

GEOTECHNICAL ENGINEERING REPORT

For

Huguenot Street Development

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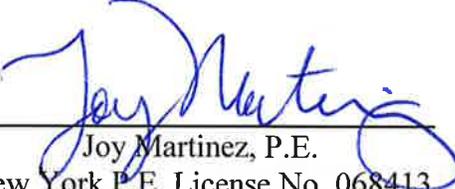
**393 Huguenot Street
New Rochelle, New York**

Prepared for:

**381-383 Huguenot LLC
20 Amelia Earhart Lane
Rye, New York 10580**

**March 25, 2016
Project No. 15272**

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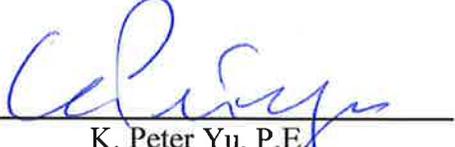

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1.0 INTRODUCTION

YU & Associates Engineers, P.C. (YU) is pleased to present this Geotechnical Engineering Report for a proposed new 6-story mixed-use development, which is to be located at 393 Huguenot Street in New Rochelle, New York. The purpose of this report is to present the results of our subsurface investigation for the proposed new construction and our engineering recommendations for foundations and geotechnical related design and construction. These services were performed in accordance with our proposal to you dated January 25, 2016.

2.0 EXISTING CONDITIONS

The site is located at 393 Huguenot Street in New Rochelle, New York. The site is located on the western side of Huguenot Street as shown in Figure 1, Site Location Map, and is currently occupied by:

- A 1-story building with a partially below-grade cellar on the southwest portion of the site (393 Huguenot Street).
- A gravel-covered lot in the central portion of the site.
- A 2-story building with a cellar on the northeast portion of the site which extends to Columbus Avenue and is divided by a series of party walls (381 to 383 Huguenot Street).

The site is bound by the following structures:

- A 2-story building to the northeast (375 to 379 Huguenot Street).
- A 3-story residential building to the southwest (395 Huguenot Street)
- A 1-to 2-story building to the northwest (18 Columbus Avenue),

Based on a recent survey¹, the site grade slopes downward from approximately el 88 at Huguenot Street to el 83 at the rear of the site. Based on site reconnaissance, beyond the rear of the site, grade drops several feet, estimated to be roughly el 76, and continues sloping downward to the west toward Columbus Avenue, to roughly el 74. Elevations cited herein refer to the North American Vertical Datum of 1988 (NAVD 88) in feet (ft).

3.0 PROPOSED CONSTRUCTION

The proposed construction at the site includes demolition of the 1-story building at 393 Huguenot Street and partial demolition of the 2-story building up to the party wall separating 381 Huguenot Street and 379 Huguenot Street. Following demolition, construction of a 6-story building with

¹ Elevations based on a "Topographical Survey" dated July 16, 2015 prepared by Richard A. Spinelli, Surveyor.

below-grade parking and a footprint of approximately 10,000 sq. ft, along with a 2-story parking structure with a footprint of approximately 6,000 sq. ft is planned. Based on drawings provided by the project architect, Doban Architecture (Doban), we understand that the lowest planned slab elevation is approximately el 78.

4.0 GEOLOGY & SURFACE WATER HYDROLOGY

Available geologic records indicate that below surficial fill, the site vicinity is underlain by natural sand, silt, and gravel deposits overlying shallow bedrock of the Hartland formation. Based on our review of the Flood Insurance Rate Maps (FIRMs), the site is located outside of the FEMA flood hazard zone.

5.0 SUBSURFACE INVESTIGATION

The subsurface investigation consisted of the following activities:

- 7 geotechnical borings drilled in the vicinity of the proposed construction;
- 1 groundwater observation well installed in a completed boring and monitored for a 3-week period;
- 1 test pit excavated inside the basement of 381 Huguenot Street to determine the existing party wall foundation configuration.

The approximate locations of the geotechnical borings, groundwater observation well, and test pit are shown on the attached Figure 2, Boring and Test Pit Location Plan.

5.1 Geotechnical Test Borings

Seven borings, denoted B-1 to B-7, were drilled by Allied Drilling, Inc. (Allied) between February 8 and February 15, 2016, under the full-time inspection of YU. Borings were advanced from a track-mounted drill rig using mud rotary drilling techniques, a 3.875-inch diameter tri-cone roller bit, and 4-inch diameter steel casing. Upon completion, all borings were backfilled with soil cuttings and the surfaces restored.

Standard Penetration Tests (SPT) were generally performed continuously through overburden soils for the upper 12 ft to 13 ft and typically at 5 ft intervals thereafter using a 2-inch diameter split-spoon sampler in accordance with ASTM-D1586. The N-value for the soil at each 24-inch SPT sampling interval is the sum of the blow counts for the second and third 6-inch increments. Representative samples from each SPT interval were classified in the field and retained for further evaluation, as necessary. Samples were classified in accordance with the Unified Soil Classification System (USCS). Copies of boring logs are included in Appendix A.

Bedrock was cored using a double-tube NX-sized (2.16-inch inner diameter) core barrel equipped with a diamond core bit. Visual classification and percentage recovery were recorded, and Rock Quality Designation (RQD) was determined per ASTM–D6032 for bedrock samples. RQD is defined as the sum of recovered core pieces greater than 4 inches in length expressed as a percentage of the total length of the core run. Photographs of the recovered bedrock cores are included in Appendix B.

5.2 Groundwater Observation Well

A groundwater observation well was installed in the completed boring B-7 as part of our subsurface investigation. The well consists of 2-inch-diameter Schedule 40 PVC pipe, with 10 ft of slotted screened intake and 10 ft of solid riser pipe. The annulus around the PVC pipe was backfilled with No. 2 filter sand to a depth above the top of the screen and sealed with bentonite pellets. A detailed well log is presented along with the corresponding boring log in Appendix A.

5.3 Test Pits

One test pit, denoted TP-1, was excavated on February 9, 2016 by Allied under the full-time inspection of YU. Test pit TP-1 was excavated inside the basement of 381 Huguenot Street. The purpose of the test pit was to observe the foundation configuration of the existing party wall adjacent to the planned construction. The test pit was excavated using a jackhammer and circular saw to break through the concrete floor, and the underlying materials were excavated manually to a depth of approximately 3 ft below the cellar slab. TP-1 was backfilled upon completion using excavated material placed in loose lifts of 8 to 10 inches in thickness; each lift was compacted and the surface restored with concrete. The test pit sketch and photographic documentation are presented in Appendix C.

6.0 SUBSURFACE CONDITIONS

Below the surface cover and heterogeneous fill materials, the subsurface stratigraphy generally consists of natural sand and silt deposits overlying a thin mantle of weathered rock, atop more competent bedrock. General subsurface conditions encountered in the borings are described below in order of increasing depth. Detailed descriptions of each sample recovered are provided on the boring logs. As an aid for interpretation, Soil and Rock Description Guides are included in Appendix D.

6.1 Cover Materials

Boring B-1 was advanced within the sidewalk on Huguenot Street and encountered 4 inches of concrete, underlain by 6 inches of subbase. Borings B-2, B-6, and B-7 were advanced within asphalt-paved driveways and parking lots and encountered asphalt ranging in thickness from 1

inch to 4 inches. Borings B-3, B-4 and B-5 were advanced within the gravel-covered lot in the central portion of the site.

6.2 Stratum F – Fill

Fill consisting of a heterogeneous mixture of medium to fine sand and silt, with lesser amounts of coarse to fine gravel and occasional asphalt, concrete, and brick fragments was encountered in all borings. Fill generally varied between 4 ft and 6 ft in thickness, except at boring B-2, where $\frac{3}{4}$ -inch clean stone fill extended to a depth of 10 ft below grade (about el 75). Based on discussions with the client, we understand this deep fill is associated with the removal and subsequent backfill of a former underground storage tank (UST). The N-values on the SPT spoon sampler generally ranged from 8 blows per foot (bpf) to 49 bpf, and averaged about 27 bpf, indicative of material of variable density. The stratum includes soil of USCS classifications SM, GP, and ML.

6.3 Stratum S – Sand

Below the fill, the top of Stratum S was generally encountered at depths between approximately 4 ft and 6 ft below grade, (about el 83 to el 79), except at boring B-2, where Stratum S was encountered at 10 ft below grade (about el 75). This stratum ranges from 1 ft to 16 ft thick at boring locations and generally consists of medium to fine sand with silt, lesser amounts of coarse to fine gravel, and occasional cobbles. N-values generally ranged from 15 to 51 bpf, and averaged about 35 bpf, except where cobbles were likely present. This stratum is generally considered medium dense to dense material and includes soil of USCS classification SM.

6.4 Stratum WR – Completely Weathered Rock

Overlying the more competent bedrock, the top of completely weathered rock, Stratum WR, was encountered in all borings at depths between approximately 10 ft and 20 ft below grade, corresponding to about el 77 to el 63. Stratum WR, which ranged from 4 ft to 8 ft thick where penetrated, is mostly soil-like in consistency, comprising coarse to fine micaceous sand and gravel, with variable amounts of silt, and intact components of the parent material. Borings B-1, B-2, B-3, and B-5 terminated in Stratum WR. Roughly half of the samples obtained encountered refusal (defined herein as over 50 blows with less than 6-inch advancement of the sampler), likely on intact components of rock. Exclusive of samples where refusal was encountered, N-values ranged from 54 to 87 bpf, and averaged about 65 bpf, indicative of very dense material. The soil component of this stratum includes material of USCS classification SM.

6.5 Stratum R – Bedrock

Bedrock, Stratum R, was encountered in borings B-4, B-6, and B-7 at depths between approximately 19 ft and 24 ft below grade, corresponding to about el 68 to el 59. These borings terminated after coring 4.5 ft to 5 ft of bedrock. Core recovery varied between 50% and 95%, and RQD varied between 13% and 26%. Where cored, bedrock consists of moderately weak to strong

schist that is slightly to highly weathered with closely to very closely spaced fractures. Detailed rock descriptions for each core run are presented on the boring logs in Appendix A.

6.6 Groundwater and Perched Water Observations

A groundwater observation well was installed in boring B-7 and monitored for a 3-week period. The recorded water level at the site between February 10 and February 29, 2016 generally ranged between 7 ft and 8 ft below grade (about el 76 to el 75), except immediately following a period of approximately 1.5 inches of rain, wherein the water level was observed at approximately 5 ft below grade (about el 78). Given that grade directly adjacent to the site is at approximately el 76, roughly 2 ft below the highest observed water level, the observed water is likely trapped stormwater perched atop the dense underlying weathered rock. A groundwater observation well log for B-7 (OW) is included in Appendix A along with the corresponding boring log.

7.0 FINDINGS

7.1 Findings from Borings and Observation Well

(Refer to Appendix A, Boring Logs and Observation Well Log)

- Below the fill materials which generally extend approximately 4 to 6 ft below grade (about el 83 to el 79), the site is underlain by a medium dense to very dense natural sand stratum ranging in thickness from 1 ft to 16 ft thick, which overlies bedrock.
- Boring B-2 encountered ¾-inch clean stone fill extending 10 ft below grade, corresponding to about el 75. We understand this fill is associated with removal and subsequent backfill of a former UST. The limits of the ¾-inch clean stone could not be determined during this investigation.
- Potential petroleum-impacted soils were encountered in borings B-2, B-5, and B-6. No environmental sampling of these soils was performed during this investigation. Boring logs indicate samples where petroleum odors were noted.
- Bedrock was encountered in borings B-4, B-6, and B-7 at depths between approximately 19 ft to 24 ft below grade (about el 68 to el 59) and was generally poor quality, with RQD ranging from 13% to 26%. Photographs of the recovered bedrock cores are included in Appendix B.
- B-7 (OW) recorded perched water levels at the site during the observation period generally ranging between 5 ft and 8 ft below grade, (about el 78 to el 75). As the site contains shallow weathered rock and bedrock, stormwater may perch along the weathered rock or bedrock surface. In general, the perched water level is expected to fluctuate depending on climatic factors, drainage conditions, and other factors.

7.2 Findings from Test Pits

(Refer to Appendix C, Test Pit Logs and Photographic Documentation)

- Test pit TP-1 exposed a portion of the existing party wall separating 381 and 379 Huguenot Street, where the planned construction will abut the portion of the existing 2-story building to remain.
- TP-1 encountered the top of the roughly 10-inch thick footing bearing in Stratum S approximately 10 inches below the cellar slab (about el 79.3). The footing was observed to protrude approximately 7 inches beyond the edge of the party wall.
- Trapped stormwater beneath the cellar slab inundated TP-1 during excavation. Strong petroleum odors were noted in both the trapped water and the soils adjacent to the footing. No environmental sampling was performed during this investigation.

8.0 GEOTECHNICAL PARAMETERS AND RECOMMENDATIONS

8.1 Geotechnical Soil Parameters

Geotechnical parameters for the various strata encountered during the subsurface investigation are summarized below.

| <u>Stratum</u> | <u>Assumed Unit Weight</u> | <u>Assumed Friction Angle</u> |
|----------------|----------------------------|-------------------------------|
| Stratum F | 120 pcf | 30 degrees |
| Stratum S | 115 pcf | 32 degrees |
| Stratum WR | 125 pcf | 36 degrees |

8.2 Design Water Level

Perched water readings in B-7 (OW) ranged between about 5 ft and 8 ft below grade, corresponding to about el 78 to el 75. Perched water was also encountered directly below the slab in TP-1 at approximately el 78 to el 79. Accordingly, excavations below or within 1 to 2 ft of the highest observed water level may encounter perched water.

8.3 Seismic Considerations

Based on the results of the borings, Site Class C can be used for seismic design. The corresponding design spectral response coefficients, S_{DS} and S_{D1} , are 0.224g and 0.068g, respectively, in accordance with NYSBC section 1613.5.4. Assuming the structure is classified as a Structural Occupancy Category II or III building (NYSBC Table 1604.5), the site is classified as Seismic

Design Category B. The site is not considered to be liquefiable for seismic events normally considered in the area of the site.

8.4 Foundation Recommendations

Based on observed subsurface conditions and anticipated structural loads, the use of shallow foundations combined with other engineering controls to support the proposed structure is feasible. The proposed building may be supported on spread footings bearing at an allowable bearing pressure of 3 tons per square foot (tsf) in Stratum S and/or controlled fill placed directly atop Stratum S. The top of Stratum S as encountered at each boring location is shown on Figure 2.

Spread footings should not be sized smaller than 2 ft in any direction; wall footings should be at least 18 inches wide. Lateral resistance at footing locations can be calculated based on an assumed friction factor of 0.40 between the base of footing and the prepared subgrade. Foundations subject to frost action should bear at least 42 inches below adjacent exterior grades. Where subsurface conditions permit, foundations should generally be constructed above the highest observed water level, approximately el 78, to minimize the need for dewatering.

8.5 Anticipated Settlement

Based on assumed column loads on the order of 200 tons or less, estimated settlement of footings bearing on properly prepared subgrades in Stratum S and/or controlled fill placed directly atop Stratum S is less than 1-inch with differential settlement between isolated new footings expected to be less than ½-inch.

8.6 Subgrade Preparation

Footing subgrades must be inspected by a qualified geotechnical engineer. Subgrades should be dry, free of debris, and relatively level. Where fill or other unsuitable soils are encountered at subgrades designed for bearing at 3 tsf, the unsuitable soil should be over-excavated in the dry and replaced with controlled fill per the recommendations given in this report.

If the slab-on-grade subgrade is in the miscellaneous fill stratum, the miscellaneous fill surface should be examined for deleterious material and any observed deleterious material should be removed. All slab-on-grade subgrades should be proof-rolled using a minimum 5-ton static-drum-weight vibratory roller, such as a Dynapac CA-25, making at least 6 overlapping passes. Smaller equipment approved by the geotechnical engineer may be used in relatively confined areas and adjacent to existing structures. Areas exhibiting weaving, rutting or any sign of instability under the action of the compactor should be over-excavated and backfilled using controlled fill or ¾-inch clean stone at the discretion of the owner's geotechnical engineer. It is essential that all subgrades underlying proposed slabs-on-grade and foundation elements be maintained dry and in an undisturbed and unfrozen state until concrete is placed.

8.7 Site Drainage and Stormwater Control

Perched water and stormwater at the site should be intercepted and diverted around the building to avoid buildup of water pressure acting in uplift on slabs and hydrostatically on below grade walls. The project civil engineer should design a system to intercept the perched water and stormwater upgradient of the building and divert it around the structure.

8.8 Below Grade Walls and Slabs

YU recommends that below grade walls be designed as non-yielding walls using at-rest lateral earth pressures assuming an equivalent fluid pressure of 60 pounds per square foot (psf) per foot of depth plus appropriate surcharge pressures with a lateral pressure conversion factor of 0.5. Backfill behind the walls should conform to the requirements given in subsequent sections of this report.

To reduce the build-up of temporary hydrostatic pressure behind below grade walls and pits due to stormwater, YU recommends that a 6-inch perimeter foundation drain be constructed around portions of the walls and/or parking slabs that are below grade. The perimeter drain should be set below the lowest slab level to provide free drainage. Prefabricated drainage mats with a waterproofing membrane, such as Enkadrain or Miradrain, should be placed against the below grade walls to facilitate water flow towards the perimeter drain. The perimeter drain should be embedded in filter stone wrapped in filter fabric and connected to an approved drainage system for discharge.

Although the perched water and stormwater should generally be diverted from below the building through site drainage designed by the project civil engineer, we recommend a minimum 0.5-mm (20-mil) thick damp proofing/waterproofing membrane be applied directly below the floor slab. A conventional slab-on-grade floor bearing on a 6-inch-thick layer of crushed stone is considered suitable, provided its subgrade is prepared as described above. Such a slab-on-grade may be designed using a subgrade modulus of 100 psi/in.

8.9 Controlled Fill

Regular earthwork for the project will involve excavation and backfill around foundations and utilities, as well as excavation and backfilling associated with site demolition. Where needed, controlled soil fill material should conform to the following requirements: a granular material smaller than 3-inch in diameter, free of organic or deleterious materials and contain, by weight, no more than 10% passing the No. 200 sieve. Fill should be placed in loose lifts of no more than 8-inches in thickness and each lift compacted to at least 95% of Modified Proctor maximum dry density (ASTM D1557). Walk-behind vibratory rollers, vibratory plate tampers and jumping jacks are acceptable, provided the required in-place dry densities are attainable. The fill generally should be within about 2% to 3% of its optimum moisture content to facilitate compaction. Alternatively,

at locations near to or below the perched water table, ¾-inch clean stone fill may be placed in loose lifts of no more than 2 feet in thickness and each lift compacted with a vibratory roller.

In-place density and moisture content may be determined by nuclear gauge in accordance with ASTM D6938. In-situ density tests should be performed a minimum of 1 test per lift for every 100 sq ft of backfill placed below footings; below slabs, testing should be performed a minimum of 1 test per lift per 1,600 sq ft of fill placed. Additionally, testing should be performed whenever, in the inspector's judgment, there appears to be a change in the quality of moisture control or effectiveness of compaction. If in-situ density tests indicate that sufficient densification has not been achieved, the lift should be reworked until the required density has been achieved.

9.0 CONSTRUCTION CONSIDERATIONS AND RECOMMENDATIONS

9.1 Placement and Protection of New Footings

In order to avoid overloading or undermining adjacent footings, variation in the elevation of footings is allowable within the range of 2 horizontal to 1 vertical (2H:1V); that is, if the footing edge is 4 ft from the adjacent footing edge, the variation in bottom of footing elevation could be up to 2 ft. This criteria shall also apply to protecting existing foundations for adjacent properties, as discussed below. Backfilling around deeper footings must be completed prior to beginning construction of shallower footings; the concrete for deeper footings must achieve at least 80 percent of design strength prior to backfilling.

9.2 Construction Dewatering and Surface Water Control

There is a possibility that stormwater, both perched atop the weathered rock and in the form of runoff, may be encountered during the installation of footings. Because the subsurface soils may soften when exposed to water, every effort should be made to maintain drainage of surface water runoff away from construction areas by grading and limiting the exposure of subgrade excavations to precipitation. A temporary mud mat of lean concrete should be used to seal any foundation excavations that must remain open for extended periods.

Limited surface water could potentially be managed with local sumps and pumps, situated so as to not undermine newly constructed foundations. However, specific requirements concerning dewatering and discharge must be determined by the project's environmental consultant. Based on environmental concerns, NYSDEC may require on-site treatment of discharge or impose other restrictions pertaining to dewatering.

9.3 Protection of Adjacent Structures

We understand that the planned development may occupy almost the entire footprint of the site. Accordingly, the adjacent properties must be protected during construction. Specific areas of concern are listed below:

Northeast Property Line (379 Huguenot Street)

Construction of the 6-story building is planned adjacent to the existing 2-story building which runs along a portion of the northeast property line. Based on the findings from the subsurface investigation, the existing party wall in this location is supported by shallow foundations bearing at approximately el 79.3. If proposed footings are constructed directly adjacent to the party wall, the new footings should match the elevation of those existing footings. Alternatively, if new footings are offset from the existing party wall, footing elevations may vary in accordance with the 2H:1V criteria discussed above. If unsuitable soils are encountered at proposed footing elevations, they should be over-excavated and replaced with controlled fill. If over-excavation is required adjacent to the party wall, the existing footing will either need to be underpinned or the new footings offset from the existing in accordance with the 2H:1V criteria discussed above.

Northwest Property Line (18 Columbus Avenue)

Construction of the 2-story parking garage is planned adjacent to the existing 1- to 2-story building bordering the northwest property line. Based on site reconnaissance, exterior grades adjacent to this structure vary between roughly el 76 and el 83. Existing footing elevations for this building likely vary by several feet, possibly extending to el 72. The elevation of the existing foundations should be confirmed during construction and adjustments made as necessary to ensure compliance with the 2H:1V criteria discussed above.

Southwest Property Line (395 Huguenot Street)

Construction of the 6-story building is planned adjacent to the existing 3-story residential building bordering the southwest property line. Based on the available survey and site reconnaissance, the 3-story building contains a below-grade cellar extending to roughly el 80. Accordingly, it is likely that the building is supported by footings bearing at or below el 78. The elevation of the existing foundations should be confirmed during construction and adjustments made as necessary to ensure compliance with the 2H:1V criteria discussed above. As this building is offset approximately 5 ft from the property line, up to 2.5 ft in variation from existing footing elevations may be tolerated without the need for further offsets.

Western Property Corner (395 Huguenot Street Garage)

Construction of the parking garage is planned adjacent to the 1-story garage bordering the western corner of the property. Based on site reconnaissance, exterior grades adjacent to this structure vary between roughly el 76 and el 83. Accordingly, it is feasible that the existing footings extend as deep as el 72. The elevation of the existing garage foundations should be confirmed during construction and adjustments made as necessary to ensure compliance with the 2H:1V criteria discussed above.

9.4 Pre-Construction Conditions Survey & Vibration Criteria

We recommend that a pre-construction conditions survey of adjacent structures and buildings, including other features such as sidewalks and roadways, be performed. The observed existing conditions should be summarized in a report to serve as documentation of the pre-construction conditions. The contractor should survey elevation control points on the adjacent structures and sidewalks prior to construction and then monitor them regularly during excavation operations. Vibrations at the adjacent buildings should be limited to 0.5 inches per second, unless otherwise approved by the Owner's engineer.

9.5 Temporary Excavation Support

All excavations must be maintained in a stable and safe condition and in accordance with all requirements set by Occupational Safety and Health Association (OSHA) Standards. The design of the temporary earth support system must consider slope stability, lateral deflection, utilities, the need to limit vibrations and the need to limit potential movements of adjacent structures. Excavations must also be performed in a manner to avoid causing damage to or undermining existing or newly constructed foundations or utilities. Temporary excavations during construction should be designed by a licensed engineer in the State of New York, and may be retained by the Contractor in conformance with his specific excavation support design. Lateral earth pressures for temporary structures may be calculated on the basis of the soil properties provided in Section 8.1 and assumed water level per Section 8.2 of this report.

Excavation support for the new structure must be carefully controlled; it must be designed and installed in such a way so as to limit loss of confinement of the subgrade soils for the existing structures. The contractor should exercise caution during excavation for new footings adjacent to existing buildings to ensure existing foundations are not damaged or disturbed.

9.6 Underpinning

Underpinning of the existing structures is not anticipated. However, if underpinning becomes necessary, it becomes a permanent component of support for the existing building. As such, it must be designed by a licensed engineer in the State of New York, retained by the Owner or Design Engineer, and may not be delegated to the Contractor's engineer.

9.7 Demolition

Prior to the start of earthwork, the existing improvements on the site should be demolished and completely removed, including the existing 1-story building at 393 Huguenot Street and the portions of the existing 2-story building located at 381 and 383 Huguenot Street. Demolition of the 2-story building adjacent to the party wall must be done carefully to avoid damaging the structure to remain. Excavations from removal of foundations, underground utilities and other

below ground obstructions should be cleared of loose soil and deleterious material, and backfilled with compacted controlled fill.

9.8 Excavation in Rock

Based on the borings and the planned construction, some excavation of weathered rock, Stratum WR, should be anticipated. Excavations in Stratum WR will likely be rippable using an excavator equipped with an extreme service trenching bucket. Excavation into more competent bedrock is not anticipated. Due to the proximity of adjacent structures and utilities, blasting should not be permitted.

9.9 Construction Inspection

All geotechnical related earthwork, support of excavation, subgrade preparation and foundation construction must be inspected and approved by an experienced special inspector/geotechnical engineer familiar with the subsurface conditions of the project site and the design intent for the proposed construction. As a minimum, we anticipate the geotechnical related special inspections for this project will include:

Special Inspection Category

- Subgrade Inspection
- Controlled Fill Placement
- In-Place Density of Controlled Fill
- Excavations – Sheeting, Shoring, and Bracing

10.0 LIMITATIONS

The presentations given in this report are based upon the subsurface information obtained during this investigation and our present understanding of the project. It should also be noted that the actual subsurface conditions at other locations around the site may vary from those indicated on the boring logs and test pit logs. This report only discloses geotechnical information obtained during the field investigation. No investigation has been performed to assess or evaluate any potential environmental concerns.

FIGURES



P:\15\15272 393 Huguenot Street Development\DWG\Fig.1 - Site Location Map.dwg Mar 04, 2016 - 3:05pm wburns

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Fax: (201) 791-4533

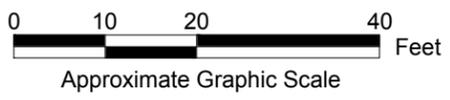
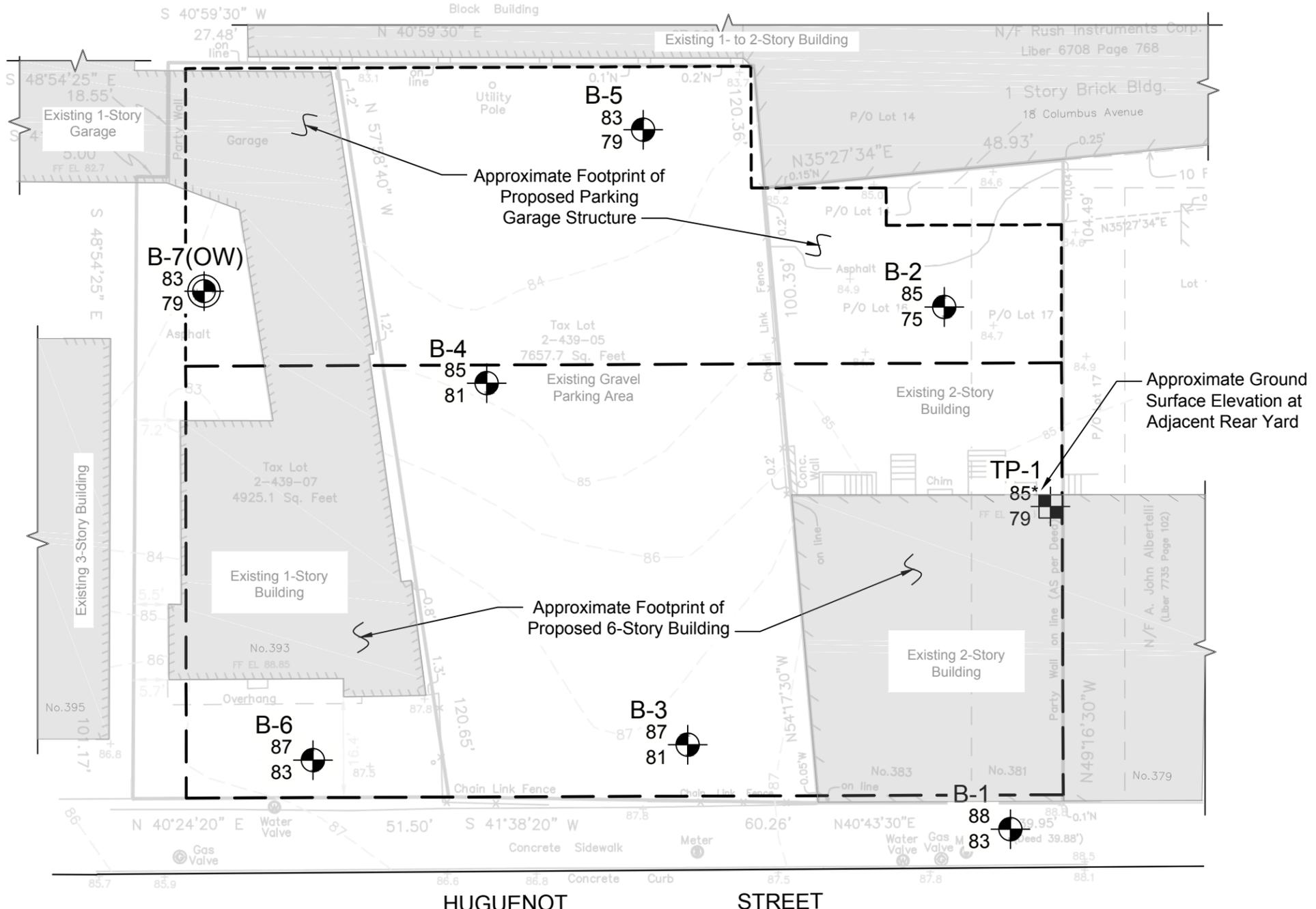
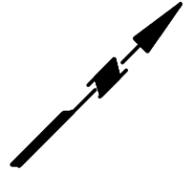
SITE LOCATION MAP

HUGUENOT STREET DEVELOPMENT

393 HUGUENOT STREET
NEW ROCHELLE NEW YORK

| | | | |
|----------------|-----------------|----------------|--------|
| JOB NO.: 15272 | SCALE: As Shown | DATE: 03/04/16 | FIG. 1 |
|----------------|-----------------|----------------|--------|

P:\1515272 393 Huguenot Street Development\DWG\Fig.2 - Boring Location Plan.dwg - Mar 07, 2016 - 4:29pm - wburns



Legend:

-  Boring
-  B-6
87 = Ground Surface Elevation
83 = Top of Bearing Stratum (Stratum S) Elevation
-  Boring with Groundwater Observation Well
-  Test Pit

Notes:

1. Borings and test pits were performed between February 8, 2016 and February 15, 2016 by Allied Drilling, Inc. under the continuous inspection of YU & Associates.
2. Subsurface information, including depths and elevations of various strata, shown on this figure and accompanying boring logs are data gathered and inferred at the boring locations only. Variations between boring locations must be expected.
3. Base plan was developed from "SK-001 Site Plan", prepared by Doban Architecture, dated November 3, 2015 and "Topographic Survey" prepared by Richard A. Spinelli, dated July 16, 2015.
4. Elevations shown herein refer to the North American Vertical Datum of 1988 (NAVD88).
5. Boring and test pit locations shown are based on field measurements from permanent site features and are approximate.

YU & Associates
 Geotechnical, Environmental and Civil Engineering
 200 Riverfront Blvd. Tel: (201) 791-0075
 Elmwood Park, NJ 07407 Fax: (201) 791-4533

BORING AND TEST PIT LOCATION PLAN
 HUGUENOT STREET DEVELOPMENT
 393 HUGUENOT STREET
 NEW ROCHELLE NEW YORK

| | | | |
|----------------|-----------------|----------------|--------|
| JOB NO.: 15272 | SCALE: As Shown | DATE: 03/04/16 | FIG. 2 |
|----------------|-----------------|----------------|--------|

APPENDIX A

Boring Logs and Observation Well Log



& Associates

BORING LOG

BORING NUMBER: **B-1**
 SHEET NUMBER: 1 of 1
 PROJECT NUMBER: **15272**

PROJECT: **Huguenot Street Development**
 LOCATION: **393 Huguenot Street, New Rochelle, NY**
 CLIENT: **381-383 Huguenot LLC**
 CONTRACTOR: **Allied Drilling, Inc.**
 DRILLER: **C. Maldonado**
 INSPECTOR: **K. O'Sullivan**
 DRILLING METHOD: **Mud Rotary**
 RIG TYPE: **Deidrich D-50 Track-Mounted Rig**

LOCATION: **See Plan**
 COORD. **Not Surveyed**
 SURFACE ELEV.: **88.0± feet**
 surveyed
 estimated from: **2015 Topo Survey**
 DATUM: **NAVD88**
 START DATE: **2/15/16** TIME: **10:00 am**
 FINISH DATE: **2/15/16** TIME: **12:00 pm**

| | | | | | | |
|-------------|---------|---------------------------------------|----------------------------|---------------------------------------|---------------------------------------|----------------------------|
| Type/Symbol | Casing | Split Spoon | Shelby Tube | Piston | Grab | Core Barrel |
| I.D. | HW | S <input checked="" type="checkbox"/> | U <input type="checkbox"/> | P <input checked="" type="checkbox"/> | G <input checked="" type="checkbox"/> | C <input type="checkbox"/> |
| O.D. | 4.0" | 1.375" | | | | |
| Length | 4.5" | 2" | | | | |
| Hammer Wt. | 4' | 24" | | | | |
| Hammer Fall | 300 lbs | 140 lbs | Hammer Type | | Drill Rod Size (OD) | |
| | 24" | 30" | Safety | | 2.625" | |

Backfill Type: Soil cuttings, concrete patch
 Observation Well Installed YES NO
 Estimated Groundwater Level: EL 75.5 (NAVD88)
 Based On Soil Moisture
 Mud Level
 Observation Well Reading
 NOTES: See well log B-7(OW) for details

| DEPTH (feet) | GRAPHIC LOG | CASING (Blows/ft) CORING (Min./ft) | SAMPLE | | | SPT (Blows/6 in.) | | | | | FIELD CLASSIFICATION AND REMARKS | |
|--------------|-------------|---------------------------------------|--------|-----------|-------------|-------------------|-----------|---------|---------|---------|---|------------|
| | | | TYPE | NUMBER | SYMBOL | DEPTH (feet) | CORING | | | | | |
| | | | | | | | 0"-6" | 6"-12" | 12"-18" | 18"-24" | | REC. (in.) |
| | | | | RUN (in.) | REC (in.) | REC (%) | L>4 (in.) | RQD (%) | Depth | Elev. | | |
| | | | | | | | | | | 0.8 | 4" Concrete, 6" Subbase. | 87.2 |
| | | PUSH | | | | | | | | | | |
| | | PUSH | S 1 | | 1.0 - 3.0 | 4 | 2 | 2 | 2 | 9 | Brown SILT & CLAY, some f Sand, occasional cinders and concrete fragments, moist, (ML), (FILL). | |
| | | PUSH | 29 | | | | | | | | | |
| | | | S 2 | | 3.0 - 5.0 | 3 | 10 | 10 | 15 | 16 | Brown to gray-brown SILT & CLAY, little f Sand, trace f Gravel, dry, (ML), (FILL). | 5.0 |
| 5 | | | S 3 | | 5.0 - 7.0 | 6 | 7 | 9 | 7 | 14 | Brown m-f SAND, and Clayey Silt, trace f Gravel, moist, (SM). | |
| | | | S 4 | | 7.0 - 9.0 | 6 | 10 | 13 | 14 | 15 | Dark brown c-f SAND, some Silt, trace f Gravel, moist, (SM). | |
| 10 | | | S 5 | | 9.0 - 11.0 | 10 | 16 | 29 | 22 | 12 | Gray-brown m-f SAND, some Silt, trace f Gravel, dry, (SM). | |
| | | | S 6 | | 11.0 - 12.3 | 17 | 21 | 50/4" | | 10 | Gray-brown m-f SAND, some Silt, trace f Gravel, dry, (Completely Weathered Rock). | 11.0 |
| 15 | | | S 7 | | 15.0 - 15.3 | 50/3" | | | | 2 | Gray-brown m-f SAND, some Silt, trace f Gravel, moist, (Completely Weathered Rock). | 15.3 |
| | | | | | | | | | | | End of Boring at 15.3 feet | 72.7 |

YU BORING LOG-SCA 15272_HUG_DATABASE.GPJ 15272_HUG_LIBRARY.GLB 3/4/16



& Associates

BORING LOG

BORING NUMBER: **B-2**

SHEET NUMBER: 1 of 1

PROJECT NUMBER: **15272**

PROJECT: **Huguenot Street Development**
 LOCATION: **393 Huguenot Street, New Rochelle, NY**
 CLIENT: **381-383 Huguenot LLC**
 CONTRACTOR: **Allied Drilling, Inc.**

LOCATION: **See Plan**
 COORD. **Not Surveyed**
 SURFACE ELEV.: **85.0± feet**
 surveyed
 estimated from: **2015 Topo Survey**

DRILLER: **C. Maldonado**
 INSPECTOR: **K. O'Sullivan**

DATUM: **NAVD88**

DRILLING METHOD: **Mud Rotary**
 RIG TYPE: **Deidrich D-50 Track-Mounted Rig**

START DATE: **2/15/16** TIME: **12:45 pm**
 FINISH DATE: **2/15/16** TIME: **3:30 pm**

| Type/Symbol | Casing | Split Spoon | Shelby Tube | Piston | Grab | Core Barrel |
|-------------|---------------------------------------|----------------------------|---------------------------------------|---------------------------------------|----------------------------|-------------|
| HW | S <input checked="" type="checkbox"/> | U <input type="checkbox"/> | P <input checked="" type="checkbox"/> | G <input checked="" type="checkbox"/> | C <input type="checkbox"/> | |
| I.D. | 4.0" | 1.375" | | | | |
| O.D. | 4.5" | 2" | | | | |
| Length | 11' | 24" | | | | |
| Hammer Wt. | 300 lbs | 140 lbs | Hammer Type | | Drill Rod Size (OD) | |
| Hammer Fall | 24" | 30" | Safety | | 2.625" | |

Backfill Type: Soil cuttings, asphalt patch
 Observation Well Installed YES NO
 Estimated Groundwater Level: EL 75.5 (NAVD88)
 Based On Soil Moisture
 Mud Level
 Observation Well Reading
 NOTES: See well log B-7(OW) for details

| DEPTH (feet) | GRAPHIC LOG | CASING (Blows/ft) CORING (Min./ft) | SAMPLE | | | SPT (Blows/6 in.) | | | | | FIELD CLASSIFICATION AND REMARKS | |
|--------------|-------------|---------------------------------------|--------|--------|-------------|-------------------|-----------|-----------|---------|-----------|---|------------|
| | | | TYPE | NUMBER | SYMBOL | DEPTH (feet) | 0"-6" | 6"-12" | 12"-18" | 18"-24" | | REC. (in.) |
| | | | | | | | RUN (in.) | REC (in.) | REC (%) | L>4 (in.) | | RQD (%) |
| 0.3 | | | | | | | | | | | 4" Asphalt. | 84.7 |
| 1.0 - 3.0 | | PUSH | S 1 | | 1.0 - 3.0 | 12 | 31 | 45 | 15 | 10 | Gray SILT, and f Sand, trace f Gravel, occasional concrete fragments, dry, (ML), (FILL). | |
| 3.0 - 4.3 | | PUSH | S 2 | | 3.0 - 4.3 | 7 | 27 | 50/4" | | 6 | Gray c-f SAND, some f Gravel, little Silt, dry, (SM), (FILL). | |
| 5.0 - 7.0 | | PUSH | S 3 | | 5.0 - 7.0 | 2 | 4 | 4 | 3 | 5 | Gray f GRAVEL, moist, (GP), (FILL). | |
| 7.0 - 9.0 | | PUSH | S 4 | | 7.0 - 9.0 | 2 | 2 | 4 | 2 | 8 | Gray f GRAVEL, moist, (GP), (FILL). | |
| 9.0 - 11.0 | | PUSH | S 5 | | 9.0 - 11.0 | 3 | 3 | 28 | 34 | 10 | Top: Gray f GRAVEL, moist, (GP), (FILL). | 10.0 |
| 11.0 - 13.0 | | PUSH | S 6 | | 11.0 - 13.0 | 24 | 38 | 49 | 51 | 15 | Bottom: Brown-gray m-f SAND, some Silt, trace f Gravel, moist, (petroleum odor), (SM). | 11.0 |
| 15.0 - 15.3 | | PUSH | S 7 | | 15.0 - 15.3 | 75/4" | | | | 3 | Brown-gray c-f SAND, little Silt, trace f Gravel, moist, (Completely Weathered Rock). | 15.3 |
| | | | | | | | | | | | Hard drilling 14.5'-15'. Gray m-f SAND, some Silt, trace f Gravel, moist, (Completely Weathered Rock). | 69.7 |
| | | | | | | | | | | | End of Boring at 15.3 feet | |

YU BORING LOG-SCA 15272_HUG_DATABASE.GPJ 15272_HUG_LIBRARY.GLB 3/4/16



& Associates

BORING LOG

BORING NUMBER: **B-3**
 SHEET NUMBER: 1 of 1
 PROJECT NUMBER: **15272**

PROJECT: **Huguenot Street Development**
 LOCATION: **393 Huguenot Street, New Rochelle, NY**
 CLIENT: **381-383 Huguenot LLC**
 CONTRACTOR: **Allied Drilling, Inc.**
 DRILLER: **C. Maldonado**
 INSPECTOR: **K. O'Sullivan**
 DRILLING METHOD: **Mud Rotary**
 RIG TYPE: **Deidrich D-50 Track-Mounted Rig**

LOCATION: **See Plan**
 COORD. **Not Surveyed**
 SURFACE ELEV.: **87.0± feet**
 surveyed
 estimated from: **2015 Topo Survey**
 DATUM: **NAVD88**
 START DATE: **2/10/16** TIME: **1:20 pm**
 FINISH DATE: **2/10/16** TIME: **3:30 pm**

| Type/Symbol | Casing | Split Spoon | Shelby Tube | Piston | Grab | Core Barrel |
|-------------|---------------------------------------|----------------------------|---------------------------------------|---------------------------------------|----------------------------|-------------|
| HW | S <input checked="" type="checkbox"/> | U <input type="checkbox"/> | P <input checked="" type="checkbox"/> | G <input checked="" type="checkbox"/> | C <input type="checkbox"/> | |
| I.D. | 4.0" | 1.375" | | | | |
| O.D. | 4.5" | 2" | | | | |
| Length | 4' | 24" | | | | |
| Hammer Wt. | 300 lbs | 140 lbs | Hammer Type | | Drill Rod Size (OD) | |
| Hammer Fall | 24" | 30" | Safety | | 2.625" | |

Backfill Type: Soil cuttings
 Observation Well Installed YES NO
 Estimated Groundwater Level: EL 75.5 (NAVD88)
 Based On Soil Moisture
 Mud Level
 Observation Well Reading
 NOTES: See well log B-7(OW) for details

| DEPTH (feet) | GRAPHIC LOG | CASING (Blows/ft) CORING (Min./ft) | SAMPLE | | | SPT (Blows/6 in.) | | | | | FIELD CLASSIFICATION AND REMARKS | | | | |
|--------------|-------------|---------------------------------------|-----------|-----------|-------------|-------------------|---------|--------|---------|---------|----------------------------------|------------|---|--|--|
| | | | TYPE | NUMBER | SYMBOL | DEPTH (feet) | 0"-6" | 6"-12" | 12"-18" | 18"-24" | | REC. (in.) | | | |
| | | | | | | | CORING | | | | | | | | |
| | | | RUN (in.) | REC (in.) | REC (%) | L>4 (in.) | RQD (%) | Depth | Elev. | | | | | | |
| 5 | | PUSH | S 1 | | 0.0 - 2.0 | 6 | 4 | 4 | 5 | 15 | | | Brown m-f SAND, and Clayey Silt, trace f Gravel, dry, (SM), (FILL). | | |
| | | PUSH | S 2 | | 2.0 - 4.0 | 7 | 13 | 20 | 21 | 9 | | | Brown m-f SAND, and Silt, trace f Gravel, occasional concrete fragments, dry, (SM), (FILL). | | |
| | | | S 3 | | 4.0 - 6.0 | 13 | 15 | 17 | 18 | 19 | | | 6.0 | 81.0 | Brown to dark-brown f SAND, and Silt, trace f Gravel, moist, (SM), (FILL). |
| | | | S 4 | | 6.0 - 8.0 | 10 | 13 | 16 | 20 | 14 | | | | | Brown m-f SAND, some Silt, little c-f Gravel, moist, (SM). |
| | | | S 5 | | 8.0 - 10.0 | 9 | 11 | 11 | 22 | 13 | | | 10.0 | 77.0 | Brown f SAND, some Silt, moist, (SM). |
| | | | S 6 | | 10.0 - 12.0 | 12 | 53 | 75/3" | | 8 | | | | | Gray f SAND, and Silt, trace f Gravel, moist, (Completely Weathered Rock). Hard drilling 12'-14'. Hard drilling 14.5'-15'. |
| | | 15 | | S 7 | | 15.0 - 15.1 | 50/1" | | | | 1 | 15.1 | 71.9 | Gray f SAND, moist, (Completely Weathered Rock). End of Boring at 15.1 feet | |

YU BORING LOG-SCA - 15272_HUG_DATABASE.GPJ 15272_HUG_LIBRARY.GLB 3/4/16



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BORING LOG

BORING NUMBER: **B-4**

SHEET NUMBER: 1 of 2

PROJECT NUMBER: **15272**

PROJECT: **Huguenot Street Development**
 LOCATION: **393 Huguenot Street, New Rochelle, NY**
 CLIENT: **381-383 Huguenot LLC**
 CONTRACTOR: **Allied Drilling, Inc.**

LOCATION: **See Plan**
 COORD. **Not Surveyed**
 SURFACE ELEV.: **85.0± feet**
 surveyed
 estimated from: **2015 Topo Survey**

DRILLER: **C. Maldonado**
 INSPECTOR: **K. O'Sullivan**

DATUM: **NAVD88**

DRILLING METHOD: **Mud Rotary**
 RIG TYPE: **Deidrich D-50 Track-Mounted Rig**

START DATE: **2/11/16** TIME: **9:00 am**
 FINISH DATE: **2/11/16** TIME: **11:30 am**

| Type/Symbol | Casing | Split Spoon | Shelby Tube | Piston | Grab | Core Barrel |
|-------------|---------------------------------------|----------------------------|---------------------------------------|---------------------------------------|----------------------------|-------------|
| HW | S <input checked="" type="checkbox"/> | U <input type="checkbox"/> | P <input checked="" type="checkbox"/> | G <input checked="" type="checkbox"/> | C <input type="checkbox"/> | |
| I.D. | 4.0" | 1.375" | | | | 2.16" |
| O.D. | 4.5" | 2" | | | | 2.96" |
| Length | 4' | 24" | | | | 5' |
| Hammer Wt. | 300 lbs | 140 lbs | Hammer Type | | Drill Rod Size (OD) | |
| Hammer Fall | 24" | 30" | Safety | | 2.625" | |

Backfill Type: Soil cuttings
 Observation Well Installed YES NO
 Estimated Groundwater Level: EL 75.5 (NAVD88)
 Based On Soil Moisture
 Mud Level
 Observation Well Reading
 NOTES: See well log B-7(OW) for details

YU BORING LOG-SCA 15272_HUG_DATABASE.GPJ 15272_HUG_LIBRARY.GLB 3/4/16

| DEPTH (feet) | GRAPHIC LOG | CASING (Blows/ft) CORING (Min./ft) | SAMPLE | | | SPT (Blows/6 in.) | | | | | FIELD CLASSIFICATION AND REMARKS | |
|--------------|-------------|---------------------------------------|-------------|-----------|---------|-------------------|---------|--------|---------|---|----------------------------------|------------|
| | | | TYPE | NUMBER | SYMBOL | DEPTH (feet) | 0"-6" | 6"-12" | 12"-18" | 18"-24" | | REC. (in.) |
| | | | | | | | CORING | | | | | |
| | | | RUN (in.) | REC (in.) | REC (%) | L>4 (in.) | RQD (%) | Depth | Elev. | | | |
| | PUSH | S 1 | 0.0 - 2.0 | 8 | 9 | 4 | 4 | 16 | | Dark-brown c-f SAND, some Silt, dry, (SM), (FILL). | | |
| | PUSH | S 2 | 2.0 - 4.0 | 5 | 17 | 26 | 33 | 16 | | Brown m-f SAND, little Silt, moist, (SM), (FILL). | | |
| 5 | | S 3 | 4.0 - 6.0 | 20 | 27 | 21 | 30 | 15 | | Brown m-f SAND, and Silt, moist, (SM). | | |
| | | S 4 | 6.0 - 8.0 | 22 | 60 | 57 | 46 | 15 | | Brown m-f SAND, and Silt, trace f Gravel, moist, (SM). Hard drilling, possible cobbles at 7'. | | |
| 10 | | S 5 | 8.0 - 10.0 | 12 | 19 | 24 | 24 | 0 | | No sample recovery. | | |
| | | S 6 | 10.0 - 12.0 | 10 | 28 | 38 | 35 | 6 | 11.0 | Brown m-f SAND, little Silt, trace c Gravel, wet, (SM), weathered rock fragments in spoon tip. | | |
| 15 | | S 7 | 15.0 - 17.0 | 20 | 29 | 36 | 50/3" | 12 | | Brown c-f SAND, little Silt, trace f Gravel, moist, (Completely Weathered Rock). | | |
| | | S 8 | 19.0 - 19.0 | 50/0" | | | | | 19.0 | Spoon bouncing, no sample recovery. | | |



& Associates

BORING LOG

(continued)

BORING NUMBER: **B-4**

SHEET NUMBER: 2 of 2

PROJECT NUMBER: **15272**

PROJECT: **Huguenot Street Development**

LOCATION: **393 Huguenot Street, New Rochelle, NY**

CLIENT: **381-383 Huguenot LLC**

CONTRACTOR: **Allied**

DRILLER: **C. Maldonado**

INSPECTOR: **K. O'Sullivan**

| DEPTH (feet) | GRAPHIC LOG | CASING (Blows/ft) CORING (Min./ft) | SAMPLE | | | SPT (Blows/6 in.) | | | | | FIELD CLASSIFICATION AND REMARKS | |
|--------------|-------------|---------------------------------------|--------|--------|-------------|-------------------|-----------|-----------|---------|-----------|----------------------------------|------------|
| | | | TYPE | NUMBER | SYMBOL | DEPTH (feet) | 0"-6" | 6"-12" | 12"-18" | 18"-24" | | REC. (in.) |
| | | | | | | | CORING | | | | | |
| | | | | | | | RUN (in.) | REC (in.) | REC (%) | L>4 (in.) | | RQD (%) |
| | | | | | | | | | | | Depth | Elev. |
| | | 8 | C | 1 | 19.0 - 24.0 | 60 | 49 | 82 | 12.5 | 21 | | |
| | | 8 | | | | | | | | | | |
| | | 7 | | | | | | | | | | |
| | | 6 | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | |
| | | | | | | | | | | | 24.0 | 61.0 |
| | | | | | | | | | | | End of Boring at 24 feet | |

YU BORING LOG-SCA 15272_HUG_DATABASE.GPJ 15272_HUG_LIBRARY.GLB 3/4/16



& Associates

BORING LOG

BORING NUMBER: **B-5**
 SHEET NUMBER: 1 of 1
 PROJECT NUMBER: **15272**

PROJECT: **Huguenot Street Development**
 LOCATION: **393 Huguenot Street, New Rochelle, NY**
 CLIENT: **381-383 Huguenot LLC**
 CONTRACTOR: **Allied Drilling, Inc.**
 DRILLER: **C. Maldonado**
 INSPECTOR: **K. O'Sullivan**
 DRILLING METHOD: **Mud Rotary**
 RIG TYPE: **Deidrich D-50 Track-Mounted Rig**

LOCATION: **See Plan**
 COORD. **Not Surveyed**
 SURFACE ELEV.: **83.0± feet**
 surveyed
 estimated from: **2015 Topo Survey**
 DATUM: **NAVD88**
 START DATE: **2/11/16** TIME: **12:40 pm**
 FINISH DATE: **2/15/16** TIME: **8:30 am**

| Type/Symbol | Casing | Split Spoon | Shelby Tube | Piston | Grab | Core Barrel |
|-------------|---------------------------------------|----------------------------|---------------------------------------|---------------------------------------|----------------------------|-------------|
| HW | S <input checked="" type="checkbox"/> | U <input type="checkbox"/> | P <input checked="" type="checkbox"/> | G <input checked="" type="checkbox"/> | C <input type="checkbox"/> | |
| I.D. | 4.0" | 1.375" | | | | |
| O.D. | 4.5" | 2" | | | | |
| Length | 4' | 24" | | | | |
| Hammer Wt. | 300 lbs | 140 lbs | Hammer Type | | Drill Rod Size (OD) | |
| Hammer Fall | 24" | 30" | Safety | | 2.625" | |

Backfill Type: Soil cuttings
 Observation Well Installed YES NO
 Estimated Groundwater Level: EL 75.5 (NAVD88)
 Based On Soil Moisture
 Mud Level
 Observation Well Reading
 NOTES: See well log B-7(OV) for details

| DEPTH (feet) | GRAPHIC LOG | CASING (Blows/ft) CORING (Min./ft) | SAMPLE | | | SPT (Blows/6 in.) | | | | | FIELD CLASSIFICATION AND REMARKS | |
|--------------|-------------|---------------------------------------|-----------|-----------|-------------|-------------------|---------|--------|---------|---------|---|------------|
| | | | TYPE | NUMBER | SYMBOL | DEPTH (feet) | 0"-6" | 6"-12" | 12"-18" | 18"-24" | | REC. (in.) |
| | | | | | | | CORING | | | | | |
| | | | RUN (in.) | REC (in.) | REC (%) | L>4 (in.) | RQD (%) | Depth | Elev. | | | |
| | | PUSH | S 1 | | 0.0 - 2.0 | 17 | 14 | 17 | 13 | 17 | Dark brown c-f SAND, little Silt, trace f Gravel, occasional brick and concrete fragments, dry, (FILL). | |
| | | PUSH | S 2 | | 2.0 - 4.0 | 18 | 23 | 26 | 21 | 11 | Dark brown c-f SAND, some Silt, trace f Gravel, occasional wood, moist, (FILL). | |
| | | 28 | S 2 | | | | | | | | | |
| | | 18 | S 2 | | | | | | | | | |
| 5 | | | S 3 | | 4.0 - 6.0 | 7 | 15 | 25 | 25 | 15 | Brown f SAND, and Silt & Clay, moist, (SM), (FILL). | |
| | | | S 4 | | 6.0 - 8.0 | 14 | 17 | 34 | 34 | 14 | Brown m-f SAND, little Silt, moist, (SM). Hard drilling 6.5'-7', possible cobbles. | |
| | | | S 5 | | 8.0 - 10.0 | 8 | 7 | 8 | 9 | 12 | Dark gray m-f SAND, little Silt, wet, (petroleum odor), (SM). | |
| | | | S 6 | | 10.0 - 12.0 | 13 | 22 | 28 | 43 | 15 | Dark gray c-f SAND, little Silt, trace c-f Gravel, wet, (petroleum odor), (SM). | |
| 15 | | | S 7 | | 15.0 - 16.8 | 20 | 24 | 34 | 50/3" | 11 | Gray brown m-f SAND, little Silt, trace f Gravel, dry, (SM), (Completely Weathered Rock). | |
| | | | | | | | | | | | End of Boring at 16.8 feet | |

YU BORING LOG-SCA 15272_HUG_DATABASE.GPJ 15272_HUG_LIBRARY.GLB 3/4/16



BORING LOG

& Associates

BORING NUMBER: **B-6**
 SHEET NUMBER: 1 of 2
 PROJECT NUMBER: **15272**

PROJECT: **Huguenot Street Development**
 LOCATION: **393 Huguenot Street, New Rochelle, NY**
 CLIENT: **381-383 Huguenot LLC**
 CONTRACTOR: **Allied Drilling, Inc.**
 DRILLER: **C. Maldonado**
 INSPECTOR: **K. O'Sullivan**
 DRILLING METHOD: **Mud Rotary**
 RIG TYPE: **Deidrich D-50 Track-Mounted Rig**

LOCATION: **See Plan**
 COORD. **Not Surveyed**
 SURFACE ELEV.: **87.0± feet**
 surveyed
 estimated from: **2015 Topo Survey**
 DATUM: **NAVD88**
 START DATE: **2/10/16** TIME: **8:00 am**
 FINISH DATE: **2/10/16** TIME: **1:00 pm**

| Type/Symbol | Casing | Split Spoon | Shelby Tube | Piston | Grab | Core Barrel |
|-------------|---------------------------------------|----------------------------|---------------------------------------|---------------------------------------|----------------------------|-------------|
| HW | S <input checked="" type="checkbox"/> | U <input type="checkbox"/> | P <input checked="" type="checkbox"/> | G <input checked="" type="checkbox"/> | C <input type="checkbox"/> | |
| I.D. | 4.0" | 1.375" | | | | 2.16" |
| O.D. | 4.5" | 2" | | | | 2.96" |
| Length | 6' | 24" | | | | 5' |
| Hammer Wt. | 300 lbs | 140 lbs | Hammer Type | | Drill Rod Size (OD) | |
| Hammer Fall | 24" | 30" | Safety | | 2.625" | |

Backfill Type: Soil cuttings, asphalt patch
 Observation Well Installed YES NO
 Estimated Groundwater Level: EL 75.5 (NAVD88)
 Based On Soil Moisture
 Mud Level
 Observation Well Reading
 NOTES: See well log B-7(OV) for details

| DEPTH (feet) | GRAPHIC LOG | CASING (Blows/ft) CORING (Min./ft) | SAMPLE | | | SPT (Blows/6 in.) | | | | | FIELD CLASSIFICATION AND REMARKS | |
|--------------|-------------|---------------------------------------|--------|--------|-------------|-------------------|---------|-----------|---------|---------|--|------------|
| | | | TYPE | NUMBER | SYMBOL | DEPTH (feet) | CORING | | | | | |
| | | | | | | | 0"-6" | 6"-12" | 12"-18" | 18"-24" | | REC. (in.) |
| | | | | | RUN (in.) | REC (in.) | REC (%) | L>4 (in.) | RQD (%) | Depth | Elev. | |
| | | | | | | | | | | | 0.3 | 86.8 |
| | | PUSH | S | 1 | 0.0 - 2.0 | 12 | 19 | 9 | 4 | 13 | 3" Asphalt. | |
| | | PUSH | | | | | | | | | Brown m-f SAND, and Silt & Clay, trace f Gravel, occasional brick and concrete fragments, moist, (SM), (FILL). | |
| | | PUSH | S | 2 | 2.0 - 3.6 | 14 | 20 | 19 | 50/1" | 14 | Brown m-f SAND, and Silt & Clay, trace f Gravel, occasional brick and concrete fragments, moist, (SM), (FILL). | |
| | | PUSH | | | | | | | | | Hard drilling 4'-4.5'. | |
| 5 | | 45 | S | 3 | 4.0 - 6.0 | 23 | 21 | 36 | 35 | 4 | Brown m-f SAND, some Clayey Silt, moist, (SM). | |
| | | 60 | | | | | | | | | | |
| | | | S | 4 | 6.0 - 8.0 | 21 | 14 | 17 | 15 | 0 | No sample recovery. | |
| | | | S | 5 | 8.0 - 10.0 | 8 | 15 | 26 | 25 | 14 | Gray m-f SAND, some Silt, trace f Gravel, (petroleum odor), moist, (SM). | |
| 10 | | | S | 6 | 10.0 - 12.0 | 10 | 16 | 18 | 22 | 0 | No sample recovery. | |
| | | | | | | | | | | | | |
| 15 | | | S | 7 | 15.0 - 16.6 | 18 | 15 | 44 | 50/1" | 11 | Gray m-f SAND, and Silt, moist, (Completely Weathered Rock). | |
| | | | | | | | | | | | | |
| | | | S | 8 | 19.0 - 19.1 | 50/1" | | | | 1 | Gray m-f SAND, and Silt, moist, (Completely Weathered Rock). | |
| | | | | | | | | | | | | |

YU BORING LOG-SCA 15272_HUG_DATABASE.GPJ 15272_HUG_LIBRARY.GLB 3/4/16



& Associates

BORING LOG

(continued)

BORING NUMBER: **B-7**
 SHEET NUMBER: 2 of 2
 PROJECT NUMBER: **15272**

PROJECT: **Huguenot Street Development**
 LOCATION: **393 Huguenot Street, New Rochelle, NY**
 CLIENT: **381-383 Huguenot LLC**

CONTRACTOR: **Allied**
 DRILLER: **C. Maldonado**
 INSPECTOR: **K. O'Sullivan**

| DEPTH (feet) | GRAPHIC LOG | CASING (Blows/ft) CORING (Min./ft) | SAMPLE | | | SPT (Blows/6 in.) | | | | | FIELD CLASSIFICATION AND REMARKS | | |
|--------------|-------------|---------------------------------------|--------|--------|-------------|-------------------|-----------|-----------|---------|-----------|----------------------------------|------------|---|
| | | | TYPE | NUMBER | SYMBOL | DEPTH (feet) | 0"-6" | 6"-12" | 12"-18" | 18"-24" | | REC. (in.) | |
| | | | | | | | CORING | | | | | | |
| | | | | | | | RUN (in.) | REC (in.) | REC (%) | L>4 (in.) | | RQD (%) | |
| | | | | | | | | | | | Depth | Elev. | |
| | | | S | 8 | 20.0 - 20.8 | 30 | 75/4" | | | 7 | | | Gray f SAND, and Silt, moist, (Completely Weathered Rock). |
| | | | S | 9 | 22.0 - 23.9 | 25 | 24 | 30 | 75/5" | 10 | | | Gray m-f SAND, some Silt, trace f Gravel, moist, (Completely Weathered Rock). |
| 25 | | 6 | | | | | | | | | | | |
| | | 7.5 | | | | | | | | | | | |
| | | 8 | C | 1 | 24.0 - 28.5 | 54 | 27 | 50 | 7 | 13 | | | Gray SCHIST, strong to moderately weak, slightly to highly weathered, closely to very closely spaced fractures. |
| | | 14 | | | | | | | | | | | |
| | | 5.5 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | End of Boring at 28.5 feet |
| | | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | |

YU BORING LOG-SCA 15272_HUG_DATABASE.GPJ 15272_HUG_LIBRARY.GLB 3/4/16

OBSERVATION WELL INSTALLATION LOG

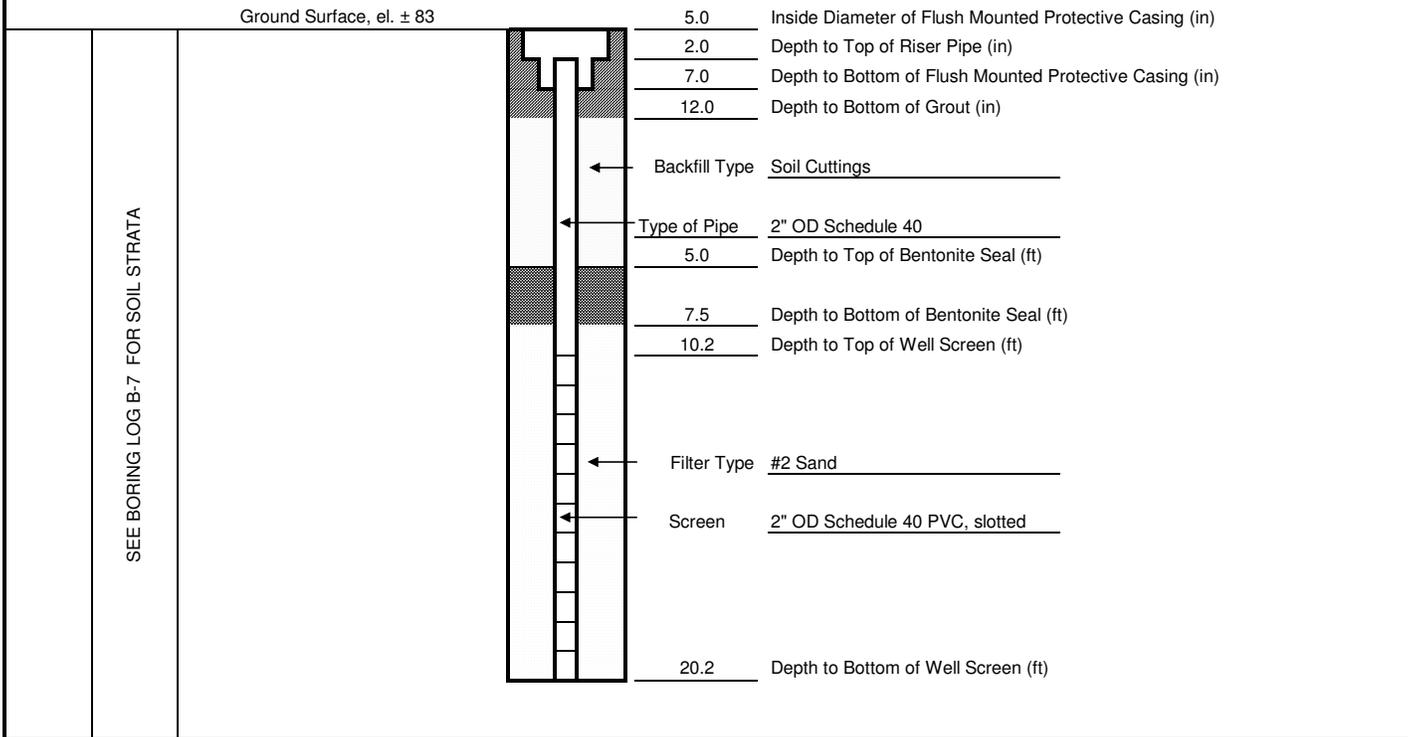
PROJECT: Huguenot Street Development
LOCATION: 393 Huguenot Street, New Rochelle, New York

WELL NO.
B-7 (OW)

Well No. B-7 (OW)
Installation Date: 2/9/2016
Boring Company Allied Drilling, Inc. **Inspector:** K. O'Sullivan
Foreman: C. Maldonado **Project #:** 15272

Groundwater Readings in Well *(measured in feet below ground surface)*

| Date | Time | Reading (ft) | Elevation (ft) (NAVD88) | Remarks |
|-----------|----------|--------------|-------------------------|---|
| 2/10/2016 | 7:50 AM | 7.4 | 75.6 | Well bailed dry following reading. |
| 2/10/2016 | 3:30 PM | 7.4 | 75.6 | |
| 2/11/2016 | 12:10 PM | 7.5 | 75.5 | |
| 2/15/2016 | 3:00 PM | 8.0 | 75.0 | |
| 2/25/2016 | 4:45 PM | 5.1 | 77.9 | Reading obtained immediately following 1.5 inches of rain |
| 2/29/2016 | 9:15 AM | 7.0 | 76.0 | |



Notes:
 1. Observation well developed by flushing and bailing the well dry.

APPENDIX B

Rock Core Photographs

B-4 – Page B-1

B-6 – Page B-1

B-7 – Page B-1

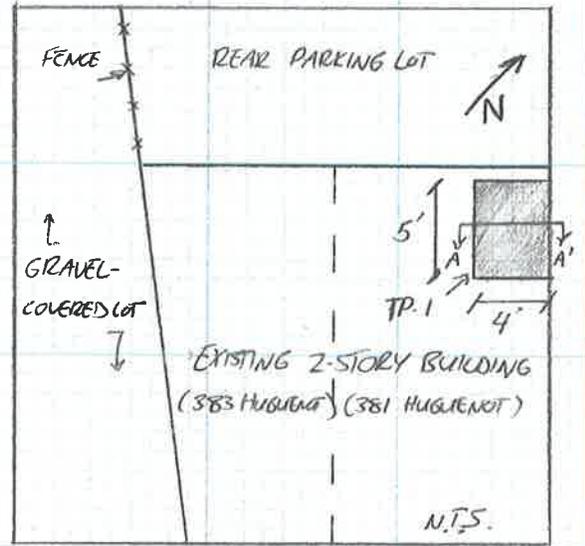
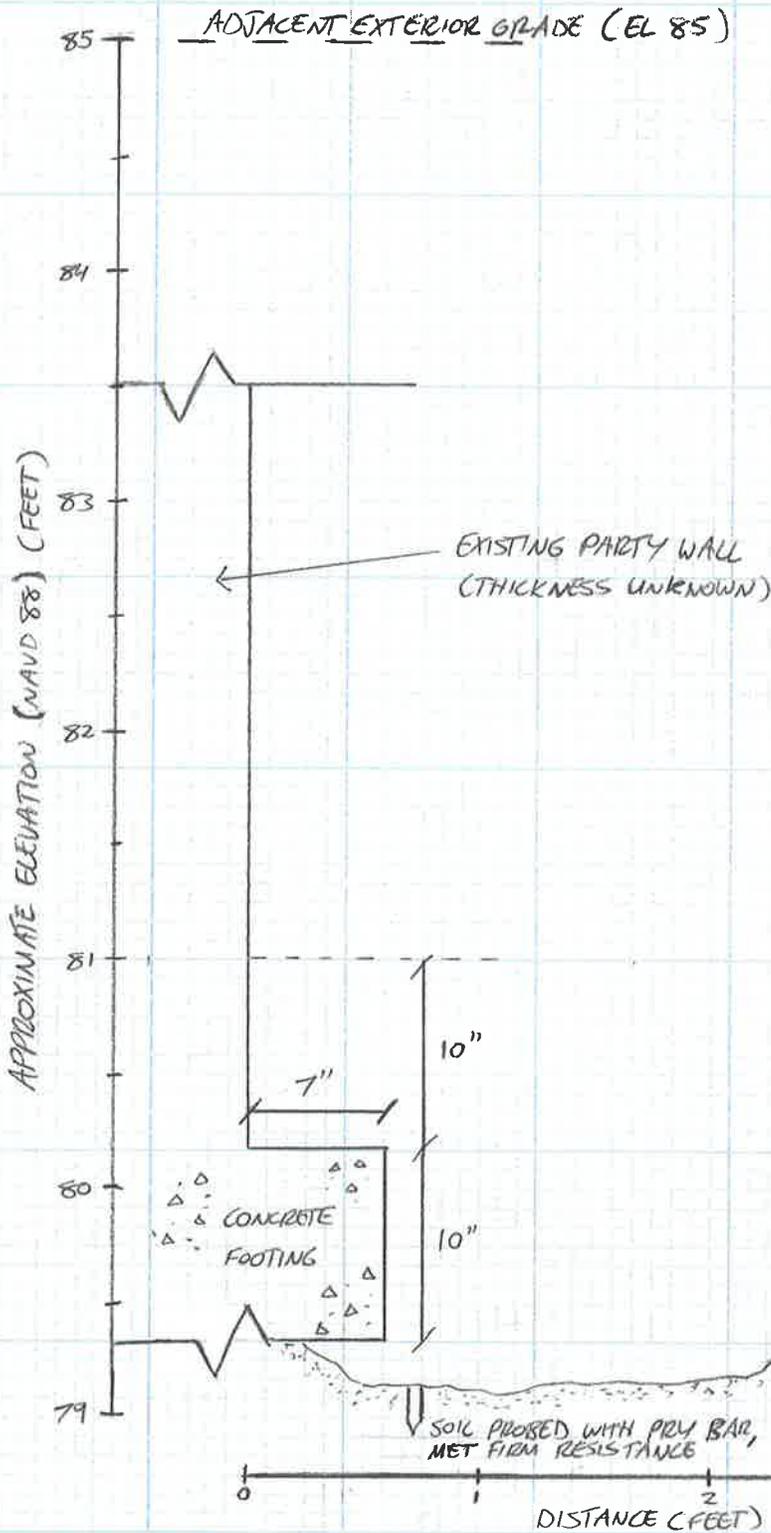
| Boring No. | Core Run | Date | Depth | Recovery (REC) | Rock Quality Designation (RQD) |
|------------|----------|-----------|---------------|---------------------|--------------------------------|
| B-7 | C-1 | 2/8/2016 | (24.0'-28.5') | REC = 27"/54" = 50% | RQD = 7"/54" = 13% |
| B-6 | C-1 | 2/10/2016 | (19.1'-24.1') | REC = 57"/60" = 95% | RQD = 15.5"/60" = 26% |
| B-4 | C-1 | 2/11/2016 | (19.0'-24.0') | REC = 49"/60" = 82% | RQD = 12.5"/60" = 21% |



APPENDIX C

Test Pit Sketch and Photographic Documentation

TEST PIT TP.1 SECTION A-A'



- NOTES:
1. TEST PIT INUNDATED BY TRAPPED WATER DURING EXCAVATION.
 2. TEST PIT TP.1 WAS BACKFILLED UPON COMPLETION USING EXCAVATED MATERIAL PLACED IN 8 TO 10-INCH LIFTS; EACH LIFT WAS COMPACTED AND THE SURFACE RESTORED WITH CONCRETE
 3. GROUND SURFACE ELEVATION WAS ESTIMATED FROM THE AVAILABLE SURVEY AND IS APPROXIMATE

CLIENT NAME:
381-383 Huguenot LLC

PROJECT NAME:
Huguenot Street Development

PROJECT NUMBER:
15272

Photo #
1

Date:
02/09/16

Description:

Excavating test pit TP-1, facing north. Apparent trapped stormwater was inundating TP-1 during excavation. Petroleum odors were noted in the trapped water and underlying soils.

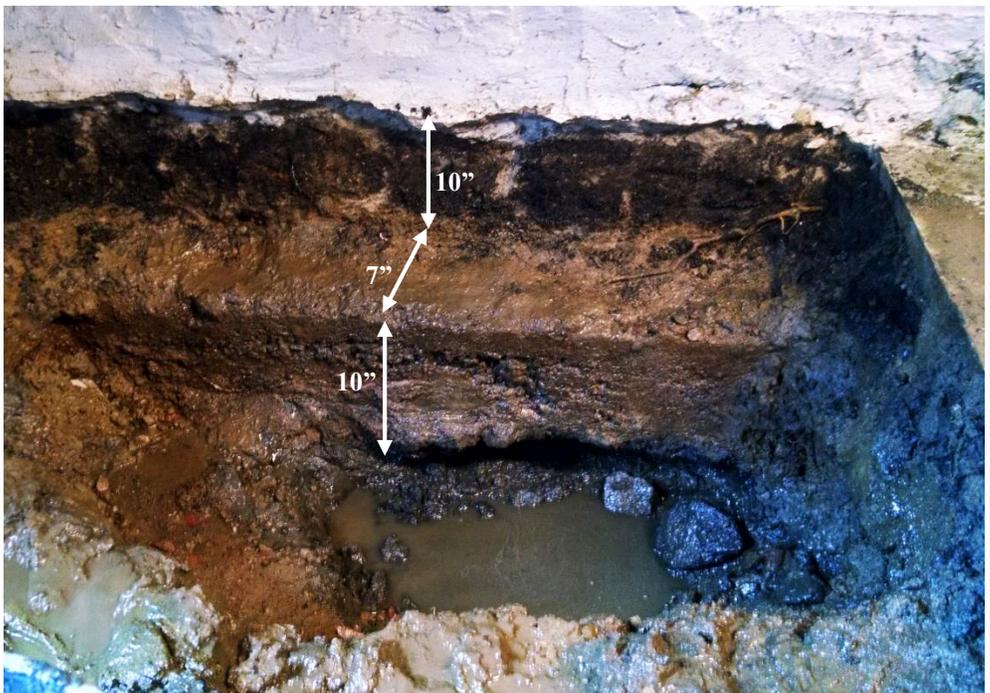


Photo #
2

Date:
02/09/16

Description:

View of test pit TP-1, facing northeast. The top of the footing was encountered 10 inches below the cellar slab. The footing is 10 inches thick and protrudes 7 inches beyond the existing party wall.



CLIENT NAME:
381-383 Huguenot LLC

PROJECT NAME:
Huguenot Street Development

PROJECT NUMBER:
15272

Photo #
3

Date:
02/09/16

Description:

Test pit TP-1 was backfilled with excavated soil placed and compacted in lifts and patched with concrete.



APPENDIX D
Soil and Rock Description Guides

| Gradation of Coarse Grained Components | | | |
|--|------------|---------------|---------|
| Soil Component | Size Range | Particle Size | |
| | | Minimum | Maximum |
| Boulders | | 12" | ---- |
| Cobbles | | 3" | 12" |
| Gravel{ | Coarse (c) | 3/4" | 3" |
| | Fine (f) | No. 4 | 3/4" |
| Sand{ | Coarse (c) | No. 10 | No. 4 |
| | Medium (m) | No. 40 | No. 10 |
| Silt & Clay | Fine (f) | No. 200 | No. 40 |
| | | ---- | No. 200 |

| Composition of Coarse-Grained Components | | |
|--|--------|---|
| Gradation Designation | Symbol | Defining Proportions |
| Coarse to Fine | c-f | All fractions greater than 10% of the component, but the medium component predominates. |
| Coarse to medium | c-m | Less than 10% fine |
| Medium to Fine | m-f | Less than 10% coarse |
| Coarse | c | Less than 10% fine and medium |
| Medium | m | Less than 10% coarse and fine |
| Fine | f | Less than 10% coarse and medium |

| Proportions for Coarse-Grained Components | | | |
|---|----------------|---------------------|----------------------------|
| Component | Identification | Identifying Portion | Defining Range by % Weight |
| Principal Component (All Capitals) | Gravel | Principal Component | 50% or More |
| | | and | 35% to 50% |
| Minor Component (Proper Caps) | Sand | some | 20% to 35% |
| | | little | 10% to 20% |
| | Silt | trace | 1% to 10% |

Unified Soil Classification Symbol (USCS)
Visual-manual identification, see ASTM Designation D2488

| Major Divisions | | Symbol | Typical Names | | |
|--|---|---|---|----|---|
| Coarse-Grained Soils More than 50% retained on No. 200 sieve | Gravels 50% or more of coarse fraction retained | GW | Well-graded gravels and gravel-sand mixtures, little or no fines | | |
| | | GP | Poorly graded gravels and gravel-sand mixtures, little or no fines | | |
| | | GM | Silty gravels, gravel-sand-silt mixtures | | |
| | | GC | Clayey gravels, gravel-sand-clay mixtures | | |
| | Sands More than 50% of coarse fraction | SW | Well-graded sands and gravelly sands, little or no fines | | |
| | | SP | Poorly graded sands and gravelly sands, little or no fines | | |
| | | SM | Silty sands, sand-silt mixtures | | |
| | | SC | Clayey sands, sand-clay mixtures | | |
| | | Fine-Grained Soils 50% or more passes No. 200 sieve | Silt and Clays Liquid Limit 50% or less | ML | Inorganic silts, very fine sands, rock flour, or clayey silts with slight plasticity |
| | | | | CL | Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays |
| Silt and Clays Liquid Limit greater than 50% | OL | | Organic silts and organic silty clays of low plasticity | | |
| | MH | | Inorganic silts, micaceous or diataceous fine sands or silts, elastic silts | | |
| | CH | Inorganic clays of high plasticity, fat clays | | | |
| | OH | Organic clays of medium to high plasticity | | | |
| Highly Organic Soils | | PT | Peat, muck, and other highly organic soils | | |

| Identification of Fine-Grained Soils | | | |
|--------------------------------------|------------------|------------------------------------|--------------------------------|
| Overall Plasticity | Plasticity Index | Identification Principal Component | Identification Minor Component |
| Non-Plastic | 0 | SILT | - |
| Slight | 1 to 5 | Clayey SILT | Clay |
| Low | 5 to 10 | SILT & CLAY | Clay |
| Medium | 10 to 20 | CLAY & SILT | Silt |
| High | 20 to 40 | Silty Clay | Silt |
| Very High | 40 and Greater | CLAY | - |

| Clay Consistency | | |
|------------------|------------------|----------------------------------|
| Clay Consistency | SPT, N Blows/ft. | Undrained Shear Strength c (PSF) |
| Very Soft | <2 | 250 |
| Soft | 2 to 4 | 250-500 |
| Medium Stiff | 4 to 8 | 500-1000 |
| Stiff | 8 to 15 | 1000-2000 |
| Very Stiff | 15 to 30 | 2000-4000 |
| Hard | >30 | >4000 |

Standard Soil Description Guide



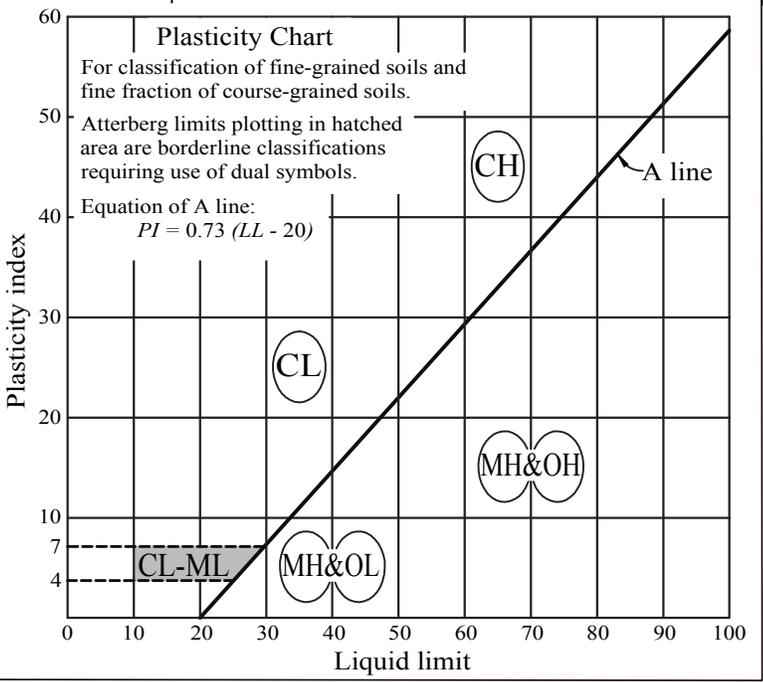
Geotechnical, Environmental and Civil Engineering

| Variations in Soil Stratigraphy | |
|---------------------------------|--|
| Descriptive Term | Thickness or Configuration |
| Parting | 0 to 1/16 inch thickness |
| Layer | 1/2 to 12 inch thickness |
| Stratum | Greater than 12 inch thickness |
| Pocket | Small erratic deposit usually less than 1 foot |
| Varved Clay | Alternating partings, seams, or layers of sand, silt and clay |
| Occasional | One or less per foot of thickness |
| Frequent | More than one per foot of thickness |
| Stratified | Alternating layers of varying material or color with layers at least 1/4 inch thick |
| Lensed | Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness |

| Soil Property / Drilling and Sampling Symbols | |
|---|--|
| Symbol | Interpretation |
| SPT, N | Standard Penetration Test Value: blows per foot of a 140 lb hammer falling 30" on a 2" O.D. split-spoon (ASTM D1586) |
| PP | Pocket Penetrometer value, unconfined compressive strength, TSF |
| ▼ | Apparent groundwater level at time noted after completion of boring |
| NR | No Recovery |
| NE | Not Encountered |

| Coarse-Grained Relative Density | | |
|---------------------------------|-------------------------|------------------------------|
| Soil Type | SPT, N Value (Blows/ft) | Typical Relative Density (%) |
| Very loose sand | 4 | 0 to 15 |
| Loose sand | 4 to 10 | 15 to 35 |
| Medium dense sand | 10 to 30 | 35 to 65 |
| Dense sand | 30 to 50 | 65 to 85 |
| Very dense sand | 50 | 85 to 100 |

| Classification Criteria | |
|--|--|
| Cu = D60 / D10 | Greater than 4 |
| Cc = (D30) ² / (D10 X D60) | Between 1 and 3 |
| Not meeting both criteria for GW | |
| Atterberg limits plot below "A" line or plasticity index less than 4 | Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols |
| Atterberg limits plot above "A" line and plasticity index greater than 7 | |
| Cu = D60 / D10 | Greater than 6 |
| Cc = (D30) ² / (D10 X D60) | Between 1 and 3 |
| Not meeting both criteria for SW | |
| Atterberg limits plot below "A" line or plasticity index less than 4 | Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols |
| Atterberg limits plot above "A" line and plasticity index greater than 7 | |



| Strength | Field Test | Approximate Range of Uniaxial Compression Strength kg/cm ² (tons/ft ²) |
|-------------------------|---|---|
| Extremely Strong | Many blows with geologic hammer required to break intact specimen. | >2000 |
| Very Strong | Hand held specimen breaks with hammer end of pick under more than one blow. | 2000 - 1000 |
| Strong | Cannot be scraped or peeled with knife. Hand held specimen can be broken with single moderate blow with pick. | 1000 - 500 |
| Moderately Strong | Can just be scraped or peeled with knife. Indentations 1mm to 3mm show in specimen with moderate blow with pick. | 500 - 125 |
| Moderately Weak to Weak | Material crumbles under moderate blow with sharp end of pick and can be peeled with a knife. But is too hard to hand trim for triaxial test specimen. | 125 - 12 |

| Grade | Symbol | Diagnostic Features |
|----------------------|--------|--|
| Fresh | F | No visible sign of decomposition or discoloration. Rings when struck by hammer. |
| Slightly Weathered | WS | Slight discoloration inwards from open fractures. Otherwise similar to F. |
| Moderately Weathered | WM | Discoloration throughout. Weaker minerals such as feldspar decomposed. Strength somewhat less than fresh rock but cores cannot be broken by hand or scraped by knife. Texture preserved. |
| Highly Weathered | WH | Most minerals somewhat decomposed. Specimens can be broken by hand with effort or shaved with knife. Core stones present in rock mass. Texture becoming indistinct but fabric preserved. |
| Completely Weathered | WC | Minerals decomposed to soil but fabric & structure preserved (Saprolite). Specimens easily crumbled or penetrated. |
| Residual Soil | RS | Advanced state of decomposition resulting in plastic soils. Rock fabric and structure completely destroyed. Large volume change. |

| Description for Structural Features: Bedding, Foliation, and Flow Banding | Spacing | Description for Joints, Faults, and Other Fractures |
|---|---|---|
| Very Thickly (bedded, foliated or banded) Thickly Medium Thinly Very Thinly | More than 6 feet 2 - 6 feet 8 - 24 inches 2-1/2 - 8 inches 3/4 - 2-1/2 inches | Very Widely (fractured or) Widely Medium Closely Very Closely |
| Description for Microstructural Features: Lamination, Foliation, and Cleavage | | Description for Joints, Faults and Other Fractures |
| Intensely (laminated, foliated or cleaved) Very Intensely | 1/4 - 3/4 inch Less than 1/4 inch | Extremely Close |