WHITESTONE ASSOCIATES, INC.
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February 5, 2015

via email

THE HAMPSHIRE COMPANIES, LLC
22 Maple Avenue
Morristown, New Jersey 07960

Attention: Eric Helstrom, AIA, LEED AP
Senior Project Manager

Regarding: PRELIMINARY GEOTECHNICAL INVESTIGATION & STORMWATER MANAGEMENT AREA EVALUATION PROPOSED MOUNTAINSIDE HOSPITAL REDEVELOPMENT ONE BAY AVENUE BLOCK 4215, LOT 1 AND BLOCK 106, LOTS 15, 35 & 39 TOWNSHIP OF MONTCLAIR & BOROUGH OF GLEN RIDGE, ESSEX COUNTY, NEW JERSEY WHITESTONE PROJECT NO.: GJ1413224.000

Dear Mr. Helstrom:

Whitestone Associates, Inc. (Whitestone) has completed a preliminary geotechnical investigation and stormwater management (SWM) area evaluation at the above referenced site. The results of the limited evaluation and preliminary recommendations presented below are based on the soil conditions disclosed from a limited number of borings and test pits performed during Whitestone's field investigation. Recommendations for further investigation also are included herein.

The purpose of the preliminary subsurface soils investigation was to assess anticipated geologic features, shallow groundwater and/or estimated seasonal high groundwater, existing fill, and the potential feasibility of shallow foundations and/or expected earthwork requirements. While the scope of this preliminary investigation will not be sufficient to formulate detailed design recommendations and a more comprehensive geotechnical investigation ultimately will be required, this preliminary investigation may be used to assess potentially development impactive geotechnical issues to support preliminary studies regarding the feasibility of developing the property.

1.0 SUMMARY OF FINDINGS

In general, the subsurface conditions preliminarily indicate conditions suitable for shallow foundation design. The exploration indicated the presence of cobbles and boulders and areas of moisture-sensitive soils that will impact the planned construction. Based on past experience, earthwork activities will require soil moisture control efforts. Excavation difficulties due to the presence of cobbles and boulders are expected at depths as shallow as eight feet below ground surface (fbgs) which may impact the installation of deeper foundations and utilities. Depending on the time of year of construction, site work should anticipate overexcavation of moisture sensitive soils in structural areas, using mechanical and/or chemical subgrade stabilization techniques, and exercising detailed attention to construction methods while maintaining strict moisture control. In addition, existing fill materials containing variable amounts of objectionable debris were encountered to a depth of up to four feet that will require overexcavation below foundations.

2.0 PROJECT DESCRIPTION

2.1 Site Location and Existing Conditions

The subject site is located at One Bay Avenue in the Township of Montclair and the Borough of Glen Ridge, Essex County, New Jersey and is further identified as Block 4215, Lot 1 and Block 106, Lots 15, 35 and 39. The site currently is developed with a one- and three-story medical/education masonry building within the Mountainside Hospital complex with associated pavements, courtyard, concrete walkways, landscaping and utilities. The building has a full depth basement with variable heights. At the time of Whitestone's preliminary investigation, the building was observed to be in good structural condition. The existing building occupied the majority of the proposed building footprint. The existing pavements were observed to be in fair structural condition with areas of cracking, potholes and patches. At the time of Whitestone's investigation, the subject site was serviced aboveground by electric, cable and telephone lines and underground by electric, telephone, cable, fiber optic, water, natural gas, stormwater and sanitary sewer lines.

The site is bound to the north by Roswell Terrace followed by residential buildings; to the west by Walnut Crescent followed by residential buildings; to the east by residential buildings followed by Sherman Avenue; and to the south by Bay Avenue followed by Mountainside Hospital. Based on the September 16, 2014 *Boundary & Topographic Survey* prepared by Control Point Associates, Inc., the subject property has an elevation change of approximately 15 feet across the site. More specifically, the area of the proposed building has an elevation change of approximately one foot to two feet.

2.2 Site Geology

The subject property is situated within a section of the Piedmont Physiographic Province known as the Newark Basin. Specifically, the subject site is underlain by the Lower Jurassic and Upper Triassic Sandstone and Siltstone facies of the Passaic Formation, which is part of the Brunswick Group. The formation generally consists of interbedded grayish-red to brownish-red medium-grained to fine-grained, medium-bedded to thick-bedded feldspathic sandstone, and brownish-red to purplish-red, coarse-grained siltstone.

The overburden materials at the site include Rahway Till associated with the Wisconsinan Glacier that presumably reached its most southerly advance approximately 20,000 years ago and ended approximately 10,000 years ago. The glacial deposits are expected to overlay the weathered rock. Glacial till in the area typically contains a heterogeneous mixture of sand, silt, clay and gravel mixed with variable amounts of boulders and cobbles. Overburden materials also include man-made fill associated with past and present development of the subject site.

2.3 Proposed Construction

Based on the September 17, 2014 (last revised September 24, 2014) *Concept A* and *Conceptual Grading A* plans prepared by Bohler Engineering NJ, LLC (Bohler), the proposed redevelopment will include demolition of the existing buildings and construction of a three-story, approximately 20,000 square feet footprint medical building with a finished floor elevation of 251.90 feet above mean sea level (msl), trash enclosure and associated new pavements, landscaping and utilities. The proposed building is not anticipated to have any below-grade levels at this time. Final details of the proposed building structural loads, column spacing, and floor loads were not developed at the time of this report. Based on past experience with similar facilities, Whitestone anticipates that maximum column loads will be less than 300 kips. Based on existing and proposed grades, Whitestone the site will be redeveloped at or near existing site elevations with maximum cuts and fills on the order of three feet to five feet; with the exception of the existing basement.

3.0 FIELD INVESTIGATION & LABORATORY TESTING

3.1 Fieldwork

Field exploration at the project site was conducted by means of six soil test borings (identified as B-1 through B-6) performed with a truck-mounted drill rig using hollow stem augers and split-spoon sampling techniques and five soil profile pits (identified as SPP-1 through SPP-5) performed with a rubber-tire backhoe. Borings B-1 through B-4 were performed near the proposed building footprint to depths of ranging from 13.5 fbgs to 24.3 fbgs. Borings B-5 and B-6 were performed within proposed pavement areas to depths of five fbgs and six fbgs, respectively. Profile pits SPP-1 through SPP-5 were performed within or near proposed SWM areas to depths ranging from eight fbgs to 13.0 fbgs. Soil borings and test excavations subsequently were backfilled to the surface with excavated soils from the investigation and borings were surficially restored with asphaltic pavement cold patch, as necessary. The locations of the tests are shown on the accompanying *Test Location Plan* included as Figure 1. *Records of Subsurface Exploration* are provided in Appendix A.

The soil borings and profile pits were conducted in the presence of a Whitestone engineer who performed field tests, recorded visual classifications, and collected samples of the various strata encountered. The borings and profile pits 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, although not encountered, were recorded during and immediately after the completion of field operations prior to backfilling the borings. 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.

3.2 Laboratory Testing Program

Representative samples of a selected strata encountered were subjected to a laboratory testing program that included Atterberg limits determinations (ASTM D-4318), moisture content determinations (ASTM D-2216) and washed gradation analyses (ASTM D-422) in order to perform 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-1	S-3	5.0 - 7.0	32.9	10.1	NP	NP	SM
B-2	S-2	3.0 - 5.0	57.6	15.0	25	6	CL-ML
B-2	S-6	18.0 - 20.0	21.4	6.3	NP	NP	SM

NP - Non Plastic

4.0 SUBSURFACE CONDITIONS

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

Surface Materials: The tests were performed within either existing paved areas or grass-covered areas. The borings performed within existing paved areas encountered approximately 2.5 inches to four inches of asphaltic concrete pavement at the surface underlain by approximately 2.5 inches to four inches of gravel subbase materials. The tests performed within existing grass-covered areas encountered approximately three inches to nine inches of topsoil at the surface.

Existing Fill Materials (Stratum 1): Beneath the surface cover, the majority of the tests encountered existing fill materials that consisted generally of silty sand with variable amounts of gravel and debris. The debris encountered consisted of coal, cinders, brick and metal. Where encountered, the existing fill materials extended to depths ranging from one fbgs to four fbgs. SPT N-values within the existing fill materials ranged between nine blows per foot (bpf) and 23 bpf, and averaged approximately 13 bpf.

Glacial Deposits (Stratum 2): Underlying the surface cover and/or existing fill materials, the tests encountered natural glacially deposited soils generally consisting of: silty sand (USCS: SM) with variable amounts gravel, cobbles and boulders or silt (USCS: ML) with variable amounts of sand and gravel. The tests were terminated within the glacial deposits at depths ranging from five fbgs to 24.3 fbgs. SPT N-values within coarse-grained portions of this stratum ranged between 10 bpf and refusal (refusal defined as greater than 50 blows per six inches of split-spoon sampler penetration), generally indicating medium dense to very dense relative density and averaging approximately 36 bpf. Pocket penetrometer tests performed within fine-grained portions of this stratum resulted in unconfined compressive strengths ranging between approximately 0.5 ton per square foot (tsf) and two tsf, generally indicating medium stiff to very stiff consistency.

Groundwater: Groundwater was not encountered within the tests performed with the maximum depth explored of 24.3 fbgs, corresponding to elevation 229.7 feet above msl. Perched groundwater may be encountered above the impermeable fine-grained site materials throughout the site, especially following precipitation events. Seasonal variations, temperature effects, and recent rainfall conditions may influence the levels of the groundwater. Groundwater elevations derived from sources other than seasonally observed groundwater monitor wells may not be representative of true groundwater level.

5.0 CONCLUSIONS AND PRELIMINARY RECOMMENDATIONS

The following discussion is based on the subsurface conditions encountered during Whitestone's limited subsurface investigation for the proposed development and is intended to provide general characteristics of the subsurface conditions for preliminary planning purposes and should not be utilized for final design of structural foundations, floor slabs, or pavements. These preliminary considerations and site development options should be confirmed or revised upon development of the project design concept and completion of a site-specific subsurface investigation and engineering analyses.

Foundations: Whitestone preliminarily anticipates that moderately-loaded structures may be supported on conventional spread and continuous wall footings following overexcavation of existing fill materials if encountered at or below proposed foundation bearing elevations. Foundations may be designed to bear either within the on-site natural soils or controlled structural fill, provided these materials are properly evaluated, placed, compacted, and prepared in order to control their moisture content. Foundations bearing within these materials may be designed to impart a maximum allowable net bearing pressure of 2,000 pounds per square foot (psf) to 4,000 psf depending on final design column and wall loading, column spacing, settlement tolerances and the final geotechnical investigation.

Floor Slabs and Pavements: Whitestone preliminarily anticipates that the properly evaluated, prepared and approved existing fill materials, natural site subgrade soils and/or controlled structural imported fill will be suitable for support of the proposed floor slabs and pavements. Subgrade stabilization and protection may be necessary during wet conditions to obtain a stable surface. Subgrade protection may be achieved through the use of separation geotextiles, geogrids, and/or the addition of lime-cement to the subgrade. Limited areas of overexcavation should be anticipated due to portions of the existing fill materials containing objectionable debris.

On-Site Soil Reusability: Whitestone preliminarily anticipates that the majority of the existing fill materials and underlying natural site soils generally will be suitable for reuse as structural fill and/or backfill provided they are free of deleterious debris and moisture contents are controlled within two percent of the optimum and the soils are placed during favorable weather conditions. Based on the conditions disclosed by the subsurface exploration and the results of the laboratory test results, portions of the on-site soils with an appreciable amount of fines may not be suitable for immediate reuse as structural fill and/or backfill due to high moisture content characteristics. Disturbance of these soils should be minimized. The on-site moisture sensitive soils, while stable and often hard when in a dry natural state, will degrade when wetted or disturbed. Whitestone anticipates that the sandy and/or less plastic site soils may be suitable for reuse as structural fill and/or backfill provided moisture contents are controlled within two percent of the optimum only during favorable weather conditions. Due to moisture sensitivity, use of portions of the on-site soils may require mixing with a granular material, extensive moisture conditioning, and/or drying to facilitate their reuse, workability, and compaction in fill areas. These materials will become increasingly difficult to reuse and compact if they become wetted beyond the optimum moisture content. Materials that become exceedingly wet likely will require discing and aerating and extended time to dry during favorable weather. Boulders and cobbles or similarly sized materials greater than three inches in diameter will need to be separated from on-site soils to be placed as structural fill or backfill. Cobbles or boulders between three inches to 12 inches may be crushed or individually placed in structural fill or backfill layers deeper than two feet below proposed foundation and pavement subgraded levels. Care must be taken to individually seat any large particles and to compact soil around large particles with hand operated equipment to minimize risk of void formation. The stripped surface cover materials within the t including asphaltic concrete and topsoil should not be reused as structural fill and/or backfill.

Excavation Difficulties: Machine refusal was encountered within the profile pits and auger grinding/split-spoon refusal within the soil borings at depths as shallow as eight fbgs due to the presence of cobbles/boulders. Excavation difficulties will be more prevalent in confined and deep excavations, such as deeper foundations and utilities.

Demolition Material: Demolition material and durable material encountered within the existing fill materials, not subject to any environmental restrictions, may be used as fill material provided the material is properly segregated and processed as recommended herein. Concrete masonry materials should be crushed to a well graded blend with a maximum size of three inches in diameter. The asphaltic materials and deleterious debris such as wood, insulation, metal, etc. should not be used as general structural fill material.

Supplemental Borings: Supplemental borings should be completed either prior to or once the existing building is demolished to confirm subsurface conditions throughout the site within areas previously inaccessible to conventional truck-mounted drilling equipment at the time of Whitestone's field investigation. Additional borings should be completed in accordance with the New Jersey Building Code requirements.

Demolition Phase Testing and Inspection: The owner's geotechnical engineer should perform inspection, testing, and consultation during demolition to confirm all below grade construction is properly removed and any resulting excavations of existing crawl spaces, basements, etc. are properly backfilled. Monitoring and testing should also be performed to verify that the building is properly demolished, any encountered underground structures are properly backfilled, the existing surface cover materials are

properly removed, existing fill materials are overexcavated prior to foundation support and suitable materials are used for controlled fill and that they are properly placed and compacted over suitable subgrade soils. The proofrolling of all subgrades prior initial fill placement to achieve design grades and/or foundation, floor slab and pavement support should be witnessed and documented by the owner's geotechnical engineer as well as foundation and floor slab subgrades prior to concrete placement.

6.0 PRELIMINARY STORMWATER MANAGEMENT EVALUATION

Whitestone's field investigation within the proposed SWM areas consisted of excavating five soil profile pits (identified as SPP-1 through SPP-5), examining soil profiles and performing five laboratory tube permeameter tests. The soils encountered were classified based on the United States Department of Agriculture (USDA) classification system. The location of the profile pits are shown on the *Test Location Plan* included as Figure 1.

Groundwater/Seasonal High Groundwater Levels: Static groundwater or indications of seasonal high groundwater were not encountered within any of the soil profile pits performed within the proposed SWM areas. The methods used in determining the seasonal high groundwater level include evaluating the soil morphology within the soil profile and identifying irregular spots or blotches of different colors or minerals unlike that of the surrounding soil (mottles).

Soil Infiltration Rates: Soil samples were recovered from the varying strata observed within the profile pits performed during Whitestone's subsurface exploration. Representative samples from the anticipated level of infiltration were subjected to tube permeameter analyses as detailed in *New Jersey Stormwater Best Practices Manual.* A summary of the conditions encountered in the test excavations and results of permeability testing are indicated in the table below. Individual tube permeameter test results are provided in Appendix B, soil logs are included in Appendix A.

SWM PROFILE PIT AND PERMEABILITY TEST SUMMARY

Profile Pit and Test #	ESHGW (fbgs)	USDA Classification @ Permeability Test	Permeability Test	
			Depth (fbgs)	Rate (in/hour)
SPP-1 T-1	NE	Silt Loam	0.5 - 3.75	< 0.2
SPP-1 T-2	NE	Loam	3.75 - 11.5	0.6
SPP-2 T-1	NE	Silt Loam	2.5 - 4.0	< 0.2
SPP-2 T-2	NE	Loam	4.0 - 10.0	0.3
SPP-3 T-1	NE	Silt Loam	1.0 - 2.5	< 0.2
SPP-3 T-2	NE	Loam	2.5 - 11.0	0.4
SPP-4 T-1	NE	Silt Loam	1.5 - 3.0	< 0.2
SPP-4 T-2	NE	Loam	3.0 - 8.0	0.9
SPP-5 T-1	NE	Sandy Loam	0.3 - 8.0	0.5

ESHGW - Estimated Seasonal High Groundwater
NE - Not Encountered

7.0 CLOSING

Whitestone appreciates the opportunity to be of continued service to The Hampshire Companies, LLC. Please note that Whitestone has the capability to perform the additional geotechnical engineering services recommended herein.

Please contact us at (908) 668-7777 with any questions or comments regarding this report.

Sincerely,

WHITESTONE ASSOCIATES, INC.

Mudar Khantamr, E.I.T.
Geotechnical Engineer

Laurence W. Keller, P.E.
Director, Geotechnical Services

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Enclosures
Copy: Donald J. Engels, The Hampshire Companies, LLC
Bradford A. Bohler, P.E., Bohler Engineering NJ, LLC

FIGURE 1
Test Location Plan

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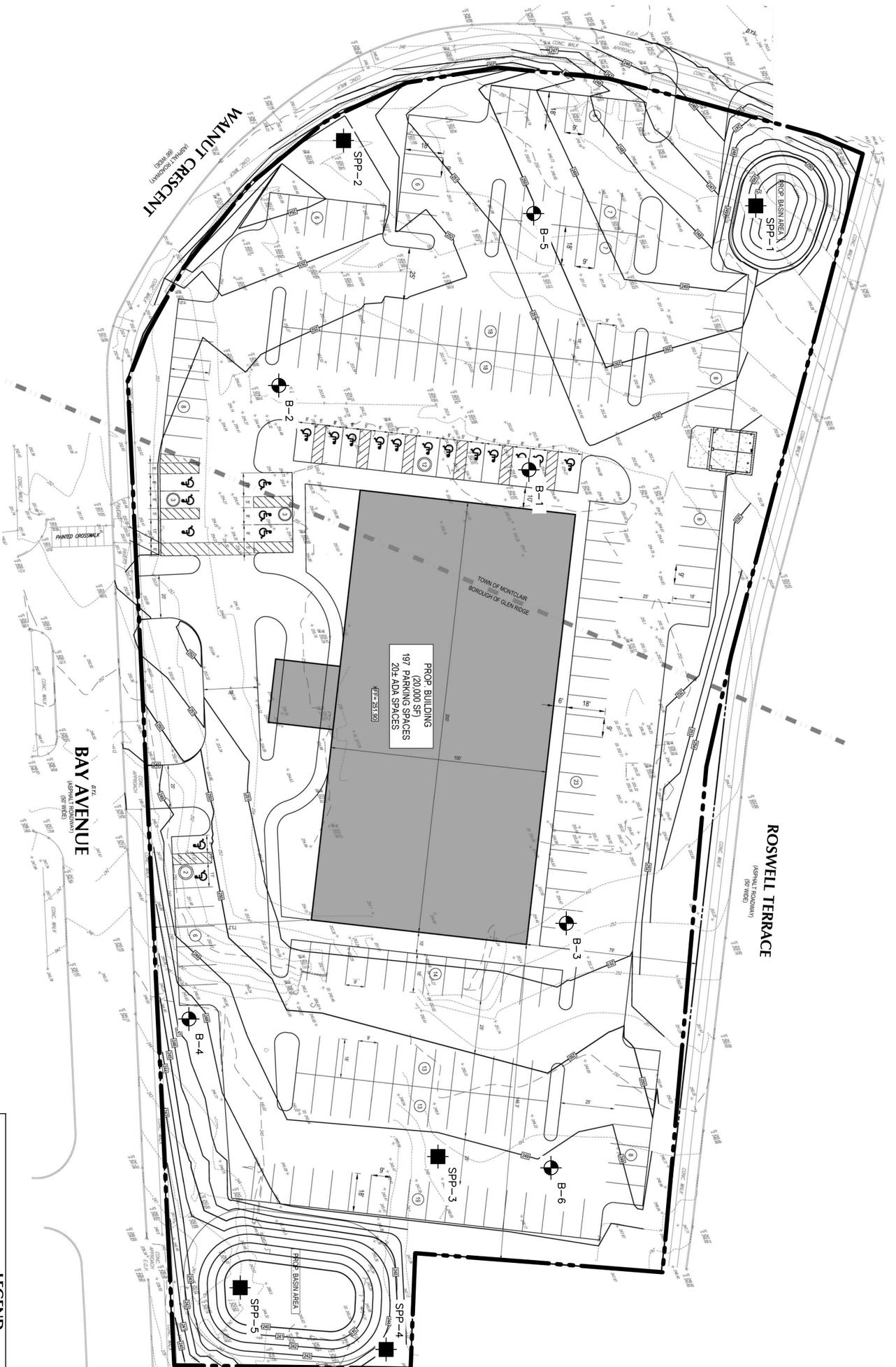

0
1 inch = 50 ft.
50

LEGEND

- B-1 — BORING LOCATION (APPROX.)
- SPP-1 — SOIL PROFILE PIT LOCATION (APPROX.)
- SUBJECT PROPERTY BOUNDARY (APPROX.)

REFERENCE

THIS PLAN IS BASED UPON A SEPTEMBER 17, 2014 (LAST REVISED SEPTEMBER 24, 2014) CONCEPTUAL GRADING A PREPARED BY BOHLER ENGINEERING NJ, LLC.

TITLE:

TEST LOCATION PLAN

CLIENT: THE HAMPSHIRE COMPANIES, LLC

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PROJECT: PROPOSED MOUNTAINSIDE HOSPITAL REDEVELOPMENT
1 BAY AVENUE
TOWNSHIP OF MONTCLAIR & BOROUGH OF GLEN RIDGE, ESSEX COUNTY, NEW JERSEY

PROJECT #:	BY:	PROJ. MGR.:	DATE:	SCALE:	FIGURE:
GJ1413224.000	GR	LWK	01/29/15	1"=50'	1

APPENDIX A
Records of Subsurface Exploration

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-1

Page 1 of 1

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

				Water Depth | Elevation (feet bgs) | (feet msl)	Cave-In Depth | Elevation (feet bgs) | (feet msl)
Surface Elevation:	± 254.4 feet above msl	**Date Started:**	1/16/2015		
Termination Depth:	24.3 feet bgs	**Date Completed:**	1/16/2015		
Proposed Location:	Building	**Logged By:**	SEP	**During:** NE | ---	
Drill / Test Method:	HSA / SPT	**Contractor:**	JG	**At Completion:** NE | ---	**At Completion:** 18.0 | 236.4
		Equipment:	CME-55	**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				
						0.4	PAVEMENT		2.5" Asphalt Pavement, 2.5" Coarse Gravel	
							GLACIAL DEPOSITS			
1 - 3	S-1	X	3 - 7 - 8 - 11	10	15				Reddish-Brown Silty Sand with Coarse to Fine Subangular and Subrounded Gravel, Moist, Medium Dense (SM)	
3 - 5	S-2	X	6 - 6 - 7 - 9	18	13				As Above (SM)	
						5.0				
5 - 7	S-3	X	16 - 15 - 18 - 27	16	33				As Above, Dense (SM)	Lesser Silt Content with Depth
8 - 10	S-4	X	11 - 12 - 17 - 17	16	29				As Above, Medium Dense (SM)	
						10.0				Some Moderate Grinding 10.0 fbgs to 12.0 fbgs Occasional Brief Auger Grinding on Cobbles/ Boulders 12.0 fbgs to 23.0 fbgs
13 - 15	S-5	X	19 - 17 - 19 - 32	14	36				As Above, Dense (SM)	
						15.0				
18 - 19.3	S-6	X	29 - 34 - 50/3"	12	84/9"				As Above, Very Dense (SM)	
						20.0				
23 - 24.3	S-7	X	17 - 39 - 50/4"	12	89/10"				As Above (SM)	
						24.3				
						25.0			Boring Log B-1 Terminated at a Depth of 24.3 Feet Below Ground Surface Due to Split Spoon Sampler Refusal	

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

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-2

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

Surface Elevation:	± 254.0 feet above msl	**Date Started:**	1/16/2015		**Water Depth (feet bgs)**	**Elevation (feet msl)**	**Cave-In Depth (feet bgs)** / **Elevation (feet msl)**
Termination Depth:	24.3 feet bgs	**Date Completed:**	1/16/2015				
Proposed Location:	Building	**Logged By:**	SEP	**During:**	NE	---	(Dry Cave)
Drill / Test Method:	HSA / SPT	**Contractor:**	JG	**At Completion:**	NE	---	**At Completion:** 16.0 / 238.0
		Equipment:	CME-55	**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		3" Asphalt Pavement, 4" Coarse Gravel Subbase	
						0.6	FILL			
1 - 3	S-1	X	3 - 4 - 5 - 11	16	9				Reddish-Brown Silty Sand with Coarse to Fine Gravel, Moist (FILL)	Apparent Re-Worked Natural Soils
						3.0				
3 - 5	S-2	X	5 - 5 - 6 - 9	12	11		GLACIAL DEPOSITS		Strong Brown Sandy Silty Clay, Moist, Very Stiff (CL-ML)	LL = 25, PI = 6 Qu = 2.0 tsf
						5.0				
5 - 7	S-3	X	13 - 16 - 15 - 15	18	31				Reddish-Brown Silty Sand with Coarse to Fine Subangular and Subrounded Gravel, Moist, Dense (SM)	
8 - 10	S-4	X	12 - 23 - 50/3"	4	73/9"				As Above, Very Dense (SM)	
						10.0				Less Silt Content with Depth Occassional Brief Auger Grinding on Cobbles / Boulders 10.0 fbgs to 23.0 fbgs
13 - 13.8	S-5	X	24 - 50/3"	4	50/3"				As Above (SM)	
						15.0				
18 - 20	S-6	X	19 - 34 - 41 - 29	12	75				As Above (SM)	
						20.0				
23 - 24.3	S-7	X	19 - 34 - 50/4"	16	84/10"				As Above, Trace Gravel (SM)	
						24.3				
						25.0			Boring Log B-2 Terminated at a Depth of 24.3 Feet Below Ground Surface Due to Split Spoon Sampler Refusal	

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

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-3

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

				Water Depth | Elevation (feet bgs) | (feet msl)	Cave-In Depth | Elevation (feet bgs) | (feet msl)
Surface Elevation:	± 253.5 feet above msl	**Date Started:**	1/16/2015		
Termination Depth:	23.8 feet bgs	**Date Completed:**	1/16/2015		
Proposed Location:	Building	**Logged By:**	SEP	**During:** NE | ---	(Dry Cave)
Drill / Test Method:	HSA / SPT	**Contractor:**	JG	**At Completion:** NE | ---	**At Completion:** 16.0 | 237.5
		Equipment:	CME-55	**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				
							TS		3" Topsoil	
						0.3	FILL		Reddish-Brown Silty Sand with Coarse to Fine Gravel, No Debris, Moist (FILL)	~9' Frost
0 - 2	S-1	X	12 - 7 - 4 - 4	16	11					
2 - 4	S-2	X	4 - 8 - 15 - 9	8	23				As Above, 10% Fine Coal, Cinders (FILL)	
						4.0				
4 - 6	S-3	X	3 - 3 - 4 - 5	2	7	5.0	GLACIAL DEPOSITS		Strong Brown Silt, Very Moist (ML)	High Moisture Below Fill 4.0 fbgs to 8.0 fbgs
						6.0				
6 - 8	S-4	X	10 - 9 - 14 - 19	18	23				Reddish-Brown Silty Sand with Coarse to Fine Gravel, Very Moist, Medium Dense (SM)	
8 - 8.1	S-5	X	50/1"	NR	50/1"				No Recovery, Assumed as Above (SM)	
						10.0				
										Regular Auger Grinding ~11.0 fbgs to 23.0 fbgs
13 - 15	S-6	X	9 - 12 - 16 - 27	18	28				Reddish-Brown Silty Sand with Coarse to Fine Gravel, Moist, Medium Dense (SM)	
						15.0				
18 - 19.2	S-7	X	17 - 32 - 50/2"	10	82/8"				As Above, Very Dense (SM)	
						20.0				Lesser Silt Content with Depth
23 - 23.8	S-8	X	21 - 50/3"	8	50/3"				As Above (SM)	
						23.8			Boring Log B-3 Terminated at a Depth of 23.8 Feet Below Ground Surface Due to Split Spoon Sampler Refusal	
						25.0				

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

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-4

Page 1 of 1

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

Surface Elevation:	± 245.0 feet above msl	**Date Started:**	1/16/2015		**Water Depth | Elevation (feet bgs) | (feet msl)**		**Cave-In Depth | Elevation (feet bgs) | (feet msl)**
Termination Depth:	13.5 feet bgs	**Date Completed:**	1/16/2015				
Proposed Location:	Building	**Logged By:**	SEP	**During:**	NE | ---		(Dry Cave)
Drill / Test Method:	HSA / SPT	**Contractor:**	JG	**At Completion:**	NE | ---	**At Completion:**	10.0 | 235.0
		Equipment:	CME-55	**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				
						0.4	TS		5" Topsoil	
0 - 2	S-1		1 - 3 - 7 - 12	16	10		GLACIAL DEPOSITS		Reddish-Brown Silty Sand with Coarse to Fine Subangular/Subrounded Gravel, Moist, Medium Dense (SM)	
2 - 4	S-2		12 - 11 - 12 - 19	8	23				As Above (SM)	
4 - 6	S-3		11 - 11 - 14 - 14	14	25	5.0			As Above (SM)	
8 - 9.3	S-4		16 - 27 - 50/4"	8	77/10"				As Above, Very Dense (SM)	Regular Auger Grinding 8.0 fbgs to 13.5 fbgs
						10.0				
13 - 13.5	S-5		29-50/0"	4	50/0"	13.5			As Above (SM)	Spoon Bouncing
									Boring Log B-4 Terminated at a Depth of 13.5 Feet Below Ground Surface Due to Split Spoon and Auger Refusal on Presumed Boulder	
						15.0				
						20.0				
						25.0				

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

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-5

Page 1 of 1

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

				Water Depth | Elevation (feet bgs) | (feet msl)	Cave-In Depth | Elevation (feet bgs) | (feet msl)
Surface Elevation:	± 250.0 feet above msl	**Date Started:**	1/16/2015		
Termination Depth:	5.0 feet bgs	**Date Completed:**	1/16/2015		
Proposed Location:	Pavement	**Logged By:**	SEP	**During:** NE | ---	
Drill / Test Method:	HSA / SPT	**Contractor:**	JG	**At Completion:** NE | ---	**At Completion:** NE | ---
		Equipment:	CME-55	**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		4" Asphalt Pavement, 3" Coarse Gravel Subbase	Very Moist Beneath Subbase
						0.6	GLACIAL DEPOSITS			
1 - 3	S-1	X	2 - 2 - 3 - 5	14	5				Strong Brown Silt with Sand, Very Moist to Moist, Medium Stiff to Very Stiff (ML)	Qu = 0.5 tsf to 2.0 tsf
						3.0				
3 - 5	S-2	X	4 - 8 - 7 - 8	16	15				Reddish-Brown Silty Sand with Coarse to Fine Gravel, Moist, Medium Dense (SM)	
						5.0			Boring Log B-5 Terminated at a Depth of 5.0 Feet Below Ground Surface	
						10.0				
						15.0				
						20.0				
						25.0				

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

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-6

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

Surface Elevation:	± 248.5 feet above msl	**Date Started:**	1/16/2015		**Water Depth (feet bgs) | Elevation (feet msl)**		**Cave-In Depth (feet bgs) | Elevation (feet msl)**
Termination Depth:	6.0 feet bgs	**Date Completed:**	1/16/2015				
Proposed Location:	Pavement	**Logged By:**	SEP	**During:**	NE | ---		
Drill / Test Method:	HSA / SPT	**Contractor:**	JG	**At Completion:**	NE | ---	**At Completion:**	NE | ---
		Equipment:	CME-55	**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	TS		4" Topsoil	
0 - 2	S-1		6 - 5 - 5 - 5	20	10	0.3	FILL		Gray Silty Sand with Coarse to Fine Gravel and Debris, Moist (FILL)	Debris: Fine Coal and Brick
						1.5	GLACIAL DEPOSITS		Strong Brown Sandy Silt, Moist, Medium Stiff (ML)	
2 - 4	S-2		6 - 6 - 7 - 9	18	13	3.0			As Above (ML)	
									Reddish-Brown Silty Sand with Gravel, Moist, Medium Dense (SM)	
4 - 6	S-3		10 - 11 - 11 - 16	18	22	5.0			As Above (SM)	
									Boring Log B-6 Terminated at a Depth of 6.0 Feet Below Ground Surface	
						10.0				
						15.0				
						20.0				
						25.0				

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

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-1

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

Surface Elevation:	± 248.5 feet above msl	**Date Started:**	1/16/2015		**Water Depth (feet bgs) | Elevation (feet msl)**	**Estimated Seasonal High Groundwater Depth (feet bgs) | Elevation (feet msl)**
Termination Depth:	11.5 feet bgs	**Date Completed:**	1/16/2015			
Proposed Location:	SWM	**Logged By:**	SEP	**During:**	NE | ---	
Excavating Method:	Test Pit Excavation	**Contractor:**	Carroccia	**At Completion:**	NE | ---	**At Completion:** NE | ---
Test Method:	Visual Observation	**Rig Type:**	DEERE 310 SG	**24 Hours:**	--- | ---	

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet				
			0.0				
				0 - 0.5	TOPSOIL	6" Topsoil	
0.5 - 3.75	S-1 T-1A/B	BAG TUBES	1.0 2.0 3.0	0.5 - 3.8	SILT LOAM	Strong Brown (7.5YR 5/6) SILT LOAM; 10% Gravel; Moderate, Medium Subangular Blocky Structure; Moist; Friable; No Mottling: Many Medium to Fine Roots @ 0.5 fbgs to 3.5 fbgs, Few Fine Roots @ 2.5 fbgs to 3.75 fbgs; Clear Wavy Boundary	
3.75 - 11.5	S-2 T-2A/B	BAG TUBES	4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0	3.8 - 11.5	LOAM	Dark Reddish-Brown (2.5YR 3/4) LOAM; 15% Gravel, 10% Cobbles; Moderate, Medium Subangular Blocky to Crumb Structure; Moist; Friable; Few Fine Roots; No Mottling	Cobble/Boulder Content Increasing with Depth 2' Maximum Diameter
			12.0 13.0 14.0 15.0			Soil Profile Pit SPP-1 Terminated at a Depth of 11.5 Feet Below Ground Surface Due to Practical Extents (Due to Site Constraints and Boulders)	

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-2

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

Surface Elevation:	± 252.0 feet above msl	**Date Started:**	1/16/2015		**Water Depth (feet bgs) | Elevation (feet msl)**	**Estimated Seasonal High Groundwater Depth (feet bgs) | Elevation (feet msl)**
Termination Depth:	10.0 feet bgs	**Date Completed:**	1/16/2015			
Proposed Location:	SWM	**Logged By:**	SEP	**During:**	NE | ---	
Excavating Method:	Test Pit Excavation	**Contractor:**	Carroccia	**At Completion:**	NE | ---	**At Completion:** NE | ---
Test Method:	Visual Observation	**Rig Type:**	DEERE 310 SG	**24 Hours:**	--- | ---	

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet	inches			
			0.0				
				0 - 0.8	TOPSOIL	9" Topsoil	
			1.0	0.8 - 2.5	FILL	Reddish-Brown Silty Sand; 15% Gravel, 10% Cobbles; Structureless; Most; Many Fine to Medium Roots; Clear Wavy Boundary	Probable Re-Worked On-Site Soils 0.75 fbgs to 2.5 fbgs
			2.0				
2.5 - 4	S-1 T-1A/B	BAG TUBES	3.0	2.5 - 4	SILT LOAM	Strong Brown (7.5YR 5/6) SILT LOAM; 5% Gravel; Moderate, Medium Subangular Blocky to Crumb Structure; Moist; Friable; Few Fine Roots; No Mottling; Clear Wavy Boundary	
			4.0				
4 - 10	S-2 T-2A/B	BAG TUBES	5.0	4 - 10	LOAM	Dark Reddish-Brown (2.5YR 3/4) LOAM; 20% Gravel, 15% Cobbles, 5% Boulders; Moderate, Medium Subangular Blocky Structure; Moist; Friable; Few Fine Roots; No Mottling	Cobble/Boulder Content Increasing with Depth 3' Maximum Diameter
			6.0				
			7.0				
			8.0				
			9.0				
			10.0				
			11.0			Soil Profile Pit SPP-2 Terminated at a Depth of 10.0 Feet Below Ground Surface Due to Practical Refusal and Site Restraints	
			12.0				
			13.0				
			14.0				
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-3

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

Surface Elevation:	± 248.0 feet above msl	**Date Started:**	1/16/2015		**Water Depth (feet bgs) | Elevation (feet msl)**	**Estimated Seasonal High Groundwater Depth (feet bgs) | Elevation (feet msl)**
Termination Depth:	11.0 feet bgs	**Date Completed:**	1/16/2015			
Proposed Location:	SWM	**Logged By:**	SEP	**During:**	NE | ---	
Excavating Method:	Test Pit Excavation	**Contractor:**	Carroccia	**At Completion:**	NE | ---	**At Completion:** NE | ---
Test Method:	Visual Observation	**Rig Type:**	DEERE 310 SG	**24 Hours:**	--- | ---	

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet	inches			
			0.0				
				0 - 0.3	TOPSOIL	3" Topsoil	
				0.3 - 1	FILL	Brown and Gray Silty Sand with 20% Coarse to Fine Angular Gravel	
			1.0				
1 - 2.5	S-1 T-1A/B	BAG TUBES		1 - 2.5	SILT LOAM	Strong Brown (7.5YR 5/6) SILT LOAM; 10% Gravel; Moderate, Medium Subangular Blocky Structure; Moist; Friable; Few Fine Roots; No Mottling; Clear Wavy Boundary	
			2.0				
				2.5 - 11	LOAM	Dark Reddish-Brown (2.5YR 3/4) LOAM; 20% Gravel, 10% Cobbles, 5% Boulders; Moderate, Medium Subangular Blocky to Crumb Structure; Moist; Friable No Roots; No Mottling	
			3.0				
			4.0				Cobbles/Boulders Content Increasing with Depth
			5.0				
			6.0				
2.5 - 11	S-2 T-2A/B	BAG TUBES	7.0				
			8.0				
			9.0				
			10.0				
			11.0				
						Soil Profile Pit SPP-3 Terminated at a Depth of 11.0 Feet Below Ground Surface Due to Practical Refusal on Cobbles/Boulders	
			12.0				
			13.0				
			14.0				
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-4

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

Surface Elevation:	± 245.5 feet above msl	**Date Started:**	1/16/2015		**Water Depth (feet bgs) | Elevation (feet msl)**	**Estimated Seasonal High Groundwater Depth (feet bgs) | Elevation (feet msl)**
Termination Depth:	13.0 feet bgs	**Date Completed:**	1/16/2015			
Proposed Location:	SWM	**Logged By:**	SEP	**During:**	NE | ---	
Excavating Method:	Test Pit Excavation	**Contractor:**	Carroccia	**At Completion:**	NE | ---	**At Completion:** NE | ---
Test Method:	Visual Observation	**Rig Type:**	DEERE 310 SG	**24 Hours:**	--- | ---	

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet	inches			
			0.0				
				0 - 0.5	TOPSOIL	6" Topsoil	
			1.0	0.5 - 1.5	FILL	Gray Silt and Sand with Gravel and Debris	Metal Pipe and Wire Encountered (Apparently Abandoned)
1.5 - 3	S-1 T-1A/B	BAG TUBES	2.0	1.5 - 3	SILT LOAM	Strong Brown (7.5YR 5/6) SILT LOAM; 10% Gravel; Moderate, Medium Subangular Blocky Structure; Moist; Friable; Few Fine Roots; No Mottling; Clear Wavy Boundary	
			3.0				
3 - 8	S-2 T-2A/B/C	BAG TUBES	4.0 5.0 6.0 7.0	3 - 8	LOAM	Dark Reddish-Brown (2.5YR 3/4) LOAM; 20% Gravel, 10% Cobbles, 5% Boulders; Moderate, Medium Subangular Blocky Structure; Moist; Friable; Few Fine Roots; No Mottling; Clear Wavy Boundary	
			8.0				
8 - 13	S-3	BAG	9.0 10.0 11.0 12.0	8 - 13	SANDY LOAM	Reddish-Brown (2.5YR 4/4) SANDY LOAM; 15% Gravel, 5% Cobbles, 5% Boulders; Moderate, Medium Crumb Structure; Moist; Friable; No Roots; No Mottling	
			13.0				
						Soil Profile Pit SPP-4 Terminated at a Depth of 13.0 Feet Below Ground Surface	
			14.0 15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-5

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

Surface Elevation:	± 243.0 feet above msl	**Date Started:**	1/16/2015		**Water Depth (feet bgs) | Elevation (feet msl)**	**Estimated Seasonal High Groundwater Depth (feet bgs) | Elevation (feet msl)**
Termination Depth:	8.0 feet bgs	**Date Completed:**	1/16/2015			
Proposed Location:	SWM	**Logged By:**	SEP	**During:**	NE | ---	
Excavating Method:	Test Pit Excavation	**Contractor:**	Carroccia	**At Completion:**	NE | ---	**At Completion:** NE | ---
Test Method:	Visual Observation	**Rig Type:**	DEERE 310 SG	**24 Hours:**	--- | ---	

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet	inches			
			0.0				
				0 - 0.3	TOPSOIL	3" Topsoil	
0.3 - 8	S-1 T-1A/B/C	BAG TUBES	1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0	0.3 - 8	SANDY LOAM	Reddish-Brown (2.5YR 4/4) SANDY LOAM; 15% Gravel, 10% Cobbles, 5% Boulders; Moderate, Medium Subangular Blocky Structure; Moist; Friable; Few Fine Roots; No Mottling	
			9.0 10.0 11.0 12.0 13.0 14.0 15.0			Soil Profile Pit SPP-5 Terminated at a Depth of 8.0 Feet Below Ground Surface Due to Site Constraints and Presence of Boulders	

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed

WHITESTONE ASSOCIATES, INC.

RECORD OF SUBSURFACE EXPLORATION

Soil Profile Pit No.: SPP-6

Project:	Proposed Mountainside Hospital Redevelopment	**WAI Project No.:**	GJ1413224.000
Location:	One Bay Avenue; Montclair and Glen Ridge; Essex County, New Jersey	**Client:**	The Hampshire Companies, LLC

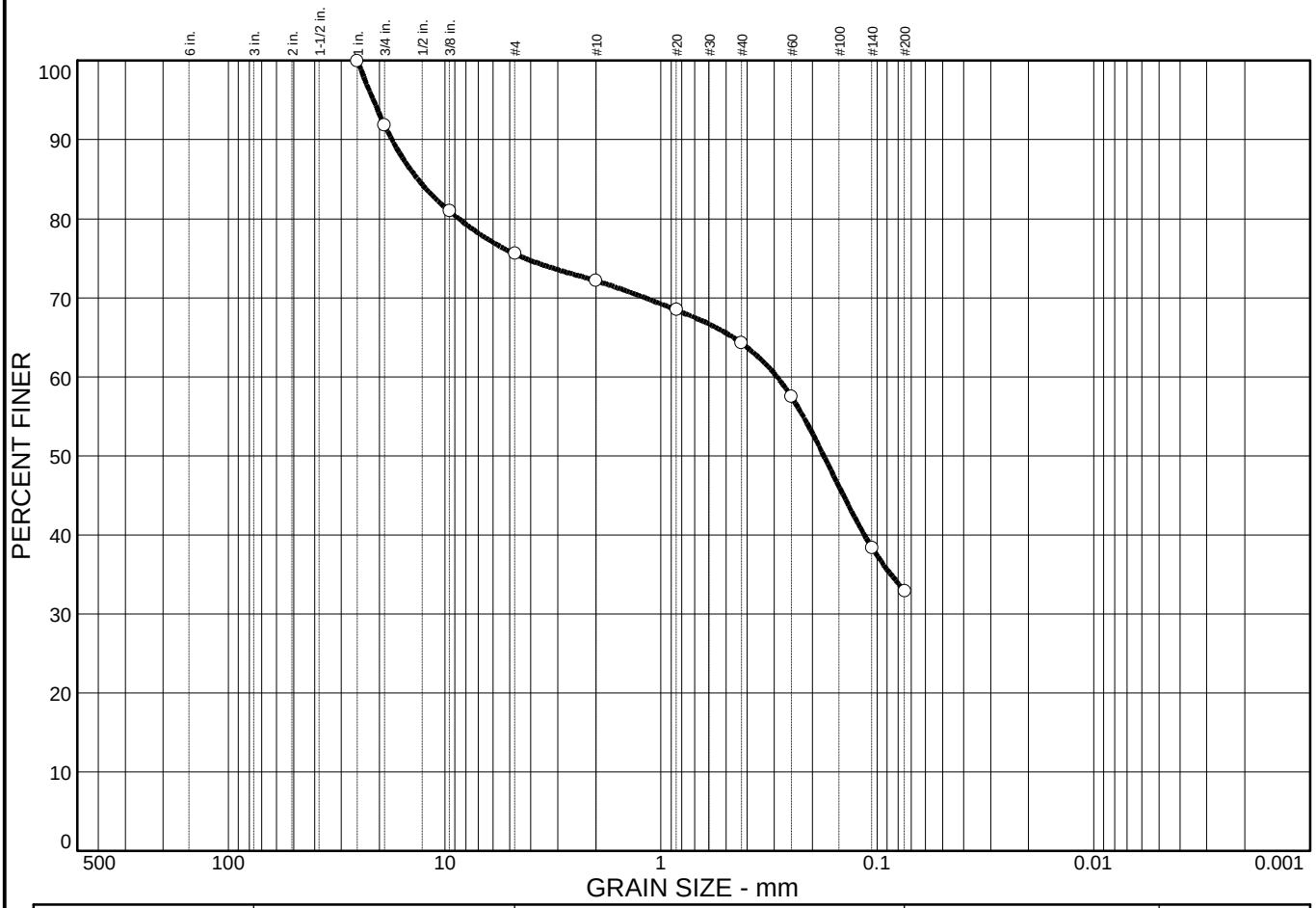
Surface Elevation:	± 243.5 feet above msl	**Date Started:**	1/16/2015		**Water Depth (feet bgs) | Elevation (feet msl)**	**Estimated Seasonal High Groundwater Depth (feet bgs) | Elevation (feet msl)**
Termination Depth:	2.0 feet bgs	**Date Completed:**	1/16/2015			
Proposed Location:	SWM	**Logged By:**	SEP	**During:**	NE | ---	
Excavating Method:	Test Pit Excavation	**Contractor:**	Carroccia	**At Completion:**	NE | ---	**At Completion:** NE | ---
Test Method:	Visual Observation	**Rig Type:**	DEERE 310 SG	**24 Hours:**	--- | ---	

SAMPLE INFORMATION			DEPTH		HORIZON	DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	Number	Type	feet	inches			
			0.0				
					TOPSOIL	Topsoil	
					FILL	Fill	
			1.0				5" Ductile Iron SWM Pipe Encountered @ 1.3 fbgs
			2.0				
						Soil Profile Pit SPP-6 Terminated at a Depth of 2.0 Feet Below Ground Surface	
			3.0				
			4.0				
			5.0				
			6.0				
			7.0				
			8.0				
			9.0				
			10.0				
			11.0				
			12.0				
			13.0				
			14.0				
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed

APPENDIX B
Laboratory Test Results

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	24.4	42.7	32.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 in.	100.0		
3/4 in.	91.9		
3/8 in.	81.0		
#4	75.6		
#10	72.2		
#20	68.5		
#40	64.3		
#60	57.5		
#140	38.4		
#200	32.9		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= PI= NP

Coefficients

D_{85}= 13.3 D_{60}= 0.291 D_{50}= 0.177
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

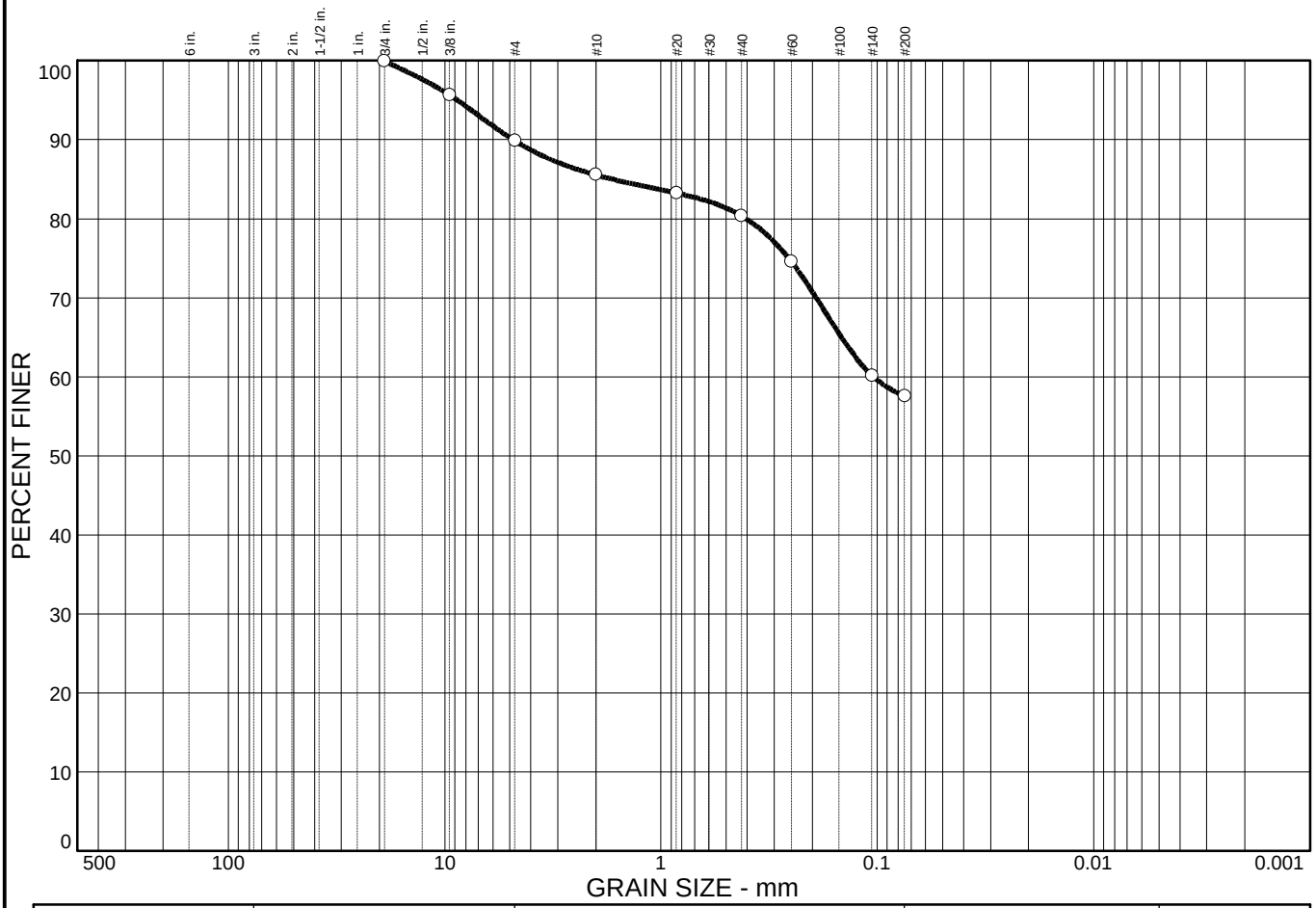
W_n = 10.1 %

Sample No.: S-3 **Source of Sample:** B-1 **Date:** 01/28/2015
Location: **Elev./Depth:** 5.0' - 7.0'

WHITESTONE ASSOCIATES, INC.

Client: The Hampshire Companies, LLC
Project: Proposed Mountainside Hospital Redevelopment
One Bay Ave; Montclair and Glen Ridge, Essex County, NJ
Project No: GJ1413224.000 **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	10.1	32.3	57.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
3/8 in.	95.7		
#4	89.9		
#10	85.6		
#20	83.3		
#40	80.4		
#60	74.6		
#140	60.2		
#200	57.6		

* (no specification provided)

Soil Description

Sandy silty clay

Atterberg Limits

PL= 19 LL= 25 PI= 6

Coefficients

D_{85}= 1.64 D_{60}= 0.104 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL-ML AASHTO=

Remarks

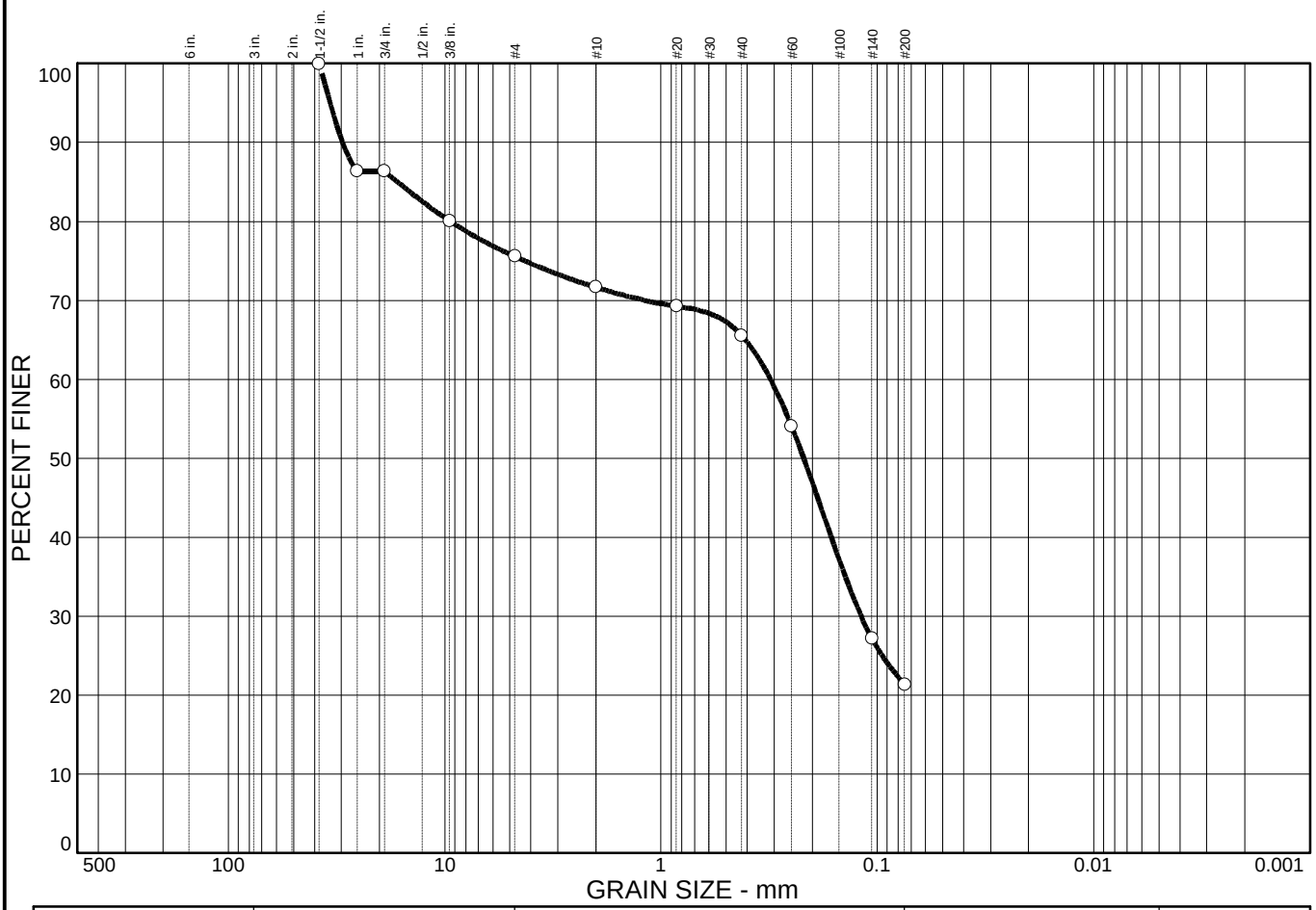
W_n = 15.0 %

Sample No.: S-2 **Source of Sample:** B-2 **Date:** 01/28/2015
Location: **Elev./Depth:** 3.0' - 5.0'

WHITESTONE ASSOCIATES, INC.

Client: The Hampshire Companies, LLC
Project: Proposed Mountainside Hospital Redevelopment
One Bay Ave; Montclair and Glen Ridge, Essex County, NJ
Project No: GJ1413224.000 **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	24.4	54.2	21.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5 in.	100.0		
1 in.	86.4		
3/4 in.	86.4		
3/8 in.	80.1		
#4	75.6		
#10	71.7		
#20	69.3		
#40	65.6		
#60	54.1		
#140	27.2		
#200	21.4		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= PI= NP

Coefficients

D_{85}= 16.5 D_{60}= 0.312 D_{50}= 0.219
D_{30}= 0.119 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

W_n = 6.3 %

Sample No.: S-6 **Source of Sample:** B-2 **Date:** 01/28/2015
Location: **Elev./Depth:** 18.0' - 20.0'

WHITESTONE ASSOCIATES, INC.

Client: The Hampshire Companies, LLC
Project: Proposed Mountainside Hospital Redevelopment
One Bay Ave; Montclair and Glen Ridge, Essex County, NJ
Project No: GJ1413224.000 **Plate**

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-1 **Sample No.:** T-1 **Depth:** 0.5'-3.75'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.38

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 68.74

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.75
    At the End of Each Test Interval, H2 4.63

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		210.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 210.00

    K (in/hr) = 0.02 **Classification:** **K0**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-1 **Sample No.:** T-1 **Depth:** 0.5'-3.75'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.75
    At the End of Each Test Interval, H2 4.75

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		360.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 360.00

    K (in/hr) = 0.00 **Classification:** **K0**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-1 **Sample No.:** T-2 **Depth:** 3.75'-11.5'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.25

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 65.12

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.63
    At the End of Each Test Interval, H2 3.63

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		53.50
		55.25
		55.50

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 54.75

    K (in/hr) = 0.60 **Classification:** **K2**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-1 **Sample No.:** T-2 **Depth:** 3.75'-11.5'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.25

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 65.12

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.63
    At the End of Each Test Interval, H2 3.63

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		46.00
		46.67
		47.83

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 46.83

    K (in/hr) = 0.70 **Classification:** **K2**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-2 **Sample No.:** T-1 **Depth:** 2.5'-4.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.63
    At the End of Each Test Interval, H2 4.51

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		144.83

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 144.83

    K (in/hr) = 0.03 **Classification:** **K0**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-2 **Sample No.:** T-1 **Depth:** 2.5'-4.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.75

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 79.60

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.63
    At the End of Each Test Interval, H2 4.63

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		356.25

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 356.25

    K (in/hr) = 0.00 **Classification:** **K0**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-2 **Sample No.:** T-2 **Depth:** 4.0'-10.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.25

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 94.07

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.25
    At the End of Each Test Interval, H2 4.25

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		103.34
		98.00
		98.75

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 100.03

    K (in/hr) = 0.41 **Classification:** **K1**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-2 **Sample No.:** T-2 **Depth:** 4.0'-10.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.50
    At the End of Each Test Interval, H2 3.50

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		141.40
		140.50

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 140.95

    K (in/hr) = 0.32 **Classification:** **K1**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-3 **Sample No.:** T-1 **Depth:** 1.0'-2.5'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		345.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 345.00

    K (in/hr) = 0.00 **Classification:** **K0**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-3 **Sample No.:** T-1 **Depth:** 1.0'-2.5'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 5.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		142.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 142.00

    K (in/hr) = 0.00 **Classification:** **K0**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-3 **Sample No.:** T-2 **Depth:** 2.5'-11.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.75
    At the End of Each Test Interval, H2 3.75

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		22.84
		26.10
		25.00
		29.42

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 25.84

    K (in/hr) = 1.65 **Classification:** **K2**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-3 **Sample No.:** T-2 **Depth:** 2.5'-11.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.75
    At the End of Each Test Interval, H2 3.75

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		102.50
		102.50
		104.00
		105.25

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 103.56

    K (in/hr) = 0.41 **Classification:** **K1**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-4 **Sample No.:** T-1 **Depth:** 1.5'-3.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.75

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 79.60

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.75
    At the End of Each Test Interval, H2 4.50

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		140.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 140.00

    K (in/hr) = 0.06 **Classification:** **K0**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-4 **Sample No.:** T-1 **Depth:** 1.5'-3.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.75
    At the End of Each Test Interval, H2 4.63

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		140.00

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 140.00

    K (in/hr) = 0.03 **Classification:** **K0**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-4 **Sample No.:** T-2 **Depth:** 3.0'-8.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) B Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 57.89

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 4.75
    At the End of Each Test Interval, H2 3.75

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		32.75
		35.34
		32.33
		32.50

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 33.23

    K (in/hr) = 0.85 **Classification:** **K2**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-4 **Sample No.:** T-2 **Depth:** 3.0'-8.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) C Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.25

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 65.12

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 4.00

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		32.25
		32.33
		33.17
		33.10

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 32.71

    K (in/hr) = 0.92 **Classification:** **K2**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-5 **Sample No.:** T-1 **Depth:** 0.3'-8.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) A Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 2.75

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 79.60

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 4.50

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		30.15
		30.70
		31.82

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 30.89

    K (in/hr) = 0.56 **Classification:** **K1**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

Tube Permeameter Test Data

Job Number: GJ1413224.000
Project: Proposed Mountainside Hospital Redevelopment
Client: The Hampshire Companies, LLC
Lab Tech: DO

Sample ID: **Profile Pit No.:** SPP-5 **Sample No.:** T-1 **Depth:** 0.3'-8.0'

COUNTY/MUNICIPALITY Essex BLOCK _____ LOT _____

1. Test Number 1 Replicate (letter) C Date Collected 1/16/2015

2. Material Tested: _____ Fill X Test in Native Soil

3. Type of Sample: X Undisturbed _____ Disturbed

4. Sample Dimensions: Inside Radius of Sample Tube, R, in cm 1.91
   Length of Sample, L, in inches 3.00

5. Bulk Density Determination (Disturbed Samples Only): N/A

6. Sample Weight (Wt. Tube Containing Sample-Wt. of Empty Tube), grams 0.00

   Wt. of Tube Containing Sample _____
   Wt. of Empty Tube _____

7. Sample Volume (L x 2.54 cm./inch x 3.14R2), cc. 86.83

8. Bulk Density (Sample Wt./Sample Volume), grams/cc. 0 > 1.2

9. Standpipe Used: X No _____ Yes, Indicate Internal Radius, cm. N/A

10. Height of Water Level Above Rim of Test Basin, in inches:

    At the Beginning of Each Test Interval, H1 5.00
    At the End of Each Test Interval, H2 4.50

11. Rate of Water Level Drop (Add additional lines if needed):

Time, Start of Test Interval, T1	Time End of Test Interval T2	Length of Test Interval, T, Minutes
		37.20
		38.17
		39.37

12. Calculation of Permeability: K, (in/hr) = 60 min/hr x r2/R2 x L(in)/T(min) x ln (H1/H2) T= 38.25

    K (in/hr) = 0.50 **Classification:** **K1**

13. Defects in the Sample (Check appropriate items):

    _____ None

    _____ Soil/Tube Contact _____ Large Gravel _____ Large Roots

    _____ Dry Soil _____ Smearing _____ Compaction

    _____ Other - Specify _____

APPENDIX C
Supplemental Information (USCS, Terms and Symbols)

WHITESTONE ASSOCIATES, INC.
ENVIRONMENTAL & GEOTECHNICAL ENGINEERS & CONSULTANTS

35 TECHNOLOGY DRIVE
WARREN, NJ 07059
908.668.7777
FAX 908.754.5936
www.whitestoneassoc.com

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.*

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Other Office Locations:

- CHALFONT, PA 215.712.2700
- STERLING, VA 703.464.5858
- EVERGREEN, CO 303.670.6905

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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 Pentration 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		

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