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GEOTECHNICAL EVALUATION PROPOSED ATHLETIC FACILITY IMPROVEMENTS NORTH ROCKLAND HIGH SCHOOL 106 HAMMOND ROAD HAMLET OF THIELLS, TOWN OF HAVERSTRAW, ROCKLAND COUNTY, NEW YORK



North Rockland Central School District 106 Hammond Road Thiells, New York 10984

Attention: C/O: Mr. Joe Kral Jr., Landscape Architect/Project Manager– The LA Group Via email: (jkral@thelagroup.com)

October 20, 2022

RE: W.O. 11584.01 GEOTECHNICAL EVALUATION NORTH ROCKLAND CENTRAL SCHOOL DISTRICT NORTH ROCKLAND HIGH SCHOOL PROPOSED ATHLETIC FACILITY IMPROVEMENTS 106 HAMMOND ROAD HAMLET OF THIELLS, TOWN OF HAVERSTRAW, ROCKLAND COUNTY, NEW YORK

Dear Mr. Kral:

Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C. is pleased to submit this subsurface investigation and geotechnical engineering evaluation for the proposed new building and site improvements to the athletic facility of the North Rockland High School campus, in the Hamlet of Thiells, New York. The purpose of the investigation was to evaluate the subsurface conditions within the areas of proposed site improvements, and to provide geotechnical recommendations for design and construction of the proposed new structures and improvements. This report presents detailed information about the investigations, our findings and recommendations.

We appreciate this opportunity to assist you with this project. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,
TECTONIC ENGINE CONSULTANCE GEOLOGISTS & LAND SURVEYORS, D.P.C
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1.0 <u>INTRODUCTION</u>

In accordance with your request and authorization, Tectonic Engineering Consultants, Geologists, and Land Surveyors D.P.C. (Tectonic) has completed a subsurface investigation and geotechnical engineering evaluation for the proposed structures and site improvements within the athletic facility at North Rockland High School. The purpose of the investigation was to evaluate the subsurface conditions within the areas of improvements, and to provide geotechnical recommendations for the design and construction of the proposed structures and site improvements detailed information about the investigation, our findings, and recommendations.

2.0 <u>SCOPE OF SERVICES</u>

The geotechnical investigation was performed for North Rockland Central School District (hereafter referred to as the Client), and coordinated through The LA Group, herein referred to as Client Agent. The scope of the geotechnical investigation consisted of the following:

- Review of geological information publicly available through the United States Geological Survey (USGS) and the National Resources Conservation Service (NRCS).
- Drilling, sampling, and logging of test borings and infiltration tests within the areas of the proposed new structures and site improvements. These included:
 - Fifteen (15) structural borings, designated as borings SB-1 through SB-13, SB-7A, and SB-8A, for the proposed new concession building, new bleachers, new athletic field lighting, and new baseball and softball field dugouts.
 - Six (6) pavement borings, designated as borings PB-1 through PB-6, for proposed new asphaltpaved pedestrian walkways and an ADA parking lot.
 - Drilling and performance of twelve (12) infiltration tests, designated as INF-1 through INF-12, for the proposed improvements to the stormwater management of the existing fields.
- Field inspection by a Tectonic representative, working under the supervision of a New York State licensed Professional Engineer, to locate the borings and infiltration tests; and log and classify all soil samples.
- Laboratory testing of soil samples selected to verify the field classifications of the soils, and to evaluate the engineering characteristics of the soil.
- Geotechnical engineering analyses of the subsurface conditions as they relate to the design and construction of the proposed structures, pavement sections, and site improvements.
- Preparation of this report presenting the results of the subsurface investigation, engineering analyses, and our geotechnical recommendations for the design and construction for the geotechnical aspects of the proposed site improvements.



3.0 SITE AND PROJECT DESCRIPTIONS

The project site is located on the campus of North Rockland High School, located at 106 Hammond Road, in the Hamlet of Thiells, Town of Haverstraw, Rockland County, New York. The campus contains an existing three-story high school building within the southwestern portion of the campus, and existing athletic facilities within the northern and eastern portions of campus. There are existing asphalt-paved parking lots adjacent to the north, west, south, and southeast of the existing school building. The improvements are proposed to be constructed within the athletic facility to the east of the school building. The project site is bound by the school building to the west, wooded areas to the north and east, and a line of trees that separates the athletic field from residential structures to the south. As of the writing of this report, the eastern athletic facility contains existing baseball, softball, and soccer fields on the western half of the site, and a multipurpose turf field with a perimeter running track on the eastern half of the site.

Based on a review of a historical topographic survey provided by the USGS, entitled "Ramapo Quadrangle", dated 1891, a branch of Minisceongo Creek previously extended through the center of the high school campus in a north-south alignment. A review of topographic surveys provided by the USGS between 1910 and 1931 indicate that the creek was filled in, and the site was re-graded. Based on a topographic survey provided by the Client Agent, site grades within the existing baseball and softball fields generally slope downwards from east to west, with surface elevations between approximately +277 and +273 feet. Site grades within the existing multipurpose field slope gently from east to west, with surface elevations between approximately +278 and +276 feet. All elevations referenced herein are per the North American Vertical Datum of 1988 (NAVD88).

The proposed project will reportedly be completed in two phases; the first phase will include new stormwater management systems for the existing multipurpose field, a new concession building with a second-floor press box, new pedestrian walkways, and lighting structures to the west of the track, expanded bleachers to the east of the track, a perimeter pedestrian walkway adjacent to the track, and an ADA parking lot to the southwest of the multipurpose field. Based on architectural drawings provided by the Client Agent, the new concession building is not proposed to have a below-grade basement. The second phase will include improvements to the existing baseball and softball fields, which will include new synthetic turf fields, field lighting, dugouts, bullpens, bleachers, and pedestrian walkways to the west of the field.



Based on architectural plans provided by the Client Agent, the new concession building will reportedly be approximately 1,800 square feet (sf) in area and will be constructed adjacent to the existing bleachers to the west of the multipurpose field. Stairs to the press box will be constructed to the south of the concession building. Due to the preliminary nature of the project, structural loading values were not available, but it is anticipated that the building will be relatively lightly loaded. The proposed baseball and softball field dugouts are proposed to be constructed at existing grade. Based on conversations with the Client Agent, significant re-grading of the site to construct the proposed improvements is not expected; however, no finished floor elevations were provided for any of the proposed structures.

4.0 <u>SUBSURFACE INVESTIGATION</u>

The subsurface investigation consisted of the drilling, sampling, and logging of twenty-one (21) total borings within the eastern athletic facility, designated as borings SB-1 through SB-13, SB-7A, and SB-8A (structural borings), PB-1 through PB-6 (pavement borings); and the drilling and performance of twelve (12) infiltration tests, designated as INF-1 through INF-12. Borings SB-7A and SB-8A were offset from borings SB-7 and SB-8 respectively, due to relatively shallow obstructions encountered during sampling. The test locations were generally performed at the Client Agent requested locations. The boring and infiltration test locations are shown on the attached Boring and Infiltration Test Location Plan, Figure 1.

The borings were drilled by Core Down Drilling, LLC., between August 9 and September 15, 2022, using trackmounted CME 55LC and Geoprobe 7822DT drill rigs, equipped with automatic hammers. The borings were advanced using 3-¼-inch inside-diameter hollow-stem augers. Within the structural borings, Standard Penetration Testing (SPT) was conducted with a split-spoon sampler continuously to depths of up to 12 feet, and then 5-foot maximum intervals thereafter. Within the pavement borings, SPT sampling was performed continuously to a depth of 6 feet. SPT sampling was performed in general accordance with the requirements of ASTM Standard D1586 *Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils*". SPT Nvalues were recorded for each soil sample taken. Samples of the soil obtained during the investigation were retained in glass jars, and are currently stored at our material testing laboratory. The boreholes were backfilled with grout to match the existing conditions.

The infiltration tests were performed within 4-inch diameter holes drilled within the existing athletic fields. Infiltration tests INF-1 through INF-5 were advanced within the existing turf multipurpose field; INF-6 was advanced to the south of the multipurpose field; INF-7 and INF-8 were advanced within the existing softball field,



in the northwest corner of the athletic facility; INF-9 through INF-12 were advanced within the existing baseball field, in the southwest corner of the athletic facility. The locations of the infiltration tests are also shown on Figure 1. The infiltration test holes were drilled to depths of approximately 60 inches. Each infiltration test was performed in accordance with the requirements dictated by New York State, including a pre-soak and measurement over four (4) one-hour intervals. Upon completion, the infiltration test holes were backfilled with drill cuttings.

A geotechnical engineer observed the subsurface investigation and prepared logs of the subsurface conditions, under the purview of a Professional Engineer licensed in New York State. All materials encountered were classified in accordance with the Unified Soil Classification System (ASTM D2488), and the Modified Burmister Soil Classification System. Copies of the boring and infiltration test logs are included in Appendix I.

5.0 LABORATORY TESTING

Laboratory testing was performed on soil samples selected to assist in evaluating the engineering properties of the encountered soils and to help in field identifications of the soils. Testing included the performance of twelve (12) grain-size distribution tests, performed in general accordance with ASTM Standard D6913, and one (1) Atterberg limits determination, performed in general accordance with D4318. The results of the laboratory testing are included in Appendix II.

6.0 OVERALL SUBSURFACE CONDITIONS

A review of USGS and New York State geologic maps and surveys indicates that the site is generally underlain by fine sandy loam, and upper layers of fill in the western portion of the existing baseball field and has been previously re-graded. Based on the results of the subsurface investigation, the site is generally underlain by an upper layer of fill and native till soils. The fill soils are likely a mixture of re-worked native soils and imported fill to construct the athletic facility. The following sections provide generalized descriptions of the soils and groundwater conditions encountered in the borings. Detailed descriptions of the subsurface conditions are provided in the boring and infiltration test logs included in Appendix I.

As noted above, an automatic hammer was used in the SPT sampling of the borings. Given that an automatic hammer imparts more energy into the split spoon sampler than a safety hammer (N_{60}) – the standard hammer used for most geotechnical engineering calculations – an energy correction factor of 1.3 is applied to the field N-values to obtain the N_{60} -values.



6.1 Proposed Concession and Press Box Building

Borings SB-1 and SB-2 were advanced within the footprint of the concession and press box building, to the west of the multipurpose field and adjacent to the existing bleachers. Underlying a thin layer of gravel, a layer of fill soils was encountered to a depth of approximately 6 feet below existing ground (bgs). The fill soils generally consisted of brown-gray coarse-to-fine sand and gravel, with varying amounts of fines. Field SPT N-values within the fill ranged from 8 to 35 blows per foot (bpf). When corrected, SPT N₆₀-values ranged from approximately 10 to 46 bpf, corresponding to a medium dense to dense condition. Laboratory results of a soil sample tested indicates that the fill soils within the footprint of the concession and press box building are comprised of between approximately 20 and 46 percent coarse-to-fine gravel, 20 to 42 percent coarse-to-fine sand, and 11 to 20 percent passing the #200 sieve. The fill soils have USGS designations of SM, GW-GM, and GM.

Underlying the fill soils in both borings, native soils were encountered to the termination depths explored. The native soils generally consisted of variable-colored coarse-to-fine sand, with varying amounts of coarse-to-fine gravel and fines. Exceptions occurred in pockets where silt (boring SB-1 from approximately 35 to 42 feet bgs) and gravel (boring SB-2 from approximately 15 to 20 feet bgs) were encountered as the primary material component. Field SPT N-values within the native soils ranged from 1 to 35 bpf. When corrected, SPT N₆₀-values ranged from approximately 1 to 45 bpf, corresponding to a very loose to dense condition. Based on the SPT N₆₀-values, loose layers of native soils were encountered between 15 and 30 feet within boring SB-1, and between 15 and 20 feet within boring SB-2. The native soils within the footprint of the concession and press box building are comprised of between approximately 0 and 61 percent coarse-to-fine gravel, 20 to 45 percent coarse-to-fine sand, and 10 to 45 percent passing the #200 sieve. The native soils have USCS designations of SM, GM, and ML.

As indicated on the boring logs, saturated soil conditions were observed within the native soils in the footprint of the concession and press box building at a depth of approximately 15 feet in borings SB-1 and SB-2. It should also be noted that groundwater levels fluctuate seasonally and with changing weather conditions and may be encountered in a perched condition overlying the finer-grained soils.



6.2 Proposed Multipurpose Field Improvements

Borings SB-3 through SB-8, SB-7A and SB-8A were advanced in the vicinity of the existing multipurpose field for the proposed new field lighting structures, and new visitors bleacher stands to the east of the multipurpose field. Borings SB-3 and SB-4 were advanced to the west of the multipurpose field and borings SB-5 through SB-8, SB-7A and SB-8A were advanced to the east of the multipurpose field. Boring SB-7 was terminated at auger refusal at a depth of 4 feet bgs. Boring SB-7A was then offset approximately 3 feet north of boring SB-7. Boring SB-8 was terminated at auger refusal at a depth of 8 feet bgs. Boring SB-8A was then offset approximately 7 feet north of SB-8. Borings SB-7 and SB-8 were encountered to approximate depths between 2 and 6 feet bgs. The fill soils generally consisted of variable-colored coarse-to-fine sand and gravel, with varying amounts of fines. Field SPT N-values within the fill soils ranged from 6 bpf to sampler refusal, which is defined as less than 6 inches of sampler penetration for 50 blows of the hammer. When corrected, SPT N₆₀-values ranged from approximately 8 bpf to sampler refusal, indicating a loose to very dense condition. The fill soils have USCS classifications of SM and GM.

Underlying the fill, native soils were encountered to the termination depths of the borings. It should be noted that borings SB-6, SB-7A, and SB-8A were terminated at auger refusal at depths between approximately 16 and 20.3 feet bgs. The native soils generally consisted of variable-colored coarse-to-fine sand and gravel, with varying amounts of fines. Layers of silt were encountered between 30 and 32 feet bgs within boring SB-3 and between 10 and 20 feet bgs within boring SB-6. Field SPT N-values within the native soils ranged from 3 bpf to sampler refusal. When corrected, SPT N₆₀-values ranged from approximately 4 bpf to sampler refusal, indicating a very loose to very dense condition. The native soils within the footprint of the proposed lighting structures were generally observed in a medium dense to dense condition; the only loose layers were observed between 30 and 32 feet bgs within boring SB-3, and between 0 and 2 feet bgs within boring SB-6. Laboratory results of soil samples tested indicate that the native soils within the footprints of the proposed lighting structures are comprised of approximately 15 to 55 percent coarse-to-fine gravel, 33 to 49 percent coarse-to-fine sand, and 5 to 36 percent passing the #200 sieve. The native soils have USCS designations of SM, GP-GM, GM, and ML.



Infiltration tests INF-1 through INF-5 were advanced within the existing multipurpose turf field, and infiltration test INF-6 was advanced to the southeast of the multipurpose field for the proposed stormwater management system. SPT sampling was not performed within the infiltration test holes. The results of the infiltration tests are provided on the attached Infiltration Test logs, Appendix I.

As indicated on the boring logs, saturated soil conditions were observed within the native soils in the vicinity of the multipurpose field at a depth of approximately 15 feet within borings SB-3 and SB-4.

6.3 Proposed Baseball/Softball Field Improvements

Borings SB-9 through SB-13 were advanced within the existing baseball and softball fields on the western portion of the athletic facility for the proposed new field lighting, dugouts, and associated baseball field improvements. Underlying a thin veneer of topsoil-like material, the subsurface conditions generally consisted of fill soils, underlain by native sand, silt, and gravel soils.

Fill soils were encountered in all borings to approximate depths between 4 and 6 feet bgs. The fill soils generally consisted of brown coarse-to-fine sand and gravel, with varying amounts of fines. Field SPT N-values within the fill soils ranged from 12 to 58 bpf. When corrected, SPT N_{60} -values ranged from approximately 16 to 75 bpf, indicating a medium dense to very dense condition. The fill soils encountered within the existing baseball and softball fields are comprised of approximately 10 to 50 percent coarse-to-fine gravel, 20 to 50 percent coarse-to-fine sand, and 10 to 35 percent passing the #200 sieve. The fill soils have USCS classifications of SM and GM.

Underlying the fill soils, native soils were encountered to the termination depths of the borings. The native soils generally consisted of variable-colored coarse-to-fine sand and gravel, with varying amounts of fines. A layer of silt with approximately 40 percent fine sand and 14 percent coarse gravel was observed between approximately 4 and 6 feet within boring SB-10. Field SPT N-values within the native soils ranged from 2 bpf to sampler refusal. When corrected, SPT N₆₀-values ranged from approximately 3 bpf to sampler refusal. When corrected, SPT N₆₀-values ranged from approximately 3 bpf to sampler refusal, indicating a very loose to very dense condition. Loose layers of native soils were observed between 10 to 15 feet, and 20 to 32 feet bgs within boring SB-9, between 4 and 8 feet, and 15 to 20 feet bgs within boring SB-10, and between 6 and 32 feet bgs within boring SB-11. Laboratory results of soil samples tested indicate that the native soils are comprised of approximately



14 to 39 percent coarse-to-fine gravel, 39 to 51 percent coarse-to-fine sand, and 7 to 47 percent passing the #200 sieve. The native soils have USCS classifications of SW-SM, SM, ML, and GM.

Infiltration tests INF-7 through INF-12 were advanced within the existing baseball and softball fields, for the proposed future stormwater management system. SPT sampling was not performed within the infiltration test holes.

As indicated on the boring logs, saturated soil conditions were encountered within borings SB-9 through SB-13 at varying depths. Groundwater was observed at a depth of 8 feet bgs within borings SB-9 and SB-10, and between 10 and 15 feet bgs within borings SB-11 through SB-13.

6.4 Pavement Borings

Borings PB-1 through PB-6 were advanced around the perimeter of the existing baseball field for the proposed pedestrian asphalt paths, and the proposed ADA parking lot to be constructed to the southeast of the baseball field. In general, the subsurface conditions consisted of pockets of fill soils, and native soils to the termination depths of the borings of up to 6 feet bgs.

Underlying a thin veneer of topsoil-like material, gravel, or the running track surface and asphalt, fill soils were observed to depths up to 6 feet bgs within borings PB-1 through PB-5. The fill soils generally consisted of variable-colored coarse-to-fine gravel, with varying amounts of coarse-to-fine sand and fines. Field SPT N-values within the fill soils ranged from 13 to 56 bpf. When corrected, SPT N₆₀-values ranged from approximately 17 to 73 bpf, indicating a medium dense to very dense condition. Laboratory results of soil samples tested indicate that the fill soils are comprised of approximately 21 to 49 percent coarse-to-fine gravel, 37 to 65 percent coarse-to-fine sand, and 12 to 14 percent passing the #200 sieve. The native soils have USCS classifications of GM.

Native soils were encountered below the fill soils within borings PB-2, PB-4, and PB-5, and below a thin veneer of topsoil-like material within boring PB-6. The native soils generally consisted of variable-colored coarse-to-fine sand and gravel, with varying amounts of fines. SPT N-values within the native soils ranged from 20 to 28 bpf. When corrected, SPT N₆₀-values ranged from 26 to 36 bpf, indicating a medium dense to dense condition. The native soils have USCS classifications of SM and GM.



As indicated on the boring logs, saturated soil conditions were not encountered within any of the pavement borings. It should also be noted that groundwater levels fluctuate seasonally and with changing weather conditions.

7.0 INFILTRATION TESTS

Twelve (12) infiltration tests, designated as INF-1 through INF-12 were performed throughout the project site. In general, these tests found that the infiltration rates vary significantly throughout the site. The site soils within infiltration tests INF-1, INF-2, advanced within the northern portion of the multipurpose field, and INF-6, advanced within the landscape area to the southeast of the multipurpose field, had a relatively low infiltration rate, with measured rates between approximately 2 to 2.6 inches per hour (iph). The infiltration rates within the center and southern portion of the multipurpose field, and within the baseball and softball fields had relatively high infiltration rates, with measured rates ranging from approximately 13 to 24 iph. The stable infiltration rates are presented in the infiltration test logs, attached to Appendix I.

8.0 SEISMIC SITE COEFFICIENTS AND LIQUEFACTION POTENTIAL

Based on the results of the subsurface investigation and the criteria outlined in the current edition of the New York State Building Code (Code), the subsurface conditions underlying the site should be considered Class D, with maximum spectral response accelerations at short periods (S_{MS}) equal to 0.452g and at 1-second periods (S_{M1}) equal to 0.146g. Based on the procedures outlined in the Code, the corresponding five-percent damped design spectral response acceleration at short periods, S_{DS} , is equal to 0.301g, and at 1-second, S_{D1} , is equal to 0.098g. It should be noted that the values given above are the same, whether the structures to be built are essential or non-essential facilities.

Liquefaction of soils can be caused by strong vibratory motion due to earthquakes. Both research and historical data indicate that loose, granular soils saturated by a shallow groundwater table are most susceptible to liquefaction. Liquefaction occurs when an earthquake and associated ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid increase in pore-water pressure, causing the soil to behave as a fluid for short periods.



An analysis was performed to evaluate the liquefaction potential at the site, in accordance with the Code, using a procedure recommended by Youd et. al. (2001). This method estimates the stresses likely to be induced by an earthquake and the stresses likely to initiate liquefaction using the SPT N-values, the effective overburden pressure, and the peak horizontal ground acceleration caused by the design seismic event. The factors of safety against liquefaction were computed by the ratio of cyclic shear strength of the soil to the cyclic shear stress induced by the seismic event. Using a design earthquake magnitude of 5.47 and the peak horizontal ground acceleration of 0.176g, specified by the Code and reported by the USGS, the liquefaction analysis indicates that the subsurface soils have a factor of safety against liquefaction greater than the generally accepted minimum of 1.1. Subsequently, the soils underlying the site are unlikely to liquefy during the design earthquake.

9.0 DISCUSSION AND CONCLUSIONS

The proposed project consists of various site improvements throughout the athletic facility, including the installation of new stormwater management systems within the multipurpose, baseball, and softball fields, a new concession building with a second-floor press box, new bleachers, pedestrian walking paths, field lighting, and an ADA parking lot. Construction of the various site improvements are feasible from a geotechnical standpoint. The results of the subsurface investigation indicate that the site is generally underlain by fill soils, and native till, consisting of sand and gravel, with varying amounts of fines. The fill soils were generally observed in a medium dense to dense condition, and the native soils were generally in a medium dense condition, with isolated pockets of relatively deep loose native soils.

The proposed 1,800 sf concession building with a second-floor press box is proposed to be constructed to the west of the multipurpose field, adjacent to the existing bleachers. As of the writing of this report, structural loading values were not available, but based on the anticipated construction and use of the building, it is anticipated that the structure will impart relatively light loads. Borings SB-1 and SB-2 were advanced within the footprint of the proposed building. Within the borings, medium dense native soils were observed between 0 and 15 feet bgs. Loose native soils were observed between 15 and 30 feet bgs within boring SB-1, and between 15 and 20 feet bgs within boring SB-2. Due to the anticipated light loads of the building, our analysis indicates that the influence of the foundation loads will be minimal at the depth of the loose layers of soil. Therefore, the proposed building can be supported by traditional, shallow foundations. Significant re-grading in the footprint of the building is not anticipated; therefore, the proposed building is assumed to have an FFE of approximately +279 feet.



New field lighting structures are proposed to be constructed adjacent to the multipurpose, baseball, and softball fields. The subsurface conditions in the vicinity of the multipurpose field generally consists of medium dense to dense native sand and gravel soils. It should be noted that loose native soils were observed between 6 and 32 feet bgs within boring SB-11, advanced within the center of the softball field. Specifications regarding the field lighting structures were not available as of the writing of this report; however, based on our experience on similar projects, the preferred foundation for light poles are drilled shaft foundations, which can be designed to resist the large overturning moments typical of these structures.

New visitor bleachers are proposed to be constructed to the east of the multipurpose field. Borings SB-6, SB-7, and SB-7A were advanced within the vicinity of the proposed bleachers. The subsurface conditions generally consisted of loose to very dense native soils. A loose layer of native soil was observed between 0 and 2 feet bgs within boring SB-6. The bleachers are expected to be supported by shallow foundations, so it is anticipated that the loose upper layer will be excavated as part of the construction.

New dugouts are proposed to be constructed for the existing softball field, located in the northwest corner of the athletic facility. Based on the provided survey, there are existing dugouts for the baseball field, in the southwest corner of the facility that are constructed at grade. It is anticipated that the new dugouts will be constructed in the style of the baseball field dugouts. Based on documents provided by the Client Agent, the dugouts are proposed on slabs-on-grade. Based on the subsurface conditions observed, the dugout slabs can be supported either on the inplace fill soils, or on properly compacted structural fill. The footprints of the dugout slabs should be properly prepared and compacted per Section 11 prior to the placement of concrete to minimize potential settlement. Seasonal deformation of slabs bearing above the frost depth can be reduced by undercutting the frost susceptible soil subgrades and replacing them with gravel or other non-frost susceptible soils, as described in Section 11.

It is Tectonic's understanding that a new ADA parking lot will be constructed to the southwest of the multipurpose field, and pedestrian walkway will be constructed around the perimeter of the athletic facility. Based on documents provided by the Client Agent, the ADA parking lot is proposed to be constructed with flexible pavement for mediumduty traffic, for wheel loads up to 9,000 pounds. The pedestrian walkways are anticipated to be constructed for lightduty loading. The proposed new asphalt paving sections should be designed as discussed in Section 10.7. Due to the relatively high fines content of the native soils, frost heave susceptibility should be considered regarding longevity of the pavement.



Groundwater was observed at varying depths throughout the site. Within the footprint of the proposed concession building, groundwater was encountered at approximately 15 feet bgs; groundwater was observed between 8 and 10 feet bgs within the existing baseball and softball fields; groundwater was not encountered in the footprint of the proposed visitor bleachers, or within the footprints of the ADA parking lot and pedestrian walkways. It is not expected that groundwater will affect construction of the proposed concession building, bleachers, or dugouts, but perched groundwater will likely be encountered during construction throughout the sites. Depending on the final configuration of the proposed lighting structure foundations, groundwater may be encountered during construction of the drilled shaft foundations.

Due to relatively high fines content of the on-site soils, they should be considered to be sensitive to disturbance during excavation and/or compaction, when exposed to water. Therefore, it is critical that care be taken during construction of foundations and pavement subgrade preparation to prevent undue wetting of the soils. Due to the density and generally high fines content of the native till, it is expected to have relatively low permeability, and to be difficult to dewater. It should be noted that groundwater was observed throughout the site between 8 and 15 feet bgs, and may be encountered during the construction phase in a perched condition overlying the finer-grained soils. Grading of pavement subgrades to shed water and to prevent ponding will also be critical to prevent disturbance of the existing soils. Both of these conditions may require subgrade remediation during the construction of new structures and pavement sections, if adequate protection cannot be maintained. Subgrade disturbance can be minimized by using proper subgrade preparation techniques, as described in Section 11 of this report.

The following are other general conclusions that can be made regarding the proposed construction:

- Excavation should be feasible with conventional construction equipment; however, it should be noted that cobbles and boulders may be encountered during excavation.
- Due to their relatively high fines content, the soils found on-site are typically not suitable for use as structural fill. The existing fill and native soils should not be used as backfill behind foundation walls, because their high fines content will impede the proper drainage of the backfill. If used for general fill, these soils are moisture sensitive, and should be at or below optimum moisture content when placed and compacted, to achieve the specific degree of compaction and to provide a stable pavement subgrade. Construction delays should be expected, if the on-site soils are used.
- The results of our liquefaction analysis indicate that the soils underlying the site are unlikely to liquefy.



10.0 <u>RECOMMENDATIONS</u>

The following sections provide our geotechnical recommendations for design and construction of the proposed concession building, field lighting, bleachers, and asphalt paving. The recommendations are based on our understanding of the proposed construction, as described in Section 3, the results of our subsurface investigation and our experience in the general vicinity of the project site.

10.1 Concession and Press Box Building Foundations

The proposed concession and press box building can be supported on conventional shallow spread footings or continuous wall footings that bear on the medium dense to dense native soils. It should be noted that loose layers of native soil were observed between 15 and 32 feet within boring SB-1, and between 20 and 25 feet bgs within boring SB-2. If encountered during excavation, it is recommended that any soft and unsuitable soils encountered within the zone of influence of the building foundations are undercut, and replaced with properly compacted, structural fill.

Due to the dense nature of the soils at the anticipated bearing elevation, and the expected light loads for the building, our analysis indicates that the influence of the foundation loads will largely dissipate before reaching the depths of the loose layers. If any loose or unsuitable soils are encountered within the footprint of the concession building foundations, they should be removed from the zone of influence of the foundations, and replaced with compacted, structural fill. Spread and continuous wall footings for the new buildings and building additions bearing on medium dense native soils or compacted structural fill can be designed for a maximum net allowable soil bearing pressure of 2,000 pounds per square foot (psf). Section 11 of this report provides the subgrade preparation procedures necessary to achieve the recommended bearing capacity.

Using the above design criteria, total settlement of the proposed building is estimated to be up to 1 inch and differential settlements are estimated to be less than 0.5 inch. The differential settlement is estimated between columns and over a distance of about 30 feet along continuous footings. Continuous wall footings should have a minimum width of 2 feet and isolated spread footing should have a minimum width of 3.5 feet. All footings should bear at least 4 feet below the outside grade, for frost protection.



10.2 Concession and Press Box Slab-On-Grade Floors

Slab-on-grade floors should be supported on a minimum 6-inch-thick layer of free draining ½ to ¾ inch crushed stone placed over the existing in-place soils, or structural fill subgrades. If encountered, any loose fill that is encountered below the slab-on-grades should be removed and replaced with compacted structural fill prior to placement of crushed stone. All moisture-sensitive floor slabs should be constructed above a vapor barrier, consisting of a polyethylene membrane with a minimum thickness of twenty (20) mils. A coefficient of friction of 0.3 should be used between the slab and the vapor barrier. If concrete is cast directly against competent native soils, structural fill or existing fill, a coefficient of friction of 0.4 can be used.

A subgrade modulus of 150 pounds per cubic inch (pci) is recommended for design of slab-on-grade floors bearing on 6 inches of crushed stone base placed above the existing fill. The design should be in accordance with the latest edition of the American Concrete Institute (ACI 360). The subgrade modulus is suitable for estimating distributions of bearing pressure beneath the slab and for estimating bending moments and shears within the slab. It is not intended for calculating total or differential settlements.

10.3 Dugout Slabs

The dugout can be supported by a slab-on-grade assuming frost heave can be tolerated. Slabs for the proposed dugouts should be supported on a minimum 6-inch-thick layer of free draining ½ to ¾ inch crushed stone placed over the existing in-place soil, or structural fill subgrades. If encountered, any loose fill that is encountered below the slab-on-grades should be removed and replaced with compacted structural fill prior to placement of crushed stone. If concrete is cast directly against competent native soils, structural fill or existing fill, a coefficient of friction of 0.4 can be used. A subgrade modulus of 150 pounds per cubic inch (pci) is recommended for design of slab-on-grade floors bearing on 6 inches of crushed stone base placed above the existing fill. The design should be in accordance with the latest edition of the American Concrete Institute (ACI 360). The subgrade modulus is suitable for estimating distributions of bearing pressure beneath the slab and for estimating bending moments and shears within the slab. It is not intended for calculating total or differential settlements.



10.4 Design for Lateral Loading of Walls

Any foundation walls and temporary shoring should be designed in accordance with the following criteria:

Table 10.4.1 – Lateral Load Parameters												
Soil Parameter	On-Site Soil	Structural Fill										
Angle of Internal Friction	32°	34°										
Active Earth Pressure Coefficient $(K_a)^1$	0.31	0.28										
Passive Earth Pressure Coefficient $(K_{\mbox{\tiny p}})^2$	3.25	3.54										
At-Rest Earth Pressure Coefficient $(K_0)^3$	0.47	0.44										
Unit Weight of Soil (pounds per cubic foot)	115	125										
Coefficient of Base Friction	0.4	0.4										

1) Use for freestanding walls, such as retaining walls, where movement of up to 0.0015 X height of wall is both possible and tolerable. Otherwise, use at-rest coefficient.

- 2) Reduce passive pressure by half above a depth of 4 feet below exterior grade to account for disturbance caused by frost action.
- 3) Use for walls restrained against outward lateral movement, such as foundation walls.

Additional loading due to temporary and permanent surcharges should be added to the lateral loading exerted by the retained soil. Loads due to supported structures should be applied in appropriate combinations with the lateral loads. Walls should be backfilled in accordance with Section 11.3 of this report. Placement and compaction of backfill should be observed and tested by a geotechnical engineer to monitor that proper compaction is being achieved.

10.5 Athletic Field Lighting Foundations

The proposed athletic field lighting structures can be supported on drilled shafts. Design for axial compressive loading can incorporate both end bearing and side resistance, while design for uplift load should only incorporate the side resistance and the pile weight. Drilled shaft foundations should bear at a minimum depth of 8 feet below proposed grade, or 3 times the shaft diameter, whichever is greater. The diameter and embedment depth of the proposed shafts are not known to Tectonic as of the writing of this report. Design parameters for drilled shaft foundations to be constructed adjacent to the multipurpose field to resist axial loading are provided in Table 10.5.1. Design parameters for drilled shaft foundations constructed



adjacent to the baseball/softball fields to resist axial loading are provided in Table 10.5.2. A design groundwater depth of 12 feet bgs should be used for the lighting structures constructed adjacent to the multipurpose field, and a design groundwater depth of 8 feet bgs should be used for lighting structures constructed adjacent to the baseball and softball fields.

Table 10.5.1 – Drilled Pier Design Parameters for Axial Loading (Multipurpose Field Lighting)											
Dopth Interval bolow	Drilled Pier Parameters										
Existing Grade (feet)	Allowable Skin Friction (psf)	Allowable End Bearing Pressure (ksf)									
0-4	0 – 80	N/A									
4 – 8	175 – 320	N/A									
8 – 15	320 - 525	6									
15 – 32	525 - 630	6									

Table 10.5.2 – Drilled Pier Design Parameters for Axial Loading (Baseball/Softball Field Lighting)											
Depth Interval below	Drilled Pier	^r Parameters									
Existing Grade (feet)	Allowable Skin Friction (psf)	Allowable End Bearing Pressure (ksf)									
0-4	0 – 80	N/A									
4 – 8	165 — 300	N/A									
8 – 15	300 - 375	4									
15 – 32	375 – 500	6									

Notes:

- 1. Skin friction varies linearly with depth and can be interpolated for piles terminated within a given depth interval.
- 2. Allowable side resistance has been reduced by half in the upper 4 feet to account for frost.
- 3. Allowable resistance based on a factor of safety of 2.
- 4. The range given for allowable end bearing pressure corresponds to the top and bottom of the depth interval, and values for intermediate depths can be linearly interpolated.
- 5. The pile weight should be included in the uplift capacity.

It is anticipated that the primary lateral loading on the lighting structures will be from wind loads. The soil parameters presented in Table 10.5.3 below are provided for design to resist lateral movement and for analyzing lateral deflection and lateral stability of shafts constructed adjacent to the multipurpose field. The parameters presented in Table 10.5.4 are provided for design of shafts constructed adjacent



to the baseball and softball fields. Lateral deflection at the top of the shaft should be checked using a computer program such as LPILE.

Table 10.5.3 – Lateral Load Design Parameters (Multipurpose Field Lighting)													
Soil Type	Depth Propose (n Below ed Ground (ft)	Ϋ́	С	φ'	K static	Kp	e ₅₀					
	From	То	(pcf)	(psf)	(deg)	(pci)		(in/in)					
Upper Medium Dense to Dense Soils	0	10	115	0	34	90	1.77/ 3.54 ⁽¹⁾	NA					
Medium Dense Native Sand Soils	10	32	115/47.6 (2)	0	32	90/60 (2)	3.54	NA					

Table 10.5.4 – Lateral Load Design Parameters (Baseball/Softball Field Lighting)													
Soil Type	Depth Propose	1 Below ed Ground (ft)	γ	С	φ'	K static	Kp	e ₅₀					
	From	То	(pcf)	(psf)	(deg)	(pci)		(in/in)					
Upper Medium Dense to Dense Soils	0	8	115	0	34	90	1.77/ 3.54 ⁽¹⁾	NA					
Loose to Medium Dense Native Soils	8	25	42.6	0	30	20	3.00	NA					
Medium Dense to Dense Native Soils	25	32	52.6	0	34	60	3.54	NA					

Where

 $\gamma' = Effective unit weight$

c = Cohesion

 ϕ' = Effective friction angle

Kstatic = LPILE soil modulus parameter

 K_p = Passive earth pressure coefficient

- \mathbf{e}_{50} = Strain at 50 percent
- NA = Not Applicable

Note:

- 1. The static passive resistances (Kp) within the top 4 feet of the piles have been cut by half to accommodate weakening from frost action.
- 2. The upper value is for soils above the water table and the lower value is for soils below the water table, which is assumed to be at a depth of 15 feet in the area of the multipurpose fields.



10.6 Groundwater and Foundation Drainage

Based on the results of our subsurface investigation, it is not anticipated that groundwater will affect the construction of the foundations of the concession building foundations, pavement sections, and bleachers, but may for the lighting structures. In addition, perched groundwater may be encountered during the construction phase. Rainwater and surface water may become trapped in excavations. If necessary, dewatering can be performed with sump pumps and should be performed to allow work to be performed in the dry. Any dewatering should prevent loosening or migration of the subgrade soils. The dewatering system, if necessary, should be designed by a New York State licensed Professional Engineer.

Grading of the surface of the backfill and the surrounding topography and pavements should provide positive drainage away from the walls. Roof drains should be positively drained to areas away from the building.

10.7 Bleacher Foundations

Bleachers are proposed to be constructed to the east of the existing multipurpose field. The upper soils within the athletic field generally consist of medium dense to dense sand and gravel soils. If encountered, loose soils in the zone of influence of the bleacher foundations should be removed, and replaced with compacted, granular fill. The proposed bleachers may be supported on shallow foundations that bear on the existing in-place soils at a minimum depth of 4 feet for protection from frost. Bleacher foundations can be designed for a maximum net allowable soil bearing pressure of 2,000 psf. Total settlements of up to 1/2 inch and differential settlements of up to 1/4 inch can be expected. Section 11 of this report provides the subgrade preparation procedures necessary to achieve the recommended bearing capacity.

10.8 Pavements

It is our understanding that the proposed site improvements include the construction of new asphalt paving sections for the proposed ADA parking lot, and pedestrian walkways. It is our understanding that no significant re-grading of the site will be performed to construct the pavement sections. Subgrade preparation and proofrolling should be performed in accordance with the recommendations provided in Section 11 of this report. For this report, the pavement design parameters were estimated by Tectonic, for medium duty traffic. The standard duty section was based upon a daily traffic of 200 vehicles, with 25 percent heavy trucks. An assumed twenty (20) year design life was used for each pavement section.



Light duty pavement sections may be used for the pedestrian walking paths, where vehicle traffic is not anticipated.

A design California Bearing Ratio (CBR) value of 5 was selected for the design of the asphalt pavement section. This CBR was selected based on the soils encountered on the site, and the compacted native soils that will support the pavement.

Based on the generally high fines content of the subgrade soils, and the high susceptibility of these soils to frost heave, the subgrade should be undercut by 1 foot, and a separation fabric (Mirafi® 180N or similar) should be placed between the in-place soils and a 1-foot layer of non-expansive granular structural fill for frost heave protection. We recommend that the pavement section consist of the following:

Table 10.8.1 - Asphalt Pavements										
Pavement Section Type	Recommended Section									
Light Duty	1.5 inches Top Course HMA (Items 402.095102 or 402.125102)4 inches Type 2 Aggregate Subbase (Item 304.12)12 inches Select Granular Fill (Item 203.07)									
Medium Duty	2 inches Top Course HMA (Items 402.095102 or 402.125102) 3 inches Binder Course HMA (Item 402.195102 or 402.255902) 6 inches Type 2 Aggregate Subbase (Item 304.12) 12 inches Select Granular Fill (Item 203.07)									

Note:

1) All Item Numbers are indicated in New York State Department of Transportation Standard Specifications.

11.0 EARTHWORK CONSTRUCTION CRITERIA

The following sections present our recommendations regarding earthwork and construction monitoring.

11.1 General Site Preparation

Initially, the site of the proposed building, bleachers, lighting structures, and pavement sections should be cleared and grubbed, then stripped of all existing fill, pavement, topsoil and debris. The clearing and grubbing should extend at least 5 feet beyond the planned structures to be constructed. Any existing asphalt pavement within the footprints of the ADA parking lot and pedestrian walkway should be stripped



and removed. Debris and vegetation from the clearing operations should be removed from the site and disposed of at a legal disposal facility. All soft or unsuitable materials and subsurface obstructions should be removed from the building footprint and the zone of influence of the slab-on-grade or foundation. The zone of influence is defined by 1:1 (horizontal to vertical) planes sloping downward and outward from the bottom edges of the slab or footing.

Any existing utilities within the project limits should be re-routed around the foundations or removed. The resulting excavations should be backfilled with structural fill in accordance with the procedures outlined below. Any trench excavations should be properly benched to allow for adequate compaction.

11.2 Subgrade Preparation

All building and bleacher foundation, slab-on-grade, and pavement subgrades should be inspected by the geotechnical engineer prior to the placement of structural fill, concrete, or pavement subbase material. It is our understanding that significant re-grading will not be performed for the construction of the proposed concession building, bleachers, dugouts, or asphalt paving sections. Any cut areas of the site should be lowered to the planned subgrade depth, and the exposed native soils should be proofrolled to observe for potentially yielding soils. In any proposed fill areas, the surface should be cleared and grubbed, and the resulting subgrade prior to fill placement should also be proofrolled. Areas to receive structural fill should also be proofrolled before placing any backfill materials.

The foundation and pavement subgrades, and any surfaces to receive structural fill or concrete should be proofrolled under the observation of the geotechnical engineer. Proofrolling should be accomplished by making a minimum of four (4) passes in perpendicular directions with a 10-ton roller in open areas, or a 1.5-ton trench roller, where access is confined. Proofrolling should not be performed on saturated soils or in areas having freestanding surface water, until they are dewatered and allowed to dry. Proofrolling soils that exceed the optimum moisture content may disturb the soils, resulting in more unfavorable conditions. Unsuitable materials or areas identified to be soft by the geotechnical engineer, based on visual inspection and observation of proofrolling operations should be removed and replaced with compacted structural fill. Any subgrade soils found to be soft and yielding during proofrolling, or otherwise deemed unsuitable by the geotechnical engineer, should be removed and replaced with properly compacted structural fill.



11.3 Fill and Backfill Materials

Imported structural fill should be well-graded granular soil that meets the general gradation requirements for New York State Department of Transportation (NYSDOT) Type 2 Aggregate Subbase (Item 304.12), and as follows:

<u>Sieve Size</u>	Percent Finer by Weight
2 Inch	100
1/4 Inch	25 to 60
No. 40	5 to 40
No. 200	0 to 10

Based on the results of our subsurface investigation and laboratory testing the native soils are not suitable for use as structural fill, due to the high fines content (up to 47 percent). Any soils that are to be used as structural fill should be tested and approved by the geotechnical engineer prior to use.

Non-conforming native soils may be suitable for use as general fill in landscaped areas, provided they are free of trash, debris, roots, vegetation, or other deleterious materials. It should be noted that use of soils containing moderately high silt contents (such as those encountered at the site) will likely cause construction delays during the winter months, following periods of wet weather, or if the material is wet when excavated.

All general fill and structural fill should be compacted to at least 95 percent of the maximum dry density, at near optimum moisture contents, as determined by the modified Proctor test (ASTM D1557). The degree of compaction should be tested and documented by a geotechnical engineer for each lift of fill. The lift thickness for the structural fill soils will vary depending on the type of compaction equipment used. Structural fill should generally be placed in uniform horizontal lifts not exceeding 8 inches in loose thickness when using a 10-ton roller. In confined areas, the loose lift thickness should be 4 inches or less and each lift should be compacted with sufficient passes of hand operated vibratory or impact compaction equipment. A geotechnical engineer with appropriate field and laboratory support should inspect all subgrades, approve materials for use as fill, and test backfill materials for compliance with the recommended compaction.

Free draining crushed stone placed below floor slabs and as drainage materials behind foundation walls should be Underdrain Filter Type I materials (Item No. 733.2001) as specified in the NYSDOT Standard Specifications and as follows:



<u>Sieve Size</u>	Percent Finer by Weight
1 inch	100
1/2 inch	30 - 100
1/4 inch	0 - 30
No. 4	0 - 10
No. 8	0-5

Select granular fill to be placed below the subbase material for the asphalt paving sections should be a well-graded durable granular material that meets the gradation requirements for Select Granular Fill (Item 203.07).

11.4 Protection of Subgrades and Construction Dewatering

Approved soil subgrades should be protected from the effects of frost, construction traffic, perched groundwater, surface water and precipitation. The necessary protection should be provided as soon after approval by the geotechnical engineer as is practicable and should be maintained until coverage with compacted fill or gravel. It is recommended that temporary surface drainage measures be installed to divert runoff away from the proposed construction limits.

Based on the conditions observed during the subsurface investigation, perched groundwater may be encountered during the construction phase. If necessary, dewatering should be performed in a manner that will prevent loosening or migration of the subgrade soils and performed to maintain the water level at least 1 foot below the deepest excavation. Given the dense nature and high fines content of the on-site soils, it is anticipated that sump pits and pumps may be suitable for dewatering. Sump pits should be placed at least 1 foot outside of excavations for every foot below the subgrade elevation that they are excavated. The dewatering system should be designed by a New York State Licensed Professional Engineer, and it should be designed to ensure that dewatering does not result in any loss of soil.

As has been previously noted, the on-site soils contain a high percentage of fines and they will soften and experience a reduction in load-carrying capacity when exposed to moisture and disturbed. They may also become unworkable if allowed to get wet. These soils are also frost susceptible and could become disturbed if allowed to freeze during construction. Additional excavation and material removal may be required if subgrades are allowed to be exposed for long durations without fill or concrete placement. Additionally, construction traffic could also disturb the native soils.



If maintaining subgrade stabilization during periods of wet weather is a concern, crushed stone may be placed on footing and/or floor subgrades after excavation and proofrolling. The crushed stone should be clean ½ to ¾ inch gravel, stone, or recycled concrete, and should not exceed 6 inches in thickness.

11.5 Excavations and Shoring

Temporary excavation slopes should conform to the latest OSHA standards, including slopes permitted for specified heights and soil conditions encountered. The presence of perched water, or other deleterious materials could require flatter slopes or temporary excavation support (e.g., shoring and bracing). Excavation support may also be necessary in areas where sufficient distance to provide adequate benching of slopes is not available.

Excavations into the existing fill and native soil should be feasible using standard construction equipment (i.e. hydraulic excavator). Cobbles and boulders should be expected within both the existing fill and within the undisturbed glacial till. Design of dewatering and excavation support should conform to the latest OSHA and other applicable agency requirements. Design of all excavation slopes greater than a 4-foot depth and design of sheeting, shoring, and bracing should be performed by a New York State licensed Professional Engineer. Adequate dewatering or surface-water runoff control should be provided to avoid instability and caving of soils.

11.6 Deep Foundation Construction Considerations

Drilled shaft foundations should be constructed in accordance with the most recent standards of the International Association of Foundation Drilling (ADSC), the Code, and ACI 336. Plans and specifications should clearly indicate that variable soil conditions are present, and obstructions, likely in the form of cobbles and boulders, are present in the native soils. This will allow the contractor to employ the appropriate equipment and construction methodologies. The foundations should also be constructed under the full-time observation of the geotechnical engineer.

Due to the granular nature of the subsurface soils, a temporary steel casing may be needed to prevent collapse of the soils into the excavations, and drilling slurry may be required to maintain the sidewall stability below the groundwater level. At the time of the subsurface investigation, groundwater was observed at approximately 15 feet bgs adjacent to the multipurpose field, and between 8 and 10 feet bgs adjacent to the baseball fields. The embedment depth of the shafts is not known as of the writing



of this report, so groundwater may potentially be encountered when installing the shafts. The temporary casing could be extended to the full depth of the pile in lieu of the drilling slurry, provided that the casing is removed while concrete is placed. Removal of the casing should be performed so that the level of the concrete within the casing is always at least 1-foot above the bottom of the casing.

Concrete placement associated with the drilled piles should be performed utilizing a concrete pump and using tremie methods to prevent segregation of the concrete. If casing is used, concrete placement should be done in a manner to prevent "necking" of the drilled pile.

12.0 <u>CONSTRUCTION MONITORING</u>

A geotechnical engineer familiar with the existing subsurface conditions and having the appropriate laboratory and field-testing support should be engaged by the Client to observe that all earthwork is performed in accordance with the specifications, the Code, and the criteria provided in this report. As a minimum, the following work should be performed under the observation of the geotechnical engineer:

- Subgrade preparation
- Proofrolling
- Remedial removals of unsuitable soils
- Placement and compaction of fill and backfill materials
- Construction of drilled shafts for lighting structures
- Dewatering, if necessary

All materials proposed for use as soil fill should be tested and approved prior to delivery to the site. Additionally, all fill materials should be tested as they are being placed to verify that the required compaction is achieved. We further recommend that Tectonic be retained to review the project plans and specifications prior to completion of the bid documents.

13.0 <u>LIMITATIONS</u>

Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical engineers and geologists practicing in this or similar situations. The interpretation of the field data is based on good judgment and experience. However, no matter how qualified the geotechnical engineer or detailed the investigation, subsurface conditions cannot always be predicted beyond the points of actual sampling and testing. No other warranty, expressed or implied, is made as to the professional advice included in this report. The recommendations contained in this report are intended for design purposes



only. Contractors and others involved in the construction of this project are advised to make an independent assessment of the soil and groundwater conditions for the purpose of establishing quantities, schedules and construction techniques.

This report has been prepared for the exclusive use of The LA Group, for the specific application to the proposed construction detailed in this report. We recommend that prior to construction; Tectonic Engineering Consultants, Geologists, and Land Surveyors D.P.C. reviews the project plans and specifications. It should be noted that upon review of those documents, some recommendations presented herein might be revised or modified. In the event that any changes in the design or location of the proposed structures are planned, Tectonic shall not consider the conclusions and recommendations contained in this report valid unless reviewed and verified in writing. It is further recommended that Tectonic be retained to provide construction monitoring and inspection services to ensure proper implementation of the recommendations contained herein, which would otherwise limit our professional liability.

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FIGURE I



APPENDIX I

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DEF	N OF	PENE RESI (BI	SAM NUM	ENG) (IN.)	RQD (%)	NOIS	II SOII		Ν	/ ATER	RIAL			E E	•	PENE	STAN IRATIOI	DARD N (BLOV	Ц		
		15				-		Red track	surface,	, 2" asp	halt, 3	" subbase			1	0 2	0 3	0 4	0 5	0	
1	- 14	6 -	S-1	15		м	GM	gravel Bwn c-f Gl	RAVEL.	and c-f	Sand	. little Silt									-
2	_	17						(FILL)													-
3	- 56	31	S-2	19		м	GM	Bwn-gy c-f	f GRAVI	EL, som	ne c-f	Sand, little	Silt								_
4	_	25 21						(FILL)													-
5	00	16 14	0.0	10			C M			and a f	6 C						-		Í		267 0
	- 28	14	5-3	10		M	SIVI	Bwn-gy c-i	SAND,	, and c-i	r Grav	ei, littie Sili	L				••••				
0	-								End		na at (s'			-						-
7	_	-							Enu		ny at t	0									-
8	-	-																			-
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E 23																					
1.01.G	_	-]																		-
4	_	-	1																		-
0 25 0 REM	L ARKS:	Surfac	e elev	/ ations	estima	ted ba	ased o	n a topograph	nic surve	ey provid	led by	The LA Gro	oup, da	ted Ma	ay 202	 2.					_247.0
DRING											,		• •								
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					-			PROJECT No. 11584.01															
								PROJECT: North Rockland High School					BURING INU. PD-3										
						U		LOCATION: Thiells, NY									SH						
CLIE	NT: N	lorth Ro	ckland	l Centr	al Scho	ool Di	strict	Q r DATE TIME					E	DEPTH	INSI	РЕСТО	R: William Guerrieri						
CON	TRACT	OR: C	ore Do	wn Dri	lling LL	_C									DRII	DRILLER: Billy Johnson							
METHO	DD OF /	ADVANCI	NG BOF	RING	DIA.		DE	EPTH US							SUF	SURFACE ELEVATION: 271.0							
POW	/ER AU	IGER:						то	MON. \	NELL		YES	C	NO	NO DATUM: See Remarks								
ROT	DRILL							то	SCREE	EN DEPTH	H:		то		DAT								
CASI	CASING: T								WEATI	HER: C	Clear	-	TEMP:	85° F	DAT	EFINI	SH:		1				
DIAN	DIAMOND CORE: T								DEPTH	I TO ROC	CK: N	Not Enco	ountere	d'			STREN	GIH					
Geop	probe 78	822DT tra	ck-mou	nted dril	l rig with	autom	natic han	nmer	*CHAN	GES IN S	STRATA	A ARE INF	ERRED			1	2	3 4	4 : 	5	ET.		
(·	/FT.						SS.		DE	SCRIF	ото	N		* ط	PLA	STIC	WA CONT	TER ENT %	LIQ LIM	UID IT %			
TH (F	MIN	TRAT STAN -/6 IN	PLE BER	Ţ	,0v.	rure	IFIEI CLA			OF				ОГО		10 2	20 3	80 4	-A				
DEP	N OR	PENE RESI (BI	SAM NUM		RQD (%)	10IS	SOIL	MATERIAL				Ē	•	PENE	STANDARD ETRATION (BLOWS/FT.)								
		13				~		4" aravel s	urface							10 2	20 3	30` 4	0 5	i0			
1	- 50	17	S-1	16		М	GM	Bwn c-f G	RAVEL,	and m-	f Sano	d, little S	Silt		3					R	-		
2	_	36													3					$\left \right\rangle$	_		
3	- 55	30	- S-2	17		м	GM	Gy-bwn c-f GRAVEL, some c-f Sand, little Silt							X						_		
4		25 26					0	(FILL)							3								
5		14 16													3								
5	- 30	14	- S-3 9 M GM Same (F						.L)						3			••••••			_200.0		
6									End of Poring at 6'												-		
7	-	-	-						End of Boring at 6'											-			
8	-	-	-																	-			
9	_		-																		-		
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15	-	-	-																		_256.0		
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24	-		1																		È.		
25 REM	- ARKS:	Surfac	e elev	 /ations	estima	ted b	ased o	n a topograpł	nic surve	y provid	led bv	The LA	Group.	dated M	 lay 202	. <u> </u> 22.				<u> </u>	_246.0		
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	6	C			ni	C		PROJECT:	PROJECT: North Rockland High School														
								LOCATION:	Thiell	s, NY		SHEET No. 1 of 1											
CLIE	NT: N	orth Roo	kland	l Centr	al Scho	ol Dis	strict		UN RI	DATE	TIME	DEPT	ΤΗ	INSF	PECTOR	२: W	illiam	Guerri	ieri				
CON	TRACT	OR: Co	re Do	wn Dri	lling LL	C			ROU					DRIL	LER:	Bi	illy Jol	hnson					
METHOD OF ADVANCING BORING DIA. DE								PTH			SURFACE ELEVATION: 272.0												
POWER AUGER:								го	MON. W	VELL [] YES	X NO DATUM: See Remarks											
ROT. DRILL:								го	DATE START: 8/9/22														
CASI	NG:						٦	го	WEATH		DATE FINISH: 8/9/22												
DIAN	IOND C	ORE:					٦	го	DEPTH	TO ROCK:	Not Encounte	red'		UNCONFINED COMPRESS. STRENGTH (TONS/FT)									
Geoprobe 7822DT track-mounted drill rig with automati							atic harr	nmer	*CHANC	GES IN STRAT	ARE INFERRE	D											
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H (FT	1N./F	TANC IN.)	щК	REC	OV.	JRE	:LAS		DES	DESCRIPTION			LOG	>	← — — 0 2	- — — (0 3	⊗— — - 0 4	— — — <u>,</u> 0 50	/ATI				
EPTI	ORN	BL/6	AMPI		D (%)ISTL							운 [i – –	STANDARD							
	z	R R	νΞ	(II (II	R S	Σ	ō		IVI				5	•	PENE1 0 2	ration 0 3	0 (BLOW	/S/FT.) 0 50	5	_			
		10						Red track	surface,	1" asphalt, 3	" subbase	X	XX										
1	- 13	8	S-1	13		M S	SM	Bwn c-f SA	Bwn c-f SAND, some f Gravel, little Silt (FILL)						•					-			
2		9										X	XX							-			
3	³ 18 7 S-2 18					м	SM Bwn c-f SAND, some c-f Gravel, little Silt													-			
4 15															$ \rangle$					_			
5	- 21	19 13	6.2	10		м	SM	Pwp of S/		no Silt com									_267.0				
	21	8	3-3	19			Sivi	DWI C-I SA	AND, 501		e c-i Glavei												
0									End	of Poring of	C'		L • I •							-			
7	-	-							Ena	or boring at							F	-					
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23	-	-																		-			
24	-	-																		-			
25				otion		bod b c		o tonocress		(provide al less	The LA Creation	n data	dMr		 ว					_247.0			
	ARKS:	Surfac	e eiev	้อแอทร	estimat	led Da	isea or	i a topograph	iic survey	y provided by	The LA Grou	p, dateo	u Ma	y 202	Ζ.								

BORING LOG 11584.01.GPJ TECTONIC ENG.GDT 10/18/22

								PROJECT N															
					ni			PROJECT:		DURING INU. PD-3													
								LOCATION:	SHEET No. 1 of 1														
CLIE	NT: N	lorth Ro	ckland	l Centr	al Scho	ool D	istrict		д к	DATE	TIME	DEF	РΤΗ	INSPI	ECTOF	ר: א	William Guerrieri						
CON	TRACT	OR: C	re Do	wn Dri	lling LL	C			ATEI					DRILLER: Billy Johnson									
METHO	METHOD OF ADVANCING BORING DIA. DE								R B S				SURFACE ELEVATION: 276.0										
POW	POWER AUGER:								MON. V	VELL	YES	X	10	DATUM: See Remarks									
ROT	DRILL							то	SCREE	N DEPTH:	то			DATE START: 8/9/22									
CASI	NG:							то	WEATH	HER: Clear	TEMP	P: 85°	F	DATE FINISH: 8/9/22									
DIAN	IOND (CORE:						ТО	DEPTH	TO ROCK:	Not Encounte	ered'		UNCONFINED COMPRESS. STRENGTH (TONS/FT)									
Geop	probe 7	822DT tra	ck-mou	nted dril	l rig with	auton	natic har	nmer	*CHAN	GES IN STRAT	A ARE INFERRI	ED		1	2	2	3 4	4 5 	5	(FT			
Ê	/FΤ.						SS.		DESCRIPTION				₹¥	PLAS LIMIT	TIC 「%	WA CONT	TER ENT %	LIQ LIMI	UID IT %	NOIL			
TH (F	MIN	TRAT STAN -/6 IN	PLE BER	I I	,0v.	LURE	CLA			OF			OTC	X∞ 10 20 30 40 50					0	EVAT			
DEP	N OR	ENE (BL	SAM	ENGT (IN.)	RQD (%)	IOISI	SOIL		N	IATERIAL			-ITH	•	PENET	STAN				ELE			
		14		LEI -		2		3" gravel s	urface					10) 2	0 3	30` 4	0 5	0				
1	- 40	14 19 - S-1 12				м	GM	Bwn-gy c-1	f GRAVE	EL, some c-f	Sand, little S	Silt								-			
2		12											\times							_			
3	- 21	8 13	S-2	10		м	SM	Bwn-tn c-f	SAND	little f Grave	l little Silt									_			
4	21	8	0-2			101										Τ							
		10										K							-				
5	- 20	10	S-3	19		М	GM	Bwn c-f Gl		沿			•••••				_271.0						
6		12																-					
7	-		-						End									-					
8	-	-																-					
9	_	-																	-				
10	_																			_266.0			
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20	_																			_256.0			
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22																							
	-	-]																	_			
23	-	-	1																	-			
	-	-	1																	-			
		Surfac	e elev	ations	estime	ted h	ased o	n a topograph	nic surve	v provided by	/ The LA Grou	up dat	ed Ma		· · · · · · · · ·					_251.0			
		Sund		340113	Journa			မ လာဝမ္မာရာ၊	541 46	, provided D		-p, uut		., 2022									
					-			PROJECT N	o. 1158	4.01			R			2 NI	~ [DR.	2				
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					ni			PROJECT:	Norti	h Rockla	and Hi	gh School	ם ן			יאו כ	U. I	- D-1	5				
								LOCATION:	Thiel	lls, NY							SF		lo. 1 o	f 1			
CLIE	NT: N	lorth Ro	ckland	l Centr	al Scho	ool Di	istrict		д к	DAT	ΓE	TIME	DE	PTH	INSP	ECTO	R: N	lilliam	Guerr	ieri			
CON	TRACT	OR: C	ore Do	wn Dri	lling LL	C			ATEI						DRIL	LER:	В	illy Jol	nnson				
METH	DD OF A	ADVANCI	NG BOF	RING	DIA.		DE	EPTH	ц Ц Ц Ц Ц Ц Ц Ц						SUR	FACE E	ELEVA	TION:	2	78.0			
POW	/ER AU	IGER:						то	MON.	WELL] YES	X	NO	DAT	UM:	:	See Re	marks	;			
ROT	. DRILL	.:					-	то	SCREE	EN DEPTH	1 :	то			DATI	E STAF	RT:	8/9/2	2				
CAS	NG:							то	WEAT	HER: C	Clear	TEMF	² : 85°	°F	DATI	E FINIS	SH:	8/9/2	2				
DIAN	IOND C	CORE:					-	ТО	DEPTH	H TO ROC	:K: N	Not Encounte	ered'		UNC		D COM (TON	PRESS. IS/FT)	STREN	ЗІН			
Geop	probe 7	822DT tra	ck-mou	nted dril	l rig with	autom	natic han	nmer	*CHAN	IGES IN S	TRATA	ARE INFERR	ED		1		2 	3 4	4 5 	5	(FT		
-T.)	/FΤ.	NOL (SS.		DE	SCRIP	IOIT	N		۲×	PLAS LIMI	STIC T %	WA CONT	TER ENT %	LIQI	UID T %	NOI		
тн (F	MIN	STAN STAN	PLE BER	Ţ	,OV.	TURE	UIFIEI - CLA			OF				ого	1	0 2	0 3	80 4	0 5	0	EVA ⁻		
DEP	N OF	BI BI	SAM NUM	ENG1 (IN.)	RQD (%)	NOIS ⁻	SOIL		Ν	<i>I</i> ATER	IAL			E	•	PENE	STAN IRATIO	idard N (Blow	/S/FT.)		Ш		
		11				~		3" topsoil-	like mat	erial				<u>, 1, 1, 1</u>	1	0 2	0 3	80 ⁴	0 5	0			
1	- 27	16 11	S-1	16		м	SM	Bwn c-f SA	AND, an	nd c-f Gra	avel,	little Silt (FIL	_L)				۹				F		
2	_	15																			F		
3	- 38	21	S-2	11		м	SM	Same (FIL	L)												F		
4		17 15							,												L		
5		14 14																/			273.0		
	- 28	14	5-3	16		М	GM	Bwn-gy c-	r GRAVI	EL, som	ie c-t a	Sand, little S	SIIT				•••••				_270.0		
6		12							End		ag at (<u>8'</u>									-		
7	-	-							Ena		iy at t	D									-		
8	_	-	-																		Ē		
9	-	-																			F		
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201.GF	-		1																		-		
11284	-		1																		-		
ຫຼ <u>25</u> ຊີ REM	_ ARKS:	Surfac	e elev	/ ations	estima	ted b	ased o	n a topograpł	nic surve	ey provide	ed bv	The LA Grou	up, da	ted Ma	 ay 202	 2.					_253.0		
DRING			-			-		100	-		,	_		-									

								PROJECT N	o. 11584	4.01		BOE	ואוכ			20 /	1		
		C			ni	ſ		PROJECT:	North	Rockland H	igh School			GN	IU. 3	20-	•		
								LOCATION:	Thiell	ls, NY					SF	HEET N	No. 1 o	of 2	
CLIE	NT: N	lorth Roo	kland	l Centr	al Scho	ool D	District		D R	DATE	TIME	DEPTH	INS	SPECTO)r: D	aniela	Parrin	10	
CON	TRACT	OR: Co	re Do	wn Dri	lling LL	C			ROU ATE				DR	ILLER:	Α	ndrew	Bellu	cci	
METH	DD OF A	ADVANCIN	IG BOR	RING	DIA.		DE	PTH	Ъ ≥				SU	RFACE	ELEVA	TION:	2	79.0	
POW	/ER AU	GER:			3 1/4"		0	TO 40'	MON. W	VELL [YES	X NO	DA	TUM:	:	See Re	marks	5	
ROT	. DRILL						-	го	SCREE	N DEPTH:	то		DA	TE STA	RT:	9/14/	22		
CAS	ING:						-	го	WEATH	IER: Clear	TEMP	75° F	DA	TE FINI	SH:	9/14/	22		
DIAN	10ND C	ORE:					-	го	DEPTH	TO ROCK:	Not Encounte	red'	U		IED CON (TON	IPRESS. NS/FT)	STREN	GTH	
CME	55LC t	rack-moun	ted dril	l rig with	n automa	tic ha	ammer		*CHANG	GES IN STRAT	A ARE INFERRE	Ð		1	2	3 4	4 5	5	É.
(L.	Zω		SAM	PLES				1			*	PL	ASTIC	WA			UID	
(FT.	N./F	ATIC ANC	шК	REC	OV.	RE	IED -ASS		DES	SCRIPTIO	N	0 0 0		×		EINI % ⊗— — -		∆	ATIO
EPTH	R M	JETR SIST BL/6	MBE	GTH (:		STUI	UNIF 01 CI					보		10	20 3	30 4	0 5	0	
D	z	RE DE	AS UN	(IN	RO %	IOM	- 08		IV	IATERIAL		1	•	PENE	TRATIO	N (BLOW	/S/FT.)	0	ш
1	- 18	5 7 _ 11 15	S-1	20		М	SM	3" gravel s Bwn-gy c- (FILL)	surface f SAND,	some c-f Gr	avel, little Sill							0	
3	- 35	20 18 17 11	S-2	20		М	GW-GM	Bwn c-f G (FILL)	RAVEL,	and c-f Sanc	l, little Silt								-
5	- 16	11 10 _ 6 9	S-3	10		М	GW-GM	Same (FIL	-L)				<u>.</u>			•••••		• • • • • • • •	_274.0
7	- 23	10 12 11 9	S-4	9		М	SM	Bwn-gy c-	f SAND,	some c-f Gr	avel, little Sill		•						_
9	- 14	8 8 _ 6 6	S-5	19		М	SM	Bwn c-f S/	AND, sor	me c-f Grave	I, little Silt		· . · · ·						
11 12	- 10	5 6 _ 4 5	S-6	18		М	SM	Bwn c-f S/	and, littl	e Silt, trace o	c-f Gravel		· · ·	ł					-
13 14	_	-											· · · · · ·						- -
15 16 17	- 6	3 3 3 3	S-7	18		w	SM	Bwn c-f S <i>i</i>	and, littl	e Silt, trace o	c-f Gravel								_264.0
18 19 20	-	-																	- - _259.0
21 22	- 8	WOR 4 4 4	S-8	21		W	SM	Same											-
23	_	-																	-
REM	- ARKS:	Surfac	e elev	rations	estima	ted I	based or	n a topograpl	hic survey	y provided by	The LA Grou	p, dated N	lay 20	<u>.</u> 122.	<u>. </u>		<u> </u>		_204.0

							PROJECT No. 11584.01	BORING No. SB-1	
Te				ni			PROJECT: North Rockland High School	BORING NO. 3B-1	
	561						LOCATION: Thiells, NY	SHEET No. 2 of 2	
CLIENT:	North Rock	land C	Centra	al Sch	ool D	istrict		UNCONFINED COMPRESS. STRENGTH (TONS/FT)	
CONTRAC	TOR: Core	e Dowr	n Dril	ling L	LC				2
=Т.) /FТ.		5	SAMF			D. SS.	DESCRIPTION	PLASTIC WATER LIQUID Z LIMIT % CONTENT % LIMIT % LIMIT % CONTENT % LIMIT % LIMIT % LIMIT % LIMIT % CONTENT % LIMIT %	
R MIN	ETRA		E_	0	TURE	L CLA	OF		;
N OF	RES (E			RQI (%)	MOIS	N SOI	MATERIAL	E STANDARD III PENETRATION (BLOWS/FT.) 10 20 20 40 50 50	I
	WOH		_						
26 - 1	1	S-9	10		W	SM	Bwn-gy c-f SAND, and Silt		
27	1								
28_	-								
29_	-								
30	2							249.0)
31 8	4 -	S-10	18		W	SM	Gy m-f SAND, and Silt		
32	3								
33 _	-								
34 _	-								
35	1							244.0)
36 _ 9	3 6	S-11	16		W	ML	Gy-rd SILT, some m-f Sand, some c-f Grave	el • -	
37	9								
38_	_								
39 _	-								
40	8							239.0)
41 - 33	15 18	S-12	16		W	ML	Rd-gy SILT, some c-f Gravel, some c-f Sanc	- • t	
42	16						5 1 (5) 1 (0)		
43 _	-						End of Boring at 42		
44 _	-								
45 _	_							234.0)
46 _	-								
47 _									
48_									
49_	-								
50 _	-							229.0)
51_									
52									
53_									
54 _									
55_ REMARKS	: Surface	elevat	tions	estim	ated b	ased or	n a topographic survey provided by The LA Grou)
								· · · · ·	

								PROJECT N	o. 1158 4	4.01						2 NI	~ (20	ົງ		
					ni			PROJECT:	North	n Rockland	d Hig	h School				או כ	0. 3	30-	Z		
	C					L		LOCATION:	Thiel	ls, NY							SF	HEET	No. 1 d	of 2	
CLIE	NT: N	lorth Roo	kland	Centr	al Scho	ool D	istrict		д и	DATE		TIME	DE	PTH	INSF	PECTO	R: D	aniela	Parri	no	
CON	TRACT	OR: Co	re Do	wn Dri	lling LL	.c			ROUN ATE						DRIL	LER:	Α	ndrew	v Bellu	cci	
METHO	DD OF /	ADVANCIN	IG BOF	RING	DIA.		DE	EPTH	ц В S						SUR	FACE	ELEVA	TION:	2	279.0	
POW	'ER AU	GER:			3 1/4"		0	TO 25'	MON. V	WELL		YES	X	NO	DAT	UM:	;	See R	emark	S	
ROT.	DRILL	:						ТО	SCREE	IN DEPTH:		- то		-	DAT	E STAF	RT:	9/14	/22		
CASI	NG:							то	WEATH	HER: Clea	ar	TEMF): 75	°F	DAT	E FINIS	SH:	9/14	/22		
DIAN	IOND C	ORE:					-	ТО	DEPTH	I TO ROCK:	No	ot Encount	ered'		UNC		TON (TON	NPRESS NS/FT)	. STREN	IGTH	
CME	55LC t	rack-mour	ited dril	I rig with	automa	tic ha	mmer		*CHAN	GES IN STR	RATA	ARE INFERR	ED			1 : I	2	3	4	5	(FT
Ê	/FΤ.						SS.		DE	SCRIPTI	ION			*≻	PLA LIM	STIC IT %	WA CONT	ATER FENT %	LIQ LIM	UID IT %	
TH (F	MIN.	TRAT STAN -/6 IN	PLE BER	I	.0v.	rure	CLA			OF				OLO	1	0 2	20 :	30 4	40 5	 50	-A
DEP	N OR	ENE (BL	SAM	(IN.)	RQD (%)	IOISI	SOIL		Ν	1ATERIA	۱L			Ŭ Ŭ Ŭ	•	PENE	STAN	NDARD	NS/FT.)		
		8		<u>۳</u>		2		3" gravel s	urface						1	0 2	20 3	30` 4	40 ´5	50	
1.	- 8	4 -	S-1	14		М	SM	Bwn-gy c-1 (FILL)	f SAND,	some c-f	Grav	el, little Si	t		٩						-
3.	- 15	4 6 9	S-2	9		М	GM	Bwn-gy c- (FILL)	f GRAVE	EL, some o	c-f S	and, little S	Silt								-
4 . 5 .	- 33	15 15 15 18	S-3	18		М	GM	Bwn-gy c- (FILL)	f GRAVE	EL, some o	c-f S	and, some	Silt								_ _274.0
6.	- 12	8 7 5	S-4	16		М	SM	Bwn-gy c-t	f SAND,	some c-f	Grav	el, some S	Silt								-
8. 9.	- 22	10 12 12 10	S-5	14		М	SM	Same									•				-
10	- 15	8 8 7 7	S-6	14		М	SM	Same								•					_269.0
13	_	-																			-
14	-	-	-																		-
15		4														 			.		_264.0
16	- 10	5	S-7	8		w	GM	Bwn c-f G	RAVEL,	some c-f	Sanc	l, little Silt				ŀ					-
17	_	5																			Ļ
N 18	_	-																			Ļ
19/2	_													irb,							
	_																				250.0
20. 9 2		3																		• • • • • • • • •	_209.0
21 0 0 0 0 22	- 5	2 2	S-8	22		W	SM	Bwn-gy m	-f SAND	, some Sil	lt, tra	ce c-f Gra	vel								-
L 23	-	-																			_
11284	-	-																			-
ງ 25 01 02 02 8 8	ARKS:	Surfac	e elev	ations	estima	ted b	ased o	l n a topograpł	nic surve	y provided	l by T	he LA Grou	ıp, da	ted Ma	ay 202	<u> \.</u> 2.		<u>. </u>			<u>∟254.0</u>
BOR																					

		PROJECT No. 11584.01	BOP	ING No. SB-2
Te	octonic !	PROJECT: North Rockland High School		ING NO: 3D-2
		LOCATION: Thiells, NY		SHEET No. 2 of 2
CLIENT: N	Iorth Rockland Central School District		1	UNCONFINED COMPRESS. STRENGTH (TONS/FT)
CONTRACT	OR: Core Down Drilling LLC			
Ê. F	SAMPLES	DESCRIPTION	*	PLASTIC WATER LIQUID CONTENT % LIMIT %
TH (F	RECOV.	OF		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
DEP.	PENE: (BL (BL (IN.) RCD RCD (N.) (IN.) ADIST ADIST ADIST SOIL	MATERIAL	HE H	STANDARD
26 _{- 20} 27	10 10 9 24 W SM	Bwn c-f SAND, and c-f Gravel, little Silt		
28_		End of Boring at 27'		
29 _				
30 _				249.0
31				
32				
33				
34				
35				244.0
36				
37				
38				
30				
40				230.0
40				
41_				
42 _				
43 _				
44 _				
45 _				
40				
4/				
48				
49				
50				
51_				
52 _				
53 _				
54 _				
	Surface elevations estimated based o	n a topographic survey provided by The LA Grou	n dated Ma	
		n a topographic carvey provided by The LA GIOU	r, aatou ivid	·, _ · _ · _ ·

					-			PROJECT N	o. 115	584.0 [,]	1			B			2 N		SB-	3		
	6				ni			PROJECT:	Nor	rth Ro	ockland H	ligh So	chool					0.	00-	J		
	C							LOCATION:	Thie	iells, I	NY							S	HEET	No. 1 c	of 2	
CLIEI	NT: N	orth Roc	kland	Centra	al Scho	ool Di	strict		9 0	r	DATE	1	ΓIME	DE	PTH	INSF	PECTO)R: [Daniela	a Parrir	10	
CON	TRACT	0R: Co	re Dov	wn Dril	ling LL	.c										DRIL	LER:	A	Andrev	v Bellu	cci	
METHO	DD OF A	DVANCIN	IG BOR	RING	DIA.		DE	EPTH	ЧЭ ЧЭ З	3						SUR	FACE	ELEVA	ATION:	2	78.0	
POW	ER AU	GER:			3 1/4"		0	TO 30'	MON	I. WEL	L [] YES	3	X	NO	DAT	UM:		See R	emarks	6	
ROT.	DRILL:						-	ТО	SCRE	EEN D	DEPTH:		то			DAT	E STA	RT:	9/15	5/22		
CASI	NG:							то	WEA	THER	C Overc	ast	TEMP	: 65°	'F	DAT	E FINI	SH:	9/15	5/22		
DIAM	IOND C	ORE:						ТО	DEPT	ТН ТО) ROCK:	Not E	ncounte	ered'		UNC		ED COI (TO	MPRESS NS/FT)	5. STREN	GIH	
CME	55LC tr	ack-moun	ted dril	I rig with	automa	tic har	nmer		*CHA	ANGES	S IN STRAT	A ARE	INFERRE	ED			1 	2	3	4 :	5	(FT
Ê	/FT.			SAM			SS.		D	ESC	RIPTIO	N			5⊀	PLA LIM	STIC IT %	W. CON	ATER	LIQ	UID IT %	
TH (F	MIN	TRAT STAN -/6 IN	PLE BER	I	00.	LURE	CLA				OF				olo	1		20	30	40 5	0	
DEP	N OR	ENE (BL	SAM	(IN.)	RQD (%)	IOISI	SOIL			MA	TERIAL				HTI.	•	PENE	STA		WS/FT.)		
	-			<u>۳</u>		2		3" topsoil I	liko ma	atoria					-	1	0	20	30	40 5	0	
1	- 11	6	S-1	10		м	GM	Bwn-gy c-1	f GRA	VEL,	some c-f	Sand	, little S	silt								-
2		5						(FILL)							\bigotimes							L
3		6 11					~ ~ ~	0							\bigotimes			\square				
	- 28	17	S-2	16		м	GM	Same (FIL	.L)						\bigotimes							Ī
4	_	13	S-3A				SM			_					\bigotimes			X				F
5	- 14	8 _ 6	C 3B	18		м	М	(FILL)	SAND	J, sor	me c-r Gra	avei, i	ittle Silt			•••••						_273.0
6		4	0-00					10" Or-bwi Gravel	n SILT	r, son	ne m-f Sa	and, tra	ace c-f					\land				F
7	- 34	14 20	S-4	20		м	GM	Bwn-gy c-t	f GRA	VEL,	some c-f	Sand	, little S	silt	3 K							ŀ
8	_	18													Ŕ							 -
9	- 72	17 24	S-5	18		м	GM	Bwn-av c-t	f GRAV	VEI	some m-	f San	d little S	Silt	25						7	2
10	12	48 37	0-0				Givi	Dwn-gy c-i		VLL,	30116 11-	1 Oan	a, nue v	Jiit								268.0
11	50+	50/3	S-6	3		М	SM	Gy-wht c-f	SAND	D, littl	le c-f Grav	vel, lit	tle Silt							/		
	-	-																				Ī
12	-	-																		1		Ē
13	-	-																				⊢ I
14	-	-																/				F
15	_	8																				_263.0
16	- 14	8 -	S-7	16		w	SM	Bwn c-f SA	AND, li	ittle S	Silt, trace	c-f Gr	avel				•					 -
17	_	о З							-													 -
N 18	_																					
0/18/2		-																				
	-	-																				
20 20 20		4			+																	_258.0
21 21	- 15	8	S-8	18		w	SM	Bwn-or c-f	SAND	D, soı	me Silt, tra	ace c	-f Grave	el			•					F
Ŭ U U U U U U U U U U U U U U U U U U U	_	6															/					F
යි. වේ 23	-	-															V					ŀ
10.48 24	-	-														/	1					 -
ະ ຫຼ25																<u> </u>	<u> </u>	<u> </u>	<u></u>	<u> </u>	<u></u>	_253.0
	ARKS:	Surfac	e elev	ations	estima	ted b	ased o	n a topograpł	nic surv	vey p	rovided by	/ The I	LA Grou	ıp, dat	ted Ma	ay 202	2.					
BORI																						

								PROJECT No. 11584.01			2 N	~ ~	<u>, D</u>	2		
								PROJECT: North Rockland High School	DUF		J IN	0. 3)D-	5		
	C							LOCATION: Thiells, NY				S⊦		No. 2 c	of 2	
CLIEI	NT: N	orth Roo	kland	l Centi	ral Sch	nool D	istrict		I	UN		ED COM (TON	PRESS. S/FT)	STREN	GTH	
CON	TRACT	OR: Co	re Dov	wn Dri	illing L	LC	1				1	2	3 4	4 5	5	(FT.)
('L	/FT.	NOL (SAM			SS.	DESCRIPTION	<u>ځ</u>	PLA	IT %		TER ENT %	LIQ	UID T %	LION
тн (F	MIN	ETRA ISTAN L/6 IN	1PLE 1BER	E		TURE	L CLA	OF	OLO		10 2 	20 3	i0 4	0 5	0	EVA.
DEF	JO N	PENI RES (E	SAN	() IN	RQI (%)	MOIS	N SOI	MATERIAL	<u></u>	•	PENE	STAN TRATIO	DARD N (BLOV	/S/FT.)	0	<u> </u>
		2		-						: /		20 3	4	.0 5	0	
26	- 4	2	S-9	14		W	SM	Tn-or c-f SAND, and Silt		: : :						-
27	-	2														-
28	-	-	-							·						-
29	-	-	-													-
30		2														_248.0
31.	- 3	3	S-10	20		W	ML	Gy-or SILT, and m-f Sand		●						-
32		2						End of Boring at 32		L						-
33	-	-														-
34	-	-														-
35	-	-	-													_243.0
36	-	-														-
37	-	-														-
38	-	-	-													-
39	-	-	-													-
40	-	-														_230.0
41.	-	-	-													-
42	-	-														-
43	-	-														-
44 .	-	-														-
40	-	-														_200.0
40	-	-														-
48	-	-														-
40	-	-														_
50	-	-														228.0
51	-	-														
52	-	-	1													Γ
53	-	-	1													
54	-	-														_
55	-	-	1													223.0
REM	- ARKS:	Surfac	e elev	ations	estim	ated b	ased o	n a topographic survey provided by The LA Grou	p, dated M	lay 202	22.	1	<u></u>			

								PROJECT N	o. 11584	l.01		D			CD	٨		
	ſe	C			ni			PROJECT:	North	Rockland Hi	gh School				30-	4		
								LOCATION:	Thiell	s, NY					SHEET I	No. 1 of	2	
CLIE	NT: N	orth Roo	kland	l Centr	al Scho	ool D	District		DN K	DATE	TIME	DE	PTH	INSPECTOR:	Daniela	Parrin	0	
CON	ITRACT	0R: Co	re Do	wn Dri	lling LL	.c			ROU					DRILLER:	Andrew	/ Belluc	ci	
METH	OD OF A	ADVANCIN	IG BOR	RING	DIA.		DE	PTH	<u></u> Б ≥					SURFACE ELE	VATION:	27	76.0	
POV	VER AU	GER:			3 1/4"		0	TO 30'	MON. W	/ELL	YES	X	NO	DATUM:	See Re	emarks		
ROT	. DRILL	:					-	го	SCREE	N DEPTH:	то			DATE START:	9/14/	/22		
CAS	ING:						-	го	WEATH	ER: Clear	TEMP:	: 75°	F	DATE FINISH:	9/14/	/22		
DIAN		ORE:					-	го	DEPTH	TO ROCK:	Not Encounte	ered'			OMPRESS ONS/FT)	. STRENG	тн	
CME	55LC t	rack-moun	ted dril	l rig with	n automa	tic ha	ammer		*CHANC	GES IN STRAT	ARE INFERRE	Ð		1 2	3	4 5		ET.)
	L.	Zω		SAM	PLES								*	PLASTIC	WATER	LIQU	liD	I) NC
(FT.	N./F	ATIC ANC IN.)	шК	REC	OV.	R	IED -ASS		DES	SCRIPTIO	N		ÓÖ	×	-⊗		2 1	ATIO
PTH	RM	JETR SIST BL/6	MPL	HT: .		STUI				OF			ЧОГ			40 50 		LEV
B	z	A B C	AS UN		RO %	IOM	- 0s		IVI	ATERIAL			Ę	PENETRA 10 20	TION (BLOV	VS/FT.)		ш
1	- 23	4 10 13	S-1	8		М	GM	4" topsoil- Bwn-gy c-f	like mate f GRAVE	rial L, some c-f	Sand, little S	ilt						
2	- 32	16 22 22 10	S-2	8		м	SM	Bwn c-f SA	AND, sor	ne Silt, little	c-f Gravel		\propto				-	
4	- 24	12 6 11	S-3	18		м	GM	Bwn-av c-	f GRAVE	and c-f S	and little Silt				/			271.0
6		13 10 11						Duni gy C		, and o i o							-	
8	- 24	10 _ 14 11 11	S-4	17		М	SM	Bwn-gy c-	f SAND,	some c-f Gra	avel, little Silt	t					-	
9 10	- 28	12 _ 16 _	S-5	17		М	SM	Same										266.0
11 12	- 13	8 8 _ 5 7	S-6	20		М	SM	Tn m-f SA	ND, som	e Silt				•				
13 14	-	-															-	
15 16 17	- 9	4 4 5 22	S-7	18		w	SM	Bwn c-f S/	and, little	e Silt, trace f	Gravel			•				261.0
18 19	-	-															-	256.0
20 21 22	- 10	2 5 5 5	S-8	24		W	SM	Gy m-f SA	ND, little	Silt				•				200.0
23	_ _	-															-	251.0
REM	⊢ IARKS:	Surfac	e elev	rations	estima	ted t	based or	n a topograpł	nic survey	/ provided by	The LA Grou	ıp, dat	ed Ma	ay 2022.	· · · · · · · · · · ·	<u></u>	·····	<u>201.U</u>

				-				PROJECT No. 11584.01 PROJECT North Rockland High School	BOR	RING	G N	o. S	6B-4	4		
		Ċ												10.0	4.0	
CLIE	ENT: N	lorth Roo	kland	Centr	ral Sch	nool D	istrict			UNC			PRESS.	STREN	GTH	
CON	NTRACT	OR: Co	re Dov	wn Dri	lling L	LC					• 1 :	(10N 2 :	3,⊢1) 3,	4	5	ET.)
тн (FT.)	MIN./FT.	TRATION STANCE /6 IN.)	PLE BER	SAM REC	PLES COV.	'URE	IIFIED CLASS.	DESCRIPTION OF	γ. OC γ.	PLA LIM	 STIC IT % X- — – 0 2	WA CONT 	TER ENT % @— — -	LIQ LIM 	UID IT % -^	EVATION (
DEP	N OR	PENE RESI	SAMI NUMI	(IN.)	RQD (%)	LSIOM	SOIL	MATERIAL		1	PENE 10 2	STAN IRATIOI 0 3	DARD N (BLOV 0 4	' /S/FT.) -0 5	0	ELE
26	- 11	3 5 6 7	S-9	14		w	SM	Bwn m-f SAND, and Silt								
28	_	-	-													_
30	-	24								I						- _246.0
31 32	- 36	13 23 14	S-10	12		w	GM	Bwn-gy c-f GRAVEL, some c-f Sand, little Si	ilt	4			•			-
33	_	-	-					End of Boring at 32'								-
34	_	-	-													241.0
36	_	-									• • • • • • • • •					-
37	_	-	-													-
38	-	-	-													-
40	_	-														_ _236.0
41	_	-	-													-
42	-	-	-													-
43	-	-														-
45																_231.0
46	_	-	-													-
47	_	-	-													-
48 49 49	-	-														Ē
50 50	_	-	-													_226.0
51	_	-	-													-
52 52 7 53	_	-														F
9.10.485 54	_	-	-													-
ب 105			-							<u> </u>	<u> </u>					_221.0

								PROJECT N	o. 115	584.0	1			F			2 N	<u> </u>	SR-	5		
					ni			PROJECT:	Nor	rth R	ockland	High	School					0. (-0	0		
						U		LOCATION:	Thie	iells,	NY							SH	HEET	No. 1 c	of 1	
CLIE	NT: N	lorth Ro	ckland	l Centr	al Scho	ool D	istrict	1	g a	r	DATE		TIME	DE	PTH	INSF	PECTO	R: D	aniela	Parrir	10	
CON	TRACT	OR: Co	ore Do	wn Dri	lling LL	.c										DRIL	LER:	A	ndrew	Bellu	cci	
METH	DD OF /	ADVANCIN	NG BOF	RING	DIA.		DE	EPTH	ц Ц Ц Ц Ц	>						SUR	FACE	ELEVA	TION:	2	278.0	
POW	/ER AU	GER:			3 1/4"		0	TO 15'	MON.	I. WEI	LL	□ Y	′ES	X	NO	DAT	UM:	:	See Re	marks	5	
ROT	. DRILL	:						ТО	SCRE	EEN [DEPTH:		то		-	DAT	E STAF	RT:	9/12/	22		
CAS	NG:							ТО	WEA	THEF	R: Over	rcast	TEM	P: 75	°F	DAT		SH:	9/12/	22	0711	
DIAN	10ND C	ORE:						ТО	DEPT	тн тс) ROCK:	Not	Encount	tered'				ED CON (TON	NS/FT)	STREN	GIH	
CME	55LC t	rack-mour	nted dril	I rig with	n automa	itic ha	mmer		*CHA	ANGE	S IN STRA	ATA AF	RE INFERF	RED			1	2	3	4	5 	(FT
́.Т.)	/FT.	, ION					SS.		DE	ESC	RIPTIC	ON			<u>ځ</u>	PLA LIM	STIC IT %	WA CONT	ATER FENT %	LIQ	UID IT %	
TH (F	MIN	TRAT STAN -/6 IN	PLE BER	Ţ	,0v.	rure	IFIEI . CLA				OF				OLO	1	02	20	30 4	 0 5	50 	-A
DEP	N OR	ENE (BL	SAM	ENGT (IN.)	RQD (%)	IOISI	SOIL			MA	TERIAL	L			Ĕ	•	PENE	STAN	NDARD	VS/FT.)		
		1		<u>۳</u>		2									1 1/2	1	0 2	20	30` 4	0 5	0	
1	- 11	3	S-1	16		М	SM	6" topsoil- Bwn c-f SA	like ma AND, s	ateria some	al e Silt, little	le c-f	Gravel			>						-
2		8 10						(FILL)								2						L
3	- 20	8 15	6.2	17		м	SM	Bwp of S		omo	Silt cor	moo	f Graval					$\left \right\rangle$				
	29	14 9	0-2	17		IVI	5101	Dwit C-1 37	-IND, 5	SOME	; 011, 301		Glaver						Π			
-		6													K							-
5	- 28	10	S-3	14		М	GM	Bwn c-f G	RAVEL	L, so	me c-f S	Sand,	some Si	ilt				···· /	•			_273.0
6		8																/				-
7	- 14	8 6	S-4	20		М	SM	Bwn m-f S	AND, a	and	Silt, little	e f Gra	avel				•					-
8	_	6																				-
9	- 14	8	S-5	12		М	GM	Bwn c-f G	RAVEL	L, so	me c-f S	Sand,	little Silt									Ļ
10		6 9								,		,										_268.0
11	- 20	22 16	86	24		м	CM	Bwp of G			moofS	Sand	como Si	:1+								
12	- 39	23 28	3-0	24		IVI	Givi	Bwild-I G	NAVEL	L, 50		banu,	SUME SI	IIL	RS							_
12																				$ \rangle$		-
13	-	-																		$ \rangle$		-
14	-	-																				-
15	50.	63	0.7					Bwn c-f G	RAVEL	L, litt	le c-f Sa	and, li	ttle Silt									_263.0
16	50+	50/2	5-7	8		M	GM	Auger refu	isal at ⁻	16 fe	eet bgs	,										-
17	_	-	-						End	d of	Boring at	it 16'										Ļ
_Z 18	_	-									-											Ļ
10/18/	_																					L
S 201																						258.0
ENG.	-	-	1																		••••	_200.0
DINO 21	_	-	-																			F
22 IECI	_	-	1																			F
GD 23	_	-	-																			F
284.01	-	-	-																			F
ب 10 25	_																					_253.0
	ARKS:	Surfac	e elev	ations	estima	ted b	ased o	n a topograpł	nic surv	vey p	provided b	by Th	e LA Gro	up, da	ited Ma	ay 202	2.					
BOR																						

	_							PROJECT N	o. 1158 4	l.01		R		RING No SB-6	
					ni			PROJECT:	North	Rockland Hi	gh School				
								LOCATION:	Thiell	s, NY				SHEET No. 1 of 1	
CLIE	NT: N	lorth Roo	kland	l Centr	al Scho	ool D	District		D R	DATE	TIME	DEF	тн	INSPECTOR: Daniela Parrino	
CON	TRACT	OR: Co	re Do	wn Dri	lling Ll	.c			ROUI					DRILLER: Andrew Bellucci	
METH	DD OF /	ADVANCIN	IG BOF	RING	DIA.		DE	PTH	<u> </u>					SURFACE ELEVATION: 279.0	
POW	/ER AU	GER:			3 1/4"		0	to 20'	MON. W	VELL	YES	XN	10	DATUM: See Remarks	
ROT	DRILL							то	SCREE	N DEPTH:	то			DATE START: 9/12/22	
CAS	NG:						-	ТО	WEATH	IER: Overca	ast TEMP:	: 75°	F	DATE FINISH: 9/12/22	
DIAN	IOND C	ORE:					-	ТО	DEPTH	TO ROCK:	Not Encounte	ered'		(TONS/FT)	·
CME	55LC t	rack-moun	ted dril	I rig with	n automa	tic ha	ammer		*CHANG	GES IN STRATA	ARE INFERRE	ED			
(·:L	/FT.			SAM			SS.		DES	SCRIPTIO	N		₹¥	PLASTIC WATER LIQUID LIMIT % CONTENT % LIMIT %	5
TH (F	MIN	TRAT STAN -/6 IN	PLE BER	I		rure	CLA			OF			OLO		۲ >
DEP	N OR	ENE (BL	SAM NUM	ENGT (IN.)	RQD (%)	loisi	SOIL		Μ	ATERIAL			ΗĽ.	STANDARD	
	_	1		<u>۳</u>		2								10 20 30 40 50	
1	- 6	3 -	S-1	15		М	SM	3" topsoil-l Bwn c-f S/	like mate AND, sor	erial ne c-f Grave	I, little Silt		\bigotimes	₹ •	
2		4						(FILL)					\bigotimes		
3	- 14	6	S-2	6		М	GM	Bwn-gy c-	f GRAVE	L, little c-f S	and, little Silt	t 🖁	\bigotimes		
4		8 7						(FILL)				K	\bigotimes		
5		12 8						_							0
	- 13	5	S-3	16		М	SM	Bwn-gy c-	t SAND,	and c-f Grav	el, some Silt				0
6	_	21													
7	- 21	17 4	S-4	18		М	SM	Bwn c-f SA	AND, sor	me Silt, some	e c-f Gravel				
8	_	3													
9	- 27	12	S-5	10		М	GM	Bwn-gy c-i	f GRAVE	L, some Silt	, some c-f Sa	and 📕			
10		8													0
11	- 27	3 11	86	10		N4	N.41			f Sand little	o f Graval				
12	- 21	16 16	5-0			IVI	IVIL	DWITSILT,	some c-	-i Sanu, iittie	C-I Glavel				
12															
13	-	-													
14	-	-													
15	_	7												264.	0
16	- 40	19	S-7	20		М	ML	Bwn-gy SI	LT, som	e c-f Gravel,	little c-f Sand	d			
17		33													
18															
10															
19	-	-													
20	50+	50/0	S-8					No recove	ry in spo Isal at 20	on) feet bas				∐	0
21	-	-						Vidgor rold		1001.090					
22	-	-							End	of Boring at 2	20'				
23	_	-													
24	_	_													
25														254	0
REM	- ARKS:	Surfac	e elev	ations	estima	ted b	based or	n a topograpł	nic surve	y provided by	The LA Grou	p, date	ed Ma	лау 2022.	-

					-			PROJECT N	o. 1158 4	4.01		5			2 N	~ <	SB.	7		
					ni			PROJECT:	North	Rockland	High Schoo	, E			או כ	0. 0	50-	1		
						U		LOCATION:	Thiel	ls, NY						SF	IEET N	No. 1 c	of 1	
CLIE	NT: N	lorth Roo	kland	l Centr	al Scho	ool D	istrict		9 m	DATE	TIME	D	EPTH	INSF	PECTO	R: D	aniela	Parrir	10	
CON	TRACT	OR: Co	re Do	wn Dri	lling LL	.c			ATE					DRIL	LER:	Α	ndrew	Bellu	cci	
METH	OD OF /	ADVANCIN	IG BOF	RING	DIA.		DE	EPTH	RΩ ≥					SUR	FACE	ELEVA	TION:	2	80.0	
POW	/ER AU	GER:			3 1/4"		0	to 4'	MON. V	VELL	☐ YES	X	NO	DAT	UM:	5	See Re	marks	6	
ROT	. DRILL	:						то	SCREE	N DEPTH:	T(0 -		DAT	E STAI	RT:	9/12/	22		
CAS	ING:							то	WEATH	IER: Over	cast TE	EMP: 7	5° F	DAT	E FINIS	SH:	9/12/	22		. <u></u>
DIAN	IOND C	CORE:						ТО	DEPTH	TO ROCK:	Not Encou	untered		UNC		TON (TON	IPRESS. IS/FT)	STREN	GIH	
CME	55LC t	rack-moun	ited dril	I rig with	automa	itic ha	mmer		*CHAN	GES IN STRA	TA ARE INFE	RRED			1	2	3 4	4 5 	5	ET
(·:L	/FT.						SS.		DES	SCRIPTI	ON		۲×	PLA: LIM	STIC IT %	WA CONT	TER ENT %	LIQ LIMI	UID IT %	
TH (F	MIN	TRAT STAN -/6 IN	PLE BER	Ţ	,OV.	rure	IFIEI . CLA			OF			ого	1	0 2	20 3	80 - 4	0 5	0	-A
DEP	N OR	PENE RESI (BL	SAM NUM	ENGT (IN.)	RQD (%)	NOIS	SOIL		N	IATERIAL	-		Ë,	•	PENE	STAN TRATIO	IDARD N (BLOV	/S/FT.)		
		3				2								1	0 2	20 3	30` 4	0 5	0	
1	- 10	5 -	S-1	8		М	GM	3" topsoil- Bwn-gy c-1	like mate f GRAVE	erial EL, some c∙	f Sand, littl	e Silt								-
2		5						(FILL)												_
3	- 85+	35	S-2	q		м	GM	Same (FIL	L) Isal at 4	feet has									8	\$5
4		50/2						See Boring	g SB-7A	loor byo										ſ
5		_							End	of Boring a	ıt 4'									275.0
5	_	-								5										_275.0
6	-	-																		-
7	-	-																		-
8	-	-	-																	-
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10	_	-	-																	_270.0
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25 0 REM		Surfac	e elev	ations	estima	ted h	ased o	n a topograph	nic surve	v provided k	v The I A G	aroup d	ated Ma	 av 202	 2					_255.0
		20.100								, F. 51.404 k	,			, _02						

								PROJECT N	lo. 1158	4.01		B		ING	: N/		R-T	7Δ		
17					ni	6		PROJECT:	North	h Rockland H	igh School					υ. τ	-0			
								LOCATION:	Thiel	lls, NY		1				SH	EET N	lo. 1 o	f 1	
CLIE	ENT: N	lorth Ro	ckland	l Centr	al Sch	ool D	istrict	1	₽ ĸ	DATE	TIME	DE	PTH	INSP	ECTOF	R: Da	aniela	Parrin	0	
CON	NTRACT	OR: Co	ore Do	wn Dri	lling Ll	LC			NOUN ATE					DRILI	LER:	A	ndrew	Belluc	ci	
METH	IOD OF .	ADVANCI	NG BOF	RING	DIA.		DE	EPTH	<u></u> В ≥					SURF	ACE E	ELEVA	FION:	2	80.0	
POV	VER AU	IGER:			3 1/4'	•	0	TO 20'	MON. \	WELL	YES	X	NO	DATU	JM:	5	See Re	marks	;	
ROT	. DRILL					_		ТО	SCREE	EN DEPTH:	ТО			DATE	STAR	RT:	9/12/2	22		
CAS	SING:					_		то	WEATI	HER: Overc	ast TEMP	² : 80°	°F				9/12/2	22	этн	
		CORE:			<u> </u>			ТО	DEPTH	TO ROCK:	Not Encounte	ered'		UNU	e	(TON	S/FT)	OTTEN	5111	
CME	= 55LC t	rack-mour	nted dril		n automa	atic ha	mmer		*CHAN	IGES IN STRAT	A ARE INFERRI	ED			2	2 3	3 4 TED			N (FT
FT.)	I./FT.	NCE		REC	COV.	ш	ASS.		DE	SCRIPTIC	N		°4,	LIMI	г % — — —		ENT %		51D T % Δ	UI0
РТН (MIN	ETRA SISTA	APLE	Η,		STUR	L CL/			OF			10L0	10) 2(0 3	0 4	0 50)	EVA
DEI	lõ z	PENI RES (B	SAN	ENG.	RQI (%)	MOIS	SOI		N	<i>I</i> ATERIAL			Ë	•	PENET	STAN RATIO	DARD N (BLOW	/S/FT.)	_	
														10) 20	0 3	0 4	0 50)	
1	-		-																	F
2	_		_					Boring SB	-7A offs	et 3 feet nor	h of boring B	-7.								Ļ
3	L	.						NO SPI S	ampling	performed to	4 ieet bgs									L
4		24																		- -
5	- 47	20	S-1	24		М	SM	Bwn m-f S	SAND, so	ome Silt, son	ne c-f Gravel									_275.0
6		17						-												F
7	- 24	12 12	S-2	18		М	SM	Same								Ţ				F
8		10						-												F
9	- 27	16	S-3	14		м	GM	Bwn-av c-	f GRAVI	FL some c-f	Sand, little S	Silt								Ļ
10		11 10								EE, 001110 0 1	Carla, Italo C					Ī				270.0
11		28 16						Bwn-blk-a	v c-f GR	AVEL. and S	Silt. little c-f		K							
	- 28	12	- S-4	9		М	GM	Sand	,	,,	,					₹				F
12		12						-					26				$ \setminus $			F
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16	50+	50/2	S-5	4		М	GM	Gy-bwn c-	f GRAV	EL, little Silt,	trace c-f Sar	nd								Ļ
17																				L
18																				
0/18/2	Γ]																	Γ
¥ ¹⁹	F		1																	F
20 פי צפי גר	50+	50/0	S-6	0				No recove	ery in spo Isal at 20	oon 0 feet bas		~						••••••	•	_260.0
21 21	-		-						sour at Z	0 1001 090		/								+
22	-		-						End	of Boring at	20'									F
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^{V:L0:} tg 24	L	.																		L
25																				255.0
	HARKS:	Surfac	e elev	ations	estima	ated b	ased o	n a topograp	hic surve	ey provided by	The LA Grou	ıp, da	ted Ma	y 2022	<u></u>					-200.0
м																				

								PROJECT No	o. 1158	4.01						2 N/		R-9	2		
17	6				ni			PROJECT:	Nort	h Rocklan	nd Hig	gh School					0. C) Ш-(J		
						U		LOCATION:	Thie	lls, NY							SH	EET N	lo. 1 o	f 1	
CLI	ENT: N	lorth Ro	kland	Centr	al Scho	ool D	istrict		g r	DATE	=	TIME	DE	PTH	INSP	ECTOF	۲: Da	aniela	Parrin	10	
со	NTRACT	OR: Co	re Do	wn Dri	lling LL	.c			OUN						DRIL	LER:	A	ndrew	Bellu	cci	
METH	HOD OF	ADVANCIN	IG BOR	RING	DIA.		DE	PTH	GR ⊗						SUR	FACE E	LEVA	FION:	2	81.0	
PO	WER AU	IGER:			3 1/4"		0	to 8'	MON.	WELL		YES	X	NO	DAT	JM:	5	See Re	marks	;	
RO	T. DRILL	.:					-	то	SCREI	en depth:	-	— то		-	DATI	E STAF	RT:	9/13/	22		
CAS	SING:						-	то	WEAT	HER: Ra	ain	TEM	P: 72	° F	DATI	E FINIS	H:	9/13/	22		
DIA	MOND	CORE:					-	то	DEPTH	H TO ROCK	: N	ot Encoun	tered'		UNC		D COM (TON	PRESS. S/FT)	STREN	GTH	
CM	E 55LC t	rack-mour	ted dril	l rig with	n automa	itic ha	mmer		*CHAN	IGES IN ST	RATA	ARE INFERF	RED		1	2	2 3	3 4	1 5	5	(FT
	Ë			SAM	PLES		SS.		DE	SCRIPT		ı		*	PLAS LIMI	STIC T %	WA CONT	TER ENT %	LIQ LIMI	UID T %	NOI
H (F	MIN./	FRAT STAN /6 IN.	PLE MER	REC	;0V.	URE	IFIED CLAS			OF		•			>	← — — 0 2	- — — (0 3	9——- 0	0 5	∆ 0	VAT
DEP1	I OR	ENET RESIS	SAMF	NGTI (IN.)	20D (%)	OIST	SOIL		Ν	/ATERI	AL			E	•		STAN				
	2	<u>د</u> ۳	<i>•</i> , <i>2</i>	LE C	<u> </u>	Σ									- 1	0 2	0 3	0 4	0 5	0	<u> </u>
1	1 9	4	S-1	19		м	SM	3" topsoil-l Bwn c-f SA	ike mat	erial me Silt_t	race	c-f Gravel				L					F
		5 9						(FILL)	" <i>1</i> D, 00	ino on, a	1400	o i olavol									
		15 20								0.11											-
	² - 45	25	S-2	23		М	SM	Bwn-tn c-f	SAND,	some Sil	t, little	e c-f Grave	el								-
2	1	23																			-
5	5 - 51	27 24	S-3	24		М	GM	Bwn-gy c-f	GRAV	EL, and c	-f Sa	nd, some :	Silt			• • • • • • • • •	• • • • • • • •	•••••		•••••	_276.0
6	3	27 50/4												• •							-
7	7 - 50+	-	S-4	4		М	SM	Bwn c-f SA Drilled to 8	AND, so i feet bo	ome c-f Gi gs, auger	ravel, refus	, some Silt al at 8 fee	t								F
8	3							See Boring	g SB-8Å	λ -											L
ç		_							Enc	d of Boring	g at 8										
10																					271.0
	[-																			
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12	2	-	-																		-
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24.01	1 L		-																		F
<u>۲</u> ۲	5_																				_256.0
OT REI	MARKS:	Surfac	e elev	ations	estima	ted b	ased o	n a topograph	nic surve	ey provide	d by 1	The LA Gro	up, da	ted Ma	ay 202	2.					
BORII																					

								PROJECT N	o. 11584	1.01		R	OR		3 N/		R-8	RΔ	
					ni			PROJECT:	North	Rockland H	gh School					J. U			
						U		LOCATION:	Thiell	s, NY						SH	EET N	o. 1 of	1
CLIE	NT: N	orth Roo	kland	Centr	al Scho	ool D	istrict		д ж	DATE	TIME	DEI	РΤΗ	INSF	PECTOR	R: Da	niela	Parrino	
CON	TRACT	OR: Co	re Do	wn Dri	lling LL	C			NATE					DRIL	LER:	Ar	ndrew	Bellucc	i
METH	DD OF A	ADVANCIN	IG BOR	RING	DIA.		DE	PTH	<u></u> В З					SUR	FACE E	ELEVAT	ION:	28 ⁻	1.0
POW	/ER AU	GER:			3 1/4"		0	TO 20'	MON. W	VELL [] YES	1	NO	DAT	UM:	S	ee Rei	marks	
ROT	. DRILL	:					-	го	SCREE	N DEPTH:	то			DAT	E STAR	T:	9/14/2	22	
CAS	NG:						-	ТО	WEATH	IER: Clear	TEMP	∵ 75°	F	DAT	E FINIS	H:	9/14/2	22	
DIAN	10ND C	ORE:					-	ТО	DEPTH	TO ROCK:	Not Encounte	ered'		UNC		D COMF (TONS	PRESS. 3 S/FT)	STRENGT	
CME	55LC t	rack-moun	ited dril	l rig with	n automa	itic ha	mmer		*CHANC	GES IN STRAT	ARE INFERRE	ED			1 2 	3	4	5	(FT.
Î.	ΈT.			SAM			SS.		DES	SCRIPTIO	N		*≻5	PLA LIM	STIC IT %	WA1 CONTE	ER ENT %	LIQUII	
TH (F	MIN	TRAT STAN /6 IN	PLE	T	,OV.	URE	IIFIEC CLA			OF				1	× – – 0 2) — —«) 3(- — — <u> </u>	EVAT
DEP.	N OR	(BL	SAMI	NGT (IN.)	3QD (%)	IOIST	SOIL		М	ATERIAL			ITHO	•	PENET			S/FT)	
	2			Щ -	ш. 	Σ								- 1	0 2	30) 40) 50	
1																			
2	_	-																	-
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4	_	-						Boring B-8	BA offset	7 feet north	of boring B-8	3.							-
5	_	-	-					NO OF I S	amping p		0 leet								276.0
6																			
	-	-																	-
7	-	-	-																-
8	_	11																	F
9	- 13	7	S-1	14		М	GP-GM	Bwn c-f G	RAVEL,	and m-f San	d, trace Silt								-
10		5																	271.0
11		6 6						D		0:14 1:141									
	- 18	12	S-2	12		М	SM	Bwn c-t S/	AND, sor	ne Slit, little	c-f Gravel					\frown			-
12	_	13																	-
13	-	-																	\searrow
14	-	-	-																-
15																			266.0
16	115+	23 65	S-3	10		М	SM	Bwn-av c-	f SAND.	some c-f Gr	avel, some S	Silt							115
10	_	50/3						55	,	-	,								-
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18	_	-																	F
19	_	-																	F
20	_																		261.0
21	50+	50/4	S-4	4		М	GM	_ Gy-bwn c-	t GRAVE	<u>L, some c-f</u>	Sand, little S	silt						Ý	
	-	-	1						End of	f Boring at 2).3'								Ē
22	-	-																	F
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REM	ARKS:	Surfac	e elev	ations	estima	ted b	ased o	n a topograpl	nic survey	y provided by	The LA Grou	ıp, dat	ed Ma	y 202	2.				
L																			

								PROJECT N	lo. 1	11584	.01						3 N/		R-Q	ג		
	6				ni			PROJECT:	١	North	Rocklar	nd Hig	gh School	I				J. C	л <u>о</u> -,	,		
								LOCATION:	٦	Thiells	s, NY							SH	EET N	lo. 1 of	2	
CLIE	NT: N	orth Roc	kland	Centr	al Scho	ool D	District		Q	К	DATE	Ξ	TIME		DEPTH	INSF	PECTOR	: Da	aniela	Parrin	0	
CON	TRACT	0R: Co	re Dov	wn Dri	lling LL	C			log	ATE						DRII	LER:	A	ndrew	Belluc	ci	
METHO	DD OF A	DVANCIN	IG BOR	RING	DIA.		DE	PTH	Ъ	\$						SUR	FACE E	LEVAT	TION:	27	72.0	
POW	ER AU	GER:			3 1/4"	'	0 7	го 30'	M	ON. W	ELL] YES		NO NO	DAT	UM:	S	See Re	marks		
ROT	DRILL	:					٦	ГО	SC	CREEN	NDEPTH:		тс)		DAT	E STAR	T:	9/15/2	22		
CASI	NG:						1	ГО	W	/EATH	ER: CI	ear	TE	MP:	75° F	DAT	E FINIS	H:	9/15/2	22		
DIAN	10ND C	ORE:					1	ГО	DE	EPTH '	TO ROCK	i N	lot Encou	ntere	d'			(TON	PRESS. S/FT)	STRENG	н	
CME	55LC ti	rack-moun	ited dril	I rig with	automa	atic ha	ammer		*C	CHANG	SES IN ST	RATA	ARE INFE	RRED			1 2 		3 4 	5		I (FT
Û.	/FT.	LION CE		SAIVI			D SS			DES	CRIPT		١		G⊀,	LIM	STIC IT % ∽ — —		TER ENT %		/ID 7 %	TION
TH (F	MIM	ETRA ISTAN L/6 IN	IPLE BER	E		TURE	- CLA				OF				OLO	1	0 20) 3	0 4	0 50		EVA.
DEP	N OF	PENE RESI	SAM NUM	ENG1 (IN.)	RQD (%)	10IS	SOIL			M	ATERI	AL				•	PENET	STAN RATION	DARD N (BLOW	/S/FT.)		Ш
		2				2										1	0 20) 3	0 4	0 50)	
1	- 40	10	S-1	15		М	GM	4" topsoil- Bwn-gy c-	like f GF	mate RAVE	rial L, some	c-f S	Sand, little	e Silt		Ś			,		-	-
2		13						(FILL)								X						_
3	- 20	9		10		M	CM	Bwn-gy c-	f GF	RAVE	L, and c	-f Sa	and, some	e Silt								_
	- 30	21 29		10		IVI	Givi	(FILL)											\frown			
4		20						Cy wht hy		fCD			o f Sand	little		Ś						-
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6	_	23 19																			-	-
7	- 35	17 18	S-4	16		М	SW-SM	Bwn c-f S/	AND), and	f Grave	el, litt	le Silt								-	-
8		15																			-	-
9	- 12	7 _	S-5	12		W	GM	Bwn-av c-	f GF	RAVE	L. and c	-f Sa	and. little \$	Silt			•					-
10		5 4						57	-		,		,				<i>[</i>]					_262.0
11	•	3 3						0														
10	- 0	3 WOH	5-0	b b		vv	GM	Same														-
12																					ľ	-
13	-	-															$ \rangle $					-
14	-	-	-														$ \setminus $				ŀ	-
15	_	10														•••••						_257.0
16	- 22	13	S-7	6		w	GM	Bwn c-f G	RAV	/EL, s	some c-	f San	id, little Si	ilt							-	-
17		6														•	/	, 				-
18	_	_															/					_
10																	/					
	-	-	1																		Ī	-
20		2														; /						_232.0
21	- 5	2	S-8	18		W	SM	Bwn c-f S/	AND), son	ne Silt, t	race	m-f Grav	el		.] ∳					ŀ	-
22	_	4																			ł	-
23	-																				-	-
24	_	-																			-	-
25																			<u>.</u>	<u></u>	<u></u>	_247.0
REM	ARKS:	Surfac	e elev	ations	estima	ted b	based or	n a topograpi	hic s	urvey	provide	d by	The LA G	roup,	dated M	ay 202	2.					

PROJECT: North Rockland High School	
LOCATION: Thiells, NY SHEET No.	of 2
CLIENT: North Rockland Central School District	INGTH
CONTRACTOR: Core Down Drilling LLC 1 2 3 4	5 (FT.)
Image: Samples Samples Image: Samples	
) ₎
	50
2^{26} - 7 3^{-} - S-9 24 W SM Bwn c-f SAND, and Silt, little c-f Gravel	-
	-
	-
	-
30 WOH WOH	242.0
31 - 4 $2 - 3 - 10$ 12 W SM Bwn c-f SAND, and Silt, trace c-f Gravel	-
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	237.0
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49 49 49 40 40 40 40 40 40 40 40 40 40 40 40 40	
	222 0
REMARKS: Surface elevations estimated based on a topographic survey provided by The LA Group, dated May 2022.	

								PROJECT N	o. 1158 4	4.01				P			2 N	<u> </u>		10		
					1 i			PROJECT:	North	n Rockla	nd Hig	gh Sch	lool			1111	או כ	0. 1	50-	IU		
						U		LOCATION:	Thiel	ls, NY								Sł	HEET	No. 1 (of 2	
CLIEI	NT: N	lorth Roo	kland	Centra	al Scho	ol D	istrict	1	₽ ĸ	DAT	E		ИE	DE	PTH	INSF	PECTC	R: D	Daniela	Parri	no	
CON	TRACT	OR: Co	re Dov	wn Dril	lling LL	.C			ATE							DRII	LER:	A	ndrew	v Bellu	cci	
METHO	DD OF /	ADVANCIN	IG BOR	RING	DIA.		DE	EPTH	ц В S							SUR	FACE	ELEVA	TION:	2	272.0	
POW	/ER AU	GER:			3 1/4"		0	TO 25'	MON. V	WELL] YES		X	NO	DAT	UM:		See R	emark	S	
ROT.	DRILL	:						ТО	SCREE	IN DEPTH	l:		то			DAT	E STA	RT:	9/15	/22		
CASI	NG:						-	ТО	WEATH	HER: C	lear		TEMP:	80°	'F	DAT		SH:	9/15	22		
DIAM	IOND C	CORE:						ТО	DEPTH	I TO ROCH	K: N	Not End	counte	red'		UNC		IOT)	NS/FT)	. SIKEN	ЮП	
CME	55LC t	rack-moun	ted dril		automa	tic ha	mmer		*CHAN	GES IN ST	TRATA	A ARE IN	IFERRE	D			1	2	3	4	5	l (FT
(; H	./FT.	L CE		REC			D SS.		DE	SCRIP ⁻		N			°7⊀	LIM	STIC IT % ★ — -		ATER TENT %		0UID IT % -^	
тн (I	MIN S	ETRA ISTAI L/6 IN	IPLE IBER	E	-	TURE	- CLA			OF					ого	1	10 :	20	30 4	40 t	50 	EVA
DEF	N OF	RES (B	SAN NUN	(IN.)	RQD (%)	NOIS	IN IIOS		N	1ATERI	IAL				LITH	•	PENE	STAN TRATIC	NDARD N (BLO)	NS/FT.)		L L
		6				_		3" topsoil-	like mate	erial					<u>., 1</u> , . <u>, 1</u>	1		20	30 4	40 5	50	
1	- 34	6 28	S-1	10		М	GM	Bwn-gy c-	f GRAVE	EL, and o	c-f Sa	and, litt	tle Silt						•			-
2	_	16													\bigotimes							F
3	- 33	16	S-2	14		М	GM	Same (FIL	L)						\bigotimes							Ļ
4		17 12						, ,	,						\bigotimes				1			L
5	-	9 5		10												~						267.0
	- /	2	S-3	13		Μ	ML	BWN SILT,	, and t Sa	and, little	ecG	ravei										_207.0
6	_	2																				F
7	- 5	3	S-4	18		М	SM	Gy c-f SAI	ND, and	Silt						¢						-
8		2																				F
9	- 12	5 -	S-5	18		W	SM	Bwn-or c-f	SAND,	some Si	ilt, littl	le c-f C	Gravel				þ					F
10		6																				_262.0
11	- 15	7	S-6	24		W	SM	Bwn c-f S/	AND. so	me Silt. I	little o	c-f Gra	vel									Ļ
12	_	8 8							,	,												L
13																	/					
14	-																\backslash					ſ
14	-	-															/					
15		2						1								/						_257.0
16	- 7	3	S-7	20		W	SM	Bwn c-f S/	AND, soi	me m-f (Grave	el, little	Silt			Þ						-
17		3															\mathbb{N}					-
18	-	-															$ \setminus$					-
19	_	-															\					-
20	_							T		OAND		0.11		<i>c</i>				<u> </u>				_252.0
21	- 28	4	S-8	18		w	SM	Gravel	n-gy c-f	SAND, S	some	e Silt, tr	ace m	I-T								L
22	20	18 15	S-8A			• •	GM	Bottom 9" some Silt	Gy-rd c-	-f GRAV	ΈL, s	ome c	-f San	d,								
22																						
23	-	-																				-
24	-	-																	$\ $			F
25		Surfac		ations	estimo	tad h		n a topograpi	hic surve	w provide	ad by	Thel	Grou	n dat		av 201	 2		<u></u>			_247.0
	,	Junau		0000	Journa					PIOVICE			, Grou	P, uai		.y 202	. <u>~</u> .					

								PROJECT No.	11584.01	BU	P		2 N	<u> </u>	P	10		
								PROJECT:	North Rockland High School				יאו כ	0. 0	-םכ	10		
	C							LOCATION:	Thiells, NY					SF	IEET I	No. 2 d	of 2	
CLIEI	NT: N	orth Roc	kland	Centr	al Sch	nool D	istrict	I		1		UNC		D COM	IPRESS. IS/FT)	STREN	GTH	
CON	TRACT	OR: Co	re Dov	wn Dri	lling L	LC							1 :	2	3	4	5	(FT.)
Î.	Ĩ.	N E (SAM	PLES		SS		DESCRIPTION	*	5	PLA LIM	STIC IT %	WA CONT	TER ENT %	LIC LIM	UID IT %	NOI
TH (F	MIN	TRAT STAN /6 IN.	PLE BER	T	00.	IURE	UIFIED CLA		OF			1	← — — 0 2	0 3	8——- 30	05	-A i0	EVAT
DEP	N OR	RESI (BL	SAMI	ENGT (IN.)	RQD (%)	ISION	SOIL		MATERIAL			•	PENE	STAN	Idard N (Blov	' /S/FT.)	•	
		31		5		~				•		1	0 2	0 3	30` 4	0 5	0	
26	- 33	23 10	S-9	18		w	GM	Same										-
27		9								• •								-
28	-	-	-						End of Boring at 27'									-
29	-	-	-															-
30	-	-	-															_242.0
31	-	-																_
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34	-	_																_
35	_	_																_237.0
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30	-	-																-
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40	-	-	-															_232.0
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45	-	-																_227.0
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9. 50 50	-	-																_222.0
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52 52	-	-																-
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54	-	-																-
₹ 0 55	-	_																_217.0
	ARKS:	Surfac	e elev	ations	estim	ated b	ased o	n a topographi	c survey provided by The LA Grou	p, dated	Ma	y 202	2.					
BOR																		

								PROJECT N	o. 1158 4	4.01					2 NL			1	
					~i			PROJECT:	North	Rockland Hi	igh School				סאו כ	0. 3)D-1	I	
	C					U		LOCATION:	Thiel	ls, NY						SHI	EET N	o. 1 of 2	
CLIE	NT: N	lorth Roo	kland	Centr	al Scho	ool D	istrict		₽ ĸ	DATE	TIME	DE	PTH	INSI	PECTOF	R: Wi	illiam (Guerrier	
CON	TRACT	OR: Co	re Do	wn Dri	lling LL	.C			ROUN ATE					DRI	LER:	An	ndrew I	Bellucci	
METHO	DD OF /	ADVANCIN	IG BOF	RING	DIA.		DE	PTH	ц В В S					SUF	FACE E	ELEVAT	ION:	275	5
POW	'ER AU	GER:			3 1/4"		0	TO 30'	MON. V	VELL	YES	X	NO	DAT	UM:	S	ee Rer	narks	
ROT.	DRILL	:					-	ТО	SCREE	N DEPTH:	ТО		•	DAT	E STAR	RT:	8/26/2	2	
CASI	NG:						-	ТО	WEATH	IER: Overca	ast TEMP	² : 75	° F	DAT	E FINIS	H:	8/26/2	2	
DIAN	IOND C	ORE:						ТО	DEPTH	TO ROCK:	Not Encounte	ered'		UNG		D COMF (TONS	PRESS. S S/FT)	STRENGTH	
CME	55LC t	rack-mour	ited dril	I rig with	n automa	itic ha	mmer		*CHAN	GES IN STRAT	A ARE INFERRE	ED			1 2 	2 3	4	5	ET.
Î.	ΈT.			SAM			SS.		DES	SCRIPTIO	N		*	PLA LIM	STIC IT %	WAT CONTE	ER NT %	Liquid Limit %	NOL
TH (F	MIN./	STAN 6 IN.	LE ER		;OV.	URE	IFIED CLAS		DL	OF					× — — 0 21	- — —« 0 3(- —∆ 50	
DEP1	I OR	ENET RESIS	SAMF	NGTI (N.)	20D (%)	OIST	NN		Ν	IATERIAL			H	•		STANE			ELE
	z		0,2	Ë,	ш.	Σ									0 20	0 30) 40	50	
1.	- 20	2 11 9	S-1	14		М	SM	4" topsoil- Bwn c-f S/ (FILL)	like mate AND, soi	erial me Silt, little	c-f Gravel								-
3.	- 23	12 14 10 13	S-2	16		М	GM	Bwn-wht c (FILL)	-f GRAV	/EL, and Silt,	some c-f Sa	and							-
5.	- 11	9 6 5 3	S-3	7		М	SW-SM	Bwn c-f S/	AND, and	d f Gravel, tra	ace Silt			/					270.5
7	- 3	2 1 2 1 1 1	S-4	3		М	SW-SM	Bwn c-f S/	AND, and	d f Gravel, tra	ace Silt								-
9	- 6	2 2 4 2	S-5	0				No Recov	ery										-
11	- 6	3 3 3 7	S-6	3		W	SM	Bwn c-f S/	and, Iitti	e f Gravel, lit	tle Silt			•					
13	_	-																	-
15		2																	260.5
16 . 17 .	- 4	2 - 2 - 2 - 2	S-7	22		W	SM	Bwn m-f S	and, litt	tle Silt, trace	f Gravel								-
18 19	-	-																	-
20	- 2	WOH 1 1 WOH	S-8	24		W	SM	Same						•••••					255.5
22	-	-				_													-
24	-	-																	250 5
REM	ARKS:	Surfac	e elev	ations	estima	ted b	based or	n a topograpl	hic surve	y provided by	The LA Grou	up, da	ted M	ay 202	2.				

								PROJECT No. 11584.01	POP			11		
								PROJECT: North Rockland High School			0.30	- 1 1		
	C							LOCATION: Thiells, NY			SHEET	No. 2 c	f 2	
CLIE	NT: N	orth Roo	kland	l Centr	ral Scł	nool D	istrict		1		D COMPRES (TONS/FT)	S. STREN	GTH	
CON	TRACT	OR: Co	re Do	wn Dri	lling L	LC				1 2	3	4 5	5	(FT.)
(.T	/FT.			SAM			SS.	DESCRIPTION	*- 5	PLASTIC LIMIT %		6 LIQ	UID T %	NOI
TH (F	MIN	ETRAT ISTAN L/6 IN	PLE BER	E		TURE	- CLA	OF	OTO	10 20) <u>30</u>	40 5	0	EVA
DEF	N OF	PENE RES (B	SAN NUN		RQD (%)	MOIS	IN SOIL	MATERIAL		PENET	STANDARE RATION (BLO) DWS/FT.)	<u>,</u>	
		4									30	40 5	0	
26 .	- 8	4	S-9	12		W	SM	Same						-
27		4												_
28	-	-	-											_
29 .	-	-	-							·				-
30 .		3								· · · · · · · · · · · · · · · · · · ·				_245.5
31.	- 9	4 5	S-10	15		w	SM	Bwn m-f SAND, little Silt, trace f Gravel						-
32		9												-
33	-	-	-					End of Boring at 32						_
34	-	-	-											-
35 .	-	-	-											_240.5
36	-	-												-
37	-	-	-											-
38	-	-	-											-
39.	-	-	-											_
40	-	-	-											_235.5
41.	-	-	-											-
42	-	-	-											_
43 .	-	-	-											_
44 .	-	-	-											_
45 .	-	-	-											_230.5
46 .	-	-	-											-
47	-	-												-
48	-	-												-
49	-	-	-											-
50	-	-	-											_225.5
51.	-	-												-
52	-	-												-
53	-	-	-											_
54 .	-	-	-											_
55 REM	- ARKS:	Surfac	e elev	/ ations	estim	ated b	ased o	n a topographic survey provided by The LA Grou	p, dated M	 lay 2022.				_220.5
										-				

					-			PROJECT N	lo. 115	584.01	l			6	20	D		2 N		CR	12		
					ni			PROJECT:	Nor	rth Ro	ockland H	High	School		50			יו כ	IU. 1	00.	12		
								LOCATION:	Thie	ells, I	NY								S	HEET	No. 1	of 2	
CLI	IENT:	North Ro	ckland	l Centr	al Scho	ol Di	strict		g m	r	DATE		TIME	D	EPTH	1	INSF	PECTO	DR: N	Villian	1 Guer	rieri	
со	NTRAC	ror: C	ore Do	wn Dri	lling LL	.C											DRIL	LER:		Andrev	v Bellu	icci	
MET	HOD OF	ADVANCI	NG BOF	RING	DIA.		DE	EPTH	Ω β β β								SUR	FACE	ELEV	ATION:		276.5	
PO	WER AL	JGER:			3 1/4"		0	TO 26.5'	MON.	. WEL	L	ΡY	′ES	X	NO		DAT	UM:		See R	emark	s	
RO	T. DRIL							ТО	SCRE	EEN D	EPTH:		то	-			DAT	E STA	RT:	8/26	6/22		
CA	SING:							то	WEAT	THER	Over	cast	TEM	1P: 7	5° F		DAT	E FIN	SH:	8/26	6/22		
DIA	MOND	CORE:						ТО	DEPT	тн то	ROCK:	Not	Encoun	tered	•		UNC		IED COI (TO	MPRESS NS/FT)	3. STREI	NGTH	
CM	IE 55LC	track-mou	nted dril	l rig with	n automa	tic har	nmer	1	*CHA	NGES	IN STRAT	TA AF	RE INFER	RED	_			1	2	3	4	5	ET.
	Ë	NON		SAM	PLES		Ś			FSC		ы			*		PLA LIM	STIC IT %	W CON	ATER TENT %	LIC	QUID /IT %	NO
Ц Ц	NIN./	TAT TAN 6 IN	ШЧШ	REC	OV.	URE	FIED		DL		OF) 1	← — 0	 20	-⊗ 30		—∆ 50	VAT
DEPT	ORI	ENET (BL/		NGTH N.)	(%) (%)	DISTI	UNI SOIL (1	MAT	U. FERIAL	_				2	•		STA	NDARD	-	1	
	z	E c	0 2		<u>к</u> –	ž	0)									1	1		20	30 30	40 40	50	
.	1 29	11	- S-1	9		м	SM	3" topsoil- Bwn m-f S	like ma SAND, s	ateria some	l e Silt, tra	ce c·	-f Grave	1	\mathbf{X}	X							-
	2	15						(FILL)								\bigotimes							
	3 10	11 7	6.0	10			CM	Durp of S		and f	Crovel	ittle		1.)		\bigotimes							
		5	- 3-2	10		IVI	SIVI	DWITC-I S	AND, a	anu i	Giavei, i	ille		L)	\otimes	\bigotimes							
	4	7						Dura unitation				4.0				\bigotimes							F
	5 - 27	12	S-3	12		М	GM	Silt (FILL)	C-I GRA	AVEL	, some c	-1 38	anu, sor	ne		X.				•••••••	.		_271.5
6	6	9																	X				-
	7 - 14	7	S-4	15		м	SM	Bwn c-f S	AND, lit	ittle f	Gravel, I	little	Silt					$ \bullet$					-
8	в	10																					-
9	9_		_																				
1	D																						266.5
1	1																						
	_																						F
12	2_		-																				-
1:	3_		-																				-
14	4_		-																				-
1	5	8																	.		.		_261.5
16	⁶ - 11	5	S-5	3		w	SM	Bwn c-f S	AND, a	and f	Gravel, I	ittle	Silt					Ļ					F
17	7	6 3																					L
N 18	вL																						L
1/18/2																							ſ
	-		1																				
20 20 20	U	6																···{··	.		•		_256.5
2 ⁷	1 - 16	7	S-6	10		w	SM	Bwn-gy c-	f SAND	D, littl	e f Grav	el, lit	ttle Silt					•	\downarrow				F
22	2	9																		$\left \right\rangle$			-
- 	3_		-																		\mathbf{k}		ŀ
.10.45 24	4																					\searrow	L
112	5																						251.5
	MARKS	Surfac	e elev	ations	estima	ted ba	ased o	n a topograp	hic surv	vey pr	rovided b	y Th	e LA Gro	oup, d	ated	May	y 202	2.	<u></u>	<u></u>		<u></u>	
IORIN																							
m																							

								PROJECT No. 11584.01	BC	D		2 NI	~ <	B.	12		
Т					٦Ĭ			PROJECT: North Rockland High School) IN	υ. τ	-םי	12		
	C						•	LOCATION: Thiells, NY					SH	EET N	lo. 2 c	of 2	
CLIEN	IT: No	orth Rock	land C	Centra	I Sch	ool D	istrict				UNC		ED COM (TON	PRESS. S/FT)	STREN	GTH	
CONT	RACTO	DR: Core	Dowr	n Drill	ing L	LC					1	:	2 ; 	3 4	1 !	5	(FT.)
(:T:	/FT.		S		LES		SS.	DESCRIPTION		<u>+</u>	PLAS LIMI	STIC T %		TER ENT %	LIQ	UID T %	NOIT
TH (F	R MIN	ETRA ISTAN L/6 IN		Ē	ov.	TURE	L CLA	OF			1	D 2	0 3	0 4	0 5	0	EVA
DEF	N OF	RES (B (B		DN (.)	RQD (%)	MOIS	IN SOIL	MATERIAL	Ī	Ë	•	PENE	STAN IRATIO	DARD N (BLOW	/S/FT.)	•	
		4		_				Gv-rd c-f GRAVEL some c-f Sand, little Silt			1	0 2	0 3	0 4	0 5	0 8	1
26_	81+	31 50/2	S-7	18		W	GM	Auger refusal at 26.5 feet bgs									•
27_		-						End of Boring at 26.5'									_
28 _		-															-
29_		-															-
30_																	_246.5
31_																	_
32 _		-															-
33 _		-															_
34 _		-															_
35 _		-												•••••			_241.5
36 _		-															-
37_		-															-
38 _		-															-
39 _		-															-
40 _		-															_236.5
41_		-															-
42 _		-															-
43 _		-															-
44 _		-															-
45 _		-															_231.5
46_																	-
47																	_
48_																	_
49_																	-
50_																	_226.5
51_																	-
52																	_
53_																	-
54 _																	_
55_																	_221.5
REMA	RKS:	Surface	elevat	ions e	estima	ated b	ased or	n a topographic survey provided by The LA Grou	p, datec	a Ma	y 202	2.					

								PROJECT N	o. 1158	4.01		P			3 N	<u> </u>	SR-	12		
					^i			PROJECT:	North	n Rockland H	igh School					0.0	-0-	J		
								LOCATION:	Thiel	ls, NY		1				SH	IEET I	No. 1 c	of 2	
CLI	ENT: N	lorth Ro	ckland	l Centr	al Sch	ool D	istrict	1	д к	DATE	TIME	DE	PTH	INSP	ЕСТО	R: N	/illiam	Guerr	ieri	
со	NTRACT	OR: Co	re Do	wn Dri	lling Ll	C								DRIL	LER:	A	ndrew	Bellu	cci	
METH	IOD OF			RING	DIA.		DE	EPTH	R R S					SUR	ACE	ELEVA	TION:	2	273.0	
PO	WER AL	IGER:			3 1/4"	'	0	TO 30'	MON. V	WELL	YES	X	NO	DATU	JM:		See Re	mark	S	
RO	T. DRILL							то	SCREE	EN DEPTH:	то			DATE	E STA	RT:	8/26/	22		
CAS	SING:							то	WEATH	HER: Overc	ast TEMP	: 75 °	'F	DATE	EFINI	SH:	8/26/	22		
DIA	MOND	CORE:						ТО	DEPTH	TO ROCK:	Not Encounte	ered'		UNC		ED COM (TON	IPRESS. NS/FT)	STREN	GTH	
CM	E 55LC 1	rack-mour	nted dril	l rig with	n automa	atic ha	mmer	1	*CHAN	GES IN STRAT	A ARE INFERRE	ED		1		2	3 4	4 : 	5	(FT.
	Ξ.			SAM	PLES		S		DE	SCRIPTIO	N		*	PLAS	STIC T %	WA CONT	TER ENT %	LIQ LIM	UID IT %	NOL
LH (F	MIN./	TRAT STAN /6 IN.	с ЕR		;0v.	URE	IFIED CLAS		DL	OF				×		(20 3	⊗——- 30 4		-A 50	LAT
DEP	N OR	ENE-	SAMF	(IN.)	3QD (%)	IOIST	SOIL		Ν	IATERIAL			UTHC	•		STAN		/ //S/FT)	1	
	2	<u>د</u> ۳		<u> </u>	<u> </u>	Σ								10		20 3	30 4	40 5	50	<u> </u>
1	- 29	13	- S-1	16		м	SM	2" topsoil-	like mate	erial me f Gravel	little Silt (FII	1)								L
		16 20						Duil of C,	(I U D, 00)	\bigotimes							
								Drilled thr	ouah oh	struction betw	veen 2 and 4		\bigotimes							Γ
	' -	-	S-2	0				feet bgs, r	no sampl	le obtained			\bigotimes			\bigvee				-
4		7													/	1				-
5	- 16	8	S-3	8		М	SM	Bwn m-f S	SAND, so	ome Silt, little	f Gravel									_268.0
6	i	9											• 🛡 🕊							-
7	- 18	6	S-4	18		М	GM	Bwn-blk-w	/ht c-f Gl	RAVEL, som	e c-f Sand, li	ttle								-
8		12						Siit					. • •		1					L
g	21	10 9	85	16			SM	Burn of S		le f Crevel di						L				
10		12 9	3-5	10		IVI	Sivi	DWITC-13/	AND, IIU	ie i Glavel, li						Γ				263.0
		7													 					_203.0
11	- 18	10	S-6	24		W	SM	Bwn c-f S/	AND, an	d c-f Gravel,	little Silt				•					-
12		4																		-
13	-	-														$\left(\right)$				-
14	-		-																	F
15		40						-												_258.0
16	- 25	14	S-7	14		W	SM	Bwn c-f SA	AND. littl	le f Gravel, li	ttle Silt									Ļ
17		11 6							_ ,											L
10																				
		-	1																	F
19 5	-	-	1																	F
20		14														·				_253.0
21	- 28	14 14	S-8	9		W	GM	Bwn-gy c-	f GRAVE	EL, and c-f S	and, little Silt	t	X							F
22		10															$\left \right $			F
23	Ļ		-														$ \setminus$			Ļ
24																		\backslash		L
- 25																		$ \setminus$		248 0
	/ARKS:	Surfac	e elev	ations	estima	ted b	ased o	n a topograpl	hic surve	y provided by	The LA Grou	ıp, da	ted Ma	ay 2022	2.	1	. <u>.</u>			
ة																				

								PROJECT No. 11584.01	PO		2 N	~ ~	20 /	12		
	6				ni			PROJECT: North Rockland High School			J IN	0. 0	-םכ	13		
	C							LOCATION: Thiells, NY				S⊢		lo. 2 c	of 2	
CLIEI	NT: NO	orth Roo	ckland	l Centi	al Sch	100l D	istrict			UN		ED COM (TON	IPRESS. IS/FT)	STREN	GTH	
CON	TRACTO	OR: Co	ore Do	wn Dri	lling L	LC										(FT.)
(.T	/FT.	NOI (.		SAM			SS.	DESCRIPTION	×.		STIC		TER ENT %	LIQ	UID IT %	IION
) HT	MIN S	ETRA ISTAN	1PLE 1BER	E		TURE	L CLA	OF			10 2	20 3	30 4 	0 5	0 	EVA
DEF	N OF	PENI RES (E	SAN	(IN)	RQ[(%)	MOIS	N SOI	MATERIAL	<u></u>		PENE	STAN TRATIO	IDARD N (BLOW	/S/FT.)	0	Ш
		20													$\overline{\mathbf{N}}$	
26	- 56	29	- S-9	7		w	SM	Gy-bwn c-f SAND, little f Gravel, little Silt								_
27		40														_
28 .	-	-	-													-
29	-	-	-													-
30	50+	50/0	S-10	0				No recovery in spoon Auger refusal at 30 feet bas						•••••		_243.0
31.	-	-	-													-
32	-	-	-					End of Boring at 30								-
33	-	-	-													-
34	-	-	-													-
35	-	-	-										•••••			_238.0
36	-	-	-													-
37	-	-	-													-
38	-	-	-													-
39	-	-	-													-
40	-	-	-													_233.0
41	-	-	-													-
42	-	-	-													-
43	-	-	-													-
44	-	-	-													-
45	-	-	-													_228.0
46	-	-	-													-
47	-	-	-													-
48	-	-	-													-
49	-	-	-													-
50	-	-	_													_223.0
51	-	-	-													_
52	-	-	-													_
53	-	-	-													-
54	-	-	-													-
55	-									<u> </u>	<u> </u>					_218.0
REM	ARKS:	Surfac	e elev	ations	estim	ated b	ased o	n a topographic survey provided by The LA Grou	p, dated l	May 202	22.					



LEGEND FOR SOIL DESCRIPTION

<u>COARSE G</u>	RAINED SOIL (Coa	irser the	en No.	200 Sieve)						
	DESCRIPTIVE TERM & GRATERMSANcoarse- cMmedium- mMfine- fM	<u>N SIZE</u> I <u>D</u> Io. 1 Io. 1 Io, 4	4 Siev 0 Siev 0 Siev	ve to No. ve to No. ve to No.	10 40 200	S S S	ieve lieve lieve	<u>GRAVEL</u> 3" to 3/4" 3/4" to 3/16"			
	COBBLES 3" to 10"				<u>BOUL</u>	_DER	<u>S</u>	10" +			
	GRADATION DESIGNATIONS fine, f medium to fine, m-f medium, m coarse to medium, c-m coarse, c coarse to fine, c-f	2			PROF Less Less Less Less Less All gr	PORT than than than than than ceater	10NS 0 10% c 10% c 10% c 10% f 10% f 10% m	DE COMPONENT coarse to medium coarse coarse and fine ine nedium and fine 10%			
<u>FINE GRAIN</u>	NED SOIL (Finer than No). 200 S	Sieve)								
	DESCRIPTION Silt Clayey Silt Silt & Clay Clay & Silt Silty Clay Clay		<u>PLASTICITY INDEX</u> 0 - 1 2 - 5 6 - 10 11 - 20 21 - 40 greater than 40				<u>PLASTICITY</u> none slight low medium high very high				
PROPORTIO	<u>NC</u>										
	DESCRIPTIVE TERM trace little some and					Ē	PERCEI	NT OF SAMPLE WEIGHT 1 - 10 10 - 20 20 - 35 35 - 50			
	The primary component is fu	lly capi [:]	talized								
COLOR	Blue - blue Blk - black Bwn - brown Gn - green		Gy Or Rd Tn	- gray - orange - red - tan			Wh Yl Lgt Dk	- white - yellow - light - dark			
SAMPLE NO	OTATION S - Split Spoon Soil Samp U - Undisturbed Tube San C - Core Sample B - Bulk Soil Sample NR - No Recovery of Sampl	le nple e			WOC WOR WOH PPR TV	- W - W - W - C P - S	Veight (Veight (Veight (Compre Pocket F Phear S	of Casing of Rods of Hammer essive Strength based on Penetrometer Strength (tsf) based on Torvane			
Now Vork C	the Duilding Code call closelfie	tione e	re alu	n in noron	theore	o o+ +k		of each departation of material			

New York City Building Code soil classifications are given in parentheses at the end of each description of material, if applicable. See sections 1804.2 of the 2008 Building Code for further details.

1279 Route 300 Newburgh, NY 12550 (845) 567-6656

INFILTRATION TEST DATA

W.O. No.:		11584.01		Lot No.:			Date:	8/9/2022		
Client:	North Rockla	and Central	School Distri	ct						
Project:	North Rockla	and High Scl	hool							
Project Engi	neer:	Scott Coher	n, P.E.							
Inspector:	Jessica Oud	derkirk								
Infiltration T	est Location:	(see reverse	ý)	See Boring	and Infiltration	n Test Locati	on Plan, Figi	ure I		
Weather Cor	nditions:			Sunny			. T	emperature:	97 F	
			_							
TEST HOLE No.	TEST HOLE DEPTH	TEST HOLE DIA.			l Drop in wat	NFILTRATION ter levels (inc	I TEST RUNS hes) at 1 ho	S ur intervals		STABLE RATE (in/hr)
INF-1	5'	4"	7:30AM		1.0	1.0	2.0	2.0		2.0
			TIME		1 hour	2 hours	3 hours	4 hours		
COMMENTS INF-1 perfor	: med in north	west corner	of existing tu	urf field adjace	ent to running	track.	-			
INF-2	5'	4"	7:40AM		3.0	0.0	4.0	1.0		2.0
			TIME		1 hour	2 hours	3 hours	4 hours		1
COMMENTS INF-2 perfor	: med in northe	east corner o	of existing tu	rf field adjace	nt to running t	rack. ents				
(To Be Com	pleted On Bac	k of Sheet)								
Indicate Nor	th			Indicate Nearest Roadway						
Indicate Pro	perty Lines				Indicate Off-	-Sets from 2	Adjacent Pro	operty Lines		

1279 Route 300 Newburgh, NY 12550 (845) 567-6656

INFILTRATION TEST DATA

W.O. No.:		11584.01		Lot No.:			Date:	8/9/2022				
Client:	North Rockl	and Central S	School Distric	ct								
Project:	North Rockl	and High Sch	lool									
Project Engl	neer:	Scott Coher	n, P.E.									
Inspector:	Jessica Ou	derkirk										
Infiltration T	est Location:	(see reverse	e)	See Boring	g and Infiltrat	ion Test Loca	tion Plan, Fiç	gure l				
Weather Co	nditions:			Sunny			Te	emperature:	97 F			
TEST HOLE No.	TEST HOLE DEPTH	TEST HOLE DIA.			Drop in wa	INFILTRATIO	N TEST RUNS ches) at 1 ho	STABLE RATE (in/hr)				
INF-3	5'	4"	7:50AM		19.0	20.0	19.0	19.0		19.0		
			TIME		1 hour	2 hours	3 hours	4 hours				
COMMENTS INF-3 perfo	5: rmed in south	neast corner	of existing tu	rf field adjac	ent to runnir	ig track.						
INF-4	5'	4"	8:00AM		24.0	24.0	24.0	24.0		24.0		
			TIME		1 hour	2 hours	3 hours	4 hours				
COMMENTS INF-4 perfoi	s: rmed in south	nwest corner	of existing tu	urf field adja	cent to runni	ng track.						
				Sket	tch Requirer	nents						
(To Be Com	pleted On Ba	ck of Sheet)										
Indicate Nor	th				Indicate Ne	arest Roadwa	у					
Indicate Pro	perty Lines			Indicate Off-Sets from 2 Adjacent Property Lines								

1279 Route 300 Newburgh, NY 12550 (845) 567-6656

INFILTRATION TEST DATA

						1 DATA						
W.O. No.:		11584.01		Lot No.:			Date:	8/9/2022				
Client:	North Rockl	and Central S	School Distric	:t								
Project:	North Rockl	and High Scł	าออไ									
Project Eng	ineer:	Scott Coher	ו, P.E.									
Inspector:	Jessica Ou	derkirk										
Infiltration T	Test Location	: (see reverse	.)	See Borinç	g and Infiltrat	ion Test Loca	tion Plan, Fiç	jure l				
Weather Co	inditions:			Sunny Temperature: 97 F								
TEST HOLE No.	TEST TEST HOLE HOLE DEPTH DIA. DIA. Drop in water levels (inches) at 1 hour intervals									STABLE RATE (in/hr)		
INF-5	5'	4"	8:10AM		20.0	18.0	19.0	18.0		18.8		
			TIME		1 hour	2 hours	3 hours	4 hours				
COMMENTS INF-5 perfo	S: rmed in the c	enter of exis	ting turf field	adjacent to	running track	ζ.						
INF-6	5'	4"	8:20AM		8.0	2.0	0.5	0.0		2.6		
			TIME		1 hour	2 hours	3 hours	4 hours				
COMMENTS INF-6 advar	S: nced within la	andscape are	a to the south	h of the exist	ting running t	track.						
				Sket	tch Requirer	nents						
(To Be Com	pleted On Ba	ck of Sheet)										
Indicate No	rth				Indicate Nea	arest Roadwa	у					

Indicate Property Lines

1279 Route 300 Newburgh, NY 12550 (845) 567-6656

INFILTRATION TEST DATA

W.O. No.:		11584.01		Lot No.:			Date:	8/10/2022					
Client:	North Rockla	and Central S	School Distric	ot									
Project:	North Rockla	and High Sch	1001										
Project Engir	ieer:	Scott Cohen	ı, P.E.										
Inspector:	nspector: Jessica Ouderkirk												
Infiltration Test Location: (see reverse) See Boring and Infiltration Test Location Plan, Figure I													
Weather Conditions: Partly Cloudy Temperature: 85 F													
TEST HOLE No.	TEST HOLE DEPTH	TEST HOLE DIA.			Drop in wa	INFILTRATIO	N TEST RUNS ches) at 1 hc	S our intervals		STABLE RATE (in/hr)			
INF-7	5'	4"	7:30AM		23.0	14.0	12.0	12.0		15.3			
			TIME		1 hour	2 hours	3 hours	4 hours					
COMMENTS: INF-7 advand	ced in the no	rthwest corn	er of the exis	sting soccer fie	eld for propo	osed softball	field.			•			

INF-8	5'	4"	7:40AM	5.0	7.0	24.0	24.0	15.0
			TIME	1 hour	2 hours	3 hours	4 hours	

COMMENTS:

INF-8 advanced in the northeast corner of the existing soccer field for proposed softball field.

Sketch Requirements

(To Be Completed On Back of Sheet)

Indicate North

Indicate Nearest Roadway

Indicate Property Lines

1279 Route 300 Newburgh, NY 12550 (845) 567-6656

INFILTRATION TEST DATA

W.O. No.:		11584.01	Lot	No.:		Date:	8/10/2022					
Client:	North Rockl	and Central S	School District									
Project:	North Rockl	and High Scł	loor									
Project Engi	neer:	Scott Coher	n, P.E.									
Inspector: Jessica Ouderkirk												
Infiltration T	nfiltration Test Location: (see reverse) See Boring and Infiltration Test Location Plan, Figure I											
Weather Co	nditions:		Partl	ly Cloudy		. Te	emperature:	85 F				
TEST HOLE No.	TEST HOLE DEPTH	TEST HOLE DIA.		Drop in wa	INFILTRATIO	N TEST RUNS ches) at 1 hc	S ur intervals		STABLE RATE (in/hr)			
INF-9	5'	4"	7:50AM	24.0	24.0	24.0	21.0		23.3			
TIME 1 hour 2 hours 3 hours 4 hours												
COMMENTS INF-9 advan	OMMENTS: NF-9 advanced in the southern end of the existing soccer field for proposed baseball field.											

INF-10	5'	4"	8:00AM	24.0	24.0	16.0	13.0	19.3
			TIME	1 hour	2 hours	3 hours	4 hours	

COMMENTS:

INF-10 advanced in the southeast corner of the existing athletic field for proposed baseball field.

Sketch Requirements

(To Be Completed On Back of Sheet)

Indicate North

Indicate Nearest Roadway

Indicate Property Lines

1279 Route 300 Newburgh, NY 12550 (845) 567-6656

INFILTRATION TEST DATA

W.O. No.:		11584.01		Lot No.:			Date:	8/10/2022			
Client:	North Rockl	and Central S	School District	t							
Project:	North Rockl	and High Sch	nool								
Project Eng	jineer:	Scott Coher	η, P.E.								
Inspector:	Jessica Ou	derkirk									
Infiltration -	Test Location	: (see reverse	e)	See Borinç	g and Infiltrat	ion Test Loca	ation Plan, Fig	gure l			
Weather Cc	onditions:		F	Partly Cloudy Temperature: 85 F							
				-			-				
TEST HOLE No.	TEST TEST HOLE INFILTRATION TEST RUNS DEPTH DIA. Drop in water levels (inches) at 1 hour intervals								STABLE RATE (in/hr)		
INF-11	5'	4"	8:10AM		13.0	16.0	12.0	12.0		13.3	
			TIME		1 hour	2 hours	3 hours	4 hours		1	
COMMENTS	S: anced in the (existing base	•ball field for t	he proposed	d baseball fie	Id improveme	ents (near fir:	st base).	<u></u>		
						10p				<u>.</u>	
INF-12	5'	4"	8:20AM		24.0	24.0	24.0	24.0		24.0	
			TIME	·	1 hour	2 hours	3 hours	4 hours		1	
COMMENTS	S:	evisting base	hall field for t	he nronoser	d hasehall fie	ld improvem	ents (near ric	ht field)	<u>I</u>	.1	
		shisting base					sints (neur rig	ni noidj.			
				Sket	tch Requirer	nents					
(To Be Com	pleted On Ba	.ck of Sheet)									
Indicate No	rth				Indicate Nea	arest Roadwa	зу				
Indicate Pro	operty Lines			Indicate Off-Sets from 2 Adjacent Property Lines							

APPENDIX II






Boring #	Depth (Ft.)	Sample #	Specimen Description % Gravel % Sand % Fines	USCS	Water Content	Liquid Limit	Plastic Limit	Plasticity Index	Penetro- meter (tsf)	Torvane (tsf)	Dry Density (pcf)	Organic Content (%)	рН
B-1	2.0	S-2	Bwn c-f GRAVEL, and c-f Sand, little Silt		4								
B-10	4.0	S-3	Bwn SILT, and f Sand, little c Gravel		23								
B-11	6.0	S-4	Bwn c-f SAND, and f Gravel, trace Silt 36.5 56.2 7.3		3								
B-13	4.0	S-3	Bwn m-f SAND, some Silt, little f Gravel		4								
B-3	8.0	S-5	Bwn-gy c-f GRAVEL, some m-f Sand, little Silt 49.9 33.3 16.8		5								
B-5	6.0	S-4	Bwn m-f SAND, and Silt, little f Gravel		12								
B-6	10.0	S-6	Bwn SILT, some c-f Sand, little c-f Gravel **NON-PLASTIC: WILL NOT ROLL TO 1/8"**		13								
B-7A	4.0	S-1	Bwn m-f SAND, some Silt, some c-f Gravel 26.2 42.5 31.3		7								
B-8A	8.0	S-1	Bwn c-f GRAVEL, and m-f Sand, trace Silt 55.5 39.3 5.2		9								
B-9	6.0	S-4	Bwn c-f SAND, and f Gravel, little Silt 39.5 50.4 10.1		4								
PB-1	0.0	S-1	Bwn c-f SAND, and f Gravel, little Silt 41.3 46.8 11.9		2								
PB-3	0.0	S-1	Bwn c-f GRAVEL, and m-f Sand, little Silt 49.0 37.5 13.4		3								
PB-4	0.0	S-1	Bwn c-f SAND, some f Gravel, little Silt		3								

SUMMARY OF LAB BORINGS 11584.01.GPJ TECTONIC ENG.GDT 10/18/22

Testonia		Summary of Laboratory Results					
rectoric		Project No: 11584.01	Date: 10/18/22				
280 Little Britain Road, Bldg 2 Newburgh, NY 12550		Project: North Rockland High School					
Telephone: (845) 563-9081	Fax: (845) 563-9085	Location: Thiells, NY					

Tectonic

Fax: 845-534-59993

MOUNTAINVILLE, NY (CORPORATE OFFICE) 70 Pleasant Hill Road, PO Box 37 Mountainville, NY, 10953 Phone: 845-534-5959

www.TectonicEngineering.com