Geotechnical Engineering Report

LDor Assisted Living
New City, NY
October 26, 2020
Terracon Project No. JB205188

Prepared for:
Rockland ALP Realty, LLC
Poughkeepsie, NY

Prepared by:
Terracon Consultants-NY, Inc.
Dba Dente Group
Albany, New York

October 26, 2020

Rockland ALP Realty, LLC
32 Pine Tree Drive
Poughkeepsie, NY 12603

Attn: Mr. Jacob Reckess
P: (845) 797-8578
E: jreckess@pazhealth.com

Re: Geotechnical Engineering Report
LDor Assisted Living
152 W. Clarkstown Road
New City, NY
Terracon Project No. JB205188

Dear Mr. Reckess:

We have completed the Geotechnical Engineering services for the above-referenced project. This study was performed in general accordance with Terracon Proposal No. PJB205188 dated September 15, 2020. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs and below grade walls for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants-NY, Inc.

John T. Odorisio, P.E.
Sr. Geotechnical Engineer

Joseph Robichaud, Jr. P.E.
Sr. Associate/Office Manager

REPORT TOPICS

Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the ***GeoReport*** logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report

LDor Assisted Living
152 W. Clarkstown Road
New City, NY

Terracon Project No. JB205188
October 26, 2020

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed building to be located at 152 W. Clarkstown Road in New City, NY. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Excavation considerations
- Foundation design and construction
- Floor slab design and construction
- Seismic site classification per NYSBC
- Lateral earth pressures

The geotechnical engineering Scope of Services for this project included the advancement of three test borings to depths ranging from approximately 15 to 21 feet below existing site grades.

Maps showing the site and boring locations are presented in the **Site Location** and **Exploration Plan** sections, respectively.

SITE CONDITIONS

Item	Description
Parcel Information	The project is located at 152 W. Clarkstown Road in New City, NY. The approximate center of the proposed building is located at: ○ Latitude: 41.1358° N ○ Longitude: 74.0224° W See **Site Location**
Existing Improvements	Site is occupied with a 2 to 3 story residential building with an asphalt driveway connecting to W Clarkstown Road. The area proposed for the new building is located to the west of the existing building in an open, grass area.
Current Ground Cover	Grass and woods in the proposed development area.

Item	Description
Existing Topography (From Site Plans Listed Below)	Site grades slope down across the building area from east to west between about elevation 490 and 480 feet.
Geology	Predominantly Glacial Till soils though surficial fills/reworked site soils may be encountered in discrete locations.

PROJECT DESCRIPTION

Our understanding of the project is tabulated below. Items which are highlighted have been assumed by us and should be confirmed by the Project Team.

Item	Description
Information Provided	■ 14-page site plan set titled "2861 SITE PLANS 6-10-20" prepared by Atzl, Nasher & Zigler P.C. ■ 51-page architectural and structural plan set titled "L'Dor Assisted Living," prepared by Harris A. Sanders, Architects, Progress Set dated 08-12-2020
Project Description	Project includes the construction of a new, multi-story assisted living building with associated sidewalks, asphalt surfaced driveway, parking areas and loop road. The existing building and driveway will be razed.
Proposed Structures	The project includes a 2-story building with a plan area of approximately 19,000 ft^2. A partial basement level, with an approximate area of 6,200 ft^2, is planned about the western building elevation.
Building Construction	The building is planned as a wood framed structure supported upon cast in place concrete foundations. Interior bearing walls will be supported on haunched slab elements. Elevator shafts will be constructed of structural masonry. The basement and first floor slabs will bear on grade or compacted structural fill.
Finished Floor Elevation	First Floor Elevation = 492.0' Partial Basement Finished Floor Elevation = 481.0'
Maximum Loads (Assumed)	■ Columns: 40 kips ■ Walls: 5 kips per linear foot (klf) ■ Slabs: 150 pounds per square foot (psf)
Grading/Slopes	Fills ranging from about 2 feet along the eastern building limits and approaching as much as 12 feet along the western building limits will be required for support the 1st floor. Where the proposed basement is planned, cuts of up to about 6 feet are planned.
Below-Grade Structures	Partial basement level as described herein.
Free-Standing Retaining Walls	No free-standing walls are shown on the site plans provided.

Item	Description
Pavements	Paved driveway, parking and a loop road are planned. Pavement recommendations are outside of our scope of services as discussed with Mr. Reckess on 9-16-20.
Estimated Start of Construction	Not Provided

GEOTECHNICAL CHARACTERIZATION

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting, and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** section and the GeoModel can be found in the **Figures** section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Fill/Reworked Site Soil**	Silty Sand, trace gravel, brown, moist, loose
2	**Glacial Till**	Silty Sand and Sandy Silt with gravel, trace clay, brown to grayish brown and gray, moist, medium dense to very dense where essentially granular and very stiff to hard where cohesive.

The site was mantled with topsoil however the thickness was not recorded. Beneath the topsoil, fills were encountered at one location, boring B-3, extending to a depth of about 5 feet below the ground surface. The fills appear to be re-worked natural soils and were noted to be generally free of deleterious material. Beneath the fills or directly beneath the topsoil layer, natural glacial till soils were encountered through the boring termination depths.

Groundwater observations and measurements were made as the boreholes where completed. It should be noted that these measurements may not reflect the actual groundwater depths because adequate time may not have passed upon completion of the drilling for groundwater to achieve a static level in the augers. Groundwater was not observed in the explorations performed for this site.

Fluctuations in groundwater level may occur because of seasonal variations in the amount of rainfall, runoff, and other factors that may differ from those present at the time the explorations were performed. Additionally, grade adjustments on and around the site, as well as surrounding

drainage improvements, may affect the water table. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

GEOTECHNICAL OVERVIEW

The subsurface conditions at the project site are similar to those generally found in the project area. Review of available aerial photography dating as far back as 1952 indicates that the area of the proposed building was formerly a wooded area that was cleared sometime between 1953 and 1964 for the construction of an addition to the western portion of the building and to create an open yard area, which both remain in place today. An existing retaining wall and patio area are located to the west of the existing building in close proximity to the footprint of the proposed new building.

Prior to the construction of the current addition, there is evidence of a structure located to the south and west of the original building which appears to have been removed as part of the addition's construction. Its footprint appears to fall mainly within the limits of the addition but may extend west, in proximity to the existing retaining wall. The fill soils found in boring B-3, performed near the existing retaining wall, are likely associated with site grading performed as part of the structure removal and retaining wall construction.

Based on the existing grades and finished floor information provided, up to 6 feet of cut and as much as 12 feet of fill will be required to reach the planned finished floor elevations. Based upon our evaluation of these subsurface conditions, we developed the following guidelines to assist in planning for design and construction.

- The proposed structure can be founded on spread footings bearing upon the native soils or structural fill placed over the native soils. Existing fills should not be relied upon for support of spread footings. Should old foundation elements or pockets of otherwise unsuitable materials be encountered during construction, they should be removed, and their excavations backfilled with Structural Fill.

- Consideration may be given to support of slabs on grade over the existing fills provided the subgrade surfaces are heavily proof-compacted and stabilized as may be required. It should be understood the proof-compacting will lessen, but not eliminate, the possibility that settlement of slabs constructed over the existing fills may occur over time.

- Excavated granular native and fill soils that are free of deleterious material, may be suitable for reuse as site fill and backfill beneath new buildings and pavements. Laboratory testing should be performed on bulk samples at the time of construction to confirm their suitability.

- Groundwater was not encountered in the explorations performed for this study and is expected be well below the planned depths of excavations performed on this site. Thus, it is expected that temporary dewatering should be required only to remove surface runoff or seepage of perched groundwater into the excavations.

We should be provided with the opportunity to review plans and specifications prior to their release for bidding to confirm that our recommendations were properly understood and implemented, and to allow us to refine our recommendations, if warranted, based upon the final design.

The **General Comments** section provides an understanding of the report limitations.

SEISMIC CONSIDERATIONS

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC).

Seismic Site Classification

Based on the soil properties encountered at the site and as described on the exploration logs it is our professional opinion that the **Seismic Site Classification is D**. Subsurface explorations at this site were extended to a maximum depth of 21 feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth.

LIQUEFACTION

Based upon the composition, relative density and groundwater conditions encountered in the borings, it is our professional opinion that the site is not susceptible to liquefaction during the design seismic event.

EARTHWORK

Earthwork is anticipated to include clearing and grubbing, foundation excavations and fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for foundations, floor slabs, and pavements.

Site Preparation

Prior to placing fill, existing vegetation and root mat should be removed. Complete stripping of the topsoil should be performed in the building and parking/driveway areas. Prior to placing fills to raise site grades and/or after cuts are made to the plan subgrade elevations, the pavement and building subgrades should be proof-rolled using a steel drum roller with a static weight of at least ten tons. The roller should operate in its non-vibratory mode, unless requested otherwise by the Geotechnical Engineer observing the work, and travel at a speed not exceeding three feet per second (two miles per hour). Areas found to be excessively deflecting under the proofroll should be delineated and subsequently addressed by the Geotechnical Engineer. Excessively wet or dry material should either be removed or moisture conditioned and recompacted as required to achieve their satisfactory compaction.

If the owner elects to leave the existing fills in place beneath the building floor slabs, the compaction and stabilization of the subgrades recommended above will reduce but cannot eliminate the risk of settlement as described in the **Geotechnical Overview** section of this report. If this risk cannot be accepted, the existing fills should be removed in their entirety from beneath the building and extending a minimum of five feet outside of the building as part of the site preparation.

Fill Material Types

Structural Fill should be used as fill/backfill within the proposed building pad and pavement areas. The fill should consist of imported sand or sand and gravel. Imported Structural Fill should contain no particles larger than 3 inches and less than 10 percent, by weight, of material finer than a No. 200 mesh sieve. The imported materials should be free of recycled concrete, asphalt, bricks, glass, and pyritic shale rock. Laboratory testing will be required at the time of construction to determine if the on-site natural and fill soils are suitable for use as Structural Fill on site.

Fill Compaction Requirements

The Structural Fill should be placed in uniform loose layers no more than about one-foot thick where heavy vibratory compaction equipment is used. Smaller lifts should be used where hand operated equipment is required for compaction. Each lift should be compacted to no less than 95 percent of the maximum dry density for the soil which is established by the Modified Proctor Compaction Test, ASTM D1557. In landscape areas, the compaction may be reduced to 90 percent of maximum dry density.

Grading and Drainage

All grades must provide effective drainage away from the building during and after construction and should be maintained throughout the life of the structure. Water retained next to the building

can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks.

Earthwork Construction Considerations

Shallow excavations for the construction of the proposed structure are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of floor slabs. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to floor slab construction.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, “Excavations” and its appendices, and in accordance with any applicable local, and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of adequate removal of vegetation and topsoil, proofrolling, and mitigation of areas delineated by the proofroll to require mitigation.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. If unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

It should be understood the actual subsurface conditions that exist will only be known when the site is excavated. The continuation of the Geotechnical Engineer into the construction phase of the project will allow for validation of the subsurface conditions assumed to exist for this study and the design recommended in this report, including assessing variations, providing recommendations and reviewing associated design changes.

SHALLOW FOUNDATIONS

If the site has been prepared in accordance with the requirements noted in **Earthwork** and **Foundation Construction Considerations** sections of this report, the following design parameters and construction procedures are applicable for shallow foundations.

Design Parameters – Compressive Loads

Item	Description
Maximum Net Allowable Bearing Pressure [1, 2]	3,000 psf
Required Bearing Stratum [3]	Natural soils or compacted fill
Minimum Foundation Dimensions	Columns: 30 inches Continuous: 18 inches
Ultimate Coefficient of Sliding Friction [4]	.35 (Natural soils/Granular Structural Fill material)
Minimum Embedment below Finished Grade [5]	Exterior footings in heated/unheated areas: 48 inches Interior footings in unheated areas: 48 inches Interior footings in heated areas: 24 inches[7]
Estimated Total Settlement from Structural Loads [2]	Less than about 1 inch
Estimated Differential Settlement [2, 6]	About 1/2 of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied. Values assume that exterior grades are no steeper than 20% within 10 feet of structure.
2. Values provided are for maximum loads noted in **Project Description**.
3. The bearing grades should be prepared per the recommendations presented below in the **Foundation Construction Considerations**.
4. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions.
5. Embedment necessary to minimize the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure. Interior footings in heated area may be seated at the 24-inch depth if allowed by local building codes. In the case of haunched floor slab support for interior partition walls, the minimum depth requirement may be waived (again, if permitted by local building codes).
6. Differential settlements are as measured over a span of 50 feet.
7. If allowed by local building codes.

Foundation Construction Considerations

Foundations should be seated upon native soils or Structural Fill placed over the native soils. The surface of foundation bearing grades should be recompacted to densify the soils loosened by the excavation process. All final foundation bearing grades should be relatively firm, stable, and free

of loose soil, mud, water and frost. Water which enters the excavations should be promptly removed together with any softened bearing grade materials. The Geotechnical Engineer should observe and approve the foundation bearing grades.

FLOOR SLABS

Design parameters for floor slabs assume the requirements in the **Earthwork** and **Floor Slab Construction Considerations** sections of this report have been followed. Specific attention should be given to positive drainage away from the structure and positive drainage of the aggregate base beneath the floor slab.

Floor Slab Design Parameters

New floor slabs should be constructed upon a minimum six-inch thick subbase course which conforms to the requirements for NYSDOT Type 2 Subbase or ASTM C-33 Blend 57 aggregate. Consideration should be given to using a thicker subbase course in areas subject to heavier loads and/or use, or those exposed to freezing temperatures.

The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding its use and placement.

Floor slab subgrades should be prepared as outlined in the **Earthwork** section herein. Under these conditions, a modulus of subgrade reaction equal to 200 pounds per cubic inch (psi/in) may be assumed at the top of the stone base layer for slab design purposes.

Settlement of floor slabs supported on existing fill materials cannot be accurately predicted but could be larger than normal and result in some cracking. Mitigation measures, as noted in the **Earthwork**, section of this report are critical to the performance of floor slabs. If the risk of potential slab settlement is unacceptable to the owner, all fills must be removed from beneath the slab and replaced with structural fill.

Floor Slab Construction Considerations

Even with the base course recommended above, we caution that the subgrades may not support repeated heavy construction traffic or telehandlers without suffering rutting and weaving that may be especially severe during wet seasons. If the grades are to be repeatedly traversed by these types of equipment, they should be reinforced as necessary to support them. Areas which become disturbed should be excavated and stabilized accordingly.

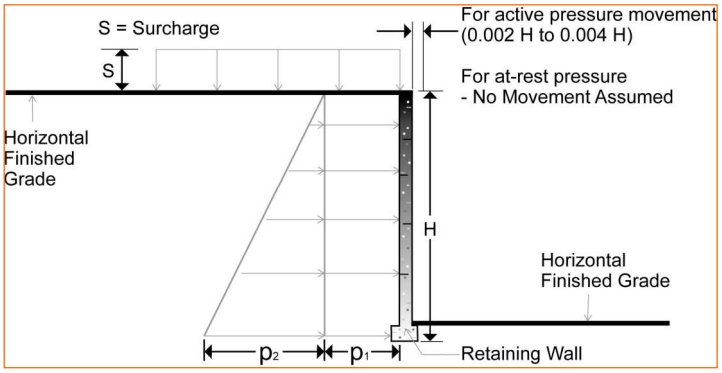
Finished subgrade, within and for at least 10 feet beyond the floor slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become damaged or desiccated prior to construction of floor slabs, the affected material should be removed, and structural fill should be added to replace the resulting excavation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab support course.

The Geotechnical Engineer should approve the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

LATERAL EARTH PRESSURES

Design Parameters

Building or site walls that retain earth should be designed to resist lateral pressures, with applicable surcharge loads, assuming the parameters listed below. Active earth pressures may be assumed for walls that are free to deflect as the backfill is placed. At-rest earth pressures should be assumed for all walls that are braced prior to backfilling or applying surcharge loads. The figure below can be referenced to determine the applicability of Active vs. At-Rest earth pressures.



The recommended design parameters, as applicable, are tabulated below;

Design Parameter	Value
Soil Angle of Internal Friction	30 degrees
Coefficient of At-Rest Earth Pressure (Ko)	0.50
Coefficient of Active Earth Pressure (Ka)	0.33
Coefficient of Passive Earth Pressure (Kp)	3.00
Total Unit Weight of Compacted Soil	120 pcf

Design Parameter	Value
Coefficient of Sliding Friction	0.35

1. For the tabulated values to be valid, the wall must be backfilled with Structural fill as specified in the **Earthwork** section of this report. The structural backfill must extend out and up from the base of the wall at an angle of at least 45 degrees from vertical for the active and at-rest cases.
2. The tabulated values do not include a safety factor.

Subsurface Drainage for Below-Grade Walls

A standard perimeter foundation drain should be installed for basement walls. The basement walls should be damp-proofed.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact

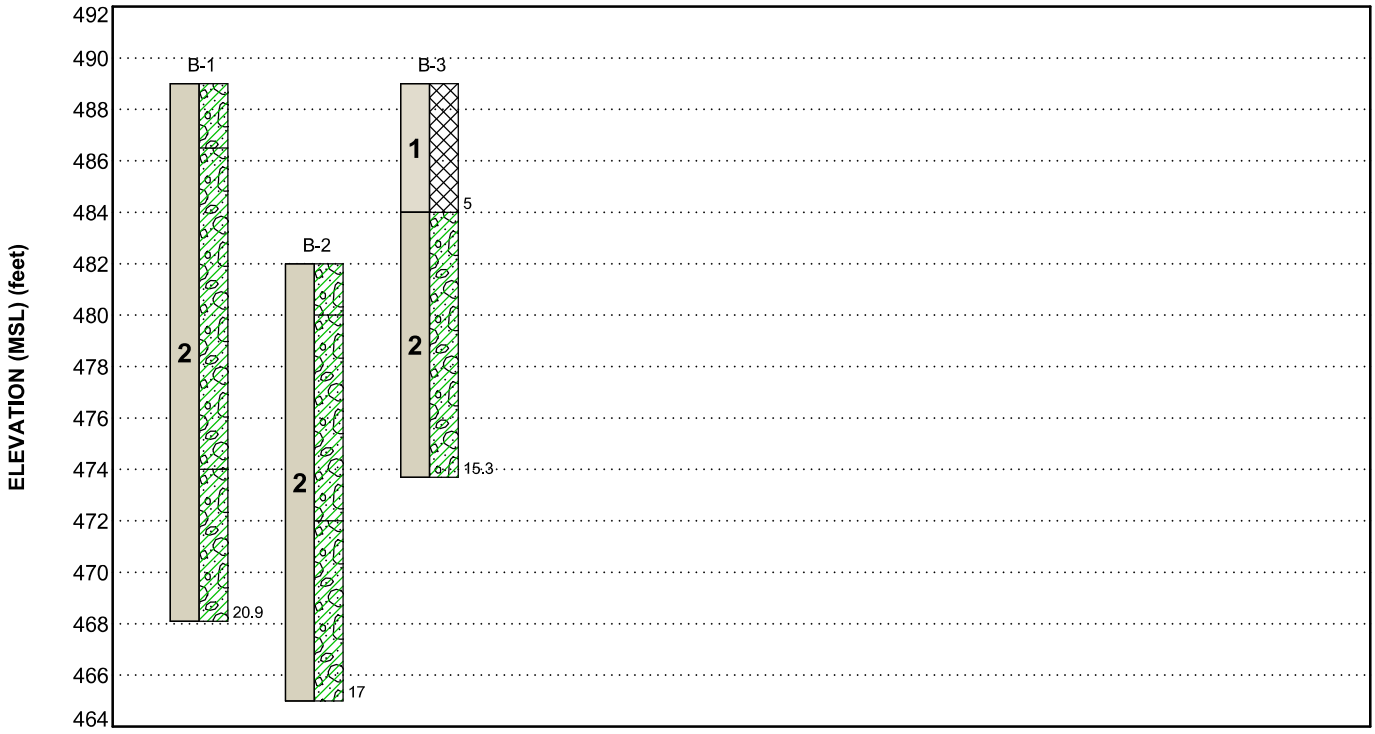
excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

FIGURES

Contents:

GEOMODEL

LDor Assisted Living ■ New City, NY
Terracon Project No. JB205188



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Fill/Reworked Site Soil**	Silty Sand, trace gravel, brown, moist, loose
2	**Glacial Till**	Silty Sand and Sandy Silt with gravel, brown to grayish brown and gray, moist, medium dense to very dense where essentially granular and very stiff to hard where cohesive.

LEGEND

Glacial Till

Fill

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Number of Borings	Boring Depth (feet)	Location
3	15 to 21	Building area

Boring Layout and Elevations: Unless otherwise noted, Terracon personnel provided the boring layout. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±10 feet) approximate elevations were obtained by interpolation from the drawing tiled "Preliminary Overall Exiting Site Plan" dated January 14, 2020 prepared by Atzl, Nasher & Zigler, P.C. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: We advanced the borings with an ATV-mounted rotary drill rig using continuous flight augers. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the middle 12 inches of a normal 24-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. When an 18-inch sample is taken, the N-value are recorded as the number of blows required to advance the sampling spoon the final 12 inches. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. We observed and recorded groundwater levels during drilling and sampling. For safety purposes, all borings were backfilled with auger cuttings after their completion.

The laboratory testing program often included examination of soil samples by an engineer or geologist. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.

SITE LOCATION

LDor Assisted Living ■ New City, NY
October 26, 2020 ■ Terracon Project No. JB205188

Terracon GeoReport

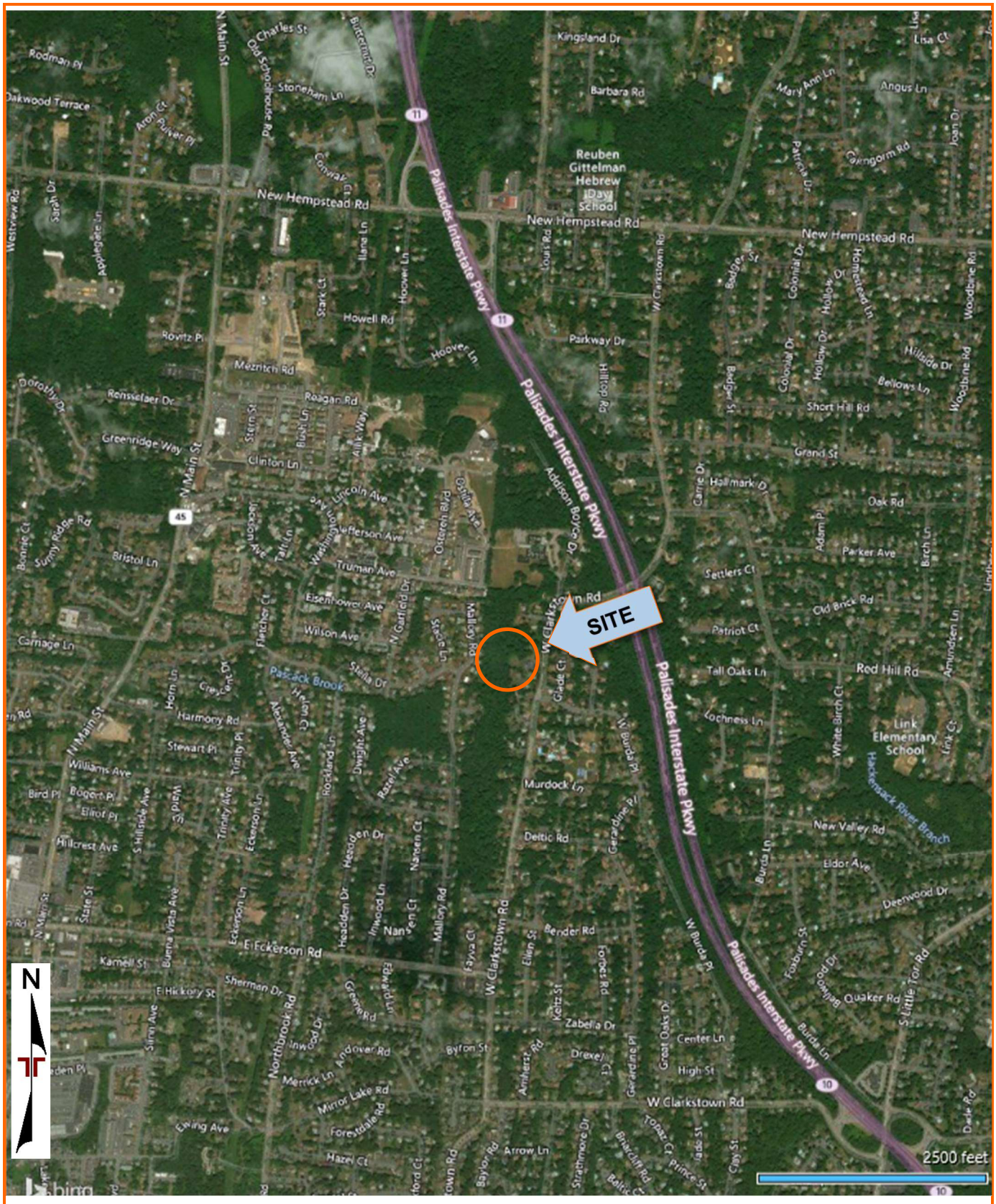


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

LDor Assisted Living ■ New City, NY

October 26, 2020 ■ Terracon Project No. JB205188

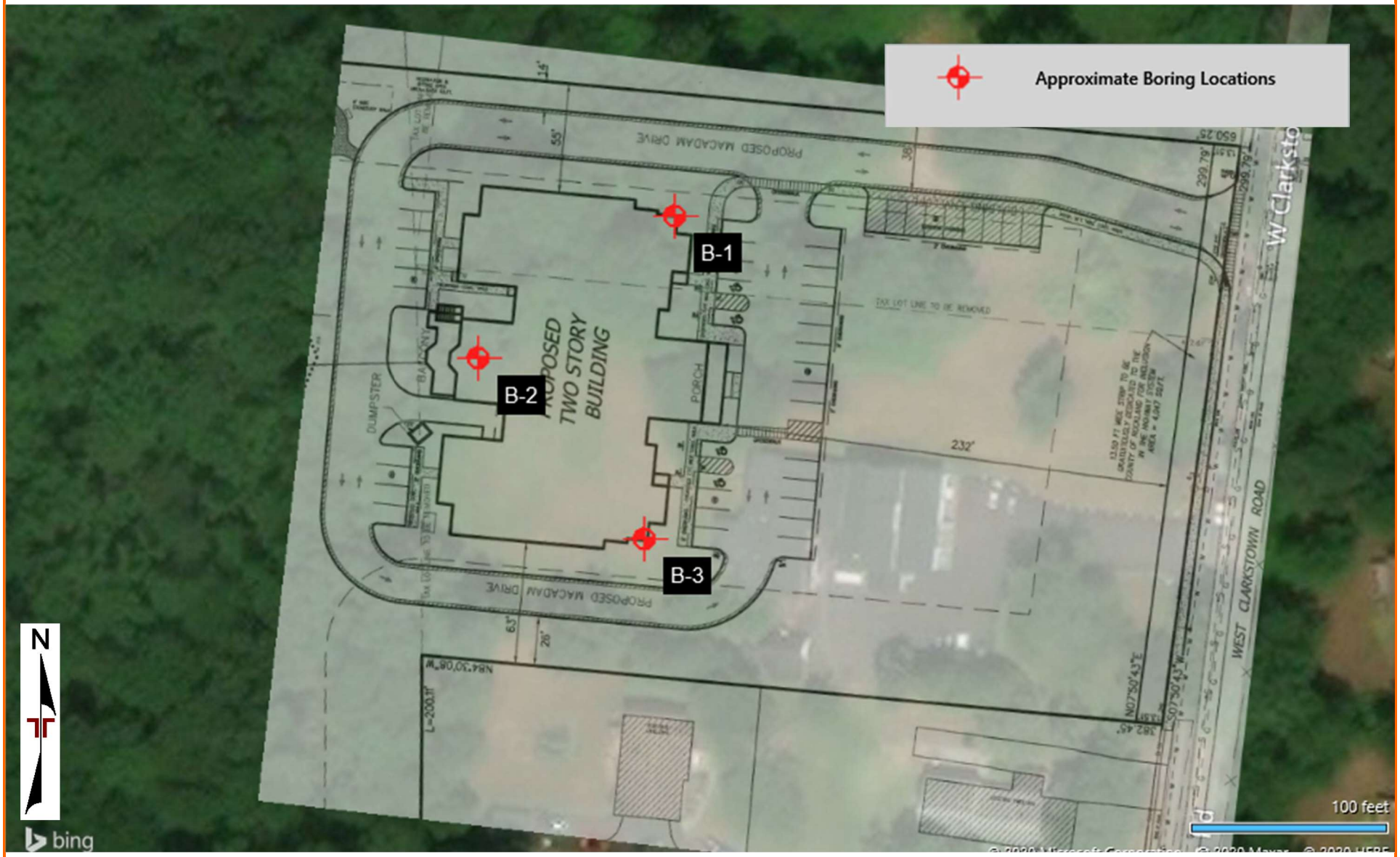


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

Contents:

Boring Logs (B-1 through B-3)

Note: All attachments are one page unless noted above.

BORING LOG NO. B-1

PROJECT: LDor Assisted Living

CLIENT: Rockland ALP Realty LLC
Poughkeepsie, NY

SITE: 152 W Clarkstown Road
New City, NY

LOCATION See Exploration Plan

Latitude: 41.136° Longitude: -74.0222°

Approximate Surface Elev.: 489 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
2		0						
			GLACIAL TILL - POORLY GRADED SAND WITH GRAVEL (SP), brown, moist, medium dense				19	5-7-10-26 N=17
		2.5	486.5+/-					
			GLACIAL TILL - POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), brown, moist, very dense to medium dense				22	28-29-33-32 N=62
				5			20	15-23-44-38 N=67
				10			6	11-10-11-50/2" N=21
		15.0	474+/-					
			GLACIAL TILL - SANDY SILT WITH GRAVEL (ML), trace clay, grayish brown, moist, hard	15			16	21-48-50/5"
		20.9	468+/-	20			10	32-50/4"
			Boring Terminated at 20.9 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
2 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Logged by AEB

WATER LEVEL OBSERVATIONS

No measurable groundwater upon completion of drilling

Terracon
594 Broadway
Watervliet, NY

Boring Started: 10-15-2020 | Boring Completed: 10-15-2020

Drill Rig: Diedrich D-50 | Driller: S. Morey

Project No.: JB205188

BORING LOG NO. B-2

PROJECT: LDor Assisted Living

CLIENT: Rockland ALP Realty LLC
Poughkeepsie, NY

SITE: 152 W Clarkstown Road
New City, NY

LOCATION See Exploration Plan

Latitude: 41.1358° Longitude: -74.0225°

Approximate Surface Elev.: 482 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
2		**GLACIAL TILL - SILTY SAND (SM)**, trace gravel, brown, moist, medium dense					20	2-5-7-15 N=12
		2.0	480+/-					
		GLACIAL TILL - SILTY SAND WITH GRAVEL (SM), brown, moist, dense					22	14-16-18-18 N=34
				5			22	13-16-27-16 N=43
		10.0	472+/-	10			19	7-13-16-21 N=29
		GLACIAL TILL - SANDY SILT WITH GRAVEL (ML), trace clay, grayish brown, moist, very stiff to hard						
		Grades gray		15			20	22-27-32-45 N=59
		17.0	465+/-					
		Boring Terminated at 17 Feet						

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
2 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Logged by AEB

WATER LEVEL OBSERVATIONS

No measurable groundwater upon completion of drilling

Terracon
594 Broadway
Watervliet, NY

Boring Started: 10-15-2020 | Boring Completed: 10-15-2020

Drill Rig: Diedrich D-50 | Driller: S. Morey

Project No.: JB205188

BORING LOG NO. B-3

PROJECT: LDor Assisted Living

CLIENT: Rockland ALP Realty LLC
Poughkeepsie, NY

SITE: 152 W Clarkstown Road
New City, NY

LOCATION See Exploration Plan

Latitude: 41.1355° Longitude: -74.0222°

Approximate Surface Elev.: 489 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
1		**FILL/REWORKED SITE SOILS - SILTY SAND (SM)**, trace gravel, brown with gray mottling, moist, loose					19	1-3-3-2 N=6
							19	3-3-6-8 N=9
		5.0	484+/-	5				
2		**GLACIAL TILL - SILTY SAND WITH GRAVEL (SM)**, brown with gray mottling, moist, dense to very dense					22	7-7-24-22 N=31
				10			17	7-12-22-50/3" N=34
		15.3	473.5+/-	15			3	50/4"
		Boring Terminated at 15.3 Feet						

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
2 1/4" ID HSA

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Logged by AEB

WATER LEVEL OBSERVATIONS

No measurable groundwater upon completion of drilling

Terracon
594 Broadway
Watervliet, NY

Boring Started: 10-15-2020 | Boring Completed: 10-15-2020

Drill Rig: Diedrich D-50 | Driller: S. Morey

Project No.: JB205188

SUPPORTING INFORMATION

Contents:

Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

LDor Assisted Living ■ New City, NY

Terracon Project No. JB205188

SAMPLING	WATER LEVEL	FIELD TESTS
Split Spoon	**Water Initially Encountered** **Water Level After a Specified Period of Time** **Water Level After a Specified Period of Time** **Cave In Encountered** Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	**N** Standard Penetration Test Resistance (Blows/Ft.) **(HP)** Hand Penetrometer **(T)** Torvane **(DCP)** Dynamic Cone Penetrometer **UC** Unconfined Compressive Strength **(PID)** Photo-Ionization Detector **(OVA)** Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM

Terracon GeoReport

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or [Cc<1 or Cc>3.0] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or [Cc<1 or Cc>3.0] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

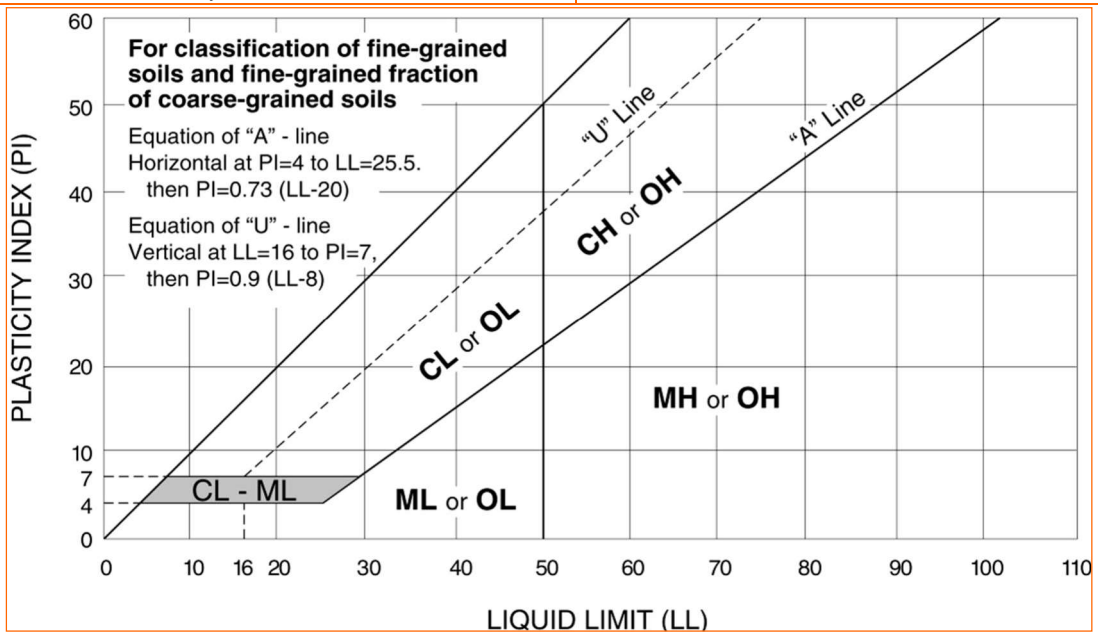
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



DESCRIPTION OF ROCK PROPERTIES

WEATHERING	
Term	**Description**
Unweathered	No visible sign of rock material weathering, perhaps slight discoloration on major discontinuity surfaces.
Slightly weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discolored by weathering and may be somewhat weaker externally than in its fresh condition.
Moderately weathered	Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a continuous framework or as corestones.
Highly weathered	More than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.
Residual soil	All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soil has not been significantly transported.

STRENGTH OR HARDNESS		
Description	**Field Identification**	**Uniaxial Compressive Strength, psi (MPa)**
Extremely weak	Indented by thumbnail	40-150 (0.3-1)
Very weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife	150-700 (1-5)
Weak rock	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer	700-4,000 (5-30)
Medium strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer	4,000-7,000 (30-50)
Strong rock	Specimen requires more than one blow of geological hammer to fracture it	7,000-15,000 (50-100)
Very strong	Specimen requires many blows of geological hammer to fracture it	15,000-36,000 (100-250)
Extremely strong	Specimen can only be chipped with geological hammer	>36,000 (>250)

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		**Bedding Spacing (May Include Foliation or Banding)**	
Description	**Spacing**	**Description**	**Spacing**
Extremely close	< ¾ in (<19 mm)	**Laminated**	< ½ in (<12 mm)
Very close	¾ in – 2-1/2 in (19 - 60 mm)	**Very thin**	½ in – 2 in (12 – 50 mm)
Close	2-1/2 in – 8 in (60 – 200 mm)	**Thin**	2 in – 1 ft. (50 – 300 mm)
Moderate	8 in – 2 ft. (200 – 600 mm)	**Medium**	1 ft. – 3 ft. (300 – 900 mm)
Wide	2 ft. – 6 ft. (600 mm – 2.0 m)	**Thick**	3 ft. – 10 ft. (900 mm – 3 m)
Very Wide	6 ft. – 20 ft. (2.0 – 6 m)	**Massive**	> 10 ft. (3 m)

Discontinuity Orientation (Angle): Measure the angle of discontinuity relative to a plane perpendicular to the longitudinal axis of the core. (For most cases, the core axis is vertical; therefore, the plane perpendicular to the core axis is horizontal.) For example, a horizontal bedding plane would have a 0-degree angle.

ROCK QUALITY DESIGNATION (RQD) [1]	
Description	**RQD Value (%)**
Very Poor	0 - 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 - 100

1. The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

Reference: U.S. Department of Transportation, Federal Highway Administration, Publication No FHWA-NHI-10-034, December 2009
Technical Manual for Design and Construction of Road Tunnels – Civil Elements