



November 26, 2019

Mr. Brian Tierney  
10 Baldwin Yonkers AMS LLC  
595 Madison Avenue, Suite 1101  
New York, NY 10022

**Re: Supplemental Geotechnical Letter Report – Rock Investigation  
North Broadway Assemblage  
Yonkers, New York**

Dear Brian:

In accordance with your request and our October 15, 2019 proposal, this letter report presents the results of our supplemental investigation conducted along and near North Broadway in Yonkers, New York. As stated in our proposal, and in order to supplement the rock data collected during our April 2019 preliminary geotechnical investigation, the purpose for our supplemental investigation was to provide additional rock type, quality, and top of rock elevation across in various locations across the proposed North Broadway Assemblage in Yonkers, New York.

Based on recent discussions between you and Mr. Ziad H. Maad, P.E., D. GE. of Geotechnical Engineering Services, P.C. (GES), we understand the project site occupies several lots spanning the western ends of Baldwin Place, Overlook Terrace, extending down a steep tree-covered slope, through select lots to North Broadway in the City of Yonkers, New York. We understand the lots/addresses proposed to be part of the new development include the following addresses. Our preliminary geotechnical investigation was performed at the addresses noted in *italics* below, while our supplemental investigation was performed where noted in **bold** below. The outline of the proposed site is shown on the attached Site Location Plan:

- **2 Baldwin Place** – Open lot covered by trees and debris
- **10 Baldwin Place** – Two-story house and surrounding yard and trees
- **23 Overlook Terrace** – Five-story building and trees
- **14 Overlook Terrace** – Tree-covered open lot
- 30-32 North Broadway – Two-story (plus cellar) building and rear yard.
- 28 North Broadway – Two-story building plus rear yard
- 20-24 North Broadway – Four-story building (24 North Broadway) and three-story building (plus cellar) (20-22 North Broadway)
- 18 North Broadway – Two-story building

Based on the architectural renderings provided to us, we understand the proposed development includes the construction of several new buildings of varying height across the combined footprint of the above-mentioned lots, which adds up to over 50,000-square-feet in footprint area. In the area of 10 Baldwin Place, a 10-story residential building will be constructed with one level of parking beginning approximately 55 feet above North Broadway. In the area of 23 Overlook Terrace, a 9-story residential building will be constructed beginning approximately 55 feet above the elevation of North Broadway, with an additional 2 levels of underground parking.

GES did not perform any surveying and solely relied on our information as measured in the field from fixed locations, as well as an August 29, 2019 plan of existing ground elevations by Empire State Layout, Inc. of the proposed site. All elevations noted in this survey and in our letter, report refer to the North American Vertical Datum of 1988 (NAVD 88).

## **METHODOLOGY**

Borings were performed at a total of seven (7) locations, referred to as B-3 through B-9. Several attempts were made to reach top of rock in Borings B-6 and B-9, which have been noted in this report as B-6A, B-6B, B-6C, and B-9A, B-9B, B-9C, and B-9D. Multiple attempts at each borehole became necessary as rock was not encountered prior to the borehole collapsing. Therefore, a total of twelve (12) borings were performed at the locations shown in updated Boring Location Plan attached to this letter report. This plan also includes the borings performed during our preliminary geotechnical investigation in April 2019. Borings B-3 through B-5 are geotechnical borings drilled by Big Apple Testing of Ozone Park, New York utilizing an Acker Soil Scout Track Drill Rig from November 5 to 7, 2019. Borings B-6 through B-9 are open-hole borings were drilled by Siteworks, Inc. of New York, New York, utilizing a Furukawa Rock Drill from November 12 to 13, 2019. All borings were inspected on a full-time basis by Messrs. Daniel George, P.E. and Michael Torino, P.E. of GES.

As stated by our proposal, our general methodology was to not perform any SPT split-spoon soil sampling for this investigation, as top of rock and rock quality were the focus of our supplemental investigation. Upon encountering top of rock in Borings B-3, B-4, and B-5, rock core drilling was performed using an NX-size core barrel with a diamond bit. The length of recovery and Rock Quality Designation (RQD) were measured and calculated for each rock core run, and denoted as a percent recovery and percent RQD, respectively. RQD refers to the sum of the lengths of rock core pieces four inches or longer, neglecting mechanical breaks, expressed as a percentage of the total length of the core run. Percentage recovery and RQD, and rock sample descriptions are included on the boring logs, attached as Appendix A.

In Borings B-6 through B-9, an air hammer was used to open-hole drill through the soil to the underlying bedrock, using air as the main flushing medium. If bedrock was encountered, the air hammer continued into the bedrock, in order to open a hole large enough to perform a video inspection. Following completion of the rock socket drilling, An HD down-the-hole camera was lowered into the borehole, and the surface of the rock socket was inspected, under the continuous inspection of Mr. Michael Torino, P.E., a NYS-licensed Professional Engineer. The camera was operated by Mr. Aflaz Saleem of GES.

A general discussion of the findings from each boring is shown below. All depths noted are from surrounding ground surface:

- Boring B-3 was drilled within the open yard of 10 Baldwin Place, just north of the residential building at 25 Overlook Terrace to a depth of 16.7 feet (about el. +98.3), from about el. +115. Top of competent rock was encountered at a depth of 6.7 feet (about el. +108.3). Top of weathered rock was encountered at about el. +109.
- Boring B-4 was drilled within the wooded sloped area of 2 Baldwin Place, just south of the northern property line, to a depth of about 16 feet (about el. +78), from about el. +94. Top of competent rock was encountered at a depth of 14 feet (about el. +80).
- Boring B-5 was drilled within the wooded sloped area of 2 Baldwin Place just east of the west property line, to a depth of about 16.5 feet (about el. +75.5), from about el. +90. No bedrock was encountered.
- Boring B-6A, B-6B, and B-6C were drilled within the walkway, just west of the building at 23 Overlook Terrace, from about el. +100. All three (3) borings were drilled to a depth of 24 feet (about el. +76), without encountering bedrock.
- Boring B-7 was drilled within the wooded sloped area of 14 Overlook Terrace just south of Overlook Terrace from about el. +104 to a depth of 22 feet (about el. +82). Possible top of rock was encountered at 11 feet (about el. +93), but not be seen during video inspection.
- Boring B-8 was drilled within the wooded sloped area of 14 Overlook Terrace, about 34 feet south of Boring B-7, from about el. +94 to a depth of 21 feet (el. +73). Top of competent bedrock was encountered at 8.5 feet (about el. +85.5). Top of weathered rock was encountered at 6.8 feet, or about el. + 87.2.
- Boring B-9A, B-9B, B-9C, and B-9D were drilled within the wooded sloped area of 14 Overlook Terrace from about el. +93 to +94. Borings B-9A, B-9B, and B-9D were drilled to 24 feet (about el. +69), and Boring B-9C was drilled to 15 feet (about el. +78) without encountering competent bedrock. Possible weathered bedrock was encountered at a depth of 16 feet (about el. +78) in Boring B-9D. However, the borehole could not be video-inspected, as it had collapsed.

For Borings B-3, B-4, and B-5, rock core samples were arranged and organized in wooden five-foot-long core boxes, labeled with project name and number, boring number, sample number, depth of sample, and core recovery and RQD percentages. All core samples were transported to Big Apple Testing's Office for storage.

## **SUBSURFACE CONDITIONS**

The boring logs are attached to this letter report. As stated above, the purpose for this investigation was to determine the top of rock, and perform rock core video inspection to observe and document the rock quality at the boreholes. Soil sampling was not part of our investigation. As such, the soil encountered has not been discussed below in our assessment of subsurface conditions. Also, our preliminary investigation labeled the bedrock as Stratum 3. The stratum descriptions below

delineate Stratum 3 into Stratum 3a and 3b. As noted above, Borings B-5, B-6A, B-6B, B-6C, B-9A, B-9B, and B-9C did not encounter rock, and are not discussed below. All depths noted below are from top of surrounding grades. The following general descriptions of the subsurface strata are based on our interpretations of the results of the field investigation:

**Stratum 3a – Weathered/Decomposed Bedrock:** Stratum 3a is generally regarded as highly fractured and weathered gray mica schist bedrock. Stratum 3a was encountered in Boring B-3 from about el. +109 to +108.3 (0.7-foot-thick), in Boring B-8 from about el. +87.2 to +85.5 (2.3-foot-thick), and in Boring B-9D from about el. +78 to +70. Boring B-9D was terminated in Stratum 3a after extending about 8 feet into the weathered/decomposed bedrock. However, this could not be confirmed, as the borehole collapsed following drilling. No rock core or split-spoon sampling was performed within this layer and thicknesses were presumed based on drill cuttings encountered at the surface, other observations during drilling, or by use of the HD down-the-hole camera following drilling completion (of Borings B-6A through B-9D).

**Stratum 3b – Bedrock:** This stratum was encountered in Borings B-3, B-4, B-7, and B-8, and can be classified as medium hard to hard, slightly weathered, gray mica schist, jointed with weathered and iron-stained joints. Stratum 3b was cored from about el. +108.3 to +98.3 in Boring B-3 and from about el. +80 to +78 in Boring B-4, where these borings were terminated after confirming rock quality. Rock core recoveries ranged from 93 to 100 percent, while RQD ranged from 75 to 79 percent. The bottom five (5) feet of the rock core run in Boring B-3 could not be retrieved from the borehole, as the core barrel jammed, though is presumed to be the same based on observations during drilling.

The bedrock was video-inspected using the HD down-the-hole camera in Borings B-7 and B-8, which indicated the medium hard to hard gray mica schist. Stratum 3b was encountered at these borings from about el. +93 to +82, and from +85.5 to +73, respectively.

## **GROUNDWATER OBSERVATIONS**

No groundwater monitoring wells were installed as part of this investigation, as this was not the purpose for the investigation. We will perform groundwater level monitoring at the site by installation of piezometers, and the performance of the remaining geotechnical borings, as part of our final geotechnical investigation, once the site has been cleared of buildings and trees and is free and open to access anywhere on-site.

Mr. Brian Tierney – 10 Baldwin Yonkers AMS LLC  
North Broadway Assemblage  
Supplemental Geotechnical Letter Report  
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If you have any questions or would like to discuss the contents of this letter, please don't hesitate to call me in the office at 914-592-4616 or on my mobile at 973-727-7329.

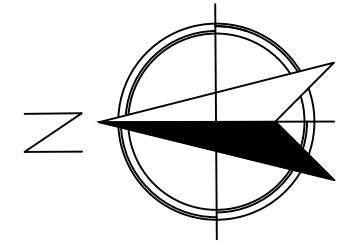
Very truly yours,  
**Geotechnical Engineering Services, P.C.**

*Ziad H. Maad, P.E.*


Ziad H. Maad, P.E., D. GE.

**Attachments:**

- Drawing No. B-101.01 – Boring Location Plan
- Geotechnical Boring Logs



### LEGEND

B-1  2019 GES Boring

No.	DESCRIPTION	DATE	BY
1	ADDED B-3 THROUGH B-9D	11-18-19	DJG

**GES**  
**GEOTECHNICAL ENGINEERING SERVICES, P.C.**  
 6 BAYBERRY ROAD  
 ELMSFORD, NEW YORK 10523  
 PHONE: 914-592-4616 FAX: 914-592-0416

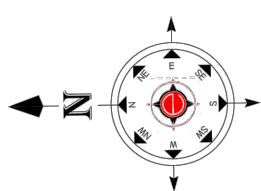
**NORTH BROADWAY  
 ASSEMBLAGE  
 YONKERS, NY**

BLOCK:      LOT:      ZONE:      MAP:

**BORING  
 LOCATION PLAN**

UNAUTHORIZED ALTERATION OR ADDITION TO THIS PLAN IS A VIOLATION OF SECTION 7209 OF THE NYS EDUCATION LAW. COPIES OF THIS PLAN NOT BEARING THE PROFESSIONAL ENGINEER'S INKED SEAL OR EMBOSSED SEAL SHALL NOT BE CONSIDERED TO BE A VALID TRUE COPY.

PROJECT #:	2019038
SCALE:	NTS
DATE:	4/22/2019
DRAWING NO:	B-101.01
SHEET NO:	1 OF 1



\_\_\_\_\_  
PROFESSIONAL ENGINEER

# Log of Boring B-3

<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>		
<b>Location: 10 Baldwin Place, Yonkers, NY</b>						
Date(s) Drilled	11/5/19 - 11/5/19	Inspector	Daniel George, P.E.		Coordinates	North: East:
Drilling Agency	Big Apple Testing, Inc	Foreman	Rob		Approximate Surface Elevation (feet)	± 115
Drilling Equipment	Acker Soil Scout Track	Drilling Method	Mud Rotary		Completion Depth (feet)	16.7
Casing Size/Type	4" Steel	Size/Type of Bit	3-7/8" Roller Bit		Rock Depth (feet)	6.7
Groundwater Level and Date Measured	NA	Hammer Wt/Drop	NA	Casing Hammer Wt/Drop	140/30" (Safety)	
Boring Location See Boring Location Plan (Figure 1)					Sampler Type(s)	NA
					Size/Type of Core Barrel	2" NX (Double Tube)
					No. of Samples	Dist.: 0 Undist.: 0 Core (ft): 11

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0							[Cross-hatch pattern]	FILL: Advanced Roller Bit to 3.1 ft without Sampling. Presumed Fill.					Fill at grade
							[Dotted pattern]	Gray Cobble					Drove Casing to 3 ft
				C-1	62	0	[Dotted pattern]						Hard drilling at 3 ft, losing water Cored through cobble from 3 to 4 ft
5							[Dotted pattern]	Advanced Roller bit to 6.7 ft without sampling					
							[Diagonal lines]	Medium Hard to Hard, slightly weathered Gray Mica Schist, Jointed with weathered and iron-stained joints					Possible Decomposed Rock, Hard drilling at 6 ft Losing water throughout coring Casing advanced to 7 ft
				C-2	93	75	[Diagonal lines]						Tan wash while coring C-2 and C-3
10							[Diagonal lines]	Presumed Same as Above.					
				C-3			[Diagonal lines]						Core barrel jammed in hole after boring completion.
15							[Diagonal lines]						
							[Diagonal lines]	Boring Completed to 16.7 ft below ground. As of November 13, 2019 Big Apple has not removed casing and core barrel from boring.					
20							[Diagonal lines]						

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# Log of Boring B-4

<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>	
<b>Location: 60 North Broadway, Yonkers, NY</b>					
Date(s) Drilled	11/6/19 - 11/6/19	Inspector	Michael Torino, P.E.		Coordinates
Drilling Agency	Big Apple Testing, Inc	Foreman	Rob		North: ± 94 East:
Drilling Equipment	Acker Soil Scout Track	Drilling Method	Mud Rotary		Approximate Surface Elevation (feet)
Casing Size/Type	4" Steel	Size/Type of Bit	3-7/8" Roller Bit		Completion Depth (feet) 16.0 Rock Depth (feet) 14.0
Groundwater Level and Date Measured	NA NA	Hammer Wt/Drop	140/30" (Safety)	Casing Hammer Wt/Drop	2" Split Spoon 2" NX (Double Tube)
Boring Location See Boring Location Plan (Figure 1)					No. of Samples Dist.: 1 Undist.: 0 Core (ft): 9

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								FILL: Advanced roller bit to 4.6 ft without sampling. Presumed Fill.					Fill at grade
													Drove casing to 3 ft Tan wash while drilling
5	S-1	0.1	8 7					FILL: Black Silty medium to fine Sand, trace metal fragments					Hard drilling at 4.5 ft
								Advanced roller bit to 7 ft without sampling					Advanced casing to 5 ft Losing water while drilling from 4 to 7 ft
								Gray cobbles and boulders					Hard drilling at 7 ft Losing water throughout coring C-1, C-2, C-3
10				C-1	37	0							
								Gray cobbles and boulders					
				C-2	50	0							
15								Medium Hard, slightly weathered Gray Mica Schist. Moderately weathered at joints					Barrel clogged at 14 ft. Removed barrel and then resumed coring from 14 to 16 ft.
				C-3	100	79							
								Boring Completed to 16 ft below ground and backfilled with soil cuttings					
20													

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# Log of Boring B-5

<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>		
<b>Location: 60 North Broadway, Yonkers, NY</b>						
Date(s) Drilled	11/7/19 - 11/7/19	Inspector	Michael Torino, P.E.		Coordinates	North: East:
Drilling Agency	Big Apple Testing, Inc	Foreman	Rob		Approximate Surface Elevation (feet)	± 90
Drilling Equipment	Acker Soil Scout Track	Drilling Method	Mud Rotary		Completion Depth (feet)	16.5
Casing Size/Type	4" Steel	Size/Type of Bit	3-7/8" Roller Bit		Rock Depth (feet)	NA
Groundwater Level and Date Measured	NA NA	Hammer Wt/Drop	NA	Casing Hammer Wt/Drop	140/30" (Safety)	
Boring Location See Boring Location Plan (Figure 1)					Sampler Type(s)	NA
					Size/Type of Core Barrel	2" NX (Double Tube)
					No. of Samples	Dist.: 0 Undist.: 0 Core (ft): 10

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0							X	Advanced roller bit to 6.5 ft without sampling. Presumed Fill from 0 to 3 ft					Fill at grade
5							.						Tan return from 3 to 6.5 ft Drove casing to 4 ft
10				C-1	40	0	o	Gray cobbles and boulders					Hard drilling at 6.5 ft Cored 6.5 to 11.5. Losing water throughout coring
15				C-2	20	0	o	Gray cobbles and boulders					Cored 11.5 to 16.5. Losing water throughout coring
20								Big Apple refused to core a third run in this location due to water loss. Boring completed to 16.5 ft and backfilled with soil cuttings					

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# Log of Boring B-6a

<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>	
<b>Location: 25 Overlook Terrace, Yonkers, NY</b>					
Date(s) Drilled	11/12/19 - 11/12/19	Inspector	Michael Torino, P.E. / Aflaaz Saleem	Coordinates <b>North:</b>	
Drilling Agency	Siteworks, Inc	Foreman	Hector	Approximate Surface Elevation (feet) <b>± 100</b>	
Drilling Equipment	Furukawa Track Rig	Drilling Method	Air Hammer	Completion Depth (feet)	24.0
Casing Size/Type	NA	Size/Type of Bit	3-7/8" Rock Hammer	Rock Depth (feet)	NA
Groundwater Level and Date Measured	NA	Hammer Wt/Drop	NA	Casing Hammer Wt/Drop	NA
Boring Location <b>See Boring Location Plan (Figure 1)</b>				No. of Samples	Dist.: 0 Undist.: 0 Core (ft): 0

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0							X	Advanced with air hammer directly to top of bedrock. Possible Fill from 0 to 7 ft					Fill at grade. Dark brown return
5							X						Soil classifications noted based on wash from top of borehole
							X	Tan Silty fine Sand (SM)					Tan return
							X	Gray Cobble					Gray return and rig chatter from 9 to 10 ft
10							X	Tan Silty fine Sand (SM)					Tan return
15							X						
20							X						Hole collapsing at 18 ft. 3" PVC added to top of boulder and attempted to continue drilling.

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# Log of Boring B-6a




<b>Project: North Broadway Assemblage</b>	<b>Project Number: 2019038</b>
<b>Location: 25 Overlook Terrace, Yonkers, NY</b>	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20													
25								Boring collapsing at 24 feet. Bedrock not encountered. Backfilled with soil cuttings upon completion					
30													
35													
40													

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# Log of Boring B-6b

<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>	
<b>Location: 25 Overlook Terrace, Yonkers, NY</b>					
Date(s) Drilled	11/12/19 - 11/12/19	Inspector	Michael Torino, P.E. / Aflaaz Saleem		Coordinates
Drilling Agency	Siteworks, Inc	Foreman	Hector		North: East: ± 100
Drilling Equipment	Furukawa Track Rig	Drilling Method	Air Hammer		Completion Depth (feet) 24.0
Casing Size/Type	NA	Size/Type of Bit	3-7/8" Rock Hammer		Rock Depth (feet) NA
Groundwater Level and Date Measured	NA	Hammer Wt/Drop	NA	Casing Hammer Wt/Drop	NA
Boring Location See Boring Location Plan (Figure 1)					No. of Samples
					Dist.: 0 Undist.: 0 Core (ft): 0

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								Advanced with air hammer directly to top of bedrock. Possible Fill from 0 to 6.5 ft					Fill at grade. Dark brown return
5								Gray Cobble Tan Silty medium to fine Sand (SM)					Soil classifications noted based on wash from top of borehole
10													Gray return and rig chatter from 6.5 to 7 ft Tan return
15													
20													

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# Log of Boring B-6b

<b>Project: North Broadway Assemblage</b>	<b>Project Number: 2019038</b>
<b>Location: 25 Overlook Terrace, Yonkers, NY</b>	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS	
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)								
20							[Dotted pattern]							
25								Boring collapsing at 24 feet. Bedrock not encountered. Backfilled with soil cuttings upon completion						
30														
35														
40														

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ

# Log of Boring B-6c

<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>	
<b>Location: 25 Overlook Terrace, Yonkers, NY</b>					
Date(s) Drilled	11/12/19 - 11/12/19	Inspector	Michael Torino, P.E. / Aflaaz Saleem		Coordinates North: East:
Drilling Agency	Siteworks, Inc	Foreman	Hector		Approximate Surface Elevation (feet) ± 100
Drilling Equipment	Furukawa Track Rig	Drilling Method	Air Hammer		Completion Depth (feet) 24.0    Rock Depth (feet) NA
Casing Size/Type	NA	Size/Type of Bit	3-7/8" Rock Hammer		Sampler Type(s) NA
Groundwater Level and Date Measured	NA	Hammer Wt/Drop	NA	Casing Hammer Wt/Drop	NA
Boring Location See Boring Location Plan (Figure 1)					No. of Samples Dist.: 0    Undist.: 0    Core (ft): 0

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0							[Cross-hatched pattern]	Advanced with air hammer directly to top of bedrock. Possible Fill from 0 to 6 ft					Fill at grade. Dark brown return  Soil classifications noted based on wash from top of borehole
5							[Dotted pattern]	Tan Silty fine Sand (SM)					Tan return
10							[Dotted pattern]						
15							[Stippled pattern]	Gray Cobble					Gray return and chattering from 16 to 17 ft
20							[Dotted pattern]	Tan Silty fine Sand (SM)					Tan return

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# Log of Boring B-6c

<b>Project: North Broadway Assemblage</b>	<b>Project Number: 2019038</b>
<b>Location: 25 Overlook Terrace, Yonkers, NY</b>	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20													
25								Boring collapsing at 24 feet. Bedrock not encountered. Backfilled with soil cuttings upon completion					
30													
35													
40													

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ

# Log of Boring B-7

<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>	
<b>Location: 16 Overlook Terrace, Yonkers, NY</b>					
Date(s) Drilled	11/12/19 - 11/13/19	Inspector	Michael Torino, P.E. / Aflaaz Saleem	Coordinates <b>North:</b>	
Drilling Agency	Siteworks, Inc	Foreman	Hector	Approximate Surface Elevation (feet) <b>± 104</b>	
Drilling Equipment	Furukawa Track Rig	Drilling Method	Air Hammer	Completion Depth (feet) <b>22.0</b>	Rock Depth (feet) <b>11.0</b>
Casing Size/Type	NA	Size/Type of Bit	3-7/8" Rock Hammer	Sampler Type(s) <b>NA</b>	
Groundwater Level and Date Measured	NA	Hammer Wt/Drop	NA	Casing Hammer Wt/Drop	NA
Boring Location <b>See Boring Location Plan (Figure 1)</b>				No. of Samples <b>Dist.: 0 Undist.: 0 Core (ft): 0</b>	


Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								Advanced with air hammer directly to top of bedrock. Dark brown Sand (SP)					Dark brown return
5													Soil classifications noted based on wash from top of borehole
10													
15								Possible Gray Mica Schist from 11 to 22 ft. Attempted to video borehole with HD down-the-hole camera, but unable to see					Gray return and Hard drilling from 11 to 22 ft 3" PVC added to boring to hold open
20													

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ



# Log of Boring B-7

<b>Project: North Broadway Assemblage</b>	<b>Project Number: 2019038</b>
<b>Location: 16 Overlook Terrace, Yonkers, NY</b>	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)		REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)					Water Cont. (%)	% Fines	
20													
25								Boring Completed to 22 ft below ground and backfilled with Soil cuttings.					
30													
35													
40													

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ

# Log of Boring B-8


<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>	
<b>Location: 16 Overlook Terrace, Yonkers, NY</b>					
Date(s) Drilled	11/13/19 - 11/13/19	Inspector	Michael Torino, P.E. / Aflaaz Saleem		Coordinates North: East:
Drilling Agency	Siteworks, Inc	Foreman	Hector		Approximate Surface Elevation (feet) ± 94
Drilling Equipment	Furukawa Track Rig	Drilling Method	Air Hammer		Completion Depth (feet) 21.0    Rock Depth (feet) 6.8
Casing Size/Type	NA	Size/Type of Bit	3-7/8" Rock Hammer		Sampler Type(s) NA
Groundwater Level and Date Measured	NA NA	Hammer Wt/Drop	NA	Casing Hammer Wt/Drop	NA
Boring Location See Boring Location Plan (Figure 1)					No. of Samples Dist.: 0    Undist.: 0    Core (ft): 0

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								Advanced with air hammer directly to top of bedrock. Dark brown Sand (SP)					Dark brown return
5								Gray Cobble Tan Silty medium to fine Sand (SM)					Tan return from 5 to 8 ft
10								Heavily fractured Gray Mica Schist Gray Mica Schist, few fractures					Gray return and Hard drilling from 8 to 21 ft
15													Used HD Down the hole camera to video boring to a depth of 13.5 ft. Heavily fractured mica schist was seen from 6.8 to 8.5 ft and competent mica schist from 8.5 to 13.5 ft
20													Groundwater observed on video at 13.5 ft. Unable to see below water.

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ

# Log of Boring B-8

<b>Project: North Broadway Assemblage</b>	<b>Project Number: 2019038</b>
<b>Location: 16 Overlook Terrace, Yonkers, NY</b>	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)		REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)					Water Cont. (%)	% Fines	
20													
25								Boring completed to 21 ft below ground, and backfilled with Soil cuttings.					
30													
35													
40													

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ

# Log of Boring B-9a

<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>	
<b>Location: 16 Overlook Terrace, Yonkers, NY</b>					
Date(s) Drilled	11/13/19 - 11/13/19	Inspector	Michael Torino, P.E. / Aflaaz Saleem		Coordinates North: East:
Drilling Agency	Siteworks, Inc	Foreman	Hector		Approximate Surface Elevation (feet) ± 93
Drilling Equipment	Furukawa Track Rig	Drilling Method	Air Hammer		Completion Depth (feet) 24.0    Rock Depth (feet) NA
Casing Size/Type	NA	Size/Type of Bit	3-7/8" Rock Hammer		Sampler Type(s) NA
Groundwater Level and Date Measured	NA NA	Hammer Wt/Drop	NA	Casing Hammer Wt/Drop	NA
Boring Location See Boring Location Plan (Figure 1)					No. of Samples Dist.: 0    Undist.: 0    Core (ft): 0

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								Advanced with air hammer directly to top of bedrock. Dark brown Sand (SP)					Dark brown return  Soil classifications noted based on wash from top of borehole
5								Gray boulders and cobbles					Gray return and rig chatter from 5 to 12 ft
10								Tan Silty medium to fine Sand (SM)					Tan return
15													
20													

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ

# Log of Boring B-9a

<b>Project: North Broadway Assemblage</b>	<b>Project Number: 2019038</b>
<b>Location: 16 Overlook Terrace, Yonkers, NY</b>	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS	
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)								
20							[Dotted pattern]							
25								Boring collapsing at 24 feet. Bedrock not encountered. Backfilled with soil cuttings upon completion						
30														
35														
40														

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ

# Log of Boring B-9b

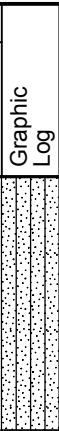
<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>	
<b>Location: 16 Overlook Terrace, Yonkers, NY</b>					
Date(s) Drilled	11/13/19 - 11/13/19	Inspector	Michael Torino, P.E. / Aflaaz Saleem		Coordinates North: East:
Drilling Agency	Siteworks, Inc	Foreman	Hector		Approximate Surface Elevation (feet) ± 93
Drilling Equipment	Furukawa Track Rig	Drilling Method	Air Hammer		Completion Depth (feet) 24.0    Rock Depth (feet) NA
Casing Size/Type	NA	Size/Type of Bit	3-7/8" Rock Hammer		Sampler Type(s) NA
Groundwater Level and Date Measured	NA NA	Hammer Wt/Drop	NA	Casing Hammer Wt/Drop	NA
Boring Location See Boring Location Plan (Figure 1)					No. of Samples Dist.: 0    Undist.: 0    Core (ft): 0

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								Advanced with air hammer directly to top of bedrock. Dark brown Sand (SP)					Dark brown return  Soil classifications noted based on wash from top of borehole
5								Gray boulders and cobbles					Gray return and rig chatter from 5 to 12 ft
10								Tan Silty medium to fine Sand (SM)					Tan return
15													
20													

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ

# Log of Boring B-9b

<b>Project: North Broadway Assemblage</b>	<b>Project Number: 2019038</b>
<b>Location: 16 Overlook Terrace, Yonkers, NY</b>	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS	
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)								
20														
25								Boring collapsing at 24 feet. Bedrock not encountered. Backfilled with Soil cuttings upon completion.						
30														
35														
40														

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ

# Log of Boring B-9c

<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>			
<b>Location: 16 Overlook Terrace, Yonkers, NY</b>							
Date(s) Drilled	11/13/19 - 11/13/19		Inspector	Michael Torino, P.E. / Aflaaz Saleem		Coordinates <b>North:</b>	
Drilling Agency	Siteworks, Inc		Foreman	Hector		Approximate Surface Elevation (feet) <b>± 93</b>	
Drilling Equipment	Furukawa Track Rig		Drilling Method	Air Hammer		Completion Depth (feet)	Rock Depth (feet)
Casing Size/Type	NA		Size/Type of Bit	3-7/8" Rock Hammer		Sampler Type(s)	NA
Groundwater Level and Date Measured	NA		Hammer Wt/Drop	NA	Casing Hammer Wt/Drop	NA	NA
Boring Location <b>See Boring Location Plan (Figure 1)</b>						No. of Samples <b>Dist.: 0 Undist.: 0 Core (ft): 0</b>	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0							[Dotted pattern]	Advanced with air hammer directly to top of bedrock. Dark brown Sand (SP)					Dark brown return  Soil classifications noted based on wash from top of borehole
5							[Boulders pattern]	Gray boulders and cobbles					Gray return and rig chatter from 5 to 10 ft
10							[Vertical lines pattern]	Tan Silty medium to fine Sand (SM)					Tan return
15							[Vertical lines pattern]	Boring collapsing at 15 feet. Bedrock not encountered. Backfilled with soil cuttings upon completion					
20							[Vertical lines pattern]						

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ



# Log of Boring B-9d

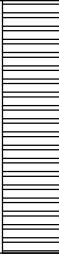
<b>Project: North Broadway Assemblage</b>				<b>Project Number: 2019038</b>	
<b>Location: 16 Overlook Terrace, Yonkers, NY</b>					
Date(s) Drilled	11/13/19 - 11/13/19	Inspector	Michael Torino, P.E. / Aflaaz Saleem	Coordinates <b>North:</b> <b>East:</b>	
Drilling Agency	Siteworks, Inc	Foreman	Hector	Approximate Surface Elevation (feet) <b>± 94</b>	
Drilling Equipment	Furukawa Track Rig	Drilling Method	Air Hammer	Completion Depth (feet)	24.0
Casing Size/Type	NA	Size/Type of Bit	3-7/8" Rock Hammer	Rock Depth (feet)	NA
Groundwater Level and Date Measured	NA	Hammer Wt/Drop	NA	Casing Hammer Wt/Drop	NA
Boring Location <b>See Boring Location Plan (Figure 1)</b>				No. of Samples	Dist.: 0 Undist.: 0 Core (ft): 0

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								Advanced with air hammer directly to top of bedrock. Dark brown Sand (SP)					Dark brown return  Soil classifications noted based on wash from top of borehole
5								Tan Silty medium to fine Sand (SM)					Tan return
10								Possible decomposed bedrock					Gray return from 24 ft
15													
20													

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ

# Log of Boring B-9d

<b>Project: North Broadway Assemblage</b>	<b>Project Number: 2019038</b>
<b>Location: 16 Overlook Terrace, Yonkers, NY</b>	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)		REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)					Water Cont. (%)	% Fines	
20													
25								Boring Completed to 24 ft. Unable to video due to hole collapse to 13.3 ft. Backfilled with soil cuttings upon completion					Hole collapsing while drilling at 24 ft
30													
35													
40													

Template: GENERAL GES LOGO Proj ID: NORTH BROADWAY ASSEMBLAGE.GPJ