

Geotechnical Exploration Town of Summerville Pond Exploration Summerville, South Carolina S&ME Project No. 1413-20-100

PREPARED FOR

Town of Summerville 200 South Main Street Summerville, South Carolina 29483

PREPARED BY

S&ME, Inc. 620 Wando Park Boulevard Mount Pleasant, SC 29464

January 6, 2020



January 6, 2020

Town of Summerville 200 South Main Street Summerville, South Carolina 29483

Attention: Mr. Russell Cornette, Jr., P.E.

Reference: **Geotechnical Exploration**

Town of Summerville Pond Exploration

Summerville, South Carolina S&ME Project No. 1413-20-100

Dear Mr. Cornette:

We have completed the geotechnical exploration for the new retention pond in Summerville, South Carolina. Our services were performed pursuant to S&ME Proposal No. 14-2000295 dated November 23, 2020. The purpose of our geotechnical exploration was to explore the site and provide data on the existing soils within the proposed retention pond area. This report presents our understanding of the proposed retention pond, the project site and the subsurface conditions encountered.

Project Information

We understand the Town of Summerville is planning a drainage improvement project that includes a new 2.6-acre retention pond near the intersection of Parkwood Drive and Dorns Way Rd. The subject site is located at Dorchester County TMS No. 137-13-05-001. The new pond will be approximately 16 ft deep and will require excavating approximately 35,000 cubic yards of soil. Prior to bidding the project, the Town would like to know what the subsurface conditions are and if there is a potential to re-use the excavated soil as fill. Accordingly, the Town has asked S&ME to perform a soil boring within the limits of the proposed pond.

Project information was provided by Mr. Russell W. Cornette, Jr. with the Town of Summerville to Mr. Melvin C. Williams with S&ME in an e-mail on November 20, 2020.

The project information and assumptions presented above should be reviewed and confirmed by the appropriate team members. Modifications to our recommendations may be required if conditions vary substantially from the project information and assumptions stated herein.

Methods of Exploration

Field Testing

Our exploration included a site reconnaissance by a geotechnical engineer and the performance of one soil test boring to a depth of approximately 20 ft below the existing ground surface. The boring was advanced using mud-



Geotechnical Exploration Town of Summerville Pond Exploration

Summerville, South Carolina S&ME Project No. 1413-20-100

rotary techniques, and 2-ft split-spoon sampling and Standard Penetration Testing (N values) were performed continuously to the target depth. Representative split-spoon samples were collected and placed in sealed containers and transported to our laboratory for index testing and visual classification using the Unified Soil Classification System (USCS).

The approximate test location is shown on the Test Location Plan (Figure 1) in the Appendix. A more detailed description of our field-testing procedure, and the boring log are also included in the Appendix.

Laboratory Testing

Index property testing (i.e., grain-size analysis, moisture content, and Atterberg limits) was performed on five soil samples to confirm our visual classifications. Laboratory testing was performed in accordance with applicable ASTM standards, and a summary of the laboratory test data and the individual laboratory data sheets are included in the Appendix.

Site and Subsurface Conditions

Site Conditions

The site is located on the corner of Parkwood Drive and Dorns Way Road in Summerville, South Carolina. The southern portion of the site has been cleared of the low-lying vegetation and now consists of widely spaced large trees. The northern portion of the site has not been cleared and consists of large trees and dense vegetation. At the time of our exploration, the site was wet and ponded water was observed in multiple areas. Based on the site visit, the property is relatively flat.

Subsurface Conditions

Details of the subsurface conditions encountered by the boring are shown on the log in the Appendix. This log represents our interpretation of the subsurface conditions based upon field data. Stratification lines on the boring log represent approximate boundaries between soil types; however, the actual transition may be gradual. The general subsurface conditions and their pertinent characteristics are discussed in the following paragraph.

The exploration initially encountered approximately 5 in. of topsoil. Beneath the topsoil we encountered natural Coastal Plain deposits consisting of loose sand to a depth of approximately 2 ft followed by loose clayey sand to a depth of approximately 6 ft below existing ground surface. From this depth stiff sandy clay was encountered to an approximate depth of 8 ft and was underlain by soft to firm silt, which extended to the furthest explored depth of approximately 20 ft.

Groundwater

Groundwater was measured 24 hours after the completion of the boring at a depth of $7\frac{1}{2}$ ft below the existing ground surface. Groundwater at the site will fluctuate during the year due to seasonal and climatic variations and with construction activity in the area. And as noted, ponded water was observed on portions of the site so perched water should be anticipated.

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Geotechnical Exploration Town of Summerville Pond Exploration

Summerville, South Carolina S&ME Project No. 1413-20-100

♦ Limitations of Report

This data report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. The findings contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other representation or warranty either express or implied, is made.

We relied on project information given to us to develop our findings. If project information described in this report is not accurate, or if it changes during project development, we should be notified of the changes so that we can modify our findings based on this additional information if necessary.

Our findings are based on limited data from a field exploration program. Subsurface conditions can vary widely between explored areas. Some variations may not become evident until construction. If conditions are encountered which appear different than those described in our report, we should be notified. This report should not be construed to represent subsurface conditions for the entire site.

Unless specifically noted otherwise, our field exploration program did not include an assessment of regulatory compliance, environmental conditions or pollutants or presence of any biological materials (mold, fungi, bacteria). If there is a concern about these items, other studies should be performed. S&ME can provide a proposal and perform these services if requested.

Closure

S&ME appreciates the opportunity to be of service on this project. If you have any questions concerning this report, please call.

Sincerely,

S&ME, Inc.

S&ME, INC. CO0473

S&ME, INC. CO

Andre N. Kruk, EIT Geotechnical Staff Professional William M. Camp, III, PE, D.GE Technical Principal/Vice President

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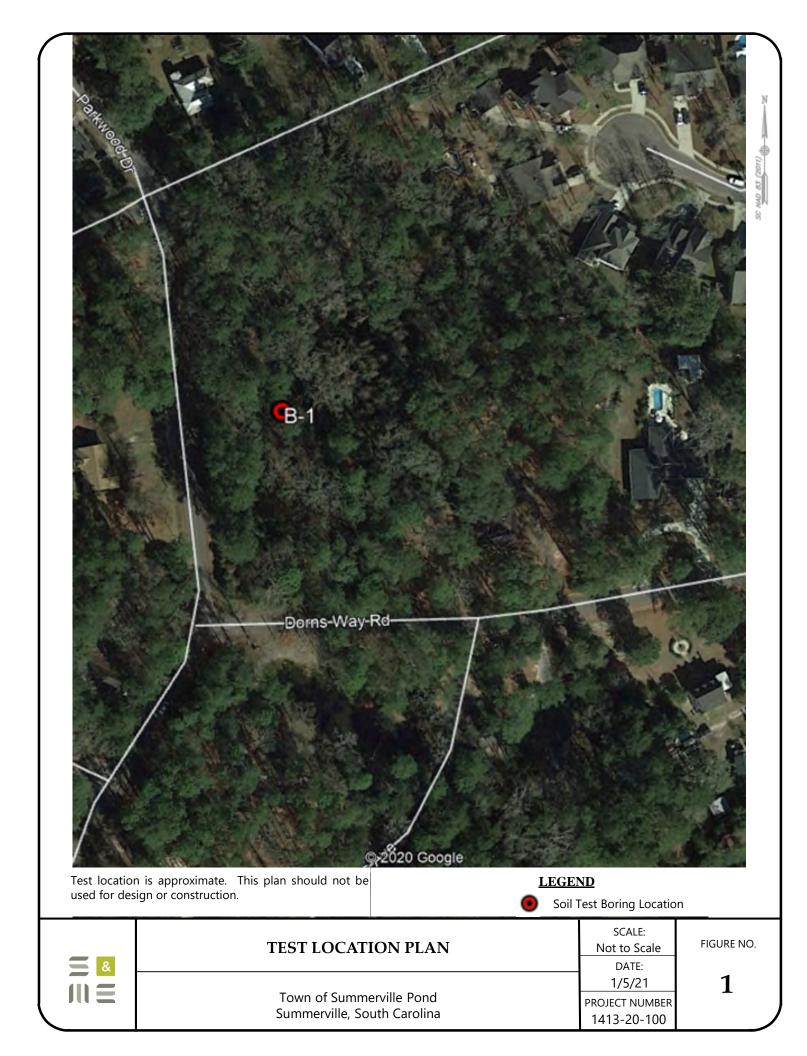
Appendix

Test Location Plan

Soil Test Boring Log

Lab Test Results

Field and Lab Testing Procedures



PROJE	ECT:	Town of Summerville Po Summerville, South S&ME Project No. 14	n Carolina						ВС	ORIN	IG LOG	B-1			
DATE	DRILLI	ED: 12/17/20	ELEVATION:			<u>. </u>		N	OTE	S:					
		CME 45C	BORING DEPTH: 20.0	ft				7							
DRILL			WATER LEVEL: 7.5' 2					7							
		PE: Automatic	LOGGED BY: A. Kruk												
		METHOD: Split spoon	•					N	ORT	HINC	3 :	EASTI	NG:		
		ETHOD: Mud Rotary										•			
DEPTH (feet)	GRAPHIC LOG	MATERIAL DES	SCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	1st 6in / RUN # / BCO	2nd 6in / REC 300 M	3rd 6in / RQD YZ	STANDARD PI	(blows/ft) REMARKS		OATA .60.80	N VALUE
-		TOPSOIL - SAND WITH SILT moist, dark brownish gray, m non-plastic fines, few roots a	nostly fine sand, few nd wood pieces.		-	1		5	5	5		7			10
-		POORLY GRADED SAND (Sometimes) yellowish brown, fine. CLAYEY SAND (SC) - loose,	moist, dark		-	2	Y	3	4	4		•			8
5—		yellowish brown with yellow, some medium plasticity fines Wc = 24.1% -200 = 44.2% L	5 .		-	3		5	5	5		\\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\			10
-		SANDY FAT CLAY (CH) - stif with yellow, mostly high-plas fine sand. Wc = 28.7% -200 = 55.9% L	ticity fines, some	Ī	-	4		5	6	6					12
-		SILT WITH SAND (ML) - soft yellowish gray, mostly mediu few fine sand.	to firm, wet, m plasticity fines,		-	- 5		2	2	3	f	/			5
10		Wc = 45.4% -200 = 79.4% L	L = 50 PI = 14		-	6		1	2	2	•				4
-					-	7		2	3	2	•				5
15—					-	- 8	X	2	2	2					4
-	-	SILT (ML) - soft to firm, wet, mostly medium plasticity fine Wc = 38.4% -200 = 85.9%			-	9	V	3	3	2					5
-		Wc = 42.6% -200 = 95.2% L	L = 41 PI = 15		-	10		2	2	2					4
20 —		Boring terminated at 20 ft			_							,			

NOTES:

S&ME BORING LOG \ 1413-20-100_SPT_LOG.GPJ \ LIBRARY 2011_06_28.GDT \ 1/4/21

- 1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
- 2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
- ${\it 3. \ STRATIFICATION\ AND\ GROUNDWATER\ DEPTHS\ ARE\ NOT\ EXACT.}$
- 4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.





Summary of Laboratory Test DataTown of Summerville Pond

Town of Summerville Pond Summerville, South Carolina S&ME Project No. 1413-20-100

Sample Location	Sample Depth (feet)	USCS Symbol	Natural Moisture (%)	% Finer #200	Liquid Limit LL (%)	Plasticity Index PI (%)
B-1	4	SC	24.1	44.2	42	20
B-1	6	СН	28.7	55.9	56	30
B-1	10	MH	45.4	79.4	50	14
B-1	16	MH	38.4	89.5	-	-
B-1	18	ML	42.6	95.2	41	15

MATERIAL FINER THAN THE #200 SIEVE

Revision No. 1

Revision Date: 8/2/17

Form No: TR-D1140-2



ASTM D1140

	S&ME, Inc Charles	ton: 620 Wando	Park Boulevard, Mt. F	leasant, SC 29464	
Project #:	1413-20-100		F	leport Date:	1-4-2021
Project Name:	Town Summerville Pon	d Exploration	7	est Date(s):	12-23-2020
Client Name:	Town of Summerville				
Client Address:	200 South Main Street:	Summerville, SC 29	1483		
Sample by:	AK		Sa	mple Dates:	12-17-2020
Sampling Method	l: Split Spoon			Drill Rig :	
Boring No.	B-1	Sample No. #4	Sa	ample Depth:	6.0 FT
Sample Description	CLAYEY SAND (SC)			
□ Auxiliary		#200 Wash	Method A □	Method B	
	Tare #:	86	Soaked	X	Soak Time 24 hrs.
	Tare Wt. (T)	61.00	Original Dry Mas	s of Sample (B)	257.73
	Wet Wt + T	392.75	After 200 Wash	+ Tare Wt. (C _T)	174.71
	Dry Wt + T	318.73	Dry Mass Retained	on #200 Sieve (C)	113.71
	Moisture Content (MC)	28.7%	% Passing #2	200 Sieve (A)	55.9%
Boring No.	B-1	Sample No. #9	Sa	ample Depth:	16.0 FT
Sample Description	SILT (ML)				
□ Auxiliary		#200 Wash	Method A ⊠	Method B	
	Tare #:	89	Soaked		Soak Time 24 hrs.
	Tare Wt. (T)	60.60	Original Dry Mas	s of Sample (B)	199.62
	Wet Wt (W) + T	336.97	After 200 Wash	+ Tare Wt. (C _T)	88.76
	Dry Wt (D) + T	260.22	Dry Mass Retained	on #200 Sieve (C)	28.16
	Moisture Content (MC)	38.4%	% Passing #2	200 Sieve (A)	85.9%
Boring No.	B-1 S	Sample No. #6	Sa	mple Depth:	10.0 FT
Sample Description	SILT WITH SAN	D (ML)			
□ Auxiliary		#200 Wash	Method A □	Method B	
	Tare #:	96	Soaked		Soak Time 24 hrs.
	Tare Wt. (T)	60.33	Original Dry Mas	s of Sample (B)	211.42
	Wet Wt (W) + T	367.82	After 200 Wash	+ Tare Wt. (C_T)	103.87
	Dry Wt (D) + T	271.75	Dry Mass Retained	I on #200 Sieve (C)	43.54
	Moisture Content (MC)	45.4%	% Passing #2	200 Sieve (A)	79.4%
Balance ID.	06976 Calibration Do	ite: 1-7-20	#200 Sieve 107	712 Calibratio	n Date: 12-2-19
Notes / Deviations /	References: ASTM D1	140: Amount of Mate	rial in Soil Finer Than th	e No. 200 (75-um))	Sieve
ASTM D 2216: Labo	ratory Determination of Wa	ter (Moisture) Conter	nt of Soil and Rock by M	ass	
% Passing #200 = A	x = [(B-C)/B] * 100				
Vim C	Conzoloz			licat II	1/4/2021
	ionzalez	Signature		Nicet II ation Type/No.	<u>1/4/2021</u> _{Date}
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This report shall not be reproduced, except in full without the written approval of S&ME, Inc.

MATERIAL FINER THAN THE #200 SIEVE

Revision No. 1

Revision Date: 8/2/17

Form No: TR-D1140-2



ASTM D1140

	S&ME, Inc Charles	ton: 620 Wando	Park Boulevard, Mt. F	Pleasant, SC 29464	1
Project #:	1413-20-100		F	Report Date:	1-4-2021
Project Name:	Town Summerville Pon	d Exploration	-	Test Date(s):	12-23-2020
Client Name:	Town of Summerville				
Client Address:	200 South Main Street:	Summerville, SC 29	483		
Sample by:	AK		Sa	mple Dates:	12-17-2020
Sampling Method:	: Split Spoon			Drill Rig :	
Boring No.	B-1 S	Sample No. #3	Sa	ample Depth:	4.0 FT
Sample Description	CLAYEY SAND (SC)			
□ Auxiliary		#200 Wash	Method A □	Method B	
	Tare #:	13	Soaked	X	Soak Time 24 hrs.
	Tare Wt. (T)	60.17	Original Dry Mas	ss of Sample (B)	262.33
	Wet Wt + T	385.71	After 200 Wash	+ Tare Wt. (C_T)	206.53
	Dry Wt + T	322.50	Dry Mass Retained	d on #200 Sieve (C)	146.36
	Moisture Content (MC)	24.1%	% Passing #2	200 Sieve (A)	44.2%
Boring No.	B-1 S	Sample No. #10	Si	ample Depth:	18.0 FT
Sample Description	SILT (ML)				
□ Auxiliary		#200 Wash	Method A ⊠	Method B	
	Tare #:	AB	Soaked		Soak Time 24 hrs.
	Tare Wt. (T)	61.44	Original Dry Mas	ss of Sample (B)	214.21
	Wet Wt (W) + T	366.92	After 200 Wash	+ Tare Wt. (C_T)	71.77
	Dry Wt (D) + T	275.65	Dry Mass Retained	d on #200 Sieve (C)	10.33
	Moisture Content (MC)	42.6%	% Passing #2	200 Sieve (A)	95.2%
Boring No.	9	Sample No.	Sa	ample Depth:	
Sample Description					
□ Auxiliary		#200 Wash	Method A □	Method B	
	Tare #:		Soaked		Soak Time 24 hrs.
	Tare Wt. (T)		Original Dry Mas	ss of Sample (B)	
	Wet Wt (W) + T		After 200 Wash	+ Tare Wt. (C _T)	
	Dry Wt (D) + T		Dry Mass Retained	d on #200 Sieve (C)	
	Moisture Content (MC)		% Passing #2	200 Sieve (A)	
Balance ID.	06976 Calibration Da	ite: 1-7-20	#200 Sieve 10	712 Calibratio	on Date: 12-7-20
Notes / Deviations /	References: ASTM D1	140: Amount of Mate	rial in Soil Finer Than th	e No. 200 (75-um))	Sieve
ASTM D 2216: Labor	ratory Determination of Wa	ter (Moisture) Conter	nt of Soil and Rock by M	ass	
% Passing #200 = A	= [(B-C)/B] * 100				
-					
Kim G	onzalez 🚽		.	Nicet II	<u>1/4/2021</u>
	an Name	Signature		ation Type/No.	17472021 Date
		TELL	_)		
	genknecht	TAG		<u>up Leader</u>	<u>1/4/2021</u>
Technical R	esponsibility This report shall not be	Signature		Position	Date
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LIQUID LIMIT, PLASTIC LIMIT, & PLASTIC INDEX

Revision No. 1 Revision Date: 7/26/17



		ASTM D 4318		AASHTO	Т 89 🛭	□ AAS	SHTO T 90				
		S&ME, Inc Ch	arleston:	620 Wa	ndo Park	Boulevar	rd, Mt. Ple	easant, SC	29464		
Project	t #:	1413-20-100						Report I	Date:	1-4-2	1
Project	t Name:	Town Summerville	e Pond Ex	xploration			Tov	Test Da	ite(s)	1-3-2	1
Client	Name:	Town of Summerv	ille								
Client	Address:	200 South Main St	reet: Sun	nmerville,	SC 29483	}		_			
Sample	e ID. B-1		-	Type: #3			Sam	ple Date:	12-17-20	20	
Locatio		nmerville SC						Depth	4.0 FT		
Sample	e Descriptio	on: YELLOWI	SH BROV	WN CLAYE	Y SAND						
	nd Specificati) #	Cal Date:	Туре	and Speci	fication	S&	ME ID #	Cal I	Date:
Balance	e (0.01 g)	6976		1/7/2020	Groo	ving tool			10659	7/31,	/2020
LL Appa	aratus	1/28/19		7/31/2020		ving tool					
Oven	,,	13796	ĵ.	8/3/2020		ving tool				BL	
Pai	n #	Taro #	1	2	Liquid 3	Limit 4	5	6	7	Plastic Limit	t 9
	Taro Woi	Tare #:	20.70	21.08	21.25	4	3	0	22.61	22.44	9
A	Tare Weig		45.09	46.69	40.16				27.19	28.04	
В		Weight + A									
С		Weight + A	38.26	38.96	34.28				26.36	27.03	
D		eight (B-C)	6.83	7.73	5.88				0.83	1.01	
E		Weight (C-A)	17.56	17.88	13.03				3.75	4.59	
F		ıre (D/E)*100	38.9%	43.2%	45.1%				22.1%	22.0%	
N	# OF DRO		35	23	16						
LL	LL	= F * FACTOR									
Ave.		Average								22.1%	-
Ave.	50.0 T	Average							One Point I	Liquid Limi	
Ave.	50.0	Average						N	Factor	Liquid Limi N	Factor
	50.0	Average								Liquid Limi	
		Average						N 20	Factor 0.974	Liquid Limi N 26	Factor 1.005
	50.0	Average						N 20 21	Factor 0.974 0.979	Liquid Limi N 26 27	1.005 1.009
		Average						N 20 21 22	0.974 0.979 0.985	N 26 27 28	1.005 1.009 1.014
ure Content		Average						N 20 21 22 23	0.974 0.979 0.985 0.99	N 26 27 28 29	1.005 1.009 1.014 1.018
ure Content	45.0	Average						N 20 21 22 23 24 25	0.974 0.979 0.985 0.99 0.995	Liquid Limi N 26 27 28 29 30	1.005 1.009 1.014 1.018
ure Content		Average						N 20 21 22 23 24 25	0.974 0.979 0.985 0.99 0.995 1.000	N 26 27 28 29 30	1.005 1.009 1.014 1.018 1.022
	45.0	Average						N 20 21 22 23 24 25	0.974 0.979 0.985 0.99 0.995 1.000 NP, Non-Pl Liquid L	N 26 27 28 29 30 lastic .imit 4	1.005 1.009 1.014 1.018 1.022
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page 1 % Moisture Content	45.0 40.0 35.0 10	15 20 Dry Preparati		35 40	4			N 20 21 22 23 24 25	0.974 0.979 0.985 0.99 0.995 1.000 NP, Non-Pl Liquid L Plastic L Plastic Ir Group Syn	Liquid Limi N 26 27 28 29 30 lastic Limit 4 Limit 2 ndex nbol Method Method Method	Factor
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page 1 % Moisture Content	45.0 40.0 35.0 10	15 20 Dry Preparati			4			N 20 21 22 23 24 25	NP, Non-Pl Liquid L Plastic L Plastic Ir Group Syn	Liquid Limi N 26 27 28 29 30 lastic Limit 4 Limit 2 ndex nbol Method Method Method	Factor
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page 1 % Moisture Content	45.0 40.0 Preparation Deviations /	Dry Preparati		Air Drie	ed 🗆	Esti.	mate the %	N 20 21 22 23 24 25 CRetained or Conecht	NP, Non-Pl Liquid L Plastic L Plastic Ir Group Syn	Liquid Limi N 26 27 28 29 30 lastic Limit Limit A Li	Factor
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LIQUID LIMIT, PLASTIC LIMIT, & PLASTIC INDEX

Revision No. 1 Revision Date: 7/26/17



		ASTM D 4318		AASHTO T	89 🗆	l AAS	SHTO T 90				
		S&ME, Inc Ch	arleston:	620 Wan	do Park	Boulevar	rd, Mt. Ple	easant, SC	29464		
Project	t #:	1413-20-100						Report [Date:	1-4-2	1
Project	t Name:	Town Summervill	e Pond E	xploration			Tov	Test Da	ate(s)	1-3-2	1
	Name:	Town of Summerv									
Client	Address:	200 South Main S	treet: Sur	nmerville, SC	C 29483			-			
Sample	e ID. B-	1		Type: #4			Sam	ple Date:	12-17-20	20	
Locatio		mmerville SC						Depth	6.0 FT		
Sample	e Descript	ion: GRAYISH	I YELLOW	V SANDY CL	AY			•			
Type ar	nd Specifica	tion S&ME II) #	Cal Date:	Туре	and Speci	fication	S&	ME ID #	Cal L	Date:
Balance	e (0.01 g)	6976		1/7/2020	Groov	ing tool			10659	7/31,	/2020
LL Appa	aratus	1/28/19		7/31/2020		ing tool					
Oven		1379	6	8/3/2020		ing tool			_		
Pai	ın #	Tare #:	1	2	Liquid 3	Limit 4	5	6	7	Plastic Limit 8	9
Λ	Taro Mo		21.90		3	4	3	· ·	21.87	21.09	9
A	Tare We		47.15	+ +					25.70	26.43	
В	_	I Weight + A								25.33	
С		Weight + A	38.06						24.90		
D	_	Veight (B-C)	9.09						0.80	1.10	
E		Weight (C-A)	16.16						3.03	4.24	
F	_	ture (D/E)*100	56.3%						26.4%	25.9%	
N	# OF DR		25								
LL	L	L = F * FACTOR									
Ave.										26.2%	
		Average						ı			
	65.0 T	Average							One Point I	Liquid Limi	
	65.0	Average						N	Factor	Liquid Limi N	Factor
	65.0	Average								Liquid Limi	
lent	65.0	Average						N 20	Factor 0.974	Liquid Limi N 26	Factor 1.005
Content	65.0	Average						N 20 21	0.974 0.979	Liquid Limi N 26 27	1.005 1.009
re Content		Average						N 20 21 22 23 24	0.974 0.979 0.985 0.99 0.995	Liquid Limi N 26 27 28	1.005 1.009 1.014
isture Content	65.0	Average						N 20 21 22 23 24 25	0.974 0.979 0.985 0.99 0.995 1.000	Liquid Limi N 26 27 28 29 30	1.005 1.009 1.014 1.018 1.022
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% Moisture Content	60.0	Average 15 20	25 30	35 40	# of D	rops	100	N 20 21 22 23 24 25	0.974 0.979 0.985 0.99 0.995 1.000 NP, Non-Pl Liquid L Plastic L	iquid Limi N 26 27 28 29 30 astic imit 5 imit 2 ndex 3 nbol C	Factor 1.005 1.009 1.014 1.018 1.022 □ 6 6 0 H
% Moisture Content	55.0		25 30	35 40	# of D	rops	100	N 20 21 22 23 24 25	0.974 0.979 0.985 0.99 0.995 1.000 NP, Non-Pl Liquid L Plastic L Plastic Ir	astic imit 5 imit 2 Method Color Method	Factor
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LIQUID LIMIT, PLASTIC LIMIT,

Revision Date: 7/26/17

Revision No. 1



& PLASTIC INDEX

		ASTM D 4318		AASHTO T	89 □	l AAS	SHTO T 90				
	S	&ME, Inc Ch	arleston:	620 War	ndo Park	Boulevar	rd, Mt. Ple	asant, SC	29464		
Project	t #: 141	3-20-100						Report [Date:	1-4-2	1
Project	t Name: Tov	wn Summerville	e Pond Ex	xploration			Tov	Test Da	te(s)	1-3-2	1
Client		vn of Summerv		•							
Client	Address: 200	South Main St	treet: Sun	nmerville, S	C 29483						
Sample				Туре: #6			Sam	ple Date:	12-17-20	20	
Locatio		ville SC		<i>y</i> ₁ - · · ·				•	10.0 FT		
	e Description:		I YFLLOW	/ SANDY SII	Т			2 0 0 0 0			
	nd Specification	S&ME IL		Cal Date:		and Specij	fication	S&	ME ID #	Cal L	Date:
	, , , e (0.01 g)	6976		1/7/2020		ving tool	•		10659		/2020
LL Appa	aratus	1/28/19)17	7/31/2020	Groov	ving tool					
Oven		13796	5	8/3/2020	Groov	ving tool					
Par	n #				Liquid					Plastic Limit	
		Tare #:	1	2	3	4	5	6	7	8	9
Α	Tare Weight		22.39						22.80	21.27	
В	Wet Soil Weigl		51.46						26.94	27.09	
С	Dry Soil Weigh	nt + A	41.77						25.87	25.52	
D	Water Weight	(B-C)	9.69						1.07	1.57	
Е	Dry Soil Weigh	nt (C-A)	19.38						3.07	4.25	
F	% Moisture (D,	/E)*100	50.0%						34.9%	36.9%	
N	# OF DROPS		25								
LL	LL = F *	FACTOR									
Ave.	۸									35.9%	
AVE.	Ave	erage								33.3/0	
Ave.		erage						(One Point I		t
Ave.	55.0 Ave	erage						N	Factor	Liquid Limi N	Factor
Ave.		erage	H				\Box	N 20	Factor 0.974	Liquid Limi N 26	Factor 1.005
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Raleigh, NC. 27616

LIQUID LIMIT, PLASTIC LIMIT, & PLASTIC INDEX

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ASTM D 4318 AASHTO T 89 AASHTO T 90 S&ME, Inc. - Charleston: 620 Wando Park Boulevard, Mt. Pleasant, SC 29464 Project #: 1413-20-100 Report Date: 1-4-21 Project Name: Town Summerville Pond Exploration Test Date(s) 1-3-21 Tov Client Name: Town of Summerville Client Address: 200 South Main Street: Summerville, SC 29483 Sample ID. B-1 Type: #10 Sample Date: 12-17-2020 Location: Summerville SC Depth 18.0 FT Sample Description: **GREENISH GRAY SILT** Type and Specification S&ME ID # Cal Date: Type and Specification S&ME ID # Cal Date: 10659 7/31/2020 Balance (0.01 g) 6976 1/7/2020 Grooving tool LL Apparatus 1/28/1917 7/31/2020 Grooving tool Oven 13796 8/3/2020 Grooving tool Liquid Limit Plastic Limit Pan # 9 Tare #: 2 3 5 6 8 12.64 Tare Weight 22.77 12.91 Α Wet Soil Weight + A В 51.42 17.51 16.76 16.46 16.00 C Dry Soil Weight + A 43.06 0.76 Water Weight (B-C) 8.36 1.05 D Dry Soil Weight (C-A) 3.09 Ε 20.29 3.82 41.2% % Moisture (D/E)*100 27.5% 24.6% # OF DROPS 25 Ν LL = F * FACTOR LL 26.1% Ave. Average One Point Liquid Limit 45.0 **Factor** Ν Factor 0.974 1.005 20 26 21 0.979 27 1.009 % Moisture Content 22 0.985 28 1.014 23 0.99 29 1.018 24 0.995 1.022 30 40.0 1.000 25 NP, Non-Plastic 41 Liquid Limit Plastic Limit 26 Plastic Index 15 35.0 СН Group Symbol 10 100 15 20 25 30 35 40 # of Drops Multipoint Method **✓** One-point Method 10% Dry Preparation Air Dried Estimate the % Retained on the #40 Sieve: Wet Preparation Notes / Deviations / References: Kim Gonzalez 1/4/2021 Talon Wagenknecht 1/4/2021 Technician Name Date Technical Responsibility Date This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.

Field Testing Procedures

Soil Test Borings

All boring and sampling operations were conducted in accordance with ASTM Designation D-1586. Initially, the borings were advanced by either mechanically augering or wash boring through the soils. Where necessary, a heavy drilling fluid is used below the water table to stabilize the side and bottom of the drill hole. At regular intervals soil samples were obtained with a standard 1.4-inch I.D., 2-inch O.D., split-barrel sampler. The sampler was first seated 6 inches to penetrate any loose cuttings and then driven an additional foot with blows of a 140 pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot is designated the "Standard Penetration Resistance." The penetration resistance, when properly evaluated, is an index to the soil strength.

LABORATORY TESTING PROCEDURES

Atterberg Limits Test (ASTM D-4318)

Atterberg Limits tests were performed to determine the soil plasticity characteristics. The soil plasticity index (PI) is representative of this characteristic and is bracketed by the liquid limit (LL) and the plastic limit (PL). The liquid limit is the moisture content at which the soil will flow as a heavy viscous fluid. The plastic limit is the moisture content at which the soil begins to lose its plasticity. The difference between the liquid limit and plastic limit is the plasticity index.

Grain Size Tests (ASTM D 1140 and ASTM D 422)

Grain size tests were performed to determine the soil particle size distribution. The amount of material finer than the #200 sieve was determined by washing the sample over that particular size sieve. The grain size distribution of the soil retained on the #200 sieve was then determined by passing the retained portion through a standard set of nested sieves.

Natural Moisture Content Test (ASTM D 2216)

Moisture content tests were conducted to determine the ratio, expressed as a percentage, of the weight of water in a given amount of soil to the weight of the solid particles.