

114 Edinburgh South Drive Suite 200 Cary, North Carolina 27511 919.827.0864 www.daa.com

July 28, 2020

Mr. Jason Price Jason Price Construction, Inc. 2323 Keith Hills Rd Lillington, NC 27546

RE: Campbell Pointe Phase 5/6 Main Street, Buies Creek, NC Segmental Retaining Wall Construction Certification DAA JN: R14245N-07

Dear Mr. Price:

Please find attached our reports documenting the observation and testing Draper Aden Associates performed on the segmental retaining wall located at the above referenced site. Site visits were performed July 14, 2020 through July 23, 2020. All testing and observations indicated the wall was constructed in accordance with the project requirements.

Attached to this letter is the following documentation:

- 1. Site Visit Reports
- 2. Field testing documentation
- 3. Laboratory Testing

If you have any questions, please call me at (919) 827-0864.





SITE VISIT REPORT

110,000	Campbell P	ointe	Phase 5/6	_		Pag	ge <u>1</u>		of <u>5</u>	
Location:	Lillington,	NC				Dat	e: <u>7/14</u>	/20		
Client Name:				_	DAA	Project	#: <u>R142</u>	245-07		
Contractor:	Vertical Wa	ılls				DAA Re	p: <u>Luke</u>	Baker		
Weather:	Sunny			_	Tei	np Rang	e: 80-9	3°		
TIME & MILE	AGE									
LEAD IN	SPECTOR		ALTI	ERNATE	INSPECTO	OR		ОТ	HER	
Onsite Time: Travel Round Trip: Other (Specify): Total:	6.25 Tech: 2 PM: PE 8.3 Other		Onsite Time: Travel Round Other (Specif Total:	Trip: y):	Tech: PM: PE Other:		Onsite Tir Travel Ro Other (Spo Total:	ne: und Trip: ecify):	Tech: PM: PE Other:	
Mileage: Vehicle:	86		Mileage: Vehicle:				Mileage: Vehicle:			
ADDITIONAL	ONSITE PERSO	ONNEI	:							
Name:				Hours On	site:			Travel Rou	und Trip & Mil	eage:
Visitors Name [,]								Company:		
Visitors Name:								Company:		
Visitors Name:								Company:		
Visitors Name: SOILS	CO	NCRE	TE/STEEL		SPECIA	L		Company: CQA/CQ	C	

DESCRIPTION OF WORK:

DAA arrived onsite as requested to observe the construction of the retaining wall at Campbell Pointe Phase 5/6.

Autry Grading and Vertical Walls began construction of the wall. The construction of the segmental retaining wall was observed between approximate stations ST 3+00 and 3+75, from an EL of approximately 214.8 to 216.0. Utilizing a trackhoe, Autry Grading removed the wet material at the surface of the reinforced zone. During the wet material stripping, an area of unsuitable soil was encountered. This area was undercut by approximately 10'x6'x3'. The bottom of the excavation was probed and found to be adequately firm. Lifts of soil were placed and compacted using an RC trench roller. Following removal of the wet material, Vertical Walls excavated the footing for the segmental block retaining wall. DAA performed dynamic cone penetrometer (DCP) testing. As



SITE VISIT REPORT

well, DAA performed random probing, utilizing a small diameter steel probe rod, to check for consistency with areas tested. Soil subgrade was observed to meet or exceed require bearing capacity. It was also observed that groundwater was entering the excavation. Vertical Walls removed as much water as feasible and placed a layer of woven geotextile. Following the geotextile, Vertical Walls placed and compacted approximately 6 inches of ABC Stone. Approximately 2-3 inches of #57 stone was placed above the ABC stone to allow leveling of the first blocks. Blocks were then placed and levelled.

Signed:	Luke Baker
-	On-site Person
Attachments:	Bearing Capacity Field Data, Field Density Testing, Field Density Test Map

Site Images:



Figure 1: A trackhoe removes wet soil from the wall area.







Figure 3: An RC trench roller is used to backfill the undercut area.





Figure 4: Excavating the footer for the retaining wall.



Figure 5: The mini excavator removes wet soil and slough prior to ABC Stone placement



SITE VISIT REPORT



Figure 6: Nonwoven geotextile is placed over the footing subgrade prior to ABC Stone



Figure 7: A jumping jack is used to compact the ABC stone base.



PROJECT: PROJECT #: DATE:	Campbell Poir R14245N-07 7/14/2020	nte SRW				AILA		caper A	Aden A	Associates vironmental Services
Test ID	Station	Lift	Wet Density	Dry Density	Moisture (%)	Proctor (PCF)	Compaction (%)	Optimum Moisture	Deviation from Opt.	Comments DC / ST
1	3+50	1	132.2	121.4	8.9%	127.3	95.4%	7.8%	1.1%	Undercut area
2	3+50	2	133.6	121.7	9.8%	127.3	95.6%	7.8%	2.0%	Undercut area
3	3+75	3	129.3	105.8	22.2%	106.5	99.4%	22.0%	0.2%	
4	3+47	1	124.9	106.1	17.7%	107.0	99.2%	8.2%	9.5%	

DC = Drive Cylinder, ST = Shelby Tube, Opt = Optimum Moisture, PCF = pounds per cubic foot

FIELD DENSITY TEST

5		· Ade Surveying	n As • Environ	sociate	es es		F	PROJECT: PROJECT #: DATE: PAGE	Campbell Po R14245-07 7/14/2020 1 of 1	inte SRW	
Test Location	Footing Type	Size (inches)	Design (inches)	Design PSF	0' BC	1' BC	2' BC	3' BC	4' BC	5' BC	6' BC
3+75	Continuous	30	30	1500	6/7/12	8/9/13	12/12/15				
3+25	Continuous	30	30	1500	6/8/10	9/9/10	12/14/17				
2+95	Continuous	30	30	1500	3/8/10	9/10/9	12/13/14				

PSF = pounds per square foot, BC = blow counts, HAR = hand auger refusal

SOIL BEARING PRESSURE



SITE VISIT REPORT

Project:	Campbell Pointe	Phase 5/6	Page 1 of 5						
Location:	Lillington, NC				Dat	e: <u>7/15/</u>	20		
Client Name:	Winston 104 Gro	up		DAA	Project	#: <u>R142</u>	245-07		
Contractor:	Vertical Walls			Γ	OAA Re	p: <u>Luke</u>	Baker		
Weather:	Sunny			Tem	ip Rang	e: <u>80-93</u>	3°		
TIME & MILE	AGE								
LEAD IN	NSPECTOR	ALTE	RNATE I	NSPECTO	R		OTI	HER	
Onsite Time: Travel Round Trip: Other (Specify): Total:	10 Tech: ⊠ 2 PM: □ .5 PE □ 12.5 Other: □	Onsite Time: Travel Round ⁷ Other (Specify Total:	Trip:):	Tech: PM: PE Other:		Onsite Tir Travel Ro Other (Spo Total:	ne: und Trip: ecify):	Tech: PM: PE Other:	
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ADDITIONAL	ONSITE PERSONNEI	:							
Name:			Hours Ons	ite:			Travel Rour	nd Trip & Mile	eage:
Visitors Name:							<u> </u>		
							Company:		
							Company:		
SOILS	CONCRE	TE/STEEL		SPECIAL			Company: CQA/CQC	1	

DESCRIPTION OF WORK:

DAA arrived onsite as requested to observe the construction of the retaining wall at Campbell Pointe Phase 5/6.

Vertical Walls continued construction of the wall. The construction of the segmental retaining wall was observed between approximate stations ST 2+00 and 3+65, from an EL of approximately 214.8 to 218.0. Utilizing a trackhoe, Autry Grading removed the wet material at the surface of the reinforced zone. Vertical Walls extended the footing for the segmental block retaining wall from approximate ST 1+20 to 2+30. DAA performed dynamic cone penetrometer (DCP) testing. As well, DAA performed random probing, utilizing a small diameter steel probe rod, to check for consistency with areas tested. Soil subgrade was observed to meet or exceed require bearing capacity. It was also observed that groundwater was entering the excavation. Due to the excess



SITE VISIT REPORT

groundwater entering, DAA recommended that the leveling pad be switched to a minimum of 6 inches of #57 stone, wrapped in a nonwoven geotextile. This was communicated to Vertical Walls foreman and project manager, onsite.

Following the placement and leveling of initial block courses, a layer of geotextile was placed to separate the reinforced soils and the drainage layer. A minimum of 12 inches #57 stone was placed within and behind the block. Separation fabric was placed between the reinforced soils and the drainage aggregate, with a minimum 2' key into the reinforced soils.

Geogrid was placed at the lengths and elevations indicated. Once placed, geogrid was pulled tight prior to soil placement. Soil was placed and compacted using an RC trench roller within 4 feet of the wall face. A smooth drum roller was used to compact all other soils. DAA performed density testing utilizing the nuclear method. Tests, at the locations and elevations tested, met or exceeded project requirements.

As well, Autry grading installed the 12" CPP through pipe at approximate station ST 3+76.

Signed:	Luke Baker
	On-site Person
Attachments:	Bearing Capacity Field Data, Field Density Testing, Field Density Test Map

Site Images:



Figure 1: Geogrid installation at approximately ST 3+60





Figure 2: Excavated footings at ST 1+50



Figure 3: Approximately ST 3+20





Figure 4: Backfill is compacted utilizing a smooth drum roller.



Figure 5: Installing geotextile wrapped #57 stone for the wall footing.





Figure 6: Placing a lift of soil backfill.



Figure 7: Installing drainage layer and the 4" perforated through drains.



PROJECT: PROJECT #: DATE:	Campbell Poir R14245N-07 7/15/2020	nte SRW				VIIV		raper A	Aden A	Associates vironmental Services
Test ID	Station	Lift	Wet Density	Dry Density	Moisture (%)	Proctor (PCF)	Compaction (%)	Optimum Moisture	Deviation from Opt.	Comments DC / ST
1	3+75	1	125.9	110.6	13.8%	116.2	95.2%	13.8%	0.0%	
2	3+25	1	131.0	115.8	13.1%	116.2	99.7%	13.8%	-0.7%	
3	2+00	1	127.4	111.3	14.5%	116.2	95.8%	13.8%	0.7%	
4	2+50	1	129.0	113.1	14.1%	116.2	97.3%	13.8%	0.3%	
5	3+20	2	125.6	111.2	13.0%	116.2	95.7%	13.8%	-0.8%	
6	3+00	3	127.0	113.3	12.1%	116.2	97.5%	13.8%	-1.7%	
7	3+40	4	124.8	111.1	12.3%	116.2	95.6%	13.8%	-1.5%	
8	3+20	3	124.3	110.7	12.3%	116.2	95.3%	13.8%	-1.5%	
9	2+70	4	127.4	110.4	15.4%	116.2	95.0%	13.8%	1.6%	
10	2+90	1	131.2	113.6	15.5%	116.2	97.8%	13.8%	1.7%	
11	3+25	4	130.0	114.1	13.9%	116.2	98.2%	13.8%	0.1%	
12	2+50	1	129.9	112.9	15.1%	116.2	97.1%	13.8%	1.3%	
13	2+50	2	129.3	111.8	15.7%	116.2	96.2%	13.8%	1.9%	
14	2+35	1	132.1	114.5	15.4%	116.2	98.5%	13.8%	1.6%	

DC = Drive Cylinder, ST = Shelby Tube, Opt = Optimum Moisture, PCF = pounds per cubic foot

FIELD DENSITY TEST

PROJECT: PROJECT #: DATE:	PROJECT: Campbell Pointe SRW PROJECT #: R14245N-07 DATE: 7/15/2020 Test ID Station Lift Wet Density					AILA		raper A	Aden A rveying • En	Associates vironmental Services
Test ID	Station	Lift	Wet Density	Dry Density	Moisture (%)	Proctor (PCF)	Compaction (%)	Optimum Moisture	Deviation from Opt.	Comments DC / ST
15	2+30	2	130.0	112.7	15.4%	116.2	96.9%	13.8%	1.6%	

DC = Drive Cylinder, ST = Shelby Tube, Opt = Optimum Moisture, PCF = pounds per cubic foot

FIELD DENSITY TEST

	Draper Engineering •	· Ade Surveying	n Ass • Environ	sociate	ES es		I	PROJECT: PROJECT #: DATE: PAGE	Campbell Po R14245-07 7/15/2020 1 of 1	inte SRW	
Test Location	Footing Type	Size (inches)	Design (inches)	Design PSF	0' BC	1' BC	2' BC	3' BC	4' BC	5' BC	6' BC
2+50	Continuous	30	30	1500	4/6/7	8/9/12	10/12/12				
2+00	Continuous	30	30	1500	6/6/7	8/9/10	10/12/14				
1+75	Continuous	30	30	1500	4/6/7	8/8/13	10/14/16				
1+25	Continuous	30	30	1500	4/6/11	11/11/11	10/15/16				
PSF = pounds	s per square foot,	BC = blow	counts, HAF	R = hand auger	refusal						

Soil Bearing Pressure



SITE VISIT REPORT

•	Campl	oell Poi	nte	Phase 5/6	<u>/6</u> Page <u>1</u> of <u>4</u>							
Location:	Lilling	gton, NC	2				Dat	te: <u>7/16</u>	/20			
Client Name:	Winsto	on 104 (Gro	up		DAA	A Project	#: <u>R142</u>	245-07			
Contractor:	Vertic	al Wall	s				DAA Re	p: <u>Kevi</u>	n Myers			
Weather:	Sunny					Te	mp Rang	e: <u>86-9</u>	8°			
TIME & MILE	AGE							-				
LEAD IN	ISPECT	OR		ALTE	RNATE I	NSPECT	OR		01	THER		
Onsite Time: Travel Round Trip: Other (Specify): Total:	<u>9</u> <u>3.5</u> <u>12.5</u>	Tech: PM: PE Other:		Onsite Time: Travel Round 7 Other (Specify) Total:	Ггір:):	Tech: PM: PE Other:		Onsite Tin Travel Ro Other (Sp Total:	ne: und Trip: ecify):		Tech: PM: PE Other:	
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Visitors Name:									Company	· · · · ·		
Visitors Name: SOILS		CONC	CRE	TE/STEEL		SPECIA	L		Company CQA/CQ	: C		

DESCRIPTION OF WORK:

DAA arrived onsite as requested to observe the construction of the retaining wall at Campbell Pointe Phase 5/6.

Autry Grading and Vertical Walls continued construction of the wall. The construction of the segmental retaining wall was observed between approximate stations ST 1+50 and 3+75. DAA performed random probing, utilizing a small diameter steel probe rod, to check for consistency with areas tested.

Following the placement and leveling of block courses, a layer of geotextile was placed to separate the reinforced soils and the drainage layer. A minimum of 12 inches #57 stone was placed within and behind the block.



SITE VISIT REPORT

Separation fabric was placed between the reinforced soils and the drainage aggregate, with a minimum 2' key into the reinforced soils.

Geogrid was placed at the lengths and elevations indicated. Once placed, geogrid was pulled tight prior to soil placement. Soil was placed and compacted using an RC trench roller within 4 feet of the wall face. A smooth drum roller was used to compact all other soils. DAA performed density testing utilizing the nuclear method. Tests, at the locations and elevations tested, met or exceeded project requirements.

As well, Autry grading installed the 12" CPP through retaining wall at approximate station ST 3+76.

Signed:

ed: Kevin Myers

Attachments: Field Density Testing, Field Density Test Map

Site Images:



Figure 1: 12" storm drain installed with concrete collar at approximately 3+76.



SITE VISIT REPORT



Figure 2: 12" storm drain installed with concrete collar at approximately 1+75.



Figure 3: geogrid installation at approximately 2+25.





Figure 4. Vertical Walls compacting backfill over geogrid.



Figure 5: 12" CPP at approximately ST 3+76.



PROJECT: PROJECT #: DATE:	Campbell Poin R14245N-07 7/16/2020	nte SRW				VIIV		aper A	Aden A rveying • En	Associates vironmental Services
Test ID	Station	Lift	Wet Density	Dry Density	Moisture (%)	Proctor (PCF)	Compaction (%)	Optimum Moisture	Deviation from Opt.	Comments DC / ST
1	2+00	1	126.0	110.3	14.2%	112.2	98.3%	15.8%	-1.6%	
2	2+50	1	123.4	107.9	14.4%	112.2	96.1%	15.8%	-1.4%	
3	3+00	1	127.2	109.5	16.2%	112.2	97.6%	15.8%	0.4%	
4	3+50	1	127.1	110.3	15.2%	112.2	98.3%	15.8%	-0.6%	
5	2+00	2	125.4	110.1	13.9%	112.2	98.1%	15.8%	-1.9%	
6	2+50	2	126.1	109.5	15.2%	112.2	97.6%	15.8%	-0.6%	
7	3+00	2	122.6	106.6	15.0%	112.2	95.0%	15.8%	-0.8%	
8	3+50	2	125.4	109.5	14.5%	112.2	97.6%	15.8%	-1.3%	
9	1+50	1	127.5	109.4	16.5%	112.2	97.5%	15.8%	0.7%	
10	2+00	3	125.3	106.6	17.5%	112.2	95.0%	15.8%	1.7%	
11	2+50	3	125.3	107.7	16.3%	112.2	96.0%	15.8%	0.5%	
12	3+00	3	125.4	106.6	17.6%	112.2	95.0%	15.8%	1.8%	
13	3+50	3	125.3	107.2	16.9%	112.2	95.5%	15.8%	1.1%	
14	1+50	2	126.5	107.8	17.4%	112.2	96.0%	15.8%	1.6%	

DC = Drive Cylinder, ST = Shelby Tube, Opt = Optimum Moisture, PCF = pounds per cubic foot

FIELD DENSITY TEST



SITE VISIT REPORT

-	Campt	bell Poi	nte	Phase 5/6	Page 1 of 5								
Location:	Lilling	ton, NG	С		_			Dat	te: <u>7/17</u>	/20			
Client Name:	Winsto	on 104	Gro	up	_		DAA	Project	#: <u>R142</u>	245-07			
Contractor:	Vertica	al Wall	s		_			DAA Re	p: <u>Luke</u>	e Baker			
Weather:	Sunny				_		Te	mp Rang	e: <u>80-9</u>	3°			
TIME & MILE	AGE												
LEAD IN	SPECT	OR		ALTI	ERNAT	TE INS	SPECT	OR		0'	THER		
Onsite Time: Travel Round Trip: Other (Report): Total:	8 2 10	Tech: PM: PE Other:	\Box \Box \Box \boxtimes	Onsite Time: Travel Round Other (Specify Total:	 Trip: y):		Tech: PM: PE Other:		Onsite Tin Travel Ro Other (Sp Total:	ne: und Trip: ecify):		_ Tech: _ PM: _ PE _ Other:	
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ADDITIONAL (DNSITE P	PERSON	INEL	•									
Name:					Hours	Onsite	e:			Travel Ro	ound Tri	o & Mile	age:
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Visitors Name:										Company	y:		
Visitors Name:										Company	y:		
Visitors Name: SOILS		CONG	CRE	TE/STEEL		S	PECIA	L		Company CQA/CO	y:) C		

DESCRIPTION OF WORK:

DAA arrived onsite as requested to observe the construction of the retaining wall at Campbell Pointe Phase 5/6.

Vertical Walls continued construction of the wall. The construction of the segmental retaining wall was observed between approximate stations ST 1+50 and 3+60, from an EL of approximately 220.0 to 224.0. Vertical Walls extended the footing excavation from approximate ST 0+00 to 1+00. DAA performed dynamic cone penetrometer (DCP) testing. As well, DAA performed random probing, utilizing a small diameter steel probe rod, to check for consistency with areas tested. A location of soft soils was identified from approximate ST 0+00 to ST 0+55. This was pointed out to Vertical Walls superintendent. DAA recommended the footing excavation be undercut approximately 2 feet and replaced with geotextile wrapped #57 stone. Approximately 10.2 cy of



SITE VISIT REPORT

unsuitable material was removed. All other soil subgrades observed appeared to meet or exceed required bearing capacity.

Following the placement and leveling of initial block courses, a layer of geotextile was placed to separate the reinforced soils and the drainage layer. A minimum of 12 inches #57 stone was placed within and behind the block. Separation fabric was placed between the reinforced soils and the drainage aggregate, with a minimum 2' key into the reinforced soils.

Geogrid was placed at the lengths and elevations indicated. Once placed, geogrid was pulled tight prior to soil placement. Soil was placed and compacted using an RC trench roller within 4 feet of the wall face. A smooth drum roller was used to compact all other soils. DAA performed density testing utilizing the nuclear method. Tests, at the locations and elevations tested, met or exceeded project requirements.

Signed:	Luke Baker
	On-site Person
	Bearing Capacity Field Data, Field Density Testing, Field Density Test Map, Moisture Calibration, One
Attachments:	Pointe Proctor
Attachments:	Pointe Proctor

Site Images:



Figure 1: Compacted fill within the reinforced zone.





Figure 2: Wall construction facing towards ST 2+00



Figure 3: Separation geotextile





Figure 4: Compacted reinforced zone soils



Figure 5: Geotextile is placed over the fiberglass pins



PROJECT: PROJECT #: DATE:	Campbell Poir R14245N-07 7/17/2020	nte SRW				VIIV		aper A	Aden A rveying • En	Associates vironmental Services
Test ID	Station	Lift	Wet Density	Dry Density	Moisture (%)	Proctor (PCF)	Compaction (%)	Optimum Moisture	Deviation from Opt.	Comments DC / ST
1	2+25	1	129.1	111.9	15.4%	112.2	99.7%	15.8%	-0.4%	
2	2+75	1	127.5	109.7	16.2%	112.2	97.8%	15.8%	0.4%	
3	3+25	1	133.5	115.9	15.2%	116.2	99.7%	13.8%	1.4%	
4	3+60	1	130.3	110.7	17.7%	112.2	98.7%	15.8%	1.9%	
5	2+30	2	128.6	109.2	17.8%	112.2	97.3%	15.8%	2.0%	
6	2+80	2	129.3	110.7	16.8%	112.2	98.7%	15.8%	1.0%	
7	3+30	2	130.6	111.1	17.5%	112.2	99.1%	15.8%	1.7%	
8	3+55	2	128.5	109.7	17.1%	112.2	97.8%	15.8%	1.3%	
9	3+50	3	130.0	110.6	17.5%	112.2	98.6%	15.8%	1.7%	
10	3+10	3	128.8	109.3	17.8%	112.2	97.4%	15.8%	2.0%	
11	2+25	3	129.9	111.1	16.9%	112.2	99.0%	15.8%	1.1%	
12	2+75	3	128.9	109.8	17.4%	112.2	97.9%	15.8%	1.6%	
13	3+10	3	128.7	110.1	16.9%	112.2	98.1%	15.8%	1.1%	
14	3+50	3	127.9	108.6	17.8%	112.2	96.8%	15.8%	2.0%	

DC = Drive Cylinder, ST = Shelby Tube, Opt = Optimum Moisture, PCF = pounds per cubic foot

FIELD DENSITY TEST

PROJECT: Campbell Pointe SRW PROJECT #: R14245N-07 DATE: 7/17/2020						AILA		raper A	Aden A	Associates vironmental Services
Test ID	Station	Lift	Wet Density	Dry Density	Moisture (%)	Proctor (PCF)	Compaction (%)	Optimum Moisture	Deviation from Opt.	Comments DC / ST
15	1+70	1	129.6	111.6	16.1%	112.2	99.5%	15.8%	0.3%	
16	1+65	2	130.4	113.2	15.2%	112.2	100.9%	15.8%	-0.6%	

DC = Drive Cylinder, ST = Shelby Tube, Opt = Optimum Moisture, PCF = pounds per cubic foot

FIELD DENSITY TEST

	Draper Engineering •	Ade Surveying	n As • Environ	sociate	F						
Test	Footing	Size	Design	Design PSF	0'	1'	2'	3'	4'	5'	6'
Location	Туре	(inches)	(inches)	U	BC	BC	BC	BC	BC	BC	BC
0+80	Continuous	30	30	1500	3/4/5	4/5/5	8/12/15				
0+35	Continuous	30	30	1500	7/7/8	2/2/3	12/13/14				
		1									
		1									
PSF = pounds	s per square foot,	BC = blow	counts, HAI	R = hand auger	refusal						<u> </u>

Soil Bearing Pressure



PROJECT:	Campbell Pointe SRW
PROJECT #:	R14245N-07
DATE:	7/17/2020
PAGE	1

		Oven N	1 oisture			Gauge M	oisture
	Weight P	Weight P+WS	Weight P+DS	Moisture		Test	Moisture
	(g)	(g)	(g)	(%)		Number	(%)
K1	123.7	229.2	215.1	15.4%		1	20.9%
K2	123.8	246.7	229.6	16.2%		2	20.1%
К3	123.5	225.2	211.8	15.2%		3	19.7%
K4							
K5			Average:	15.6%		Average:	20.2%
K5	I	OM-GM	Average:	15.6% (OM-GM	1)/(10	Average: 0+GM)*1000	20.2%
K5	K1	OM-GM -5.5%	Average: 100+GM 1.209	15.6% (OM-GM	<u>1)/(10</u> -45	Average: 0+GM)*1000 .79	20.2%
Κ5	K1 K2	OM-GM -5.5% -3.9%	Average: 100+GM 1.209 1.201	15.6% (OM-GM	1)/(10 -45 -32	Average: 0+GM)*1000 .79 .78	20.2%
K5	K1 K2 K3	OM-GM -5.5% -3.9% -4.5%	Average: 100+GM 1.209 1.201 1.197	15.6% (OM-GM	I)/(10 -45 -32 -37	Average: 0+GM)*1000 .79 .78 .80	20.2%
Κ5	К1 К2 К3 К4	OM-GM -5.5% -3.9% -4.5%	Average: 100+GM 1.209 1.201 1.197	15.6% (OM-GN	l)/(10 -45 -32 -37	Average: 0+GM)*1000 79 .78 .80	20.2%
Κ5	K1 K2 K3 K4 K5	OM-GM -5.5% -3.9% -4.5%	Average: 100+GM 1.209 1.201 1.197	15.6% (OM-GM	1)/(10 -45 -32 -37	Average: 0+GM)*1000 .79 .78 .80	20.2%

P= Pan, WS= Wet Soil, DS= Dry Soil, g= grams, OM=Oven Moisture, GM= Gauge Moisture

MOISTURE CALIBRATION

0) 0	Draper Engineering	Aden A Surveying • Envi	SSOCIATE	s s		PROJECT: PROJECT #: DATE: PAGE	-		
А	В	С	D	Е	F	G	Н	Ι	J
		B-A	C/0.0333				(F-G)/(G-E)	D/(1+H)	
Weight	Weight	Weight	Wet	Weight	Weight	Weight		Dry	Proctor /
Μ	M+WS	WS	Density	Р	P+WS	P+DS	Moisture	Density	Optimum Moisture
(lbs)	(lbs)	(lbs)	(PCF)	(g)	(g)	(g)	(%)	(PCF)	
9.34	13.65	4.32	129.6	124.0	275.4	255.4	15.3%	112.4	112.2 @ 15.8%

M= Mold, P= Pan, WS= Wet Soil, DS= Dry Soil, lbs= pounds, g= grams, PCF = pounds per cubic foot

ONE POINT PROCTOR



SITE VISIT REPORT

Project:	Campbell Pointe	Phase 5/6			Pag	ge <u>1</u>	0	of <u>5</u>	
Location:	Lillington, NC		Date: _7/20/20						
Client Name:	Winston 104 Gro	up	DAA Project #: <u>R14245-07</u>						
Contractor:	Vertical Walls			Ľ	OAA Rej	p: <u>K</u> evi	n Myers		
Weather:	Sunny		Tem	p Rang	e: 85-1	07°			
TIME & MILE	AGE								
LEAD IN	SPECTOR	ALTE	RNATE I	NSPECTO	R		OTH	HER	
Onsite Time: Travel Round Trip: Other (Report): Total:	9.5 Tech: ⊠ 3.25 PM: □ PE □ 12.75 Other: □	Onsite Time: Travel Round T Other (Specify) Total:	`rip:):	Tech: PM: PE Other:		Onsite Tin Travel Ro Other (Sp Total:	ne: und Trip: ecify):	Tech PM: PE Othe	
Mileage:	215	Mileage:			-	Mileage:			
venicle:		Venicle:				venicle:			
ADDITIONAL	ONSITE PERSONNEI	•							
Name:			Hours Ons	ite:			Travel Rour	nd Trip & M	leage:
Visitors Name:							Company:		
Visitors Name:							Company:		
Visitors Name:							Company:		
Visitors Name: SOILS	CONCRE	TE/STEEL		SPECIAL			Company: CQA/CQC	1	

DESCRIPTION OF WORK:

DAA arrived onsite as requested to observe the construction of the retaining wall at Campbell Pointe Phase 5/6.

Vertical Walls continued construction of the wall. The construction of the segmental retaining wall was observed between approximate stations ST 0+00 and 1+50, from an EL of approximately 220.0 to 224.0. Vertical Walls extended the footing excavation from approximate ST 3+75 to 4+80. DAA performed dynamic cone penetrometer (DCP) testing. As well, DAA performed random probing, utilizing a small diameter steel probe rod, to check for consistency with areas tested. DAA recommended the footing excavation consist of geotextile wrapped #57 stone to stay consistent with the rest of the wall. All soil subgrades observed appeared to meet or exceed required bearing capacity.



Following the placement and leveling of initial block courses, a layer of geotextile was placed to separate the reinforced soils and the drainage layer. A minimum of 12 inches #57 stone was placed within and behind the block. Separation fabric was placed between the reinforced soils and the drainage aggregate, with a minimum 2' key into the reinforced soils.

Geogrid was placed at the lengths and elevations indicated. Once placed, geogrid was pulled tight prior to soil placement. Soil was placed and compacted using an RC trench roller within 4 feet of the wall face. A smooth drum roller was used to compact all other soils. DAA performed density testing utilizing the nuclear method. Tests, at the locations and elevations tested, met or exceeded project requirements.

Signed: Kevin Myers

Attachments: Bearing Capacity Field Data, Field Density Testing, Field Density Test Map

Site Images:



Figure 1: Footer excavation from ST 3+75 – 4+80.


SITE VISIT REPORT



Figure 2: Wall construction at 0+00.



Figure 3: Retaining wall from 1+50 to 0+00.



SITE VISIT REPORT



Figure 4: Separation Geotextile fabric between reinforced soils and drainage layer.



Figure 5: Geogrid is being staged ready for installation.



PROJECT: PROJECT #: DATE:	Campbell Poir R14245N-07 7/20/2020	nte SRW				AILA		raper A	Aden A	Associates vironmental Services
Test ID	Station	Lift	Wet Density	Dry Density	Moisture (%)	Proctor (PCF)	Compaction (%)	Optimum Moisture	Deviation from Opt.	Comments DC / ST
1	1+50	1	124.2	109.0	13.9%	112.2	97.2%	15.8%	-1.9%	
2	1+00	1	126.6	111.1	14.0%	112.2	99.0%	15.8%	-1.8%	
3	0+50	1	127.3	110.0	15.7%	112.2	98.1%	13.8%	1.9%	
4	0+10	1	128.1	110.8	15.6%	112.2	98.8%	15.8%	-0.2%	
5	1+50	2	125.3	109.9	14.0%	112.2	98.0%	15.8%	-1.8%	
6	1+00	2	125.6	110.3	13.9%	112.2	98.3%	15.8%	-1.9%	
7	0+50	2	126.6	110.1	15.0%	112.2	98.1%	15.8%	-0.8%	
8	0+10	2	126.2	109.9	14.8%	112.2	98.0%	15.8%	-1.0%	
9	1+50	3	124.6	109.5	13.8%	112.2	97.6%	15.8%	-2.0%	
10	1+00	3	125.0	109.5	14.2%	112.2	97.6%	15.8%	-1.6%	
11	0+50	3	125.3	109.0	15.0%	112.2	97.1%	15.8%	-0.8%	
12	0+10	3	124.7	108.7	14.7%	112.2	96.9%	15.8%	-1.1%	

DC = Drive Cylinder, ST = Shelby Tube, Opt = Optimum Moisture, PCF = pounds per cubic foot

FIELD DENSITY TEST

PROJECT: Campbell Pointe SRW PROJECT #: R14245-07 DATE: 7/20/2020 PAGE 1 of 1											
Test	Footing	Size	Design	Design PSF	0'	1'	2'	3'	4'	5'	6'
Location	Type	(inches)	(inches)		BC	BC	BC	BC	BC	BC	BC
4+00	Continuous	30	30	1500	5/5/7						
4+50	Continuous	30	30	1500	3/5/6	6/8/8					
PSF = pounds	s per square foot,	BC = blow	counts, HAI	R = hand auger	refusal						

Soil Bearing Pressure



SITE VISIT REPORT

Project:	Camp	bell Poi	nte]	Phase 5/6	Page 1 of 3										
Location:	Lilling	gton, NO	С		Date: 7/21/20										
Client Name:	Winst	on 104	Gro	up		DA.	A Proje	ect #:	R142	245-07					
Contractor:	Vertic	al Wall	S		DAA Rep: Kevin Myers										
Weather:	Sunny	r			T	emp Ra	ange:	85-9	7°						
TIME & MILE	AGE							-							
LEAD IN	RNATE INSPECTOR					ОТН	ER								
Onsite Time: Travel Round Trip: Other (Report): Total:	10.5 0.75 11.25	Tech: PM: PE Other:		Onsite Time: Travel Round ⁷ Other (Specify Total:	Trip:):	Tech: PM: PE Other:		С Т С Т	Dnsite Tir Fravel Ro Dther (Sp Fotal:	ne: und Trip: ecify):			_ Tech: _ PM: _ PE _ Other:]]] 	
Mileage:	45		-	Mileage:				Ν	Mileage:						
Vehicle:				`	enicle:										
ADDITIONAL C)NSITE I	PERSON	INEL	:											
ADDITIONAL ON Name:	ONSITE	PERSON	INEL	•	Hours Or	nsite:				Travel	Roun	d Trij	o & Mil	eag	le:
ADDITIONAL (Name:	DNSITE	PERSON	INEL	:	Hours Or	nsite:				Travel	Roun	d Trij	o & Mil	eag	le:
ADDITIONAL (Name:	DNSITE	PERSON	INEL	:	Hours Or	nsite:				Travel	Roun	d Trij	o & Mil	eag	le:
ADDITIONAL (Name:	DNSITE	PERSON	INEL	:	Hours Or	nsite:				Travel	Roun	d Triț	o & Mil	eag	e:
ADDITIONAL (Name: Visitors Name:	DNSITE	PERSON	INEL		Hours Or	nsite:				Travel	Roun any:	d Trip	o & Mil	eag	le:
ADDITIONAL (Name: Visitors Name:	DNSITE	PERSON			Hours Or	nsite:				Travel Compa	Roun	d Trip	o & Mil	eag	e:
ADDITIONAL (Name: Visitors Name: SOILS		CONC		: TE/STEEL	Hours Or	nsite: SPECIA	AL			Travel Compa	Roun any:	d Trip	o & Mil	eag	le:

DESCRIPTION OF WORK:

DAA arrived onsite as requested to observe the construction of the retaining wall at Campbell Pointe Phase 5/6.

Vertical Walls continued construction of the wall. The construction of the segmental retaining wall was observed between approximate stations ST 0+00 and 4+80. Vertical Walls began placing and leveling the initial course block foundation of the retaining wall from approximate ST 3+75 to 4+80. A two-man crew finished the last layer of segmental retaining wall from ST 3+00 to 0+00.

Following the placement and leveling of initial block courses, a layer of geotextile was placed to separate the reinforced soils and the drainage layer. A minimum of 12 inches #57 stone was placed within and behind the



SITE VISIT REPORT

block. Separation fabric was placed between the reinforced soils and the drainage aggregate, with a minimum 2' key into the reinforced soils.

Geogrid was placed at the lengths and elevations indicated. Once placed, geogrid was pulled tight prior to soil placement. Soil was placed and compacted using an RC trench roller within 4 feet of the wall face. A smooth drum roller was used to compact all other soils. DAA performed density testing utilizing the nuclear method. Tests, at the locations and elevations tested, met or exceeded project requirements.

Signed: Kevin Myers

Attachments: Field Density Testing, Field Density Test Map

Site Images:



Figure 1: Installing the last lift of drainage layer from ST 0+00 to 3+00.



SITE VISIT REPORT



Figure 2: Compacted reinforced soil.



Figure 3: Retaining wall from 3+50 to 4+80.



PROJECT: PROJECT #: DATE:	Campbell Poin R14245N-07 7/21/2020	nte SRW				Alla		raper A	Aden A	Associates vironmental Services
Test ID	Station	Lift	Wet Density	Dry Density	Moisture (%)	Proctor (PCF)	Compaction (%)	Optimum Moisture	Deviation from Opt.	Comments DC / ST
1	3+00	1	125.2	109.4	14.4%	112.2	97.5%	15.8%	-1.4%	
2	2+50	1	127.0	110.7	14.7%	112.2	98.7%	15.8%	-1.1%	
3	2+00	1	126.4	109.2	15.8%	112.2	97.3%	13.8%	2.0%	
4	1+50	1	126.7	110.5	14.7%	112.2	98.5%	15.8%	-1.1%	
5	1+00	1	123.9	108.6	14.1%	112.2	96.8%	15.8%	-1.7%	
6	0+50	1	127.7	111.3	14.7%	112.2	99.2%	15.8%	-1.1%	
7	3+00	2	127.5	111.8	14.0%	112.2	99.7%	15.8%	-1.8%	
8	2+50	2	127.2	110.4	15.2%	112.2	98.4%	15.8%	-0.6%	
9	2+00	2	126.1	110.5	14.1%	112.2	98.5%	15.8%	-1.7%	
10	1+50	2	126.3	110.4	14.4%	112.2	98.4%	15.8%	-1.4%	
11	1+00	2	126.9	110.5	14.8%	112.2	98.5%	15.8%	-1.0%	
12	0+50	2	124.9	109.7	13.9%	112.2	97.7%	15.8%	-1.9%	

DC = Drive Cylinder, ST = Shelby Tube, Opt = Optimum Moisture, PCF = pounds per cubic foot

FIELD DENSITY TEST



SITE VISIT REPORT

Location:LClient Name:WContractor:WWeather:STIME & MILE AGLEAD INSPOnsite Time:9.Travel Round Trip:0.Other (Report):0.Total:10.Mileage:5.5	Lillington, NC Winston 104 Grou Vertical Walls Sunny GE PECTOR 0.5 Tech: 0.75 PM: PE 10.25 Other:	up ALTE Onsite Time: Travel Round Other (Specify Total: Mileage:	- - - - - - - - - - - - - - - - - - -	DAA Te: INSPECTO Tech: PM: PE Other:	Dat A Project DAA Re mp Rang OR	te: <u>7/22</u> #: <u>R142</u> p: <u>Kevi</u> ge: <u>75-9</u> Onsite Tin Travel Ro Other (Sp Total:	/20 245-07 in Myers 5° OTHER me: pund Trip: ecify):	_ Tech: _ PM: _ PE _ Other:	
Client Name: W Contractor: V Weather: S TIME & MILE S LEAD INSP S Onsite Time: 9. Travel Round Trip: 0. Other (Report): 1. Total: 1.0 Mileage: 5.5	Winston 104 Grou Vertical Walls Sunny GE PECTOR 0.5 Tech: X 0.75 PM: X PE X 10.25 Other: X	UP ALTE Onsite Time: Travel Round Other (Specify Total: Mileage:	- - - E RNATE Trip: y):	DAA Te: INSPECTO Tech: PM: PE Other:	A Project DAA Re mp Rang OR	#: <u>R142</u> p: <u>Kevi</u> ge: <u>75-9</u> Onsite Tin Travel Ro Other (Sp Total:	245-07 in Myers 5° OTHER me: pund Trip: ecify):	_ Tech: _ PM: _ PE _ Other:	
Contractor:VWeather:STIME & MILEAGLEAD INSPOnsite Time:9.Travel Round Trip:0.Other (Report):Total:10Mileage:55	Vertical Walls Sunny GE PECTOR 0.5 Tech: 0.75 PM: PE 10.25 Other:	ALTE Onsite Time: Travel Round Other (Specify Total: Mileage:	- - E RNATE Trip: y):	Ten INSPECTO Tech: PM: PE Other:	DAA Re mp Rang OR	p: <u>Kevi</u> ge: <u>75-9</u> Onsite Tin Travel Ro Other (Sp Total:	me: ecify):	_ Tech: _ PM: _ PE _ Other:	
Weather:STIME & MILE AGLEAD INSPOnsite Time:9.Travel Round Trip:0.Other (Report):10Total:10Mileage:55	Sunny GE PECTOR 0.5 Tech: ⊠ 0.75 PM: □ PE □ 10.25 Other: □	ALTE Onsite Time: Travel Round Other (Specify Total: Mileage:	 E RNATE Trip: y):	Ten INSPECTO Tech: PM: PE Other:	mp Rang OR	ge: <u>75-9</u> Onsite Tin Travel Ro Other (Sp Total:	5° OTHER me: und Trip: ecify):	_ Tech: _ PM: _ PE _ Other:	
TIME & MILEAG LEAD INSP Onsite Time: 9. Travel Round Trip: 0. Other (Report):	GE PECTOR 0.5 Tech: 0.75 PM: □ PE 10.25 Other: 55	ALTE Onsite Time: Travel Round Other (Specify Total: Mileage:	ERNATE	INSPECT Tech: PM: PE Other:	OR	Onsite Tin Travel Ro Other (Sp Total:	OTHER me:	_ Tech: _ PM: _ PE _ Other:	
Use of the second se	PECTOR 0.5 Tech: Image: Constraint of the state of th	ALTE Onsite Time: Travel Round Other (Specify Total: Mileage:	ERNATE	INSPECT Tech: PM: PE Other:		Onsite Tin Travel Ro Other (Sp Total:	OTHER me: pund Trip: ecify):	_ Tech: _ PM: _ PE _ Other:	
Onsite Time: 9. Travel Round Trip: 0. Other (Report):	$\begin{array}{c c} 0.5 & \text{Tech:} & \boxtimes \\ 0.75 & \text{PM:} & \square \\ \hline & & PE & \square \\ 10.25 & \text{Other:} & \square \\ \hline \\ 55 & & \\ \end{array}$	Onsite Time: Travel Round Other (Specify Total: Mileage:	Trip: y):	Tech: PM: PE Other:		Onsite Tin Travel Ro Other (Sp Total:	me: ound Trip: ecify):	_ Tech: _ PM: _ PE _ Other:	
Mileage: 5:	55	Mileage:							
Vehicle:		Vehicle				Mileage: Vehicle:			
veniere.		v enfere.				vemere.			
ADDITIONAL ON	ISITE PERSONNEL	•							
Name:			Hours O	nsite:			Travel Round Tri	p & Milea	ige:
			-						
Visitors Name:							Company:		
SOILS	CONCRE	TE/STEEL		SPECIA	L		CQA/CQC		
Proofrolling: Sampling: # Samples collected: Density Testing: Problems/Non-Com	Concrete Pou Footing Inspe Cylinder Pick Structural Ste Other:	r: ection: cup: cel Inspection: Fests: Yes		Roofing: Fireproofin EIFS: Mortar/Gro Other: No	g: out:	yes, descrit	Low Perm Soils: Cover Soils: Closure: Geosynthetic: Structural Fill: Other: De below)		

DESCRIPTION OF WORK:

DAA arrived onsite as requested to observe the construction of the retaining wall at Campbell Pointe Phase 5/6.

Vertical Walls continued construction of the wall. The construction of the segmental retaining wall was observed between approximate stations ST 3+35 and 4+80. Vertical Walls continued placing and leveling SRW units from approximately ST 3+35 to 4+80 from elevation 217.0 to 221.0.

Following the placement and leveling of block courses, a layer of geotextile was placed to separate the reinforced soils and the drainage layer. A minimum of 12 inches #57 stone was placed within and behind the block. Separation fabric was placed with a minimum 2' key into the reinforced soils.



Geogrid was placed at the lengths and elevations indicated. Once placed, geogrid was pulled tight prior to soil placement. Soil was placed and compacted using an RC trench roller within 4 feet of the wall face. A smooth drum roller was used to compact all other soils. DAA performed density testing utilizing the nuclear method. Tests, at the locations and elevations tested, met or exceeded project requirements.

Signed:	Kevin Myers	
		On-site Person
Attachments:	Field Density Testing, Field Density Test Map	

Site Images:



Figure 1: Installing geogrid from approximately 3+70 – 4+80.



SITE VISIT REPORT



Figure 2: Geotextile fabric showing 2' key into reinforced soil under geogrid.



Figure 3: Retaining wall from 3+50 to 4+80.



SITE VISIT REPORT



Figure 4: Wall construction at approximately 4+50.



PROJECT: PROJECT #: DATE:	Campbell Poin R14245N-07 7/22/2020	nte SRW		Engineering • Surveying • Environmental Serve						
Test ID	Station	Lift	Wet Density	Dry Density	Moisture (%)	Proctor (PCF)	Compaction (%)	Optimum Moisture	Deviation from Opt.	Comments DC / ST
1	3+75	1	124.9	109.3	14.3%	112.2	97.4%	15.8%	-1.5%	
2	4+25	1	122.0	106.7	14.3%	112.2	95.1%	15.8%	-1.5%	
3	4+75	1	124.0	108.7	14.1%	112.2	96.9%	13.8%	0.3%	
4	3+75	2	124.4	108.0	15.2%	112.2	96.2%	15.8%	-0.6%	
5	4+25	2	126.7	111.0	14.1%	112.2	99.0%	15.8%	-1.7%	
6	4+75	2	128.4	111.5	15.2%	112.2	99.4%	15.8%	-0.6%	
7	3+75	3	124.5	108.6	14.6%	112.2	96.8%	15.8%	-1.2%	
8	4+25	3	122.3	106.9	14.4%	112.2	95.2%	15.8%	-1.4%	
9	4+75	3	122.3	106.7	14.6%	112.2	95.1%	15.8%	-1.2%	
10	3+75	4	122.4	107.0	14.3%	112.2	95.4%	15.8%	-1.5%	
11	4+25	4	125.3	108.7	15.3%	112.2	96.9%	15.8%	-0.5%	
12	4+75	4	125.8	109.2	15.2%	112.2	97.3 <u>%</u>	15.8%	-0.6%	
13	3+75	5	125.2	109.5	14.3%	112.2	97.6%	15.8%	-1.5%	
14	4+75	5	122.4	107.0	14.4%	112.2	95.3%	15.8%	-1.4%	

DC = Drive Cylinder, ST = Shelby Tube, Opt = Optimum Moisture, PCF = pounds per cubic foot

FIELD DENSITY TEST



SITE VISIT REPORT

Lillington NC		Page <u>1</u> of <u>3</u>						
Linington, NC		Date: <u>7/23/20</u>						
Winston 104 Grov	up	DAA Project	#: <u>R142</u>	245-07				
Vertical Walls		DAA Rep: Kevin Myers						
Sunny		Temp Range: _75-95°						
AGE								
SPECTOR	ALTERNATI	E INSPECTOR		OTHER				
9.5 Tech: ⊠ 3.5 PM: □ PE □ 13.0 Other: □	Onsite Time: Travel Round Trip: Other (Specify): Total:	Tech: □ PM: □ PE □ Other: □	Onsite Tir Travel Ro Other (Spo Total:	ne: Tech: und Trip: PM: ecify): PE Other:				
250	Mileage:		Mileage:					
	Vehicle:		Vehicle:					
NSITE PERSONNEL	•							
	Hours C	Onsite:		Travel Round Trip & Mileage:				
				Company:				
CONCRE	TE/STEEL	SPECIAL		CQA/CQC				
	г	7						
	Vertical Walls Sunny AGE SPECTOR 9.5 Tech: 3.5 PM: PE 13.0 Other: 250	Vertical Walls Sunny AGE SPECTOR ALTERNATI 9.5 Tech: \(\) Onsite Time:	Vertical Walls DAA Regression Sunny Temp Rang GE SPECTOR ALTERNATE INSPECTOR 9.5 Tech: Onsite Time: Tech: 3.5 PM: Travel Round Trip: PM: 9.5 PE Other (Specify): PE 13.0 Other: Total: Other: Other: 250 Mileage: Vehicle: Vehicle: VSITE PERSONNEL: Hours Onsite: Image: Vehicle: Image: Image: Image: Vehicle: Image: Image: Imagee: Vehicle: Imagee: Imagee: Imagee: Vehicle: Imagee: Imagee: Imageee: Image: Imageeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee	Vertical Walls DAA Rep: Kevi Sunny Temp Range: 75-9 AGE SPECTOR ALTERNATE INSPECTOR 9.5 Tech: Onsite Time: Tech: Onsite Tim 3.5 PM: Travel Round Trip: PM: Travel Ro 0 PE Other (Specify): PE Other (Specify): 13.0 Other: Total: Other: Total: 250 Mileage: Vehicle: Vehicle: NSITE PERSONNEL: Hours Onsite: Image: Mileage: Vehicle: Vehicle: Image: Vehicle: SPECIAL SPECIAL				

DESCRIPTION OF WORK:

DAA arrived onsite as requested to observe the construction of the retaining wall at Campbell Pointe Phase 5/6.

Vertical Walls continued construction of the wall. The construction of the segmental retaining wall was observed between approximate stations ST 3+35 and 4+80. Vertical Walls continued placing and leveling cinderblocks of the retaining wall from approximately ST 3+35 to 4+80 from elevation 221.0 to 225.0(final elevation).

Following the placement and leveling of block courses, a layer of geotextile was placed to separate the reinforced soils and the drainage layer. A minimum of 12 inches #57 stone was placed within and behind the block.



SITE VISIT REPORT

Separation fabric was placed between the reinforced soils and the drainage aggregate, with a minimum 2' key into the reinforced soils.

Geogrid was placed at the lengths and elevations indicated. Once placed, geogrid was pulled tight prior to soil placement. Soil was placed and compacted using an RC trench roller within 4 feet of the wall face. A smooth drum roller was used to compact all other soils. DAA performed density testing utilizing the nuclear method. Tests, at the locations and elevations tested, met or exceeded project requirements.

Signed: Kevin Myers

Attachments: Field Density Testing, Field Density Test Map

Site Images:



Figure 1: Installing geogrid from approximately 3+50 – 4+80.



SITE VISIT REPORT



Figure 2: Vertical walls installing the Capstones upon meeting final elevation from 3+35 to 4+80.



Figure 3: Capstones in place from 3+20 facing 0+00.



PROJECT: PROJECT #: DATE:	Campbell Poin R14245N-07 7/22/2020	nte SRW				Alla		raper A	Aden A	Associates vironmental Services
Test ID	Station	Lift	Wet Density	Dry Density	Moisture (%)	Proctor (PCF)	Compaction (%)	Optimum Moisture	Deviation from Opt.	Comments DC / ST
1	3+75	1	125.2	109.1	14.8%	112.2	97.2%	15.8%	-1.0%	
2	4+25	1	124.9	109.6	14.0%	112.2	97.6%	15.8%	-1.8%	
3	4+75	1	126.3	109.6	15.2%	112.2	97.7%	13.8%	1.4%	
4	3+75	2	127.2	111.2	14.4%	112.2	99.1%	15.8%	-1.4%	
5	4+25	2	123.8	107.2	15.5%	112.2	95.5%	15.8%	-0.3%	
6	4+75	2	126.1	110.2	14.4%	112.2	98.2%	15.8%	-1.4%	
7	3+75	3	126.7	110.8	14.3%	112.2	98.8%	15.8%	-1.5%	
8	4+25	3	126.0	109.3	15.3%	112.2	97.4%	15.8%	-0.5%	
9	4+75	3	124.3	108.0	15.1%	112.2	96.3%	15.8%	-0.7%	
10	3+75	4	127.0	110.1	15.3%	112.2	98.2%	15.8%	-0.5%	
11	4+25	4	122.1	106.6	14.5%	112.2	95.0%	15.8%	-1.3%	
12	4+75	4	124.3	108.1	15.0%	112.2	96.3%	15.8%	-0.8%	

DC = Drive Cylinder, ST = Shelby Tube, Opt = Optimum Moisture, PCF = pounds per cubic foot

FIELD DENSITY TEST

Soil Classification Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB



1030 Wilmer Ave., Ste. 100 Richmond, VA 23227 Army Corps of Engineers Certified Laboratory

Sample Received: 7/2/2020 Date Tested: 7/2/2020

Sample Depth 1-5' Visual Sample Description Reddish Brown Sandy Lean CLAY

Sample ID TP-1

Natural Moisture Content: ASTM D 2216

Pan ID	115
Pan Wt	124.03 grams
Pan + Soil (wet)	325.78 grams
Pan + Soil (dry)	292.50 grams
Natural Moisture Content	19.8%

Coarse or Fine Grained: ASTM D 422

203.56 grams
52.8%
124.47 grams
99.7%
Fine-Grained Soil

Atterberg Limits: ASTM D 4318

Liquid Limit

_			
No of Blows	15	27	34
Pan ID	N-04	N-12	N-06
Pan Wt	15.02	15.18	15.17
Pan + Soil (wet)	25.76	30.00	28.23
Pan + Soil (dry)	22.67	26.12	25.01
Moisture Content	40.4%	35.5%	32.8%
Liquid Limit	38	36	34
Liquid Limit	36		

Plastic Limit

Pan ID	N-21	N-23
Pan Weight	6.63	6.65
Pan + Soil (wet)	16.06	18.47
Pan + Soil (dry)	14.24	16.18
Moisture Content	23.9%	24.0%
Plastic Limit	24	
Plastic Index	12	

USCS Classification: ASTM D 2487

Group Symbol CL

Group Name Sandy Lean CLAY

Date Tested: 7/5/2020

Grain Size Distribution Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 **Prepared By: LAB**

> Sample ID TP-1 Sample Depth 1-5'

Mechanical Sieve Analysis: ASTM D 422



Army Corps of Engineers Certified Laboratory

Sieve	Weight	Percent	Sieve	Percent
Size	Retained	Retained	Size, mm	Passing
1"	0.00	0.0%	25.0	100.0%
3/4"	0.00	0.0%	19.0	100.0%
1/2"	0.00	0.0%	12.5	100.0%
3/8"	0.00	0.0%	9.50	100.0%
No. 4	0.44	0.3%	4.75	99.7%
No. 10	1.46	0.9%	2.00	98.9%
No. 40	34.00	20.2%	0.425	78.7%
No. 100	32.59	19.3%	0.15	59.3%
No. 200	10.48	6.2%	0.075	53.1%
Pan	0.56	0.3%		

Total

79.53

47.2%



Proctor Test Report

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB Engineering - Surveying - Environmental Service 1030 Wilmer Ave., Ste. 100 Richmond, VA 23227 Army Corps of Engineers Certified Laboratory

Draper Aden Associates

Soil and Test Method Data

	Moisture Content Dry Density, pcf	15.9% 101.5	17.4% 106.4	19.6% 105.5	20.9% 102.1	
Test Data		#1	#2	#3	#4	
	Assumed Specific Gravity: 2.	65				
	Mold Size, in 4.	0				
	Sample Preparation A	ir dried and si	eved through a 3	3/8" sieve.		
	Test Method A	STM D698, Me	ethod B, with me	chanical ham	mer	
	USCS Group Symbol C	L				
	Sample Classification Sa	andy Lean CLA	λY			
	Sample Depth 1-	-5'			Date Tested: 7/4	/2020
	Sample ID TI	P-1			Sample Received: 7/2	2/2020

Moisture-Density Curve

Maximum Dry Density, pcf = 107.0 Optimum Moisture, % = 18.2



Soil Classification Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 **Prepared By: LAB**



1030 Wilmer Ave., Ste. 100 Richmond, VA 23227 Army Corps of Engineers Certified Laboratory

Sample Received: 7/2/2020 Date Tested: 7/2/2020 Visual Sample Description Reddish Brown Sandy Lean CLAY

Natural Moisture Content: ASTM D 2216

Pan ID	103
Pan Wt	123.63 grams
Pan + Soil (wet)	357.07 grams
Pan + Soil (dry)	315.34 grams
Natural Moisture Content	21.8%

Sample ID TP-2

Sample Depth 1-4'

Coarse or Fine Grained: ASTM D 422

208.77 grams
55.6%
123.77 grams
99.9%
Fine-Grained Soil

Atterberg Limits: ASTM D 4318

Liquid Limit

_			
No of Blows	15	27	34
Pan ID	N-01	N-07	N-11
Pan Wt	15.15	15.07	15.01
Pan + Soil (wet)	25.13	27.93	24.89
Pan + Soil (dry)	22.00	24.23	22.19
Moisture Content	45.7%	40.4%	37.6%
Liquid Limit	43	41	39
Liquid Limit	41		

Plastic Limit

Pan ID	N-19	N-16
Pan Weight	6.63	6.72
Pan + Soil (wet)	16.82	16.32
Pan + Soil (dry)	14.84	14.45
Moisture Content	24.1%	24.2%
Plastic Limit	24	
Plastic Index	17	

USCS Classification: ASTM D 2487

Group Symbol CL

Group Name Sandy Lean CLAY

Date Tested: 7/5/2020

Grain Size Distribution Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 **Prepared By: LAB**

> Sample ID TP-2 Sample Depth 1-4'

Mechanical Sieve Analysis: ASTM D 422



Army Corps of Engineers Certified Laboratory

Sieve	Weight	Percent	Sieve	Percent
Size	Retained	Retained	Size, mm	Passing
1"	0.00	0.0%	25.0	100.0%
3/4"	0.00	0.0%	19.0	100.0%
1/2"	0.00	0.0%	12.5	100.0%
3/8"	0.00	0.0%	9.50	100.0%
No. 4	0.14	0.1%	4.75	99.9%
No. 10	1.47	0.8%	2.00	99.2%
No. 40	39.71	20.7%	0.425	78.4%
No. 100	33.74	17.6%	0.15	60.8%
No. 200	9.98	5.2%	0.075	55.6%
Pan	0.10	0.1%		

Total

85.14

44.4%



Proctor Test Report

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB Engineering · Surveying · Environmental Services 1030 Wilmer Ave., Ste. 100 Richmond, VA 23227 Army Corps of Engineers Certified Laboratory

Draper Aden Associates

Soil and Test Method Data

	Dry Density, pcf	97.0	100.1	105.7	104.3	
	Moisture Content	18.2%	19.3%	21.3%	23.2%	
Test Data		#1	#2	#3	#4	
	Assumed Specific Gravity: 2.	80				
	Mold Size, in 4.	0				
	Sample Preparation Ai	r dried and si	eved through a 3	3/8" sieve.		
	Test Method As	STM D698, Me	ethod B, with me	chanical hamr	ner	
	USCS Group Symbol Cl	-				
	Sample Classification Sa	andy Lean CLA	λY			
	Sample Depth 1-	4'			Date Tested: 7/4/	2020
	Sample ID TF	2-2			Sample Received: 7/2/	2020

Moisture-Density Curve





Soil Classification Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB

> Sample ID TP-3 Sample Depth 1-2.5' Visual Sample Description Brown Silty SAND

Natural Moisture Content: ASTM D 2216

106
123.73 grams
409.10 grams
392.14 grams
6.3%

Coarse or Fine Grained: ASTM D 422

Pan + Soil retained on No. 200 sieve	
(dry)	332.32 grams
Percent Passing No. 200 Sieve	22.3%
Pan + Soil retained on No. 4 sieve	
(drv)	129.38 grams
Percent Passing No. 4 Sieve	97.9%
Soil Classifies as	Coarse-Grained Soil

Atterberg Limits: ASTM D 4318

Liquid Limit

No of Blows	Non-plastic	Non-plastic	Non-plastic
Pan ID			
Pan Wt			
Pan + Soil (wet)			
Pan + Soil (dry)			
Moisture Content			
Liquid Limit			
Liquid Limit			

Plastic Limit

Pan ID	Non-plastic	Non-plastic
Pan Weight		
Pan + Soil (wet)		
Pan + Soil (dry)		
Moisture Content		
Plastic Limit		
Plastic Index		

USCS Classification: ASTM D 2487

Group Symbol SM Group Name Silty SAND Date Tested: 7/5/2020

Engineering · Surveying · Environmental Services 1030 Wilmer Ave., Ste. 100 Richmond, VA 23227

Army Corps of Engineers Certified Laboratory

Sample Received: 7/2/2020 Date Tested: 7/2/2020



Grain Size Distribution Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB

> Sample ID TP-3 Sample Depth 1-2.5'

Mechanical Sieve Analysis: ASTM D 422



Richmond, VA 23227 Army Corps of Engineers Certified Laboratory

Sieve	Weight	Percent	Sieve	Percent
Size	Retained	Retained	Size, mm	Passing
1"	0.00	0.0%	25.0	100.0%
3/4"	0.00	0.0%	19.0	100.0%
1/2"	0.00	0.0%	12.5	100.0%
3/8"	0.00	0.0%	9.50	100.0%
No. 4	5.65	2.1%	4.75	97.9%
No. 10	3.47	1.3%	2.00	96.6%
No. 40	98.26	36.6%	0.425	60.0%
No. 100	77.59	28.9%	0.15	31.1%
No. 200	23.49	8.8%	0.075	22.3%
Pan	0.13	0.0%		

Total

208.59

77.7%



Proctor Test Report

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB

Soil and Test Method Data

Richmond, VA 23227 Army Corps of Engineers Certified Laboratory

	Dry Density, pcf	121.4	126.5	127.2	122.6	
	Moisture Content	4.4%	6.4%	8.5%	10.4%	
Test Data		#1	#2	#3	#4	
	Assumed Specific Gravity: 2.	65				
	Mold Size, in 4.	0				
	Sample Preparation Ai	ir dried and sie	eved through a 3	8/8" sieve.		
	Test Method As	STM D698, Me	ethod B, with me	chanical hamr	ner	
	USCS Group Symbol SM	Μ				
	Sample Classification Si	lty SAND				
	Sample Depth 1-	-2.5'			Date Tested: 7/7	7/2020
	Sample ID TH	5-3			Sample Received: 7/2	2/2020

Moisture-Density Curve

Maximum Drv Densitv. pcf = 127.6. Optimum Moisture. % = 7.7



Soil Classification Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB

> Sample ID TP-3 Sample Depth 2.5-6' Visual Sample Description Reddish Pink Clayey SAND

Natural Moisture Content: ASTM D 2216

Pan ID	119
Pan Wt	123.76 grams
Pan + Soil (wet)	336.24 grams
Pan + Soil (dry)	311.67 grams
Natural Moisture Content	13.1%

Coarse or Fine Grained: ASTM D 422

Pan + Soil retained on No. 200 sieve	
(drv)	256.24 grams
Percent Passing No. 200 Sieve	29.5%
Pan + Soil retained on No. 4 sieve	
(drv)	129.12 grams
Percent Passing No. 4 Sieve	97.1%
Soil Classifies as	Coarse-Grained Soil

Atterberg Limits: ASTM D 4318

Liquid Limit

No of Blows	16	24	33
Pan ID	N-05	N-08	N-09
Pan Wt	15.08	15.23	15.08
Pan + Soil (wet)	25.16	27.58	25.07
Pan + Soil (dry)	22.17	24.17	22.49
Moisture Content	42.2%	38.1%	34.8%
Liquid Limit	40	38	36
Liquid Limit	38		

Plastic Limit

Pan ID	N-22	N-24
Pan Weight	6.67	6.63
Pan + Soil (wet)	16.43	14.14
Pan + Soil (dry)	14.72	12.83
Moisture Content	21.2%	21.1%
Plastic Limit	21	
Plastic Index	17	

USCS Classification: ASTM D 2487

Group Symbol SC

Group Name Clayey SAND

Date Tested: 7/5/2020

Draper Aden Associates Engineering · Surveying · Environmental Services 1030 Wilmer Ave., Ste. 100 Richmond, VA 23227

Army Corps of Engineers Certified Laboratory

Sample Received: 7/2/2020 Date Tested: 7/2/2020

Grain Size Distribution Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 **Prepared By: LAB**

> Sample ID TP-3 Sample Depth 2.5-6'

Mechanical Sieve Analysis: ASTM D 422



Richmond, VA 23227 Army Corps of Engineers Certified Laboratory

Sieve	Weight	Percent	Sieve	Percent
Size	Retained	Retained	Size, mm	Passing
1"	0.00	0.0%	25.0	100.0%
3/4"	0.00	0.0%	19.0	100.0%
1/2"	0.00	0.0%	12.5	100.0%
3/8"	0.00	0.0%	9.50	100.0%
No. 4	5.36	2.9%	4.75	97.1%
No. 10	9.50	5.1%	2.00	92.1%
No. 40	70.46	37.5%	0.425	54.6%
No. 100	38.61	20.5%	0.15	34.0%
No. 200	8.44	4.5%	0.075	29.6%
Pan	0.11	0.1%		

Total

132.48

70.5%



Proctor Test Report

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB Draper Aden Associates Engineering - Surveying - Environmental Services 1030 Wilmer Ave., Ste. 100 Richmond, VA 23227

Army Corps of Engineers Certified Laboratory



Soil Classification Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB

> Sample ID TP-3 Sample Depth 6.5-8' Visual Sample Description Reddish Pink Clayey SAND

Natural Moisture Content: ASTM D 2216

Pan ID	120
Pan Wt	125.06 grams
Pan + Soil (wet)	308.96 grams
Pan + Soil (dry)	284.75 grams
Natural Moisture Content	15.2%

Coarse or Fine Grained: ASTM D 422

220.29 grams
40.4%
125.06 grams
100.0%
Coarse-Grained Soil

Atterberg Limits: ASTM D 4318

Liquid Limit

19	25	35
N-10	N-02	N-03
15.15	15.06	15.17
25.14	25.55	25.63
21.97	22.42	22.68
46.5%	42.5%	39.3%
45	43	41
43		
	19 N-10 15.15 25.14 21.97 46.5% 45 43	19 25 N-10 N-02 15.15 15.06 25.14 25.55 21.97 22.42 46.5% 42.5% 45 43 43 43

Plastic Limit

Pan ID	N-20	N-18
Pan Weight	6.64	6.61
Pan + Soil (wet)	17.60	18.11
Pan + Soil (dry)	15.68	16.09
Moisture Content	21.2%	21.3%
Plastic Limit	21	
Plastic Index	22	

USCS Classification: ASTM D 2487

Group Symbol SC

Group Name Clayey SAND

Date Tested: 7/5/2020

1030 Wilmer Ave., Ste. 100 Richmond, VA 23227 Army Corps of Engineers Certified Laboratory

Sample Received: 7/2/2020 Date Tested: 7/2/2020



Grain Size Distribution Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB

> Sample ID TP-3 Sample Depth 6.5-8'

Mechanical Sieve Analysis: ASTM D 422



Richmond, VA 23227 Army Corps of Engineers Certified Laboratory

Sieve	Weight	Percent	Sieve	Percent
Size	Retained	Retained	Size, mm	Passing
1"	0.00	0.0%	25.0	100.0%
3/4"	0.00	0.0%	19.0	100.0%
1/2"	0.00	0.0%	12.5	100.0%
3/8"	0.00	0.0%	9.50	100.0%
No. 4	0.00	0.0%	4.75	100.0%
No. 10	1.72	1.1%	2.00	98.9%
No. 40	52.17	32.7%	0.425	66.3%
No. 100	34.21	21.4%	0.15	44.8%
No. 200	6.84	4.3%	0.075	40.5%
Pan	0.29	0.2%		

Total

95.23

59.6%



Proctor Test Report

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB

Soil and Test Method Data

Draper Aden Associates Engineering · Surveying · Environmental Services 1030 Wilmer Ave., Ste. 100 Richmond, VA 23227

Army Corps of Engineers Certified Laboratory



Zero Air Voids

+ Proctor Points
Soil Classification Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB

> Sample ID TP-3, Composite Sample Depth 1-6' Visual Sample Description Pinkish Brown Clayey SAND

Natural Moisture Content: ASTM D 2216

113
122.94 grams
484.26 grams
451.57 grams
9.9%

Coarse or Fine Grained: ASTM D 422

Pan + Soil retained on No. 200 sieve	
(dry)	361.26 grams
Percent Passing No. 200 Sieve	27.5%
Pan + Soil retained on No. 4 sieve	
(drv)	127.99 grams
Percent Passing No. 4 Sieve	98.5%
Soil Classifies as	Coarse-Grained Soil

Atterberg Limits: ASTM D 4318

Liquid Limit

No of Blows	16	24	31
Pan ID	N-27	N-29	N-25
Pan Wt	15.01	15.07	14.72
Pan + Soil (wet)	27.16	27.80	29.43
Pan + Soil (dry)	24.61	25.31	26.83
Moisture Content	26.6%	24.3%	21.4%
Liquid Limit	25	24	22
Liquid Limit	24		

Plastic Limit

Pan ID	N-28	N-26
Pan Weight	6.59	6.65
Pan + Soil (wet)	18.60	17.75
Pan + Soil (dry)	17.03	16.29
Moisture Content	15.0%	15.1%
Plastic Limit	15	
Plastic Index	9	

USCS Classification: ASTM D 2487

Group Symbol SC

Group Name Clayey SAND

Date Tested: 7/5/2020

1030 Wilmer Ave., Ste. 100 Richmond, VA 23227 Army Corps of Engineers Certified Laboratory

Sample Received: 7/2/2020 Date Tested: 7/2/2020



Grain Size Distribution Calculations

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB

Sample ID TP-3, Composite

Sample Depth 1-6'

Mechanical Sieve Analysis: ASTM D 422



Richmond, VA 23227 Army Corps of Engineers Certified Laboratory

Sieve	Weight	Percent	Sieve	Percent
Size	Retained	Retained	Size, mm	Passing
1"	0.00	0.0%	25.0	100.0%
3/4"	0.00	0.0%	19.0	100.0%
1/2"	0.00	0.0%	12.5	100.0%
3/8"	0.00	0.0%	9.50	100.0%
No. 4	5.05	1.5%	4.75	98.5%
No. 10	9.97	3.0%	2.00	95.4%
No. 40	123.32	37.5%	0.425	57.9%
No. 100	80.83	24.6%	0.15	33.3%
No. 200	18.97	5.8%	0.075	27.5%
Pan	0.18	0.1%		

Total

238.32

72.5%



Proctor Test Report

Campbell Pointe Ph 5/6 DAA# R14245N-07 Prepared By: LAB

Soil and Test Method Data

Army Corps of Engineers Certified Laboratory

Sample ID TP-3, Composite Sample Received: 7/2/2020 Sample Depth 1-6' Date Tested: 7/7/2020 Sample Classification Clayey SAND USCS Group Symbol SC Test Method ASTM D698, Method B, with mechanical hammer Sample Preparation Air dried and sieved through a 3/8" sieve. Mold Size, in 4.0 Assumed Specific Gravity: 2.65 **Test Data** #2 #3 #4 #1 **Moisture Content** 7.9% 10.2% 11.8% 13.8% Dry Density, pcf 117.6 124.6 122.9 117.1 **Moisture-Density Curve** Maximum Dry Density, pcf = 124.7, Optimum Moisture, % = 10.3

