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September 13, 2019 *via email: rwalker@brpcompanies.com*

Mr. Rashid Walker
BRP Companies
767 3rd Avenue, 33rd Floor
New York, NY 10017

RE: Preliminary Geotechnical Investigation and Report
Proposed Redevelopment
500 Main Street
New Rochelle, New York
SESI Project No. 10637

Dear Mr. Walker:

In accordance with our Professional Services Agreement Revised August 14, 2019, we have completed our preliminary geotechnical investigation for the above referenced project. This report contains a description of our investigation, an evaluation of the subsurface soil and groundwater characteristics, and presents recommendations for general site preparation procedures and foundation design criteria for the planned construction.

If you have any questions, please call.

Sincerely,

SESI CONSULTING ENGINEERS D.P.C.

Michael St. Pierre, P.E.
Principal

Encl: Preliminary Geotechnical Investigation Report dated September 13, 2019

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SESI
CONSULTING
ENGINEERS

PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT

FOR

Proposed Redevelopment
500 Main Street
New Rochelle, Westchester County, New York

Prepared For:

BRP Companies
767 3rd Avenue, 33rd Floor
New York, NY 10017

Prepared By:

SESI CONSULTING ENGINEERS D.P.C.
12A Maple Avenue
Pine Brook, NJ 07058

Project No.: 10637

DATE:
September 13, 2019

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Bruce A. LaPenta, P.E.

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Michael St. Pierre, P.E.
N.Y. Lic. No. 80271

INTRODUCTION AND PROPOSED CONSTRUCTION

SESI has completed a preliminary geotechnical investigation for the proposed redevelopment at 500 Main Street in New Rochelle, New York. The existing property consists of four parcels: 500 Main Street (Block 215, Lot 12), 506 Main Street (Block 215, Lot 11), 510 Main Street (Block 215, Lot 10) and 12 Church Street. The proposed building lot is bounded by Main Street to the northwest, Church Street to the southwest, an access driveway and a three (3) story brick building to the southeast and a two (2) story building and an existing private parking lot to the northeast.

Topography shown on the *Exploration Location Plan,* prepared by Langan, dated March 14, 2019, indicates a low point elevation of about 89 at the eastern corner of the existing building and a high point elevation at the western corner of the existing building of about 96. The site grades downward along Church Street from north to south and along Main Street slopes downward from west to east.

Based on the architectural plans prepared by Stephen W. Gresham, AIA Architect, dated July 12, 2018, SESI understands the proposed building will have a ground level, built-over area of approximately 32,000 square feet (sq. ft.) and will have an approximate 4,500 sq. ft. basement area in the southern corner of the proposed building. The basement area will consist of utility rooms. The first floor of the building will consist of a church, retail space, lobby area and the entrance to a vehicle lift area, providing access to parking facilities on the third, fourth and fifth floors. The second floor will be utilized for class room and office space. The sixth through 26th floors will provide residential housing units. The residential towers are proposed to have an “H” shaped cross-section with a gross square footage of approximately 20,400 sq. ft. The finished floor elevations for the first floor vary from about 93.5 to about 95.7. The basement floor elevation has not been provided, but we assume it will be a minimum of 10 feet below the proposed first story elevations. We have also not been provided with the proposed column and/or foundation loads at the time of this writing, but have assumed relatively heavy column loads.

FIELD INVESTIGATION

Our engineering study consisted of a site reconnaissance, a review of existing soils and geologic data, a review of the draft, “Revised Preliminary Geotechnical Assessment, 500 Main Street,” memorandum, prepared by Langan CT, Inc., (Langan) revised March 6, 2019 and a field investigation consisting of seven (7) soil borings. Two (2) soil borings were performed by Langan in October of 2017, and each of the Langan borings were converted to a well at the completion of the boring. The Langan borings were performed to depths between about five (5) and 31 feet below the existing ground surface. Due to the presence of the existing structures on the proposed building lot, the SESI borings were generally performed in accessible areas around the exterior of the occupied parcels. The SESI soil borings were completed to depths ranging from approximately 25 to 48 feet below the existing ground surface with a truck-mounted drill rig. Soil borings B-1 and B-2 were located in the sidewalk of Main Street and Church Street, respectively. Borings B-5, B-6 and B-7 were completed on the adjacent property Boring elevations were

estimated based on ground surface elevations on the Langan plan. The actual depths and elevations provided on the boring logs may vary slightly from the actual elevations.

SESI also completed a geoprobe exploration program between July 16 and July 19, 2019 within the existing 500 Main Street structure and adjacent properties, consisting of 23 probes to depths ranging from about two (2) to nine (9) feet below the existing ground surface and basement floor levels. Based on basement floor levels, about 10 feet below grade, the exploration depths extended up to 19 feet below grade.

The locations of the soil borings and probes are shown on the *Boring Location Plan*, which is included as ***Figure 1***. Individual soil boring logs, which describe the materials encountered, are presented as ***Figures 2 through 8***. Individual soil probe logs are presented as **Figures 9 through 31**. A key to soil terminology is included as ***Figure 32.*** The Langan borings are included in **Appendix A**.

Soil samples suitable for identification purposes were extracted from the borings in accordance with the Standard Penetration Test. For this test, a standard split-spoon sampler (2 inches outside diameter, one and three-eighths inches inside diameter) is driven into the soil by a 140-pound weight falling 30 inches. After discounting the initial six inches of penetration due to possible disturbance of the material resulting from the drilling operation, the number of blows required to advance the sampler a distance of 12 inches are recorded and designated as the standard penetration resistance or “N” value. The “N” value is an indication of the relative compactness of the soil in-situ. Top of rock was encountered in each of six (6) borings, Boring B-1 may have been completed on a boulder. With the exception of boring B-1, five (5) feet of rock coring was performed to collect rock cores for classification purposes. An additional five (5) foot rock core run was performed in boring B-7 due to the results encountered in the first core run.

All fieldwork was performed under the full-time technical observation of an engineer from SESI Consulting Engineers D.P.C. Our representative located the borings in the field, maintained boring logs of the explorations as work proceeded, and coordinated the soil sampling operations in order to develop the required subsurface information. All soil and rock core samples were taken to our geotechnical laboratory for further classification and evaluation.

Upon completion of the fieldwork, representative soil samples were brought to the SESI office in Pine Brook, New Jersey for classification and appropriate geotechnical testing. Laboratory testing consisted of three (3) mechanical grain size analyses, four (4) percent passing sieve No. 200 tests, and seven (7) water content determinations. The results of the water content determinations, and percent passing sieve No. 200 tests are included on the individual boring logs. The results of the mechanical grain size analyses are attached in **Appendix B***.*

SUBSURFACE CONDITIONS

The project site is situated within the Hartland terrain, a sub-province of the Manhattan Prong. The Manhattan Prong is a belt of metamorphic rock which extends from Staten Island northeastward into New England. The Hartland terrain is underlain by the Hartland formation which consists of Cambro-Ordovician schists, amphibolite, pegmatite and quartz-feldspar gneisses. The bedrock has a soil profile developed by the in-situ weathering of the bedrock which is blanketed by a variable layer of alluvial soils associated with Pleistocene glaciation.

The following subsurface conditions were encountered in order of increasing depth:

Surface Materials: Surface materials typically consisted of 2 to 3 inches of asphalt or 5 to 6 inches of concrete underlain by fill materials.

Uncontrolled Fill: Uncontrolled fill was encountered below the surface materials in each of the borings generally consisting of orange-brown/brown coarse to fine sand and silt, some coarse to fine gravel with brick and traces of organics (roots). The uncontrolled fill ranges in depth from about two (2) to 16 feet below the ground surface. In borings B-1 and B-3 fill appears to extend to depths of between 14 and 16 feet. In boring B-3 samples collected from about 10 to 16 feet below the ground surface did not recover soil samples and the fill determination was based on the relatively low SPT N-values.

In general, the N-values in borings B-1 (15 feet), B-2 (5 feet) and B-3 (16 feet) ranged from weight of hammer to eight (8) blows per foot, with an average N-value of four (4). N-values in the remaining borings ranged from about five (5) to 55 blows per foot averaging about 25 blows per foot. Overall, the fill soils can be classified as very loose to medium dense which is typical for an uncontrolled fill.

Alluvial Deposits: Beneath the uncontrolled fill, the borings encountered alluvial deposits which generally consisted of a relatively thin layer of clayey silt immediately beneath the fill, or coarse to fine sand with varying amounts of silt, clayey silt and coarse to fine gravel. The layer ranged from two (2) to 18 feet in thickness and has SPT N-values ranging from 17 blows per foot to 116 blows per eight (8) inches indicating the strata to be medium to very dense. Based on isolated, relatively high SPT N-values and drilling observations, cobbles and boulders are also considered to be present in the layer. Boring B-1 was completed in the alluvial layer with, to general appearance, refusal on a boulder.

Residual Soils: Beneath the alluvial deposits in boring B-3, B-6 and B-7 are variable layers of residual soils generally consisting of friable, sand and gravel-sized angular particles of mica schist/gneiss in a matrix of silt or clayey silt. This unit is derived from the in-place weathering of the underlying bedrock and typically exhibits a strong relict structure of the banded, foliated parent rock. There were instances where quartz-feldspar rich lenses were encountered that exhibited a lower degree of weathering than the micaceous matrix and coarse sand and gravel-sized angular particles were dominant. This layer is considered transitional with the underlying decomposed rock and varied from five (5) to 18 feet in thickness in the noted

borings. SPT N-values range from about 19 blows per foot to 75 blows per nine (9) inches.

Decomposed Rock: Decomposed rock was encountered at depths ranging from about 14 to 38 feet below existing grade in borings B-3, B-5, B-6 and B-7. The decomposed rock was consistent with the bedrock underlying the project site consisting of mica schist, gneiss and pegmatite. The term decomposed rock has been applied to soil like materials retaining the relict structure of the underlying parent rock and exhibiting SPT N-values greater than 50 blows per six (6) inches.

Bedrock: Bedrock was encountered in each boring except boring B-1 at depths ranging between 20 and 38 feet below the ground surface which correlates to elevations of approximately 51 to 76. Bedrock elevations were more consistent on the northwest side of the site ranging from elevations of 67.5 to 76. The rock was encountered deeper in borings B-6 and B-7 with the top of rock encountered at about elevation 51 and about elevation 54, respectively. The rock encountered in borings B-2 to B-6 generally consisted of highly weathered schist, slightly to moderately weathered pegmatite or slightly to moderately weathered gneiss.

Rock core recoveries ranged from about 55 percent to 97 percent, with an average recovery of about 82 percent. Rock quality designation (RQD) was also recorded for each of the rock cores and ranged from about 0 percent to 95 percent with an average RQD of about 50 percent.

See the Table below for the relationship between RQD and Rock Quality.

RELATIONSHIP OF RQD AND ROCK QUALTIY:

ROCK QUALITY DESIGNATION (RQD)[1]	DESCRIPTION OF ROCK QUALITY
0 – 25	VERY POOR
25 – 50	POOR
50 – 75	FAIR
75 – 90	GOOD
90 – 100	EXCELLENT

[1] **"Rock Quality Designation"** is defined as a modified core recovery ratio that considers only pieces of the core that are at least 4 inches long. Obvious fractures caused by drilling are ignored in this system.

Groundwater: Groundwater evidence was noted in SESI borings B-1, B-3, B-4 and B-5 at depths of about 12 feet, 12.5 feet, 9 feet and 7.5 feet, respectively, during the short period of time that the holes were left open. Mud rotary drilling techniques used in the majority of the soil borings made identification of the groundwater table difficult. Groundwater was also observed in Langan observation wells SB-1 (OW) and SB-2 (OW) at depths of about 10.4 feet (El. 82.6±) and 10.7 feet (El. 78.3±) below the general ground surface, respectively. SB-2 was performed in the

basement of the existing building at 500 Main Street. During the soil probe program additional groundwater readings were collected from SB-01 and SB-02 indicating water level readings of about 13 feet (El. 80±) and 10.5 feet (El. 78.5±), respectively.

Perched/trapped groundwater may also be encountered in the uncontrolled fill and/or at the bedrock surface based on the time of year and amount of recent precipitation. Based on the observed groundwater depths, groundwater should be anticipated to be encountered during construction. The basement area of the building may require a permanent dewatering system or a water tight, "bathtub" foundation.

EVALUATION AND RECOMMENDATIONS

The recommended Site preparation and building support considerations discussed in this report are based primarily on geotechnical engineering considerations. Our geotechnical design considerations may require modifications to address environmental and/or legal considerations. This may include reuse of on-site materials, handling and disposal of soils, pumping/treating of groundwater, etc. This report should be reviewed in conjunction with the Phase II Environmental Site Assessment performed by SESI in July 2019.

General

Based on the results of the preliminary subsurface exploration program, from a soils and foundation support standpoint, this site can be considered good with respect to providing satisfactory support of the proposed buildings with the exception of the very loose to loose uncontrolled fill observed to depths of five (5) to 17 feet in borings B-1 to B-3. The underlying alluvial soils, residual soils, decomposed bedrock and bedrock will provide suitable support for conventional shallow foundations with moderate to high allowable bearing capacities. The primary negative aspects of the project site are the presence of the uncontrolled fill materials and the relatively high groundwater levels encountered in the borings and wells. Based on the boring information and the assumed basement grades, 10 feet below the existing ground surface, it is anticipated that rock will not be encountered. Should design basement levels for the proposed building extend deeper than 20 feet below existing grades, rock may be encountered. Due to the presence of a basement in the existing building at 500 Main Street, SESI recommends, at a minimum, extending the proposed new building foundation to or below the bearing grade for the existing structure. Based on the soil probe program it appears that the other structures on the project site may not have basements; however, this should be confirmed prior to construction.

Probes S-16 to S-23, performed in the basement of the existing building at 500 Main Street encountered refusal at depths of 12 to 14 feet below the existing ground surface grades, outside the building. These depths, in comparison to the borings performed as part of the preliminary geotechnical investigation, would represent completion in the uncontrolled fill or alluvial materials. The soil probe program was completed using a track mounted Geoprobe rig to advance the probe.

An evaluation of the foundations for the adjacent building, at the northern corner of the property, will also need to be conducted to determine if the structure is constructed on conventional shallow spread footings or a mat foundation bearing in the upper, natural soil strata (alluvial or residual soils). Foundations bearing in the upper strata may need to be underpinned prior to excavating for the proposed building foundations.

SITE PREPARATION PROCEDURES

General

In general, the site preparation procedures would begin with razing the existing structure, pavement and removal of uncontrolled fill, if encountered, from within the building and pavement areas, then cutting the site materials to proposed bearing grades. Removal of the uncontrolled fill would include the installation of a temporary excavation support system, (to be discussed later in the report) and then mass excavating the uncontrolled fill and old building foundations (if present) from within the proposed building limits to the proposed bearing grades. It may be possible to include the existing basement walls in the excavation support system.

Prior to placing any fill material on the site, or constructing foundations on the exposed ground surface, the entire area should be proofrolled with a double drum walk behind vibratory roller under the observation of a qualified geotechnical engineer. The proofrolling should consist of making a minimum of four (4) complete coverages of the area. Any soft areas disclosed during the proofrolling should be excavated to stable material and backfilled in a controlled manner.

Controlled fill, when required, should be placed in maximum 12-inch thick lifts, with each layer compacted to the required density using a large vibratory roller (minimum 10-ton static drum weight). In areas not accessible by the large vibratory roller, smaller compaction equipment (i.e. a double drum walk behind vibratory roller) may be used. The use of smaller compaction equipment may require thinner lift thickness and/or increasing the number of equipment passes to achieve the required compaction. Building area fills should be compacted to a minimum of 92 percent with an average of greater than 95 percent of the Modified Proctor density (ASTM D 1557). Areas, which will not have any foundations, pavement or other structural loads, may be compacted to a minimum of 90 percent of the maximum Modified Proctor density (ASTM D 1557).

Offsite borrow material, if required, should have a maximum particle size of four inches and the maximum amount of fines (percentage passing a No. 200 mesh sieve) should be 15% to help facilitate construction during wet weather. The “fines” should be non-plastic.

Backfill in confined areas such as utility trenches and foundations within load bearing or paved areas should be placed in maximum 6-inch thick layers and compacted to a minimum of 92 percent and an average of greater than 95 percent density.

If any of the soils contain significant percentages of silt/clay, they will readily soften during wet weather and from construction activity. Wetting or drying of the fill material should be accomplished as necessary to achieve the required density. The subgrade should be graded to drain and tight-rolled at the end of the day, particularly if wet weather is anticipated.

If stormwater seepage or groundwater is encountered during construction, gravel filled sumps with pumps should be installed below the subgrade elevation to allow for dewatering of the excavation. The site should be graded to prevent stormwater from flowing in to the excavations.

Demolition

At the time of our investigation, the existing site consisted of four parcels, each with structures of various heights and configurations. The structure with the largest footprint area is a two (2) story building with one (1) below grade basement level, the remaining three parcels are occupied by two (2) and three (3) story structures with unknown, below grade, basement levels. Therefore, site preparation should begin by removing the existing buildings and removing all existing site improvements from within and at least five feet (if possible) beyond the limits of the proposed buildings. All foundations, subsurface walls, concrete slabs, asphalt and subsurface utilities that will be abandoned should be completely removed from within and at least five feet beyond the limits of the proposed building areas (if possible) or as required to achieve the required excavation. Any excavations created by the removal of the existing building elements and utilities should be backfilled with controlled compacted fill if required to achieve final site grades. The controlled compacted fill should be placed in accordance with the recommendations of this report under the observation of a geotechnical engineer.

It may be possible to leave the old below-grade foundation walls in-place around the site perimeter to be used as a temporary support of excavation if they do not interfere with the proposed construction and are further evaluated by a structural engineer.

Permanent Walls

Permanent below-grade walls should be designed to resist lateral loadings from static earth pressure, water pressure (if present), and vertical surcharges. Backfill should not be placed against below-grade walls until the concrete has reached its 28-day compressive strength and after adequate lateral bracing has been provided to prevent rotation of the wall. We recommend the following design parameters:

- For braced walls (no rotation) a triangular earth pressure distribution with an equivalent fluid pressure of 60 pounds per square foot per foot of depth for unsaturated soil.

- For cantilevered walls a triangular earth pressure distribution with an equivalent fluid pressure of 42 pounds per square foot per foot of depth for unsaturated soil.

- Lateral pressures due to surface surcharges should have a uniform distribution based on a pressure equal to 0.5 times the vertical pressure for the entire depth

of the wall. We recommend using a minimum surcharge load of 250 pounds per square foot to account for fire truck loading scenarios.

All retaining walls should be provided with positive drainage behind the wall to preclude hydrostatic pressures from developing.

Utility Lines

The site soils will provide suitable support for the proposed utility lines. Cobbles greater than 4 inches in diameter should be removed from the utility line subgrade or a minimum 4-inch thick sand layer placed beneath the utility lines. If utility lines fall within very loose to loose soils, the excavation should be extended an additional 12 inches and replaced with ¾-inch clean crushed stone or clean sand and gravel.

Backfill material placed around utility lines to 6 inches above the utility line should have a maximum particle size of 1.5 inches. Backfill of utility trenches that fall within load-bearing areas should be placed in maximum 6-inch thick lifts and compacted to the same density requirements as in the building/parking areas. Trench backfill in non-load bearing areas should be compacted to 90 percent of Modified Proctor density (ASTM D1557).

Control of Groundwater

Due to the general presence of groundwater in the subsurface explorations at depths of about seven (7) feet to about 13 feet below the existing ground surface, dewatering or waterproofing of the below grade portion of the structure may be required. Depending on the design depth of the proposed foundations, the project may require either a watertight, “bathtub” foundation a or permanent dewatering system.

The bathtub foundation would consist of the construction of a watertight foundation perimeter wall and foundation slab system to prevent groundwater from entering the structure. The watertight system would likely include the use of a membrane such as the Preprufe/Bituthene waterproofing system by W. R. Grace and Co. and the use of water-stops at joints where foundation wall sections and slab come together. The bathtub foundation would also need to accommodate the forces associated with the applied lateral and buoyant hydrostatic pressures of the groundwater. The bathtub foundation would need to be designed to meet the site conditions by a qualified structural engineer and waterproofing expert.

The foundation can also be designed with a permanent dewatering system consisting of a minimum 12-inch thickness of ¾” clean stone placed below the slab with a network of 4” perforated ADS piping drained to a sump pit or chamber with dual alternating pumps and a back-up power supply. The lowest floor slab should be waterproofed and designed as a pressure slab to accommodate the upward hydrostatic forces. This should be coordinated with the environmental engineer to determine if any treatment of the water is necessary.

Due to indications of perched water in the preliminary explorations, groundwater seepage will likely be encountered during construction trapped throughout the overburden soils, especially during periods of wet weather. During construction,

gravel filled sumps with pumps will be required to allow for temporary dewatering of the excavation.

FOUNDATION DESIGN CRITERIA

The building foundation may be designed as a conventional mat foundation designed to accommodate the design building loads and hydrostatic uplift forces imposed by the ground water.

After the site preparation procedures have been successfully completed, a mat foundation, designed to support the proposed 26-story structure may be constructed. As discussed above, SESI assumes that all of the uncontrolled fill will be removed, the foundation subgrade proofrolled and any soft areas encountered during the compacting/proofrolling would be removed and replaced with suitable granular fill or ¾-inch clean crushed stone. It should be noted that the groundwater was recorded to be approximately seven (7) to 13± feet below the ground surface at the time of our investigation. In order to successfully densify the foundation bearing grade, it may be necessary to lower the groundwater by installing a dewatering system. Discharging of the groundwater should be reviewed for environmental considerations.

The mat foundation bearing on compacted fill or within the dense natural soils may be designed for a maximum net allowable bearing pressure of 2.5 tons per square foot (tsf) (5,000 psf) and a modulus of subgrade reaction of 150 pci. Deeper foundations, extending into the decomposed rock or bedrock could be designed for higher bearing loads. Should the foundations extend deeper, SESI should be consulted to adjust the proposed bearing capacity and construction procedures. The mat foundation should be designed to accommodate upward hydrostatic forces. A summary of recommended design parameters is included in Table 1.

Seismic Design

The site soils have been classified as Site Class C for seismic design purposes in accordance with 2015 International Building Code, New York Addition. Site Class C assumes that the proposed footings will be founded within the natural dense soil or fill materials placed in a controlled manner. This should be confirmed by the structural engineer once the final grading and foundation plans are prepared.

Based on a structural occupancy/risk category of I/II/III and information provided by the USGS: U.S. Seismic Design Maps, the following seismic design criteria should be used for this project:

Mapped Spectral Response Acceleration for Short Periods	SS = 0.275g
Mapped Spectral Response Acceleration for 1-Second Period	S1 = 0.072g
Site Coefficient	Fa = 1.200
Site Coefficient	Fv = 1.700
Spectral Response for short periods	SMS = 0.33g
Spectral Response for 1 second period	SM1 = 0.122g
Design Spectral Response Acceleration for Short Periods	SDS = 0.22g
Design Spectral Response Accelerations for 1-Second Period	SD1 = 0.081g

ADDITIONAL CONSTRUCTION RECOMMENDATIONS

Our recommendations for temporary excavation support, subgrade preparation, construction quality assurance and protection and monitoring of adjacent structures, are provided below.

Excavation Support

OSHA requires that all excavations in excess of 4 feet be shored, braced or adequately benched/sloped in order to provide protection from sidewall collapses. For the open cut excavation, the exposed upper fill materials, alluvial soil and residual soils will need to be supported. It may be possible to incorporate the foundation walls for the existing 500 Main Street structure into the excavation support system. The location and condition of existing walls would need to be evaluated by a structural engineer prior to demolition of the structure.

For shallow excavations (i.e., utility trenches) it may be possible for the sidewalls to be sloped back in accordance with OSHA requirements or be appropriately sheeted and braced in accordance with all applicable codes. Other options would include temporary shoring or the use of trench boxes. The proposed method should be evaluated by a qualified Geotechnical Engineer.

Stabilizing the upper portion of the foundation excavation would initially require stabilization of the uncontrolled fill and overburden soils above the decomposed rock. Within the uncontrolled fill and overburden soil, a soil nail wall could be constructed to stabilize the soil mass. The soil nail wall would originate at the top of the cut and the support system installed as the excavation is advanced. Soil nailing is a process in which passive elements (steel threaded bars) are drilled into the soil mass on a prescribed angle, spacing and length and are then grouted into the soil. The nails are installed in the embankment along a horizontal bench within the slope. Once the nails have been installed along the entire length of the bench, the exposed soil face is covered with shotcrete and a steel plate (typically 6 to 10 inches square) is placed over the steel threaded bar and secured to the shotcrete with a nut. Upon completion of the installation of the soil nails within the first excavated bench, the next bench would be excavated, and the process repeated. Typically, the height of the benches varies from 4 to 6 feet. The spacing of the bars, length of the bars and size of the bars is a function of the angle of the final slope.

Soldier Pile and Steel Sheeting

Due to the limited access and possible environmental conditions encountered at the site, soldier piles with steel sheet pile panels may also be used to support excavations adjacent to the roadway and existing structures. H-Pile sections (aka King Piles) would be installed by drilling through the overburden soils and decomposed rock; into the existing rock, casing the holes as necessary, to a minimum embedment depth below the bottom of foundation wall elevation. The H-piles would then be installed to the specified depth, dewatered as necessary and filled with cementitious grout or concrete from the top of the hole. Soldier piles may be set prior to or after concrete placement.

Steel sheet pile panels would then be installed between the soldier piles, guided by angled steel or steel channels attached to the inside of the soldier pile flanges. The steel plates should have a minimum thickness of ¾ inches or as designed to accommodate lateral forces, soldier pile spacing and environmental conditions (i.e. corrosivity). H-piles within 20 feet of adjacent structures cannot be installed with vibratory or drop hammers.

During construction, the soldier pile wall should be supported, as needed, using a raker system attached to the piles by a steel H-beam waler. In areas where the raker and waler system are not appropriate, the wall can be supported by installing tieback rods, drilled into the soil and decomposed rock behind the wall and grouting the rods in-place. Design of the soldier pile retaining wall should limit the deflection at the top of the wall to less than one (1) inch when in service.

Secant Pile Walls

As an alternate a secant pile wall can be installed. Secant pile walls are interlocking cast-in-place concrete piles. The wall is constructed by first installing a guide wall to assure proper spacing of the piles and to assist with maintaining tight vertical tolerances. The guide wall creates a concrete form with a scalloped interior edge. Piles can be installed using continuous flight augers, cased or uncased methods to advance the holes to the proper depth. The secant pile wall is constructed of piles with two different types of concrete. The preliminary piles are installed through the wall in an alternating pattern and filled concrete that is soft enough for secondary piles to be drilled into the primary piles, but that will continue to strengthen as the wall continues to cure. Secondary piles are then drilled between and into (secanted into) the preliminary piles as they are installed to the design depth. Reinforcing in the form of a steel cage or an H-pile is installed in the secondary pile, but can be installed in both the preliminary and secondary pile. The secondary pile is filled with a standard concrete mix.

When the wall is cured, and the excavation is initiated the secant wall can be supported using tieback anchors or a system of rakers and walers. Secant walls are capable of supporting soil behind the wall as well as preventing groundwater from infiltrating into the excavation.

Preconstruction Survey and Monitoring Program of Adjacent Structures:

A preconstruction survey (pre-con) of all neighboring buildings, sidewalks and utilities in nearby areas should be performed. The pre-con would provide the Owner and the foundation contractor with documentation of existing conditions in the event of a future damage claim. The pre-con survey should be performed by a qualified Professional Engineer experienced in such documentation work. The pre-con survey should include photographs and dimensioned sketches. Crack reference lines and settlement reference points should be established on existing features for monitoring during construction. The pre-con survey would serve as a pictorial and quantitative reference document to assess conditions prior to, during, and after construction. On the basis of this documentation, a construction monitoring program should be designed for monitoring the responses of adjacent structures and evaluating construction procedures. This program should consist of monitoring

horizontal and vertical movements by optical surveying and vibration monitoring using threshold-type seismographs to measure construction-induced vibrations.

We recommend that a monitoring plan and specifications be completed for the project, which should provide details of the methods and equipment for monitoring vibration and movement, as well as movement criteria and requirements for frequency of readings and reporting.

INSPECTION

The recommendations presented in the previous sections of this report are based on the assumption that the site preparation procedures will be done under engineering inspection by a representative of SESI Consulting Engineers D.P.C. We should inspect the installation of the excavation support system, proofrolling operations, over-excavation, and the bottom of the footing excavations prior to the placement of concrete and/or stone. Visual observations and in-place density testing should be done throughout fill construction to determine that the work is done in accordance with our recommendations.

The 2015 International Building Code, requires that the geotechnical investigation for a structure, including the number and types of borings shall be determined by a registered design professional. Based on the number of borings performed and proposed built over area of about 32,000 sq. ft., SESI recommends performing up to four (4) additional borings within the central portion of the proposed structure, after the on-site structure has been razed to confirm the subsurface conditions. In addition, test pit explorations should be performed adjacent to the existing structures to explore the type and configuration of foundations present for foundation, underpinning and excavation support design as required.

LIMITATIONS

The preliminary subsurface investigation performed identifies the subsurface conditions only at the locations of the explorations and at the depths where the samples were taken. As the preliminary subsurface investigation was limited to the perimeter of the proposed building site, additional explorations should be performed within the proposed building area after the existing structures have been razed. SESI Consulting Engineers D.P.C. reviews the published geologic data and the field and laboratory data and uses their professional judgment and experience to render an opinion on the subsurface conditions throughout the site based on the preliminary subsurface exploration data. Because the actual subsurface conditions may differ, we recommend that SESI be retained to perform subsequent subsurface explorations and provide construction inspection in order to minimize the risks associated with unanticipated conditions.

This report should not be used:

1. When the nature of the proposed building is changed;
2. When the size or configuration of the proposed building is altered;
3. When the location or orientation of the proposed building is modified;
4. When there is a change in ownership; or

5. For application to an adjacent or any other site.

SESI shall not accept any responsibility for problems, which may occur if SESI is not consulted when there are changes to the factors considered in this report's development. The soil logs should not be separated from the Engineering Report in order to minimize the possibility of soil log misinterpretation.

DISCLAIMER

This Report was prepared by SESI for the sole and exclusive use of BRP Companies (Client). Nothing under the Professional Services Agreement between SESI and its client, BRP Companies, shall be construed to give any rights or benefits to anyone other than BRP Companies and SESI, and all duties and responsibilities undertaken pursuant to the Agreement will be for the sole and exclusive benefit of BRP Companies and SESI and not for the benefit of any other party. This Report has been prepared and issued subject to the express condition that same is not to be disseminated to anyone other than Client, without the advance written consent of SESI (which SESI, in its sole discretion, is free to grant or withhold). Use of the Report by any other person is unauthorized and such use is at the sole risk of the user.

TABLE I

SUMMARY OF SOIL DESIGN PARAMETERS

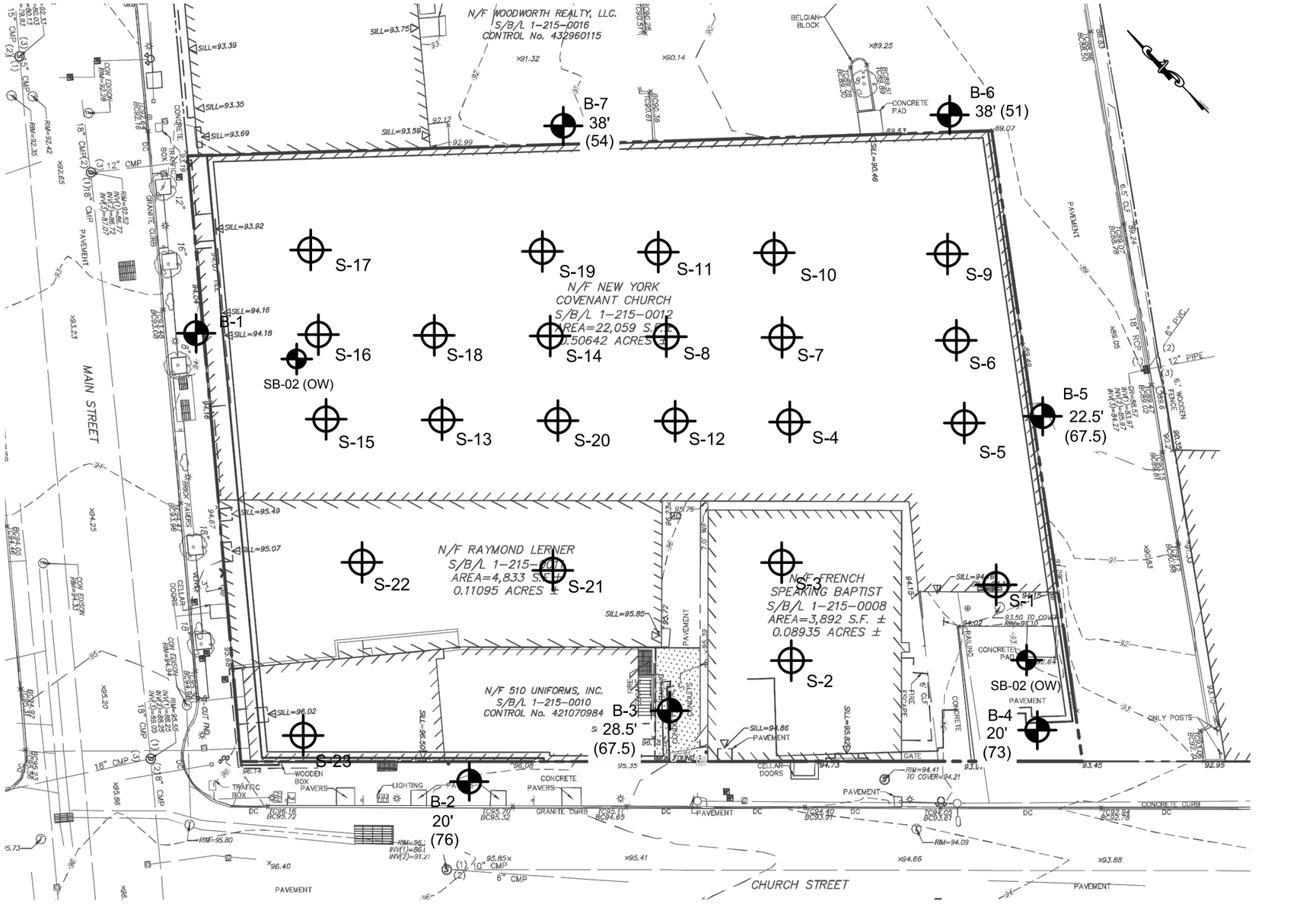
	PARAMETER	VALUE
1.	Allowable Bearing Capacity (net): Controlled Fill &Natural Soil	5,000psf
2.	Total Unit Weight	130 pcf
3.	Angle of Internal Friction - Backfill against Structures	32 degrees
4.	Earth Pressure Coefficient (See Note 1)	
	Active Earth Pressure (Ka)	0.31
	Earth Pressure @ Rest (Ko)	0.47
	Passive Earth Pressure (Kp)	3.25
5.	Coefficient of Sliding (concrete over soil)	0.35
6.	Subgrade Modulus for Floor Slab Design	
	Granular Fill	150 pci
7.	Slopes (above groundwater)	
	Maximum Cut Slope in Soil	2H:1V
	Maximum Fill Slope in Soil	2H:1V
8.	Seismic Design Criteria- Site Class	C

Notes:

1.) A drainage medium should be installed along all retaining walls to avoid hydrostatic pressures from developing.

2.) Compaction equipment used within 5± feet of permanent walls should not weigh more than 5,000 pounds.

3.) Recommended slopes in #7 above do not consider surcharge loading above. Any slopes greater than 15 feet high and/or have surcharge loading should be further evaluated by a geotechnical engineer.



LEGEND:

- B-1 - BORING NUMBER & APPROX. LOCATION
- 20' - DEPTH TO ROCK
- (76) - ROCK ELEVATION
- SB-02 (OW) - PREVIOUS BORING NUMBER & APPROX. LOCATION BY OTHERS
- S-2 - SOIL PROBE

REFERENCE

SITE INFORMATION TAKEN FROM "EXPLORATION LOCATION PLAN" PREPARED BY LANGAN, DATED 3/14/2019.

NOTE:

THIS PLAN IS FOR LOCATING BORINGS ONLY. OTHER SITE WORK SHOWN HERE IS NOT INTENDED FOR CONSTRUCTION.

SCALE: 1"=30'

0 30 60

SESI CONSULTING ENGINEERS D.P.C.
SOILS / FOUNDATIONS
SITE DESIGN
ENVIRONMENTAL
12A MAPLE AVE. PINE BROOK, N.J. 07058 PH: 973-808-9050

dwg by: yy
chk by: BAL
scale: AS NOTED
date: 9/5/19

500 MAIN STREET
NEW ROCHELLE, WESTCHESTER COUNTY, NY

BORING LOCATION PLAN

job no: 10637
drawing no:

FIG-1

N:\ACAD\10637\10637 BORING LOCATION PLAN 2019-08-29.DWG 09/05/19 04:04:32PM, cad, LAYOUT:FIG-1

SESI CONSULTING ENGINEERS	PROJECT NAME:	500 Main Street	BORING NO.	**B-1**
	LOCATION:	New Rochelle, NY	JOB NO.	10637
	METHOD:	Hollow Stem Auger	GROUND ELEVATION:	95.5±
BORING BY: ETD	DATE STARTED:	8/9/2019	GROUNDWATER TABLE DEPTH	
INSPECTOR: LM	DATE COMPLETED:	8/9/2019	0 Hr. 12.2'± Date 8/9/2019	24 Hr. N/A Date N/A

DEPTH (ft)	SAMPLE No.	REC	DEPTH FROM	DEPTH TO	Blows on Spoon 0/6	6/12	12/18	18/24	N	SOIL DESCRIPTION AND STRATIFICATION	Symbol USCS
		(in)	(ft)	(ft)					(bl/ft)		
0	S-1	3	0.5		3	4			8	5"± Concrete Sidewalk; Subbase: Brown-Black coarse to fine Sand,	
				2.5			4	4		some coarse to fine Gravel, some Silt	
	S-2	8	2.5		2	1			2	Fill: Brown-Orange coarse to fine Sand and Silt, some coarse to	
				4.5			1	1		fine Gravel	
5											
	S-3	6	5		WOH	1			-	Same as above…	
				7			WOH	1			
	S-4	8	7		WOH	1			2	Same as above... with trace organics (roots)	
				9			1	1			
10											
	S-5	18	10		2	1			3	Fill: Brown-Gray coarse to fine Sand, some Silt, some coarse to fine	
				12			2	2		Gravel, trace organics (wet)	
	S-6	12	12		WOH	2			8	Fill: Gray coarse to fine Sand and Silt, some coarse to fine Gravel,	
				14			6	18		trace organics (wet)	
15											
	S-7	10	15	16.2	24	24	50/2"		74/8"	Brown-Gray coarse to fine Sand, some Silt, some coarse to fine Gravel	
	S-8	7	16		7	18			49	Brown-Gray coarse to fine Sand, some coarse to fine Gravel, little Silt	
				18			31	35			
	S-9A	24	18		22	35			75	Brown coarse SAND, little Silt, little fine Gravel	
20	S-9B			20			40	36		Brown-Gray coarse to fine Sand, some Silt	
	S-10A	24	20	21.2	15	16			116/8"	Same as above (-200)=16.1%, W.C.=8.9%	
	S-10B						100/2"			Brown-Gray coarse to fine Sand, some coarse to fine Gravel, little Silt	
										BORING COMPLETED AT 21.2-FEET	
										DUE TO SPOON REFUSAL ON POSSIBLE	
25										COBBLE/BOULDER	
30											
35											
40											

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1⅜ in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 2

SESI CONSULTING ENGINEERS	PROJECT NAME:	500 Main Street	BORING NO.	**B-2**
	LOCATION:	New Rochelle, NY	JOB NO.	10637
	METHOD:	Mud Rotary	GROUND ELEVATION:	96±
BORING BY: ETD	DATE STARTED:	8/8/2019	GROUNDWATER TABLE DEPTH	
INSPECTOR: LM	DATE COMPLETED:	8/8/2019	0 Hr. N/A Date N/A	24 Hr. N/A Date N/A

DEPTH (ft)	SAMPLE No.	REC	DEPTH FROM	DEPTH TO	Blows on Spoon 0/6	6/12	12/18	18/24	N	SOIL DESCRIPTION AND STRATIFICATION	Symbol
0		(in)	(ft)	(ft)					(bl/ft)		USCS
										6"± Concrete Sidewalk	
	S-1	10	1		4	2			3	Fill: Brown-Gray SILT, and coarse to fine Sand, trace Gravel	
				3			1	1			
	S-2	12	3		1	2			5	Same as above...	
5				5			3	6			
	S-3A	24	5		7	11			24	Gray Clayey SILT	
	S-3B			7			13	16		Gray-Brown coarse to fine SAND, some Silt, trace fine Gravel	
10											
	S-4	12	10		16	26			55	Brown-Gray coarse to fine Sand, some Silt, some coarse	
				12			29	30		to fine Gravel	
15											
	S-5	6	15		21	27			56	Brown-Gray coarse to fine SAND, some coarse to fine Gravel,	
				17			29	26		little Silt W.C.=14.5%	
20											
	C-1		20						1.5 min	Rock Core (20' - 25')	
									1 min	Recovery = 33"/60" = 55%	
									1.5 min	RQD = 20"/60" = 30%	
									1.5 min	Rock Type : Highly weathered schist, grading to moderately	
25				25					1.5 min	weathered (lower 14") probable decomposed seams	
										BORING COMPLETE AT 25± FEET	
30											
35											
40											

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1⅜ in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 3

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main Street	BORING NO.	**B-3**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Mud Rotary	GROUND ELEVATION:	96±
BORING BY: ETD	DATE STARTED: 8/5/2019	GROUNDWATER TABLE DEPTH	
INSPECTOR: LM	DATE COMPLETED: 8/5/2019	0 Hr. 12.5'± Date 8/5/2019	24 Hr. N/A Date N/A

DEPTH (ft)	SAMPLE No.	REC	DEPTH FROM	DEPTH TO	Blows on Spoon 0/6	6/12	12/18	18/24	N	SOIL DESCRIPTION AND STRATIFICATION	Symbol USCS
0		(in)	(ft)	(ft)					(bl/ft)		
	S-1	6	0		4	4			7	Fill: Brown coarse to fine Sand, some coarse to fine Gravel,	
				2			3	3		some Silt, brick fragments	
	S-2	0	2		3	3			5	No Recovery	
				4			2	3			
5	S-3	3	4		2	2			6	Fill: Brown coarse to fine Sand, some coarse to fine Gravel,	
				6			4	3		some Silt, brick fragments	
	S-4	0	6		2	1			3	No Recovery	
				8			2	2			
	S-5	1	8		2	1			3	Fill: Brown coarse to fine Sand, some coarse to fine Gravel,	
10				10			2	3		some Silt, brick fragments	
	S-6	0	10		3	3			6	No Recovery	
				12			3	1			
	S-7	0	12		WOH	2			4	No Recovery	
				14			2	4			
15	S-8	0	14		4	2			3	No Recovery	
				16			1	15			
	S-9A	6	16	17.7	33	55			155	Brown-Orange coarse to fine Sand, some Silt, little coarse to fine Gravel	
	S-9B						100	50/2"		Brown-Gray coarse to fine Sand, and clayey Silt, trace Gravel	
20											
	S-10	7	20		33	38			72	Gray-Brown coarse to fine Sand, some Silt, little coarse to	
				22			34	32		fine Gravel (Residual Soil)	
25											
	S-11	Tip of	25	25.8	11	50/4"				Black-Gray coarse to fine Sand, some coarse to fine Gravel,	
		Spoon								little Silt (Decomposed Rock)	
	C-1		28.5							Rock Core RC-12 (28.5'-33.5')	
30									2 min	Recovery = 58"/60" = 97%	
									4 min	RQD = 35"/60" = 58%	
										Rock Type: White, slighty to moderatly weathered Pegmatite.	
				33.5						(coarse grained consisting of quartz and feldspar)	
35										BORING COMPLETED AT 33.5-FEET	
40											

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1⅜ in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

SESI CONSULTING ENGINEERS	PROJECT NAME:	500 Main Street	BORING NO.	B-4
	LOCATION:	New Rochelle, NY	JOB NO.	10637
	METHOD:	Mud Rotary	GROUND ELEVATION:	93±
BORING BY: ETD	DATE STARTED:	8/8/2019	GROUNDWATER TABLE DEPTH	
INSPECTOR: LM	DATE COMPLETED:	8/8/2019	0 Hr. 8.9'± Date 8/8/2019	24 Hr. N/A Date N/A

DEPTH (ft)	SAMPLE No.	REC	DEPTH FROM	DEPTH TO	Blows on Spoon 0/6	6/12	12/18	18/24	N	SOIL DESCRIPTION AND STRATIFICATION	Symbol USCS
0		(in)	(ft)	(ft)					(bl/ft)		
	S-1	3	0		29	8			11	2.5" Asphalt	
				2			3	4		Fill: (Subbase) Gray coarse to fine Gravel, some coarse to fine Sand, little Silt	
	S-2	18	2		4	4			15	Brown medium to fine SAND, some Silt	
				4			11	8			
5											
	S-3	24	5		13	13			27	Same as above…	
				7			14	14			
	S-4	18	7		13	16			30	Brown coarse to fine SAND, some Silt, little fine Gravel	
				9			14	16		(moist becoming wet)	
10											
	S-5	10	10		13	18			31	Brown coarse to fine Sand, some coarse to fine Gravel,	
				12			13	13		some Clayey Silt	
15											
	S-6	16	15		10	15			38	Brown-Gray coarse to fine SAND, some coarse to fine Gravel,	
				17			23	50/3"		Some Clayey Silt, occasional cobbles	
										(-200) = 25.8%, W.C.=17.9%	
20											
	C-1		20						2 min	Rock Core RC-7 (20'-25')	
									3 min	Recovery = 45"/60" = 75%	
									2 min	RQD = 31.25"/60" = 52%	
									2 min	Rock Type: Slightly to moderately weathered Gneiss, with	
25				25					4 min	highly fractured seams	
										BORING COMPLETED AT 25-FEET	
30											
										Note: Hard drilling at 18-18.5 feet and at 19.5 feet	
35											
40											

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1⅜ in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 5

SESI CONSULTING ENGINEERS	PROJECT NAME:	500 Main Street	BORING NO.	**B-5**
	LOCATION:	New Rochelle, NY	JOB NO.	10637
	METHOD:	Mud Rotary	GROUND ELEVATION:	90±
BORING BY: ETD	DATE STARTED:	8/7/2019	GROUNDWATER TABLE DEPTH	
INSPECTOR: LM	DATE COMPLETED:	8/7/2019	0 Hr. 7.5'± Date 8/7/2019	24 Hr. N/A Date N/A

DEPTH (ft)	SAMPLE No.	REC	DEPTH FROM	DEPTH TO	Blows on Spoon 0/6	6/12	12/18	18/24	N	SOIL DESCRIPTION AND STRATIFICATION	Symbol
0		(in)	(ft)	(ft)					(bl/ft)		USCS
	S-1	3	0		39	16			26	3" Asphalt	
				2			10	3			
	S-2	2	2		6	14			40	Fill: Black coarse to fine Sand, some Silt, some coarse to fine Gravel	
				4			26	32			
5										Fill: Brown medium to fine SAND, some Silt, little coarse to	
	S-3A	24	5		30	41			55	fine Gravel	
	S-3B			7			14	19		Orange-Brown Clayey SILT, some fine to medium Sand,	
	S-4	12	8		9	10			21	Orange-Brown medium to fine Sand, some Silt, little medium to	
10				10			11	14		fine Gravel W.C.=14.9%	
	S-5A	12	10		8	13			25	Orange-Brown Clayey SILT, some fine Sand, litle coarse to fine Gravel	
	S-5B			12			12	20		Brown coarse to fine Sand, some Silt, some coarse to fine Gravel,	
										occasional cobbles (-200) = 29.9%, W.C.=12.1%	
15											
	S-6	3	15	15.25	50/3"				-	Black-Brown coarse to fine Sand, some Silt, little coarse to fine Gravel	
										(Decomposed Rock)	
20											
	S-7	4	20	20.3	50/4"				-	Same as above…	
	C-1		22.5						5 min		
									2 min	Rock Core (22.5'-27.5')	
25									3 min	Recovery = 55"/60" = 92%	
									3 min	RQD = 46"/60" = 77%	
									5 min	Rock Type: Gray - Lt Gray slightly weathered Gneiss/Schist,	
				27.5						with large quartz-Feldspar bands	
										BORING COMPLETED AT 27.5-FEET	
30											
										Note: Hard drilling, chatter at 11 feet	
35											
40											

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1⅜ in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

SESI CONSULTING ENGINEERS	PROJECT NAME:	500 Main Street	BORING NO.	**B-6**
	LOCATION:	New Rochelle, NY	JOB NO.	10637
	METHOD:	Mud Rotary	GROUND ELEVATION:	89±
BORING BY: ETD	DATE STARTED:	8/6/2019	GROUNDWATER TABLE DEPTH	
INSPECTOR: LM	DATE COMPLETED:	8/7/2019	0 Hr. N/A Date N/A	24 Hr. N/A Date N/A

DEPTH (ft)	SAMPLE No.	REC	DEPTH FROM	DEPTH TO	Blows on Spoon 0/6	6/12	12/18	18/24	N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol USCS
0		(in)	(ft)	(ft)							
	S-1	0	0		14	5			9	3" ± Asphalt	
				2			4	4			
	S-2	4	2		1	2			5	Fill: Brown-Gray Clayey Silt, some coarse to fine Sand, trace	
				4			3	3		coarse to fine Gravel	
5	S-3A	9	4	5	8	9			17	Light Gray Clayey SILT,	
	S-3B	9	5	6			8	5		Orange-Brown medium to fine Sand, and Clayey Silt, little coarse to	
										fine Gravel	
10											
	S-4	10	10		13	16			31	Brown coarse to fine Sand, little coarse to fine Gravel, some	
				12			15	18		Clayey Silt, occasional cobbles	
15											
	S-5	8	15	16.7	11	28			78	Brown coarse to fine Sand, some Silt, some coarse to fine Gravel	
							50	50/2"			
20											
	S-6	18	20	21.25	12	25			75/9"	Brown coarse to fine SAND, some Clayey Silt, trace Gravel	
							50/3"			(Residual Soil) (-200) = 32.4%. W.C.=22.3%	
25											
	S-7	9	25	25.8	26	56/4"			-	Black-Gray Clayey Silt, and fine Sand trace Gravel (Residual Soil)	
30											
	S-8	2	30	30.7	22	70/2"			-	Orange-Brown, DarkGray coarse to fine Sand, some Silt, some	
										coarse to fine Gravel, (Decomposed Rock)	
35											
	S-9	3	35	35.25	50/3				-	Black-Gray coarse to fine Sand, some Silt , little fine Gravel,	
										Micaseous (Decomposed Rock)	
	C-1		38							Rock Core (38'-43')	
40									7 min		

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1⅜ in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 7

SESI CONSULTING ENGINEERS	PROJECT NAME:	500 Main Street	BORING NO.	**B-6**
	LOCATION:	New Rochelle, NY	JOB NO.	10637
	METHOD:	Mud Rotary	GROUND ELEVATION:	89±
BORING BY: ETD	DATE STARTED:	8/6/2019	GROUNDWATER TABLE DEPTH	
INSPECTOR: LM	DATE COMPLETED:	8/7/2019	0 Hr. N/A Date N/A	24 Hr. N/A Date N/A

DEPTH (ft)	SAMPLE No.	REC	DEPTH FROM	DEPTH TO	Blows on Spoon 0/6	6/12	12/18	18/24	N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol USCS
		(in)	(ft)	(ft)							
40									6 min	Recovery = 57"/60": = 95%	
									6 min	RQD = 57"/60" = 95%	
				43					6 min	Rock Type: Pelitic Schist	
										BORING COMPLETED AT 43-FEET	
45											
50											
55											
60											
65											
										Note: Hard drilling, chatter at 12 feet.	
70											
75											
80											

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1⅜ in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

SESI CONSULTING ENGINEERS	PROJECT NAME:	Proposal Redevelopment	BORING NO.	B-7
	LOCATION:	New Rochelle, NY	JOB NO.	10637
	METHOD:	Mud Rotary	GROUND ELEVATION:	92±
BORING BY: ETD	DATE STARTED:	8/6/2019	GROUNDWATER TABLE DEPTH	
INSPECTOR: LM	DATE COMPLETED:	8/6/2019	0 Hr. N/A Date N/A	24 Hr. N/A Date N/A

DEPTH (ft)	SAMPLE No.	REC	DEPTH FROM	DEPTH TO	Blows on Spoon 0/6	6/12	12/18	18/24	N	SOIL DESCRIPTION AND STRATIFICATION	Symbol USCS
0		(in)	(ft)	(ft)					(bl/ft)		
	S-1	2	0		20	4			11	2"± Asphalt	
				2			7	6		Fill: Dark Brown coarse to fine Sand, some coarse to fine Gravel, some Silt	
	S-2	0	2		3	3			5		
				4			2	1			
5	S-3	18	4		3	6			14	Fill: Dark Brown fine Sand, and Silt, trace Gravel	
				6			8	12			
	S-4	24	6		15	13			25	Fill: Dark Brown fine SAND, some Silt, trace Gravel	
				8			12	16			
10											
	S-5	12	10		9	17			31	Fill: Brown medium to fine Sand, some Clayey Silt, little coarse to	
				12			14	16		fine Gravel	
15											
	S-6A	16	15		17	22			72	Brown coarse to fine GRAVEL, some coarse to fine Sand, some Silt	
	S-6B			17			50	28		Brown coarse to fine Sand, some Clayey Silt, some coarse to fine	
										Gravel, micaceous (Residual Soil)	
20											
	S-7	5	20		39	60/3"			-	Brown coarse to fine Sand, some Clayey Silt, little coarse to fine	
				22						Gravel, micaceous (Residual Soil)	
25											
	S-8	12	25		8	9			19	Brown coarse to fine Sand, some Clayey Silt, some coarse to fine	
				27			10	24		Gravel, micaceous (Residual Soil)	
30											
	S-9A	16	30		16	18			45	Brown coarse to fine Sand, and Silt, some coarse to fine Gravel	
	S-9B			32			27	21		Red-Brown coarse to fine SAND, some Silt, trace Gravel,	
										micaceous (Residual Soil)	
35											
	S-10A	24	35		6	23			59	Brown-Gray Clayey SILT, some coarse to fine Sand, trace Gravel	
	S-10B			37			36	50/4"		Orange-Brown coarse to fine SAND, some Clayey Silt, trace Gravel	
										(Decomposed Rock)	
	C-1		38						1 min	Rock Core (38'-43')	
40									1 min	Recovery = 39"/60" = 65%	

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1⅜ in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 8

SESI CONSULTING ENGINEERS	PROJECT NAME:	Proposal Redevelopment	BORING NO.	**B-7**
	LOCATION:	New Rochelle, NY	JOB NO.	10637
	METHOD:	Mud Rotary	GROUND ELEVATION:	92±
BORING BY: ETD	DATE STARTED:	8/6/2019	GROUNDWATER TABLE DEPTH	
INSPECTOR: LM	DATE COMPLETED:	8/6/2019	0 Hr. N/A Date N/A	24 Hr. N/A Date N/A

DEPTH (ft)	SAMPLE No.	REC	DEPTH FROM	DEPTH TO	Blows on Spoon 0/6	6/12	12/18	18/24	N (bl/ft)	SOIL DESCRIPTION AND STRATIFICATION	Symbol USCS
40		(in)	(ft)	(ft)							
									1 min	RQD = 0"/60" = 0%	
									1min	Rock Type: Highly Weathered Schist	
				43					1 min		
	C-2		43							Rock Core (43'-48')	
45										Recovery = 57"/60" = 95%	
									1 min	RQD = 26"/60" = 43%	
									4 min	Rock Type: Dark Gray moderately weathered Schist grading to	
				48					6.5min	slightly weathered Gneiss with moderately weathered Schist layers.	
										BORING COMPLETED AT 48-FEET	
50											
55											
60											
65											
70											
75											
80											

Nominal I.D. of Hole	in
Nominal I.D. of Split Barrel Sampler	1⅜ in
Weight/type of Hammer on Drive Pipe	300 lb
Weight/type of Hammer on Split Barrel	140 lb
Drop of Hammer on Drive Pipe	in
Core Size	in

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Pp: Pocket Penetrometer; WOH: Weight of Hammer; WOR: Weight of Rod

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-1**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/16/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: DMA	DATE COMPLETED:	7/16/19	0 Hr. ___ 24 Hr. Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
	36	1	0	0.5		Asphalt/Concrete	0.4
			1	2	Sampled SB-1(2.5-3.0)		12.6
			2	3		Gray-brown clayey SILT, little Sand, trace coarse to fine Gravel	23.1
	36	2	3	4			0.8
5			4	5	Sampled SB-1(4.5-5.0)		1.6
			5	6			1.2
						Boring Complete at ± 6 feet bgs	
10							
15							
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 9

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-2**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/16/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: DMA	DATE COMPLETED:	7/16/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
	25	1	0	0.5		Asphalt/Concrete	0.3
			1	2	Sampled SB-2(3.0-3.5)		154.9
			2	3		Gray sandy SILT, some Clay, odor, trace Gravel	240
	28	2	3	4	Sampled SB-2(3.0-3.5)		103.6
5			4	5			100
			5	6			95.2
						Boring Complete at ± 6 feet bgs	
10							
15							
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

The subsurface information shown hereon was obtained for the design and estimating purposes for our client. It is made available to authorized users only that they may have access to the same information available to our client. It is presented in good faith, but it is not intended as a substitute for investigations, interpretations or judgment of such authorized users. Information on the logs should not be relied upon without the geotechnical engineers recommendations contained in the report from which these logs were extracted.

Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 10

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-3**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/16/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: DMA	DATE COMPLETED:	7/16/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0	7	1	0	0.5		Asphalt/Concrete	0
			1	2			0
			2	3		Gray-brown sandy SILT, little Silt, trace gravel	0
	36	2	3	4	Sampled SB-3(3.5-4.0)		0
5			4	5		Brown coarse to medium SAND, some Silt, trace clay	0
			5	6			0
						Boring Complete at ± 6 feet bgs	
10							
15							
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 11

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-4**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/17/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/17/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10				0
				12		2' thick concrete slab	0
	10	1	12	13		Brown coarse to fine SAND, some Silt, trace Clay, (wet)	0
			13				0
15	26	2		15	S-4 (4-4.5)	Brown coarse to fine SAND, some Silt, little Clay, (wet)	0
			15	16		Brown coarse to fine SAND, little Silt, trace Clay, (moist)	0
20						Boring complete at ±16.0 Feet B.G.S	
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 12

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-5**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/17/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/17/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
	14	1					0
				13	S-5 (2-2.5)	Brown coarse to fine SAND, little Silt, trace coarse Gravel (wet)	0
			13				0
15	28	2					0
				16		Brown coarse to fine SAND, some Silt, little Clay	0
						Boring complete at ±16.0 Feet B.G.S	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 13

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-6**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/17/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/17/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			16" Concrete	0
	16"	1					0
							0
							0
15	24"	2		15		Brown coarse to fine SAND, little Silt, trace coarse to fine Gravel (wet)	0
			15	16	S-6 (5-5.5)	Light brown SILT, little Clay, trace SAND.	0
						Boring complete at ±16.0 Feet B.G.S	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 14

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-7**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/17/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/17/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
	8	1					0
					S-7 (2.5-3)		0
	20	2					0
15						Brown coarse to fine SAND, some Silt, little coarse to fine Gravel	0
				16		(wet)	0
						Boring complete ±16.0 Feet B.G.S	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 15

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-8**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/17/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/17/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
		1				Brown coarse to fine SAND, little coarse to fine Gravel, trace Silt (wet)	0
	10			13			0
			13				0
15		2		15		Brown coarse to fine SAND, some Silt, little Clay (wet)	0
	26		15	16		Brown coarse to fine SAND, some fine Gravel, trace Silt (wet)	0
			16				0
		3			S-8 (7.5-8)	Brown coarse to fine SAND, some coarse to fine Gravel, trace Silt (moist)	0
	28			19			0
20						Boring complete at ±19.0 Feet B.G.S	
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 16

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-9**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/17/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/17/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
	10	1					4.5
					S-9 (2.5-3)	Brown coarse to fine SAND, little coarse to fine Gravel, trace Silt	6.7
				14		with pieces of wood (wet)	3.2
15	28	2	14			Brown coarse to fine SAND, little Silt, trace coarse to fine Gravel	1.6
				16		(moist)	0
						Boring complete at ±16.0 Feet B.G.S	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 17

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-10**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/17/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/17/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	
	1						0
		10					2.1
							2.8
15	2						3.2
		24			S-10 (5.5-6)		3.7
						Brown-black coarse to fine SAND, little Silt, trace coarse to fine	1.2
	3			18		Gravel with pieces of wood throughout (wet)	0.8
		26	18	19		Brown coarse to fine SAND, some Silt.	0
20						Boring complete at ±19.0 Feet B.G.S	
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

The subsurface information shown hereon was obtained for the design and estimating purposes for our client. It is made available to authorized users only that they may have access to the same information available to our client. It is presented in good faith, but it is not intended as a substitute for investigations, interpretations or judgment of such authorized users. Information on the logs should not be relied upon without the geotechnical engineers recommendations contained in the report from which these logs were extracted.

Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 18

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-11**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/18/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/18/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
	10	1				Brown-black coarse to fine SAND, some Silt, trace coarse to fine Gravel (wet)	0
				13	S-11 (2.5-3)		3.8
			13				2.4
15	24	2				Brown coarse to fine SAND, little coarse to fine Gravel, trace Silt with pieces of wood throughout	1.2
				16			0
						Boring complete at ±16.0 Feet B.G.S	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 19

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-12**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/17/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/17/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
	12	1			S-12 (2-2.5)	Brown coarse to fine SAND, little SILT, trace coarse to fine Gravel	0
				13		(wet)	0
			13	14		Brown coarse to fine SAND little coarse to fine Gravel	0
15	28	2	14				0
				16		Brown coarse to fine SAND, little Silt, trace coarse to fine Gravel	0
						Boring complete at ±16.0 Feet B.G.S	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 20

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-13**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/18/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/18/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
	12	1		12		Black-brown coarse to fine GRAVEL (wet)	0
			12	13		Brown coarse to fine SAND, little silt, trace Gravel	0
			13				0
15	26	2			S-13 (4-4.5)		0
				16		Brown coarse to fine SAND, little Silt, trace coarse to fine Gravel	0
						Boring complete at ±16.0 Feet B.G.S	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 21

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-14**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/17/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/17/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
					S-14 (1.5-2)		2.8
				13		Brown coarse to fine SAND, little Silt, trace Clay (wet)	1.2
			13	14		Brown-black coarse to fine GRAVEL, some coarse to fine SAND	0
15			14				0
				16		Brown coarse to fine SAND, some coarse to fine Gravel, trace Silt	0
						Boring complete at ±16.0 Feet B.G.S	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 22

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-15**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Hand Auger	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED: 7/18/19	GROUNDWATER TABLE DEPTH:	
INSPECTOR: JCS	DATE COMPLETED: 7/18/19	0 Hr.	24 Hr. Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
							0
						Brown coarse to fine SAND, little Silt, trace coarse to fine Gravel	0
				14	S-15 (3-3.5)	(wet)	0
15						Boring complete at ± 14.0 Feet B.G.S.	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 23

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-16**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Hand Auger	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED: 7/18/19	GROUNDWATER TABLE DEPTH:	
INSPECTOR: JCS	DATE COMPLETED: 7/18/19	0 Hr.	24 Hr. Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
				12	S-16 (1.5-2)	Brown coarse to fine SAND, some coarse to fine Gravel (wet)	0
						Boring complete at ±12.0 Feet B.G.S (refusal)	

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 24

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-17**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Hand Auger	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED: 7/18/19	GROUNDWATER TABLE DEPTH:	
INSPECTOR: JCS	DATE COMPLETED: 7/18/19	0 Hr.	24 Hr. Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10							
			10			18" Concrete	0
							0
					S-17 (2-2.5)	Brown coarse to fine SAND, some Silt, trace coarse to fine Gravel	0
				14		(wet)	0
15						Boring complete at ±14.0 Feet B.G.S (refusal)	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 25

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-18**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Direct Push	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED:	7/18/19	GROUNDWATER TABLE DEPTH:
INSPECTOR: JCS	DATE COMPLETED:	7/18/19	0 Hr. / 24 Hr. / Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
			10			18" Concrete	0
	12	1					0
							0
	10	2		14	S-18 (3.5-4)	Brown-black coarse to fine SAND, some Silt, little Clay	0
15						Boring complete at ±14.0 Feet B.G.S	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 26

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-19**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Hand Auger	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED: 7/19/19	GROUNDWATER TABLE DEPTH:	
INSPECTOR: JCS	DATE COMPLETED: 7/19/19	0 Hr.	24 Hr. Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
10						Basement approximatley 10 feet below grade	
			10			18" Concrete	0
						Brown coarse to fine SAND, little Silt, trace coarse to fine Gravel	0
				13	S-19 (3-3.5)	(wet)	0
15						Boring complete at ±13 Feet (refusal)	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 27

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-20**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Hand Auger	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED: 7/19/19	GROUNDWATER TABLE DEPTH:	
INSPECTOR: JCS	DATE COMPLETED: 7/19/19	0 Hr.	24 Hr. Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
					S-20 (2-2.5)		0
				13		Brown coarse to fine SAND, little Silt, trace coarse to fine Gravel	0
15						Boring Complete at ±13.0 Fett B.G.S (refusal)	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 28

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-20**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Hand Auger	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED: 7/19/19	GROUNDWATER TABLE DEPTH:	
INSPECTOR: JCS	DATE COMPLETED: 7/19/19	0 Hr.	24 Hr. Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
					S-20 (2-2.5)		0
				13		Brown coarse to fine SAND, little Silt, trace coarse to fine Gravel	0
15						Boring Complete at ±13.0 Fett B.G.S (refusal)	
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 28

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-21**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Hand Auger	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED: 7/19/19	GROUNDWATER TABLE DEPTH:	
INSPECTOR: JCS	DATE COMPLETED: 7/19/19	0 Hr.	24 Hr. Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
					S-21 (1.5-2)		0
				13		Brown-red coarse to fine SAND, some coarse to fine Gravel (wet)	0
						Boring Complete at ±13.0 Fett B.G.S (refusal)	
15							
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 29

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-22**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Hand Auger	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED: 7/19/19	GROUNDWATER TABLE DEPTH:	
INSPECTOR: JCS	DATE COMPLETED: 7/19/19	0 Hr.	24 Hr. Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			18" Concrete	0
				12	S-22 (1.5-2)	Brown coarse to fine SAND, little coarse to fine Gravel	0
						Boring Complete at ±13.0 Fett B.G.S (refusal)	
15							
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 30

SESI CONSULTING ENGINEERS

PROJECT NAME:	500 Main St.	GEOPROBE NO.	**S-23**
LOCATION:	New Rochelle, NY	JOB NO.	10637
METHOD:	Hand Auger	GROUND ELEVATION:	NA
GEOPROBE BY: EMC (Ryan)	DATE STARTED: 7/19/19	GROUNDWATER TABLE DEPTH:	
INSPECTOR: JCS	DATE COMPLETED: 7/19/19	0 Hr.	24 Hr. Date

DEPTH (ft)	RECOVERY (in)	SAMPLE TUBE No.	DEPTH FROM (ft)	DEPTH TO (ft)	ENVIRONMENTAL SOIL SAMPLE NAME	SOIL DESCRIPTION AND STRATIFICATION	PID
0							
5							
10						Basement approximatley 10' below grade	
			10			6" Concrete	0
					S-23 (1-1.5)	Brown coarse to fine SAND, little Silt, trace coarse to fine Gravel	0
				13		Boring Complete at ±13.0 Fett B.G.S (refusal)	
15							
20							
25							
30							
35							
40							

Nominal I.D. of Hole	in.
Nominal I.D. of Barrel Sampler	1⅜ in

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Pp: Pocket Penetrometer; DP: Direct Push

Approximate Change in Strata: _____ Inferred Change in Strata: _ _ _ _ _ _ _ _ _ _ _ _

Soil descriptions represent a field identification after D. M. Burmister unless otherwise noted.

FIGURE 31

Definitions of Identification Terms for Granular Soils

Our experience has shown that the following field identification system, which is patterned somewhat after the Burmister System, permits a more detailed breakdown of the components within a soil sample than other identification systems allow. It also compels the supervising technician to examine a sample quite closely in order to accurately describe the components within the sample.

Principal Component (All Capitalized)

- GRAVEL More than 50% of the sample by weight is Gravel
- SAND More than 50% of the sample by weight is Sand
- SILT More than 50% of the sample by weight is Silt

Minor Component (Proper Case)

- Gravel Less than 50% of the sample by weight is Gravel
- Sand Less than 50% of the sample by weight is Sand
- Silt Less than 50% of the sample by weight is Silt

Proportion Terms

- and Component ranges from 35% to 50% of the sample by weight
- some Component ranges from 20% to 35% of the sample by weight
- little Component ranges from 10% to 20% of the sample by weight
- trace Component ranges from 0% to 10% of the sample by weight

Size of Soil Components

- Gravel
  - Coarse gravel ranges from 3 inches to 1 inch
  - Medium gravel ranges from 1 inch to 3/8 inch
  - Fine gravel ranges from 3/8 inch to No. 10 sieve
- Sand
  - Coarse sand ranges from No. 10 sieve to No. 30 sieve
  - Medium sand ranges from No. 30 sieve to No. 60 sieve
  - Fine sand ranges from No. 60 sieve to No. 200 sieve
- Silt
  - Material which passes the No. 200 sieve
- Clay
  - Material which passes the No. 200 sieve
  - Exhibits varying degrees of plasticity

Gradation Designations

- Coarse to fine (c-f) All fractions greater than 10%of the component
- Coarse to medium (c-m) Less than 10% of the component is fine
- Medium to fine (m-f) Less than 10% of the component is coarse
- Coarse (c) Less than 10% of the component is medium and fine
- Medium (m) Less than 10% of the component is coarse and fine
- Fine (f) Less than 10% of the component is coarse and medium

Appendix A

Langan Soil Borings

LANGAN

Log of Boring **SB-1 (OW)** Sheet 1 of 2

Project: 500 Main Street	Project No.: 140169801
Location: New Rochelle, New York	Elevation and Datum: El. 93 NAVD88
Drilling Company: SoilTesting Inc.	Date Started: 10/12/17 — Date Finished: 10/12/17
Drilling Equipment: Truck Mounted Diedrich D-120	Completion Depth: 31 ft — Rock Depth: 22 ft
Size and Type of Bit: 4-1/4" I.D. Hollow Stem Auger	Number of Samples: Disturbed 8 — Undisturbed N/A — Core 2
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 20 — Completion ▼ — 24 HR. ▼ 10.4
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Tommy Page
Sampler: 2" O.D. Split Spoon	Inspecting Engineer: Justin Hall
Sampler Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Coring (min)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+93.0				0					
	+92.8	2-inch thick Asphalt								
		Dark Brown to Brown c-f SAND, sm. f-gravel, sm. silt [FILL] (dry)	0 0 0		1	S-1	SS	5	18 14 5 8	
		Dark Brown to Brown c-f SAND, sm. f-gravel, sm. silt, tr. glass [FILL] (dry)	0 0 0		2	S-2	SS	6	50/3	Split spoon refusal. Rock fragments observed on tip of spoon. Auger to 4 feet. Heavy rig chatter from 2'-3" to 3'-6"
		Gray c-f SAND, sm. f-gravel, tr. silt [FILL] (dry)	0 0 0		3 4	S-3	SS	13	26 79 100/1	
	+88.0				5					Split spoon refusal. Rock fragments observed on tip of spoon. Auger to 6 feet. Auger past 6' due to hard augering. Heavy rig chatter from 5' to 7'-6". Smooth drilling from 7'-6" to 8'-0".
					6 7					
	+85.0	Gray c-f SAND, sm. f-gravel, tr. silt [FILL] (dry)	0 0 0		8 9	S-4	SS	3	27 78 87 44	Auger walking eastward. Adjust rig to accomodate shift in auger location. Med. Chatter 8'-10'
	+83.0	Brown to Reddish Brown m-f SAND, sm. f-gravel, sm. silt, tr. c-sand [TILL] (moist) ▼	0 0 0		10 11	S-5	SS	9	28 39 38 23	Take Environmental Sample 10'-12' @ 11:15 am.
					12 13 14					Auger to 15'. Light to Medium Rig Chatter 12'-15'
	+79.0	? ? ? ?								
		Brown to Reddish Brown c-f SAND, sm. silt, sm. weathreed rock fragments (dry)	0 0 0		15 16	S-6	SS	14	24 57 55 45	
		▽			17 18 19 20					Auger to 20' Light to Medium Rig Chatter 17'-20'

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Log of Boring **SB-1 (OW)** Sheet 2 of 2

Project	Project No.
500 Main Street	140169801
Location	**Elevation and Datum**
New Rochelle, New York	El. 93 NAVD88

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Coring (min)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
					20	S-7	SS	3	100/3	
		Dark Brown f-m SAND, sm. silt, sm. weathered rock fragements (wet)	0		21					
			0							
			0		22	S-8	S	0	100/0	Spoon bouncing @ 20'. Auger to 25'. Auger refusal @ 22'. Start Coring @ 22' for Run # 1
	+71.0									
		White to Gray Pelitic Schist [BEDROCK]	0	6 min	23	Run #1	NX CORE	REC=28"/48" =58%	RQD=5"/48" =10%	
				2:27 min	24					
				4:26 min	25					
				5:07 min	26					Rock core jammed. Start Coring @ 26' for Run #2
		Gray Pelitic Schist [BEDROCK]		2:04 min	27	Run #2	NX CORE	REC=58"/60" =97%	RQD=49"/60" =82%	
				2:37 min	28					
				3:01 min	29					
				2:38 min	30					
				3:27 min	31					End of Core Upon completion, the borehole was converted into a monitoring well.
	+62.0	End of Boring at 31'			32					
					33					
					34					
					35					
					36					
					37					
					38					
					39					
					40					
					41					
					42					
					43					
					44					
					45					

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Log of Boring **SB-2 (OW)** Sheet 1 of 1

Project: 500 Main Street	Project No.: 140169801
Location: New Rochelle, New York	Elevation and Datum: Assumed El. 79 NAVD-88
Drilling Company: SoilTesting Inc.	Date Started: 10/13/17 — Date Finished: 10/13/17
Drilling Equipment: Tripod	Completion Depth: 5 ft — Rock Depth: 5 ft
Size and Type of Bit: N/A	Number of Samples: Disturbed 3 — Undisturbed — Core
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ 2.5 — Completion ▼ 2.5 — 24 HR. ▼ 0.7
Casing Hammer: N/A — Weight (lbs): N/A — Drop (in): N/A	Drilling Foreman: Tommy Page
Sampler: 2" O.D. Split Spoon	Inspecting Engineer: Justin Hall
Sampler Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	

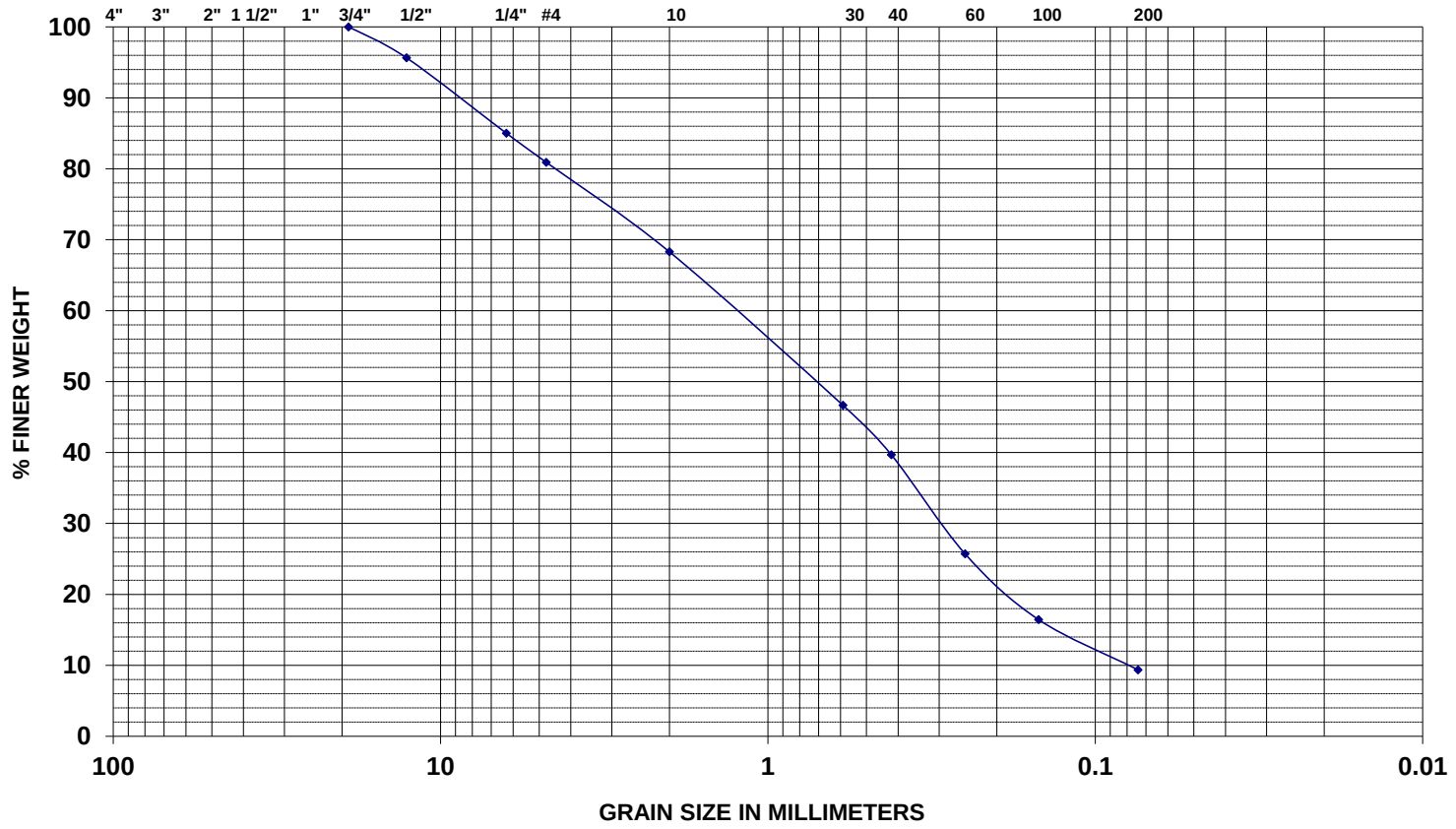
Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+79.0	14-inch thick Concrete Slab		0					
	+77.8	Gray c-f SAND, sm. silt, sm. f-gravel [TILL] (wet)	0	1	S-1	SS	18	16 32 54 100/3	ENV SAMPLE SB-2 (2'-4') @ 13:30
		Gray c-f SAND, sm. silt, sm. f-gravel [TILL] (wet)	0	2					
			0	3	S-2	SS	13	59 37 38 52	
	+74.0		0	4					
		Gray c-f SAND, sm. silt, sm. f-gravel [TILL] (wet)	0	5	S-3	SS	2	200/1	Spoon Refusal @ 5'
				6					
				7					
				8					
				9					
				10					
				11					
				12					
				13					
				14					
				15					
				16					
				17					
				18					
				19					
				20					

Appendix B

Laboratory Testing Results

GRAVEL			SAND			SILT OR CLAY
COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE	
3/4"			2mm			.074mm

U.S STANDARD SIEVE SIZES



Symbol	◆	■	▲
Boring	B-1		
Sample	S-10A		
Depth	18'-19'		
% +3"			
% Gravel	31.71		
% Sand	58.93		
% Fines	9.36		
% Silt			
% Clay			
Sp.G			
LL			
PL			
PI			
W (%)	9.7		

Particle Size Sieve #	Percent Finer Than
3"	-
1 1/2"	-
1"	-
3/4"	100.00
1/2"	95.63
1/4"	85.01
4	80.92
10	68.29
30	46.66
40	39.69
60	25.73
100	16.44
200	9.36

PARTICLE SIZE DISTRIBUTION

CLIENT: LRC Construction, LLC
PROJECT: New Rochelle, NY
DATE: August 13, 2019
JOB NO. 10637 FIGURE No 10

SYMBOL	DESCRIPTION AND REMARKS
◆	Brown coarse to fine SAND, some medium to fine Gravel, trace Silt
■	
▲	

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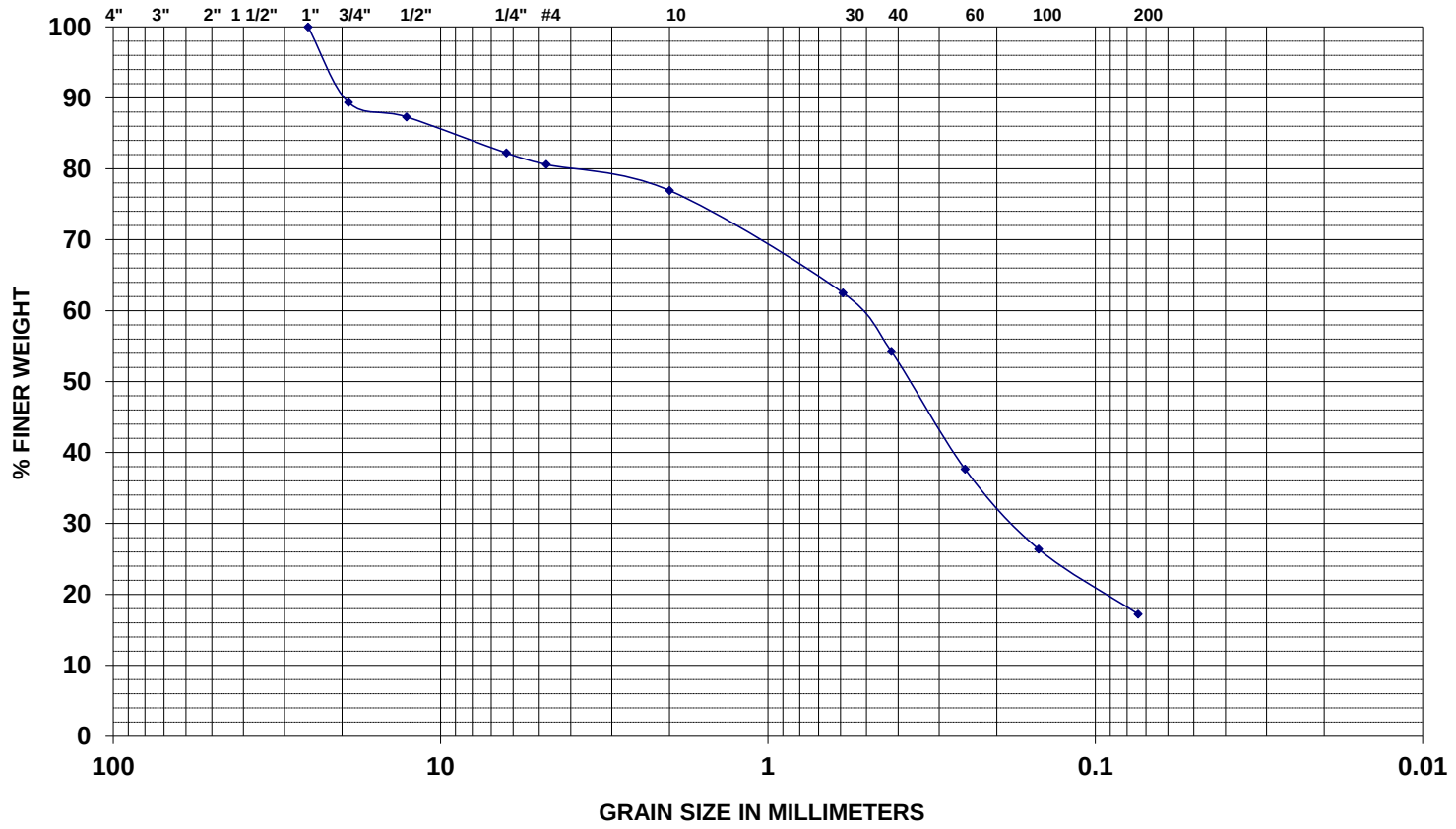
GRAVEL			SAND			SILT OR CLAY
COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE	

3/4" 2mm .074mm

U.S STANDARD SIEVE SIZES



Symbol	◆	■	▲
Boring	B-2		
Sample	S-5		
Depth	15'-17'		
% +3"			
% Gravel	23.05		
% Sand	59.72		
% Fines	17.23		
% Silt			
% Clay			
Sp.G			
LL			
PL			
PI			
W (%)	14.5		

Particle Size Sieve #	Percent Finer Than
3"	-
1 1/2"	-
1"	100.00
3/4"	89.35
1/2"	87.31
1/4"	82.23
4	80.61
10	76.95
30	62.51
40	54.27
60	37.66
100	26.38
200	17.23

PARTICLE SIZE DISTRIBUTION

CLIENT: LRC Construction, LLC
PROJECT: New Rochelle, NY
DATE: August 13, 2019
JOB NO. 10637 FIGURE No 11

SYMBOL	DESCRIPTION AND REMARKS
◆	Brown-gray coarse to fine SAND, some coarse to fine Gravel, little Silt
■	
▲	

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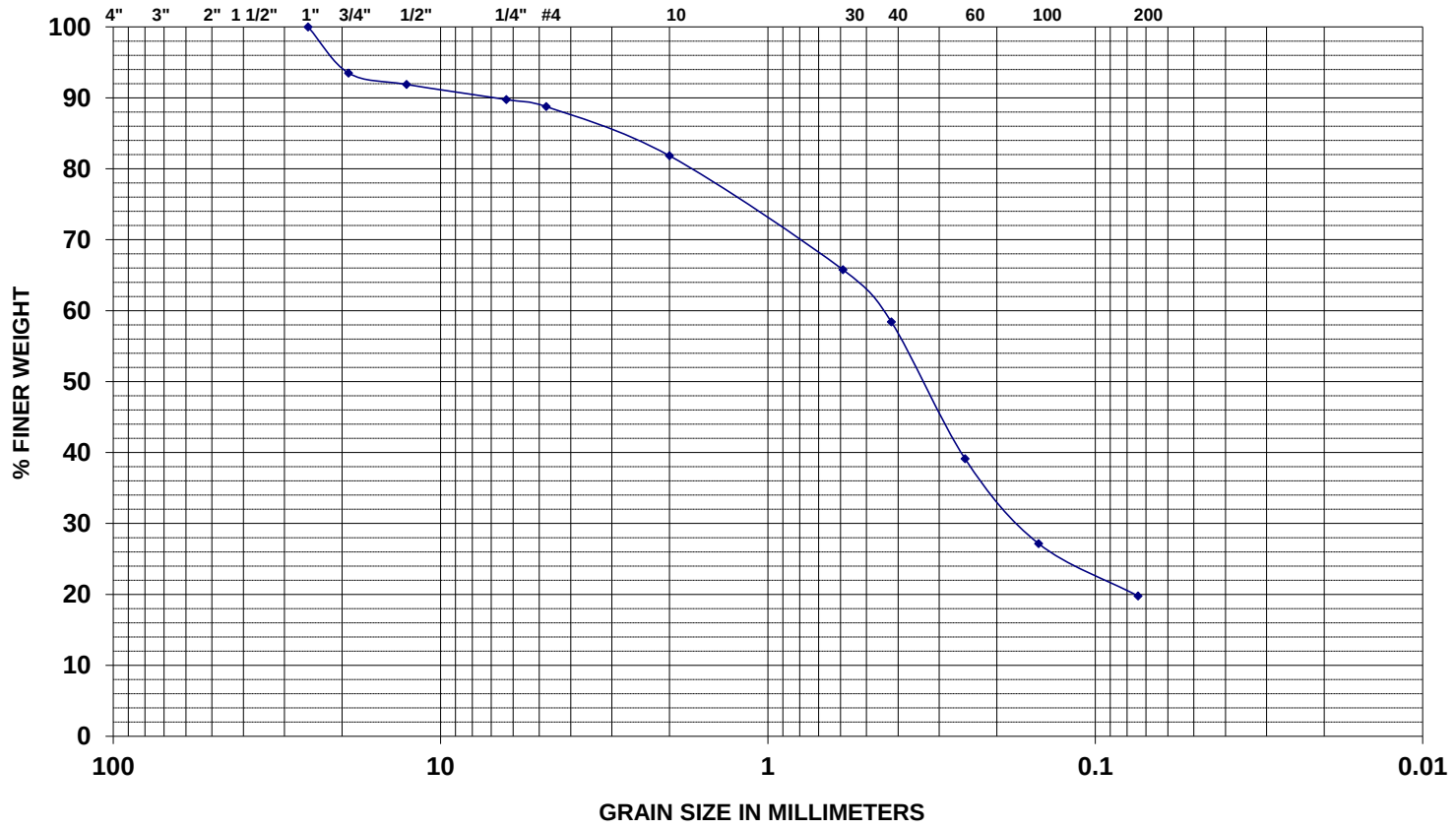
GRAVEL			SAND			SILT OR CLAY
COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE	

3/4" 2mm .074mm

U.S STANDARD SIEVE SIZES



Symbol	◆	■	▲
Boring	B-5		
Sample	S-5A		
Depth	10'-11'		
% +3"			
% Gravel	18.16		
% Sand	62.07		
% Fines	19.77		
% Silt			
% Clay			
Sp.G			
LL			
PL			
PI			
W (%)	14.9		

Particle Size Sieve #	Percent Finer Than
3"	-
1 1/2"	-
1"	100.00
3/4"	93.50
1/2"	91.88
1/4"	89.75
4	88.76
10	81.84
30	65.76
40	58.43
60	39.13
100	27.16
200	19.77

PARTICLE SIZE DISTRIBUTION

CLIENT: LRC Construction, LLC
PROJECT: New Rochelle, NY
DATE: August 13, 2019
JOB NO. 10637 FIGURE No 12

SYMBOL	DESCRIPTION AND REMARKS
◆	Brown coarse to fine SAND, little Silt, little coarse to fine Gravel
■	
▲	

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