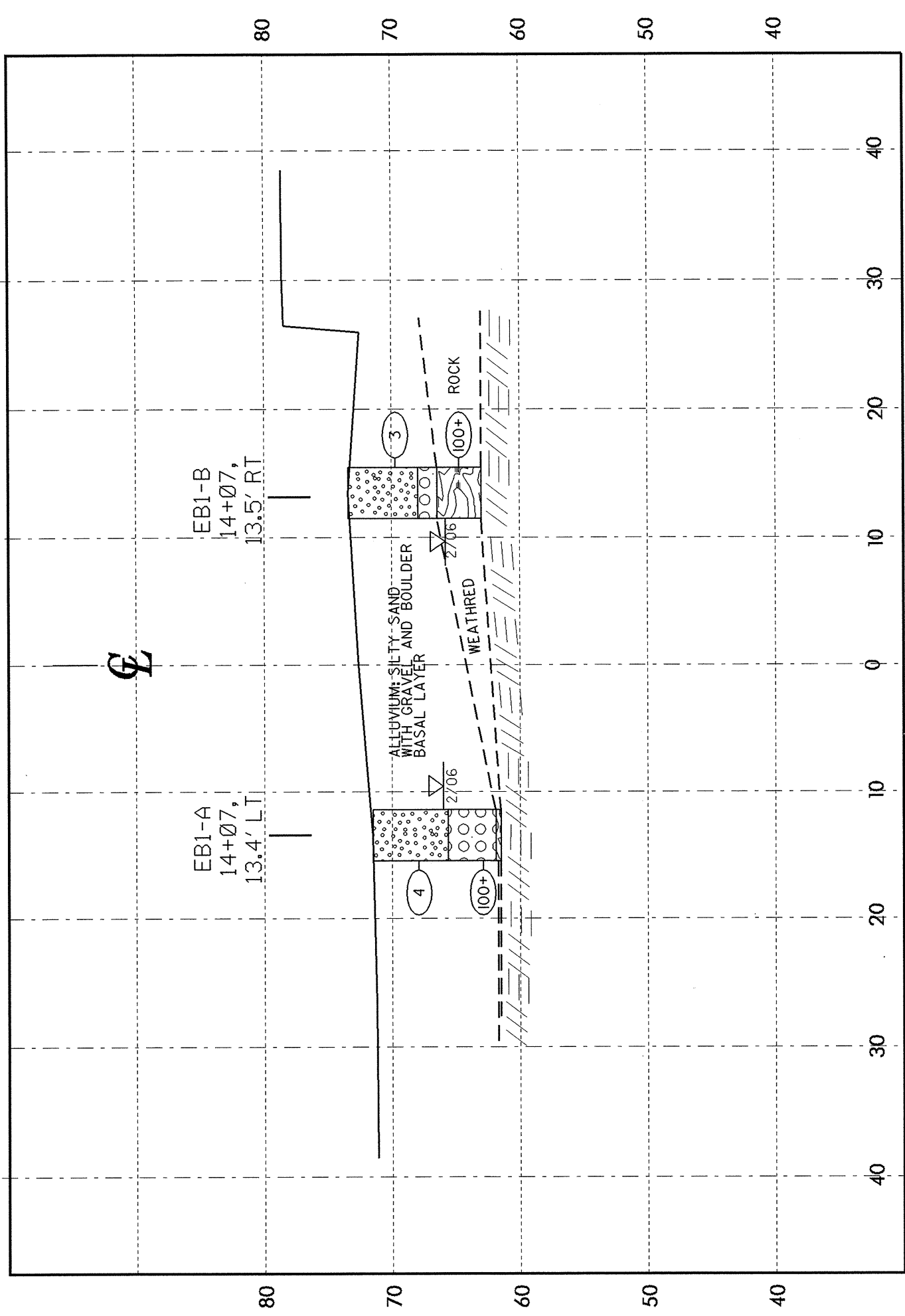
14+50

15+00

-L-

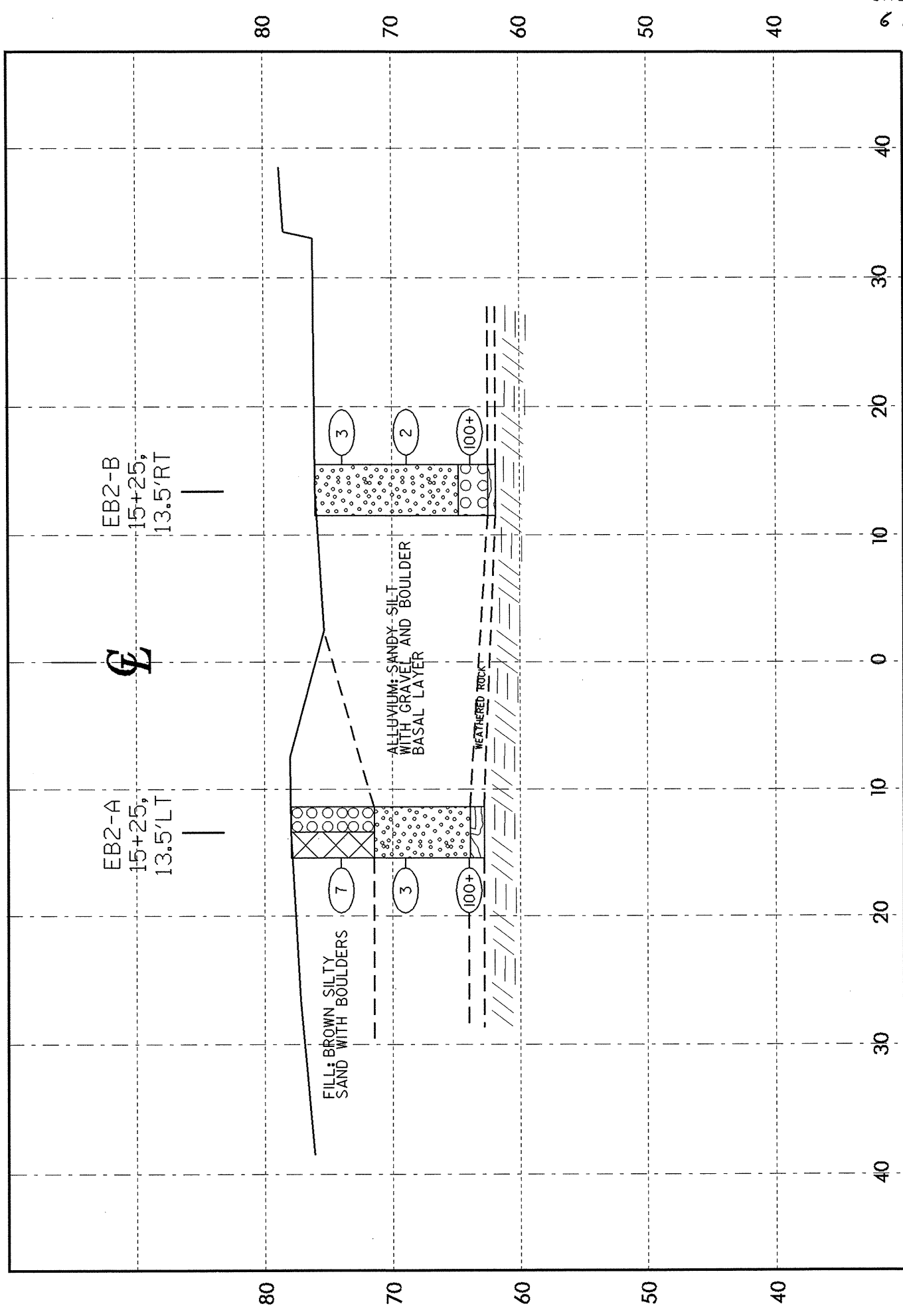
CROSS SECTION THROUGH END BENT ONE

BRIDGE NO. 112, 33433.1.1 (B-4070)



CROSS SECTION THROUGH END BENT TWO

BRIDGE NO. 112, 33433.1.1 (B-4070)



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 33433.1.1		ID B-4070		COUNTY CHEROKEE		GEOLOGIST T B DANIEL								
SITE DESCRIPTION BRIDGE NO. 112 ON SR-1347 OVER HANGING DOG CREEK							GND WATER							
BORING NO EB1-A		NORTHING 0.00		EASTING 0.00		0 HR 5.60ft								
ALIGNMENT -L-		BORING LOCATION 14+07.000		OFFSET 13.50ft LT		24 HR N/A								
COLLAR ELEV 71.52ft		TOTAL DEPTH 10.00ft		START DATE 2/02/06		COMPLETION DATE 02/02/06								
DRILL MACHINE CME 550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log EB1-A, Page 1 of 1								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG MOI	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
71.52														Ground Surface
	3.60	2	2	2	1.0									ALLUVIUM: TAN SILTY SAND, MOIST
	8.60	36	27	73	0.4									ALLUVIAL GRAVEL AND BOULDERS
61.52														WEATHERED ROCK
														HOLLOW AUGER REFUSAL AT ELEV 61.52 ON ROCK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 33433.1.1		ID B-4070		COUNTY CHEROKEE		GEOLOGIST T B DANIEL								
SITE DESCRIPTION BRIDGE NO. 112 ON SR-1347 OVER HANGING DOG CREEK							GND WATER							
BORING NO EB1-B		NORTHING 0.00		EASTING 0.00		0 HR 7.60ft								
ALIGNMENT -L-		BORING LOCATION 14+07.000		OFFSET 13.50ft RT		24 HR N/A								
COLLAR ELEV 73.37ft		TOTAL DEPTH 10.40ft		START DATE 2/02/06		COMPLETION DATE 02/02/06								
DRILL MACHINE CME 550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log EB1-B, Page 1 of 1								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG MOI	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
73.37														Ground Surface
	3.70	2	1	2	1.0									ALLUVIUM: TAN SILTY SAND, MOIST
	8.70	57	22	78	0.1									ALLUVIAL GRAVEL AND BOULDERS
62.97														WEATHERED ROCK
														HOLLOW AUGER REFUSAL AT ELEV 62.97 ON ROCK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 33433.1.1		ID B-4070		COUNTY CHEROKEE		GEOLOGIST T B DANIEL								
SITE DESCRIPTION BRIDGE NO. 112 ON SR-1347 OVER HANGING DOG CREEK							GND WATER							
BORING NO EB2-A		NORTHING 0.00		EASTING 0.00		0 HR N/A	24 HR N/A							
ALIGNMENT -L-		BORING LOCATION 15+25.000		OFFSET 13.50ft LT		0 HR N/A	24 HR N/A							
COLLAR ELEV 77.91ft		TOTAL DEPTH 15.10ft		START DATE 2/01/06		COMPLETION DATE 02/01/06								
DRILL MACHINE CME 550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log EB2-A, Page 1 of 1								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
1667.94 77.91														Ground Surface
	3.90	4	5	2	1.0									FILL: BROWN SILTY SAND WITH BOULDERS
	8.90	2	1	2	1.0									ALLUVIUM: BROWN SANDY SILT, WET
1452.8 62.81	13.90	100			0.0									WEATHERED ROCK
														HOLLOW AUGER REFUSAL AT ELEV 62.81 ON ROCK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO 33433.1.1		ID B-4070		COUNTY CHEROKEE		GEOLOGIST T B DANIEL								
SITE DESCRIPTION BRIDGE NO. 112 ON SR-1347 OVER HANGING DOG CREEK							GND WATER							
BORING NO EB2-B		NORTHING 0.00		EASTING 0.00		0 HR N/A	24 HR N/A							
ALIGNMENT -L-		BORING LOCATION 15+25.000		OFFSET 13.50ft RT		0 HR N/A	24 HR N/A							
COLLAR ELEV 75.97ft		TOTAL DEPTH 14.10ft		START DATE 2/01/06		COMPLETION DATE 02/01/06								
DRILL MACHINE CME 550			DRILL METHOD H.S. AUGERS			HAMMER TYPE AUTOMATIC								
SURFACE WATER DEPTH			DEPTH TO ROCK N/A			Log EB2-B, Page 1 of 1								
ELEV	DEPTH	BLOW CT			PEN (ft)	BLOWS PER FOOT					SAMPLE NO	LOG	SOIL AND ROCK DESCRIPTION	
		6in	6in	6in		0	25	50	75	100				
1666 75.97														Ground Surface
	2.20	0	2	1	1.0									ALLUVIUM: BROWN SANDY SILT, WET
	7.20	1	1	1	1.0									ALLUVIUM: BROWN SANDY SILT, WET
1651.9 61.87	12.20	15	32	68	0.4									ALLUVIUM: BROWN SILTY SAND AND GRAVEL
														WEATHERED ROCK
														HOLLOW AUGER REFUSAL AT ELEV 61.87 ON ROCK



**FIELD
 SCOUR REPORT**

PROJECT: 33433.1.1 ID: B-4070 COUNTY: Cherokee

DESCRIPTION(1): Bridge No.112 on SR-1347 over Hanging Dog Creek

EXISTING BRIDGE

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

Bridge No.: 112 Length: 120 Total Bents: 4 Bents in Channel: 2 Bents in Floodplain: 2
 Foundation Type: Footings

EVIDENCE OF SCOUR(2)

Abutments or End Bent Slopes: None noted.

Interior Bents: Minor amounts immediately downstream of concrete footings.

Channel Bed: None noted.

Channel Bank: None noted.

EXISTING SCOUR PROTECTION

Type(3): None

Extent(4): _____

Effectiveness(5): _____

Obstructions(6): _____

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 geotechnically adjusted scour elevation (GASE) 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 GASE. If the GASE is dependent on scour counter measures, explain (e.g. rip rap armoring on slopes). The GASE 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): Sand, gravel, cobbles and boulders.

Channel Bank Material(8): Silty sand.

Channel Bank Cover(9): EB1: grass. EB2: trees and underbrush.

Floodplain Width(10): EB1 > 100ft. EB2 +/- 50ft.

Floodplain Cover(11): EB1 > 100ft. EB2 +/- 50ft.

Stream is(12): Aggrading _____ Degrading Static _____

Channel Migration Tendency(13): North

Observations and Other Comments: _____

GEOTECHNICALLY ADJUSTED SCOUR ELEVATIONS(14) Feet _____ Meters _____

BENTS

	B1	B2	B3	B4									
SB Lanes, Lt													
SB Lanes, Rt													
NB Lanes, Lt													
NB Lanes, Rt													

Comparison of GASE to Hydraulics Unit theoretical scour: _____

SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL

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

Reported by: _____ Date: 2/8/2006

C A Dunnagan