

PROJECT: ID:

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

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. F.A. PROJ.
COUNTY CHEROKEE
PROJECT DESCRIPTION

SITE DESCRIPTION CHEROKEE BRIDGE NO. 245 ON SR-1649 OVER VALLEY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	CHEROKEE COUNTY BRDG. #245	1	11

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

D.C. ELLIOTT

D.O. CHEEK

C.J. COFFEY

INVESTIGATED BY P.Q. LOCKAMY

CHECKED BY

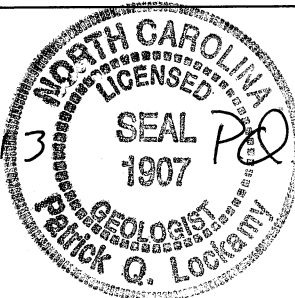
SUBMITTED BY

DATE 2.6.13

DRAWN BY: J.T. WILLIAMS

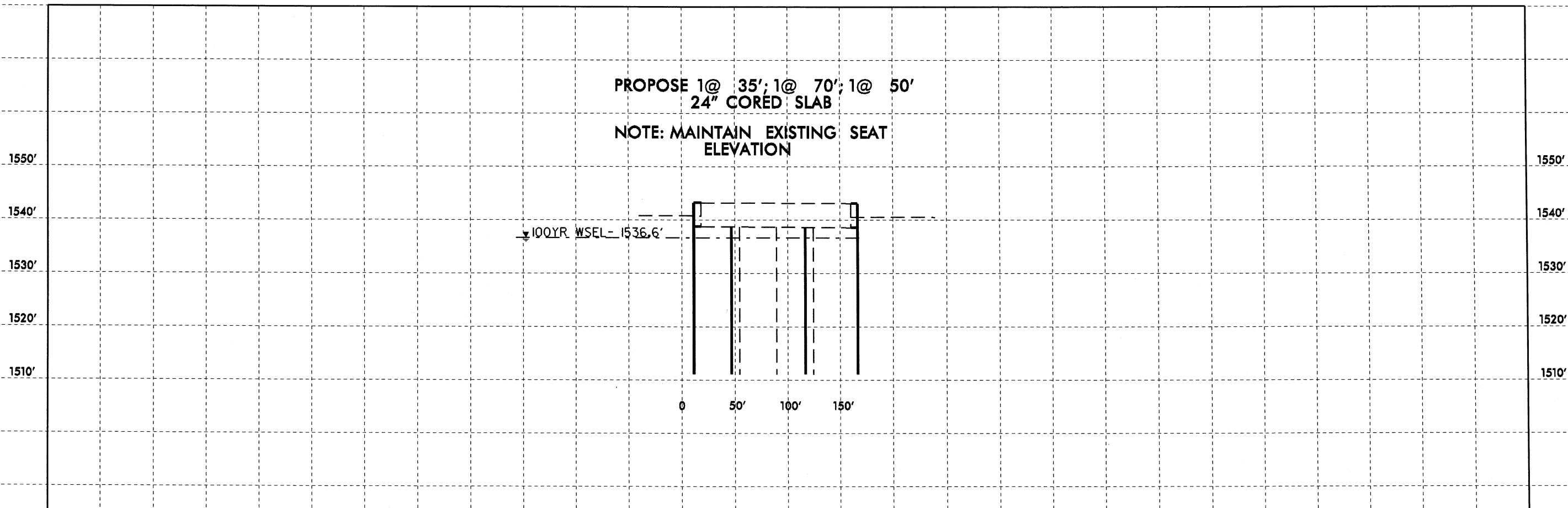
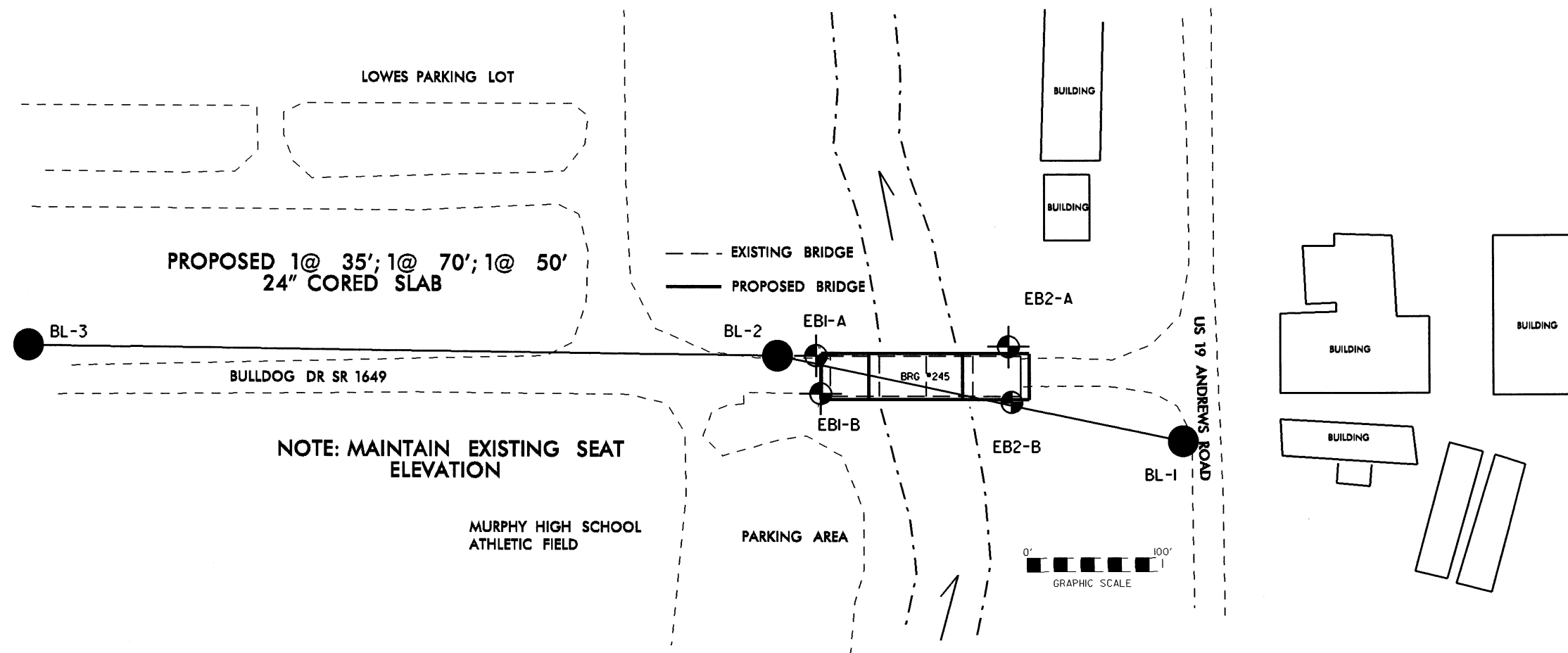
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NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.



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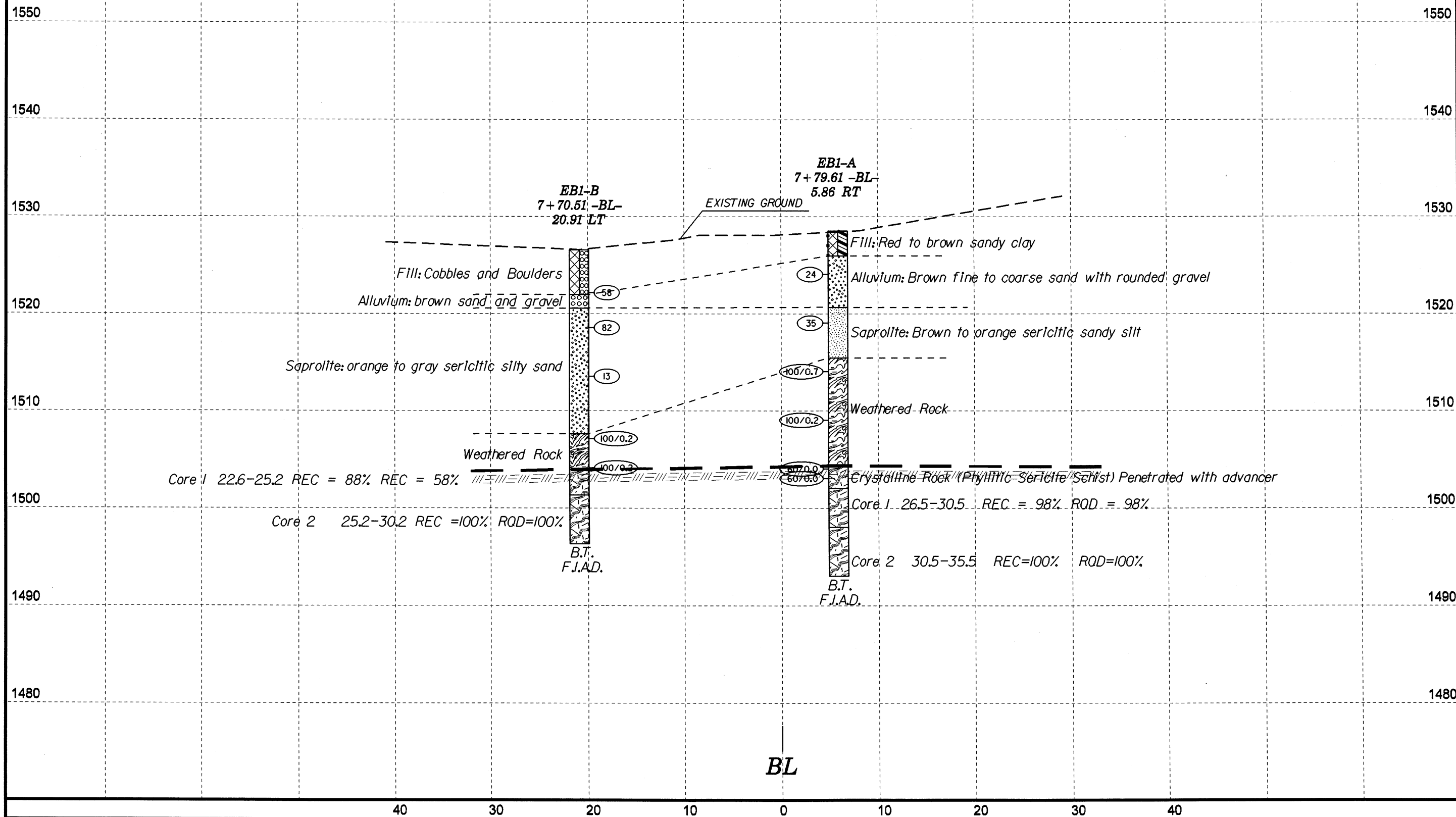
PROJECT REFERENCE NO.	SHEET NO.
CHEROKEE CO. BRIDGE NO. 245	3 of 11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

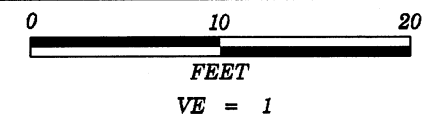


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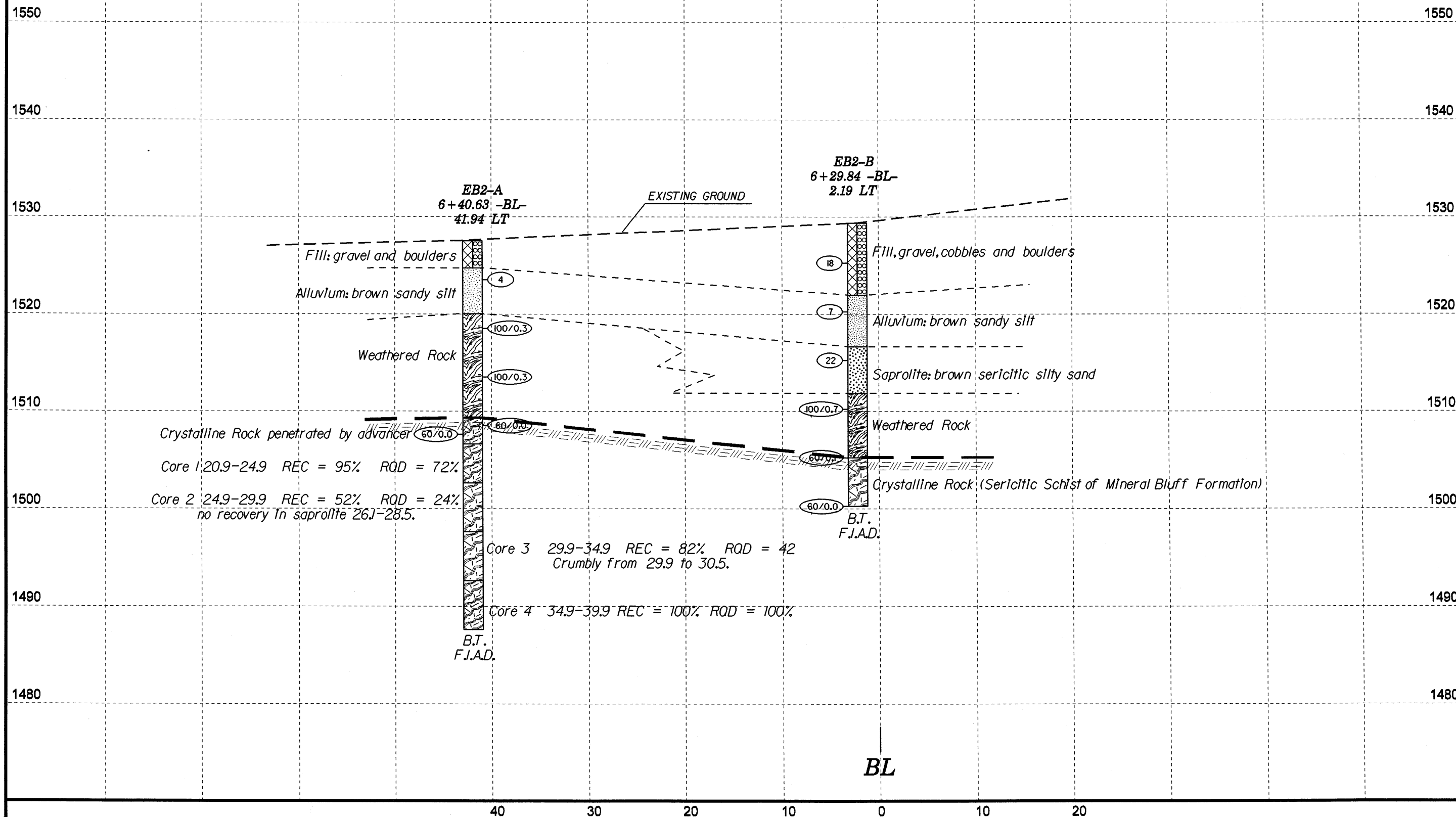
REVISIONS

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thompson AT GEAC5557





PROJECT REFERENCE NO.	SHEET
CHEROKEE COUNTY BRDG. #245	5 of 11
CROSS SECTION THRU EBI BORINGS	





SHEET

NC DOT BORE SINGLE BR 245 BORINGS.GPJ NC DOT.GDT 2/6/13



6/11

NCDOT BORE SINGLE BR 245 BORINGS.GPJ NC_DOT.GDT 2/6/13



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

SHEET

WBS N/A		TIP N/A		COUNTY CHEROKEE		GEOLOGIST DC Elliott							
SITE DESCRIPTION Cherokee County Bridge Number 245 on SR-1649 over Valley River							GROUND WTR (ft)						
BORING NO. EB2-A		STATION N/A		OFFSET N/A		ALIGNMENT N/A		0 HR. N/A					
COLLAR ELEV. 1,527.5 ft		TOTAL DEPTH 39.9 ft		NORTHING 529,434		EASTING 499,216		24 HR. N/A					
DRILL RIG/HAMMER EFF/DATE AFO0070 CME-550X 81% 09/03/2009				DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic						
DRILLER Cheek, D. O.		START DATE 01/31/13		COMP. DATE 01/31/13		SURFACE WATER DEPTH N/A							
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100		ELEV. (ft)	DEPTH (ft)
1545													
1540													
1535													
1530													
1525	1,522.5	5.0	2	2	2							1,527.5	GROUND SURFACE 0.0
													Fill: gravel and boulders
1520	1,517.5	10.0										1,524.7	2.8
													Alluvium: brown sandy silt
1515	1,512.5	15.0										1,520.0	7.5
													Weathered Rock
1510	1,507.5	20.0										1,509.3	18.2
	1,506.6	20.9											Crystalline Rock penetrated by advancer
1505												1,506.6	20.9
													Core 1 20.9-24.9 REC = 95% RQD = 72% 5 breaks on foliation with clay stains or slight rust. Hard and mostly unweathered with some slight weathering.
1500												1,502.6	24.9
													Core 2 24.9-29.9 REC = 52% RQD = 24% no recovery in saprolite 26.1-28.5. Numerous breaks on foliation with some rust. Fresh and hard to severely weathered and soft.
1495												1,497.6	29.9
													Core 3 29.9-34.9 REC = 82% RQD = 42% Crumbly from 29.9 to 30.5. Slightly weathered to fresh. Moderately hard to hard.5 breaks on foliation at 45 degrees have slight rust or clay stains. 1 break at 75 degrees has rust.
1490												1,492.6	34.9
													Core 4 34.9-39.9 REC = 100% RQD = 100% no natural breaks. hard and fresh.
												1,487.6	39.9
													Boring Terminated at Elevation 1,487.6 ft in crystalline rock

NCDOT BORE SINGLE BR_245_BORINGS.GPJ NC_DOT_GDT 2/6/13



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

SHEET
7/11

WBS N/A		TIP N/A		COUNTY CHEROKEE		GEOLOGIST DC Elliott						
SITE DESCRIPTION Cherokee County Bridge Number 245 on SR-1649 over Valley River						GROUND WTR (ft)						
BORING NO. EB2-B		STATION N/A		OFFSET N/A		ALIGNMENT N/A						
COLLAR ELEV. 1,529.4 ft		TOTAL DEPTH 29.1 ft		NORTHING 529,471		EASTING 449,235						
DRILL RIG/HAMMER EFF./DATE AFO0070 CME-550X 81% 09/03/2009				DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic						
DRILLER Cheek, D. O.		START DATE 01/31/13		COMP. DATE 01/31/13		SURFACE WATER DEPTH N/A						
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT		SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100	ELEV. (ft)	DEPTH (ft)
1545												
1540												
1535												
1530											1,529.4	0.0
											GROUND SURFACE	
											Fill, gravel, cobbles and boulders	
1525	1,525.3	4.1	13	4	14						1,522.0	7.4
											Alluvium: brown sandy silt	
1520	1,520.3	9.1	2	4	3						1,516.7	12.7
											Saprolite: brown secicitic silty sand	
1515	1,515.3	14.1	2	6	16						1,511.9	17.5
											Weathered Rock	
1510	1,510.3	19.1	79	21/2						100/7	1,505.3	24.1
											Crystalline Rock	
1505	1,505.3	24.1	60/1							60/1	1,500.3	29.1
											Boring Terminated at Elevation 1,500.3 ft in crystalline rock	
	1,500.3	29.1	60/0							60/0		

NCDOT BORE SINGLE BR_245_BORINGS.GPJ NC_DOT_GDT 2/6/13



NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

SHEET

8/11

WBS N/A		TIP N/A		COUNTY CHEROKEE		GEOLOGIST DC Elliott						
SITE DESCRIPTION Cherokee County Bridge Number 245 on SR-1649 over Valley River								GROUND WTR (ft)				
BORING NO. EB1A		STATION N/A		OFFSET N/A		ALIGNMENT N/A		0 HR.	N/A			
COLLAR ELEV. 1,528.5 ft		TOTAL DEPTH 35.5 ft		NORTHING 529,367		EASTING 499,343		24 HR.	N/A			
DRILL RIG/HAMMER EFF./DATE AFO0070 CME-550X 81% 09/03/2009				DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic						
DRILLER Cheek, D. O.		START DATE 01/31/13		COMP. DATE 01/31/13		SURFACE WATER DEPTH N/A						
CORE SIZE NXWL		TOTAL RUN 9.0 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) % RQD (ft) %		SAMP. NO.	STRATA REC. (ft) % RQD (ft) %		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
1545											Begin Coring @ -16.5 ft	
1540												
1535												
1530												
1525											Fill: red to brown sandy clay	2.6
1520											Alluvium: brown fine to coarse sand with rounded gravel	7.9
1515											Saprolite: brown to orange sericitic sandy silt	13.1
1510											Weathered Rock	24.2
1505											Crystalline Rock (Phyllitic Sericite Schist)	26.5
1500	1,502.0	26.5	4.0								Penetrated with advancer	26.5
1495	1,498.0	30.5	5.0								Slightly metamorphosed fine sandy mud with trace pyrite. Sericite Schist of Mineral Bluff Formation. Hard and Fresh. 5 natural breaks with slight rust stains - otherwise not weathered.	30.5
	1,493.0	35.5									Hard and fresh. No natural breaks	
											Boring Terminated at Elevation 1,493.0 ft in crystalline rock	

Cherokee County Bridge Number 245 on SR-1649 over Valley River



NCDOT CORE SINGLE BR 245 BORINGS.GPJ NC DOT.GDT 2/6/13



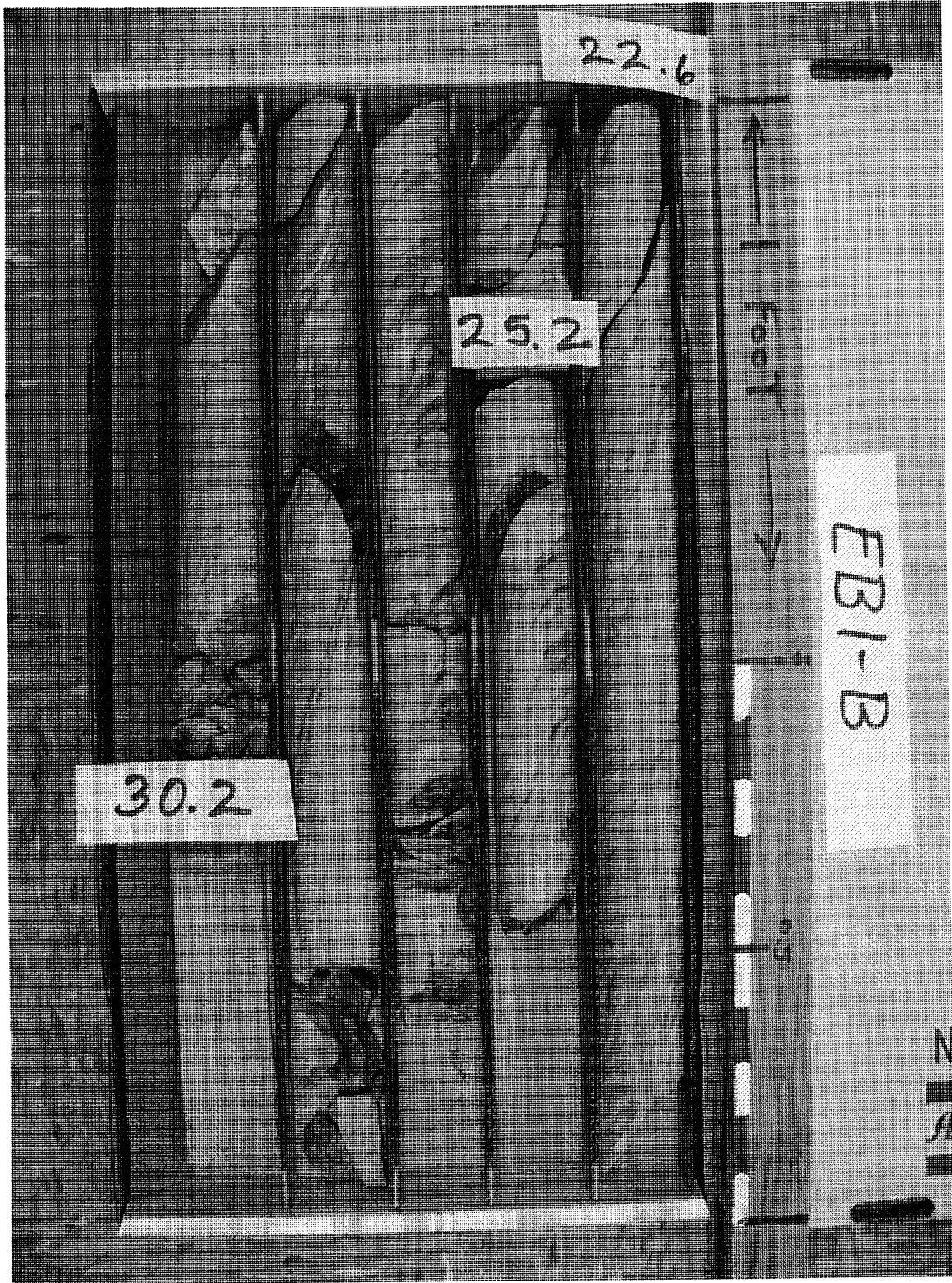
NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

SHEET

9/11

WBS N/A		TIP N/A		COUNTY CHEROKEE		GEOLOGIST DC Elliott						
SITE DESCRIPTION Cherokee County Bridge Number 245 on SR-1649 over Valley River								GROUND WTR (ft)				
BORING NO. EB1-B		STATION N/A		OFFSET N/A		ALIGNMENT N/A		0 HR. N/A				
COLLAR ELEV. 1,526.6 ft		TOTAL DEPTH 30.2 ft		NORTHING 529,393		EASTING 499,354		24 HR. N/A				
DRILL RIG/HAMMER EFF./DATE AFO0070 CME-550X 81% 09/03/2009				DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic						
DRILLER Cheek, D. O.		START DATE 01/31/13		COMP. DATE 01/31/13		SURFACE WATER DEPTH N/A						
CORE SIZE NXWL		TOTAL RUN 7.6 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) % RQD (ft) %		SAMP. NO.	STRATA REC. (ft) % RQD (ft) %		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
1545											Begin Coring @ -18.5 ft	
1540												
1535												
1530												
1525											Fill: Cobbles and Boulders	
1520				N=58							1,522.0 4.6 1,520.6 6.0	Alluvium: brown sand and gravel Saprolite: orange to gray sericitic silty sand
1515				N=82								
1510				N=13								
1505				N=100/0.2							1,507.7 18.9	Weathered Rock
	1,504.0	22.6									1,504.0 22.6	Crystalline Rock (Sericitic Schist)
	1,501.4	25.2	2.6	N=100/0.2	(2.3) 88%	(1.5) 58%					1,501.4 25.2	Slight to very slight weathering. Moderately hard to hard. Rust on some slightly weathered foliations at 50 to 70 degrees. 3 natural breaks on rusted foliation.
1500			5.0		(5.0) 100%	(4.2) 84%						4 breaks on slightly rusty foliation at 40 to 70 degrees, 3 rust stained breaks not on foliation. Slight to very slight weathering. Moderately hard to hard. Crumbled 30.1-30.2.
	1,496.4	30.2									1,496.4 30.2	Boring Terminated at Elevation 1,496.4 ft in crystalline rock

Cherokee County Bridge Number 245 on SR-1649 over Valley River





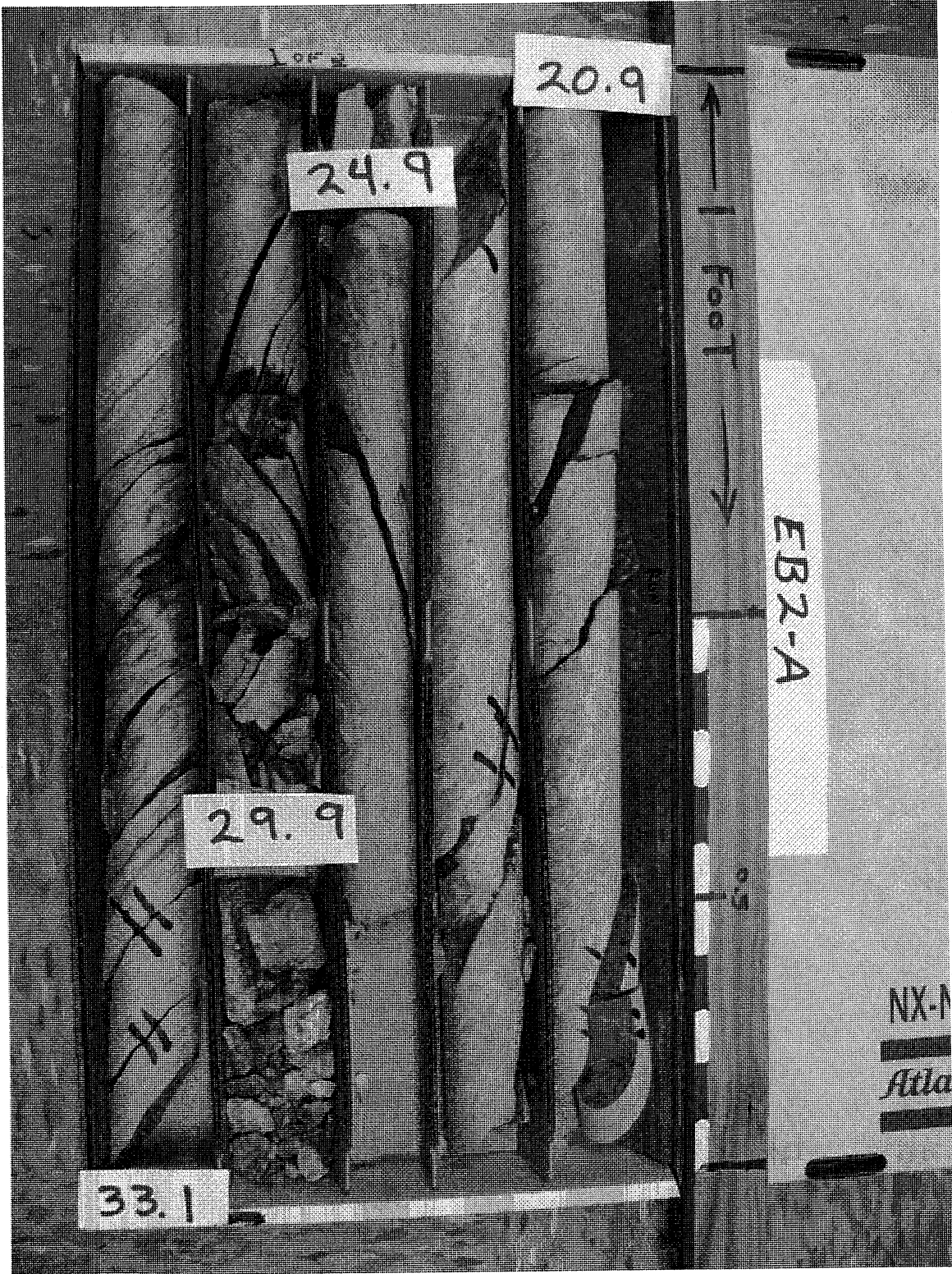
NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

SHEET

10/11

WBS N/A		TIP N/A		COUNTY CHEROKEE		GEOLOGIST DC Elliott						
SITE DESCRIPTION Cherokee County Bridge Number 245 on SR-1649 over Valley River										GROUND WTR (ft)		
BORING NO. EB2-A		STATION N/A		OFFSET N/A		ALIGNMENT N/A		0 HR. N/A				
COLLAR ELEV. 1,527.5 ft		TOTAL DEPTH 39.9 ft		NORTHING 529,434		EASTING 499,216		24 HR. N/A				
DRILL RIG/HAMMER EFF./DATE AFO0070 CME-550X 81% 09/03/2009					DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic					
DRILLER Cheek, D. O.		START DATE 01/31/13		COMP. DATE 01/31/13		SURFACE WATER DEPTH N/A						
CORE SIZE NXWL		TOTAL RUN 19.0 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) % ROD (ft) %		SAMP. NO.	STRATA REC. (ft) % ROD (ft) %		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
1545											Begin Coring @ -17.5 ft	
1540												
1535												
1530												
1525											Fill: gravel and boulders	2.8
1520											Alluvium: brown sandy silt	7.5
1515											Weathered Rock	
1510											Crystalline Rock penetrated by advancer	18.2
1505	1,506.6	20.9	4.0	N=60/0 N=60/0	(3.8) 95%	(2.9) 73%					Sericite Schist of Mineral Bluff Formation. 5 breaks on foliation with clay stains or slight rust. Hard and mostly unweathered with some slight weathering.	20.9
1500	1,502.6	24.9	5.0		(2.7) 54%	(1.2) 24%					no recovery in saprolite 26.1-28.5. Numerous breaks on foliation with some rust. Fresh and hard to severely weathered and soft.	24.9
1495	1,497.6	29.9	5.0		(4.1) 82%	(2.1) 42%					Crumbly from 29.9 to 30.5. Slightly weathered to fresh. Moderately hard to hard. 5 breaks on foliation at 45 degrees have slight rust or clay stains. 1 break at 75 degrees has rust.	29.9
1490	1,492.6	34.9	5.0		(5.0) 100%	(4.8) 96%					no natural breaks. hard and fresh.	34.9
	1,487.6	39.9									Boring Terminated at Elevation 1,487.6 ft in crystalline rock	39.9

Cherokee County Bridge Number 245 on SR-1649 over Valley River



Cherokee County Bridge Number 245 on SR-1649 over Valley River

