S.W.COLE ENGINEERING, INC. • Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

CONSTRUCTION OBSERVATION REPORT

Project: Cumberland County Civic Center Renovations
Client: Cumberland County Recreation Center
Client's Rep.: Carl Cooke / Frontline Construction

SWCE Project No.: 12-0034.1
Dates: 10-9-12 through 10-11-12
Weather: Mixed, 50s-60s

Work in Progress: Shaw Brothers (Earthwork) excavating for footings in NW Entrance area.

Work Performed by SWCE: Observation and documentation of footing subgrades.

General Observations, Discussions, Etc:

10-9-2012: Shaw Brothers prepared footings, at direction of CIANBRO, with crushed stone over native soils or bedrock. Reviewed structural notes with CIANBRO and Shaw Brothers which requires footings to bear directly on bedrock. Recommended to remove crushed stone and overburden soils to expose bedrock below all footings. Recommended use of lean concrete mud mats over bedrock surfaces up to bottom of footing to establish level casting bed. Recommended to contact Structural Engineer (WBRC) for clarification and request approval of mud mats.

10-10-2012: Shaw Brothers had excavated to expose bedrock at column/pier locations from AA to AE and A1 to A4. WBRC had issued response to RFI allowing use of mud mats over bedrock and allowing wall footings along line AA from A1to A4 to bear on compacted crushed stone overlying native soils and bedrock.

10-11-2012: Shaw Brothers had excavated to expose bedrock and hoe-ramming as necessary to achieve bearing elevation at column/pier and wall footing locations from AC to AE and A5 to A6.

A sketch of subgrades areas observed during this time period is attached. Understand CIANBRO to place lean concrete mud mats over exposed bedrock surfaces on 10-12-2012. Soil and bedrock conditions observed appeared consistent with findings of geotechnical report and prepared according to the approved plans and specifications, and, as modified by RFIs.

On Site: 10-9-12, 10-10-12, 10-11-12
Attachments: Photo's, Sketch

SWCE Rep.: TJB
Rev. by: RED

P:\2012\12-0034.1 M - Cumberland County Recreation Center - Portland, ME - CCCC Renovations & Additions - RED\COR's\COR week ending 2012-10-12.doc

GRAY, ME OFFICE
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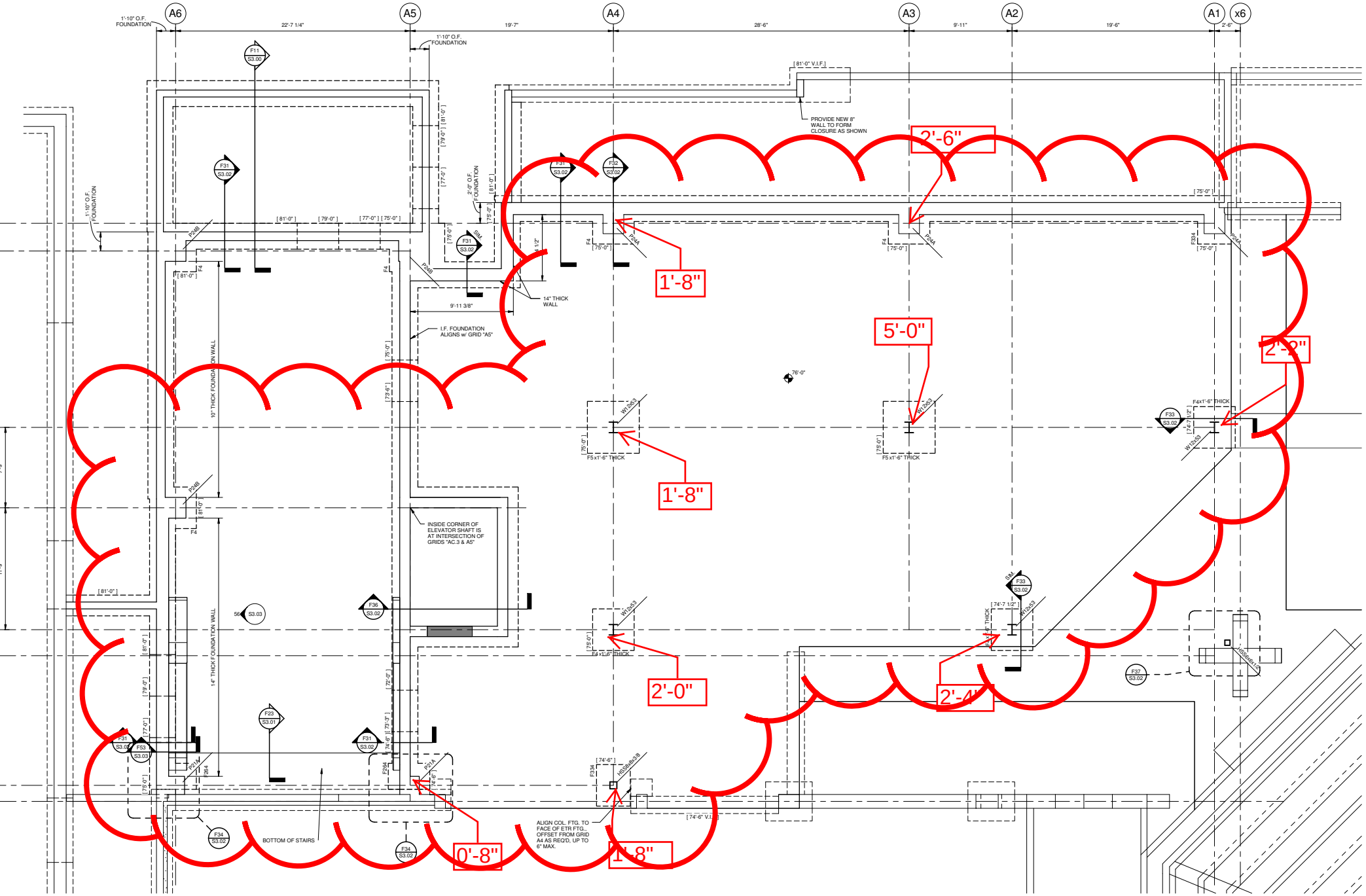
The SWCE field representative is on-site at the request of our client to provide construction materials testing and to observe and document construction activities. The contractor has sole responsibility for schedule, site safety, methods, completeness and quality of the work.


A6
A5
A4
A3
A2
A1
x6
22'-7 1/4"
19'-7"
28'-6"
9'-11"
19'-6"
2'-6"
1'-8"
5'-0"
2'-2"
1'-8"
2'-0"
2'-4"
0'-8"
1'-8"
PROVIDE NEW 8" WALL TO FORM CLOSURE AS SHOWN
14" THICK WALL
I.F. FOUNDATION ALIGNS w/ GRID "A5"
INSIDE CORNER OF ELEVATOR SHAFT IS AT INTERSECTION OF GRIDS "AC.3 & A5"
BOTTOM OF STAIRS
ALIGN COL. FTG. TO FACE OF ETR FTG., OFFSET FROM GRID A4 AS REQ'D, UP TO 6" MAX.
10" THICK FOUNDATION WALL
14" THICK FOUNDATION WALL
F5 x1'-6" THICK
F4 x1'-6" THICK
F4x1'-6" THICK

S.W.COLE ENGINEERING, INC.

Soils Observation Report

Project Name/Location:	Cumberland County Civic Center/Portland, ME	**Project No:**	12-0034.1
Client/Client's Rep.:	Cumberland County Recreation Center/Neil Pratt	**Date:**	11-8-12
General Contractor:	Cianbro	**Sheet:**	1 of 1
Earthwork Contractor:	Shaw Brothers Construction	**SWCE Rep.:**	K. Gimpel
		Arrived at Site:	8:45
		Left Site:	5:00

Weather			Site Conditions		Materials Used	
☐ Clear	☐ Snow	☒ Warm	☐ Wet	☐ Dusty	☒ Structural Fill	☐ Foundation Backfill
☐ Overcast	☐ Fog	☐ Hot	☐ Muddy	☐ Frozen	☐ Utility Bedding	☐ Subbase
☒ Rain	☐ Cold	☐ Windy	Temperatures: 36°		☐ Base	☐ _____

Soils Work Performed: ☐ Site Prep ☐ Earthwork ☐ Planting Soils ☒ Building Earthwork ☐ Utilities Earthwork ☐ _____

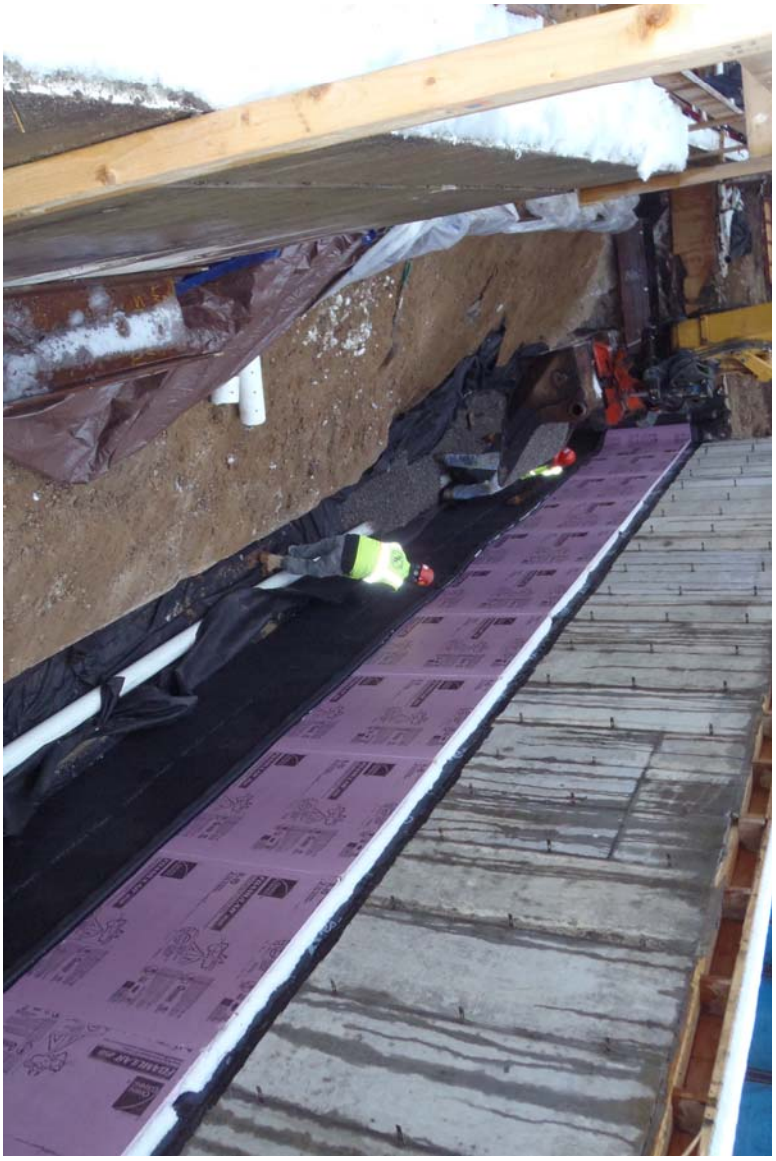
Compaction Equipment Used: ☐ Large Roller ☐ Small Roller ☐ Trench Roller ☒ Large Plate Tamp ☐ Small Tamp ☐ Jumping Jack ☐ _____ ☐ _____

Soils Observations	Observed		Comments
Site Preparation	Yes ☒	No ☐	Snow removed, no frost
Fill Placement	Yes ☒	No ☐	Excavator, graded smooth
Material Type (proper material used for construction)	Yes ☒	No ☐	See comments
Lift Size	Yes ☒	No ☐	12-inch maximum
Compaction	Yes ☒	No ☐	Bomag BPR 55/65-D (408kg)
In-place Densities	Yes ☒	No ☐	See comments
In-place Density Frequency	Yes ☒	No ☐	1 per lift per structure side
Non-Conformance Items Observed	Yes ☐	No ☒	

Observations/Comments:

Shaw Brothers graded and compacted lifts of granular fill along the outside of foundation wall on AA-Line between A1 and A5. By the end of the day, fill had been graded up to approximate elevation 83-feet. We understand that the project structural engineer approved placement of fill prior to completion of the steel frame and slab on grade. Granular material utilized for foundation backfill had a laboratory grain size test performed during project submittal testing, but has not yet had a moisture density test performed. We sampled material for additional laboratory testing required while on site for in-situ density testing and will back figure percent compaction when laboratory testing is finished. The in-situ density results recorded during today's work appeared reasonable for material type used, however, we advised contractor that until moisture density test has been completed, percent compacted can only be estimated based on previous experience with similar materials and that placing backfill prior to completion of testing is at their risk. Backfill material was graded in lift thickness of 12-inches or less and compacted with multiple passes using a heavy vibratory plate compactor. Methods observed appeared consistent with project specifications and general expectations given material and application.

Attachments: Photos Reviewed By: RED



S.W.COLE ENGINEERING, INC.

Soils Observation Report

Project Name/Location:	Cumberland County Civic Center/Portland, ME	**Project No:**	12-0034.1
Client/Client's Rep.:	Cumberland County Recreation Center/Neil Pratt	**Date:**	11-26-12 to 11-30-12
General Contractor:	Cianbro	**Sheet:**	1 of 1
Earthwork Contractor:	Shaw Brothers Construction	**SWCE Rep.:**	K. Gimpel
		Arrived at Site:	8:00 +/- daily
		Left Site:	5:00 +/- daily

Weather			Site Conditions		Materials Used	
☐ Clear	☐ Snow	☐ Warm	☐ Wet	☐ Dusty	☒ Structural Fill	☐ Foundation Backfill
☐ Overcast	☒ Cool	☐ Hot	☐ Muddy	☐ Frozen	☐ Utility Bedding	☐ Subbase
☐ Rain	☐ Cold	☐ Windy	Temperatures: 25-35°		☐ Base	☐ _____

Soils Work Performed: ☐ Site Prep ☐ Earthwork ☐ Planting Soils ☒ Building Earthwork ☐ Utilities Earthwork ☐ _____

Compaction Equipment Used: ☐ Large Roller ☐ Small Roller ☐ Trench Roller ☒ Large Plate Tamp ☐ Small Tamp ☐ Jumping Jack ☐ _____ ☐ _____

Soils Observations	Observed		Comments
Site Preparation	Yes ☒	No ☐	Light frost broken up
Fill Placement	Yes ☒	No ☐	Excavator, graded smooth
Material Type (proper material used for construction)	Yes ☒	No ☐	SWCE sample #16128G
Lift Size	Yes ☒	No ☐	12-inch maximum
Compaction	Yes ☒	No ☐	Bomag BPR 55/65-D (408kg)
In-place Densities	Yes ☒	No ☐	Results reported separately
In-place Density Frequency	Yes ☒	No ☐	1 per lift per work area
Non-Conformance Items Observed	Yes ☐	No ☒	

Observations/Comments:

Shaw Brothers graded and compacted granular backfill soil throughout the week. Work areas included the entry vestibule and stair area between A5 and A6 Lines and the landscaped areas west of A6 Line. Material was graded in loose lift thicknesses of 12-inches or less and compacted with multiple passes using a heavy vibratory plate compactor. Lightly frozen surficial soils were broken up or removed as necessary prior to placing fill; no substantial frost set in during the week. Cianbro has a ground heater and blankets on site and we understand soils will be thawed as needed prior to placing concrete. Shaw Brothers over-built the stair slope and will cut to grade during final grading in order to uniformly compact the entire section. In-situ density tests performed indicated that material graded was compacted to a minimum of 95-percent of a 140.1-pcf proctor value (results and test locations reported separately). No issues were noted with regards to the soils work observed this week.

Attachments: Photos Reviewed By: RED

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S.W.COLE ENGINEERING, INC.

Soils Observation Report

Project Name/Location:	Cumberland County Civic Center	**Project No:**	12-0034.1
Client/Client's Rep.:	CCCC / Neil Pratt	**Date:**	8-2-13 and 8-5-13
Earthwork Contractor:	Shaw Brothers	**Sheet:**	1 of 1
		SWCE Rep.:	K. Gimpel
		Arrived at Site:	On site for concrete
		Left Site:	

Weather			Site Conditions		Materials Used	
☐ Clear	☐ Snow	☒ Warm	☐ Wet	☐ Dusty	☐ Site Fill	☒ Foundation Backfill
☐ Overcast	☐ Fog	☐ Hot	☐ Muddy	☐ Frozen	☐ Utility Bedding	☐ Subbase
☐ Rain	☐ Cold	☐ Windy	Temperatures: 70s		☐ Base	☐ _____

Soils Work Performed: ☐ Site Prep ☐ Earthwork ☐ Planting Soils ☒ Building Earthwork ☐ Utilities Earthwork ☐ _____

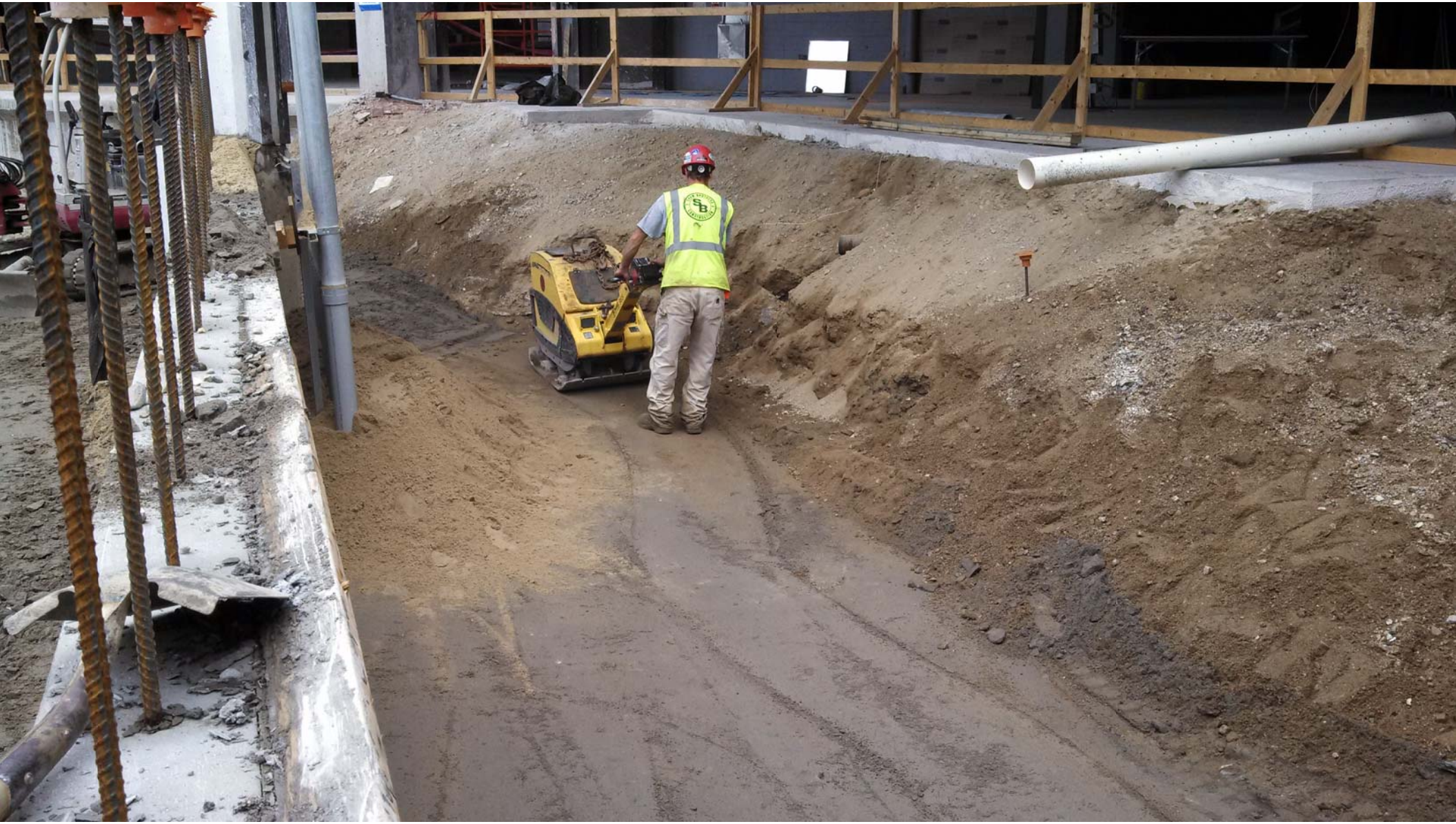
Compaction Equipment Used: ☐ Large Roller ☐ Small Roller ☐ Trench Roller ☒ Large Plate Tamp ☐ Small Tamp ☐ Jumping Jack ☐ _____ ☐ _____

Soils Observations	Observed		Comments
Site Preparation	Yes ☒	No ☐	Existing granular fills
Fill Placement:	Yes ☒	No ☐	Excavator, smooth edge bucket
Material Type (proper material used for construction)	Yes ☒	No ☐	Sample # 16128G
Lift Size	Yes ☒	No ☐	12-inch lifts
Compaction	Yes ☒	No ☐	Bomag 70/70D (575kg) - 3 passes
In-place Densities	Yes ☒	No ☐	Minimum of 95%
In-place Density Frequency	Yes ☒	No ☐	1 per lift per structure
Non-Conformance Items Observed	Yes ☐	No ☒	
Non-Conformance Item Description:			
Action Taken by SWCE:			
Person(s) Notified:			

Comments:
Foundation backfill work began on the west side of Quad B and is advancing towards Quad C as concrete wall construction allows. Structural fill material meeting the granular fill specification is being utilized for all backfill material. Pipe bedding material is being utilized around utilities as needed. It appears that backfill material is being grading and compacted in accordance with the applicable project documents and specifications. Shaw Brothers will bench back into loose leading edges as required when backfill operation can resume to the east of the current work area.

Attachments: Photo

Reviewed By: RED



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Soils Observation Report

Project Name/Location:	Cumberland County Civic Center	**Project No:**	12-0034.1
Client/Client's Rep.:	CCCC / Neil Pratt	**Date:**	8/21 through 8/23/13
Earthwork Contractor:	Shaw Brothers	**Sheet:**	1 of 1
		SWCE Rep.:	K. Gimpel
		Arrived at Site:	Daily for concrete, rebar, subgrade and soils observations
		Left Site:	

Weather			**Site Conditions**		**Materials Used**	
☐ Clear	☐ Snow	☒ Warm	☐ Wet	☐ Dusty	☐ Site Fill	☒ Foundation Backfill
☐ Overcast	☐ Fog	☐ Hot	☐ Muddy	☐ Frozen	☐ Utility Bedding	☐ Subbase
☐ Rain	☐ Cold	☐ Windy	Temperatures: 80s		☐ Base	☐ _____

Soils Work Performed: ☐ Site Prep ☐ Earthwork ☐ Planting Soils ☒ Building Earthwork ☐ Utilities Earthwork ☐ _____

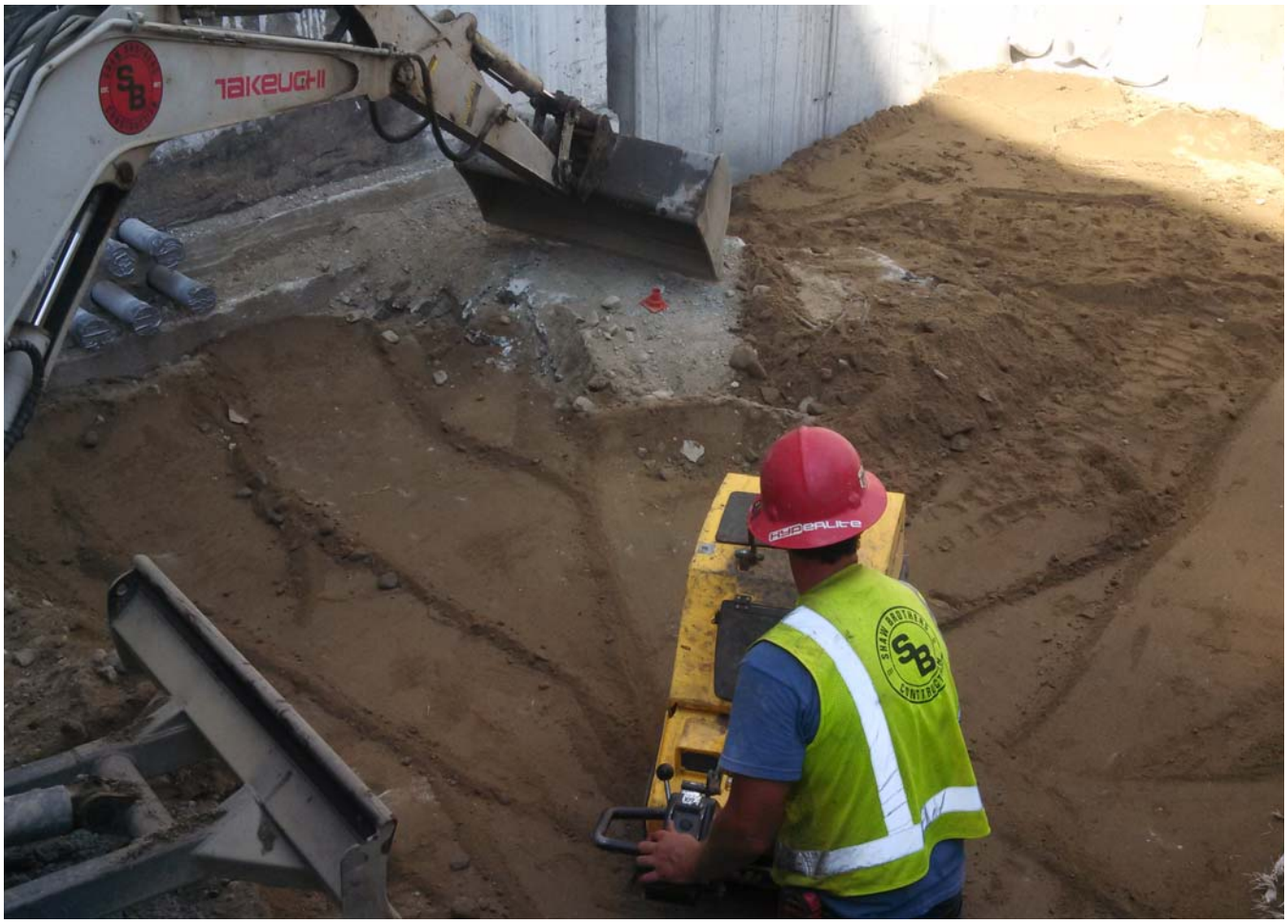
Compaction Equipment Used: ☐ Large Roller ☐ Small Roller ☐ Trench Roller ☒ Large Plate Tamp ☐ Small Tamp ☐ Jumping Jack ☐ _____ ☐ _____

Soils Observations	**Observed**		**Comments**
Site Preparation	Yes ☒	No ☐	Lean conc against CA-line rock
Fill Placement:	Yes ☒	No ☐	Excavator, graded smooth
Material Type (proper material used for construction)	Yes ☒	No ☐	See comments
Lift Size	Yes ☒	No ☐	12-inch lifts
Compaction	Yes ☒	No ☐	Bomag 70/70D (575kg) - 3 passes
In-place Densities	Yes ☒	No ☐	Minimum of 95%
In-place Density Frequency	Yes ☒	No ☐	1 per lift per structure
Non-Conformance Items Observed	Yes ☐	No ☒	

Comments: Shaw Brothers has started an ongoing foundation backfill operation as work areas open up following the completion of concrete in Quad C. On Wednesday the 21st, they worked around the CMP vault and CA-line after which they transitioned to interior areas in Quad C mechanical space and, event level between Quads C and D. Lean concrete was used as required to back up the exposed rock face below CA-line prior to starting the backfill operation. Additional excavation will be required for utility installation at the north and south ends of the vault so testing was not performed in these areas. Friday the 23rd while Giles worked on finishing wall section on C1-line between CE and CD, Shaw worked on fine grading portions of Quad B where backfill was previously graded in preparation for turning the area over to the steel erectors. Backfill material utilized was initially the same 3-inch minus that has been used to date; however, two alternate materials began to be imported when the original source was reportedly depleted. The new materials were sampled for laboratory grainsize and moisture density testing and percent compaction for in-situ density tests performed was back figured upon completion of laboratory testing. Resultant percent compaction was found to be a minimum of 95-percent. Grading and compaction of foundation backfill material appears to be progressing in general accordance with the applicable project documents.

Attachments: Photos

Reviewed By: RED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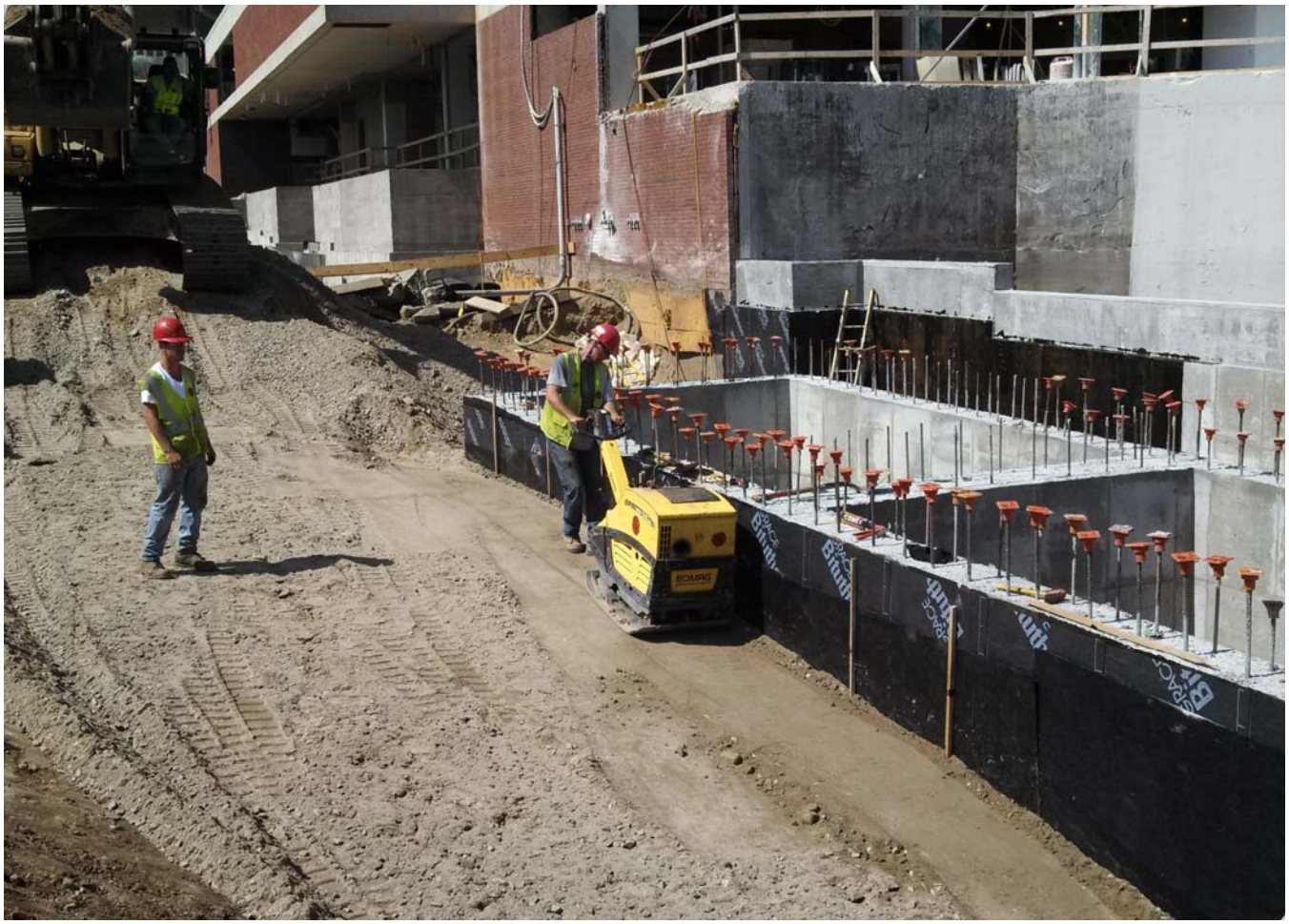


S.W.COLE ENGINEERING, INC.

Soils Observation Report

Project Name/Location:	Cumberland County Civic Center	**Project No:**	12-0034.1
Client/Client's Rep.:	CCCC / Neil Pratt	**Date:**	8/26 through 8/30/13
Earthwork Contractor:	Shaw Brothers	**Sheet:**	1 of 1
		SWCE Rep.:	K. Gimpel
		On Site:	8-26-13: 9:45-3:30
			8-27-13: 9:00-3:30
			8-28-13: 8:00-4:00
			8-29-13: 8:40-3:00
			8-30-13: 6:30-1:30

Weather			**Site Conditions**		**Materials Used**	
☐ Clear	☐ Snow	☒ Warm	☐ Wet	☐ Dusty	☐ Site Fill	☒ Foundation Backfill
☐ Overcast	☐ Fog	☐ Hot	☐ Muddy	☐ Frozen	☐ Utility Bedding	☐ Subbase
☐ Rain	☐ Cold	☐ Windy	Temperatures: 80s		☐ Base	☐ _____

Soils Work Performed: ☐ Site Prep ☐ Earthwork ☐ Planting Soils ☒ Building Earthwork ☐ Utilities Earthwork ☐ _____

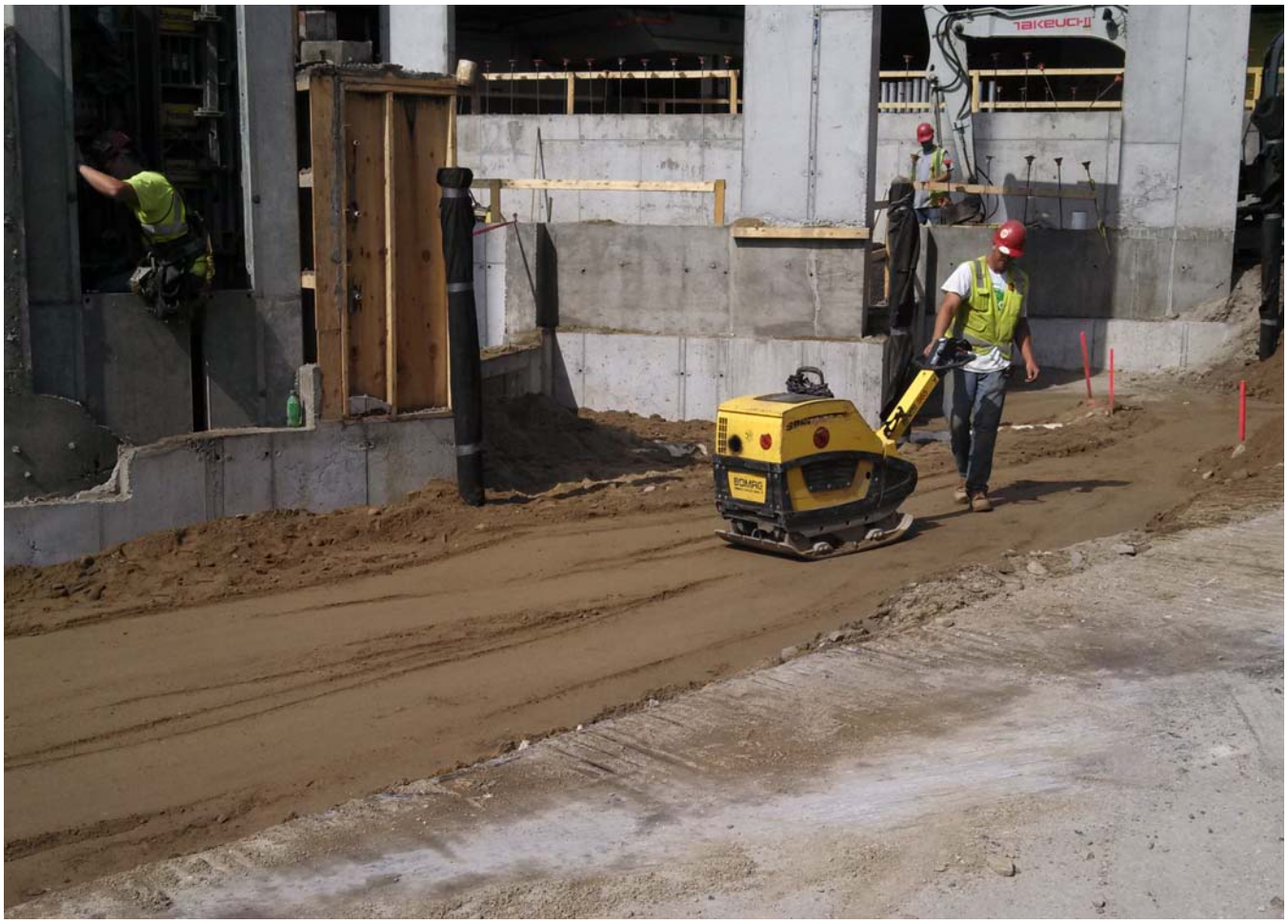
Compaction Equipment Used: ☐ Large Roller ☐ Small Roller ☐ Trench Roller ☒ Large Plate Tamp ☐ Small Tamp ☐ Jumping Jack ☐ _____ ☐ _____

Soils Observations	**Observed**		**Comments**
Site Preparation	Yes ☒	No ☐	
Fill Placement:	Yes ☒	No ☐	Excavator, graded smooth
Material Type (proper material used for construction)	Yes ☒	No ☐	
Lift Size	Yes ☒	No ☐	12-inch lifts
Compaction	Yes ☒	No ☐	Bomag 70/70D (575kg) - 3 passes
In-place Densities	Yes ☒	No ☐	Minimum of 95%
In-place Density Frequency	Yes ☒	No ☐	1 per lift per structure
Non-Conformance Items Observed	Yes ☐	No ☒	

Comments: Shaw Brothers continued grading and compacting foundation backfill throughout the week working out of Quad B and into Quad C. Granular foundation backfill material used primarily consisted of SWCE sample #17134G. However, the small triangle shaped areas between CD-line and the loading dock area was backfilled entirely with compacted ¾-inch crushed stone due to limited access. In-situ density testing performed consistently indicated that material is being compacted to a minimum of 95-percent using a 133.2-pcf proctor value. Grading and compaction observed appeared consistent with the requirements of the project documents.

Attachments: Photos

Reviewed By: RED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S.W.COLE ENGINEERING, INC.

Soils Observation Report

Project Name/Location:	Cumberland County Civic Center	**Project No:**	12-0034.1
Client/Client's Rep.:	CCCC/Neil Pratt	**Date:**	9/16 through 9/20/13
Earthwork Contractor:	Shaw Brothers	**Sheet:**	1 of 1
		SWCE Rep.:	K. Gimpel
		On Site:	9-16-13: 9:10-4:00
			9-17-13: 8:00-4:00
			9-18-13: 7:20-3:20
			9-19-13: 7:25-12:50
			9-20-13: 8:00-11:00

Weather			Site Conditions		Materials Used	
☐ Clear	☐ Snow	☒ Warm	☐ Wet	☐ Dusty	☐ Site Fill	☒ Foundation Backfill
☐ Overcast	☐ Fog	☐ Hot	☐ Muddy	☐ Frozen	☐ Utility Bedding	☐ Subbase
☐ Rain	☐ Cold	☐ Windy	Temperatures: 80s		☐ Base	☐ _____

Soils Work Performed: ☐ Site Prep ☐ Earthwork ☐ Planting Soils ☒ Building Earthwork ☐ Utilities Earthwork ☐ _____

Compaction Equipment Used: ☐ Large Roller ☐ Small Roller ☐ Trench Roller ☒ Large Plate Tamp ☐ Small Tamp ☐ Jumping Jack ☐ _____ ☐ _____

Soils Observations	Observed		Comments
Site Preparation	Yes ☒	No ☐	
Fill Placement:	Yes ☒	No ☐	Excavator, graded smooth
Material Type (proper material used for construction)	Yes ☒	No ☐	
Lift Size	Yes ☒	No ☐	12-inch lifts
Compaction	Yes ☒	No ☐	Bomag 70/70D (575kg) - 3 passes
In-place Densities	Yes ☒	No ☐	Minimum of 95%
In-place Density Frequency	Yes ☒	No ☐	1 per lift per structure
Non-Conformance Items Observed	Yes ☐	No ☒	

Comments: Shaw Brothers resumed grading and compacting foundation backfill in Quad D in areas where foundation work has been completed. SWCE sample #17134G continues to be used for backfill material. In-situ density testing performed indicated that material is being compacted to a minimum of 95-percent using a 133.2-pcf proctor value. In the small area between existing foundations on X2.2-line and the new cast in place wall just north of X2.2-line, lean concrete was used as backfill up to bottom of existing footings where they were undermined for new construction and ¾-inch crushed stone was used in the remaining area. Grading and compaction observed appeared consistent with the requirements of the project documents.

Attachments: None

Reviewed By: RED