NORTHEAST GEOTECHNICAL, INC.
Delivering Practical Engineering Solutions

GEOTECHNICAL ENGINEERING REPORT
PROPOSED WAREHOUSE ADDITION
126 GROVE STREET
FRANKLIN, MA

Prepared For:
New England Appliance Group (NEAG)
126 Grove Street
Franklin, MA 02038

Prepared By:
Northeast Geotechnical, Inc.
166 Raymond Hall Drive
North Attleborough, MA 02760

Project No. O542.00
August 23, 2024

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Mr. Arthur Redding
New England Appliance Group (NEAG)
126 Grove Street
Franklin, MA 02038

SUBJECT: Geotechnical Engineering Report
Proposed Building Addition and Parking Expansion Project
126 Grove Street
Franklin, MA

Dear Arthur:

Northeast Geotechnical, Inc. is pleased to present the results of our geotechnical engineering studies performed in support of the proposed building addition and parking expansion project at the subject site. The objective of our design phase services has been to develop geotechnical engineering recommendations for use by your design team including the site/civil engineer, the project structural engineer and the architect. Our recommendations are also presented for use in planning and performing related earthwork construction activities. Our studies have been performed in accordance with our proposal dated June 6, 2024, our addendum one dated June 12, 2024 and our email dated July 23, 2024.

The attached report contains a summary of our studies and presents our findings, conclusions and recommendations. This report is subject to the Limitations and Service Constraints included in Appendix A. If you have any questions or require additional information, please contact Glenn Olson, at 508-274-0887 or at golson@northeastgeotechnical.com or Christian Rice at 508-847-1348 or at crice@northeastgeotechnical.com.

Sincerely,

Northeast Geotechnical, Inc.

Glenn A. Olson, P.E.
Principal Engineer

Christian B. Rice, P.E.
Project Manager

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1.0 INTRODUCTION

Our understanding of the existing site conditions and proposed project is based on our correspondence with you and the project civil engineers, Guerrier & Halnon, Inc. (G&H) as well as review of the following plans prepared by G&H:

- "Grading Sketch Plan", Sheet 7 of 16, dated May 30, 2024,
- "Exhibit Plan", Sheet 1 of 1, dated August 19, 2024, and
- Grading/Drainage Sketch Plan", Sheet 9 of 16, dated August 19, 2024.

NEAG currently operates a distribution facility consisting of a high bay warehouse with seventeen truck loading docks located on the south side of the building. There are paved access drives along the south and north sides of the warehouse from Grove Street to the west. Paved passenger vehicle parking is located in the southwest corner of the site and to the west of the building towards Grove Street. A stormwater detention area is located to the north of the building across the paved entrance drive.

NEAG is proposing an 85,150± square foot, high bay building addition which will be located to the north of the existing building. The proposed building addition will extend over currently landscaped grassed areas, the existing access drive from Grove Street, and a stormwater detention area. Beyond the detention area the site slopes steeply up to a roadway called Prime Park which leads to office buildings located to the northeast and east of NEAG's existing building. Much of the area surrounding the detention basins is sloped and wooded. There are existing utilities below the existing access drive including drainage lines with invert elevations ranging from about 5± to 13± feet below existing roadway elevations.

The finish floor elevation of the proposed building addition will match the level of the existing warehouse's floor at Elevation 279.27± feet. The building addition will require fills on the order of 14± feet within the area of the existing stormwater detention area. In addition, cuts approaching 5± to 10 ±feet will need to be made into the embankment leading down from Prime Park. Based on the available plans, it appears that the north and northeast building addition walls will need to be designed as retaining walls.

NEAG is also proposing expanded pavement areas at the site to include passenger vehicle parking lots in the southwest portion of the site and additional spots in front of the loading docks. Additional truck parking will also be added across from the loading docks to the south. Here, the proposed parking areas are located in areas which are currently moderately to heavily wooded with the exception of the southeast corner where the area is grass covered. There are wetlands shown on the plans in close proximity to the proposed pavement expansion areas. One portion of a wetland is shown to be filled to accommodate the truck parking expansion.

Some of the proposed truck parking is located over a steep downward slope. This slope leads form the existing pavement at approximate Elevation 274± feet to the toe of slope which is at elevations ranging

from 250± to 260± feet. A retaining wall will be designed to support upwards of 21± feet of fill in order to expand the pavement area. In addition, G&H's referenced plans show a planned subsurface detention/infiltration area to be located below the proposed truck parking area and behind the proposed retaining wall. We understand from our conversations with G&H that this area will become a stormwater detention area without infiltration.

2.0 SUBSURFACE EXPLORATIONS

Northeast Geotechnical observed a subsurface exploration program consisting of twenty soil test borings (B-1 through B-17, B-5A, B-11A and B-11B) and thirteen test pits (TP-1 through TP-13) at the subject site. The test borings were performed on August 5 through 9, 2024 by Soil X Corporation of Leominster, Massachusetts. The test pits were performed on July 25 and 26, 2024 by Canesi Bros. Construction, Inc. of Franklin, Massachusetts.

Test pit TP-13 and test boring B-5A, B-11A, B-11B, B-15, B-16 and B-17 locations were established at the site by Northeast Geotechnical, Inc. personnel using taped measurements and line of sight from existing site and building features as well as survey staked locations. The remaining test boring and test pit locations were survey located in the field by G&H. Test boring B-11 was off set from the staked location due to the presence of a nearby tree.

Test borings B-1 through B-7, B-5A, B-15, B-16 and B-17 were performed within the proposed building addition area. Test borings B-13 and B-14 were performed to the north of the proposed building addition area within the Prime Park roadway. Test pits TP-1 through TP-6 and test pit TP-13 were performed within the proposed building addition area. Furthermore, test pits TP-1 through TP-4 and TP-13 were performed adjacent to the existing building exposing the existing foundations and the foundation bearing soils.

Test borings B-8 through B-12 were performed within the proposed expanded pavement area to the south of the proposed building including along the alignment of the proposed retaining wall. Test pits TP-7 through TP-9 were performed within the proposed automobile parking expansion. Test pits TP-10 through TP-12 were performed along the proposed retaining wall alignment at the south end of the proposed truck parking expansion area.

The approximate exploration locations are shown on the attached Subsurface Exploration Location Plan (Figure No. 1). The majority of existing ground surface elevations depicted on the individual test boring and test pit logs which were performed at surveyed locations are based on G&H's survey information in the field. The ground surface elevations depicted on the logs which were not performed at surveyed locations were estimated by interpolating between elevation contours on the available project plans. A select number of the survey-located explorations did not include existing ground surface elevations in the field, in which case the ground surface elevations were estimated using the available project plans.

2.1 Exploratory Test Borings

The test borings were advanced with either a truck-mounted Mobile B-57 using 4¼-inch inside diameter, continuous flight, hollow-stem augers or a track-mounted Geoprobe 7822DT drill rig using

4-inch diameter casing. Test borings were generally advanced to depths ranging from approximately 14± to 32± feet below existing ground surface. The test borings terminated in natural granular soils which are considered medium dense or denser.

However, test borings B-11 and B-11A terminated in existing fill prior to reaching natural ground. These two borings encountered refusal conditions which could have been caused by nested cobbles or boulders. These two borings were offset from one another by approximately four feet. Test boring B-11B was then off set from B-11A by approximately 15± feet, in the direction of test pit TP-10 (see attached Figure No. 1 for approximate locations). Here, the test boring was able to be advanced through fill and terminate in natural granular soils.

Standard Penetration Testing (SPT) was performed during each test boring. The SPT was performed at increments of 5± feet or less. The SPT was performed by driving a standard 2-inch outside diameter split spoon sampler up to 24 inches using a 140-pound auto-trip hammer falling 30 inches. The number of hammer blows required to drive the sampler in 6-inch increments is recorded on the boring logs attached in Appendix B. The sum of the blows required to drive the split spoon sampler from the 6 to 12-inch interval and the 12 to 18-inch interval is defined as the Standard Penetration Resistance of the soil. The Standard Penetration Resistance is a measure of the relative density of granular soils.

The soil samples retrieved in the split spoon sampler during each SPT were visually described in the field by Northeast Geotechnical, Inc. personnel using Burmister's soil descriptions. The visual descriptions, the hammer blow counts required to drive the split spoon sampler during the SPTs, groundwater observations, approximate changes in soil strata, and other observations are shown on the boring logs contained in Appendix B. Note that the soil descriptions are representative of the minus 1.4± inch size fraction of the overall soil deposits sampled.

A groundwater observation well was installed in completed test boring B-12. Refer to the B-12 test boring log in Appendix B for additional information on the construction of the well. A groundwater level reading was obtained in the observation well six days after installation.

2.2 Exploratory Test Pits

The test pits were performed with a Case CX145C SR excavator, with a 1.5± cubic yard capacity toothed bucket and an 18± foot maximum reach. The test pits were advanced to depths ranging from approximately 5.8± to 12± feet below the existing ground surface. Test pits terminated in natural granular soils (i.e., firm natural ground) except for test pit TP-4 which terminated in existing fill at 10.5± feet below ground surface. Test pit TP-4 was performed adjacent to the existing building within the proposed building addition area.

The soils exposed in the test pits were visually described in the field by a Northeast Geotechnical, Inc. representative. Additionally, soils exposed in test pits TP-10, TP-11 and TP-12, were visually described in the field by a licensed Massachusetts Soil Evaluator using the USDA soil textural classification system. Test pit photographs are presented in the Photographic Log contained in Appendix D.

The depths to seasonal high groundwater in the test pits were estimated based on the observed groundwater conditions and the presence of redoximorphic features. The visual descriptions, groundwater observations, approximate changes in soil strata, dimensions of the existing foundations (at test pits performed adjacent to the building) and other observations are shown on the test pit logs contained in Appendix C.

3.0 LABORATORY SOIL TESTING

Northeast Geotechnical submitted selected soil samples collected from the test pits and test borings to Thielsch Engineering of Cranston, Rhode Island for laboratory testing to assess basic geotechnical engineering characteristics of the soils. The laboratory testing consisted of three combined sieve and hydrometer tests with USDA soil textural classification on samples collected from test pits TP-10, TP-11 and TP-12; one organic content and natural moisture content collected from below bottom of footing in test pit TP-2; and nine gradation tests collected from the test borings across the site.

Laboratory test results are appended to this report in Appendix E. Note the samples tested from soil borings were from a 1.4± inch inside diameter split spoon sampler. Therefore, the test results do not reflect larger particle sizes that may be present in the soil deposits.

4.0 GENERAL SUBSURFACE CONDITIONS

The general subsurface conditions at the site were assessed based upon the results of the subsurface exploration program, laboratory test results and published USGS surficial geology information. The subsurface conditions at the site generally appeared to consist of existing fill, topsoil, topsoil fill, and subsoil each overlying naturally occurring glaciofluvial soils consisting of natural sands and silts and then natural glacial till soils.

Please note, there are two areas of the site where subsurface explorations were not performed as these areas consist of existing wetlands and associated buffer zones and/or steeply sloped areas leading to the wetlands. There is one wetland area within the proposed building addition area to the north of the access road which has steep slopes leading down to it. Existing site drainage lines lead to this wetlands. In addition, there is a wetland along the alignment of the proposed retaining wall which will be constructed to support the proposed truck parking expansion area to the south of the existing building. The subsurface conditions in these wetlands areas and the slopes leading into the wetlands will remain unknown until construction.

The following subsections describe the encountered subsurface conditions in each of the two proposed development areas: the proposed building addition area and the proposed truck and automobile parking expansion area.

4.1 Proposed Building Addition Area

The following subsections describe the subsurface conditions encountered in the explorations performed within the proposed building addition area (test borings B-1 through B-7, B-13 through B-17, and B-5A, and test pits TP-1 through TP-6 and TP-13).

4.1.1 Existing Fill

Existing fill was generally encountered from the northern limits of the existing paved access drive to the existing building's exterior wall. The existing fill generally was observed to extend to depths of 3± to 12± feet below ground surface. This fill typically consisted of fine to medium sand with 10± to 20± percent silt, less than 10± and up to 20± percent fine to coarse gravel, with trace amounts of roots, organic silt, and pieces of wood. Existing fill was also encountered beneath the Prime Park pavement surface in B-13 and B-14 extending to depths of approximately 3± and 2.5± feet, respectively.

Furthermore, test pit TP-2, conducted adjacent to the existing building, encountered existing primarily granular fill to bottom of footing elevation. Then in test pit TP-2, we observed approximately 5± feet of organic fill underlying the foundation extending to natural ground consisting of natural sand. This organic fill consisted of organic fine to medium sand and silt with less than 10± percent fine to coarse gravel, roots, brick, glass and stumps. Test boring B-17, performed near test pit TP-2 encountered existing fill which extended to 12± feet below ground surface. This fill is primarily considered very loose and also included pieces of wood.

Test pit TP-4, also conducted adjacent to the existing building, encountered mostly granular fill to a depth of 2.5± to 4± feet below bottom of footing elevation. Below that depth, the fill was also mostly granular but also contained less than 10± percent sticks and roots. Test pit TP-4 terminated in fill at a depth of 10.5± feet below ground surface. Test borings B-5, B-5A, B-15 and B-16 were performed in the general vicinity of test pit TP-4. These test borings encountered existing fill to depths ranging from approximately 5± to 12± feet below ground surface. The fill encountered in the test borings was similar to that observed in test pit TP-4 and is considered very loose to medium dense.

Test borings B-1 through B-4 were performed in the existing access drive to the north of the existing building. Here, the fill was also mostly granular with occasional organics and trace amounts of cinders. Here the fill is generally considered medium dense with one very loose zone observed in test boring B-3.

The referenced "Grading/Drainage Sketch Plan" shows existing underground utilities in the access drive consisting of a water line and existing drainage lines. The invert elevations shown on the plan indicates that the drain manhole rim to invert elevations of the drain lines at the drain manholes vary from about 5± to 13± feet. Therefore, fill depths in the access drive associated with underground utilities is also expected to be present and should be anticipated during construction.

There is a wooded area to the north of the existing access drive where the proposed building's western wall will face Grove Street. Here, test pit TP-5 was performed and encountered approximately 1± foot of topsoil fill underlain by 3± feet of existing fill consisting of fine to medium sand, approximately 50± percent silt, 10± to 20± percent fine to coarse gravel as well as roots and occasional cobbles. A buried subsoil layer was encountered to a depth of approximately 5.5± feet below ground surface. There, firm natural ground consisting of natural sand was encountered.

4.1.2 Topsoil Fill and Subsoil

Topsoil fill was encountered in the landscaped areas surrounding the access drive within the proposed building addition area to depths of approximately 6± inches. As mentioned in the above subsection, the topsoil fill in test pit TP-5 was thicker, extending to approximately 1± foot below ground surface. An apparent natural layer of subsoil was observed in test pit TP-5 and was observed to be approximately 1.5± feet thick. Gradation descriptions of the topsoil fill and subsoil can be found on the test pit and test boring logs.

4.1.3 Natural Sands and Silts

Natural glaciofluvial deposits, formed by meltwaters from past glaciation, exist below the existing fill, topsoil fill and subsoil at the site. These soils are typically comprised of fine to medium sand with less than 10± to 20± percent silt, and less than 10 percent fine or fine to coarse gravel. These are referred to as natural sand on the test boring and test pit logs. In some zones, the silt content is elevated above 20± percent and the gradation of the sand is finer or the same as the natural sand. These zones are referred to as natural silty sand, natural sand and silt, or natural silt on the logs.

The natural sands and silts were typically observed to be medium dense with occasional dense and occasional loose zones based on the SPTs. These soils were encountered to the depths explored in the majority of the test borings and test pits performed in the proposed building expansion area. Test borings which penetrated these soils terminated in natural glacial till soils.

4.1.4 Natural Glacial Till

Natural dense to very dense glacial till soils were encountered in three of the subsurface explorations performed within the proposed building addition area. Test borings B-4, B-5 and B-13 encountered natural glacial till at depths of 25± to 27± feet below ground surface. The glacial till soils typically consist of a heterogeneous mixture of sand, gravel and silt soils. Typically, glacial till deposits will also contain cobbles and boulders.

4.1.5 Groundwater

Groundwater was encountered in 10 of the 20 subsurface explorations performed within the proposed building addition area. It is our opinion that some of the groundwater encountered may have been temporarily perched on some of the siltier soils. Observed groundwater depths varied from approximately 7± to 19± feet below ground surface which corresponds to elevations ranging from approximately 264± to 271± feet.

Fluctuations in groundwater levels due to changes in temperature, weather, and other conditions should be anticipated. Additionally, groundwater may become temporarily perched above silty soil layers as observed in the explorations. As a result, groundwater levels encountered during construction and thereafter may differ from those reported herein. Mottling and redoximorphic features indicative of seasonal high groundwater were observed in select test pits.

4.2 Proposed Truck and Automobile Parking Expansion Areas

The following subsections describe the subsurface conditions encountered in the explorations performed within the proposed truck and automobile parking expansion areas (test borings B-8 through B-11, B-11A, B-11B, and B-12, and test pits TP-7 through TP-12).

4.2.1 Existing Fill

Some of the current truck parking area located off of the face of the loading docks on the southern side of the building area extend to the crest of a slope leading away and downward. Here, test borings B-8 and B-9 were performed offset from the crest of the slope in the direction of the existing building. The test borings encountered approximately 6 inches of bituminous concrete pavement underlain by 11± to 15± feet of existing predominantly granular fill. Depths of fill soils could vary widely in this area.

The fill was observed to be primarily very loose in test boring B-8 and primarily medium dense in test boring B-9. The gradation of the fill was very similar to that described as natural sands in section 4.1.3 of this report. A layer of pulverized rock was observed at the base of the fill in test boring B-9 and may consist of fractured boulders and cobbles within the fill.

Test borings B-11 and B-11A were performed in the approximate alignment of the proposed retaining wall to be located to the west of the wetlands that will be filled over as part of the truck parking expansion. Here, test boring B-11 terminated on a refusal condition at approximately 5± feet below ground surface. The refusal condition may have been a boulder in fill soils as the split spoon sampler was bent during sampling. Test boring B-11A, offset from B-11 by about 4± feet, also terminated in fill at a depth of approximately 10± feet below ground surface. Test boring B-11B was then offset approximately 15± feet from B-11A and encountered 2.5± feet of fill prior to encountering firm natural ground. Therefore, there may be pockets of fill encountered along the retaining wall alignment which will need to be excavated and replaced with controlled compacted lifts of structural fill to reach bottom of wall elevation.

4.2.2 Topsoil, Topsoil Fill, and Subsoil

Topsoil, topsoil fill and subsoil were encountered in the test pits and test borings performed at the toe of the existing slope leading from the truck parking area and within the proposed automobile parking area. The topsoil fill and topsoil was generally observed to be approximately one foot thick. The subsoil encountered in the proposed automobile parking expansion area (see test pits TP-7 through TP-9) was observed to vary in thickness from approximately 1± to 2± feet. Similar thicknesses of subsoil were observed along the proposed retaining wall alignment in test pits TP-11 and TP-12.

4.2.3 Natural Sands and Silts

Natural sands and silts, similar in gradation and apparent relative density were encountered in each of the test pits and test borings performed in the proposed truck and automobile parking expansion areas with one exception. Test pit TP-7, performed in the proposed automobile parking area in the southwest portion of the site encountered natural glacial till soils below the natural topsoil and subsoil. These soils are referred to as natural granular soils or firm natural ground throughout this report.

4.2.4 Natural Glacial Till

Test pit TP-7 and test boring B-11B encountered natural glacial till soils at depths of 1.8± and 20± feet below ground surface respectively. The one sample in the glacial till indicates that the deposit is considered very dense. Test pit TP-7 additionally encountered frequent cobbles and boulders. The natural glacial till soils are also considered natural granular soils or firm natural ground.

4.2.5 Groundwater

Groundwater was encountered in eight of the thirteen subsurface explorations performed within the proposed parking expansion areas. It is our opinion that some of the groundwater encountered may have been temporarily perched on some of the siltier soils. Observed groundwater depths varied from approximately 7± to 20± feet below ground surface which corresponded to elevations ranging from approximately 243± to 271± feet.

Fluctuations in groundwater levels due to changes in temperature, weather, and other conditions should be anticipated. Additionally, groundwater may become temporarily perched above dense/silty soil layers as observed in the explorations. As a result, groundwater levels encountered during construction and thereafter may differ from those reported herein. Mottling and redoximorphic features indicative of seasonal high groundwater were observed in select test pits.

5.0 CONCLUSIONS

The primary geotechnical engineering considerations impacting the proposed building addition and parking area expansion project that we have identified based on our project review, subsurface explorations, laboratory testing, and engineering evaluation include:

- Existing fill including organic materials is present along the existing building's foundation wall and below the level of the wall's foundations. We anticipate that the building addition will include removal of the building's existing exterior wall to open up the warehouse space and we anticipate that the existing foundations supporting columns will remain. We further anticipate that new foundations will be added along this existing wall line to support new columns. In our opinion, this fill is not considered suitable to support foundations. We are recommending that the existing column footings and new column footings immediately adjacent to the existing building be underpinned to extend to firm natural ground. In some instances, underpinning could be performed using traditional pit type underpinning. However, where depths to natural ground are deeper, a type of pile foundation such as helical piles may be applicable for both underpinning and support of new column footings.

- Existing fill including organic materials is also present within the proposed building addition footprint away from the existing building. This existing fill is likely associated with past filling activities and with existing underground utilities. In our opinion, this fill is not considered suitable to support foundations or floor slab loads. Recommendations are presented herein to excavate existing fill, reuse suitable portions, and replace the fill in controlled properly compacted lifts to support foundations and the floor slab loads.

- The northern and northeastern exterior wall lines are shown on the project plans to be constructed in close proximity to the Prime Park roadway. The proposed finish floor elevation of the warehouse addition is at Elevation 279.27 feet. The elevation contours shown on the "Grading/Drainage Sketch Plan" indicate the existing road surface is at elevations 280± to 288± along the alignment of the proposed building. We anticipate that the exterior walls of the building addition along Prime Park roadway will need to be designed and constructed as retaining walls. Furthermore, lateral earth support is anticipated to be needed to support the excavation to construct the foundations and the building addition's retaining walls.

- The existing fill soils, free of organics and debris as well as the natural sands and silts are anticipated to be suitable for reuse as structural fill on the project provided the soils can be adequately placed and compacted.

- Fill and buried topsoil is present at the toe of the slope along the proposed parking area retaining wall alignment and likely extends below the lowest level of this proposed retaining wall. This fill and buried topsoil is not considered suitable for wall support and should be removed and replaced with controlled properly compact lifts of structural fill.

6.0 GEOTECHNICAL ENGINEERING RECOMMENDATIONS

We have developed geotechnical engineering recommendations that address the proposed building addition and proposed passenger vehicle and truck parking expansion areas in the following subsections.

6.1 Existing Foundation Underpinning and New Column Footing Construction along Existing Building Wall Lines

We observed existing fill including organic materials along the existing building's foundation wall where the proposed addition will be constructed. We anticipate that the addition will include removal of the building's existing exterior wall and the existing column foundations will remain. We further anticipate that new foundations will be added along this existing wall line to support new columns. These soils are not considered suitable to support foundations in our opinion.

We recommend that the existing column footings to remain along this alignment be underpinned to extend to firm natural ground. In some instances, underpinning could be performed using traditional pit type underpinning. However, where depths to firm natural ground are deeper and pit excavations are not considered feasible, a type of pile foundation such as helical piles may be applicable for both underpinning and support of new column footings.

We recommend that foundation underpinning be performed at existing column footings and for new column footings along the existing building's wall from the western end of the proposed addition (i.e., from the vicinity of test boring B-5) to approximately the location of TP-13. A possible exception may be in the area of TP-3 where foundations appear to be constructed on natural granular soils. Further explorations during construction should assess the conditions in this area as well as at other column footing locations along this wall alignment.

The choice of underpinning method should be discussed with your selected contractor. We are of the opinion, where depths to natural ground are located at or above groundwater levels and the depths below bottom of footing are a few feet or less, that underpinning pits backfilled with concrete may be appropriate. Underpinning pits consist of formed concrete that is placed in the pits below the existing footings down to the proposed new footing subgrades on firm natural ground. Concrete is placed up to a few inches below the existing footings and non-shrink, dry pack grout is then rammed into the gap between the top of the concrete pit and the bottom of the existing footing.

The underpinning pits should be sequenced so that a minimum of ten feet of soil and/or cured concrete should remain in place between underpinning pits. Underpinning pits should not exceed three feet in width. Concrete should be allowed to cure until it has met the minimum design strength specified by the structural engineer. Typically, a minimum of 50 percent of design strength is required. The structural engineer should be consulted to review the contractor's proposed bracing of existing columns while underpinning is performed.

The foundation underpinning for the existing building, meeting the above minimum width requirements, may be designed using a maximum allowable soil bearing capacity of one and one half (1.5) tons per square foot.

Alternatively, and for deeper depths to firm natural ground, helical pile foundations may be appropriate for underpinning depending on the loads on the existing foundations and new column footings in this area. Helical piles consist of a relatively small shaft of either high strength pipe or square bar. A lead section (typically 5 to 10 feet long) with a minimum of one helix is designed to screw in and displace the overburden soils. Extensions are added to the lead section to reach the required depth into firm natural ground. As the helices advance into the firm natural granular soils, the resistance and applied torque typically increase due to the relative density of firm natural granular soils increasing with depth. Once installed to the required torque, load is transferred through the shaft and into the lead section, resisted by the plan area of each helix. A specialty foundation contractor should be consulted for pile type underpinning options.

We anticipate that new column footings will be added in this area to support the new addition's structural loads. Foundations adjacent to the existing building could be constructed by lowering the bottom of footing elevation to firm natural ground. However, care should be taken to not undermine the existing foundations either before or after those foundations are underpinned. If depths to natural ground are considered too deep, then new column support could be via a pile cap supported by pile foundations such as helical piles. A specialty foundation contractor should be consulted for pile design.

6.2 Building Addition Area Earthwork Activities

Pavement, topsoil fill and subsoil should be stripped from within the proposed building addition area down to the underlying suitable natural granular soils. Lateral earth support may need to be installed prior to excavation activities in the vicinity of Prime Park roadway.

The chosen contractor should be prepared to dewater especially in the area of the existing wetlands which contained standing water at the time of our subsurface exploration program. The size of the open excavations should be limited to that which can successfully be handled by the contractor's chosen dewatering method(s). Dewatering should be continuous until the contractor can place and adequately

compact lift(s) of structural fill to a minimum of two feet above observed groundwater levels. Dewatering should be performed in a manner that allows the on-site geotechnical engineer to visually verify that firm natural ground has been reached and that compaction of structural fill can be adequately performed.

Existing fill and utilities should also be removed from the proposed building addition area to firm natural ground.
We recommend that the removal of fill be carefully performed as the excavation limits approach the existing building. We recommend considering not excavating and replacing fill below proposed floor slab areas within approximately 10± feet of the existing building to mitigate the potential to cause foundation damage. Fill should be removed below proposed foundations however. Excavations should not extend within a one horizontal to one vertical distance from the outside edge of existing foundations unless the existing foundation can be underpinned or otherwise supported. The area in the vicinity of test boring B-5 is of particular concern. Installation of helical pile or other pile type of foundations to support new columns adjacent to the existing building should be installed following excavation and replacement activities.

We recommend a proof rolling activity be performed over the exposed soils once topsoil fill, subsoil and existing fill have been removed and following the foundation underpinning activities. The proof rolling activity should be performed where the exposed soils remain above groundwater levels. The purpose of the proof rolling is to identify areas where existing fill still remains which was not identified during excavation activities.

The proof rolling activity should consist of making a minimum of six passes of a self-propelled vibratory drum compactor having a minimum dynamic drum force of 10,000 pounds. The proof rolling activity should be observed by an on-site geotechnical engineer. Areas observed to be weak or unstable should be assessed by test pit excavations. Unsuitable existing fill soils should be removed and replaced as recommended below.

The chosen contractor for the project should obtain approved off-site sources of structural fill as well as clean sand and gravel should the on-site soils prove difficult to work with during inclement weather. The initial 12-inch lift of structural fill over natural ground where groundwater has been encountered should consist of clean sand and gravel.

Excavated existing fill which is relatively free of organics, debris and oversized cobbles and boulders will be considered suitable for reuse as structural fill provided the soils can be properly placed and compacted. Likewise, the excavated natural sands and silts will also be considered suitable for reuse as structural fill with the same conditions.

To the extent possible, excavated on-site soils intended for re-use that are dry should not be stockpiled. Rather, dry fill should be placed and compacted to its required density the same day it is excavated. Stockpiling increases exposure to saturation by rain as well as provides greater opportunity for frost penetration during freezing weather. On-site soils that are frozen or too wet to be placed and compacted to the required densities to a firm and stable condition will not be reusable as structural fill.

Protection of prepared natural subgrades or subgrades prepared using the on-site soils from wet or freezing weather should be performed during construction. Crushed stone should be considered for use

to protect foundation and floor slab subgrades following excavation and prior to pouring concrete. Insulated blankets and/or heat may be necessary to protect foundation and slab subgrades from freezing should a winter earthwork schedule be considered.

We recommend that structural fill be placed in lifts which are no more than 12 inches thick in open areas and 6 inches thick in confined areas such as trenches. Boulders larger than two thirds of the loose lift thickness should be removed from the fill prior to placing the lift of structural fill for compaction.

Lifts of structural fill placed in open areas should be compacted by a minimum of six passes of a self-propelled vibratory drum compactor having a minimum dynamic drum force of 10,000 pounds. Trench backfill should be compacted by making a minimum of six passes of a large vibratory plate or double drum walk behind compactor. Each lift of fill should be compacted to at least 95% of the soil's maximum dry density as determined by ASTM 1557 and should be compacted to a firm and stable condition as assessed by the on-site geotechnical engineer.

Off-site structural fill as well as off-site sand and gravel should meet the gradation recommendations presented in section 6.5 Materials of this report.

Lifts of structural fill that exhibit instability or appear soft during compaction should either be allowed to dry and then be recompacted to a firm and stable condition at a later time, or the lift of fill should be removed and replaced with drier suitable structural fill. Structural fill should not be placed over unstable or soft fill or over ground which is frozen. Frozen soil should be removed prior to each day's filling operations. Frozen soil should not be reused until it has thawed.

6.3 Excavation Support along Prime Park Roadway

We anticipate excavation support will be required along the Prime Park roadway to accommodate the construction of the proposed building addition. Furthermore, we anticipate that the roadway will remain open to vehicular traffic during construction.

A specialty foundation contractor should be consulted for the type of wall to be used for lateral earth support during construction. We are of the opinion that various types of wall may be feasible for these soil conditions and the anticipated height of excavation support. Two types of wall which appear well suited to this project include a soldier pile and lagging system as well as steel sheet piles.

These two wall types might be able to be designed as cantilever walls where the lateral resistance is provided in part by the depth of installation below the exposed excavation face along with the piles' strength in bending. The contractor may recommend internal supports or tiebacks be installed as part of the lateral earth support system. Both the sheet pile wall as well as the soldier pile and lagging wall can be removed following construction of the building addition.

Another option could be a soil nail wall which is a permanent wall. A soil nail wall is constructed from the top of cut downward using soil nails (i.e., anchors) to engage the soil mass behind the wall face to provide lateral support. In this instance, the face of the excavation is covered in reinforced shotcrete and soil nails are installed through the wall face into the soil behind the wall and below the Prime Park roadway.

We anticipate drainage provisions for a soil nail wall will include installation of geocomposite strip drains behind the wall facing prior to installing shotcrete and/or weep holes leading through the wall from the geocomposite layer. The drainage layers should connect to an underdrain pipe system at the base and in front of the wall which should then be discharged to a site drainage feature lower than the base of the wall.

The chosen contractor should retain the services of a specialty contractor to design and install the lateral earth support system. The walls should be designed to support surcharge loads associated with vehicular and construction traffic during construction in addition to the lateral earth pressures. The design should be reviewed by Northeast Geotechnical, Inc. and the project structural engineer at least one week prior to mobilizing to the site to begin installation of the system.

6.4 Pavement Area Earthwork

Topsoil, topsoil fill and subsoil should be removed from proposed pavement areas exposing either firm natural ground or existing granular fill. Dewatering, similar to that described and recommended for the proposed building addition area may be necessary in the area of the existing wetlands where the truck parking expansion and new retaining wall is to be constructed.

Existing fill below the alignment of the proposed site retaining wall including in the zone typically referred to as the reinforced backfill zone behind the wall, should also be removed to firm natural ground. We anticipate existing fill to be encountered at the toe of the existing slope leading down from the existing truck parking area. Similarly, existing fill was observed in the areas of test borings B-11 and B-11A beyond the toe of slope. We anticipate this fill will extend below the level of the proposed retaining wall's foundation level.

Structural fill should be placed over firm natural ground or over existing granular fill in areas requiring fill to reach pavement subgrade elevations. The structural fill should be compacted to at least 92% of the soil's maximum dry density as determined by ASTM 1557 and to a firm and stable condition as assessed by the on-site geotechnical engineer.

6.5 Materials

Off-site structural fill may be required for the project. Off-site structural fill should be free from ice, snow, rubbish, and other deleterious or organic matter, and should conform to the following gradation criteria:

Off-Site Structural Fill

Sieve Size	Percent Finer By Weight
2/3 the loose lift thickness	100
No. 10	30 – 95
No. 40	10 – 70
No. 200	0 – 12*

*Free-draining structural fill should contain no more than 10 percent passing the no. 200 sieve.

Off-site sand and gravel will be required for the building addition slab base course and pavement base course areas as well as potentially for an initial lift of structural fill in the building addition area. Off-site sand and gravel material should consist of hard, durable sand and gravel, free from ice, snow, rubbish, and other deleterious or organic matter. Off-site sand and gravel should conform to the following recommended gradation criteria:

Off-Site Sand and Gravel Fill

Sieve Size	Percent Finer By Weight
4 inch	100
½ inch	50 – 85
No. 4	40 – 75
No. 10	30 – 60
No. 40	10 – 35
No. 100	5 – 20
No. 200	2 – 10

Crushed stone may also be used in lieu of off site sand and gravel. Crushed stone should consist of durable crushed rock or durable crushed gravel stone, free from ice and snow, sand, clay, loam, or other deleterious material. The crushed stone should be uniformly blended and should conform to Massachusetts Highway Department's Specification for ¾-inch stone – M2.01.4.

6.6 Building Addition Foundations

We anticipate foundation excavations will be performed after mass building addition area earthwork and foundation underpinning activities have been performed in accordance with Sections 6.1 and 6.2 of this report. We anticipate foundation excavations will extend primarily into the natural sands and silts and/or adequately placed and compacted structural fill.

The soils we anticipate being encountered at bottom of footing elevations are expected to be sensitive to disturbance from foot traffic and possibly moisture sensitive. Foundation excavations should be over excavated at least 6 inches and a 6-inch minimum layer of compacted ¾-inch crushed stone should be placed and compacted immediately after the footing subgrade has been exposed and cleared of loose soil.

New foundations for the building addition may be designed using shallow spread footing foundations provided building addition earthwork is performed as recommended herein. The foundation footings may be designed utilizing a maximum soil bearing capacity of one and one half tons per square foot (1.5 TSF). Total settlements of up to one inch (1") and differential settlements of up to one-half of an inch (1/2") are anticipated under this bearing pressure.

Regardless of the recommended allowable bearing capacity, continuous wall footings should be at least 24 inches wide and column footings should be no less than 36 inches wide in the least lateral dimension. Exterior footings should be founded at least four feet (4') below the finish exterior grade for frost protection.

New utilities should not be allowed to pass within the stress zone of the new footings, defined as a one horizontal to one vertical line extending down and out from each bottom edge of the footing. Rather, efforts should be made to move utilities upward to pass through the foundation wall or to a location outside of the aforementioned stress zone. Alternatively, foundations may be dropped to ensure utilities pass through exterior walls above top of footings.

6.7 Building Addition Foundation Retaining Walls

The foundation walls along the sides of the proposed building addition facing the Prime Park roadway will be required to retain up to about 10± feet of soil based on the proposed grading shown on the referenced plans. These walls should be backfilled with compacted lifts of free-draining off-site sand and gravel or ¾-inch crushed stone. The intent is to promote drainage of water that may accumulate behind the walls. The free-draining off-site sand and gravel or ¾-inch crushed stone should be placed to a lateral distance of at least 3 feet from the backside of the walls. Only hand operated vibratory equipment should be used when compacting within 5 feet from the backside of these walls.

Assuming these walls will be restrained and not allowed to move during backfilling, at-rest lateral earth pressure conditions apply. Provided the walls are backfilled with free-draining structural fill, underdrains are installed as recommended below and assuming relatively level backfill conditions, a minimum equivalent fluid pressure (triangular pressure distribution) of 70 pounds per square foot per foot depth is recommended for the at-rest condition.

For sliding resistance, a maximum friction factor of 0.35 is recommended between the base of the wall footing and the underlying subgrade soils and crushed stone.

The walls should also be designed for appropriate surcharge loads and seismic surcharge loads in accordance with The Massachusetts Building Code. A backfill unit weight of at least 140 pounds per cubic foot (pcf) should be used when calculating seismic forces.

6.8 Building Addition Slab Support

Slab on grade construction is recommended for the ground floor slab of the building addition provided the building addition area is prepared as recommended in this report. The slab should bear on a minimum 12 inch thick layer of off-site sand and gravel fill that is compacted to at least 95% of the soil's maximum dry density as determined by ASTM 1557. Besides meeting the minimum compaction criteria, the off-site sand and gravel fill should be compacted to a firm and stable condition.

6.9 Seismic Design Criteria

The site soils in the area of the proposed building addition are not considered susceptible to liquefaction in accordance with Section 1806.4 of the ninth edition of The Massachusetts State Building Code.

Provided earthwork is performed, foundation underpinning is performed and foundations are designed and constructed as recommended in this report, the site will be considered Site Class D in accordance with Chapter 20 of ASCE 7, which is referenced in Section1613.3.2 of the Massachusetts State Building Code.

6.10 Flexible Pavement Design

We anticipate the pavement area subgrade soils will consist of natural glaciofluvial and glacial till soils consisting of fine to medium sands with varying amounts of silt, natural glacial till soils (in the case of the automobile parking area in the area of test pit TP-7) and structural fill placed in controlled, compacted lifts. The following minimum pavement sections are recommended:

FLEXIBLE PAVEMENT SECTIONS

	Standard Duty (Passenger Car Parking)	**Heavy Duty (High Traffic and Truck Areas)**
Bituminous Pavement		
Top Course	1.5”	1.5”
Binder Course	1.5”	2.5”
Base Course Sand & Gravel	12”	16”

Pavement base course sand and gravel should meet the recommended gradation criteria for off-site sand and gravel as presented in Section 6.5 Materials of this report. Pavement base course fill should also be compacted to at least 95% of the soil’s maximum dry density as determined by ASTM 1557 of this report. Besides meeting the minimum compaction requirements, the base course fill should be compacted to a firm and stable condition.

6.11 Parking Area Site Retaining Wall

A parking area site retaining wall is proposed on the southern portion of the site to support truck and other vehicle parking. The proposed retaining wall will range in height to approximately 21± feet. We anticipate a modular block type retaining wall with geogrid reinforcement of the fill behind the wall will be utilized for this project.

Topsoil, subsoil and existing fill deposits should be stripped from below the proposed retaining wall foundation/pad areas as well as the reinforced fill zone behind the wall. Provided that the subgrades beneath the walls and the reinforced fill zone consist of firm, natural granular soils or compacted suitable structural fill placed over the natural granular soils, an allowable soil bearing capacity of one and one half tons per square foot (1.5 TSF) may be used for retaining wall design. The following soil parameters are recommended for use in design of these retaining walls:

Retained Soil: Angle of Internal Friction: 34 degrees
Total Soil Unit Weight: 140 pcf

Foundation Soil: Angle of Internal Friction: 30 degrees
Total Soil Unit Weight: 125 pcf

Maximum Friction Factor between base of wall and subgrade: 0.35

The wall designer typically specifies the type and gradation of fill material to be placed within the reinforced zone behind the walls, and the required minimum compaction percentages. The walls should also be designed for appropriate surcharge loads and seismic surcharge loads in accordance with the Building Code. A backfill unit weight of at least 140 pcf should be used when calculating seismic forces.

A 4-inch minimum diameter perforated PVC underdrain, surrounded by ¾-inch washed crushed stone at least 6 inches all around, which is then wrapped in a geotextile filter fabric, is recommended along the backside of these site retaining walls. The underdrains should be installed along the side of the foundation with the pipe bottoms located 6 inches above the bottom of wall foundation elevation. Underdrain pipes should be laid flat with the perforations down. The underdrain pipes should daylight through weep holes in the front of the wall.

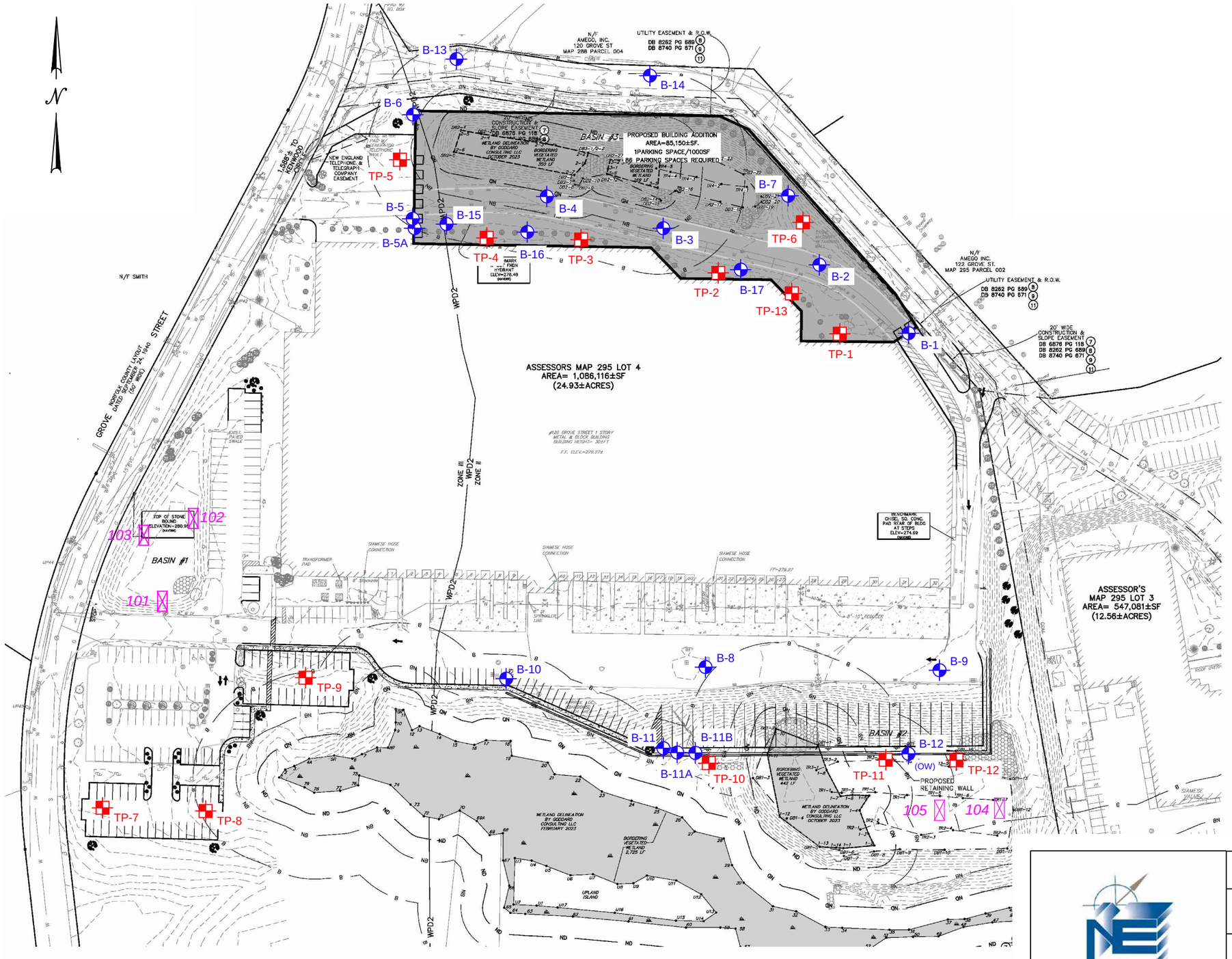
We recommend an opportunity to review and comment on the site retaining wall design to assess that our geotechnical engineering recommendations have been properly interpreted and included.

7.0 CONSTRUCTION OBSERVATION, TESTING AND REVIEW

Northeast Geotechnical, Inc. should be retained to provide construction observation and soil testing services during the earthwork construction and foundation underpinning/construction phases of the project. The purpose of our participation is twofold: to observe that the contractor performs earthwork and foundation underpinning/construction in general compliance with the requirements of the pertinent sections of the plans and specifications as well as recommendations presented in this report and to verify our design assumptions in the field, particularly those regarding foundation, slab and pavement subgrade preparation and re-use of fill generated during earthwork. In addition, we can provide engineering input in a timely manner if subsurface conditions are found to deviate from those anticipated prior to construction and warrant a design change or a change in earthwork procedures.

We also recommend Northeast Geotechnical be afforded the opportunity to review the foundation and site plans, and earthwork specifications prior to bidding for construction to see that our recommendations have been properly interpreted and included. We should also be afforded the opportunity to review the contractor's temporary lateral earth support system design prior to construction as well.

FIGURE



NOTES:

1. BASE MAP DEVELOPED FROM PLAN TITLED "EXHIBIT PLAN", SHEET No. 1 OF 1, DATED AUGUST 19, 2024, BY GUERRIERE & HALNON, INC. (G&H).

2. TEST PIT TP-13 AND TEST BORING B-5A, B-11A, B-11B, B-15, B-16, AND B-17 LOCATIONS ESTABLISHED AT THE SITE BY NORTHEAST GEOTECHNICAL, INC. PERSONNEL USING TAPED MEASUREMENTS AND LINE OF SIGHT FROM EXISTING SITE AND BUILDING FEATURES. REMAINING TEST PIT AND TEST BORING LOCATIONS SURVEY LOCATED AT THE SITE BY G&H. TEST BORING B-11 DRILLED APPROXIMATELY 4+/- FEET EAST OF SURVEY-LOCATED STAKE DUE TO EXISTING TREE IN VICINITY OF STAKE. THE TEST PIT AND TEST BORING LOCATIONS SHOWN ON THIS PLAN SHOULD BE CONSIDERED ACCURATE TO THE DEGREE IMPLIED BY THE METHODS USED.

3. TEST BORINGS AND TEST PITS OBSERVED AND LOGGED BY NORTHEAST GEOTECHNICAL, INC. PERSONNEL.

LEGEND:

(OW) TEST BORINGS PERFORMED BY SOIL X CORP. OF LEOMINSTER, MA ON AUGUST 5 THROUGH 9, 2024.

INDICATES OBSERVATION WELL INSTALLED.

TEST PITS EXCAVATED BY CANESI BROS. CONSTRUCTION, INC. OF FRANKLIN, MA ON JULY 25 AND 26, 2024.

NORTHEAST GEOTECHNICAL

NORTHEAST GEOTECHNICAL, INC.

NEW ENGLAND APPLIANCE GROUP WAREHOUSE ADDITION

126 GROVE STREET — FRANKLIN, MA

SUBSURFACE EXPLORATION LOCATION PLAN

Project No.: O542.00	Drawn By: CBR	Reviewed By: G. OLSON, P.E.
Date: 8/19/2024	Scale: 1"=120'	Figure No.: 1

APPENDIX A

Limitations and Service Constraints

LIMITATIONS AND SERVICE CONSTRAINTS
Geotechnical Engineering Consulting Services

The opinions, conclusions and recommendations presented in this report are based upon the scope of services, information obtained through the performance of the services, and the schedule as agreed upon by Northeast Geotechnical, Inc. and the party for whom this report was originally prepared. This report is an instrument of professional service and was prepared in accordance with the generally accepted standards and level of skill and care under similar conditions and circumstances established by the geotechnical consulting industry. No representation, warranty, or guarantee, express or implied, is intended or given. To the extent that Northeast Geotechnical, Inc. relied upon any information prepared by other parties not under contract to Northeast Geotechnical, Inc. , Northeast Geotechnical, Inc. makes no representation as to the accuracy or completeness of such information. This report is expressly for the sole and exclusive use of the party for whom this report was originally prepared and/or other specifically named parties have the right to make use of and rely upon this report. Reuse of this report or any portion thereof for other than its intended purpose, or if modified, or if used by third parties, shall be at the user's sole risk.

Furthermore, nothing contained in this document shall relieve any other party of its responsibility to abide by contract documents and applicable laws, codes, regulations, or standards.

Subsurface Explorations and Testing

Results of any observations, subsurface exploration or testing, and any findings presented in this report apply solely to conditions existing at the time when Northeast Geotechnical, Inc.'s exploratory work was performed. It must be recognized that any such observations and exploratory or testing activities are inherently limited and do not represent a conclusive or complete characterization. Conditions in other parts of the project site may vary from those at the locations where data were collected and conditions can change with time. Northeast Geotechnical, Inc.'s ability to interpret exploratory and test results is related to the availability of the data and the extent of the exploratory and testing activities.

The findings, conclusions and recommendations submitted in this report are based, in part, on data obtained from subsurface borings, test pits, and specific, discrete sampling locations. The nature and extent of variation between these test locations, which may be widely spaced, may not become evident until construction. If variations are subsequently encountered, it will be necessary to re-evaluate the conclusions and recommendations of this report.

Correlations and descriptions of subsurface conditions presented in boring logs, test pit logs, subsurface profiles, and other materials are approximate only. Subsurface conditions may vary significantly from those encountered in borings and sampling locations and transitions between subsurface materials may be gradual or highly variable.

Conditions at the time water level measurements and other subsurface observations were made are presented in the boring logs or other sampling forms. This field data has been reviewed and interpretations provided in this report. However, groundwater levels may be variable and may fluctuate due to variation in precipitation, temperature, and other factors. Therefore, groundwater levels at the site at any time may be different than stated in this report.

Review

In the event that any change in the nature, design, or location of the proposed structure(s) is planned, the conclusions and recommendations in this report shall not be considered valid unless the changes are reviewed and the conclusions and recommendations of this report are modified or verified in writing.

Northeast Geotechnical, Inc. should be provided the opportunity for a general review of final design plans and specifications to assess that our recommendations have been properly interpreted and included in the design and construction documents.

Construction

To verify conditions presented in this report and modify recommendations based on field conditions encountered in the field, Northeast Geotechnical, Inc. should be retained to provide geotechnical engineering services during the construction phase of the project. This is to observe compliance with design concepts, specifications, and recommendations contained in this report, and to verify and refine our recommendations as necessary in the event that subsurface conditions differ from those anticipated prior to the start of construction.

APPENDIX B

Test Boring Logs

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-1
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/6/24 / Overcast with Rain, 70s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 277.5± feet
Depth to Water: None Observed

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
						1	Pavement, 0.3'±	4± inches of BITUMINOUS CONCRETE
	S-1	0.5'-1'	24"	6"	6		Existing Fill, 1'±	Brown, F/M SAND, little F. Gravel, little Silt, moist
	S-1A	1'-2.5'		6"	7-7-5		Natural Sand	Medium dense, light tan, F/M SAND, little Silt, moist
	S-2	2.5'-4.5'	24"	10"	11-10-11-8			Medium dense, tan, F/M SAND, little Silt, moist
5'							5'±	
	S-3	5'-7'	24"	14"	4-4-4-5		Natural Silty Sand	Loose, tan , F/M SAND, some Silt, moist
	S-4	7'-9'	24"	24"	5-6-6-7			Medium dense, tan, F. SAND, some Silt, moist
10'							10'±	
	S-5	10'-12'	24"	11"	4-5-6-7		Natural Sand	Medium dense, tan, F/M SAND, little Silt, moist
	S-6	12'-14'	24"	12"	6-7-6-6			Medium dense, tan, F/M SAND, little Silt, moist
15'								
	S-7	15'-17'	24"	12"	3-3-5-7			Loose, light tan, F/M SAND, little Silt, moist
20'								
	S-8	20'-22'	24"	19"	5-7-7-9			Medium dense, light tan, F/M SAND, little Silt, moist
25'								
	S-9	25'-27'	24"	20"	7-9-9-10			Medium dense, light tan, F. SAND, little Silt, moist
						2,3	27'±	
								Bottom of boring at 27± feet

Notes:
1) Augered to approximately 0.5± feet below ground surface (bgs) through existing pavement.
2) No groundwater encountered to the depth explored.
3) Boring terminated at 27± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse

Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-2
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/6/24 / Overcast with Rain, 70s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 276.8± feet
Depth to Water: None Observed

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
						1	Pavement, 0.3'±	4± inches of BITUMINOUS CONCRETE
	S-1	0.5'-2.5'	24"	8"	8-11-12-8		Existing Fill	Medium dense, tan, F/C SAND, some F/C Gravel, little (-) Silt, moist
	S-2	2.5'-3'	24"	6"	10		3'±	Tan, F/C SAND, little F/C Gravel, little Silt, moist
5'	S-2A	3'-4.5'		8"	10-11-8			Light tan, F. SAND, little Silt, moist
	S-3	5'-7'	24"	14"	5-6-8-6			Medium dense, light tan, F/M SAND, little Silt, moist
	S-4	7'-9'	24"	12"	8-8-10-8			Medium dense, light tan, F. SAND, little Silt, moist
10'								
	S-5	10'-12'	24"	22"	5-7-7-9			Medium dense, light tan, F/M SAND, little Silt, moist
	S-6	12'-14'	24"	18"	9-9-7-12		Natural Sand	Medium dense, light tan, F/M SAND, little Silt, moist
15'								
	S-7	15'-17'	24"	12"	5-7-8-8			Medium dense, light tan, F. SAND, little Silt, moist
	S-8	17'-19'	24"	22"	11-10-11-11			Medium dense, light tan, F. SAND, little Silt, moist
20'							20'±	
	S-9	20'-22'	24"	20"	6-8-8-9			Medium dense, light tan, F. SAND, some Silt, moist
25'							Natural Silty Sand	
	S-10	25'-27'	24"	20"	6-11-10-11			Medium dense, dark tan, F. SAND and SILT, moist
						2,3	27'±	
								Bottom of boring at 27± feet

Notes:
1) Augered to approximately 0.5± feet below ground surface (bgs) through existing pavement.
2) No groundwater encountered to the depth explored.
3) Boring terminated at 27± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse

Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-3
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/6/24 / Overcast with Rain, 70s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 275.2± feet
Depth to Water: 18± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
						1	Pavement, 0.3'±	4± inches of BITUMINOUS CONCRETE
	S-1	0.5'-2.5'	24"	8"	6-12-17-11		Existing Fill	Medium dense, tan, F/M SAND, little Silt, trace F. Gravel, moist
	S-2	2.5'-4.5'	24"	12"	15-12-12-6			Medium dense, light tan, F/M SAND, little Silt, moist
5'								
	S-3	5'-7'	24"	12"	2-2-1-2			Very loose, tan, F/M SAND, little Silt, 1"± seam of dark brown, Organic SILT and F/M SAND, trace Organic Fibers, moist
							7'±	
	S-4	7'-9'	24"	12"	3-5-5-5		Natural Silty Sand	Medium dense, light tan, F/M SAND, little Silt, moist
10'								
	S-5	10'-12'	24"	14"	5-5-6-6			Medium dense, light tan, F. SAND, some Silt, moist
	S-6	12'-14'	24"	20"	8-8-7-8			Medium dense, light tan, F. SAND, some Silt, moist
15'								
	S-7	15'-17'	24"	19"	5-7-9-9			Medium dense, light tan, F. SAND, some Silt, moist
							17'±	
	S-8	17'-19'	24"	18"	9-6-7-7	2	Natural Sand and Silt	Medium dense, tan to gray, F. SAND and SILT, wet
20'								
	S-9	20'-20.5'	24"	6"	4			Tan to gray, F. SAND and SILT, wet
	S-9A	20.5'-22'		6"	5-7-8			Tan, F. SAND, some Silt, wet
25'								
	S-10	25'-27'	24"	10"	4-6-5-5			Medium dense, tan to gray, SILT, some F. SAND, wet
						3	27'±	
								Bottom of boring at 27± feet

Notes:
1) Augered to approximately 0.5± feet below ground surface (bgs) through existing pavement.
2) Groundwater encountered at approximately 18± feet bgs while drilling.
3) Boring terminated at 27± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse
Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-4
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/6/24 / Overcast with Rain, 70s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 275.5± feet
Depth to Water: 15± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
						1	Pavement, 0.3'±	4± inches of BITUMINOUS CONCRETE
	S-1	0.5'-2.5'	24"	12"	8-13-14-13			Medium dense, tan, F/C SAND, some F/C Gravel, little Silt, moist
	S-2	2.5'-3.5'	24"	12"	24-22			Dark gray, F/C SAND and F/C GRAVEL, little (-) Silt, mosit
5'	S-2A	3.5'-4.5'		6"	22-10			Tan to rust, F/M SAND, little Silt, moist
	S-3	5'-7'	24"	24"	9-11-12-12		Existing Fill	Medium dense, tan, F/M SAND, little Silt, trace (-) F. Gravel, moist
	S-4	7'-9'	24"	22"	15-14-17-19			Dense, light tan, F/M SAND, little (+) Silt, trace F. Gravel, moist
10'								
	S-5	10'-11.5'	24"	18"	9-13-12		11.5'±	Medium Dense, tan, F/C SAND and F/C CINDERS, little Silt, moist
	S-5A	11.5'-12'		6"	10			Rust, F/M SAND, some Silt, moist
	S-6	12'-14'	24"	24"	12-10-9-11			Medium dense, tan, SILT and F. SAND, moist
15'								
	S-7	15'-17'	24"	10"	6-7-9-9	2		Medium dense, tan to rust, SILT and F. SAND, wet
							Natural Sand and Silt	
20'								
	S-8	20'-22'	24"	8"	3-4-5-4			Loose, gray, SILT and F. SAND, wet
25'							25'±	
	S-9	25'-27'	24"	12"	15-24-25-31		Natural Glacial Till, 27'±	Dense, gray to brown, F/C SAND and F/C GRAVEL, little Silt, wet
						3		
								Bottom of boring at 27± feet

Notes:
1) Augered to approximately 0.5± feet below ground surface (bgs) through existing pavement.
2) Groundwater encountered at approximately 15± feet bgs while drilling.
3) Boring terminated at 27± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse

Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-5
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.	Soil X Corp.	Date/Weather:	8-5-2024 / Clear, 70s to 90s °F
Foreman:	Mike Houde	Northeast Geotechnical Observer:	Christian Rice, P.E.
Boring Equipment:	Mobile B-57 Truck-Mounted Drill Rig	Test Boring Location:	See Subsurface Exploration Location Plan
	4¼-inch I.D. Hollow-Stem Augers	Ground Surface Elevation:	277± feet
	2.0" O.D. Split Spoon, 140 lb Auto Hammer	Depth to Water:	8± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-1A	0-0.3'	3"	3"	11		Topsoil Fill, 0.3'±	Brown, SILT, some F. Sand, little F. Gravel, trace Roots, moist
	S-1B	0.3-2'	21"	7"	13-7-6			M. dense, tan to brown, F/C SAND, some F/C Gravel, little Silt, moist
	S-2	2-4'	24"	14"	6-8-12-9			Medium dense, tan-brown, F/M SAND, little (+) Silt, little F/C Gravel, 3± inch seam of buried topsoil, moist
5'								
	S-3	5-7'	24"	0"	7-6-5-4		Existing Fill	No recovery
	S-4	7-9'	24"	2"	3-1-3-4	1		Loose, brown, F/M SAND, little (-) Silt, wet
10'							10'±	
	S-5	10-12'	24"	18"	8-10-14-15			Medium dense, brown to tan, F/M SAND, trace (+) Silt, wet. Note: upper portion of recovered sample more brown in color.
	S-6	12-14'	24"	18"	16-15-18-15			Dense, tan, F. SAND, little (+) Silt, wet
15'								
	S-7	15-17'	24"	20"	11-14-11-11			Medium dense, tan, F. SAND, little (+) Silt, wet
							Natural Sand	
20'								
	S-8	20-22'	24"	14"	9-12-11-14			Medium dense, tan, F/M SAND, some (-) Silt, 1± inch seam of: rust, F/M SAND, trace Silt, wet
25'								
	S-9A	25-26'	12"	8"	18-24		26'±	Dense, tan-light brown, F/C SAND, some F/C Gravel, trace Silt, wet
	S-9B	26-27'	12"	6"	19-27	2	* 27'±	Dense, gray-brown, F/C SAND, some Silt, some F/C Gravel, wet
								Bottom of boring at 27± feet

Notes: *Natural Glacial Till

1) Groundwater encountered at 8± feet below ground surface (bgs) while drilling.
2) Boring terminated at 27± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse

Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-5A
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/7/24 / Overcast, 60s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 277± feet
Depth to Water: 8± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-1	0'-2'	24"	7"	6-18-9-7	1	Topsoil Fill, 0.3'±	Med. dense, SILT some F. Sand, trace F. Gravel, trace Roots, moist
	S-2	2'-4'	24"	6"	11-7-10-14			Medium dense, tan, F/M SAND, little (+) Silt, trace (-) F. Gravel, moist
5'								
	S-3	5'-7'	24"	24"	7-6-4-4			Medium dense, gray to brown, F/M SAND, little Silt, trace F/C Gravel, trace Organic Fibers/Roots, wet
							Existing Fill	
	S-4	7'-9'	24"	12"	1-WOH/12"-1	2,3		Very loose, tan to rust, F/M SAND, little Silt, trace (-) F. Gravel, wet
10'								
	S-5	10'-12'	24"	22"	WOH-9-11-15			Medium dense, dark brown, F/C SAND, some inorganic and organic Silt, trace F. Gravel, trace Roots, wet
							12'±	
	S-6	12'-14'	24"	24"	11-17-17-18		Natural Sand	Dense, tan, F/M SAND, little (-) Silt, wet
						4	14'±	
15'								Bottom of boring at 14± feet
20'								
25'								

Notes:
1) Boring located approximately 4± feet south of original B-5 location.
2 Groundwater encountered at approximately 8± feet below ground surface (bgs) while drilling.
3) WOH = Weight of hammer.
4) Boring terminated at 14± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse
Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-6
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Donnie Ledger
Boring Equipment: Geoprobe 7822DT Drill Rig
Direct Push 4-inch Diameter Casing
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/9/24 / Overcast with Rain, 60s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 275.6± feet
Depth to Water: 11± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-1	0'-1'	24"	12"	2-2		Topsoil, 1'±	Dark brown, SILT, little F. Sand, trace Wood, trace Roots, moist
	S-1A	1'-2'		12"	4-4		Subsoil, 2'±	Light brown, SILT, some F. Sand, moist
	S-2	2'-4'	24"	12"	9-25-27-29			Very dense, tan, F. SAND, some Silt, trace F. Gravel, moist
5'	S-3	4'-6'	24"	22"	45-26-23-30			Dense, rust, F/M SAND, little (+) Silt, trace F. Gravel, moist
	S-4	6'-8'	24"	20"	28-25-22-28			Dense, tan to rust, F/M SAND, little (+) Silt, moist
10'							Natural Sand	
	S-5	10'-12'	24"	12"	15-14-13-19	1		Medium dense, tan to gray, F/C SAND, little Silt, trace F. Gravel, wet
15'								
	S-6	15'-17'	24"	24"	8-12-12-18			Medium dense, tan to gray, F/C SAND, little Silt, trace F. Gravel, wet
						2	17'±	
								Bottom of boring at 17± feet
20'								
25'								

Notes:
1) Groundwater encountered at approximately 11± feet below ground surface (bgs) while drilling.
2) Boring terminated at 17± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse
Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-7
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Donnie Ledger
Boring Equipment: Geoprobe 7822DT Drill Rig
Direct Push 4-inch Diameter Casing
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/9/24 / Overcast with Rain, 60s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 279± feet
Depth to Water: None Observed

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-1	0'-0.3'	24"	3"	4		Topsoil Fill, 0.3'±	Brown, SILT, some F. Sand trace F/C Gravel, trace Roots, moist
	S-1A	0.3'-2'		2"	6-5-9			Medium dense, tan, F/C SAND, trace F. Gravel, trace (+) Silt, moist
	S-2	2'-4'	24"	12"	7-6-6-10			Medium dense, tan, F/C SAND, some (-) F/C Gravel, trace Silt, moist
5'								
	S-3	5'-7'	24"	20"	12-9-7-9			Medium dense, tan, F/C SAND, little F/C Gravel, little (-) Silt, moist
	S-4	7'-9'	24"	16"	7-8-6-12			Medium dense, tan, F/M SAND, little F. Gravel, little (+) Silt, moist
10'								
	S-5	10'-12'	24"	14"	13-11-9-12			Medium dense, tan, F/C SAND, trace (+) F/C Gravel, little Silt, moist
							Natural Sand	
15'								
	S-6	15'-17'	24"	19"	9-7-6-10			Medium dense, tan, F/M SAND, little (+) Silt, moist
20'								
	S-7	20'-22'	24"	24"	11-8-8-12			Medium dense, tan, F/M SAND, little Silt, moist
25'								
	S-8	25'-27'	24"	24"	12-10-8-12			Medium dense, tan, F/M SAND, little Silt, moist
						1,2	27'±	
								Bottom of boring at 27± feet

Notes:
1) No groundwater encountered to the depth explored.
2) Boring terminated at 27± feet below ground surface.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse

Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-8
Page: 1 of 2
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/7/24 / Overcast, 60s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 274.2± feet
Depth to Water: 18± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
						1	Pavement, 0.5'±	6± inches of BITUMINOUS CONCRETE
	S-1	0.5'-1'	24"	6"	9		Existing Fill, 1'±	Tan, F/M SAND, little Silt, trace F. Gravel, moist
	S-1A	1'-2.5'		12"	16-14-7			Tan, F/M SAND, trace (-) Silt, moist
	S-2	2.5'-4.5'	24"	18"	9-8-7-6			Medium dense, tan, F/M SAND, little Silt, moist
5'								
	S-3	5'-7'	24"	14"	3-2-2-1			Very loose, tan, F/M SAND, little Silt, moist
	S-4	7'-9'	24"	6"	1-1-1-2		Existing Fill	Very loose, light tan, F/M SAND, little Silt, trace F. Gravel, moist
10'								
	S-5	10'-12'	24"	2"	WOH-1-1-WOH	2		Very loose, tan, F/M SAND, little Silt, trace (-) moist
	S-6	12'-14'	24"	8"	WOH-1/12"-1			Very loose, tan to brown, F/M SAND, little Silt, little F. Gravel, moist
15'							15'±	
	S-7	15'-17'	24"	8"	3-3-4-6			Loose, gray, F. SAND, some (+) Silt, trace F/C Gravel, moist
							Natural Silty Sand	
	S-8	17'-19'	24"	11"	8-8-8-6	3		Medium dense, gray, F. SAND and SILT, wet
20'							20'±	
	S-9	20'-22'	24"	12"	4-5-9-11			Medium dense, gray, SILT, little F. Sand, wet
							Natural Silt	
25'							25'±	
	S-10	25'-27'	24"	10"	10-21-14-17			Dense, light tan, F. SAND, little Silt, wet
							Natural Sand	
							cont. page 2	

Notes:
1) Augered to approximately 0.5± feet below ground surface (bgs) through existing pavement.
2) WOH = Weight of hammer.
3) Groundwater encountered at approximately 18± feet bgs while drilling.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse
Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-8
Page: 2 of 2
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/7/24 / Overcast, 60s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 274.2± feet
Depth to Water: 18± feet

Sample Data							Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-11	30'-32'	24"	20"	5-8-8-9		Natural Sand	Medium dense, gray, F/M SAND, some Silt, wet
						4	32'±	
								Bottom of boring at 32± feet
35'								
40'								
45'								
50'								
55'								

Notes:
4) Boring terminated at 32± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density	Abbreviations
		F = Fine
		M = Medium
0 -4	Very Loose	C = Coarse
		F/M = Fine to Medium
4 - 10	Loose	F/C = Fine to Coarse
10 - 30	Med. Dense	Proportions Used
		Trace (T) = 0 - 10%
30 - 50	Dense	Little (Li) = 10 - 20%
		Some (So) = 20 - 35%
50+	Very Dense	AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-9
Page: 1 of 2
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/7/24 / Overcast, 60s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 273.8± feet
Depth to Water: 20± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
						1	Pavement, 0.5'±	6± inches of BITUMINOUS CONCRETE
	S-1	0.5'-2.5'	24"	14"	14-12-9-8			Medium dense, tan, F/M SAND, little F/C Gravel, little Cinders, little Silt, moist
	S-2	2.5'-4.5'	24"	12"	11-16-15-6			Dense, tan, F/M SAND, little F/C Gravel, little Silt, moist
5'								
	S-3	5'-7'	24"	8"	6-6-4-4		Existing Fill	Medium dense, tan, F/M SAND, little Silt, trace F/C Gravel, moist
	S-4	7'-7.5'	24"	6"	2			Tan, F/C SAND, little F. Gravel, little Silt, moist
	S-4A	7.5'-9'		6"	3-7-10			Gray, F. SAND, some Silt, moist
10'								
	S-5	10'-11'	24"	12"	43-31		11'±	Gray, F/C PULVERIZED ROCK, some F/C SAND, little Silt, moist
	S-5A	11'-12'		12"	17-14			Rust, F. SAND, some (+) Silt, moist
	S-6	12'-14'	24"	8"	12-7-7-8			Medium dense, rust, F/M SAND, some Silt, trace F. Gravel, moist
15'								
	S-7	15'-17'	24"	20"	5-5-3-5			Loose, tan to rust, F/M SAND, little (+) Silt, trace F. Gravel, moist
	S-8	17'-19'	24"	14"	11-11-10-10			Medium dense, gray to tan, F. SAND, little (+) Silt, moist
20'							Natural Silty Sand	
	S-9	20'-22'	24"	20"	3-5-5-10	2		Medium dense, gray, F. SAND, some (+) Silt, wet
25'								
	S-10	25'-27'	24"	14"	9-14-14-15			Medium dense, gray, F. SAND, some Silt, 2"± seam of F/C SAND, little F. Gravel, little Silt, wet
							cont. page 2	

Notes:
1) Augered to approximately 0.5± feet below ground surface (bgs) through existing pavement.
2) Groundwater encountered at approximately 20± feet bgs while drilling.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse
Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-9
Page: 2 of 2
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/7/24 / Overcast, 60s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 273.8± feet
Depth to Water: 20± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-11	30'-32'	24"	24"	6-6-6-7		Natural Silty Sand, 32'±	Medium dense, light gray, F. SAND, some Silt, wet
						3		
								Bottom of boring at 32± feet
35'								
40'								
45'								
50'								
55'								

Notes:
3) Boring terminated at 32± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density	Abbreviations
		F = Fine
		M = Medium
0 -4	Very Loose	C = Coarse
		F/M = Fine to Medium
4 - 10	Loose	F/C = Fine to Coarse
10 - 30	Med. Dense	Proportions Used
		Trace (T) = 0 - 10%
30 - 50	Dense	Little (Li) = 10 - 20%
		Some (So) = 20 - 35%
50+	Very Dense	AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-10
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/7/24 / Overcast, 60s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 274.7± feet
Depth to Water: 15± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
						1	Pavement, 0.5'±	6± inches of BITUMINOUS CONCRETE
	S-1	0.5'-1'	24"	6"	6		Existing Fill, 1'±	Tan, F/C SAND, some F/C Gravel, little Silt, moist
	S-1A	1'-2.5'		6"	13-11-7		Natural Sand and Silt	Medium dense, gray, F. SAND and SILT, moist
	S-2	2.5'-4.5'	24"	14"	12-18-18-13			Dense, gray, F. SAND and SILT, moist
5'							5'±	
	S-3	5'-7'	24"	8"	22-14-8-14			Medium dense, gray, F/M SAND, little F/C Gravel, little (-) Silt, moist
10'								
	S-4	10'-12'	24"	12"	7-5-6-6		Natural Sand	Medium dense, tan to rust, F/M SAND, little (+) Silt, moist
15'								
	S-5	15'-17'	24"	12"	7-6-13-50	2	17'±	Medium dense, gray to rust, F/M SAND, some Silt, 3"± seam of F/C SAND, little F. Gravel, trace Silt, wet
20'								Bottom of boring at 17± feet
25'								

Notes:
1) Augered to approximately 0.5± feet below ground surface (bgs) through existing pavement.
2) Groundwater encountered at approximately 15± feet bgs while drilling.
3) Boring terminated at 17± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse

Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-11
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Donnie Ledger
Boring Equipment: Geoprobe 7822DT Drill Rig
Direct Push 4-inch Diameter Casing
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/8/24 / Overcast to Clear, 60s to 70s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 260.5± feet
Depth to Water: None Observed

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-1	0'-1'	24"	8"	3-3		Topsoil Fill, 1'±	Dark brown, SILT and F/M SAND, trace F/C Gravel, trace Roots, moist
	S-1A	1'-2'		8"	4-8		Existing Fill	Tan, F/M SAND, some Silt, little F. Gravel, little Silt, tr. (-) Cinders, moist
	S-2	2'-2.2'	24"	2"	6			Dark brown, F/M SAND and SILT, trace Roots, moist
	S-2A	2.2'-4'		6"	5-3-4			Loose, tan to brown, F/M SAND, some Silt, trace F. Gravel, moist
5'								
	S-3	5'-5.3'	3"	0"	55/3"	1,2,3	5.3'±	No Recovery
								Bottom of boring in existing fill at 5.3± feet
10'								
15'								
20'								
25'								

Notes:
1) Split spoon refusal on possible cobble or boulder at approximately 5.3± feet below ground surface (bgs).
2) No groundwater encountered to the depth explored.
3) Boring terminated at 5.3± feet bgs. Offset boring approximately 4± feet east then drill B-11A.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse
Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-11A
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Donnie Ledger
Boring Equipment: Geoprobe 7822DT Drill Rig
Direct Push 4-inch Diameter Casing
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/8/24 / Overcast to Clear, 60s to 70s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 260.5± feet
Depth to Water: 7± feet

Sample Data							Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
						1	Topsoil Fill, 1'±	See B-11 boring log for sample descriptions from 0 to 5± feet
							Existing Fill	
5'								
	S-1	5'-7'	24"	6"	4-25-11-17	2		Dense, dark gray to brown, F/M SAND, some Silt, some F. Gravel, trace Roots, wet
						3		
	S-2	8'-10'	24"	0"	36-21-18-17	4,5		No Recovery
10'						6	10'±	
								Bottom of boring in existing fill at 10± feet
15'								
20'								
25'								

Notes:
1) Boring located approximately 4± feet east of original B-11 location. Drill to 5± feet below ground surface (bgs) then take first sample.
2) Split spoon bent during S-1 sample.
3) Groundwater encountered at approximately 7± feet bgs while drilling.
4) Casing refusal at 8± feet bgs.
5) Split spoon bent during S-2 sample.
6) Boring terminated at 10± feet bgs following bent split spoon during S-2 sample. Offset boring approximately 15± feet east then drill as B-11B.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse
Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-11B
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Donnie Ledger
Boring Equipment: Geoprobe 7822DT Drill Rig
Direct Push 4-inch Diameter Casing
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/8/24 / Overcast to Clear, 60s to 70s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 258± feet
Depth to Water: 11± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-1	0'-1'	24"	12"	3-3	1	Topsoil Fill, 1'±	Dark brown, SILT, some F/C SAND, trace F. Gravel, trace Roots, moist
	S-1A	1'-2'		12"	7-10		Existing Fill	Tan to rust, F/M SAND, little Silt, little F/C Gravel, moist
	S-2	2'-2.5'	24"	6"	7		2.5'±	Tan to rust, F/M SAND, little Silt, moist
	S-2A	2.5'-4'		12"	5-4-6			Loose, light tan to gray, F/M SAND and SILT, moist
5'								
	S-3	5'-7'	24"	20"	12-13-14-22		Natural Silty Sand	Medium dense, tan, F/M SAND, little (+) Silt, trace F/C Gravel, moist
	S-4	7'-9'	24"	14"	14-12-10-10			Medium dense, tan, F/C SAND, some F/C Gravel, little Silt, moist
10'							10'±	
	S-5	10'-12'	24"	8"	9-7-7-12	2	Natural Sand and Silt	Medium dense, tan to gray, F. SAND and SILT, wet
15'							15'±	
	S-6	15'-17'	24"	12"	6-6-7-8		Natural Silt	Medium dense, gray, SILT, some F. Sand, wet
20'							20'±	
	S-7	20-21.8'	22"	6"	22-30-26-55/4"	3	Natural Glacial Till	Very dense, dark gray, F/C SAND and F/C GRAVEL, some Silt, wet
						4,5	23'±	
25'								Bottom of boring at 23± feet

Notes:
1) Boring located approximately 15± feet east of B-11A location.
2) Groundwater encountered at approximately 11± feet below ground surface (bgs) while drilling.
3) Split spoon refusal at 21.8± feet bgs.
4) Casing refusal at 23± feet bgs.
5) Boring terminated at 23± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse

Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-12
Page: 1 of 2
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Donnie Ledger
Boring Equipment: Geoprobe 7822DT Drill Rig
Direct Push 4-inch Diameter Casing
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/8/24 / Overcast to Clear, 60s to 70s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 252.1± feet
Depth to Water: 8± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-1	0'-0.5'	24"	6"	3		Topsoil Fill, 0.5'±	Dark brown, SILT and F. SAND, trace F. Gravel, trace Roots, moist
	S-1A	0.5'-2'		10"	7-5-11		Existing Fill, 2'±	Medium dense, brown, F/C SAND, little (+) Silt, trace F/C Gravel, moist
	S-2	2-4'	24"	20"	10-11-9-14		Natural Silty Sand	Medium dense, light tan, F/M SAND and SILT, trace F. Gravel, moist
5'	S-3	5-7'	24"	9"	8-8-9-11			Medium dense, light tan, F/C SAND, some F/C Gravel, some Silt, moist
	S-4	7-9'	24"	8"	7-7-6-10		7'±	Medium dense, gray, F. SAND, some (+) Silt, wet
10'	S-5	10-12'	24"	6"	6-5-4-4	1		Loose, gray SILT, some F. Sand, wet
15'	S-6	15'-17'	24"	14"	4-7-7-10			Medium dense, gray, F. SAND and SILT, wet
20'	S-7	20'-22'	24"	8"	8-4-2-4		Natural Fine Sand and Silt	Loose, gray, SILT and F. SAND, wet
25'	S-8	25'-27'	24"	10"	6-4-5-5			Loose, gray, F. SAND and SILT, wet
							cont. page 2	

Notes:

1) Groundwater encountered at approximately 8± feet below ground surface (bgs) while drilling.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse

Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-12
Page: 2 of 2
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Donnie Ledger
Boring Equipment: Geoprobe 7822DT Drill Rig
Direct Push 4-inch Diameter Casing
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/8/24 / Overcast to Clear, 60s to 70s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 252.1± feet
Depth to Water: 8± feet (while drilling), See Well Readings

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-9	30'-32'	24"	16"	4-5-7-14		Natural Silty Sand, 32'±	Medium dense, gray F. SAND, some (+) Silt, wet
35'								Bottom of boring at 32± feet
40'								
45'								
50'								
55'								

Notes:

2) Boring terminated at 32± feet bgs. Groundwater observation well installed upon completion. See below for well installation details.

Groundwater observation well installation details

- 2-inch diameter PVC riser from 2± feet above ground surface to 3± feet bgs.
- 2-inch diameter screened PVC from 3± to 13± feet bgs.
- Backfilled with bentonite plug from 0± to 2± feet bgs.
- Backfilled with silica sand from 2± to 13± feet bgs.
- Soils caved in and backfilled with drill cuttings from 13± to 32± feet bgs.

B-12 Well Readings	Date	Depth (ft)	Elevation (ft)
	8/14/2024	11.0±	241.1±

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse
Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-13
Page: 1 of 2
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8-5-2024 / Clear, 70s to 90s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 282.8± feet
Depth to Water: 19± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
						1	Pavement, 0.3'±	3± inches of BITUMINOUS CONCRETE
	S-1	0.5-2.5'	24"	12"	4-12-13-11		Existing Fill	Medium dense, gray-tan-brown, F/C SAND, some F/C Gravel, trace (+) Silt, moist
	S-2A	2.5-3'	6"	6"	11		3'±	Med. dense, gray-brown, F/C SAND, some F/C Gravel, trace Silt, moist
	S-2B	3-4.5'	18"	6"	12-8-8			Medium dense, light brown, F/M SAND, some Silt, moist
5'								
	S-3	5-7'	24"	17"	4-5-7-7			Medium dense, tan, F. SAND, some (+) Silt, moist
	S-4	7-9'	24"	23"	7-7-7-8		Natural Silty Sand	Medium dense, tan, F. SAND, some (+) Silt, moist
10'								
	S-5	10-12'	24"	16"	5-5-5-6			Medium dense, tan, F. SAND, some Silt, moist
							14'±	
15'								
	S-6	15-17'	24"	20"	5-7-6-7			Medium dense, gray-tan, F. SAND and SILT, moist
20'						2		
	S-7	20-22'	24"	18"	5-6-8-9		Natural Fine Sand and Silt	Medium dense, gray-tan, SILT and F. SAND, wet
25'								
	S-8	25-27'	24"	16"	4-4-11-7			Medium dense, gray-tan, F. SAND and SILT, wet
							27'±	
						3	Natural Glacial Till	
							cont. page 2	

Notes:
1) Augered to approximately 0.5± feet below ground surface (bgs) through existing pavement.
2) Groundwater encountered at approximately 19± feet bgs while drilling.
3) Auger grinding observed from approximately 27± to 30± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse

Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-13
Page: 2 of 2
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.	Soil X Corp.	Date/Weather:	8-5-2024 / Clear, 70s to 90s °F
Foreman:	Mike Houde	Northeast Geotechnical Observer:	Christian Rice, P.E.
Boring Equipment:	Mobile B-57 Truck-Mounted Drill Rig	Test Boring Location:	See Subsurface Exploration Location Plan
	4¼-inch I.D. Hollow-Stem Augers	Ground Surface Elevation:	282.8± feet
	2.0" O.D. Split Spoon, 140 lb Auto Hammer	Depth to Water:	19± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-9	30-32'	24"	7"	21-20-19-24		Natural Glacial Till, 32'±	Dense, gray-brown, F/C SAND, some (+) F/C Gravel, some Silt,wet
35'								Bottom of boring at 32± feet
40'								
45'								
50'								
55'								

Notes:

Standard Penetration Resistance (Blows/Foot)	Density	Abbreviations
		F = Fine
		M = Medium
0 -4	Very Loose	C = Coarse
		F/M = Fine to Medium
4 - 10	Loose	F/C = Fine to Coarse
10 - 30	Med. Dense	Proportions Used
		Trace (T) = 0 - 10%
30 - 50	Dense	Little (Li) = 10 - 20%
		Some (So) = 20 - 35%
50+	Very Dense	AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-14
Page: 1 of 2
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Mike Houde
Boring Equipment: Mobile B-57 Truck-Mounted Drill Rig
4¼-inch I.D. Hollow-Stem Augers
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8-5-2024 / Clear, 70s to 90s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 288.3± feet
Depth to Water: None Observed

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
						1	Pavement, 0.3'±	3± inches of BITUMINOUS CONCRETE
	S-1A	0.5-1.2'	8"	8"	8		Existing Fill	Light brown, F/M SAND, trace Silt, trace F/C Gravel, moist
	S-1B	1.2-2.5'	16"	1"	14-17-17		2.5'±	Dense, gray-tan, F/M SAND and F/C GRAVEL, trace Silt, moist
	S-2	2.5-4.5'	24"	14"	9-13-15-12			Medium dense, tan, F/C SAND, trace (+) F. Gravel, trace Silt, moist
5'								
	S-3	5-7'	24"	16"	5-6-7-6			Medium dense, tan, F/M SAND, trace (+) Silt, moist
	S-4	7-9'	24"	14"	5-5-6-6			Medium dense, tan, F/M SAND, little (-) Silt, moist
10'								
	S-5	10-12'	24"	15"	3-4-5-6			Loose, tan, F. SAND, trace (+) Silt, moist
15'								
	S-6	15-17'	24"	19"	3-5-5-5		Natural Sand	Medium dense, tan, F. SAND, trace (+) Silt, moist
20'								
	S-7	20-22'	24"	20"	5-7-8-9			Medium dense, tan, F. SAND, trace (+) Silt, moist
25'								
	S-8	25-27'	24"	20"	6-8-8-10			Medium dense, tan, F. SAND, little Silt, moist
							cont. page 2	

Notes:
1) Augered to approximately 0.5± feet below ground surface (bgs) through existing pavement.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse
Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-14
Page: 2 of 2
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.	Soil X Corp.	Date/Weather:	8-5-2024 / Clear, 70s to 90s °F
Foreman:	Mike Houde	Northeast Geotechnical Observer:	Christian Rice, P.E.
Boring Equipment:	Mobile B-57 Truck-Mounted Drill Rig	Test Boring Location:	See Subsurface Exploration Location Plan
	4¼-inch I.D. Hollow-Stem Augers	Ground Surface Elevation:	288.3± feet
	2.0" O.D. Split Spoon, 140 lb Auto Hammer	Depth to Water:	None Observed

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-9	30-32'	24"	22"	7-9-8-10		Natural Sand	Medium dense, tan, F/M SAND, trace (+) Silt, moist
						2,3	32'±	
35'								Bottom of boring at 32± feet
40'								
45'								
50'								
55'								

Notes:
2) No groundwater encountered to the depth explored.
3) Boring terminated at 32± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density	Abbreviations
		F = Fine
		M = Medium
0 -4	Very Loose	C = Coarse
		F/M = Fine to Medium
4 - 10	Loose	F/C = Fine to Coarse
10 - 30	Med. Dense	Proportions Used
		Trace (T) = 0 - 10%
30 - 50	Dense	Little (Li) = 10 - 20%
		Some (So) = 20 - 35%
50+	Very Dense	AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-15
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Donnie Ledger
Boring Equipment: Geoprobe 7822DT Drill Rig
Direct Push 4-inch Diameter Casing
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/9/24 / Overcast with Rain, 60s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 278± feet
Depth to Water: 7± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-1	0'-0.5'	24"	6"	2		Topsoil Fill, 0.5'±	Dark brown, SILT, some F. Sand, little Roots, trace F. Gravel, moist
	S-1A	0.5'-2'		4"	7-10-26			Tan to brown, F/C SAND, little F/C Gravel, little Silt, 4"± seam of buried topsoil
	S-2	2'-3'	24"	12"	37-22			Dark gray to brown, F/C SAND and F/C Gravel, little Silt, moist
	S-2A	3'-4'		12"	18-24		Existing Fill	Tan, F/M SAND, some Silt, moist
5'								
	S-3	5'-7'	24"	12"	6-3-1-1			Loose, light tan, F/M SAND, little Silt, moist
						1		Very loose, tan to brown, F/M SAND, little (+) inorganic and organic Silt, trace Roots, wet
	S-4	7'-8.5'	24"	18"	WOH/18"		8.5'±	
	S-4A	8.5'-7'		6"	5			Rust, F/M SAND, little Silt, wet
10'								
	S-5	10'-12'	24"	12"	20-15-16-20		Natural Sand	Dense, brown to rust, F/M SAND, little Silt, wet
15'							15'±	
	S-6	15'-17'	24"	12"	20-24-13-14		Natural Silty Sand	Dense, gray, F/M SAND, some Silt, wet
	S-7	17'-19'	24"	22"	35-24-40-27			Very dense, gray, F. SAND and SILT, wet
20'							20'±	
	S-8	20'-22'	24"	8"	19-16-15-21		Natural Sand with Gravel	Dense, gray, F/C SAND, some F. Gravel, little (-) Silt, wet
	S-9	22'-24'	24"	18"	11-10-10-17			Medium dense, gray, F/C SAND and F. GRAVEL, trace Silt, wet
						2	24'±	
25'								Bottom of boring at 24± feet

Notes:
1) Groundwater encountered at approximately 7± feet below ground surface (bgs) while drilling.
2) Boring terminated at 24± feet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse

Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-16
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Donnie Ledger
Boring Equipment: Geoprobe 7822DT Drill Rig
Direct Push 4-inch Diameter Casing
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/9/24 / Overcast with Rain, 60s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 278± feet
Depth to Water: 9± feet

	Sample Data						Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-1	0'-0.3'	24"	3"	2		Topsoil Fill, 0.3'±	Dark brown, SILT, some F. Sand, trace Roots/Grass, moist
	S-1A	0.3'-2'		8"	8-12-14			Tan to brown, F/C SAND, some F. Gravel, little Silt, moist
	S-2	2'-4'	24"	18"	14-13-11-14		Existing Fill	Medium dense, light tan, F/M SAND, some Silt, trace F. Gravel, moist
5'							5'±	
	S-3	5'-7'	24"	14"	29-35-26-31			Very dense, rust, F/M SAND, little Silt, moist
	S-4	7'-9'	24"	4"	17-21-17-17			Dense, gray, F/M SAND and SILT, trace (-) F. Gravel, moist
10'						1		
	S-5	10'-12'	24"	8"	28-25-18-25			Dense, tan to rust, F. SAND, some (+) Silt, trace (-) F. Gravel, wet
							Natural Silty Sand	
15'	S-6	14'-16'	24"	16"	26-26-18-24			Dense, tan, F/M SAND, some Silt, trace (-) F. Gravel, moist
20'								
	S-7	20'-22'	24"	24"	14-18-18-24			Dense, gray , F. SAND and SILT, wet
						2	22'±	
25'								Bottom of boring at 22± feet

Notes:
1) Groundwater encountered at approximately 9± feet below ground surface (bgs) while drilling.
2) Boring terminated at 22± fet bgs.

Standard Penetration Resistance (Blows/Foot)	Density
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse
Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

NORTHEAST GEOTECHNICAL, INC.

TEST BORING LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Boring No.: B-17
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Boring Co.: Soil X Corp.
Foreman: Donnie Ledger
Boring Equipment: Geoprobe 7822DT Drill Rig
Direct Push 4-inch Diameter Casing
2.0" O.D. Split Spoon, 140 lb Auto Hammer

Date/Weather: 8/9/24 / Overcast with Rain, 60s °F
Northeast Geotechnical Observer: Luciano Gordon
Test Boring Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 278± feet
Depth to Water: None Observed

Sample Data							Strata Change	Sample Description
	No.	Depth	Pen.	Rec.	Blows per 6 in.	Rem.		
	S-1	0'-0.5'	24"	6"	1		Topsoil Fill, 0.5'±	Dark brown, F/M SAND and SILT, trace (+) Roots, moist
	S-1A	0.5'-2'		4"	4-8-16			Light tan, F/M SAND, little (+) Silt, trace F. Gravel, moist
	S-2	2'-4'	24"	10"	12-15-10-14			Medium dense, light tan, F/M SAND, little Silt, moist
5'								
	S-3	5'-7'	24"	8"	3-1-WOH/12"		Existing Fill	Very loose, light tan, F/M SAND, trace inorganic and organic Silt, trace pieces of wood, moist
	S-4	7'-9'	24"	10"	1-WOH/12"-1			Very loose, brown to dark gray, F/M SAND, some inorganic adnd organic Silt, trace pieces of wood, trace (-) F. Gravel, moist
10'								
	S-5	10'-12'	24"	8"	WOH/18"-1			Very loose, light tan to brown, F/M SAND, little Silt, moist
							12'±	
	S-6	12'-14'	24"	14"	3-2-2-3			Loose, light tan, F. SAND, some Silt, moist
15'								
	S-7	15'-17'	24"	12"	7-5-5-6			Medium dense, light tan, F. SAND, some (+) Silt, moist
							Natural Silty Sand	
20'								
	S-8	20'-22	24"	24"	11-10-9-12			Medium dense, light tan, F. SAND, some (+) Silt, moist
	S-9	22'-24'	24"	14"	10-10-8-13			Medium dense, light tan, F. SAND, some Silt, moist
						1,2	24'±	
25'								Bottom of boring at 24± feet

Notes:
1) No groundwater encountered to the depth explored.
2) Boring terminated at 24± feet below ground surface.

Standard Penetration Resistance	Density
(Blows/Foot)	
0 -4	Very Loose
4 - 10	Loose
10 - 30	Med. Dense
30 - 50	Dense
50+	Very Dense

Abbreviations
F = Fine
M = Medium
C = Coarse
F/M = Fine to Medium
F/C = Fine to Coarse

Proportions Used
Trace (T) = 0 - 10%
Little (Li) = 10 - 20%
Some (So) = 20 - 35%
AND = 35-50%

APPENDIX C

Test Pit Logs

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-1
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor:	Canesi Bros Construction Inc.	Date/Weather:	7-25-2024 / Overcast, 70s to 80s F
Operator:	Bill Canesi	Northeast Geotechnical Observer:	Christian Rice, P.E.
Equipment:	CASE CX145C SR Excavator	Test Pit Location:	See Subsurface Exploration Location Plan
Capacity/Reach:	1.5± yd^3 toothed bucket / 18± ft	Ground Surface Elevation:	278.8± feet
		Depth to Water:	None Observed

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	Topsoil Fill, 0.5'±	Brown, SILT and F. SAND, some Roots, moist	E		1
2'	Existing Fill	Light brown to tan, F/M SAND, trace to some F/C Gravel, trace to little Silt, trace Plastic, occasional Cobbles, moist	M	1 (Class A)	
3'	3'±				2
4'	* 3.2'±	Dark brown, F/M SAND and SILT, little Roots, moist	E		3
5'	Former Subsoil	Orange-brown, F/M SAND, little Silt, trace F/C Gravel, trace (-) Roots, moist			4
6'	5'± Footing 5.3'± 5.6'±				5
7'	6.5'±				2
8'	Natural Sand	Tan, F. SAND, trace Silt, moist	E		4
9'					6
10'					
11'	11.3'±				7,8
12'		Bottom of test pit at 11.3± feet			

Notes: *Buried Topsoil

1. Test pit logged as if facing west.
2. Existing fill encountered to depth of 5.6± feet bgs (i.e. bottom of footing) at west end of test pit (in area of footing) and to depth of 3± feet in remainder of test pit away from footing.
3. Buried topsoil encountered from 3± to 3.2± feet bgs away from footing, but not in portion of test pit above footing.
4. Former subsoil encountered at 3.2± feet bgs beneath buried topsoil away from footing and at 5.6± feet bgs in area of footing.
5. Top of footing at 5 feet bgs. Bottom of footing at 5'-7" bgs. Footing projects 6± inches outward from wall face at top of footing to 5'-4" bgs, and projects 35± to 38± inches outward at bottom (apparent concrete blow-out).
6. Grab sample GS-1 collected from approximately 7± to 11± feet bgs.
7. No groundwater, mottling, or redoximorphic features observed to the depth explored.
8. Test pit terminated at 11.3± feet bgs.

Test Pit Dimensions	Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S = 14± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
	6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W = 4.5± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
	>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-2
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor:	Canesi Bros Construction Inc.	Date/Weather:	7-25-2024 / Overcast, 70s to 80s F
Operator:	Bill Canesi	Northeast Geotechnical Observer:	Christian Rice, P.E.
Equipment:	CASE CX145C SR Excavator	Test Pit Location:	See Subsurface Exploration Location Plan
Capacity/Reach:	1.5± yd^3 toothed bucket / 18± ft	Ground Surface Elevation:	278.1± feet
		Depth to Water:	None Observed

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	Topsoil Fill, 0.5'±	Dark brown, F/M SAND, some Silt, little Roots, trace F. Gravel, moist	E		1
2'	Foundation Wall; Existing Fill	Tan to light brown, F/M SAND, little Silt, little F/C Gravel, occasional Cobbles, moist	M		
3'	2.8'±				2,5
4'	Footing 3.9'±	3'±			
5'					3,4
6'	Organic Fill	Organic Fill: Dark brown, Slightly Organic F/M SAND and SILT, trace Roots, trace F/C Gravel, trace Debris (brick, glass), occasional Stumps, moist	E		
7'					
8'					
9'	9'±				
10'	Natural Sand	Natural Sand: Tan, F. SAND, trace Silt, moist	E		
11'	11'±				6,7
12'		Bottom of test pit at 11± feet			
13'					

Notes:

1. Test pit logged as if facing west.
2. Existing granular fill encountered to depth of 3.9± feet bgs (i.e. bottom of footing) at west end of test pit (in area of footing) and to depth of 3± feet at east end of test pit (away from footing).
3. Organic fill encountered beneath footing to depth of 9± feet bgs at west end of test pit. Organic fill observed to extend about 3± feet outward from edge of footing. Organic fill not encountered in east portion of test pit.
4. Grab sample GS-1 collected from approximately 4± to 6± feet bgs.
5. Top of footing at 2'-9" bgs. Bottom of footing at 3'-11" bgs. Footing projects 6.5± inches outward from wall face.
6. No groundwater, mottling, or redoximorphic features observed to the depth explored.
7. Test pit terminated at 11± feet bgs.

Test Pit Dimensions	Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S = 15± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
	6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W = 3.5± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
	>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-3
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor: Canesi Bros Construction Inc.
Operator: Bill Canesi
Equipment: CASE CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-25-2024 / Overcast, 70s to 80s F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 277.6± feet
Depth to Water: None Observed

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	Topsoil Fill, 0.5'±	Dark brown, F/M SAND, some Silt, some Roots, moist	E	2± to 3± (Class A)	1
2'	Foundation Wall				2
3'	Existing Fill	Light brown to tan, F/M SAND, trace (+) Silt, trace F/C Gravel, trace Debris (plastic, string, rigid insulation foam), occasional Cobbles, moist	E		3
4'					
5'	5'±				4
6'	Footing 6'±				
7'	Natural Sand	Tan-light brown-rust, F/M SAND, little Silt, trace F/C Gravel, moist	M		3
8'					
9'	8.5'±	Bottom of test pit at 8.5± feet			5,6
10'					
11'					
12'					
13'					
14'					

Notes:
1. Test pit logged as if facing west.
2. Grab sample GS-1 collected from approximately 0.5± to 6± feet below ground surface (bgs).
3. Mottling observed in existing fill (likely reworked natural soil) and beneath footing in apparent natural soil.
4. Top of footing at 5 feet bgs. Bottom of footing at 6 feet bgs. Footing projects 16± inches outward from wall face.
5. No groundwater observed to the depth explored.
6. Test pit terminated at 8.5± feet bgs.

Test Pit Dimensions	Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S = 5± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
	6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W = 10± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
	>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-4
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor: Canesi Bros Construction Inc.
Operator: Bill Canesi
Equipment: CASE CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-25-2024 / Overcast, 70s to 80s F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 277.9± feet
Depth to Water: 10± feet

Depth	Strata Change and Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	0.5'± Dark brown, F. SAND, some Silt, little Roots, moist (Topsoil Fill)	E		
2'	See soil description below			
3'	2.5'± Footing			
4'	3.5'± 3.5'±			
5'	Footing 4.8'± 28"±			
6'	Tan-light brown, F. to F/M SAND, little Silt, trace to little F/C Gravel, trace Debris (rebar caps, rigid insulation foam), occasional Cobbles, moist (Existing Fill)	M		
7'	7.3'±			
8'				
9'	Gray, F/C SAND, some F/C Gravel, ltitle Silt, trace Sticks/Roots, frequent Cobbles, moist to wet (Existing Fill)	M	5± to 10± (Class A)	
10'				
11'	10.5'± Bottom of test pit terminated in existing fill at 10.5± feet			
12'				
13'				

Notes:

1. Test pit logged as if facing south towards the existing building.
2. Top of footing at east end of test pit is 3'-6" bgs. Bottom of footing at east end of test pit is 4'-10" bgs. Moving west, footing then steps up to top of footing at 2'-6" bgs and bottom of footing at 3'-6" bgs. Footing projects 6± inches outward from wall face.
3. Grab sample GS-1 collected from approximately 8± to 10± feet bgs.
4. Groundwater encountered at 10± feet bgs.
5. No mottling or redoximorphic features observed to the depth explored.
6. Test pit terminated at 10.5± feet bgs in existing fill.

Test Pit Dimensions	Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S = 4± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
	6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W = 14± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
	>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-5
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor: Canesi Bros Construction Inc.
Operator: Bill Canesi
Equipment: CASE CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-25-2024 / Overcast, 70s to 80s F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 275.2± feet
Depth to Water: 11± feet

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	Topsoil Fill 0.7'± to 1.3'± (varies)	Dark brown, SILT and F. SAND, some Roots, moist	E		
2'	Existing Fill	Gray-brown, F/M SAND and SILT, little F/C Gravel, little Roots, occasional Cobbles, moist	M	3± to 5± (Class A) 2± (Class B)	
3'					
4'	4'±				
5'	Former Subsoil	Rust-brown, F/M SAND, some Silt, trace F/C Gravel, trace Roots, moist	M		
6'	5.5'±				1
7'					
8'					
9'	Natural Sand	Tan, F/M SAND, trace F/C Gravel, trace Silt, moist to wet	M		
10'					
11'					2
12'	12'±				3,4
13'		Bottom of test pit at 12± feet			
14'					
15'					

Notes:
1. Grab sample GS-1 collected from approximately 5.5± to 7.5± feet below ground surface (bgs).
2. Groundwater encountered at 11± feet bgs.
3. No mottling or redoximorphic features observed to the depth explored.
4. Test pit terminated at 12± feet bgs.

Test Pit Dimensions		Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S =	3.5± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
		6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W =	13± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
		>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-6
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor: Canesi Bros Construction Inc.
Operator: Bill Canesi
Equipment: CASE CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-25-2024 / Overcast, 70s to 80s F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 278.8± feet
Depth to Water: None Observed

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	Topsoil Fill, 0.4'±	Dark brown, F/M SAND and SILT, some Roots, moist	E		
2'					
3'					
4'					
5'	Natural Sand	Tan, F/M SAND, trace Silt, trace F/C Gravel, moist	E		1
6'					
7'					
8'					
9'					
10'	9.5'±	Bottom of test pit at 9.5± feet			2,3
11'					
12'					
13'					
14'					
15'					

Notes:
1. Grab sample GS-1 collected from approximately 4± to 7± feet below ground surface (bgs).
2. No groundwater, mottling, or redoximorphic features observed to the depth explored.
3. Test pit terminated at 9.5 feet bgs.

Test Pit Dimensions		Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S =	12± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
		6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W =	3.5± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
		>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-7
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor: Canesi Bros Construction Inc.
Operator: Andrew
Equipment: CASE CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-26-2024 / Clear, 60s to 80s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 281.9± feet
Depth to Water: None Observed

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	Topsoil 0.8'±	Brown, SILT, some F. Sand, some Roots, moist	E		
2'	Subsoil 1.8'±	Light brown, SILT and F/M SAND, little Roots, trace F/C Gravel, occasional Cobbles, moist	M		
3'					
4'					
5'					
6'	Natural Glacial Till	Gray-light brown, F/C SAND and F/C GRAVEL, little Silt, frequent Cobbles, moist	D	10± to 15± (Class A) 3± to 5± (Class B)	1
7'					
8'					
9'					
10'	9.8'±				2,3
11'		Bottom of test pit at 9.8± feet			
12'					
13'					
14'					
15'					

Notes:
1. Grab sample GS-1 collected from approximately 6± to 8± feet below ground surface (bgs).
2. No groundwater, mottling, or redoximorphic features observed to the depth explored.
3. Test pit terminated at 9.8± feet bgs.

Test Pit Dimensions	Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S = 4± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
	6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W = 12± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
	>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-8
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor: Canesi Bros Construction Inc.
Operator: Andrew
Equipment: CASE CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-26-2024 / Clear, 60s to 80s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 277.8± feet
Depth to Water: 6.7± feet

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	Topsoil 1.3'±	Dark brown, SILT and F. SAND, some Roots, moist	E		
2'	Subsoil 3.2'±	Light brown, SILT and F. SAND, trace F. Gravel, trace Roots, moist	E		1
3'					
4'	Natural Fine Sand and Silt 4.5'±	Gray, F. SAND and SILT, trace F/C Gravel, trace (-) Roots, moist	M		2
5'					
6'	Natural Sand 9'±	Gray-tan, F/M SAND, little F/C Gravel, little (-) Silt, occasional Cobbles, moist to wet	M	3± to 5± (Class A) 1 (Class B)	3
7'					
8'					
9'					4
10'		Bottom of test pit at 9± feet			
11'					
12'					
13'					
14'					
15'					

Notes:
1. Grab sample GS-1 collected from approximately 1.5± to 3± feet below ground surface (bgs).
2. Mottling observed at approximately 3.2± feet bgs.
3. Groundwater encountered at 6.7± feet bgs.
4. Test pit terminated at 9± feet bgs.

Test Pit Dimensions	Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S = 4± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
	6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W = 12± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
	>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-9
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor: Canesi Bros Construction Inc.
Operator: Andrew
Equipment: CASE CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-26-2024 / Clear, 60s to 80s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 278.3± feet
Depth to Water: None Observed

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	Topsoil 0.8'±	Dark brown, SILT and F. SAND, some Roots, moist	E		
2'	Subsoil 2.5'±	Light brown, SILT and F. SAND, little Roots, trace F/C Gravel, moist	E		
3'					
4'	Natural Sand 4.8'±	Tan-light brown, F/C SAND, some (-) F/C Gravel, little Silt, frequent Cobbles, moist	M	5± (Class A)	1 2
5'					
6'	Natural Glacial Till 6.7'±	Gray-brown, F/C SAND and F/C GRAVEL, little Silt, frequent Cobbles, moist	D	5± to 10± (Class A) 3± to 5± (Class B) 1 (Class C)	
7'					3,4
8'		Refusal at 6.7± feet			
9'					
10'					
11'					
12'					
13'					
14'					
15'					

Notes:
1. Grab sample GS-1 collected from approximately 2.5± to 4.5± feet below ground surface (bgs).
2. Mottling observed at approximately 3.7± feet bgs.
3. No groundwater observed to the depth explored.
4. Test pit terminated upon excavator refusal on boulders at 6.7± feet bgs.

Test Pit Dimensions	Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S = 4± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
	6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W = 12± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
	>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-10
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor: Canesi Bros Construction Inc.
Operator: Andrew
Equipment: CASE CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-26-2024 / Clear, 60s to 80s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 257.5± feet
Depth to Water: None Observed

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	Topsoil Fill 0.9'±	Dark brown, SILT and F. SAND, some Roots, moist	E		
2'	Existing Fill 2.3'±	Tan-light brown, F/M SAND, little Silt, little (-) F/C Gravel, trace Roots, moist	M		
3'	Buried Topsoil, 2.6'±	Dark brown, SILT and F. SAND, trace Roots, moist	E		
4'	Natural Sand	Tan, F/M SAND, little (-) Silt, trace F/C Gravel, trace (-) Roots, moist			1
5'					
6'			M		
7'					
8'	8.3'±				
9'	Natural Sandy Silt	Gray-tan, SILT and F. SAND, trace (-) F/C Gravel, moist			2
10'					3
11'			M	1 (Class A)	
12'	11.6'±	Bottom of test pit at 11.6± feet			4
13'					
14'					
15'					

Notes:
1. Grab sample GS-1 collected from approximately 3± to 8± feet below ground surface (bgs).
2. Mottling observed at approximately 8.3± feet bgs.
3. Grab sample GS-2 collected from approximately 8.5± to 10± feet bgs.
4. Test pit terminated at 11.6± feet bgs.

Test Pit Dimensions	Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S = 4± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
	6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W = 12± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
	>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-11
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor: Canesi Bros Construction Inc.
Operator: Andrew
Equipment: CASE CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-26-2024 / Clear, 60s to 80s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 252.1± feet
Depth to Water: 8.7± feet

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
	Topsoil Fill, 0.3'±	Dark brown, F. SAND and SILT, some Roots, moist	E		
1'	Subsoil 1.3'±	Brown, F/M SAND, some Silt, little F/C Gravel, trace Roots, moist	E		
2'	Natural Sand	Tan, F/M SAND, little (-) Silt, trace F/C Gravel, occasional Cobbles, moist	E		1
3'					
4'	4'±				
	Natural Silty Sand 4.8'±	Gray-tan-rust, F/M SAND and SILT, moist	M		2
5'					
6'	Natural Sand with Gravel	Gray-tan, F/C SAND, some F/C Gravel, trace Silt, occasional Cobbles, moist to wet	M		
7'					
8'					
9'	9.1'±				3 4
10'		Bottom of test pit at 9.1± feet			
11'					
12'					
13'					
14'					
15'					

Notes:
1. Grab sample GS-1 collected from approximately 2± to 4± feet below ground surface (bgs).
2. Mottling observed at approximately 4.4± feet bgs.
3. Groundwater encountered at 8.7± feet bgs.
4. Test pit terminated at 9.1± feet bgs.

Test Pit Dimensions	Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S = 5± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
	6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W = 12± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
	>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-12
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor: Canesi Bros Construction Inc.
Operator: Andrew
Equipment: CASE CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-26-2024 / Clear, 60s to 80s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 252.0± feet
Depth to Water: None Observed

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	Topsoil Fill 0.8'±	Dark brown, F. SAND and SILT, some Roots, trace F/C Gravel, moist	E		
2'	Subsoil 2.3'±	Light brown, F/M SAND, little Silt, little F/C Gravel, trace Roots, occasional Cobbles, moist	M		
3'	Natural Sand 6.9'±	Tan, F/C SAND, little F/C Gravel, trace Silt, occasional Cobbles, moist	E	1 (Class B)	1
4'					
5'					
6'					
7'					
8'	Natural Fine Sand and Silt 11.3'±	Gray-tan, F. SAND and SILT, moist	M		2
9'					
10'					
11'					3,4
12'		Bottom of test pit at 11.3± feet			
13'					
14'					
15'					

Notes:
1. Grab sample GS-1 collected from approximately 2.5± to 5± feet below ground surface (bgs).
2. Soils observed to be more moist below approximately 8.5± feet bgs.
3. No groundwater, mottling, or redoximorphic features observed to the depth explored.
4. Test pit terminated upon soils caving in at approximately 11.3± feet bgs.

Test Pit Dimensions	Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
N/S = 4± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
	6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
E/W = 10± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
	>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit No.: TP-13
Page: 1 of 1
File No.: O542.00
Reviewed By: Glenn Olson, P.E.

Subcontractor: Canesi Bros Construction Inc.
Operator: Andrew
Equipment: CASE CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-26-2024 / Clear, 60s to 80s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 278± feet
Depth to Water: None Observed

Depth	Strata Change	Soil Description (Burmister Identification System)	Excavation Effort	Boulder Count	Note No.
1'	Topsoil Fill, 0.6'±	Dark brown, F. SAND and SILT, some Roots, trace F. Gravel, moist	E		1
2'	Foundation Wall / Existing Fill	Tan, F/M SAND, trace (+) Silt, trace F/C Gravel, moist	E		
3'	3'±				
4'	Footing 4'±				2
5'	Natural Fine Sand	Gray-tan, F. SAND, little Silt, moist	E		
6'	5.8'±				3,4
7'		Bottom of test pit at 5.8± feet			
8'					
9'					
10'					
11'					
12'					
13'					
14'					
15'					

Notes:
1. Test pit logged as if facing northwest.
2. Top of footing at 3 feet below ground surface (bgs). Bottom of footing at 4 feet bgs. Footing projects 12± inches outward from wall face.
3. No groundwater, mottling, or redoximorphic features observed to the depth explored.
4. Test pit terminated at 5.8± feet bgs.

Test Pit Dimensions	Boulder Classification		Proportions Used	Abbreviations	Excavation Effort
NE/SW = 8± feet	Diameter	Class	Trace (T): 0-10%	F = Fine	E = Easy
	6" - 18"	A	Little (Li): 10-20%	M = Medium	M = Moderate
NW/SE = 3.5± feet	18" - 36"	B	Some (So): 20-35%	C = Coarse	D = Difficult
	>36"	C	And: 35-50%	F/M = Fine to Medium	

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit/Deep Observation Hole Number: TP-10

Subcontractor: Canesi Bros Construction Inc.
Operator: Andrew
Equipment: Case CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-26-2024 / Clear, 60s to 80s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 257.5± feet

Page: 1 of 1
File No. O542.00
Reviewed By: Glenn Olson, P.E.

Depth (in.)	Soil Horizon/Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments		Soil Structure	Soil Consistence (Moist)	Other
			Depth (in.)	Color	Percent		Gravel	Cobbles & Stones			
0 - 11±	Topsoil Fill (A_p)	10YR/3/1	---	---	---	Sandy Loam	0%	0%	Granular	Very Friable	Frequent roots
11 - 27±	Existing Fill	2.5Y/7/2	16±	7.5YR/6/8	10±	Loamy Sand	10±%	0%	Granular	Firm	Trace roots
27 - 31±	Buried Topsoil	10YR/2/1	---	---	---	Sandy Loam	0%	0%	Granular	Friable	Trace roots
31 - 100±	Natural Sand (C1)	10YR/6/2	---	---	---	Sand	5±%	0%	Single Grain	Firm	Trace roots
100 - 139±	Natural Sandy Silt (C2)	2.5Y/6/1	100±	7.5YR/6/8	10±	Sandy Loam	3±%	0%	Granular	Firm	One 24± inch boulder

Groundwater Observed: No
Depth Weeping from Pit: N/A
Depth Standing Water in Hole: N/A

Estimated Depth (Elevation) to Seasonal High Groundwater: 100± inches (El 249.2± feet)

Notes:

1) Test pit dimensions: 4± feet (north/south) x 12± feet (east/west).
2) Grab sample GS-1 collected from approximately 36± to 96± inches (3± to 8± feet) below ground surface.
3) Grab sample GS-2 collected from approximately 102± to 120± inches (8.5± to 10± feet) below ground surface.
4) Test pit terminated at 139± inches (11.6± feet) below ground surface.

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit/Deep Observation Hole Number: TP-11

Subcontractor: Canesi Bros Construction Inc.
Operator: Andrew
Equipment: Case CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-26-2024 / Clear, 60s to 80s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 252.1± feet

Page: 1 of 1
File No. O542.00
Reviewed By: Glenn Olson, P.E.

Depth (in.)	Soil Horizon/Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments		Soil Structure	Soil Consistence (Moist)	Other
			Depth (in.)	Color	Percent		Gravel	Cobbles & Stones			
0 - 4±	Topsoil Fill (A_p)	10YR/3/3	---	---	---	Sandy Loam	0%	0%	Granular	Very Friable	Frequent roots
4 - 15±	Subsoil (B_w)	10YR/4/4	---	---	---	Loamy Sand	15±%	0%	Granular	Firm	Trace roots
15 - 48±	Natural Sand (C1)	2.5Y/6/3	---	---	---	Sand	9±%	5±%	Single Grain	Friable	
48 - 57±	Natural Silty Sand (C2)	10YR/5/1	53±	7.5YR/5/6	5±	Loamy Sand	0%	0%	Granual	Firm	
57 - 109±	Natural Sand with Gravel (C3)	2.5Y/6/3	---	---	---	Sand	30±%	10±%	Single Grain	Firm	

Groundwater Observed: Yes

Depth Weeping from Pit: 104± inches

Depth Standing Water in Hole: 104± inches

Estimated Depth (Elevation) to Seasonal High Groundwater: 53± inches (El 247.7± feet)

Notes:

1) Test pit dimensions: 5± feet (north/south) x 12± feet (east/west).
2) Grab sample GS-1 collected from approximately 24± to 48± inches (2± to 4± feet) below ground surface.
3) Test pit terminated at 109± inches (9.1± feet) below ground surface.

NORTHEAST GEOTECHNICAL, INC.

TEST PIT LOG

Project: New England Appliance Group
Warehouse Addition
126 Grove Street
Franklin, MA

Test Pit/Deep Observation Hole Number: TP-12

Subcontractor: Canesi Bros Construction Inc.
Operator: Andrew
Equipment: Case CX145C SR Excavator
Capacity/Reach: 1.5± yd^3 toothed bucket / 18± ft

Date/Weather: 7-26-2024 / Clear, 60s to 80s °F
Northeast Geotechnical Observer: Christian Rice, P.E.
Test Pit Location: See Subsurface Exploration Location Plan
Ground Surface Elevation: 252.0± feet

Page: 1 of 1
File No. O542.00
Reviewed By: Glenn Olson, P.E.

Depth (in.)	Soil Horizon/Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments		Soil Structure	Soil Consistence (Moist)	Other
			Depth (in.)	Color	Percent		Gravel	Cobbles & Stones			
0 - 9±	Topsoil Fill (A_p)	10YR/3/3	---	---	---	Sandy Loam	5±%	0%	Granular	Very Friable	Frequent roots
9 - 27±	Subsoil (B_w)	10YR/4/4	---	---	---	Loamy Sand	15±%	10±%	Granular	Firm	Trace roots
27 - 83±	Natural Sand (C1)	2.5Y/5/2	---	---	---	Sandy Loam	15±%	10±%	Sand	Friable	Occasional 24± inch boulders
83 - 136±	Natural Fine Sand and Silt (C2)	2.5Y/6/1	---	---	---	Sandy Loam	0%	0%	Granular	Firm	

Groundwater Observed: No
Depth Weeping from Pit: N/A
Depth Standing Water in Hole: N/A

Estimated Depth (Elevation) to Seasonal High Groundwater: >136± inches (<El 240.7± feet)

Notes:

1) Test pit dimensions: 4± feet (north/south) x 10± feet (east/west).
2) Grab sample GS-1 collected from approximately 30± to 60± inches (2.5± to 5± feet) below ground surface.
3) Soils observed to be more moist below approximately 102± inches (8.5± feet) below ground surface.
4) Test pit terminated upon soils caving in at approximately 136± inches (11.3± feet) below ground surface.

APPENDIX D

Test Pit Photo Log

NORTHEAST GEOTECHNICAL, INC.

Photograph #1

Description of Photograph:
Test Pit TP-1

Photograph Taken By:
Christian Rice, dated 7/25/2024

Photograph #2

Description of Photograph:
Test Pit TP-2

Photograph Taken By:
Christian Rice, dated 7/25/2024

Photograph #3

Description of Photograph:
Test Pit TP-3

Photograph Taken By:
Christian Rice, dated 7/25/2024

Photograph #4

Description of Photograph:
Test Pit TP-4

Photograph Taken By:
Christian Rice, dated 7/25/2024

Photograph #5

Description of Photograph:
Test Pit TP-5

Photograph Taken By:
Christian Rice, dated 7/25/2024

Photograph #6

Description of Photograph:
Test Pit TP-6

Photograph Taken By:
Christian Rice, dated 7/25/2024

Photograph #7

Description of Photograph:
Test Pit TP-7

Photograph Taken By:
Christian Rice, dated 7/26/2024

Photograph #8

Description of Photograph:
Test Pit TP-8

Photograph Taken By:
Christian Rice, dated 7/26/2024

Photograph #9

Description of Photograph:
Test Pit TP-9

Photograph Taken By:
Christian Rice, dated 7/26/2024

Photograph #10

Description of Photograph:
Test Pit TP-10

Photograph Taken By:
Christian Rice, dated 7/26/2024

Photograph #11

Description of Photograph:
Test Pit TP-11

Photograph Taken By:
Christian Rice, dated 7/26/2024

Photograph #12

Description of Photograph:
Test Pit TP-12

Photograph Taken By:
Christian Rice, dated 7/26/2024

Photograph #13

Description of Photograph:
Test Pit TP-13

Photograph Taken By:
Christian Rice, dated 7/26/2024

APPENDIX E

Soil Laboratory Test Results

Thielsch
DIVISION OF THE RISE GROUP

195 Frances Avenue
Cranston RI, 02910
Phone: (401)-467-6454
Fax: (401)-467-2398
cts.thielsch.com
Let's Build a Solid Foundation

Client Information:	
Northeast Geotechnical, Inc.	
North Attleborough, MA	
Project Manager:	Glenn A. Olson, P.E.
Assigned By:	Glenn A. Olson, P.E.
Collected By:	Christian Rice, P.E.

Project Information:	
New England Appliance Group Warehouse Addition	
Franklin, MA	
Project Number:	O542.00
Summary Page:	1 of 1
Report Date:	08.06.24

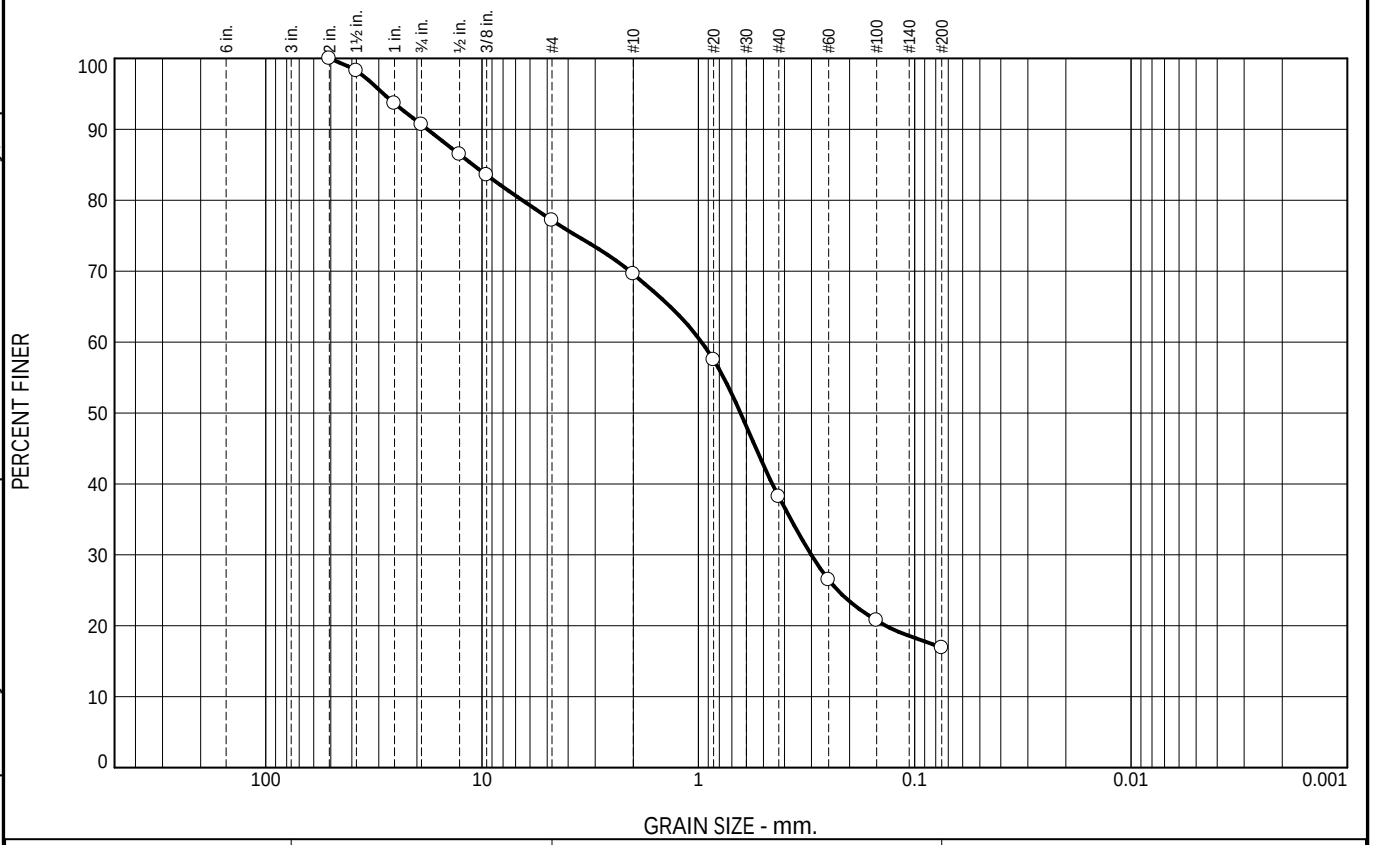
LABORATORY TESTING DATA SHEET, Report No.: 7424-G-222, Rev 1

Material Source	Sample ID	Depth (ft)	Laboratory No.	Identification Tests									Proctor / CBR / Permeability Tests								Laboratory Log and Soil Description
				As Rcvd Moisture Content %	LL %	PL %	OD LL	Gravel %	Sand %	Fines %	Org. %	pH	g_d MAX (pcf) W_{opt} (%)	g_d MAX (pcf) W_{opt} (%) (Corr.)	Dry unit wt. (pcf)	Test Moisture Content %	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"	Permeability cm/sec	
				D2216	D4318			D6913			D2974	D4792	D1557								
TP-2	GS-1	4-6	24-S-2888	20.9							3.2										Organic Content Only
TP-9	GS-1	2.5-4.5	24-S-2889					22.8	60.3	16.9											Light Brown silty sand with gravel
TP-10	GS-2	8.5-10	24-S-2890					2.2	37.0	60.8											Light Brown sandy silt // Sandy loam
TP-11	GS-1	2-4	24-S-2891					5.3	84.7	10.0											Light Brown poorly graded sand with silt // Sand

Organic Content tested by RB on 08.01.24

Date Received: **07.29.24** Reviewed By: Date Reviewed: **08.06.24**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.3	13.5	7.6	31.4	21.3	16.9	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2"	100.0		
1 1/2"	98.3		
1"	93.7		
3/4"	90.7		
1/2"	86.5		
3/8"	83.5		
#4	77.2		
#10	69.6		
#20	57.5		
#40	38.2		
#60	26.5		
#100	20.7		
#200	16.9		

* (no specification provided)

Soil Description

Light Brown silty sand with gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 17.8862 D_{85}= 11.0152 D_{60}= 0.9671
D_{50}= 0.6385 D_{30}= 0.3007 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Source of Sample: Test Pits Depth: 2.5-4.5'
Sample Number: TP-9 / GS-1

Date: 08.01.24

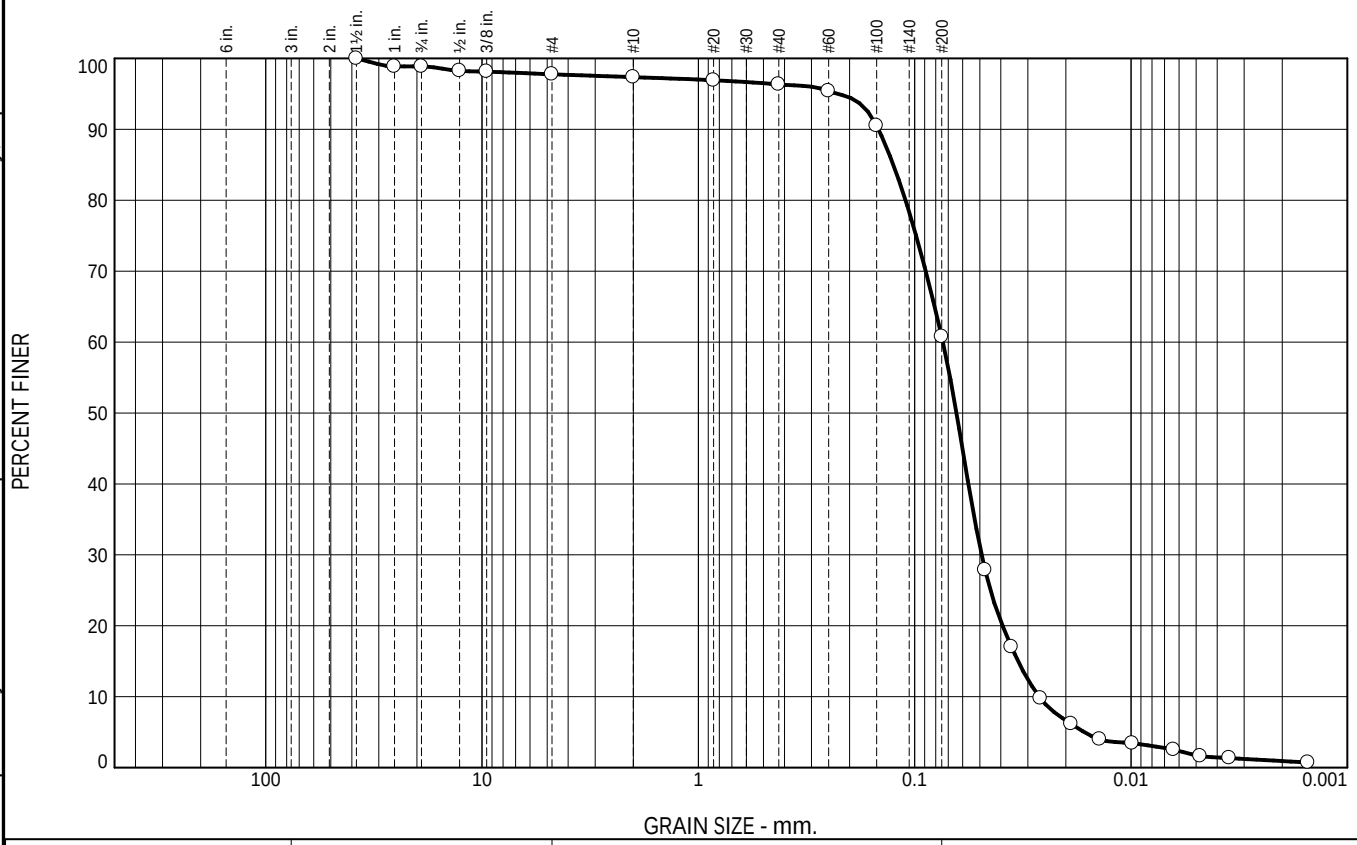
Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-2889

Tested By: MCS Checked By: Rebecca Roth

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.1	1.1	0.4	1.1	35.5	59.9	0.9

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	98.9		
3/4"	98.9		
1/2"	98.2		
3/8"	98.1		
#4	97.8		
#10	97.4		
#20	96.9		
#40	96.3		
#60	95.4		
#100	90.5		
#200	60.8		
0.0473 mm.	27.9		
0.0357 mm.	17.0		
0.0262 mm.	9.8		
0.0189 mm.	6.2		
0.0139 mm.	4.0		
0.0099 mm.	3.4		
0.0064 mm.	2.5		
0.0048 mm.	1.6		
0.0035 mm.	1.3		
0.0015 mm.	0.7		

* (no specification provided)

Soil Description

Light Brown sandy silt // Sandy loam

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.1471 D_{85}= 0.1255 D_{60}= 0.0740
D_{50}= 0.0641 D_{30}= 0.0491 D_{15}= 0.0333
D_{10}= 0.0266 C_u= 2.79 C_c= 1.23

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Source of Sample: Test Pits Depth: 8.5-10'
Sample Number: TP-10 / GS-2

Date: 08.02.24

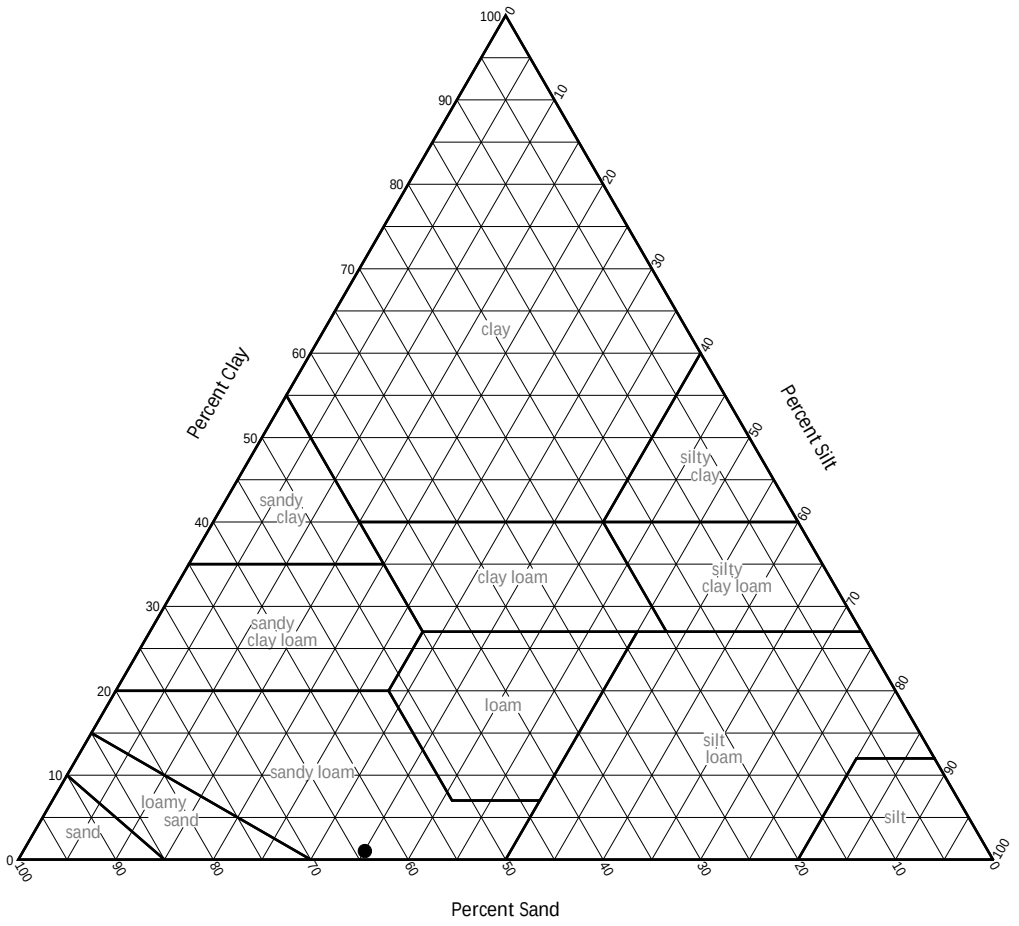
Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-2890

Tested By: RB / MCS Checked By: Rebecca Roth

USDA Soil Classification



SOIL DATA							
	Source	Sample No.	Depth	Percentages From Material Passing a #10 Sieve			Classification
				Sand	Silt	Clay	
●	Test Pits	TP-10 / GS-2	8.5-10'	63.9	35.2	0.9	Sandy loam

Thielsch Engineering Inc.

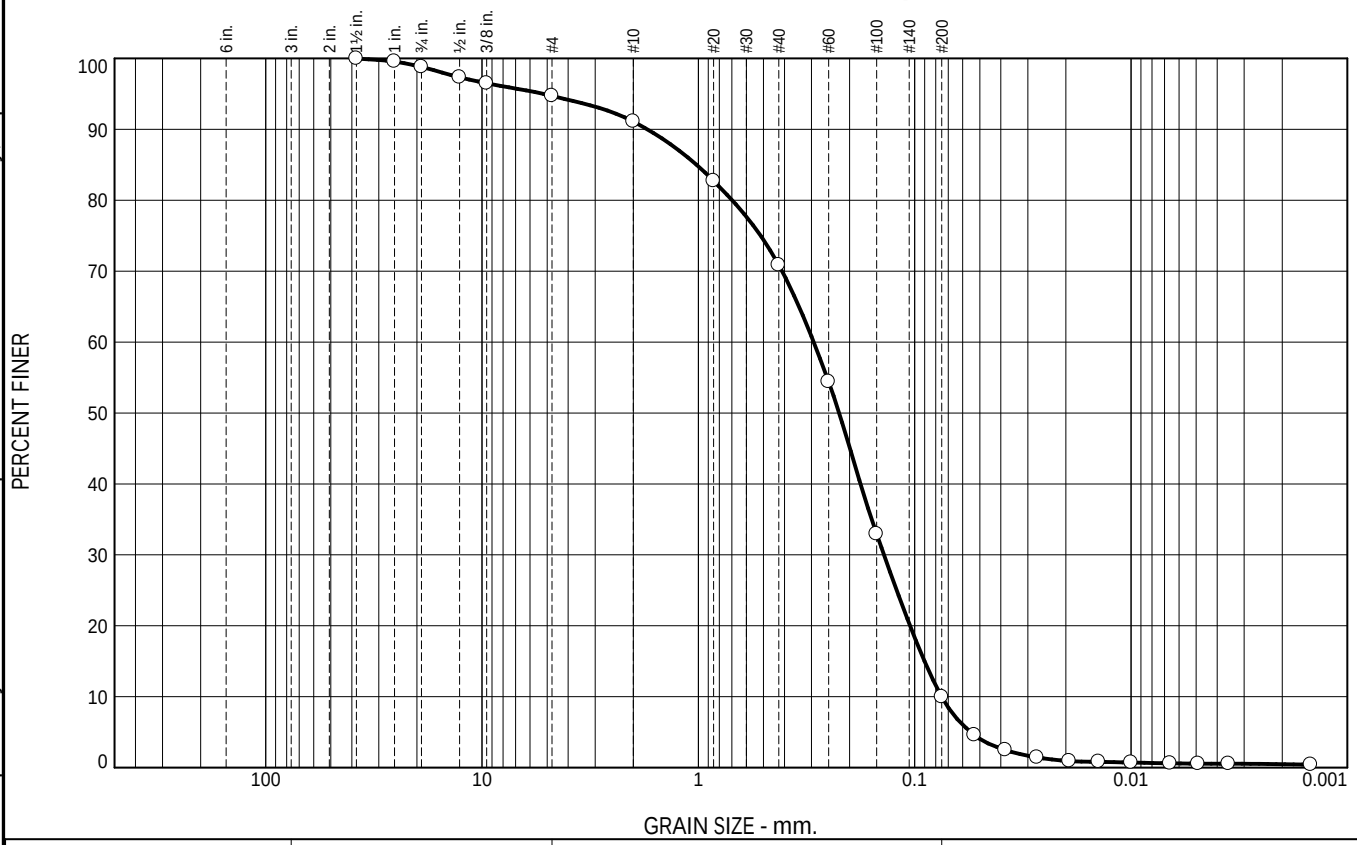
Cranston, RI

Client: Northeast Geotechnical, Inc.

Project: New England Appliance Group Warehouse Addition
Franklin, MA

Project No.: O542.00 Fig. USDA-2890

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.2	4.1	3.6	20.2	60.9	9.5	0.5

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	99.6		
3/4"	98.8		
1/2"	97.3		
3/8"	96.5		
#4	94.7		
#10	91.1		
#20	82.7		
#40	70.9		
#60	54.4		
#100	32.9		
#200	10.0		
0.0529 mm.	4.6		
0.0381 mm.	2.5		
0.0272 mm.	1.4		
0.0193 mm.	0.9		
0.0141 mm.	0.8		
0.0100 mm.	0.7		
0.0066 mm.	0.6		
0.0049 mm.	0.5		
0.0035 mm.	0.5		
0.0015 mm.	0.4		

* (no specification provided)

Soil Description

Light Brown poorly graded sand with silt // Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 1.7224 D_{85}= 1.0197 D_{60}= 0.2931
D_{50}= 0.2236 D_{30}= 0.1387 D_{15}= 0.0901
D_{10}= 0.0751 C_u= 3.90 C_c= 0.87

Classification

USCS= SP-SM AASHTO= A-3

Remarks

Source of Sample: Test Pits Depth: 2-4'
Sample Number: TP-11 / GS-1

Date: 08.02.24

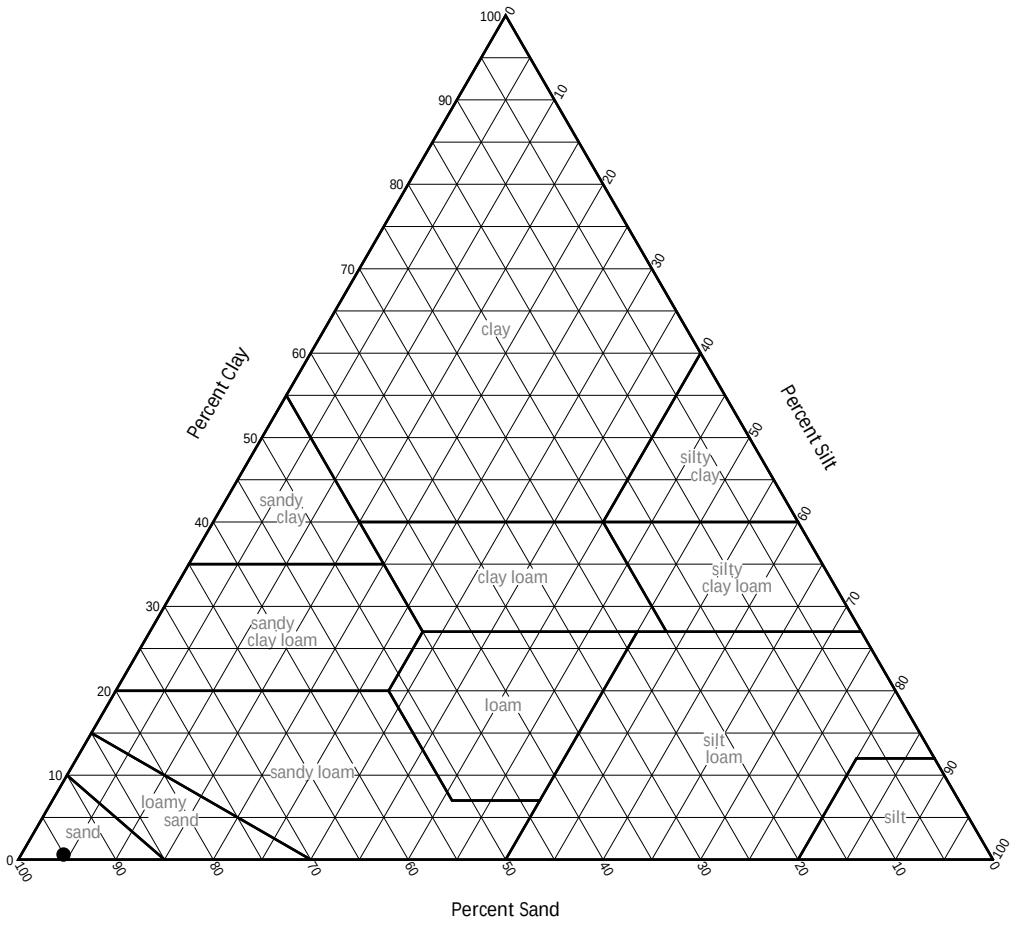
Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-2891

Tested By: RB / MCS Checked By: Rebecca Roth

USDA Soil Classification



SOIL DATA

	Source	Sample No.	Depth	Percentages From Material Passing a #10 Sieve			Classification
				Sand	Silt	Clay	
●	Test Pits	TP-11 / GS-1	2-4'	95.0	4.5	0.5	Sand

Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.

Project: New England Appliance Group Warehouse Addition
Franklin, MA

Project No.: O542.00 Fig. USDA-2891

Thielsch
DIVISION OF THE RISE GROUP

195 Frances Avenue
Cranston RI, 02910
Phone: (401)-467-6454
Fax: (401)-467-2398
cts.thielsch.com
Let's Build a Solid Foundation

Client Information:	
Northeast Geotechnical, Inc.	
North Attleborough, MA	
Project Manager:	Glenn A. Olson, P.E.
Assigned By:	Glenn A. Olson, P.E.
Collected By:	Christian Rice, P.E.

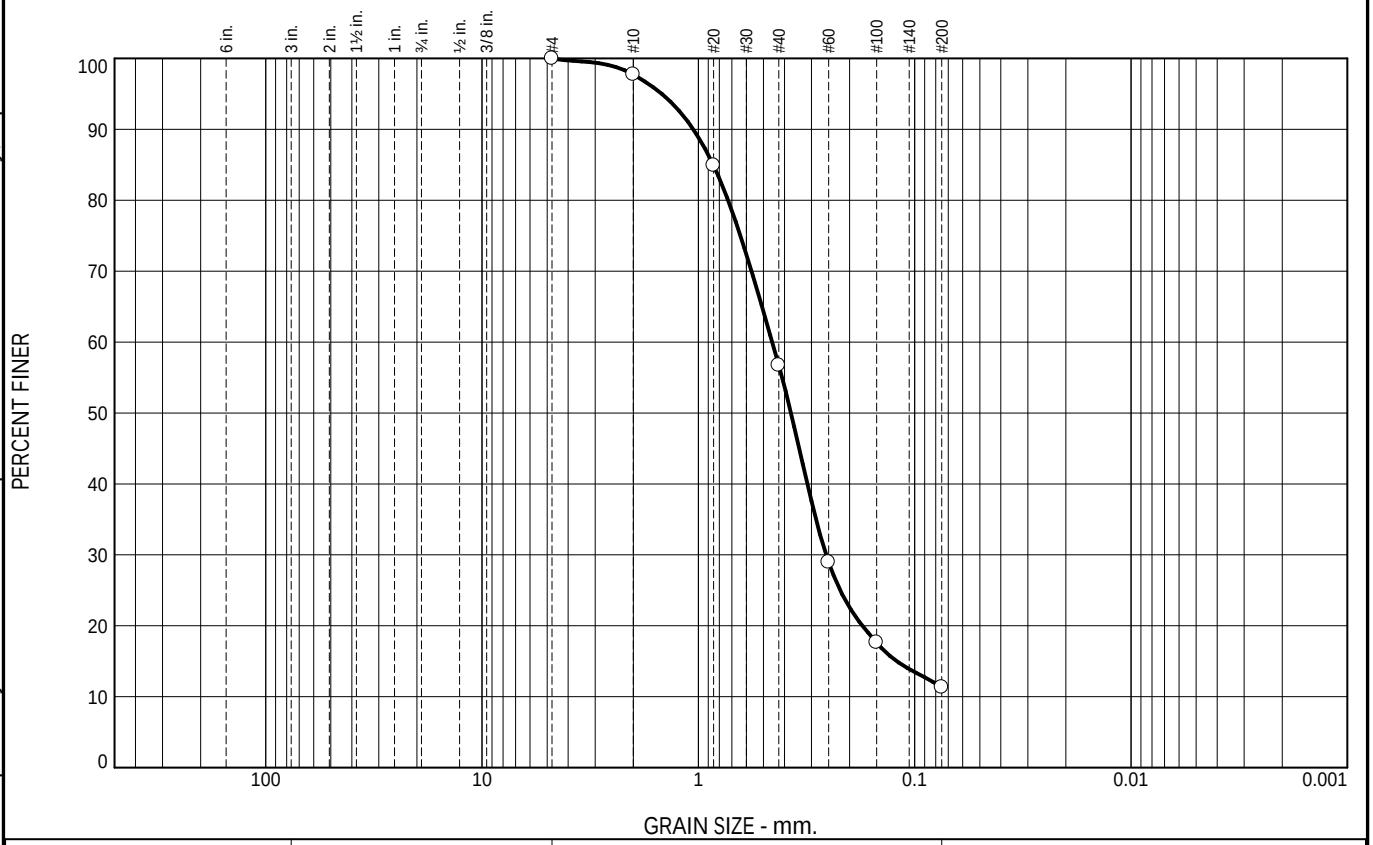
Project Information:	
New England Appliance Group Warehouse Addition	
Franklin, MA	
Project Number:	O542.00
Summary Page:	1 of 1
Report Date:	08.22.24

LABORATORY TESTING DATA SHEET, Report No.: 7424-H-175

Material Source	Sample ID	Depth (ft)	Laboratory No.	Identification Tests									Proctor / CBR / Permeability Tests								Laboratory Log and Soil Description
				As Rcvd Moisture Content %	LL %	PL %	OD LL	Gravel %	Sand %	Fines %	Org. %	pH	g_d MAX (pcf) W_{opt} (%)	g_d MAX (pcf) W_{opt} (%) (Corr.)	Dry unit wt. (pcf)	Test Moisture Content %	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"	Permeability cm/sec	
				D2216	D4318			D6913			D2974	D4792	D1557								
B-5	S-6	12-14	24-S-3126					0.0	88.7	11.3											Brown poorly graded sand with silt
B-7	S-6	15-17	24-S-3127					0.0	80.5	19.5											Light Brown silty sand
B-8	S-1	0.5-1	24-S-3128					3.6	83.4	13.0											Light Brown silty sand
B-11B	S-2A	2.5-4	24-S-3129					0.0	64.1	35.9											Brown silty sand
B-12	S-2	2-4	24-S-3130					4.7	56.0	39.3											Brown silty sand
B-13	S-5	10-12	24-S-3131					0.0	76.3	23.7											Light Brown silty sand
B-14	S-5	10-12	24-S-3132					0.0	95.8	4.2											Light Brown poorly graded sand
B-16	S-4	7-9	24-S-3133					0.3	57.5	42.2											Brown silty sand
B-17	S-6	12-14	24-S-3134					0.0	74.9	25.1											Light Brown silty sand

Date Received: **08.16.24** Reviewed By: Date Reviewed: **08.22.24**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.3	41.0	45.4	11.3	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.7		
#20	84.9		
#40	56.7		
#60	28.9		
#100	17.6		
#200	11.3		

* (no specification provided)

Soil Description

Brown poorly graded sand with silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 1.0555 D_{85}= 0.8531 D_{60}= 0.4560
D_{50}= 0.3733 D_{30}= 0.2569 D_{15}= 0.1211
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO= A-2-4(0)

Remarks

Source of Sample: Borings Depth: 12-14'
Sample Number: B-5 / S-6

Date: 08.20.24

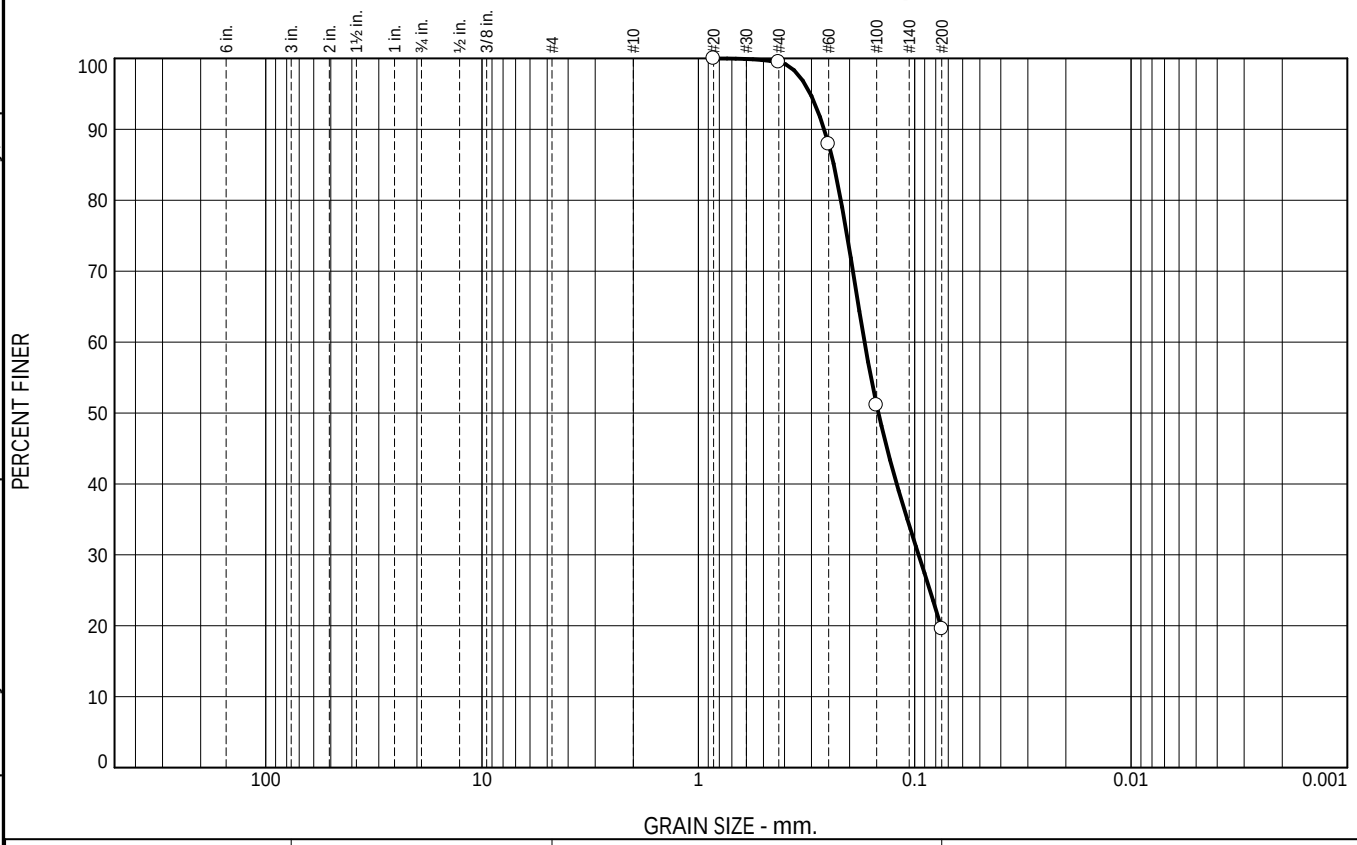
Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-3126

Tested By: MCS Checked By: Rebecca Roth

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.5	80.0	19.5	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	99.5		
#60	87.9		
#100	51.1		
#200	19.5		

* (no specification provided)

Soil Description

Light Brown silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.2620 D_{85}= 0.2366 D_{60}= 0.1705
D_{50}= 0.1472 D_{30}= 0.0959 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Source of Sample: Borings Depth: 15-17'
Sample Number: B-7 / S-6

Date: 08.20.24

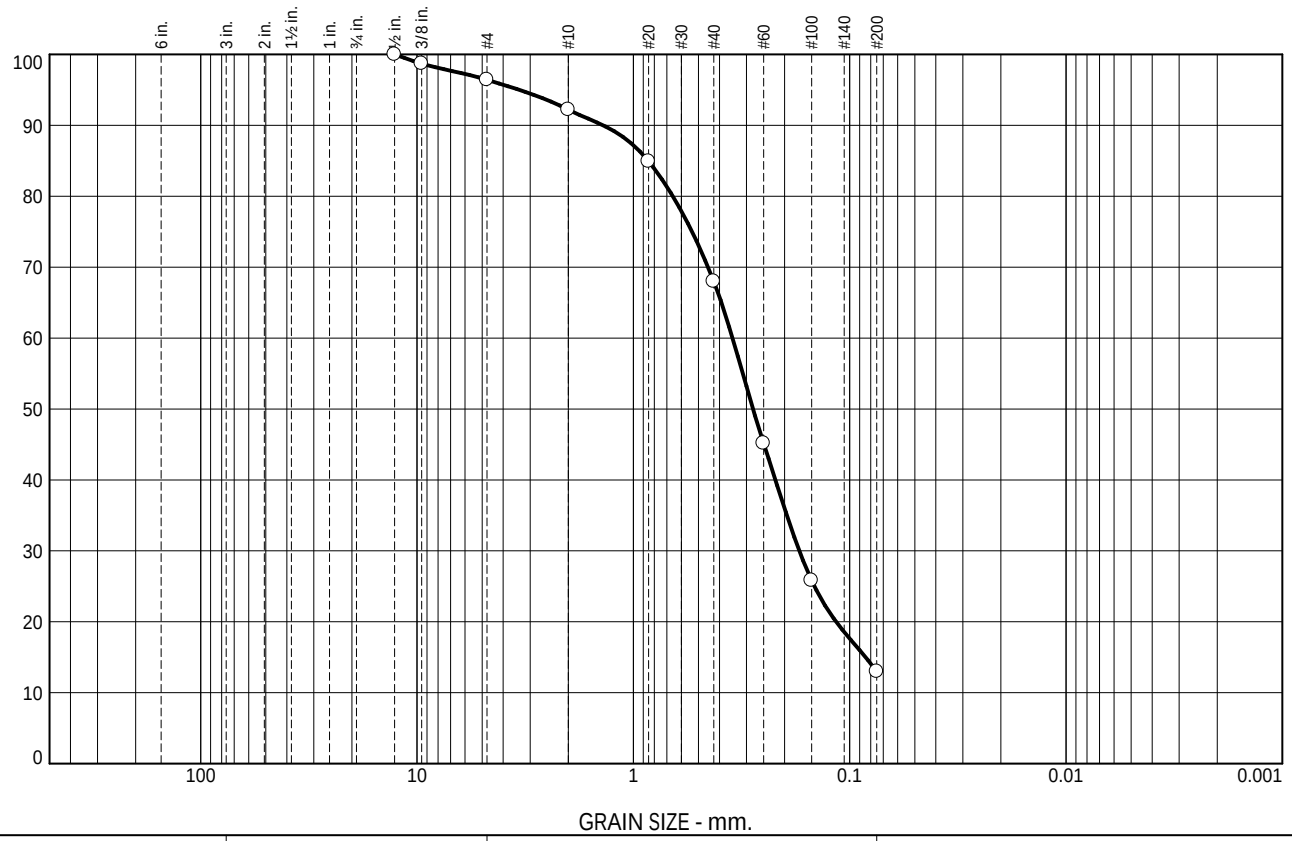
Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-3127

Tested By: MCS Checked By: Rebecca Roth

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.6	4.2	24.2	55.0	13.0	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2"	100.0		
3/8"	98.7		
#4	96.4		
#10	92.2		
#20	84.9		
#40	68.0		
#60	45.1		
#100	25.8		
#200	13.0		

* (no specification provided)

Soil Description

Light Brown silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 1.3801 D_{85}= 0.8538 D_{60}= 0.3481
D_{50}= 0.2799 D_{30}= 0.1710 D_{15}= 0.0844
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Source of Sample: Borings Depth: 0.5-1'
Sample Number: B-8 / S-1

Date: 08.20.24

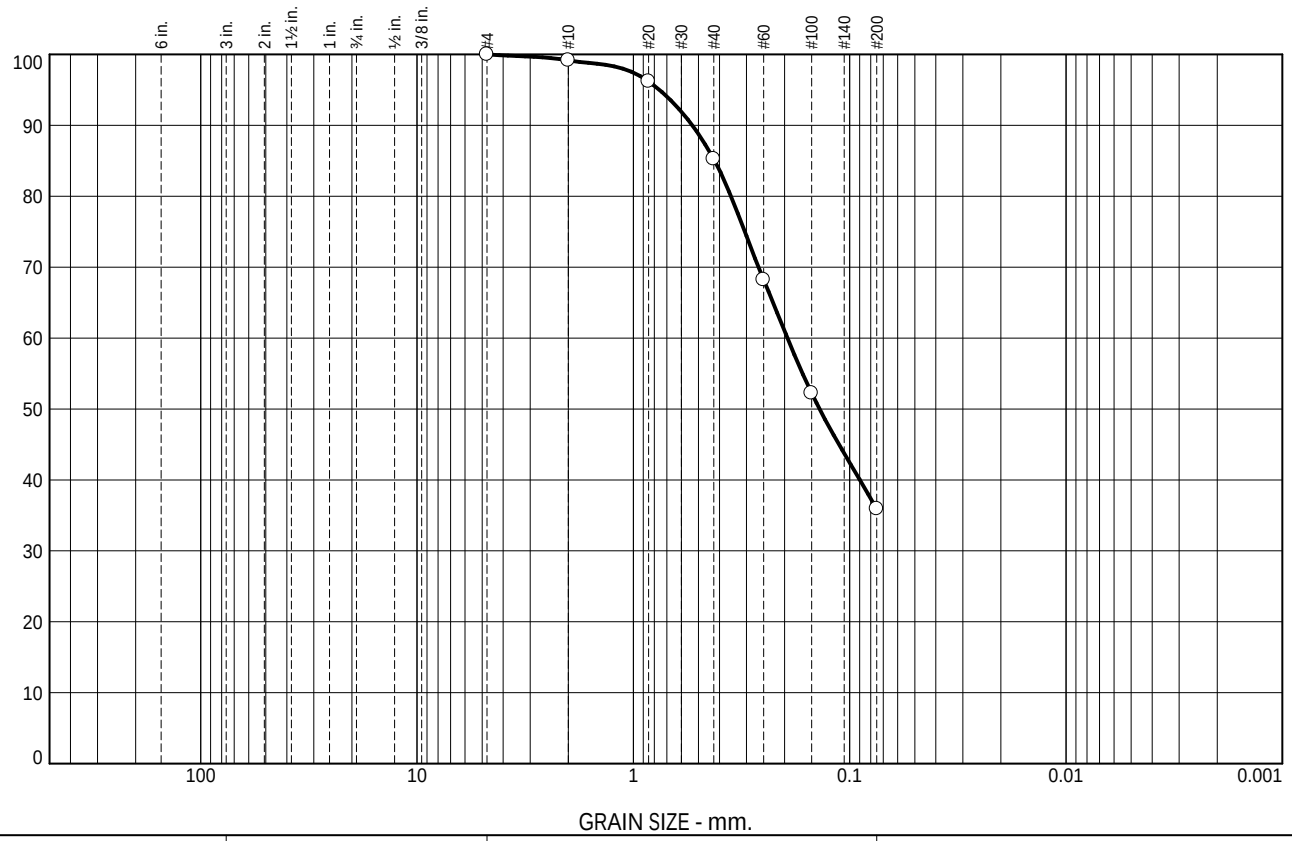
Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-3128

Tested By: MCS Checked By: Rebecca Roth

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	14.0	49.3	35.9	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.2		
#20	96.2		
#40	85.2		
#60	68.2		
#100	52.2		
#200	35.9		

* (no specification provided)

Soil Description

Brown silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.5340 D_{85}= 0.4207 D_{60}= 0.1939
D_{50}= 0.1378 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Sample visually classified as non-plastic. Sample could not be rolled to 1/4".

Source of Sample: Borings Depth: 2.5-4'
Sample Number: B-11B / S-2A

Date: 08.20.24

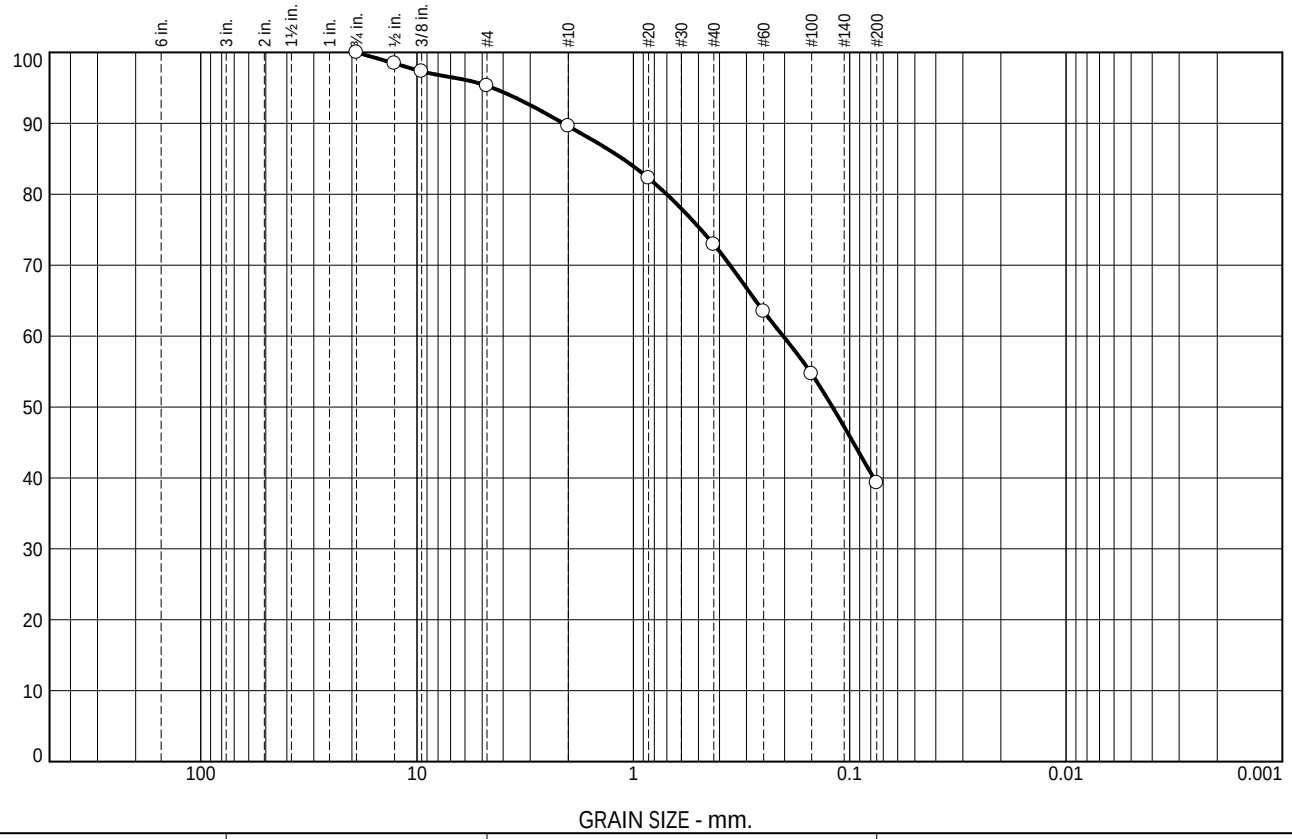
Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-3129

Tested By: MCS Checked By: Rebecca Roth

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.7	5.7	16.7	33.6	39.3	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	98.5		
3/8"	97.3		
#4	95.3		
#10	89.6		
#20	82.3		
#40	72.9		
#60	63.5		
#100	54.7		
#200	39.3		

* (no specification provided)

Soil Description

Brown silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 2.1041 D_{85}= 1.1192 D_{60}= 0.2031
D_{50}= 0.1201 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Sample visually classified as non-plastic. Sample could not be rolled to 1/4".

Source of Sample: Borings Depth: 2-4'
Sample Number: B-12 / S-2

Date: 08.20.24

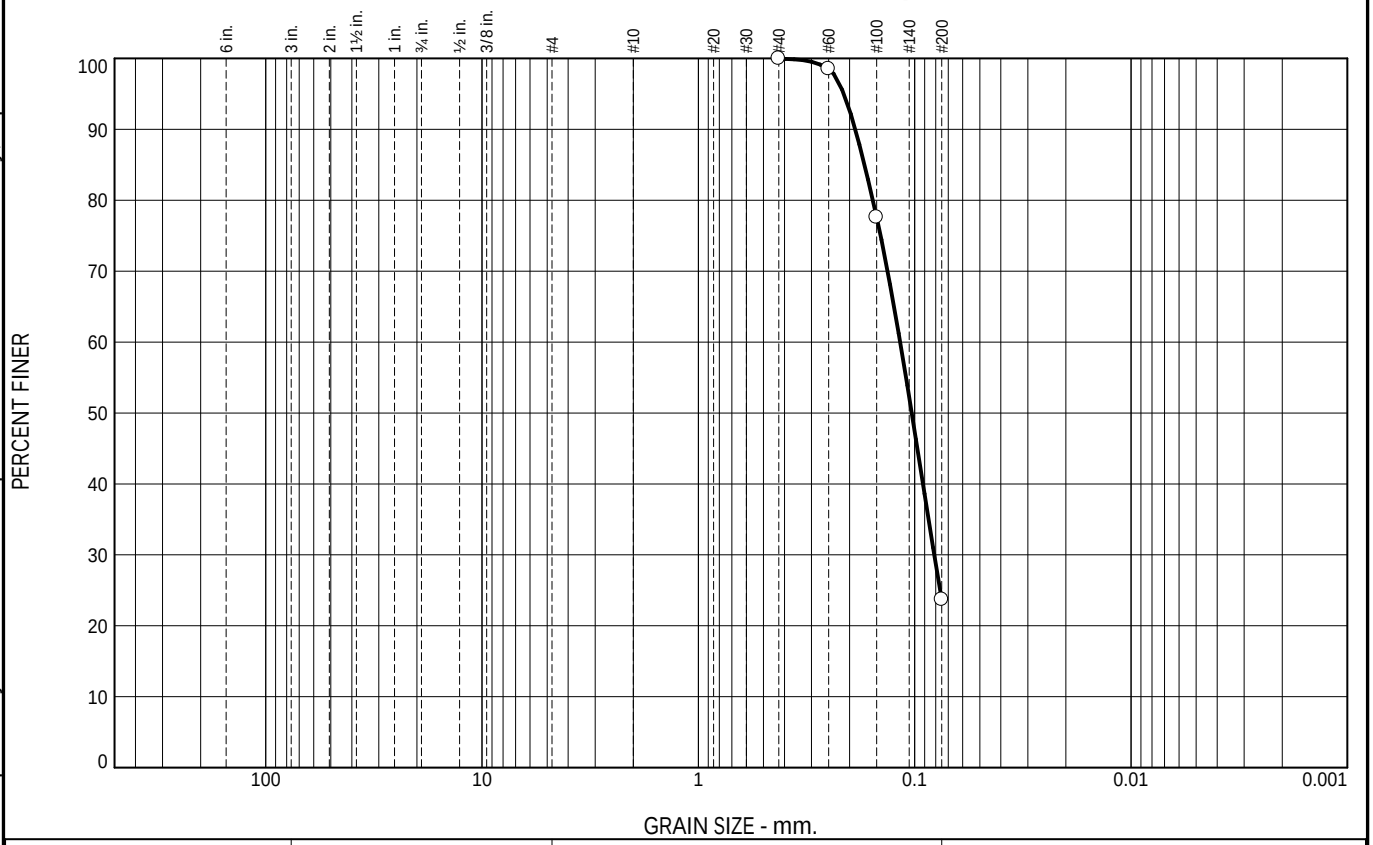
Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-3130

Tested By: MCS Checked By: Rebecca Roth

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	76.3	23.7	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#40	100.0		
#60	98.5		
#100	77.6		
#200	23.7		

* (no specification provided)

Soil Description

Light Brown silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.1882 D_{85}= 0.1707 D_{60}= 0.1168
D_{50}= 0.1032 D_{30}= 0.0812 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Source of Sample: Borings Depth: 10-12'
Sample Number: B-13 / S-5

Date: 08.20.24

Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-3131

Tested By: MCS Checked By: Rebecca Roth

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.8	89.0	4.2	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	93.2		
#60	54.0		
#100	15.6		
#200	4.2		

* (no specification provided)

Soil Description

Light Brown poorly graded sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.3929 D_{85}= 0.3624 D_{60}= 0.2694
D_{50}= 0.2373 D_{30}= 0.1868 D_{15}= 0.1481
D_{10}= 0.1270 C_u= 2.12 C_c= 1.02

Classification

USCS= SP AASHTO= A-3

Remarks

Source of Sample: Borings Depth: 10-12'
Sample Number: B-14 / S-5

Date: 08.20.24

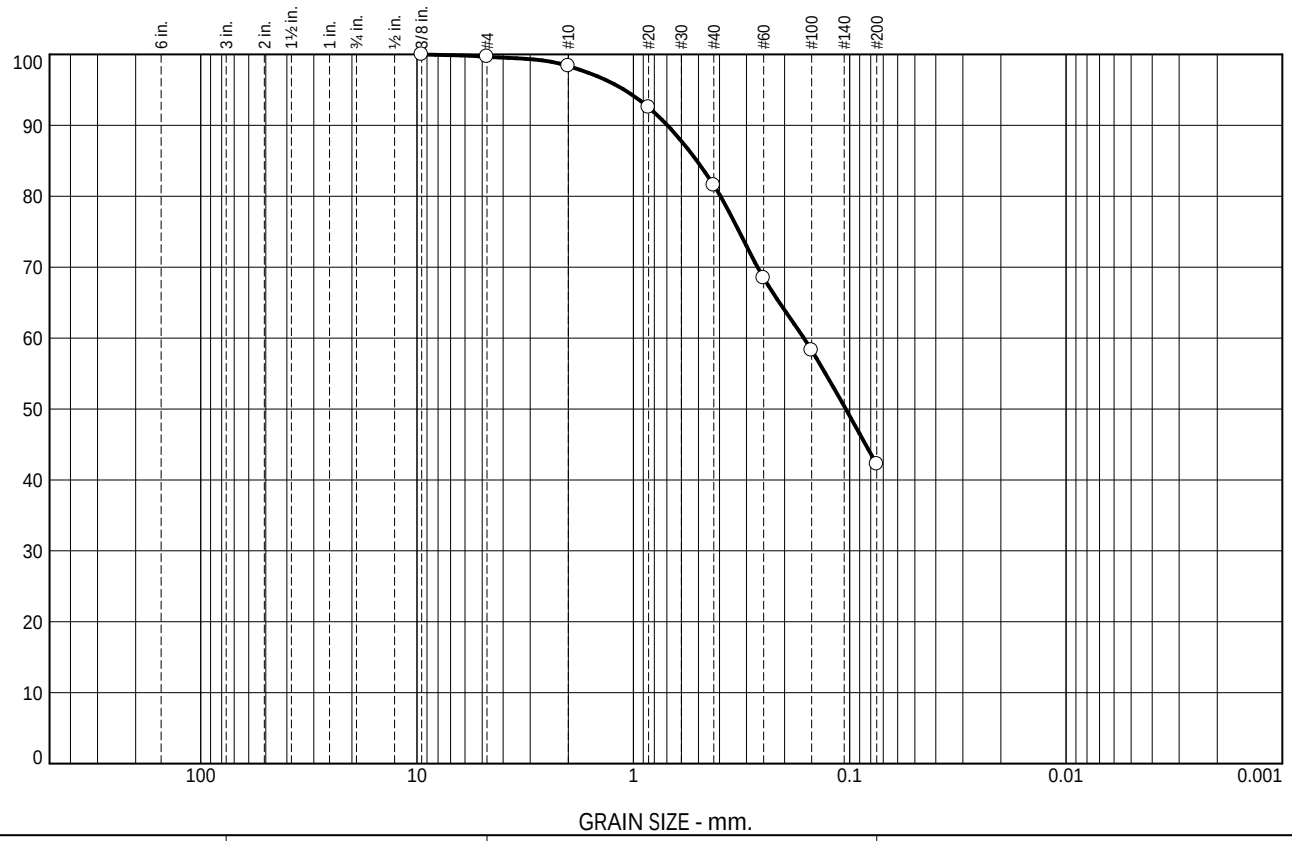
Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-3132

Tested By: MCS Checked By: Rebecca Roth

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.3	16.8	39.4	42.2	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	99.7		
#10	98.4		
#20	92.5		
#40	81.6		
#60	68.5		
#100	58.3		
#200	42.2		

* (no specification provided)

Source of Sample: Borings Depth: 7-9'
Sample Number: B-16 / S-4

Soil Description

Brown silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.6959 D_{85}= 0.5089 D_{60}= 0.1630
D_{50}= 0.1043 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Sample visually classified as non-plastic. Sample could not be rolled to 1/4".

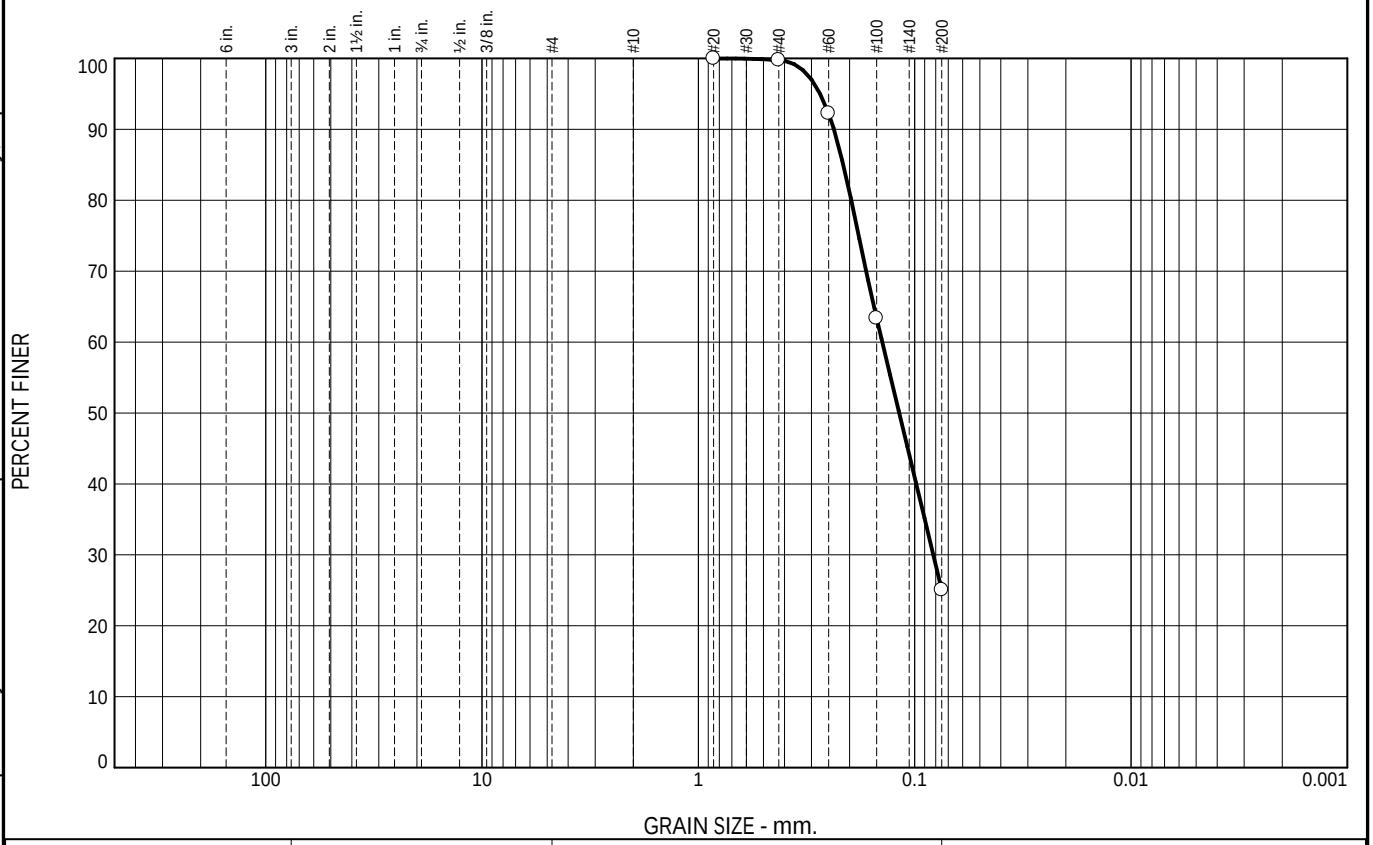
Date: 08.20.24

Thielsch Engineering Inc.
Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-3133

Tested By: MCS Checked By: Rebecca Roth

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	74.7	25.1	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	99.8		
#60	92.2		
#100	63.4		
#200	25.1		

* (no specification provided)

Soil Description

Light Brown silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.2364 D_{85}= 0.2139 D_{60}= 0.1413
D_{50}= 0.1179 D_{30}= 0.0820 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Source of Sample: Borings Depth: 12-14'
Sample Number: B-17 / S-6

Date: 08.20.24

Thielsch Engineering Inc.

Cranston, RI

Client: Northeast Geotechnical, Inc.
Project: New England Appliance Group Warehouse Addition
Franklin, MA
Project No: O542.00 Fig. 24-S-3134

Tested By: MCS Checked By: Rebecca Roth