WHITESTONE

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August 15, 2022

via email

ROSEN ASSOCIATES MANAGEMENT CORPORATION
33 South Service Road
Jericho, New York 11753

Attention: Mr. John Bernabeo
Director of Construction

Regarding: LIMITED GEOTECHNICAL INVESTIGATION
PEARL RIVER SHOPPING CENTER
100 NORTH MIDDLETOWN ROAD
PEARL RIVER, ROCKLAND COUNTY, NEW YORK
WHITESTONE PROJECT NO.: GJ2219284.Y00

Dear Mr. Bernabeo:

Whitestone Associates Engineering & Geology NY, PLLC (Whitestone) has completed a limited geotechnical investigation at the above-referenced site. The purpose of the investigation was to evaluate the existing subsurface conditions and provide limited geotechnical recommendations in support of the proposed renovations to a portion of an existing strip mall. Whitestone's scope of services consisted of conducting soil borings, evaluating the conditions encountered, and developing geotechnical recommendations for the proposed foundations, floor slab, and related earthwork.

1.0 PROJECT DESCRIPTION

1.1 Site Location and Existing Conditions

The subject site located at 100 North Middletown Road in Pearl River, Rockland County, New York currently houses a strip mall with associated pavements, landscaping, and utilities. An approximately 12,728-square feet portion of the strip mall was damaged in a fire and partially demolished. The remains consist of an approximately 12-feet deep basement constructed of cast-in-place concrete footings, foundation walls, and a slab-on-grade. Prior to Whitestone's investigation, the superstructure in the fire-damaged portion of the building had been removed and the former fit-out within the basement had been stripped.

1.2 Site Geology

The subject site is situated within the Manhattan Prong of the New England Uplands Physiographic Province of the Northeastern United States. The site reportedly is underlain by the Upper Triassic-aged Brunswick Formation, a part of the Newark Group. This formation generally consists of sandstone and, to a lesser extent, conglomerate. Overburden materials in the region also typically include glacial deposits associated with Wisconsinan Glaciation that reached its most southerly advance approximately 20,000 years ago. Overlying materials also include manmade fill associated with past and present development of the site.

1.3 Proposed Construction

Based on the information provided by Rosen Associates Management Corporation, the proposed redevelopment is anticipated to include constructing one-story slab-on-grade retail spaces with conventional shallow foundations at frost depth within the demolished portion of the building. Fill will be placed within the demolished portion of the building to raise grades to elevations consistent with the surrounding building. No new retaining walls or stormwater management areas are anticipated.

Detailed structural loading information has not been provided. Whitestone anticipates that maximum column, wall, and floor loads will be less than 100 kips, 2.0 kips per linear foot, and 125 pounds per square foot, respectively. Any revisions or additions to the design details enumerated in this report should be brought to the attention of Whitestone for additional evaluation as warranted.

2.0 FIELD EXPLORATION & LABORATORY WORK

2.1 Field Exploration

Field exploration at the project site was conducted by means of three soil test borings (identified as B-1 through B-3) using a Dietrich D50 track-mounted drill rig with hollow stem auger drilling and split-spoon sampling techniques. The borings were conducted adjacent to the proposed building renovation and terminated at depths ranging from approximately 17.8 feet below ground surface (fbgs) to 25.8 fbgs.

The subsurface tests conducted by Whitestone subsequently were backfilled to the surface with excavated soils from the investigation and surficially restored with asphaltic concrete cold patch. The locations of the subsurface tests are shown on the accompanying *Boring Location Plan* included as Figure 1. *Records of Subsurface Exploration* are provided in Appendix A.

The subsurface tests were conducted in the presence of a Whitestone engineer who conducted field tests, recorded visual classifications, and collected samples of the various strata encountered. The tests were located in the field using normal taping procedures and estimated right angles. These locations are presumed to be accurate within a few feet.

Soil borings and Standard Penetration Tests (SPTs) were conducted in general accordance with ASTM International (ASTM) designation D 1586. The SPT resistance value (N) can be used as an indicator of the consistency of fine-grained soils and the relative density of coarse-grained soils. The N-value for various soil types can be correlated with the engineering behavior of earthworks and foundations.

Groundwater level observations, where encountered, were recorded during and immediately after the completion of field operations prior to backfilling the tests. Seasonal variations, temperature effects, man-made effects, and recent rainfall conditions may influence the levels of the groundwater, and the observed levels will depend on the permeability of the soils. Groundwater elevations derived from sources other than seasonally observed groundwater monitor wells may not be representative of true groundwater levels.

2.2 Laboratory Program

A representative sample of a selected stratum encountered was subjected to a laboratory program that included moisture content determinations (ASTM D-2216) and washed gradation analyses (ASTM D-422) in order to conduct supplementary engineering soil classifications in general accordance with ASTM D-2487. The soil stratum tested was classified by the Unified Soil Classification System (USCS) and results of the laboratory testing are summarized in the following table. Quantitative test results are provided in Appendix B.

PHYSICAL/TEXTURAL ANALYSES SUMMARY							
Boring	**Sample**	**Depth (fbgs)**	**% Passing No. 200 Sieve**	**Moisture Content (%)**	**Liquid Limit (%)**	**Plastic Index (%)**	**USCS Classification**
B-2	S-4	7.0 - 9.0	18.6	5.4	Non-Plastic		SM

3.0 SUBSURFACE CONDITIONS

The subsurface soil conditions encountered within the subsurface tests consisted of the following generalized strata in order of increasing depth. *Records of Subsurface Exploration* are provided in Appendix A.

Surface Materials: The subsurface tests were conducted within existing paved areas. Borings B-1 and B-3 encountered approximately six inches of Portland cement concrete underlain by approximately four inches of gravel subbase. Boring B-2 encountered approximately seven inches of asphaltic concrete underlain by approximately six inches of gravel subbase.

Existing Fill: Underlying the surface cover, the borings encountered existing fill consisting of silty sand and sandy silt with variable amounts of gravel. Within the borings, the existing fill extended to a depth of approximately five fbgs. The SPT N-values recorded within this stratum ranged between four blows per foot (bpf) and 16 bpf and averaging approximately 12 bpf.

Glacial Deposits: Beneath the existing fill, the borings encountered natural glacial deposits generally consisting of a mixture of sand, silt, and gravel (USCS: SP-SM, SM, and ML). Within the borings, the glacial deposits extended to depths ranging from approximately 12 fbgs to 13.5 fbgs. SPT N-values within coarse-grained portions of this stratum ranged between 36 bpf and 100 bpf, generally indicating dense to very dense relative densities and averaging approximately 57 bpf.

Weathered Rock: Underlying the glacial deposits, the borings encountered weathered rock. The top of weathered rock was encountered at depths ranging from approximately 12 fbgs to 13.5 fbgs. The borings were terminated within the weathered rock or at the weathered rock/bedrock interface at depths ranging from approximately 17.8 fbgs and 25.8 fbgs. SPT N-values within this stratum generally were in the refusal range (refusal defined as greater than 50 blows per six inches of split-spoon sampler advancement).

Groundwater: Static groundwater was encountered borings B-1 and B-2 at depths of approximately 20 fbgs and 15 fbgs, respectively. Groundwater levels should be expected to fluctuate seasonally and following periods of precipitation.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Whitestone's findings indicate the proposed building fit-out may be supported on conventional spread and isolated column foundations and ground-supported floor slabs designed to bear within the compacted structural fill and/or backfill placed to raise or restore design elevations and/or underlying natural site soils.

The following recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions encountered within the limited exploration. If there are any significant changes to the project characteristics or if significantly different subsurface conditions are encountered during construction, Whitestone should be consulted so that the recommendations of this report can be reviewed.

4.1 Site Preparation & Earthwork

Surface Cover Stripping and Demolition: Prior to stripping operations, all utilities should be identified and secured. The existing pavements to be demolished and stripped, if required, should be removed from within the limits of areas requiring structural fill. Existing structural elements, such as foundation walls, or any concrete foundations, walls or slabs encountered during excavations, should be removed entirely from below proposed foundations and their zones of influence (as determined by lines extending at least one foot laterally beyond footing edges for each vertical foot of depth) and excavated to at least two feet below proposed construction subgrade levels elsewhere. Foundations and slabs may remain in place below these depths beneath proposed ground-supported slabs, pavements, and landscaped areas provided there is no interference with future construction. Any existing slab to remain should be thoroughly broken such that maximum particle size is 12 inches to allow vertical drainage of water. The demolition contractor should be required to conduct all earthwork in accordance with the recommendations in this report including backfilling any excavation, utility, etc. with structural fill. All fill or backfill placed in structural areas during any demolition operations should be placed as structural fill in accordance with Section 4.2 of this report.

Surface Preparation: Prior to placing any fill or subbase materials to raise or restore grades to the desired subgrade elevations, the existing exposed soils should be compacted to a firm surface with several passes in two perpendicular directions of a minimum 10-ton roller. The roller should be operated in the static mode or a kneading "sheepsfoot" roller should be used if silt and/or clay soils are encountered at subgrade elevations. The surface then should be proofrolled with a loaded tandem axle truck in the presence of the geotechnical engineer to help identify soft or loose pockets which may require removal and replacement or further investigation. Proofrolling should be conducted after a suitable period of dry weather to avoid degrading an otherwise stable subgrade. Any fill or backfill should be placed and compacted in accordance with Section 4.2.

Weather Performance Criteria: Because the site soils may soften when exposed to water, every effort must be made to maintain drainage of surface water runoff away from construction areas by grading and limiting the exposure of excavations and prepared subgrades to rainfall. Accordingly, excavation and fill placement procedures should be conducted during favorable weather conditions. Overexcavation of saturated soils and replacement with controlled structural fill per Section 4.2 of this report may be required prior to resuming work on disturbed subgrade soils.

4.2 Structural Fill and Backfill

Imported Fill Material: Any imported material placed as structural fill or backfill to restore design grades should consist of clean, relatively well graded sand or gravel with a maximum particle size of three inches and five percent to 15 percent of material finer than a #200 sieve. Silts, clays, and silty or clayey sands and gravels with higher percentage of fines and with a liquid limit less than 40 and a plasticity index less than 20 may be considered subject to the owner's approval, provided that the required moisture content and compaction controls are met. The material should be free of clay lumps, organics, and deleterious material. Any imported structural fill material should be approved by a qualified geotechnical engineer prior to delivery to the site.

Soil Reusability: Whitestone anticipates that the majority of the existing fill and underlying natural site soils will be suitable for selective reuse as structural backfill materials provided that any deleterious/objectionable debris encountered are segregated and moisture contents are controlled within two percent of the optimum moisture content. Reuse of the existing fill will be contingent on careful inspection by the owner's geotechnical engineer during construction. The reuse of the fine-grained and granular soils with a high percentage of plastic fines typically is possible only during ideal weather conditions. Reuse of these soils may require mixing with a more granular material, extensive moisture conditioning, and/or drying to facilitate their reuse, workability, and compaction in fill areas.

Alternatively, imported materials may be required to expedite earthwork operations, especially if the construction schedule or the site area restricts moisture control operations, such as spreading and air drying the soil.

Compaction and Placement Requirements: All fill and backfill should be placed in maximum nine-inch loose lifts and compacted to 95 percent of the maximum dry density within two percent of the optimum moisture content as determined by ASTM D 1557 (Modified Proctor). Whitestone recommends using a small hand-held vibratory compactor to compact the on-site soils within any footing excavations.

4.3 Foundation Design Criteria

Whitestone recommends supporting the proposed structures on conventional spread and isolated column foundations designed to bear within the compacted structural fill and/or backfill placed to raise or restore design elevations and/or underlying natural site soils provided these materials are properly evaluated, placed, and compacted in accordance with this report. Foundations bearing within these may be designed using a maximum allowable net bearing pressure of 4,000 pounds per square foot (psf). Additionally, based on the borings completed and depths of the existing foundations, the site soils located beneath the existing foundations indicated an in-situ bearing pressure of 4,000 psf.

Regardless of loading conditions, proposed foundations should be sized no less than minimum dimensions of 24 inches for continuous wall footings and 36 inches for isolated column footings. All footing bottoms should be improved by in-trench compaction in the presence of the geotechnical engineer immediately prior to concrete placement.

Seismic Site Class: Based on a review of the subsurface conditions relevant to the *2020 International Building Code - New York Edition*, the subject site has been assigned a Site Class C. Liquefaction is not anticipated to substantially impact design.

Inspection/Overexcavation Criteria: Whitestone recommends that the suitability of the bearing soils along the footing bottoms be verified by a geotechnical engineer immediately prior to placing concrete for the footings. In the event that areas of unsuitable materials are encountered, additional overexcavation and replacement of the materials may be necessary to provide a suitable footing subgrade. Any overexcavation to be restored with structural fill will need to extend at least one foot laterally beyond footing edges for each vertical foot of overexcavation. Lateral overexcavation may be eliminated if grades are restored with lean concrete. The bottom of overexcavations should be compacted with walk-behind compactors, vibrating plates, or plate tampers ("jumping jacks"), as appropriate, to compact locally disturbed materials.

Settlement: Whitestone estimates post construction settlements of proposed foundations on the order of less than one inch if the recommendations outlined in this report are properly implemented. Differential settlements of foundations should be less than one-half inch.

Frost Coverage/Adjacent Foundations: Footings subject to frost action should be placed at least 42 inches below adjacent exterior grades or the depth required by local building codes to provide protection from frost penetration. Interior footings not subject to frost action may be placed at a minimum depth of 18 inches below the slab subgrade. Foundations in areas adjacent to the existing building will require special consideration. New footings should be bear at the same elevation as the adjacent foundations. Care should be exercised during construction to avoid undermining the existing foundations.

4.4 Slabs

Whitestone anticipates that the compacted structural fill and/or backfill placed to raise or restore design elevations and/or underlying natural materials will be suitable for support of the proposed slabs provided these materials are properly evaluated, compacted, and proofrolled during favorable weather conditions. Any areas that become softened or disturbed as a result of wetting and/or repeated exposure to construction traffic shall be removed and replaced with compacted structural fill. The properly prepared on-site soils are expected to yield a minimum subgrade modulus (k) of 150 psi/in.

A minimum four-inch layer of open-graded stone should be installed below the floor slabs to provide a capillary break. An impervious membrane should also be provided as a moisture vapor barrier beneath all floor slabs. Post construction settlements of floor slabs installed in accordance with the recommendations outlined in this report are estimated to be on the order of one-quarter inch.

5.0 SUPPLEMENTAL POST INVESTIGATION SERVICES

Construction Phase Testing and Inspection: The owner's geotechnical engineer with specific knowledge of the subsurface conditions and design intent should conduct inspection, testing, and consultation during construction as described in previous sections of this report. The owner's geotechnical engineer should also witness and document the proofrolling of subgrades prior to foundation and floor slab support. Monitoring and testing should also be conducted immediately prior to placing concrete in order to verify that the prepared subgrade soils are suitable for support.

6.0 CLOSING

Whitestone appreciates the opportunity to be of service to Rosen Associates Management Corporation. Please note that Whitestone has the capability to conduct the additional geotechnical engineering services recommended herein. Please contact us with any questions or comments regarding this report.

WHITESTONE

Mudar Khantamr, P.E.
Associate

Laurence W. Keller, P.E.
Vice President

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Enclosures

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FIGURE 1
Boring Location Plan

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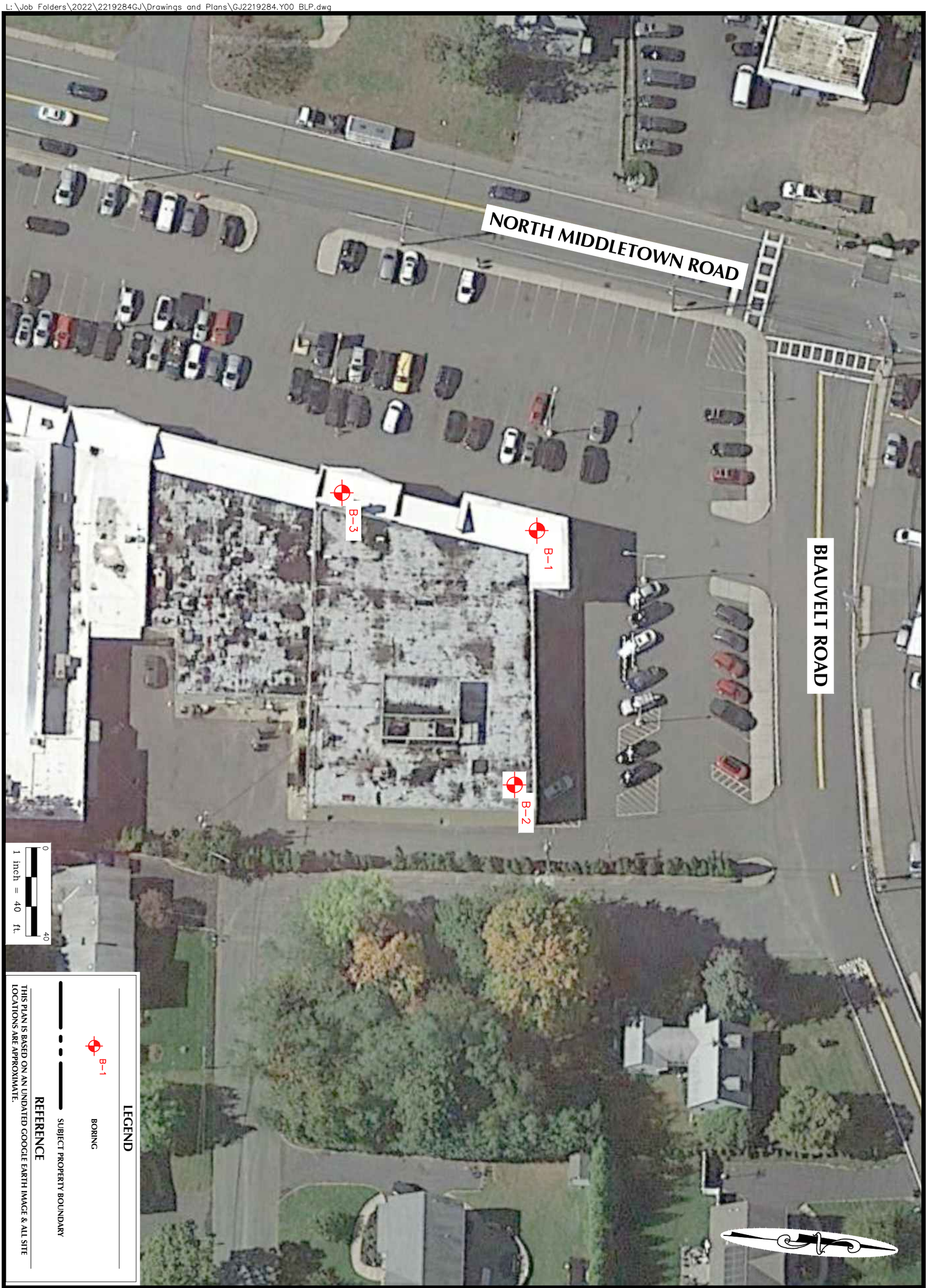

PROJECT #: GJ2219284.Y00
DESIGNED BY: GR
DATE: 8/15/22
SCALE: 1" = 40'
PROJ. MGR.: MK
FIGURE: 1

DRAWING TITLE:
BORING LOCATION PLAN

CLIENT:
ROSEN ASSOCIATES MANAGEMENT CORPORATION

PROJECT:
PEARL RIVER SHOPPING CENTER
100 NORTH MIDDLETOWN ROAD
PEARL RIVER, ROCKLAND COUNTY, NY

WHITESTONE
An Employee-Owned Company
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APPENDIX A
Records of Subsurface Exploration

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RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-1

Project:	Pearl River Shopping Center	**WAI Project No.:**	GJ2219284.Y00
Location:	100 North Middletown Road; Pearl River, Rockland County, NY	**Client:**	Rosen Associates Management Corp.
Surface Elevation:	± NS feet	**Date Started:**	8/1/2022
Termination Depth:	25.8 feet bgs	**Date Completed:**	8/1/2022
Proposed Location:	Building Pad	**Logged By:**	CMP
Drill / Test Method:	HSA / SPT	**Contractor:**	GB
		Equipment:	Dietrich D50

	Water Depth (feet bgs)	Elevation (feet)	Cave-In Depth (feet bgs)	Elevation (feet)
During:	20.0	---		
At Completion:	---	---	**At Completion:**	--- / ---
24 Hours:	---	---	**24 Hours:**	--- / ---

Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	DEPTH (feet)	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
						0.0			
						0.9	CONCRETE	6" Concrete	
							FILL	4" Gravel Subbase	
1 - 3	S-1		4 - 5 - 11 - 13	10	16			Light Brown Silty Medium to Coarse Sand, Some Fine Gravel, Dry (Fill)	
						3.0			
3 - 5	S-2		15 - 8 - 8 - 9	18	16			Light Gray Silt, Some Fine to Medium Sand, Trace Fine Gravel, Dry (Fill)	
						5.0			
5 - 7	S-3		8 - 20 - 16 - 27	20	36		GLACIAL DEPOSITS	Light Gray Silty Medium to Coarse Sand, Some Fine Gravel, Dry, Dense (SM)	
7 - 9	S-4		45 - 50 - 50 - 49	18	100			As Above, Very Dense (SM)	
						10.0			Hard Augering 9.0 fbgs to 10.0 fbgs
10 - 12	S-5		11 - 18 - 28 - 38	18	46			Light Brown Fine Poorly Graded Sand with Silt, Moist, Dense (SP-SM)	
						13.5			
							WEATHERED ROCK		Very Hard Augering @ 13.5 fbgs
						15.0			
15 - 17	S-6		23 - 50 - 33 - 57	11	83			Weathered Rock Sampled as Reddish-Brown Silty Fine to Medium Sand, Trace Fine Gravel, Moist, Very Dense (WR)	
						20.0			
20 - 20.8	S-7		50 - 50/3"	9	50/3"			As Above, Wet (WR)	
						25.0			

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-1

Project:	Pearl River Shopping Center	**WAI Project No.:**	GJ2219284.Y00
Location:	100 North Middletown Road; Pearl River, Rockland County, NY	**Client:**	Rosen Associates Management Corp.

Surface Elevation:	± NS feet	**Date Started:**	8/1/2022	**Water Depth (feet bgs) | Elevation (feet)**		**Cave-In Depth (feet bgs) | Elevation (feet)**	
Termination Depth:	25.8 feet bgs	**Date Completed:**	8/1/2022				
Proposed Location:	Building Pad	**Logged By:**	CMP	**During:**	20.0 | ---		
Drill / Test Method:	HSA / SPT	**Contractor:**	GB	**At Completion:**	--- | ---	**At Completion:**	--- | ---
		Equipment:	Dietrich D50	**24 Hours:**	--- | ---	**24 Hours:**	--- | ---

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						25.0				
25 - 25.8	S-8	X	30 - 50/4"	10	50/4"	25.8	WEATHERED ROCK		As Above, Weathered Rock Sampled as Reddish-Brown Silty Fine to Medium Sand, Trace Fine Gravel, Wet, Very Dense (WR)	
									Boring Log B-1 Terminated at a Depth of 25.8 Feet Below Ground Surface	
						30.0				
						35.0				
						40.0				
						45.0				
						50.0				

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WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-2

Page 1 of 1

Project:	Pearl River Shopping Center	**WAI Project No.:**	GJ2219284.Y00
Location:	100 North Middletown Road; Pearl River, Rockland County, NY	**Client:**	Rosen Associates Management Corp.
Surface Elevation:	± NS feet	**Date Started:**	8/1/2022
Termination Depth:	17.8 feet bgs	**Date Completed:**	8/1/2022
Proposed Location:	Building Pad	**Logged By:**	CMP
Drill / Test Method:	HSA / SPT	**Contractor:**	GB
		Equipment:	Dietrich D50

Water Depth | Elevation (feet bgs) | (feet)		Cave-In Depth | Elevation (feet bgs) | (feet)	
During:	15.0 | ---		
At Completion:	--- | ---	**At Completion:**	--- | ---
24 Hours:	--- | ---	**24 Hours:**	--- | ---

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
							PAVEMENT		7" Asphalt	
						1.1	FILL		6" Gravel Subbase	
1 - 3	S-1		3 - 5 - 9 - 8	16	14				Brown Silty Medium to Coarse Sand, Some Fine to Coarse Gravel, Moist (Fill)	
3 - 5	S-2		7 - 6 - 9 - 13	16	15				As Above (Fill)	
						5.0				
5 - 7	S-3		12 - 19 - 19 - 25	18	38		GLACIAL DEPOSITS		Brown Silty Sand, Moist, Dense (SM)	Hard Augering 5.0 fbgs to Refusal
7 - 9	S-3		30 - 29 - 33 - 31	24	62				As Above, Very Dense (SM)	
9 - 11	S-5		14 - 19 - 26 - 22	22	45	10.0			As Above, Dense (SM)	
						12.0				
							WEATHERED ROCK			
						15.0				
15 - 15.2	S-6		50/2"	2	50/2"				Weathered Rock Sampled as Reddish-Brown Silty Coarse to Medium Sand with Some Fine to Coarse Gravel, Very Moist to Wet, Very Dense (WR)	Wet Spoon
17 - 17.8	S-7		35 - 50/3"	NR	50/3"	17.8			No Recovery, Presumed As Above (WR)	
									Boring Log B-2 Terminated at a Depth of 17.8 Feet Below Ground Surface Due to Auger Refusal	
						20.0				
						25.0				

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WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-3

Project:	Pearl River Shopping Center	**WAI Project No.:**	GJ2219284.Y00
Location:	100 North Middletown Road; Pearl River, Rockland County, NY	**Client:**	Rosen Associates Management Corp.
Surface Elevation:	± NS feet	**Date Started:**	8/1/2022
Termination Depth:	25.1 feet bgs	**Date Completed:**	8/1/2022
Proposed Location:	Building Pad	**Logged By:**	CMP
Drill / Test Method:	HSA / SPT	**Contractor:**	GB
		Equipment:	Dietrich D50

	Water Depth (feet bgs)	Elevation (feet)	Cave-In Depth (feet bgs)	Elevation (feet)
During:	NE	---		
At Completion:	---	---	**At Completion:**	--- / ---
24 Hours:	---	---	**24 Hours:**	--- / ---

Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	DEPTH (feet)	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
						0.0			
						0.9	CONCRETE	6" Concrete	
							FILL	4" Gravel Subbase	
1 - 3	S-1	X	2 - 3 - 1 - 1	NR	4			No Recovery, Presumed As Below (FILL)	
3 - 5	S-2	X	2 - 3 - 6 - 9	19	9			Light Gray Silt, Some Fine Sand, Trace Fine Gravel, Dry (FILL)	Mottles
						5.0			
5 - 7	S-3	X	27 - 30 - 34 - 23	20	64		GLACIAL DEPOSITS	Brown Silt with Sand, Moist, Very Dense (ML)	
8 - 10	S-4	X	8 - 17 - 19 - 10	23	36			As Above (ML)	
						9.5			
						10.0	GLACIAL DEPOSITS	Brown Silty Medium to Fine Sand, Moist, Dense (SM)	
						12.0			
							WEATHERED ROCK		Hard Augering 12.0 fbgs to E.O.B.
13 - 13.3	S-5	X	50/4"	NR	50/4"			No Recovery, Presumed As Below (WR)	
						15.0			
15 - 15.4	S-6	X	50/5"	3	50/5"			Weathered Rock Sampled as Reddish-Brown Silty Coarse to Medium Sand, Some Fine Gravel, Dry, Very Dense (WR)	
						20.0			
20 - 21.2	S-7	X	46 - 44 - 50/2"	14	94/8"			As Above, Very Dense (WR	
						25.0			

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WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-3

Project:	Pearl River Shopping Center	**WAI Project No.:**	GJ2219284.Y00
Location:	100 North Middletown Road; Pearl River, Rockland County, NY	**Client:**	Rosen Associates Management Corp.

				Water Depth | Elevation (feet bgs) | (feet)	Cave-In Depth | Elevation (feet bgs) | (feet)
Surface Elevation:	± NS feet	**Date Started:**	8/1/2022		
Termination Depth:	25.1 feet bgs	**Date Completed:**	8/1/2022		
Proposed Location:	Building Pad	**Logged By:**	CMP	**During:** NE | ---	
Drill / Test Method:	HSA / SPT	**Contractor:**	GB	**At Completion:** --- | ---	**At Completion:** --- | ---
		Equipment:	Dietrich D50	**24 Hours:** --- | ---	**24 Hours:** --- | ---

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						25.0	WEATHERED ROCK		As Above, Weathered Rock Sampled as Reddish-Brown Silty Coarse to Medium Sand, Some Fine Gravel, Dry, Very Dense (WR)	
25 - 25.1	S-8	X	50/1"	1	50/1"	25.1			Boring Log B-3 Terminated at a Depth of 25.1 Feet Below Ground Surface	
						30.0				
						35.0				
						40.0				
						45.0				
						50.0				

NOTES: bgs = below ground surface, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

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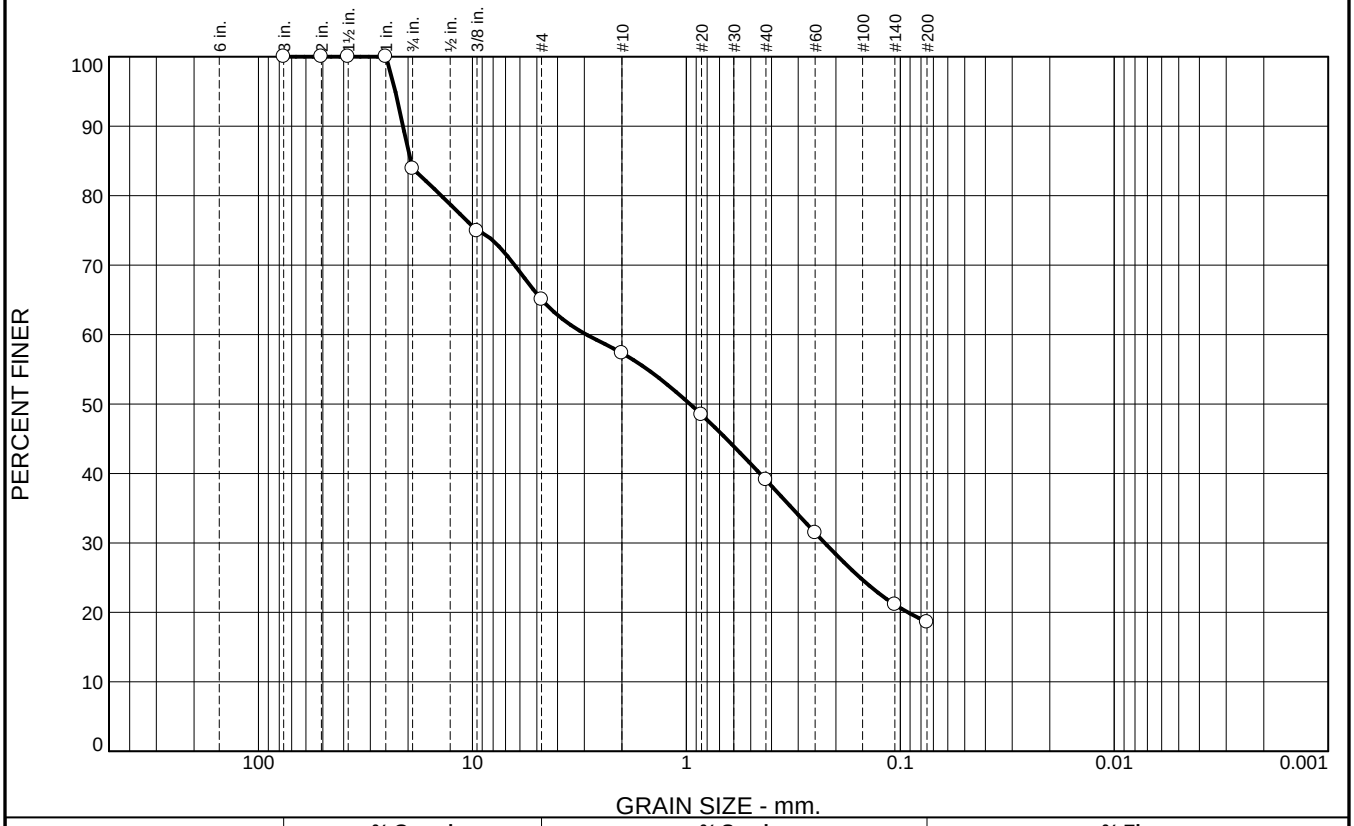
APPENDIX B
Laboratory Test Results

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	16.1	18.9	7.7	18.2	20.5	18.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
.75	83.9		
.375	74.9		
#4	65.0		
#10	57.3		
#20	48.5		
#40	39.1		
#60	31.4		
#140	21.1		
#200	18.6		

* (no specification provided)

Material Description

Silty Sand with Gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 21.1242 D_{85}= 19.4417 D_{60}= 2.9308
D_{50}= 0.9626 D_{30}= 0.2255 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

W_n = 5.4 %

Source of Sample: B-2 **Depth:** 7.0' - 9.0'
Sample Number: S-4

Date: 08/11/2022

WHITESTONE ASSOCIATES, INC.
Warren, New Jersey

Client: Rosen Associates Management Corporation
Project: Pearl River Shopping Center
100 North Middletown Road, Pearl River, Rockland County, NY
Project No: GJ2219284.Y00 **Figure**

WHITESTONE

APPENDIX C
Supplemental Information (USCS, Terms & Symbols)

WHITESTONE

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UNIFIED SOIL CLASSIFICATION SYSTEM

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMITS LESS THAN 50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMITS GREATER THAN 50	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS FOR SAMPLES WITH 5% TO 12% FINES

GRADATION*

% FINER BY WEIGHT

TRACE..... 1% TO 10%
LITTLE..... 10% TO 20%
SOME..... 20% TO 35%
AND..... 35% TO 50%

COMPACTNESS*
Sand and/or Gravel

RELATIVE DENSITY

LOOSE. ..... 0% TO 40%
MEDIUM DENSE.... 40% TO 70%
DENSE..... 70% TO 90%
VERY DENSE..... 90% TO 100%

CONSISTENCY*
Clay and/or Silt

RANGE OF SHEARING STRENGTH IN POUNDS PER SQUARE FOOT

VERY SOFT..... LESS THAN 250
SOFT..... ..... 250 TO 500
MEDIUM..... 500 TO 1000
STIFF..... 1000 TO 2000
VERY STIFF..... 2000 TO 4000
HARD..... GREATER THAN 4000

** VALUES ARE FROM LABORATORY OR FIELD TEST DATA, WHERE APPLICABLE. WHEN NO TESTING WAS PERFORMED, VALUES ARE ESTIMATED.*

L:\Geotechnical Forms and References\Reports\USCSTRMSSYM NJ.docx

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GEOTECHNICAL TERMS AND SYMBOLS

SAMPLE IDENTIFICATION

The Unified Soil Classification System is used to identify the soil unless otherwise noted.

SOIL PROPERTY SYMBOLS

N: Standard Penetration Value: Blows per ft. of a 140 lb. hammer falling 30" on a 2" O.D. split-spoon.
Qu: Unconfined compressive strength, TSF.
Qp: Penetrometer value, unconfined compressive strength, TSF.
Mc: Moisture content, %.
LL: Liquid limit, %.
PI: Plasticity index, %.
δd: Natural dry density, PCF.
▼: Apparent groundwater level at time noted after completion of boring.

DRILLING AND SAMPLING SYMBOLS

NE: Not Encountered (Groundwater was not encountered).
SS: Split-Spoon - 1 ⅜" I.D., 2" O.D., except where noted.
ST: Shelby Tube - 3" O.D., except where noted.
AU: Auger Sample.
OB: Diamond Bit.
CB: Carbide Bit
WS: Washed Sample.

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

Term (Non-Cohesive Soils)	Standard Penetration Resistance
Very Loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	Over 50

Term (Cohesive Soils)	Qu (TSF)
Very Soft	0 - 0.25
Soft	0.25 - 0.50
Firm (Medium)	0.50 - 1.00
Stiff	1.00 - 2.00
Very Stiff	2.00 - 4.00
Hard	4.00+

PARTICLE SIZE

Boulders	8 in.+	Coarse Sand	5mm-0.6mm	Silt	0.074mm-0.005mm
Cobbles	8 in.-3 in.	Medium Sand	0.6mm-0.2mm	Clay	-0.005mm
Gravel	3 in.-5mm	Fine Sand	0.2mm-0.074mm		

Other Office Locations:

CHALFONT, PA 215.712.2700 | SOUTHBOROUGH, MA 508.485.0755 | ROCKY HILL, CT 860.726.7889 | WALL, NJ 732.592.2101 | PHILADELPHIA, PA 215.848.2323 | BEDFORD, NH 603.514.2230 | TAMPA, FL 813.851.0690