

STATE	STATE PROJECT REFERENCE NO.	SHEET	TOTAL SHEETS
N.C.	33640.1.1(B-4303)	1	14

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

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 33640.1.1(B-4303) F.A. PROJ. BRZ-1844(1)
COUNTY WAKE
PROJECT DESCRIPTION BRIDGE NO. 102 ON -L- (SR 1844) OVER
LOWER BARTONS CREEK AT -L- STATION 17+71.0

INVENTORY

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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 (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

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

PERSONNEL

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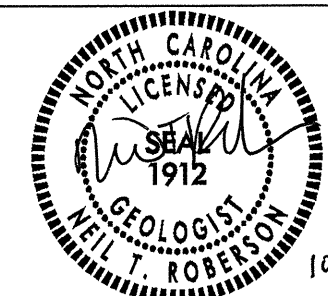
T.T. WALKER

INVESTIGATED BY O.B. OTT

CHECKED BY N.T. ROBERSON

SUBMITTED BY N.T. ROBERSON

DATE OCTOBER 2007



10/11/07

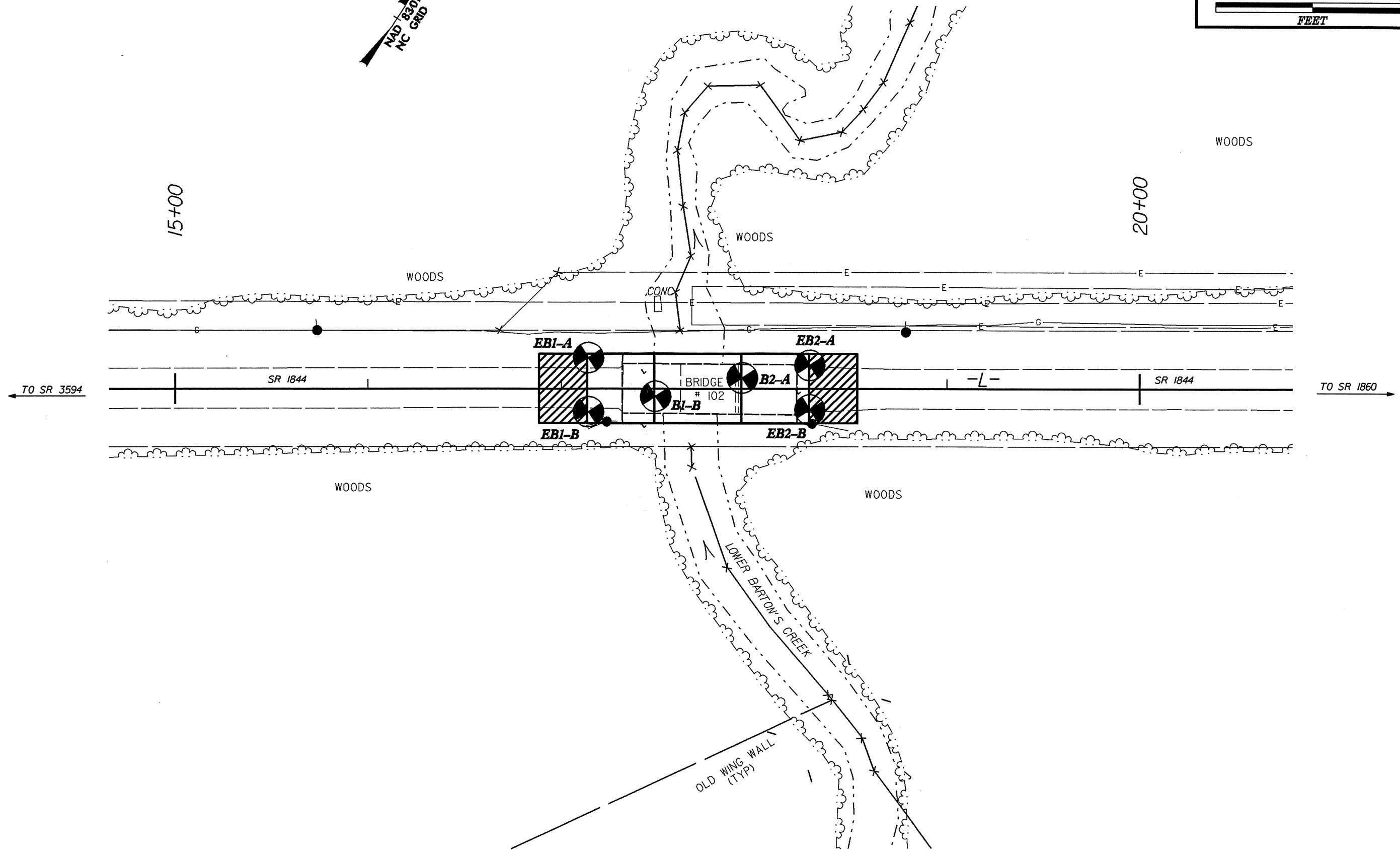
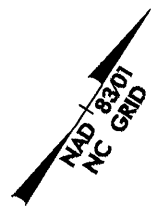
PROJECT: 33640.1.1 ID: B-4303

DRAWN BY: T.T. WALKER

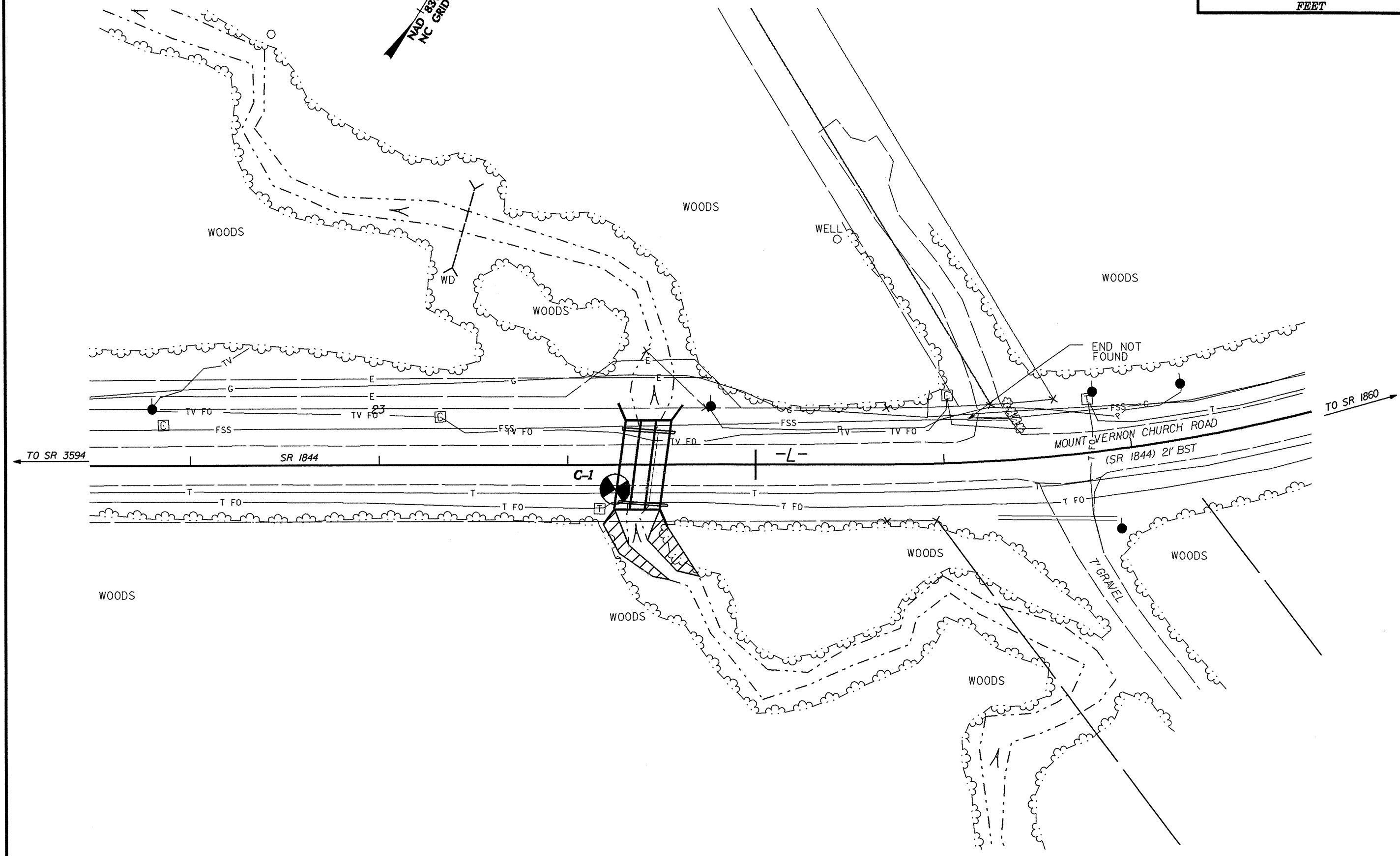
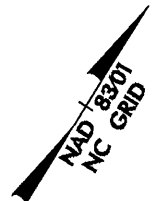
NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

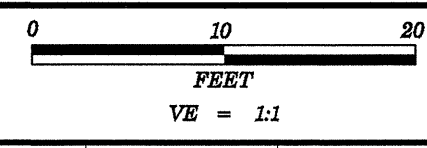
NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PROJECT REFERENCE NO.	SHEET
33640.1.1(B-4303)	3
SITE PLAN	
FEET	

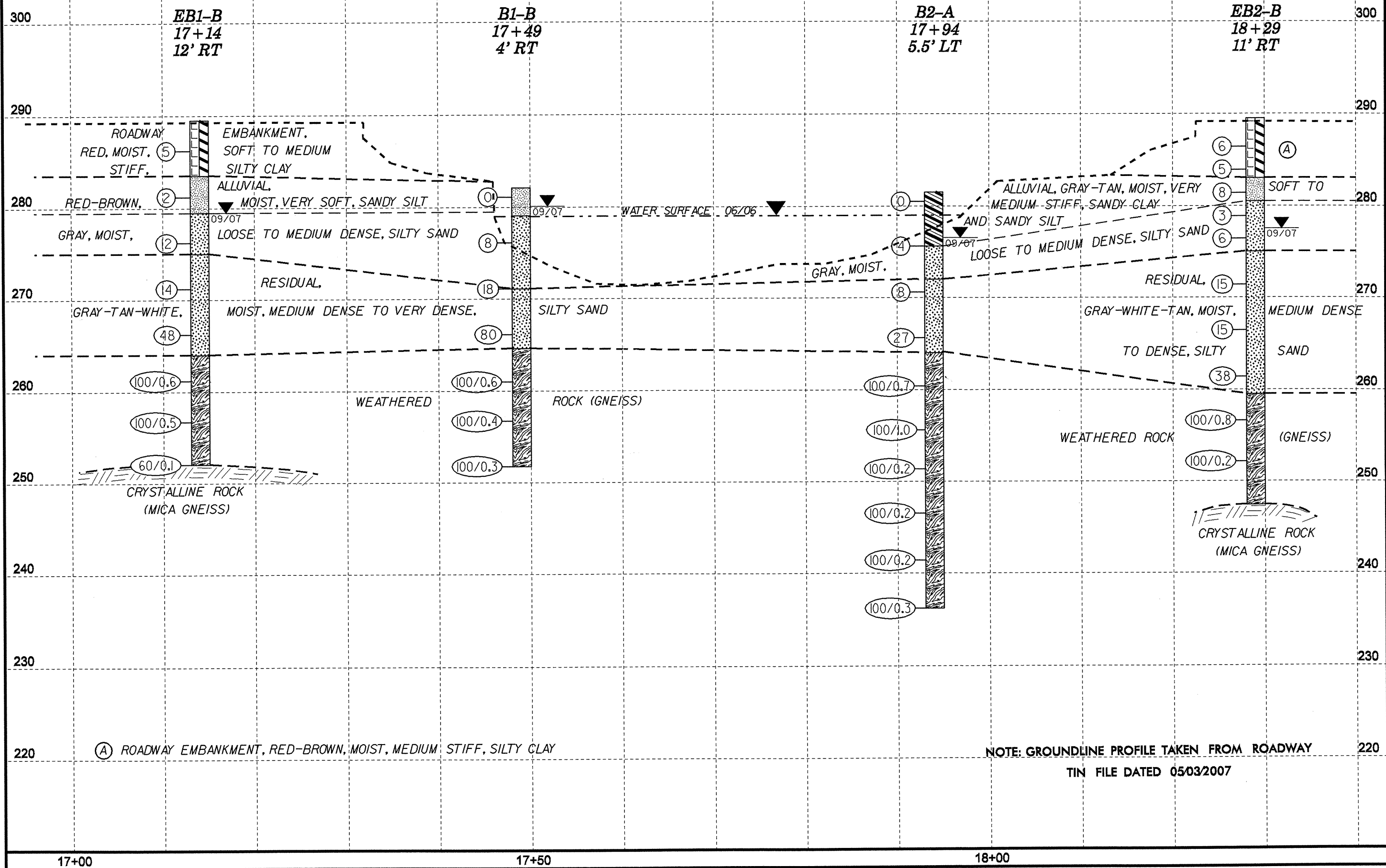


PROJECT REFERENCE NO. 33640.1.1(B-4303)	SHEET 4
CULVERT SITE PLAN	



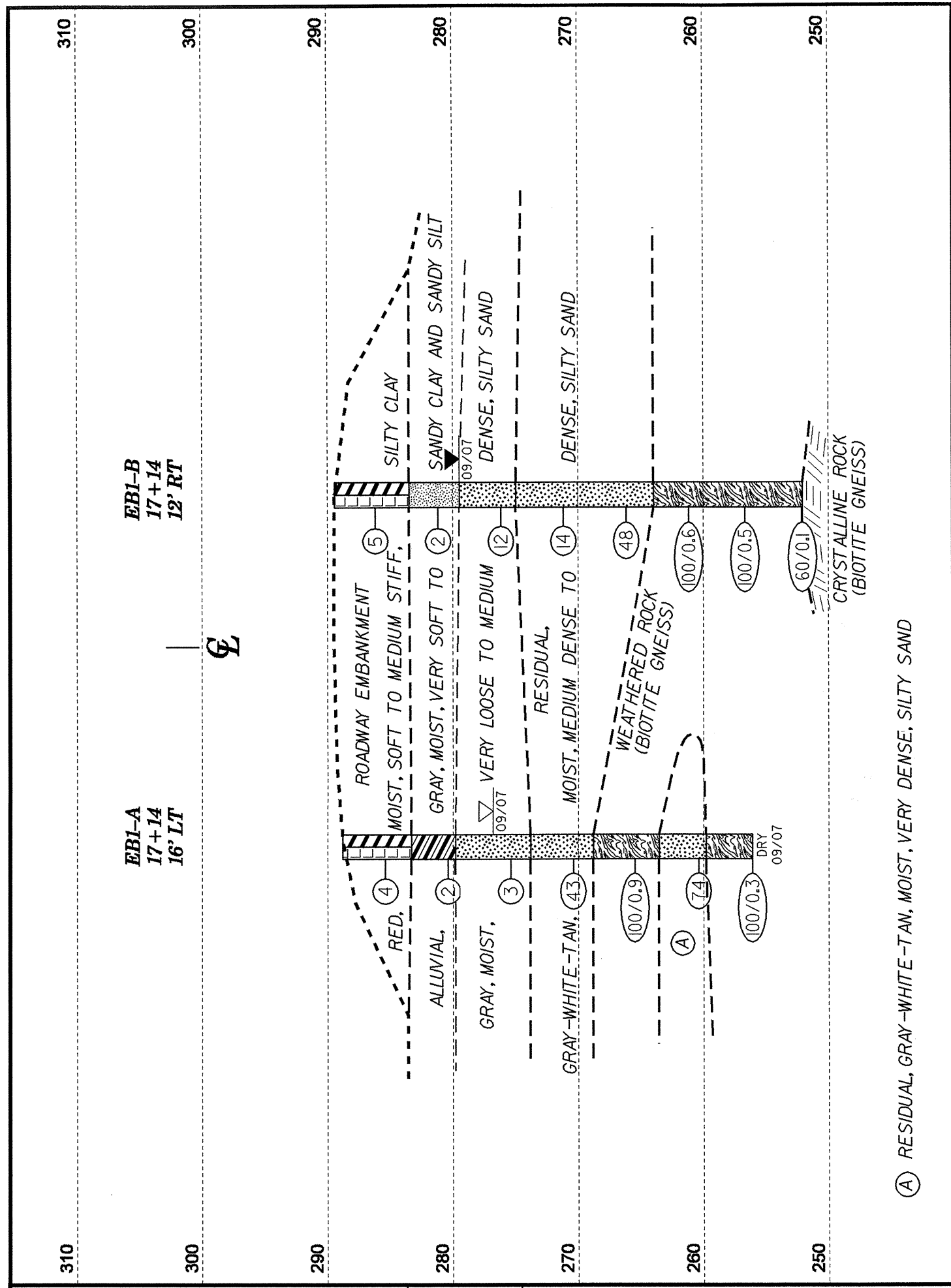


PROJECT REFERENCE NO.	SHEET
33640.1.1(B-4303)	5
FENCE DIAGRAM OF BORINGS PROJECTED ALONG -L-	



(A) ROADWAY EMBANKMENT, RED-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY

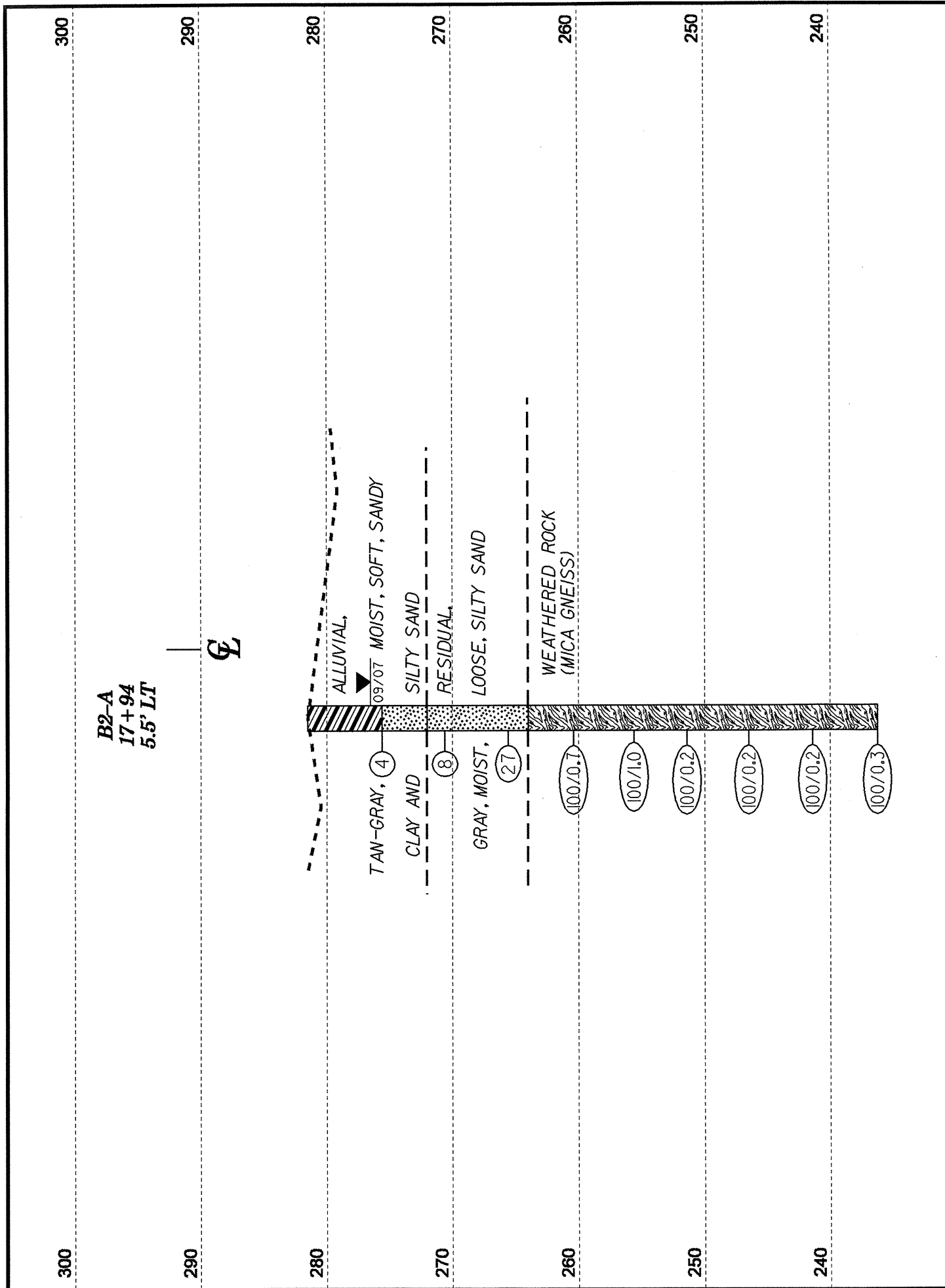
NOTE: GROUNDLINE PROFILE TAKEN FROM ROADWAY
TIN FILE DATED 05/03/2007



HORIZ. SCALE 0 10 20 (FEET)
VE = 1:1
CROSS SECTION THROUGH END BENT 1



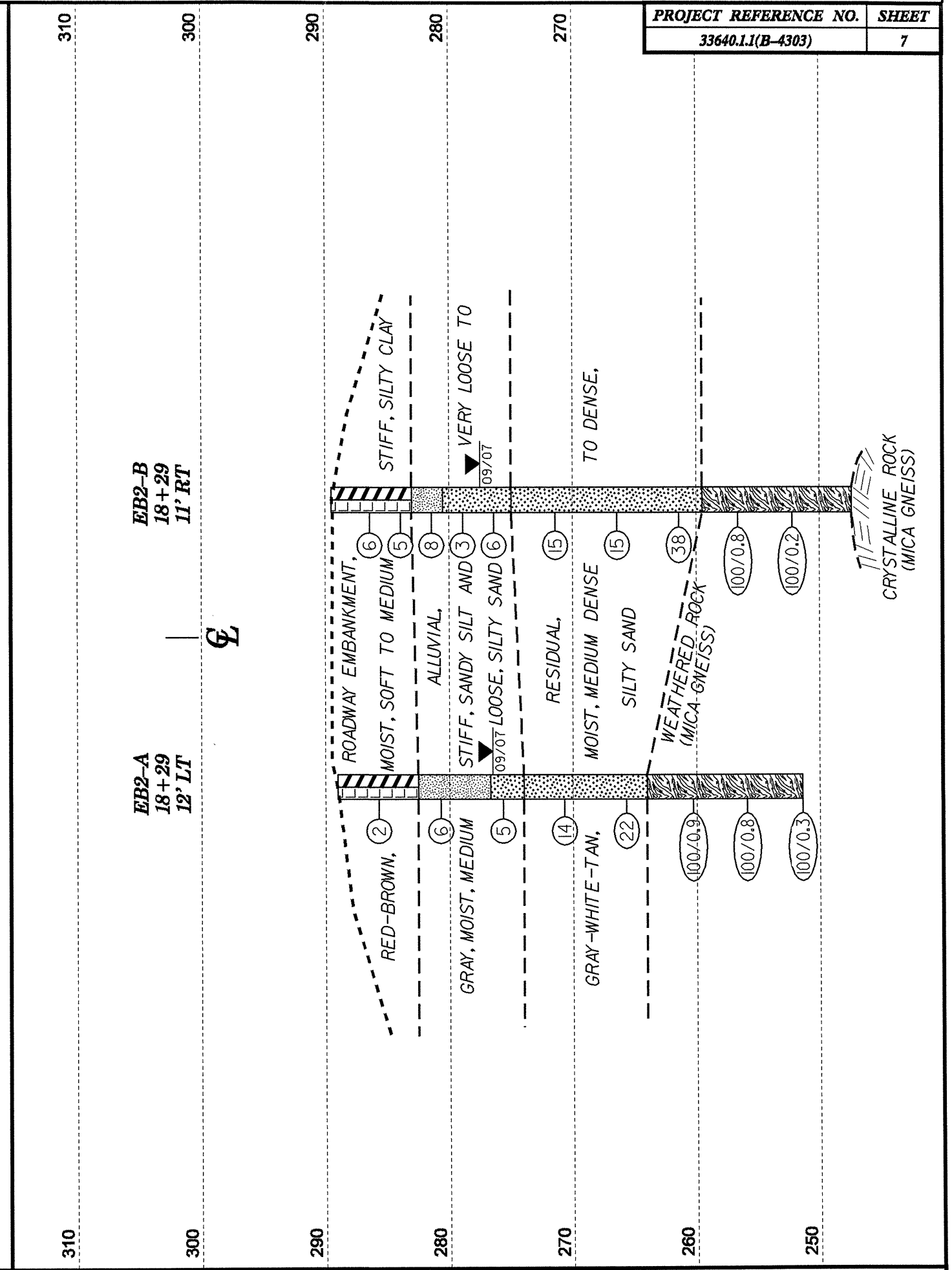
HORIZ. SCALE 0 10 20 (FEET)
VE = 1:1
CROSS SECTION THROUGH BENT 1



HORIZ. SCALE 0 10 20
(FEET)

VE = 1:1

CROSS SECTION THROUGH BENT 2



HORIZ. SCALE 0 10 20
(FEET)

VE = 1:1

CROSS SECTION THROUGH END BENT 2

PROJECT NO. 33640.1.1	ID. B-4303	COUNTY WAKE	GEOLOGIST Kuntukova, Y
SITE DESCRIPTION BRIDGE NO. 102 ON -L- (SR 1844) OVER LOWER BARTONS CREEK			GROUND WTR (ft)
BORING NO. EB1-A	STATION 17+14	OFFSET 16ft LT	ALIGNMENT -L-
COLLAR ELEV. 288.8 ft	TOTAL DEPTH 32.7 ft	NORTHING 794,834	EASTING 2,099,024
DRILL MACHINE CME-550	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 09/06/07	COMP. DATE 09/06/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

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					
290													288.8	0.0
286.4	2.4	1	1	3									283.3	5.5
281.4	7.4	1	1	1									279.8	9.0
276.4	12.4	1	1	2									273.8	15.0
271.4	17.4	10	15	28									268.8	20.0
266.4	22.4	35	65/0.4										263.8	25.0
261.4	27.4	40	45	29									259.8	29.0
256.4	32.4	100/0.3											256.1	32.7

Boring Terminated at Elevation 256.1 ft in WEATHERED ROCK (BIOTITE GNEISS)

PROJECT NO. 33640.1.1	ID. B-4303	COUNTY WAKE	GEOLOGIST Kuntukova, Y
SITE DESCRIPTION BRIDGE NO. 102 ON -L- (SR 1844) OVER LOWER BARTONS CREEK			GROUND WTR (ft)
BORING NO. EB1-B	STATION 17+14	OFFSET 12ft RT	ALIGNMENT -L-
COLLAR ELEV. 289.5 ft	TOTAL DEPTH 37.4 ft	NORTHING 794,810	EASTING 2,099,008
DRILL MACHINE CME-550	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 09/07/07	COMP. DATE 09/07/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 37.3 ft

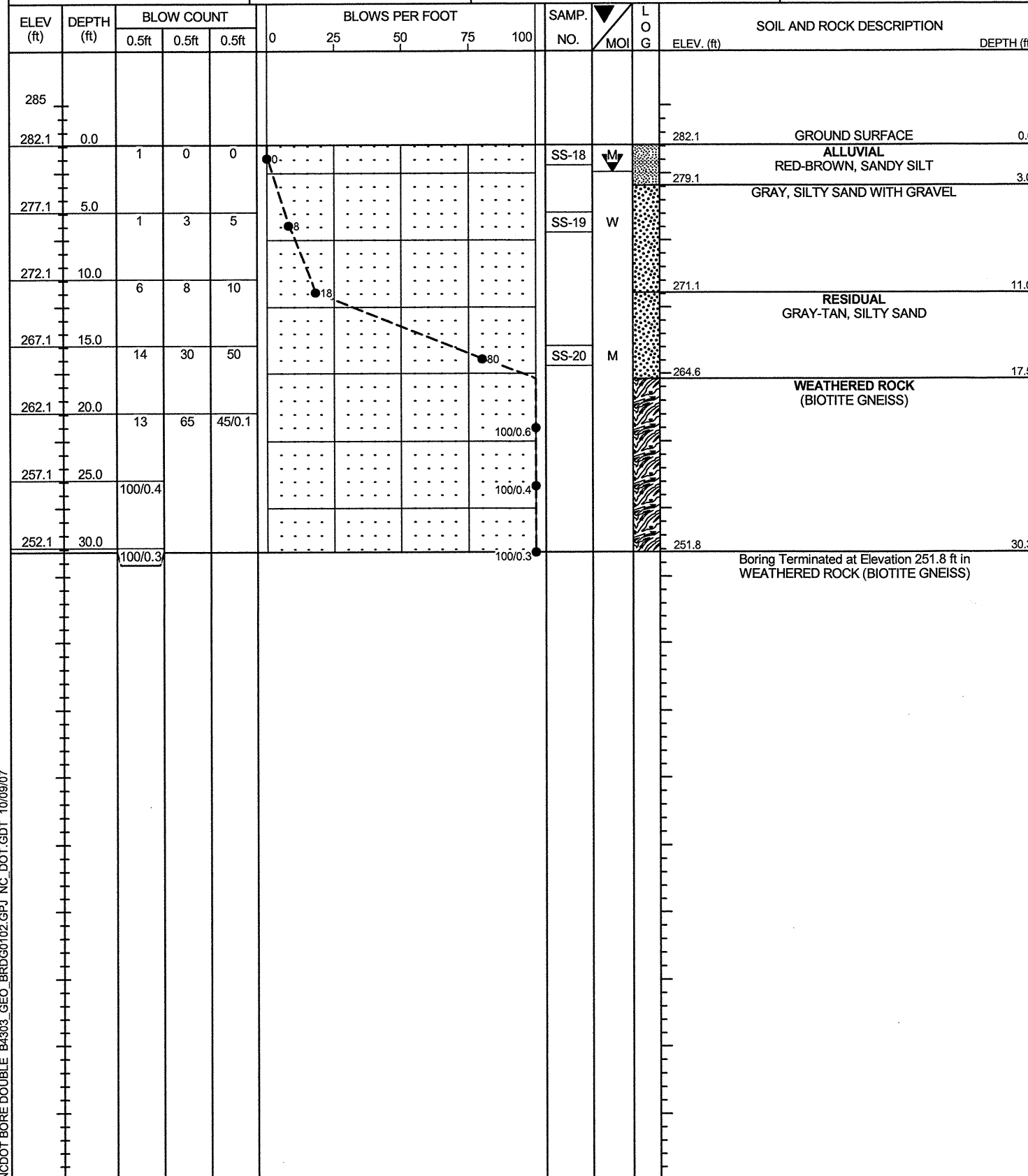
ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
		0.5ft	0.5ft	0.5ft	0	25	50	75	100					
290													289.5	0.0
287.2	2.3	1	2	3									283.5	6.0
282.2	7.3	1	1	1									279.5	10.0
277.2	12.3	1	4	8									275.0	14.5
272.2	17.3	3	5	9									264.0	25.5
267.2	22.3	9	22	26									264.0	25.5
262.2	27.3	30	65	35/0.1									252.2	37.3
257.2	32.3	100/0.5											252.1	37.4
252.2	37.3	60/0.1											252.1	37.4

Boring Terminated with Standard Penetration Test Refusal at Elevation 252.1 ft in CRYSTALLINE ROCK (BIOTITE GNEISS)

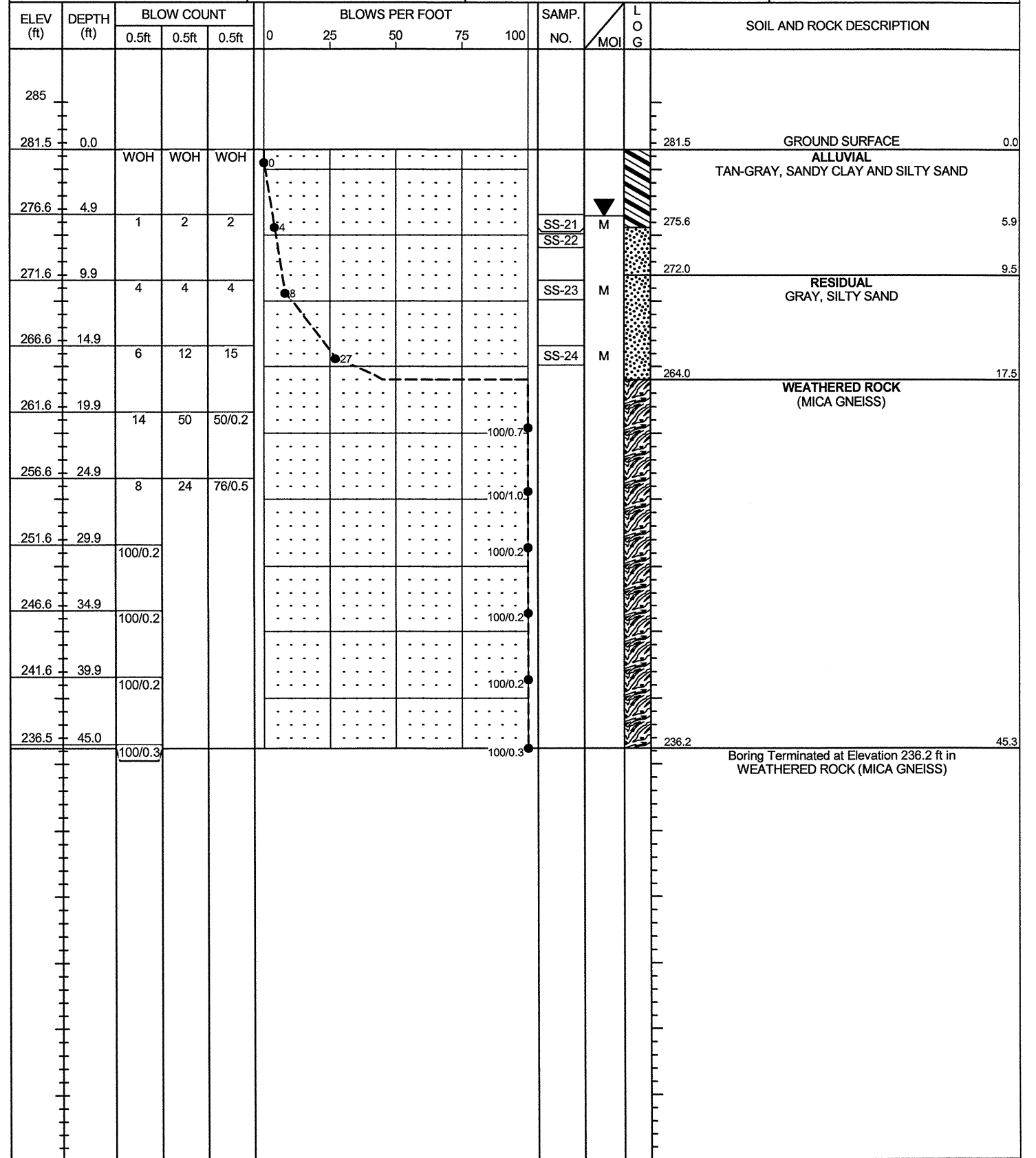
NCDOT BORE DOUBLE B4303_GEO_BRDGG102.GPJ_NC_DOT.GDT_10/09/07



PROJECT NO. 33640.1.1	ID. B-4303	COUNTY WAKE	GEOLOGIST Kuntutkova, Y
SITE DESCRIPTION BRIDGE NO. 102 ON -L- (SR 1844) OVER LOWER BARTONS CREEK			
BORING NO. B1-B	STATION 17+49	OFFSET 4ft RT	ALIGNMENT -L-
COLLAR ELEV. 282.1 ft	TOTAL DEPTH 30.3 ft	NORTHING 794,798	EASTING 2,099,042
DRILL MACHINE CME-550	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 09/10/07	COMP. DATE 09/11/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A



PROJECT NO. 33640.1.1	ID. B-4303	COUNTY WAKE	GEOLOGIST Kuntutkova, Y
SITE DESCRIPTION BRIDGE NO. 102 ON -L- (SR 1844) OVER LOWER BARTONS CREEK			
BORING NO. B2-A	STATION 17+94	OFFSET 6ft LT	ALIGNMENT -L-
COLLAR ELEV. 281.5 ft	TOTAL DEPTH 45.3 ft	NORTHING 794,782	EASTING 2,099,085
DRILL MACHINE CME-550	DRILL METHOD Wash Boring	HAMMER TYPE Automatic	
START DATE 09/11/07	COMP. DATE 09/12/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A



NCDOT BORE DOUBLE B4303_GEO_BRDGG102.GPJ NC_DOT.GDT 10/09/07



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

PROJECT NO. 33640.1.1	ID. B-4303	COUNTY WAKE	GEOLOGIST Kuntukova, Y
SITE DESCRIPTION BRIDGE NO. 102 ON -L- (SR 1844) OVER LOWER BARTONS CREEK			GROUND WTR (ft)
BORING NO. EB2-A	STATION 18+29	OFFSET 12ft LT	ALIGNMENT -L-
COLLAR ELEV. 289.0 ft	TOTAL DEPTH 37.6 ft	NORTHING 794,768	EASTING 2,099,118
DRILL MACHINE CME-550	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 09/06/07	COMP. DATE 09/06/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

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					
290													GROUND SURFACE	0.0
286.7	2.3	4	1	1						SS-6	M		ROADWAY EMBANKMENT RED, SILTY CLAY	
281.7	7.3	2	4	2						SS-7	M		ALLUVIAL GRAY, SANDY SILT	6.5
276.7	12.3	1	3	2						SS-8	W		GRAY, SILTY SAND	12.3
271.7	17.3	6	7	7						SS-9	M		RESIDUAL GRAY-TAN, SILTY SAND	15.0
266.7	22.3	7	10	12						SS-10				25.0
261.7	27.3	30	45	55/0.4									WEATHERED ROCK (BIOTITE GNEISS)	25.0
256.7	32.3	35	65/0.3											100/0.9
251.7	37.3	100/0.3												100/0.8
														100/0.3
														251.4
Boring Terminated at Elevation 251.4 ft in WEATHERED ROCK (BIOTITE GNEISS)														

PROJECT NO. 33640.1.1	ID. B-4303	COUNTY WAKE	GEOLOGIST Kuntukova, Y
SITE DESCRIPTION BRIDGE NO. 102 ON -L- (SR 1844) OVER LOWER BARTONS CREEK			GROUND WTR (ft)
BORING NO. EB2-B	STATION 18+29	OFFSET 11ft RT	ALIGNMENT -L-
COLLAR ELEV. 289.5 ft	TOTAL DEPTH 42.1 ft	NORTHING 794,749	EASTING 2,099,106
DRILL MACHINE CME-550	DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
START DATE 09/05/07	COMP. DATE 09/05/07	SURFACE WATER DEPTH N/A	DEPTH TO ROCK 42.1 ft

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					
290													GROUND SURFACE	0.0
287.4	2.1												ROADWAY EMBANKMENT BROWN-RED, SILTY CLAY	
284.9	4.6	2	3	3						SS-1	M			6.5
282.4	7.1	1	2	3						SS-2	M		ALLUVIAL GRAY, SANDY SILT	9.0
279.9	9.6	1	3	5									GRAY, SILTY SAND	9.0
277.4	12.1	1	1	2						SS-3	W			14.5
272.4	17.1	3	3	3									RESIDUAL GRAY-WHITE-TAN, SILTY SAND	14.5
267.4	22.1	7	9	6						SS-4	M			27.5
262.4	27.1	6	7	8						SS-5	M			27.5
257.4	32.1	13	12	26									WEATHERED ROCK (BIOTITE GNEISS)	30.0
252.4	37.1	47	53/0.3											100/0.8
		100/0.2												100/0.2
														247.4
Boring Terminated by Auger Refusal at Elevation 247.4 ft on CRYSTALLINE ROCK (BIOTITE GNEISS)														

NCDOT BORE DOUBLE B4303 GEO_BRD60102.GPJ NC_DOT.GDT 10/09/07

PROJECT NO. 33640.1.1		ID. B-4303		COUNTY WAKE		GEOLOGIST Kuntutkova, Y									
SITE DESCRIPTION CULVERT ON -L- OVER TRIBUTARY TO LOWER BARTONS CREEK							GROUND WTR (ft)								
BORING NO. C-1		STATION 24+25		OFFSET 13ft RT		ALIGNMENT -L-									
COLLAR ELEV. 289.8 ft		TOTAL DEPTH 22.4 ft		NORTHING 794,426		EASTING 2,099,607									
DRILL MACHINE CME-550		DRILL METHOD H.S. Augers				HAMMER TYPE Automatic									
START DATE 09/13/07		COMP. DATE 09/13/07		SURFACE WATER DEPTH N/A		DEPTH TO ROCK N/A									
ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
		0.5ft	0.5ft	0.5ft	0	25	50	75	100						
290													289.8	GROUND SURFACE	0.0
287.6	2.2				3	2	1							ROADWAY EMBANKMENT RED, SANDY SILT	
282.6	7.2				1	1	1							ALLUVIAL GRAY, SILTY SAND	6.5
277.6	12.2				28	15	20							RESIDUAL GRAY-TAN, SILTY SAND	9.0
272.6	17.2				25	75/0.5								WEATHERED ROCK (FELSIC MICA GNEISS)	15.5
267.6	22.2				100/0.2									WEATHERED ROCK (FELSIC MICA GNEISS)	22.4
														Boring Terminated at Elevation 267.4 ft in WEATHERED ROCK (FELSIC MICA GNEISS)	

EB1-A

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-11	16' LT	17+14	2.6-3.9	A-7-5(32)	72	40	9.8	18.0	20.1	52.1	100	95	75	-	-
SS-12	16' LT	17+14	7.4-8.9	A-6(3)	31	11	15.6	35.8	22.5	26.0	100	94	54	-	-
SS-13	16' LT	17+14	12.4-13.9	A-2-4(0)	29	NP	38.0	51.1	6.9	4.0	96	86	13	-	-
SS-14	16' LT	17+14	17.4-18.9	A-2-4(0)	29	NP	37.9	44.5	13.5	4.0	100	83	24	-	-

EB1-B

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-15	12' RT	17+14	7.3-8.8	A-4(5)	32	10	3.2	37.8	30.9	28.0	100	99	66	-	-
SS-16	12' RT	17+14	12.3-13.8	A-2-4(0)	23	NP	40.6	44.4	6.9	8.0	72	59	13	-	-
SS-17	12' RT	17+14	17.3-18.8	A-2-4(0)	36	2	28.4	54.1	15.5	2.0	100	90	25	-	-

B1-B

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-18	4' RT	17+49	0.0-1.5	A-4(0)	24	5	13.2	53.3	15.5	18.0	100	98	40	-	-
SS-19	4' RT	17+49	5.0-6.5	A-2-4(0)	23	NP	40.6	46.0	3.3	10.0	69	57	12	-	-
SS-20	4' RT	17+49	15.0-16.5	A-2-4(0)	27	NP	17.7	63.5	14.8	4.0	100	95	28	-	-

B2-A

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-21	5.5' LT	17+94	4.9-5.9	A-6(7)	40	17	3.4	47.0	21.5	28.0	100	100	57	-	-
SS-22	5.5' LT	17+94	5.9-6.4	A-2-4(0)	27	NP	28.4	56.7	8.9	6.0	84	74	16	-	-
SS-23	5.5' LT	17+94	9.9-11.4	A-2-4(0)	38	NP	22.2	59.9	15.9	2.0	100	94	26	-	-
SS-24	5.5' LT	17+94	14.9-16.4	A-2-4(0)	31	NP	31.0	52.1	14.9	2.0	100	86	23	-	-

EB2-A

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-6	12' LT	18+29	2.3-3.8	A-7-6(5)	43	20	26.4	28.2	17.3	28.0	86	74	43	-	-
SS-7	12' LT	18+29	7.3-8.8	A-4(0)	26	5	22.0	45.2	18.7	14.0	99	92	37	-	-
SS-8	12' LT	18+29	12.3-13.8	A-2-4(0)	26	NP	15.0	64.7	12.3	8.0	100	97	26	-	-
SS-9	12' LT	18+29	17.3-18.8	A-2-4(0)	28	4	18.8	59.5	17.7	4.0	96	86	32	-	-
SS-10	12' LT	18+29	22.3-23.8	A-2-4(0)	30	2	34.4	48.6	12.9	4.0	98	85	23	-	-

EB2-B

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-1	11' RT	18+29	2.1-3.6	A-7-6(11)	46	23	18.4	26.0	15.5	40.0	99	90	59	-	-
SS-2	11' RT	18+29	4.6-6.1	A-4(1)	27	7	12.4	47.2	18.3	22.0	100	98	47	-	-
SS-3	11' RT	18+29	12.1-13.6	A-2-4(0)	23	NP	56.7	33.2	4.1	6.0	98	77	12	-	-
SS-4	11' RT	18+29	17.1-18.6	A-2-4(0)	26	NP	40.2	39.4	16.3	4.0	78	61	21	-	-
SS-5	11' RT	18+29	22.1-23.6	A-2-4(0)	35	NP	21.6	62.7	13.7	2.0	100	91	23	-	-

C-1

SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-30	13' RT	29+25	2.2-3.7	A-4(0)	29	8	22.0	45.4	14.5	18.0	97	89	36	-	-
SS-31	13' RT	29+25	7.2-8.7	A-2-4(0)	25	5	19.4	54.7	15.9	10.0	100	89	35	-	-
SS-32	13' RT	29+25	12.2-13.7	A-2-4(0)	32	NP	23.0	52.7	18.3	6.0	92	83	30	-	-



**FIELD
 SCOUR REPORT**

WBS: 33640.1.1 TIP: B-4303 COUNTY: WAKE

DESCRIPTION(1): BRIDGE NO.102 ON -L- OVER LOWER BARTONS CREEK

EXISTING BRIDGE

Information from: Field Inspection x Microfilm N/A (reel N/A pos: N/A)
 Other (explain) _____

Bridge No.: 102 Length: 90' Total Bents: 3 Bents in Channel: 1 Bents in Floodplain: 3
 Foundation Type: Timber Piles with concrete casing

EVIDENCE OF SCOUR(2)

Abutments or End Bent Slopes: None

Interior Bents: Minor local and contraction scour

Channel Bed: Minor contraction scour

Channel Bank: Minor local and contraction scour

EXISTING SCOUR PROTECTION

Type(3): N/A

Extent(4): N/A

Effectiveness(5): N/A

Obstructions(6): Fallen tree 20' up-stream

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): SS-19, VERY LOOSE, RED-BROWN, SILTY SAND (A-2-4)

Channel Bank Material(8): SS-18 AND SS-21, SOFT, GRAY, SANDY SILT AND SANDY CLAY (A-4, A-6)

Channel Bank Cover(9): WOODS, SHRUBS, GRASS, LARGE AND SMALL TREES

Floodplain Width(10): APPROXIMATELY, 250 FEET

Floodplain Cover(11): WOODS, SHRUBS, GRASS

Stream is(12): Aggrading Degrading X Static

Channel Migration Tendency(13): SLIGHT TENDENCY TO THE WEST TOWARDS END BENT 1

Observations and Other Comments: N/A

DESIGN SCOUR ELEVATIONS(14)

Feet X Meters

	Bent 1	Bent 2											
Overtopping	270.0	270.0											

Comparison of DSE to Hydraulics Unit theoretical scour:

No scour anticipated beyond the end bents. The Geotechnical Engineering Unit and Hydraulics Unit agree that the DSE should be raised to 270.0 feet for the overtopping event as shown in the Bridge Survey and Hydraulic Design Report dated 6/26/07.

SOIL ANALYSIS RESULTS FROM CHANNEL BED AND BANK MATERIAL

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

See Sheet 12
 "Soil Test Results",
 for samples:
 SS-18, SS-19 & SS-21

Reported by: *Onuha B. Oti* Date: 10/5/2007
 ONUOHA B. OTI

SITE PHOTOGRAPH

Bridge No. 102 on -L- (SR 1844) Over Lower Bartons Creek



Looking west towards End Bent 1