GZA
GeoEnvironmental of
New York

Engineers and
Scientists

November 20, 2015
GZA Project No. 12.0076394.00

Mr. Ari Friedman
Exclusive Management LLC.
35 West St., Suite 202
Spring Valley, NY 10977

Re: Preliminary Geotechnical Engineering Report
White Plains Mall
White Plains, New York

Dear Mr. Friedman:

104 West 29th Street
10th Floor
New York, NY 10001
(212) 594-8140
Fax (212) 279-8180
www.gza.com

We are sending our preliminary geotechnical engineering report for the proposed redevelopment at White Plains Mall in White Plains, New York.

It is a pleasure working with you. We look forward to our continued involvement on this project and other future endeavors. We would be pleased to continue to provide you with the supplemental exploration program to satisfy the New York State Building Code (NYSBC), as described in our report. Feel free to contact us with any questions regarding this report.

Very truly yours,
GZA GEOENVIRONMENTAL OF NEW YORK

Andrew Rizk, PE
Project Manager

Cassandra A. Wetzel, P.E.
Principal

Ernest R. Hanna, P.E.
Consultant/Reviewer

SUBSURFACE EXPLORATION
AND GEOTECHNICAL ENGINEERING REPORT
WHITE PLAINS MALL
WHITE PLAINS, NEW YORK

Exclusive Management, LLC.
35 West Street, Suite 202
Spring Valley, NY 10977

PREPARED BY:
GZA GeoEnvironmental of New York
104 West 29th Street, 10th Floor
New York, NY 10001

File No. 12.0076394.00

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1 PROJECT BACKGROUND

This report contains the results of the GZA GeoEnvironmental of New York (GZA) preliminary subsurface exploration program and associated foundation design recommendations for the proposed development located at the White Plains Mall in White Plains, NY (Site).

Our services were performed in accordance with proposal number 41.P000270.16 dated September 3, 2015, executed by Exclusive Management LLC. (Client/You). Our services are subject to the terms of our proposal and the limitations presented in **Appendix A** of this report.

The objectives of our work were to perform a due-diligence subsurface exploration at the Site and develop preliminary geotechnical engineering recommendations for design and construction of the proposed development. Our scope of work consisted of the following:

- Engaged a local drilling subcontractor to advance four shallow test borings to about 25 to 27 feet below ground surface (bgs) at the Site, one on each side of the existing mall.
- Installing four groundwater observation wells within each test boring to observe ground water levels at the Site.
- Submitting selected soil samples to a qualified geotechnical laboratory for analysis
- Preparing this report summarizing our findings and providing preliminary geotechnical design and construction recommendations.

2 PROJECT UNDERSTANDING

Our understanding of this project is based on phone conversations between GZA and VHB Engineering, Surveying, and Landscape Architecture, P.C. (VHB) conducted prior to and subsequent to our subsurface exploration program, the site survey provided by VHB, and the conceptual design drawings, prepared by Warshauer Mellusi Warshauer Architects (Warshauer), dated 10/14/2015.

2.1 Existing Conditions

The Site is located at the physical address 200 Hamilton Avenue, White Plains NY. The Site is bound by Barker Avenue to the north, Dr. Martin Luther King Jr. Blvd. to the west, Cottage Place to the east, and Hamilton Ave. to the south. The site is approximately 3.7 acres; the site is currently occupied by a shopping mall with an approximate footprint of 70,000 square feet (sf) and an approximate 40,000 sf asphalt parking lot. A Site locus is included as **Figure 1**.

Based on the site survey provided to GZA, surface elevations at the Site range between approximately El. 190 (northwest corner) and El. 202 (southeast corner) North American Vertical Datum of 1988 (NAVD88). Site grades generally increase from west to east.

2.2 Proposed Construction

We understand that the proposed development consists of the construction of a new mixed-use commercial/residential property. This will consist of a below-grade level with 464 parking spaces, a commercial and residential lobby (uptown alley) on the first floor level, a commercial level on the second and third floor (proposed Wegman's Food Market), a mechanized parking level from the fourth to sixth floor, a landscaped roof terrace on the seventh floor (with recreational areas), and a residential tower (with a series of studio, one bedroom, and two bedroom apartments) from the 8th to 28th floors near the northwest portion of the Site.

The proposed lower parking level will be at or near El. 180. The first floor level will be at approximately El. 190. The footprint of the proposed development will cover the majority of the property; an area of approximately 148,000 square feet (sf). The footprint of each residential floor will cover a footprint of approximately 26,700 sf.

3 SUBSURFACE EXPLORATION

Our subsurface exploration program consisted of the advancement of four test borings and installation of four groundwater observation wells; one on each side of the existing mall structure. The approximate location of the four test borings are shown on Figure 2.

The subsurface exploration was conducted between October 27 and October 28, 2015. All site activities were performed by Craig Test Boring, Inc. (Craig) of Mays Landing, New Jersey under subcontract to GZA; and supervised by a GZA field engineer.

3.1 Soil Borings

The test borings were drilled along the Site boundary. Test boring B-01 was drilled to the east of the existing mall structure within the existing paved parking area. Test boring B-02 was advanced directly to the south of the existing mall structure just off the Hamilton Avenue sidewalk on the mall's property. Test boring B-03 was advanced to the northwest of the existing mall structure at the intersection of Barker Avenue and Martin Luther King Blvd on a private lawn part of the mall's property. Test boring B-04 was advanced directly to the north of the existing mall structure just off the Barker Avenue sidewalk on the mall's property. Test borings were drilled to depths ranging between about 25 and 27 feet bgs.

All test borings were advanced from existing grade corresponding to elevations of approximately El. 200, 192, 191, and 191 (based on interpolations of elevations on site survey provided to GZA), respectively for test borings B-01 through B-04. Test borings were drilled using an all-terrain rubber track-mounted drill-rig using 4-inch diameter cased mud rotary drilling techniques. Samples were obtained and Standard Penetration Tests (SPTs) were performed on a continuous basis through the top 10 feet and then at 5-foot intervals thereafter in general accordance with ASTM D-1586. A 2-inch outer diameter (O.D.) split spoon sampler was driven 24 inches into the soil with blows from a 140 pound (lb) automatic hammer falling a distance of 30 inches. The number of blows required to drive the sampler for each six-inch interval was recorded. The cumulative number of blows for the middle two six-inch intervals (blows/foot) is termed the

uncorrected SPT Resistance (N-value) which can be correlated empirically with relative density of granular soils or consistency of fine-grained soils and their approximate engineering characteristics. In some instances the split spoon sampler was driven less than 24 inches due to resistance from soil (that is, refusal).

A GZA representative observed and logged the test borings and classified soil samples (based on visual observations). Soil samples collected from the split-spoon sampler were described in accordance with a modified Burmister soil classification system. The description of the soil samples based on visual identification and the SPT N-values at various depths are recorded on the boring logs. The test boring logs are included as **Appendix B**. Refer to the Log Key in **Appendix B** for definitions of the symbols and terms used in our test boring logs.

Groundwater monitoring wells were installed in the four test borings upon completion, with the well screen tip set to a depth of about 25 feet bgs. The wells were constructed with 15 feet of screen and 10 feet of riser. The wells were gravel packed from 1 foot below the screen to 2 feet above the top of screen with a Morie #1 gravel pack. A fine sand seal of Morie #00 sand was placed between the gravel pack and an overlying bentonite seal. Each well was grouted from the bentonite seal to grade with a neat cement/bentonite grout and finished with a j-plug lock and a 4-inch flush mount cover.

The GZA representative also obtained groundwater measurements from each well after a stabilization time of approximately 24 hours to 48 hours had elapsed. A VHB representative gauged the wells 7 days after installation. Groundwater measurements are also recorded on our boring logs, and further discussed below.

Boring locations were determined based on tape measurements and approximate line of sight from existing site features. Boring locations are shown on the attached Exploration Location Plan (**Figure 2**).

3.2 Laboratory Soil Testing

GZA sent select soil samples to a qualified geotechnical testing laboratory and conducted a testing program which consisted of five sieve analyses (per ASTM D422) and one Atterberg Limits test (per ASTM D4318) Laboratory test results are discussed under section 4.1 of this report and included in **Appendix C**.

4 SUBSURFACE INFORMATION

This section presents the subsurface conditions encountered in the preliminary test borings.

4.1 Generalized Subsurface Conditions

The majority of the Site area was developed as an existing mall, or covered in asphalt pavement, with small grass covered areas. With the exception of one boring, which was completed in the parking lot (B-01), all borings were completed in small gardens surrounding the mall. The following is our interpreted summary of the information obtained from our drilling explorations below the surface cover (from top to bottom). The surface cover at borings B-01 was asphalt pavement, and B-02 throughB-04 was unpaved and vegetated with grass. Refer to the boring logs in **Appendix B** for more

specific information on subsurface conditions below the surface cover. **Figure 2** shows the approximate location of borings.

Fill: Directly below the surface cover, a Fill stratum consisting of loose to dense, brown, fine to coarse sand with varying gravel and silt content and occasional trace vegetation and construction debris (brick, crushed stone fragments) was encountered. This stratum extended to an approximate depth of 6 to 8 feet bgs. Uncorrected SPT N-values varied between 4 blows per foot (bpf) to 34 bpf, with an average of 14 bpf.

Grain size and moisture content testing performed on two soil samples collected from the Fill stratum indicated fines content of approximately 20 and 50 percent, and gravel content between 6 and 28 percent.

Clay: Below the Fill in B-01, a Clay & Silt with varying content of Sand was encountered between 7 and 13 feet bgs. One uncorrected SPT N-value in this stratum (performed from 8 to 10 feet bgs) was 6 bpf, indicating a medium stiff consistency.

Atterberg Limits test was performed on one sample collected from this stratum. This testing indicated a liquid limit of 32, plastic limit of 19, a plasticity index of 13 (indicating medium plasticity) and a natural water content of 20 percent.

Sand: Below the Clay layer in B-01, a Sand layer was encountered between approximately 13 feet and approximately 25.5 feet bgs, where the boring was terminated. This stratum consisted of brown, medium to coarse SAND, little to some Silt, trace Gravel. Uncorrected SPT N-values ranged between 28 and refusal (an average of 75 bpf) indicating a medium dense to very dense condition.

Silt/Sand: Below the Fill stratum in B-02 through B-04, a stratum of alternating thin layers (each layer varying between 2 to 10 feet thickness) of Silt and Sand was encountered to the termination depths of each boring. Descriptions of soil samples were variable, and ranged from brown SILT or Clayey SILT (Organic SILT was observed from approximately 14 to 19 feet in boring B-02), with trace to and fine to medium Sand, and varying content of Gravel; to brown, fine to coarse SAND, trace to and Silt, trace to some fine to coarse Gravel. Uncorrected SPT N-values of this alternating stratum ranged from 4 to 37 bpf (average of 14 bpf), indicating a soft to stiff consistency for plastic soils, and loose to dense relative density for non-plastic soils. It appears the stratum is predominantly medium stiff or medium dense.

Grain size and moisture content testing performed on three soil samples collected from this alternating stratum indicated fines content between 19 and 77 percent, and gravel content of up to 14 percent.

4.2 Groundwater Observations

The groundwater level at the Site was estimated by installing groundwater observation well at each boring location upon completion and gauging the wells after stabilization times ranging between 24 hours and 7 days. The groundwater readings after 7 days were measured by a VHB representative, and reported back to GZA. Based on these measurements provided by VHB, groundwater levels were at 18 feet bgs (El 181.6) at B-

01, 13 feet bgs (El 179) at B-02, 10 feet bgs (El 180.4) at B-03, and 11 feet bgs (El 180.45) at B-04.

It should be noted that fluctuations in groundwater levels will occur due to variations in seasonal influences, precipitation amounts, utility leakage, and other factors different from those existing at the time the observations were made during drilling.

5 CONCEPTUAL GEOTECHNICAL RECOMMENDATIONS

It is to be noted that the recommendations provided herein are only preliminary and conceptual. Our subsurface exploration program performed as part of this effort was very limited and was part of a due diligence phase. A supplemental exploration program consisting of one boring for every 5,000 to 7,500 square feet of built over area (approximately 15 to 30 borings) will be required for the proposed project to satisfy the recent edition of the New York State Building Code (NYSBC), as well as, general geotechnical engineering practice. This report will need to be modified to provide final foundation design and construction recommendations following this supplemental exploration program. Furthermore, a suitable number of the future borings should be terminated after confirming the apparent presence of bedrock by coring a minimum of 10 feet into competent bedrock.

The key geotechnical issues for this project are summarized below:

- The existing Fill and underlying native soil strata in the top 15 to 25 feet bgs contain numerous loose or soft layers of variable soils and are unsuitable for support of the proposed development.
- New structural foundations should either be supported on deep foundations extending into dense Sand or competent Bedrock at depths to be verified during future supplemental investigation or a mixed foundation system consisting of mat foundations or piers bearing on denser native material (or structural fill placed over top the same) ranging at depths between 15 and 25 feet bgs (based on our due diligence borings) and deep foundations for the residential tower portion of the development. It is to be noted, significant excavation (to depths of up to 25 feet), dewatering and support of excavation will be required to construct mat foundations or piers over top dense native materials or structural fill placed over top the same, and therefore deep foundations throughout could be more economical. Also, the potential for differential settlement between pile supported and non-pile supported elements generally makes mixed foundation systems less practical.
- Groundwater control during construction and permanent “water proofing” considerations will be necessary for this project.

Foundations should be designed in accordance with NYSBC. Further design details regarding the types and depths of deep foundation elements, proposed slabs design recommendations, and estimated settlement will be provided upon completion of the supplemental exploration location and being provided with anticipated structural loads.

We anticipate deep foundations consisting of caissons or driven H-piles or concrete filled pipepiles extending to depths ranging between 50 and 75 feet bgs based on our experience of the Site area. However, this is to be determined at a later time as mentioned above.

A design groundwater elevation of El. 184 should be used for preliminary and conceptual design of slabs and foundation walls.

5.1 Lateral Earth and Water Pressures

Foundation walls should be designed to resist lateral earth pressures due to soil weight, neighboring foundation loads, and other surcharges. For drained conditions, a minimum equivalent fluid pressure of 40 psf/ft is recommended for temporary excavation support systems and a minimum equivalent fluid pressure of 60 psf/ft is recommended for the design of permanent walls. For soils below the water table or if there is a potential for water pressure buildup, the minimum recommended equivalent fluid pressures are 82 psf/ft and 91 psf/ft for temporary excavation support systems and permanent walls, respectively. An additional horizontal pressure should be added to the earth pressures described above where surcharges such as vehicular traffic or pedestrian loads are expected. For vehicular traffic loads, the additional horizontal pressure is 300 psf at ground elevation, decreasing linearly to 0 at a depth of 15 feet. For pedestrian loads, the additional horizontal pressure is 100 psf at ground elevation, decreasing linearly to 0 at a depth of 10 feet.

5.2 Seismic Assessment

Based on the soil types encountered and in accordance with the NYSBC, we recommend adopting a Site Class D for calculation of seismic loading and the corresponding response spectrum as defined in the Code. Based on anticipated density of the subsurface soils below 25 feet bgs, the Site is not considered susceptible to liquefaction, however this will need to be further evaluated following supplemental exploration program.

5.3 Groundwater Control

We understand that the proposed finished cellar will extend up to 4 feet below the preliminary design groundwater elevation, and even deeper at locations of proposed elevator shafts and to construct foundations and/or pile caps. Therefore, we recommend that the cellar walls, slabs, and foundations be designed to be watertight with full waterproofing. Full waterproofing systems should consist of provision of water stops at all foundation joints, waterproofing membranes on all below grade walls and slabs, and drainage boards on foundations walls extending to the ground surface. We note that drainage boards should be considered to provide an even surface onto which waterproofing may be neatly and properly installed. All waterproofing products should be installed per manufacture specifications and connection details and installed waterproofing should be protected from any damage during construction. Because "waterproofing" systems are not fail proof, we would recommend that consideration be given for a redundant system consisting of perimeter and floor drainage collection, with sump pump discharge.

A 2-inch-thick lean concrete or 'mud-mat' may be placed above the soil subgrade to protect the subgrade and provide a level surface for installation of waterproofing.

Additionally, a redundant water collection and pumping system (gravity drain or sump pit included within the cellar) would be beneficial in order to evacuate any water that may enter the building during periods of high precipitation or due to unforeseen circumstances such as water main breaks, fire suppression system activation, etc.

6 CONSTRUCTION RECOMMENDATIONS

The following recommendations and discussion are generic and will require modification once the planned redevelopment is further designed. These discussions are intended to provide you with general construction recommendations for consideration

6.1 Excavations and Subgrade Preparation

The proposed development consists of approximately 12 to 20 feet of excavation to construct the proposed cellar (plus additional localized excavation for foundations and elevator shafts, if proposed). This may include excavation of boulder congested soils, which may entail mechanical excavation by chipping with hydraulic hoe-ram/breakers. The method of excavation is typically a function of the Contractor's ability, preference, and cost analysis and perceived risk to adjacent structures.

For excavations along property lines, temporary earth support would be required to maintain a vertical face.

Following removal of the Fill and additional overburden soils, as needed to reach the planned excavation subgrade, the subgrade should be proof rolled to a stable and firm consistency with a minimum of four passes of a double drum roller. Fill should not be placed over frozen soil or ponded areas. Areas of unstable ground should be over-excavated until the exposed ground is stable and firm. The over-excavated soils should be replaced with compacted granular fill, nominally compacted crushed stone wrapped in filter fabric, or lean concrete (concrete with f'c < 2,000 psi).

6.2 Fill Material and Compaction

Compacted structural fill placed below the foundations and floor slabs should consist of clean, granular fill placed on proof-rolled subgrade. The fill should be compacted to at least 95 percent of its maximum dry density, as determined by the Modified Proctor Test (ASTM D1557). The gradation requirements for the fill material are presented in **Table 1**. The recommended maximum loose lift thickness of fill and minimum number of passes of compaction equipment are given in **Table 2**. Lift thicknesses should be adjusted as required to achieve the minimum compaction requirements. We recommend performing at least one gradation and one moisture-density test per each 250 cubic yards of fill, or a minimum of three (3) tests per borrow source.

A minimum thickness of six inches of Sand-Gravel fill is recommended as bedding material beneath concrete slabs and utilities with a diameter of up to one foot. Eight inches of Sand-Gravel fill is recommended for utilities with a diameter of up to three feet, and twelve inches for larger utilities. The maximum grain size should not exceed 1/10 of

the maximum diameter of the utility. The Sand-Gravel bedding should be nominally compacted with a hand-operated vibratory plate or light roller. In general, GZA recommends that the minimum compaction limits for utilities are 95 percent of the maximum dry density by ASTM D 1557 (Modified Proctor) for areas under roadway or sidewalk paved structures and 90 percent of the maximum dry density by ASTM D 1557 under planted or seeded non-traffic areas.

All fill should be free from ice, snow, roots, sod, rubbish, and other deleterious or organic matter. The Contractor should reduce or stop drum vibration if pumping or weaving of the subgrade is observed.

Crushed stone, where used below foundations, should be compacted to a firm, stable configuration, and should be wrapped in non-woven filter fabric, such as Mirafi 140N, if the crushed stone thickness placed is 6-inches or greater, unless the crushed stone is well graded and compatible with adjacent soils.

6.3 Temporary Excavations and Excavation Shoring

Temporary excavation support systems will be required to protect the adjacent roadways and sidewalks that must remain in service, as well as utilities and other adjoining or nearby structures. A temporary excavation support system consisting of internally braced, drilled soldier piles (H-piles or pipe piles) and timber lagging may be appropriate. The temporary excavation support system should be designed by the Contractor's Engineer to accommodate the earth pressures described in this report. Special permission will be required if tiebacks, soil nails, rock anchors or rock bolts extend beyond the adjacent property lines.

The Owner and the Contractor should be familiar with applicable local, state and federal safety regulations, including the current Occupational Safety and Health Administration (OSHA) excavation and trench safety standards. Construction site safety generally is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. The Contractor should be aware that slope height, slope inclination, or excavation depth should in no case exceed those specified in local, state, or federal safety regulations such as OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations. Such regulations are strictly enforced and, if they are not followed, the Owner, Contractor, and/or earthwork and utility subcontractors could be liable for substantial penalties. Per OSHA requirements, if any excavation is extended to a depth of more than 20 feet, it will be necessary to have the side slopes designed by a Professional Engineer.

The Contractor can also provide temporary vertical excavation support systems ("shoring") as an alternative to temporary sloped excavations. All excavation support systems should be designed by a Professional Engineer.

As a safety measure, we recommend that all vehicles and soil piles be kept a minimum lateral distance from the crest of slopes no less than a third of the slope height. Exposed slope faces should be protected against erosion by the elements. Temporary Groundwater Control

Excavation will likely extend into the water table towards the base of the excavation and construction dewatering will be required. The Contractor should be prepared to evacuate the groundwater which enters the Site from the soil layers and from fractures in the rock in order to allow construction to proceed. The Contractor can consider dewatering or grouting the soil/rock interface (if any) around the site perimeter in order to reduce the water flow into the excavation; additional grouting may be utilized during excavation within seams and joints to further reduce the water flow.

Construction dewatering will be required to maintain dry excavations to facilitate foundation and slab construction. Such dewatering may be accomplished through the use of sumps or localized well points. Dewatering will also be required to remove precipitation that collects in the excavation.

Given the proximity to the water table, the Contractor should consider providing a working mat to protect the subgrade, such as gravel or concrete mud mat. Preparation of subgrades when within close proximity of the groundwater should be performed carefully, and as described above, to prevent unnecessary disturbance. Dewatering should be carefully performed so as to not cause any damage or settlement to the neighboring buildings, structures, or utilities.

Temporary groundwater discharge permits may be required from the county or town for any dewatering operations. The project environmental consultant should provide input regarding the quality of the groundwater in and around the site and if treatment of the groundwater should be planned prior to discharge. GZA can provide this service in the future, if needed.

7 SUPPLEMENTAL SERVICES

We recommend that GZA be retained to perform a supplemental exploration program consisting of additional borings, upon completion of the due diligence process, if the project was the move forward. This could be done under one mobilization upon demolition of the existing mall structure, or under two mobilizations where a portion of the program is completed in the beginning to move the design forward and the remainder of the program completed within the footprint of the existing mall upon demolition of the structure. The number and depth of these additional borings is dependent on the final planned development. For planning consideration, it is prudent to consider one test boring per each 5,000 to 10,000 square foot of built over area (or an additional 19 +/- 7 test borings). Afterwards, GZA can finalize this report, design recommendations, and assist your design team with preparation of specifications and construction documents, and future construction inspections.

We appreciate the opportunity to service you during this preliminary due-diligence phase, and hope to assist you with this project moving forward.

ATTACHMENTS

TABLES

Table 1: Recommended Use and Gradation Criteria for Fill Materials

USE OF FILL MATERIAL

Granular Fill:	Below footings and slab base course, and 3 feet laterally behind walls provided that amount passing Sieve No. 200 is less than 8 percent.
Sand-Gravel:	Slab base course and 3 feet laterally behind walls and as pavement subbase
Crushed Stone:	Drain line backfill and foundation protective layer. Crushed stone should be wrapped all-around in non-woven filter fabric.

GRADATION REQUIREMENTS

Sieve Size	**Percent Finer by Weight**
Granular Fill — Shall be free from ice and snow, roots, sod, rubbish and other deleterious or organic matter. Granular Fill shall conform to the following gradation requirements:	
2/3 of the loose lift thickness	100
No. 10	30 – 95
No. 40	10 – 70
No. 200	*0 – 15 *0 – 8 where used behind walls
Sand-Gravel — Shall consist of durable sand and gravel and shall be free from ice and snow, roots, sod, rubbish and other deleterious or organic matter. Sand-Gravel shall conform to the following gradation requirements:	
3 inch	100
½ inch	50 – 85
No. 4	40 – 75
No. 40	10 – 35
No. 200	0 – 8
Crushed Stone — Shall consist of durable crushed rock or durable crushed gravel stone and shall be free from ice and snow, roots, sod, rubbish and other deleterious or organic matter or material. Crushed Stone shall conform to the following gradation requirements:	
1 inch	100
¾ inch	90 – 100
½ inch	10 – 50
3/8 inch	0 – 20
No. 4	0 – 5
No. 200	0 – 1

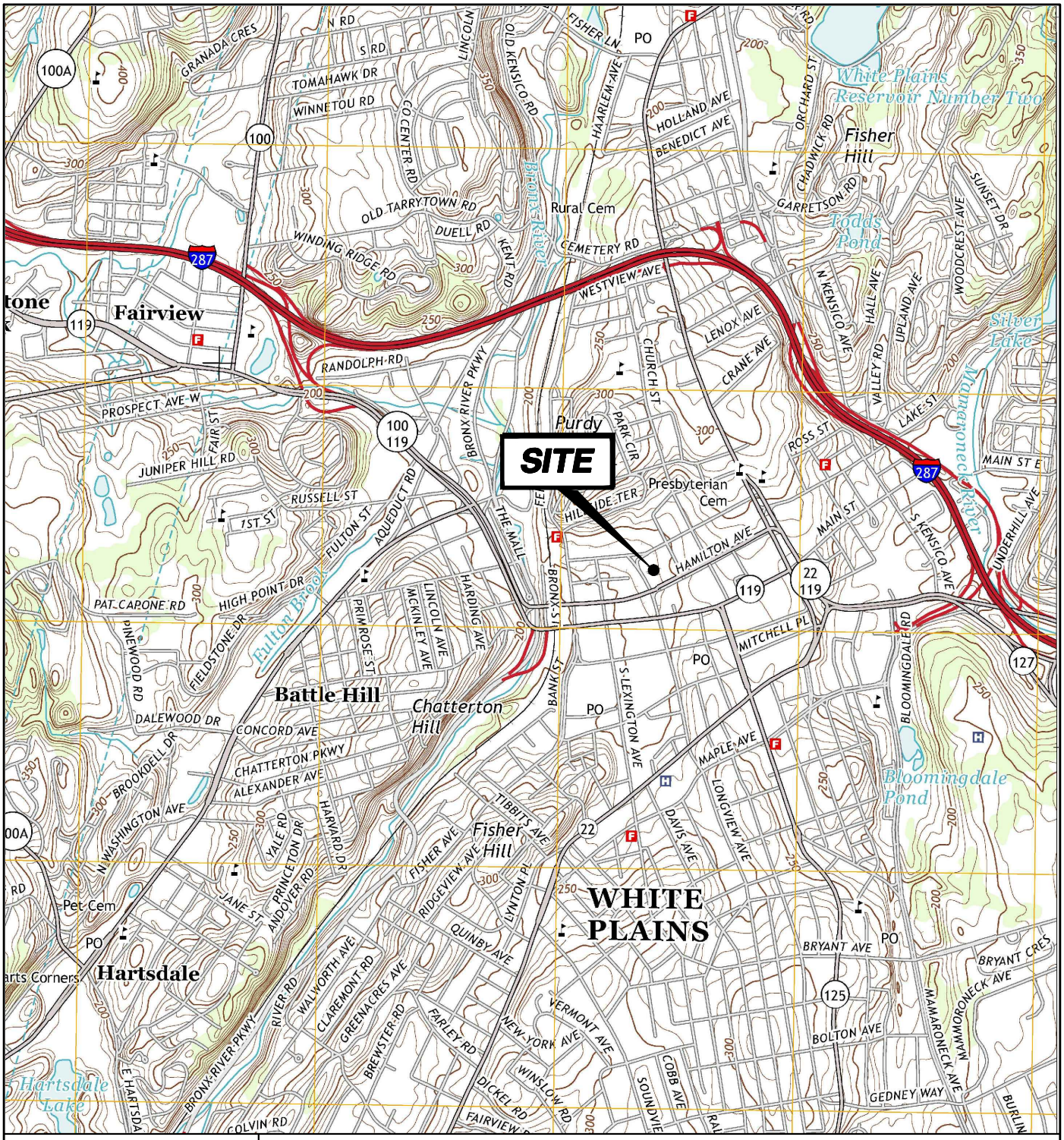
Table 2: Compaction Methods

Compaction Method	Max. Stone Size*	Maximum Loose Lift Thickness		Minimum Number of Passes	
		Below Structures and Pavement	Less Critical Area	Below Structures and Pavement	Less Critical Area
GRANULAR FILL, SAND-GRAVEL FILL, CRUSHED STONE					
Hand-operated vibratory plate or light roller in confined areas	4”	6”	8”	4	4
Hand-operated vibratory drum rollers weighing at least 1,000# in confined areas	6”	10”	12”	4	4
Light vibratory drum roller Min. weight at drum 3000# Min dynamic force 10,000#	8”	12”	18”	4	4
Medium vibratory drum roller Min. weight at drum 10,000# Min dynamic force 20,000#	8”	18”	24”	6	6

- Indicates not to exceed more than 2/3 the lift thickness

FIGURES

Figure 1: Site Location Plan



NEW YORK

QUADRANGLE LOCATION

SOURCE:
USGS TOPOGRAPHIC MAP: WHITE PLAINS, NY (2013).
CONTOUR INTERVAL 10 FT., NAVD-1988, ORIGINAL
SCALE 1:24,000 (1" = 2,000 FT.).

N
W E
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WHITE PLAINS MALL
WHITE PLAINS, NEW YORK

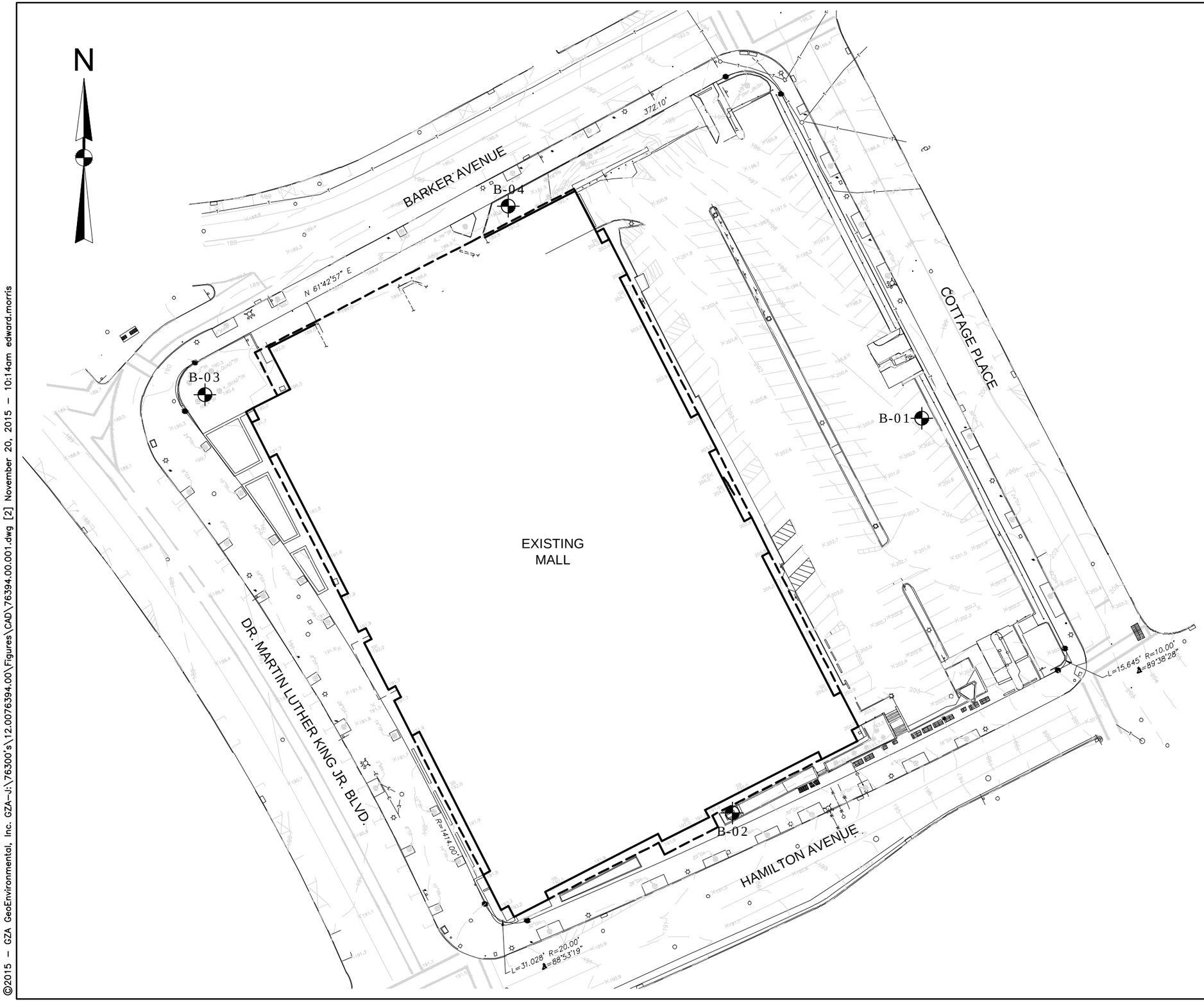
PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
EXCLUSIVE MANAGEMENT, LLC.

SITE LOCATION PLAN

PROJ MGR: AR	REVIEWED BY: AR	CHECKED BY: MM	FIGURE
DESIGNED BY: MM	DRAWN BY: EM	SCALE: 1" = 2000'	1
DATE: NOV. 2015	PROJECT NO. 12.0076394.00	REVISION NO.	SHEET NO.

Figures 2: Exploration Location Plan



LEGEND:

BORING LOCATION WITH GROUNDWATER OBSERVATION WELL

NOTE:

1. BASE MAP DEVELOPED FROM PLAN PROVIDED BY VHB, ENTITLED "WHITE PLAINS MALL WATER LEVEL MEASUREMENT," DATED 11/4/2015.
2. BORINGS PERFORMED BY CRAIGS DRILLING, COMPANY ON OCTOBER 27 AND 28, 2015.

0 30' 60' 120'

APPROXIMATE SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

WHITE PLAINS MALL
WHITE PLAINS, NEW YORK

EXPLORATION LOCATION PLAN

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
EXCLUSIVE MANAGEMENT, LLC.

PROJ MGR: AR	REVIEWED BY: AR	CHECKED BY: MM	FIGURE 2
DESIGNED BY: MM	DRAWN BY: EM	SCALE: 1" = 30'	
DATE: NOV. 2015	PROJECT NO. 12.0076394.00	REVISION NO.	SHEET NO.

APPENDICES

Appendix A

LIMITATIONS

GEOTECHNICAL LIMITATIONS

Use of Report

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

Standard of Care

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in Proposal for Services and/or Report, and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. If conditions other than those described in this report are found at the subject location(s), or the design has been altered in any way, GZA shall be so notified and afforded the opportunity to revise the report, as appropriate, to reflect the unanticipated changed conditions .

3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.

Subsurface Conditions

4. The generalized subsurface conditions provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs.

5. In preparing this report, GZA relied on certain information provided by the Client, state and local officials, and other parties referenced therein which were made available to GZA at the time of our evaluation. GZA did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation.

6. Water level readings have been made in test holes (as described in the Report) and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this Report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The water table encountered in the course of the work may differ from that indicated in the Report.

7. GZA's services did not include an assessment of the presence of oil or hazardous materials at the property. Consequently, we did not consider the potential impacts (if any) that contaminants in soil or groundwater may have on construction activities, or the use of

structures on the property.

8. Recommendations for foundation drainage, waterproofing, and moisture control address the conventional geotechnical engineering aspects of seepage control. These recommendations may not preclude an environment that allows the infestation of mold or other biological pollutants.

Compliance with Codes and Regulations

9. We used reasonable care in identifying and interpreting applicable codes and regulations. These codes and regulations are subject to various, and possibly contradictory, interpretations. Compliance with codes and regulations by other parties is beyond our control.

Additional Services

10. GZA recommends that we be retained to provide services during any future: site observations, design, implementation activities, construction and/or property development/redevelopment. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

Appendix B

SOIL BORING LOGS WITH LOG KEY

LOG KEY

GZA
Geo Environmental, Inc.
Engineers and Scientists

BURMISTER SOIL CLASSIFICATION (INORGANIC)

COMPONENT	NAME	PROPORTIONAL TERM	PERCENT BY WEIGHT
MAJOR	GRAVEL, SAND, FINES*		>50
Minor	Gravel, Sand, Fines*	and	35 - 50
		some	20-35
		little	10-20
		trace	0-10

*See identification of fines table.

IDENTIFICATION OF FINES

Material	PI	Atterberg Thread Dia.
SILT	0	Cannot Roll
Clayey SILT	1-5	1/4"
SILT & CLAY	5-10	1/8"
CLAY & SILT	10-20	1/16"
Silty CLAY	20-40	1/32"
CLAY	>40	1/64"

GRADATION DESIGNATION	PROPORTION OF COMPONENT
Fine to coarse	All fractions > 10%
Medium to coarse	<10% fine
Fine to medium	<10% coarse
Coarse	<10% fine and medium
Medium	<10% coarse and fine
Fine	<10% coarse and medium

PLASTIC SOILS

Consistency	Blows/Ft. SPT N-Value
Very Soft	< 2
Soft	2 - 4
Medium Stiff	4 - 8
Stiff	8 - 15
Very Stiff	15 - 30
Hard	>30

GRAVEL & SAND

Density	Blows/Ft. SPT N-Value
Very Loose	< 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	> 50

BURMISTER SOIL CLASSIFICATION (ORGANIC)

Fibrous PEAT (Pt) - Lightweight, spongy, mostly visible organic matter, water squeezes readily from sample. Typically near top of deposit.
Fine Grained PEAT (Pt) - Lightweight, spongy, little visible organic matter, water squeezes reqdily from sample. Typically below fibrous peat.
Organic Silt (OL) - Typically gray to dark gray, often has strong H2S odor. Typically contains shells or shell fragments. Lightweight. Usually found near coastal regions. May contain wide range of sand fractions.
Organic Clay (OH) - Typically gray to dark gray, high plasticity. Usually found near coastal regions. May contain wide range of sand fractions. Need organic content test for final identification.

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) (ASTM D 2487)

MAJOR DIVISIONS			Group Symbols
Coarse Grained Soils More than 50% of material larger than No. 200 sieve.	Gravel More than 50% larger than No. 4 sieve.	Clean Gravels (Little or no fines)	GW GP
		Gravels with Fines (Appreciable amount of fines)	GM GC
	Sand More than 50% smaller than No. 4 sieve.	Clean Sands (Little or no fines)	SW SP
		Sands with Fines (Appreciable amount of fines)	SM SC
Fine Grained Soils More than 50% of material smaller than No. 200 sieve.		Silts and Clays Liquid Limit <50	ML CL
		Silts and CLays Liquid Limit >50	OL MH CH OH
		Highly Organic Soils	Pt

ABBREVIATIONS

MR = Mud Rotary
HSA = Hollow Stem Auger
SSA = Solid Stem Auger
SS = Split Spoon Sampler
U = Undisturbed Sample (Shelby Tube)
MC = Modified California Sampler
V = Vibracore
M = Macrocore

USCS = Unified Soil Classification System (ASTM D2487)
NYCBC = New York City Building Code
WOR = Weight of Rods
WOH= Weight of Hammer
SPT = Standard Penetration Test (ASTM D1586)
N-Value = Cumulative number of uncorrected blows for the middle two six-inch intervals (blows/foot).

Tv = Field Vane Shear Test (Torvane)
PP = Pocket Penetrometer
PI = Plasticity Index
MC = Moisture Content
CO = Consolidation
UC = Unconfined Compression Test
SI = Sieve Analysis
DS = Direct Shear
PID = Photoionization Detector
ppm = Parts Per Million
REC = Recovery
RQD = Rock Quality Designation
▼ = Measured Water Level

TEST BORING LOG

GZA GeoEnvironmental, Inc
Engineers and Scientists

Exclusive Management, LLC
White Plains Mall
200 Hamilton Avenue
White Plains, NY

EXPLORATION NO.: B-01
SHEET: 1 of 1
PROJECT NO: 12.0076394.00
REVIEWED BY: A. Rizk

Logged By: R. Bhatia
Drilling Co.: Craig Geotechnical Drilling
Foreman: R. Dollar

Type of Rig: Track
Rig Model: CME-55LC
Drilling Method: MR

Boring Location: See Plan
Ground Surface Elev. (ft.): 200
Final Boring Depth (ft.): 25.6
Date Start - Finish: 10/28/2015 - 10/28/2015

H. Datum: Unknown
V. Datum: Unknown

Hammer Type: Donut
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
10/29/15	18:00	14.2	24 hrs
11/4/15		18.3	7 days

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0-2	24	0	5 4 3 5	7	S-1 : Loose, brown, medium to coarse SAND, some Gravel, trace Silt, trace brick fragments.			0.5	ASPHALT	199.5
		S-2	2-4	24	13	2 4 5 3	9	S-2 : Loose, brown, medium to coarse SAND, some Gravel, little Silt, trace crushed stone.				FILL	
5		S-3	4-6	24	16	4 4 3 2	7	S-3 : Loose, brown, SILT and fine to medium SAND, trace Gravel.					
		S-4	6-8	24	14	2 2 2 2	4	S-4 : Very loose, brown, medium to coarse SAND, trace Gravel, little Silt.			8		192.0
		S-5	8-10	24	20	2 3 3 4	6	S-5 : Medium stiff, brown CLAY & SILT, some fine to medium Sand.				CLAY	
10											13		187.0
15		S-6	15-17	24	12	9 15 13 25	28	S-6 : Medium dense, brown, medium to coarse SAND, little Silt, trace Gravel.					
20		S-7	20-20.7	24	8	43 100/2"	R	S-7 : Very dense, dark brown, medium to coarse SAND, trace Gravel.				SAND	
25		S-8	25-25.6	24	7	44 100/1"	R	S-8 : Very dense, dark brown, medium to coarse SAND, some Silt, trace Gravel.	1		27		173.0
								End of exploration at 25.6 feet.					
30													

REMARKS

1 - Borings were completed with a 25 feet well upon completion with a flush mount cover at the surface. The wells were constructed with 15 feet screen and 10 feet riser.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-01

GZA TEMPLATE TEST BORING; 11/20/2015; 12:53:05 PM

TEST BORING LOG

GZA GeoEnvironmental, Inc
Engineers and Scientists

Exclusive Management, LLC
White Plains Mall
200 Hamilton Avenue
White Plains, NY

EXPLORATION NO.: B-02
SHEET: 1 of 1
PROJECT NO: 12.0076394.00
REVIEWED BY: A. Rizk

Logged By: R. Bhatia
Drilling Co.: Craig Geotechnical Drilling
Foreman: R. Dollar

Type of Rig: Track
Rig Model: CME-55LC
Drilling Method: MR

Boring Location: See Plan
Ground Surface Elev. (ft.): 192
Final Boring Depth (ft.): 27
Date Start - Finish: 10/28/2015 - 10/28/2015

H. Datum: Unknown
V. Datum: Unknown

Hammer Type: Donut
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
10/29/15	18:10	12.95	24 hrs
11/4/15		12.95	7 days

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0-2	24	13	3 3 4 4	7	S-1 : Loose, brown, fine to coarse SAND, trace Gravel, trace Silt, trace roots.			0.5	TOPSOIL	191.5
		S-2	2-4	24	22	8 10 12 13	22	S-2 : Medium dense, brown, fine to coarse SAND, trace Gravel, trace Silt.				FILL	
5		S-3	4-6	24	12	12 9 5 7	14	S-3 : Medium dense, brown, fine to coarse SAND, trace Gravel, trace Silt.			6		186.0
		S-4	6-8	24	12	9 8 7 7	15	S-4 : Medium dense, brown, Clayey SILT, trace fine Sand.				SILT	
		S-5	8-10	24	12	9 8 7 7	15	S-5 : Medium dense, brown, fine to coarse SAND, little Silt, trace Gravel.			8		184.0
10												SAND	
											14		178.0
15		S-6	15-17	24	10	1 2 2 2	4	S-6 : Soft, gray-brown, organic SILT and fine Sand.				ORGANIC SILT	
											19		173.0
20		S-7	20-22	24	10	4 3 4 4	7	S-7 : Loose, medium to fine SAND, trace Gravel, trace Silt.				SAND	
											24		168.0
25		S-8	25-26.6	24	9	1 2 2 100/1"	4	S-8 : Soft, dark brown, Clayey SILT.				SILT	
											27		165.0
								End of exploration at 27 feet.	1				
30													

REMARKS

1 - Borings were completed with a 25 feet well upon completion with a flush mount cover at the surface. The wells were constructed with 15 feet screen and 10 feet riser.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-02

GZA TEMPLATE TEST BORING; 11/20/2015; 12:53:05 PM

TEST BORING LOG

GZA GeoEnvironmental, Inc
Engineers and Scientists

Exclusive Management, LLC
White Plains Mall
200 Hamilton Avenue
White Plains, NY

EXPLORATION NO.: B-03
SHEET: 1 of 1
PROJECT NO: 12.0076394.00
REVIEWED BY: A. Rizk

Logged By: R. Bhatia
Drilling Co.: Craig Geotechnical Drilling
Foreman: R. Dollar

Type of Rig: Track
Rig Model: CME-55LC
Drilling Method: MR

Boring Location: See Plan
Ground Surface Elev. (ft.): 191
Final Boring Depth (ft.): 27
Date Start - Finish: 10/27/2015 - 10/27/2015

H. Datum: Unknown
V. Datum: Unknown

Hammer Type: Donut
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
10/29/15	18:20	10.1	2 days
11/4/15		10.4	7 days

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
			0-3					: Hand clear			0.5	TOPSOIL	190.5
		S-1	3-5	24	3	7 3 4 5	7	S-1 : Loose, brown, medium SAND, some Gravel, trace Silt, crushed stone.				FILL	
5		S-2	5-7	24	4	5 14 17 13	31	S-2 : Medium dense, fine to coarse, brown SAND, some Gravel, little Silt.					
		S-3	7-9	24	16	8 5 3 6	8	S-3 : Loose, brown, fine to coarse SAND, trace Gravel, little Silt.			8		183.0
10		S-4	9-11	24	13	5 6 8 9	14	S-4 : Loose, brown, fine to coarse SAND and SILT, trace Gravel, trace Clay.				SAND	
15		S-5	15-17	24	8	3 4 4 4	8	S-5 : Loose, brown, fine to coarse SAND, trace Gravel, trace Silt.			18.5		172.5
20		S-6	20-22	24	13	2 4 4 5	8	S-6 : Loose, gray SILT, some fine Sand, trace Gravel.				SILT	
											24		167.0
25		S-7	25-27	24	12	7 24 13 10	37	S-7 : Very dense, gray-brown, fine to medium SAND, little Silt, little fine to coarse Gravel.				SAND	
											27		164.0
								End of exploration at 27 feet.	1				
30													

REMARKS

1 - Borings were completed with a 25 feet well upon completion with a flush mount cover at the surface. The wells were constructed with 15 feet screen and 10 feet riser.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-03

GZA TEMPLATE TEST BORING; 11/20/2015; 12:53:06 PM

TEST BORING LOG

GZA GeoEnvironmental, Inc
Engineers and Scientists

Exclusive Management, LLC
White Plains Mall
200 Hamilton Avenue
White Plains, NY

EXPLORATION NO.: B-04
SHEET: 1 of 1
PROJECT NO: 12.0076394.00
REVIEWED BY: A. Rizk

Logged By: R. Bhatia
Drilling Co.: Craig Geotechnical Drilling
Foreman: R. Dollar

Type of Rig: Track
Rig Model: CME-55LC
Drilling Method: MR

Boring Location: See Plan
Ground Surface Elev. (ft.): 191.1
Final Boring Depth (ft.): 27
Date Start - Finish: 10/27/2015 - 10/27/2015

H. Datum: Unknown
V. Datum: Unknown

Hammer Type: Donut
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4

Sampler Type: SS
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: N/A

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
10/29/15	16:30	10.2	
11/4/15		10.7	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0-2	24	9	5 6 6 5	12	S-1 : Medium dense, brown, fine to coarse SAND, little Gravel, little Silt, crushed stone.			0.5	TOPSOIL	190.6
		S-2	2-4	24	13	4 6 14 9	20	S-2 : Medium dense, brown, fine to coarse SAND, little Gravel, little Silt,brick fragments.				FILL	
5		S-3	4-6	24	12	26 21 13 11	34	S-3 : Medium dense, red-brown, fine to coarse SAND, some fine to coarse Gravel, some Silt, brick fragments.					
		S-4	6-8	24	10	6 5 7 5	12	S-4 : Medium dense, brown, fine to coarse SAND, little Gravel, little Silt, trace stone.			8		183.1
		S-5	8-10	24	12	12 9 7 9	16	S-5 : Medium dense, brown, fine to coarse SAND, trace Gravel, trace Silt.				SAND	
10													
15											15		176.1
		S-6	15-17	24	10	4 3 2 3	5	S-6 : Loose, gray SILT, some fine to medium Sand, trace Gravel.				SILT	
											19		172.1
20		S-7	20-22	24	12	12 10 8 12	18	S-7 : Medium dense, fine to coarse SAND, some Gravel, trace Silt.				SAND	
25		S-8	25-27	24	12	16 12 13 19	25	S-8 : Medium dense, fine to coarse SAND, some Gravel, trace Silt.			27		164.1
								End of exploration at 27 feet.	1				
30													

REMARKS

1 - Borings were completed with a 25 feet well upon completion with a flush mount cover at the surface. The wells were constructed with 15 feet screen and 10 feet riser.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-04

Appendix C

LABORATORY RESULTS

LABORATORY TESTING DATA SHEET

Project Name White Plains Mall | Location White Plains, NY | Reviewed By Matthew Pelletier

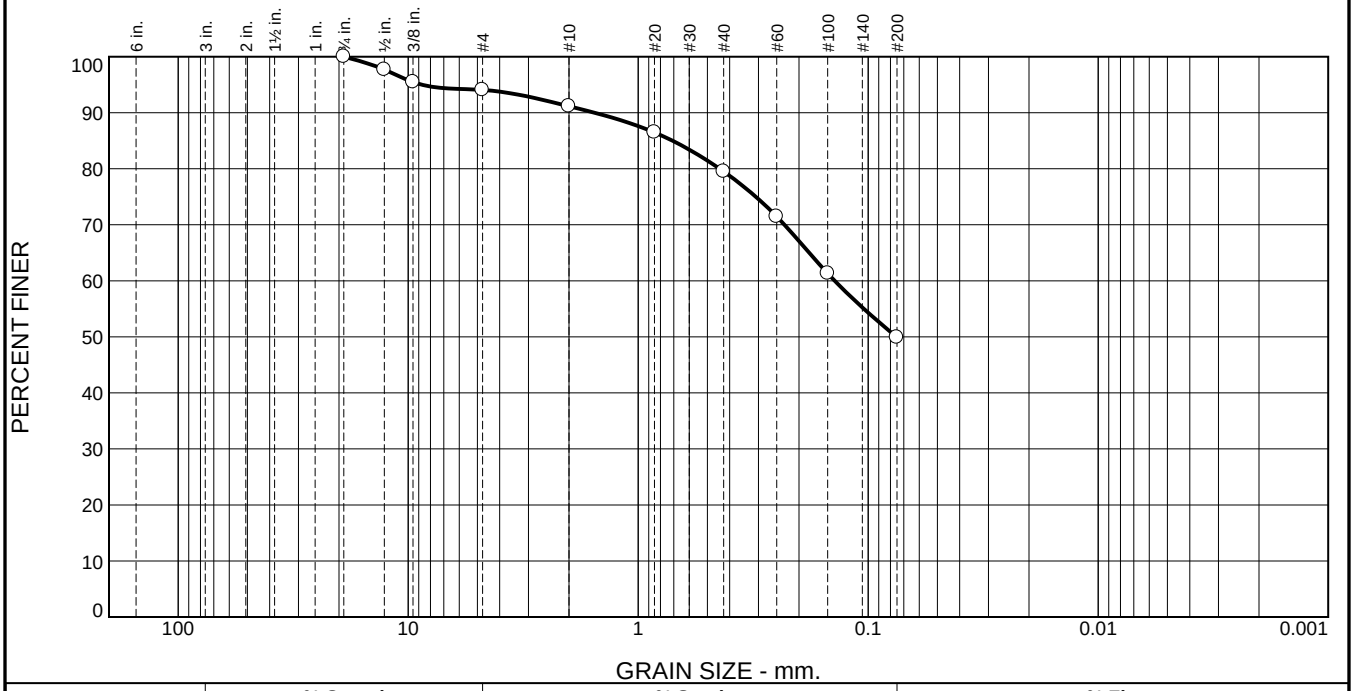
Project No. 12.0076394.00 | Assigned By A Rizk

Project Manager Andrew Rizk | Date 11/12/15 | Date Reviewed 11/12/2015

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests							Strength Tests						
				Natural Water Content %	LL %	PL %	Gravel %	Sand %	Fines %	Org. %	CBR Setup as % of Proctor	CBR Dry unit wt. pcf	CBR Water Content %	CBR @ 0.1" @ 0.2"	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Laboratory Log and Soil Description
B-1	S-3	4-6	1				5.9	44.2	49.9								Brown SILT and f-m SAND, trace Gravel
B-1	S-5	8-10	2	20.1	32	19	0.4	22.3	77.3								Brown CLAY & SILT, some f-m SAND
B-2	S-6	15-17	3				0	35.0	65.0								Gray-brown Organic SILT and fine SAND
B-3	S-7	25-27	4				13.5	67.1	19.4								Gray-brown f-m SAND, little Silt, little f-c Gravel
B-4	S-3	4-6	5				28.3	51.5	20.2								Red-brown f-c SAND, some f-c Gravel, some Silt

THIELSCH ENGINEERING
195 Frances Avenue
Cranston, RI 02910
401-467-6454

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.9	2.9	11.7	29.6	49.9	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
.5"	97.7		
.375"	95.5		
#4	94.1		
#10	91.2		
#20	86.5		
#40	79.5		
#60	71.5		
#100	61.3		
#200	49.9		

* (no specification provided)

Material Description

Brown SILT and f-m SAND, trace Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 1.5483 D_{85}= 0.7092 D_{60}= 0.1398
D_{50}= 0.0755 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 11/10/15 **Date Tested:** 11/11/15

Tested By: MS/MK

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: Borings **Depth:** 4-6' **Date Sampled:**

Sample Number: B-1: S-3

Thielsch Engineering Inc.

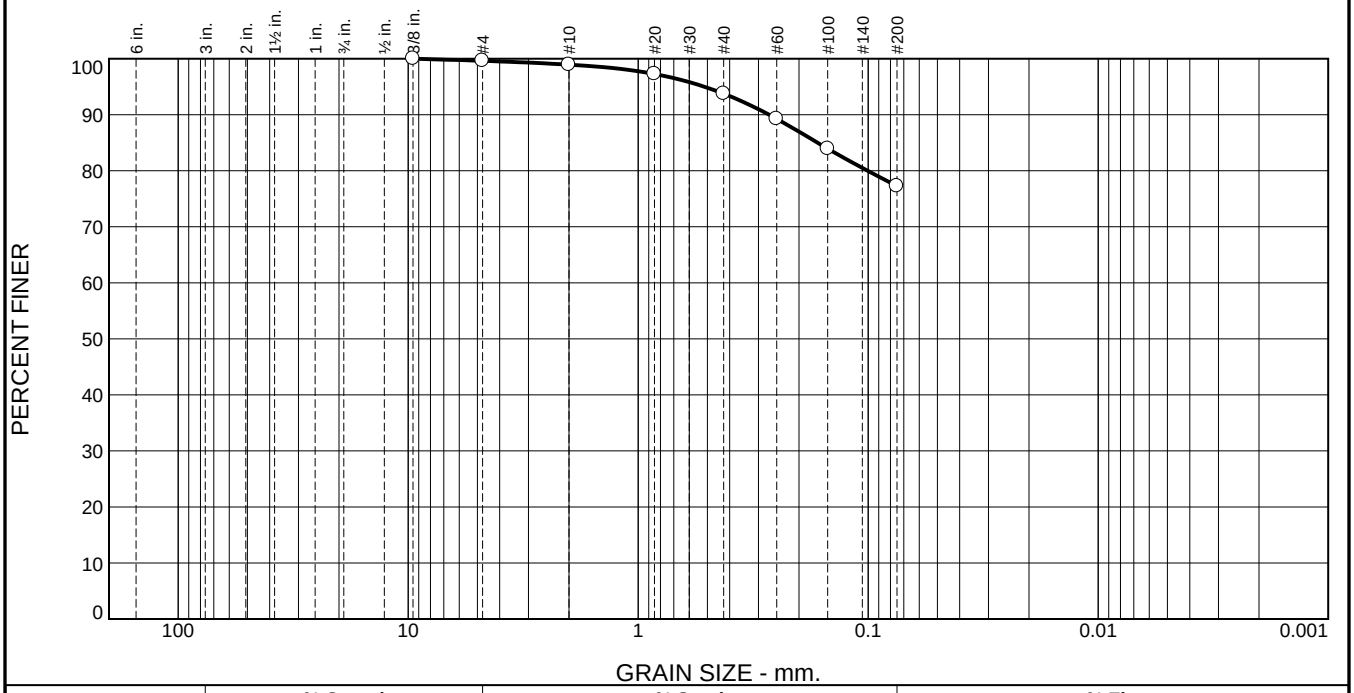
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: White Plains Mall
White Plains, NY

Project No: 12.0076394.00 **Figure** 1

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.7	5.1	16.5	77.3	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375"	100.0		
#4	99.6		
#10	98.9		
#20	97.3		
#40	93.8		
#60	89.3		
#100	83.9		
#200	77.3		

* (no specification provided)

Material Description

Brown CLAY & SILT, some f-m SAND

Atterberg Limits (ASTM D 4318)

PL= 19 **LL=** 32 **PI=** 13

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-6(9)

Coefficients

D_{90}= 0.2698 D_{85}= 0.1660 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 11/10/15 **Date Tested:** 11/11/15

Tested By: MS/MK

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: Borings **Depth:** 8-10' **Date Sampled:**

Sample Number: B-1: S-5

Thielsch Engineering Inc.

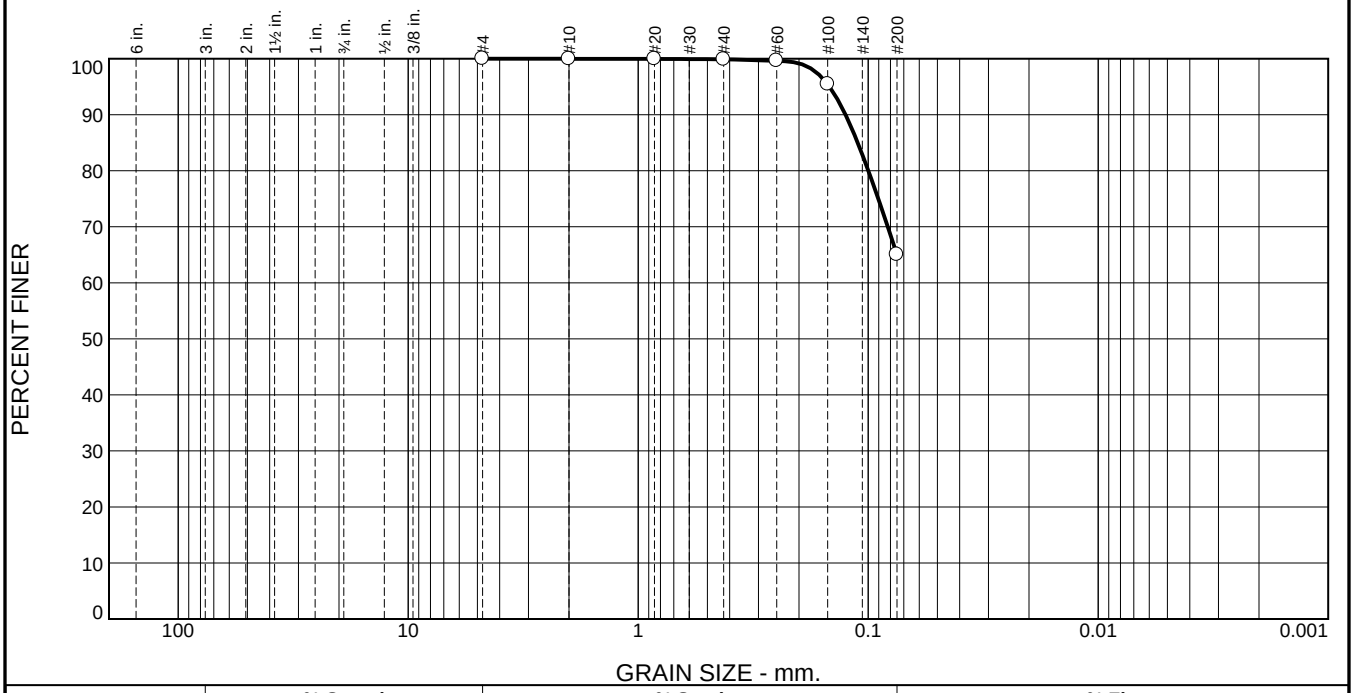
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: White Plains Mall
White Plains, NY

Project No: 12.0076394.00 **Figure** 2

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	34.9	65.0	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.6		
#100	95.4		
#200	65.0		

* (no specification provided)

Material Description

Gray-brown Organic SILT and fine SAND

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= ML **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 0.1255 D_{85}= 0.1111 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 11/10/15 **Date Tested:** 11/11/15

Tested By: MS/MK

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: Borings **Depth:** 15-17' **Date Sampled:**

Sample Number: B-2: S-6

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: White Plains Mall
White Plains, NY

Project No: 12.0076394.00 **Figure** 3

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.9	9.6	2.8	5.0	59.3	19.4	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	96.1		
.5"	90.4		
.375"	89.7		
#4	86.5		
#10	83.7		
#20	81.4		
#40	78.7		
#60	72.9		
#100	50.7		
#200	19.4		

* (no specification provided)

Material Description

Gray-brown f-m SAND, little Silt, little f-c Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 11.6982 D_{85}= 3.3483 D_{60}= 0.1813
D_{50}= 0.1480 D_{30}= 0.0957 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 11/10/15 **Date Tested:** 11/11/15

Tested By: MS/MK

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: Borings **Depth:** 25-27' **Date Sampled:**

Sample Number: B-3: S-7

Thielsch Engineering Inc.

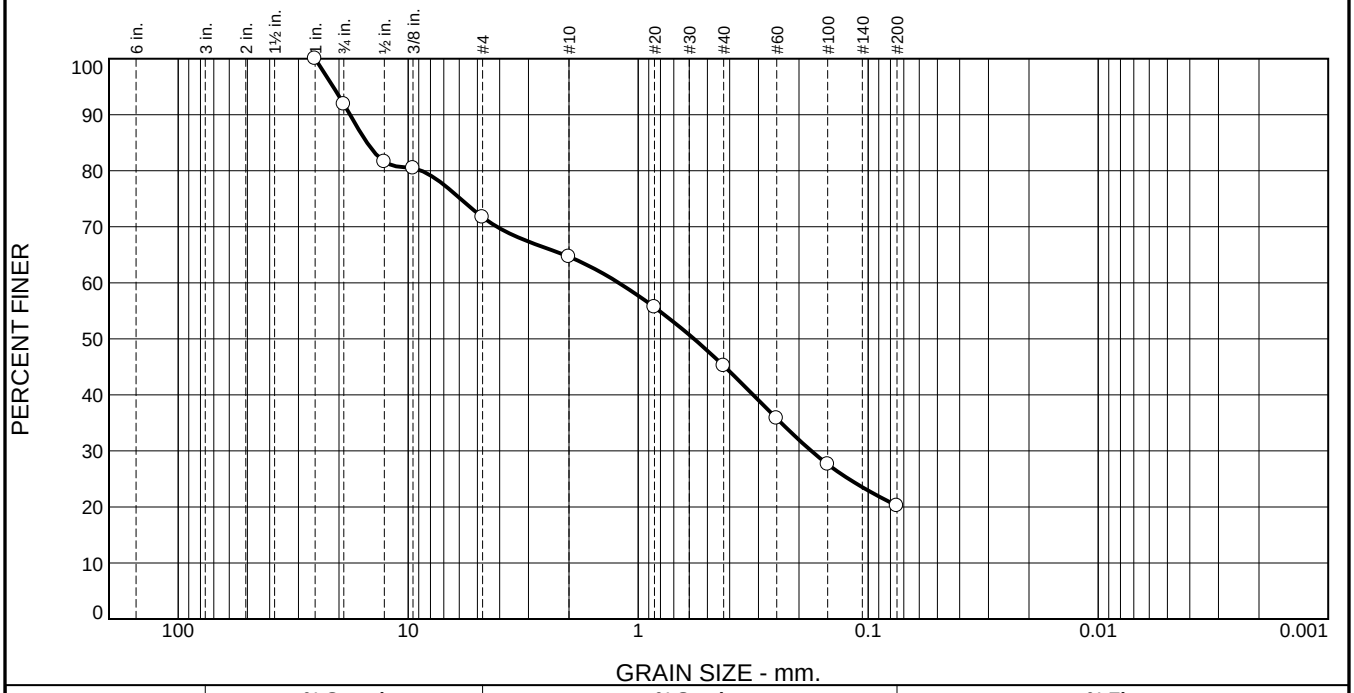
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: White Plains Mall
White Plains, NY

Project No: 12.0076394.00 **Figure** 4

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.1	20.2	7.0	19.5	25.0	20.2	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	91.9		
.5"	81.6		
.375"	80.5		
#4	71.7		
#10	64.7		
#20	55.6		
#40	45.2		
#60	35.8		
#100	27.6		
#200	20.2		

* (no specification provided)

Material Description

Red-brown f-c SAND, some f-c Gravel, some Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 17.9028 D_{85}= 15.0821 D_{60}= 1.2150
D_{50}= 0.5721 D_{30}= 0.1767 D_{15}=
D_{10}= C_u= C_c=

Remarks

trace Brick & Concrete

Date Received: 11/10/15 **Date Tested:** 11/11/15

Tested By: MS/MK

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: Borings **Depth:** 4-6' **Date Sampled:**

Sample Number: B-4: S-3

Thielsch Engineering Inc.

Cranston, RI

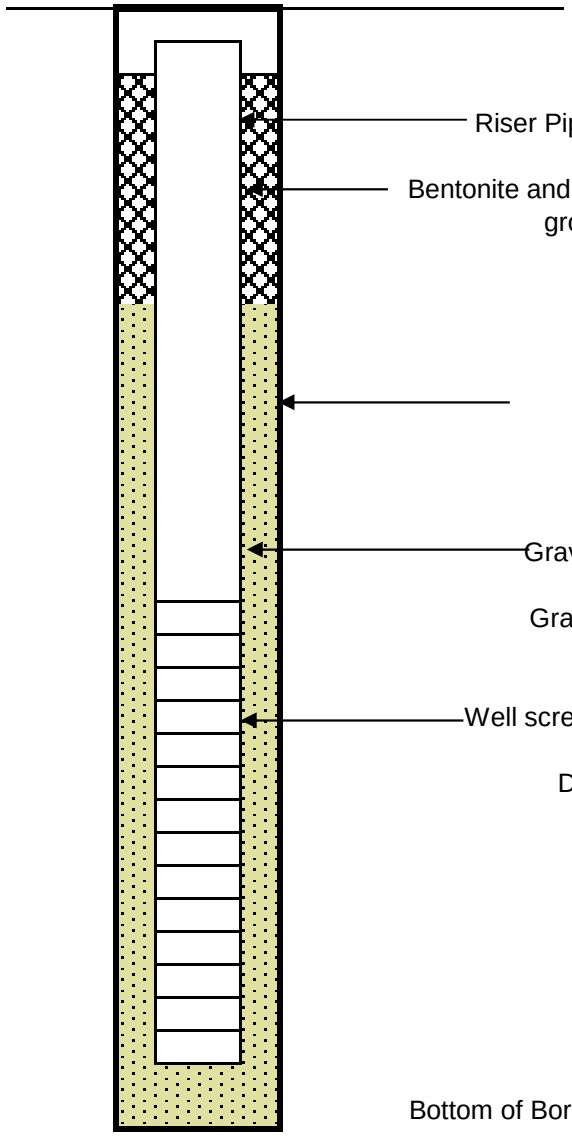
Client: GZA GeoEnvironmental, Inc.

Project: White Plains Mall
White Plains, NY

Project No: 12.0076394.00 **Figure** 5

GZA GEOENVIRONMENTAL OF NEW YORK **Well No.**

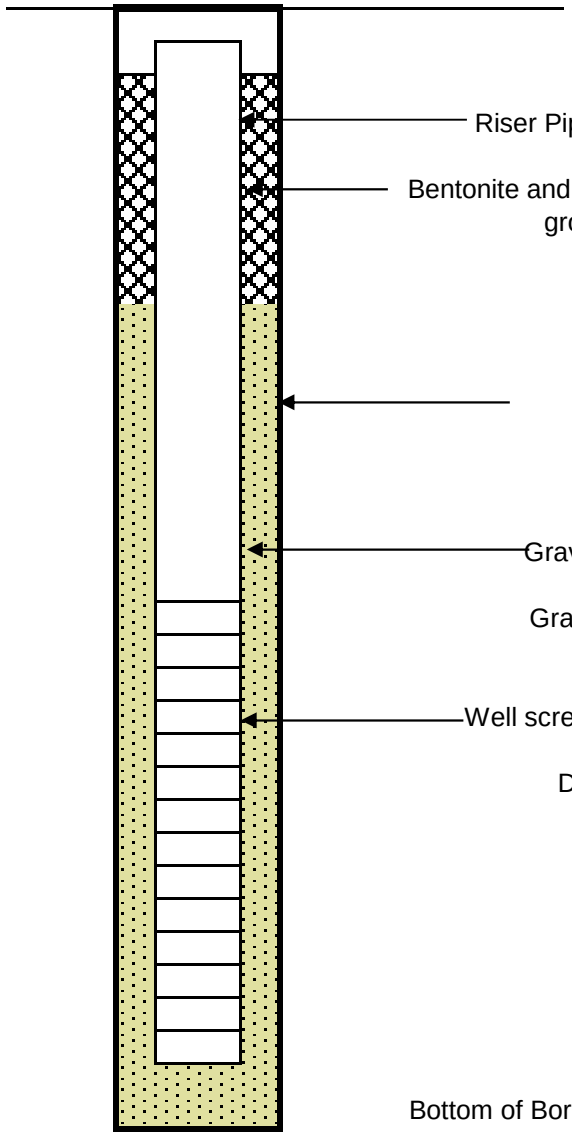
Project: White Plains Mall	Location: B-01	Page 1 of 1		
Project No. 12.0076394.00	Craig Geotechnical Contractor: Drilling	Water Levels		
Surface Elevation: 200.00	Driller: R. Dollar	Date	Time	Depth
Top of PVC Casing Elevation:	GZA Rep: R. Bhatia	10/29/2015 11/14/2015	18:00 0:00	14.2 18.3
Datum:	Date of Completion: 10/28/2015			



(NOT TO SCALE)

GZA GEOENVIRONMENTAL OF NEW YORK **Well No.**

Project: White Plains Mall	Location: B-02	Page 1 of 1		
Project No. 12.0076394.00	Craig Geotechnical Contractor: Drilling	Water Levels		
Surface Elevation: 192.00	Driller: R. Dollar	Date	Time	Depth
Top of PVC Casing Elevation:	GZA Rep: R. Bhatia	10/29/2015 11/4/2015	18:10 0:00	12.95 12.95
Datum:	Date of Completion: 10/28/2015			



Riser Pipe from 0.5 ft. to 10.0 ft.

Bentonite and cement grout from 0.5 ft. to 5.5 ft.

Bentonite Seal from 5.5 ft. to 7.5 ft.

Gravel pack 9.0 ft. to 11.0 ft.

Gravel Size Morie #1

Well screen from 10.0 ft. to 27.0 ft.

Diameter 2 inches

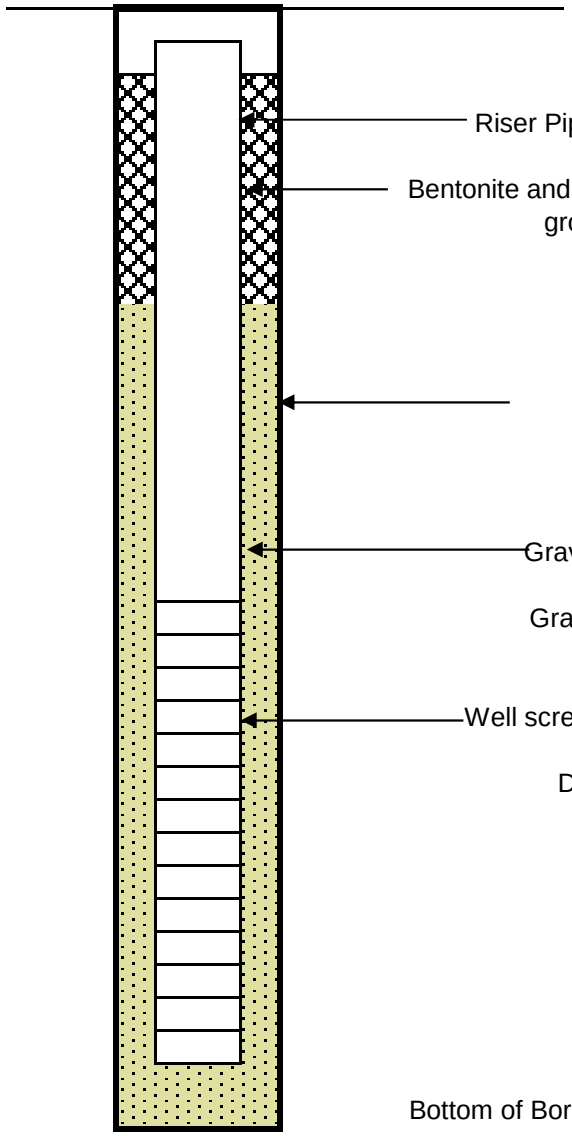
Type PVC

Bottom of Borehole at 27.0 ft.

(NOT TO SCALE)

GZA GEOENVIRONMENTAL OF NEW YORK **Well No.**

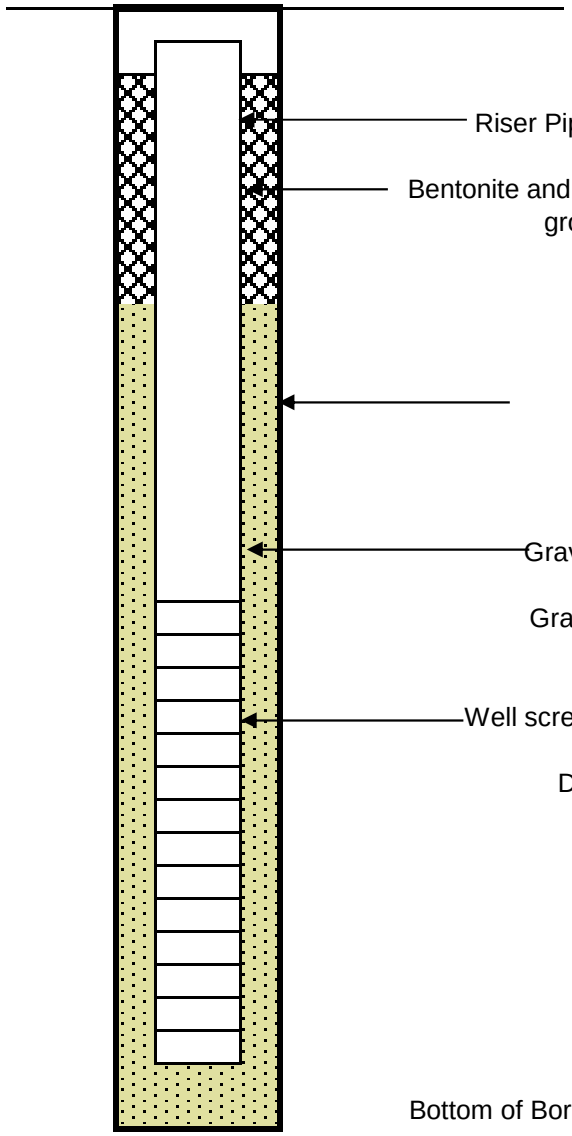
Project: White Plains Mall	Location: B-03	Page 1 of 1		
Project No. 12.0076394.00	Craig Geotechnical Contractor: Drilling	Water Levels		
Surface Elevation: 191.00	Driller: R. Dollar	Date	Time	Depth
Top of PVC Casing Elevation:	GZA Rep: R. Bhatia	10/29/2015 11/4/2015	18:20 0:00	10.1 10.4
Datum:	Date of Completion: 10/27/2015			



(NOT TO SCALE)

GZA GEOENVIRONMENTAL OF NEW YORK **Well No.**

Project: White Plains Mall	Location: B-04	Page 1 of 1		
Project No. 12.0076394.00	Craig Geotechnical Contractor: Drilling	Water Levels		
Surface Elevation: 191.00	Driller: R. Dollar	Date	Time	Depth
Top of PVC Casing Elevation:	GZA Rep: R. Bhatia	10/29/2015 11/4/2015	16:30 0:00	10.2 10.7
Datum:	Date of Completion: 10/27/2015			



Riser Pipe from 0.5 ft. to 10.0 ft.

Bentonite and cement grout from 0.5 ft. to 5.5 ft.

Bentonite Seal from 5.5 ft. to 7.5 ft.

Gravel pack 9.0 ft. to 11.0 ft.

Gravel Size Morie #1

Well screen from 10.0 ft. to 27.0 ft.

Diameter 2 inches

Type PVC

Bottom of Borehole at 27.0 ft.

(NOT TO SCALE)