



**Preliminary Geotechnical Subsurface Data Report
Richland County Emergency Bridge Package 4
S-827 Rockbridge Road over Spring Lake
Richland County, South Carolina
F&R Project No. 65T-0191**

Prepared for:




South Carolina Department of Transportation
Design-Build Section
955 Park Street
Columbia, SC 29201

November 11, 2015



We have enjoyed working with you on this project. Please contact us if you have any questions regarding this report or if we may be of further service.

Sincerely,
FROEHLING & ROBERTSON, INC.


Gary R. Taylor, PE
Senior Geotechnical Engineer
Registered SC No. 27330





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1.0 PURPOSE & SCOPE OF SERVICES

The purpose of this Geotechnical Investigation was to explore the subsurface conditions at the site and perform soil laboratory tests on selected soil samples obtained from the investigation. F&R's scope of services included the following:

- < Completion of two soil test borings to a depth of approximately 100 feet below the existing ground surface and as close as possible to each previous bridge abutment location.
- < Preparation of typed SCDOT Soil Boring Logs;
- < Performing soil laboratory tests including natural moisture contents, Atterberg Limits and Wash No. 200 Gradation tests;
- < Preparation of this preliminary geotechnical subsurface data report by professional engineers.

This report was prepared in general accordance with the 2010 SCDOT Geotechnical Design Manual (GDM), Version 1.1.

Our scope of services did not include identification and evaluation of appropriate foundation systems for the proposed bridge, design capacities and other environmental aspects of the project site.

2.0 PROJECT INFORMATION

2.1 Site Description

The project site is on Rockbridge Road (State Route S-827) located between Westshore Road and Eastshore Road in Richland County, South Carolina. The area around the creek and the road is partly wooded with several residential dwellings. Project surroundings are shown on the attached Figure No. 1 - Site Vicinity Map included in Appendix I.



2.2 Project Description

Recent flooding in the region has caused extensive erosion around the bridge and resulted in a complete loss of the bridge. Emergency replacement of the roadway and bridge is planned. For this purpose, the geotechnical subsurface investigation and laboratory testing is required by SCDOT and will form part of a preliminary investigation of the site.

3.0 SUBSURFACE INVESTIGATION

3.1 Subsurface Investigation Program

The subsurface investigation program consisted of two soil test borings (STB). The borings, designated as B-01 and B-02 were advanced to a termination depth of 100 ft below the existing ground surface on the approaches adjacent to the previous location of the bridge. Approximate boring locations are identified on Figure No. 2 - Boring Location Plan included in Appendix I. Photographs of Borings B-01 and B-02 being drilled are also included as Figure Nos. 3A and 3B in Appendix I.

3.2 Location Control

The STB locations were staked in the field by personnel from our office following instructions from your office. The borings were drilled in the centerline of the existing alignment a few feet from the remaining edge of the bridge approach closest to the lake. The ground surface elevation at the borings locations were not provided to us at the time of this writing. GPS coordinates of Borings B-01 (Latitude 34.045206 / Longitude -80.956800) and B-02 (Latitude 34.045134 / Longitude -80.957236) were obtained with a portable hand-held GPS and are recorded on the soil boring logs included in Appendix II of this report.



3.3 Subsurface Investigation Procedure

Subsurface investigation was performed on October 21, 2015 using an ATV-mounted CME/550X and truck-mounted CME/55 drill rigs. The drill rigs used for this project were equipped with an automatic hammer and the drilling method used was the wash rotary boring. The energy ratio of this ATV-mounted hammer reported to us indicates 86% and that for the truck-mounted hammer indicates 74%. SPT tests at boring locations were performed continuously from the existing ground surface to a depth of 10 feet. Thereafter, boreholes were advanced and SPT performed at approximate 5-foot intervals to their termination depths. The Standard Penetration Test (SPT) was performed at the boring locations in general accordance with ASTM D1586.

Soil samples were obtained with a long split-spoon sampler with each SPT being driven with a 140-lb automatic hammer falling 30 inches. The number of blows required to drive the sampler each 6-inch increment of penetration was recorded and are shown on the boring logs. The first six-inch increment is used to seat the sampler with the sum of the second and third penetration increments being termed the SPT value, "N". A representative portion of each disturbed split-spoon sample was collected with each SPT, placed in a glass jar, and returned to our laboratory for review and testing.

The recovered split-spoon samples were visually classified by F&R engineers in general accordance with the ASTM D2488. The boring logs provided in Appendix II show the subsurface conditions encountered on the dates and at the approximate locations indicated.

By the nature of the work performed, the drilling activities result in disturbances to the site. The completed boreholes performed were backfilled upon completion. The borehole backfill may subside at some time following our work. F&R assumes no responsibility for borehole subsidence after completion of the field investigation and departing the site.



3.4 Groundwater

Groundwater was encountered in Borings B-01 and B-02 at a depth of approximately 13.5 feet. The test borings were backfilled after completion of drilling for safety. The depth at which groundwater was encountered in each individual boring is indicated on the attached soil boring logs in Appendix II.

The groundwater levels at the boring locations were determined based on our observation of free water in the split-spoon soil samples following removal of the sampler. Upon completion of drilling, the boreholes were backfilled for safety, hence the absence of 24-hour water level readings on the boring logs.

The groundwater levels on the soil boring logs indicate our estimate of the hydrostatic water table at the time of our investigation. The final design should anticipate the fluctuation of the hydrostatic water table depending on variations in precipitation, surface runoff, evaporation, creek levels and similar factors.



4.0 LABORATORY TESTING

Laboratory testing consisted of Atterberg Limits Tests, No. 200 Sieve Cut grain size analyses (Wash #200), and Natural Moisture Content tests performed on specific soil samples. The specific tests performed on the selected samples are listed in Table No. 1 below.

Table No. 1: Soil Laboratory Tests Performed on Selected Soil Samples

Boring	Sample Number	Depth (ft)	Atterberg Limits	Percent Fines Wash # 200	Natural Moisture Content
B-01	SS-3	4.5-6.5		X	X
B-01	SS-6	13.5-15.0	X	X	X
B-01	SS-7	18.5-20.0		X	X
B-01	SS-8	23.5-25.0		X	X
B-01	SS-9	28.5-30.0	X	X	X
B-01	SS-10	33.5-35.0	X	X	X
B-01	SS-13	48.5-50.0		X	X
B-01	SS-15	58.5-60.0		X	X
B-02	SS-1	2.0-4.0		X	X
B-02	SS-3	6.0-8.0		X	X
B-02	SS-5	13.5-15.0	X	X	X
B-02	SS-6	18.5-20.0		X	X
B-02	SS-7	23.5-35.0	X	X	X
B-02	SS-8	28.5-30.0	X	X	X
B-02	SS-11	43.5-45.0		X	X
B-02	SS-14	58.5-60.0	X	X	X
B-02	SS-20	88.5-90.0		X	X

The laboratory testing results are presented in Appendix III and the laboratory test data sheets are presented in Appendix IV.

F&R greatly appreciates the opportunity to work with you on this project. If there are any questions concerning this report or if any additional information is required, please do not hesitate to contact us.



6.0 LIMITATIONS

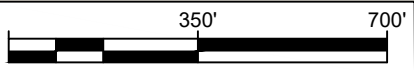
This report has been prepared for the exclusive use of South Carolina Department of Transportation or their agent, for specific application to the referenced site in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. Our investigation is based on site location information furnished to us; and generally accepted geotechnical engineering practice. The subsurface investigation logs included herein, do not reflect variations in subsurface conditions which could exist intermediate of the boring locations or in unexplored areas of the site. Should such variations become apparent during construction, it will be necessary to perform additional subsurface exploration based upon on-site observations of the conditions.



APPENDIX I



Site Location



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 GEOTECHNICAL • ENGINEERS • MATERIALS

DATE: 11/2/2015

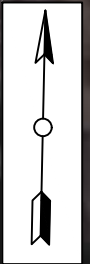
CLIENT: SCDOT

PROJECT NO.: 65T-0191

Site Vicinity Map
Emergency Bridge Package 4 - Rockbridge Road
Richmond County, South Carolina

Figure No. 1

Drawing Legend:



SPRING LAKE

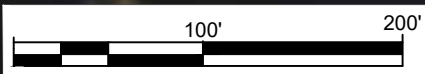


B-2

ROCKBRIDGE ROAD



B-1



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DATE: 11/2/2015

CLIENT: SCDOT

PROJECT NO.: 65T-0191

Boring Location Map
Emergency Bridge Package 4 - Rockbridge Road
Richmond County, South Carolina

Figure No. 2



Figure No. 3A - Photograph of Boring B-01



Figure No. 3B - Photograph of Boring B-02



APPENDIX II



KEY TO SOIL CLASSIFICATION
Correlation of Penetration Resistance with
Relative Density and Consistency

<u>Sands and Gravels</u>		<u>Silts and Clays</u>	
<u>No. of Blows, N</u>	<u>Relative Density</u>	<u>No. of Blows, N</u>	<u>Consistency</u>
0 - 4	Very loose	0 - 2	Very soft
5 - 10	Loose	3 - 4	Soft
11 - 30	Medium dense	5 - 8	Firm
31 - 50	Dense	9 - 15	Stiff
Over 50	Very dense	16 - 30	Very stiff
		31 - 50	Hard
		Over 50	Very hard

Particle Size Identification

(Unified Classification System)

Boulders:	Diameter exceeds 12-in. (300-mm)
Cobbles:	3-in. (75-mm) to 12-in. (300-mm) diameter
Gravel:	<u>Coarse</u> - ¾-in. (19-mm) to 3 in. (75-mm) diameter <u>Fine</u> - No. 4 (4.75-mm) sieve to ¾-in. (19-mm) diameter
Sand:	<u>Coarse</u> - No. 10 (2.0-mm) to No. 4 (4.76 mm) sieve <u>Medium</u> - No. 40 (0.425-mm) to No. 10 (2.0-mm) sieve <u>Fine</u> - No. 200 (0.075-mm) to No. 40 (0.425-mm) sieve
Silt and Clay:	Less than No. 200 (0.075-mm) sieve



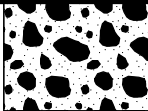



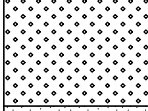
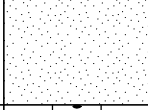
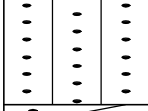
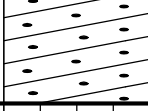
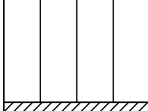
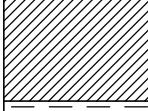
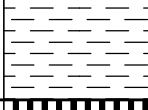
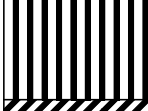

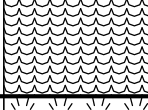
Modifiers

The modifiers provide our estimate of the amount of silt, clay or sand size particles in the soil sample.

<u>Approximate Content</u>	<u>Modifiers</u>
u 5%:	Trace
5 to 10%:	Few
15 to 25%:	Little
30 to 45%:	Some
50 to 100%	Mostly

	<u>Field Moisture Description</u>
Dry	Absence of moisture, dusty, dry to touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
<p>COARSE GRAINED SOILS</p> <p>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE</p>	<p>GRAVEL AND GRAVELLY SOILS</p>	<p>CLEAN GRAVELS</p> <p>(LITTLE OR NO FINES)</p>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		<p>GRAVELS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		<p>GRAVELS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES	
	<p>SAND AND SANDY SOILS</p>	<p>CLEAN SANDS</p> <p>(LITTLE OR NO FINES)</p>		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES	
		<p>SANDS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		SM	SILTY SANDS, SAND - SILT MIXTURES	
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
			<p>SILTS AND CLAYS</p> <p>LIQUID LIMIT LESS THAN 50</p>		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
<p>SILTS AND CLAYS</p> <p>LIQUID LIMIT GREATER THAN 50</p>		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY			
		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS			
		CH	INORGANIC CLAYS OF HIGH PLASTICITY			
<p>HIGHLY ORGANIC SOILS</p>				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
<p>HIGHLY ORGANIC SOILS</p>				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

SCDOT Soil Test Boring Log

File No.:	65T-0191	Project No. (PIN):		County:	Richland	Eng./Geo.:	SCI
Site Description:		Emergency Bridge Package 4 - Rock Bridge Rd over Spring Lake				Route:	S 827
Boring No.:	B-01	Boring Location:		Offset:		Alignment:	Existing
Elev.:	ft	Latitude:	-80.9568	Longitude:	34.045206	Date Started:	10/21/15
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	0 ft	Date Completed:	10/21/2015
Bore Hole Diameter (in):		Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME-550X	Drill Method:	Rotary Wash	Hammer Type:	Automatic	Energy Ratio:	86%
Core Size:		Driller:	SCI	Groundwater:	TOB 13.5 ft	24HR	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE												
										PL	MC	LL	FINES CONTENT (%)									
	0.0									● SPT N VALUE ● PL — MC — LL ▲ FINES CONTENT (%)												
	0.5	Asphalt Pavement 6"		0.5																		
		FILL, gray and brown, fine to coarse, moist, CLAYEY SAND (SC/A-2-6) , contains wood pieces Munsel=10YR 6/1 & 5/3		2.5	1/SS	9	4	4	8	●												
	4.5	Loose, gray, fine to medium, moist, SILTY SAND (SM/A-1-b) , contains wood pieces Munsel=10YR 6/1		4.5	2/SS	1	4	4	8	●												
	6.5	SS-3: NMC=15.9%, %200=19.7		6.5	3/SS	1	3	5	8	●	○	▲										
		ALLUVIUM , very loose, gray, fine to medium, moist, POORLY GRADED SAND with SILT (SP-SM/A-3) Munsel=10YR 6/1 SS-6: NMC=24.9%, %200=9.4, Non-Plastic Medium dense		8.5	4/SS	2	1	2	3	●												
					5/SS	2	4	6	10	●												
	13.5	Very loose, wet		13.5	6/SS	2	2	1	3	●	▲	○										
	18.5	Medium dense, gray, wet, SILTY SAND (SM/A-1-b) , contains gravel Munsel=10YR 6/1 SS-7: NMC=15.9%, %200=13.5		18.5	7/SS	1	7	14	21	▲	●											
	22.5	RESIDUUM , very dense, brown, fine to coarse, moist, SILTY SAND (SM/A-2-4) Munsel=10YR 5/3 SS-8: NMC=17.9%, %200=26.8		23.5	8/SS	50/6			50	○	▲	●										

LEGEND

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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC.DOT ROCK BRIDGE ROAD.GPJ SC.DOT.GDT 11/11/15

SCDOT Soil Test Boring Log

File No.:	65T-0191	Project No. (PIN):		County:	Richland	Eng./Geo.:	SCI
Site Description:	Emergency Bridge Package 4 - Rock Bridge Rd over Spring Lake					Route:	S 827
Boring No.:	B-01	Boring Location:		Offset:		Alignment:	Existing
Elev.:	ft	Latitude:	-80.9568	Longitude:	34.045206	Date Started:	10/21/15
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	0 ft	Date Completed:	10/21/2015
Bore Hole Diameter (in):		Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME-550X	Drill Method:	Rotary Wash	Hammer Type:	Automatic	Energy Ratio:	86%
Core Size:		Driller:	SCI	Groundwater:	TOB 13.5 ft	24HR	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE												
										PL	MC	LL	FINES CONTENT (%)									
	27.5	Very stiff, brown, fine to medium, moist, SILTY SAND (SM/A-2-4) Munsel=10YR 5/3 SS-9: NMC=26.3%, %200=41.9, LL=36, PL=31, PI=6		28.5	9/SS	3	9	10	19	●	○	×	×	▲								
	32.5			Very hard, brown, fine to coarse, moist, SILTY SAND (SM/A-2-4) , contains rock fragments Munsel=10YR 5/3 SS-10: NMC=19.5%, %200=36.7, Non-Plastic SS-13: NMC=19.3%, %200=33.8		33.5	10/SS	46	50/4		50	○	▲	●								
	43.5	Gray Munsel=10YR 6/1				43.5	11/SS	50/4			50			●								
	48.5			Brown Munsel=10YR 5/3		48.5	12/SS	50/5			50			●								
							13/SS	50/4			50	○	▲	●								

LEGEND

Continued Next Page

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_ROCK_BRIDGE_ROAD.GPJ SC_DOT.GDT 11/11/15

SCDOT Soil Test Boring Log

File No.:	65T-0191	Project No. (PIN):		County:	Richland	Eng./Geo.:	SCI
Site Description:		Emergency Bridge Package 4 - Rock Bridge Rd over Spring Lake				Route:	S 827
Boring No.:	B-01	Boring Location:		Offset:		Alignment:	Existing
Elev.:	ft	Latitude:	-80.9568	Longitude:	34.045206	Date Started:	10/21/15
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	0 ft	Date Completed:	10/21/2015
Bore Hole Diameter (in):		Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME-550X	Drill Method:	Rotary Wash	Hammer Type:	Automatic	Energy Ratio:	86%
Core Size:		Driller:	SCI	Groundwater:	TOB 13.5 ft	24HR	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE													
										PL	MC	LL	FINES CONTENT (%)										
		Light Brown Munsel=7.5YR 6/3		78.5	19/SS	30	50/4		50														
		Blue Gray Munsel=GLEY 2 6/1		83.5	20/SS	50/2			50														
				88.5	21/SS	50/4			50														
				93.5	22/SS	50/2			50														
				98.5	23/SS	50/4			50														
	100.0																						

LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ROCK BRIDGE ROAD.GPJ SC_DOT.GDT 11/11/15

SCDOT Soil Test Boring Log

File No.:	65T-0191	Project No. (PIN):		County:	Richland	Eng./Geo.:	SCI
Site Description:	Emergency Bridge Package 4 - Rock Bridge Rd over Spring Lake					Route:	S 827
Boring No.:	B-02	Boring Location:		Offset:		Alignment:	Existing
Elev.:	ft	Latitude:	-80.957236	Longitude:	34.045134	Date Started:	10/21/15
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	0 ft	Date Completed:	10/21/2015
Bore Hole Diameter (in):		Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME-550	Drill Method:	Rotary Wash	Hammer Type:	Automatic	Energy Ratio:	74%
Core Size:		Driller:	SCI	Groundwater:	TOB 13.5 ft	24HR	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE ●		PL — MC — LL			▲ FINES CONTENT (%)	
										20	30	40	50	60	70	80
	0.0	Asphalt Pavement 1' 3"														
	1.3	FILL , loose, gray and brown, fine to coarse, SILTY SAND (SM/A-2-4) , contains wood pieces Munsel=7.5YR 6/1 & 4/3 SS-1: NMC=20.9%, %200=40.5 SS-3: NMC=14.7%, %200=16.2 Medium dense, Dark Gray Munsel=7.5YR 4/1		2.0												
				4.0	1/SS	3	3	2	5	●	○	▲				
				6.0	2/SS	3	6	5	11	●						
				8.0	3/SS	2	3	9	12	●▲						
				10.0	4/SS	5	9	7	16	●						
	12.5	ALLUVIUM , loose, dark gray, fine to medium, wet, SILTY SAND (SM/A-2-4) SS-5: NMC=28.1%, %200=32.2, LL=25, PL=22, PI=3		13.5	5/SS	2	2	2	4	●	○	▲				
	17.5	Medium dense, gray, fine to medium, wet, POORLY GRADED SAND with SILT (SP-SM/A-3) Munsel=7.5YR 6/1 SS-6: NMC=21.6%, %200=8.5		18.5	6/SS	4	5	6	11	●	○					
	22.5	Dense, gray and brown, fine to coarse, wet, SILTY SAND (SM/A-1-b) , contains gravel Munsel=7.5YR 6/1 & 4/3		23.5	7/SS	12	15	13	28	○▲	●					

LEGEND

Continued Next Page

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ROCK BRIDGE ROAD.GPJ SC_DOT.GDT 11/11/15

SCDOT Soil Test Boring Log

File No.:	65T-0191	Project No. (PIN):		County:	Richland	Eng./Geo.:	SCI
Site Description:		Emergency Bridge Package 4 - Rock Bridge Rd over Spring Lake				Route:	S 827
Boring No.:	B-02	Boring Location:		Offset:		Alignment:	Existing
Elev.:	ft	Latitude:	-80.957236	Longitude:	34.045134	Date Started:	10/21/15
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	0 ft	Date Completed:	10/21/2015
Bore Hole Diameter (in):		Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME-550	Drill Method:	Rotary Wash	Hammer Type:	Automatic	Energy Ratio:	74%
Core Size:		Driller:	SCI	Groundwater:	TOB 13.5 ft	24HR	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE												
										PL	MC	LL	FINES CONTENT (%)									
	27.5	SS-7: NMC=10.3%, %200=14.4, Non-Plastic																				
		RESIDUUM , very hard, pinkish gray, moist, SANDY SILT (ML/A-4) Munsel=7.5YR 7/2		28.5	8/SS	31	50/5		50													
		SS-8: NMC=21.4%, %200=59.8, Non-Plastic																				
		SS-11: NMC=21.3%, %200=52.8																				
		SS-14: NMC=17.9%, %200=58.6, Non-Plastic																				
				33.5	9/SS	38	50		50													
				38.5	10/SS	28	50/2		50													
				43.5	11/SS	50/4			50													
		Brown		48.5	12/SS	38	50		50													
		Munsel=7.5YR 5/2																				

LEGEND

Continued Next Page

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ROCK BRIDGE ROAD.GPJ SC_DOT.GDT 11/11/15

SCDOT Soil Test Boring Log

File No.:	65T-0191	Project No. (PIN):		County:	Richland	Eng./Geo.:	SCI
Site Description:	Emergency Bridge Package 4 - Rock Bridge Rd over Spring Lake					Route:	S 827
Boring No.:	B-02	Boring Location:		Offset:		Alignment:	Existing
Elev.:	ft	Latitude:	-80.957236	Longitude:	34.045134	Date Started:	10/21/15
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	0 ft	Date Completed:	10/21/2015
Bore Hole Diameter (in):		Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME-550	Drill Method:	Rotary Wash	Hammer Type:	Automatic	Energy Ratio:	74%
Core Size:		Driller:	SCI	Groundwater:	TOB 13.5 ft	24HR	N/A

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE										
										PL	MC	LL	FINES CONTENT (%)							
										0	10	20	30	40	50	60	70	80	90	
		Light brown Munsel=7.5YR 6/3		78.5	18/SS	50/1			50											
				83.5	19/SS	50/3			50											
	88.5	Very dense, light brown, fine to medium, moist, SILTY SAND (SM/A-2-7) Munsel=7.5YR 6/3 SS-20: NMC=18.6%, %200=38.2		88.5	20/SS	50/3			50	○	▲	●								
				93.5	21/SS	50/2			50											
				98.5	22/SS	50/2			50											
	100.0																			

LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ROCK BRIDGE ROAD.GPJ SC_DOT.GDT 11/11/15



APPENDIX II



FROEHLING & ROBERTSON, INC.

LABORATORY TEST SUMMARY SHEET

F&R Project No: 65T-0191
Client: South Carolina Department of Transportation
Project: S 827 Rock Bridge over Spring Lake
SCDOT Proj ID
City/State: Richland County, SC

Boring/Sample No.	Depth (ft)	LL	PL	PI	USCS/AASHTO Classification	Water Content (%)	Percent Passing No. 200 Sieve
B-01/SS-3	4.5-6.5				SM/A-1-b	15.9	19.7
B-01/SS-6	13.5-15.0	NP	NP	NP	SP-SM/A-3	24.9	9.4
B-01/SS-7	18.5-20.0				SM/A-1-b	15.9	13.5
B-01/SS-8	23.5-25.0				SM/A-2-4	17.9	26.8
B-01/SS-9	28.5-30.0	36	31	6	SM/A-2-4	26.3	41.9
B-01/SS-10	33.5-35.0	NP	NP	NP	SM/A-2-4	19.5	36.7
B-01/SS-13	48.5-50.0				SM/A-2-4	19.3	33.8
B-01/SS-15	58.5-60.0				ML/A-4	18.5	54.1
B-02/SS-1	2.0-4.0				SM/A-2-4	20.9	40.5
B-02/SS-3	6.0-8.0				SM/A-2-4	14.7	16.2
B-02/SS-5	13.5-15.0	25	22	3	SM/A-2-4	28.1	32.2
B-02/SS-6	18.5-20.0				SP-SM/A-3	21.6	8.5
B-02/SS-7	23.5-25.0	NP	NP	NP	SM/A-1-b	10.3	14.4
B-02/SS-8	28.5-30.0	NP	NP	NP	ML/A-4	21.4	59.8
B-02/SS-11	43.5-45.0				ML/A-4	21.3	52.8
B-02/SS-14	58.5-60.0	NP	NP	NP	ML/A-4	17.9	58.6
B-02/SS-20	88.5-90.0				SM/A-2-7	18.6	38.2

NP: non-plastic

Date: 11/11/15



APPENDIX V

ROCKBRIDGE RD.

MOISTURE CONTENT (%)

*

	#1	#2	#3	#4	#5	#6	#7
Sample I.D.	B-1 4.5-6.5		B-1 13.5-15		B-1 18.5-20		B-1 23.5-25
Wet Soil + Tare	531.20		367.44		524.92		410.68
Dry Soils + Tare	478.88		323.39		472.98		370.56
Tare # & Weight	S3 149.19		L 146.17		S-7 147.06		B 146.00
Weight of Water	52.32		44.05		51.94		40.12
Weight of Dry Soils	329.69		177.22		325.92		224.56
Moisture Content	0.159		0.249		0.159		0.179

*

*

	#8	#9	#10	#11	#12	#13	#14
Sample I.D.	B-1 28.5-30		B-1 33.5-35		B-1 48.5-50		B-1 58.5-60
Wet Soil + Tare	494.81		433.50		426.33		465.75
Dry Soils + Tare	422.99		386.70		381.42		415.66
Tare # & Weight	S51 149.40		S6 146.47		S10 148.20		K 145.19
Weight of Water	71.82		46.80		44.91		50.09
Weight of Dry Soils	273.59		240.23		233.22		270.47
Moisture Content	0.263		0.195		0.193		0.185

*

	#15	#16	#17	#18	#19	#20	#21
Sample I.D.	B-2 2-4		B-2 6-8		B-2 13.5-15		B-2 18.5-20
Wet Soil + Tare	514.78		470.81		355.77		479.89
Dry Soils + Tare	451.58		429.43		310.17		430.95
Tare # & Weight	G 149.43		S21 147.69		S9 148.55		AE 204.28
Weight of Water	63.20		41.38		45.60		48.94
Weight of Dry Soils	302.15		281.74		162.22		226.67
Moisture Content	0.209		0.147		0.281		0.216

*

*

*

	#22	#23	#24	#25	#26	#27	#28
Sample I.D.	B-2 23.5-25		B-2 28.5-30		B-2 43.5-45	B-2 58.5-60	B-2 88.5-90
Wet Soil + Tare	287.50		461.57		453.51	214.89	472.17
Dry Soils + Tare	274.60		406.23		407.05	204.66	430.12
Tare # & Weight	J 149.30		S8 147.87		12 189.20	S23 147.50	AD 204.34
Weight of Water	12.90		55.34		46.46	10.23	42.05
Weight of Dry Soils	125.30		258.36		217.85	57.16	225.78
Moisture Content	0.103		0.214		0.213	0.179	0.186

SP3

N2

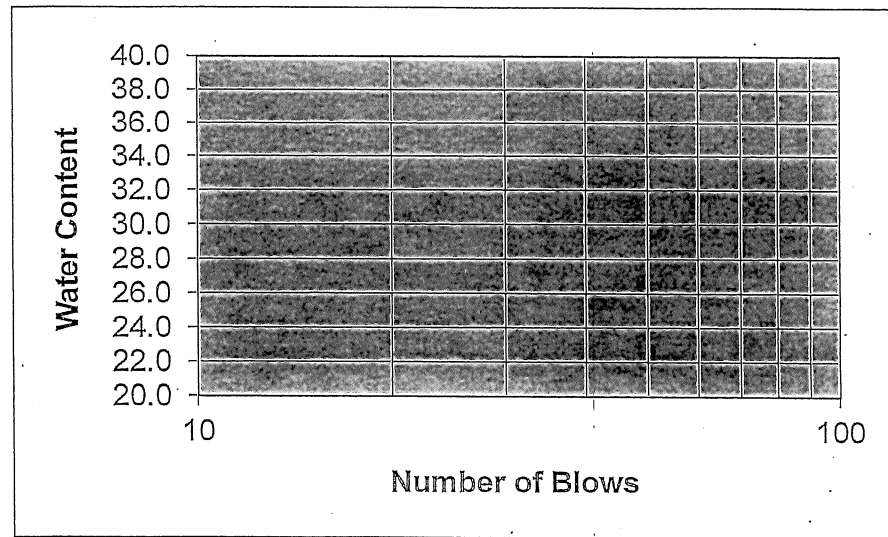
Froehling & Robertson, Inc. Laboratory Sample Analyses

Client: _____
 Project: ROCK BRIDGE
 F&R Project No.: _____
 Item Code/Use: _____

Material: _____
 Sample No: 6
 Location: B-1 13.5-15
 Source: _____

Date Received: 10/29/15
 Date Processed: _____

Liquid Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss	NON-PLASTIC			
Cup Weight				
Dry Soil				
Blows				
Moisture %				
Plastic Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss				
Cup Weight				
Dry Soil				
Moisture %				



Laboratory Technician: _____
 Reviewed By: _____
 Program Administrator

LL = _____
 PL = _____
 PI = _____
 USCS = _____

Froehling & Robertson, Inc.
Laboratory Sample Analyses

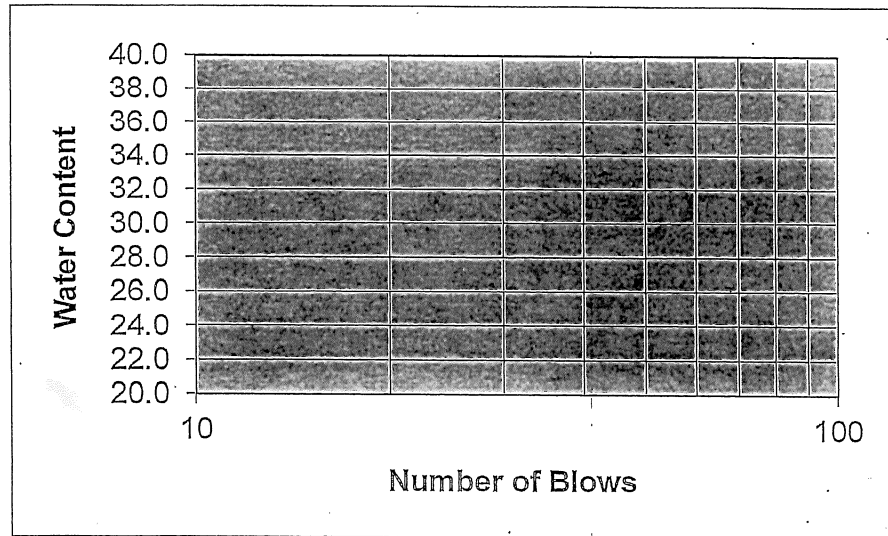
SPA AZ

Client: _____
Project: ROCKBRIDGE RD.
F&R Project No.: _____
Item Code/Use: _____

Material: _____
Sample No: 9
Location: B-1 285-30
Source: _____

Date Received: 10/29/15
Date Processed: _____

Liquid Limit			
Tare No.	M1	D5	M4
Cup & Wet Soil	35.38	36.24	36.09
Cup & Dry Soil	32.11	32.74	32.49
Moisture Loss	3.27	3.50	3.60
Cup Weight	23.03	23.29	23.30
Dry Soil	9.08	9.45	9.19
Blows	27	22	17
Moisture %	0.360	0.370	0.392
Plastic Limit			
Tare No.	108	8	
Cup & Wet Soil	30.22	30.29	
Cup & Dry Soil	28.52	28.60	
Moisture Loss	1.70	1.69	
Cup Weight	23.13	23.08	
Dry Soil	5.39	5.52	
Moisture %	0.315	0.306	



Laboratory Technician: _____
Reviewed By: _____
Program Administrator

LL = _____
PL = _____
PI = _____
USCS = _____

$$LL = 37 \left(\frac{22}{25} \right)^{.121} = 36$$

$$PL = 31$$

$$PI = 6$$

Froehling & Robertson, Inc.
Laboratory Sample Analyses

SPI

FF

Client: _____
Project: ROCKBRIDGE RD.
F&R Project No.: _____
Item Code/Use: _____

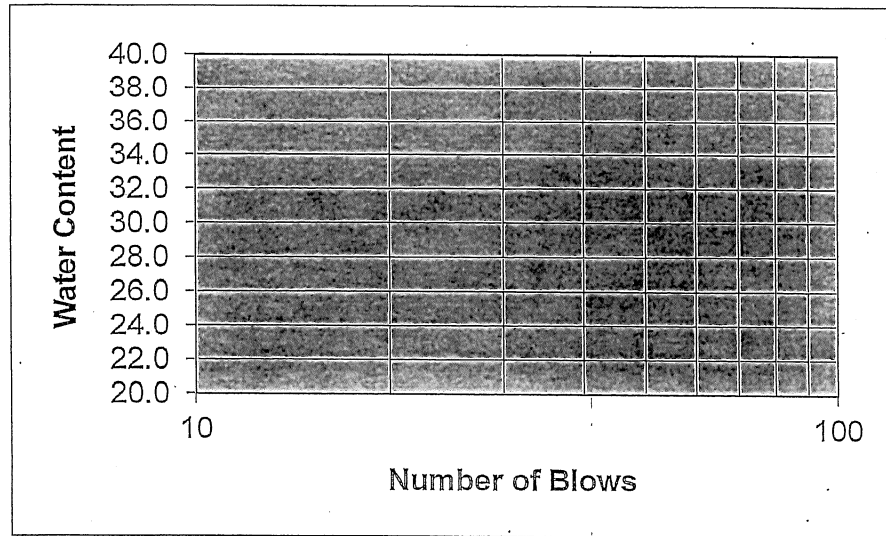
Material: _____
Sample No: 10
Location: B-1 33.5-35
Source: _____

Date Received: _____

Date Processed: _____

Liquid Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss				
Cup Weight				
Dry Soil				
Blows				
Moisture %				
Plastic Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss				
Cup Weight				
Dry Soil				
Moisture %				

NON-PLASTIC



Laboratory Technician: _____
Reviewed By: _____
Program Administrator

LL = _____
PL = _____
PI = _____
USCS = _____



WASH 200 (C 117)

CLIENT _____

B-1

TECHNICIAN _____

PROJECT ROCKBRIDGE

4.5-6.5

TEST DATE _____

RECORD NO. _____

SOIL CLASSIFICATION _____

TARE # D

TARE WEIGHT 304.27

A Tare and Dry Soil		<u>635.44</u>
B Dry Soil	(A-Tare)	<u>331.17</u>
C Tare and Dry Soil After Wash		<u>570.19</u>
D Dry Soil After Wash	(C-Tare)	<u>265.92</u>
E Material Lost	(B-D)	<u>65.25</u>

Percent Passing #200

(B-D)/B x 100=

19.7%



WASH 200 (C 117)

CLIENT _____

B-1

TECHNICIAN _____

PROJECT ROCKBRIDGE

13.5-15

TEST DATE _____

RECORD NO. _____

SOIL CLASSIFICATION _____

TARE # 176

TARE WEIGHT 178.22

A Tare and Dry Soil		<u>355.63</u>
B Dry Soil	(A-Tare)	<u>177.41</u>
C Tare and Dry Soil After Wash		<u>339.01</u>
D Dry Soil After Wash	(C-Tare)	<u>160.79</u>
E Material Lost	(B-D)	<u>16.62</u>

Percent Passing #200

(B-D)/B x 100=

9.4%



WASH 200 (C 117)

CLIENT _____

PROJECT ROCKBRIDGE

RECORD NO. _____

B-1

18.5-20

TECHNICIAN _____

TEST DATE _____

SOIL CLASSIFICATION _____

TARE # ACC

TARE WEIGHT 255.12

A Tare and Dry Soil		<u>581.33</u>
B Dry Soil	(A-Tare)	<u>326.21</u>
C Tare and Dry Soil After Wash		<u>537.38</u>
D Dry Soil After Wash	(C-Tare)	<u>282.26</u>
E Material Lost	(B-D)	<u>43.95</u>

Percent Passing #200

(B-D)/B x 100=

13.5%



WASH 200 (C 117)

CLIENT _____ B-1 _____
PROJECT ROCK BRIDGE _____
RECORD NO. _____
TEST DATE _____

SOIL CLASSIFICATION _____

TARE # B TARE WEIGHT 397.87

A Tare and Dry Soil		<u>622.95</u>
B Dry Soil	(A-Tare)	<u>225.08</u>
C Tare and Dry Soil After Wash		<u>562.63</u>
D Dry Soil After Wash	(C-Tare)	<u>164.76</u>
E Material Lost	(B-D)	<u>60.32</u>

Percent Passing #200 (B-D)/B x 100= 26.8%



WASH 200 (C 117)

CLIENT _____ B-1 _____
PROJECT ROCKBRIDGE _____
RECORD NO. _____
TECHNICIAN _____
TEST DATE _____
SOIL CLASSIFICATION _____
TARE # Kc TARE WEIGHT 374.58

A Tare and Dry Soil		<u>649.44</u>
B Dry Soil	(A-Tare)	<u>274.86</u>
C Tare and Dry Soil After Wash		<u>534.41</u>
D Dry Soil After Wash	(C-Tare)	<u>159.83</u>
E Material Lost	(B-D)	<u>115.03</u>

Percent Passing #200 (B-D)/B x 100= 41.9%



WASH 200 (C 117)

CLIENT _____ B-1 _____
PROJECT ROCKBRIDGE _____
RECORD NO. _____ 33,5-35 _____

TECHNICIAN _____
TEST DATE _____

SOIL CLASSIFICATION _____

TARE # A

TARE WEIGHT 388.45

A Tare and Dry Soil

B Dry Soil

C Tare and Dry Soil After Wash

D Dry Soil After Wash

E Material Lost

(A-Tare)

(C-Tare)

(B-D)

629.39
240.94
540.86
152.41
88.53

Percent Passing #200

(B-D)/B x 100=

36.7%



WASH 200 (C 117)

CLIENT _____
PROJECT ROCKBRIDGE
RECORD NO. _____

B-1
48.5-50

TECHNICIAN _____
TEST DATE _____

SOIL CLASSIFICATION _____

TARE # N2

TARE WEIGHT 319.95

A Tare and Dry Soil		<u>553.85</u>
B Dry Soil	(A-Tare)	<u>233.90</u>
C Tare and Dry Soil After Wash		<u>474.70</u>
D Dry Soil After Wash	(C-Tare)	<u>154.75</u>
E Material Lost	(B-D)	<u>79.15</u>

Percent Passing #200 (B-D)/B x 100= 33.8%



WASH 200 (C 117)

CLIENT _____

PROJECT ROCKBRIDGE

RECORD NO. _____

B-1
58.5-60

TECHNICIAN _____

TEST DATE _____

SOIL CLASSIFICATION _____

TARE # N4

TARE WEIGHT 330.52

A Tare and Dry Soil		<u>602.11</u>
B Dry Soil	(A-Tare)	<u>271.59</u>
C Tare and Dry Soil After Wash		<u>455.23</u>
D Dry Soil After Wash	(C-Tare)	<u>124.71</u>
E Material Lost	(B-D)	<u>146.88</u>

Percent Passing #200

(B-D)/B x 100=

54.1%

Froehling & Robertson, Inc.
Laboratory Sample Analyses

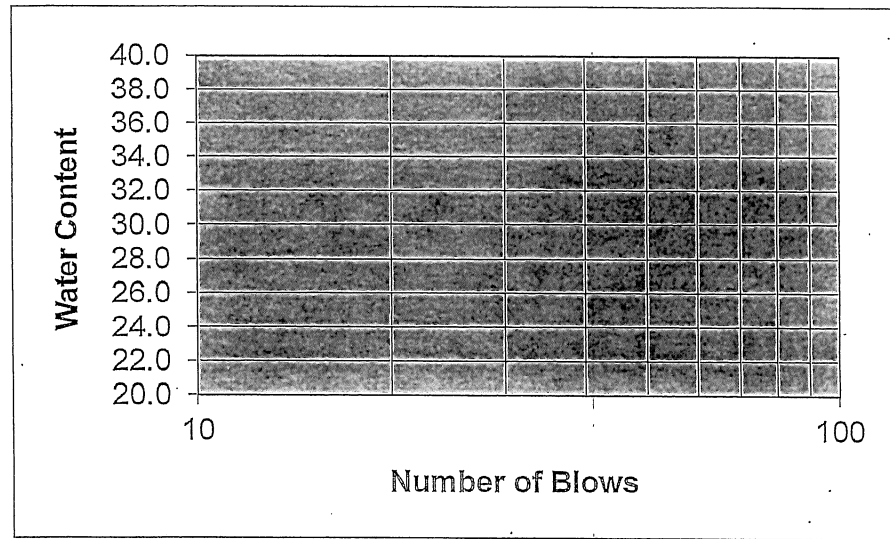
SP5 3

Client: _____
Project: ROCKBRIDGE RD.
F&R Project No.: _____
Item Code/Use: _____

Material: _____
Sample No: 5
Location: B-2 13.5-15
Source: _____

Date Received: 10/29/15
Date Processed: _____

Liquid Limit			
Tare No.	DG	M2	A2
Cup & Wet Soil	34.84	35.14	35.79
Cup & Dry Soil	32.51	32.77	33.19
Moisture Loss	2.33	2.37	2.60
Cup Weight	22.99	23.25	22.93
Dry Soil	9.52	9.52	10.26
Blows	30	23	15
Moisture %	6.245	6.249	0.253
Plastic Limit			
Tare No.	44	D10	
Cup & Wet Soil	29.41	29.43	
Cup & Dry Soil	28.24	28.30	
Moisture Loss	1.17	1.13	
Cup Weight	22.79	23.12	
Dry Soil	5.45	5.18	
Moisture %	0.215	0.218	



Laboratory Technician: _____
Reviewed By: _____
Program Administrator

LL = _____
PL = _____
PI = _____
USCS = _____

$$LL = 24.9 \left(\frac{23}{25} \right)^{0.121} = 25$$

$$PL = 22$$

$$PI = 3$$

Froehling & Robertson, Inc.
Laboratory Sample Analyses

T-1 X4

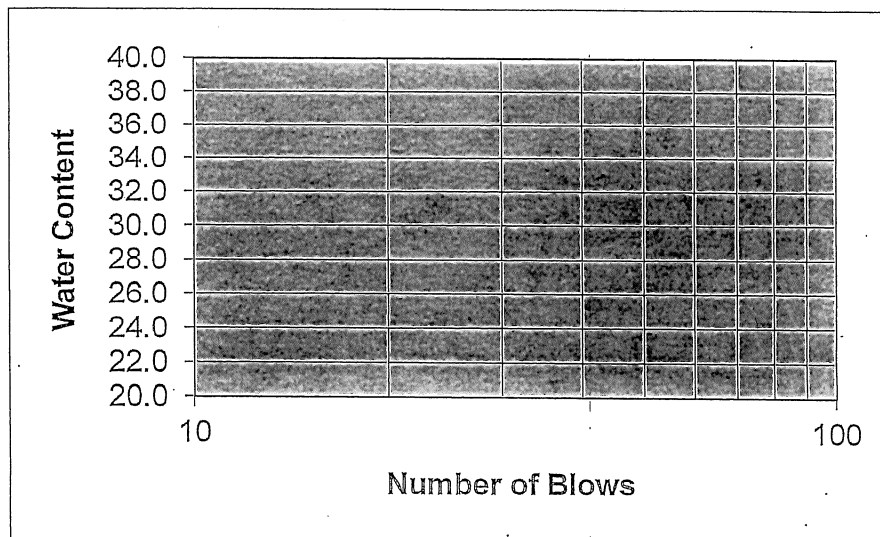
Client: _____
Project: ROCKBRIDGE RD
F&R Project No.: _____
Item Code/Use: _____

Material: _____
Sample No: 7
Location: B-2 23.5-25
Source: _____

Date Received: _____
Date Processed: _____

Liquid Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss				
Cup Weight				
Dry Soil				
Blows				
Moisture %				
Plastic Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss				
Cup Weight				
Dry Soil				
Moisture %				

NON-PLASTIC



Laboratory Technician: _____
Reviewed By: _____
Program Administrator

LL = _____
PL = _____
PI = _____
USCS = _____

Froehling & Robertson, Inc.
Laboratory Sample Analyses

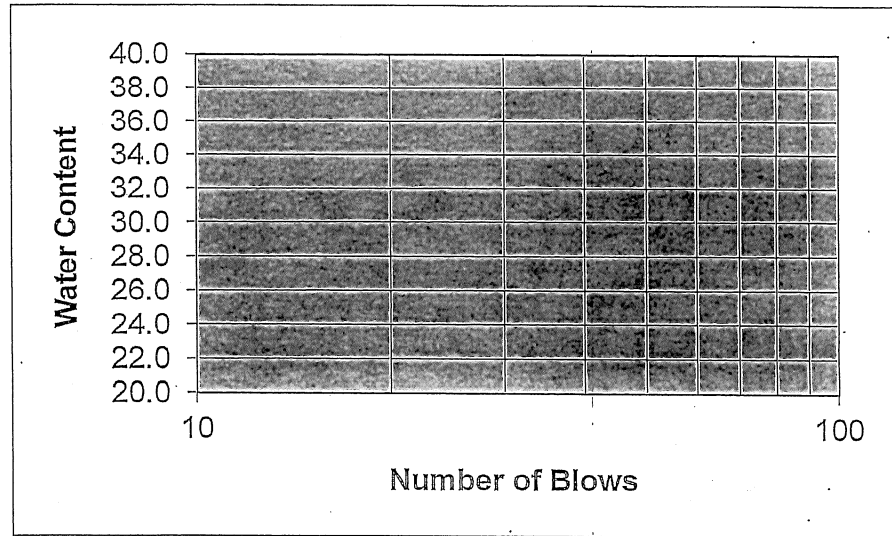
SP2 TP

Client: _____
 Project: ROCKBRIDGE RD
 F&R Project No.: _____
 Item Code/Use: _____

Material: _____
 Sample No: 8
 Location: B-2 28.5-30
 Source: _____

Date Received: 10/29/15
 Date Processed: _____

Liquid Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss				
Cup Weight	NON-PLASTIC			
Dry Soil				
Blows				
Moisture %				
Plastic Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss				
Cup Weight				
Dry Soil				
Moisture %				



Laboratory Technician: _____
 Reviewed By: _____
 Program Administrator

LL = _____
 PL = _____
 PI = _____
 USCS = _____

Froehling & Robertson, Inc.
Laboratory Sample Analyses

PI NB2
DD

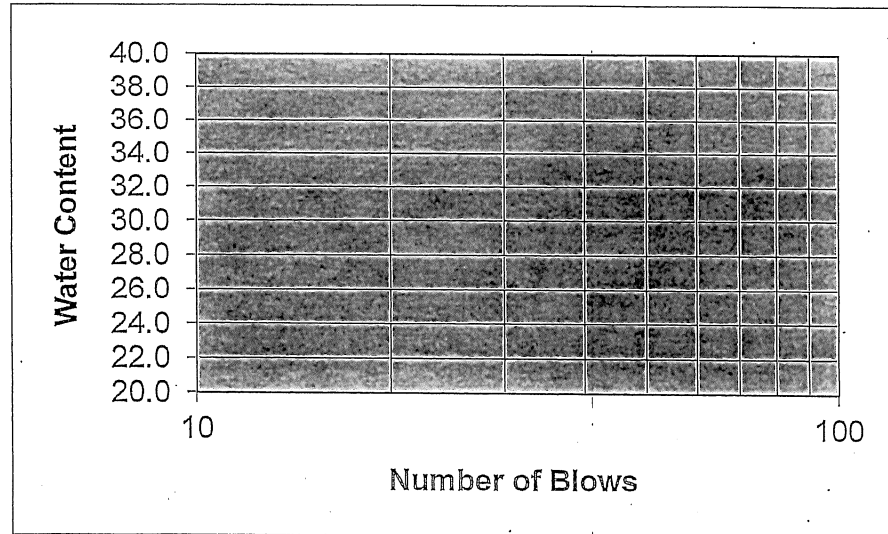
Client: _____
Project: ROCKBRIDGE RD
F&R Project No.: _____
Item Code/Use: _____

Material: _____
Sample No: # 14
Location: B-2
Source: 58.5-60

Date Received: 10/29/15

Date Processed: _____

Liquid Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss	NON-PLASTIC			
Cup Weight				
Dry Soil				
Blows				
Moisture %				
Plastic Limit				
Tare No.				
Cup & Wet Soil				
Cup & Dry Soil				
Moisture Loss				
Cup Weight				
Dry Soil				
Moisture %				



Laboratory Technician: _____
Reviewed By: _____
Program Administrator

LL = _____
PL = _____
PI = _____
USCS = _____



WASH 200 (C 117)

CLIENT _____
PROJECT ROCKBRIDGE B-2 TECHNICIAN _____
RECORD NO. _____ 2-4 TEST DATE _____

SOIL CLASSIFICATION _____

TARE # 8A

TARE WEIGHT 337.73

A Tare and Dry Soil		<u>642.29</u>
B Dry Soil	(A-Tare)	<u>304.56</u>
C Tare and Dry Soil After Wash		<u>518.95</u>
D Dry Soil After Wash	(C-Tare)	<u>181.22</u>
E Material Lost	(B-D)	<u>123.34</u>

Percent Passing #200

(B-D)/B x 100=

40.5%



WASH 200 (C 117)

CLIENT _____

PROJECT ROCKBRIDGE

RECORD NO. _____

B-2
6-B

TECHNICIAN _____

TEST DATE _____

SOIL CLASSIFICATION _____

TARE # NI

TARE WEIGHT 327.19

A Tare and Dry Soil		<u>610.06</u>
B Dry Soil	(A-Tare)	<u>282.87</u>
C Tare and Dry Soil After Wash		<u>564.27</u>
D Dry Soil After Wash	(C-Tare)	<u>237.08</u>
E Material Lost	(B-D)	<u>15.79</u>

Percent Passing #200

(B-D)/B x 100=

16.2%



WASH 200 (C 117)

CLIENT _____
PROJECT ROCKBRIDGE B-2 TECHNICIAN _____
RECORD NO. _____ 13.5-15 TEST DATE _____

SOIL CLASSIFICATION _____

TARE # D3 TARE WEIGHT 250.09

A Tare and Dry Soil		<u>412.90</u>
B Dry Soil	(A-Tare)	<u>162.81</u>
C Tare and Dry Soil After Wash		<u>360.52</u>
D Dry Soil After Wash	(C-Tare)	<u>110.43</u>
E Material Lost	(B-D)	<u>52.38</u>

Percent Passing #200 (B-D)/B x 100= 32.2%



WASH 200 (C 117)

CLIENT _____
PROJECT ROCKBRIDGE
RECORD NO. _____

B-2
18.5-20

TECHNICIAN _____
TEST DATE _____

SOIL CLASSIFICATION _____

TARE # A3

TARE WEIGHT 249.95

A Tare and Dry Soil		<u>476.85</u>
B Dry Soil	(A-Tare)	<u>226.90</u>
C Tare and Dry Soil After Wash		<u>457.53</u>
D Dry Soil After Wash	(C-Tare)	<u>207.58</u>
E Material Lost	(B-D)	<u>19.32</u>

Percent Passing #200 (B-D)/B x 100= 8.5%



WASH 200 (C 117)

CLIENT _____

B-2

TECHNICIAN _____

PROJECT ROCKBRIDGE

23.5-25

TEST DATE _____

RECORD NO. _____

SOIL CLASSIFICATION _____

TARE # AA

TARE WEIGHT 247.75

A Tare and Dry Soil		<u>373.28</u>
B Dry Soil	(A-Tare)	<u>125.53</u>
C Tare and Dry Soil After Wash		<u>355.26</u>
D Dry Soil After Wash	(C-Tare)	<u>107.51</u>
E Material Lost	(B-D)	<u>18.02</u>

Percent Passing #200

(B-D)/B x 100=

14.4%



WASH 200 (C 117)

CLIENT _____

PROJECT ROCKBRIDGE

RECORD NO. _____

B-2
28.5-30

TECHNICIAN _____

TEST DATE _____

SOIL CLASSIFICATION _____

TARE # C

TARE WEIGHT 394.24

A Tare and Dry Soil		<u>653.19</u>
B Dry Soil	(A-Tare)	<u>258.75</u>
C Tare and Dry Soil After Wash		<u>498.39</u>
D Dry Soil After Wash	(C-Tare)	<u>104.15</u>
E Material Lost	(B-D)	<u>154.80</u>

Percent Passing #200

(B-D)/B x 100=

59.8%



WASH 200 (C 117)

CLIENT _____
PROJECT ROCKBRIDGE B-2 TECHNICIAN _____
RECORD NO. _____ 43.5-45 TEST DATE _____

SOIL CLASSIFICATION _____

TARE # XD

TARE WEIGHT 306.21

A Tare and Dry Soil		<u>524.74</u>
B Dry Soil	(A-Tare)	<u>218.53</u>
C Tare and Dry Soil After Wash		<u>409.36</u>
D Dry Soil After Wash	(C-Tare)	<u>103.15</u>
E Material Lost	(B-D)	<u>115.38</u>

Percent Passing #200

(B-D)/B x 100=

52.8%



WASH 200 (C 117)

CLIENT _____

PROJECT ROCKBRIDGE

RECORD NO. _____

B-2

58.5-60

TECHNICIAN _____

TEST DATE _____

SOIL CLASSIFICATION _____

TARE # AB-4

TARE WEIGHT 172.84

A Tare and Dry Soil		<u>230.22</u>
B Dry Soil	(A-Tare)	<u>57.38</u>
C Tare and Dry Soil After Wash		<u>196.66</u>
D Dry Soil After Wash	(C-Tare)	<u>23.76</u>
E Material Lost	(B-D)	<u>33.62</u>

Percent Passing #200

(B-D)/B x 100=

58.6%



WASH 200 (C 117)

CLIENT _____

B-2

TECHNICIAN _____

PROJECT ROCKBRIDGE

88.5-90

TEST DATE _____

RECORD NO. _____

SOIL CLASSIFICATION _____

TARE # E

TARE WEIGHT 248.03

A Tare and Dry Soil		<u>474.50</u>
B Dry Soil	(A-Tare)	<u>226.47</u>
C Tare and Dry Soil After Wash		<u>388.01</u>
D Dry Soil After Wash	(C-Tare)	<u>139.98</u>
E Material Lost	(B-D)	<u>86.49</u>

Percent Passing #200

(B-D)/B x 100=

38.2%