

DRAFT REPORT

**GEOTECHNICAL INVESTIGATION
AND FOUNDATION
RECOMMENDATIONS**

**580 GERARD AVENUE
BRONX,
NEW YORK CITY, NY**

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TABLE OF CONTENTS

SECTION 1: INTRODUCTION.....	1-1
1.1 GENERAL.....	1-1
1.2 PROJECT LOCATION, DESCRIPTION, GEOLOGY, AND SITE HISTORY	1-1
1.3 OBJECTIVES AND SCOPE OF SERVICES.....	1-2
 SECTION 2: SUBSURFACE INVESTIGATION RESULTS.....	 2-1
2.1 GENERAL.....	2-1
2.2 TEST PITS AND DESCRIPTIONS.....	2-1
2.3 GEOTECHNICAL BORINGS.....	2-3
2.4 GENERALIZED SUBSURFACE CONDITIONS	2-5
2.5 GROUNDWATER CONDITIONS.....	2-6
 SECTION 3: ENGINEERING EVALUATION AND RECOMMENDATIONS	 3-1
3.1 GENERAL.....	3-1
3.2 SEISMIC CONSIDERATIONS	3-1
3.3 FOUNDATION RECOMMENDATIONS.....	3-1
3.4 LATERAL EARTH PRESSURES	3-2
3.5 PERMANENT GROUNDWATER CONTROL.....	3-2
 SECTION 4: CONSTRUCTION RECOMMENDATIONS.....	 4-1
4.1 GENERAL.....	4-1
4.2 TEMPORARY GROUNDWATER CONTROL.....	4-1
4.3 TEMPORARY SUPPORT OF EXCAVATION AND UNDERPINNING	4-1
4.4 SUBGRADE PREPARATION	4-2
4.5 EXCAVATION CONSIDERATIONS.....	4-3
4.6 BACKFILL AND COMPACTION REQUIREMENTS.....	4-3
4.7 PRE-CONSTRUCTION SURVEY AND MONITORING	4-4
4.8 CONSTRUCTION INSPECTION	4-4
 SECTION 5: CONCLUSIONS AND RECOMMENDATIONS.....	 5-1
 SECTION 6: LIMITATIONS.....	 6-1

TABLE OF CONTENTS

List of Figures

Figure 1	Boring and Test Pit Location Plan (Drawing No. B-100.00)
Figure 2	Water Level Readings (Boring B-3)
Figure 3	Water Level Readings (Boring B-13)

List of Appendices

Appendix A	Boring Logs
Appendix B	Rock Core Photographic Logs
Appendix C	Test Pit Sketches
Appendix D	Test Pit Photographic Logs

1.1 GENERAL

As described by our geotechnical proposal, dated December 12, 2019, this report presents the results of our subsurface investigation and geotechnical recommendations for the proposed new building at 580 Gerard Avenue in the Bronx, New York. The objectives for this investigation were to determine the in-situ subsurface conditions at the site, as well as provide foundation design and construction-related recommendations for the proposed new building.

1.2 PROJECT LOCATION, DESCRIPTION, SITE HISTORY AND GEOLOGY

The site is located at 580 Gerard Avenue (Block 2353, Lot 1), at the northeast corner of East 150th Street and Gerard Avenue in the South Bronx section of Bronx, New York. The lot is nearly fully occupied by a vacant one-story building with a partial cellar level, and was formerly used as a parking facility for the US Postal Service. The lot is bordered to the south by East 150th Street, to the west by Gerard Avenue, to the north by a one-story warehouse building at 620 Gerard Avenue, and to the east by rear yards at 591 to 627 Walton Avenue (18 lots), and a one-story garage building at 129 East 150th Street (i.e., 587 and 589 Walton Avenue) at the southeast corner of the lot.

No New York City Transit Authority Tunnel (TA) subway structures are located within 200 feet. No NYC Landmark Preservation Commission-protected historic buildings or districts are located within 90 feet of the site, which would present additional geotechnical challenges related to monitoring of adjacent buildings. Monitoring requirements are further discussed in Section 4.7 below.

Geotechnical Engineering Services, P.C. (GES) did not perform any surveying and solely relied on our information as measured in the field, as well as a March 3, 1950 Property Survey by Earl B. Lovell – S.P. Belcher, Inc., provided by the Owner. This survey was updated several times since 1950. No elevations were provided in this survey. Therefore, no elevations are provided in our report. Due to the age of the original survey and the lack of elevations, we recommend a NYS-licensed Professional Surveyor perform a new property survey of the existing building, including elevations. The top of first floor slab at all borings is about 2 feet above the sidewalk on Gerard Avenue at the northwest corner of the existing on-site building, which is used as the sidewalk reference point throughout this report, unless otherwise noted.

Based on our most recent discussions, we understand the on-site structure will be completely demolished and replaced with an eight-story building with one cellar level, covering the entirety of the lot. The exact bottom of excavation is unknown to us at this time. We understand that the final foundation design has not been completed yet. We request that should the proposed construction be modified in such a way that deviates from our recommendations noted herein, that we be given an opportunity to revise our geotechnical recommendations.

Site History and Geology

Based on a review of an 1865 map of the historic streams and shoreline of Manhattan by Egbert L. Viele, the site is located just east of marsh land, which lines the east bank of the East River, though the site appears to be located within a former meadow or tree-covered region of the Bronx. According to the 2003 Charles A. Baskerville map of the bedrock in this area, the bedrock at the site maps as being located in a region where Inwood Marble is found, which is characterized by white calcitic dolomite marble or calcite.

Based on a review of the historic maps for the area and the New York City Department of Buildings records, the existing on-site building appears to have been constructed in its' current layout in 1951, and does not appear to have been pre-dated by any structures. The north adjacent one-story warehouse at 620 Gerard Avenue appears to have been constructed in 1931, and does not appear to be pre-dated by any other structures. East adjacent one-story structures and rear yards bordering 587 to 627 Walton Avenue appear to have been constructed prior to 1891.

1.3 OBJECTIVES AND SCOPE OF SERVICES

The objectives of this investigation were to evaluate the subsurface conditions beneath the proposed building and to provide geotechnical recommendations for the design and construction of the proposed building. The following scope of services was performed during this investigation:

1. Performed geotechnical borings at thirteen (13) locations, all within the first-floor level of the existing building, and evenly scattered throughout the existing and new building footprint.
2. Excavated and backfilled five (5) test pits in accessible areas of the first floor, in the adjacent side alley, at the southeast end of the site, and within the partial cellar level.
3. Provided full-time controlled inspection of both the drilling and test pit operations.
4. Prepared this report that includes the following:
 - a) Description of the methodology of drilling and sampling, with respect to the proposed construction;
 - b) A Boring and Test Pit Location Plan showing the as-drilled/excavated locations of the borings and test pits, respectively;
 - c) Results of engineering evaluations and recommendations regarding the foundation design including:
 - Foundation type and design recommendations for deep foundations;
 - Geotechnical earthquake engineering considerations including site classification and liquefaction evaluation;
 - Permanent and temporary groundwater control measures;
 - Support of excavation, underpinning, and lateral earth pressure considerations;
 - Protection of adjacent and nearby structures and utilities;
 - Cellar slab subgrade preparation;
 - Construction monitoring considerations including vibration monitoring and compaction control.
 - d) List of Figures, which includes the Boring and Test Pit Location Plan and a plot of ambient groundwater levels at the site.
 - e) Appendices that include geotechnical boring logs, rock core photographic logs, test pit hand-sketches and test pit photographic logs.

2.1 GENERAL

Our subsurface investigation consisted of field locating and drilling geotechnical borings in thirteen (13) locations and excavating five (5) exploratory test pits, as shown on our attached Boring and Test Pit Location Plan. Typed boring logs, as well as rock core photographic plates, are attached to this report as Appendices A and B, respectively. Hand-drawn test pit sketches and test pit photographic logs are also available in Appendices C and D, respectively. Details of the subsurface investigation program and the generalized subsurface conditions, and information regarding adjacent building foundations are described below.

2.2 TEST PITS AND DESCRIPTIONS

A total of five (5) test pits, denoted as TP-1 through TP-5, were excavated at the locations shown in Figure 1. TP-1, TP-2 and TP-4 were excavated within the first-floor level, adjacent to the north on-site building wall and building at 620 Gerard Avenue, from about 2 feet above Gerard Avenue sidewalk level. TP-3 was excavated near the northwest corner of a one-story garage at 129 East 150th Street at the southeast end of the site, in a small alley, from about 4 feet below sidewalk level on East 150th Street. TP-5 was excavated within the partial cellar against the west side cellar wall, under the sidewalk, from about 8 feet below sidewalk level on Gerard Avenue.

The test pits ranged in depth from about 1.8 to 9.3 feet below surrounding grade, and performed in accessible areas of the existing first floor, partial cellar, or side alley. The test pits were inspected on a full-time basis by Messrs. Ahmed Obidat and Michael Torino, P.E. of GES. The cellar floor was measured to be about 10 feet below top of slab on the first floor, or 8 feet below the sidewalk on Gerard Avenue. As stated above, no elevations are provided in this report. The exact difference in elevation between Gerard Avenue and East 150th Street is not known.

All test pits were excavated and backfilled by Big Apple Testing, Inc. of New Hyde Park, NY on January 8 and 9, 2020, utilizing an excavator, demo saws, jackhammers, and shovels. TP-1, TP-2, and TP-4 were excavated using an excavator and demo saws, while TP-3 and TP-5 were excavated using shovels and small jackhammers. All test pits were backfilled upon completion, and all leftover excavated material was removed from the site. Upon encountering the bottom of foundation, GES photographed, logged, and measured each test pit. Once complete, each test pit was backfilled with excavated soil in lifts and compacted with either a hand-tamper or the excavator bucket. All test pits were patched with about 4 inches of Quikrete at grade. No groundwater or bedrock was encountered in any of the test pits.

All depths are relative to top of surrounding ground surface or concrete slab. Detailed descriptions of the test pit excavation are presented below:

- **Test Pit TP-1** (*5.2-feet-wide x 4.8-feet-long x 9.3-feet-deep*) was excavated at the northwest corner of the existing on-site building. Underlying the 6-inch-thick concrete slab, about 9 inches of gray gravel and brick were encountered, overlying uncontrolled fill, consisting of brown silty medium to fine sand, with some cobbles, boulders, and trace brick and concrete fragments. No natural soil was encountered.

The on-site building has a deeper corner pier footing, which extends about 1.7 feet south from the north wall, and 2.3 feet east, from the west wall. The pier footing generally consists of concrete below ground surface, extending down 2.5 feet, then steps 0.3 feet from the walls, to

both the east and south, extending down to about 8.7 feet, where another step extends out another 0.4 feet. The bottom of the on-site building's foundation was not encountered, after digging to 9.3 feet. An about 8-inch-wide gap exists between on-site and adjacent foundation to the north, which is composed of concrete, and extends to about 5.7 feet depth. The width of the north adjacent foundation could not be explored.

Beyond the corner pier footing, the concrete wall footing for the on-site building extends to a depth of 2.5 feet, and is about 1-foot-wide. The concrete wall for the north adjacent building extends to a depth of 2.8 feet, and is also 1-foot-wide, i.e., about 0.8 feet below sidewalk level. No gap exists between wall footings for both buildings.

- **Test Pit TP-2** (*4.5-feet-wide x 4.7-feet-long x 5.75-feet-deep*) was excavated at the northeast corner of the on-site building. Subsurface conditions at TP-2 underlying the 6-inch-thick concrete slab generally consist of about 2.75 feet of uncontrolled fill, overlying natural sand. The fill consists of black and brown medium to fine sand, with some silt, and trace amounts of gravel, brick, and concrete fragments. The natural sand generally consists of brown medium to fine sand, with some silt, and a trace amount of fine gravel.

Similar to TP-1, TP-2 has a concrete pier footing, which projects about 0.7 to 1-foot west and south from the north and east side on-site building walls, respectively. The pier footing extends a total of about 3.1 to 3.4 feet west from the east foundation wall, and 2.75 to 3.1 feet south from the north foundation wall. Unlike at TP-1, the foundation for 580 Gerard Avenue was composed of brick to a depth of 2.5 feet for both the north and east walls, and bear on a 1.7-foot-thick concrete footing, bearing about 4.2 feet below grade, or about 2.2 feet below the sidewalk on Gerard Avenue. No adjacent foundations were encountered to the north or east, as GES probed laterally to the north by about 2.5 feet and to the east by about 4.3 feet. No separation was found between north adjacent footing and on-site building footing, so it is possible that the two buildings may share a footing in this location.

- **Test Pit TP-3** (*4.3-feet-wide x 4.1-feet-long x 8-feet-deep*) was excavated in an alley near the southeast corner of 580 Gerard Avenue, still within the property, against the northwest corner of a one-story garage building at 129 East 150th Street. Uncontrolled fill was encountered at grade, extending to a depth of 6 feet, underlain by natural sand. The fill generally consists of black and brown medium to fine sand, with some silt, and trace amounts of fine gravel, brick, and concrete fragments. The natural sand generally consists of brown medium to fine sand, with some silt and trace amounts of fine gravel.

The 129 East 150th Street building's west side brick wall extends to a depth of 3 feet, then projects 0.5 feet west into the test pit, and bears on a mortared rubble wall foundation. The bottom of this foundation was not encountered after digging to a depth of 8 feet, or 12 feet below the sidewalk on East 150th Street.

- **Test Pit TP-4** (*4.25-feet-wide x 3.5-feet-long x 6.25-feet-deep*) was excavated about 28 feet west of the northeast corner of the on-site building, along the north wall of the on-site building and abutting the 620 Gerard Avenue building. Underlying the 6-inch-thick concrete slab, subsurface conditions generally consist of uncontrolled fill extending to a depth of 4.2 feet, underlain by natural sand. The fill consists of black and brown medium to fine sand, with some silt, and trace amounts of fine gravel, red brick, and concrete fragments. The natural sand consists of brown medium to fine sand, with some silt, and trace amounts of mica.

The north side brick foundation wall for 580 Gerard Avenue extends to 2.5 feet depth, and is about 1-foot-wide. Unlike in TP-1, no concrete wall footing was found. An 8-inch-wide gap exists between the 580 and 620 Gerard Avenue building and north adjacent building, which consists of concrete, extending to a depth of 5.5 feet, or 3.5 feet below the sidewalk on Gerard Avenue. GES probed about 2 feet laterally under the adjacent building foundation and did not encounter the back edge of the footing.

- **Test Pit TP-5** (*2.75-feet-wide x 1.4-feet-long x 1.8-feet-deep*) was excavated in the western portion of the partial cellar, underneath the Gerard Avenue sidewalk. Ground surface in the cellar is about 8 feet below the sidewalk on Gerard Avenue. Underlying a 9-inch-thick concrete slab, subsurface conditions generally consist of 3 inches of gray gravel and brick fragments, underlain by natural brown silty medium to fine sand.

The west side cellar wall for 580 Gerard Avenue consists of a concrete block wall above grade, bearing on a concrete wall footing, projecting about 0.3 feet from the east face of the wall, and extending down 0.9 feet deep. The footing is at least 1.3 feet wide, but the full width of the footing could not be explored due to boulders encountered below and beyond the footing.

2.3 GEOTECHNICAL BORINGS

Geotechnical borings were performed at thirteen (13) locations, denoted as B-1 through B-13, were performed by Municipal Testing Laboratory, Inc. (MTL) of Hauppauge, NY from December 23, 2019 to January 7, 2020, in accessible areas of the on-site building. Messrs. Aflaaz Saleem and Ahmed Obidat, and Michael Torino, P.E. of GES provided continuous special inspection of the borings. All borings were performed by a GeoProbe Track-Mounted Drill Rig, in locations as selected by GES. The number of borings were selected in order to meet the minimum requirements of the 2014 New York City Building Code (NYCBC) for subsurface investigations, for buildings to be supported by deep foundations. All borings for which a groundwater monitoring well was not installed were backfilled with soil cuttings and patched at grade with Quikrete.

The borings were drilled utilizing the mud-rotary drilling technique with a 3-7/8-inch diameter tri-cone roller bit and 4-inch inner diameter steel casing to stabilize each boring. Soil samples were obtained using techniques and equipment in general accordance with the American Society for Testing and Materials (ASTM) Standard Specification D1586-Standard Penetration Test (SPT). The SPT consists of driving a 2-inch O.D. split-spoon sampler typically to 24 inches of penetration, using repeated blows of a 140-lb hammer, free-falling a height of 30-inches. The standard penetration value, or N-value, is determined as the number of blows required to advance the sampler the sum of the second and third 6-inch intervals of a typical 24-inch penetration.

MTL used an automatic trip hammer. This hammer operates with a 90% efficiency whereas the manual (cathead and rope) hammer operates at a 60% efficiency. This means that the blow counts are reported on the boring logs, where the automatic hammer was used, are about 2/3 of the values that would be reported if a conventional donut-type hammer was used. A correction factor of 1.3 is generally used to convert N-values from the automatic hammer to the normalized N-value (N_{60}).

Where the split-spoon sampler could not be advanced through rock or an obstruction, the sampler was driven for 50 blows, and distance of actual penetration was recorded. Soil samples were placed in jars following completion of sampler advance. Boring logs showing N-Values and stratigraphy are attached as Appendix A.

When the borings encountered top of rock, core drilling was performed using an NX-size core barrel with a diamond bit. The length of recovery and Rock Quality Designation (RQD) were measured and calculated for each rock core run, and denoted as a percent recovery and percent RQD, respectively. RQD refers to the sum of the lengths of rock core pieces four inches or longer, neglecting mechanical breaks, expressed as a percentage of the total length of the core run. Percentage recovery and RQD, and rock sample descriptions are included on the boring logs, attached as Appendix A. Rock Core Photographic Logs showing actual photos of the core box with rock cores may be found in Appendix B.

The recovered split-spoon soil samples were labeled with the project name, boring number, sample number, depth of sample, SPT blow counts and length of recovery. Rock core samples were arranged and organized in wooden five-foot-long core boxes, labeled with project name and number, boring number, sample number, depth of sample, and core recovery and RQD percentages. All samples were transported to GES's Office for classification and storage.

As noted above, all borings were performed within the first-floor level, about 2 feet above the sidewalk on Gerard Avenue. All depths noted below are from surrounding grade. Details of the borings are provided below:

- Boring B-1 was drilled to a depth of about 33 feet. NYCBC Class 1c rock or better was encountered at a depth of about 28 feet.
- Boring B-2 was drilled to a depth of 22 feet. Bedrock was not cored on Boring B-2, though top of decomposed rock appears to be at about 17.5 feet depth.
- Boring B-3 was drilled to a depth of 27 feet. NYCBC Class 1c rock or better was encountered at a depth of about 22 feet. A 27-foot-long PVC monitoring well was installed in Boring B-3, consisting of 10 feet of slotted screen and 17 feet of riser, and surrounded with filter sand.
- Boring B-4 was drilled to a depth of 28 feet. Bedrock was not cored on Boring B-4, though top of decomposed rock appears to be at about 27 feet depth.
- Boring B-5 was drilled to a depth of 23 feet. Bedrock was not cored on Boring B-5, though top of decomposed rock appears to also be at about 23 feet depth.
- Boring B-6 was drilled to a depth of 12 feet, then offset, due to the presence of boulders within the fill. Boring B-6A was drilled to a depth of 38 feet. NYCBC Class 1c rock or better was encountered at a depth of about 33 feet.
- Boring B-7 was drilled to a depth of 32 feet. NYCBC Class 1c rock or better was encountered at a depth of about 27 feet.
- Boring B-8 was drilled to a depth of 28.8 feet. Bedrock was not cored on Boring B-8, though top of decomposed rock appears to be at about 21 feet depth.
- Boring B-9 was drilled to a depth of 31 feet. NYCBC Class 1c rock or better was encountered at a depth of about 29.5 feet.
- Boring B-10 was drilled to a depth of 40.5 feet. NYCBC Class 1c rock or better was encountered at a depth of about 35.5 feet.

- Boring B-11 was drilled to a depth of 35 feet. Bedrock was not encountered.
- Boring B-12 was drilled to a depth of 48 feet, and drilled without sampling to a depth of 30 feet. NYCBC Class 1c rock was encountered at a depth of about 43 feet.
- Boring B-13 was drilled to a depth of 41.5 feet. Bedrock was not encountered.

2.4 GENERALIZED SUBSURFACE CONDITIONS

The following general descriptions of the subsurface strata are based on our interpretations of the results of the field investigation. All depths are relative to surrounding ground surface, which is a 6-inch-thick concrete slab, about 2 feet above the sidewalk on Gerard Avenue:

Stratum 1: Fill (7)¹ – The fill generally consists of brown and black medium to fine sand, with varying amounts of coarse sand, silt, gravel, brick and concrete fragments, mica, and wood fragments. Stratum 1 appears to extend to about 7 to 14 feet in depth, and generally thicker in the southern portion of the site. TP-2 indicates the fill thickness to be as shallow as 2.75 feet. The thickness of the fill layer may reflect the presence of the nearby historic shoreline, in raising the grades of the surrounding area to their current levels. SPT N-Values within the fill appear to range from 4 to 69 blows per foot (bpf), with an average of 20 bpf, neglecting two samples which encountered refusal (i.e., over 100 blows per foot) prior to being driven the full 24 inches. The wide range in N-Values is indicative of the presence of gravel or boulders within the fill, which were encountered sporadically when drilling through the fill.

Stratum 2: Natural Sand and Gravel (2a, 3b, 3a, 4b, 6) – Encountered underlying Stratum 1 in all borings, Stratum 2 generally is comprised of red-brown and brown medium to fine sand, with varying amounts of silt, gravel, and boulders. Stratum 2 appears to be naturally deposited sand which trends into possible glacial till at deeper depths, which is evidenced by the presence of higher gravel content within the samples recovered, and boulders encountered. Stratum 2 ranges in thickness from 4.5 feet to over 34.5 feet, and generally increases in thickness from south to north, as depth to bedrock increases. A thin layer of stiff silty clay was encountered at a depth of 30 feet in Boring B-13. Stratum 2 was observed to have SPT N-Values ranging from 4 to 92 bpf, with an average of 20 bpf, neglecting a few samples which encountered refusal prior to reaching the full 24 inches. Sporadic gray and white boulders were cored and recovered in a few of the borings, especially at the northern end of the project site. Borings B-11 and B-13 were terminated in Stratum 2 after extending as deep as 41.5 feet below grade.

Stratum 3: Decomposed Rock (1d, 2a, 3a) – A thin layer of decomposed rock was encountered directly above more competent rock in several of the borings. In most cases, the decomposed rock layer was soft enough to be sampled with an SPT split-spoon sampler, which was generally comprised of light brown, white, and gray coarse to fine sand and rock fragments, with varying amounts of gravel, silt, and clay. Samples taken with an SPT split-spoon sampler are considered to have a NYCBC Class of 2a or 3a. Where cored, Stratum 3 generally consists of decomposed calcitic schist fragments, with rock core recoveries less than 25 percent, and RQD of 0 percent. Stratum 3 ranges in thickness from none encountered to 12.5 feet, and was encountered at depths

¹ Number in parentheses which follows material designation indicates the classification of soil and rock material in accordance with the 2014 New York City Building Code.

ranging from 17.5 to 30 feet. SPT N Values within the decomposed rock generally ranged from 20 to 92 bpf, with an average of 50 bpf, wherever the split-spoon sampler did not encounter refusal. Borings B-2, B-4, B-5, and B-8 were terminated in Stratum 3.

Stratum 4: Competent Rock (1c-1a) – Competent rock was encountered in Borings B-1, B-3, B-6A, B-7, B-9, B-10, and B-12, at depths ranging from about 22 feet in Boring B-3 (south end of site) to 43 feet in Boring B-12 (north end of site). Stratum 4 generally consists of medium hard to hard white and gray calcitic schist, blocky to broken, with weathered vertical and horizontal joints. As noted above, top of competent rock generally became deeper from south to north across the site. Rock core recovery for the competent rock ranged from 75 to 100 percent, with an average of 91 percent. RQD values ranged from 32 to 94 percent, with an average of 73 percent. A rock core RQD percentage of less than 35 percent in Boring B-12 is technically indicative of decomposed rock (Stratum 3), though the full recovery of the rock core sample indicates more competent rock.

2.5 GROUNDWATER CONDITIONS

A 27-foot-deep and a 41.5-foot-deep groundwater observation well were installed during this investigation in Boring B-3 and B-13, respectively. Each well consists of 10 feet of PVC slotted screen at the bottom, with PVC riser to the ground surface. An electronic piezometer was installed to take hourly readings of the water level from January 3 to 21, 2020 in Boring B-3, as shown in Figure 2, and from January 7 to 21, 2020 in Boring B-13, as shown in Figure 3. Manual readings taken at the time of electronic piezometer retrieval showed the groundwater level is at about 17.6 feet below grade in Boring B-3 and 20.8 feet below grade in Boring B-13. Based on the readings obtained from the electronic piezometers, the groundwater level stabilized at a depth of about 17.6 feet below grade in Boring B-3, and about 20.8 feet below grade in Boring B-13. Therefore, the groundwater level appears to range between 15.5 to 19 feet below sidewalk level on Gerard Avenue.

Therefore, based on these results, and the data recorded from the piezometer, a design groundwater level for foundation design of about 13.5 feet below sidewalk level on Gerard Avenue is recommended. The site is not located within a flood zone, as identified by the FEMA Flood Map database. The site is located within the NYC Flood Evacuation Zone 5, and is at very low risk of flooding. Please see the recommendations in Section 3.5 and 4.2 regarding permanent and temporary control of groundwater, respectively.

It should be noted that changes in groundwater levels will occur between locations and over time, due to variations in seasonal influences, precipitation amounts, local pumping, utility leakage, and other factors different from those existing at the time the observations were made.

3.1 GENERAL

This section of the report presents seismic considerations, our recommendations for deep foundations, lateral earth pressures, and permanent control of groundwater. Our evaluation and recommendations are based on the subsurface conditions encountered at the boring locations, our understanding of the site geology, foundation loading information, requirements of the NYCBC, and construction considerations.

3.2 SEISMIC CONSIDERATIONS

The subsurface conditions at the site below the groundwater level generally consist of loose to dense sand with silt (Stratum 2), overlying decomposed rock (Stratum 3), over competent bedrock (Stratum 4). We understand that the proposed excavation level has not yet been determined but that one cellar level will likely be constructed, which is presumed to be founded at about 12 to 14 feet below sidewalk level on Gerard Avenue, and on Stratum 2 material, as further discussed below. Therefore, there will be between about 5 to 30 feet of Stratum 2 and 3 material between bottom of foundation and top of competent rock, which will have average N-Values between 15 and 50 bpf. We therefore recommend a Site Class of “D” below the new cellar slab. Due to the highly dense nature of most samples within Stratum 2, and the recommendation of a mat foundation, liquefaction is not a concern at this site. Any localized zones of potentially liquefiable soil would likely be bridged over by the proposed mat foundation, as is further discussed below in Section 3.3.

3.3 FOUNDATION RECOMMENDATIONS

As stated above, we understand that the Owner currently plans to fully demolish the existing on-site building and construct an eight-story building with one cellar level to fully occupy the lot. The exact bottom of excavation for the proposed cellar level has yet to be determined, but we presume the excavation for the cellar level would extend to between 12 and 14 feet below sidewalk level, and locally deeper for elevator, ejector and sump pits.

The test pit investigation showed the bottom of adjacent building foundation for 129 East 150th Street is deeper than 12 feet below East 150th Street sidewalk level, and as shallow as 10 inches below sidewalk level on Gerard Avenue for the one-story building foundation at 620 Gerard Avenue. Our geotechnical borings showed the existing fill at the site extended to as deep as 12 feet below the Gerard Avenue sidewalk level, and groundwater was encountered at a depth of 17.5 feet below grade at Boring B-3 or 15.5 feet below sidewalk level.

Therefore, based on our geotechnical investigation, we recommend the proposed new building can be founded on a mat foundation or footings bearing in Stratum 2 – Natural Sand and Gravel, with an allowable bearing capacity of 3 tons per square foot (tsf) for foundation design. All fill must be removed if encountered at subgrade level for any new footings or the mat foundation. Settlement under the new building loads is expected to be on the order of ½ to 1 inch, though most of the settlement is expected to occur during construction. A minimum of 6 inches of ¾” crushed stone should be placed under the footings/mat foundation and compacted. The recommended bearing pressure is also dependent on GES being retained to provide controlled inspection of the subgrade.

Prior to foundation construction, all new foundation subgrade shall be inspected by a geotechnical engineer, familiar with the soil conditions and is licensed in New York State. Should the soil at

the design subgrade elevation be found to be unsuitable for further construction, softer and wetter areas may need to be removed and replaced by $\frac{3}{4}$ " clean crushed stone and compacted in maximum 12-inch-thick lifts. Should this be insufficient, new footing requirements should be reviewed with the structural engineer to confirm the subgrade can support the design bearing pressures.

Depending on the final depth of adjacent building foundations, and exact layout and depth of the cellar, underpinning may be required along the north and east adjacent buildings in order to construct the cellar level. Please see Section 4.3 below. If the construction of underpinning piers below any adjacent building is not permitted by adjacent property owners, as part of a negotiated license agreement, we recommend the proposed cellar be designed such that a 1V:2H slope below any adjacent foundation is maintained, with excavation for the cellar not penetrating this line of influence. Another alternative to underpinning is the installation of drilled piles or caissons, with rock sockets founded in Stratum 4, i.e., NYCBC Class 1c rock or better. Alternate methods for foundation support of the building along the lot lines, if underpinning is not permitted, can be further addressed as the final design of the building is completed.

With a design groundwater level of 13.5 feet below sidewalk level, we recommend that either the cellar slab be designed to resist uplift pressures imposed by groundwater at the recommended design depth below sidewalk, or design the bottom of foundation to be above the design groundwater level.

3.4 LATERAL EARTH PRESSURES

The design lateral pressures for permanent below grade walls consist of static pressures that are influenced by the thickness and type of overburden material. For design purposes, we recommend that the below grade walls above the design groundwater level be designed for a static lateral soil pressure of 45 pcf and that the walls below the design groundwater level be designed for a static lateral soil pressure of 85 pcf.

The NYCBC also requires that the below grade walls be designed to resist seismic loads. We recommend using a seismic lateral soil force of $6H^2$ (lb/ft of wall), where H is the total vertical height of the wall, in feet. This force is in addition to the static force and should be applied at a distance of H/3 from the top of the wall (wall pressure is an inverted triangle).

The recommended lateral pressure does not include any surcharge loads adjacent to the walls or at the ground surface. We recommend adding a uniform (i.e., rectangular) lateral pressure distribution of 0.40 times the surcharge to the lateral soil pressure distribution. The structural engineer should determine the magnitude of the surcharge loads (i.e., live loads).

If adjacent footings are underpinned by constructing underpinning piers, the pressure exerted on the new building walls due to the transfer of foundation loads should be included in the design.

3.5 PERMANENT GROUNDWATER CONTROL

The final design for the new building's foundation has not yet been completed. Therefore, the proposed bottom of foundation depth below sidewalk is not known at this time. We highly recommend the bottom of the new slab be located above the design groundwater level of 13.5 feet below the sidewalk on Gerard Avenue, as to avoid having groundwater impose uplift pressures on the new cellar slab.

SECTION THREE

ENGINEERING EVALUATION AND RECOMMENDATIONS

We recommend all subsurface foundation elements be waterproofed, using Grace products (or approved equivalent) and methods submitted by the installer and approved by the geotechnical engineer. We highly recommend that the waterproofing be inspected by a controlled inspector or otherwise certified installer. Great care must be taken to ensure that any wall or slab penetrations are properly sealed using manufacturer and geotechnical engineer-approved methods, to prevent infiltration into the foundation.

4.1 GENERAL

The following sections provide recommendations regarding temporary groundwater control during foundation construction, temporary support of excavation and underpinning, preparation of the subgrade for the cellar slab, excavation considerations, backfill and compaction control, pre-construction surveys of adjacent and nearby buildings, the need for construction monitoring, and geotechnical engineer inspection requirements.

4.2 TEMPORARY GROUNDWATER CONTROL

As noted in Section 2.4 above, we recommended a design groundwater level of 13.5 feet below sidewalk level on Gerard Avenue, and the actual groundwater level was observed to stabilize at about 17.5 feet at Boring B-3. Therefore, based on the proposed construction, we recommend that temporary groundwater control requirements for general excavation can be met by the use of localized dewatering pumps to control groundwater or storm water so that construction of all footing or mat foundation subgrades, elevator/ejector/sump pits, waterproofing, and walls can be performed in the dry.

We recommend that for areas of deeper excavation, i.e., sump, ejector, or elevator pits, that a dewatering system may be required to lower the existing groundwater level to below the lowest excavation to permit foundation construction in the dry. This system would have to be designed by a qualified engineer, licensed in the State of New York. Measures shall be taken by the engineer to prevent settlement, slope failure, damage to adjacent buildings, structures, and property affected by dewatering operations. Treatment and disposal of the groundwater would need to follow all applicable NYCDEP regulations.

Dewatering activities may have the potential to induce settlement of adjacent or nearby buildings or utilities. As noted in Section 4.7 below, we highly recommend that all adjacent buildings be monitored for movement in three dimensions, prior to demolition of the existing on-site building, and commencement of any dewatering required to construct the new building's foundation system.

4.3 TEMPORARY SUPPORT OF EXCAVATION AND UNDERPINNING

Existing buildings abut the project site to the north and east. The exact requirements for underpinning, or avoiding underpinning, are unknown at this time. Due to the risks of settlement of adjacent buildings associated with underpinning, we highly recommend underpinning be avoided wherever possible. However, if it is desired to construct a cellar level against all adjacent lots and buildings, we recommend that demolition and removal of the 580 Gerard Avenue foundation be performed very carefully, with equipment sized as to not induce vibrations or settlement of any adjacent building. Please see Section 4.7 with regard to adjacent building monitoring and pre-construction surveys of adjacent buildings.

Furthermore, Test Pit TP-2 showed that the north adjacent building may share a footing with 580 Gerard Avenue. We highly recommend this possibility be explored prior to finalizing the design of the new building.

The foundation type, depth, width, and condition thereof for all adjacent structures must be verified to finalize the need for underpinning and other protective measures. Underpinning is required wherever the foundations of adjacent structures are found to be above the proposed excavation

levels, and excavation goes below a 1V:2H line of influence below any adjacent foundation found not to be bearing on NYCBC Class 1b rock or better (40 tsf).

Installation of temporary excavation support methods on adjacent property will require Ownership to obtain temporary access agreements with the owners of all adjacent properties. If both parties cannot come to an agreement to install temporary excavation support on adjacent properties, other methods of excavation support which does not involve trespassing onto adjacent lots, must be considered, such as drilled tangent piles. Tangent piles are drilled foundation elements that abut one another, and dually function as excavation support and the foundation wall. They can be drilled as close as about two (2) feet to the lot line, and may be less feasible than other temporary excavation support methods. This can be further explored as an option as design of the support of excavation proceeds.

All temporary support of excavation elements must remain in place and functioning as designed until the new building walls and first floor slab are constructed and any open areas are properly backfilled. A feasible support system for temporary support of excavation in areas noted above may consist of drilled soldier piles and wood lagging. We recommend the piles be laterally supported by the use of steel walers with rakers connected to heel blocks, or by drilled tiebacks. Due to close proximity to adjacent buildings, we highly recommend that air not be used when drilling soldier piles or tiebacks.

We recommend that the contractor provide submittals for review by the Engineer of Record, which include a drilled soldier pile identification plan, means and methods for installation, equipment to be used, support of excavation design and drawings, and casing coupon/mill certifications, at a minimum. The contractor should not be allowed to proceed with support of excavation construction until approval of all submittals by the Engineer of Record is obtained. Means and methods and underpinning design calculations and drawings also should be submitted for review.

The design of any excavation support system should be the responsibility of a licensed New York Professional Engineer. All excavations for temporary support systems and underpinning must conform to pertinent OSHA and local safety regulations. The soil parameters used in the design of the temporary support system should be reviewed by the Owner's Geotechnical Engineer prior to construction of the temporary support structures. Excavations, underpinning, and sheeting, shoring, and bracing are all subject to controlled inspection in accordance with the NYCBC.

4.4 SUBGRADE PREPARATION

In order to limit differential settlement of the cellar slab, we recommend that a minimum of 6 inches of ¾" clean crushed stone be placed prior to installing the waterproofing, and proof-rolled with a minimum of six (6) passes of a smooth drum vibrating roller with a minimum 10-ton static weight, or other approved equipment having similar energy. The subgrade below the crushed stone must also be proof-rolled. Any unstable areas encountered which cannot be stabilized by additional compaction should be excavated to competent material and the area backfilled with compacted select or structural backfill. The proof-rolling should not be performed when the subgrade is wet, muddy, or frozen. If the cellar slab is constructed in the winter, the subgrade should be protected from frost action to limit possible subgrade deterioration resulting from freezing/thawing cycles.

4.5 EXCAVATION CONSIDERATIONS

We highly recommend that the demolition and removal of the existing building foundations be performed such that the foundations and the subsurface soils supporting them, for all adjacent structures are protected and supported. We recommend that all excavation be performed with small equipment sized not to induce settlement of adjacent building foundations. Excavation shall not penetrate a 1V:2H envelope below the bottom of any adjacent building foundation, as to not undermine the bearing material below the foundation.

We recommend that all excavation within two feet of the proposed mat foundation/footing subgrade elevation be either performed using a flat-plated excavator bucket or by shovels, as to prevent disturbance of the subgrade material at the design subgrade elevation. Any over-excavated areas or footing subgrade disturbed by construction or excavation activities must be completely removed and replaced with select backfill or crushed stone and compacted, under the continuous inspection of a geotechnical engineer. Excavation and bracing are subject to special inspection, in accordance with the NYCBC.

All demolition of the on-site building must be performed using small equipment that does not produce unacceptable vibration levels. We recommend that during demolition, excavation and foundation construction operations, measurements of vibration levels be made in all structures within 25 feet of the proposed site. Please see Section 4.7 below regarding pre-construction surveys and monitoring.

As described above, since the proposed new building will likely entail excavation to at least 12 to 14 feet, and deeper for elevator, ejector, or sump pits, temporary support of excavation systems will likely be required in these areas, and around the site perimeter, to allow foundation construction to proceed. Underpinning of adjacent foundations is likely to be required as well, along some or all adjacent buildings. The design of such system must adhere to all relevant codes and acceptable industry standards and practices, as described above in Section 4.3.

During demolition and excavation operations, measurements of vibration levels must be made in all adjacent structures. Seismographs must be in place and recording prior to commencement of demolition, and must remain in place at least until the first-floor slab is completed. Vibration level requirements are further described in Section 4.7 below.

All excavations and temporary support systems should conform to pertinent OSHA and local safety regulations. Excavations, underpinning, sheeting, shoring, and bracing are all subject to controlled inspection in accordance with the NYCBC.

4.6 BACKFILL AND COMPACTION REQUIREMENTS

Where needed, select backfill or structural backfill should be granular material only, free of cinder, brick, asphalt, ash, silt/clay, and other unsuitable materials. We recommend that structural backfill or select backfill placed around the proposed building foundations be compacted to a minimum of 95% of the maximum dry density, as determined by ASTM D1557, Method C. All backfill should be placed in lifts not exceeding 8 inches in loose thickness. All crushed stone should be placed in lifts not exceeding 12 inches in loose thickness. The subgrade underneath the backfill should be satisfactorily proof-rolled prior to placement of backfill and should also meet the same density requirements as the backfill to be placed above the subgrade. The placement of flowable fill can be considered an alternative to placement and compaction of structural backfill around building

foundations, pending approval of the Engineer of Record. All fill placement shall be subject to special inspection by a special inspector, per NYCBC.

4.7 PRE-CONSTRUCTION SURVEY AND MONITORING

Throughout demolition, excavation, installation of the support of excavation system, and foundation construction phases of the project, measurements of vibration levels shall be made in selected adjacent structures. The maximum vibration level that a structure can tolerate is dependent on many factors, including the age and condition of the building, which must be defined as part of a monitoring plan. All structures within 25 feet of the project site must be protected and supported. We recommend the maximum peak particle velocity (PPV) readings be kept below 1 in/sec for all adjacent buildings, i.e., the north and east adjacent buildings. These levels may be further lowered depending on the condition of these buildings, and based on the pre-construction survey. Additionally, we recommend that the maximum permissible vertical and horizontal movement of all adjacent/nearby structures be limited to ½ inch. This may be further reduced, based on the results of the pre-construction condition surveys.

A pre-construction survey should be performed for any adjacent structure (or portion thereof) or utility that is within at least 25 feet of the construction site, and prior to demolition of the on-site building. A significant pre-construction documentation and observational monitoring program must be developed and performed in accordance with the above requirements. On the basis of the pre-construction survey, an observational program should be designed for checking performance and monitoring construction procedures. This observational program could include the establishment of survey points to monitor vertical and horizontal movements and / or the monitoring of vibrations during construction of the foundation, as well as the installation of crack monitoring gauges.

4.8 CONSTRUCTION INSPECTION

Our recommendations are contingent upon the proper review and observation during excavation, support of excavation, and foundation construction operations by a geotechnical engineer familiar with the subsurface conditions and foundation design criteria. The geotechnical engineer's role should include the following, work for which we can submit additional proposals to perform:

- Review and approval of contractor submittals related to foundation construction;
- Observation and documentation of all phases of excavation and foundation construction;
- Inspection and approval of foundation subgrades by a NYS licensed Professional Engineer, in accordance with the NYCBC;
- Inspection of subgrade preparation, in accordance with the NYCBC;
- Design and controlled inspection of support of excavation, i.e., tiebacks (including proof and performance testing), heel block subgrades, underpinning, etc.;
- Controlled inspection of waterproofing placement;
- Special inspection of fill placement and compaction.

Our conclusions and summary of recommendations are as follows:

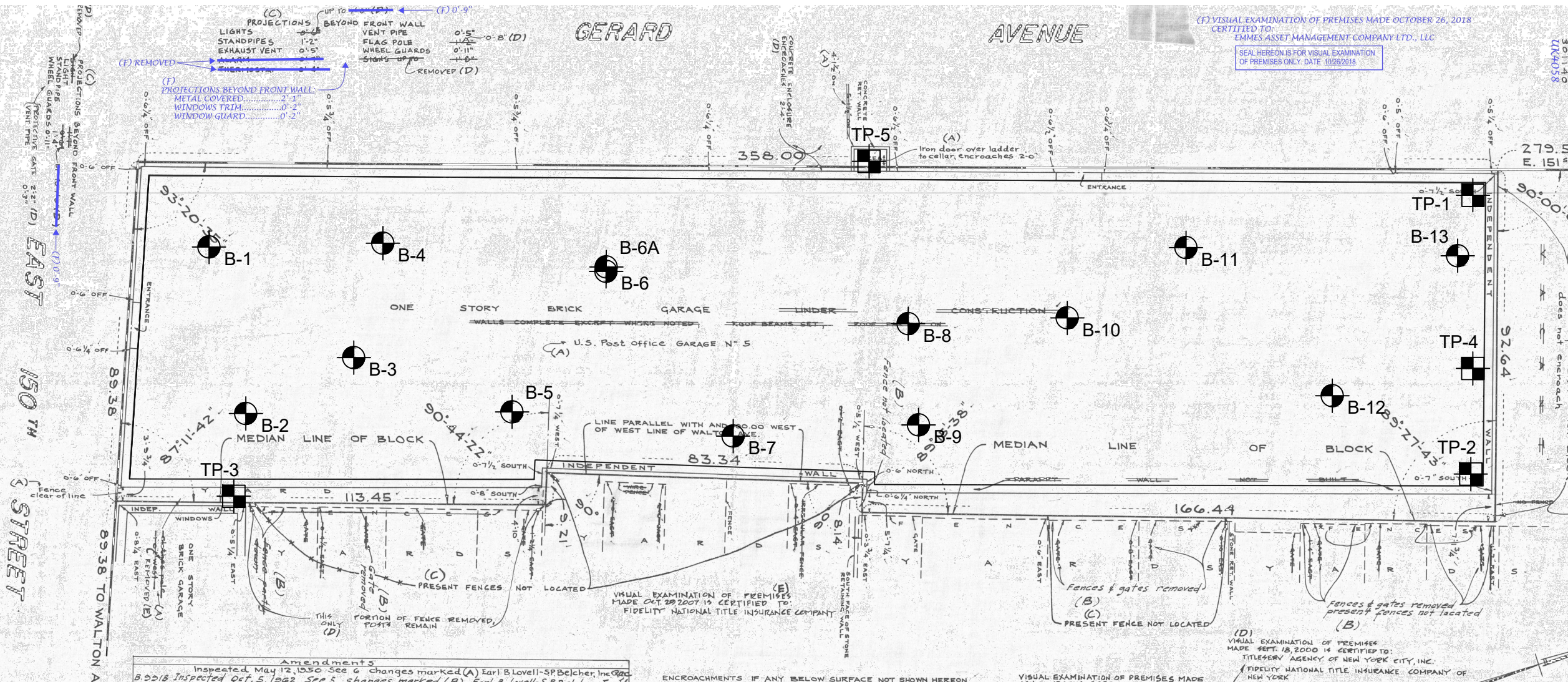
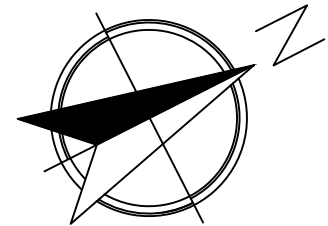
1. We understand that the proposed excavation level has not yet been determined but that one cellar level will likely be constructed, on Stratum 2 material. The soil will have average N-Values between 15 and 50 bpf. We therefore recommend a Site Class of “D” below the new cellar slab. Due to the highly dense nature of most samples within Stratum 2, and the recommendation of a mat foundation, liquefaction is not a concern at this site.
2. Based on our geotechnical investigation, we recommend the proposed new building can be founded on a mat foundation or footings bearing in Stratum 2 – Natural Sand and Gravel, with an allowable bearing capacity of 3 tons per square foot (tsf) for foundation design. All fill must be removed if encountered at subgrade level for any new footings or the mat foundation. Settlement under the new building loads is expected to be on the order of ½ to 1 inch, though most of the settlement is expected to occur during construction.
3. We highly recommend the bottom of the new slab be located above the design groundwater level of 13.5 feet below the sidewalk on Gerard Avenue, as to avoid having groundwater impose uplift pressures on the new cellar slab. We recommend all subsurface foundation elements be waterproofed, using Grace products (or approved equivalent) and methods submitted by the installer and approved by the geotechnical engineer.
4. Based on the proposed construction, we recommend that temporary groundwater control requirements for general excavation can be met by the use of localized dewatering pumps to control groundwater or storm water so that construction of all footing or mat foundation subgrades, elevator/sump pits, waterproofing, and walls can be performed in the dry.
5. The depth, condition, and type of foundation for all adjacent structures must be verified prior to final design and installation of any support of excavation or underpinning system. Sidewalks, and adjacent yards or alleys can be supported by the use of drilled soldier piles with timber lagging and tiebacks with walers, or internally braced with heel blocks and walers. Excavation support below adjacent buildings can be met by the use of concrete underpinning, if license agreements with adjacent property owners can be obtained to perform the work.
6. Where needed, select backfill or structural backfill should be granular material only, free of cinder, brick, asphalt, ash, silt/clay, and other unsuitable materials, compacted to minimum 95% of maximum dry density, and not exceeding 8 inches in loose thickness. All crushed stone should be placed in lifts not exceeding 12 inches in loose thickness. All fill placement shall be subject to special inspection by a special inspector, per NYCBC. Flowable fill is an acceptable alternative to the use of fill placement and compaction around building foundations, pending approval of the Engineer of Record.
7. In order to limit differential settlement of the cellar slab, we recommend that a minimum of 6 inches of ¾” clean crushed stone be placed prior to installing the waterproofing, and proof-rolled with a minimum of six (6) passes of a smooth drum vibrating roller with a minimum 10-ton static weight, or other approved equipment having similar energy. The subgrade below the crushed stone must also be proof-rolled.
8. We highly recommend that the demolition and removal of the existing building foundations be performed such that the foundations of all adjacent structures are protected and supported. Refer to Section 4.5 for excavation considerations.

9. A pre-construction survey should be performed for any structure or utility within 25 feet of the site, or parts thereof. On the basis of the survey, an monitoring plan should be designed for checking performance and monitoring construction procedures. We recommend the maximum peak particle velocity (PPV) readings be kept below 1 in/sec for all adjacent buildings, i.e., the north and east adjacent buildings. We recommend that the maximum permissible vertical and horizontal movement of all adjacent/nearby structures be limited to ½ inch.
10. Our recommendations are contingent upon the proper review and observation during excavation and foundation construction operations by a geotechnical engineer familiar with the subsurface conditions and the foundation design criteria.

Professional judgments were necessary in relation to determining stratigraphy and soil properties from the subsurface investigations. Such judgments were based partly on the evaluation of the technical information gathered, and partly on our experience with similar projects. If further investigation reveals differences in the subsurface conditions and/or groundwater level, or if the proposed building design is different from indicated herein, or is changed, it is recommended that we be given the opportunity to review the new information and modify our recommendations, if deemed appropriate.

The results presented in this report are applicable only to the present study, and should not be used for any other purpose without our review and consent. This study has been conducted in accordance with the standard of care commonly used as state-of-the-practice in the profession. No other warranties are either expressed or implied.

FIGURES



No.	DESCRIPTION	DATE	BY

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

580 GERARD AVENUE
BRONX, NYC, NY

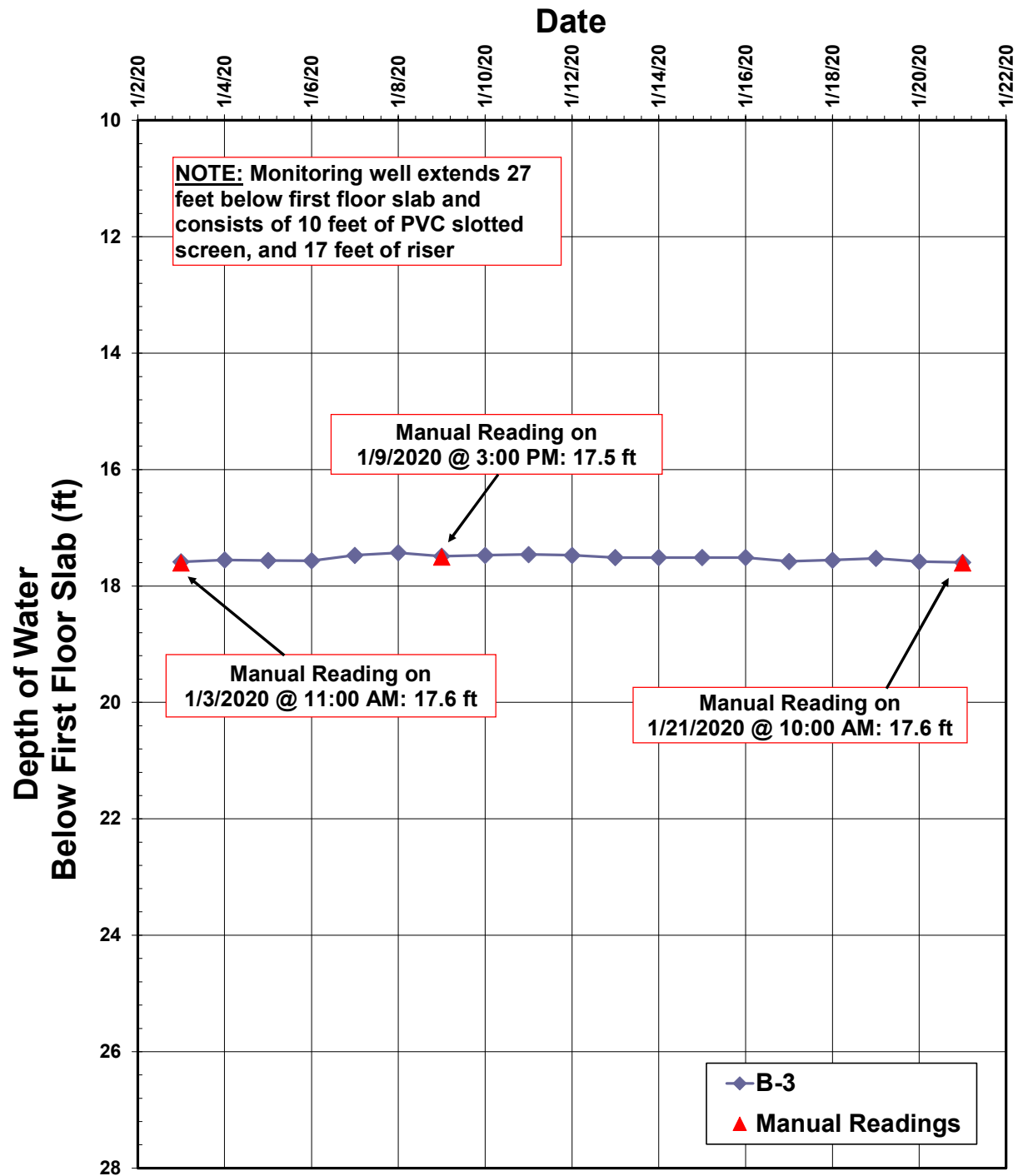
BLOCK: LOT: ZONE: MAP:

BORING AND TEST PIT LOCATION PLAN

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

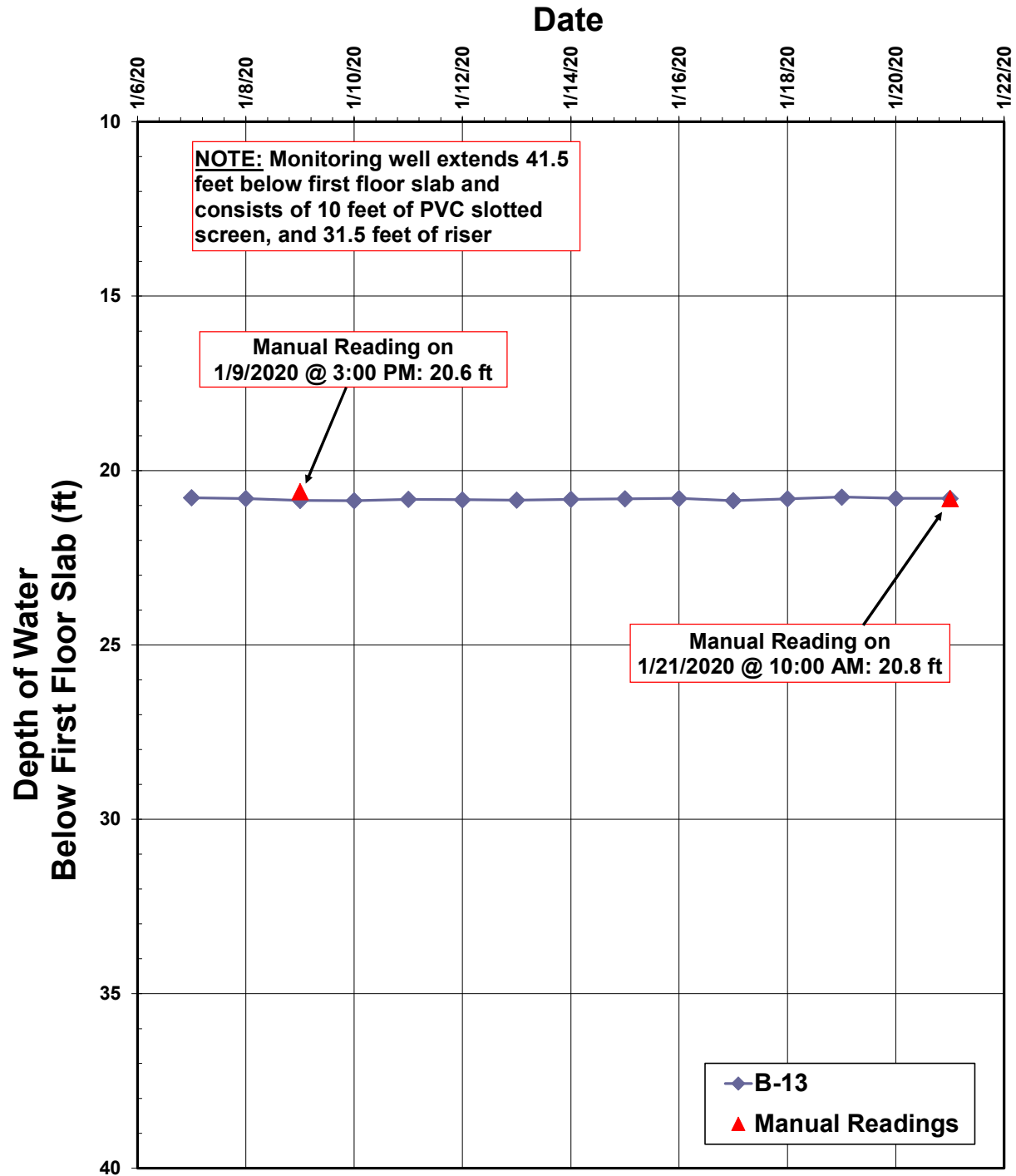
PROFESSIONAL ENGINEER	PROJECT #:	2019110
	SCALE:	NTS
	DATE:	01/20/2020
	DRAWING NO:	B-100.00
	SHEET NO:	1 OF 1

580 Gerard Avenue - Groundwater Levels



Water Level Readings		
Boring B-3		
580 Gerard Avenue		
Bronx, NY 10451		
GES, P.C.		
Elmsford, New York		
DRAWN BY: MT	SCALE: AS SHOWN	PROJ NO: 2019110
CHECKED BY: ZHM	DATE: 1/21/2020	FIGURE NO: 2

580 Gerard Avenue - Groundwater Levels



**Water Level Readings
Boring B-13
580 Gerard Avenue
Bronx, NY 10451**

**GES, P.C.
Elmsford, New York**

DRAWN BY: MT

SCALE: AS SHOWN

PROJ NO: 2019110

CHECKED BY: ZHM

DATE: 1/21/2020

FIGURE NO: 3

APPENDIX A

Log of Boring B-1

Sheet 1 of 2

Project: 580 Gerard Avenue					Project Number: 2019110					
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY										
Date(s) Drilled	12/26/19 - 12/26/19		Inspector	Ahmed Obidat		Coordinates	North: East:			
Drilling Agency	Municipal Testing Lab, Inc		Foreman	Rudy Rios		Approximate Surface Elevation (feet) NA				
Drilling Equipment	GeoProbe 7822DT		Drilling Method	Mud Rotary		Completion Depth (feet)	33.0	Rock Depth (feet)	28.0	
Casing Size/Type	4" and 3" Steel		Size/Type of Bit	3-7/8" and 2-15/16" Roller Bits		Sampler Type(s)	2" Split Spoon			
Groundwater Level and Date Measured	NA NA		Hammer Wt/Drop	140/30" (Auto)	Casing Hammer Wt/Drop	140/30" (Auto)			Size/Type of Core Barrel	2" NX
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 9 Undist.: 0 Core (ft): 5				

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
	S-1	0.3	3 3 6 4					FILL: Black and brown Silty medium to fine Sand, trace Gravel, Clay, Brick and Concrete fragments [7]					S-1: Moist
	S-2	1.4	6 6 8 7					FILL: Dark brown Silty medium to fine Sand, some Gravel, trace Concrete fragments [7]					S-2: Moist
5	S-3	0.7	6 7 22 11					FILL: Same as Above [7]					S-3: Moist Drove 4" casing to 5 ft
	S-4	0.3	9 5 7 4					FILL: Gray coarse to fine Sand, some Silt, Gravel [7]					S-4: Moist. Rig Chatter at 6.5 ft
	S-5	0.8	3 3 26 7					FILL: Dark gray and white Silty medium to fine Sand, some Gravel, trace Mica [7]					S-5: Moist
10	S-6	0.8	7 3 2 2					FILL: Dark brown and gray Silty medium to fine Sand, some Gravel [7]					S-6: Moist Drove 4" casing to 10 ft
15	S-7	1.2	4 4 2 2					NATURAL: Reddish brown Silty medium to fine Sand (SM) [6]					S-7: Moist Rig chatter at 14 ft Drove 4" casing to 15 ft
20													

Template: GENERAL GES LOGO Proj ID: 580 GERARD AVENUE.GPJ

GES P.C.

Printed: 1/21/20

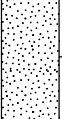
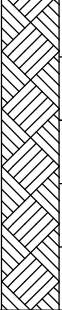
Log of Boring B-1

Sheet 2 of 2

Project: 580 Gerard Avenue

Project Number: 2019110

Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20	S-8	1.1	3					Reddish brown Clayey medium to fine Sand (SC) [6]					S-8: Moist Rig chatter at 23 ft
			3										
			2										
			2										
25	S-9	1.5	11					Light brown coarse to fine Sand, trace Gravel (SP-SW) [3a]					S-9: Moist Possible decomposed bedrock
			14										
			20										
			24										
30				C-1	100	91		Hard white and gray Calcitic Schist, Moderately jointed, slightly weathered at joints [1a]					Hard drilling at 28 ft. Cased to 28 ft with 3" casing
35								Boring Completed to 33 ft below ground. Boring backfilled with soil cuttings and patched with Quikrete at grade.					
40													

Template: GENERAL GES LOGO Proj ID: 580 GERARD AVENUE.GPJ

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Printed: 1/21/20

Log of Boring B-2

Sheet 1 of 2

Project: 580 Gerard Avenue					Project Number: 2019110				
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY									
Date(s) Drilled	12/26/19 - 12/27/19		Inspector	Ahmed Obidat		Coordinates North: East:			
Drilling Agency	Municipal Testing Lab, Inc		Foreman	Rudy Rios		Approximate Surface Elevation (feet) NA			
Drilling Equipment	GeoProbe 7822DT		Drilling Method	Mud Rotary		Completion Depth (feet)	22.0	Rock Depth (feet)	17.5
Casing Size/Type	4" Steel		Size/Type of Bit	3-7/8" Roller Bit		Sampler Type(s) 2" Split Spoon			
Groundwater Level and Date Measured	NA NA		Hammer Wt/Drop	140/30" (Auto)	Casing Hammer Wt/Drop	140/30" (Auto) Size/Type of Core Barrel NA			
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 6 Undist.: 0 Core (ft): 0			

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
	S-1	1.4	5 8 9 7					FILL: Black and brown Silty medium to fine Sand, trace Gravel, Clay, Brick and Concrete fragments [7]					S-1: Moist
	S-2	1.3	5 6 4 4					FILL: Gray and dark brown Silty medium to fine Sand, some Gravel [7]					S-2: Moist. Petroleum Odor
5	S-3	0.8	3 3 2 2					FILL: Brown to dark brown Silty medium to fine Sand, trace Gravel, Brick [7]					S-3: Moist
	S-4	0.8	3 3 2 4					FILL: Brown Silty medium to fine Sand, trace Gravel, Mica [7]					S-4: Moist
10	S-5	1.0	2 2 6 7					FILL: Same as Above [7]					S-5: Moist
													Drove casing to 10 ft
													Rig chatter at 13 ft
15	S-6	1.2	4 5 4 4					NATURAL: Reddish-brown Silty medium to fine Sand, trace Clay, Gravel (SM) [6]					S-6: Moist
								Possible top of bedrock at 17.5 ft, Advanced roller bit to 22 ft without coring					Hard drilling from 17.5 to 22 ft
20													

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Printed: 1/21/20

Log of Boring B-2

Sheet 2 of 2

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

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

Template: GENERAL GES LOGO Proj ID: 580 GERARD AVENUE.GPJ

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Printed: 1/21/20

Log of Boring B-3

Sheet 1 of 2

Project: 580 Gerard Avenue					Project Number: 2019110				
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY									
Date(s) Drilled	12/27/19 - 12/27/19		Inspector	Ahmed Obidat		Coordinates	North: East:		
Drilling Agency	Municipal Testing Lab, Inc		Foreman	Rudy Rios		Approximate Surface Elevation (feet) NA			
Drilling Equipment	GeoProbe 7822DT		Drilling Method	Mud Rotary		Completion Depth (feet)	27.0	Rock Depth (feet)	22.0
Casing Size/Type	4" and 3" Steel		Size/Type of Bit	3-7/8" and 2-15/16" Roller Bits		Sampler Type(s)	2" Split Spoon		
Groundwater Level and Date Measured	17.6 1/21/2020		Hammer Wt/Drop	140/30" (Auto)	Casing Hammer Wt/Drop	140/30" (Auto) Size/Type of Core Barrel 2" NX			
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 8 Undist.: 0 Core (ft): 5			

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
	S-1	1.8	20 29 30 28					FILL: Black and brown Silty medium to fine Sand, trace Gravel, Clay, Brick and Concrete fragments [7]					S-1: Moist
	S-2	1.8	17 18 12 8					FILL: Same as Above [7]					Rig chatter at 2 ft S-2: Moist
5	S-3	0.5	6 6 6 5					FILL: Brown and black Clayey medium to fine Sand, trace Gravel, Brick fragments [7]					Drove 4" casing to 4 ft S-3: Moist
	S-4	0.8	5 3 3 5					FILL: Black, brown and tan, Silty medium to fine Sand, Gravel [7]					S-4: Moist
	S-5	0.9	4 5 3 3					FILL: Brown and black Silty medium to fine Sand, trace Gravel [7]					S-5: Moist
10	S-6	0.8	4 4 10 12					FILL: Silty medium to fine Sand, trace Gravel and Brick fragments [7]					S-6: Moist
													Rig chatter at 12 ft
15	S-7	1.1	4 18 12 10					NATURAL: Reddish-brown Silty medium to fine Sand, trace Clay, Gravel, Mica (SM) [3b]					S-7: Moist
20													

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Log of Boring B-3

Sheet 2 of 2

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

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Log of Boring B-4

Sheet 1 of 2

Project: 580 Gerard Avenue					Project Number: 2019110		
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY							
Date(s) Drilled	12/27/19 - 12/27/19		Inspector	Ahmed Obidat		Coordinates North: East:	
Drilling Agency	Municipal Testing Lab, Inc		Foreman	Rudy Rios		Approximate Surface Elevation (feet) NA	
Drilling Equipment	GeoProbe 7822DT		Drilling Method	Mud Rotary		Completion Depth (feet) 28.0	Rock Depth (feet) 28.0
Casing Size/Type	4" Steel		Size/Type of Bit	3-7/8" Roller Bit		Sampler Type(s) 2" Split Spoon	
Groundwater Level and Date Measured	NA NA		Hammer Wt/Drop	140/30" (Auto)	Casing Hammer Wt/Drop	140/30" (Auto) Size/Type of Core Barrel NA	
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 9 Undist.: 0 Core (ft): 0	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					
	S-1	1.0	9 12 14 11					FILL: Black and brown Silty medium to fine Sand, trace Gravel, Clay, Brick and Concrete fragments [7]					S-1: Moist
	S-2	1.1	12 14 12 8					FILL: Black Gravelly medium to fine Sand, some Silt, trace Brick [7]					S-2: Moist
													Drove casing to 4 ft
5	S-3	1.0	6 4 3 3					FILL: Black Gravelly coarse to fine Sand, some Silt, trace Brick [7]					S-3: Moist
	S-4	0.8	5 5 5 8					FILL: Brown and gray Clayey medium to fine Sand, some Gravel [7]					S-4: Moist
	S-5	1.2	7 6 8 7					FILL: Brown and black Silty medium to fine Sand, some Gravel, trace Brick [7]					S-5: Moist
10	S-6	0.0	4 3 6 6					FILL: No Recovery. Presumed Same as Above [7]					S-6: Moist
15	S-7	0.6	9 8 4 3					NATURAL: Reddish-brown medium to fine Sand, trace Silt, Gravel (SP) [3b]					S-7: Moist
20													

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Log of Boring B-4

Sheet 2 of 2

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20	S-8	0.1	2 1 1 1					Gravel, likely wash. Presumed Same as Above (SP) [6]					S-8: Moist Possible decomposed rock at 20 ft Rig chatter at 23 ft
25	S-9	1.3	35 42 50 50/1"					Light brown to dark gray coarse to fine Sand, trace Gravel, Silt (SP) [3a]					S-9: Moist
													Hard drilling at 28 ft
30								Boring Completed to 28 ft below ground. Boring backfilled with soil cuttings and patched with Quikrete at grade.					
35													
40													

Log of Boring B-5

Sheet 1 of 2

Project: 580 Gerard Avenue					Project Number: 2019110				
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY									
Date(s) Drilled	12/30/19 - 12/30/19		Inspector	Ahmed Obidat		Coordinates	North: East:		
Drilling Agency	Municipal Testing Lab, Inc		Foreman	Rudy Rios		Approximate Surface Elevation (feet) NA			
Drilling Equipment	GeoProbe 7822DT		Drilling Method	Mud Rotary		Completion Depth (feet)	23.0	Rock Depth (feet)	23.0
Casing Size/Type	4" and 3" Steel		Size/Type of Bit	3-7/8" and 2-15/16" Roller Bits		Sampler Type(s)	2" Split Spoon		
Groundwater Level and Date Measured	NA NA		Hammer Wt/Drop	140/30" (Auto)	Casing Hammer Wt/Drop	140/30" (Auto)	Size/Type of Core Barrel	NA	
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 7 Undist.: 0 Core (ft): 0			

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
	S-1	0.7	5 10 11 13					FILL: Black and brown Silty medium to fine Sand, trace Gravel, Clay, Brick and Concrete fragments [7]					S-1: Moist
	S-2	1.3	16 5 6 6					FILL: Black, brown and tan Silty medium to fine Sand, trace Gravel [7]					S-2: Moist
5	S-3	0.1	7 5 4 4					FILL: Gray Gravel [7]					S-3: Moist Rig chatter from 5 to 5.5 ft
													Drove 4" casing to 7.5 ft
10	S-4	0.8	3 3 2 3					FILL: Black, brown and tan, Silty medium to fine Sand, trace Gravel, Brick fragments [7]					S-4: Moist
													Drove 4" casing to 12 ft
15	S-5	1.4	5 7 15 13					NATURAL: Reddish-brown Silty medium to fine Sand (SM) [3b]					S-5: Moist. Likely wash 15 to 16 ft
													Rig Chatter, losing water at 14 ft
20													Drove 3" casing to 20 ft

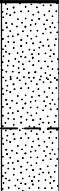
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Log of Boring B-5

Sheet 2 of 2

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20	S-6	1.1	2 6 13 18					Tan coarse to fine Sand, trace Silt, Gravel (SP) [3b]					S-6: Moist. Likely wash 20 to 21 ft Hard drilling at 23 ft
	S-7	0.0	50/0"					Boring Completed to 23 ft below ground. Boring backfilled with soil cuttings and patched with Quikrete at grade.					Spoon refusal at 23 ft
25													
30													
35													
40													

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Log of Boring B-6

Sheet 1 of 1

Project: 580 Gerard Avenue					Project Number: 2019110		
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY							
Date(s) Drilled	12/23/19 - 12/23/19		Inspector	Ahmed Obidat		Coordinates	North: East:
Drilling Agency	Municipal Testing Lab, Inc		Foreman	Rudy Rios		Approximate Surface Elevation (feet) NA	
Drilling Equipment	GeoProbe 7822DT		Drilling Method	Mud Rotary		Completion Depth (feet)	12.0 Rock Depth (feet) NA
Casing Size/Type	4" Steel		Size/Type of Bit	3-7/8" Roller Bit		Sampler Type(s)	2" Split Spoon
Groundwater Level and Date Measured	NA NA		Hammer Wt/Drop	140/30" (Auto)	Casing Hammer Wt/Drop	140/30" (Auto)	Size/Type of Core Barrel 2" NX
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 6 Undist.: 0 Core (ft): 0	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
	S-1	1.8	5 11 8 15					FILL: Black and brown Silty medium to fine Sand, trace Gravel, Clay, Brick and Concrete fragments [7]					S-1: Moist
	S-2	0.2	5 8 9 7					FILL: Black and brown Micaceous medium to fine Sandy Gravel [7]					S-2: Moist
5	S-3	0.1	21 7 5 6					FILL: Gray Gravel, trace coarse to fine Sand [7]					Drove casing to 4 ft Rig chatter at 4.5 ft Water lost at 5 ft
	S-4	0.1	10 50/1"					FILL: No Recovery. Presumed Same as Above [7]					Sampler tip broke, refusal at 7.5 ft
				C-1	0	0		FILL: Presumed Same as Above [7]					Cored from 7.5 to 8 ft
	S-5	0.5	3 6 25 13					FILL: Black and gray Gravel, trace coarse to fine Sand [7]					
10	S-6		12 23 17 4					FILL: Sample unable to be recovered. Presumed Fill [7]					Connection between split spoon sampler and rod broken. Sampler lost in hole.
15								Boring abandoned and patched with Quikrete at 12 ft below ground, backfilled with soil cuttings. Boring offset and replaced by Boring B-6A. Boring B-6A drilled 12 inches to the northwest.					
20													

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Log of Boring B-6A

Sheet 1 of 2

Project: 580 Gerard Avenue					Project Number: 2019110					
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY										
Date(s) Drilled	12/23/19 - 12/24/19		Inspector	Ahmed Obidat		Coordinates	North: East:			
Drilling Agency	Municipal Testing Lab, Inc		Foreman	Rudy Rios		Approximate Surface Elevation (feet) NA				
Drilling Equipment	GeoProbe 7822DT		Drilling Method	Mud Rotary		Completion Depth (feet)	38.0	Rock Depth (feet)	33.0	
Casing Size/Type	4" and 3" Steel		Size/Type of Bit	3-7/8" and 2-15/16" Roller Bits		Sampler Type(s)	2" Split Spoon			
Groundwater Level and Date Measured	NA NA		Hammer Wt/Drop	140/30" (Auto)	Casing Hammer Wt/Drop	140/30" (Auto)			Size/Type of Core Barrel	2" NX
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 6 Undist.: 0			Core (ft): 5	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
								Advanced without sampling to 10 ft. Please see log for Boring B-6 for stratigraphy to 10 ft					
5													Drove 4" casing to 5 ft Rig chatter at 5 ft. Hard drilling from 5 to 10 ft
													Drove 4" casing to 10 ft
													Drove 3" casing to 10 ft to prevent water loss
10	S-1	0.2	18 11 4 8					FILL: Gray Gravel, trace coarse to fine Sand [7]					S-1: Wash in Spoon Hard drilling from 10 to 15 ft
15	S-2	2.0	1 2 4 4					NATURAL: Reddish-brown Silty medium to fine Sand (SM) [6]					S-2: Moist Drove 3" casing to 15 ft
													Hard drilling from 17 to 20 ft
20													

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Log of Boring B-6A

Sheet 2 of 2

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20	S-3	0.8	20 35					Brown coarse to fine Sand, some Silt, Gravel (SM) [3a]					S-3: Moist Spoon refusal at 21 ft Driller stopped sampling after 1 ft to prevent breaking spoon Rig chatter at 23 ft. Hard drilling from 23 to 25 ft Drove 3" casing to 25 ft
25	S-4a	0.8	21 15					Brown fine to coarse Sandy Gravel (GP-GW) [2a]					S-4: Wet.
	S-4b	1.0	8 7					Brown Silty medium to fine Sand (SM) [3b]					
30	S-5	0.0	10 25					No Recovery. Presumed Same as Above					Hard drilling from 27 to 30 ft Drove 3" casing to 30 ft
	S-6	0.0	50/0"										Spoon refusal at 31 ft Driller stopped sampling after 1 ft to prevent breaking spoon Hard drilling at 32 ft
35				C-1	94	89		Hard white and gray Calcitic Schist, closely jointed to blocky, slight weathering at joints [1a]					Spoon refusal at 33 ft
40								Boring Completed to 38 ft below ground. Boring backfilled with soil cuttings and patched with Quikrete at grade.					

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Log of Boring B-7

Sheet 1 of 2

Project: 580 Gerard Avenue					Project Number: 2019110					
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY										
Date(s) Drilled	12/30/19 - 12/30/19		Inspector	Ahmed Obidat		Coordinates	North: East:			
Drilling Agency	Municipal Testing Lab, Inc		Foreman	Rudy Rios		Approximate Surface Elevation (feet) NA				
Drilling Equipment	GeoProbe 7822DT		Drilling Method	Mud Rotary		Completion Depth (feet)	32.0	Rock Depth (feet)	27.0	
Casing Size/Type	4" and 3" Steel		Size/Type of Bit	3-7/8" and 2-15/16" Roller Bits		Sampler Type(s)	2" Split Spoon			
Groundwater Level and Date Measured	NA NA		Hammer Wt/Drop	140/30" (Auto)	Casing Hammer Wt/Drop	140/30" (Auto)			Size/Type of Core Barrel	2" NX
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 6 Undist.: 0 Core (ft): 7				

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
	S-1	1.2	5 21 30 11					FILL: Brown Gravelly medium to fine Sand, some Silt, trace Wood fragments [7]					S-1: Dry
5	S-2	1.1	3 3 3 2					FILL: Tan medium to fine Sand, some Silt, Gravel [7]					S-2: Dry
10				C-1	0	0		Cored through boulder. No Recovery.					Drove 4" casing to 10 ft
	S-3a	0.6	1 2					FILL: Brown and black medium to fine Sand, some Gravel [7]					S-3: Moist
	S-3b	0.7	1 2					NATURAL: Brown and reddish-brown medium to fine Sand, some Gravel, trace Silt (SP-SM) [6]					
15	S-4	1.2	4 4 4 6					Reddish brown medium to fine Sand, some Silt (SM) [6]					S-4: Moist
20													Drove 3" casing to 15 ft
													Drove 3" casing to 20 ft

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Log of Boring B-7

Sheet 2 of 2

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20	S-5	0.9	2 4 11 12					Brown Gravelly coarse to fine Sand, trace Silt (SP-SM) [3b]					S-5: Wet
25	S-6	1.4	8 16 27 50/1"					White and gray medium to fine Sand, trace Silt, Gravel (SP) [3a]					Drove 3" casing to 25 ft Possible decomposed rock at 25 ft S-6: Moist Spoon refusal at 26.6 ft
30				C-2	75	75		Hard Gray and White Micaceous Calcitic Schist, moderately jointed, slight weathering at joints [1b]					Drove 3" casing to 27 ft
35								Boring Completed to 32 ft below ground. Boring backfilled with soil cuttings and patched with Quikrete at grade.					
40													

Log of Boring B-8

Sheet 1 of 2

Project: 580 Gerard Avenue					Project Number: 2019110				
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY									
Date(s) Drilled	12/31/19 - 12/31/19		Inspector	Ahmed Obidat		Coordinates	North: East:		
Drilling Agency	Municipal Testing Lab, Inc		Foreman	Rudy Rios		Approximate Surface Elevation (feet)	NA		
Drilling Equipment	GeoProbe 7822DT		Drilling Method	Mud Rotary		Completion Depth (feet)	29.0	Rock Depth (feet)	29.0
Casing Size/Type	4" Steel		Size/Type of Bit	3-7/8" Roller Bit		Sampler Type(s)	2" Split Spoon		
Groundwater Level and Date Measured	NA NA		Hammer Wt/Drop	140/30" (Auto)	Casing Hammer Wt/Drop	140/30" (Auto)	Size/Type of Core Barrel	NA	
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 10 Undist.: 0 Core (ft): 0			

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
	S-1	1.4	6 9 9 5					FILL: Dark brown Silty medium to fine Sand, trace Mica, Gravel [7]					S-1: Dry
	S-2	0.9	7 6 10 9					FILL: Brown and black Silty medium to fine Sand, some Gravel, trace Mica [7]					S-2: Moist
5	S-3	1.0	15 13 30 12					FILL: Black and brown coarse to fine Sand, some Silt, trace Gravel, Mica [7]					S-3: Moist Rig chatter at 5 ft
	S-4	0.0	4 6 7 8					FILL: No Recovery. Presumed Same as Above [7]					S-4: Moist Drove 4" casing to 5 ft
	S-5	0.0	6 5 5 6					FILL: No Recovery. Presumed Same as Above [7]					S-5: Moist Drove 4" casing to 10 ft
10	S-6	0.8	2 2 2 3					NATURAL: Reddish-brown medium to fine Sand, some Silt (SM) [6]					S-6: Moist
15	S-7	0.9	3 3 4 3					Same as Above (SM) [6]					S-7: Moist
20													

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Log of Boring B-8

Sheet 2 of 2

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20	S-8a	0.4	6 9					Same as Above (SM) [3b]					S-8: Moist
	S-8b	0.5	20 45					Light brown and dark gray coarse to fine Sand, trace Gravel (SP-SW) [3a]					Rig chatter from 21 to 24 ft
													Possible decomposed rock at 21 ft
25	S-9	0.8	8 8 27 27					Tan coarse to fine Sand, some Gravel (SP-SW) [3a]					Rig chatter from 24 to 26 ft S-9: Moist. Likely wash 24 to 25 ft
	S-10	1.8	24 53 50 50/3"					Same as Above (SP-SW) [3a]					Spoon refusal at 28.8 ft. Possible top of rock
30								Boring completed at 28.8 ft below ground. Boring completed and backfilled with soil cuttings. Patched with Quikrete at grade.					
35													
40													

Log of Boring B-9

Sheet 1 of 2

Project: 580 Gerard Avenue					Project Number: 2019110					
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY										
Date(s) Drilled	12/31/19 - 1/2/20		Inspector	Christopher Aschmoneit		Coordinates	North: East:			
Drilling Agency	Municipal Testing Lab, Inc		Foreman	Rudy Rios		Approximate Surface Elevation (feet) NA				
Drilling Equipment	GeoProbe 7822DT		Drilling Method	Mud Rotary		Completion Depth (feet)	31.0	Rock Depth (feet)	26.0	
Casing Size/Type	4" and 3" Steel		Size/Type of Bit	3-7/8" and 2-15/16" Roller Bits		Sampler Type(s)	2" Split Spoon			
Groundwater Level and Date Measured	NA NA		Hammer Wt/Drop	140/30" (Auto)	Casing Hammer Wt/Drop	140/30" (Auto)			Size/Type of Core Barrel	2" NX
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 7 Undist.: 0 Core (ft): 7				

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					
	S-1	1.0	14 36 33 13					FILL: Black and brown Silty medium to fine Sand, trace Gravel, Clay, Brick and Concrete fragments [7]					S-1: Moist
5	S-2	0.2	6 5 4 4					FILL: Gray and black Gravel, trace coarse to fine Sand [7]					S-2: Moist
10	S-3	0.6	5 6 9 7					NATURAL: Dark brown fine to medium Sand, trace Silt (SP) [3b]					S-3: Moist
	S-4	0.0	8 9 10 17					No Recovery. Presumed Same as Above (SP) [3b]					
15	S-5	0.4	7 5 10 5					Brown Silty medium to fine Sand and Gravel (SM/GM) [3b]					Hard drilling from 14 to 15 ft
													S-5: Wet. Sample possibly wash
													Hard drilling at 17 ft
20													

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Log of Boring B-9

Sheet 2 of 2

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20	S-6	0.8	10 15 14 20					Brown fine to coarse Sand, trace Gravel, Silt (SP-SM) [3b]					S-6: Moist
													Drove 3" casing to 22 ft
				C-1	28	0		Gray Boulder					Drove 3" casing to 25 ft Core barrel clogged at 25 ft
25	S-7	0.1	6 13 30 18					Likely wash. Presumed Same as Above (SP-SM) [3a]					S-7: Wet.
								Gray Boulder					Drove 3" casing to 26 ft
				C-2	50	31		Hard Light Gray and White Micaceous Calcitic Schist, jointed to broken, slight weathering at joints [1c]					Top of rock at 29.5 ft
30								Boring Completed to 31 ft below ground. Boring backfilled with soil cuttings and patched with Quikrete at grade.					
35													
40													

Log of Boring B-10

Sheet 1 of 2

Project: 580 Gerard Avenue					Project Number: 2019110				
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY									
Date(s) Drilled	1/3/20 - 1/3/20		Inspector	Ahmed Obidat		Coordinates	North: East:		
Drilling Agency	Municipal Testing Lab, Inc		Foreman	Rudy Rios		Approximate Surface Elevation (feet) NA			
Drilling Equipment	GeoProbe 7822DT		Drilling Method	Mud Rotary		Completion Depth (feet)	40.5	Rock Depth (feet)	35.5
Casing Size/Type	4" and 3" Steel		Size/Type of Bit	3-7/8" and 2-15/16" Roller Bits		Sampler Type(s)		2" Split Spoon	
Groundwater Level and Date Measured	NA NA		Hammer Wt/Drop	140/30" (Auto)	Casing Hammer Wt/Drop	140/30" (Auto)		Size/Type of Core Barrel	2" NX
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 10 Undist.: 0 Core (ft): 5			

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
	S-1	1.0	10 17 14 18					FILL: Black Gravelly coarse to fine Sand, some Silt, trace Concrete fragments [7]					S-1: Moist
	S-2	0.8	11 27 23 42					FILL: Brown and black Silty medium to fine Sand, trace Gravel, Brick and Concrete fragments [7]					S-2: Moist
5	S-3	1.3	59 11 5 6					FILL: Brown Gravelly coarse to fine Sand, trace Silt [7]					S-3: Moist
													Tip of spoon broken during sample Hard drilling from 7 to 9 ft
10	S-4	0.4	7 7 10 6					NATURAL: Reddish-brown medium to fine Sand, trace Silt (SP-SM) [3b]					S-4: Moist
	S-5	1.2	4 5 5 8					Same as Above (SP-SM) [3b]					Drove 4" casing to 11 ft S-5: Moist
15	S-6	0.3	11 14 11 12					Brown coarse to fine Sand, trace Silt (SP-SM) [3b]					S-6: Wet
20													

Template: GENERAL GES LOGO Proj ID: 580 GERARD AVENUE.GPJ

GES P.C.

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Log of Boring B-10

Sheet 2 of 2

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20	S-7	0.7	10 10 9 13										S-7: Wet
25	S-8	0.2	9 8 9 22										S-8: Moist. Possibly Wash Losing water at 27 ft
30	S-9	0.2	12 13 28 30										S-9: Wet. Possibly Wash
35	S-10	0.3	14										S-10: Wet. Possible decomposed rock Spoon Refusal at 35.5 ft
40				C-1	95	94							

Template: GENERAL GES LOGO Proj ID: 580 GERARD AVENUE.GPJ

GES P.C.

Printed: 1/21/20

Log of Boring B-11

Sheet 1 of 2

Project: 580 Gerard Avenue				Project Number: 2019110			
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY							
Date(s) Drilled 1/2/20 - 1/3/20		Inspector Ahmed Obidat		Coordinates North: East:			
Drilling Agency Municipal Testing Lab, Inc		Foreman Rudy Rios		Approximate Surface Elevation (feet) NA			
Drilling Equipment GeoProbe 7822DT		Drilling Method Mud Rotary		Completion Depth (feet) 35.0		Rock Depth (feet) 35.0	
Casing Size/Type 4" and 3" Steel		Size/Type of Bit 3-7/8" and 2-15/16" Roller Bits		Sampler Type(s) 2" Split Spoon			
Groundwater Level and Date Measured NA		Hammer Wt/Drop 140/30" (Auto)		Casing Hammer Wt/Drop 140/30" (Auto)		Size/Type of Core Barrel 2" NX	
Boring Location See Boring Location Plan (Figure 1)						No. of Samples Dist.: 7 Undist.: 0 Core (ft): 5	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
	S-1	1.1	1 2 2 5					FILL: Black and brown Silty medium to fine Sand, trace Gravel, Brick and concrete fragments [7]					S-1: Moist
5	S-2a	0.6	1 1					FILL: Gray Silty coarse to fine Sand, some Gravel [7]					S-2: Moist
	S-2b	0.6	12 10					FILL: Brown Silty medium to fine Sand, trace Gravel [7]					Drove 4" casing to 5 ft
	S-3	0.3	50/5"					FILL: Brown Silty medium to fine Sand and Gravel [7]					S-3: Moist. Possible Wash
10	S-4	0.8	3 6 7 7					NATURAL: Reddish brown coarse to fine Sand, trace Silt (SP-SM) [3b]					S-4: Moist
15	S-5	1.8	7 10 10 9					Brown Silty medium to fine Sand, trace Mica (SM) [3b]					S-5: Moist
20													

Log of Boring B-11

Sheet 2 of 2

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20	S-6	1.3	6 7 5 4					Brown Clayey medium to fine Sand, some Silt (SM-SC) [3b]					S-6: Moist
25	S-7	1.0	2 4 5 3					Grayish brown coarse to fine Sand, some Silt, trace fine Gravel (SM) [6]					S-7: Moist
30								Gray Boulder					Rig chatter from 27 to 30 ft Water loss at 29 ft Drove 3" casing to 30 ft Hard drilling to 30 ft
				C-1	6	0		Gray Boulder					
				C-2	50	0		Gray Boulder					
				C-3	25	0		Gray Boulder					
35								Boring completed at 35 ft below ground. Boring completed and backfilled with soil cuttings. Patched with Quikrete at grade.					Water loss at 35 ft
40													

Log of Boring B-12

Sheet 1 of 3

Project: 580 Gerard Avenue				Project Number: 2019110			
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY							
Date(s) Drilled 1/6/20 - 1/7/20		Inspector Ahmed Obidat		Coordinates North: East:			
Drilling Agency Municipal Testing Lab, Inc		Foreman Rudy Rios		Approximate Surface Elevation (feet) NA			
Drilling Equipment GeoProbe 7822DT		Drilling Method Mud Rotary		Completion Depth (feet) 48.0		Rock Depth (feet) 43.0	
Casing Size/Type 4" and 3" Steel		Size/Type of Bit 3-7/8" and 2-15/16" Roller Bits		Sampler Type(s) 2" Split Spoon			
Groundwater Level and Date Measured NA		Hammer Wt/Drop 140/30" (Auto)		Casing Hammer Wt/Drop 140/30" (Auto)		Size/Type of Core Barrel 2" NX	
Boring Location See Boring Location Plan (Figure 1)				No. of Samples Dist.: 2 Undist.: 0 Core (ft): 10			

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
								Drilling Directly to Top of Rock without sampling					
5													Drove 4" casing to 5 ft
10													
15													
20													

Template: GENERAL GES LOGO Proj ID: 580 GERARD AVENUE.GPJ

GES P.C.

Printed: 1/21/20

Log of Boring B-12

Sheet 2 of 3

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20													
													Drilled through boulder from 21 to 22 ft
25													
30													Drove 3" casing to 30 ft
								Gray and brown decomposed Schist fragments [1d]					Hard drilling from 30 to 35 ft
				C-1	22	0							
35	S-1	0.8	47 50/1"					Light brown and white coarse to fine Sand, some Gravel, trace Silt (SP) [3a]					S-1: Wet. Heavily decomposed bedrock
													Spoon refusal at 35.6 ft
													Harder drilling from 35.6 to 40 ft
40	S-2	0.3	50/3"					Brown medium to fine Sand, some Clay, Silt, trace Gravel (SC) [3a]					S-2: Wet. Heavily decomposed bedrock
													Spoon refusal at 40.3 ft
													Harder drilling from 40.3 to 43 ft
								Weathered to White and Gray Calcitic Schist. highly					

Template: GENERAL GES LOGO Proj ID: 580 GERARD AVENUE.GPJ

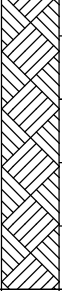
GES P.C.

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Log of Boring B-12

Sheet 3 of 3

Project: 580 Gerard Avenue	Project Number: 2019110
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY	

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
45				C-2	100	32		weathered, closely jointed to broken with weathered joints [1d]					
50								Boring completed at 48 ft below ground. Boring completed and backfilled with soil cuttings. Patched with Quikrete at grade.					
55													
60													
65													

Template: GENERAL GES LOGO Proj ID: 580 GERARD AVENUE.GPJ

GES P.C.

Printed: 1/21/20

Log of Boring B-13

Sheet 1 of 2

Project: 580 Gerard Avenue				Project Number: 2019110			
Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY							
Date(s) Drilled 1/6/20 - 1/6/20		Inspector Ahmed Obidat		Coordinates North: East:			
Drilling Agency Municipal Testing Lab, Inc		Foreman Rudy Rios		Approximate Surface Elevation (feet) NA			
Drilling Equipment GeoProbe 7822DT		Drilling Method Mud Rotary		Completion Depth (feet) 41.5		Rock Depth (feet) 41.5	
Casing Size/Type 4" and 3" Steel		Size/Type of Bit 3-7/8" and 2-15/16" Roller Bits		Sampler Type(s) 2" Split Spoon			
Groundwater Level and Date Measured 20.8 1/21/2020		Hammer Wt/Drop 140/30" (Auto)		Casing Hammer Wt/Drop 140/30" (Auto)		Size/Type of Core Barrel 2" NX	
Boring Location See Boring Location Plan (Figure 1)				No. of Samples Dist.: 9 Undist.: 0 Core (ft): 3			

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
0								~6" Concrete Slab					Cored through slab
	S-1	1.2	3 5 7 8					FILL: Brown Silty medium to fine Sand, trace Brick and Concrete fragments [7]					S-1: Moist
5	S-2	1.2	29 49 15 12					FILL: Black and brown Silty medium to fine Sand, trace Gravel [7]					S-2: Moist Drove 4" casing to 6.5 ft
	S-3	1.2	2 1 1 2					NATURAL: Reddish-brown medium to fine Sand, trace Silt (SP-SM) [6]					S-3: Moist Drove 4" casing to 10 ft
10	S-4	0.8	17 33 34 32					Same as Above (SP-SM) [3a]					S-4: Moist
15	S-5	1.0	7 8 7 8					Brown Silty medium to fine Sand (SM) [3b]					S-5: Moist Drove 3" casing to 15 ft
20													

Log of Boring B-13

Sheet 2 of 2

Project: 580 Gerard Avenue

Project Number: 2019110

Location: Northeast Corner of Gerard Avenue and East 150th Street, Bronx, NYC, NY

Depth, feet	Soil Samples			Rock Coring			Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
	Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Run Number	Recov. (%)	RQD (%)							
20	S-6	1.1	5 5 6 7					Brown Silty medium to fine Sand (SM) [3b]					S-6: Wet
25	S-7	0.7	3 3 7 5					Black and brown coarse to fine Sand, some Silt, Gravel (SM) [3b]					S-7: Wet.
30	S-8	1.1	4 5 12 17					Reddish brown Silty Clay, some medium to fine Sand (CL) [4b]					S-8: Wet. Likely wash from 30 to 31 ft
35	S-9	0.9	18 37 50 50					Reddish-brown medium to fine Sand, some Silt, Clay (SM-SC) [3a]					S-9: Wet
40				C-1	48	0		Gray and White boulders					Hard drilling at 39 ft
													Core barrel clogged at 41.5 ft
								Boring completed at 41.5 ft below ground. PVC well installed to 41.5 ft 10 ft screen and 31.5 ft riser Electronic piezometer installed on 1/6/2020.					

Template: GENERAL GES LOGO Proj ID: 580 GERARD AVENUE.GPJ

GES P.C.

Printed: 1/21/20

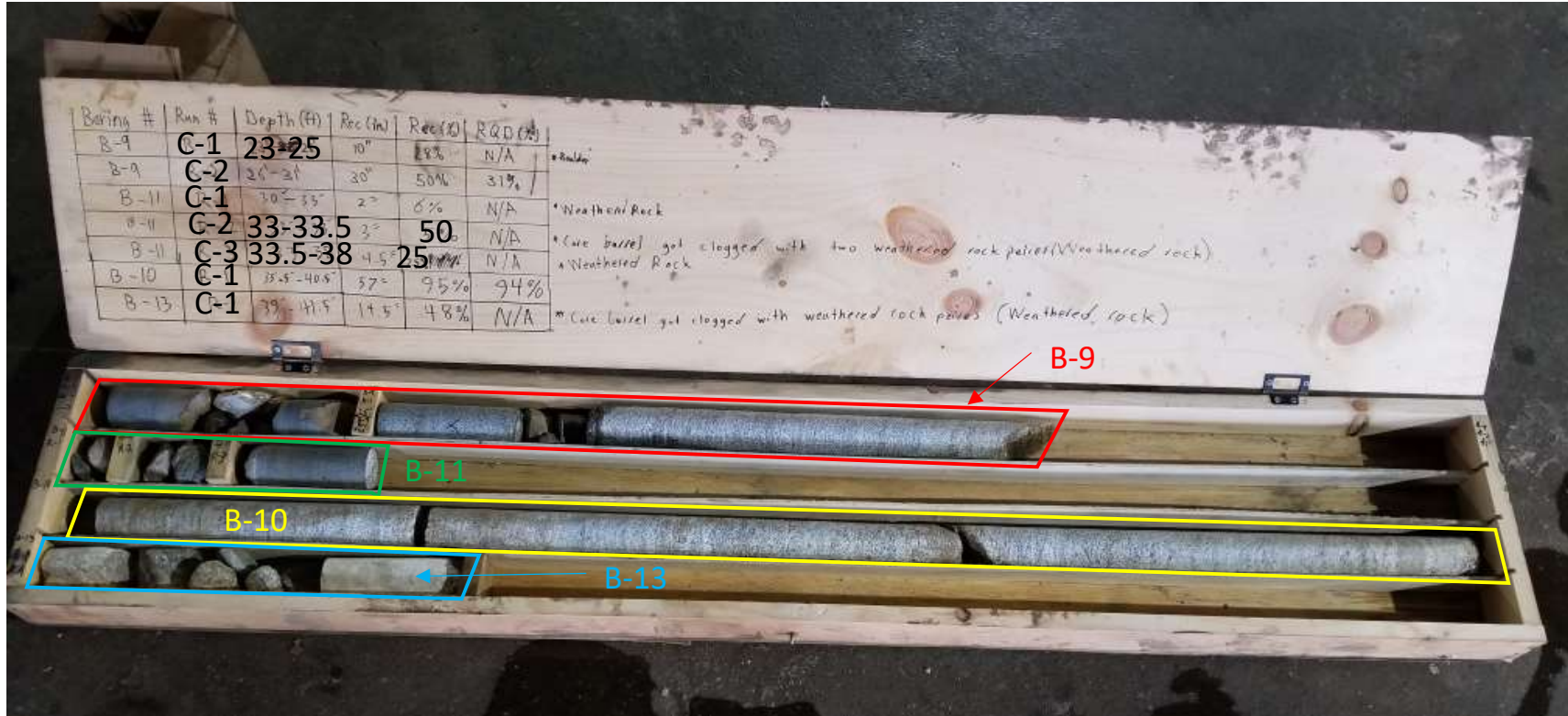
APPENDIX B



	ROCK CORE PHOTOGRAPHIC PLATE					Project Name: 580 Gerard Avenue	
	Boring No.	Core No.	Depth (ft)	Rec %	RQD %	Project Location: NE Corner of East 150th Street and Gerard Avenue, Bronx, NY 10451	
GEOTECHNICAL ENGINEERING SERVICES, P.C. 6 Bayberry Road Elmsford, NY 10523	B-1	C-1	28-33	100	91	Dwg No. Appendix B, Plate 1	
	B-3	C-1	22-27	80	58	Drawn By: DJG	Project No: 2019110
	B-6A	C-1	33-38	94	89	Ch'ked By: ZM	Date: 1/8/2020
	B-7	C-2	27-32	75	75		



 GEOTECHNICAL ENGINEERING SERVICES, P.C. 6 Bayberry Road Elmsford, NY 10523	ROCK CORE PHOTOGRAPHIC PLATE					Project Name: 580 Gerard Avenue
	Boring No.	Core No.	Depth (ft)	Rec %	RQD %	Project Location: NE Corner of East 150th Street and Gerard Avenue, Bronx, NY 10451
	B-12	C-1	30-31.5	28	0	Dwg No. Appendix B, Plate 2
	B-12	C-2	43-48	100	32	Drawn By: DJG Project No: 2019110
						Ch'ked By: ZM Date: 1/8/2020



**GEOTECHNICAL ENGINEERING
SERVICES, P.C.**
6 Bayberry Road
Elmsford, NY 10523

ROCK CORE PHOTOGRAPHIC PLATE

Boring No.	Core No.	Depth (ft)	Rec %	RQD %
B-9	C-1	23-25	28	NA
B-9	C-2	26-31	50	31
B-11	C-1	30-33	6	NA
B-11	C-2	33-33.5	50	NA
B-11	C-3	33.5-38	25	NA
B-10	C-1	35.5-40.5	95	94
B-13	C-1	39-41.5	48	NA

Project Name: 580 Gerard Avenue

Project Location: NE Corner of East 150th Street and Gerard Avenue, Bronx, NY 10451

Dwg No. Appendix B, Plate 3

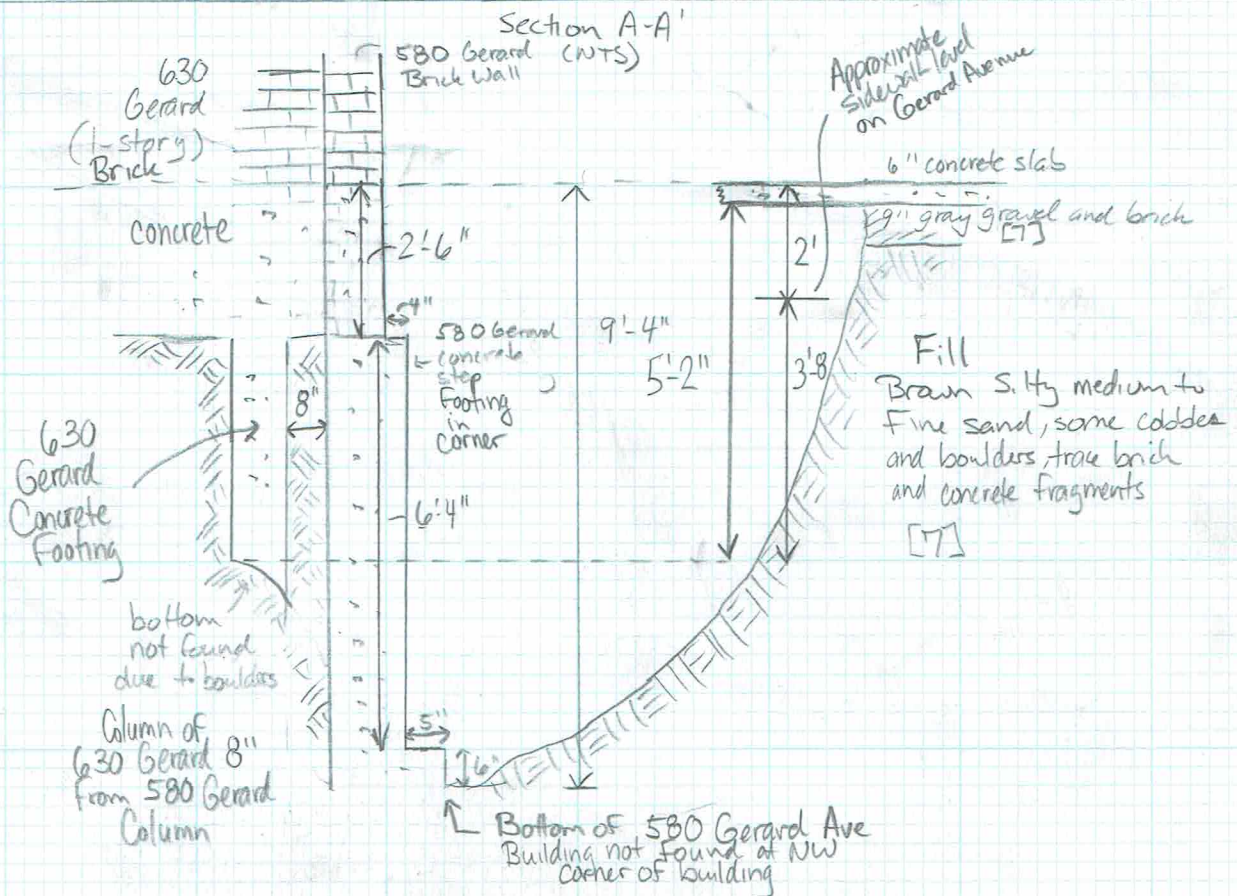
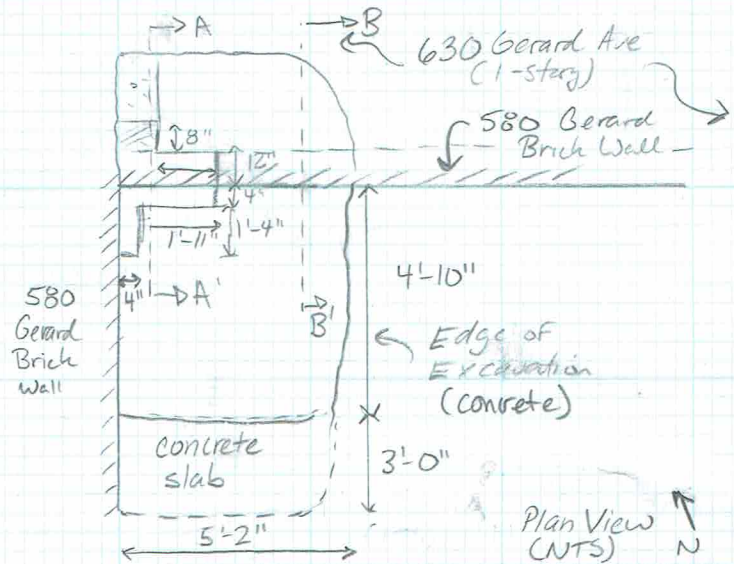
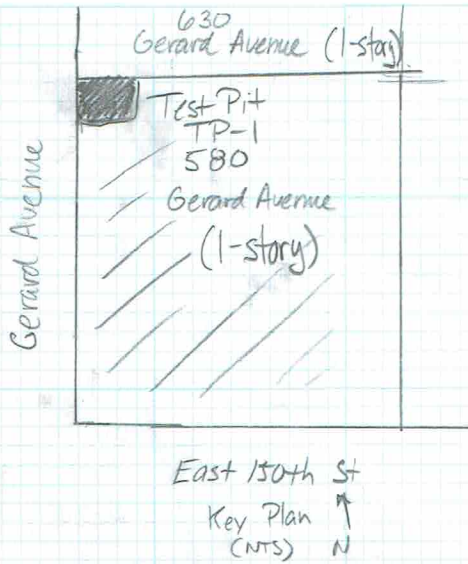
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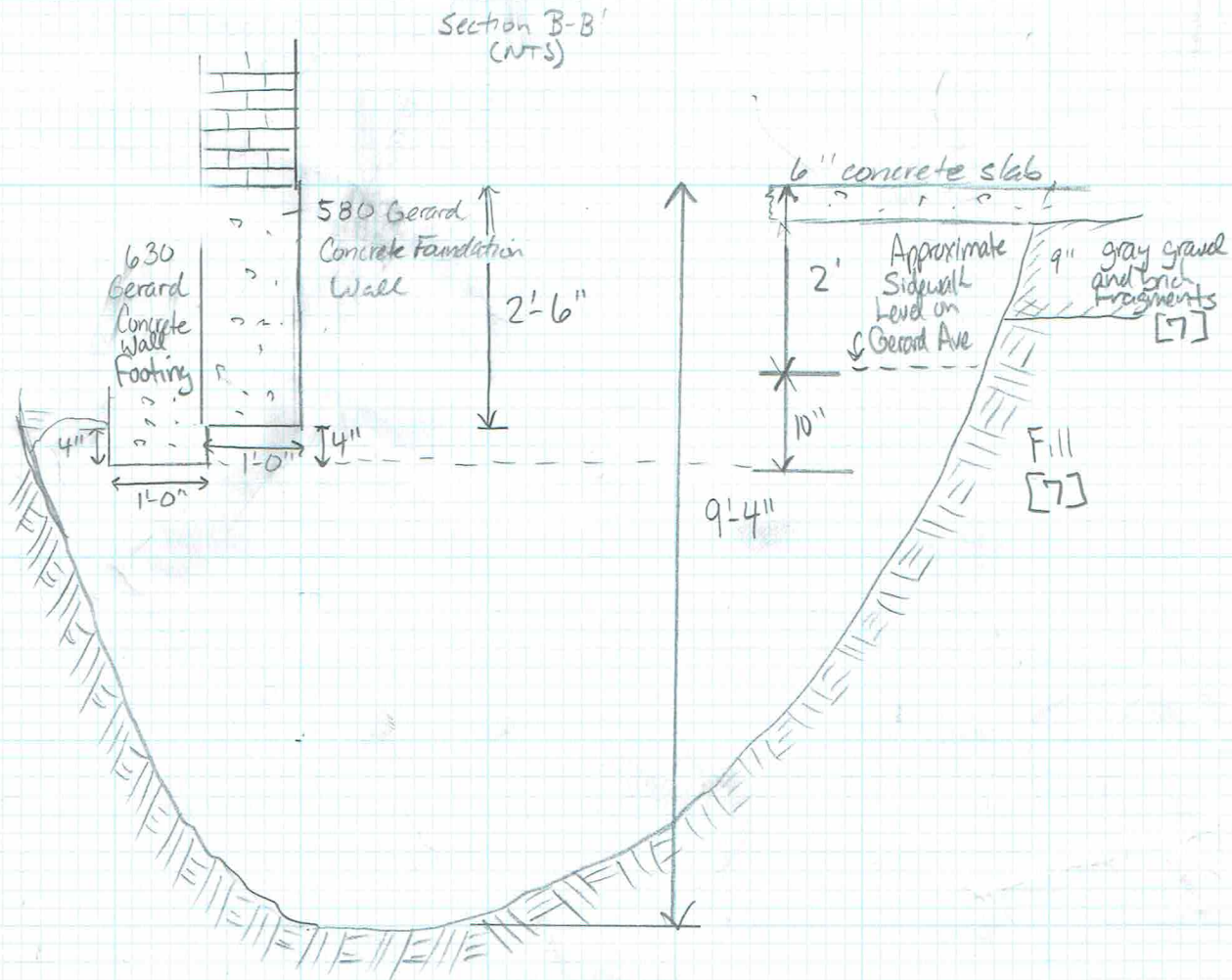
Project No: 2019110

Ch'ked By: ZM

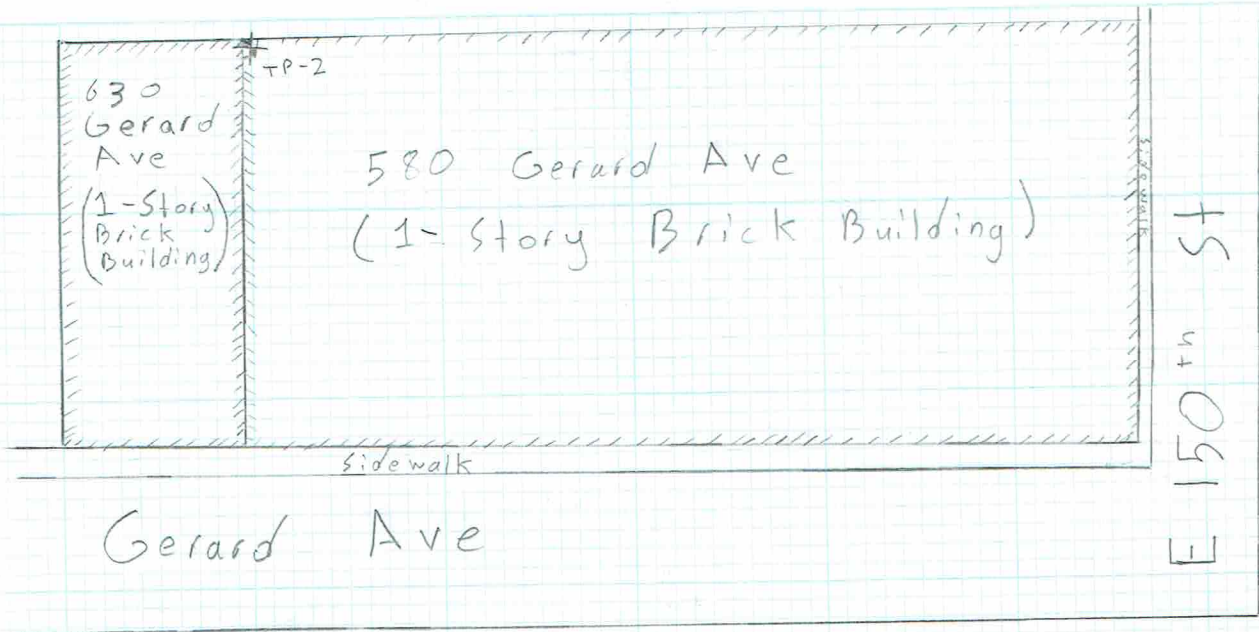
Date: 1/8/2020

APPENDIX C



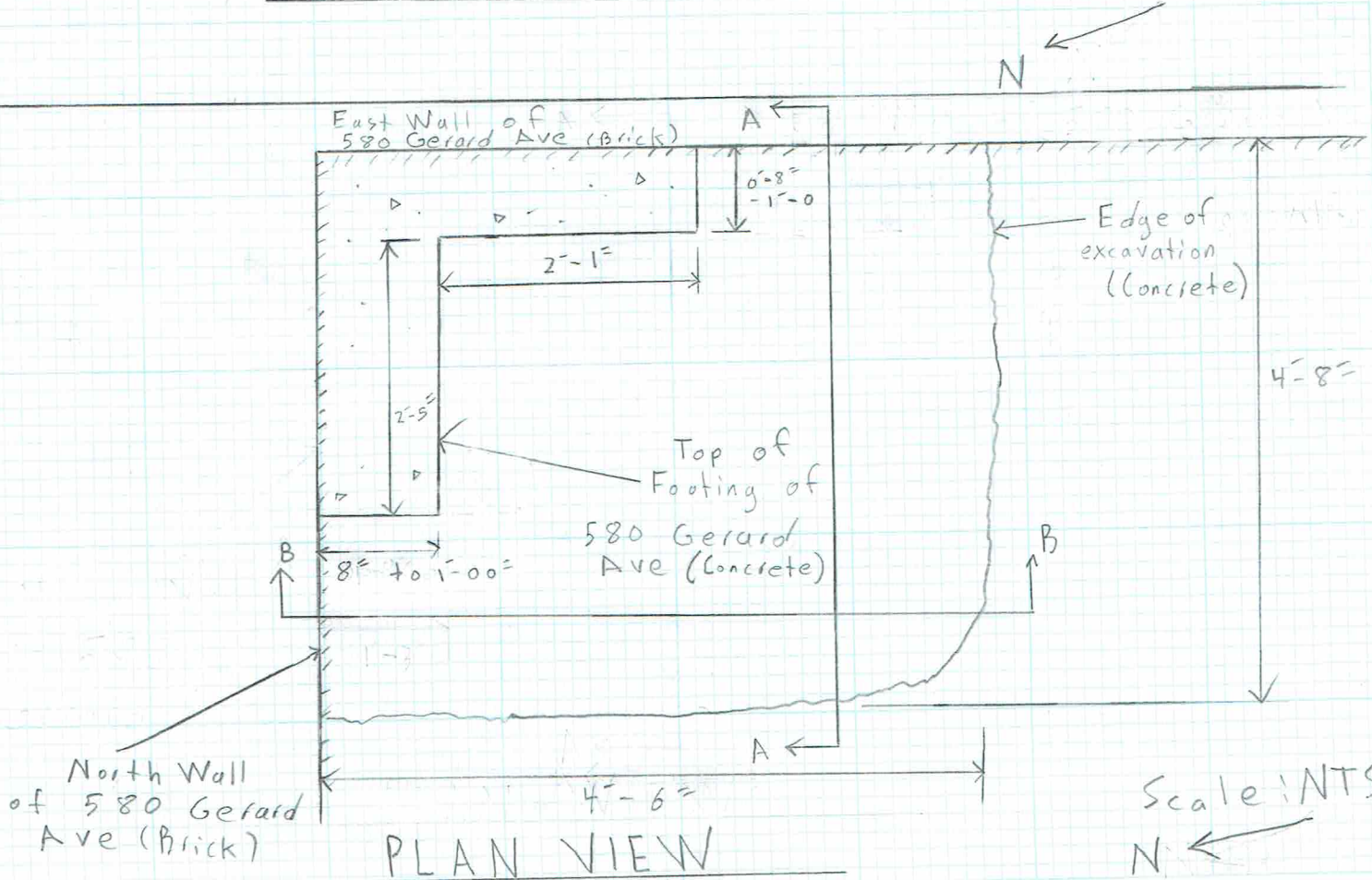


- Notes
1. No groundwater or bedrock observed
 2. Test Pit excavated and backfilled by Big Apple Testing using hand tools and excavator
 3. All excess excavated material removed from site
 4. Excavation and backfilling performed Jan 8, 2020. Pit patched with 4" concrete at grade on Jan 9, 2020
 5. All work performed under constant supervision by GES

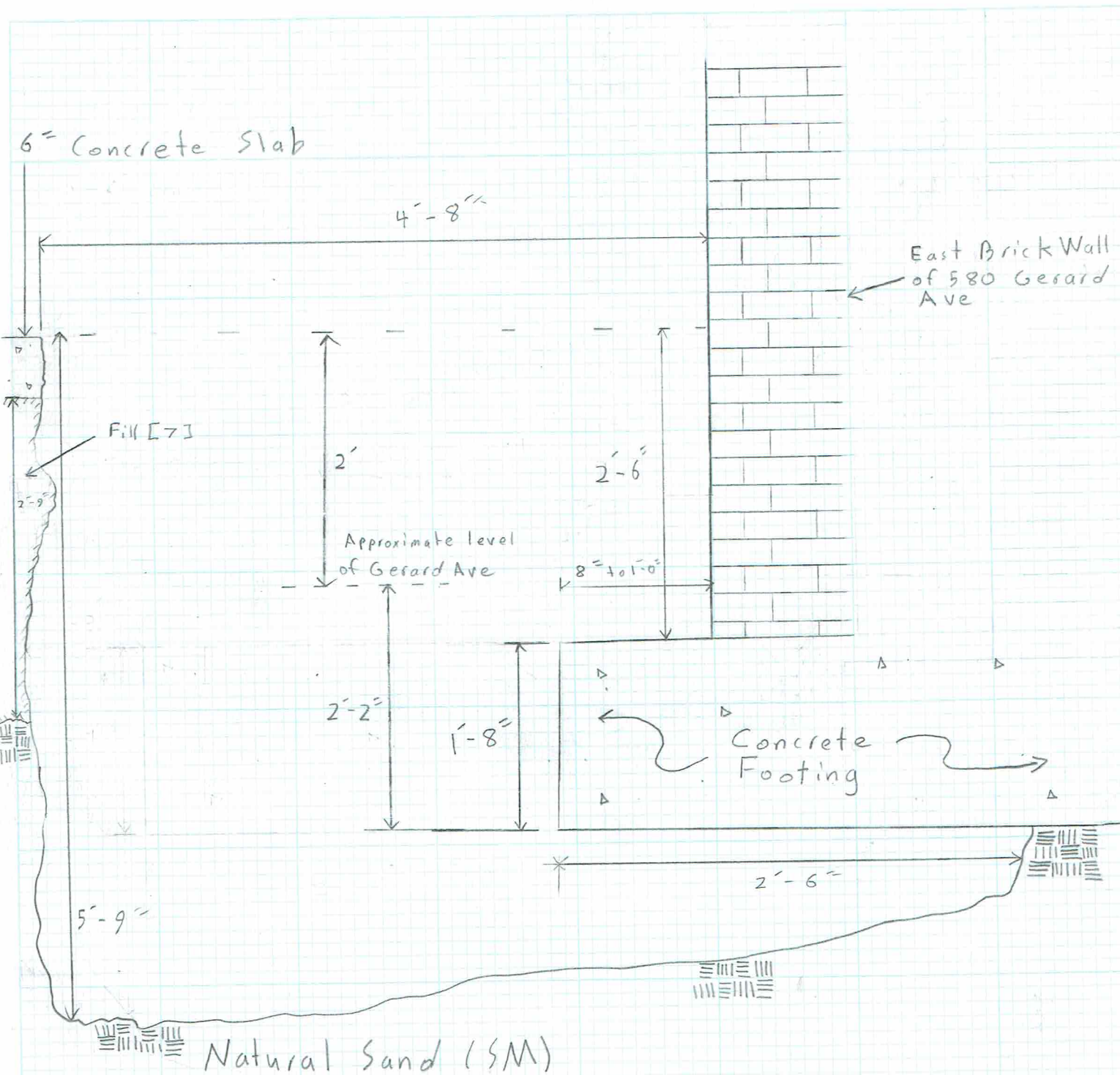


KEY PLAN

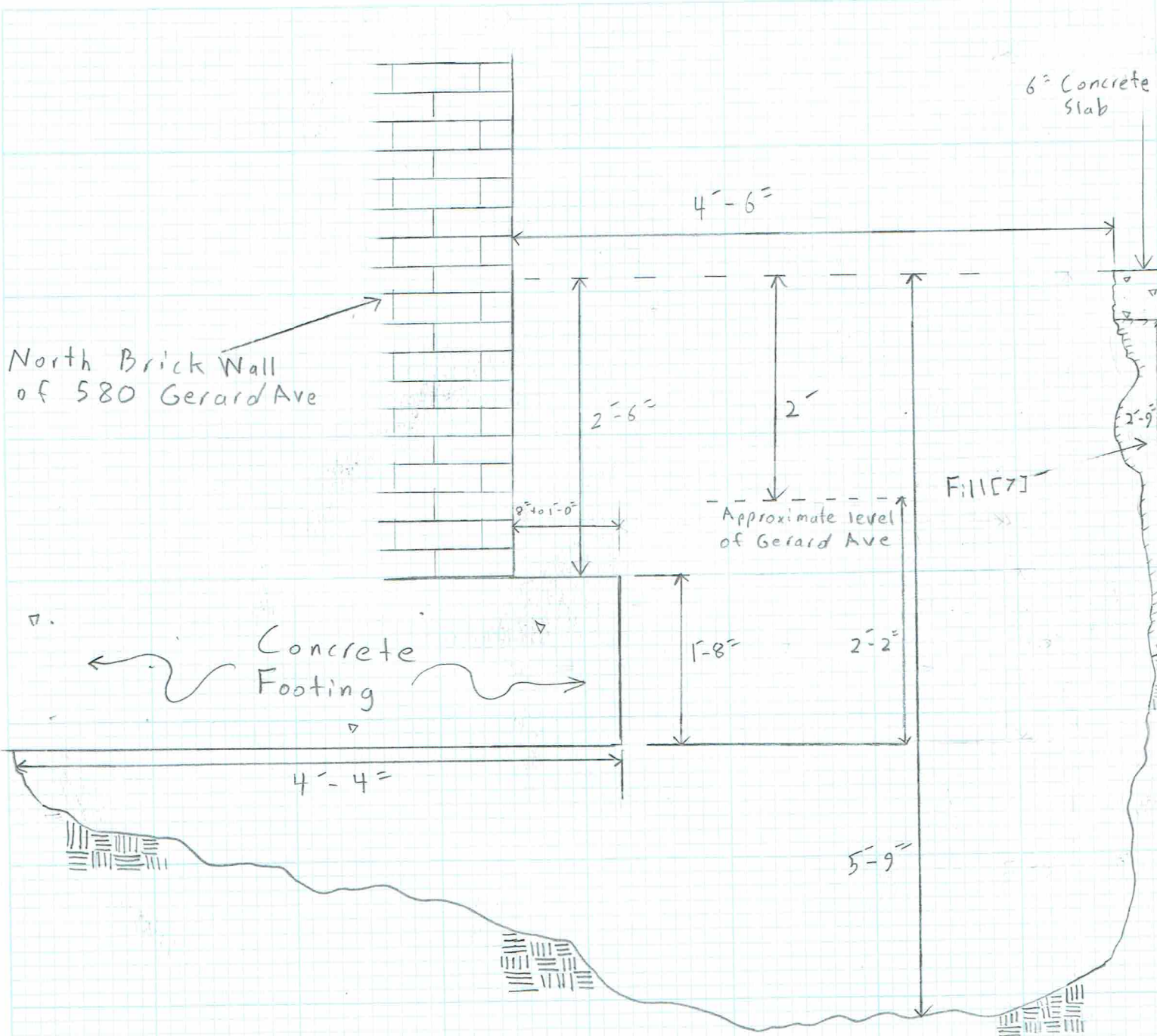
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SECTION A-A
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SECTION B-B

Scale: NTS

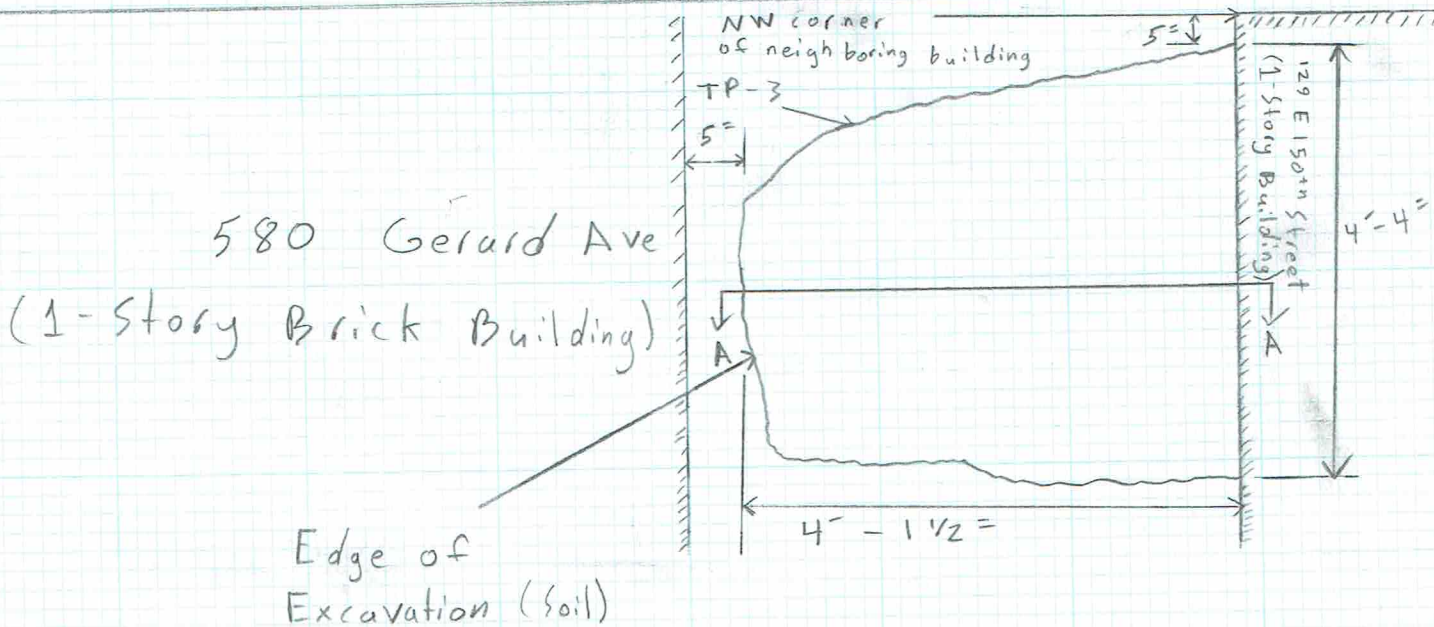
Notes:

- 1- In Section A-A and Section B-B, the footing extended beyond the test pit's East and North extents respectively.
- 2- TP-2 was excavated using hand tools and a small excavator by Big Apple Testing, Inc. under the continuous inspection of Ahmed Obidat of GES-P.C.
- 3- TP-2 was completed and back filled on 1/8/20.
- 4- No groundwater or bedrock was encountered.
- 5- The Fill consists of Black and Brown m-f sand, some silt, trace of fine gravel and a trace of red brick and concrete fragments.
- 6- The Natural Sand consists of Brown m-f sand, some silt, and a trace of fine gravel (SM).



KEY PLAN

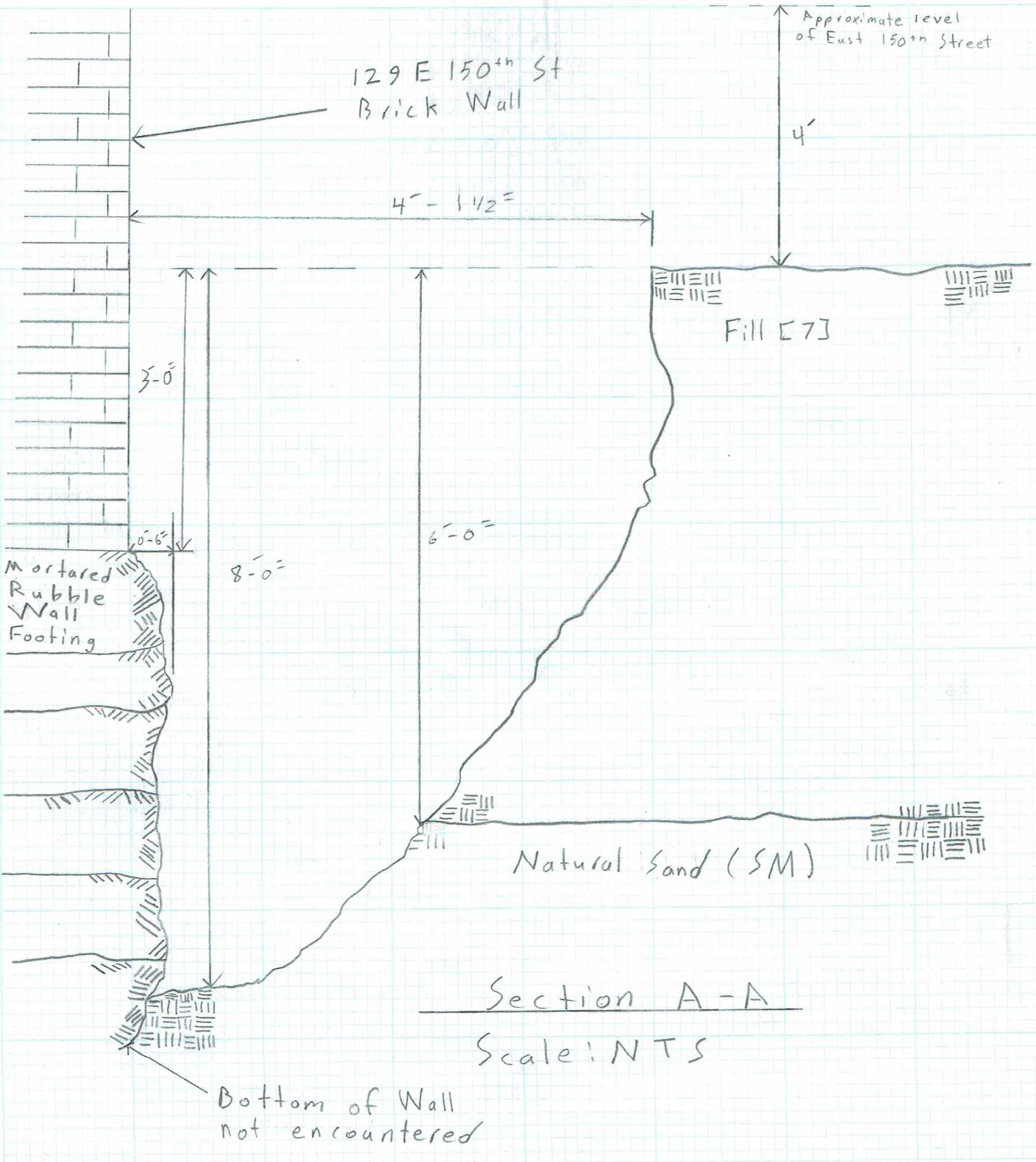
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PLAN VIEW

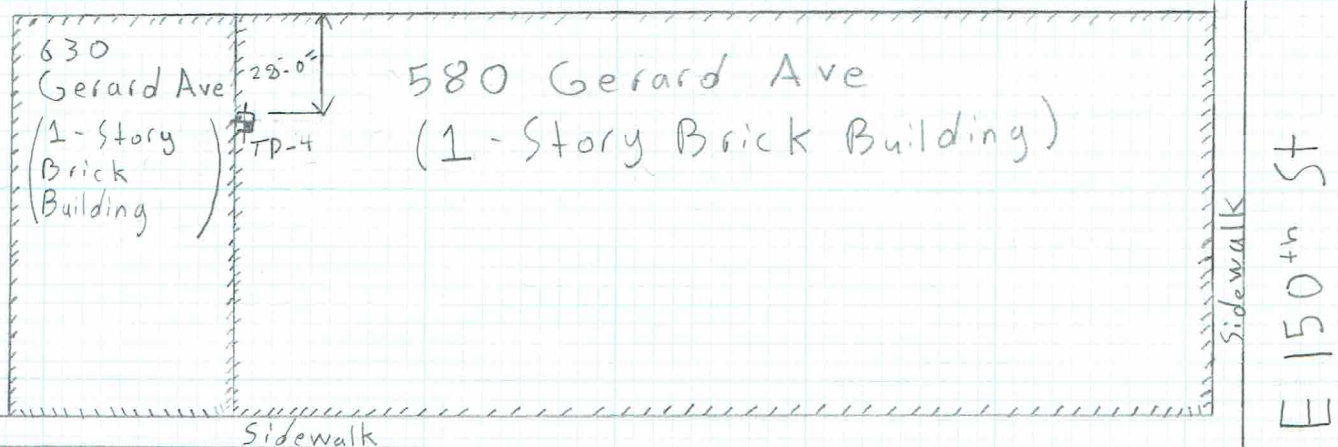
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Notes:

- 1- Rubble footing continues deeper than 8'-0" below grade.
- 2- TP-3 was excavated using hand tools by Big Apple Testing, Inc. under the continuous inspection of Ahmed Obidat of GES-P.C.
- 3- TP-3 was completed and backfilled on 1/8/20.
- 4- No groundwater or bedrock was encountered.
- 5- Fill consists of Black and Brown m-f sand, some silt, trace of fine gravel, red brick and concrete fragments [7].
- 6- Natural Sand consists of Brown m-f sand, some silt, trace of fine gravel (SM).

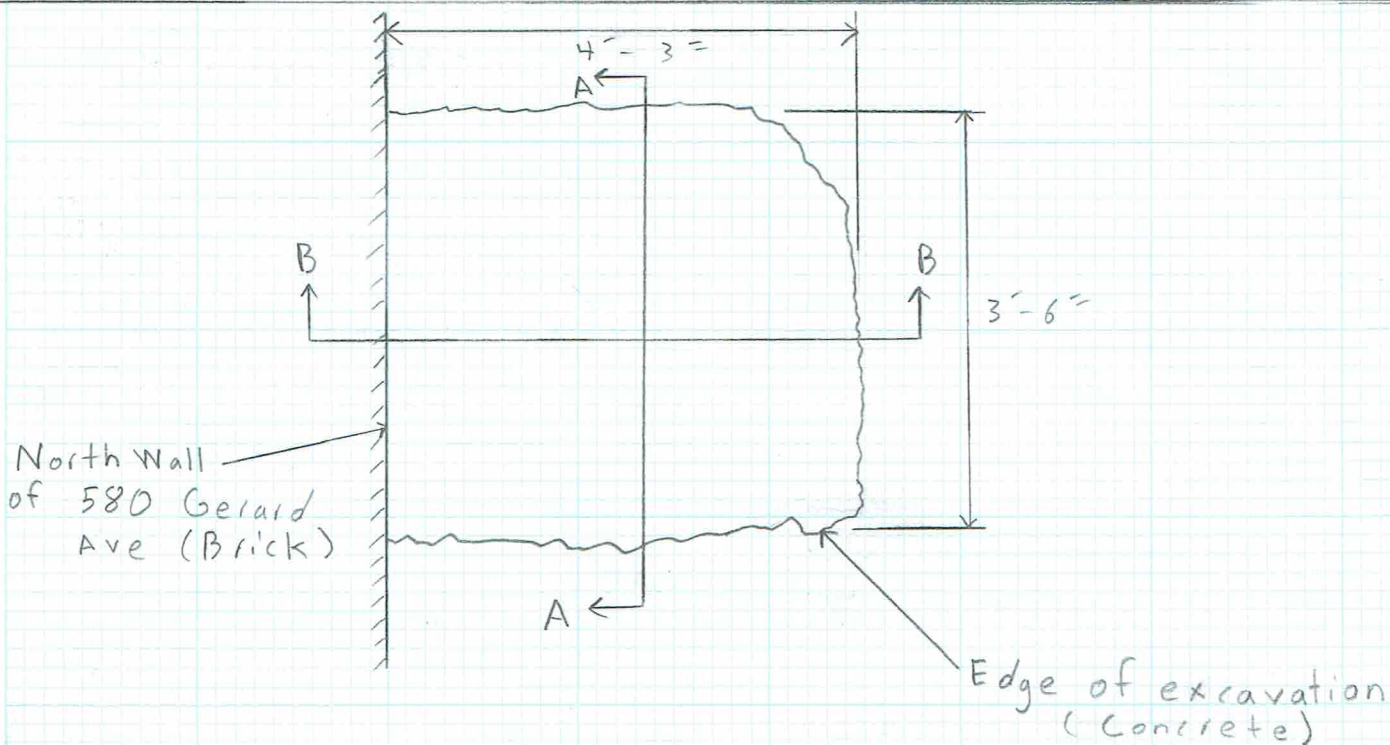


Gerard Ave

KEY PLAN

Scale: NTS

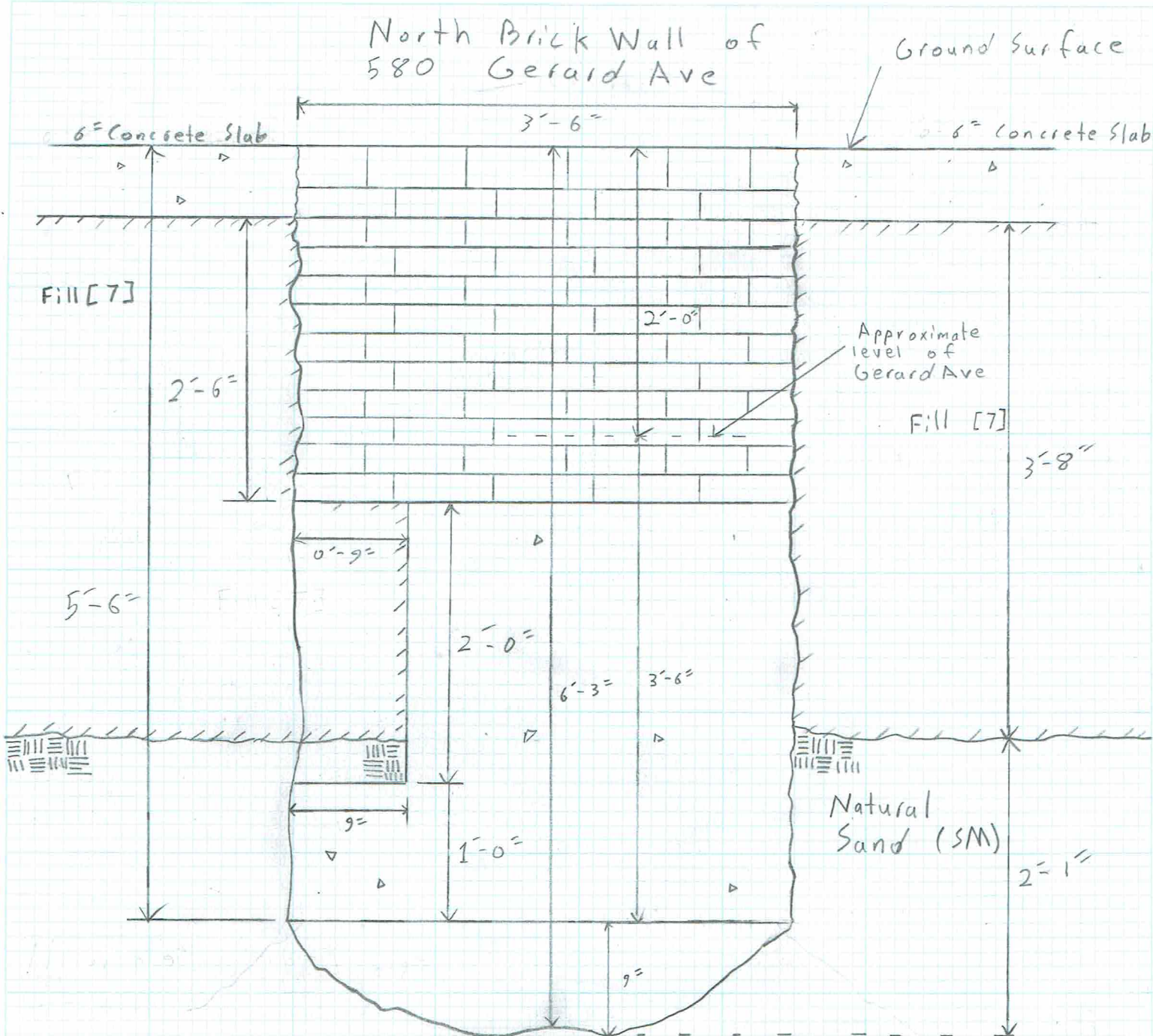
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PLAN VIEW

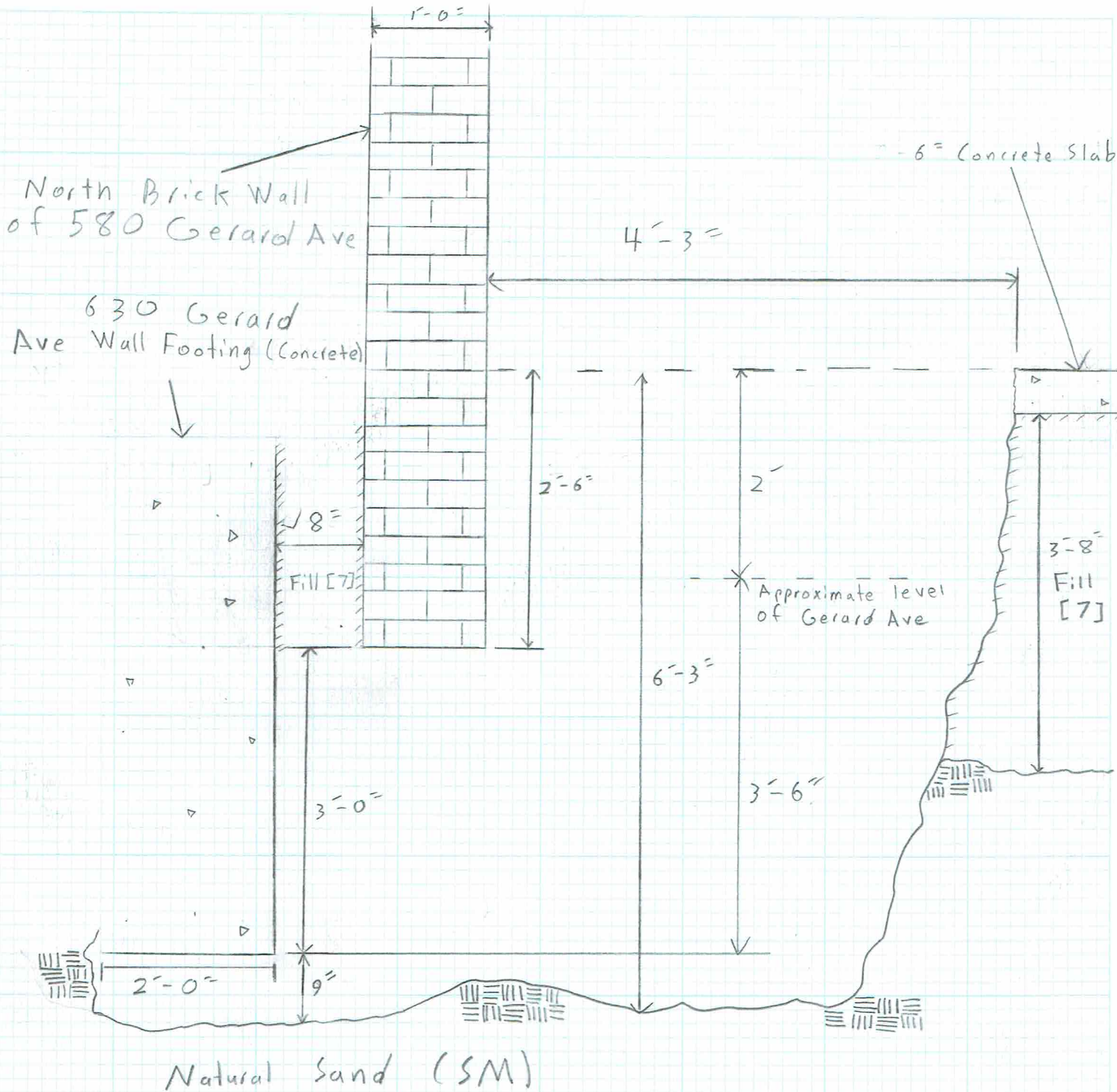
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SECTION A-A

Scale: NTS

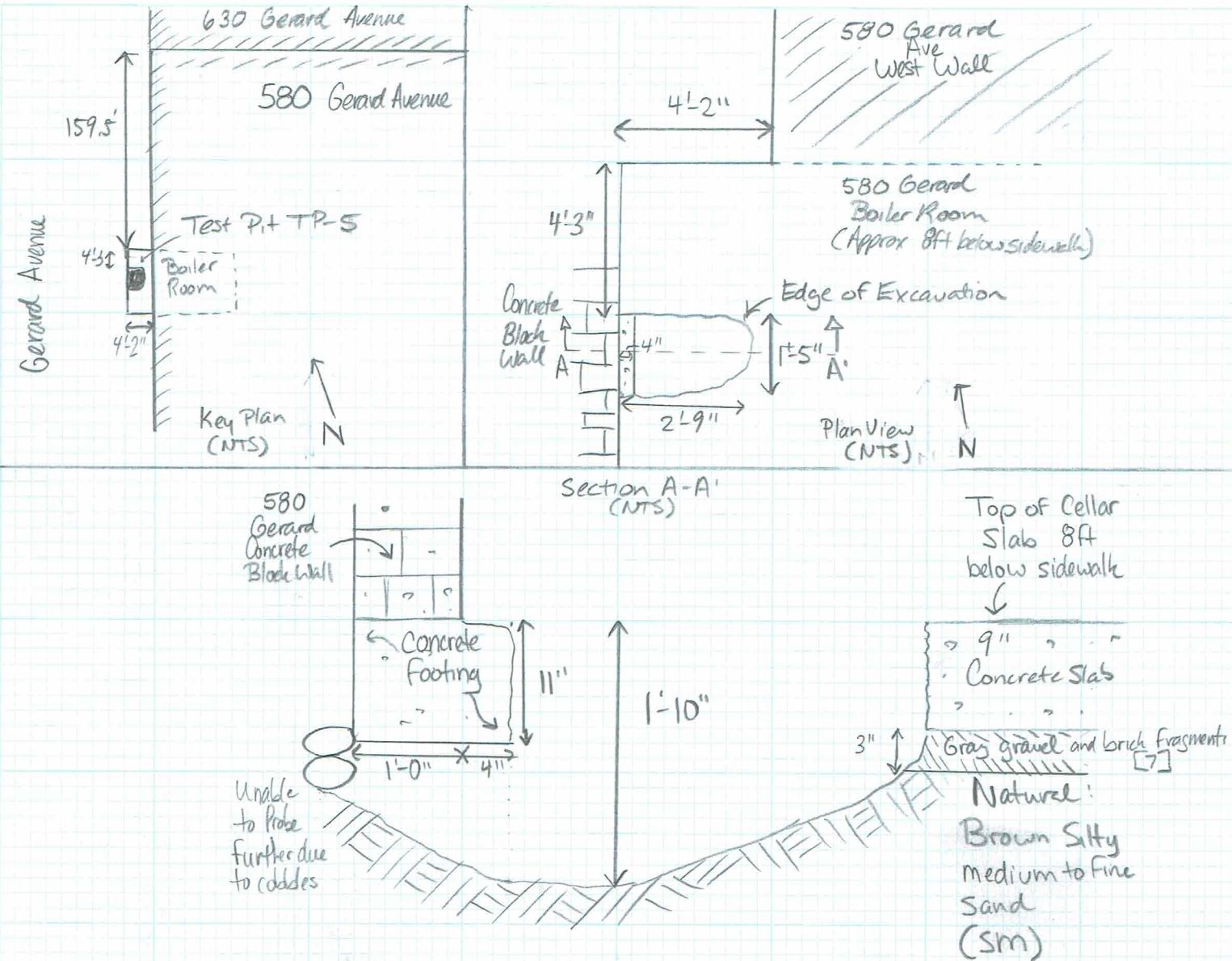


SECTION B-B

Scale: NTS

Notes:

- 1- TP-4 was excavated using hand tools and a small excavator by Big Apple Testing, Inc. under the continuous inspection of Ahmed Obidat of GES-P.C.
- 2- TP-4 was completed and backfilled on 1/9/20.
- 3- No groundwater or bedrock was encountered.
- 4- The Fill consisted of Black and Brown m-f sand, some silt, trace of fine gravel and a trace of red brick and concrete fragments.
- 5- The Natural Sand consists of Brown m-f sand, some silt and a trace of mica (SM).
- 6- The 8" gap between the North Brick Wall of 580 Gerard Ave and 630 Gerard Ave's Wall Footing contained Fill.



- Notes:
1. No groundwater or bedrock observed
 2. Test Pit excavated and backfilled by Big Apple Testing using hand tools on Jan 9, 2019
 3. All excess excavated material removed from site
 4. Test Pit patched with 4" of concrete at grade on Jan 9, 2019.
 5. All work performed under constant supervision by GES

APPENDIX D



Client Name: Mr. Josh Schuster Silverback Development 40 West 57 th Street, 29 th Floor New York, NY 10019		Site Location: 580 Gerard Avenue Bronx, NYC, NY	Project No. 2019110
Photo No. 1	Date: 01-17-20		
Direction: Plan View Facing North			
Description: TP-1			

Photo No. 2	Date: 01-17-20	
Direction: Facing North		
Description: TP-1 Chopping through the slab at TP-1		



Client Name: Mr. Josh Schuster Silverback Development 40 West 57 th Street, 29 th Floor New York, NY 10019		Site Location: 580 Gerard Avenue Bronx, NYC, NY	Project No. 2019110
Photo No. 3	Date: 01-17-20		
Direction: Plan View Facing North			
Description: TP-2 Existing Footing New Footing			

Photo No. 4	Date: 01-17-20	
Direction: Facing North		
Description: TP-2 Existing Footing bearing on Natural Sand		



Client Name:

Mr. Josh Schuster
Silverback Development
40 West 57th Street, 29th Floor
New York, NY 10019

Site Location:

580 Gerard Avenue
Bronx, NYC, NY

Project No.

2019110

Photo No.

5

Date:

01-17-20

Direction:

Plan View

Description:

TP-3



Photo No.

6

Date:

01-17-20

Direction:

Facing North

Description:

TP-3

Alley along north side of
580 Gerard Ave Building





Client Name: Mr. Josh Schuster Silverback Development 40 West 57 th Street, 29 th Floor New York, NY 10019		Site Location: 580 Gerard Avenue Bronx, NYC, NY	Project No. 2019110
Photo No. 7	Date: 01-17-20		
Direction: Profile View Facing North			
Description: TP-4 Bottom of 580 Gerard Avenue Foundation			

Photo No. 8	Date: 01-17-20		
Direction: Profile View Facing North			
Description: TP-4 630 Gerard Avenue concrete foundation			



Client Name: Mr. Josh Schuster Silverback Development 40 West 57 th Street, 29 th Floor New York, NY 10019		Site Location: 580 Gerard Avenue Bronx, NYC, NY	Project No. 2019110
Photo No. 9	Date: 01-17-20		
Direction: Plan View Facing West			
Description: TP-5			

Photo No. 10	Date: 01-17-20	
Direction: Facing Northeast		
Description: TP-5 Natural Sand underlying footing		