



# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

PROJECT NO. 34410.1.25	ID. R-2248E	COUNTY Mecklenburg	GEOLOGIST Nash, A. A.
SITE DESCRIPTION Bridge on -Y22- (Mallard Creek Road) over tributary to Stone Creek			GROUND WTR (ft)
BORING NO. B-30	STATION 15+84	OFFSET 12 ft LT	ALIGNMENT -Y22-
COLLAR ELEV. 653.0 ft	TOTAL DEPTH 10.8 ft	NORTHING 179,970	EASTING 450,377
DRILL MACHINE Diedrich D-50	DRILL METHOD 2-15/16" tri-cone with rotary wash	HAMMER TYPE Automatic	
DRILLER Duggins, W. T.	START DATE 03/04/10	COMP. DATE 03/04/10	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)			
655															653.0	GROUND SURFACE	0.0	
650	649.2	3.8				17	18	18						SS-16	M	RESIDUAL Tan & Gray Hard Fine Sandy SILT (A-4), Saprolitic		
645	644.2	8.8												SS-17	M	WEATHERED ROCK (Orange & Gray Metamorphosed Rock)		7.0
640	642.3	10.7												SS-18		Boring Terminated by Tri-cone Refusal at Elevation 642.2 ft on Crystalline Rock: Gray Metamorphosed Rock		10.8
635																1) Station and offset are in METRIC 2) Advanced a 2-15/16" tri-cone to a depth of 10.7 feet. 3) Set HW casing to 3.0 feet below the existing ground. 4) Used swamp water as drilling fluid.		
630																		
625																		
620																		
615																		
610																		
605																		
600																		
595																		
590																		
585																		
580																		
575																		

NCDOT BORE SINGLE 10-0045.GPJ NC\_DOT.GDT 3/7/10



# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

PROJECT NO. 34410.1.25	ID. R-2248E	COUNTY Mecklenburg	GEOLOGIST Nash, A. A.
SITE DESCRIPTION Bridge on -Y22- (Mallard Creek Road) over tributary to Stone Creek			GROUND WTR (ft)
BORING NO. B-31	STATION 16+20	OFFSET 11 ft LT	ALIGNMENT -Y22-
COLLAR ELEV. 648.2 ft	TOTAL DEPTH 26.6 ft	NORTHING 179,993	EASTING 450,396
DRILL MACHINE Diedrich D-50	DRILL METHOD 2-15/16" tri-cone with rotary wash	HAMMER TYPE Automatic	
DRILLER Duggins, W. T.	START DATE 03/03/10	COMP. DATE 03/04/10	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)		
650																	
	648.2	0.0													648.2	GROUND SURFACE	0.0
			WOH	2	4												
645	644.7	3.5													645.7	ALLUVIAL Brown & Gray Medium Stiff Fine Sandy Silty CLAY (A-7-5), with Trace Organic Matter	2.5
			4	2	3												
640	639.7	8.5													641.2	RESIDUAL Gray Loose Clayey Fine Sand (A-2-6) with Some Gravel/Rock Fragments & Cobbles	7.0
	638.6	9.6	63	37/0.1													
			60/0							100/0.6					638.6	WEATHERED ROCK (Gray Metamorphosed Rock)	9.6
										60/0							
635																	
630																	
625																	
620															621.6	CRYSTALLINE ROCK Gray, Fresh to Very Slightly Weathered, Hard to Very Hard, Moderately Close to Closely Fractured Spacing, Very Thickly Bedded, Metamorphosed Rock  REC = 94% RQD = 91%	26.6
615																	
610																	
605																	
600																	
595																	
590																	
585																	
580																	
575																	
570																	

NCDOT BORE SINGLE 10-0045.GPJ NC\_DOT.GDT 3/7/10

- Boring Terminated at Elevation 621.6 ft in Crystalline Rock: Gray Metamorphosed Rock
- 1) Station and offset are in METRIC
  - 2) Advanced a 2-15/16" tri-cone to a depth of 9.6 feet.
  - 3) Set HW casing to 4.0 feet below the existing ground.
  - 4) Set NW casing to 9.5 feet below the existing ground.
  - 5) Advanced a NQ2 core barrel between 9.7 to 26.6 feet.
  - 6) Used swamp water as drilling fluid.



# NCDOT GEOTECHNICAL ENGINEERING UNIT CORE BORING REPORT

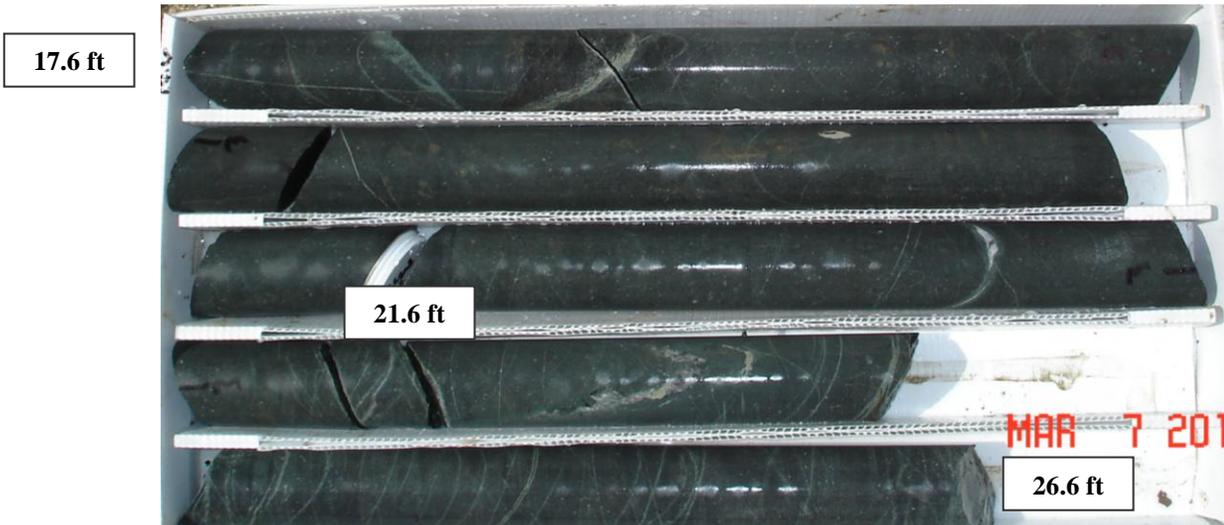
PROJECT NO. 34410.1.25	ID. R-2248E	COUNTY Mecklenburg	GEOLOGIST Nash, A. A.
SITE DESCRIPTION Bridge on -Y22- (Mallard Creek Road) over tributary to Stone Creek			GROUND WTR (ft)
BORING NO. B-31	STATION 16+20	OFFSET 11 ft LT	0 HR. 0.4
COLLAR ELEV. 648.2 ft	TOTAL DEPTH 26.6 ft	NORTHING 179,993	24 HR. 0.0
DRILL MACHINE Diedrich D-50	DRILL METHOD 2-15/16" tri-cone with rotary wash	HAMMER TYPE Automatic	
DRILLER Duggins, W. T.	START DATE 03/03/10	COMP. DATE 03/04/10	SURFACE WATER DEPTH N/A

CORE SIZE NQ				TOTAL RUN 17.0 ft				STRATA		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %	RQD (ft) %			
638.6											Begin Coring @ 9.6 ft	
	638.6	9.6	2.0	7:36/1.0	(1.5)	(0.8)						638.6
	636.6	11.6		7:36/1.0	75%	40%						9.6
635			5.0	N=60/0 14:33/1.0	(5.0)	(5.0)						
				8:31/1.0	100%	100%						
				7:26/1.0								
630	631.6	16.6		6:33/1.0								
			5.0	6:40/1.0								
				7:00/1.0	(5.0)	(5.0)						
				9:40/1.0	100%	100%						
				8:29/1.0								
625	626.6	21.6		5:47/1.0								
			5.0	5:31/1.0								
				6:40/1.0								
				6:33/1.0	(4.5)	(4.5)						
				7:06/1.0	90%	90%						
				5:57/1.0								
620	621.6	26.6		5:07/1.0							26.6	
				5:31/1.0								
											Boring Terminated at Elevation 621.6 ft in Crystalline Rock: Gray Metamorphosed Rock	
											<p><b>1) Station and offset are in METRIC</b></p> <p>2) Advanced a 2-15/16" tri-cone to a depth of 9.6 feet.</p> <p>3) Set HW casing to 4.0 feet below the existing ground.</p> <p>4) Set NW casing to 9.5 feet below the existing ground.</p> <p>5) Advanced a NQ2 core barrel between 9.7 to 26.6 feet.</p> <p>6) Used swamp water as drilling fluid.</p>	
615												
610												
605												
600												
595												
590												
585												
580												
575												
570												
565												
560												

NCDOT CORE SINGLE 10-0045.GPJ NC\_DOT.GDT 3/7/10

North Carolina Department of Transportation  
Geotechnical Unit  
Rock Core Photo

Project No.: 34410.1.25	I.D. No.: R-2248E	County: Mecklenburg	Geologist: A. A. Nash
Site Description: Bridge on -Y22- (Mallard Creek Road) over tributary to Stone Creek			
Boring No.: B-31	Station: --	Offset: --	Alignment: -Y22-
Total Depth: 26.6 feet	Collar Elev.: 648.2	Start Date: 3/3/2010	Comp. Date: 3/4/2010
Driller: Willie Duggins		Core Size: NQ	Drill Machine: Diedrich D-50





# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

PROJECT NO. 34410.1.25	ID. R-2248E	COUNTY Mecklenburg	GEOLOGIST Nash, A. A.
SITE DESCRIPTION Bridge on -Y22- (Mallard Creek Road) over tributary to Stone Creek			GROUND WTR (ft)
BORING NO. B-32	STATION 16+40	OFFSET 11 ft LT	ALIGNMENT -Y22-
COLLAR ELEV. 647.7 ft	TOTAL DEPTH 12.4 ft	NORTHING 180,007	EASTING 450,411
DRILL MACHINE Diedrich D-50	DRILL METHOD 2-15/16" tri-cone with rotary wash		HAMMER TYPE Automatic
DRILLER Duggins, W. T.	START DATE 03/02/10	COMP. DATE 03/03/10	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						ELEV. (ft)
650																
	647.7	0.0													647.7	GROUND SURFACE 0.0
645			WOH	WOH	1						SS-8	W			645.7	<b>ALLUVIAL</b> Brown & Gray Very Soft Slightly Fine Sandy Silty <b>CLAY</b> (A-7-5), with Little Organic Matter 2.0
	644.3	3.4										W				
640			3	4	4						SS-9				640.3	<b>RESIDUAL</b> Gray, Brown, & Orange Medium Stiff Silty Fine Sandy <b>CLAY</b> (A-7-5) 7.4
	639.3	8.4														
			100/0.5								SS-10					
635															635.3	<b>WEATHERED ROCK</b> (Gray Metamorphosed Rock) 12.4
	635.3	12.4														
			60/0								SS-11					
630																
625																
620																
615																
610																
605																
600																
595																
590																
585																
580																
575																
570																

NCDOT BORE SINGLE 10-0045.GPJ NC\_DOT.GDT 3/7/10

- 1) Station and offset are in METRIC
- 2) Advanced a 2-15/16" tri-cone to a depth of 12.4 feet.
- 3) Set HW casing to 4.0 feet below the existing ground.
- 4) Used swamp water as drilling fluid.



# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

PROJECT NO. 34410.1.25	ID. R-2248E	COUNTY Mecklenburg	GEOLOGIST Nash, A. A.
SITE DESCRIPTION Bridge on -Y22- (Mallard Creek Road) over tributary to Stone Creek			GROUND WTR (ft)
BORING NO. B-35	STATION 15+83	OFFSET 9 ft RT	ALIGNMENT -Y22-
COLLAR ELEV. 659.3 ft	TOTAL DEPTH 12.3 ft	NORTHING 179,954	EASTING 450,381
DRILL MACHINE Diedrich D-50	DRILL METHOD 2-15/16" tri-cone with rotary wash	HAMMER TYPE Automatic	
DRILLER Duggins, W. T.	START DATE 03/05/10	COMP. DATE 03/05/10	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						ELEV. (ft)	
660															659.3	GROUND SURFACE	0.0
655	656.2	3.1	15	25	30						SS-19	M	▽	Tan & Gray Hard Fine Sandy SILT (A-4), Saprolitic			
650	651.2	8.1	31	69							SS-20	M		WEATHERED ROCK (Gray Metamorphosed Rock)	651.6	7.7	
645	647.1	12.2	60/0.1								SS-21			Boring Terminated by Tri-cone Refusal at Elevation 647.0 ft on Crystalline Rock: Gray Metamorphosed Rock	647.0	12.3	
640														<ul style="list-style-type: none"> <li>1) Station and offset are in METRIC</li> <li>2) Advanced a 2-15/16" tri-cone to a depth of 12.2 feet.</li> <li>3) Set HW casing to 4.0 feet below the existing ground.</li> <li>4) Used swamp water as drilling fluid.</li> </ul>			
635																	
630																	
625																	
620																	
615																	
610																	
605																	
600																	
595																	
590																	
585																	
580																	

NCDOT BORE SINGLE 10-0045.GPJ NC\_DOT.GDT 3/7/10



# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

PROJECT NO. 34410.1.25	ID. R-2248E	COUNTY Mecklenburg	GEOLOGIST Nash, A. A.
SITE DESCRIPTION Bridge on -Y22- (Mallard Creek Road) over tributary to Stone Creek			GROUND WTR (ft) 0 HR. N/A 24 HR. N/A
BORING NO. B-39	STATION 16+97	OFFSET 9 ft RT	
COLLAR ELEV. 646.8 ft	TOTAL DEPTH 15.1 ft	NORTHING 180,028	EASTING 450,468
DRILL MACHINE Diedrich D-50	DRILL METHOD 2-15/16" tri-cone with rotary wash		HAMMER TYPE Automatic
DRILLER Duggins, W. T.	START DATE 03/05/10	COMP. DATE 03/05/10	SURFACE WATER DEPTH 0.5ft

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
650																
														▼	---	0.0
645															---	3.0
	643.3	3.5												W	---	3.0
640															---	7.8
	638.3	8.5												M	---	7.8
	636.7	10.1													---	10.1
635															---	10.1
															---	15.1
630																
625																
620																
615																
610																
605																
600																
595																
590																
585																
580																
575																
570																

NCDOT BORE SINGLE 10-0045.GPJ NC\_DOT.GDT 3/7/10

WATER SURFACE (03/05/10)  
ELEV. (ft) 646.8

**ALLUVIAL**  
Brown & Gray Very Soft Fine Sandy Silty CLAY (A-7-5), Highly Organic

**RESIDUAL**  
Gray Very Stiff Silty Highly Plastic CLAY (A-7-6), with Sand Seams

**WEATHERED ROCK**  
(Gray Metamorphosed Rock)

**CRYSTALLINE ROCK**  
Gray, Freshly Weathered, Hard to Very Hard, Very Close to Closely Fractured Spacing, Very Thickly Bedded, Metamorphosed Rock

REC = 96% RQD = 60%

Boring Terminated at Elevation 631.7 ft in Crystalline Rock: Gray Metamorphosed Rock

- 1) Station and offset are in METRIC
- 2) Advanced a 2-15/16" tri-cone to a depth of 10.1 feet.
- 3) Set HW casing to 3.5 feet below the existing ground.
- 4) Set NW casing to 10 feet below the existing ground.
- 5) Advanced a NQ2 core barrel between 10.1 to 15.1 feet.
- 6) Used swamp water as drilling fluid.



# NCDOT GEOTECHNICAL ENGINEERING UNIT CORE BORING REPORT

PROJECT NO. 34410.1.25	ID. R-2248E	COUNTY Mecklenburg	GEOLOGIST Nash, A. A.
SITE DESCRIPTION Bridge on -Y22- (Mallard Creek Road) over tributary to Stone Creek			GROUND WTR (ft) <b>0 HR.</b> N/A <b>24 HR.</b> N/A
BORING NO. B-39	STATION 16+97	OFFSET 9 ft RT	
COLLAR ELEV. 646.8 ft	TOTAL DEPTH 15.1 ft	NORTHING 180,028	EASTING 450,468
DRILL MACHINE Diedrich D-50	DRILL METHOD 2-15/16" tri-cone with rotary wash		HAMMER TYPE Automatic
DRILLER Duggins, W. T.	START DATE 03/05/10	COMP. DATE 03/05/10	SURFACE WATER DEPTH 0.5ft

CORE SIZE NQ	TOTAL RUN 5.0 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. (ft) %	RQD (ft) %		REC. (%)	RQD (ft) %			
636.7											Begin Coring @ 10.1 ft	
635	636.7	10.1	5.0	7:37/1.0 N=60/0	(4.8)	(3.0)	SS-25			636.7	<b>CRYSTALLINE ROCK</b>	10.1
				6:08/1.0	96%	60%				631.7	Gray, Freshly Weathered, Hard to Very Hard, Very Close to Closely Fractured Spacing, Very Thickly Bedded, Metamorphosed Rock	
	631.7	15.1		7:08/1.0							Boring Terminated at Elevation 631.7 ft in Crystalline Rock: Gray Metamorphosed Rock	15.1
630				7:24/1.0								
				5:28/1.0								
625												
620												
615												
610												
605												
600												
595												
590												
585												
580												
575												
570												
565												
560												

NCDOT CORE SINGLE 10-0045.GPJ NC\_DOT.GDT 3/7/10

- 1) Station and offset are in METRIC**
- 2) Advanced a 2-15/16" tri-cone to a depth of 10.1 feet.
  - 3) Set HW casing to 3.5 feet below the existing ground.
  - 4) Set NW casing to 10 feet below the existing ground.
  - 5) Advanced a NQ2 core barrel between 10.1 to 15.1 feet.
  - 6) Used swamp water as drilling fluid.

North Carolina Department of Transportation  
Geotechnical Unit  
Rock Core Photo

<i>Project No.:</i> 34410.1.25	<i>I.D. No.:</i> R-2248E	<i>County:</i> Mecklenburg	<i>Geologist:</i> A. A. Nash
<i>Site Description:</i> Bridge on -Y22- (Mallard Creek Road) over tributary to Stone Creek			
<i>Boring No.:</i> B-39	<i>Station:</i> --	<i>Offset:</i> --	<i>Alignment:</i> -Y22-
<i>Total Depth:</i> 15.1 feet	<i>Collar Elev.:</i> 646.8	<i>Start Date:</i> 3/5/2010	<i>Comp. Date:</i> 3/5/2010
<i>Driller:</i> Willie Duggins		<i>Core Size:</i> NQ	<i>Drill Machine:</i> Diedrich D-50

