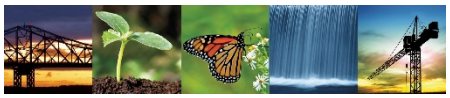
Appendix E

Geotechnical Engineering Report



Known for excellence.
Built on trust.

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

GZA GeoEnvironmental of New York
104 West 29th Street
10th Floor
New York, NY 10001
T: 212.594.8140
F: 212.279.8180
www.gza.com

August 5, 2021
File No. 41.0162904.00

Mr. Justin Hwang
Steel Equities
999 South Oyster Bay Road, Suite 200
Bethpage, New York 11714

Re: Geotechnical Engineering Report
75 Maxess Road
Melville, New York

Dear Mr. Hwang,

GZA GeoEnvironmental of New York (GZA) is pleased to submit this geotechnical engineering report for the proposed construction at 75 Maxess Road, Melville, New York. Our objectives were to perform a subsurface exploration, evaluate the subsurface conditions, and provide recommendations for foundation design and construction.

The recommendations contained herein supersede our recommendations from our preliminary recommendation letter dated June 29, 2021.

SCOPE OF SERVICES

Our scope of services was performed in accordance with our proposal number 41.P000165.22-rev2, dated June 1, 2021, executed on June 24, 2021, and are subject to the terms of our proposal, contract amendments executed on June 24, 2021, and the limitations presented in Appendix A.

Our scope of services included the following:

- Review of available concept drawings and coordination with the design team
- Preparation of a preliminary geotechnical recommendation letter to expedite design of foundations and below-grade structures
- Performance of a subsurface exploration consisting of 18 borings, 21 Cone Penetration Test (CPT) probes, and four seismic CPT probes
- Evaluation of the subsurface conditions encountered during the exploration and conducting geotechnical analyses
- Preparation of this geotechnical engineering report, which summarizes our observations and presents our recommendations

DATUM

Elevations in this report are in feet and are referenced to the North American Vertical Datum of 1988 (NAVD 88), unless otherwise noted.

SITE AND PROJECT BACKGROUND

The site is located at 75 Maxess Road in the Melville hamlet , New York, as shown on Figure 1. The site is occupied by a single-story commercial building with a partial cellar, landscaped areas, and asphalt-covered parking areas. The site is bordered to the west and south by Maxess Road and Corporate

Center Drive, respectively. An unnamed access road and solar arrays generally border the site to the north and east, respectively.

Topography at the site is relatively flat, sloping down to the south slightly with surface elevations ranging from about El. +120 to El. +115.

AVAILABLE INFORMATION

We were provided the following documents for our use in developing this report:

1. Drawing No. SB-1 – Soil Boring Location Plan prepared by VHB Engineering, Surveying, Landscape Architecture, and Geology, P.C. (VHB), dated March 2021
2. Drawings SC1 through SC3 (CAD format) prepared by Atlantic AE and Kimley Horn of New York, P.C. dated April 27, 2021
3. Drawing PFP-1.0 – Preliminary Floor Plan prepared by Atlantic AE dated April 23, 2021

In addition, we researched our files for historic and geologic references pertaining to the general site area.

SITE GEOLOGY

During the Pleistocene a series of glaciers flowed across the region, stopping at the terminal moraine located northwest of the site. Meandering streams of meltwater flowed south of the ice front, depositing layers of clean outwash sands and gravel across eastern and southern Long Island. After the ice retreated from the area new drainage patterns formed. Changes in grain size and density of the outwash sands may reflect shifts in the glacial and post-glacial stream patterns.

PROPOSED CONSTRUCTION

Based on the available drawings, we understand the proposed construction consists of demolition of the existing one-story office buildings with a partial cellar and construction of a single-story warehouse building measuring 621 feet 7 inches by 229 feet 5 inches in plan, and occupying a footprint area of about 141,341 square feet (sf). A three-story parking garage is proposed east of the warehouse occupying a building area of about 190,300 sf. Both proposed buildings will not have cellars or basements.

Based on information provided by the design team, preliminary column spacing for the warehouse will range from about 47 feet 3 inches to 75 feet 2 inches. Preliminary column loads for the warehouse range from 100 kips to 400 kips. Preliminary concept drawings and preliminary structural loads for the parking garage were not provided to us at the time this report was prepared.

SUBSURFACE EXPLORATION PROGRAM

VHB prepared a boring location plan showing the locations of the existing buildings and 41 proposed boring locations. Based on our technical experience with advanced subsurface exploration techniques, we proposed an alternative exploration scope to provide a focused, cost-effective, and efficient subsurface exploration to collect data for geotechnical design of the proposed construction.

GZA retained Craig Test Boring Company (Craig) of Mays Landing, New Jersey to advance borings, Cone Penetration Test (CPT) probes, and seismic piezocone soundings. We performed a subsurface exploration program consisting of 18 borings, 21 Cone Penetration Test (CPT) probes, four seismic CPT sounding locations, and two infiltration testing locations. Borings were used to characterize the soil stratigraphy and obtain samples for laboratory testing. CPT probes and piezocone

soundings yielded technical soil measurements that were used for seismic assessment and developing geotechnical design parameters. The approximate boring locations, CPT probe locations, CPT sounding locations, and infiltration test locations are presented on Figure 2. The soil key and boring records are presented in Appendix B. The infiltration test records are included in Appendix C. Selected CPT plots are included in Appendix D.

Test Borings

The borings were drilled between July 7, 2021 and July 15, 2021 using truck mounted drilling equipment employing wash-rotary drilling techniques and metal casing to stabilize the boreholes during advance.

Soil samples were visually classified in the field by our field observer in accordance with the Modified Burmister Classification System. Standard Penetration Tests (SPT) were performed continuously to a depth of 12 feet and then at five-foot intervals thereafter in general accordance with ASTM D1586. Split-spoon samples were obtained by driving a 2-inch O.D. split-spoon sampler with a 140-pound automatic hammer free falling 30 inches.

Hammer blows required to advance the sampler through each of four 6-inch intervals were recorded. The SPT resistance, also known as N-value is the sum of the blows required to advance the sampler through the second and third 6-inch intervals and is a commonly used indicator of soil density or consistency. The hammer blows and SPT N-values at various depths are recorded on the boring logs as well as the Modified Burmister Soil Descriptions.

An automatic hammer was used to advance the sampler and measure SPT N-values. An automatic hammer is more efficient and delivers higher energy than a conventional drop hammer, on which the ASTM standard is based. As a result, N-values measured with an automatic hammer are typically about a third less than N-values obtained with a conventional drop hammer. Some adjustments in N-values measured with an automatic hammer were therefore made when selecting soil properties based on empirical correlations derived from N-values obtained with conventional drop hammers.

Infiltration Testing

Infiltration testing was performed on July 14, 2021 and July 15, 2021 within PT-1 and PT-2, and at the approximate locations shown on Figure 2. SPTs were advanced continuously to a depth of 10 feet to characterize the subsurface conditions at the test location. Soil cuttings were then removed using a tri-cone roller bit and clean water to the test depth of 10 feet, which was coordinated with VHB, the project civil engineer. The depth to the bottom of the borehole was measured to check that the borehole was stable at the test depth prior to the start of the infiltration testing. In accordance with the New York State Stormwater Management Design Manual Appendix D, the test locations were pre-soaked for 24 hours, but the water did not fully infiltrate down to the required 24 inches above the test depth. On that basis, we performed infiltration testing by filling the casing with water to the top of the casing and then measuring the water level drop in the casing with respect to time. In accordance with the testing requirements, multiple tests were performed at each infiltration test location.

Seismic Cone Penetration Testing

In-situ Cone Penetration Test (CPT) probes were performed on June 28, 2021 and June 29, 2021 to depths ranging from 3 to 30 feet. A total of 21 CPT probes were attempted with 13 encountering shallow refusal defined by probe refusal at depths less than 10 feet. Offset CPT probes were attempted at four of the refusal locations and encountered shallow refusal, likely due to dense soils encountered in the borings. Offset CPT probes are designated with a suffix letter corresponding to the sequential offset attempts.

Four seismic CPT piezocone soundings were performed to depths ranging from 18 to 30 feet. Seismic piezocone soundings are similar to CPT probes, but also collect measurements of shear wave velocity through soils. The seismic piezocones are connected to push rods and collect shear wave measurements from a source at the surface. The collected data is transferred

through wires to a data acquisition system, which can then be used for small strain shear modulus calculations and assessments of seismic impacts. The CPT probes and seismic piezocone soundings were made using track mounted equipment advancing a 10 square centimeter cone with a gross vehicle weight of 40 tons.

Following completion of the exploration, Craig provided a summary report containing CPT data, such as cone tip resistance, sleeve friction, pore pressure, friction ratio, and shear wave velocity measurements. Selected summary plots presenting the cone resistance, friction ratio, pore pressure, SBT index, and Soil Behavior Type are included in Appendix D. The SBT Index and Soil Behavior Type are interpretation of soil behavior based on parameters measured during the CPT soundings. Additional details regarding the CPT data interpretation are available in technical paper titled "Interpretations of Cone Penetration Tests", by Robertson, P.K. dated 2010.

Groundwater Observations

Subsequent to the completion of drilling and sampling, an open standpipe piezometer was installed in boring B-10. The piezometer consists of a two-inch diameter standpipe with a 10-foot-long slotted screen between depths of about 50 and 60 feet. Following installation, proper piezometer operation was checked by performing a falling head test consisting of filling the standpipe with water and measuring the depth to water with respect to time. Piezometer construction details, water depth readings, and falling head test data are provided on the piezometer record in Appendix B. Drilling fluid depth measurements are presented on the boring logs in Appendix B.

Pore pressure readings indicative of water pressure at depths below the static groundwater table were measured at each CPT location. Vertical pore pressures above the groundwater table are generally assumed to be close to zero and linearly increase with depth below the groundwater table.

Groundwater levels were also compared to groundwater monitoring data well maps prepared by and maintained by the United States Geologic Survey (USGS).

Soil Laboratory Testing Program

Selected soil samples were sent to Thielsch Engineering of Cranston, Rhode Island to check our soil descriptions and provide data used in our analyses and the development of our recommendations. Soils tests include:

- Three Grain Size Distributions, Sieve Only (ASTM D6913)
- Two Grain Size Distributions with Hydrometer (ASTM D7928)
- One Modified Proctor (ASTM D1557)
- One California Bearing Ratio (CBR) (ASTM D1883)

The laboratory test results are included in Appendix E.

SUBSURFACE CONDITIONS

Our interpretation of subsurface conditions is summarized below.

Generalized Soil Stratigraphy

Based on the results of our subsurface exploration program, the subsurface conditions at the site generally consist of the following, in order of increasing depth:

- FILL – Fill generally consisting of brown fine to coarse sand containing up to 35 percent gravel, 20 percent silt, and up to 10 percent construction debris, such as glass or cinders. Two-foot-thick pockets of clay were observed within split-spoon samples at the bottom of the fill at B-1 and B -17. The fill stratum extends to depths ranging from 2 to 8 feet below the ground surface, but is generally about 2 to 4 feet thick. Some select borings encountered deeper fills likely resulting from backfilling during cellar construction of the existing building. SPT N-values in the fill generally range from 2 to 70 blows per foot, indicating a variable in-place density or consistency.

- SAND (SP-SM or SM) – A Sand stratum was encountered below the fill and extended beyond the maximum depth explored at 102 feet. The sand typically consisted of yellow-brown fine to coarse sand containing up to 50 percent gravel and 20 percent fines. SPT N-values in the sand range from 4 to 123 bpf, but averaged 34 bpf, indicating a dense in-place density.

- CLAY (CL) – A clay stratum was encountered in boring B-06 and was interlayered with the sand stratum at a depth of 78.5 feet and extending to 93.5 feet. The clay consisted of dark gray or brown silty clay or silt and clay containing up to 10 percent fine sand. SPTN -values in the clay range from 22 to 53 bpf, indicating a very stiff to hard consistency.

Groundwater

An open standpipe piezometer was installed at B-10 to a depth of 60 feet. The measured depth to groundwater after allowing 48 hours for groundwater stabilization was 45.2 feet below existing grade, corresponding to about El. +72.8.

The CPT probes and seismic piezocone soundings did not encounter groundwater as evidenced by the measurements of pore pressure throughout the test depth.

The measured depth to water in the open standpipe piezometer corresponds well to the depth to water measurements presented on the USGS maps, which estimated depth to groundwater at about 50 feet.

Groundwater depths vary depending on many factors, including precipitation and surface water infiltration. Groundwater depths at the time of excavation and/or construction may differ from those measured during our exploration.

GEOTECHNICAL DESIGN PARAMETERS

Soil design parameters are provided in Table 1 below for use in designing foundations and construction works.

Table 1 – Recommended Design Soil Parameters

Parameter	Fill	Sand	Clay
Total Unit Weight (pcf)	120	120	110
Effective Unit Weight (pcf)[1]	57.6	57.6	47.6
Angel of Internal Friction (deg)	30	32	-
Cohesion (psf)	-	-	1,000
Ultimate Friction Factor between concrete and soil	0.4	0.45	-
Active Earth Pressure Coefficient, K_a[2,3]	0.33	0.31	-
Passive Earth Pressure Coefficient, K_p[2,3]	3.00	3.25	-
At-rest Earth Pressure Coefficient, K_o[2,3]	0.50	0.47	-

Notes:

[1] Effective unit weights should be used below the groundwater table.

[2] Active and passive earth pressures may be computed using Rankine or Coulomb earth pressure theory.

[3] Surcharge loads should be included in accordance with local codes.

Design Groundwater Elevation

Based on the measured depths in the installed piezometer within B-10, we recommend a design groundwater elevation of El. +70 to account for seasonal and other variations, but do not expect groundwater to impact design or construction.

SEISMIC DESIGN PARAMETERS

Based on the subsurface conditions and seismic shear wave velocity test results measured in the borings and seismic piezocones, respectively, and in accordance with the New York State Building Code Section 1613, which refers to the American Society of Civil Engineers (ASCE-7), the seismic site class for the proposed building and parking garage is Class D.

We visually screened the range of SPT N-values normalized to a hammer energy efficiency of 60 percent. Only the samples below the groundwater table are susceptible to liquefaction. The range of corrected N-values below the groundwater table and within the upper 50 feet indicate that soil liquefaction is not likely and need not be considered for design.

Infiltration Testing Results

Results of the infiltration testing performed at PT-1 and PT-2 are included in Appendix C and are summarized below. Permeability coefficients were determined based on laboratory and field tests. Maximum infiltration rates were determined using the NYCDEP Guidelines for the Design and Construction of Stormwater Management Systems Appendix H (Soil Evaluations for Porous Infiltration Practices), which defines the maximum infiltration rate (in/hour) as 120 times the lowest measured permeability coefficient of underlying soil where infiltration would occur. Although the project is located outside the Boroughs of New York City, the New York State Stormwater Design Manual Appendix H does not provide a means to evaluate the maximum infiltration rate from the collected field data or laboratory testing, and therefore we used other references as our basis for selected maximum infiltration rates.

The permeability coefficient (also termed hydraulic conductivity) was evaluated using the Hazen correlation and the Kozeny-Carman equation. Typically, the Hazen correlation applies to soils with less than 5 percent of fines. The maximum hydraulic conductivity was also evaluated using the NYCDEP Bureau of Engineering Design and Construction for Green Infrastructure "Procedures Governing Limited Geotechnical Investigations".

Table 2: Infiltration Data Summary

Boring ID	Hydraulic conductivity based on Hazen correlation cm/sec	Hydraulic conductivity based on Kozeny Carman Equation (cm/sec)	Maximum infiltration rate based on laboratory testing cm/sec (in/hour)	Mean hydraulic conductivity based on field measurements (cm/sec)	Maximum infiltration rate based on field measurements cm/sec (in/hour)
PT-1	5.76×10^{-3}	1.69×10^{-2}	6.9×10^{-1} (978)	7.14×10^{-5}	8.57×10^{-4} (1.21)
PT-2	1.82×10^{-2}	1.08×10^{-2}	1.30 (1,843)	2.50×10^{-5}	3.00×10^{-3} (4.25)

Notes:

[1] Maximum infiltration rates calculated in accordance with the NYCDEP Guidelines Appendix H based on lowest measured permeability coefficient (hydraulic conductivity) from laboratory testing or field infiltration tests.

[2] Mean hydraulic conductivity calculated based on the average of the three field infiltration tests performed at each location.

We understand that you will utilize these tests to evaluate options for stormwater management and that additional borings and tests may be required for final design. Based on our experience with similar stormwater management designs in New York City, we recommend considering an upper bound limit on the maximum infiltration rate equal to 3.0 inches per hour based on the upper bound infiltration rates for gravel referenced in the NYCDEP Appendix H.

GEOTECHNICAL ENGINEERING RECOMMENDATIONS

Our recommendations are based on our review of available conceptual plans, subsurface exploration results, and the findings of our exploration. Recommendations may require revisions if the scope of the proposed construction differs from that described herein or if additional information becomes available.

Shallow Foundations

The design scheme does not include below grade cellars, but foundations must bear at a minimum depth of 4 feet below the lowest adjacent exposed ground surface to protect against potential impacts from frost. Soils present at this depth are expected to consist of natural medium dense to dense sands, which are suitable for shallow foundation support. We recommend supporting the proposed buildings on shallow spread footings with an allowable bearing pressure of 4.0 tons per square foot. Allowable bearing pressures assume that the final subgrade is undisturbed and prepared in accordance with the subgrade preparation recommendations provided below. We estimate that settlement of foundations should be less than approximately 1 inch. Differential settlement across shallow foundations is estimated to be less than about ½-inch.

Based on the topographical survey used as the base plan on Figure 2, we note that several dry wells may be present at the site, generally within the asphalt pavement, and extending to depths up to about 20 feet. If drywells are present within foundation subgrades and are constructed of perforated concrete rings (or other shapes) and are hollow in the center then they should be cut to a minimum of 5 feet below the foundation subgrade and backfilled with granular structural fill meeting the backfill requirements described below or controlled low-strength material, such as flowable fill. If drywells are constructed of granular soils enveloped in geotextiles then they remain in place at foundation subgrades. Any migrated fines, construction debris, or garbage encountered at the bottom of the drywell should be removed prior to backfill placement.

We recommend a minimum footing dimension of 3 feet for isolated footings and a minimum width of 2 feet for continuous wall footings for shear considerations.

The recommended coefficient of friction for sliding resistance between concrete footings and the natural soils is provided in Table 1. Subgrades should be proof rolled and must be observed by a qualified geotechnical engineer prior to foundation construction.

Floor Slabs

Floor slabs can be constructed as slab-on-grade bearing on undisturbed sand or newly compacted granular fill. Compacted granular fill shall meet the gradation requirements and compaction requirements specified in Table 2 and 3, respectively. Floor slabs-on-grade should be designed using a unit modulus of subgrade reaction of 175 pounds per cubic inch (pci), referenced to a 1-foot by 1-foot square plate area. The recommended modulus value is contingent on subgrade preparation work being performed as described in the construction consideration section of this report. GZA should be informed if non-typical loading is placed on slabs-on-grade, including but not limited to, heavy point loads or vibratory loads.

Asphalt Pavement Design

We designed the proposed asphalt pavement in accordance with the "AMZL Delivery Stations Design Criteria" version 5.0 dated April 26, 2021 and the methodology presented in the AASHTO Guide for Design of Pavement Structures (AASHTO, 1993). Based on the design information provided by VHB, we considered passenger vehicles, delivery vans (gross weight of 12,000 lbs) and tractor trailers (gross weight of 75,000 lbs). We considered a CBR value of 10% in our design. Based on our analysis, we recommend the following pavement design:

Table 3: Asphalt Pavement

Layer	Designation	Thickness (inches)
Surface Course	Hot mix asphalt	6
Base Course	Aggregate base	6
Subbase	Sand	12

The gravel aggregate base course should be placed on the pavement subgrade after the subgrade has been prepared in accordance with the subgrade recommendations presented herein.

CONSTRUCTION CONSIDERATIONS

The proposed buildings are expected to be supported on shallow foundations and are not expected to require support of excavation.

Site and Subgrade Preparation

The areas within the footprint of the proposed improvement should be stripped of surface cover, topsoil, and tree stumps. The site shall then be excavated and graded where required up to within two feet of subgrade elevations using conventional hydraulic excavation equipment. If drywells are encountered below foundation subgrades, we recommend removal in accordance with the recommendations described in the shallow foundation section. Drywells encountered below slab-on-grades are not expected to be subject to large loads and can remain in place. Utilities, such as electrical lines for light poles, water utilities, and stormwater management piping should be expected during excavations.

Subsequent to stripping the site and excavating as described above, the final two feet of excavation to foundation subgrades shall be made using smooth edged excavating tools, such as a smooth-edged bucket or a toothed bucket with the teeth shielded with a metal plate. The final subgrade for footings and slab shall be proof rolled to provide a stable and firm consistency with a minimum of four passes of a vibratory walk behind drum roller or other large compaction equipment. If unsuitable material is encountered during proof rolling at subgrade levels or areas pump or weave during compaction then those materials should be undercut by a minimum of 12 inches and replaced with new compacted granular fill meeting the gradation and compaction requirements in table 5 and 6, respectively. If heavy foot traffic or prolonged subgrade exposure is expected, we recommend preserving subgrades with a 3-inch-thick mud mat consisting of lean concrete.

Subgrades should be free of standing water, debris, ice and protected from frost. If frozen soils are present at foundation subgrades, then they should be removed and replaced with new compacted granular fill.

Fill Material and Compaction

Fill material should consist of granular fill and/or sand-gravel fill that meets the gradation requirements outlined in Table 1. The fill should be compacted to at least 95 percent of its maximum dry density, as determined by the Modified Proctor Test (ASTM D1557). The recommended maximum loose lift thickness of fill and minimum number of passes of compaction equipment are presented in Table 2. We recommend performing at least one gradation and one moisture-density test per

each 100 cubic yards of fill imported to the site. Crushed stone, where used below proposed slabs, should be compacted to a firm, stable configuration, and should be wrapped all around in non-woven filter fabric, such as Mirafi 140N. Any excess soil should be reused at the site or disposed of off-site in accordance with any applicable local, State, and Federal regulations.

Re-use of Existing Material

If on-site excavated material meets the requirements of Table 1, it may be re-used as fill material. Based on the results of the laboratory testing, we anticipate that excavated on-site soils generally can be reused as granular/structural fill provided they are culled of organics, boulders, construction debris and other deleterious materials and can be adequately compacted. If shallow thin strata of fine-grained soils are encountered and desired to be re-used, then the Contractor shall combine the excavated fine-grained soil with granular soils either imported or excavated from the site until it meets the gradation requirements of Table 1. Fill should not contain particles greater than 3 inches and should be conditioned within 2 percent +/- of the optimum moisture content.

Temporary Groundwater Control

Based on our groundwater observations, excavations for foundation construction are not expected to encounter groundwater. Therefore, sustained temporary construction dewatering is not anticipated. However, the Contractor should be prepared to remove accumulated rainwater and runoff from local excavations during construction through the use of submersible pumps.

Excavation

The Owner and the Contractor should make themselves aware of and become familiar with applicable local, state, and federal safety regulations, including the current Occupational Safety and Health Administration (OSHA) Excavation and Trench Safety Standards. Construction site safety generally is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing this information solely as a service to our client. Under no circumstances should the information provided herein be interpreted to mean that GZA is assuming responsibility for construction site safety or the Contractor's activities, such responsibility is not being implied and shall not be inferred.

The Contractor should be aware that slope height, slope inclination, or excavation depth should in no case exceed those specified in local, state, or federal safety regulations, such as OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations. Such regulations are strictly enforced and, if they are not followed, the Owner, Contractor, and/or earthwork and utility subcontractors could be liable for substantial penalties.

A simple slope excavation (1.5 horizontal to 1.0 vertical) is likely to be practical at the Site. The resulting area of the slope will need to be backfilled after completion of foundation construction. It is recommended that all vehicles and soil piles be kept a minimum lateral distance from the crest of slopes equal to no less than the slope height. Exposed slope faces should also be protected against the elements.

As an alternative to temporary slopes, vertical excavations can be temporarily shored. The Contractor or the Contractor's specialty subcontractor would be responsible for the design of the temporary shoring in accordance with applicable regulatory requirements, but the recommendations of this report will serve as a minimum requirement.

CLOSING

We appreciate the opportunity to provide our services to you on this project. Should you have any questions, please contact us.

Very truly yours,
GZA GEOENVIRONMENTAL OF NEW YORK

Jimmy Cheung, P.E.
Project Manager

Cassandra A. Wetzel, P.E.
Vice President

Patrick D. Mahon, P.E.
Consultant Reviewer

Attachments: Table 4 – Recommended Use and Gradation Criteria for Fill Material
Table 5 – Suggested Compaction Methods
Figure 1 – Site Location Map
Figure 2 – Exploration Location Plan
Appendix A – Geotechnical Limitations
Appendix B – GZA Boring Logs
Appendix C – Infiltration Test Records
Appendix D – Selected CPT Plots
Appendix E – Laboratory Test Results

TABLES

Table 4: Recommended Use and Gradation Criteria for Fill Materials

USE OF FILL MATERIAL

Granular Fill: Below footings and slab base course, and 3 feet laterally behind walls provided that amount passing Sieve No. 200 is less than 8 percent.

Sand-Gravel: Slab base course and 3 feet laterally behind walls

Crushed Stone: Drain line backfill and foundation protective layer. Crushed stone should be wrapped in non-woven filter fabric.

GRADATION REQUIREMENTS

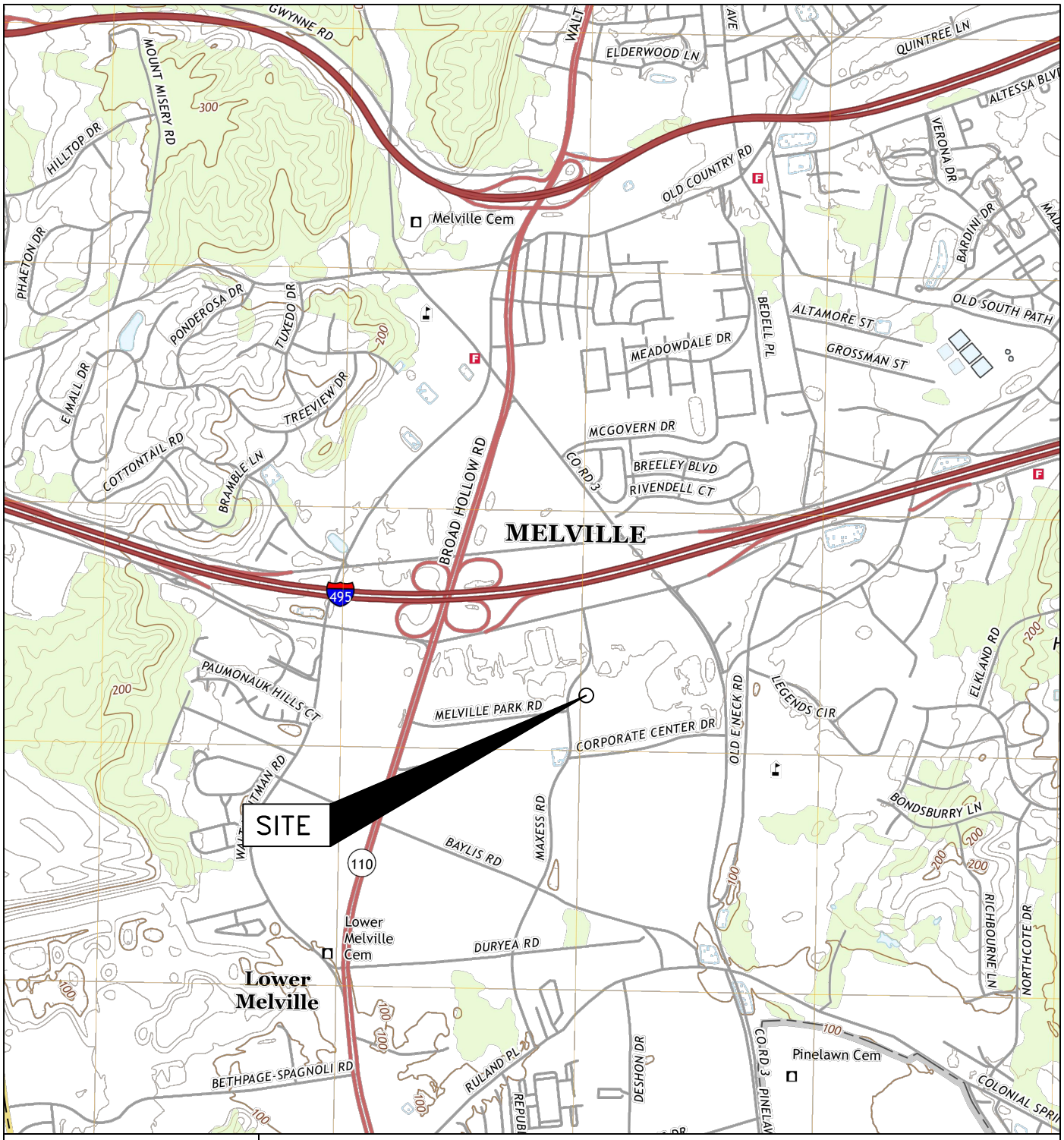
Sieve Size	Percent Finer by Weight
Granular Fill	Shall be free from ice and snow, roots, sod, rubbish and other deleterious or organic matter. Granular Fill shall conform to the following gradation requirements:
2/3 of the loose lift thickness	100
No. 10	30 – 95
No. 40	10 – 70
No. 200	*0 – 15 *0 – 8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

Table 5: Compaction Methods

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

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

FIGURES



NEW YORK

QUADRANGLE LOCATION

SOURCE:

USGS TOPOGRAPHIC MAPS: BROOKLYN, NEW YORK (2016). CONTOUR INTERVAL 10FT., NAVD-1988, ORIGINAL SCALE 1:24,000 (1IN.=2,000FT.).

N
W E
S

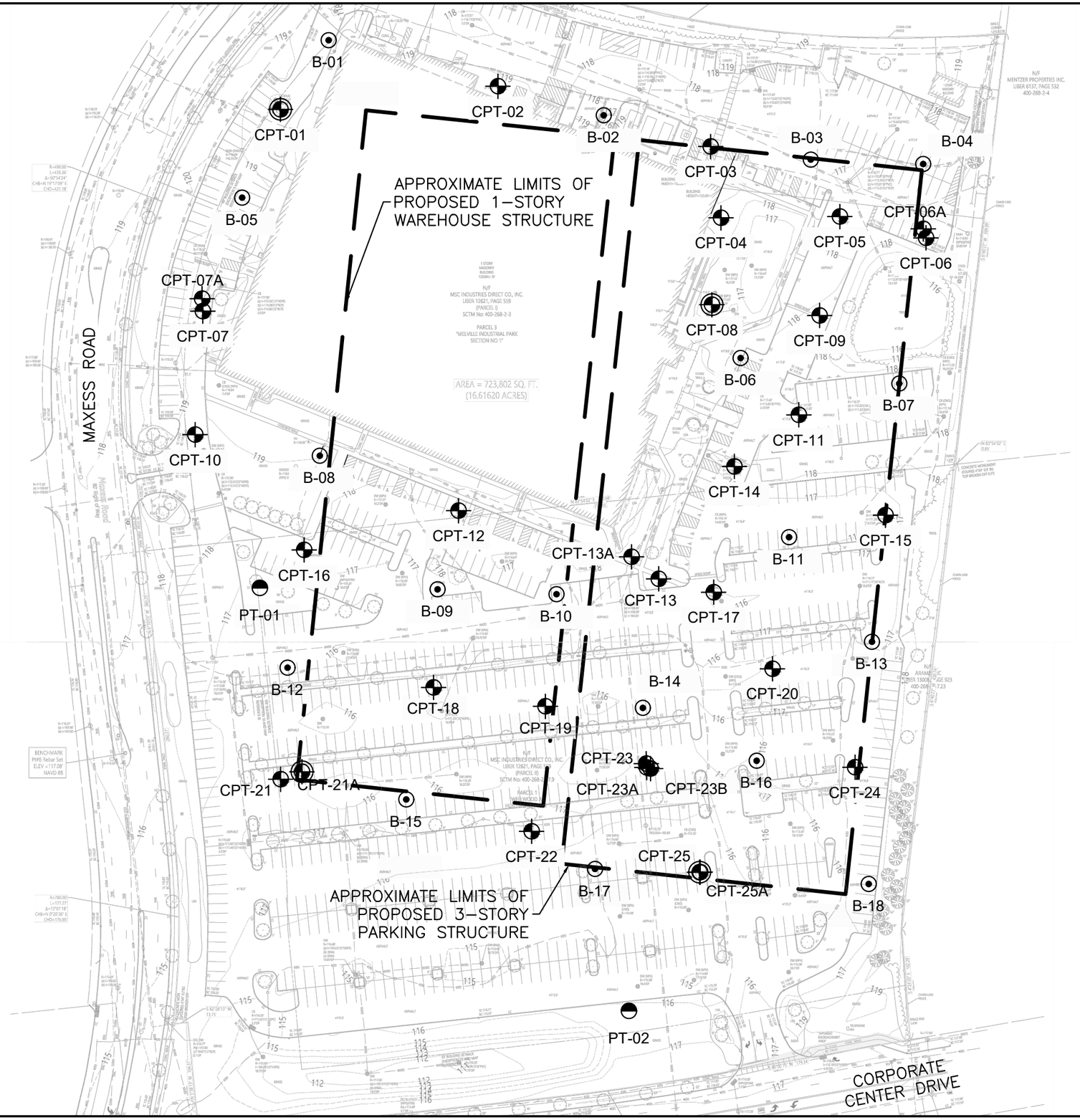
75 MAXES ROAD
MELVILLE, NEW YORK

PREPARED BY:
GZA GeoEnvironmental of NY
Engineers and Scientists
www.gza.com

PREPARED FOR:
STEEL EQUITIES

SITE LOCATION MAP

PROJ MGR: JC	REVIEWED BY: JC	CHECKED BY: CAW	FIGURE 1
DESIGNED BY: KB	DRAWN BY: KB	SCALE: 1"=2000'	
DATE: JULY 2021	PROJECT NO. 41.0162904.00	REVISION NO. -	SHEET NO. 1 OF 1



GENERAL NOTES

1. BASE MAP DEVELOPED FROM TOPOGRAPHIC SURVEY PERFORMED BY VHB ENGINEERING, SURVEYING, LANDSCAPE ARCHITECTURE AND GEOLOGY, P.C., DATED JANUARY 25, 2021.
2. PROPOSED BUILDING LIMITS ARE OBTAINED FROM DRAWING SB.1 PREPARED BY VHB ENGINEERING, SURVEYING, LANDSCAPE ARCHITECTURE, AND GEOLOGY, PC DATED MARCH, 2021.
3. EXPLORATION LOCATIONS WERE DETERMINED BY TAPE MEASUREMENTS FROM EXISTING TOPOGRAPHIC FEATURES BY GZA PERSONNEL.
4. THE PURPOSE OF THIS DRAWING IS TO PRESENT THE POSITION OF BORINGS, PIEZOMETERS, CONE PENETRATION PROBES, AND SEISMIC PIEZOCONES RELATIVE TO THE PROPOSED CONSTRUCTION. THIS DRAWING SIS NOT CONSIDERED A LAND SURVEY. THE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
5. ALL ELEVATIONS PRESENTED ARE IN FEET AND ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

LEGEND

- B-XX — APPROXIMATE BORING LOCATION
- CPT-XX — CONE PENETROMETER TEST (CPT) PROBE LOCATION
- CPT-XX — CONE PENETROMETER TEST (CPT) LOCATION WITH SEISMIC SHEAR WAVE TESTING
- PT-XX — INFILTRATION TEST LOCATION
- APPROX. LIMITS OF PROPOSED STRUCTURES

0 50 100 200
SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

75 MAXESS ROAD
MELVILLE, NEW YORK

EXPLORATION LOCATION PLAN

PREPARED BY:		PREPARED FOR:	
GZA GeoEnvironmental of NY Engineers and Scientists www.gza.com		STEEL EQUITIES	
PROJ MGR: JC	REVIEWED BY: JC	CHECKED BY: CAW	FIGURE 2
DESIGNED BY: ZSB	DRAWN BY: ZSB	SCALE: AS SHOWN	
DATE: AUGUST, 2021	PROJECT NO. 41.0162904.00	REVISION NO. 1	SHEET NO. 2 OF 2

APPENDIX A

GEOTECHNICAL LIMITATIONS

GEOTECHNICAL LIMITATIONS

Use of Report

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

Standard of Care

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

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

Subsurface Conditions

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

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

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

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

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

Compliance with Codes and Regulations

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

Additional Services

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

APPENDIX B

GZA BORING LOGS

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-01
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/15/2021 **Finish:** 7/15/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118.5
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	18	25 10 14 11	24	S-1: Medium dense, blackish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt, trace cinders.	1				
		S-2	2.0-4.0	24	5	12 7 7 4	14	S-2: Medium dense, blackish-brown, fine to coarse SAND, trace bricks, some fine to coarse Gravel, trace SIlt, trace cinders.				FILL	
5		S-3	4.0-6.0	24	NR	1 2 2 2	4	S-3: No recovery Soft, blackish-brown, Clayey SILT, little fine to coarse Sand, trace fine to coarse Gravel.	2		6		112.5
		S-4	6.0-8.0	24	16	5 7 13 14	20	S-4: Top 7": Soft, blackish-brown, Clayey SILT, little fine to coarse Sand, trace fine to coarse Gravel. Bottom 9": Yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
		S-5	8.0-10.0	24	8	6 9 10 13	19	S-5: Medium dense, yellowish-brown, fine to medium SAND, trace fine to coarse Gravel, trace Silt.					
10		S-6	10.0-12.0	24	7	15 15 16 16	31	S-6: Dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	7	14 11 15 14	26	S-7: Medium dense, yellow-brown, fine to coarse SAND, trace SIlt.					
20		S-8	20.0-22.0	24	5	9 9 10 18	19	S-8: Medium dense, yellow-brown, fine to coarse SAND, trace SIlt.			22		96.5
								End of exploration at 22 feet.	3				
25													
30													

REMARKS

1 - Casing was installed to 4 feet.
2 - No recovery on first attempt. Second attempt with 3"SS, REC=11"
3 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-01

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:03 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-02
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/15/2021 **Finish:** 7/15/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	7	27 10 10 11	20	S-1: Medium dense, gray, fine to coarse SAND, little fine Gravel, asphalt.					
		S-2	2.0-4.0	24	8	8 10 12 15	22	S-2: Medium dense, grayish-brown, fine to coarse Gravel, some fine to coarse Sand, trace cinders.	1			FILL	
											4		114.0
5		S-3	4.0-6.0	24	9	40 10 15 17	25	S-3: Medium dense, brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.					
		S-4	6.0-8.0	24	9	24 27 31 30	58	S-4: Very dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace SIlt.					
		S-5	8.0-10.0	24	7	14 21 20 18	41	S-5: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.					
10		S-6	10.0-12.0	24	10	25 23 19 20	42	S-6: Dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	7	15 14 17 12	31	S-7: Dense, yellowish brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.	2				
20		S-8	20.0-22.0	24	18	18 18 17 17	35	S-8: Dense, yellowish-brown, fine to coarse Gravel, little fine to coarse Sand, trace Silt.	3		22		96.0
								End of exploration at 22 feet.	4				
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - Rig chatter from 18-20 feet.
3 - No recovery on first attempt. Second attempt with 3" SS, REC = 18".
4 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-02

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-03
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/15/2021 **Finish:** 7/15/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	17	25 16 12 12	28	S-1: Medium dense, dark brown, fine to coarse SAND, little fine to Gravel, trace Silt, trace asphalt, cinders.				FILL	
		S-2	2.0-4.0	24	14	8 6 10 10	16	S-2: Medium dense, grayish-brown, fine to coarse SAND, some Clayey Silt, trace fine Gravel.	1		4		114.0
5		S-3	4.0-6.0	24	11	20 25 28 22	53	S-3: Very dense, yellowish-brown, fine to coarse SAND and fine to coarse Gravel, trace Silt.					
		S-4	6.0-8.0	24	8	22 16 22 16	38	S-4: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.					
		S-5	8.0-10.0	24	8	8 13 14 15	27	S-5: Medium dense, yellowish-brown, fine to coarse SAND, trace coarse to fine Gravel, trace Silt.					
10		S-6	10.0-12.0	24	10	17 19 22 22	41	S-6: Dense, yellowish-brown, fient o coarse SAND, little fine Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	6	8 9 11 13	20	S-7: Medium dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.	2				
20		S-8	20.0-22.0	24	NR	14 16 24 23	40	S-8: Dense, yellowish-brown, fine to coarse GRAVEL, some fine to coarse Sand, trace Silt.	3		22		96.0
								End of exploration at 22 feet.	4				
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - Rig chatter from 18-20 feet.
3 - No recovery on first attempt. Second attempt with 3" SS, REC = 16".
4 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-03

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-04
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/15/2021 **Finish:** 7/15/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118.5
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	9	30 14 14 18	28	S-1: Medium dense, black-brown, fine to coarse Sand, some asphalt, little fine to coarse Gravel, trace Silt.					
		S-2	2.0-4.0	24	3	7 4 10 11	14	S-2: Medium dense, black-brown, fine to coarse Gravel, little fine to coarse Sand, trace cinders.	1			FILL	
											4		114.5
5		S-3	4.0-6.0	24	10	21 22 21 25	43	S-3: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
		S-4	6.0-8.0	24	10	22 27 25 20	52	S-4: Very dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
		S-5	8.0-10.0	24	8	10 12 13 10	25	S-5: Medium dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
10		S-6	10.0-12.0	24	9	16 16 18 22	34	S-6: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	NR	17 16 18 16	34	S-7: No recovery	2				
20		S-8	20.0-22.0	24	12	10 10 14 24	24	S-8: Medium dense, yellowish-brown, fine to coarse GRAVEL, some fine to coarse Gravel, trace Silt.	3		22		96.5
								End of exploration at 22 feet.	4				
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - No recovery on first attempt. Second attempt with 3" SS, REC = 0".
3 - No recovery on first attempt. Second attempt with 3" SS, REC = 12".
4 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-04

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:03 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-05
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/14/2021 **Finish:** 7/14/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +119.5
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	16	23 23 9 13	32	S-1: Dense, dark brown, fine to coarse SAND, some fine Gravel, little Silt, trace cinders and asphalt.				FILL	
		S-2	2.0-4.0	24	18	14 16 23 24	39	S-2: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt, trace cinders.	1		4		115.5
5		S-3	4.0-6.0	24	7	10 21 25 23	46	S-3: Dense, light brown, fine to coarse SAND, some fine Gravel, trace Silt.					
		S-4	6.0-8.0	24	10	29 24 26 25	50	S-4: Very dense, light brown, fine to coarse SAND, some fine Gravel, trace Silt.					
		S-5	8.0-10.0	24	4	7 12 20 21	32	S-5: Dense, yellowish-brown, fine to coarse SAND, some fine Gravel, trace Silt.					
10		S-6	10.0-12.0	24	12	20 20 21 21	41	S-6: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	6	7 10 11 12	21	S-7: Medium dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.					
20		S-8	20.0-22.0	24	6	9 16 17 16	33	S-8: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.			22		97.5
								End of exploration at 22 feet.	2				
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-05

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:03 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-06
SHEET: 1 of 4
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/7/2021 **Finish:** 7/7/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118
Final Boring Depth (ft.): 102

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Measured		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	12	8 11 10 16	21	S-1: Medium dense, dark brown, fine to coarse GRAVEL and coarse to fine Sand, trace Silt, asphalt.				FILL	
		S-2	2.0-4.0	24	13	2 3 10 10	13	S-2: Medium dense, grayish brown, fine to coarse GRAVEL, some SIlt, little fine to coarse Sand.			2		116.0
5		S-3	4.0-6.0	24	16	10 14 18 17	32	S-3: Dense, light brown, fine to coarse GRAVEL and fine to coarse Sand, trace Silt.					
		S-4	6.0-8.0	24	12	23 15 11 9	26	S-4: Medium dense, light brown, fine to coarse GRAVEL and fine to coarse Sand, trace Silt.					
		S-5	8.0-10.0	24	16	21 17 22 16	39	S-5: Dense, light brown, fine to coarse SAND, little fine gravel, trace Silt.					
10		S-6	10.0-12.0	24	10	14 19 22 19	41	S-6: Dense, light brown, fine to coarse SAND, little fine gravel, trace Silt.					
15		S-7	15.0-17.0	24	13	8 11 13 13	24	S-7: Medium dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.	1			SAND	
20		S-8	20.0-22.0	24	0	12 12 10 9	22	S-8: No recovery. Gravel at tip of spoon.					
25		S-9	25.0-27.0	24	13	10 10 12 16	22	S-9: Top 6": Light brown, fine to coarse GRAVEL, trace Sand. Bottom 9": Light brown, fine to medium SAND, little Gravel, trace Silt.	2				
30											30		88.0

REMARKS

1 - Casing installed to 15 feet.
2 - Rig chatter from approximately 27 to 29 feet.

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

Exploration No.: B-06

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-06
SHEET: 2 of 4
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/7/2021 **Finish:** 7/7/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118
Final Boring Depth (ft.): 102

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Measured		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-10	30.0-32.0	24	9	9 10 10 10	20	S-10: Medium dense, light brown, fine to coarse SAND, little fine Gravel, trace Sand.					
35		S-11	35.0-37.0	24	10	7 12 13 12	25	S-11: Medium dense, light brown, fine to coarse SAND and fine to coarse Gravel, trace Silt.	3				
40		S-12	40.0-42.0	24	12	7 10 15 16	25	S-12: Medium dense, light brown, fine to coarse SAND, little fine Gravel, trace Silt.					
45		S-13	45.0-47.0	24	15	12 16 18 21	34	S-13: Dense, light brown, fine to coarse SAND and GRAVEL, trace Silt.	4			SAND	
50		S-14	50.0-52.0	24	7	10 9 9 6	18	S-14: Medium dense, light brown GRAVEL, little fine to coarse Sand, trace Silt.					
55		S-15	55.0-57.0	24	10	6 5 4 4	9	S-15: Loose, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
60											60		58.0

REMARKS

3 - Rig chatter from approximately 38 to 40 feet.
4 - Rig chatter from approximately 47 to 50 feet.

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

Exploration No.: B-06

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-06
SHEET: 3 of 4
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/7/2021 **Finish:** 7/7/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118
Final Boring Depth (ft.): 102

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)			
Date	**Time**	**Water Depth**	**Stab. Time**
Not	Measured		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-16	60.0-62.0	24	10	6 6 8 4	14	S-16: Medium dense, light brown, fine to coarse SAND, little fine Gravel, trace Silt.					
65		S-17	65.0-67.0	24	7	7 5 4 4	9	S-17: Loose, light brown, fine to coarse SAND, some Gravel, trace Silt.					
70		S-18	70.0-72.0	24		8 4 4 3	8	S-18: Loose, light brown, fine to coarse SAND, some Gravel, trace Silt.				SAND	
75		S-19	75.0-77.0	24	14	10 16 20 16	36	S-19: Dense, yellowish-brown, fine to medium SAND, trace silt.			78.5		39.5
80		S-20	80.0-82.0	24	24	6 9 13 15	22	S-20: Very stiff, brown SILTY CLAY, trace fine Sand.				CLAY	
85		S-21	85.0-87.0	24	23	16 23 30 22	53	S-21: Hard, dark gray SILTY CLAY, trace fine Sand.					
90													

REMARKS

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

Exploration No.: B-06

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-06
SHEET: 4 of 4
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/7/2021 **Finish:** 7/7/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118
Final Boring Depth (ft.): 102

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)			
Date	**Time**	**Water Depth**	**Stab. Time**
Not	Measured		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-22	90.0-92.0	24	24	9 13 17 16	30	S-22: Very stiff, dark gray SILT and CLAY, trace fine Sand.				CLAY	
											93.5		24.5
95		S-23	95.0-97.0	24	12	8 6 11 9	17	S-23: Medium dense, yellowish-brown, fine to medium SAND, trace Silt.				SAND	
100		S-24	100.0-102.0			40 42 45 51	87	S-24: Very dense, yellowish-brown, fine to medium SAND, trace Silt.					
											102		16.0
								End of exploration at 102 feet.	5				
105													
110													
115													
120													

REMARKS

5 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-06

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:03 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-07
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/15/2021 **Finish:** 7/15/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118.5
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	17	20 11 7 13	18	S-1: Medium dense, brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt, trace cinders.				FILL	
		S-2	2.0-4.0	24	17	8 10 17 24	27	S-2: Medium dense, brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt, trace cinders.			4		114.5
5		S-3	4.0-6.0	24	8	13 19 24 20	43	S-3: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.	1				
		S-4	6.0-8.0	24	12	23 28 30 24	58	S-4: Very dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.					
		S-5	8.0-10.0	24	3	8 18 17 15	35	S-5: Dense, yellowish-brown, fine to coarse GRAVEL, some fine to coarse Sand, little Silt.					
10		S-6	10.0-12.0	24	11	17 21 21 28	42	S-6: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	5	10 14 11 12	25	S-7: Medium dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt					
20		S-8	20.0-22.0	24	6	11 11 12 12	23	S-8: Medium dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt			22		96.5
								End of exploration at 22 feet.	2				
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-07

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:03 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-08
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/8/2021 **Finish:** 7/8/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +119
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
7/8/21	9:50am	1.0	During Drilling
7/8/21	1:35pm	3.8	

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	16	2 6 8 4	14	S-1: Medium dense, brown, fine to coarse SAND, little fine Gravel, trace Silt, grass, roots.					
		S-2	2.0-4.0	24	11	6 4 2 2	6	S-2: Loose, brown, fine to coarse SAND, little fine Gravel, trace Silt.	1				
5		S-3	4.0-6.0	24	6	WH WH WH WH	0	S-3: Very loose, brown, fine to coarse SAND, little fine Gravel, little Silt.				FILL	
		S-4	6.0-8.0	24	7	2 2 6 6	8	S-4: Loose, light brown, fine to coarse SAND, some fine to coarse Gravel, little Silt			8		111.0
		S-5	8.0-10.0	24	7	6 8 7 5	15	S-5: Medium dense, brown, fine to coarse SAND, little fine Gravel, trace Silt.					
10		S-6	10.0-12.0	24	12	6 10 31 28	41	S-6: Dense, brown, fine to coarse SAND, little fine Gravel, trace Silt.					
15		S-7	15.0-17.0	24	12	13 35 45 52	80	S-7: Very dense, yellowish brown, fient o coarse SAND, little fine Gravel, trace Silt.				SAND	
20		S-8	20.0-22.0	24	6	8 10 14 14	24	S-8: Medium dense, brown, fine to coarse SAND, little fine Gravel, trace Silt.			22		97.0
								End of exploration at 22 feet.	2				
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-08

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:04 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-09
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/8/2021 **Finish:** 7/8/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +117.5
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	17	5 10 21 17	31	S-1: Dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt, trace roots, glass, rubber.				FILL	
		S-2	2.0-4.0	24	12	14 30 40 30	70	S-2: Very dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.	1		2		115.5
5		S-3	4.0-6.0	24	12	8 16 16 24	32	S-3: Dense, brown, fine to coarse SAND, little fine Gravel, trace Silt.					
		S-4	6.0-8.0	24	18	37 30 27 30	57	S-4: Very dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.					
		S-5	8.0-10.0	24	8	11 16 16 11	32	S-5: Dense, yellowish-brown, fine to coarse SAND, some fine Gravel, trace Silt.					
10		S-6	10.0-12.0	24	7	22 18 22 17	40	S-6: Dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	7	9 15 16 15	31	S-7: Dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
20		S-8	20.0-22.0	24	12	10 13 17 12	30	S-8: Dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.	2		22		95.5
								End of exploration at 22 feet.					
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-09

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:04 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-10
SHEET: 1 of 6
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/13/2021 **Finish:** 7/13/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +117.5
Final Boring Depth (ft.): 102

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Refer	to	Piezometer	Record

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	12	11 8 10 19	18	S-1: Medium dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt, trace asphalt and cinders.				FILL	
		S-2	2.0-4.0	24	14	10 18 21 17	39	S-2: Dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt, trace cinders.			4		113.5
5		S-3	4.0-6.0	24	10	10 18 21 23	39	S-3: Dense, brown, fine to coarse SAND, little fine Gravel, trace Silt.					
		S-4	6.0-8.0	24	15	21 23 23 20	46	S-4: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
		S-5	8.0-10.0	24	5	7 11 13 11	24	S-5: Medium dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.					
10		S-6	10.0-12.0	24	8	10 17 16 16	33	S-6: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
15		S-7	15.0-17.0	24	4	13 12 11 11	23	S-7: Medium dense, light brown, fine to coarse SAND, little fine Gravel, trace Silt.				SAND	
20		S-8	20.0-22.0	24	5	12 9 13 12	22	S-8: Medium dense, light brown, fine to coarse SAND< little fine Gravel, trace Silt.	1				
25		S-9	25.0-27.0	24	5	11 11 13 15	24	S-9: Medium dense, light brown, fine to coarse SAND, little fine Gravel, trace Silt.	2				
30									3				

REMARKS

1 - Casing installed to 4 feet.
2 - Rig chatter from 20-25 feet.
3 - Rig chatter from 29-30 feet.

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

Exploration No.: B-10

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-10
SHEET: 2 of 6
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/13/2021 **Finish:** 7/13/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +117.5
Final Boring Depth (ft.): 102

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Refer	to	Piezometer	Record

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-10	30.0-32.0	24	7	10 10 14 11	24	S-10: Medium dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.					
35		S-11	35.0-37.0	24	6	7 7 8 7	15	S-11: Medium dense, brown, fine to medium SAND, trace fine Gravel, trace SIlt.					
40		S-12	40.0-42.0	24	7	7 8 10 11	18	S-12: Medium dense, brown, fine to coarse SAND, little fine Gravel, trace Silt.					
45		S-13	45.0-47.0	24	6	16 13 20 17	33	S-13: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.				SAND	
50		S-14	50.0-52.0	24	6	7 5 6 6	11	S-14: Medium dense, brown, fine to coarse SAND, little fine Gravel, trace Silt.	4				
55		S-15	55.0-57.0	24	7	6 5 6 6	11	S-15: Medium dense, brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.					
60													

REMARKS

4 - Soil sample appear wet based on visual observations of sample moisture content.

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

Exploration No.: B-10

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-10
SHEET: 3 of 6
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/13/2021 **Finish:** 7/13/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +117.5
Final Boring Depth (ft.): 102

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Refer	to	Piezometer	Record

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-16	60.0-62.0	24	5	4 5 6 4	11	S-16: Medium dense, brown, fine to coarse SAND, little fine Gravel, trace Silt.					
65		S-17	65.0-67.0	24	4	7 5 7 5	12	S-17: Medium dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
70		S-18	70.0-72.0	24	NR	6 4 2 3	6	S-18: No recovery.	5				
75		S-19	75.0-77.0	24	17	15 18 30 30	48	S-19: Dense, grayish-brown, fine to medium SAND, little Silt.				SAND	
80		S-20	80.0-82.0	24	16	29 32 38 36	70	S-20: Very dense, red-brown, fine to medium SAND, trace Silt.					
85		S-21	85.0-87.0	24	16	26 35 42 41	77	S-21: Very dense, grayish-brown, fine to medium SAND, trace Silt.					
90													

REMARKS

5 - Gravel lodged in tip of spoon. No recovery on first attempt. Second attempt with 3" SS, REC= 0".

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

Exploration No.: B-10

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-10
SHEET: 4 of 6
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/13/2021 **Finish:** 7/13/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +117.5
Final Boring Depth (ft.): 102

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)			
Date	**Time**	**Water Depth**	**Stab. Time**
Refer	to	Piezometer	Record

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-22	90.0-92.0	24	18	44 56 55 54	>100	S-22: Very dense, grayish-brown, fine to Medium SAND, trace Silt.					
95		S-23	95.0-97.0	24	14	34 49 57 72	>100	S-23: Very dense, grayish-brown, fine to medium SAND, trace Silt.				SAND	
100		S-24	100.0-102.0	24	10	40 60 63 60	>100	S-24: Very dense, grayish-brown, fine to medium SAND, trace Silt.			102		15.5
								End of exploration at 102 feet.	6				
105													
110													
115													
120													

REMARKS

6 - Piezometer well installed up to 60 feet with 10 ft screen.

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

Exploration No.: B-10

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:04 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

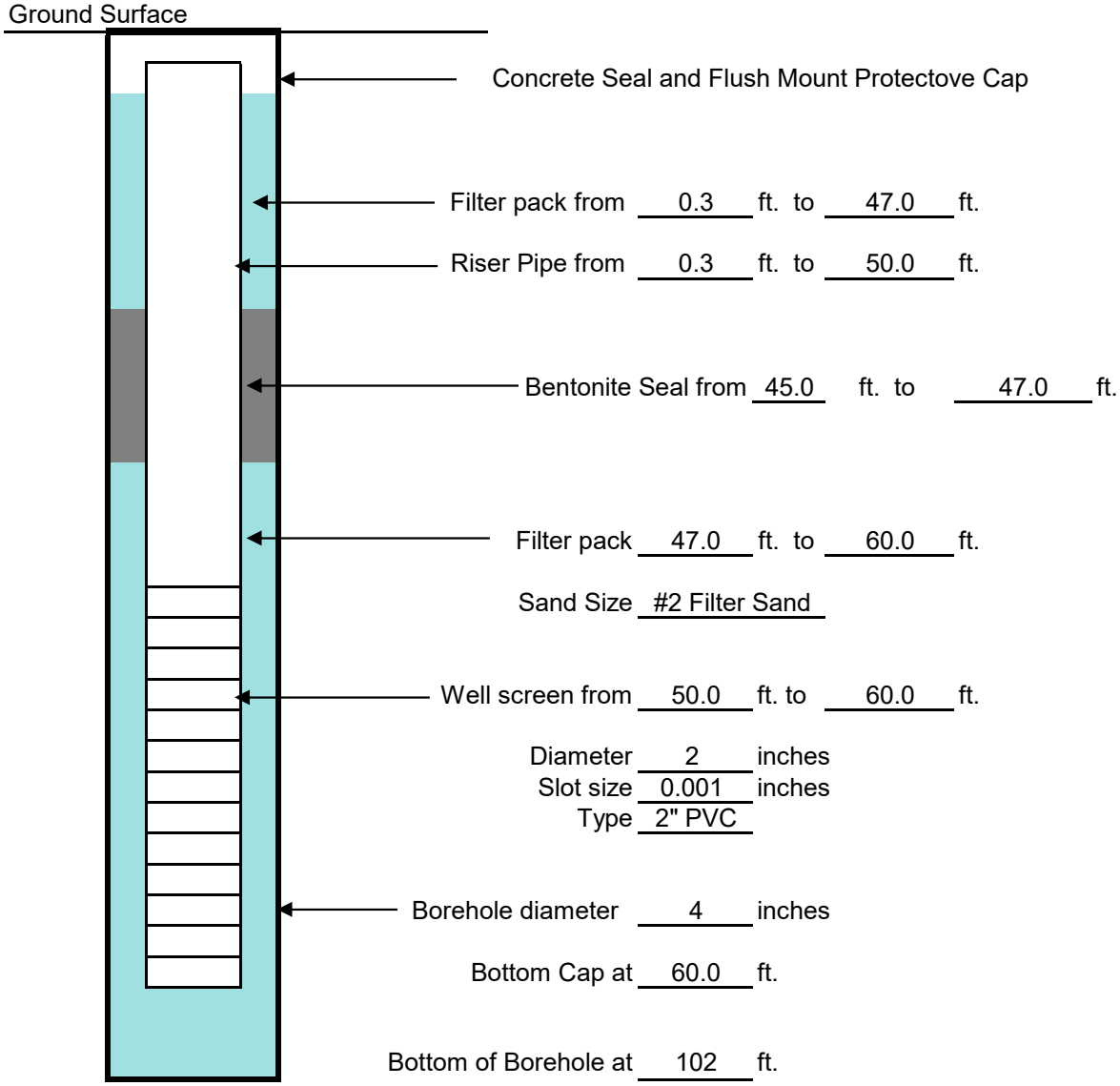
TEMPORARY GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK 104 WEST 29TH STREET, 10TH FLOOR NEW YORK, NEW YORK 10001 GEOTECHNICAL CONSULTANTS	**Proj. Name:** 75 Maxess Road **Location:** 75 Maxess Road Melville, NY	WELL NO. B-10 SHEET 5 OF 6 GZA PROJECT NO. 41.0162904.00 PROJECT LOCATION See Plan

CONTRACTOR	Craig Test Boring Co., Inc	BORING LOCATION	See Plan
		GROUND SURFACE EL. (FT)	+7.0'
FOREMAN	D. Cooke	DATUM	NAVD 88
GZA ENG.	KB	DATE INSTALLED	7/13/21

WATER LEVELS

DATE	TIME	DEPTH (FT)
7/13/2021	4:30:00 PM	17.6
7/14/2021	7:00:00 AM	37.6
7/14/2021	2:54:00 PM	41.7
7/15/2021	4:45:00 PM	45.2

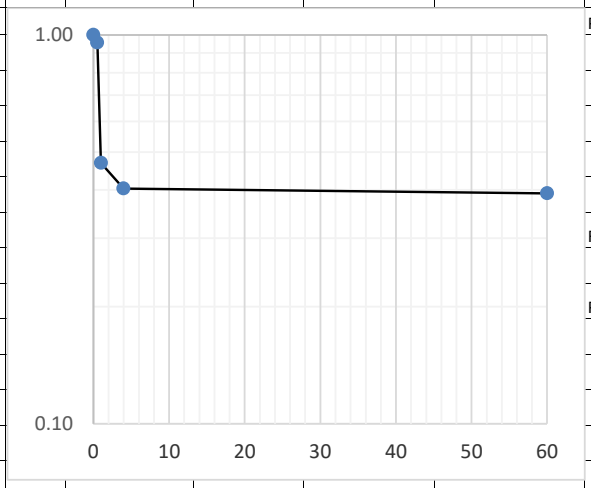


(NOT TO SCALE)

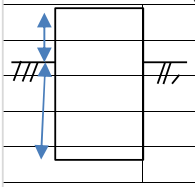
VARIABLE HEAD TEST LOG

GZA GeoEnvironmental of New York	Client:	Steel Equities		BORING NO.	B-10
104 West 29th St, 10th FLOOR	Project:	75 Maxess Rd		SHEET	6 OF 6
NEW YORK, NEW YORK 10001	City, State:	Melville, NY		GZA PROJECT NO.	41.0162904
				PREPARED BY:	KB

BORING COORDINATES	N:	N/A	E:	N/A		DATUM (S)	N/A
GROUND SURFACE EL.(FT)	117.5					DATUM (S)	NAVD 88
DATE START/FINISH	7/13/21 - 7/13/21						



Performed in a cased boring: ☐

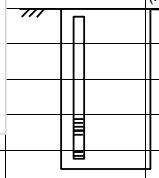


Depth to casing bottom (ft):
Length of stick-up (ft):
Total casing length (ft):
Casing I.D. (in):

Reference Source: NYS Stormwater Management Design Manual - Appendix D

Performed in an open-standpipe piezometer: ■

(Refer to piezometer record for construction details)



Depth to bottom of screen (ft):	59.7
Depth to top of top of screen (ft):	49.7
Length of intake (ft):	10
Diameter of well (in):	4

Reference Source:

TEST DATA

■ FALLING HEAD TEST

☐ RISING HEAD TEST

z_{static} = Depth to groundwater (feet): 45.2

z_0 = HYDROSTATIC HEAD ABOVE GROUNDWATER LEVEL (FT):

z_0 = DEPTH BAILED BELOW GROUDNWATER LEVEL (FT):

(measurement relative to ground surface)

DATE	TIME	ΔTIME (MINS)	DEPTH TO WATER BELOW RIM (FT) z_t	INITIAL Δ IN HEAD $H_0 = \lvert z_0 - z_{static} \rvert$	UNBALANCED HEAD $H_t = \lvert z_t - z_{static} \rvert$	HEAD RATIO H_t/H_o	COMMENTS
	2:26	STATIC	45.2		-	-	STATIC WATER
	2:26	0	0	45.20	45.2	1.00	LEVEL
	2:26	0.5	2		43.2	0.96	
	2:27	1	24		21.2	0.47	
	2:30	4	27		18.2	0.40	
	3:30	60	27.5		17.7	0.39	
	4:30	120	28		17.2	0.38	

GRANULAR SOILS BLOWS/FT	DENSITY	COHESIVE SOILS BLOWS/FT	CONSISTENCY
0-4	VERY LOOSE	<2	VERY SOFT
4-10	LOOSE	2-4	SOFT
10-30	MEDIUM DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	VERY DENSE	15-30	V. STIFF
		>30	HARD

REMARKS:

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-11
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/14/2021 **Finish:** 7/14/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +116.5
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	14	38 17 13 7	30	S-1: Dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt, trace cinders, trace asphalt.					
		S-2	2.0-4.0	24	18	8 13 24 16	37	S-2: Grayish-brown, fine to coarse SAND, little fine Gravel, trace Silt.	1			FILL	
											4		112.5
5		S-3	4.0-6.0	24	6	14 15 18 20	33	S-3: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.					
		S-4	6.0-8.0	24	5	20 22 26 23	48	S-4: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.					
		S-5	8.0-10.0	24	8	9 11 14 14	25	S-5: Dense, yellowish-brown, fine to coarse SAND, trace fine Gravel, trace Silt.					
10		S-6	10.0-12.0	24	12	18 20 23 24	43	S-6: Dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	4	10 12 12 11	24	S-7: Medium dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace SIlt.					
20		S-8	20.0-22.0	24	6	9 13 17 15	30	S-8: Dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.			22		94.5
								End of exploration at 22 feet.	2				
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-11

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:04 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-12
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/8/2021 **Finish:** 7/8/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +116.5
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	15	28 11 20 14	31	S-1: Dense, brown, fine to coarse GRAVEL and fine to coarse SAND, trace asphalt.				FILL	
		S-2	2.0-4.0	24	16	25 17 24 20	41	S-2: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.	1		2		114.5
5		S-3	4.0-6.0	24	12	15 16 16 25	32	S-3: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
		S-4	6.0-8.0	24	16	28 20 27 21	47	S-4: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
		S-5	8.0-10.0	24	8	8 11 12 11	23	S-5: Medium dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
10		S-6	10.0-12.0	24	8	19 21 16 13	37	S-6: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	8	12 18 16 16	34	S-7: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
20		S-8	20.0-22.0	24	9	13 21 20 13	41	S-8: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.			22		94.5
								End of exploration at 22 feet.	2				
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-12

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:04 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-13
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/14/2021 **Finish:** 7/14/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	14	29 12 12 14	24	S-1: Medium dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt, trace asphalt and cinders.				FILL	
		S-2	2.0-4.0	24	15	15 13 15 16	28	S-2: Medium dense, yellowish-brown, fine to coarse SAND, little coarse to fine Gravel, trace Silt.	1		2		116.0
5		S-3	4.0-6.0	24	6	8 20 20 22	40	S-3: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.					
		S-4	6.0-8.0	24	5	16 15 18 19	33	S-4: Dense, yellowish-brown, brown, fine to coarse SAND, little fine Gravel, trace Silt.					
		S-5	8.0-10.0	24	4	9 15 13 12	28	S-5: Medium dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
10		S-6	10.0-12.0	24	5	14 10 12 13	22	S-6: Medium dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	6	12 13 12 15	25	S-7: Medium dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.					
20		S-8	20.0-22.0	24	7	10 10 10 12	20	S-8: Medium dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.					
								End of exploration at 22 feet.	2		22		96.0
25													
30													

REMARKS

1 - Casing installed to 4 ft.
2 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-13

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:04 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-14
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/14/2021 **Finish:** 7/14/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +116
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	17	11 8 8 5	16	S-1: Medium dense, brown, fine to coarse SAND, little fine Gravel, little Silt, trace cinders, asphalt and brick.				FILL	
		S-2	2.0-4.0	24	12	6 6 7 6	13	S-2: Medium dense, yellowish-brown, fine to coarse SAND, little fine Gravel, little Silt, trace cinders.	1		4		112.0
5		S-3	4.0-6.0	24	2	3 4 3 3	7	S-3: Loose, yellowish-brown, fine to coarse SAND and fine Gravel, some Silt.					
		S-4	6.0-8.0	24	NR	3 2 2 3	4	S-4: Yellowish-brown, fine to coarse GRAVEL, little fine to coarse Sand, little Silt.	2				
		S-5	8.0-10.0	24	NR	5 9 11 11	20	S-5: Yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.	3				
10		S-6	10.0-12.0	24	8	14 12 18 14	30	S-6: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	8	11 13 12 10	25	S-7: Medium dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
20		S-8	20.0-22.0	24	7	12 12 11 10	23	S-8: Medium dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.			22		94.0
								End of exploration at 22 feet.	4				
25													
30													

REMARKS

1 - Installed casing up to 4 feet.
2 - No recovery on first attempt. Second attempt with 3" SS, REC= 4".
3 - No recovery on first attempt. Second attempt with 3" SS, REC= 6".
4 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-14

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-15
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/8/2021 **Finish:** 7/8/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +116
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	19	12 11 16 14	27	S-1: Medium dense, grayish-brown, fine to coarse SAND, little fine Gravel, trace Silt, asphalt, cinders.					
		S-2	2.0-4.0	24	13	11 8 8 7	16	S-2: Medium dense, brown, fine to coarse SAND, little fine Gravel, trace Silt, cinders.				FILL	
5		S-3	4.0-6.0	24	7	3 4 4 2	8	S-3: Loose, brown, fine to coarse SAND, little fine Gravel, trace Silt.			6		110.0
		S-4	6.0-8.0	24	12	11 16 19 13	35	S-4: Dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
		S-5	8.0-10.0	24	7	9 12 14 11	26	S-5: Medium dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.	1				
10		S-6	10.0-12.0	24	10	12 16 17 13	33	S-6: Dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	7	10 9 9 7	18	S-7: Medium dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
20		S-8	20.0-22.0	24	6	12 10 12 16	22	S-8: Medium dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.	2		22		94.0
								End of exploration at 22 feet.					
25													
30													

REMARKS

1 - Casing installed to 9 feet.
2 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-15

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:04 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-16
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/8/2021 **Finish:** 7/8/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +116
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	17	10 8 6 9	14	S-1: Medium dense, brown, fine to coarse SAND and fine to coarse Gravel, trace SIlt, trace asphalt and cinders.				FILL	
		S-2	2.0-4.0	24	17	17 16 20 19	36	S-2: Dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.	1		2		114.0
5		S-3	4.0-6.0	24	7	15 19 20 22	39	S-3: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
		S-4	6.0-8.0	24	7	19 21 23 20	44	S-4: Dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.					
		S-5	8.0-10.0	24	2	10 12 14 12	26	S-5: Medium dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.					
10		S-6	10.0-12.0	24	12	18 17 18 14	35	S-6: Dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	10	8 16 19 17	35	S-7: Dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.					
20		S-8	20.0-22.0	24	NR	7 12 13 14	25	S-8: Brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.	2		22		94.0
								End of exploration at 22 feet.	3				
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - No recovery on first attempt. Second attempt with 3" SS, REC= 12".
3 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-16

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-17
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/14/2021 **Finish:** 7/14/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +116
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	14	12 9 6 4	15	S-1: Medium dense, dark brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt, asphalt, cinders.				FILL	
		S-2	2.0-4.0	24	14	6 4 3 6	7	S-2: Top 5": Yellowish-brown, fine to coarse SAND, trace Gravel, trace Silt, trace cinders. Bottom 9": Grayish-brown, Clayey SILT, little fine Sand.	1				
											4		112.0
5		S-3	4.0-6.0	24	4	15 21 29 25	50	S-3: Very dense, light brown, fine to coarse GRAVEL, some fine to coarse Sand, trace Silt.					
		S-4	6.0-8.0	24	11	29 30 29 31	59	S-4: Very dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.					
		S-5	8.0-10.0	24	6	9 18 15 16	33	S-5: Dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.					
10		S-6	10.0-12.0	24	5	10 15 20 16	35	S-6: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	5	9 13 20 19	33	S-7: Dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.					
20		S-8	20.0-22.0	24	3	14 18 19 17	37	S-8: Dense, yellowish-brown, fine to coarse SAND and fine to coarse Gravel, trace Silt.					
											22		94.0
								End of exploration at 22 feet.	2				
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-17

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:04 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: B-18
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/14/2021 **Finish:** 7/14/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +116
Final Boring Depth (ft.): 22

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
Not	Encountered		

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	14	14 14 12 9	26	S-1: Medium dense, dark brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt, trace cinders, trace grass.				FILL	
		S-2	2.0-4.0	24	14	16 22 16 25	38	S-2: Dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt, trace cinders.	1		4		112.0
5		S-3	4.0-6.0	24	6	17 23 27 39	50	S-3: Very dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
		S-4	6.0-8.0	24	6	28 29 30 24	59	S-4: Very dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
		S-5	8.0-10.0	24	7	6 10 17 13	27	S-5: Medium dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace silt.					
10		S-6	10.0-12.0	24	5	18 20 20 18	40	S-6: Dense,yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.				SAND	
15		S-7	15.0-17.0	24	4	10 17 17 20	34	S-7: Dense, yellowish-brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
20		S-8	20.0-22.0	24	5	9 9 11 14	20	S-8: Medium dense, yellowish-brown, fine to coarse SAND, some fine Gravel, trace Silt.			22		94.0
								End of exploration at 22 feet.	2				
25													
30													

REMARKS

1 - Casing installed to 4 feet.
2 - Borehole was backfilled with soil cuttings, bentonite and cold patch.

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

Exploration No.: B-18

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:04 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

APPENDIX C

INFILTRATION TEST RECORDS

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: PT-01
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/13/2021 **Finish:** 7/13/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118
Final Boring Depth (ft.): 10

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	18	8 11 17 22	28	S-1: Medium dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt, trace roots and bricks.					
		S-2	2.0-4.0	24	16	8 11 17 22	28	S-2: Medium dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt, trace roots.				FILL	
											4		114.0
5		S-3	4.0-6.0	24	6	12 18 20 20	38	S-3: Dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.					
		S-4	6.0-8.0	24	6	27 28 11 20	39	S-4: Very dense, light brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.				SAND	
		S-5	8.0-10.0	24	7	11 20 19 18	39	S-5: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.	1				
10											10		108.0
								End of exploration at 10 feet.	2				
15													
20													
25													
30													

REMARKS

1 - Casing installed up to 10 feet below ground surface with 7" stick up.
2 - Borehole was presoaked with clean water.

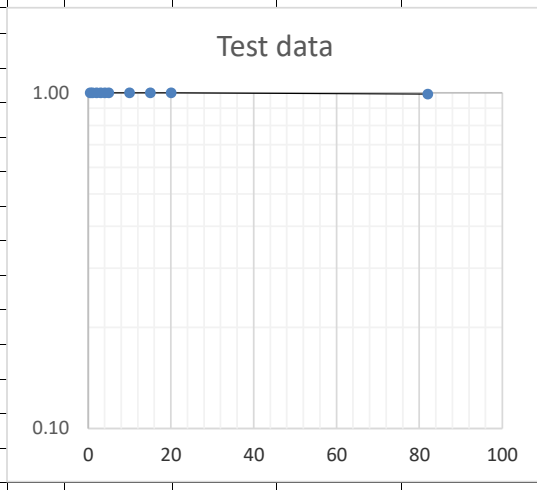
See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater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

Exploration No.: PT-01

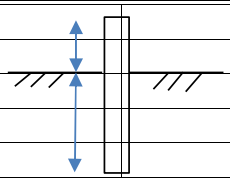
INFILTRATION TEST RECORD

GZA GeoEnvironmental of New York	Client:	Steel Equities		BORING NO.	PT-1
104 West 29th St, 10th FLOOR	Project:	75 Maxes Road		SHEET	1 of 3
NEW YORK, NEW YORK 10001	City, State:	Melville, NY		GZA PROJECT NO.	41.0162904
				PREPARED BY:	KB

BORING COORDINATES	N:	N/A	E:	N/A		DATUM (S)	N/A
GROUND SURFACE EL.(FT)	118					DATUM (S)	NAVD 88
DATE START/FINISH	7/14/21 - 7/14/21						



TEST CONFIGURATION DETAILS:



Depth to casing bottom (ft):	10
Length of stick-up (ft):	0.5
Total casing length (ft):	10.5
Casing I.D. (in):	4.0

Reference Source: NYS Stormwater Management Design Manual - Appendix D

PRE-SOAK INFORMATION

SATURATION START:	7/13/2021 16:30
SATURATION FINISH:	7/14/2021 15:30
TEST DEPTH FEET):	10.0
WATER TEMPERATURE (°C):	22.6
R_t=	0.94

TEST DATA

START OF TEST PERIOD:

H_0 = HEIGHT CASING FILLED TO: 115 INCHES

DATE	TIME	ΔTIME (MINS)	ΔTIME (HOURS)	HEIGHT OF WATER ABOVE TEST DETPH	H_t / H_0	K(in/hour)
7/14/21	3:00	0	0.000	115.0	1.00	-
7/14/21	3:0.5	0.5	0.008	115.0	1.00	0.000
7/14/21	3:01	1.0	0.017	115.0	1.00	0.000
7/14/21	3:02	2.0	0.033	115.0	1.00	0.000
7/14/21	3:03	3.0	0.050	115.0	1.00	0.000
7/14/21	3:04	4.0	0.067	115.0	1.00	0.000
7/14/21	3:05	5.0	0.083	115.0	1.00	0.000
7/14/21	3:10	10.0	0.167	115.0	1.00	0.000
7/14/21	3:15	15.0	0.250	115.0	1.00	0.000
7/14/21	3:20	20.0	0.333	115.0	1.00	0.000
7/14/22	4:22	82.0	1.367	114.0	0.99	0.009
					K_m=	0.005 inches/hour
					K_m=	3.79E-06 cm/sec

GRANULAR SOILS BLOWS/FT	DENSITY
0-4	VERY LOOSE
4-10	LOOSE
10-30	MEDIUM DENSE
30-50	DENSE
>50	VERY DENSE

COHESIVE SOILS BLOWS/FT	CONSISTENCY
<2	VERY SOFT
2-4	SOFT
4-8	M. STIFF
8-15	STIFF
15-30	V. STIFF
>30	HARD

REMARKS:

Permeability formula obtained from NYCDEP OGI "PROCEDURE GOVERNING LIMITED GEOTECHNICAL INVESTIGATION FOR GREEN INFRASTRACTURE PRACTICES, DATED JULY 2017.

$K = \pi * Rt * (D/\ln(H1/H2)/11(t2-t1)$

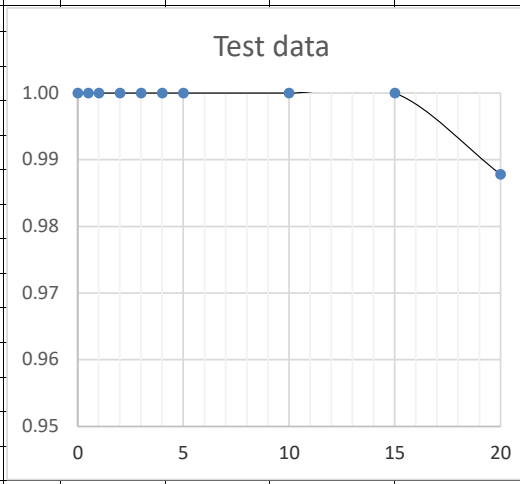
$R_t = 2.2902*(0.98452^T)/T^{0.1702}$

K_m = weighted average of K across test

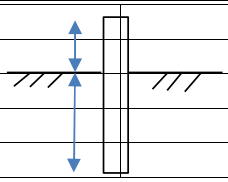
INFILTRATION TEST RECORD

GZA GeoEnvironmental of New York	Client:	Steel Equities		BORING NO.	PT-1
104 West 29th St, 10th FLOOR	Project:	75 Maxes Road		SHEET	2 of 3
NEW YORK, NEW YORK 10001	City, State:	Melville, NY		GZA PROJECT NO.	41.0162904
				PREPARED BY:	KB

BORING COORDINATES	N:	N/A	E:	N/A		DATUM (S)	
GROUND SURFACE EL.(FT)	118					DATUM (S)	NAVD 88
DATE START/FINISH	7/14/21 - 7/14/21						



TEST CONFIGURATION DETAILS:



Depth to casing bottom (ft):	10
Length of stick-up (ft):	0.5
Total casing length (ft):	10.5
Casing I.D. (in):	4.0

Reference Source: NYS Stormwater Management Design Manual - Appendix D

PRE-SOAK INFORMATION

SATURATION START:	7/13/2021 16:30
SATURATION FINISH:	7/14/2021 15:30
TEST DEPTH FEET):	10
WATER TEMPERATURE (°C):	22.6
R_t=	0.94

TEST DATA

START OF TEST PERIOD:

H_0 = HEIGHT CASING FILLED TO: 123 INCHES

DATE	TIME	ΔTIME (MINS)	ΔTIME (HOURS)	HEIGHT OF WATER ABOVE TEST DETPH	H_t / H_0	K(in/hour)	
7/14/21	4:25	0	0.000	123.0	1.00	-	
7/14/21	4:25.5	0.5	0.008	123.0	1.00	0.000	
7/14/21	4:26	1.0	0.017	123.0	1.00	0.000	
7/14/21	4:27	2.0	0.033	123.0	1.00	0.000	
7/14/21	4:28	3.0	0.050	123.0	1.00	0.000	
7/14/21	4:29	4.0	0.067	123.0	1.00	0.000	
7/14/21	4:30	5.0	0.083	123.0	1.00	0.000	
7/14/21	4:35	10.0	0.167	123.0	1.00	0.000	
7/14/21	4:40	15.0	0.250	123.0	1.00	0.000	
7/14/21	4:45	20.0	0.333	121.5	0.99	0.158	
					K_m=	0.056	inches/hour
					K_m=	3.95E-05	cm/sec

GRANULAR SOILS BLOWS/FT	DENSITY
0-4	VERY LOOSE
4-10	LOOSE
10-30	MEDIUM DENSE
30-50	DENSE
>50	VERY DENSE

COHESIVE SOILS BLOWS/FT	CONSISTENCY
<2	VERY SOFT
2-4	SOFT
4-8	M. STIFF
8-15	STIFF
15-30	V. STIFF
>30	HARD

REMARKS:

Permeability formula obtained from NYCDEP OGI "PROCEDURE GOVERNING LIMITED GEOTECHNICAL INVESTIGATION FOR GREEN INFRASTRACTURE PRACTICES, DATED JULY 2017.

$K = \pi * Rt * (D/\ln(H1/H2)/11(t2-t1)$

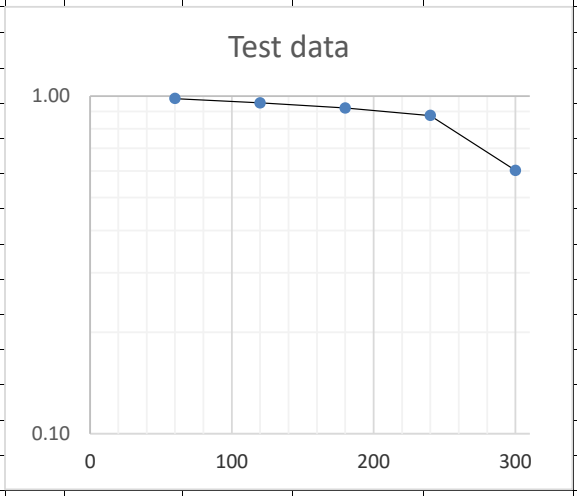
$R_t = 2.2902*(0.98452^T)/T^{0.1702}$

K_m = weighted average of K across test

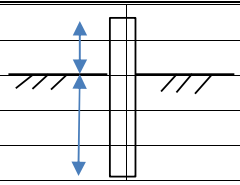
INFILTRATION TEST RECORD

GZA GeoEnvironmental of New York	Client:	Steel Equities		BORING NO.	PT-1
104 West 29th St, 10th FLOOR	Project:	75 Maxes Road		SHEET	3 of 3
NEW YORK, NEW YORK 10001	City, State:	Melville, NY		GZA PROJECT NO.	41.0162904
				PREPARED BY:	KB

BORING COORDINATES	N:	N/A	E:	N/A		DATUM (S)	N/A
GROUND SURFACE EL.(FT)	118					DATUM (S)	NAVD 88
DATE START/FINISH	7/15/21 - 7/15/21						



TEST CONFIGURATION DETAILS:



Depth to casing bottom (ft):	10
Length of stick-up (ft):	0.583
Total casing length (ft):	10.583
Casing I.D. (in):	4.0

Reference Source: NYS Stormwater Management Design Manual - Appendix D

PRE-SOAK INFORMATION

SATURATION START:	7/13/2021 16:30
SATURATION FINISH:	7/14/2021 15:30
TEST DEPTH FEET):	10
WATER TEMPERATURE (°C):	22.6
R_t=	0.94

TEST DATA

START OF TEST PERIOD:

H_0 = HEIGHT CASING FILLED TO: 88 INCHES

DATE	TIME	ΔTIME (MINS)	ΔTIME (HOURS)	HEIGHT OF WATER ABOVE TEST DETPH	H_t / H_0	K(in/hour)
7/15/21	7:35	0	0.000	88.0	1.00	-
7/15/21	8:35	60	1.000	86.5	0.98	0.018
7/15/21	9:35	120.0	2.000	84.0	0.95	0.031
7/15/21	10:35	180.0	3.000	81.0	0.92	0.039
7/15/21	11:35	240.0	4.000	77.0	0.88	0.054
7/15/21	12:35	300.0	5.000	53.0	0.60	0.401

K_m=	0.242	inches/hour
K_m=	1.71E-04	cm/sec

GRANULAR SOILS BLOWS/FT	DENSITY
0-4	VERY LOOSE
4-10	LOOSE
10-30	MEDIUM DENSE
30-50	DENSE
>50	VERY DENSE

COHESIVE SOILS BLOWS/FT	CONSISTENCY
<2	VERY SOFT
2-4	SOFT
4-8	M. STIFF
8-15	STIFF
15-30	V. STIFF
>30	HARD

REMARKS:

Permeability formula obtained from NYCDEP OGI "PROCEDURE GOVERNING LIMITED GEOTECHNICAL INVESTIGATION FOR GREEN INFRASTRACTURE PRACTICES, DATED JULY 2017.

$K = \pi * Rt * (D/\ln(H1/H2)/11(t2-t1)$

$R_t = 2.2902*(0.98452^T)/T^{0.1702}$

K_m = weighted average of K across test

TEST BORING LOG

GZA GeoEnvironmental of New York
Engineers and Scientists

75 Maxess Road
Melville, NY

EXPLORATION NO.: PT-02
SHEET: 1 of 1
PROJECT NO: 41.0162904.00
REVIEWED BY: J. Cheung

Logged By: K. Badayos
Drilling Co.: Craig Geotechnical Testing, Inc
Foreman: D. Cooke
Date Start: 7/13/2021 **Finish:** 7/13/2021

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Wash Rotary

Boring Location: See Plan
Stationing (ft.): **Offset (ft.):**
Ground Surface Elevation (ft.): +118
Final Boring Depth (ft.): 10

H. Datum:
V. Datum: NAVD 88
Northing:
Easting:

Hammer Type: Automatic Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.0/3.0

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

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0.0-2.0	24	16	8 8 6 4	14	S-1: Medium dense, dark brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt, trace roots and grass.				FILL	
		S-2	2.0-4.0	24	16	6 7 11 10	18	S-2: Medium dense, yellowish-brown, fine to coarse SAND, trace fine Gravel, trace Silt.			2		116.0
												SAND	
		S-3	4.0-6.0	24	14	6 8 14 21	22	S-3: Top 3": Medium dense, yellowish-brown, fine to coarse SAND, trace fine Gravel, trace Silt.			4		114.0
5								Bottom 11": Clayey SILT, little fine Sand, trace Gravel.				CLAY	
		S-4	6.0-8.0	24	15	29 31 34 35	65	S-4: Very dense, yellowish-brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt.			5		113.0
		S-5	8.0-10.0	24	5	17 18 17 16	35	S-5: Dense, yellowish-brown, fine to coarse SAND, little fine Gravel, trace Silt.	1			SAND	
10											10		108.0
								End of exploration at 10 feet.	2				
15													
20													
25													
30													

REMARKS

1 - Casing installed up to 10 feet below ground surface with 7" stick up.
2 - Borehole was presoaked with clean water.

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

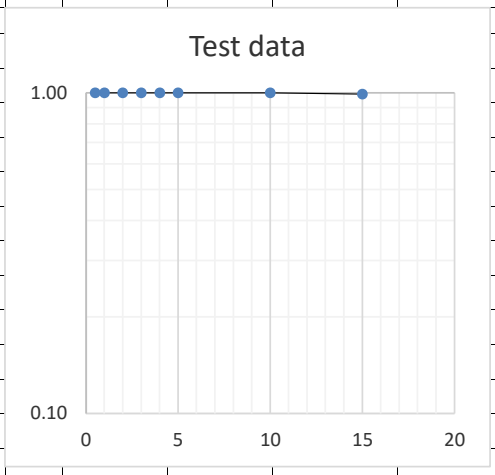
Exploration No.: PT-02

GZA TEMPLATE TEST BORING - GZA 2016_01_26.GDT - 8/4/21 16:04 - J:\GINT PROJECT DATABASES\41.0162900\41.0162904.00.GPJ

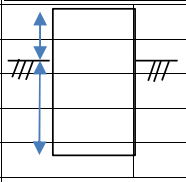
VARIABLE HEAD TEST LOG

GZA GeoEnvironmental of New York	Client:	Steel Equities		BORING NO.	PT-2
104 West 29th St, 10th FLOOR	Project:	75 Maxes Road		SHEET	1 of 3
NEW YORK, NEW YORK 10001	City, State:	Melville, NY		GZA PROJECT NO.	41.0162904
				PREPARED BY:	KB

BORING COORDINATES	N:	N/A	E:	N/A		DATUM (S)	N/A
GROUND SURFACE EL.(FT)	118					DATUM (S)	NAVD 88
DATE START/FINISH	7/14/21 - 7/14/21						



TEST CONFIGURATION DETAILS:



Depth to casing bottom (ft):	10.0
Length of stick-up (ft):	0.5
Total casing length (ft):	10.5
Casing I.D. (in):	4.0

Reference Source: NYS Stormwater Management Design Manual - Appendix D

PRE-SOAK INFORMATION

SATURATION START:	7/13/2021 16:30
SATURATION FINISH:	7/14/2021 15:30
TEST DEPTH FEET):	10.0
WATER TEMPERATURE (°C):	22.6
R_t=	0.94

TEST DATA

START OF TEST PERIOD:

H_0 = HEIGHT CASING FILLED TO: 108 INCHES

DATE	TIME	ΔTIME (MINS)	ΔTIME (HOURS)	HEIGHT OF WATER ABOVE TEST DETPH	H_t / H_0	K(in/hour)
7/14/21	3:40	0	0.000	108.0	1.00	-
7/14/21	3:40.5	0.5	0.008	108.0	1.00	0.000
7/14/21	3:41	1.0	0.017	108.0	1.00	0.000
7/14/21	3:42	2.0	0.033	108.0	1.00	0.000
7/14/21	3:43	3.0	0.050	108.0	1.00	0.000
7/14/21	3:44	4.0	0.067	108.0	1.00	0.000
7/14/21	3:45	5.0	0.083	108.0	1.00	0.000
7/14/21	3:50	10.0	0.167	108.0	1.00	0.000
7/14/21	3:55	15.0	0.250	107.0	0.99	0.120
7/14/21	4:00	20.0	0.333	107.0	0.99	0.000
					K_m=	0.049 inches/hour
					K_m=	3.48E-05 cm/sec

GRANULAR SOILS BLOWS/FT	DENSITY
0-4	VERY LOOSE
4-10	LOOSE
10-30	MEDIUM DENSE
30-50	DENSE
>50	VERY DENSE

COHESIVE SOILS BLOWS/FT	CONSISTENCY
<2	VERY SOFT
2-4	SOFT
4-8	M. STIFF
8-15	STIFF
15-30	V. STIFF
>30	HARD

REMARKS:

Permeability formula obtained from NYCDEP OGI "PROCEDURE GOVERNING LIMITED GEOTECHNICAL INVESTIGATION FOR GREEN INFRASTRACTURE PRACTICES, DATED JULY 2017.

$K = \pi * Rt * (D/\ln(H1/H2)/11(t2-t1)$

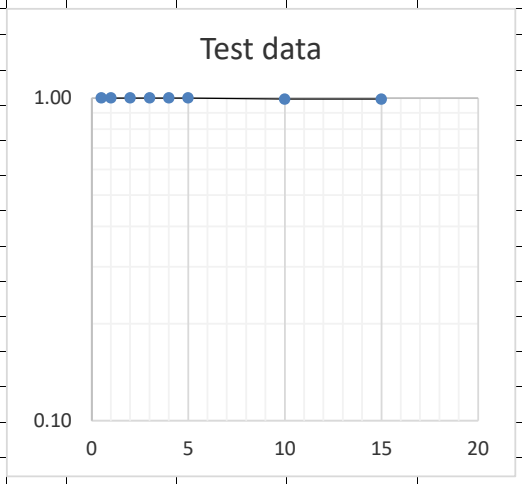
$R_t = 2.2902*(0.98452^T)/T^{0.1702}$

K_m = weighted average of K across test

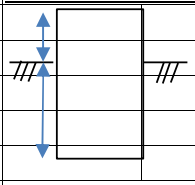
VARIABLE HEAD TEST LOG

GZA GeoEnvironmental of New York	Client:	Steel Equities		BORING NO.	PT-2
104 West 29th St, 10th FLOOR	Project:	75 Maxes Road		SHEET	2 of 3
NEW YORK, NEW YORK 10001	City, State:	Melville, NY		GZA PROJECT NO.	41.0162904
				PREPARED BY:	KB

BORING COORDINATES	N:	N/A	E:	N/A		DATUM (S)	N/A
GROUND SURFACE EL.(FT)	118					DATUM (S)	NAVD 88
DATE START/FINISH	7/14/21 - 7/14/21						



TEST CONFIGURATION DETAILS:



Depth to casing bottom (ft):	10.0
Length of stick-up (ft):	0.5
Total casing length (ft):	10.5
Casing I.D. (in):	4.0

Reference Source: NYS Stormwater Management Design Manual - Appendix D

PRE-SOAK INFORMATION

SATURATION START:	7/13/2021 16:30
SATURATION FINISH:	7/14/2021 15:30
TEST DEPTH FEET):	10.0
WATER TEMPERATURE (°C):	22.6
R_t=	0.94

TEST DATA

START OF TEST PERIOD:

H_0 = HEIGHT CASING FILLED TO: 127 INCHES

DATE	TIME	ΔTIME (MINS)	ΔTIME (HOURS)	HEIGHT OF WATER ABOVE TEST DETPH	H_t / H_0	K(in/hour)	
7/14/21	4:00	0	0.000	127.0	1.00	-	
7/14/21	4:0.5	0.5	0.008	127.0	1.00	0.000	
7/14/21	4:01	1.0	0.017	127.0	1.00	0.000	
7/14/21	4:02	2.0	0.033	127.0	1.00	0.000	
7/14/21	4:03	3.0	0.050	127.0	1.00	0.000	
7/14/21	4:04	4.0	0.067	127.0	1.00	0.000	
7/14/21	4:05	5.0	0.083	127.0	1.00	0.000	
7/14/21	4:10	10.0	0.167	126.0	0.99	0.102	
7/14/21	4:15	15.0	0.250	126.0	0.99	0.000	
7/14/21	4:20	20.0	0.333	126.0	0.99	0.000	
					K_m=	0.028	inches/hour
					K_m=	1.97E-05	cm/sec

GRANULAR SOILS BLOWS/FT	DENSITY
0-4	VERY LOOSE
4-10	LOOSE
10-30	MEDIUM DENSE
30-50	DENSE
>50	VERY DENSE

COHESIVE SOILS BLOWS/FT	CONSISTENCY
<2	VERY SOFT
2-4	SOFT
4-8	M. STIFF
8-15	STIFF
15-30	V. STIFF
>30	HARD

REMARKS:

Permeability formula obtained from NYCDEP OGI "PROCEDURE GOVERNING LIMITED GEOTECHNICAL INVESTIGATION FOR GREEN INFRASTRACTURE PRACTICES, DATED JULY 2017.

$K = \pi * Rt * (D/\ln(H1/H2)/11(t2-t1)$

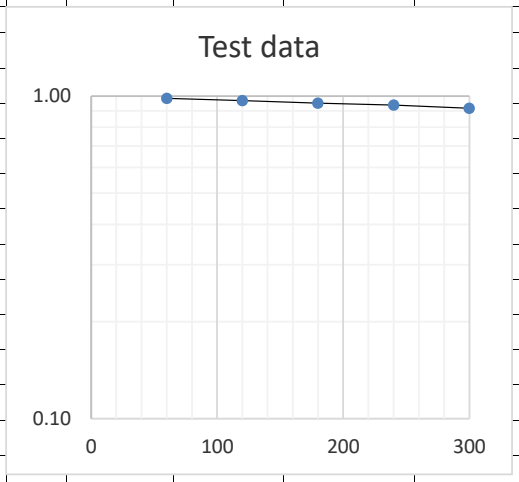
$R_t = 2.2902*(0.98452^T)/T^{0.1702}$

K_m = weighted average of K across test

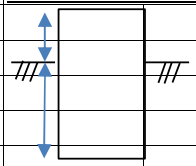
VARIABLE HEAD TEST LOG

GZA GeoEnvironmental of New York	Client:	Steel Equities		BORING NO.	PT-2
104 West 29th St, 10th FLOOR	Project:	75 Maxes Road		SHEET	3 of 3
NEW YORK, NEW YORK 10001	City, State:	Melville, NY		GZA PROJECT NO.	41.0162904
				PREPARED BY:	KB

BORING COORDINATES	N:	N/A	E:	N/A		DATUM (S)	N/A
GROUND SURFACE EL.(FT)	118					DATUM (S)	NAVD 88
DATE START/FINISH	7/15/21 - 7/15/21						



TEST CONFIGURATION DETAILS:



Depth to casing bottom (ft):	10.0
Length of stick-up (ft):	0.583
Total casing length (ft):	10.583
Casing I.D. (in):	4.0

Reference Source: NYS Stormwater Management Design Manual - Appendix D

PRE-SOAK INFORMATION

SATURATION START:	7/13/2021 16:30
SATURATION FINISH:	7/14/2021 15:30
TEST DEPTH FEET):	10
WATER TEMPERATURE (°C):	22.6
R_t=	0.94

TEST DATA

START OF TEST PERIOD:

H_0 = HEIGHT CASING FILLED TO: 119 INCHES

DATE	TIME	ΔTIME (MINS)	ΔTIME (HOURS)	HEIGHT OF WATER ABOVE TEST DETPH	H_t / H_0	K(in/hour)
7/15/21	7:30	0	0.000	119.0	1.00	-
7/15/21	8:30	60	1.000	117.0	0.98	0.018
7/15/21	9:30	120.0	2.000	115.0	0.97	0.019
7/15/21	10:30	180.0	3.000	113.0	0.95	0.019
7/15/21	11:30	240.0	4.000	111.5	0.94	0.014
7/15/21	12:30	300.0	5.000	109.0	0.92	0.024

K_m=	0.029	inches/hour	
K_m=	2.05E-05	cm/sec	

GRANULAR SOILS BLOWS/FT	DENSITY
0-4	VERY LOOSE
4-10	LOOSE
10-30	MEDIUM DENSE
30-50	DENSE
>50	VERY DENSE

COHESIVE SOILS BLOWS/FT	CONSISTENCY
<2	VERY SOFT
2-4	SOFT
4-8	M. STIFF
8-15	STIFF
15-30	V. STIFF
>30	HARD

REMARKS:

Permeability formula obtained from NYCDEP OGI "PROCEDURE GOVERNING LIMITED GEOTECHNICAL INVESTIGATION FOR GREEN INFRASTRACTURE PRACTICES, DATED JULY 2017.

$K = \pi * Rt * (D/\ln(H1/H2)/11(t2-t1)$

$R_t = 2.2902*(0.98452^T)/T^{0.1702}$

K_m = weighted average of K across test

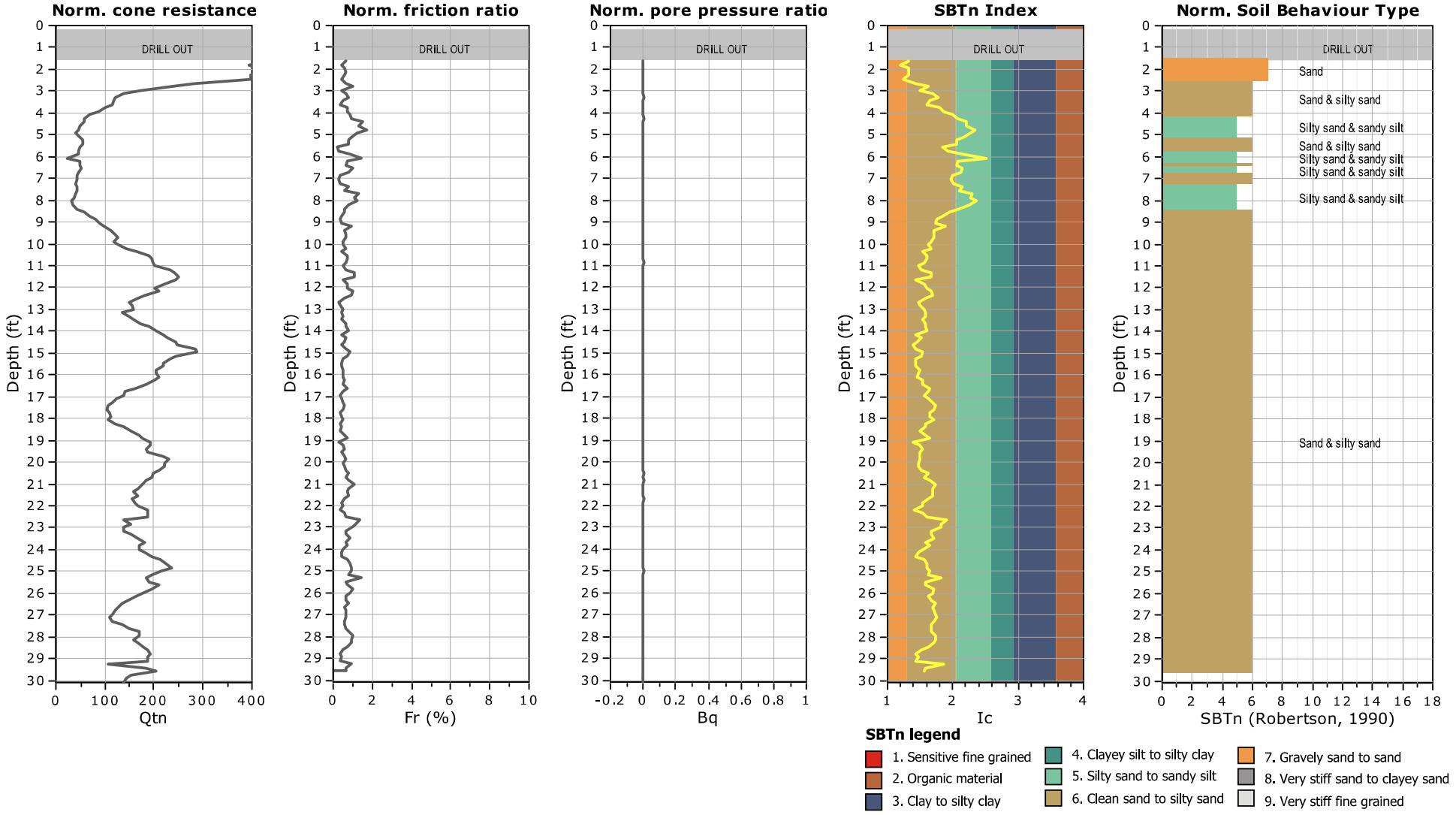
APPENDIX D

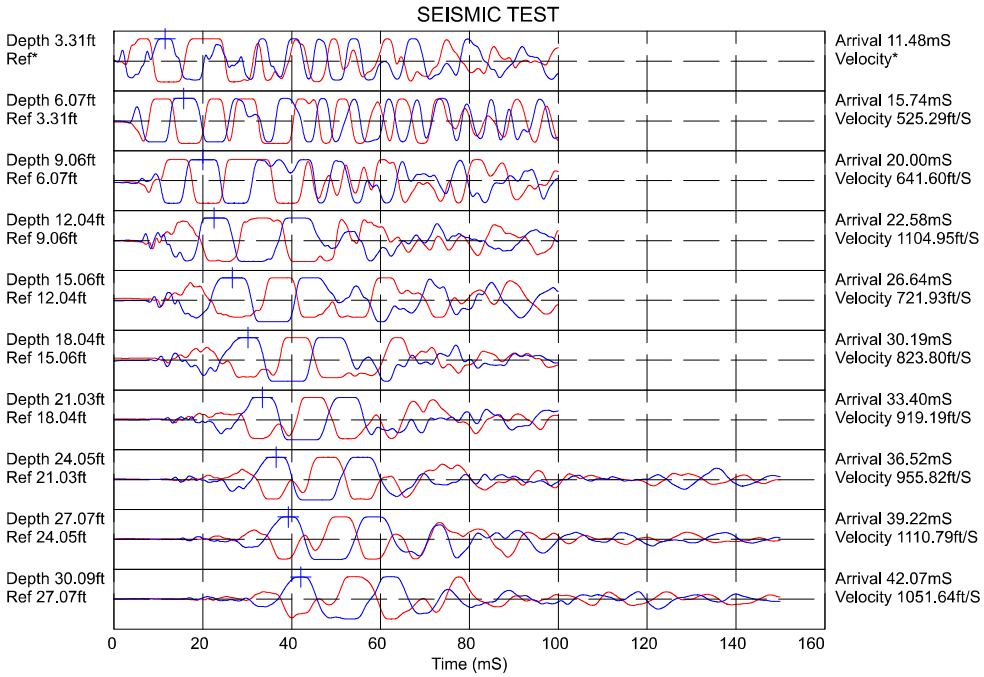
SELECT CPT PLOTS

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

CPT-1
Total depth: 30.09 ft





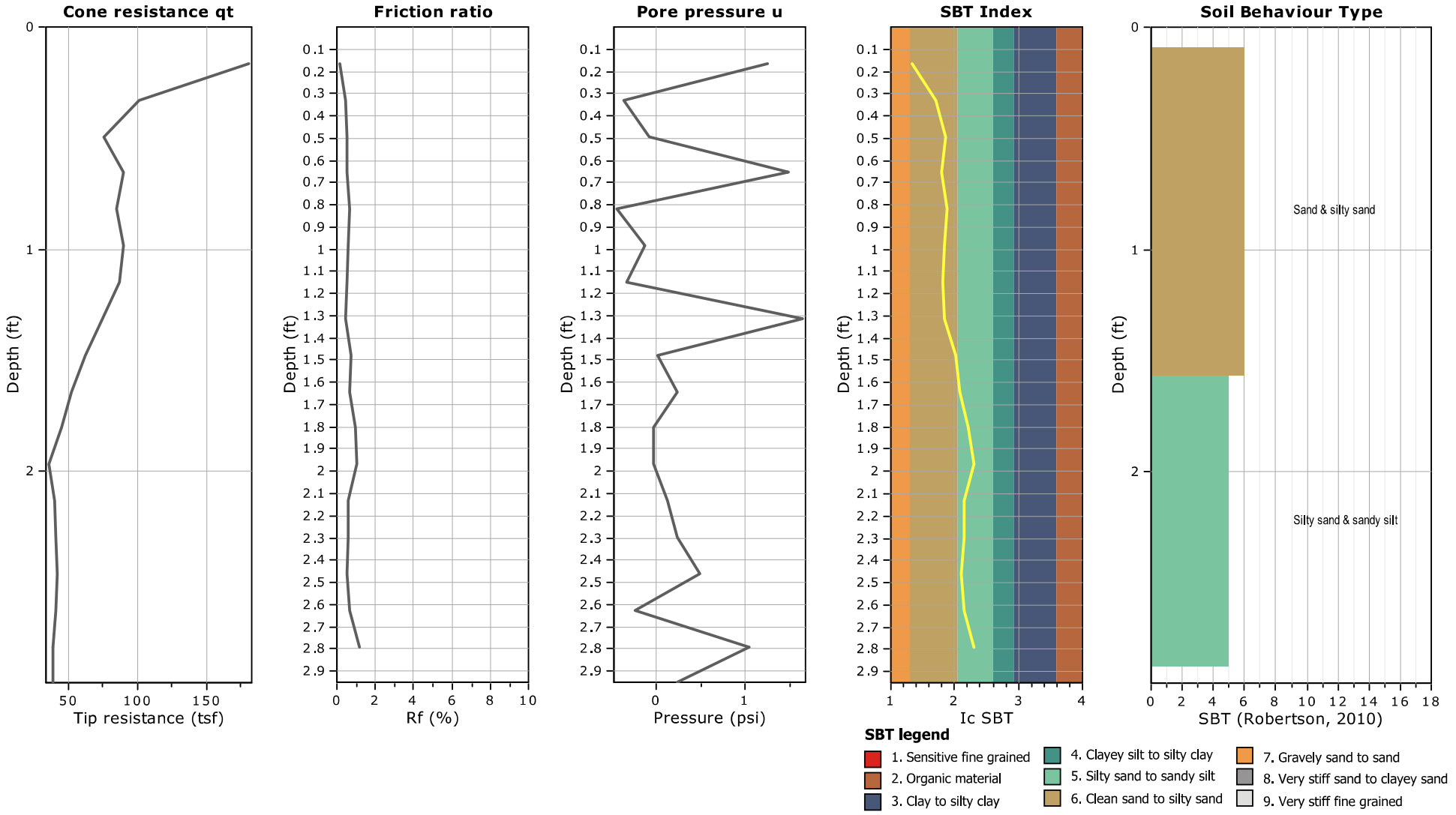
Hammer to Rod String Distance (ft): 3.28
* = Not Determined

COMMENT:

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

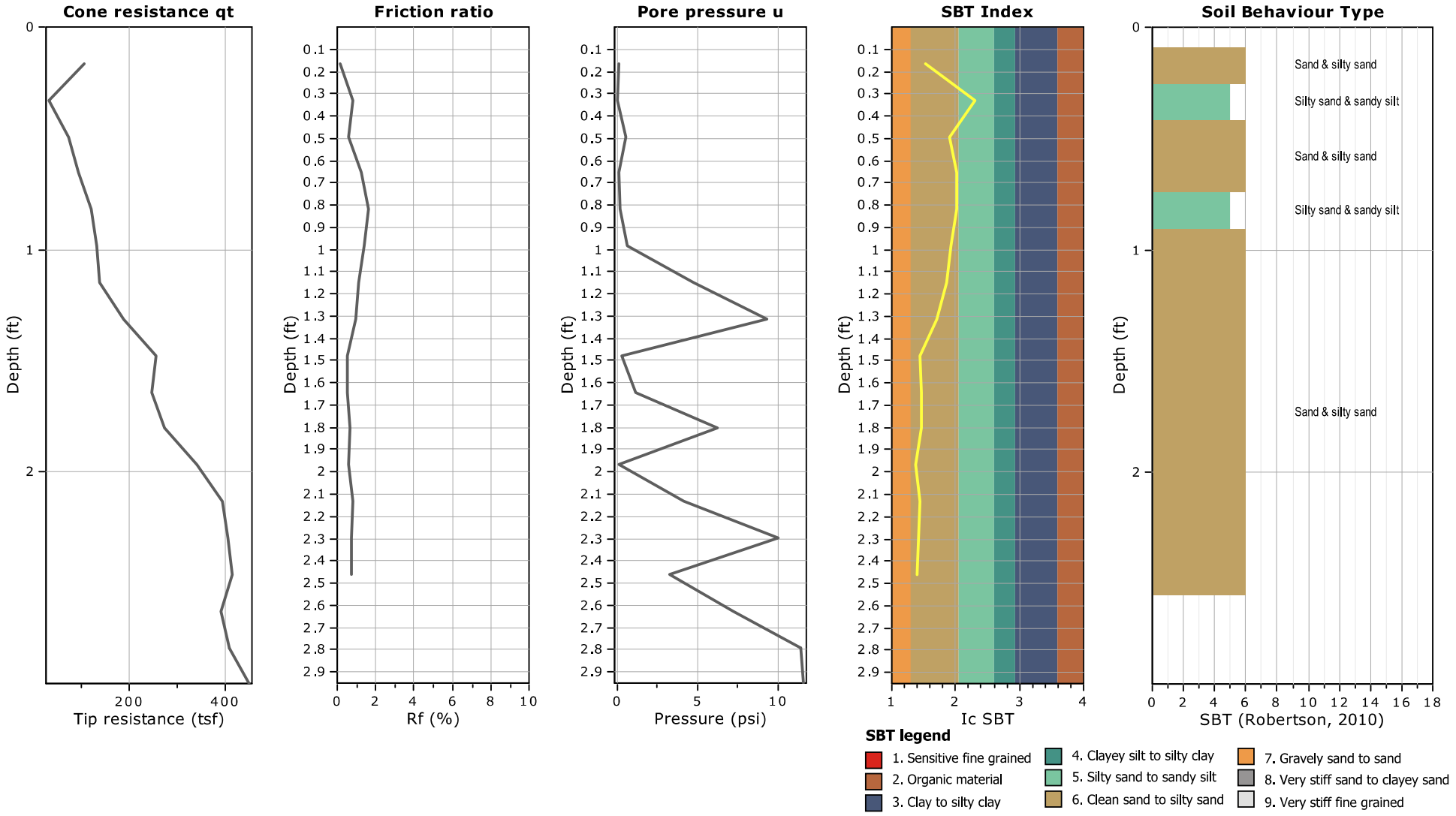
CPT-2
Total depth: 2.95 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

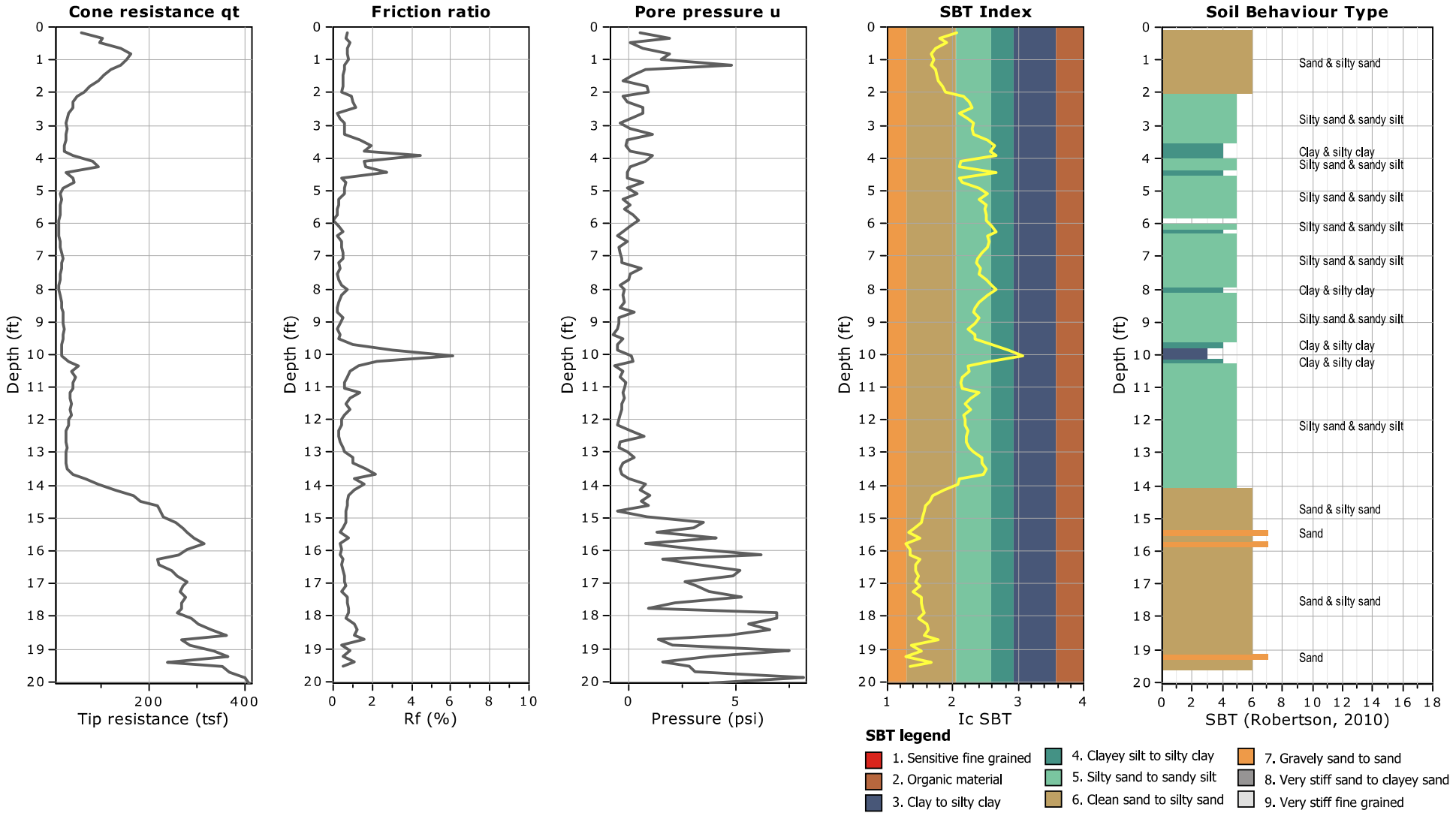
CPT-3
Total depth: 2.95 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

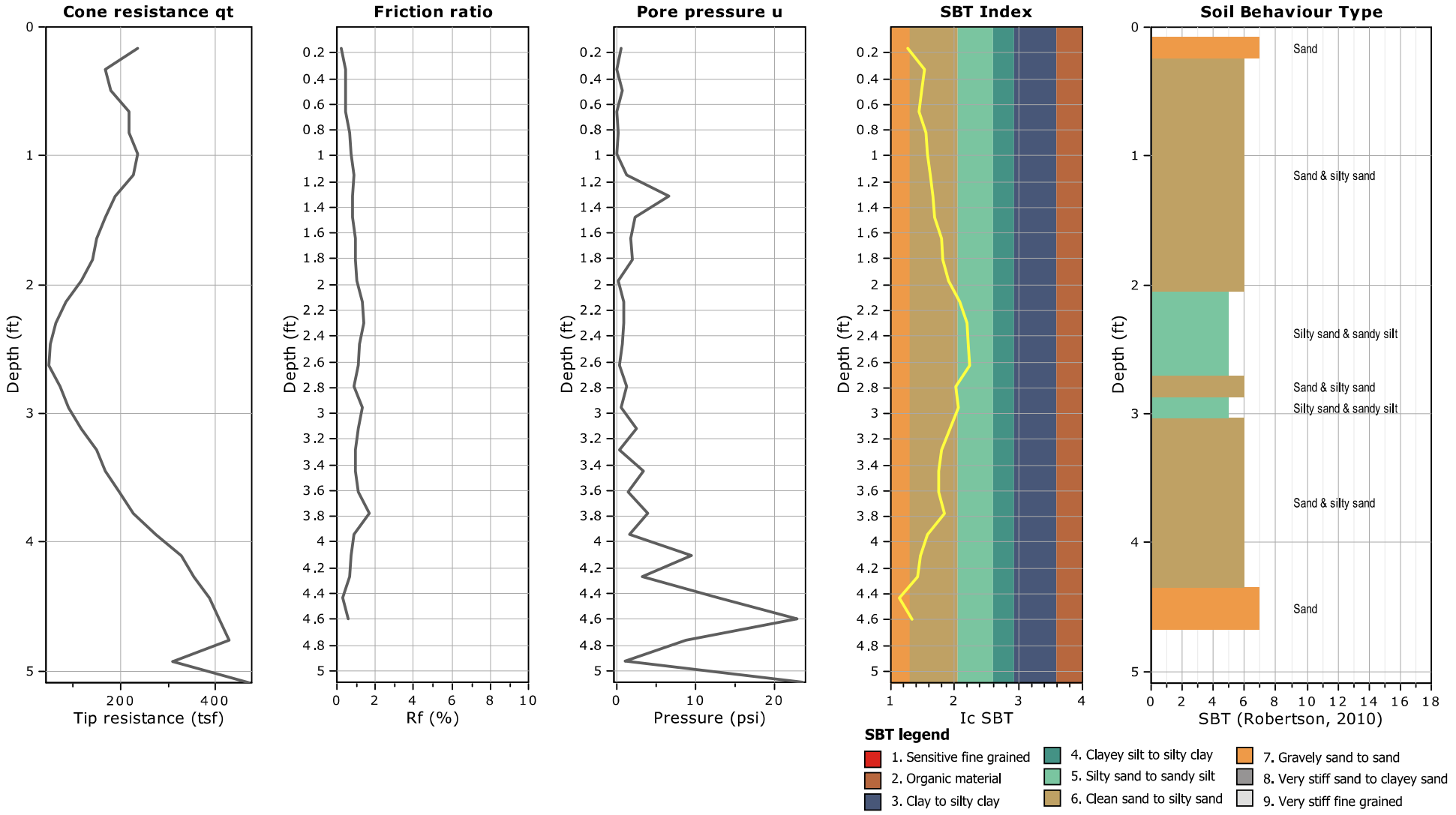
CPT-4
Total depth: 20.05 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

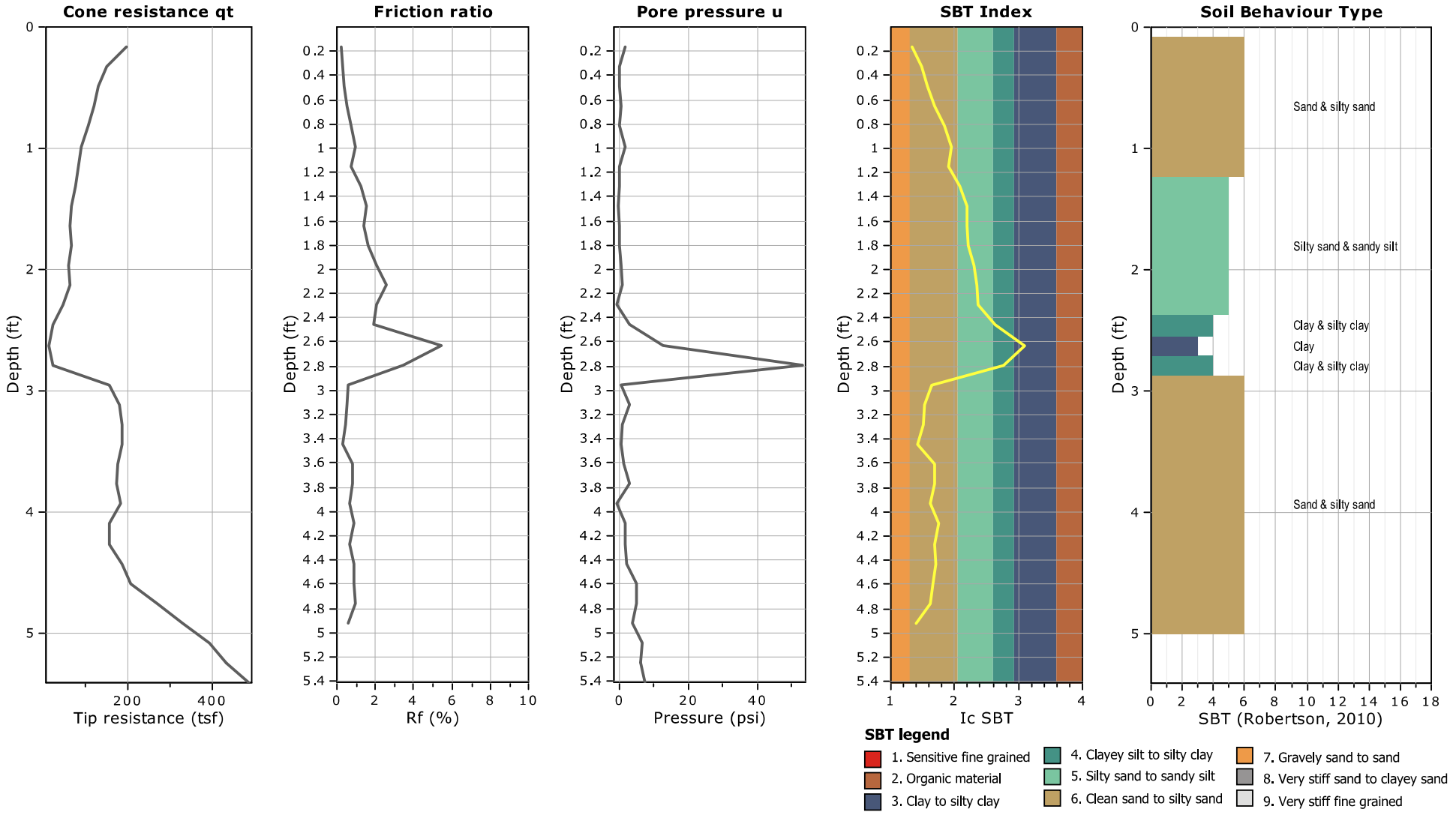
CPT-5
Total depth: 5.09 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

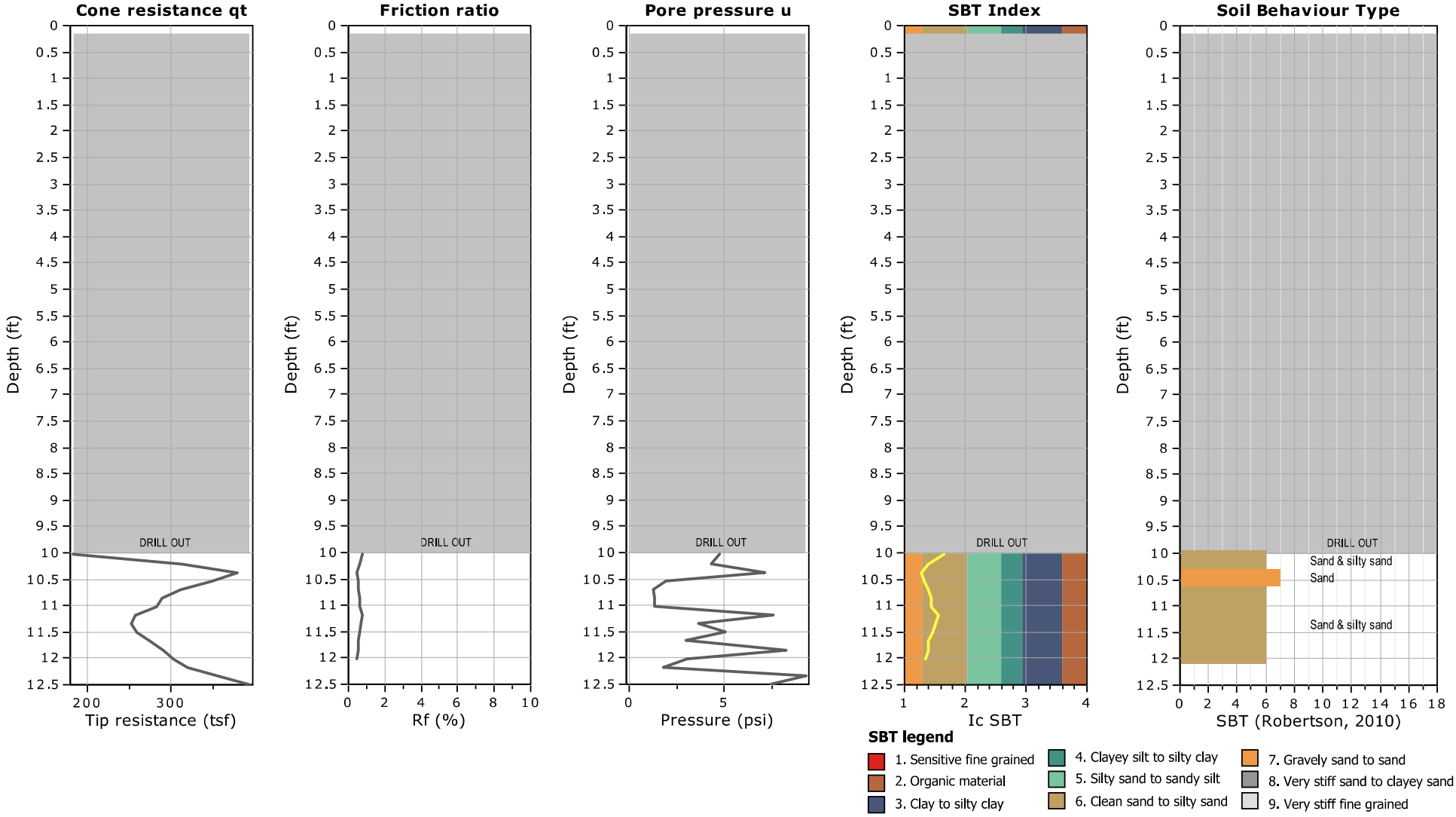
CPT-6
Total depth: 5.41 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

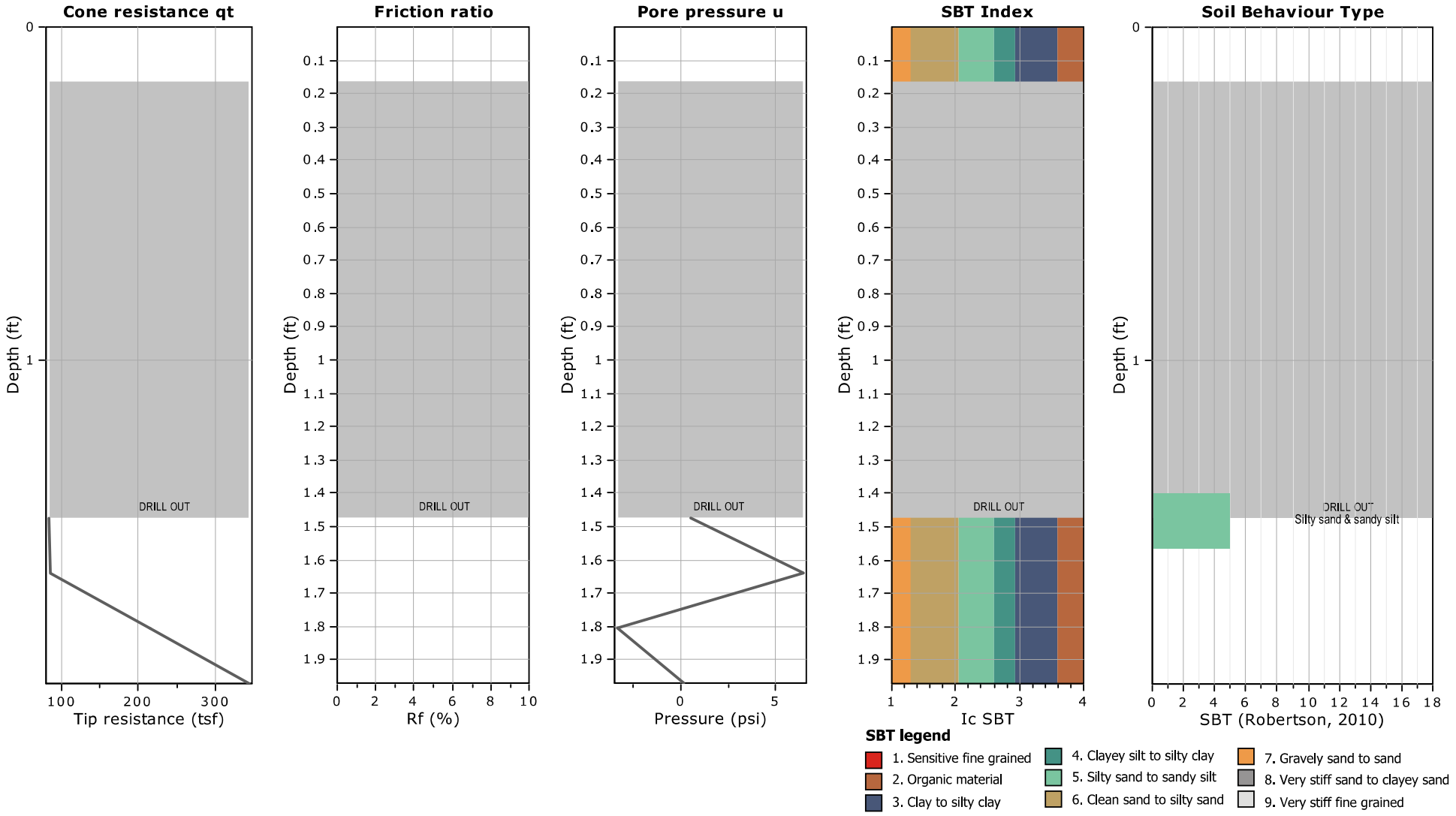
CPT-6a
Total depth: 12.50 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

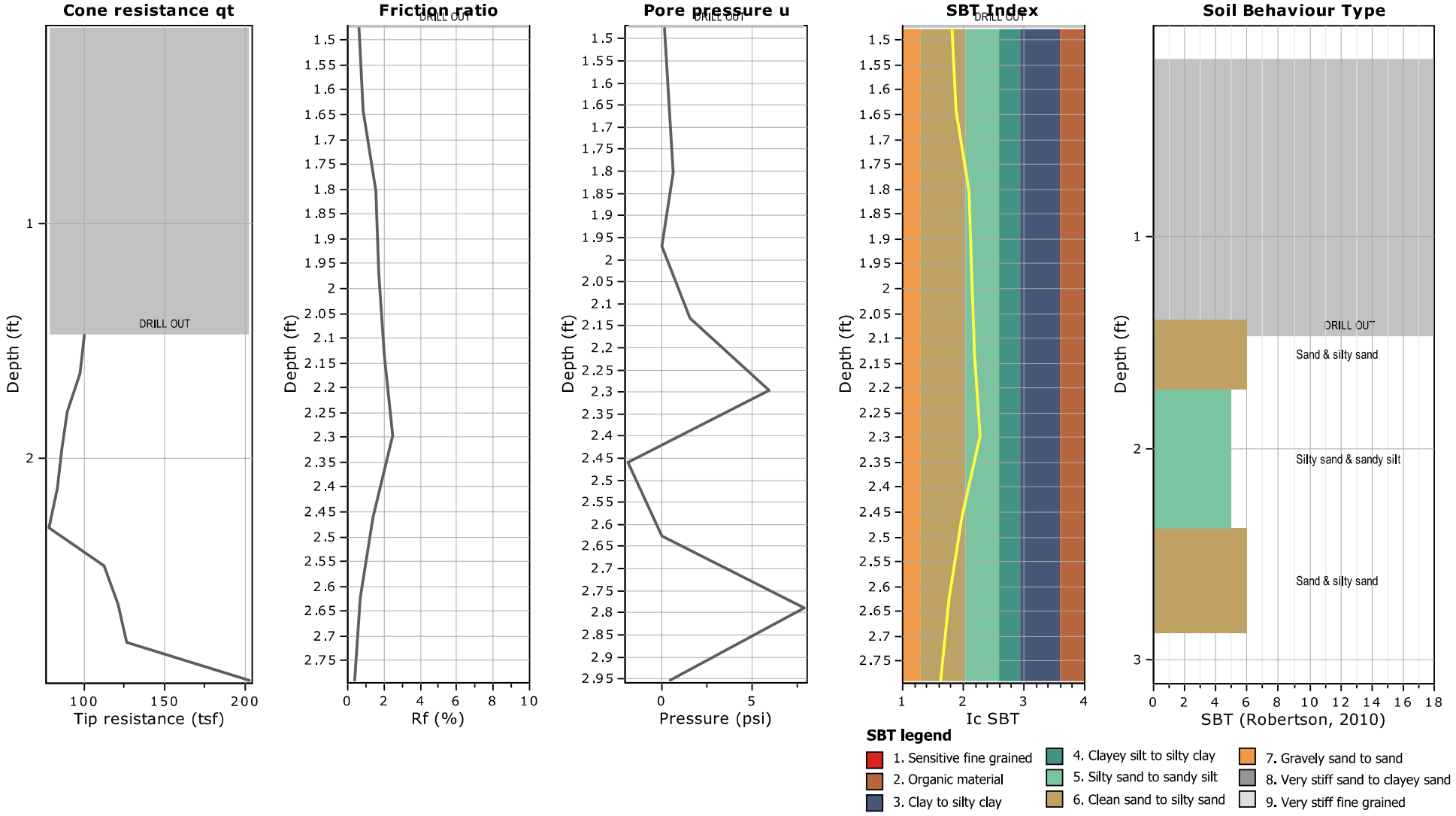
CPT-7
Total depth: 1.97 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

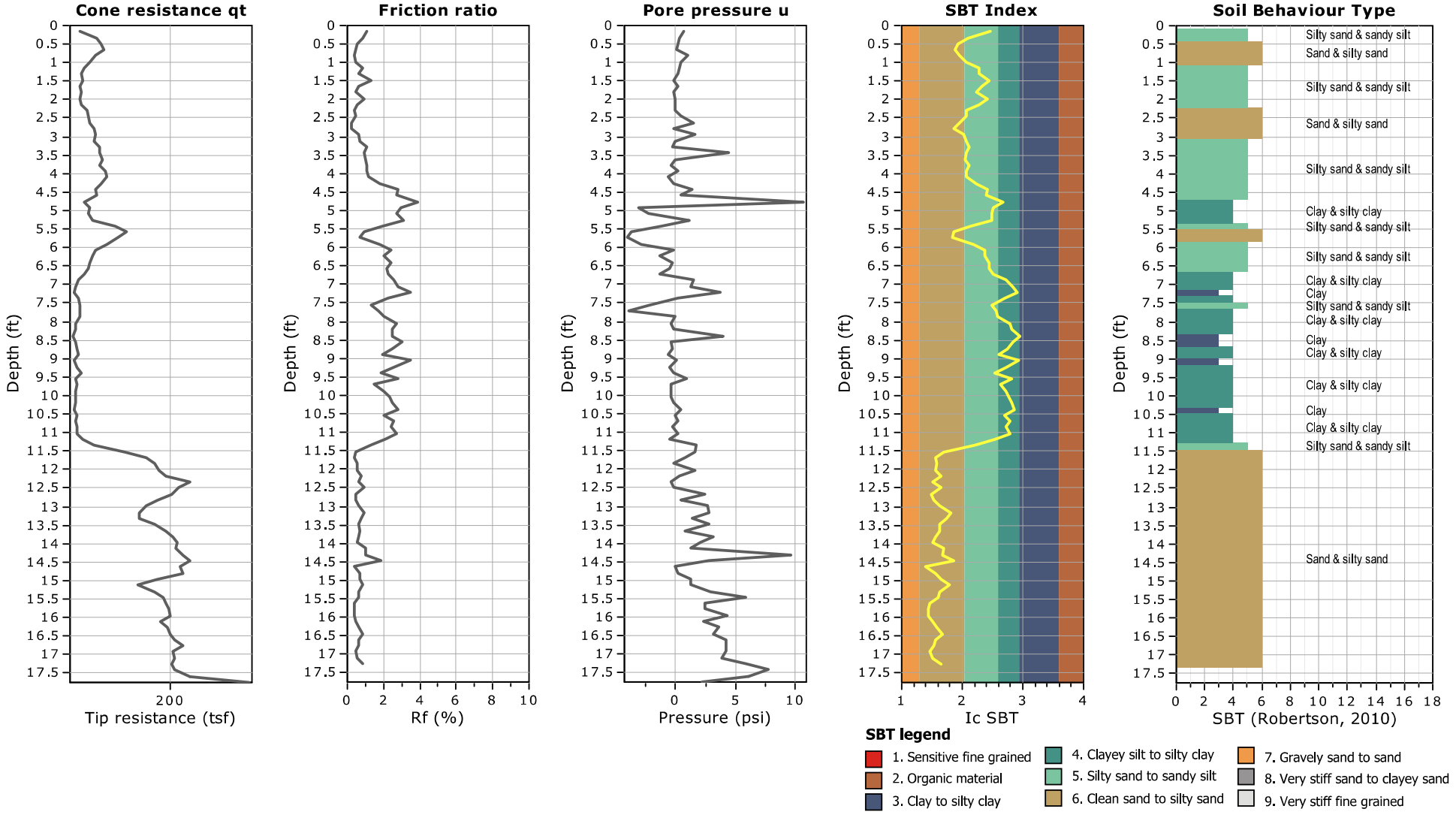
CPT-7a
Total depth: 2.95 ft



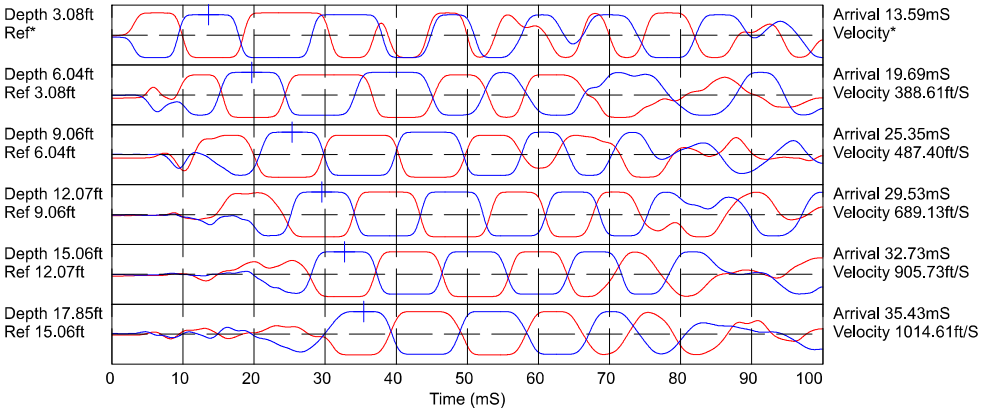
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

CPT-8
Total depth: 17.75 ft



SEISMIC TEST



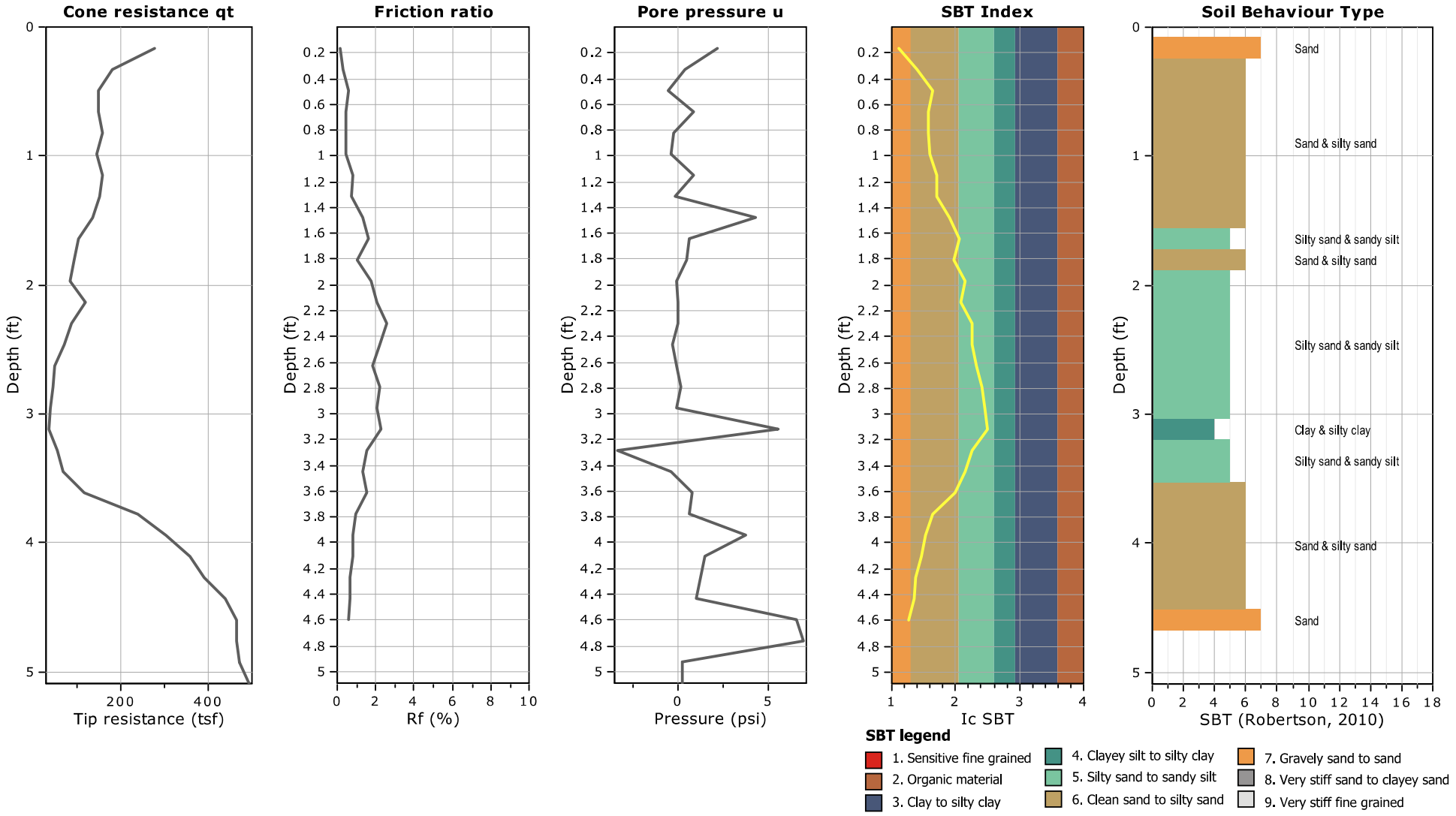
Hammer to Rod String Distance (ft): 3.28
* = Not Determined

COMMENT:

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

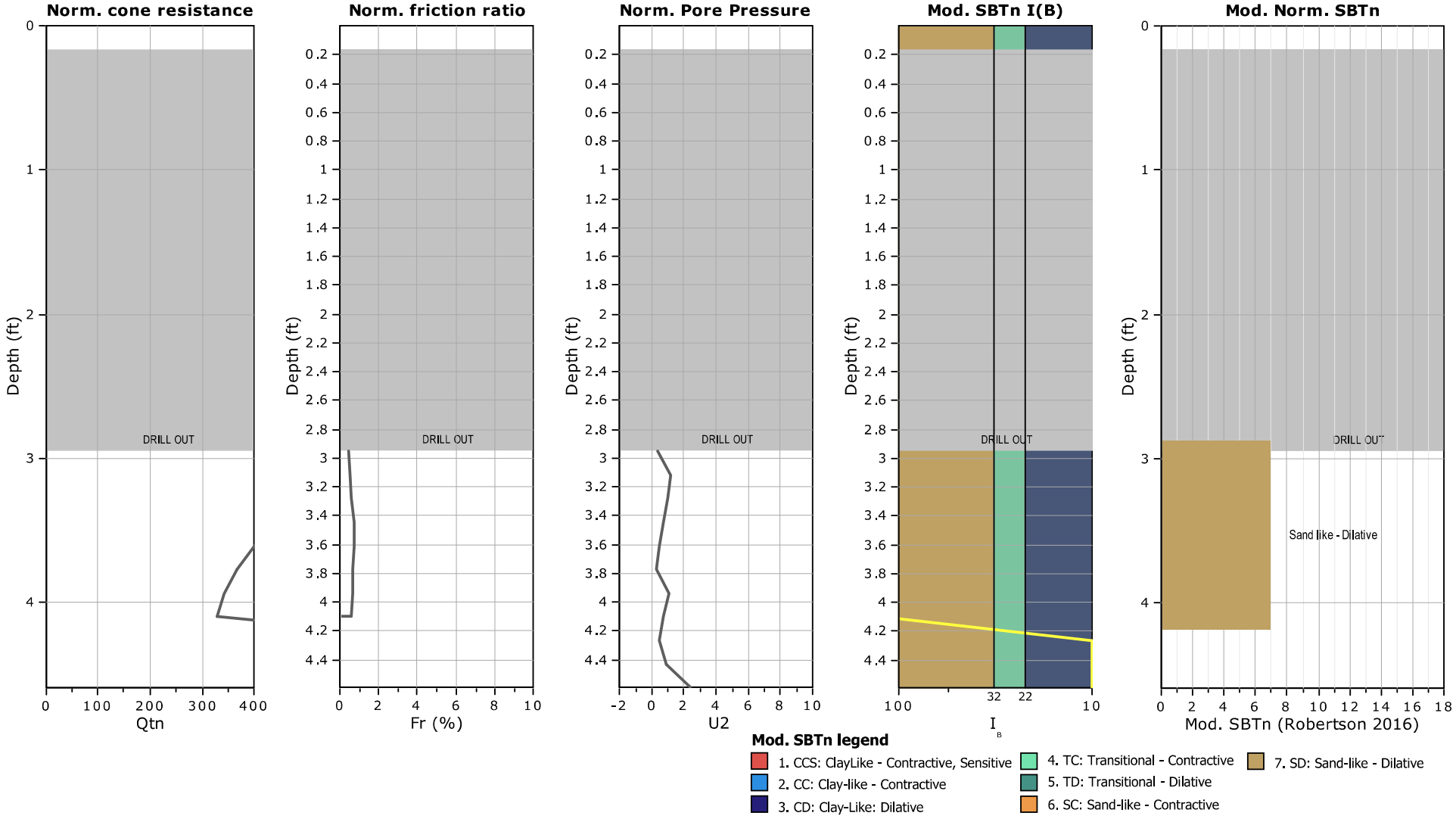
CPT-9
Total depth: 5.09 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

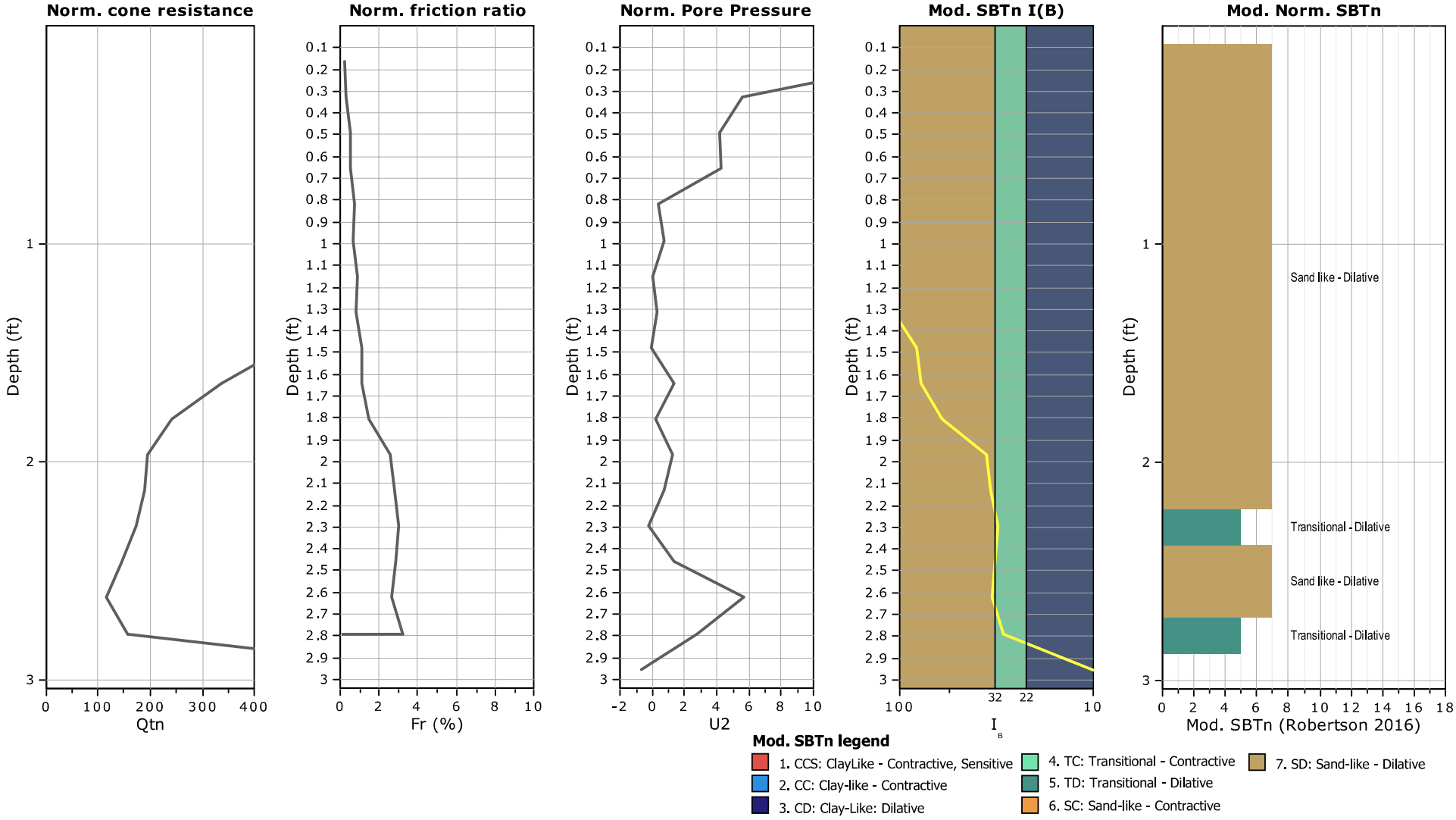
CPT-10
Total depth: 4.59 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

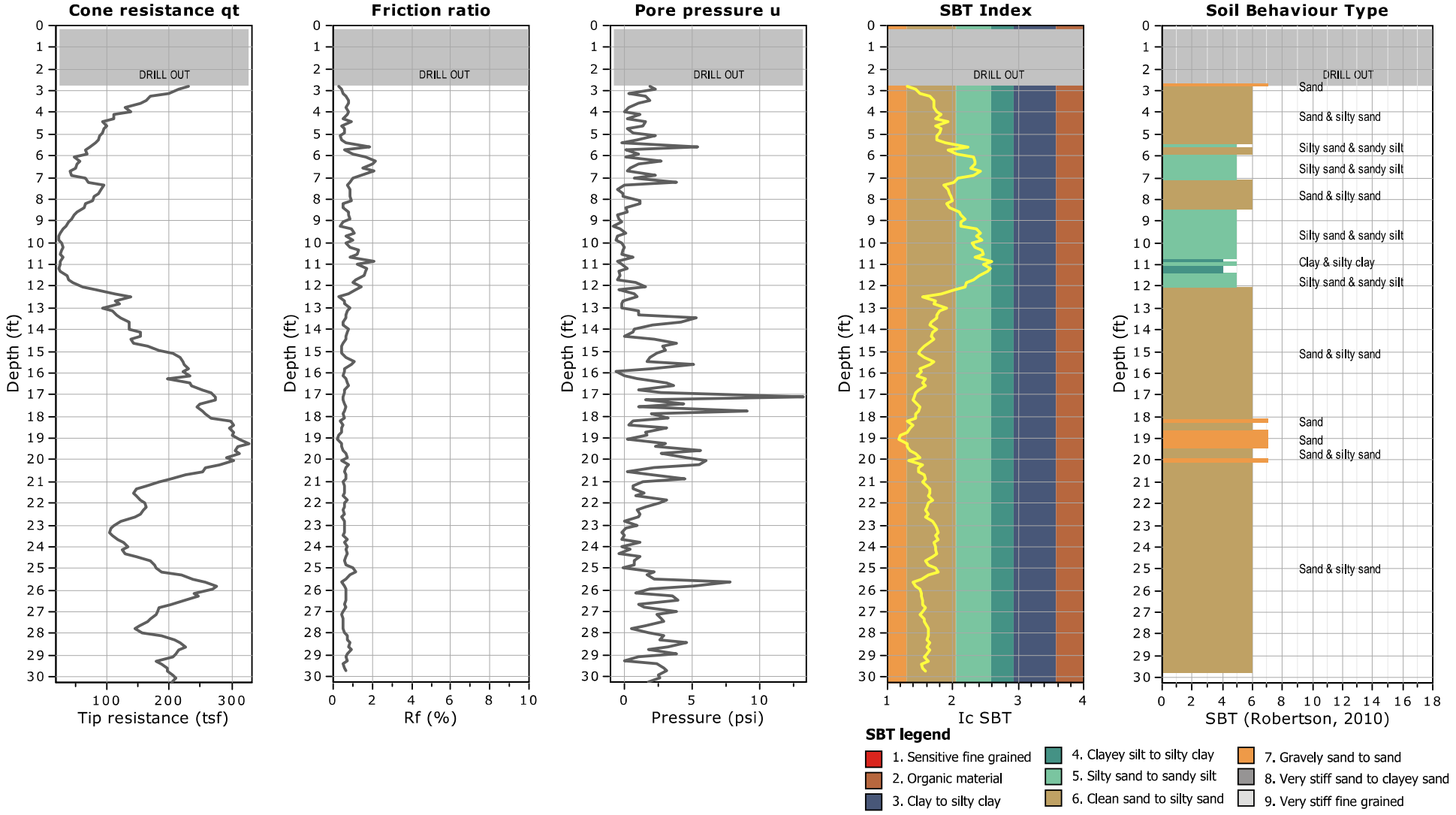
CPT-11
Total depth: 2.95 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

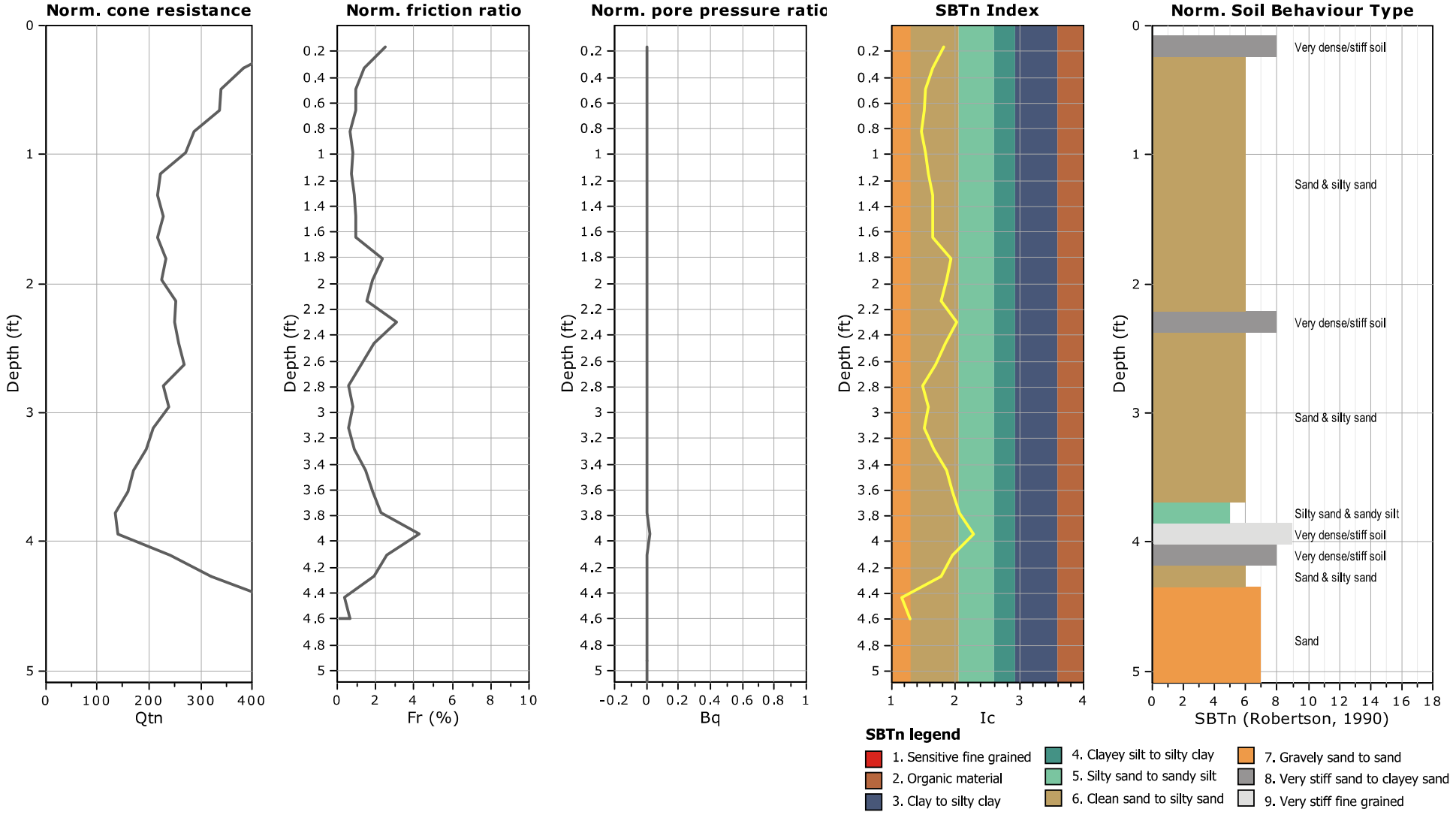
CPT-12
Total depth: 30.25 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

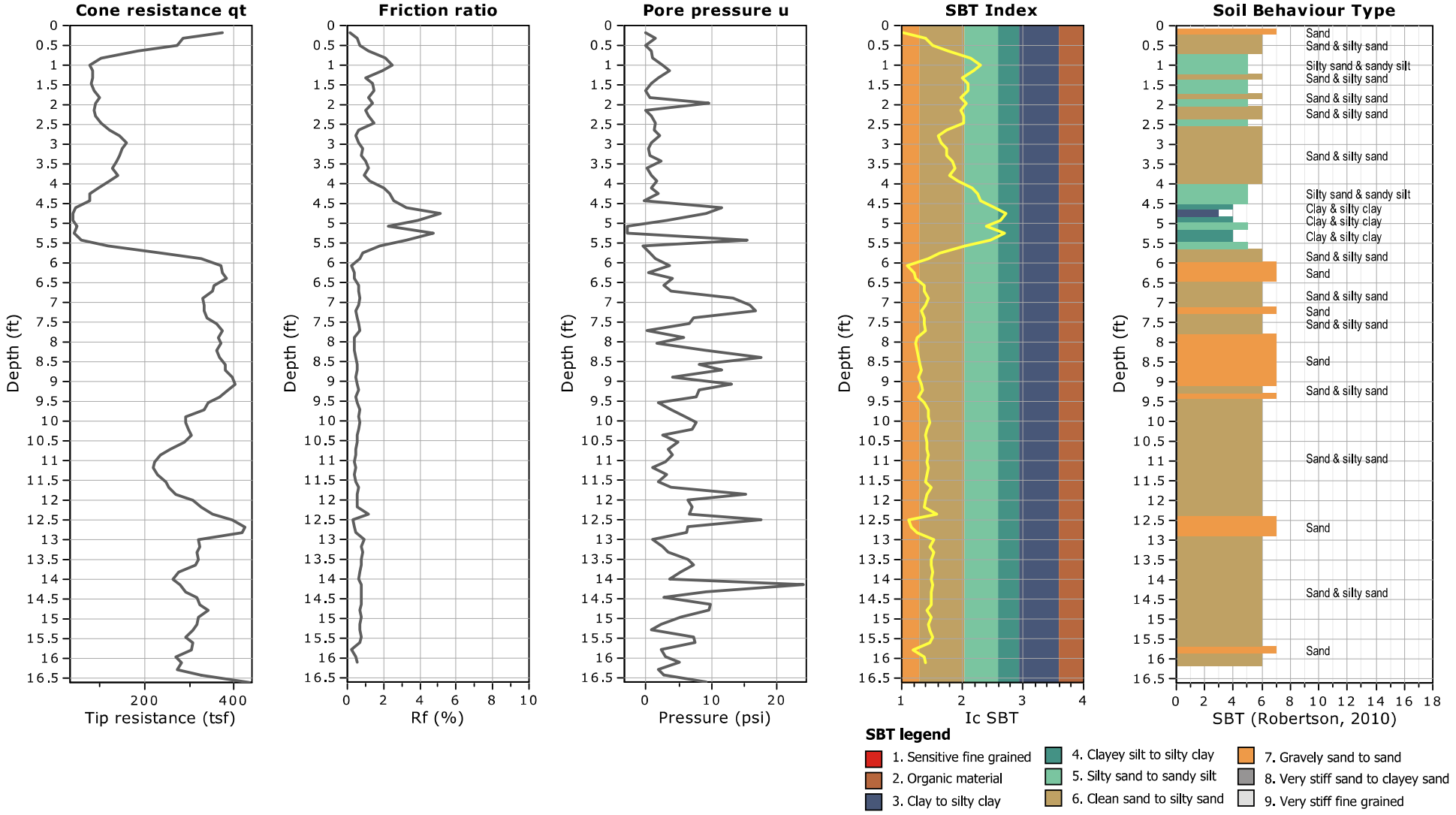
CPT-13
Total depth: 5.09 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

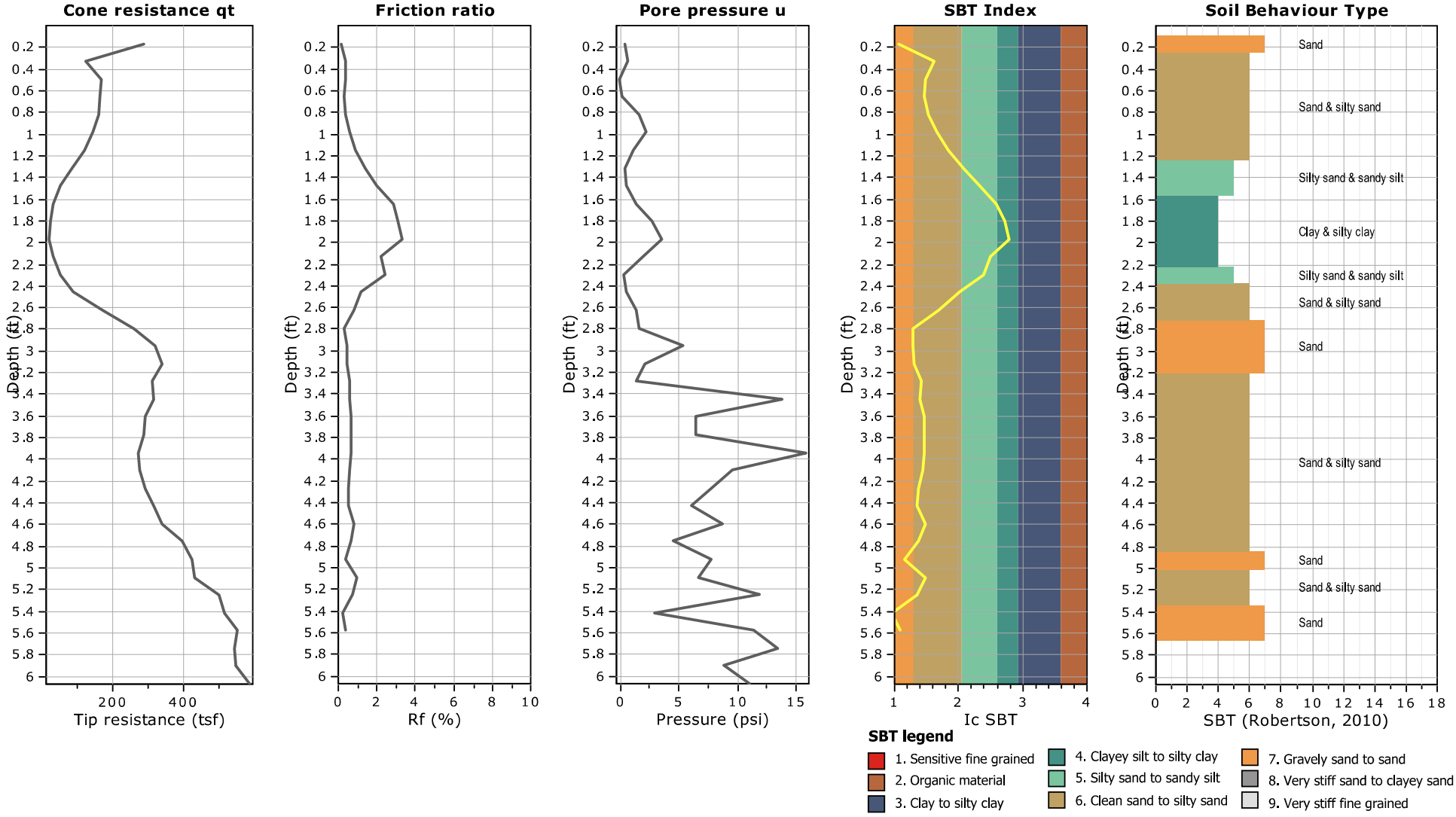
CPT-14
Total depth: 16.60 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

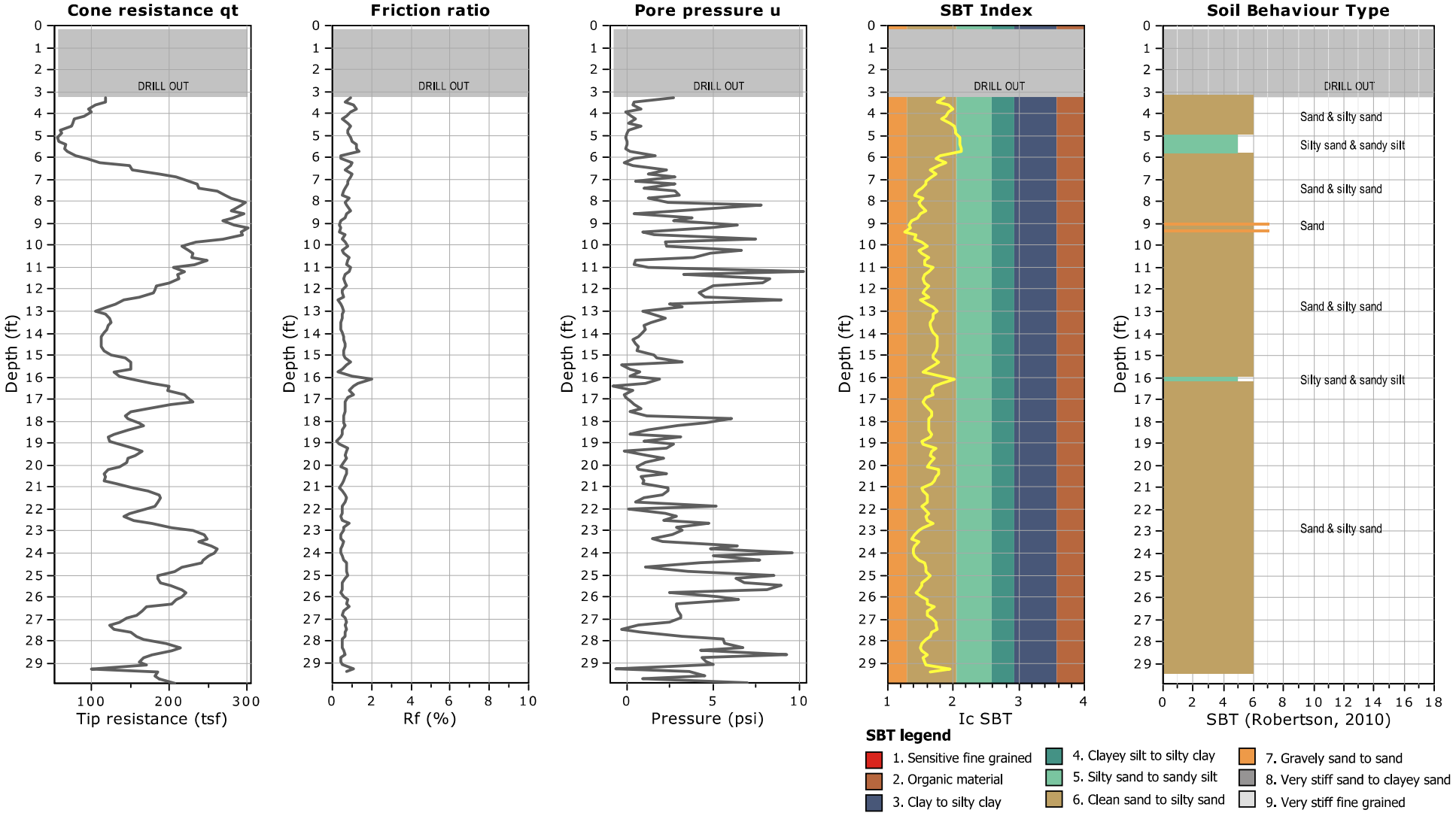
CPT-15
Total depth: 6.07 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

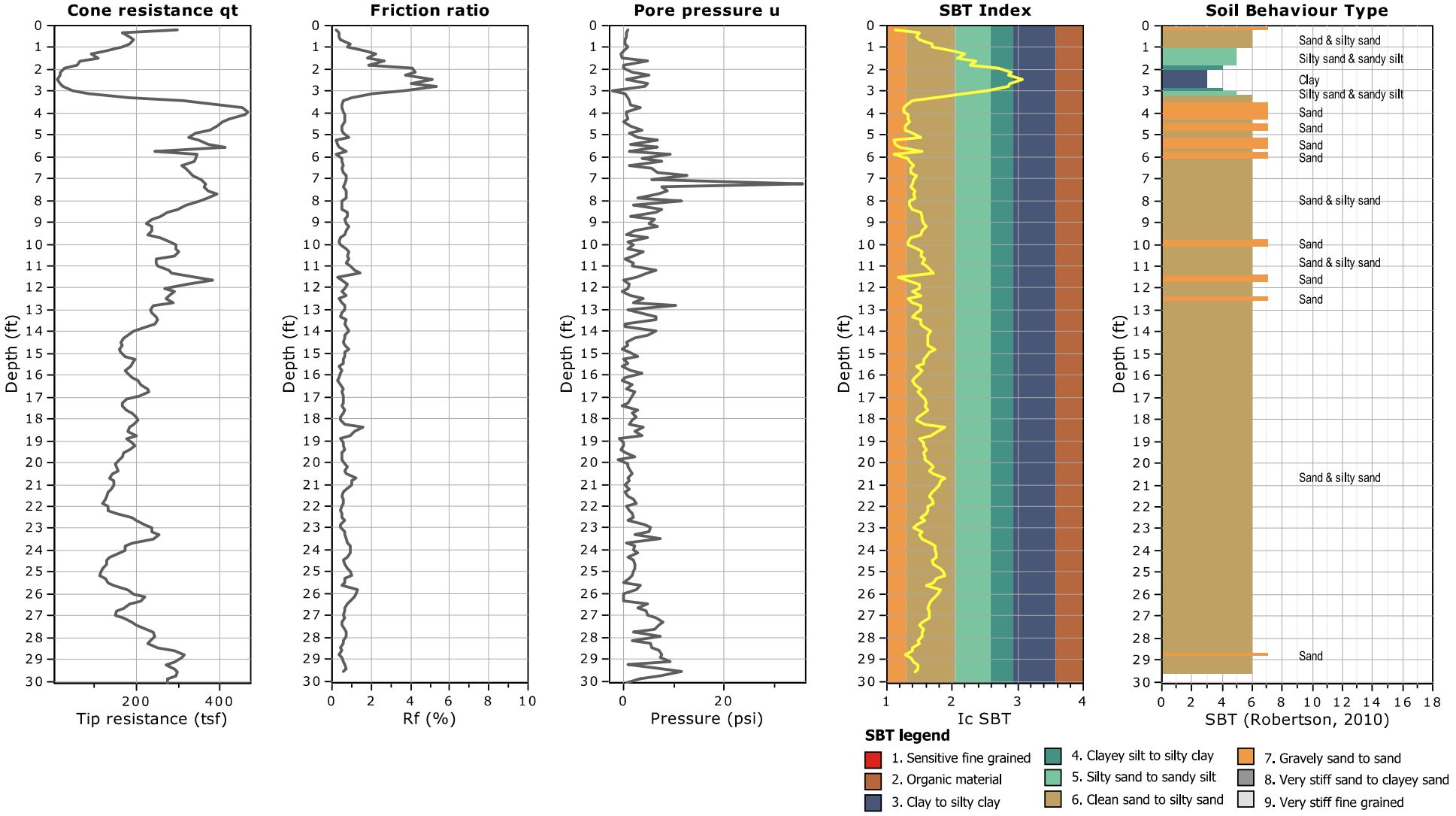
CPT-16
Total depth: 29.92 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

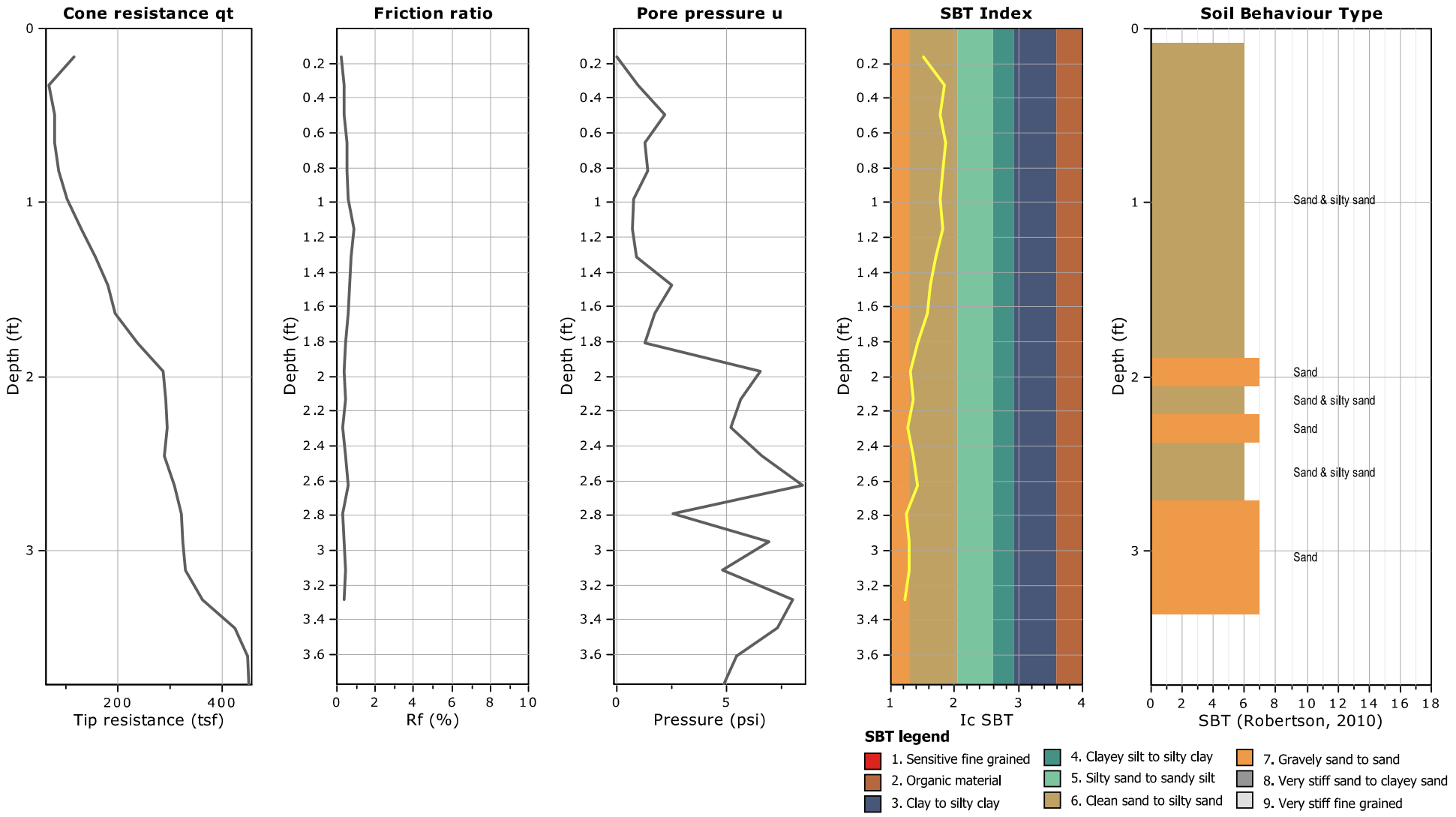
CPT-17
Total depth: 30.09 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

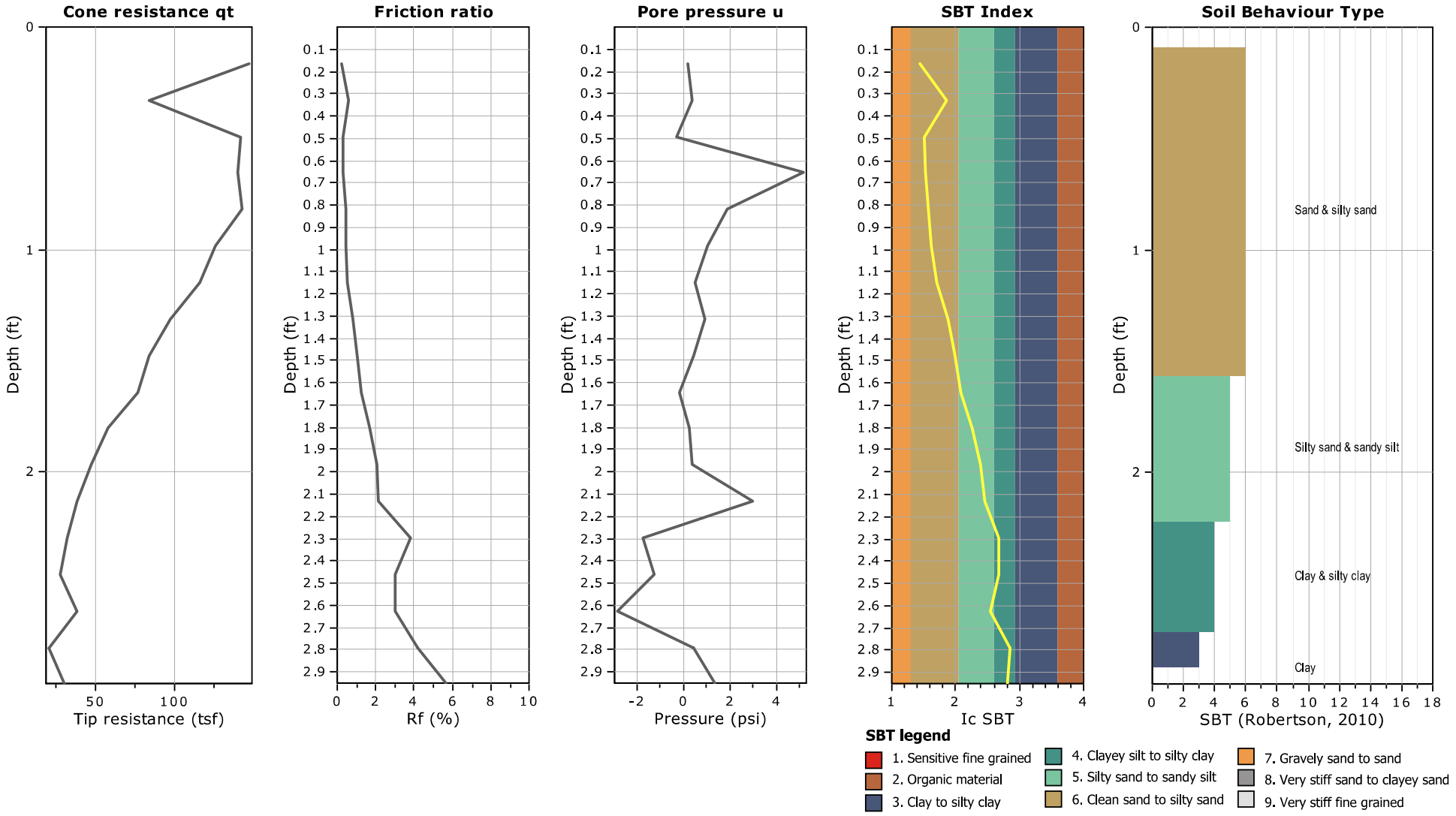
CPT-18
Total depth: 3.77 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

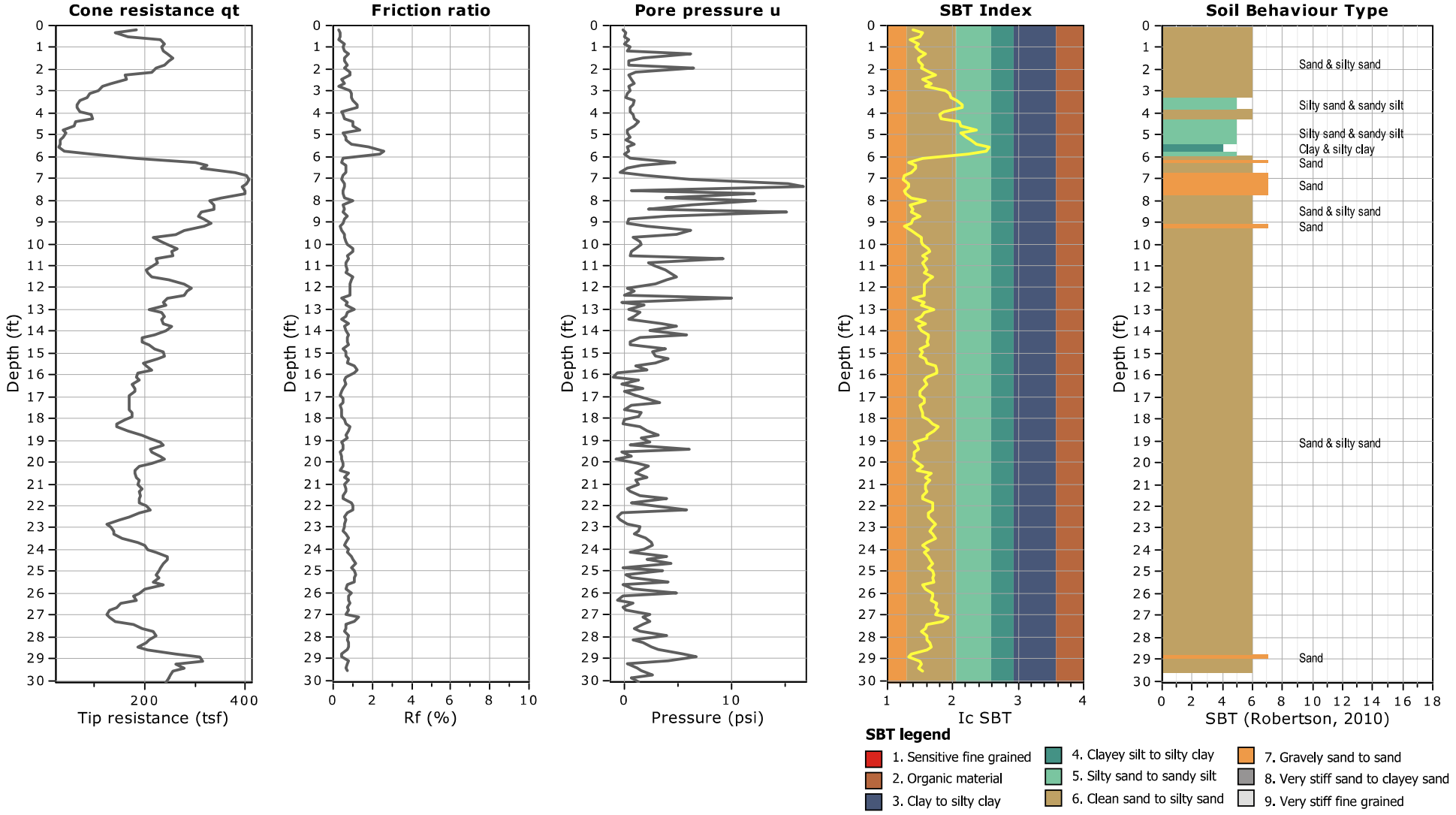
CPT-19
Total depth: 2.95 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

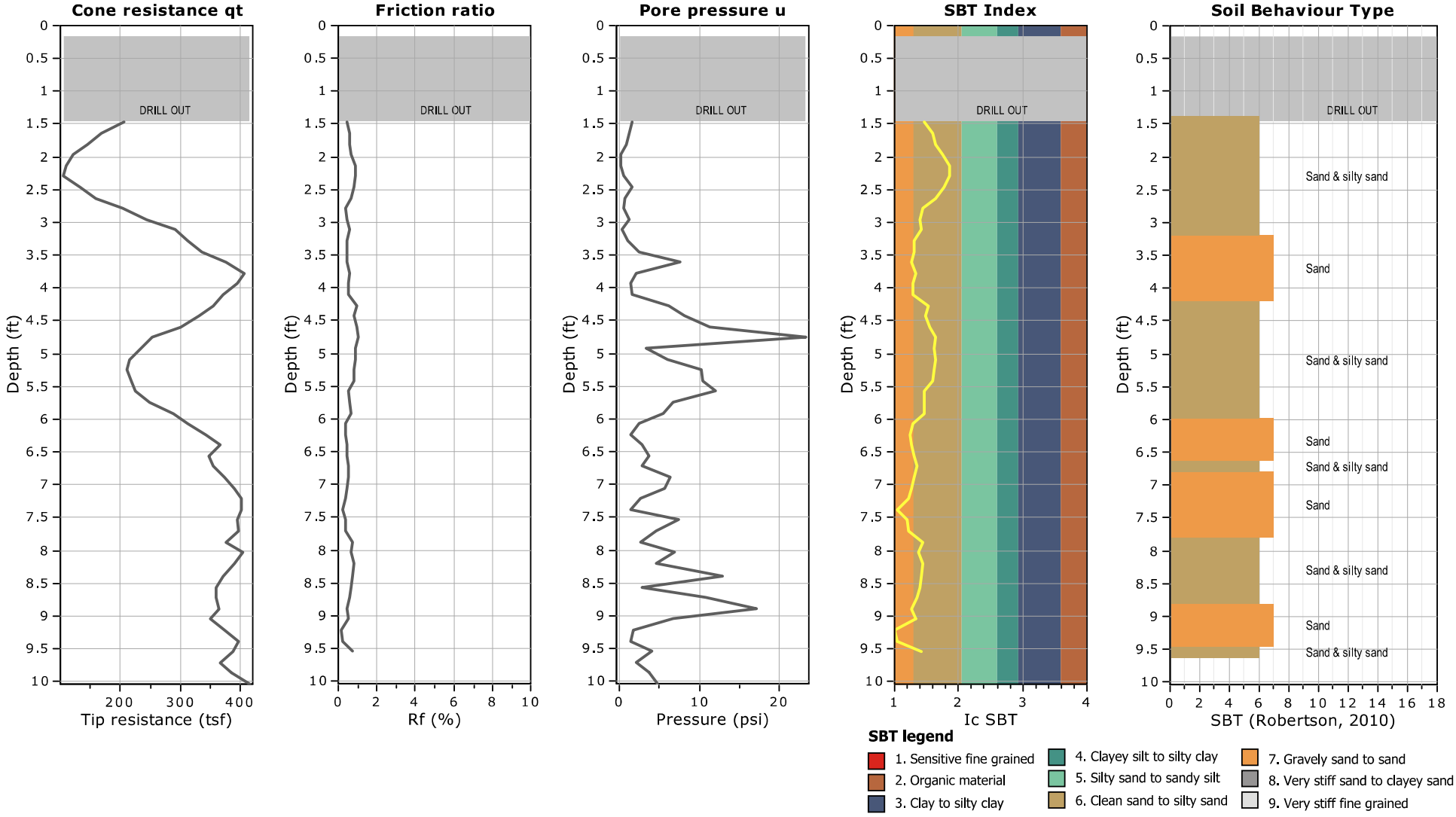
CPT-20
Total depth: 30.09 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

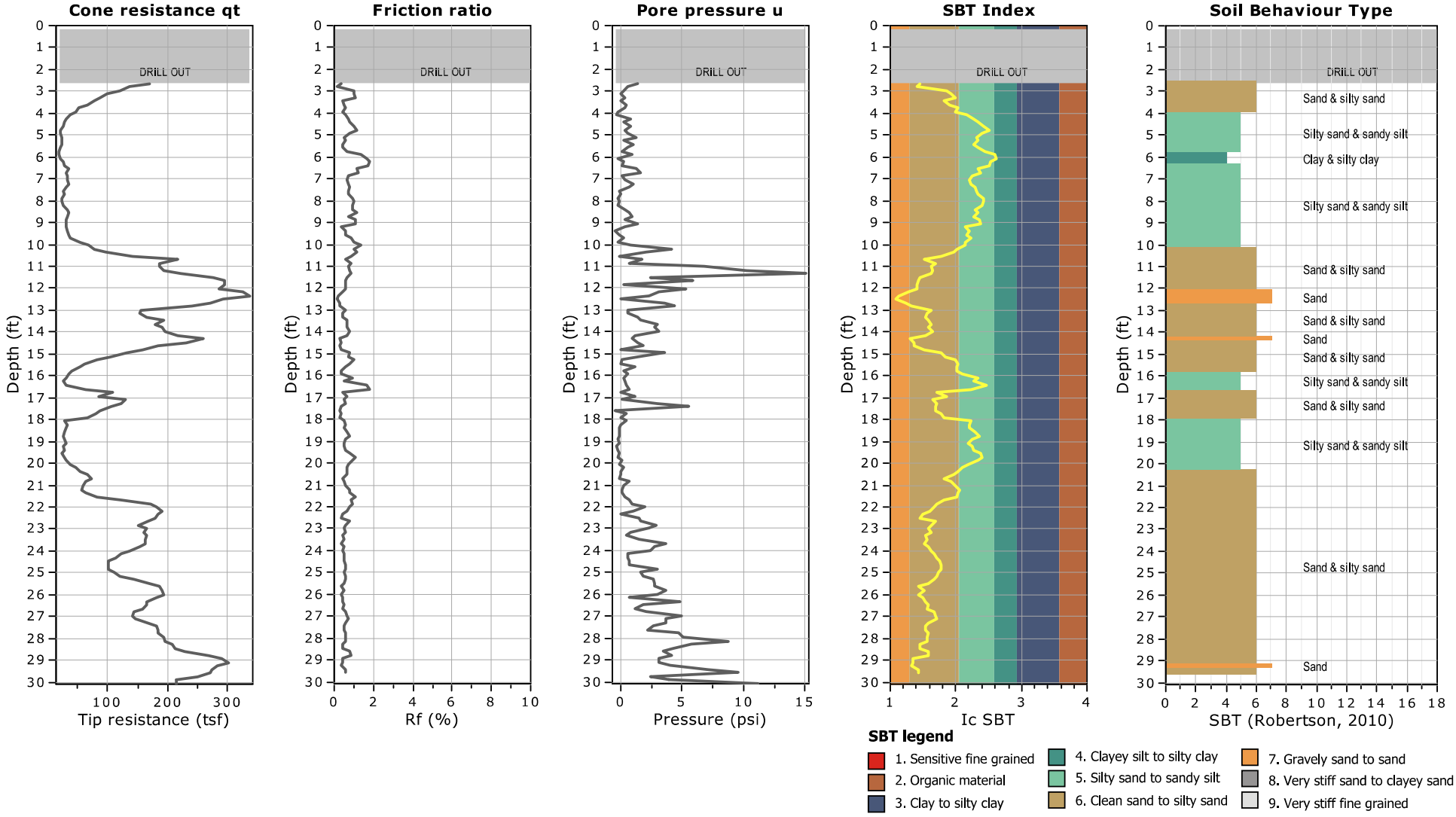
CPT-21
Total depth: 10.04 ft



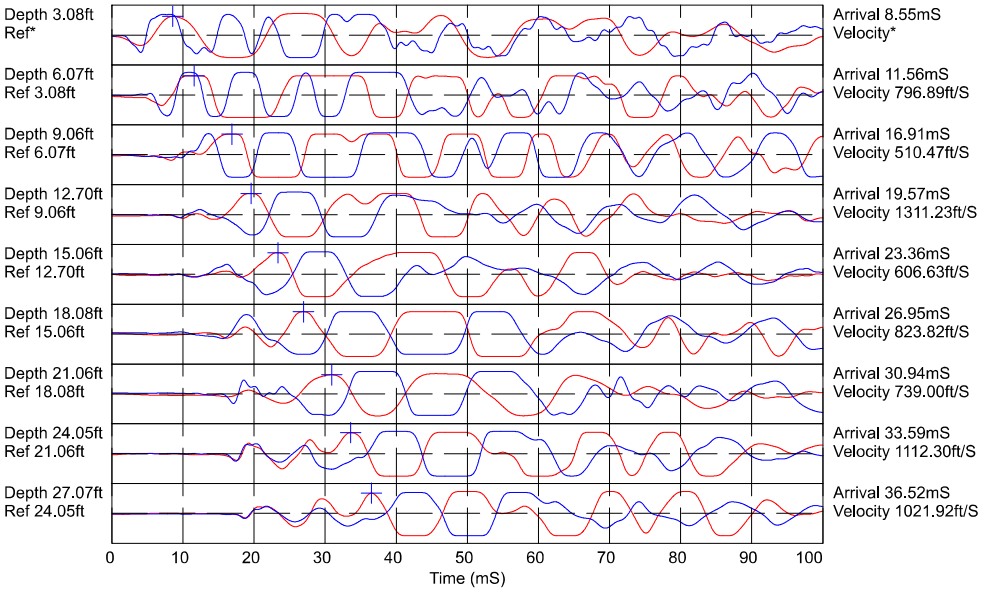
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

CPT-21a
Total depth: 30.09 ft



SEISMIC TEST



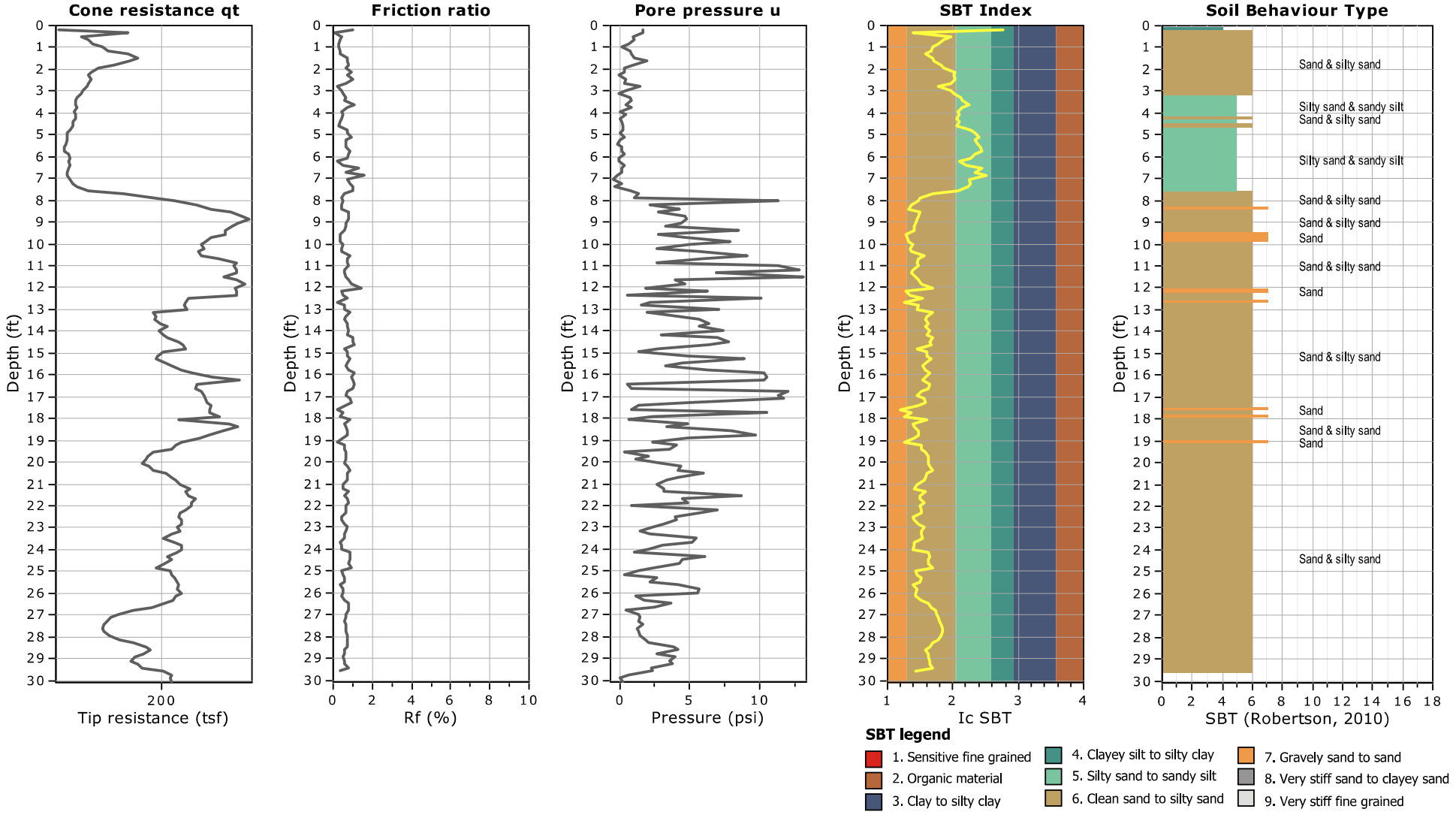
Hammer to Rod String Distance (ft): 3.28
* = Not Determined

COMMENT:

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

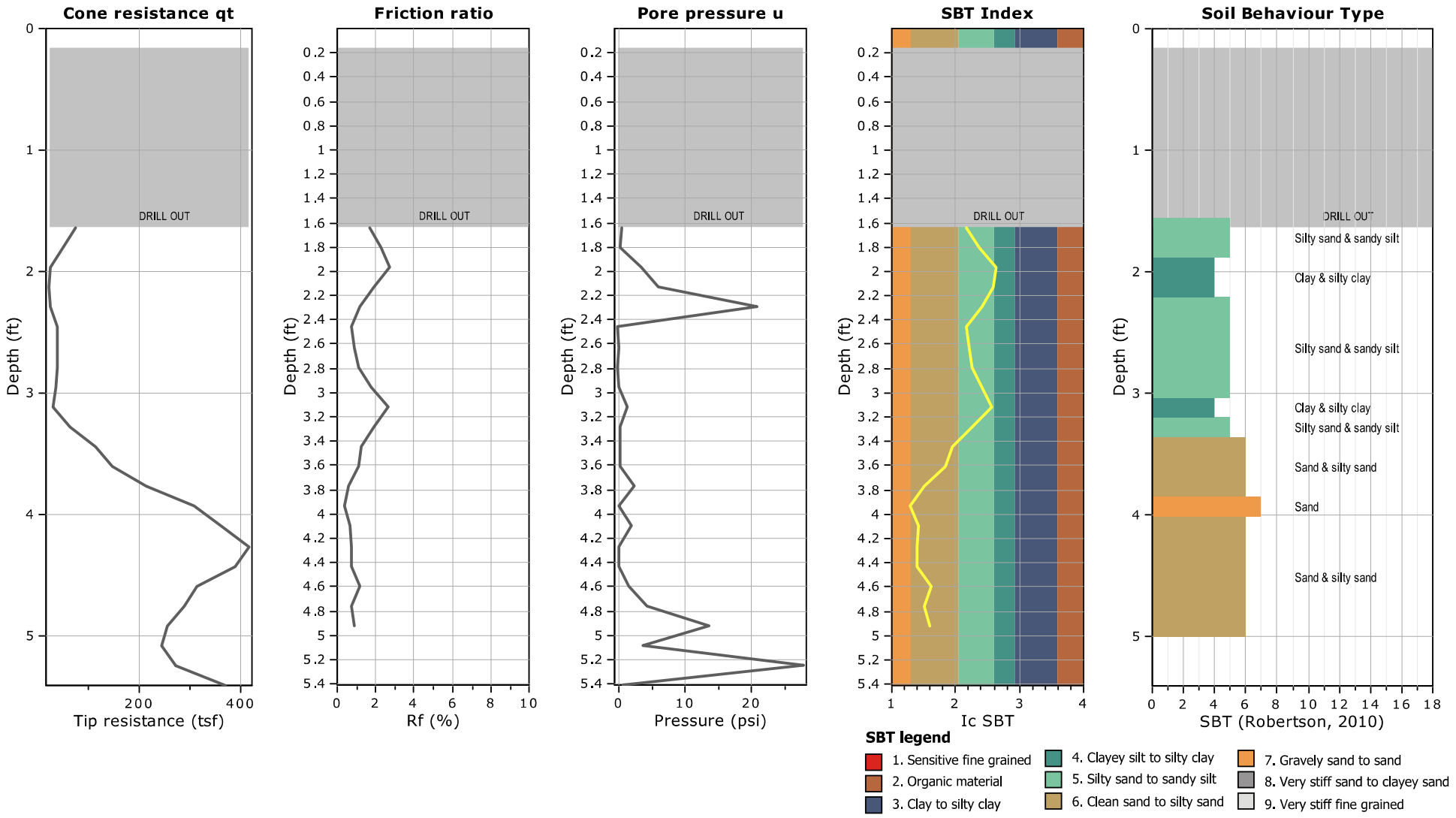
CPT-22
Total depth: 30.09 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

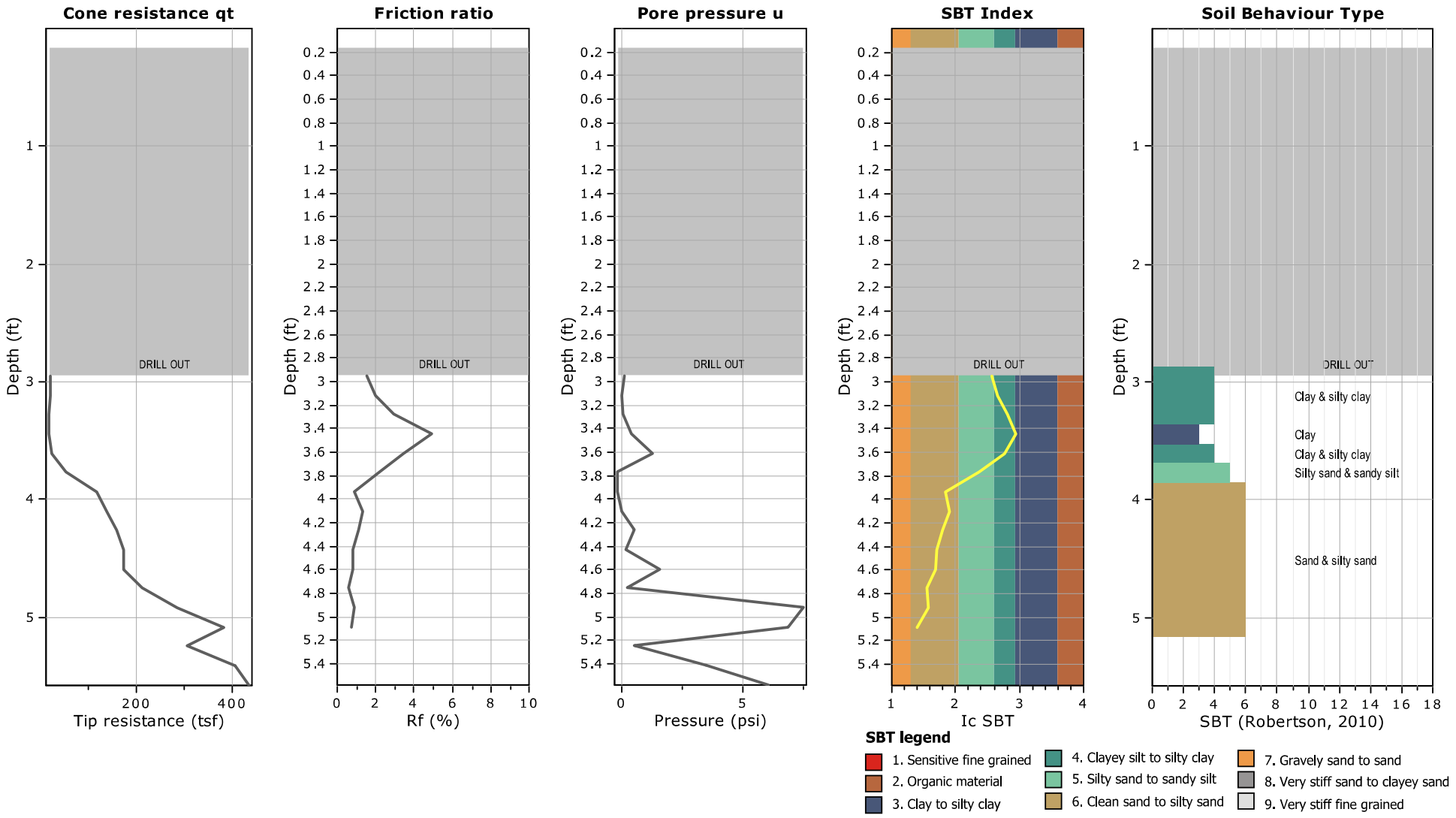
CPT-23
Total depth: 5.41 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

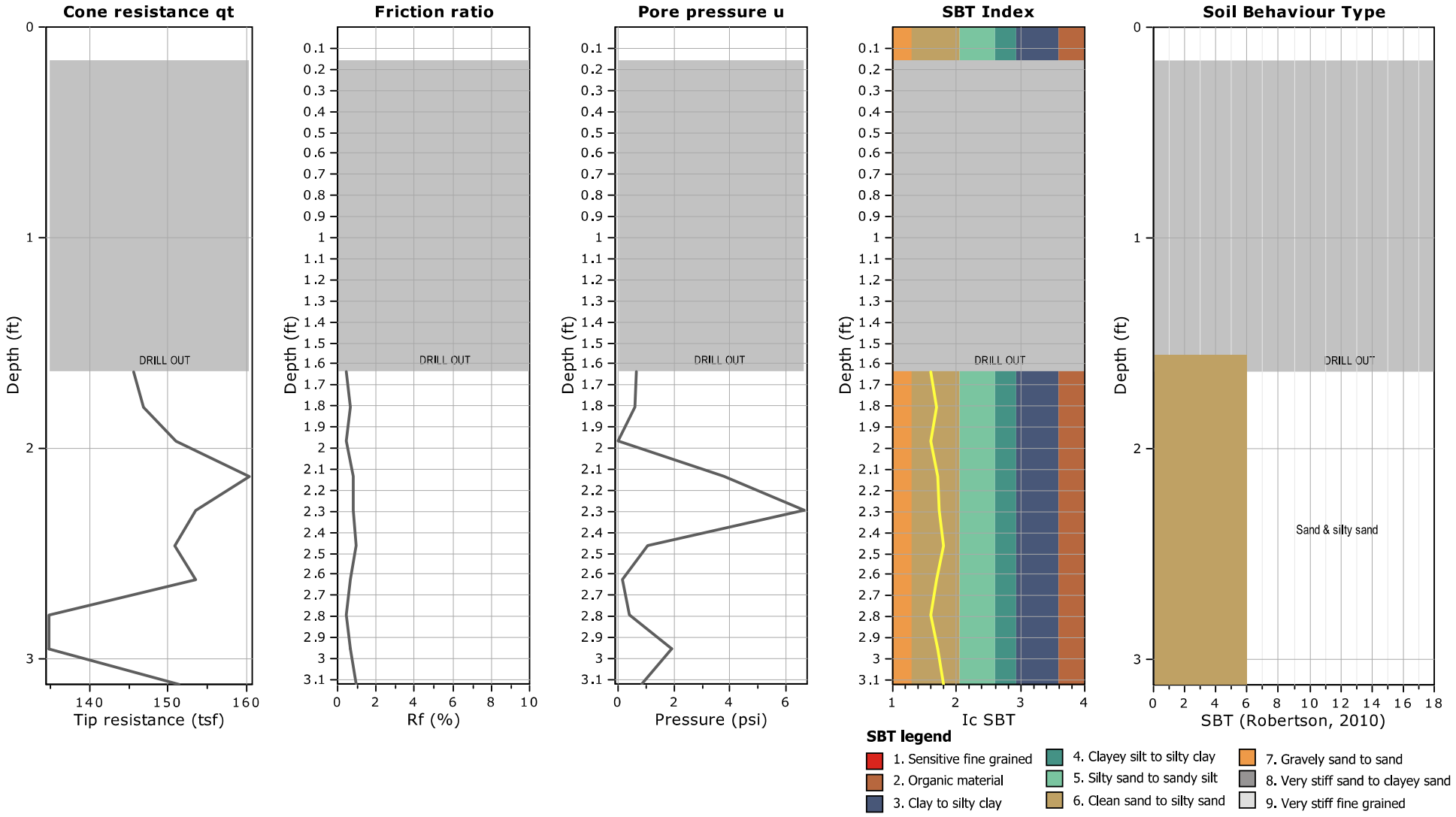
CPT-23a
Total depth: 5.58 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

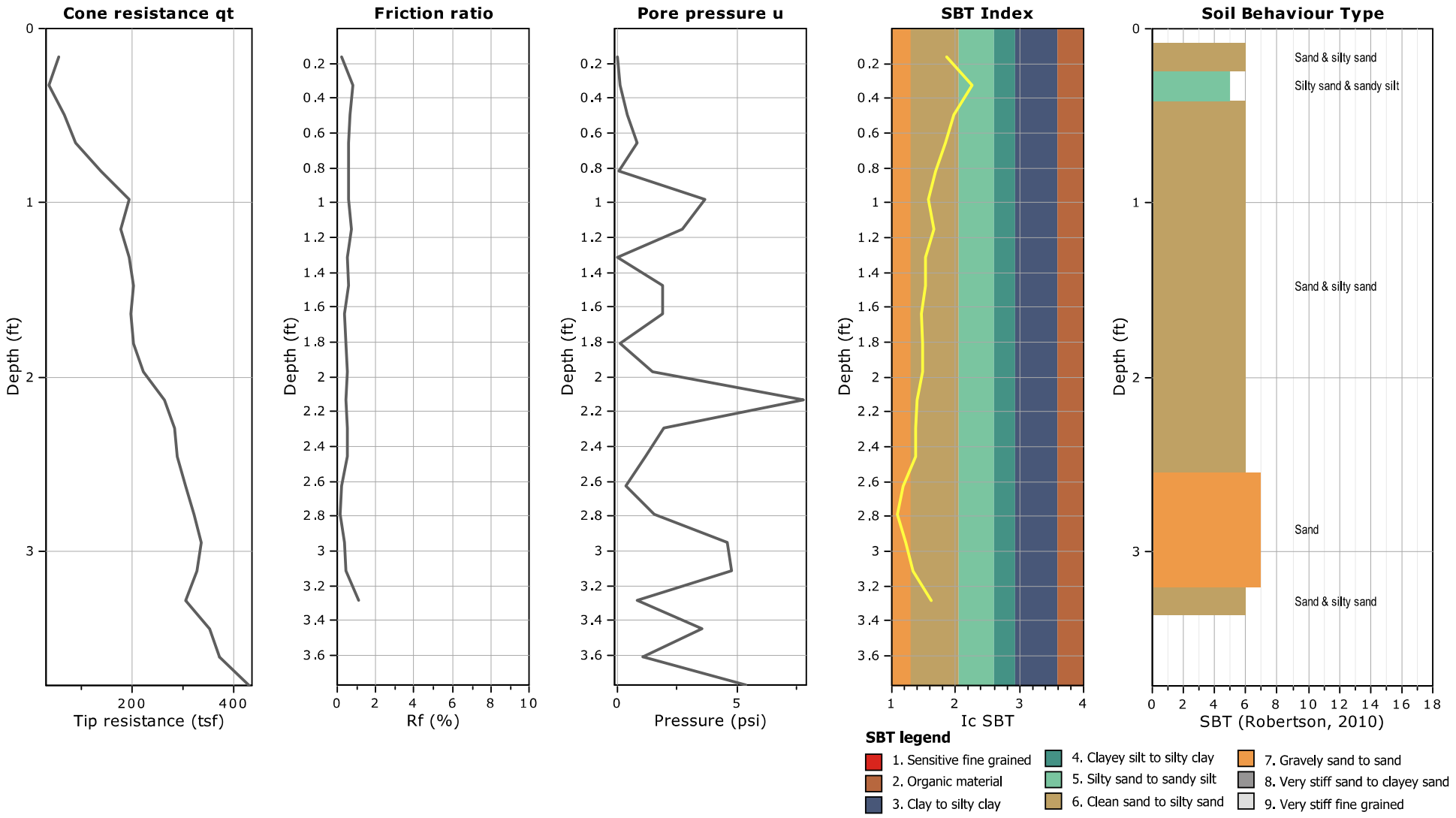
CPT-24
Total depth: 3.12 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

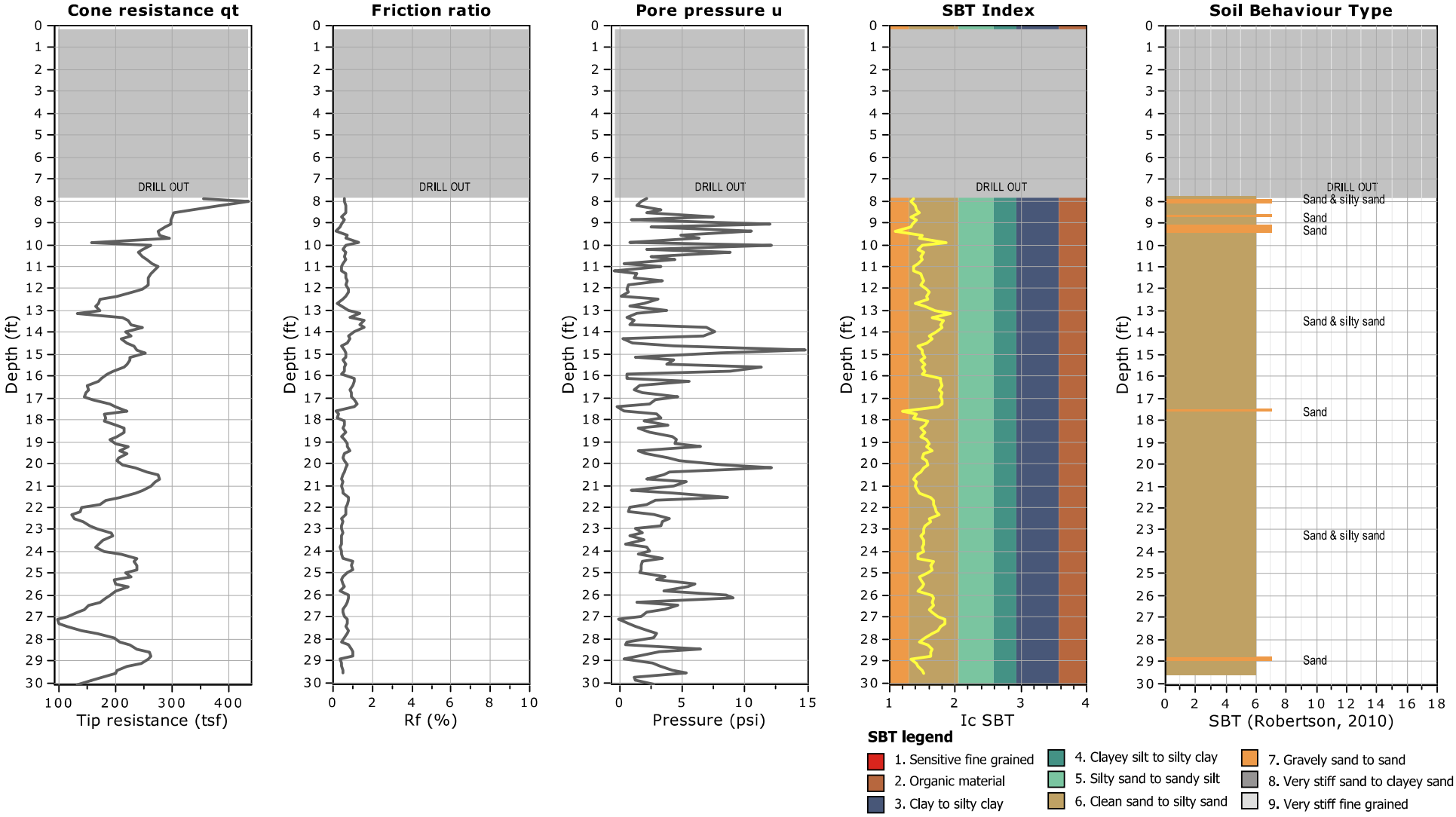
CPT-25
Total depth: 3.77 ft



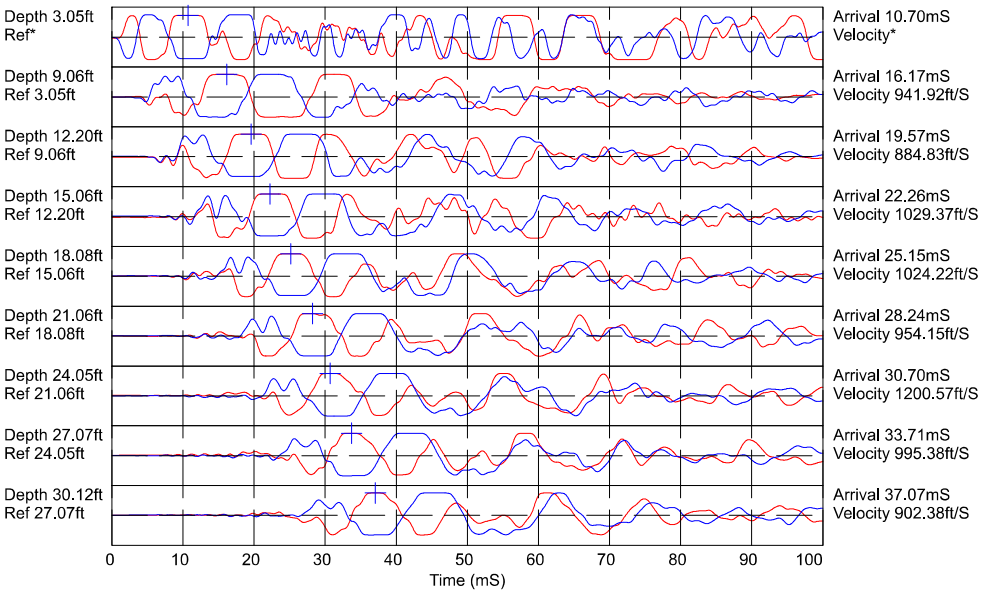
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: GZA
Location: 75 Maxess Rd Melville NY

CPT-25a
Total depth: 30.09 ft



SEISMIC TEST



Hammer to Rod String Distance (ft): 3.28
* = Not Determined

COMMENT:

APPENDIX E
LABORATORY TEST RESULTS

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

Client Information:
GZA GeoEnvironmental
New York, NY
PM: Jimmy Cheung
Assigned By: Jimmy Cheung
Collected By: Client

Project Information:
75 Maxes Road
Melville, NY
GZA Project Number: 41.0162904.00
Summary Page: 1 of 1
Report Date: 08.04.21

LABORATORY TESTING DATA SHEET, Report No.: 7421-G-175, Rev.1

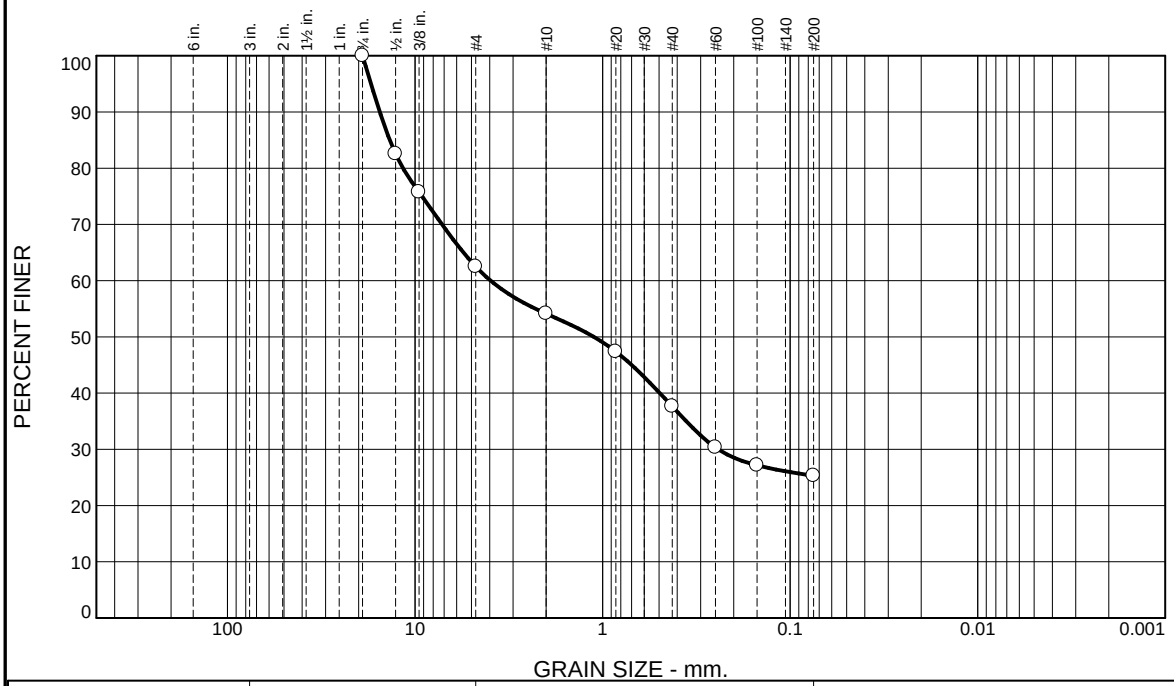
Boring No.	Sample No.	Depth (Ft)	Laboratory No.	Identification Tests								Proctor / CBR / Permeability Tests								Laboratory Log and Soil Description
				As Received Moisture Content %	LL %	PL %	Gravel %	Sand %	Fines %	Org. %	G_s	Dry unit wt. pcf	Test Moisture Content %	γ_d MAX (pcf) / W_{opt} (%)	γ_d MAX (pcf) / W_{opt} (%) (Corr.)	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"	Permeability cm/sec	
				D2216	D4318		D6913			D2974	D854			D1557			D1883			
B-6	S3	4-6	21-S-2923				37.5	37.2	25.3											Light Brown fine GRAVEL and f-c SAND, some Silt
B-9	S6	10-12	21-S-2924				58.5	37.5	4.0											Light Brown f-c GRAVEL and f-c SAND, trace Silt
PT-1	S5	8-10	21-S-2925				19.2	70.9	9.9											Light Red-Brown f-c SAND, little fine Gravel, trace Silt
PT-2	S5	8-10	21-S-2926				13.1	79.9	7.0											Light Red-Brown f-c SAND, little fine Gravel, trace Silt
CBR-1	S1	1-4	21-S-2927				35.7	52.3	12.0			125.6	5.8	133.4 / 6.1	138.9 / 4.9	95	10.1	13.1		Brown f-c SAND and f-c GRAVEL, little Silt

Date Received: *07.21.21*

Reviewed By:

Date Reviewed: *08.04.21*

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	37.5	8.4	16.5	12.3	25.3	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	82.5		
0.375"	75.8		
#4	62.5		
#10	54.1		
#20	47.4		
#40	37.6		
#60	30.3		
#100	27.2		
#200	25.3		

* (no specification provided)

Material Description

Light Brown fine GRAVEL and f-c SAND, some Silt

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 15.4179 D_{85}= 13.6429 D_{60}= 3.9529
D_{50}= 1.1129 D_{30}= 0.2418 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 07.21.21 **Date Tested:** 07.26.21

Tested By: MS

Checked By: Steven Accetta

Title: Laboratory Coordinator

Source of Sample: Borings **Depth:** 4-6' **Date Sampled:**
Sample Number: B-6 / S3

Thielsch Engineering Inc.

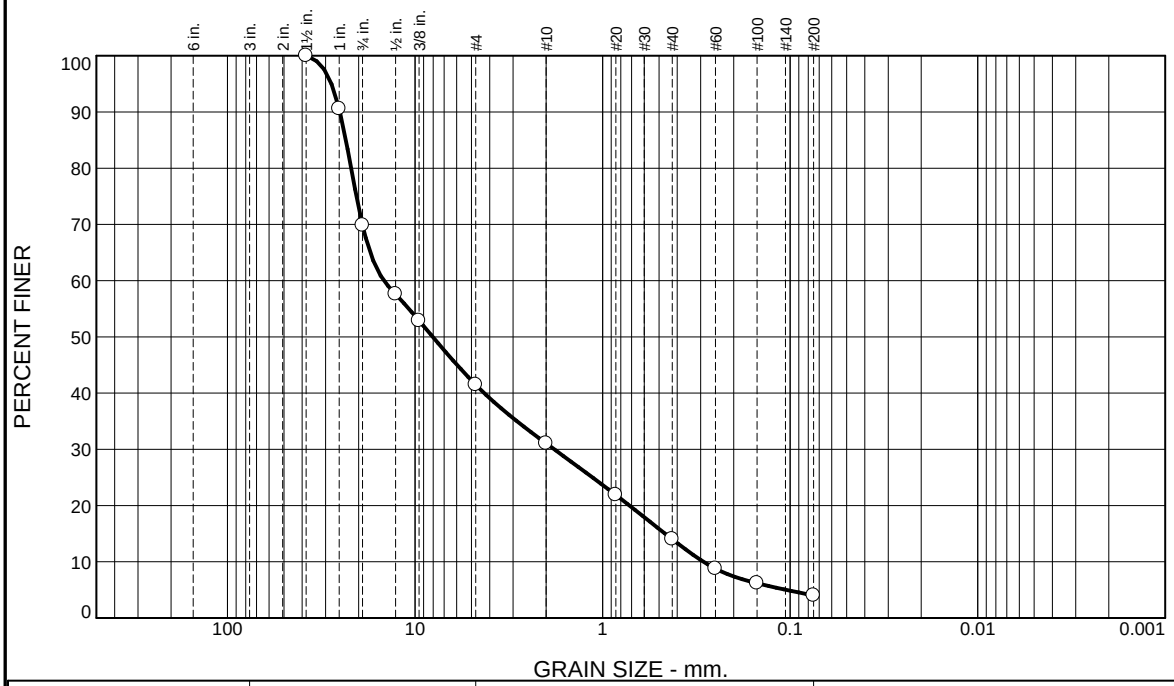
Cranston, RI

Client: GZA GeoEnvironmental

Project: 75 Maxes Rd
Melville, NY

Project No: 41.0162904.00 **Figure** 21-S-2923

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	30.2	28.3	10.4	17.1	10.0	4.0	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	90.6		
3/4"	69.8		
1/2"	57.6		
3/8"	52.9		
#4	41.5		
#10	31.1		
#20	21.9		
#40	14.0		
#60	8.8		
#100	6.2		
#200	4.0		

* (no specification provided)

Material Description

Light Brown f-c GRAVEL and f-c SAND, trace Silt

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= GP **AASHTO (M 145)=**

Coefficients

D_{90}= 25.1586 D_{85}= 23.3830 D_{60}= 14.6576
D_{50}= 8.0434 D_{30}= 1.8092 D_{15}= 0.4638
D_{10}= 0.2895 C_u= 50.64 C_c= 0.77

Remarks

Date Received: 07.21.21 **Date Tested:** 07.26.21

Tested By: MS

Checked By: Steven Accetta

Title: Laboratory Coordinator

Source of Sample: Borings **Depth:** 10-12' **Date Sampled:**
Sample Number: B-9 / S6

Thielsch Engineering Inc.

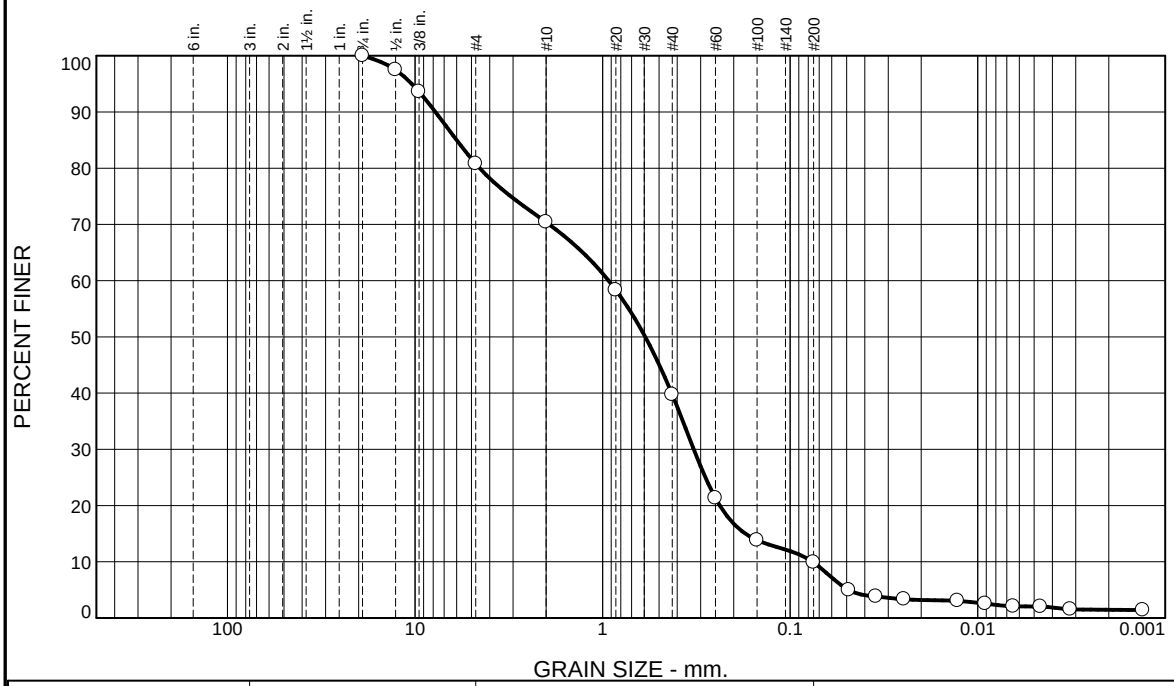
Cranston, RI

Client: GZA GeoEnvironmental

Project: 75 Maxes Rd
Melville, NY

Project No: 41.0162904.00 **Figure** 21-S-2924

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	19.2	10.4	30.7	29.8	8.4	1.5

Test Results (D7928 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	97.5		
0.375"	93.6		
#4	80.8		
#10	70.4		
#20	58.3		
#40	39.7		
#60	21.3		
#100	13.8		
#200	9.9		
0.0487 mm.	5.0		
0.0348 mm.	3.8		
0.0247 mm.	3.3		
0.0128 mm.	3.0		
0.0091 mm.	2.6		
0.0065 mm.	2.1		
0.0046 mm.	2.0		
0.0032 mm.	1.5		
0.0013 mm.	1.4		

* (no specification provided)

Material Description

Light Red-Brown f-c SAND, little fine Gravel, trace Silt

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 7.7818 D_{85}= 6.0012 D_{60}= 0.9289
D_{50}= 0.5924 D_{30}= 0.3264 D_{15}= 0.1732
D_{10}= 0.0759 C_u= 12.24 C_c= 1.51

Remarks

Date Received: 07.21.21 **Date Tested:** 07.26.21

Tested By: JM / AV / MS

Checked By: Steven Accetta

Title: Laboratory Coordinator

Source of Sample: Test Pit **Depth:** 8-10' **Date Sampled:**
Sample Number: PT-1 / S5

Thielsch Engineering Inc.

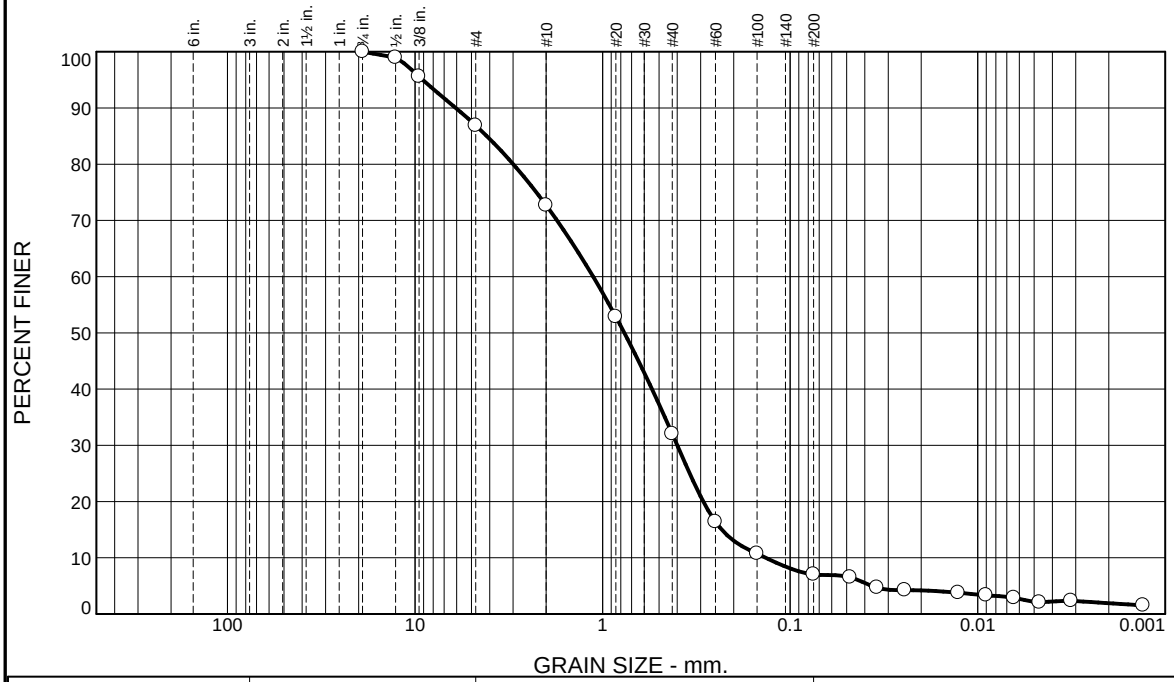
Cranston, RI

Client: GZA GeoEnvironmental

Project: 75 Maxes Rd
Melville, NY

Project No: 41.0162904.00 **Figure** 21-S-2925

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	13.1	14.2	40.7	25.0	5.1	1.9

Test Results (D7928 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	99.0		
0.375"	95.6		
#4	86.9		
#10	72.7		
#20	52.9		
#40	32.0		
#60	16.4		
#100	10.7		
#200	7.0		
0.0478 mm.	6.5		
0.0344 mm.	4.7		
0.0245 mm.	4.2		
0.0127 mm.	3.8		
0.0090 mm.	3.3		
0.0064 mm.	2.9		
0.0047 mm.	2.1		
0.0032 mm.	2.4		
0.0013 mm.	1.5		

* (no specification provided)

Material Description

Light Red-Brown f-c SAND, little fine Gravel, trace Silt

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 6.0625 D_{85}= 4.1424 D_{60}= 1.1227
D_{50}= 0.7659 D_{30}= 0.3996 D_{15}= 0.2318
D_{10}= 0.1348 C_u= 8.33 C_c= 1.05

Remarks

Date Received: 07.21.21 **Date Tested:** 07.26.21

Tested By: JM / AV / MS

Checked By: Steven Accetta

Title: Laboratory Coordinator

Source of Sample: Test Pit **Depth:** 8-10' **Date Sampled:**
Sample Number: PT-5 / S5

Thielsch Engineering Inc.

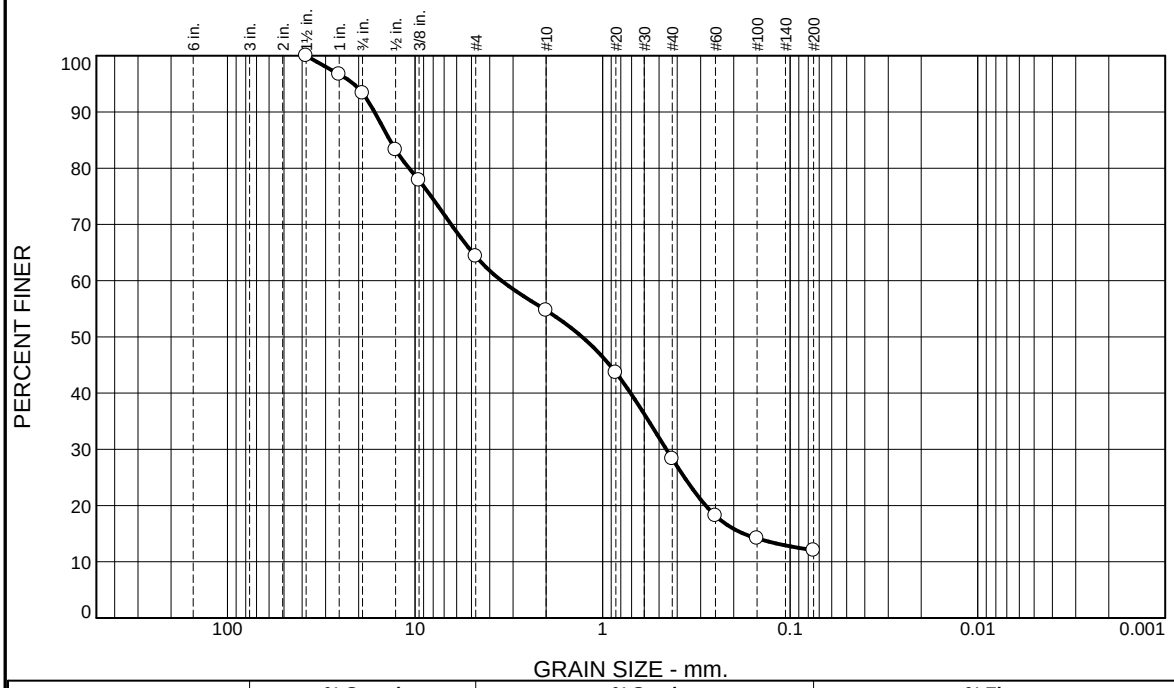
Cranston, RI

Client: GZA GeoEnvironmental

Project: 75 Maxes Rd
Melville, NY

Project No: 41.0162904.00 **Figure** 21-S-2926

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.7	29.0	9.6	26.4	16.3	12.0	

Test Results (D6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	96.7		
3/4"	93.3		
1/2"	83.3		
3/8"	77.8		
#4	64.3		
#10	54.7		
#20	43.6		
#40	28.3		
#60	18.2		
#100	14.2		
#200	12.0		

* (no specification provided)

Material Description

Brown f-c SAND and f-c GRAVEL, little Silt

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

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

Coefficients

D_{90}= 16.4458 D_{85}= 13.6341 D_{60}= 3.4620
D_{50}= 1.2848 D_{30}= 0.4573 D_{15}= 0.1770
D_{10}= C_u= C_c=

Remarks

Date Received: 07.21.21 **Date Tested:** 07.26.21

Tested By: SF / MS

Checked By: Steven Accetta

Title: Laboratory Coordinator

Source of Sample: Test Pit **Depth:** 1-4' **Date Sampled:**
Sample Number: CBR-1 / S1

Thielsch Engineering Inc.

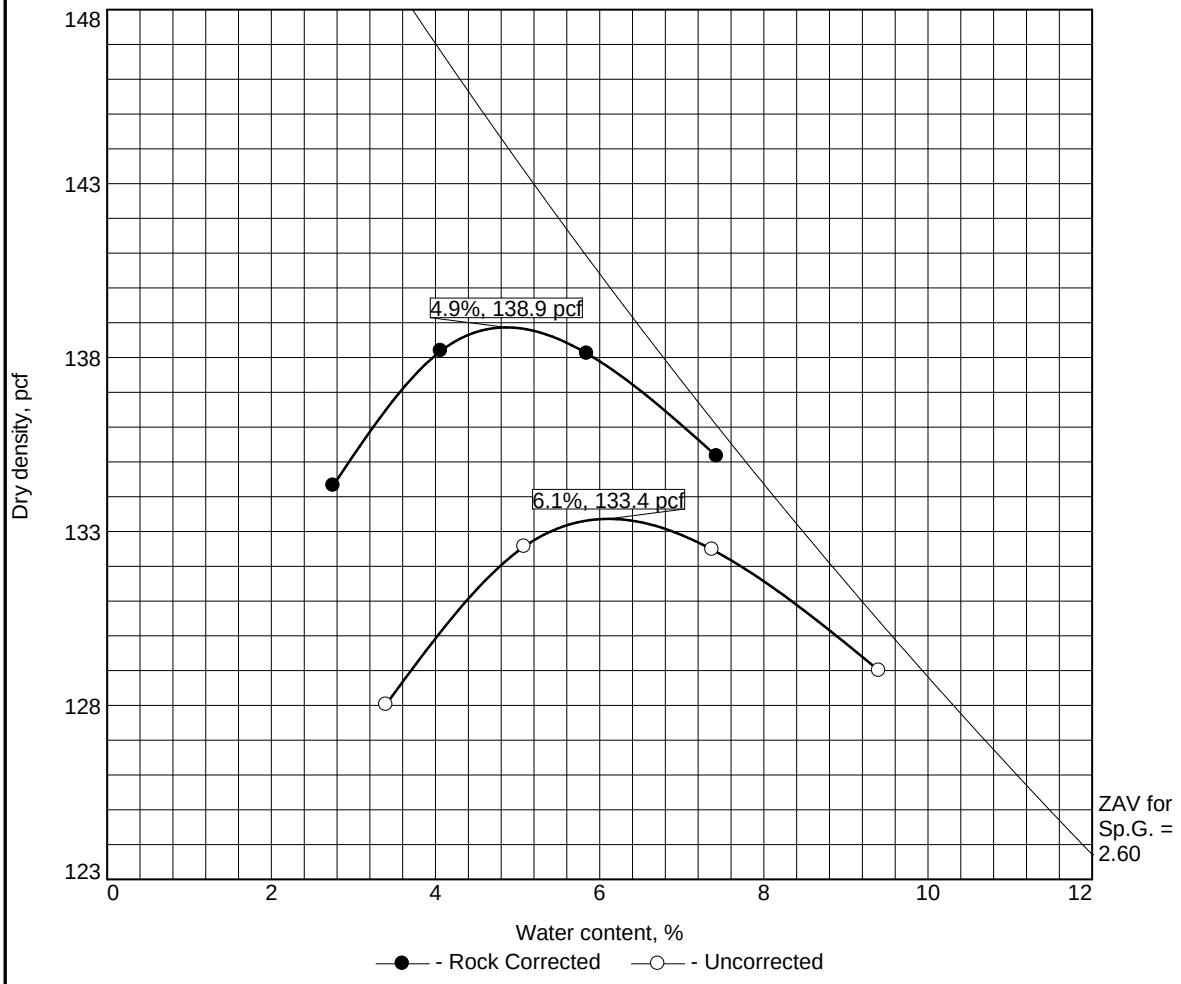
Cranston, RI

Client: GZA GeoEnvironmental

Project: 75 Maxes Rd
Melville, NY

Project No: 41.0162904.00 **Figure** 21-S-2927

COMPACTION TEST REPORT



Test specification: ASTM D 1557-12 Method B Modified
ASTM D4718-15 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
1-4'	SP-SM	A-1-b		2.6	NV	NP	22.2	12.0

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 138.9 pcf	133.4 pcf	Brown f-c SAND and f-c GRAVEL, little Silt
Optimum moisture = 4.9 %	6.1 %	

Project No. 41.0162904.00 **Client:** GZA GeoEnvironmental
Project: 75 Maxes Rd
Melville, NY
○**Source of Sample:** Test Pit **Sample Number:** CBR-1 / S1

Thielsch Engineering Inc.

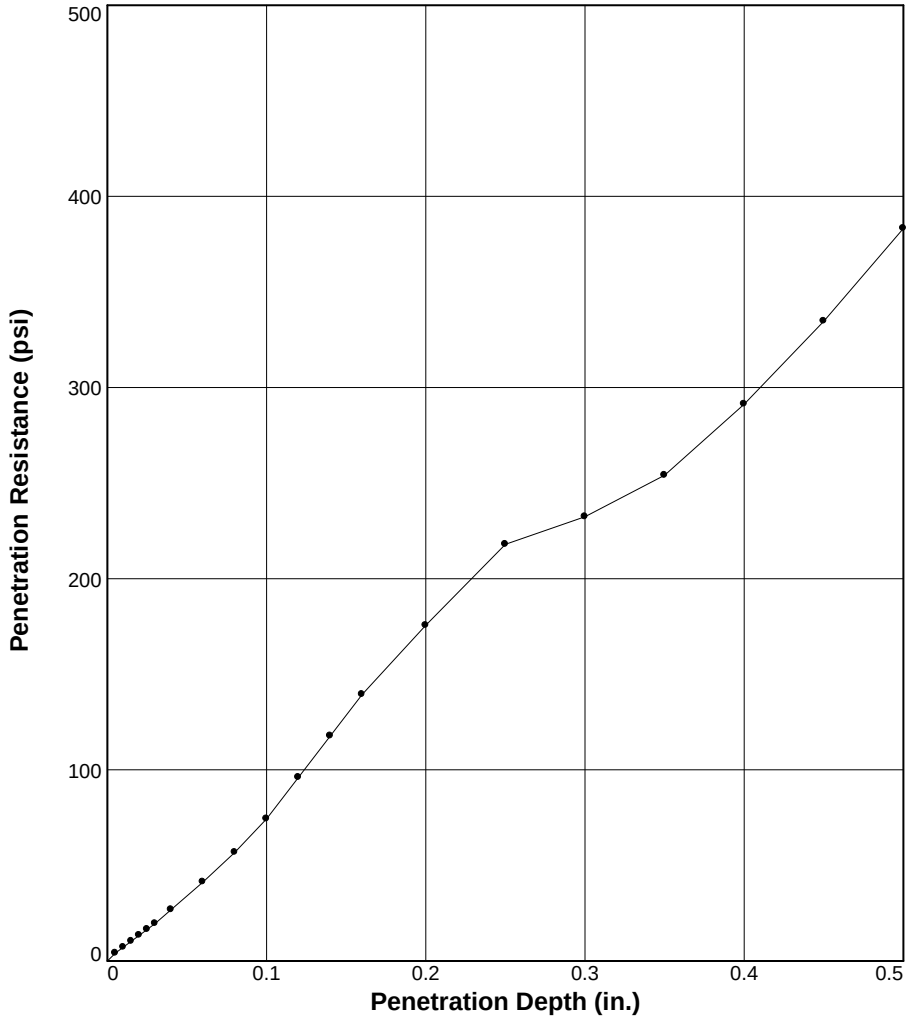
Cranston, RI

Remarks:

Figure 21-MC-2927

Tested By: SF **Checked By:** SA

BEARING RATIO TEST REPORT
ASTM D1883-07



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	125.6	94.2	5.8	122.5	91.8	9.6	10.1	13.1	0.025	10	2.5
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Brown f-c SAND and f-c GRAVEL, little Silt	SP-SM	133.4	6.4	NV	NP

Project No: 41.0162904.00

Project: 75 Maxes Rd Melville, NY

Source of Sample: Test Pit **Depth:** 1-4'

Sample Number: CBR-1 / S1

Date:

Test Description/Remarks:

Sample soaked for 96 hours.

BEARING RATIO TEST REPORT

Thielsch Engineering Inc.

Figure CBR-2927