

REFERENCE: I-25I3AC

PROJECT: 34165

CONTENTS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2, 2A	LEGEND
3	SITE PLAN
4	PROFILE
5-8	CROSS SECTIONS
9-17	BORE LOGS, CORE LOGS, AND CORE PHOTOS

APPENDICES

<u>APPENDIX</u>	<u>TITLE</u>	<u>SHEETS</u>
A	LABORATORY RESULTS	18-19

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY BUNCOMBE
PROJECT DESCRIPTION I-26I-40I-240 INTERCHANGE TO
SR 3548 (HAYWOOD RD)

SITE DESCRIPTION BRIDGE NO. 905 ON -Y2RPB- OVER
HOMINY CREEK AND SR 3620 (HOMINY CREEK
RD) BETWEEN I-40 WB AND NC 191

STATE	TOWN OF HOLLY SPRINGS PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513AC	1	20

CAUTION NOTICE

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

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

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

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

PERSONNEL

CG2

GOODNIGHT, D.J.

INVESTIGATED BY FALCON ENG.

DRAWN BY CROCKETT, S.C.

CHECKED BY HUNSBERGER, W.S.

SUBMITTED BY FALCON ENG.

DATE SEPTEMBER 2024



DocuSigned by:

Stephen Crockett

C5CA5FED48E0435...

SIGNATURE

9/24/2024

DATE

[illegible]

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

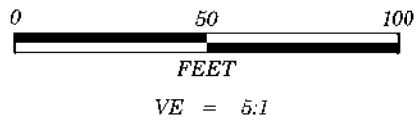
SUBSURFACE INVESTIGATION

SUPPLEMENTAL LEGEND, GEOLOGICAL STRENGTH INDEX (GSI) TABLES
FROM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

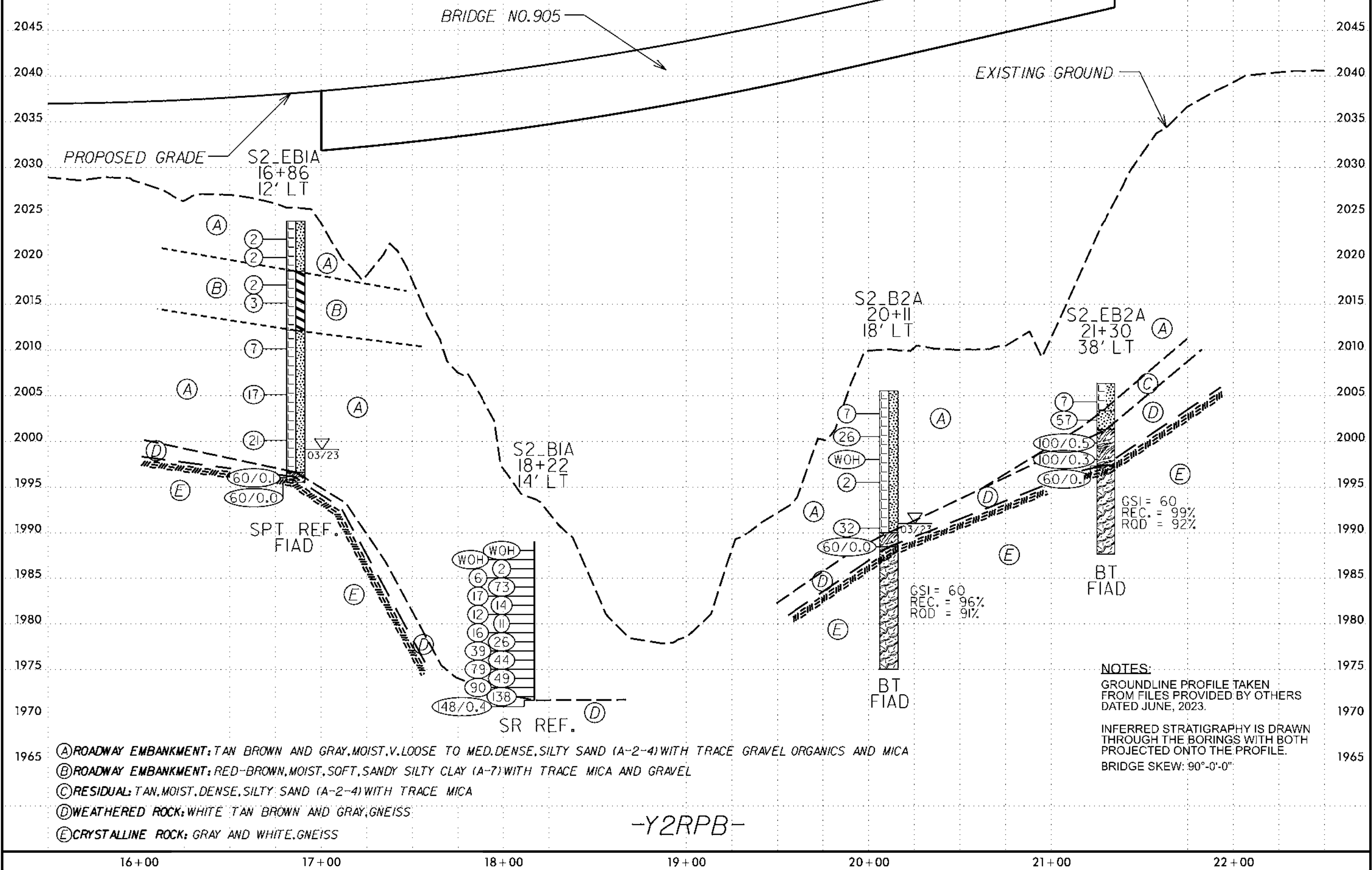
AASHTO LRFD Figure 10.4.6.4-1 — Determination of GSI for Jointed Rock Mass (Marinos and Hoek, 2000)

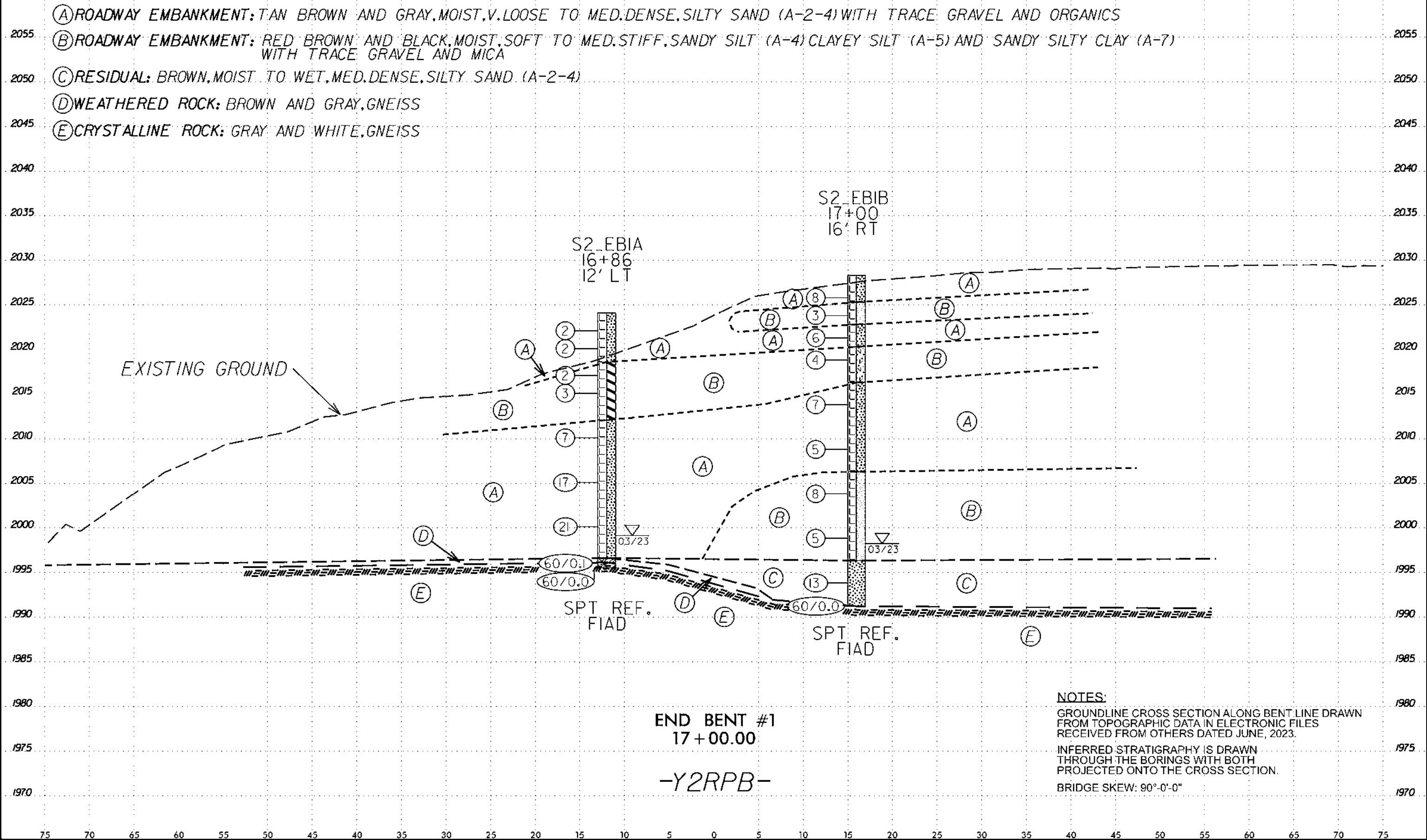
AASHTO LRFD Figure 10.4.6.4-2 — Determination of GSI for Tectonically Deformed Heterogeneous Rock Masses (Marinos and Hoek, 2000)

GEOLOGICAL STRENGTH INDEX (GSI) FOR JOINTED ROCKS (Hoek and Marinos, 2000) From the lithology, structure and surface conditions of the discontinuities, estimate the average value of GSI. Do not try to be too precise. Quoting a range from 33 to 37 is more realistic than stating that GSI = 35. Note that the table does not apply to structurally controlled failures. Where weak planar structural planes are present in an unfavorable orientation with respect to the excavation face, these will dominate the rock mass behaviour. The shear strength of surfaces in rocks that are prone to deterioration as a result of changes in moisture content will be reduced if water is present. When working with rocks in the fair to very poor categories, a shift to the right may be made for wet conditions. Water pressure is dealt with by effective stress analysis.	SURFACE CONDITIONS VERY GOOD Very rough, fresh unweathered surfaces GOOD Rough, slightly weathered, iron stained surfaces FAIR Smooth, moderately weathered and altered surfaces POOR Slickensided, highly weathered surfaces with compact coatings or fillings or angular fragments VERY POOR Slickensided, highly weathered surfaces with soft clay coatings or fillings	STRUCTURE INTACT OR MASSIVE - intact rock specimens or massive in situ rock with few widely spaced discontinuities BLOCKY - well interlocked undisturbed rock mass consisting of cubical blocks formed by three intersecting discontinuity sets VERY BLOCKY - interlocked, partially disturbed mass with multi-faceted angular blocks formed by 4 or more joint sets BLOCKY/DISTURBED/SEAMY - folded with angular blocks formed by many intersecting discontinuity sets. Persistence of bedding planes or schistosity DISINTEGRATED - poorly interlocked, heavily broken rock mass with mixture of angular and rounded rock pieces LAMINATED/SHEARED - Lack of blockiness due to close spacing of weak schistosity or shear planes	DECREASING SURFACE QUALITY ➡ DECREASING INTERLOCKING OF ROCK PIECES ➡	GSI FOR HETEROGENEOUS ROCK MASSES SUCH AS FLYSCH (Marinos, P and Hoek E., 2000) From a description of the lithology, structure and surface conditions (particularly of the bedding planes), choose a box in the chart. Locate the position in the box that corresponds to the condition of the discontinuities and estimate the average value of GSI from the contours. Do not attempt to be too precise. Quoting a range from 33 to 37 is more realistic than giving GSI = 35. Note that the Hoek-Brown criterion does not apply to structurally controlled failures. Where unfavourably oriented continuous weak planar discontinuities are present, these will dominate the behaviour of the rock mass. The strength of some rock masses is reduced by the presence of groundwater and this can be allowed for by a slight shift to the right in the columns for fair, poor and very poor conditions. Water pressure does not change the value of GSI and it is dealt with by using effective stress analysis.	SURFACE CONDITIONS OF DISCONTINUITIES (Predominantly bedding planes) VERY GOOD - Very Rough, fresh unweathered surfaces GOOD - Rough, slightly weathered surfaces FAIR - Smooth, moderately weathered and altered surfaces POOR - Very smooth, occasionally slickensided surfaces with compact coatings or fillings with angular fragments VERY POOR - Very smooth, slickensided or highly weathered surfaces with soft clay coatings or fillings	COMPOSITION AND STRUCTURE A. Thick bedded, very blocky sandstone The effect of pelitic coatings on the bedding planes is minimized by the confinement of the rock mass. In shallow tunnels or slopes these bedding planes may cause structurally controlled instability. B. Sandstone with thin inter-layers of siltstone C. Sandstone and siltstone in similar amounts D. Siltstone or silty shale with sandstone layers E. Weak siltstone or clayey shale with sandstone layers F. Tectonically deformed, intensively folded/faulted, sheared clayey shale or siltstone with broken and deformed sandstone layers forming an almost chaotic structure G. Undisturbed silty or clayey shale with or without a few very thin sandstone layers H. Tectonically deformed silty or clayey shale forming a chaotic structure with pockets of clay. Thin layers of sandstone are transformed into small rock pieces. — Means deformation after tectonic disturbance	70 60 50 40 30 20 10
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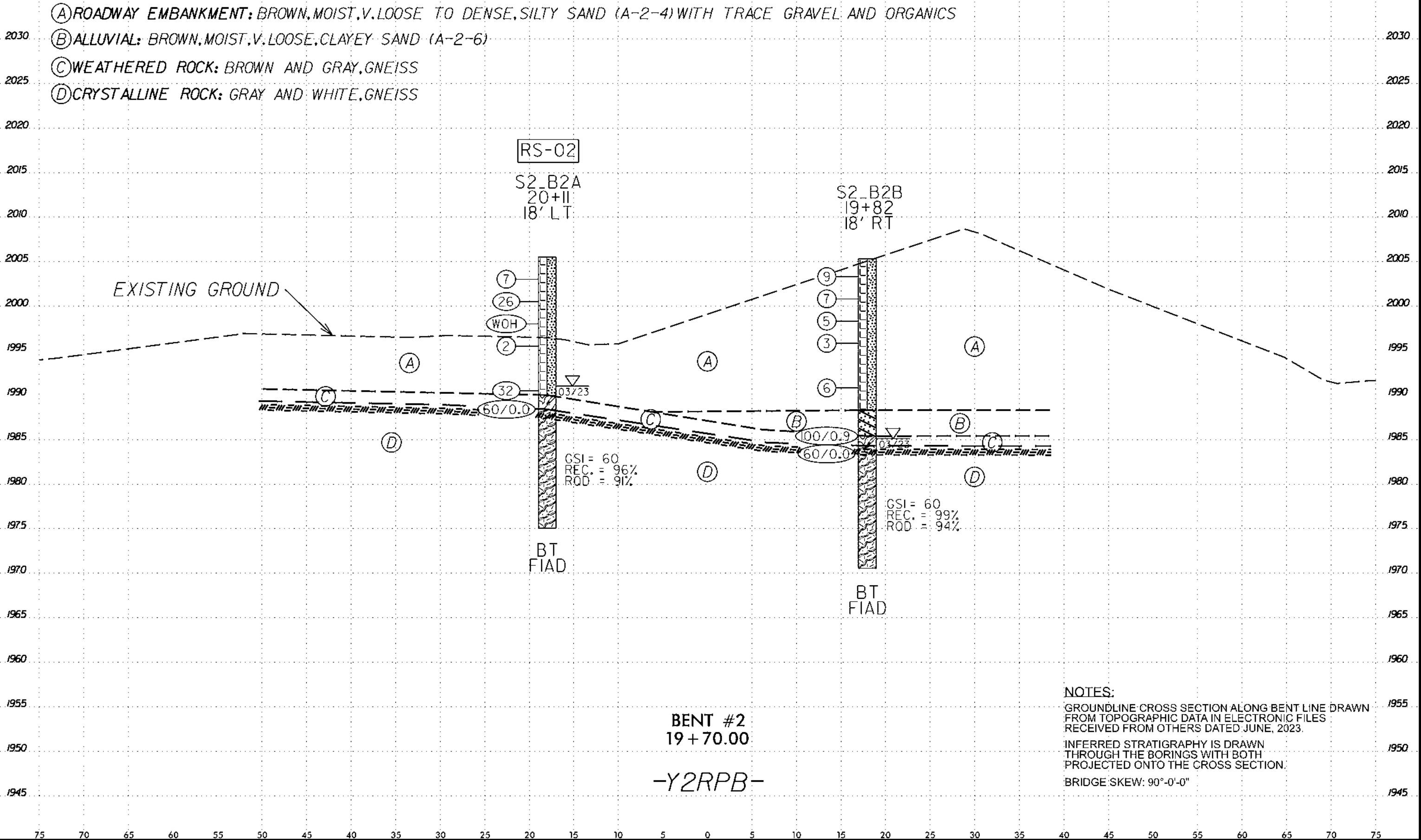
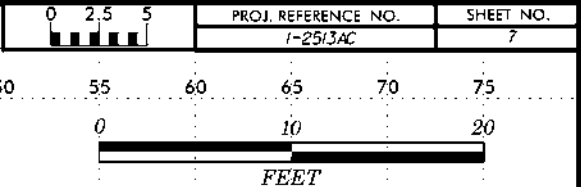
PROJECT REFERENCE NO.	SHEET NO.
I-2513AC	4
BRIDGE ON -Y2RPB- OVER HOMINY CREEK AND HOMINY CREEK RD.	



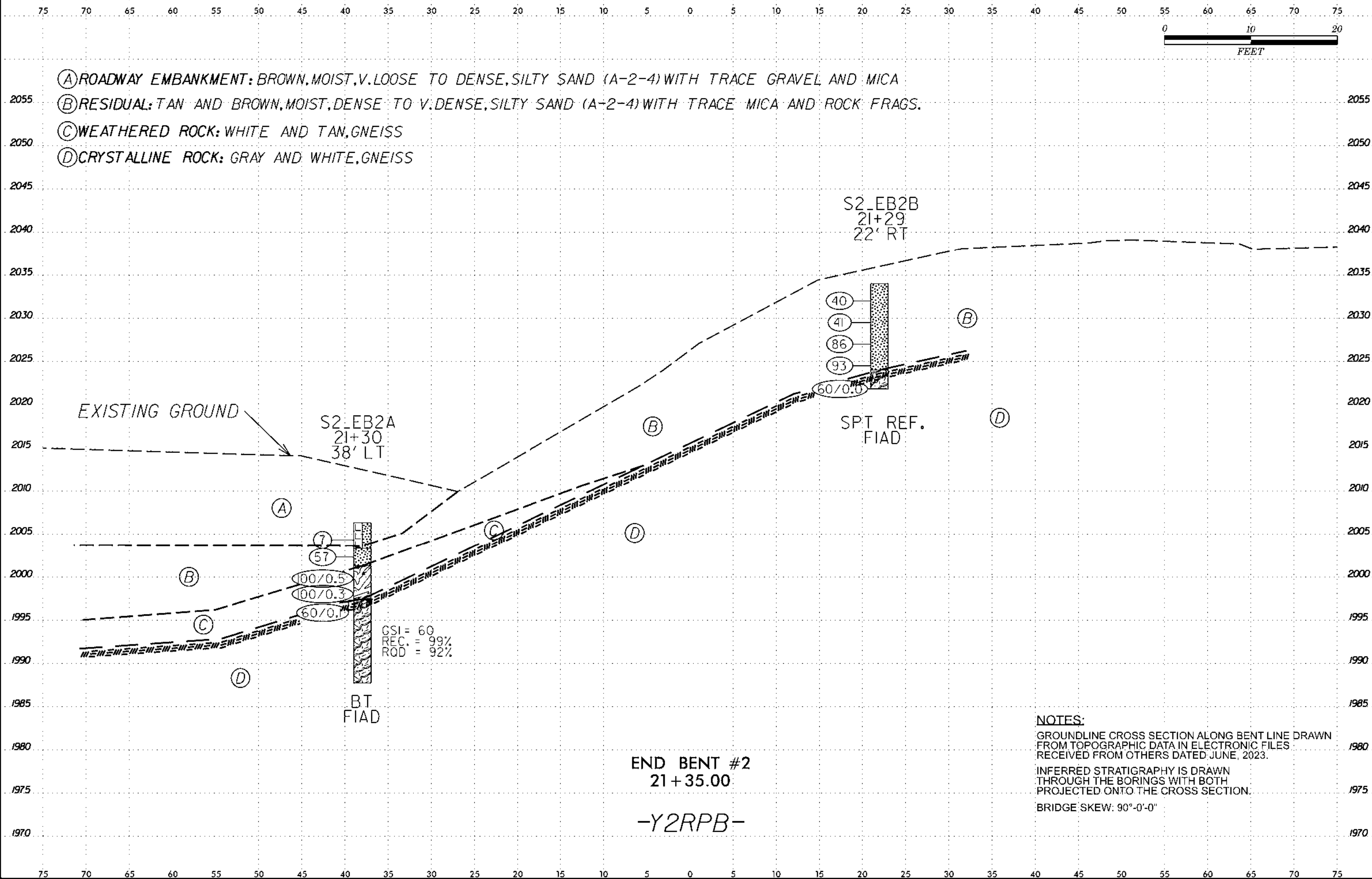
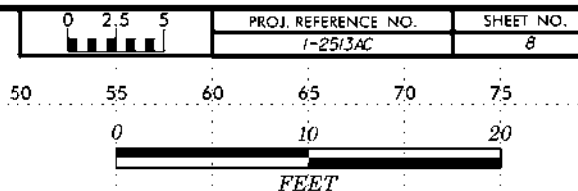




B/23/3



B/23/3



SCALES

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.2			TIP 1-2513AC			COUNTY BUNCOMBE			GEOLOGIST Goodnight, D.J.						
SITE DESCRIPTION Bridge No. 905 on -Y2RPB- Over Hominy Creek and SR 3620 Between I-40 WB and NC 191									GROUND WTR (ft)						
BORING NO. S2_EB1A			STATION 16+86			OFFSET 12 ft LT			ALIGNMENT -Y2RPB-			0 HR. 25.0			
COLLAR ELEV. 2,024.1 ft			TOTAL DEPTH 28.6 ft			NORTHING 679,148			EASTING 930,114			24 HR. N/A			
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022						DRILL METHOD H.S. Augers				HAMMER TYPE Automatic					
DRILLER Odom, C.			START DATE 03/07/23			COMP. DATE 03/07/23			SURFACE WATER DEPTH N/A						
ELEV (ft)	DRIVE 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				ELEV. (ft)	DEPTH (ft)
2025															
2020	2,023.1	1.0	1	1	1	2						M		2,024.1	GROUND SURFACE 0.0
	2,021.1	3.0	1	1	1	2						M		ROADWAY EMBANKMENT TAN TO BROWN, VERY LOOSE, SILTY SAND (A-2-4) WITH LITTLE GRAVEL	
	2,018.1	6.0	1	1	1	2						M		2,018.6	5.5
2015	2,016.1	8.0	1	1	2	3						M		RED-BROWN, SOFT, SANDY, SILTY CLAY (A-7) WITH TRACE MICA AND GRAVEL	
2010	2,011.1	13.0	4	3	4	7						M		2,012.1	12.0
2005	2,006.1	18.0	4	8	9	17						M		BROWN AND GRAY, LOOSE, SILTY SAND (A-2-4) WITH TRACE CLAY, ORGANICS (WOOD FRAGMENTS), AND GRAVEL	
	2,001.1	23.0	6	13	8	21						M			
2000															
	1,996.1	28.0												1,996.6	27.5
	1,995.5	28.6	60/0.1											1,996.1	28.0
			60/0.0											1,995.5	28.6
														WEATHERED ROCK BROWN AND GRAY, GNEISS	
														CRYSTALLINE ROCK GRAY AND WHITE, GNEISS	
														Boring Terminated at Elevation 1,995.5 ft in CR: GNEISS	

NCDOT BORE SINGLE I-213AC_GEO_COMBINED.GPJ NC_DOT.GDT 9/20/24

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.2			TIP 1-2513AC			COUNTY BUNCOMBE			GEOLOGIST Goodnight, D.J.						
SITE DESCRIPTION Bridge No. 905 on -Y2RPB- Over Hominy Creek and SR 3620 Between I-40 WB and NC 191									GROUND WTR (ft)						
BORING NO. S2_EB1B			STATION 17+00			OFFSET 16 ft RT			ALIGNMENT -Y2RPB-			0 HR. 30.1			
COLLAR ELEV. 2,028.3 ft			TOTAL DEPTH 37.1 ft			NORTHING 679,128			EASTING 930,138			24 HR. N/A			
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic						
DRILLER Brewer, M.			START DATE 02/10/23			COMP. DATE 02/10/23			SURFACE WATER DEPTH N/A						
ELEV (ft)	DRIVE 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				ELEV. (ft)	DEPTH (ft)
2030															
2025	2,026.8	1.5	3	3	5									2,028.3	GROUND SURFACE 0.0
	2,024.8	3.5	2	1	2							M		2,025.3	ROADWAY EMBANKMENT
	2,022.3	6.0	4	3	3							M		2,022.8	BROWN, LOOSE, SILTY SAND (A-2-4) WITH TRACE GRAVEL AND ORGANICS
	2,019.8	8.5	2	2	2							M		2,022.8	RED AND BLACK, SOFT, SANDY SILT (A-4) WITH TRACE GRAVEL AND ASPHALT DEBRIS
2020	2,019.8	8.5	2	2	2							M		2,020.3	8.0
	2,014.8	13.5	3	4	3							M		2,020.3	BROWN, LOOSE, SILTY SAND (A-2-4) WITH TRACE GRAVEL
2015	2,014.8	13.5	3	4	3							M		2,016.3	12.0
	2,009.8	18.5	1	2	3							M		2,016.3	BROWN, SOFT TO MEDIUM STIFF, SANDY, CLAYEY SILT (A-5) WITH TRACE GRAVEL
2010	2,009.8	18.5	1	2	3							M		2,006.3	22.0
	2,004.8	23.5	4	4	4							M		2,006.3	BROWN, MEDIUM STIFF TO STIFF, SANDY SILT (A-4) WITH TRACE GRAVEL AND LITTLE MICA
2005	2,004.8	23.5	4	4	4							M			
	1,999.8	28.5	2	2	3							M		1,996.3	32.0
2000	1,999.8	28.5	2	2	3							M			
	1,994.8	33.5	5	6	7							M			RESIDUAL
1995	1,994.8	33.5	5	6	7							M			BROWN, MEDIUM DENSE, SILTY SAND (A-2-4)
	1,991.2	37.1	60/0.0			60/0.0						W		1,991.2	37.1
														Boring Terminated at Elevation 1,991.2 ft in CR: GNEISS	

NCDOT BORE SINGLE I-213AC_GEO_COMBINED.GPJ NC_DOT.GDT 9/20/24

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.2					TIP 1-2513AC			COUNTY BUNCOMBE				GEOLOGIST Goodnight, D.J.			
SITE DESCRIPTION Bridge No. 905 on -Y2RPB- Over Hominy Creek and SR 3620 Between I-40 WB and NC 191												GROUND WTR (ft)			
BORING NO. S2_B1A					STATION 18+22			OFFSET 14 ft LT			ALIGNMENT -Y2RPB-		0 HR. N/A		
COLLAR ELEV. 1,989.0 ft					TOTAL DEPTH 17.4 ft			NORTHING 679,205			EASTING 930,237		24 HR. N/A		
DRILL RIG/HAMMER EFF./DATE N/A								DRILL METHOD Rod Sounding				HAMMER TYPE N/A			
DRILLER N/A					START DATE 05/04/23			COMP. DATE 05/04/23			SURFACE WATER DEPTH N/A				
ELEV (ft)	DRIVE 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				ELEV. (ft)	DEPTH (ft)
1990														1,989.0	0.0
1985						1	WOH								
						1	WOH								
						3	3								
1980						3	70								
						10	7								
						8	6								
1975						6	6								
						5	6								
						8	8								
						6	20								
						13	26								
						13	31								
						70	9								
						31	18								
						40	50								
						60	78								
						148/0.4									
														1,971.6	17.4
														Boring Terminated at Elevation 1,971.6 ft WITH SOUNDING ROD REFUSAL	

NCDOT BORE SINGLE I-4213AC_GEO_COMBINED.GPJ NC_DOT.GDT 9/20/24

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 34165.1.2					TIP 1-2513AC			COUNTY BUNCOMBE				GEOLOGIST Goodnight, D.J.			
SITE DESCRIPTION Bridge No. 905 on -Y2RPB- Over Hominy Creek and SR 3620 Between I-40 WB and NC 191												GROUND WTR (ft)			
BORING NO. S2_B1B					STATION 18+13			OFFSET 13 ft RT			ALIGNMENT -Y2RPB-		0 HR. N/A		
COLLAR ELEV. 1,995.2 ft					TOTAL DEPTH 5.1 ft			NORTHING 679,177			EASTING 930,240		24 HR. N/A		
DRILL RIG/HAMMER EFF./DATE N/A								DRILL METHOD Rod Sounding				HAMMER TYPE N/A			
DRILLER N/A					START DATE 05/04/23			COMP. DATE 05/04/23			SURFACE WATER DEPTH N/A				
ELEV (ft)	DRIVE 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				ELEV. (ft)	DEPTH (ft)
2000															
1995														1,995.2	0.0
						1	2								
						3	4								
						3	26								
						30	11								
						8	55								
						148/0.4								1,990.1	5.1
														Boring Terminated at Elevation 1,990.1 ft WITH SOUNDING ROD REFUSAL	

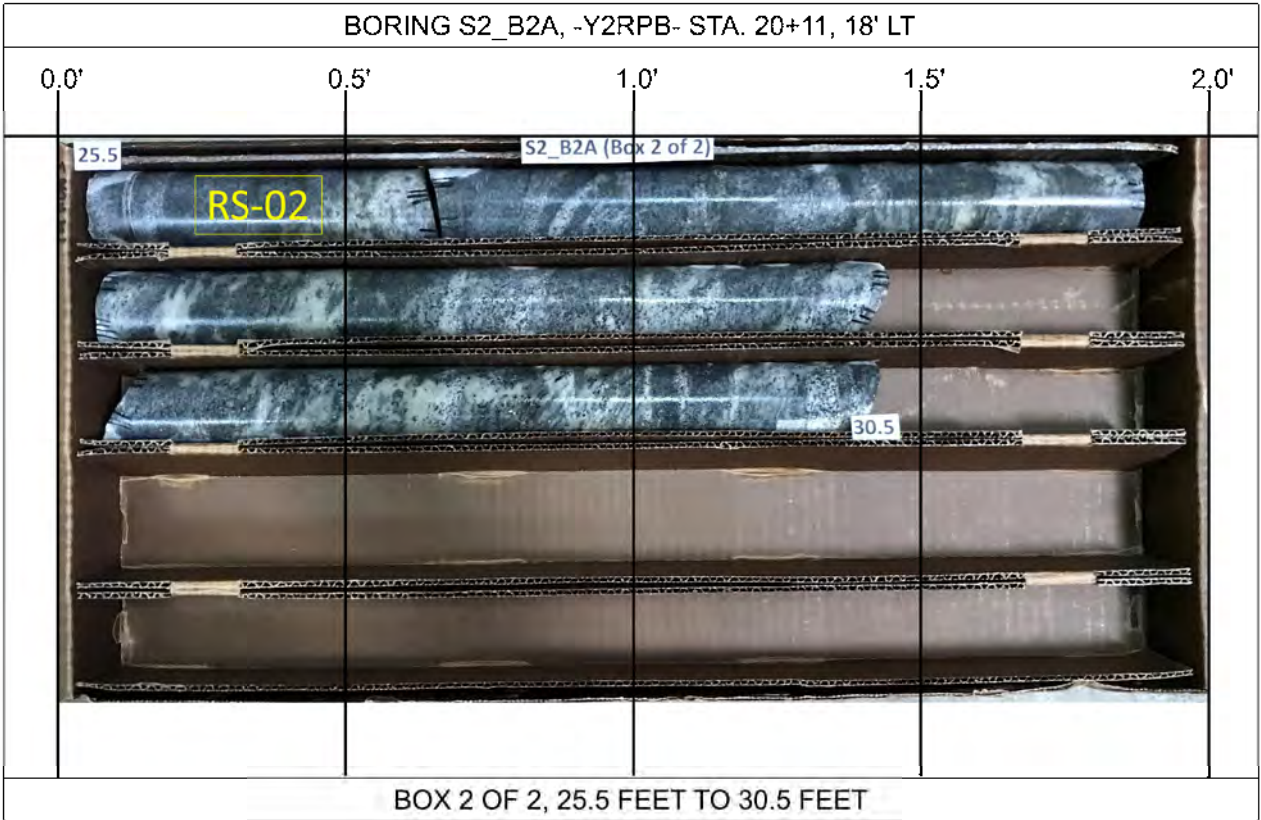
NCDOT BORE SINGLE I-4213AC_GEO_COMBINED.GPJ NC_DOT.GDT 9/20/24

NCDOT BORE SINGLE I-1213AC_GEO_COMBINED.GPJ NC_DOT.GDT 9/20/24

NCDOT CORE SINGLE I-1213AC GEO COMBINED.GPJ NC DOT.GDT 9/20/24



GSI = 60



GSI = 60



 FALCON ENGINEERING, INC. 1210 TRINITY ROAD, SUITE 110 CARY, NC 27513 PHONE: 919.871.0800 www.falconengineering.com	ROCK CORE PHOTOGRAPHS
	BRIDGE ON -Y2RPB- OVER HOMINY CREEK AND SR 3620 BETWEEN I-40 WB AND NC 191 BUNCOMBE COUNTY, NC WBS: 34165 TIP: I-2513AC FALCON PROJECT NO. G22009.01

GEOTECHNICAL BORING REPORT
BORE LOG

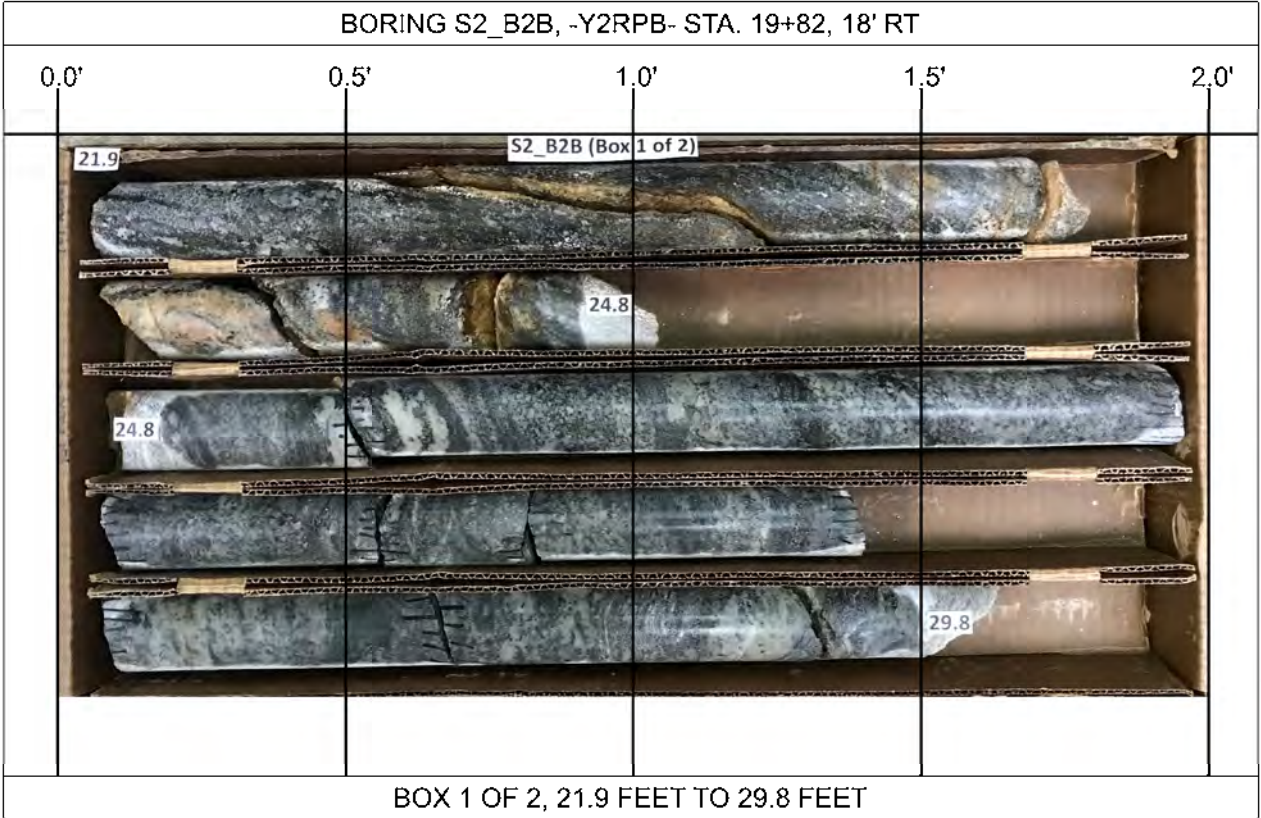
WBS 34165.1.2			TIP 1-2513AC			COUNTY BUNCOMBE			GEOLOGIST Goodnight, D.J.					
SITE DESCRIPTION Bridge No. 905 on -Y2RPB- Over Hominy Creek and SR 3620 Between I-40 WB and NC 191									GROUND WTR (ft)					
BORING NO. S2_B2B			STATION 19+82			OFFSET 18 ft RT			ALIGNMENT -Y2RPB-			0 HR. 20.2		
COLLAR ELEV. 2,005.3 ft			TOTAL DEPTH 34.8 ft			NORTHING 679,242			EASTING 930,396			24 HR. N/A		
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022						DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic					
DRILLER Odom, C.			START DATE 03/08/23			COMP. DATE 03/08/23			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)
2010														
2005														
	2,004.3	1.0											2,005.3 GROUND SURFACE 0.0	
	2,001.8	3.5	2	3	6								ROADWAY EMBANKMENT BROWN, LOOSE, SILTY SAND (A-2-4) WITH LITTLE GRAVEL	
	2,001.8	3.5	1	3	4									
	1,999.3	6.0	2	3	2									
	1,999.3	6.0	2	3	2									
	1,996.8	8.5	1	2	1								ALLUVIAL BROWN, VERY LOOSE, CLAYEY SAND (A-2-6)	
	1,996.8	8.5	1	2	1									
	1,991.8	13.5	1	2	4									
	1,991.8	13.5	1	2	4									
	1,986.8	18.5	1	2	98/0.4								WEATHERED ROCK GRAY AND BROWN, GNEISS CRYSTALLINE ROCK GRAY AND WHITE GNEISS	
	1,986.8	18.5	1	2	98/0.4									
	1,983.4	21.9	60/0.0											
	1,983.4	21.9	60/0.0											
													Boring Terminated at Elevation 1,970.5 ft in CR: GNEISS	

NC DOT BORE SINGLE I-4213AC_GEO_COMBINED.GPJ NC_DOT.GDT 9/20/24

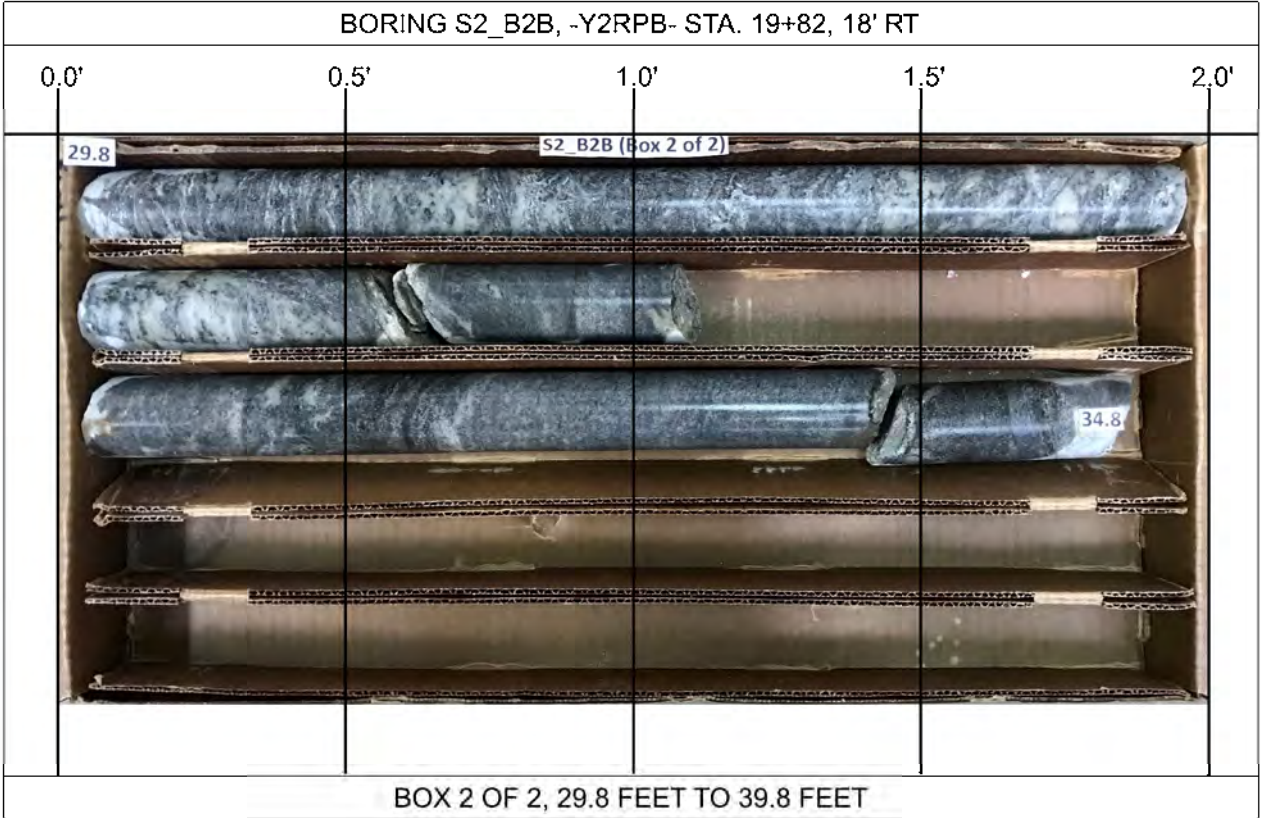
GEOTECHNICAL BORING REPORT
CORE LOG

WBS 34165.1.2				TIP 1-2513AC				COUNTY BUNCOMBE				GEOLOGIST Goodnight, D.J.							
SITE DESCRIPTION Bridge No. 905 on -Y2RPB- Over Hominy Creek and SR 3620 Between I-40 WB and NC 191												GROUND WTR (ft)							
BORING NO. S2_B2B				STATION 19+82				OFFSET 18 ft RT				ALIGNMENT -Y2RPB-				0 HR. 20.2			
COLLAR ELEV. 2,005.3 ft				TOTAL DEPTH 34.8 ft				NORTHING 679,242				EASTING 930,396				24 HR. N/A			
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022								DRILL METHOD SPT Core Boring				HAMMER TYPE Automate							
DRILLER Odom, C.				START DATE 03/08/23				COMP. DATE 03/08/23				SURFACE WATER DEPTH N/A							
CORE SIZE NQ				TOTAL RUN 12.9 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)		
													ELEV. (ft)						
1983.36													Begin Coring @ 21.9 ft						
	1,983.4	21.9	2.9	3:37/1.0 3:20/1.0 3:50/0.9	(2.8) 97%	(2.1) 72%			(12.8) 99%	(12.1) 94%			1,983.4	GRAY AND WHITE, VERY SLIGHTLY TO FRESHLY WEATHERED , HARD TO VERY HARD, MODERATE-CLOSE TO WIDE FRACTURE SPACING, GNEISS				21.9	
1980	1,980.5	24.8																	
			5.0	4:09/1.0 2:51/1.0 2:52/1.0 2:54/1.0 3:17/1.0	(5.0) 100%	(5.0) 100%								GSI = 60					
1975	1,975.5	29.8																	
			5.0	3:11/1.0 3:17/1.0 2:54/1.0 3:22/1.0 3:33/1.0	(5.0) 100%	(5.0) 100%													
	1,970.5	34.8											1,970.5					34.8	
													Boring Terminated at Elevation 1,970.5 ft in CR: GNEISS						

NC DOT CORE SINGLE I-4213AC_GEO_COMBINED.GPJ NC_DOT.GDT 9/20/24



GSI = 60



GSI = 60



 FALCON ENGINEERING, INC. 1210 TRINITY ROAD, SUITE 110 CARY, NC 27513 PHONE: 919.871.0800 www.falconengineering.com	ROCK CORE PHOTOGRAPHS
	BRIDGE ON -Y2RPB- OVER HOMINY CREEK AND SR 3620 BETWEEN I-40 WB AND NC 191 BUNCOMBE COUNTY, NC WBS: 34165 TIP: I-2513AC FALCON PROJECT NO. G22009.01

NCDOT BORE SINGLE I-1213AC_GEO_COMBINED.GPJ NC_DOT.GDT 9/20/24

NCDOT CORE SINGLE I-1213AC GEO COMBINED.GPJ NC DOT.GDT 9/20/24



GSI = 60



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WBS 34165.1.2		TIP 1-2513AC		COUNTY BUNCOMBE		GEOLOGIST Goodnight, D.J.									
SITE DESCRIPTION Bridge No. 905 on -Y2RPB- Over Hominy Creek and SR 3620 Between I-40 WB and NC 191							GROUND WTR (ft)								
BORING NO. S2_EB2B		STATION 21+29		OFFSET 22 ft RT		ALIGNMENT -Y2RPB-		0 HR. Dry							
COLLAR ELEV. 2,034.0 ft		TOTAL DEPTH 12.2 ft		NORTHING 679,298		EASTING 930,532		24 HR. N/A							
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022				DRILL METHOD H.S. Augers			HAMMER TYPE Automate								
DRILLER Odom, C.			START DATE 03/14/23		COMP. DATE 03/14/23		SURFACE WATER DEPTH N/A								
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					
2035															
2030	2,033.0	1.0	8	14	26						M M M		2,034.0	GROUND SURFACE	0.0
	2,030.5	3.5	15	23	18								TAN-BROWN, DENSE TO VERY DENSE, SILTY SAND (A-2-4) WITH SOME ROCK FRAGMENTS		
	2,028.0	6.0	31	38	48										
2025	2,025.5	8.5	36	51	42								2,024.0		10.0
	2,021.8	12.2	60/0.0										2,021.8	CRYSTALLINE ROCK GRAY AND WHITE, GNEISS	12.2
Boring Terminated at Elevation 2,021.8 ft on CR: GNEISS															

NC DOT BORE DOUBLE I-1213AC GEO COMBINED.GPJ NC_DOT_GDT 9/20/24

PROJECT: 34165

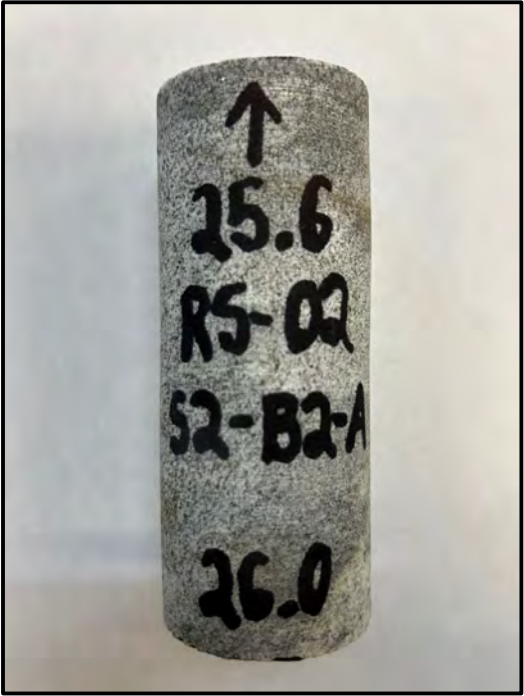
REFERENCE: I-25I3AC

PROJECT REFERENCE NO.	SHEET NO.
I-25I3AC	18

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
APPENDIX A
LABORATORY RESULTS

Project No.:	G22009.01	Tested By:	C. Sullivan	Test Date:	2023-19-12
Project Name:	I-2513AA-AC				
Boring ID:	S2-B2-A	Sample ID:	RS-02	Sample Depth:	25.6-26.0 ft
Sample Description:	Black and White Granitic Rock				

Initial Specimen Measurements	
Diameter:	1.860 in
Area:	2.717 in²
Length:	4.54 in
Weight:	545.9 g
Unit Weight:	168.6 pcf



LOAD TEST DATA			
Deflection Reading (in)	Load Reading (lb)	Strain (%)	Stress (psi)
0.000	0	0.000	0
0.005	1700	0.110	630
0.010	9800	0.220	3610
0.015	21800	0.330	8020
0.020	35200	0.441	12950
0.025	46300	0.551	17040
0.030	55750	0.661	20520
0.034	60250	0.749	22170

Strain Rate: %/min

Failure Mode:

Remarks:

Note: Uniaxial compressive strength was determined in general accordance with ASTM D7012-14 Method C. Deflection, Strain, and Young's modulus (E) data is provided for reference only and is not intended to be in accordance with ASTM D7012-14 Method D as deflection and strain is not measured in accordance with that procedure. Young's Modulus is calculated using this data to determine the secant modulus at each data interval per Figure 2 (C) in ASTM D 7012-14.

010 ROCK COMPRESSION RESULTS G22009.01.GPJ FALCON_FORMAT.GDT 12/19/23