LETTER REPORT

Test Pit Exploration

Morgan Falls Road Improvements
Sandy Springs
Fulton County, Georgia

Project Number
2011.2530.04

December 6, 2013

We're here for you
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December 6, 2013

Mr. Garrin M. Coleman, P.E., L.S.I.T
Capital Programs Manager, Public Works
City of Sandy Springs
7840 Roswell Road
Building 500
Sandy Spring, Georgia 30350

Via Email: gcoleman@sandyspringsga.gov; MMartin@SandySpringsga.gov

RE: Letter Report of Test Pit Exploration
Proposed Retaining Walls
Morgan Falls Road Improvements
Sandy Springs, Georgia
Project No. **2011.2530.04**

Dear Mr. Coleman:

United Consulting is pleased to submit report of our Test Pit Exploration for the above referenced project site. This letter report should be read in conjunction with our Geotechnical Exploration report dated October 28, 2011, prepared under United Consulting project number 2011.2530.01.

BACKGROUND

Our previous Geotechnical report indicate that difficult excavation conditions and significant ripping and blasting associated with PWR or rock exist along the project site. Due to the presence of questionable quantity and quality of existing PWR or rock, United Consulting recommended excavating test pits to further evaluate the extent and condition of PWR or rock.

PURPOSE

The purpose of our work was to further characterize the nature of excavation difficulties including the distinction between partially weathered rock (PWR) that can and cannot be excavated.

SCOPE

The scope of this Test Pit Exploration has included the following items:

1. Excavating a total of thirty two (32) test pits in the following areas:
   - Sta. 123+00 – 127+00 –Left/MSE wall areas;
   - Sta. 144+00 – 149+00 –Left/ MSE wall areas;
   - 128+00 – Right/Cut Areas;

2. Preparing this letter report to document the results of our field-testing program, including test pit logs, photograph and provide more detail regarding difficult excavation conditions expected and equipment needed during excavation.

Please note that Souteastern Engineeing, Inc. (SEI) will be responsible for:

1. Determining the quantity of PWR/rock excavation;
2. Survey of test pit locations after completion of fieldwork;
3. Shooting the elevations for test pit locations

EXPLORATION PROCEDURES

Thirty two test pits were excavated at the project site using John Deere 200C LC (swing torque= 43,218 ft.lbs) and Komatsu PC200LC-8 (swing torque= 49,907 ft.lbs.) excavators. The test pits were excavated to depths ranging from about 2.5 to 16.5 feet below ground surface. Test pit locations were determined in the field by our engineering representative who measured distances and estimated angles with a measurement tape and a hand-held compass from existing site features. The test pit locations should, therefore be considered approximate. We have left two flags tied with orange ribbon at each test pit locations in the field for SEI surveyors for more accurate information. City representatives also videotaped the excavation at few locations.

SUMMARY OF FINDINGS

Below the existing ground surface/topsoil in all but three (see next paragraph) test pits, residual soils were encountered in the test pits. The residual soils encountered generally consisted of sand with varying amounts of silt and mica, trace amounts of clay and occasional trace amounts of rock fragments and boulders.

Partially weathered rock (PWR) was encountered in three test pits at Station 123+50 18’L at a depth of 3.5’ to 8’, Station 127+75 55’R at a depth of 4’ to 14.5’, and Station 128+25 83’R at a depth of 8’ to 12.5’. Test pit refusal occurred in eighteen test pits at depths varying from 2.5 feet to 15.5 feet. Below is a table summarizing the results from Test Pit Exploration.

No.	Station Number	Approximate Offset from Centerline	Excavator Refusal Depth	Test Pit Termination Depth
1	123+00	18' left	-	13
*2	123+25	19' left	-	10.5
3	123+50	18' left	-	12.5
4	123+75	19' left	7	-
5	124+00	24' left	-	13
*6	124+00	29' left	7.5	-
7	124+25	19' left	-	14.5
8	124+50	19' left	-	12
9	124+75	19' left	-	14
10	124+75	44' left	15	-
*11	125+00	50' left	3.5	-
*12	125+25	44' left	7.5	-
*13	125+50	38' left	2.5	-
*14	125+75	34' left	5	-
*15	126+00	33' left	5	-
16	126+15	34' left	8.5	-
17	126+50	30' left	-	10[#]
18	126+50	44' left	12	-
19	126+75	28' left	10.5	-
*20	126+75	38' left	11	-
21	127+00	28' left	7	-
22	127+00	51' left	8.5	-
23	127+75	55' right	14.5	-
24	128+25	83' right	12.5	-
25	129+00	50' right	15.5	-
26	129+25	40' right	-	16.5
27	143+40	19' left	-	13
28	143+75	23' left	13.5	-
29	146+75	19' left	-	15
30	147+10	19' left	-	14
31	147+50	21' left	-	13.5
32	148+23	23' left	-	11.5

*= Using Komatsu PC200LC-8
[#]= Test pit terminated due to steep slope

Note: Test pit locations should be considered approximate. Actual Locations and Elevations will be surveyed by SEI.

Groundwater was not encountered at the time of excavation in the test pits. For a more precise description of the conditions encountered within the test pits, please refer to the Test Pit Logs provided in the Appendix.

Difficult Excavation

As previously indicated, excavator refusal was encountered at eighteen test pit locations whereas the remaining the trackhoe digging was terminated at remaining fourteen locations. At three test pit locations, PWR encountered was excavatable by the excavators used. In our opinion, the test pit refusal materials shall be considered generally as non-excavatable, which typically require use of jack hammer attachment, ripper, pneumatic spades, etc., and/or blasting for removal. We refer you to the 'Difficult Excavation' section of th original report for additional guidelines.

Large equipment can be used in an attempt to loosen large-scale, sound rock, if any, by ripping or taking advantage of existing discontinuity patterns. We note that the depth to bedrock can vary significantly over short horizontal distances in this area and that pinnacles of rock or very large boulders may be present between or away from the areas explored.

LIMITATIONS

This report is for the exclusive use of **City of Sandy Springs** and the designers of the project described herein, and may only be applied to this specific project. Our conclusions and recommendations have been prepared using generally accepted standards of Geotechnical Engineering practice in the State of Georgia. No other warranty is expressed or implied. Our firm is not responsible for conclusions, opinions or recommendations of others.

The right to rely upon this report and the data within may not be assigned without UNITED CONSULTING'S written permission.

The scope of this evaluation was limited to an evaluation of the load-carrying capabilities and stability of the subsoils. Oil, hazardous waste, radioactivity, irritants, pollutants, molds, or other dangerous substance and conditions were not the subject of this study. Their presence and/or absence are not implied or suggested by this report, and should not be inferred.

Our conclusions and recommendations are based upon design information furnished us, data obtained from the previously described exploration and testing program and our past experience. They do not reflect variations in subsurface conditions that may exist intermediate of our borings and in unexplored areas of the site. Should such variations become apparent during construction, it will be necessary to re-evaluate our conclusions and recommendations based upon "on-site" observations of the conditions.

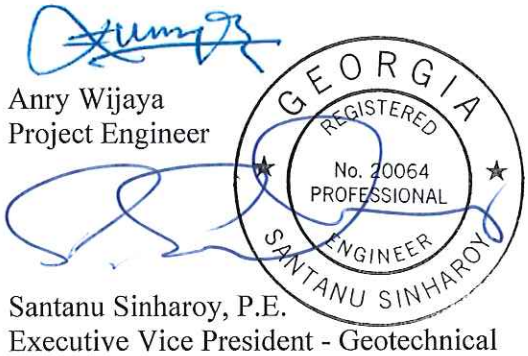
If the design or location of the project is changed, the recommendations contained herein, must be considered invalid unless our firm reviews the changes and our recommendations are either verified or modified in writing. When design is complete, we should be given the opportunity to review the foundation plan, grading plan, and applicable portions of the specifications to see if they are consistent with the intent of our recommendations.

CLOSURE

We appreciate the opportunity to assist you with this project. Please contact us if you have any questions or if we can be of further assistance.

Sincerely,

UNITED CONSULTING



Anry Wijaya
Project Engineer

Santanu Sinharoy, P.E.
Executive Vice President - Geotechnical

AW/SS/nj

Attachments
Logs of Test Pits (32)
Photographs (33 pages)

http://ucblade10/sites/Geotechenv/10305/2011.2530.04/Geotechnical Documents/2011.2530.04 Letter Report.doc

ATTACHMENTS

Logs of Test Pits (32)
Photographs (33 pages)

UNITED CONSULTING
625 HOLCOMB BRIDGE ROAD
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(770)209-0029, FAX (770)582-2800

LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 123+00 18'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/18/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay, mica and rock fragments; tan (Residual) (SM)	2	
	-some rock fragments	4	
		6	
		8	
		10	
		12	
	TEST PIT TERMINATED AT 13'	14	No groundwater encountered at time of excavation
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 123+25 19'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 10/04/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL/ROOTS	0	
	Sand-silty, some mica, trace clay and rock fragments; brown (Residual) (SM)		
		2	
	-some rock fragments; tan-brown		Hard digging from 3' to 5'
		4	
	-trace rock fragments		
		6	
		8	
		10	
	TEST PIT TERMINATED AT 10.5'		No groundwater encountered at time of excavation
		12	
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 123+50 18'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/18/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	7" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay, mica and rock fragments; brown-tan (Residual) (SM)	2	
	-some rock fragments and boulders		Hard digging from 3' to 8'
	Partially Weathered Rock sampled as Sand-some silt and rock fragments, trace clay and mica; brown (SM)	4	
		6	
		8	
	Sand-silty, trace clay, mica and rock fragments; brown (Residual) (SM)	10	
		12	Hard digging starting at 12'
	TEST PIT TERMINATED AT 12.5'	14	No groundwater encountered at time of excavation
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 123+75 19'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/20/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	9" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay, rock fragments and boulders; tan-brown (Residual) (SM)	2	
	-trace mica	4	
	-some rock fragments; gray	6	
	TEST PIT REFUSAL AT 7'	8	No groundwater encountered at time of excavation
		10	
		12	
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 124+00 24'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/19/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL	0	
	Sand-silty, trace clay and mica; orange-brown (Residual) (SM)		
	-trace rock fragments and boulders; tan-gray	2	
		4	
		6	
		8	
		10	
			Hard digging starting at 11'
		12	
	TEST PIT TERMINATED AT 13'		No groundwater encountered at time of excavation
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 124+00 29'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENT JOB NO.: 2011.2530.04 DATE: 10/04/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL/ROOTS	0	
	Sand-silty, some mica, trace rock fragments; tan-brown (Residual) (SM)	2	
		4	
		6	
	-some boulders and rock fragments; tan-gray		Hard digging starting at 6'
	TEST PIT REFUSAL AT 7.5'	8	No groundwater encountered at time of excavation
		10	
		12	
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 124+25 19'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/19/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay, rock fragments and boulders; orange-brown (Residual) (SM)	2	
	-trace mica; light brown	4	
		6	
		8	
		10	
		12	
		14	
	TEST PIT TERMINATED AT 14.5'	16	No groundwater encountered at time of excavation

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LOG OF TEST PIT

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PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/19/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	4" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay; tan-brown (Residual) (SM)	2	
		4	
		6	
		8	
		10	
		12	
	TEST PIT TERMINATED AT 12'	14	No groundwater encountered at time of excavation
		16	

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PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/19/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	7" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay and mica; tan-brown (Residual) (SM)	2	
		4	
		6	
	-trace rock fragments	8	
		10	
	-some rock fragments	12	
		14	
	TEST PIT TERMINATED AT 14'	16	No groundwater encountered at time of excavation

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 124+75 44'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/19/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	4" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay, mica and rock fragments; orange-brown (Residual) (SM)	2	
	-tan	4	
	-trace boulders	6	
	-some boulders and rock fragments	8 10	Hard digging starting at 10'
		12	
		14	
	TEST PIT REFUSAL AT 15'	16	No groundwater encountered at time of excavation

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 125+00 50'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 10/04/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL/ROOTS	0	
	Sand-silty, some boulders and rock fragments, trace clay; tan-gray (Residual) (SM)	2	
	TEST PIT REFUSAL AT 3.5'	4	No groundwater encountered at time of excavation
		6	
		8	
		10	
		12	
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 125+25 44'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 10/04/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay, mica and boulders; tan-gray (Residual) (SM)	2	Boulder 5'x3'x2' in size from 0' to 2' south of test pit
		4	
		6	
	TEST PIT REFUSAL AT 7.5'	8	No groundwater encountered at time of excavation
		10	
		12	
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 125+50 38'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENT JOB NO.: 2011.2530.04 DATE: 10/04/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	5" TOPSOIL/ROOTS	0	
	Sand-silty, some mica, boulders and rock fragments; tan-gray (Residual) (SM)	2	Hard digging starting at 2'
	TEST PIT REFUSAL AT 2.5'	4	No groundwater encountered at time of excavation
		6	
		8	
		10	
		12	
		14	
		16	

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LOG OF TEST PIT

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PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 10/04/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL/ROOTS	0	
	Sand-silty, some rock fragments, trace clay; orange-brown (Residual) (SM)	2	
	-gray	4	Hard digging starting at 3.5'
	TEST PIT REFUSAL AT 5'	6	No groundwater encountered at time of excavation
		8	
		10	
		12	
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 126+00 33'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 10/04/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	4" TOPSOIL/ROOTS	0	
	Sand-silty, some rock fragments, trace clay and mica; tan-brown (Residual) (SM)	2	
	-tan-gray	4	
	TEST PIT REFUSAL AT 5'	6	No groundwater encountered at time of excavation
		8	
		10	
		12	
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 126+15 34'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/18/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	8" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay and rock fragments; tan-brown (Residual) (SM)	2	
	-trace mica	4	
		6	
		8	
	TEST PIT REFUSAL AT 8.5'	10	No groundwater encountered at time of excavation
		12	
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 126+50 30'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/19/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	8" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay, rock fragments and boulders; tan-brown (Residual) (SM)	2	
	-gray-brown	4	
		6	
		8	
		10	
	TEST PIT TERMINATED AT 10'	12	Test pit terminated due to steep slope No groundwater encountered at time of excavation
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 126+50 44'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/18/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	4" TOPSOIL/ROOTS	0	
966	Sand-silty, trace clay and rock fragments; orange-gray (Residual) (SM)		
		2	
964			
		4	
	-some rock fragments		A layer of rock in the eastern part of the test pit from 3.5' to 6'
962			
		6	
960			
		8	
958			
		10	
956			
	-gray-brown		
		12	
	TEST PIT REFUSAL AT 12'		No groundwater encountered at time of excavation
954			
		14	
952			
		16	
950			

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 126+75 28'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/19/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	5" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay and mica; tan-brown (Residual) (SM)		
		2	
	-trace rock fragments and boulders		
		4	
		6	
		8	
		10	
	-some rock fragments; light brown		
	TEST PIT REFUSAL AT 10.5'		No groundwater encountered at time of excavation
		12	
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 126+75 38'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENT JOB NO.: 2011.2530.04 DATE: 10/04/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	8" TOPSOIL/ROOTS	0	
	Sand-silty, some mica, trace clay and rock fragments; orange-brown (Residual) (SM)	2	
		4	
	-some rock fragments; gray-brown	6	
		8	Hard digging starting at 8'
		10	
	TEST PIT REFUSAL AT 11'	12	No groundwater encountered at time of excavation
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 127+00 28'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/19/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	8" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay, mica and rock fragments; orange-brown (Residual) (SM)	2	
	-some rock fragments; tan-gray	6	
	TEST PIT REFUSAL AT 7'	8	No groundwater encountered at time of excavation
		10	
		12	
		14	
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 127+00 51'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/18/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
968	6" TOPSOIL/ROOTS	0	
	Sand-silty, some rock fragments, trace clay; orange-brown (Residual) (SM)		
966		2	Hard digging from 2' to 8.5'
964	-significant rock fragments, some silt; gray (SP)	4	
962		6	
960	-silty, some rock fragments; gray-orange (SM)	8	
	TEST PIT REFUSAL AT 8.5'		No groundwater encountered at time of excavation
958		10	
956		12	
954		14	
952		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 127+75 55'R

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/18/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	5" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay and rock fragments; tan-gray (Residual) (SM)	2	
		4	
	Partially Weathered Rock sampled as Sand-silty, trace clay and rock fragments; tan (SM)	6	Hard digging starting at 4' Harder on East side of test pit
	-some rock fragments	8	
	-some silt; light brown	10	
		12	
		14	
	TEST PIT REFUSAL AT 14.5'	16	No groundwater encountered at time of excavation

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 128+25 83'R

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/18/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	7" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay; tan-brown (Residual) (SM)		
		2	
	-trace rock fragments and boulders		Hard digging from 3' to 6'
		4	Rock fragments at 4'
		6	
		8	
	Partially Weathered Rock sampled as Sand-some silt and rock fragments, trace clay; tan-brown (SM)	10	
		12	
	TEST PIT REFUSAL AT 12.5'	14	No groundwater encountered at time of excavation
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 129+00 50'R

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/18/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay and mica; tan-orange (Residual) (SM)	2	
		4	
		6	
		8	
		10	
			Hard digging from 11' to 15.5'
		12	
	-trace rock fragments	14	
	TEST PIT REFUSAL AT 15.5'	16	No groundwater encountered at time of excavation

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 129+25 40'R

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/18/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
996	5" TOPSOIL/ROOTS	0	
	Clay-sandy, some silt; red-brown (Residual) (CL)		
994		2	
	Sand-silty, trace clay; orange-brown (SM)		
992		4	
990		6	
988		8	
986		10	
984		12	
982		14	
	-trace rock fragments; gray-brown		
980		16	No groundwater encountered at time of excavation
	TEST PIT TERMINATED AT 16.5'		

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 143+40 19'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/20/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	4" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay and mica; orange-brown (Residual) (SM)	2	
	-trace boulders and rock fragments	4	
	-white	6	
		8	Hard digging from 7' to 13'
		10	
		12	
	TEST PIT TERMINATED AT 13'	14	No groundwater encountered at time of excavation
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 143+75 23'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/20/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay and mica; orange-brown (Residual) (SM)		
		2	
	-gray	4	
		6	
		8	
		10	
			Hard digging starting at 11'
	-some rock fragments	12	
	TEST PIT REFUSAL AT 13.5'	14	No groundwater encountered at time of excavation
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 146+75 19'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/20/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL/ROOTS	0	
	Sand-some silt, trace clay and rock fragments; light brown (Residual) (SM)	2	
	-some rock fragments	4	Hard-digging from 3' to 8'
	-trace mica	6	
	-trace rock fragments; light tan	8	
		10	
		12	
		14	
	TEST PIT TERMINATED AT 15'	16	No groundwater encountered at time of excavation

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 147+00 19'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/20/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	6" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay and mica; tan-brown (Residual) (SM)		
		2	
	-trace rock fragments		
		4	
		6	
		8	
		10	
		12	
	-light brown		Hard digging from 12.5' to 14'
		14	
	TEST PIT TERMINATED AT 14'		No groundwater encountered at time of excavation
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 147+50 21'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/20/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	5" TOPSOIL/ROOTS	0	Boulders on the surface
	Sand-silty, some boulders, trace clay and mica; tan-orange (Residual) (SM)	2	
	-brown-gray	4	
		6	
		8	
		10	
		12	
	TEST PIT TERMINATED AT 13.5'	14	No groundwater encountered at time of excavation
		16	

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LOG OF TEST PIT

CONTRACTED WITH: CITY OF SANDY SPRINGS TEST PIT NO.: 148+23 23'L

PROJECT NAME: MORGAN FALLS ROAD IMPROVEMENTS JOB NO.: 2011.2530.04 DATE: 11/19/2013

ELEV.	DESCRIPTION	DEPTH in FEET	NOTES
	5" TOPSOIL/ROOTS	0	
	Sand-silty, trace clay, mica and rock fragments; orange-tan (Residual) (SM)	2	
	-trace boulders	4	
		6	
		8	
		10	
	-gray		
	TEST PIT TERMINATED AT 11.5'	12	Test pit terminated due to water line near road No groundwater encountered at time of excavation
		14	
		16	

Test pit at station 123+00, 18’ left of centerline

Soil from test pit at station 123+00, 18’ left of centerline

Test pit at station 123+25, 19’ left of centerline, showing the rock face at the top

Test pit at station 123+50, 18’ left of centerline

Soil from test pit at station 123+50, 18’ left of centerline

Test pit at station 123+75, 19’ left of centerline

Showing refusal depth at 7 feet of test pit at station 123+75, 19’ left of centerline

Soil from test pit at station 123+75, 19’ left of centerline

Test pit at Sta. 124+00, 24’ left of centerline

Soil from test pit at station 124+00, 24’ left of centerline

Test pit at station 124+00, 29’ left of centerline

Soil from test pit at station 124+00, 29’ left of centerline

Test pit at station 124+25, 19’ left of centerline

Soil from test pit at station 124+25, 19’ left of centerline

Test pit at station 124+50, 19’ left of centerline

Soil from test pit at station 124+50, 19’ left of centerline

Test pit at station 124+75, 19’ left of centerline

Soil from test pit at station 124+75, 19’ left of centerline

Test pit at station 124+75, 44’ left of centerline

Soil and boulders from test pit at station 124+75, 44’ left of centerline

Test pit at station 125+00, 50’ left of centerline

Soil and boulders from test pit at station 125+00, 50’ left of centerline

Test pit at station 125+25, 44’ left of centerline

Soil from test pit at station 125+25, 44’ left of centerline

Test pit at station 125+50, 38’ left of centerline

Soil from test pit at station 125+50, 38’ left of centerline

Test pit at station 125+75, 34’ left of centerline

Soil and boulders from test pit at station 125+75, 34’ left of centerline

Test pit at station 126+00, 33’ left of centerline

Soil and boulders from test pit at station 126+00, 33’ left of centerline

Test pit at station 126+15, 34’ left of centerline

Soil from test pit at station 126+15, 34’ left of centerline

Test pit at station 126+50, 30’ left of centerline

Test pit at station 126+50, 30’ left of centerline

Test pit at station 126+50, 44’ left of centerline

Soil from test pit at station 126+50, 44’ left of centerline

Test pit at station 126+75, 28’ left of centerline

Soil from test pit at station 126+75, 28’ left of centerline

Test pit at station 126+75, 38’ left of centerline

Soil and boulders from test pit at station 126+75, 38’ left of centerline

Test pit at station 127+00, 28’ left of centerline

Soil from test pit at station 127+00, 28’ left of centerline

Southern wall of test pit at station 127+00, 51’ left of centerline

Northern wall of test pit at station 127+00, 51’ left of centerline

Soil and boulders from test pit at station 127+00, 51’ left of centerline

Eastern wall of test pit at station 127+75, 55’ right of centerline

Western wall of test pit at station 127+75, 55’ right of centerline

Soil from test pit at station 127+75, 55’ right of centerline

Test pit at station 128+25, 83’ right of centerline

Soil from test pit at station 128+25, 83’ right of centerline

Test pit at station 129+00, 50’ right of centerline

Soil from test pit at station 129+00, 50’ right of centerline

Test pit at station 129+25, 40’ right of centerline

Soil from test pit at station 129+25, 40’ right of centerline

Test pit at station 143+40, 19’ left of centerline

Soil from test pit at station 143+40, 19’ left of centerline

Test pit at station 143+75, 23’ left of centerline

Soil from test pit at station 143+75, 23’ left of centerline

Test pit at station 146+75, 19’ left of centerline

Soil from test pit at station 146+75, 19’ left of centerline

Test pit at station 147+10, 19’ left of centerline

Soil from test pit at station 147+10, 19’ left of centerline

Test pit at station 147+50, 21’ left of centerline

Soil from test pit at station 147+50, 21’ left of centerline

Test pit at station 148+23, 23’ left of centerline

Soil from test pit at station 148+23, 23’ left of centerline

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
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