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# GEOTECHNICAL ENGINEERING STUDY LOT B

for

## Hudson Logistics Center Hudson, New Hampshire

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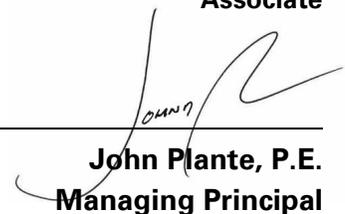
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## **EXECUTIVE SUMMARY**

In support of the proposed industrial park development in Hudson, New Hampshire, Langan conducted a geotechnical subsurface exploration and prepared a geotechnical engineering study to provide geotechnical design and construction recommendations. Specifically, this report addresses Lot B within the overall development. The remaining two lots (Lot A and C) are addressed in separate reports.

Existing grades on the 96 acre site generally slope down from the north and east to the west (about el +171 to +99). The design concept includes the construction of a distribution warehouse having a footprint of about 1,005,000 square feet (sf) and a proposed finished floor elevation (FFE) of about el +148. Proposed site grades generally range from about el +89 to +175. The remaining development includes new access roads, parking areas, loading docks, utilities, and stormwater features.

At this time, the site grading has not been finalized. As such, the recommendations provided here are subject to change when the revised site grading is complete. If the grading approach changes, a revised geotechnical engineering report may be required as the grading affects our recommendations.

Our subsurface exploration was performed between June and July, 2020 and consisted of borings (97), test pits (35), observation wells (9), laboratory testing, and infiltration tests (2).

The general subsurface conditions across the entire lot consisted of a surficial layer of topsoil (about 2 to 36 inches thick), underlain by discontinuous layers of fill (about 1 to 12 feet thick), sand/silt (about 1 to up to 38 feet thick), glacial till (about 1 to up to 27 feet thick), weathered rock (top of about el +97 to +137), and bedrock (top of about el +85 to el +159). Groundwater was encountered or observed across the site (about el +91 to +157). Within the proposed building footprint, bedrock was encountered from about el +85 to +140 and groundwater was encountered or observed from about el +101 to +149.

The proposed warehouse building can be supported on a conventional shallow foundation system using an allowable bearing pressure of 3,000 pounds per square foot (psf) bearing on the natural sand/silt, glacial till, weathered rock, or bedrock or compacted structural fill. Total and differential settlements are estimated to be 1 inch and ½ inch or less, respectively. The proposed slab areas can be constructed as conventional slab-on-grade bearing on the natural sands, glacial till, or proof-rolled existing fill.

Site Class D and Seismic Design Category B may be used in design.

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The following design and construction premiums were identified:

- The natural sand is generally poorly graded and both the sand/silt and glacial till materials have a fines contents ranging from 6% to 78%. Mixing the sand/silt and glacial till with a more granular material may be required such that the materials are well graded to meet the specifications for structural fill and so that the material are not as sensitive to moisture.
- Groundwater was encountered across the site from about 6 to 35 feet below grade (about el +91 to +157).
  - Temporary groundwater dewatering will be required throughout construction where excavations extend to below groundwater.
  - Groundwater was encountered within 4 feet and above proposed select paved areas. Permanent dewatering (underdrains) will be required at the northern and eastern side of the lot for up to 200,000 square feet of paved areas.
  - Groundwater was encountered above the proposed slab elevation for the building. Permanent dewatering (sub-slab underdrains) will be required for up to 10,000 square feet of the building area.
- Bedrock was encountered across the site from about 9 to 41 feet below grade (about el +85 to +159).
  - Though not encountered within the building footprint or the proposed bottom of footing elevation, bedrock was encountered to the east of the proposed building within the parking lot. If bedrock is encountered within the building, rock removal will be required.
  - Rock removal will be required for site areas to the east.
- Select wetlands are proposed for filling as part of the development. All unsuitable materials (i.e. water, organic materials, etc.) must be removed prior to filling. Dewatering activities should be expected in these areas.
- The foundations for the proposed water towers have not been designed yet as they are a delegated design. Ground improvement may be required for the water towers; however this should be determined by the water tower design engineer of record.
- Topsoil will need to be segregated, as it is not suitable for re-use beneath structural areas (pavements, buildings, retaining walls, etc.). Topsoil may be re-used in landscaped areas, pending approval.

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## INTRODUCTION

This report presents our geotechnical engineering study for the proposed industrial park development in Hudson, New Hampshire. Specifically, this report addresses Lot B within the overall development. The remaining two lots (Lot A and Lot C) are addressed in separate reports.

The purposes of this study were to explore subsurface conditions, evaluate feasible foundation options, and develop geotechnical engineering recommendations. Services were performed in accordance with our authorized proposal (19 September 2019 and revised 1 July 2020).

Our approach and recommendations were developed considering the following plans, design criteria, preliminary loads, and design bulletin. Any changes to the design scheme must be reviewed by Langan for effects on our recommendations.

- Site development plans prepared by Langan (August 2020 progress print).
- “Design Criteria and Outline Specification for the Development of 2019-2020 NA Traditional Non-Sort Facility, Version 7.0” prepared by Ford & Associates Architects, Inc. (10 September 2019).
- Column Loading Map prepared by HSA & Associates, Inc. (received 20 July 2020).
- Design bulletin DB-0088 NACF Pavement Design Criteria and Guidelines (3 March 2020).

At this time, the site grading is still progressing. As such, the recommendations provided here are subject to change with the revised site grading.

Elevations are referenced from a “Topographic Subdivision Plan, Hudson Logistics Center” (21 April 2020) prepared by Hayner/Swanson, Inc. referencing the National Geodetic Vertical Datum of 1929 (NGVD29).

## SITE DESCRIPTION

### Overall

The overall about 320-acre site is occupied by the Green Meadow Golf Club at 59 Steele Road in Hudson, New Hampshire. The site is bounded by Sagamore Bridge Road to the north, commercial properties, streams/wetlands and New Hampshire Route 3A to the east, residential neighborhoods to the south along Fairway and Eagle Drives, and the Merrimack River to the west. Figure 1 shows the site location and surrounding properties.

The golf club consists of a 39-hole golf course including wooded areas, open fairways, water features, and sand traps. Structures include a two-story clubhouse, one-story maintenance

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building, and pump houses. Grades generally slope up from the east to the center of the site and slope down from the center to the west towards the Merrimack River.

Multiple utilities run throughout the site to support the existing golf course (irrigation, electric, stormwater, etc.).

## **Lot B**

Lot B is about 96 acres and is located on the southwest part of the overall site. Site grades generally slope down from the north and east to the west (about el +171 to +99). High points (between el +155 and 171) exist at the north part of the site (to the south existing clubhouse parking lot) and along the entirety of the eastern part of the lot. Elevations at the center and south parts of the lot typically vary between el +130 and +145. Grades slope down along the western part of the site toward the Merrimack River from about el +135 to +115. A wetlands area exists at the western part of the site with grades between about el +99 to +113.

## **PROPOSED DEVELOPMENT**

### **Overall**

The overall proposed development will include demolition of the existing club, golf course and ancillary structures, and the construction of three distribution warehouses on separate lots. No basement levels are proposed. Each proposed warehouse will have associated parking stalls, loading docks, access roads, landscaped areas, and stormwater basins. Additionally, one aboveground water tank is proposed for each lot (to be designed by others).

Several fill retaining walls up to about 10 feet high are proposed throughout the overall site.

Two new access roadways are proposed (Walmart Boulevard to the north and Green Meadow Drive to the south) to connect the three lots to Route 3A to the east. Walmart Boulevard will extend towards Route 3A from the northeast corner of Lot A and Green Meadow Drive will extend towards Route 3A from the east between Lots A and C. The roadways will traverse the existing wetlands and streams using a pipe culvert.

A boat ramp is being contemplated at the Merrimack River adjacent to Lot B. Explorations and associated recommendations for this area and the boat ramp are beyond the scope of this study.

### **Lot B**

Table 1 details the proposed building information. No internal mezzanine areas are proposed.

Proposed grades vary between about el +89 to +175. The proposed FFE is about el +148 with an about 4 foot drop to adjacent grades at the loading docks, where the pavement grades generally slope away from the building. Paved areas vary between about el +132 and +153. Proposed infiltration basins are located at the northeast corner, east and southwest corner of the lot (about el +106 to +140). A stormwater swale is proposed from the south of the building, sloping down to the west toward the Merrimack River (from about el +141 to +89). A proposed soil berm at the south of the lot varies between about el +140 and +175.

Table 1. Proposed Site Development

Proposed Building		Estimated Grades Within the Proposed Building Footprint			Proposed Structural Loads	
Stories (#)	Footprint (SF)	Existing	Proposed FFE	Resulting Cuts/Fills (ft)	Building Column (kips)	Wall Loads (kips/foot)
One	1,005,000	el +115 to +165	el +148	Cut = 17 Fill = 33	190 to 220	9 to 11

## REVIEW OF AVAILABLE INFORMATION

### Regional Geology

The surficial geology map from the United States Department of Agriculture (Figure 2) indicates the overburden is loamy sand. The bedrock geology map from the United State Geologic Survey (Figure 3) indicates the bedrock below the site is granofels.

### Federal Emergency Management Agency Flood Map

We reviewed the Flood Insurance Rate Map (FIRM) for the town of Hudson, New Hampshire, published by the Federal Emergency Management Agency (FEMA), Map No. 33011C0656D and 33011C0658D effective 25 September 2009 (Figure 4). Table 2 gives a summary of the findings.

Table 2. Flood Mapping

Flood Mapping <sup>1,2,3</sup>	
Building Area	Site and Roadway Areas
Predominantly: Zone X (not shaded) Northwestern Corner: Zone X (shaded)	Western Edge: Zone X (not shaded), Zone X (shaded), & Zone AE (el +111)

<sup>1</sup> Zone X (not shaded), "areas of minimal flood hazard" (i.e. outside the 500-year flood)

<sup>2</sup> Zone X (shaded), "0.2% annual chance flood hazard; areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile" (i.e. 500-year flood)

<sup>3</sup> Zone AE, "1% annual chance flood, base flood elevations determined." (i.e. 100-year flood)

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## **Available Historic Information**

We reviewed historic topographic maps (1893 to 2012) and aerial photographs (1938 to 2016) for the overall site. Historic information is provided in Appendix A.

Pre-1893 – The site is shown as undeveloped with an unnamed stream running through the southeast part of the site. The surrounding areas also appear to be undeveloped.

Late 1910s to 1920s – The site is shown as mostly undeveloped, with unidentified structures and an access road in the eastern part of the site.

1930s to 1950s – The unknown structures from the late 1910s and 1920s are no longer shown on the topographic maps. Parts of the southeast and northern areas of the site are developed as agricultural fields with associated structures and access roads.

Early 1960s to Present – The site is developed as a golf course with a residential building in the east. Site development features include a clubhouse, maintenance building, access roads, asphalt-paved parking, and water features. Topographic maps show existing gravel pits in the western part of the site from 1965 through 1987. Aerial maps show similar gravel pits to the west and northwest of the maintenance building from 1963 through 1995. The site has remained similar to its current state since about 1965.

## **Available Geotechnical Report**

We have reviewed a geotechnical engineering report titled “Preliminary Geotechnical Engineering Study” prepared by GZA GeoEnvironmental, Inc. (May 2006). Relevant information is attached in Appendix B. The report includes 21 borings, 22 test pits, and 3 field permeability tests performed around the site. Identified design and construction premiums for the overall site included shallow groundwater reported to the west, shallow refusal on bedrock reported to the north, and potentially liquefiable soils reported to the east.

## **SUBSURFACE EXPLORATION**

Langan performed a subsurface exploration consisting of borings, observation wells, test pits, and infiltration tests throughout the proposed development area. All work was overseen by a Langan field engineer. An exploration location plan is shown in Figure 5.

## Borings

Standard Penetration Test (SPT) N-values<sup>4</sup> were documented and soil samples were generally obtained continuously to a depth of 12 feet and every 5 feet thereafter. Disturbed soil samples were obtained using a standard 2-inch-outer-diameter split-spoon sampler driven by a 140-pound automatic or safety hammer in accordance with ASTM D1586, Standard Penetration Test. See Tables 3 and 4 for additional information regarding the boring program.

Recovered soil samples were visually examined and classified in the field in general accordance with the Unified Soil Classification System (USCS). Soil classifications, N-values, and other field observations were recorded on our field logs provided in Appendix C.

Bedrock was cored in selected borings using a 2-7/8-inch NQ core barrel. The core barrel was equipped with a diamond cutting bit in accordance with ASTM D2113, Rock Core Drilling. Rock type, percent recovery (REC)<sup>5</sup> and Rock Quality Designation (RQD)<sup>6</sup> were determined for each the core run.

Table 3. Summary of Boring Subcontractors

Date Range	Drilling Companies	Drilling Equipment
1 June to 2 July, 2020*	SoilTesting, Inc.	CME 550X ATV Rig, CME55 Truck-mounted Rig, Deidrich D50 Steel Track Rig
	Seaboard Geotechnical & Environmental Drilling Services	Diedrich D50 Track Rig, Mobile Drill B52 Truck-mounted Rig
	Atlantic Testing Laboratories Limited	CME75 Track Rig, (2) Geoprobe 7720DT

\*Dates reflect duration of the overall exploration program (i.e. Lots A, B, and C)

<sup>4</sup> The Standard Penetration Test (SPT) is an in situ testing technique used to infer soil density and consistency. The SPT N-value is defined as the number of blows required to drive a 2-inch-diameter split-barrel sampler 12 inches after an initial penetration of 6-inches using a 140-pound hammer falling freely from 30 inches.

<sup>5</sup> Rock Core Recovery (REC) is defined as the ratio of the total length of rock recovered to the total core run length, expressed as a percent.

<sup>6</sup> The RQD is defined as the ratio of the summation of each rock piece greater than 4 inches long (for NX cores) to total core run length, expressed as a percent.

Table 4. Summary of Borings

<b>Total (#)</b>	<b>Subtotal (#)</b>	<b>Boring Locations</b>	<b>Boring ID's</b>	<b>Depth Range (ft)</b>	<b>Elevation Range (Bottom of Boring)</b>
97	57	Proposed Building Areas	B-B-BOR-01 to B-B-BOR-33, B-B-BOR-33A, B-B-BOR-34 to B-B-BOR-52, B-B-BOR-101, B-B-BOR-102, B-B-BOR-104	8 to 46	el +85 to +138
	8	Proposed Roadway Areas	B-R-BOR-01 to B-R-BOR-08	15 to 22	el +120 to +148
	32	Proposed Site Areas	B-S-BOR-01 to B-S-BOR-17, B-S-BOR-17A, B-S-BOR-18 to B-S-BOR-31	8 to 32	el +91 to +144

### Test Pits

Test pits were excavated throughout the site to further observe the subsurface soils and to perform infiltration testing. See Tables 5 and 6 for additional information regarding the exploration program. Test Pit logs are provided in Appendix D, and photographs are provided in Appendix E.

Table 5. Summary of Test Pit Subcontractor

<b>Date Range</b>	<b>Test Pit Company</b>	<b>Test Pit Equipment</b>
29 May to 30 June, 2020*	Polster Industries, LLC	CAT 304E, CAT 305E, Takeuchi TB260

\*Dates reflect duration of the overall exploration program (i.e. Lots A, B, and C)

Table 6. Summary of Test Pits

Total (#)	Subtotal (#)	Test Pit Locations	Test Pit ID's	Depth Range (ft)	Elevation Range (Bottom of Test Pit)
35	15	Proposed Building Areas	B-B-TP-02, B-B-TP-04, B-B-TP-05, B-B-TP-07, B-B-TP-08, B-B-TP-10 to B-B-TP-19	3 to 10	el +119 to +147
	2	Proposed Roadway Areas	B-R-TP-01 to B-R-TP-04	7 to 10	el +137 to +169
	18	Proposed Site Areas	B-S-TP-01, B-S-TP-02, B-S-TP-04, B-S-TP-05, B-S-TP-08 to B-S-TP-11, B-S-TP-13 to B-S-TP-15, B-S-TP-17 to B-S-TP-23	7 to 10	el +103 to +154

### Groundwater Observation Wells

Groundwater observation wells were installed throughout the site. See Table 7 for a summary of observation wells installed. Well construction logs are provided in Appendix F.

Table 7. Summary of Observation Wells

Total (#)	ID	Depth (ft)	Bottom of Observation Well Elevation
9	B-B-BOR-03(OW)	30	el +121
	B-B-BOR-15(OW)	25	el +119
	B-B-BOR-18(OW)	20	el +127
	B-B-BOR-21(OW)	22	el +116
	B-B-BOR-24(OW)	20	el +117
	B-B-BOR-33A(OW)	22	el +117
	B-B-BOR-47(OW)	30	el +112
	B-S-BOR-17A(OW)	33	el +115
	B-S-BOR-30(OW)	29	el +86

### Lab Testing

Selected samples were sent to a testing laboratory to confirm visual classifications and to determine index properties (physical and mechanical). Testing for chlorides and sulfates was performed at the structural engineer's request. See Table 8 for a summary of the completed laboratory tests. Laboratory results are provided in Appendix G.

Table 8. Laboratory Testing Summary

Test Description	ASTM Standard	Quantity
Grain Size	ASTM D-6913	15
Moisture	ASTM D-2216	20
Percent Passing No. 200	ASTM D-1140	5
Chlorides	ASTM D-512	5
Sulfates	ASTM D-516	5

## SUBSURFACE CONDITIONS

### Subsurface Materials

The subsurface conditions generally consist of a surficial layer of topsoil underlain by layers of discontinuous fill, sand/silt, glacial till, weathered rock, and finally bedrock. A summary of subsurface materials is provided in Table 9. A description of subsurface materials encountered is provided below in order of increasing depth.

Table 9. Subsurface Conditions

Layer	Thickness (feet)	Top Elevation Range	N-Value Range	Average Density	Fines Content (%)	Moisture Content (%)
Topsoil	2-inches to 36-inches	el +169 to +108	2 to 27	M. Dense	N/A	N/A
Fill	1 to 12	el +148 to +103	1 to 71	M. Dense	N/A	N/A
Sand/Silt	1 to up to 38	el +169 to +85	3 to Refusal <sup>7</sup>	M. Dense	Sand: 6 to 48 Silt: 59 to 78	Sand: 3 to 23 Silt: 21 to 27
Glacial Till	1 to up to 27	el +161 to +95	16 to Refusal	V. Dense	38	N/A
Weathered Rock	Up to 8	el +137 to +97	50 to Refusal	V. Dense	N/A	N/A
Bedrock	See Table 10					

Topsoil – A layer of topsoil was encountered in 78 borings and 32 test pits. The topsoil generally consists of brown to dark brown fine to medium sand with varying proportions of gravel, roots,

<sup>7</sup> Refusal defined as 50 blows per 6-inches or greater.

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and silt. In the remaining 18 borings and three test pits, the surficial material was consistent with the fill or natural sand material.

Fill – Below the topsoil, a discontinuous layer of fill was encountered in 11 borings and 3 test pits. The fill is generally composed of an orangish brown to brown fine to medium sand with varying amounts of gravel, roots, debris, organics, and silt. Note that higher SPT N-values (Table 9) within the fill layer are likely the result of obstructions (boulders, cobbles, gravel or debris) blocking the sampler. The fill layer is generally classified as poorly graded sand (SP) in accordance with the USCS.

Sand/Silt – Below the fill or topsoil, a layer of sand, with some silty sand and silt pockets, was encountered in all borings. The sand is generally composed of light brown to brown fine to coarse sand with varying amounts of gravel and silt. The silt, which was limited to discrete and discontinuous areas, is generally composed of light brown to brown silt with varying amounts of fine sand and gravel. Note that higher SPT N-values (Table 9) within the sand/silt layer are likely the result of obstructions (boulders, cobbles, or gravel) blocking the sampler. The sand layer, and silty layers within, are generally classified as poorly graded sand (SP), silty sand (SM), and silt (ML) in accordance with the USCS.

Glacial Till – Below the sand/silt, a layer of glacial till was encountered. The glacial till is generally composed of brown to grayish brown fine to coarse sand with varying amounts of gravel, silt, and weathered rock fragments. Note that higher SPT N-values (Table 9) within the glacial till layer are likely the result of obstructions (boulders, cobbles, or gravel) blocking the sampler. The glacial till layer is generally classified as silty sand (SM) in accordance with the USCS.

Weathered Rock – Below the glacial till, a layer of weathered rock was encountered in three borings. The weathered rock is general composed of gray fine to medium sand with varying amounts of silt, fine to coarse gravel, and weathered rock fragments. The weathered rock displayed the structure of the parent rock and had slight discoloration but broke apart under the pressure of the split spoon.

Bedrock – Below the weathered rock or glacial till, a layer of bedrock was inferred or cored in 49 borings and encountered in 1 test pit. A summary of encountered bedrock is provided in Table 10. The bedrock consists of gray schist and light gray pegmatite, fine to medium grained, moderately weathered, close to very close fractures, and moderate dipping and horizontal fractures. Up to five-foot-long rock cores were taken in 8 borings during our exploration. The REC and RQD of the rock core samples ranged from about 33% to 100% and 7% to 88%, respectively.

Table 10. Summary Bedrock Information

Location	Bedrock Depth			
	Cored		Inferred	
	Depth (ft)	Elevation	Depth (ft)	Elevation
Proposed Building Areas	13 to 41	el +98 to +121	11 to 41	el +85 to +140
Proposed Roadway Areas	Not Performed	Not Performed	N/E	N/E
Proposed Site Areas	Not Performed	Not Performed	9 to 17	el +126 to +159

Groundwater – A summary of groundwater is provided in Table 11. Groundwater, if encountered, should be expected to fluctuate with seasons, precipitation, construction activities, irrigation activities, etc.

Table 11. Summary Groundwater Information

Location	Groundwater Depth			
	Observation Wells/Test Pits		Inferred in Borings	
	Depth (ft)	Elevation	Depth (ft)	Elevation
Proposed Building Areas	7 to 25	el +121 to +146	6 to 35	el +101 to +149
Proposed Roadway Areas	19	el +122	8 to 19	el +122 to +157
Proposed Site Areas	14 to 30	el +91 to +125	6 to 30	el +91 to +152

### Infiltration Testing

Infiltration rates were measured in the proposed stormwater systems as specified by the civil engineer. Infiltration tests were performed in accordance with the New Hampshire Code of Administrative Rules (Env-Wq 1500). A summary of average infiltration rates at each location is presented in Table 12. A detailed summary of infiltration tests is provided in Appendix H. Generally, the measured infiltration rates are higher than the rates in the available geotechnical

report. Final design infiltration rates should be selected by the civil engineer based on the stormwater system design and allowable infiltration rates.

Table 12. Infiltration Test Results Summary

<b>Location</b>	<b>Surface Elev.</b>	<b>Test Depth (ft)</b>	<b>Test Elev.</b>	<b>Measured Infiltration Rate (in/hr)</b>	<b>Material Type</b>
B-S-TP-22	el +115	4	el +111	55	Light brown to brown silty fine SAND, trace fine to coarse gravel, trace cobbles
B-S-TP-23	el +116	2	el +114	66	Light brown fine to coarse SAND, trace silt, trace fine gravel

### **Sulfate & Chloride Testing**

Chemical analyses were performed on select samples generally obtained from soils within 5 feet of both proposed grades and the finished floor elevation. The soluble sulfate and chloride concentrations were both less than 10 parts-per-million. A summary of laboratory testing is provided in Appendix G. Based on the laboratory testing, the sulfate exposure class<sup>8</sup> is S0 and the chloride exposure class<sup>8</sup> is C1 given the presence of groundwater. Consideration could be given to using chloride exposure class C0 for building slabs as a vapor barrier is proposed below.

## **GEOTECHNICAL DESIGN RECOMMENDATIONS**

### **Additional Explorations & Analysis**

As the design progresses, we recommend the following additional exploration and analysis work be performed to advance the geotechnical design and construction recommendations:

- Test pits should be completed along the northern part of Green Meadow Drive as access was not provided during our exploration program.
- Groundwater levels should be obtained throughout design for additional measurements and potential refinements to recommendations for permanent water controls. Additionally, groundwater readings should be collected when watering of the course has stopped and after the site irrigation system is decommissioned as leaks in the system or surface-level infiltration from the system may affect groundwater levels.

<sup>8</sup> Exposure class from ACI 318-14.

- Additional design and coordination work should be performed with respect to site and sub-slab underdrain systems.
- The retaining walls will need to be designed by a design engineer registered in New Hampshire. Design should include all internal and external stability checks.
- The water tower foundations will need to be designed by others as this is a delegated design.
- Significant fills are anticipated throughout the site. Further analysis will be required once the building plans are further progressed to understand the impacts on the existing silt pockets.
- Temporary works for pre-cast/tilt-up wall panels will need to be designed by others as this is a delegated design.

### **Liquefaction**

We evaluated the liquefaction potential of non-cohesive soil below the groundwater table and up to 50 feet below the ground surface (as required by the New Hampshire Building Code) using the procedure outlined by Youd et. al (2001). The Youd et. al method is considered to be the state-of-practice procedure as recommended by the National Earthquake Hazard Reduction Program. The method presents an empirical relationship between the earthquake demand represented by the Cyclic Stress Ratio (CSR), and the soil resistance to dynamic loading represented by the Cyclic Resistance Ratio (CRR). Field N-values are converted to  $N_{1,60,cs}$  by applying corrections for hammer energy efficiency, soil overburden pressure, borehole diameter, rod length, sampler lining, and fines content.

The available geotechnical engineering report indicated a potentially liquefiable area to the east (in the vicinity of GZA boring B-18). As part of our subsurface exploration and evaluation, we performed borings in the vicinity of boring B-18 and analyzed the results.

Our analysis was performed on a sample set of borings that were potentially liquefiable across the lot.

Input parameters included a peak ground acceleration of 0.200g (from USGS). Our analysis indicates an adequate factor of safety for liquefaction for explorations advanced within the building and roadway/site areas. We concluded that liquefaction need not be considered in the design. Plots showing factors of safety versus depth are provided as Figures 6 and 7 for the building and roadway/site areas, respectively.

## Seismic Design

This section presents seismic design recommendation, in accordance with the 2019 New Hampshire State Building Code (International Building Code 2015). We have considered the soil conditions encountered in the borings to be consistent and representative of the soil conditions in the top 100 feet of soil at this lot.

Table 13. Seismic Design Values

Description	Parameter	Recommended Value
Mapped Spectral Acceleration for short periods <sup>11</sup> :	$S_s$	0.238 g
Mapped Spectral Acceleration for 1-sec period <sup>12</sup> :	$S_1$	0.075 g
Site Class:	--	<b>D – Stiff Soil Profile</b>
Site Coefficient:	$F_a$	1.6
Site Coefficient:	$F_v$	2.4
5% damped design spectral response acceleration at short periods:	<b><math>S_{DS}</math></b>	<b>0.254 g</b>
5% damped design spectral response acceleration at 1-sec period:	<b><math>S_{D1}</math></b>	<b>0.120 g</b>
Anticipated Risk Category	--	<b>II</b>
Seismic Design Category	--	<b>B</b>

Based on the above spectral accelerations and the anticipated risk category, we have estimated the Seismic Design Category (SDC). The structural engineer is responsible for confirming the appropriate use group, occupancy category, and final SDC for the proposed structure.

## Building Foundations

The materials encountered at the anticipated footing elevation consist of fill, sand/silt, and glacial. Though not encountered within the building footprint during our exploration work, weathered rock and bedrock were encountered to the east of the proposed building in the truck court/parking area; as such, bedrock may be encountered at the bottom of footing elevation. The existing fill and silt are not suitable for foundation support. The proposed structure and guard house can be supported on shallow foundations bearing on structural fill, sand/silt, glacial till, weathered rock, or bedrock using an allowable bearing pressure of 3,000 psf. If desired, a higher bearing pressure

<sup>11</sup> Value obtained from AT Council Hazards by Location as provided by the USGS.

<sup>12</sup> Value obtained from AT Council Hazards by Location as provided by the USGS.

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for footings bearing on weathered rock or bedrock could be provided. Footing subgrades should be prepared in accordance with the Subgrade Preparation section of this report.

All exterior footings should be constructed 48 inches or deeper below the lowest adjacent grade for frost protection. Interior footings in heated spaces may be constructed at a convenient depth below the slab; however, all bottoms of footings should be at least 1.5 feet below the finished-floor elevation. Interior footings in non-heated spaces, or where frost protection is not provided throughout construction, should be protected from frost (e.g., lowering footings, backfilling, heaters/blankets, etc.).

Isolated column footings should have a minimum dimension of 3 feet, and strip footings should have a minimum width of 2 feet even if smaller dimensions can be justified using the recommended allowable bearing pressure.

Foundations should not be located so that one foundation is within the zone of influence of an adjacent foundation. The zone of influence is taken as a 1H:1V projection extending outward and downward from the edge of the foundation.

### **Building Settlement**

Total settlement of the structure is estimated to be on the order of 1 inch or less, provided the bearing pressure recommended here is used and the subgrade preparation work described here is performed. Differential settlements of adjacent new structure columns are expected to be about ½ inch. The majority of the settlement is expected to take place during construction.

### **Water Tower**

The design engineer of record should confirm that the bearing capacity and calculated settlements (based on the water tower loads) are acceptable for use with a shallow foundation design. If not, the water tower design engineer of record should determine if supplemental foundation recommendations are required. Ground improvement to achieve higher bearing capacities may be required.

Given the design of the water tower is not finalized, we recommend that an allowance for ground improvement (stone columns up to 25 feet long) be provided for initial cost estimating until a final design can be prepared by others.

### **Building Floor Slabs**

We recommend that ground-floor slabs be constructed as a slab-on-grade bearing on natural soils, structural fill, or compacted existing fill prepared in accordance with the recommendations

here. Additional recommendations for sub-slab underdrains are provided below. If bedrock or weathered rock is encountered, it should be over-excavated a minimum of 2 feet below the proposed bottom of slab elevation and replaced with structural fill or gravel; additional rock removal may be required for sub-slab utilities and should be coordinated as the design progresses. The slab-on-grade supporting short-term loads over smaller areas (e.g., vehicle wheel loads)<sup>13</sup> should be designed for a modulus of subgrade reaction of 125 pounds per cubic inch (pci). The slab-on-grade supporting long-term loads over larger areas (e.g., uniform or rack loading) should be designed for a reduced modulus of subgrade reaction of 80 pci.

We recommend a minimum 6-inch-thick layer of ¾-inch clean crushed stone be included beneath the slabs to protect the prepared subgrade and to serve as a capillary break. Additional assessment is on-going regarding recommendations for a permanent drainage design.

A vapor barrier should be used below the ground-floor slab to limit transmission of water vapor through the slab. We recommend a vapor barrier with a minimum thickness of 20 mils. Omission of a vapor barrier can lead to floor-covering problems including delamination and mold. Additional waterproofing measures may be required pending the on-going recommendations for permanent drainage design. The contractor may elect to place up to 4-inches of a fine to medium sand (i.e., stone dust) above the vapor barrier for slab constructability considerations. The sand layer should have a maximum particle diameter of 3/16-inch and should consist of hard durable sand free from ice and snow, roots, sod and other deleterious matter. The vapor barrier should be coordinated with the environmental requirements for the development.

## **Permanent Groundwater Control**

### Building Areas

Perimeter wall and footing drains should be installed to divert groundwater flow away from the structure during prolonged precipitation, snowmelt, or utility breaks. Manufactured geocomposite drainage panels or a 12-inch-wide layer of ¾-inch washed crushed stone should be installed against the outside of all perimeter walls and should extend to within 1 foot of adjacent surface grade. In the truck court areas, gravel should be used. The drainage panels (or washed crushed stone) should connect to a perforated footing drain at the base of the footing having a minimum diameter of 6 inches. The footing drains should be connected to the site stormwater system and where possible drain by gravity. Where used, drainage panels should be secured in place and the filter-fabric side must face the soil. If washed crushed stone is used, it should be wrapped with a geotextile filter fabric.

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<sup>13</sup> "Engineering Bulletin, Modulus of Subgrade Reaction – Which One Should be Used?" by Structural Services, Inc. (8 April 2016).

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As noted, the grading plans are currently being finalized. We recommend modeling anticipated post construction groundwater elevations to determine if permanent dewatering measures for site features (sub-slab underdrain, pavement underdrains, etc.) are required.

Groundwater levels (el +101 to +149) are up to 1 foot above the proposed top of slab elevation (el +148) within about 10,000 square feet of the proposed building (generally on the eastern side of the building). We propose modeling these areas further, but as the grading plans are still being finalized, we recommend that allowances and unit rates be carried for permanent dewatering measures at this point in the design (i.e. sub-slab underdrains).

A preliminary design groundwater elevation of el +153 should be used (i.e. 4 feet above the highest recorded groundwater levels to date). Underdrains should consist of a minimum of a 12-inch-thick gravel layer (3/4-inch washed, crush stone) beneath the slab. Geotextile filter fabric should be placed between the soil subgrade and the stone. Within the stone, an inter-connected grid network of 6-inch diameter SCH-80 PVC pipes should be placed. The pipes should be spaced at 15 feet on-center. The pipes should be routed to internal sump pits and connected to the site stormwater system to discharge via gravity. A minimum of one sump pit per 5,000 square-foot (or tributary area) of underdrain area should be assumed at this time.

Additionally, we recommend a perforated pipe, having a minimum diameter of 6 inches, be located on the in-board side of the truck-court foundation wall (eastern side of the building) at the bottom of footing elevation. The pipe should be routed to the site stormwater system. A 12-inch thick gravel (3/4-inch washed, crushed stone) trench wrapped in filter fabric should encapsulate the perforated pipe and extend from the bottom of footing to bottom of slab elevation.

### Site Areas

Groundwater was encountered to the east of the building above and within 4 feet of the proposed pavement and truck court grades for about 200,000 square feet of the overall pavement footprint. We recommend that allowances and unit rates be carried for permanent dewatering measures at this point in the design (i.e. pavement underdrains). The pavement underdrain design will be included on the civil plans.

Underdrains should consist of a minimum of a 12-inch-thick gravel layer (3/4-inch washed, crush stone) beneath the pavement. Filter fabric should be placed between the soil subgrade and the stone. Within the stone, an inter-connected grid network of 6-inch diameter SCH-80 PVC pipes should be placed. The pipes should be spaced at 20 feet on-center. The pipes should be routed to the site stormwater system to discharge via gravity.

## Pavement Design

We have provided recommendations for minimum asphalt-pavement sections using 115% of the daily traffic loading provided by the traffic engineer (Langan) detailed in Table 14. The pavement sections were designed using a California Bearing Ratio (CBR) of 10 for proofrolled site soils or properly placed compacted fill. CBR testing must be performed in pavement areas at the start of construction to confirm the design assumptions. A life expectancy of 20 years was used for flexible pavements and 30 years for rigid pavements. Pavement design calculations are provided in Appendix I. Refer to subsequent sections for subgrade preparation procedures.

We have prepared the following site-wide (i.e. all three lots) pavement design recommendations for the overall site.

Table 14: Proposed Daily Traffic Loading

Area	Passenger Cars (#)		Light Trucks (#)		Tractor Trailers (#)	
	Proposed	<b>115%</b>	Proposed	<b>115%</b>	Proposed	<b>115%</b>
Lot A:	651	<b>749</b>	n/a	<b>n/a</b>	131	<b>151</b>
Lot B:	326	<b>375</b>	25	<b>29</b>	40	<b>46</b>
Lot C:	354	<b>407</b>	n/a	<b>n/a</b>	60	<b>69</b>
Northern Access Roadway (Walmart Blvd.):	390	<b>449</b>	n/a	<b>n/a</b>	131	<b>151</b>
Southern Access Roadway (Green Meadow Drive):	941	<b>1,082</b>	25	<b>29</b>	100	<b>115</b>

Table 15: Standard & Heavy Duty Flexible Pavement Sections (Site Areas)

Material	Thickness (in)	
	Standard Duty	Heavy Duty
Area:	Passenger car drive aisles & parking stalls	Access drives & truck courts
Top (Finish) Course:	2.0 inches	2.0 inches
Asphalt Pavement Binder Course:	2.0 inches	3.0 inches
Processed Aggregate and Gravel (NH DOT Item No. 304.3):	8.0 inches	12.0 inches
One pavement design provided for all three lots. Lots A and C control the pavement design. Traffic loading for Lot A used in the pavement calculations.		
Processed aggregate and gravel course has been increased by 2 inches from the minimum calculated pavement sections given the anticipated underlying loose fine sands.		

Table 16: Standard, Heavy, Extra Heavy Duty Rigid Pavement Sections (Site Areas)

Material	Thickness (in) / Materials		
	Standard Duty	Heavy Duty	Extra Heavy Duty
Area:	Passenger car drive aisles & parking stalls	Access drives & truck courts	Dolly pads & loading/unloading aprons
Concrete (4,500 psi 28-day strength, 6% air-entrained, chloride resistant):	5.0	8.0	8.0*
Processed Aggregate and Gravel (NH DOT Item No. 304.3):	6.0	8.0	8.0
Continuous Reinforcing Each Way:	#3 bar at 22-inch on-center	#3 bar at 16-inch on-center	#3 bar at 16-inch on-center
Per the design criteria, dowels are to be used at construction joints.			
Minimum calculated design heavy and extra heavy duty rigid pavement sections increased to match the design criteria minimum cross-section (8.0 inches of concrete and 6.0 inches of processed aggregate and gravel).			
Processed aggregate and gravel course has been increased by 2 inches from the minimum calculated/design criteria pavement sections given the anticipated underlying loose fine sands.			
*Extra heavy duty rigid pavement shall be enhanced with a minimum of 7.5 pounds of synthetic macrofibers per cubic yard of concrete.			

Table 17. Heavy Duty Flexible Pavement Section (Roadways)

Material	Thickness (in)	
	Northern Access Roadway (Walmart Blvd.)	Southern Access Roadway (Green Meadow Drive)
Top (Finish) Course:	1.5	1.5
Asphalt Pavement Binder Course:	2.5	2.5
Crushed Gravel (NH DOT Item No. 304.2):	6.0	6.0
Gravel (NH DOT Item No. 304.3):	12.0	12.0
Minimum calculated design pavement section increased to match the Town of Hudson minimum typical cross-section for subdivision streets (commercial/industrial) Town of Hudson Engineering Department, Engineering Technical Guidelines & Typical Details, Detail R-1 (revised February 2020) (4 inches of hot bituminous pavement, 6 inches of crushed gravel, and 12 inches of gravel).		

## Retaining Walls

Site fill-retaining walls may be designed as geogrid reinforced modular block walls (such as Mesa, Keystone, Versa-lok, or Redi-Rock type walls) or gravity-type retaining walls, depending on the location and size of the proposed wall.

Retaining walls can be designed using a moist unit weight of 130 pounds per cubic foot and a drained angle of internal friction of 30°. Site retaining walls, where movement is acceptable, can be designed using active earth pressures. Walls where movement cannot be tolerated should be designed for at-rest earth pressures. The parameters described above presume (1) the wall backfill materials (i.e., within the reinforced zones) are select imported granular soils, (2) full drainage is provided behind the reinforced zone and wall facing to prevent the buildup of hydrostatic pressure, (3) that surface loads at the top of the retaining walls will consist of parking and driving areas and vehicles, and (4) the slope at the top of the retaining wall is level. Presuming the aforementioned fill, fill placement, and compaction requirements are adhered to, a coefficient of active earth pressure ( $K_a = 0.33$ ) or a coefficient of at-rest earth pressure ( $K_o = 0.50$ ) can be used as appropriate. The fill used may consist of imported materials that satisfy the minimum strength parameters specified here and gradation requirements specified by the wall designer. Design parameters should be confirmed during construction via laboratory testing on the actual proposed backfill materials, and adjustment of the pressures should be made by the designer where appropriate to consider these factors.

Retaining-wall foundations should bear on natural soils (if fill or silt is encountered it should be fully removed and replaced) or well-compacted structural/engineered fill compacted with at least six coverages of a minimum 5-ton static-drum-weight vibratory roller. Soft or otherwise unsuitable natural or fill identified by the geotechnical engineer in the field during proofrolling and compaction should be removed and replaced with approved compacted structural/engineered fill. Backfill behind the walls should be placed as discussed in the Fill Materials, Placement and Compaction Criteria section of this report. Over-compaction should be avoided behind the walls.

The proposed retaining wall design (including calculations and global stability and groundwater mounding analyses) and construction means and methods should be provided and signed and sealed by a Professional Engineer licensed in the State of New Hampshire.

## **GEOTECHNICAL CONSTRUCTION RECOMMENDATIONS**

### **Site Preparation**

All existing foundations, floor slabs, and utilities should be completely removed within 10 feet of the proposed footprint. Given the current use of the site, we expect below-grade irrigation infrastructure to be encountered throughout the lot. Below grade structures outside the building footprint can be abandoned in place provided they are removed to at least 3 feet below finished subgrade levels, 2 feet below proposed utilities, and to eliminate conflicts with new utilities or structures. Slabs left in place should be sufficiently broken up to allow water to drain and so that a geotechnical engineer can observe whether voids exist beneath the slab. Existing asphalt pavement and concrete walkways should be completely removed.

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Existing utilities within the building footprint should be completely removed. Existing utilities outside of the proposed building footprint should be removed or abandoned in place by completely filling with grout.

Excavations made to remove below grade elements should be backfilled with approved, compacted fill in accordance with the Excavation, Fill, Placement, and Compaction Criteria section of this report and any environmental requirements.

Clearing and grubbing of trees and vegetation designated for removal (including root systems) should be performed. Buried debris should be completely removed beneath proposed building slab, footing, and pavement locations. Given the former and current uses of the site, bury holes with topsoil, tree stumps, or similar unknown objects should be expected throughout. Topsoil should be stripped from the proposed building and pavement areas and should be stockpiled and protected from erosion. Topsoil will be evaluated by the landscape architect (Langan) for reuse in landscape areas and coordinated with the environmental engineer (Langan). All clearing and stripping activities should be performed in strict accordance with the approved soil-erosion and sediment-control plan and the environmental reports prepared for the project.

Existing wetlands slated for removal should be completely dewatered at the on-set and maintained dry during backfilling activities. Once dewatered, all organic and silty materials should be completely removed to the top of natural granular soils, weathered rock, or bedrock. A choker 2-foot-thick layer of 3- to 6-inch diameter stone should be placed at the subgrade. A layer of filter fabric should be placed above the stone. The resulting excavation should be backfilled with structural fill as described here.

All demolition and site-clearing work should be performed in accordance with any environmental requirements established for the site, and all local, state, and federal regulations. All debris and trees and other vegetation should be properly disposed of off-site in accordance with applicable regulations. All construction work should be performed so as not to adversely impact the neighboring buildings, off site structures or utilities, including the existing utilities and trees that are to remain. Protection of these elements should be provided as necessary. Before beginning grading or placing fill, any miscellaneous trash, debris, or other unsuitable materials should be removed from the site.

### **Subgrade Preparation**

All soil footing and utility-trench subgrades, except bedrock, should be proofrolled with six overlapping coverages of a double-drum 1-ton walk-behind vibratory roller (such as a Bomag BW75 or equivalent).

To the east of the proposed building with the parking area/truck court, bedrock was encountered; though not at the anticipated bottom of footing elevation. If a footing or adjacent footings will

bear on rock and soil, a transition zone should be created. For adjacent footings, the rock should be over-excavated a minimum of 12 inches and replaced with  $\frac{3}{4}$  inch crushed gravel. For strip footings, rock should be over-excavated a minimum of 12 inches for 5 horizontal feet in either direction (total of 10 feet) from the point of bearing material transition and replaced with  $\frac{3}{4}$ -inch gravel. The specific requirements will be based on the field conditions observed at the subject location and the geotechnical engineer's subsequent recommendations.

All slab subgrade areas should be proofrolled with six overlapping coverages of a vibratory drum roller having a minimum static drum weight of 10 tons. Once the slab is fully compacted, a proofroll with a fully loaded dump truck should be performed. The maximum acceptable depression under the fully loaded dump truck is  $\frac{1}{2}$  inch. If depressions greater than a  $\frac{1}{2}$  inch are observed, corrective action must be taken by the contractor.

Soft areas identified during proofrolling should be excavated and replaced with approved structural fill. The actual extent of necessary removal and replacement should be determined by a qualified Langan geotechnical engineer. Care should be taken when proofrolling near any existing underground utilities that are to remain.

Soil footing subgrades should be excavated level and if any cobbles or boulders are encountered at the footing subgrade level such that a relatively level subgrade is not achieved, the cobbles or boulders should be removed and replaced with compacted structural fill, compacted  $\frac{3}{4}$ -inch crushed stone, or lean concrete. All soil subgrades for footings or slabs should be compacted to the project specified compaction criteria.

If foundations are not poured in a timely manner, the subgrade should be protected with a lean-concrete mud mat to protect the footing subgrades.

Steps should be taken by the contractor to control and remove surface-water runoff and precipitation. When soil is wet and subjected to construction traffic, previously acceptable subgrades can soften and become unacceptable. A smooth-drum roller should be used to seal the surface and provide for better drainage. We also recommend crowning or sloping the subgrade to provide positive drainage off the subgrades.

### **Removal/Replacement**

If encountered beneath foundations, a minimum of 5-feet of the miscellaneous fill, or otherwise deleterious material, should be removed within the foundation zone of influence (i.e. 1H to 1V downward projection from the edge). The resulting material should be proofrolled in accordance with the Subgrade Preparation section outlined herein. The resulting excavation should be backfilled with structural fill in compacted lifts.

About 1 to 10 feet of granular fill soils were encountered in the vicinity of the existing maintenance facility area. Fill was observed in building explorations B-B-BOR-24(OW), B-B-BOR-

33A(OW), B-B-BOR-40, B-B-BOR-43 and B-B-BOR-44 extending to depths between about el +124 and +136. These materials should be removed and replaced as described above.

Placement of additional fill materials in foundation areas, if required, should be performed in accordance with the Excavation, Fill, Placement, and Compaction Criteria recommendations outlined herein.

### **Excavation, Fill, Placement, and Compaction Criteria**

Excavation through the fill and the underlying sand/silt and glacial till can likely be performed using conventional earthmoving equipment (e.g., backhoes, excavators, dozers, etc.). Excavations made for footings and utilities should be conducted to minimize disturbance to the subgrade (i.e., backhoe with a smooth-edge bucket). Larger equipment may be required for removal of obstructions such as boulders, etc.

Within the proposed building footprint, the top of competent rock (either refusal of the drilling equipment or rock coring) was encountered from about el +85 to +140. Given a proposed finished floor elevation of el +148, rock removal within the proposed building is not anticipated.

Within the proposed roadway and site areas, the top of competent rock (either refusal of the drilling equipment or rock coring) was encountered from about el +126 to +159. Based on the current site grading, rock removal may be required to the east in the truck court and parking areas.

- Bedrock should be removed to a minimum of 6 inches below the proposed pavement section a minimum of 10 feet horizontal feet beyond. The resulting excavation should be backfilled with compacted  $\frac{3}{4}$ -inch stone. A layer of filter fabric should be placed between the  $\frac{3}{4}$ -inch stone and the pavement section.
- In truck court and parking areas where utilities that are sensitive to settlement transition from bearing on rock to bearing on soil, rock should be over-excavated a minimum of 12 inches for 5 horizontal feet in either direction (total of 10 feet) from the point of bearing material transition and replaced with  $\frac{3}{4}$ -inch gravel to reduce the potential for differential settlements. The specific requirements will be based on the field conditions observed at the subject location, the geotechnical engineer's subsequent recommendations, and the sensitivity of the utility to differential settlement.

Rock excavation techniques will be required to excavate to the required elevations. Blasting may be required. The actual means and methods required for rock excavation should be selected by the contractor based upon experience and capabilities. All blasting should be performed in accordance with the applicable state and local regulations and in a manner such that no on-site or off-site structures or features are adversely impacted.

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All excavations should be properly sloped or braced and conform with applicable OSHA regulations including, but not limited to, temporary shoring, trench boxes, temporary rock stabilization, or proper benching or both.

All excavation and backfilling must be performed in accordance with the project environmental engineer's recommendations.

The following types of fill can be used.

Structural Fill – Structural fill should be well-graded sand and gravel having a maximum particle size of 3 inches and no more than 10% passing the No. 200 sieve. Additionally, the structural fill should be free of organics, clay, roots, concrete, other non-soil constituents, and other deleterious or compressible materials. Any approved imported structural fill should be “certified clean fill” free of hazardous substances and meeting all local, state, federal and the New Hampshire Department Environmental Services regulations.

Material Reuse – The contractor may reuse the on-site granular fill, sand, or glacial till as structural fill provided the soils meet the requirements for structural fill outlined above and is approved by the environmental engineer. The silt may not be used as structural fill. Note that samples obtained within the fill, sand, and glacial till layers have a fines content (material passing the No. 200 sieve) ranging from about 2% to 13%; however, based on our experience with the anticipated soil, select soils will be sensitive to moisture. The overall amount of soil that can be reused will be dependent on the amount of fines present within the soil, the contractor’s ability to add stone, the time of year the earthwork is carried out (e.g., potentially inclement weather), and the ability of the earthwork contractor to stage, aerate and process the material to facilitate placement and compaction. The existing shallow sand generally has a uniform gradation and low silt content (poorly graded) which may be difficult to compact to specifications without systematic application of water to each layer or blending the material to create a well-graded fill. In addition, the contractor may need to place the material in thinner lifts to achieve the compaction requirements specified herein.

General Fill – On-site soils not meeting the requirements for structural fill can be used as general fill for site landscape and other nonstructural areas (e.g., landscaped areas) if environmentally suitable for reuse. The fill and silt layers may be used as general fill, if required.

Compaction Criteria – All fill should be placed in uniform 12-inch-thick loose lifts and compacted. Fill in landscaped areas should be compacted to 90% of its maximum dry unit weight as determined by ASTM D1557; all other fill should be compacted to at least 95%.

In restricted areas where only hand-operated compactors can be used, the maximum lift thickness should be limited to 8 inches. The appropriate water content at the time of compaction should be plus or minus 2% points of optimum as determined by the laboratory compaction tests of proposed fill. No backfill should be placed on areas where free water is standing or on frozen subsoil areas.

## **Groundwater Control**

Across the lot, groundwater was encountered from about el +91 to +157. Based on the proposed grades, we expect that groundwater will be encountered at the northern and eastern sides of the development area during construction. Temporary groundwater control should also be expected throughout the entire lot.

We anticipate that dewatering will be required during construction. Water infiltration to the foundation excavation can likely be controlled using gravity-fed sump pumps via gravel trenches or sumps assisted with collector trenches. Deeper systems such as well points may be required. The final dewatering measures required should be evaluated and designed by the contractor. The dewatering measures implemented should adequately dewater all foundation-related excavations such that compaction of footing subgrades is feasible.

Collection of rainwater runoff will also be needed during the excavation of the removal and replacement program and during the subgrade preparation work. Water runoff is expected to be controlled with the use of gravel-lined collection trenches, pits and submersible pumps. Care should be taken to ensure that drainage is provided during all phases of excavation work. Environmental pretreatment of groundwater, if necessary, is beyond the scope of this study. Collected water should be discharged in accordance with applicable regulations.

## **SERVICES DURING DESIGN, CONSTRUCTION DOCUMENTS AND CONSTRUCTION QUALITY ASSURANCE**

During final design, Langan should be retained to consult with the design team as geotechnical questions arise. Technical specifications and design drawings should incorporate our recommendations. When authorized, we will assist the design team in preparing specification sections related to geotechnical issues such as earthwork, shallow foundations, backfill, retaining walls, and excavation support. Langan should also, when authorized, review the project plans and contractor submittals relating to materials and construction procedures for geotechnical work to confirm the designs incorporate the intent of our recommendations.

Langan has explored and interpreted the site subsurface conditions and developed the foundation design recommendations contained here, and is therefore best suited to perform quality-assurance observation and testing of geotechnical-related work during construction. The work

requiring quality-assurance confirmation or special inspections per the Building Code includes, but is not limited to, earthwork, shallow foundations, backfill, retaining walls, and excavation support.

Recognizing that construction observation is the final stage of geotechnical design, quality-assurance observation during construction by Langan is necessary to confirm the design assumptions and design elements, to maintain our continuity of responsibility on this project, and allow us to make changes to our recommendations, as necessary. The foundation system and general geotechnical construction methods recommended herein are predicated upon Langan's assisting with the final design and providing construction observation services for the owner. If Langan is not retained for these services, we cannot assume the role of geotechnical engineer of record, and the entity providing the final design and construction observation services must serve as the engineer of record.

## **LIMITATIONS**

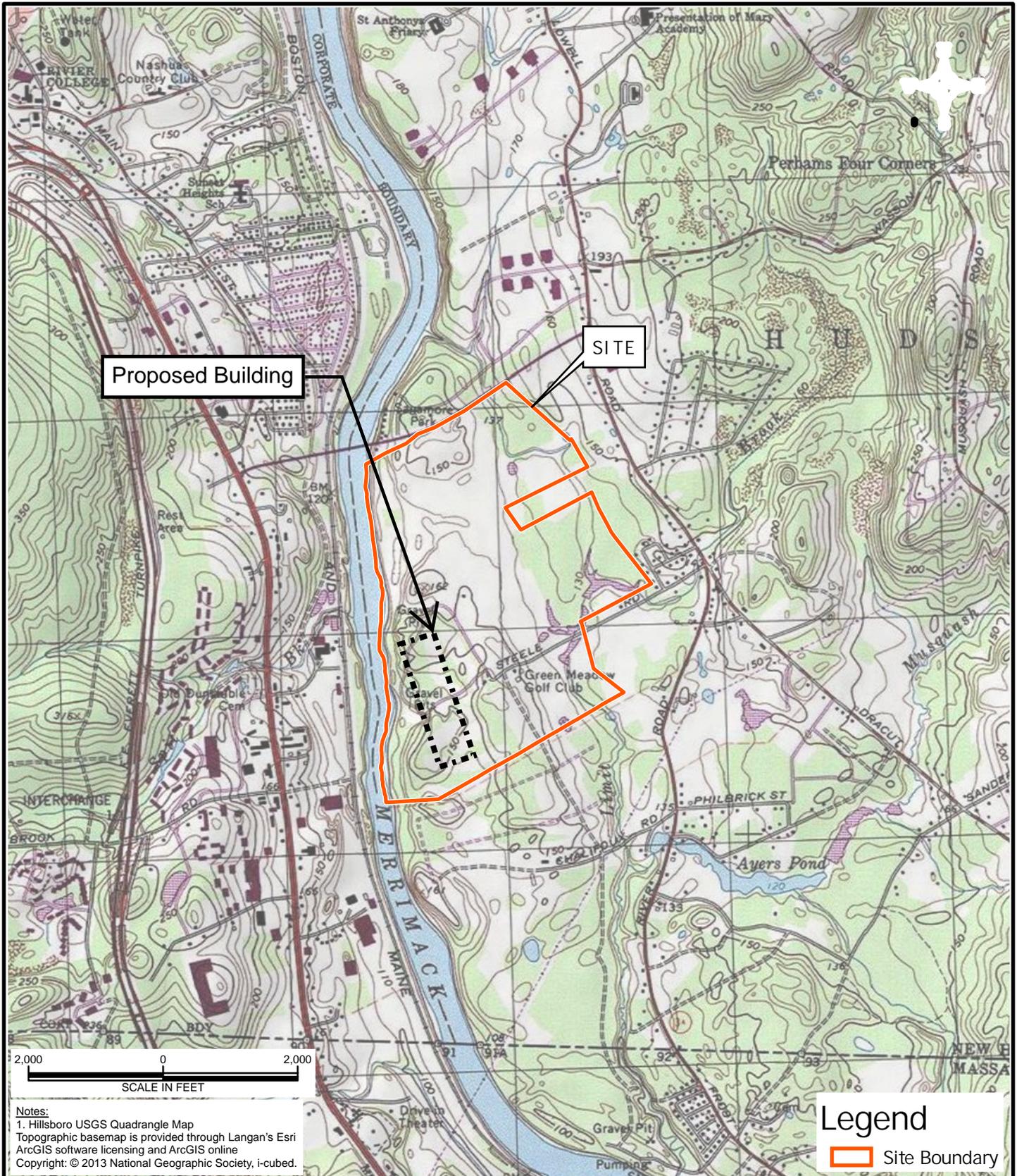
The conclusions and recommendations provided in this report result from our interpretation of the geotechnical conditions existing at the site inferred from a limited number of borings and test pits, and information provided by Hillwood. Actual subsurface conditions may vary. Recommendations provided are dependent upon one another and no recommendation should be followed independent of the others.

Any proposed changes in structures or their locations should be brought to Langan's attention as soon as possible so we can determine whether such changes affect our recommendations. Information on subsurface strata and groundwater levels shown on the logs represent conditions encountered only at the locations indicated and at the time of our exploration. If different conditions are encountered during construction, they should immediately be brought to Langan's attention for evaluation because they might affect our recommendations.

This report has been prepared to assist the owner, architect, and structural engineer in the design process and is only applicable to the design of the specific project identified. The information in this report cannot be used or depended on by engineers or contractors involved in evaluations or designs of facilities (including underpinning, grouting, stabilization, etc.) on adjacent properties beyond the limits of that which is the specific subject of this report.

Environmental issues (such as permitting or potentially contaminated soil and groundwater) are outside the scope of this study and are addressed in a separate Langan evaluation.

# FIGURES



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 Langan Engineering, Environmental, Surveying and  
 Landscape Architecture, D.P.C.  
 Langan MA, Inc.  
 Langan International LLC  
 Collectively known as Langan

Project

**HUDSON  
LOGISTICS CENTER**

HUDSON NEW HAMPSHIRE

Drawing Title

**SITE  
LOCATION**

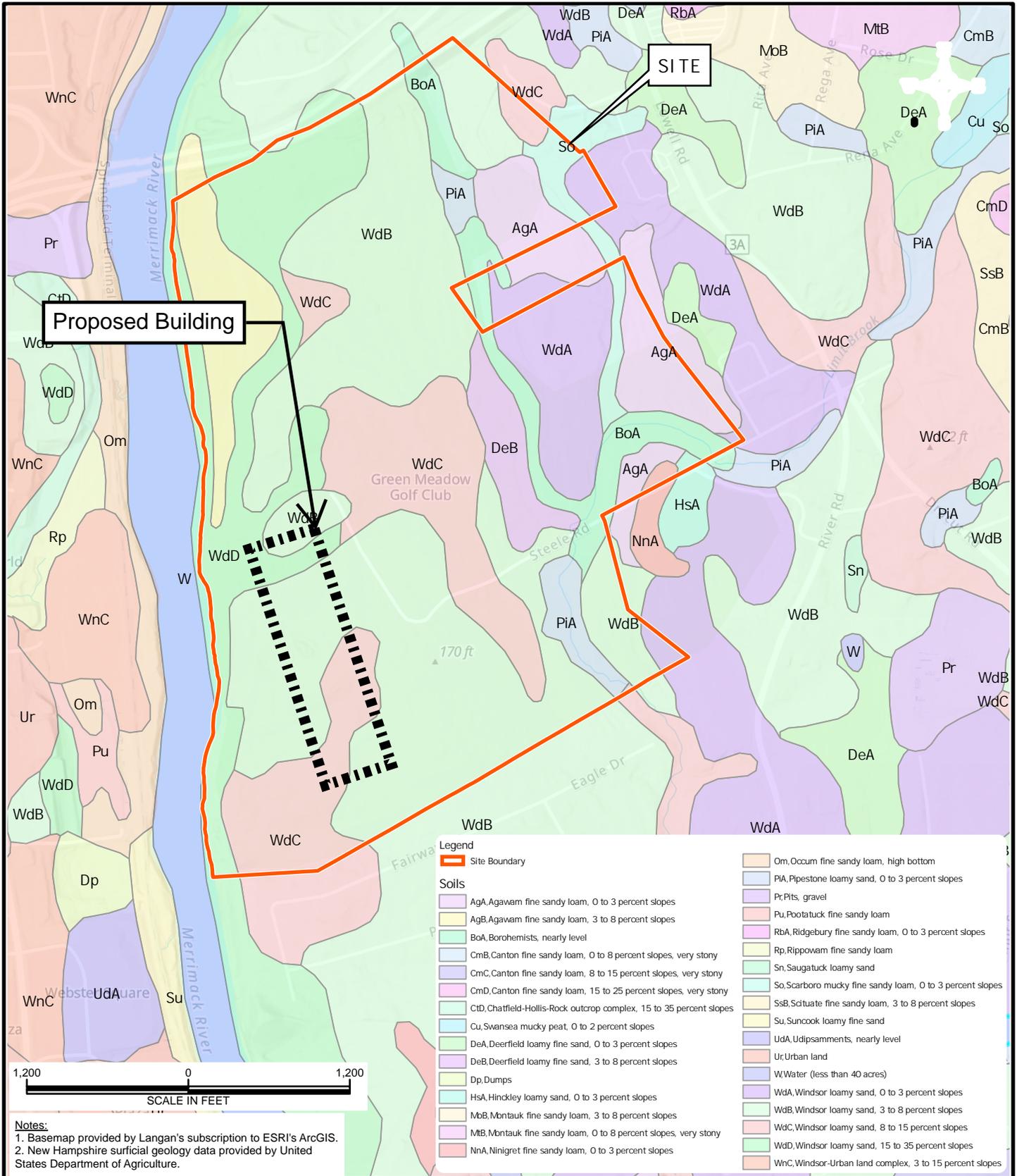
Project No.  
151010101

Date  
04/27/2020

Scale  
1" = 2000'

Drawn By  
EB

Figure  
1



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Langan Engineering & Environmental Services, Inc.  
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 Langan International LLC  
 Collectively known as Langan

Project  
**HUDSON LOGISTICS CENTER**  
 HUDSON NEW HAMPSHIRE

Drawing Title  
**SURFICIAL GEOLOGY**

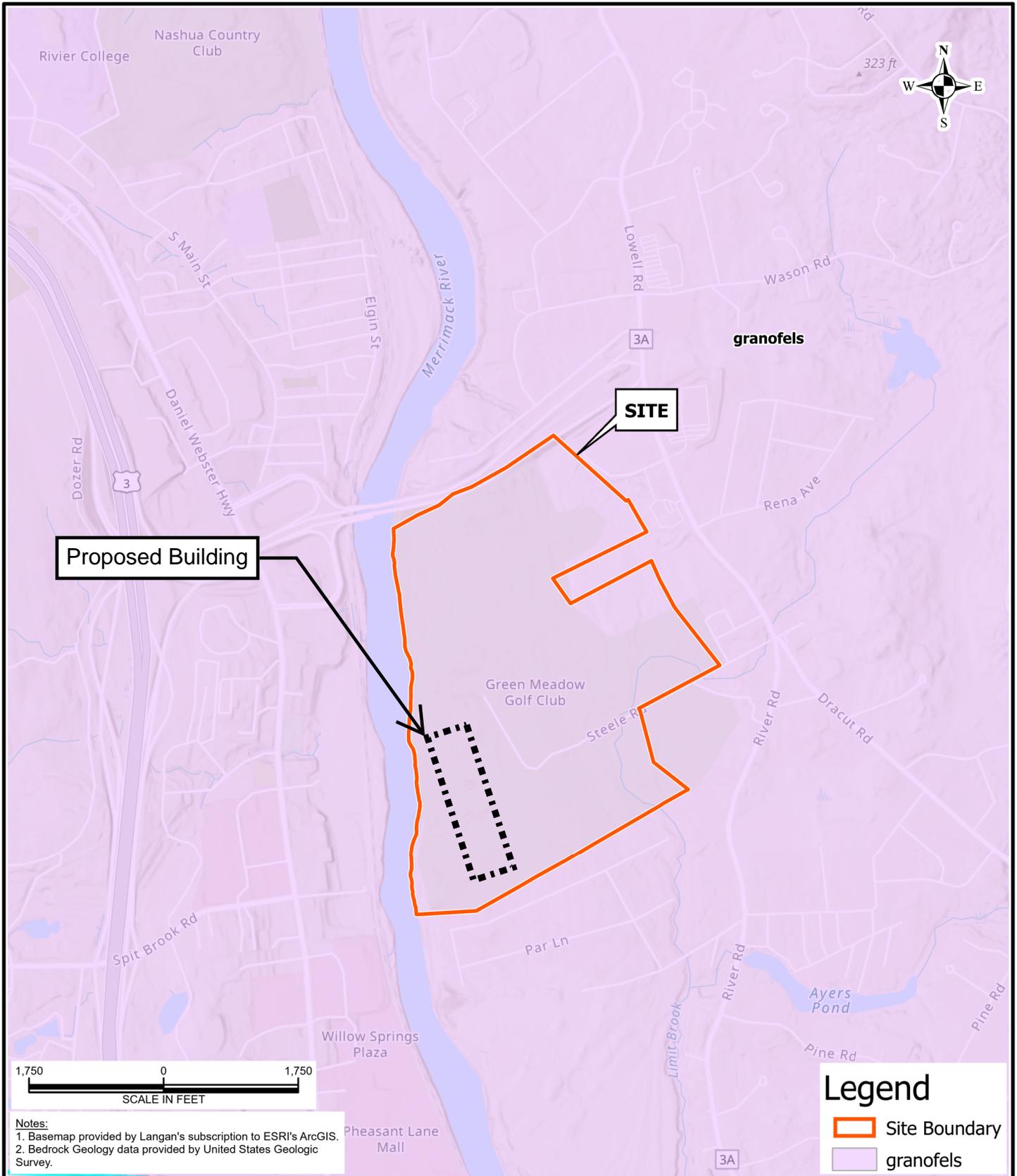
Project No.  
151010101

Date  
04/27/2020

Scale  
1" = 1200'

Drawn By  
EB

Figure  
2

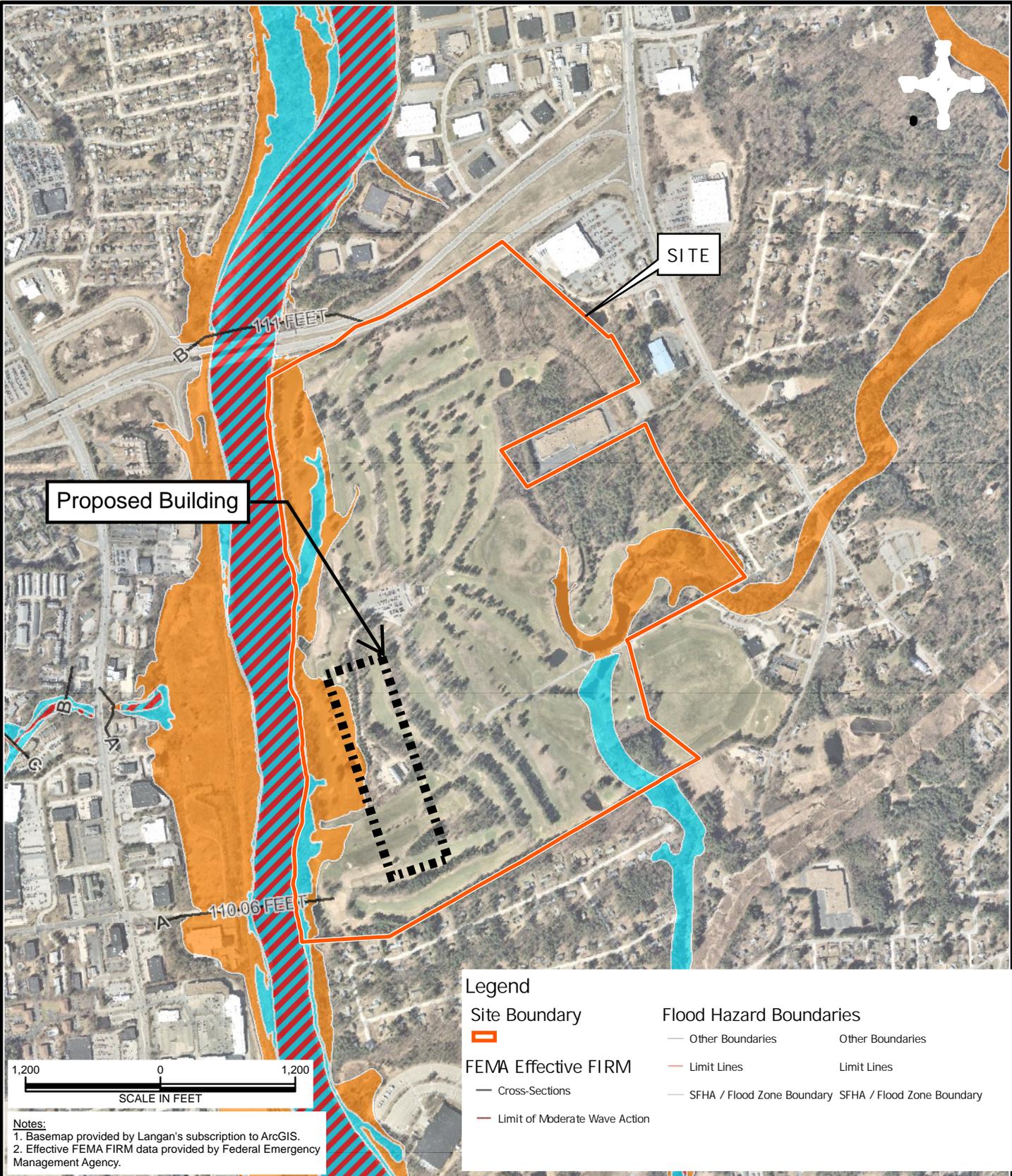


**Notes:**  
 1. Basemap provided by Langan's subscription to ESRI's ArcGIS.  
 2. Bedrock Geology data provided by United States Geologic Survey.

**Legend**

- Site Boundary
- granofels

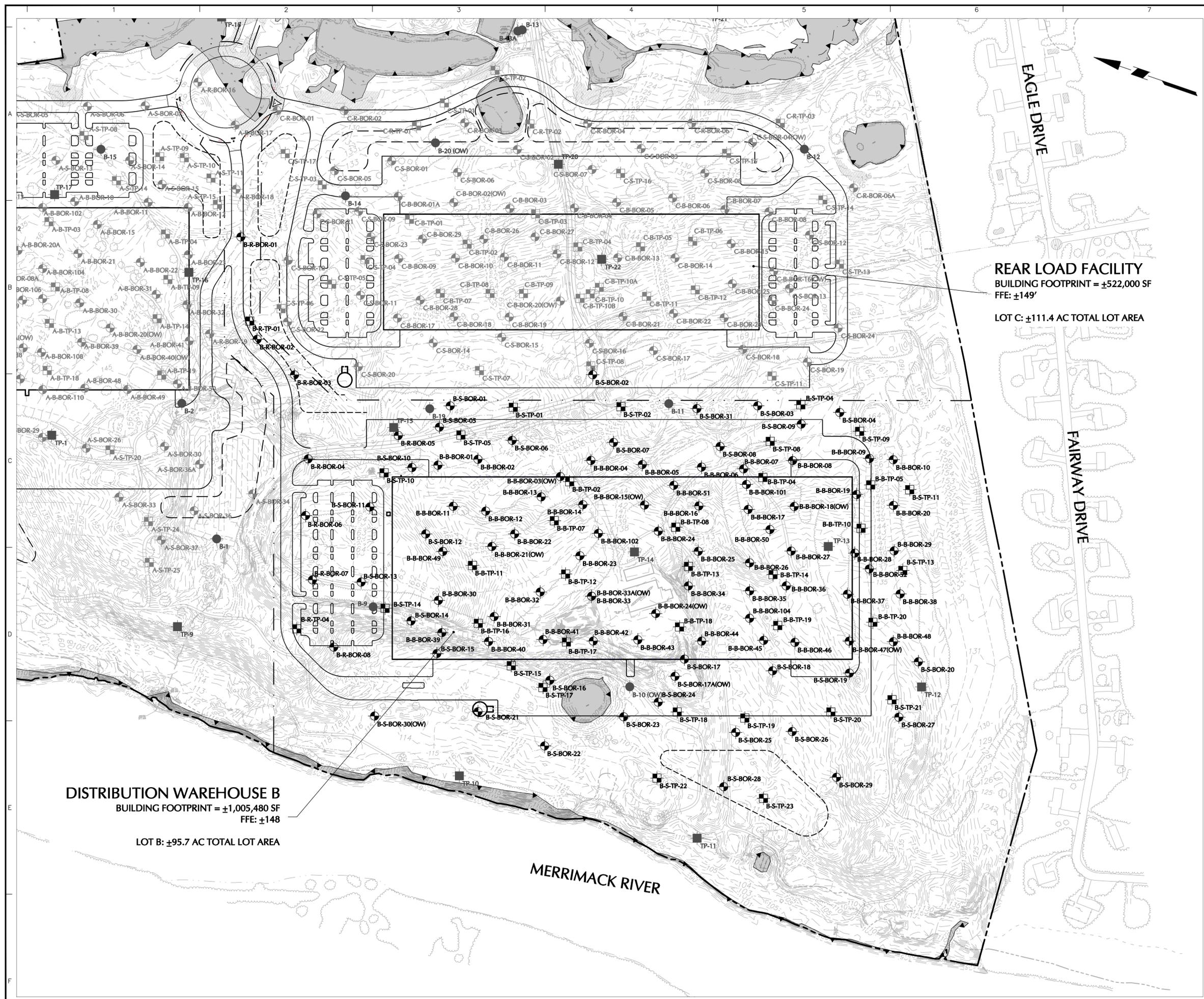
<p><b>LANGAN</b>        888 Boylston Street, Suite 510        Boston, MA 02199        T: 617.824.9100 F: 617.824.9101 www.langan.com</p> <p>Langan Engineering &amp; Environmental Services, Inc.        Langan Engineering, Environmental, Surveying and        Landscape Architecture, D.P.C.        Langan MA, Inc.        Langan International LLC        Collectively known as Langan</p>	<p>Project</p> <p><b>HUDSON LOGISTICS CENTER</b></p> <p>HUDSON NEW HAMPSHIRE</p>	<p>Drawing Title</p> <p><b>BEDROCK GEOLOGY</b></p>	<p>Project No. 151010101</p> <p>Date 04/27/2020</p> <p>Scale 1" = 1750'</p> <p>Drawn By EB</p> <p>Figure <b>3</b></p>
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- Legend**
- Site Boundary
  - FEMA Effective FIRM
    - Cross-Sections
    - Limit of Moderate Wave Action
  - Flood Hazard Boundaries**
    - Other Boundaries
    - Limit Lines
    - SFHA / Flood Zone Boundary

**Notes:**  
 1. Basemap provided by Langan's subscription to ArcGIS.  
 2. Effective FEMA FIRM data provided by Federal Emergency Management Agency.

<p><b>LANGAN</b>          888 Boylston Street, Suite 510          Boston, MA 02199          T: 617.824.9100 F: 617.824.9101 www.langan.com</p> <p>Langan Engineering &amp; Environmental Services, Inc.          Langan Engineering, Environmental, Surveying and          Landscape Architecture, D.P.C.          Langan MA, Inc.          Langan International LLC          Collectively known as Langan</p>	<p>Project</p> <p style="text-align: center;"><b>HUDSON LOGISTICS CENTER</b></p> <p>HUDSON                      NEW HAMPSHIRE</p>	<p>Drawing Title</p> <p style="text-align: center;"><b>EFFECTIVE FEMA FIRM</b></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Project No. 151010101</td> <td style="width: 50%;">Figure</td> </tr> <tr> <td>Date 04/27/2020</td> <td rowspan="2" style="text-align: center; vertical-align: middle; font-size: 2em;">4</td> </tr> <tr> <td>Scale 1" = 1200'</td> </tr> <tr> <td>Drawn By EB</td> <td></td> </tr> </table>	Project No. 151010101	Figure	Date 04/27/2020	4	Scale 1" = 1200'	Drawn By EB	
	Project No. 151010101	Figure								
Date 04/27/2020	4									
Scale 1" = 1200'										
Drawn By EB										
© 2013 Langan										



**DISTRIBUTION WAREHOUSE B**  
 BUILDING FOOTPRINT = ±1,005,480 SF  
 FFE: ±148  
 LOT B: ±95.7 AC TOTAL LOT AREA

**REAR LOAD FACILITY**  
 BUILDING FOOTPRINT = ±522,000 SF  
 FFE: ±149'  
 LOT C: ±111.4 AC TOTAL LOT AREA

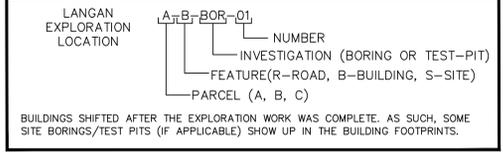
**NOTES**

1. ALL BORING, TEST PIT, AND OBSERVATION WELL LOCATIONS ARE APPROXIMATE.
2. BASE MAP INFORMATION OBTAINED FROM "TOPOGRAPHIC SUBDIVISION PLAN, HUDSON LOGISTICS CENTER" PREPARED BY HAYNER/SWANSON, INC., DATED 21 APRIL 2020.
3. PROPOSED DEVELOPMENT INFORMATION OBTAINED FROM A PROGRESS "CONCEPTUAL SITE PLAN" BY LANGAN TAKEN AUGUST 2020.
4. ELEVATIONS REFERENCE THE NGVD29 DATUM.
5. APPROXIMATE EXPLORATION LOCATIONS BY GZA GEOTECHNICAL, INC. WERE OBTAINED FROM A REPORT TITLED "PRELIMINARY GEOTECHNICAL ENGINEERING STUDY" PREPARED BY GZA GEOTECHNICAL, INC., DATED MAY 2006.
6. LANGAN TEST PITS WERE PERFORMED BY POLSTER INDUSTRIES BETWEEN 29 MAY AND 30 JUNE 2020, UNDER THE OBSERVATION OF A LANGAN FIELD ENGINEER.
7. LANGAN BORINGS WERE PERFORMED BY SOLTESTING, INC., SEABOARD DRILLING INC., AND ATLANTIC TESTING LABORATORIES BETWEEN 1 JUNE AND 2 JULY 2020, UNDER THE OBSERVATION OF A LANGAN FIELD ENGINEER. EXPLORATIONS ASSOCIATED WITH THE REMAINING TWO LOTS ARE SHOWN ON SEPARATE PLANS.
8. SEE GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION.
9. LIMITS OF FILL ARE BASED ON THE RESULTS FROM THE BORINGS. TEST PITS AND BORINGS DO NOT EXISTING INFRASTRUCTURE (BUILDINGS, ROADWAYS, UTILITIES, ECT.).

**ADDITIONAL NOTES**

1. INFORMATION PROVIDED HERE IS INFERRED BASED ON THE AVAILABLE BORINGS AND TEST PITS AND IS PROVIDED FOR INFORMATION/DISCUSSION PURPOSES ONLY.
2. CONTRACTOR IS RESPONSIBLE TO DETERMINE/CONFIRM ESTIMATED QUANTITIES AND DEPTHS BASED ON THE AVAILABLE BORING/TEST PIT LOGS, THEIR OWN EXPLORATION WORK, AND THEIR OWN MEANS/METHODS.

**INVESTIGATION NOMENCLATURE**



**LEGEND**

LANGAN BORING	A-B-BOR-01
LANGAN TEST PIT	A-B-TP-01
HISTORIC GZA BORING	B-1
HISTORIC GZA TEST PIT	TP-1
PROPOSED BUILDING LIMITS	—
PROPOSED ROADWAY AND PARKING LOT LIMITS	—
PROPOSED INFILTRATION BASIN LIMITS	---
PROPOSED LOT LINE	- · - · -
PROPERTY LINE	---

**LANGAN**

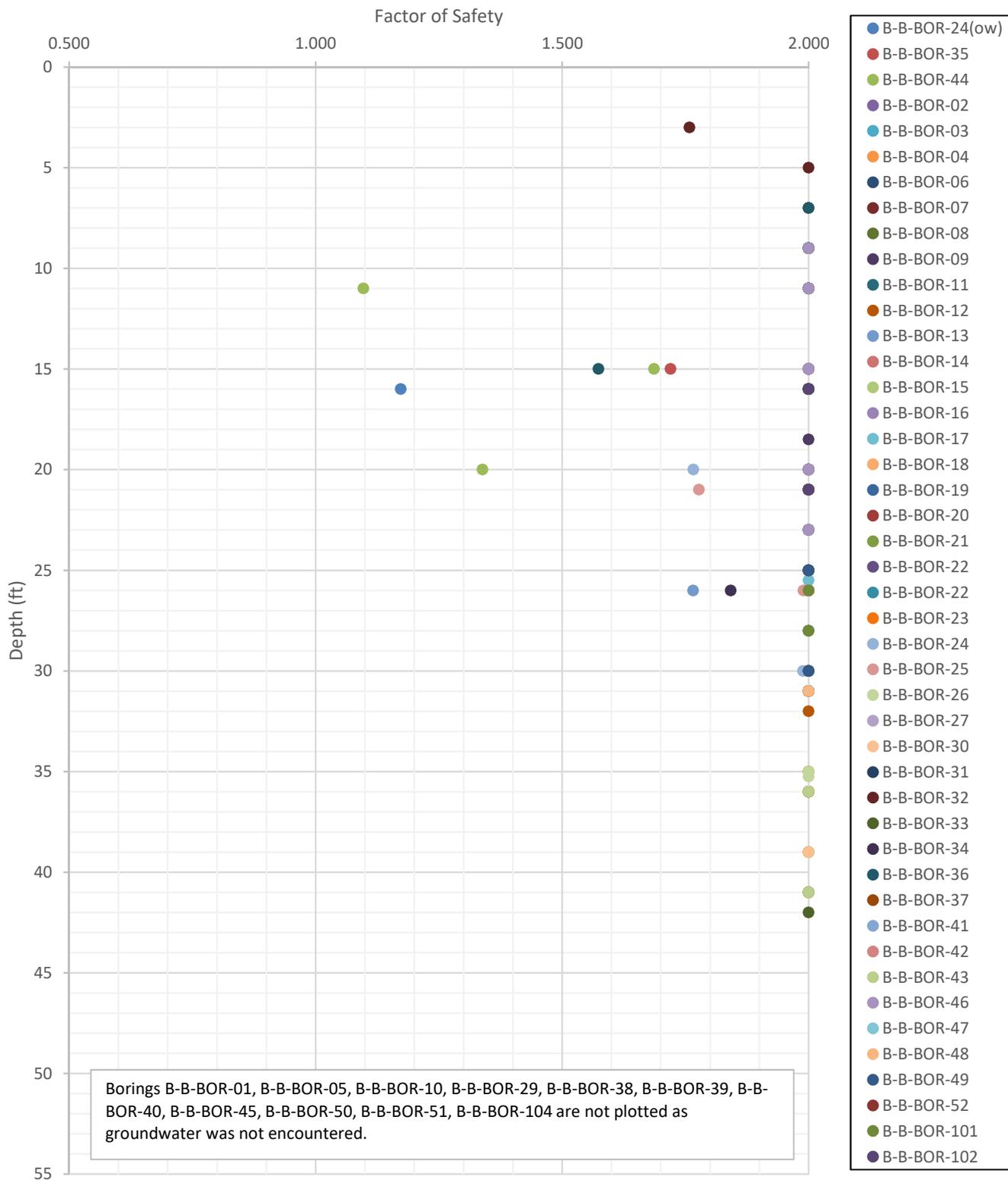
LANGAN MA, INC.  
 888 Boylston Street, Suite 510  
 Boston, MA  
 T: 617.824.9100 F: 617.824.9101 www.langan.com

Project  
**HUDSON LOGISTICS CENTER**  
 HUDSON  
 HILLSBOROUGH NEW HAMPSHIRE

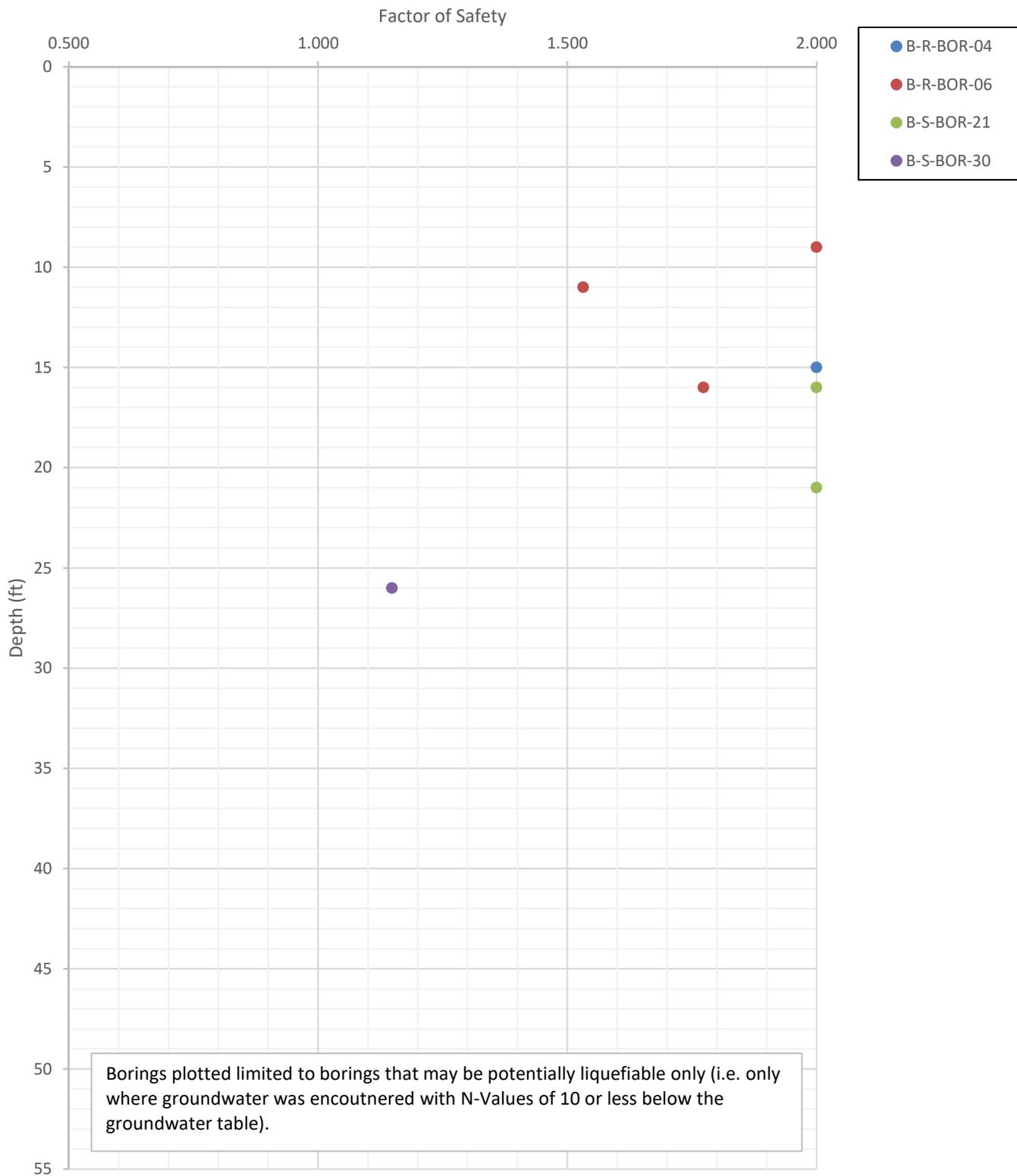
**EXPLORATION LOCATION PLAN**

Project No.	Figure
1510101	5
Date	
10 JULY 2020	
Drawn By	
TDS	
Checked By	
LC	Sheet 0 of 1





<p>555 Long Wharf Drive, New Haven, CT 06511 T: 203.562.5771 F: 203.789.6142 www.langan.com</p> <p>NEW JERSEY NEW YORK CONNECTICUT PENNSYLVANIA OHIO WASHINGTON, DC FLORIDA TEXAS NORTH DAKOTA CALIFORNIA ABU DHABI ATHENS DOHA DUBAI ISTANBUL PANAMA</p> <p>Langan Engineering, Environmental, Surveying and Landscape Architecture, P.C., S.A. Langan Engineering, Environmental, Surveying and Landscape Architecture, B.P.C. Langan Engineering and Environmental Services, Inc. Langan, C.T. P.C. Langan International LLC Collectively known as Langan</p>	Project	Drawing Title	Project No.	Drawing No.	
	HUDSON LOGISTICS CENTER  HUDSON NEW HAMPSHIRE	SOIL LIQUEFACTION EVALUATION  Building Area (Lot B)	151010101	6	
			Date		7/7/2020
			Scale		N.T.S
			Drawn By	LHC	



Project	HUDSON LOGISTICS CENTER
Project No.	151010101
Date	7/7/2020
Scale	N.T.S
Drawn By	LHC
Project No.	151010101
Drawing No.	7

Drawing Title	SOIL LIQUEFACTION EVALUATION
Drawing Title	SITE & ROADS ONLY (LOT B)

Project No.	151010101
Date	7/7/2020
Scale	N.T.S
Drawn By	LHC
Project No.	151010101
Drawing No.	7

# **APPENDIX A**

# **HISTORIC INFORMATION**

**APPENDIX B  
AVAILABLE GEOTECHNICAL  
REPORT**

**TABLE 1**  
**SUMMARY OF TEST BORINGS AND TEST PITS**  
River Place  
Hudson, New Hampshire

Test Boring Designation <sup>1</sup>	Notes	Ground Surface Elev. +/- (feet) <sup>2</sup>	Exploration Depth (feet)	Groundwater <sup>3</sup>		Thickness of Deposit (feet)						Refusal		
				Depth to (feet)	Elev. of (feet)	Topsoil	Subsoil	Silt	Sand	Silty Sand	Gravelly Sand	Peat	Depth to (feet)	Elev. of (feet)
B-1	6	136.0	30.2	NA					29.7				30.2	105.8
B-2		150.6	22.0	NA		0.2			>21.5				NE	
B-3		138.7	22.0	NA		1.0	1.0	>13.5	6.5				NE	
B-4		132.8	22.0	NA		1.0	1.5	3.5	>16				NE	
B-5	6	153.9	13.2	NA		1.0			11.2				13.2	140.7
B-6		119.8	22.0	15.0	104.8	0.5	1.5			>20			NE	
B-7		111.2	22.0	6.0	105.2	0.5	2.0	>13.5	6.5				NE	
B-8		116.6	27.0	21.0	95.6	0.3	2.2			>24.5			NE	
B-9		147.5	37.0	25.0	122.5				8.5	>28.5			NE	
B-10 (OW)	4	112.9	25.0	19.6	93.3	2.0			>23				NE	
B-11	6	169.6	10.5	NA		1.0	1.0			8.0	0.5		10.5	159.1
B-12	6	132.1	20.8	3.0	129.1	2.0				18.8			20.8	111.3
B-13	6	127.8	15.1	NA		0.5				14.6			15.1	112.7
B-13A	6	128.1	19.1	5.6	122.5	0.5				15.0	3.6		19.1	109.0
B-14		133.3	11.0	3.6	129.7	1.2	1.3		>8.5				NE	
B-15		133.7	12.0	3.7	130.0	0.5			>11.5				NE	
B-16	5	129.7	12.0	6.0	123.7	1.0	1.0		>6	4.0			NE	
B-17 (OW)	5	132.6	19.0	10.3	122.3	0.5		7.0	>11.5				NE	
B-18	5	132.4	12.0	5.5	126.9	1.0	1.0		>10				NE	
B-19	6	149.2	16.5	15.0	134.2	1.0	1.0		9.9	2.1	2.5		16.5	132.7
B-20 (OW)		133.1	11.0	3.8	129.3	0.7	1.3		>3.5	5.5			NE	
TP-1		146.6	7.0	NE		0.5			3.5	>3			NE	
TP-2		135.1	7.0	NE		0.3				>6.7			NE	
TP-3		138.5	7.0	NE		0.5				>6.5			NE	
TP-4		157.7	6.5	NE		0.5					>6		NE	
TP-5	6	136.7	2.5	NE							>2.5		2.5	134.2
TP-5A	6	136.7	2.5	NE					2.5				2.5	134.2
TP-6		131.3	7.0	7.0	124.3	1.5				>5.5			NE	
TP-7		138.5	7.0	NE		0.5				>6.5			NE	
TP-8		119.1	7.0	NE		0.5	0.8			>5.7			NE	
TP-9		137.2	7.0	NE		0.7				>6.3			NE	
TP-10		119.0	7.0	NE		0.5				>6.5			NE	
TP-11		109.6	7.0	NE		1.5		>5.5					NE	
TP-12		134.1	7.0	NE		0.5		4.0	>2.5				NE	
TP-13		139.9	6.5	NE		0.4			>5	1.1			NE	
TP-14		138.1	6.0	NE		0.3			>4.5	1.2			NE	
TP-15	7	150.0	6.5	NE		0.5			>2.2	3.8			NE	
TP-16		142.5	7.0	NE		0.8			>4.8	1.4			NE	
TP-17		135.8	7.0	NE		0.5			>5	1.5			NE	
TP-18		126.5	6.5	5.4	121.1	0.2				4.0		>2.5	NE	
TP-19		127.7	7.0	NE		0.8				>6.2			NE	
TP-20		133.2	7.0	4.8	128.4	0.7				>6.3			NE	
TP-21		127.7	6.8	6.7	121.0	0.5				>6.3			NE	
TP-22		146.3	7.0	NE		0.4		>0.8	5.8				NE	

Notes:

1. Refer to **Appendix B** for test boring logs and **Appendix C** for test pit logs.
2. Approximate ground surface elevation information was interpolated from survey information presented on a plan entitled "Boring/Test Pit/Observation Well Location Plan, 59 Steele Road, Hudson, New Hampshire," prepared by Hayner/Swanson, Inc. of Nashua, New Hampshire, dated April 2006.
3. Groundwater readings shown for test borings with observation wells installed were measured in groundwater observation wells on April 14, 2006. Italicized groundwater readings represent groundwater readings taken during drilling or test pit excavation and do not represent stabilized levels.
4. Cobble layer encountered from 15 to 15.5 feet below ground surface. Sand deposit thickness shown does not include cobble layer thickness.
5. Boring terminated due to running sands.
6. Refusal encountered due to boulders or bedrock.
7. Approximate ground surface elevation was interpolated from topography site plan provided by Hayner Swanson.

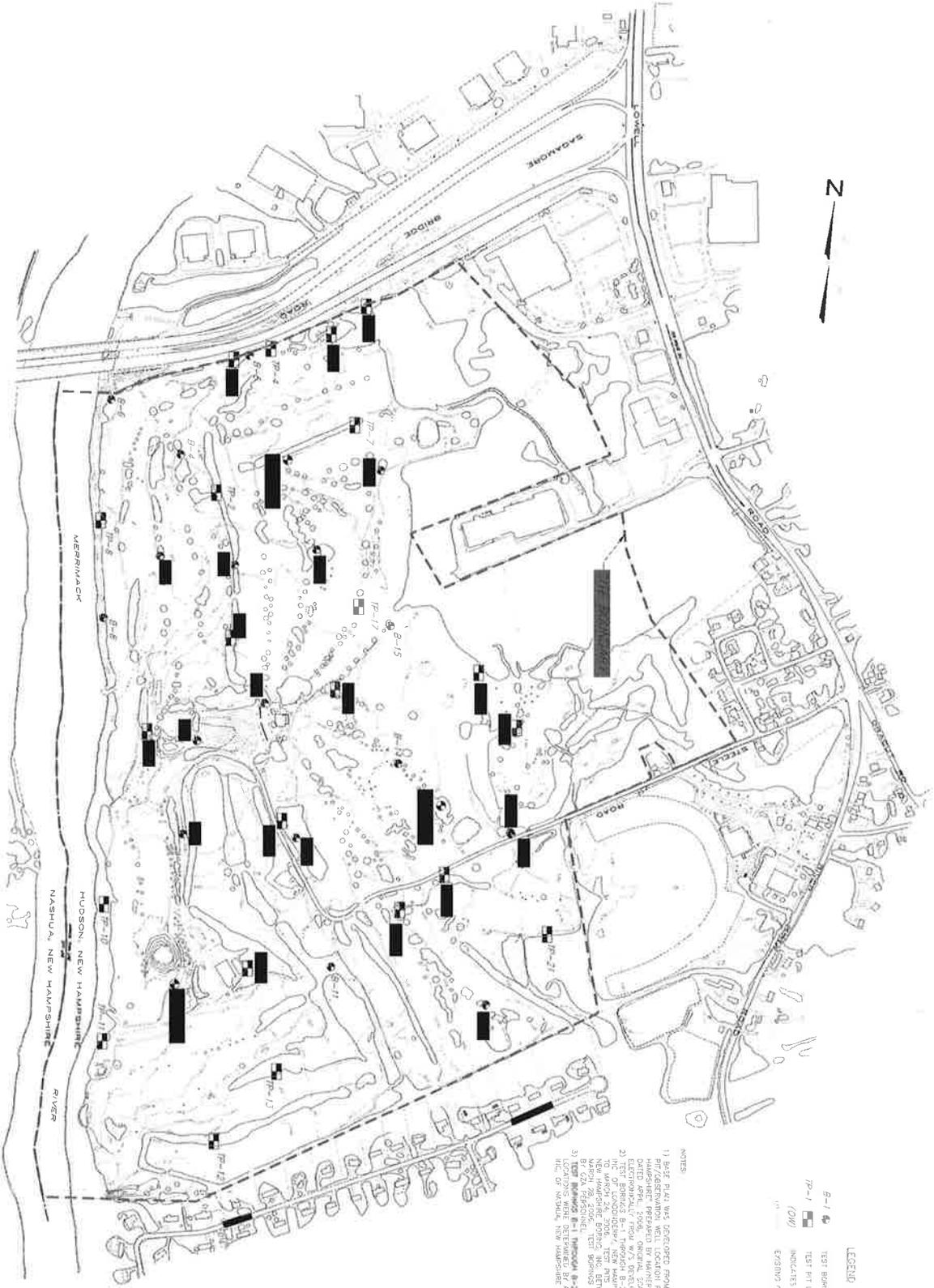
Abbreviations:  
NA = Not Available  
NE = Not Encountered  
OW = Observation Well Installed

**TABLE 2**  
**SUMMARY OF LABORATORY TESTING**  
River Place  
Hudson, New Hampshire

Boring / Test Pit No.	Sample No.	Depth (feet)	Soil Description	Grain Size Distribution			Natural Water Content (%)
				Gravel	Sand	Silt	
B-1	S-3	10-12	Fine to coarse SAND, some Gravel, trace Silt	21.0	73.7	5.3	4.4
B-2	S-2	5-7	Medium to coarse SAND, little Gravel, trace Silt	15.0	80.0	5.0	3.1
B-3	S-2	5-7	Medium to coarse SAND and Gravel, trace Silt	36.9	60.4	2.7	3.3
B-4	S-2A	5-6.8	SILT and fine Sand	0.1	48.8	51.1	20.4
B-5	S-3	10-12	Fine to medium SAND, some Gravel, little Silt	33.9	46.3	19.8	5.0
B-8	S-2	5-7	Fine to medium SAND, some Silt	0.0	73.4	26.6	7.5
B-9	S-2	5-7	Fine to medium SAND, trace Silt	0.2	95.9	3.9	5.8
B-11	S-2	4-6	Fine to medium SAND, some Silt	0.1	79.4	20.5	7.0
B-15	S-2	5-7	Fine to coarse SAND, little Silt, trace Gravel	7.5	75.9	16.6	24.3
B-16	S-1B	0-2	SILT, trace fine Sand	0.0	4.8	95.2	33.7
B-17(OW)	S-2	4-6	SILT, some fine Sand	0.2	30.0	69.8	25.4
B-18	S-3	10-12	Fine to medium SAND, trace Silt	0.0	93.2	6.8	26.4
TP-1	S-3	3.5	Medium to coarse SAND, little Gravel, trace Silt	10.8	85.6	3.6	4.0
TP-2	S-2	1.5	SILT and fine Sand	0.0	44.1	55.9	13.3
TP-4	S-1	2	GRAVEL and medium to coarse Sand, trace Silt	51.3	44.0	4.7	4.4
TP-5A	S-1	1	Fine to coarse SAND, some Silt, little Gravel	19.6	55.5	24.9	7.6
TP-6	S-2	2-3	Fine to medium SAND, some Silt	0.0	68.0	32.0	14.1
TP-9	S-2	2	Fine to medium SAND and Silt, trace Gravel	5.3	59.3	35.4	10.2
TP-13	S-3	3	Medium to coarse SAND, trace Silt	0.5	97.5	2.0	4.4

Notes:

1. Refer to **Appendix D** for laboratory results.



- LEGEND**
- B-1 [Symbol] TEST BORING LOCATION AND DESIGNATION
  - OW-1 [Symbol] TEST PIT LOCATION AND DESIGNATION
  - [Symbol] INDICATES AN OBSERVATION WELL INSTALLED
  - [Symbol] EXISTING GROUND SURFACE CONTOUR

**NOTES**

- 1) BASE PLAN WAS DERIVED FROM A PLAN ENTITLED "BORING/TEST PIT/OBSERVATION WELL LOCATION PLAN, 35' STEEL POND, HUDSON, NEW HAMPSHIRE" DATED APRIL, 2006. ORIGINAL SCALE 1" = 300' AND PLANS REVISED ELECTRONICALLY FROM W/S OF GEOTECHNICAL ASSOCIATES, INC. (GTA) PROJECT NO. 2006-001. NEW HAMPSHIRE ENGINEERING PROFESSIONAL CORPORATION (NHEPC) LICENSE NO. 17-2026 BY NEW HAMPSHIRE ENGINEERING PROFESSIONAL CORPORATION (NHEPC) LICENSE NO. 17-2026. TEST BORINGS AND TEST PITS WERE OBSERVED AND LOGGED BY [Name] ON [Date].
- 2) TEST BORINGS B-1 THROUGH B-20 AND TEST PITS TP-1 THROUGH TP-22 LOCATIONS WERE DETERMINED BY A SURVEY PERFORMED BY RANNEY/SWANSON, INC. OF NASHUA, NEW HAMPSHIRE.

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PROJECT NO. <b>24050.01</b>	PRELIMINARY GEOTECHNICAL ENGINEERING STUDY RIVER PLACE HUDSON, NEW HAMPSHIRE		PROJ. MGR. J.L.H. DESIGNED BY H.A.B. REVIEWED BY J.V.E. DRAWN BY B.J.E. SCALE: AS SHOWN DATE: APR 2006	GRAPHIC SCALE 1" = 300' 0 150 300 600	GZA Geotechnical, Inc. Engineers and Scientists 300 N. MAIN ST. SUITE 200 NASHUA, NH 03079	REV. NO.	DESCRIPTION	BY	DATE
	FIGURE NO. <b>2</b>	SITE AND SUBSURFACE EXPLORATION LOCATION PLAN							



GZA  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-1  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Ken Smith  
Logged by: Chris Melby  
Date Start/Finish: 3-18-06 / 3-18-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 136.0 ft Datum: NGVD

Auger/  
Casing: HSA  
Type: HSA  
I.D.: 4.25 in  
Hammer Wt.:  
Hammer Fall:  
Rig Type: Dietrich D50 Truck Mounted Rtg

Sampler: SS  
1.38 in  
140 lb  
30 in

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (In)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
5	S-2	24/0	5.0-7.0	16-10 12-19	ND	No Recovery Auger cuttings description: Brown, fine to medium SAND, little Gravel, little Silt.	ASPHALT 0.5 ft	1	No Equipment Installed
10	S-3	24/16	10.0-12.0	9-12 15-16	ND	Medium dense, light brown, fine to coarse SAND, some Gravel, trace Silt.		2	
15	S-4	24/22	15.0-17.0	17-36 33-53	ND	Very dense, light brown, fine to coarse SAND, little Gravel, trace Silt.	SAND		
20	S-5	24/14	20.0-22.0	14-15 19-47	ND	Medium dense, light brown, fine to medium SAND, trace Silt.			
25	S-6	3/0	25.0-25.3	100/4"	NA	No Recovery			
30	S-7	2/0	30.0-30.2	100/2"	NA	No Recovery - spoon refusal Bottom of boring at 30.2 feet below ground surface. Split spoon and auger refusal encountered.	30.2 ft		

SOIL BL WELL BORING LOGS: GPJ, GZA, NH, GDT, 4/18/06

**REMARKS**

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Piece of Asphalt in spoon tip.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-1



**GZA**  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-2  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Ken Smith  
Logged by: Chris Melby  
Date Start/Finish: 3-17-06 / 3-17-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 150.6 ft Datum: NGVD

Auger/  
Casing      Sampler  
Type: HSA      SS  
I.D.: 2.25 in      1.38 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50 Truck Mounted Rig

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
5	S-1	24/12	0.0-2.0	8-7 9-8	ND	S-1A: Medium dense, dark brown, fine to medium SAND, little Organics, little Silt. Topsoil S-1B: Medium dense, light brown, fine to medium SAND, little Silt.	0.3 ft ASPHALT 0.5 ft TOPSOIL	1	No Equipment Installed
	S-2	24/12	5.0-7.0	7-7 9-10	ND	Medium dense, light brown, medium to coarse SAND, little Gravel, trace Silt.			
	S-3	24/14	10.0-12.0	7-7 7-6	ND	Medium dense, light brown, fine to coarse SAND, trace Silt.	SAND		
	S-4	24/13	15.0-17.0	29-6 9-10	ND	Medium dense, light brown, fine to coarse SAND, trace Silt. Moist			
	S-5	24/20	20.0-22.0	6-7 8-10	ND	Medium dense, light brown, fine to coarse SAND, trace Silt. Gravel at top of spoon.			
22					Bottom of boring at 22 feet below ground surface. No refusal encountered.	22.0 ft			

SOIL BL WELL BORING LOGS.GPJ GZA.NH.GDT.4/18/06

**REMARKS**

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-2



**GZA**  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-3  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Ken Smith  
Logged by: Chris Melby  
Date Start/Finish: 3-17-06 / 3-17-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 138.7 ft Datum: NGVD

Auger/  
Casing      Sampler  
Type: HSA      SS  
I.D.: 2.25 in      1.38 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
5	S-1	24/12	0.0-2.0	3-9 6-4	ND	S1A: Medium dense, brown, fine to medium SAND, some Silt, little Organics. Topsoil S1B: Medium dense, light brown, fine to medium SAND, some Silt, trace Root Figers. Subsoil	TOPSOIL 1.0 ft SUBSOIL 2.0 ft	1	No Equipment Installed
	S-2	24/10	5.0-7.0	3-3 10-7	ND	Medium dense, brown, medium to coarse SAND and Gravel, trace Silt.	SAND 8.5 ft		
10	S-3	24/21	10.0-12.0	10-14 13-16	ND	Very stiff, light brown, SILT, some fine Sand.			
15	S-4	24/16	15.0-17.0	5-9 13-12	ND	Very stiff, light brown, SILT, some fine Sand. Wet	SILT		
20	S-5	24/19	20.0-22.0	7-7 11-10	ND	Very stiff, light brown, SILT, little fine Sand. Wet			
25						Bottom of boring at 22 feet below ground surface. No refusal encountered.	22.0 ft		

SOIL BL WELL BORING LOGS.GPJ GZA NH.GDT 4/18/06

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-3



**GZA**  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-4  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Ken Smith  
Logged by: Chris Melby  
Date Start/Finish: 3-17-06 / 3-17-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 132.8 ft Datum: NGVD

Auger/  
Casing      Sampler  
Type: HSA      SS  
I.D.: 2.25 in      1.38 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rlg Type: Dietrich D50

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
5	S-1	24/16	0.0-2.0	8-4 1-2	ND	S-1A (Top 12 inches): Loose, dark brown, fine to medium SAND, some Silt, little Organics. Topsoil S-1B (Bottom 4 inches): Light brown, SILT, little fine Sand, trace Root Fibers. Subsoil	TOPSOIL 1.0 ft SUBSOIL 2.5 ft	1	No Equipment Installed
	S-2	24/20	5.0-7.0	3-5 7-8	ND	S-2A: Stiff, light brown, SILT and fine Sand. S-2B: Brown, fine to coarse SAND, trace Silt.	6.0 ft		
10	S-3	24/14	10.0-12.0	5-8 12-15	ND	Medium dense, brown, medium to coarse SAND, trace Silt. Wet	SAND		
15	S-4	24/18	15.0-17.0	4-5 9-9	ND	Medium dense, brown, medium to coarse SAND, trace Silt.			
20	S-5	24/21	20.0-22.0	5-10 11-16	ND	Medium dense, brown, medium to coarse SAND, trace Silt.	22.0 ft		
25						Bottom of boring at 22 feet below ground surface. No refusal encountered.			

SOIL BORE LOGS.GPJ GZA NH.GDT 4/18/06

**REMARKS**

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-4



**GZA**  
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Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-5  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Ken Smith  
Logged by: Chris Melby  
Date Start/Finish: 3-17-06 / 3-17-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 153.9 ft Datum: NGVD

Auger/  
Casing  
Type: Auger  
I.D.: 2.25 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
5	S-1	24/18	0.0-2.0	5-6 5-7	ND	S-1A (Top 9 inches): Medium dense, dark brown, fine to medium SAND, little Organics, little Silt. S-1B (Bottom 9 inches): Light brown, fine to medium SAND, little Silt.	TOPSOIL 1.0 ft	1	No Equipment Installed
	S-2	24/12	5.0-7.0	12-14 9-18	ND	Medium dense, light brown, fine to coarse SAND, trace Gravel, trace Silt.	SAND	2	
10	S-3	24/18	10.0-12.0	41-51 52-87	ND	Very dense, brown, fine to medium SAND, some Gravel, little Silt.	8.0 ft COBBLES	3	
							9.0 ft	4	
15	S-4	0/0	13.2-13.2	50/0"		No Recovery Auger and spoon refusal encountered at 13.2 feet below ground surface.	13.2 ft	5	

SOIL BORE LOGS.GPJ GZA NH.GDT 4/18/06

REMARKS

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Rock lodged in spoon tip.
- Auger encountered cobbles at 8 to 9 feet below ground surface.
- Additional boring drilled approximately 10 feet south. Augers advanced to refusal at 13.2 feet below ground surface. No sampling performed. Cobbles encountered at approximately 9 feet below ground surface
- Additional boring drilled approximately 20 feet south. Auger refusal encountered at approximately 2 feet below ground surface. No sampling performed.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-5



**GZA**  
**GeoEnvironmental, Inc.**  
*Engineers and Scientists*

River Place  
 Hudson, New Hampshire

Boring No.: B-6  
 Page: 1 of 1  
 File No.: 04.0024050.01  
 Check: RAB

Contractor: New Hampshire Boring, Inc.  
 Foreman: Matt Stone  
 Logged by: Chris Melby  
 Date Start/Finish: 3-20-06 / 3-20-06  
 Boring Location: See Exploration Location Plan  
 GS Elev.: 119.8 ft Datum: NGVD

Auger/  
 Casing HSA Sampler SS  
 I.D.: 2.25 in 1.38 in  
 Hammer Wt.: 140 lb  
 Hammer Fall: 30 in  
 Rig Type: Dietrich D50

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen/ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
0-5	S-1	24/18	0.0-2.0	4-5 7-6	ND	S-1A: Medium dense, dark brown, fine to medium SAND, some Organics, little Silt. Topsoil S-1B: Medium dense, light brown, SILT, some fine Sand.	0.5 ft TOPSOIL	1	No Equipment Installed
							2.0 ft SUBSOIL		
7-10	S-2	24/20	7.0-9.0	6-5 6-7	ND	Medium dense, light brown, SILT, some fine Sand.			
10-15	S-3	24/18	10.0-12.0	5-4 5-4	ND	Loose, light brown, fine SAND, some Silt.	FINE SAND AND SILT		
15-20	S-4	24/22	15.0-17.0	5-4 6-8	ND	Loose, light brown, fine SAND, some Silt.		2	
20-25	S-5	24/19	20.0-22.0	21-24 20-10	ND	Dense, light brown, SILT and fine Sand.			
22.0						Bottom of boring at 22 feet below ground surface. No refusal encountered.	22.0 ft	3	

SOIL BELL WELL BORING LOGS.GPJ GZA NH.GDT 4/18/06

**REMARKS**

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Groundwater encountered at approximately 15 feet below ground surface based on soil samples recovered.
- Cobbles encountered.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-6



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River Place  
Hudson, New Hampshire

Boring No.: B-7  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-20-06 / 3-20-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 111.2 ft Datum: NGVD

Auger/  
Casing  
Type: HSA  
I.D.: 2.25 in  
Hammer Wt.:  
Hammer Fall:  
Rig Type: Dietrich D50

Sampler  
SS  
1.38 in  
140 lb  
30 in

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (In)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
5	S-1	24/14	0.0-2.0	5-5 5-3	ND	S1A: Medium dense, dark brown, fine to medium SAND, some Organics, some Silt. S-1B: Medium dense, light brown, SILT and Sand.	TOPSOIL 0.5 ft SUBSOIL 2.5 ft	1	No Equipment Installed
	S-2	24/24	5.0-7.0	6-6 6-8	ND	Medium dense, light brown, fine SAND, some Silt. Damp	SILTY SAND 6.5 ft	2	
10	S-3	24/20	10.0-12.0	6-7 6-5	ND	Stiff, light brown, SILT, little fine Sand. Wet			
15	S-4	24/24	15.0-17.0	7-7 6-5	ND	Stiff, light brown, SILT, little Sand. Wet	SILT		
20	S-5	24/24	20.0-22.0	8-7 7-7	ND	Stiff, light brown, SILT with Silt and Clay seams, trace, fine Sand. Wet			
25						Bottom of boring at 22 feet below ground surface. No refusal encountered.	22.0 ft		

SOIL B1 WELL BORING LOGS.GPJ GZA NH.GDT 4/18/06

**REMARKS**

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Groundwater encountered at 6 feet below ground surface based on soil samples recovered.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-7



GZA  
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Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-8  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-20-06 / 3-20-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 116.6 ft Datum: NGVD

Auger/Casing: Auger  
Sampler: SS  
Type: Auger  
I.D.: 2.25 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (#/6")	Field Test Data (ppm)				
5	S-1	24/14	0.0-2.0	5-3 3-3	ND	S-1A: Loose, dark brown, fine to medium SAND, some Organics, little Silt. S-1B: Medium stiff, light brown, SILT, some fine Sand.	0.3 ft TOPSOIL	1	No Equipment Installed
							2.5 ft SUBSOIL		
5	S-2	24/16	5.0-7.0	4-3 4-4	ND	Loose, light brown, fine to medium SAND, some Silt.			
10	S-3	24/18	10.0-12.0	6-5 5-6	ND	Medium dense, light brown, fine to medium SAND and Silt. Moist			
15	S-4	24/20	15.0-17.0	13-12 15-13	ND	Medium dense, light brown, fine SAND and Silt.	SILTY SAND		
20	S-5	24/17	20.0-22.0	10-12 14-13	ND	Medium dense, light brown, fine SAND and SILT. Moist		2	
25	S-6	24/17	25.0-27.0	7-7 7-7	ND	Medium dense, light brown, SILT and fine Sand. Wet			
						Bottom of boring at 27 feet below ground surface. No refusal encountered.	27.0 ft		

SOIL BOREHOLE BORING LOGS GPJ GZA NH.GDT 4/18/06

REMARKS

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Groundwater encountered at approximately 21 feet below ground surface based on soil samples recovered.



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River Place  
Hudson, New Hampshire

Boring No.: B-9  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-20-06 / 3-20-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 147.5 ft Datum: NGVD

Auger/Casing Sampler  
Type: Auger SS  
I.D.: 2.25 in 1.38 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
	S-1	24/12	0.0-2.0	2-11 16-10	ND	Medium dense, light brown, fine to coarse SAND, little Gravel, trace Silt.	SAND	1	No Equipment Installed
5	S-2	24/15	5.0-7.0	12-7 9-13	ND	Medium dense, light brown, fine to medium SAND, trace Silt.			
10	S-3	24/14	10.0-12.0	6-9 14-12	ND	Medium dense, light brown, fine to medium SAND, little Gravel, little Silt.	8.5 ft		
15	S-4	24/18	15.0-17.0	9-9 9-10	ND	Medium dense, light brown, fine to medium SAND, some Silt.			
20	S-5	24/22	20.0-22.0	6-10 11-6	ND	Medium dense, light brown, fine to medium SAND, some Silt. Dry	SILTY SAND		
25	S-6	24/24	25.0-27.0	6-7 13-15	ND	Medium dense, light brown, fine SAND and SILT. Dry	2		
30	S-7	24/20	30.0-32.0	13-16 13-11	ND	Medium dense, light brown, fine SAND and SILT. Moist			
35	S-8	24/22	35.0-37.0	12-15 19-23	ND	Dense, light brown, fine SAND and SILT. Wet			
						Bottom of boring at 37 feet below ground surface. No refusal encountered.	37.0 ft		

SOIL BORE LOGS.GPJ GZA.NH.GDT 4/1 8/06

**REMARKS**

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Groundwater encountered at 25 feet below ground surface based on soil samples recovered.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-9



GZA  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-10  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-21-06 / 3-22-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 112.9 ft Datum: NGVD

Auger/Casing: Auger I.D.: 4.25 in  
Sampler: SS I.D.: 1.38 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab
3/21/06	1600	20.7 ft	GS	5 minutes
3/22/06	0700	18.9 ft	GS	1 day
3/22/06	0830	18.8 ft	Top PVC	1 day
3/22/06	1520	18.8 ft	Top PVC	1.5 days
4/14/06	0930	19.6 ft	GS	23 days

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)					
0-2.0	S-1	24/14	0.0-2.0	5-4 10-16	ND	Dense, dark brown, fine to medium SAND, some Organics, little Silt. Topsoil	TOPSOIL	1	Road Box	Cement
5-7.0	S-2	24/12	5.0-7.0	21-14 9-6	ND	Dense, dark brown, fine to medium SAND, little Silt, trace Gravel.	SAND		2" ID Solid Sch 40 PVC Well Riser	2'
10-12.0	S-3	24/20	10.0-12.0	11-12 30-37	ND	Medium dense, gray, fine to medium SAND, trace Silt. Moist			Cuttings/Backfill	11'
15.0-15.3	S-4	3/0	15.0-15.3	100/3"		No Recovery	15.0 ft BOULDERS	2		Bentonite
20.0-22.0	S-5	24/20	20.0-22.0	9-10 12-20	ND	Dense, brown, fine to coarse SAND, little Silt. Wet	SAND			13'
24.5-25'						Bottom of boring at 25 feet below ground surface. No refusal encountered.	25.0 ft	3		Sand
										14.5'
										2" ID Slotted Sch 40 PVC Well Screen (0.01" Slot)
										24.5'
										25'

REMARKS

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Probable boulder layer encountered at 15 feet below ground surface.
- Blow in sands encountered overnight at bottom of borehole.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-10

SOIL BELL WELL BORING LOGS.GPJ GZA\_NH.GDT 4/18/06



GZA  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-11  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-22-06 / 3-22-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 169.6 ft Datum: NGVD

Auger/Casing: HSA  
Sampler: SS  
Type: HSA  
I.D.: 2.25 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/8")	Field Test Data (ppm)				No Equipment Installed
0-5	S-1	24/12	0.0-2.0	3-3	ND	S-1A: Loose, dark brown, fine to medium SAND, little Organics, some Silt. Topsoil S-1B: Loose, brown, fine to medium SAND, little Silt, trace roots. Subsoil	TOPSOIL	1	No Equipment Installed
			2.0-5.0	3-3			SUBSOIL		
5-10	S-2	24/16	5.0-7.0	4-4 3-5	ND	Loose, light brown, fine to medium SAND, some Silt. Dry	SILTY SAND		
10-10.5	S-3	8/1	10.0-10.7	19-100/2"	ND	Very dense, gray, fine to coarse SAND and Gravel, trace Silt. Dry Bottom of boring at 10.5 feet below ground surface. Split spoon and Auger refusal encountered.	10.0 ft GRAVEL 10.5 ft	2	

SOIL BOREHOLE BORING LOGS.GPJ GZA NH.GDT 4/13/06

**REMARKS**

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Additional boring (B-11A) drilled 10 feet southwest. Split spoon refusal encountered at 10.5 feet below ground surface.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-11



GZA  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-12  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-22-06 / 3-22-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 132.1 ft Datum: NGVD

Auger/Casing: Auger  
Sampler: SS  
Type: Auger  
I.D.: 2.25 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab
3/22/06	1445	3.0 ft	GS	10 minutes

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
	S-1	24/12	0.0-2.0	3-6 5-5	ND	Medium dense, dark brown, fine to medium SAND, some Silt, little Organics. Moist	TOPSOIL 2.0 ft	1	No Equipment Installed
5	S-2	24/10	5.0-7.0	5-7 10-9	ND	Medium dense, light brown, SILT, some, fine SAND. Moist			
10	S-3	24/20	10.0-12.0	14-17 13-16	ND	Medium dense, light brown to gray, fine to medium SAND and Silt, little Gravel. Wet	SILTY SAND		
15	S-4	24/24	15.0-17.0	5-6 7-12	ND	Medium dense, light brown, Clayey SILT and fine SAND, trace Gravel. Wet			
20	S-5	9/9	20.0-20.8	83-50/3"	ND	Very dense, light brown, fine to medium SAND, and Clayey SILT, little Gravel. Wet Bottom of boring at 20.75 feet below ground surface. Split refusal encountered.	20.8 ft	2	

SOIL BORE LOGS GPJ GZA NH GDT 4/18/06

**REMARKS**

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Rock lodged in spoon tip.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-12



GZA  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-13  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-23-06 / 3-23-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 127.8 ft Datum: NGVD

Auger/  
Casing  
Type: HSA  
I.D.: 2.25 in  
Hammer Wt.:  
Hammer Fall:  
Rig Type: Dietrich D50

Sampler  
SS  
1.38 in  
140 lb  
30 in

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab
3/23/06	0720	12.3 ft	GS	10 minutes
3/23/06	0825	5.6 ft	GS	1.25 hour

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
5	S-1	24/10	0.0-2.0	2-3 3-4	ND	S-1A: Loose, dark brown, fine to medium SAND, some Organics, some Silt. Topsoil S-1B: Loose, light brown, fine to medium SAND, some Silt.	TOPSOIL 0.5 ft	1	No Equipment Installed
	S-2	24/22	5.0-7.0	4-5 5-5	ND	Medium dense, light brown, fine SAND and Silt. Moist	SILTY SAND		
10	S-3	24/24	10.0-12.0	8-11 10-12	ND	Medium dense, gray, fine to medium SAND, some Silt. Wet			
15	S-4	1/0	15.0-15.1	100/1"	ND	No Recovery Bottom of boring at 15.1 feet below ground surface. Split spoon and Auger refusal encountered.	15.1 ft	2	

SOIL BELL WELL BORING LOGS GPJ GZA NH GDT 4/18/06

REMARKS

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Additional boring (B-13A) drilled approximately 10 feet north.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-13



GZA  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-13A  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-23-06 / 3-23-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 128.1 ft Datum: NGVD

Auger/  
Casing  
Type: HSA  
I.D.: 2.25 in  
Hammer Wt.:  
Hammer Fall:  
Rig Type: Dietrich D50

Sampler  
SS  
1.38 in  
140 lb  
30 in

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
3/23/06	0720	12.3 ft	GS	10 minute:
3/23/06	0825	5.6 ft	GS	1.25 hour

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
0.5 ft						See B-13 for soil descriptions.	TOPSOIL	1	No Equipment Installed
15	S-1	24/14	15.0-17.0	25-22 22-35	ND	Dense, gray to brown, fine to coarse SAND and Gravel, little Silt. Wet	15.5 ft		
20	S-2	1/0	19.0-19.1	100/1"		No Recovery. Bottom of boring at 19.1 feet below ground surface. Split spoon and Auger refusal encountered.	19.1 ft		
25									

**REMARKS**

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-13A

SOIL B/L WELL BORING LOGS.GPJ GZA NH.GDT 4/18/06



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Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-14  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-23-06 / 3-23-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 133.3 ft Datum: NGVD

Auger/Casing: HSA  
Sampler: SS  
Type: HSA  
I.D.: 2.25 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (In)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
5	S-1	24/16	0.0-2.0	2-2 3-5	ND	S-1A: Loose, dark brown, fine to medium SAND, some Organics, some Silt. Topsoil S-1B: Loose, light brown, fine SAND and Silt.	TOPSOIL ----- 1.2 ft SUBSOIL ----- 2.5 ft	1	No Equipment Installed
	S-2	24/19	5.0-7.0	5-6 8-7	ND	Medium dense, light brown, fine to medium SAND, little Silt. Wet	SAND		
10	S-3	24/24	9.0-11.0	4-6 6-4	ND	Medium dense, brown, fine to medium SAND, little Silt. Wet			
						Bottom of boring at 11 feet below ground surface. No refusal encountered.	11.0 ft	2	

**REMARKS**

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Boring terminated due to blow in/running sands.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-14

SOIL BELL WELL BORING LOGS.GPJ GZA\_NH.GDT 4/18/06



GZA  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-15  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-23-06 / 3-23-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 133.7 ft Datum: NGVD

Auger/  
Casing: HSA  
Type: HSA  
I.D.: 2.25 in  
Hammer Wt.:  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

Sampler: SS

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
3/23/06	1115	3.7 ft	GS	15 minutes

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
0.5	S-1	24/18	0.0-2.0	6-5 4-5	ND	S-1A: Loose, dark brown, fine to medium SAND, some Silt, little Organics. Topsoil S-1B: Loose, light brown, fine to medium SAND, some Silt.	TOPSOIL	1	No Equipment Installed
5	S-2	24/18	5.0-7.0	5-4 4-8	ND	Loose, brown, fine to coarse SAND, little Silt, trace Gravel. Bottom 1 inch: Loose, light brown, fine SAND and Silt.	SAND		
10	S-3	24/24	10.0-12.0	7-9 8-11	ND	Medium dense, brown, fine to medium SAND, trace Silt. Wet			
12.0						Bottom of boring at 12 feet below ground surface.		2	

**REMARKS**

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Boring terminated due to blow in/running sands.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-15

SOIL B1 WELL BORING LOGS.GPJ GZA NH.GDT 4/18/06



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GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-16  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-23-06 / 3-23-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 129.7 ft Datum: NGVD

Auger/  
Casing      Sampler  
Type: HSA      SS  
I.D.: 2.25 in      1.38 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: \_\_\_\_\_

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (In)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
5	S-1	24/12	0.0-2.0	2-5 4-4	ND	S-1A: Loose, dark brown, fine to medium SAND, little Organics, trace Silt. Topsoil S-1B: Loose, light brown, SILT, trace fine Sand.	TOPSOIL	1	No Equipment Installed
							1.0 ft SUBSOIL		
5	S-2	24/16	5.0-7.0	6-9 6-7	ND	S-2A: Medium dense, light brown, fine SAND and SILT. Dry S-2B: Medium dense, brown, fine to coarse SAND, trace Silt. Wet	2.0 ft	2	
							SAND AND SILT		
10	S-3	24/20	10.0-12.0	6-9 5-6	ND	Medium dense, brown, fine to coarse SAND, trace Silt. Wet	6.0 ft		
10						Bottom of boring at 12 feet below ground surface.	12.0 ft	3	

**REMARKS**

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Groundwater encountered approximately 6 feet below ground surface based on soil samples recovered.
- Boring terminated due to blow in/running sands.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-16

SOIL BL WELL BORING LOGS.GPJ GZA\_NH.GDT 4/18/06



**GZA**  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-17  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-24-06 / 3-24-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 132.6 ft Datum: NGVD

Auger/  
Casing Type: HSA Sampler: SS  
I.D.: 4.25 in 1.38 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

**GROUNDWATER READINGS**

Date	Time	Depth	Casing	Stab
3/24/06	0830	12.0 ft	GS	15 minute
3/24/06	0930	9.7 ft	Top PVC	45 minute
4/14/06	1030	10.3 ft	GS	21 days

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				Road box	
5	S-1	24/20	0.0-2.0	3-6 6-5	ND	S-1A: Medium dense, dark brown, fine to medium SAND, and Silt, trace Organics. Topsoil S-1B: Stiff, light brown, SILT, some fine Sand.	TOPSOIL 0.5 ft	1	2" ID Solid Sch 40 PVC Well Riser	
	S-2	24/20	4.0-6.0	6-6 5-8	ND	Stiff, brown, SILT, some fine Sand.	SILT		Cuttings	
	S-3	24/18	9.0-11.0	10-11 13-10	ND	Medium dense, brown, fine to coarse SAND, trace Silt.	7.5 ft		6.2' Bentonite 7.7' Filter Sand 9'	
	S-4	24/24	14.0-16.0	8-8 6-8	ND	S-4A: Medium dense, brown, fine to coarse SAND, little Silt. Wet S-4B: Brown, medium to coarse SAND, trace Gravel, trace Silt.	SAND		2" ID Slotted Sch 40 PVC Well Screen (0.01" Slot)	
20						Bottom of boring at 19 feet below ground surface.	19.0 ft	2		19'

**REMARKS**

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Boring terminated due to blow in/running sands.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-17

SOIL BL WELL BORING LOGS.GPJ GZA.NH.GDT 4/18/06



GZA  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-18  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-23-06 / 3-23-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 132.4 ft Datum: NGVD

Auger/Casing: HSA  
Sampler: SS  
Type: HSA  
I.D.: 2.25 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (In)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
5	S-1	24/20	0.0-2.0	3-5 4-4	ND	Loose, light brown, fine to medium SAND, little Silt and Organics. Topsoil	TOPSOIL	1	No Equipment Installed
	S-2	24/20	2.0-4.0	4-5 4-6	ND		Loose, gray, medium to coarse SAND, little Silt. Wet		
10	S-3	24/22	10.0-12.0	3-6 6-8	ND	Medium dense, brown, fine to medium SAND, trace Silt.	SAND	2	
15						Bottom of boring at 12 feet below ground surface.	12.0 ft	3	

REMARKS

- Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
- Groundwater encountered at approximately 5.5 feet below ground surface based on soil samples recovered.
- Boring terminated due to blow in/running sands.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-18

SOIL BORE LOGS.GPJ GZA.NH.GDT 4/18/06



GZA  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-19  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-22-06 / 3-22-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 149.2 ft Datum: NGVD

Auger/  
Casing: HSA  
I.D.: 2.25 in  
Hammer Wt.:  
Hammer Fall: 140 lb  
30 in  
Rig Type: Dietrich D50

Sampler  
SS

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in)	Depth (ft)	Blows (/6")	Field Test Data (ppm)				
0	S-1	24/12	0.0-2.0	2-4	ND	S-1A: Loose, dark brown, fine to medium SAND, some Silt, little Organics. Topsoil S-1B: Loose, light brown, fine to medium SAND, some Silt.	TOPSOIL	1	No Equipment Installed
			2.0	3-3			1.0 ft SUBSOIL		
5	S-2	24/20	5.0-7.0	12-15 16-18	ND	Medium dense, gray to light brown, fine to medium SAND, trace Silt. Dry	SAND		
10	S-3	24/18	10.0-12.0	13-14 23-28	ND	S-3A: Medium dense, gray to light brown, fine to medium SAND, little SILT. Dry S-3B: Hard, light brown, SILT and fine Sand. Dry	11.9 ft SILT AND FINE SAND		
15	S-4	19/12	15.0-16.6	11-42 28-50/1"	ND	Very dense, brown, medium to coarse SAND and Gravel, little Silt.	14.0 ft SAND AND GRAVEL	2	
16.5						Bottom of boring at 16.5 feet below ground surface. Split spoon and Auger refusal encountered.	16.5 ft		

SOIL B. WELL BORING LOGS.GPJ GZA\_NH.GDT 4/18/06

REMARKS

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.
2. Groundwater encountered at approximately 15 below ground surface based on soil samples recovered.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-19



**GZA**  
GeoEnvironmental, Inc.  
Engineers and Scientists

River Place  
Hudson, New Hampshire

Boring No.: B-20  
Page: 1 of 1  
File No.: 04.0024050.01  
Check: RAB

Contractor: New Hampshire Boring, Inc.  
Foreman: Matt Stone  
Logged by: Chris Melby  
Date Start/Finish: 3-24-06 / 3-24-06  
Boring Location: See Exploration Location Plan  
GS Elev.: 133.1 ft Datum: NGVD

Auger/Casing: HSA  
Sampler: SS  
Type: HSA  
I.D.: 4.25 in  
Hammer Wt.: 140 lb  
Hammer Fall: 30 in  
Rig Type: Dietrich D50

GROUNDWATER READINGS				
Date	Time	Depth	Casing	Stab
3/24/06	1145	3.8 ft	GS	5 minutes
4/14/06	1130	3.8 ft	GS	21 days

Depth (ft)	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in)	Depth (ft)	Blows ((6"))	Field Test Data (ppm)					
5	S-1	24/14	0.0-2.0	3-2 3-4	ND	S-1A: Loose, dark brown, fine to medium SAND, some Silt, little Organics. Topsoil S-1B: Loose, light brown, SILT, little fine Sand, trace root fibers.	TOPSOIL 0.7 ft SUBSOIL 2.0 ft	1	Road box	
	S-2	24/16	4.0-6.0	4-3 3-4	ND	Loose, brown, fine SAND and SILT. Wet	SILTY SAND		Cuttings 2" ID Solid Sch 40 PVC Well Riser 2' Bentonite 3' 4' Filter Sand	
10	S-3	24/20	9.0-11.0	5-5 6-5	ND	Medium dense, brown, fine to coarse SAND, trace Silt. Wet	SAND 7.5 ft		2" ID Slotted Sch 40 PVC Well Screen (0.01" Slot) 9'	
15						Bottom of boring at 11 feet below ground surface. No refusal encountered.	11.0 ft			11'

SOIL BL WELL BORING LOGS.GPJ GZA NH.GDT 4/18/06

**REMARKS**

1. Soil samples were screened for total volatile organic compounds (VOCs) using a TEI Model 580B organic vapor meter referenced to an isobutylene-in-air standard. Total VOCs detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCs detected.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: B-20

**APPENDIX C**  
**TEST PIT LOGS**

GZA GeoEnvironmental, Inc.

Engineers/Scientists

River Place

Hudson, New Hampshire

380 Harvey Road  
Manchester, New Hampshire 03103

Test Pit No. TP-1

Page No. 1 of 1

File No. 04.0024050.01

Checked By: RAB

Excavation Equipment

GZA Rep. <u>C. Melby</u>	Contractor <u>New Hampshire Boring, Inc.</u>	Date <u>3/26/2006</u>
Weather <u>Sunny, 50s</u>	Operator <u>Matt Stone</u>	Ground Elev. <u>146.6 feet</u>
	Make <u>Komatsu</u> Model <u>PC 27</u>	Time Started <u>0800</u>
	Capacity <u>1.5 feet<sup>3</sup></u> Reach <u>10 feet</u>	Time Completed <u>0830</u>

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.5'	Brown, fine to coarse SAND, little Gravel, trace Silt, trace Root Fibers.	S-2	ND	E		
1'				E		
2'				E		
3'	SAND	S-3	ND	E		
4'	Light brown to gray, fine SAND and Silt.			E		
5'				E		
6'	SILTY SAND			E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:  
1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

<p>Test Pit Plan</p> <p>NORTH</p> <p>Volume = 1.5 cu. yd.</p>	<p>Boulder Class</p> <table border="0"> <tr> <th>Letter Designation</th> <th>Size Range</th> <th>Classification</th> </tr> <tr> <td>A</td> <td>6" - 17"</td> <td></td> </tr> <tr> <td>B</td> <td>18" - 36"</td> <td></td> </tr> <tr> <td>C</td> <td>36" and Larger</td> <td></td> </tr> </table>	Letter Designation	Size Range	Classification	A	6" - 17"		B	18" - 36"		C	36" and Larger		<p>Proportions Used</p> <table border="0"> <tr> <td>TRACE (TR.)</td> <td>0 - 10%</td> </tr> <tr> <td>LITTLE (LI.)</td> <td>10 - 20%</td> </tr> <tr> <td>SOME (SO.)</td> <td>20 - 35%</td> </tr> <tr> <td>AND</td> <td>35 - 50%</td> </tr> </table>	TRACE (TR.)	0 - 10%	LITTLE (LI.)	10 - 20%	SOME (SO.)	20 - 35%	AND	35 - 50%	<p>Abbreviations</p> <p>F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow</p>	<p>GROUNDWATER</p> <p>( ) Encountered ( X ) Not Encountered</p> <table border="0"> <tr> <td>Elapsed Time to Reading (Hours)</td> <td>Depth to Groundwater</td> </tr> <tr> <td><input type="text"/></td> <td><input type="text"/></td> </tr> </table>	Elapsed Time to Reading (Hours)	Depth to Groundwater	<input type="text"/>	<input type="text"/>
	Letter Designation	Size Range	Classification																									
A	6" - 17"																											
B	18" - 36"																											
C	36" and Larger																											
TRACE (TR.)	0 - 10%																											
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SOME (SO.)	20 - 35%																											
AND	35 - 50%																											
Elapsed Time to Reading (Hours)	Depth to Groundwater																											
<input type="text"/>	<input type="text"/>																											
Excavation Effort																												
E ---- Easy																												
M --- Moderate																												
D ---- Difficult																												



GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc.

Engineers/Scientists

River Place

Hudson, New Hampshire

380 Harvey Road  
Manchester, New Hampshire 03103

Test Pit No. TP-2

Page No. 1 of 1

File No. 04.0024050.01

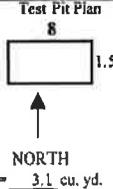
Checked By: RAB

Excavation Equipment

GZA Rep. <u>C. Melby</u>	Contractor <u>New Hampshire Boring, Inc.</u>	Date <u>3/26/2006</u>
	Operator <u>Matt Stone</u>	Ground Elev. <u>135.1 feet</u>
Weather <u>Sunny, 50s</u>	Make <u>Komatsu</u> Model <u>PC 27</u>	Time Started <u>0840</u>
	Capacity <u>1.5 feet<sup>3</sup></u> Reach <u>10 feet</u>	Time Completed <u>0900</u>

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0						
0.3'	Dark brown Organics, little SAND and SILT. TOPSOIL.	S-1	ND	E		1
1'	Light brown to gray, SILT and fine Sand.	S-2	ND	E		
2'	SILTY SAND			E		
3'				E		
4'				E		
5'				E		
6'				E		
7'		Bottom of test pit at 7 feet below ground surface. No refusal encountered.				
8'						
9'						
10'						
11'						
12'						
13'						

Notes:  
1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

<p>Test Pit Plan</p>  <p>NORTH</p> <p>Volume = 3.1 cu. yd.</p>	<p>Boulder Class</p> <table border="0"> <tr> <th>Letter Designation</th> <th>Size Range Classification</th> </tr> <tr> <td>A</td> <td>6" - 17"</td> </tr> <tr> <td>B</td> <td>18" - 36"</td> </tr> <tr> <td>C</td> <td>36" and Larger</td> </tr> </table>	Letter Designation	Size Range Classification	A	6" - 17"	B	18" - 36"	C	36" and Larger	<p>Proportions Used</p> <table border="0"> <tr> <td>TRACE (TR.)</td> <td>0 - 10%</td> </tr> <tr> <td>LITTLE (LI.)</td> <td>10 - 20%</td> </tr> <tr> <td>SOME (SO.)</td> <td>20 - 35%</td> </tr> <tr> <td>AND</td> <td>35 - 50%</td> </tr> </table>	TRACE (TR.)	0 - 10%	LITTLE (LI.)	10 - 20%	SOME (SO.)	20 - 35%	AND	35 - 50%	<p>Abbreviations</p> <p>F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow</p>	<p>GROUNDWATER</p> <p>( ) Encountered (X) Not Encountered</p> <table border="0"> <tr> <td>Elapsed Time to Reading (Hours)</td> <td>Depth to Groundwater</td> </tr> <tr> <td><input type="text"/></td> <td><input type="text"/></td> </tr> </table>	Elapsed Time to Reading (Hours)	Depth to Groundwater	<input type="text"/>	<input type="text"/>
	Letter Designation	Size Range Classification																						
A	6" - 17"																							
B	18" - 36"																							
C	36" and Larger																							
TRACE (TR.)	0 - 10%																							
LITTLE (LI.)	10 - 20%																							
SOME (SO.)	20 - 35%																							
AND	35 - 50%																							
Elapsed Time to Reading (Hours)	Depth to Groundwater																							
<input type="text"/>	<input type="text"/>																							
<p>Excavation Effort</p> <p>E ---- Easy M ---- Moderate D ---- Difficult</p>																								



GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc. Test Pit No. TP-3  
 Engineers/Scientists \_\_\_\_\_ Page No. 1 of 1  
River Place  
Hudson, New Hampshire  
 380 Harvey Road File No. 04.0024050.01  
 Manchester, New Hampshire 03103 Checked By: RAB

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/26/2006  
 Operator Matt Stone Ground Elev. 138.5 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 0900  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 0930

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0						
0.2'	Dark brown, fine to medium SAND, little Organics, little Silt. TOPSOIL	S-1	ND	E		1
1'	Light brown to gray, fine to medium SAND, trace Silt, trace Gravel with Boulders.	S-2	ND	E	3/A	
2'				E	2/A	
3'				E	10/A	
4'				M	5/A 2/C	
5'				M	3/A	
6'	SILTY SAND			D	2/C	
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan  Volume = <u>8.3</u> cu. yd.	<b>Boulder Class</b> Letter Designation    Size Range Classification A                            6" - 17" B                            18" - 36" C                            36" and Larger	<b>Proportions Used</b> TRACE (TR.)    0 - 10% LITTLE (LI.)    10 - 20% SOME (SO.)    20 - 35% AND                35 - 50%	<b>Abbreviations</b> F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	<b>GROUNDWATER</b> ( ) Encountered (X) Not Encountered  Elapsed Time to Reading (Hours) _____ Depth to Groundwater _____
	<b>Excavation Effort</b> E ---- Easy M ---- Moderate D ---- Difficult			

GZA GeoEnvironmental, Inc. Test Pit No. TP-4  
 Engineers/Scientists River Place Page No. 1 of 1  
Hudson, New Hampshire File No. 04.0024050.01  
 380 Harvey Road Checked By: RAB  
 Manchester, New Hampshire 03103

**Excavation Equipment**

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/27/2006  
 Operator Matt Stone Ground Elev. 157.7 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 0935  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 1000

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.	
0	Dark brown, fine to medium SAND, little Silt, little Organics. Topsoil	S-1		E		1	
0.5'	Brown to light brown, GRAVEL and medium to coarse SAND, trace Silt.						
1'	GRAVEL and SAND		ND	E			
2'				E			
3'				E			
4'				E			
5'				E			
6'				E			
6.5'				M			
7'			Bottom of test pit at 6.5 feet below ground surface. No refusal encountered.				
8'							
9'							
10'							
11'							
12'							
13'							

**Notes:**  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan  NORTH Volume = <u>5.8</u> cu. yd.	<b>Boulder Class</b> Letter Designation    Size Range Classification A                          6" - 17" B                          18" - 36" C                          36" and Larger	<b>Proportions Used</b> TRACE (TR.)    0 - 10% LITTLE (L.L.)    10 - 20% SOME (SO.)      20 - 35% AND                35 - 50%	<b>Abbreviations</b> F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	<b>GROUNDWATER</b> ( ) Encountered (X) Not Encountered  Elapsed Time to Reading (Hours)      Depth to Groundwater
	<b>Excavation Effort</b> E ---- Easy M --- Moderate D ---- Difficult			



GZA GeoEnvironmental, Inc. Test Pit No. TP-5  
 Engineers/Scientists River Place  
Hudson, New Hampshire  
 380 Harvey Road  
 Manchester, New Hampshire 03103 Page No. 1 of 1  
File No. 04.0024050.01  
Checked By: RAB

**Excavation Equipment**

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/27/2006  
 Operator Matt Stone Ground Elev. 136.7 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 1005  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 1030

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Brown, fine to coarse SAND, some Gravel, little Silt.	S-1	ND	D	5/A	1
1'	SAND & GRAVEL			D	10/A	
2'				D		
3'						
Bottom of test pit at 2.5 feet below ground surface. Refusal encountered on probable Bedrock.						
4'						
5'						
6'						
7'						
8'						
9'						
10'						
11'						
12'						
13'						

**Notes:**  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan 8  NORTH Volume = 1.1 cu. yd.	<b>Boulder Class</b> Letter Designation    Size Range Classification A                            6" - 17" B                            18" - 36" C                            36" and Larger	<b>Proportions Used</b> TRACE (TR.)    0 - 10% LITTLE (LI.)    10 - 20% SOME (SO.)      20 - 35% AND                35 - 50%	<b>Abbreviations</b> F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	<b>GROUNDWATER</b> ( ) Encountered ( X ) Not Encountered Elapsed Time to Reading (Hours)      Depth to Groundwater
	<b>Excavation Effort</b> E ---- Easy M ---- Moderate D ---- Difficult			

GZA GeoEnvironmental, Inc. Test Pit No. TP-5A  
 Engineers/Scientists \_\_\_\_\_ Page No. 1 of 1  
River Place  
Hudson, New Hampshire  
 380 Harvey Road File No. 04.0024050.01  
 Manchester, New Hampshire 03103 Checked By: RAB

**Excavation Equipment**

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/27/2006  
 Operator Matt Stone Ground Elev. -136.7 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 1005  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 1030

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Gray, fine to coarse SAND, some Silt, little Gravel.	S-1	ND	M	5/A	1
1'	SAND			D	3/C	
2'						
3'	Bottom of test pit at 2.5 feet below ground surface. Refusal encountered on probable Bedrock.					
4'						
5'						
6'						
7'						
8'						
9'						
10'						
11'						
12'						
13'						

**Notes:**  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

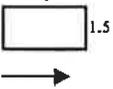
Test Pit Plan  NORTH Volume = <u>1.1</u> cu. yd.	<b>Boulder Class</b> Letter Designation    Size Range Classification A                          6" - 17" B                          18" - 36" C                          36" and Larger	<b>Proportions Used</b> TRACE (TR.)    0 - 10% LITTLE (LI.)    10 - 20% SOME (SO.)    20 - 35% AND                35 - 50%	<b>Abbreviations</b> F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	<b>GROUNDWATER</b> ( ) Encountered (X) Not Encountered  Elapsed Time to Reading (Hours)                          Depth to Groundwater
	<b>Excavation Effort</b> E ---- Easy M ---- Moderate D ---- Difficult			

GZA GeoEnvironmental, Inc. Test Pit No. TP-6  
 Engineers/Scientists \_\_\_\_\_ Page No. 1 of 1  
River Place  
Hudson, New Hampshire  
 380 Harvey Road File No. 04.0024050.01  
 Manchester, New Hampshire 03103 Checked By: RAB

GZA Rep. <u>C. Melby</u>		Contractor <u>New Hampshire Boring, Inc.</u>		Date <u>3/27/2006</u>
Weather <u>Sunny, 50s</u>		Operator <u>Matt Stone</u>		Ground Elev. <u>131.3 feet</u>
		Make <u>Komatsu</u>	Model <u>PC 27</u>	Time Started <u>1030</u>
		Capacity <u>1.5 feet<sup>3</sup></u>	Reach <u>10 feet</u>	Time Completed <u>1100</u>

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
1'				E		
2'	Gray, fine to medium SAND, some Silt.	S-2	ND	E		
3'				E		
4'				M	1/B	
5'	SILTY SAND			E	1/B	
6'				E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

**Notes:**  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan  NORTH Volume = <u>3.1</u> cu. yd.	<b>Boulder Class</b> Letter Designation    Size Range Classification A                            6" - 17" B                            18" - 36" C                            36" and Larger  Excavation Effort E ---- Easy M ---- Moderate D ---- Difficult	<b>Proportions Used</b> TRACE (TR.)    0 - 10% LITTLE (L.)    10 - 20% SOME (SO.)    20 - 35% AND              35 - 50%	<b>Abbreviations</b> F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	<b>GROUNDWATER</b> ( X ) Encountered ( ) Not Encountered  Elapsed Time to Reading (Hours) <div style="border: 1px solid black; width: 50px; text-align: center; margin: 0 auto;">5 minutes</div> Depth to Groundwater <div style="border: 1px solid black; width: 50px; text-align: center; margin: 0 auto;">7 feet</div>
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GZA GeoEnvironmental, Inc. Test Pit No. TP-7  
 Engineers/Scientists Page No. 1 of 1  
River Place  
Hudson, New Hampshire  
 380 Harvey Road File No. 04.0024050.01  
 Manchester, New Hampshire 03103 Checked By: RAB

**Excavation Equipment**

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/27/2006  
 Operator Matt Stone Ground Elev. 138.5 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 1110  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 1140

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.5'						
1'	Light brown to gray, fine SAND, little Silt.     <b>SILTY SAND</b>	S-2	ND	E		
2'						
3'						
4'						
5'						
6'						
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

**Notes:**  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan  NORTH Volume = <u>3.1</u> cu. yd.	<b>Boulder Class</b> Letter Designation    Size Range Classification A                          6" - 17" B                          18" - 36" C                          36" and Larger	<b>Proportions Used</b> TRACE (TR.)    0 - 10% LITTLE (LI.)    10 - 20% SOME (SO.)    20 - 35% AND                35 - 50%	<b>Abbreviations</b> F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	<b>GROUNDWATER</b> ( ) Encountered (X) Not Encountered  Elapsed Time to Reading (Hours)                          Depth to Groundwater
	<b>Excavation Effort</b> E ---- Easy M --- Moderate D ---- Difficult			







GZA GeoEnvironmental, Inc. Test Pit No. TP-11  
 Engineers/Scientists Page No. 1 of 1  
River Place  
Hudson, New Hampshire  
 380 Harvey Road File No. 04.0024050.01  
 Manchester, New Hampshire 03103 Checked By: RAB

**Excavation Equipment**

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/27/2006  
 Operator Matt Stone Ground Elev. 109.6 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 1405  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 1435

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Dark brown, fine to medium SAND, some Organics, some Silt. TOPSOIL	S-1	ND	M		1
1'	Light brown, SILT, little fine Sand.			M		
1.5'		SILT	S-2	ND	M	
2'	M					
3'	M					
4'	M					
5'	M					
6'	M					
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

**Notes:**  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan 8  NORTH Volume = <u>3.1</u> cu. yd.	<b>Boulder Class</b> Letter Designation    Size Range Classification A                          6" - 17" B                          18" - 36" C                          36" and Larger	<b>Proportions Used</b> TRACE (TR.)    0 - 10% LITTLE (LI.)    10 - 20% SOME (SO.)     20 - 35% AND                35 - 50%	<b>Abbreviations</b> F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	<b>GROUNDWATER</b> ( ) Encountered (X) Not Encountered  Elapsed Time to Reading (Hours)                          Depth to Groundwater
	<b>Excavation Effort</b> E ---- Easy M --- Moderate D ---- Difficult			

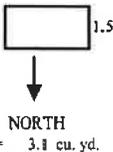
GZA GeoEnvironmental, Inc. Test Pit No. TP-12  
 Engineers/Scientists Page No. 1 of 1  
River Place  
Hudson, New Hampshire  
 380 Harvey Road File No. 04.0024050.01  
 Manchester, New Hampshire 03103 Checked By: RAB

Excavation Equipment

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/27/2006  
 Operator Matt Stone Ground Elev. 134.1 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 1440  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 1505

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND			1
0.5'	Light brown, SILT, little, fine Sand.	S-2	ND			
1'						
2'		S-3	ND			
3'						
4'	SILT					
4.5'	Light gray, fine to medium SAND, little Silt.					
5'						
6'	SAND					
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylenc-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan  Volume = <u>3.1</u> cu. yd.	Letter Designation A B C	Boulder Class Size Range Classification 6" - 17" 18" - 36" 36" and Larger	Proportions Used TRACE (TR.) 0 - 10% LITTLE (LI.) 10 - 20% SOME (SO.) 20 - 35% AND 35 - 50%	Abbreviations F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	GROUNDWATER ( ) Encountered (X) Not Encountered  Elapsed Time to Reading (Hours) _____ Depth to Groundwater _____
	Excavation Effort E ---- Easy M --- Moderate D ---- Difficult				

GZA GeoEnvironmental, Inc. Test Pit No. TP-13  
 Engineers/Scientists Page No. 1 of 1  
River Place  
Hudson, New Hampshire  
 380 Harvey Road File No. 04.0024050.01  
 Manchester, New Hampshire 03103 Checked By: RAB

**Excavation Equipment**

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/27/2006  
 Operator Matt Stone Ground Elev. 139.9 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 1510  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 1525

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Dark brown, fine to medium SAND, some Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.4'	Light brown, fine to medium SAND and SILT.	S-2	ND	E		
1'	SILTY SAND					
1.5'	Brown, medium to coarse SAND, trace Silt.	S-3	ND	E		
2'				E		
3'				E		
4'				E		
5'				E		
6'	SAND			E		
7'	Bottom of test pit at 6.5 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

**Notes:**  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan 	<b>Boulder Class</b> Letter Designation    Size Range Classification A                          6" - 17" B                          18" - 36" C                          36" and Larger	<b>Proportions Used</b> TRACE (TR.)    0 - 10% LITTLE (LI.)    10 - 20% SOME (SO.)    20 - 35% AND                35 - 50%	<b>Abbreviations</b> F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	<b>GROUNDWATER</b> ( ) Encountered (X) Not Encountered  Elapsed Time to Reading (Hours)                          Depth to Groundwater
	<b>Excavation Effort</b> E ---- Easy M ---- Moderate D ---- Difficult			

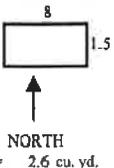
GZA GeoEnvironmental, Inc. Test Pit No. TP-14  
 Engineers/Scientists Page No. 1 of 1  
River Place  
Hudson, New Hampshire  
 380 Harvey Road File No. 04.0024050.01  
 Manchester, New Hampshire 03103 Checked By: RAB

Excavation Equipment

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/27/2006  
 Operator Matt Stone Ground Elev. 138.1 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 1530  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 1400

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0						
0.3'	Dark brown, fine to medium SAND, some Silt, little Gravel. TOPSOIL.	S-1	ND	E		1
1'	Orange brown, fine to medium SAND and SILT.	S-2	ND	E		
1.5'	SILTY SAND					
2'	Gray, fine to medium SAND, little Silt.	S-3	ND	E		
3'				E		
4'				E		
5'	SAND			E		
6'	Bottom of test pit at 6 feet below ground surface. No refusal encountered.					
7'						
8'						
9'						
10'						
11'						
12'						
13'						

**Notes:**  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan  NORTH Volume = <u>2.6</u> cu. yd.	<b>Boulder Class</b> Letter Designation    Size Range Classification A                          6" - 17" B                          18" - 36" C                          36" and Larger	<b>Proportions Used</b> TRACE (TR.)    0 - 10% LITTLE (L1.)    10 - 20% SOME (SO.)      20 - 35% AND                35 - 50%	<b>Abbreviations</b> F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	<b>GROUNDWATER</b> ( ) Encountered (X) Not Encountered  Elapsed Time to Reading (Hours)                          Depth to Groundwater
	<b>Excavation Effort</b> E ---- Easy M ---- Moderate D ---- Difficult			



GZA GeoEnvironmental, Inc.

Engineers/Scientists

River Place

Hudson, New Hampshire

380 Harvey Road  
Manchester, New Hampshire 03103

Test Pit No. TP-15

Page No. 1 of 1

File No. 04.0024050.01

Checked By: RAB

GZA Rep.	C. Melby	Contractor	New Hampshire Boring, Inc.		Date	3/28/2006
Weather	Sunny, 50s	Operator	Matt Stone		Ground Elev.	~150 feet
		Make	Komatsu	Model PC 27	Time Started	0715
		Capacity	1.5 feet <sup>3</sup>	Reach 10 feet	Time Completed	0735

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Dark brown, fine to medium SAND, some Silt, little Organics. Topsoil	S-1	ND	E		1
1'	Light brown, fine SAND and Silt	S-2	ND	E		
2'				E		
3'	SILTY SAND			E		
4'				E		
4.3'	Gray, fine to medium SAND, some SILT.	S-3	ND	E		
5'				E		
6'	SAND			E		
7'	Bottom of test pit at 6.5 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

**Notes:**  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan 8  NORTH Volume = 2.8 cu. yd.	<b>Boulder Class</b> Letter Designation    Size Range Classification A                            6" - 17" B                            18" - 36" C                            36" and Larger	<b>Proportions Used</b> TRACE (TR.)    0 - 10% LITTLE (LI.)    10 - 20% SOME (SO.)      20 - 35% AND                35 - 50%	<b>Abbreviations</b> F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown VEL = Yellow	<b>GROUNDWATER</b> ( ) Encountered ( X ) Not Encountered Elapsed Time to Reading (Hours)      Depth to Groundwater
	<b>Excavation Effort</b> E ---- Easy M ---- Moderate D ---- Difficult			

GZA GeoEnvironmental, Inc. Test Pit No. TP-16  
 Engineers/Scientists \_\_\_\_\_ Page No. 1 of 1  
River Place File No. 04.0024050.01  
Hudson, New Hampshire Checked By: RAB  
 380 Harvey Road  
 Manchester, New Hampshire 03103

**Excavation Equipment**

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/28/2006  
 Operator Matt Stone Ground Elev. 142.5 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 0735  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 0800

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Dark brown, fine to medium SAND, some Silt, little Organics. TOPSOIL	S-1	ND	E		1, 2
0.8'						
1'	Light brown, fine SAND and SILT.	S-2	ND	E		
	SILTY SAND					
2'						
2.2'				E		
3'	Light brown, fine to medium SAND, little Silt.			E		
4'				E		
5'		S-3	ND	E		
6'				E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.			E		
8'						
9'						
10'						
11'						
12'						
13'						

**Notes:**

- Frost encountered.
- Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

<p>Test Pit Plan</p> <p>Volume = <u>3.1</u> cu. yd.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Letter Designation</th> <th>Boulder Class</th> <th>Size Range Classification</th> </tr> <tr> <td>A</td> <td></td> <td>6" - 17"</td> </tr> <tr> <td>B</td> <td></td> <td>18" - 36"</td> </tr> <tr> <td>C</td> <td></td> <td>36" and Larger</td> </tr> </table> <p>Excavation Effort</p> <p>E ---- Easy  M ---- Moderate  D ---- Difficult</p>	Letter Designation	Boulder Class	Size Range Classification	A		6" - 17"	B		18" - 36"	C		36" and Larger	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Proportions Used</th> </tr> <tr> <td>TRACE (TR.)</td> <td>0 - 10%</td> </tr> <tr> <td>LITTLE (LL)</td> <td>10 - 20%</td> </tr> <tr> <td>SOME (SO.)</td> <td>20 - 35%</td> </tr> <tr> <td>AND</td> <td>35 - 50%</td> </tr> </table>	Proportions Used		TRACE (TR.)	0 - 10%	LITTLE (LL)	10 - 20%	SOME (SO.)	20 - 35%	AND	35 - 50%	<p>Abbreviations</p> <p>F = Fine  M = Medium  C = Coarse  V = Very  F/M = Fine to medium  F/C = Fine to coarse  GR = Gray  BN = Brown  YEL = Yellow</p>	<p>GROUNDWATER</p> <p>( ) Encountered  (X ) Not Encountered</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Elapsed Time to Reading (Hours)</th> <th>Depth to Groundwater</th> </tr> <tr> <td style="height: 20px;"></td> <td style="height: 20px;"></td> </tr> </table>	Elapsed Time to Reading (Hours)	Depth to Groundwater		
Letter Designation	Boulder Class	Size Range Classification																												
A		6" - 17"																												
B		18" - 36"																												
C		36" and Larger																												
Proportions Used																														
TRACE (TR.)	0 - 10%																													
LITTLE (LL)	10 - 20%																													
SOME (SO.)	20 - 35%																													
AND	35 - 50%																													
Elapsed Time to Reading (Hours)	Depth to Groundwater																													

GZA GeoEnvironmental, Inc.

Engineers/Scientists

River Place

Hudson, New Hampshire

380 Harvey Road  
Manchester, New Hampshire 03103

Test Pit No. TP-17

Page No. 1 of 1

File No. 04.0024050.01

Checked By: RAB

Excavation Equipment

GZA Rep. <u>C. Melby</u>	Contractor <u>New Hampshire Boring, Inc.</u>	Date <u>3/28/2006</u>
Weather <u>Sunny, 50s</u>	Operator <u>Matt Stone</u>	Ground Elev. <u>135.8 feet</u>
	Make <u>Komatsu</u> Model <u>PC 27</u>	Time Started <u>0815</u>
	Capacity <u>1.5 feet<sup>3</sup></u> Reach <u>10 feet</u>	Time Completed <u>0845</u>

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.5'	Light brown, fine SAND and Silt.					
1'	SILTY SAND	S-2	ND	E		
2'	Gray, fine to medium SAND, little Silt.	S-3	ND	E		
3'				E		
4'				E		
5'				E		
6'	SAND			E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:  
1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

<p>Test Pit Plan</p> <p>NORTH</p> <p>Volume = 2.3 cu. yd.</p>	<p>Boulder Class</p> <table border="0"> <tr> <th>Letter Designation</th> <th>Size Range Classification</th> </tr> <tr> <td>A</td> <td>6" - 17"</td> </tr> <tr> <td>B</td> <td>18" - 36"</td> </tr> <tr> <td>C</td> <td>36" and Larger</td> </tr> </table>	Letter Designation	Size Range Classification	A	6" - 17"	B	18" - 36"	C	36" and Larger	<p>Proportions Used</p> <table border="0"> <tr> <td>TRACE (TR.)</td> <td>0 - 10%</td> </tr> <tr> <td>LITTLE (L.I.)</td> <td>10 - 20%</td> </tr> <tr> <td>SOME (SO.)</td> <td>20 - 35%</td> </tr> <tr> <td>AND</td> <td>35 - 50%</td> </tr> </table>	TRACE (TR.)	0 - 10%	LITTLE (L.I.)	10 - 20%	SOME (SO.)	20 - 35%	AND	35 - 50%	<p>Abbreviations</p> <p>F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow</p>	<p>GROUNDWATER</p> <p>( ) Encountered (X) Not Encountered</p> <table border="0"> <tr> <td>Elapsed Time to Reading (Hours)</td> <td>Depth to Groundwater</td> </tr> <tr> <td><input type="text"/></td> <td><input type="text"/></td> </tr> </table>	Elapsed Time to Reading (Hours)	Depth to Groundwater	<input type="text"/>	<input type="text"/>
	Letter Designation	Size Range Classification																						
A	6" - 17"																							
B	18" - 36"																							
C	36" and Larger																							
TRACE (TR.)	0 - 10%																							
LITTLE (L.I.)	10 - 20%																							
SOME (SO.)	20 - 35%																							
AND	35 - 50%																							
Elapsed Time to Reading (Hours)	Depth to Groundwater																							
<input type="text"/>	<input type="text"/>																							
<p>Excavation Effort</p> <p>E ---- Easy M ---- Moderate D ---- Difficult</p>																								

GZA GeoEnvironmental, Inc. Test Pit No. TP-18  
 Engineers/Scientists River Place Page No. 1 of 1  
Hudson, New Hampshire File No. 04.0024050.01  
 380 Harvey Road Checked By: RAB  
 Manchester, New Hampshire 03103

**Excavation Equipment**

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/28/2006  
 Operator Matt Stone Ground Elev. 126.5 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 0845  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 0920

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1		E		1
1'	Brown, fine to medium SAND, some Silt.		ND	E		
2'	SILTY SAND			E		
3'				E		
4'	Black, Organic Peat, trace Root Fibers.	S-2		M		
5'	PEAT		ND	M		
6'				M		
7'	Bottom test pit at 6.5 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

**Notes:**  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan  NORTH Volume = <u>2.5</u> cu. yd.	<b>Boulder Class</b> Letter Designation    Size Range Classification A                            6" - 17" B                            18" - 36" C                            36" and Larger	<b>Proportions Used</b> TRACE (TR.)    0 - 10% LITTLE (LJ.)    10 - 20% SOME (SO.)      20 - 35% AND                35 - 50%	<b>Abbreviations</b> F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	<b>GROUNDWATER</b> ( X ) Encountered ( ) Not Encountered  Elapsed Time to Reading (Hours) <div style="border: 1px solid black; width: 50px; text-align: center;">5 minutes</div>	Depth to Groundwater <div style="border: 1px solid black; width: 50px; text-align: center;">5.4 feet</div>
	<b>Excavation Effort</b> E ---- Easy M ---- Moderate D ---- Difficult				

GZA GeoEnvironmental, Inc. Test Pit No. TP-19  
 Engineers/Scientists River Place Page No. 1 of 1  
Hudson, New Hampshire File No. 04.0024050.01  
 380 Harvey Road Checked By: RAB  
 Manchester, New Hampshire 03103

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/28/2006  
 Operator Matt Stone Ground Elev. 127.7 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 0920  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 1010

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.8'						
1'	Gray and brown, fine SAND and Silt. Moist	S-2	ND	E		
2'				E		
3'				E		
4'				E		
5'				E		
6'	SILTY SAND			E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.					
8'						
9'						
10'						
11'						
12'						
13'						

Notes:  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan B  NORTH Volume = <u>3.1</u> cu. yd.	Letter Designation A B C	Boulder Class Size Range Classification 6" - 17" 18" - 36" 36" and Larger	Proportions Used TRACE (TR.) 0 - 10% LITTLE (LI.) 10 - 20% SOME (SO.) 20 - 35% AND 35 - 50%	Abbreviations F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	GROUNDWATER ( ) Encountered (X) Not Encountered Elapsed Time to Reading (Hours) Depth to Groundwater
		Excavation Effort E ---- Easy M --- Moderate D ---- Difficult			



GZA GeoEnvironmental, Inc.

Engineers/Scientists

River Place

Hudson, New Hampshire

380 Harvey Road  
Manchester, New Hampshire 03103

Test Pit No. TP-20

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File No. 04.0024050.01

Checked By: RAB

Excavation Equipment

GZA Rep. C. Melby

Contractor New Hampshire Boring, Inc.

Date 3/28/2006

Operator Matt Stone

Ground Elev. 133.2 feet

Weather Sunny, 50s

Make Komatsu Model PC 27

Time Started 1115

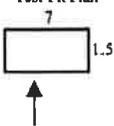
Capacity 1.5 feet<sup>3</sup> Reach 10 feet

Time Completed 1140

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.7'		0.7'		E		
1'	Light brown to gray, fine SAND and Silt. Moist			E		
2'				E		
3'				E		
4'				E		
5'	SILTY SAND	S-2	ND	E		
6'				E		
7'	Bottom of test pit at 7 feet below ground surface. No refusal encountered.			E		
8'						
9'						
10'						
11'						
12'						
13'						

Notes:

1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

<p>Test Pit Plan</p>  <p>NORTH</p> <p>Volume = 2.7 cu. yd.</p>	<p>Boulder Class</p> <table border="1"> <tr> <th>Letter Designation</th> <th>Size Range Classification</th> </tr> <tr> <td>A</td> <td>6" - 17"</td> </tr> <tr> <td>B</td> <td>18" - 36"</td> </tr> <tr> <td>C</td> <td>36" and Larger</td> </tr> </table>	Letter Designation	Size Range Classification	A	6" - 17"	B	18" - 36"	C	36" and Larger	<p>Proportions Used</p> <table border="1"> <tr> <td>TRACE (TR.)</td> <td>0 - 10%</td> </tr> <tr> <td>LITTLE (LI.)</td> <td>10 - 20%</td> </tr> <tr> <td>SOME (SO.)</td> <td>20 - 35%</td> </tr> <tr> <td>AND</td> <td>35 - 50%</td> </tr> </table>	TRACE (TR.)	0 - 10%	LITTLE (LI.)	10 - 20%	SOME (SO.)	20 - 35%	AND	35 - 50%	<p>Abbreviations</p> <p>F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BR = Brown YEL = Yellow</p>	<p>GROUNDWATER</p> <p>( X ) Encountered ( ) Not Encountered</p> <table border="1"> <tr> <td>Elapsed Time to Reading (Hours)</td> <td>Depth to Groundwater</td> </tr> <tr> <td>5 minutes</td> <td>4.8 feet</td> </tr> </table>	Elapsed Time to Reading (Hours)	Depth to Groundwater	5 minutes	4.8 feet
	Letter Designation	Size Range Classification																						
A	6" - 17"																							
B	18" - 36"																							
C	36" and Larger																							
TRACE (TR.)	0 - 10%																							
LITTLE (LI.)	10 - 20%																							
SOME (SO.)	20 - 35%																							
AND	35 - 50%																							
Elapsed Time to Reading (Hours)	Depth to Groundwater																							
5 minutes	4.8 feet																							
<p>Excavation Effort</p> <p>E ---- Easy M --- Moderate D ---- Difficult</p>																								



GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc. Test Pit No. TP-21  
 Engineers/Scientists Page No. 1 of 1  
River Place  
Hudson, New Hampshire  
 380 Harvey Road File No. 04.0024050.01  
 Manchester, New Hampshire 03103 Checked By: RAB

Excavation Equipment

GZA Rep. C. Melby Contractor New Hampshire Boring, Inc. Date 3/28/2006  
 Operator Matt Stone Ground Elev. 127.7 feet  
 Weather Sunny, 50s Make Komatsu Model PC 27 Time Started 1015  
 Capacity 1.5 feet<sup>3</sup> Reach 10 feet Time Completed 1050

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	Dark brown, fine to medium SAND, little Silt, little Organics. TOPSOIL	S-1	ND	E		1
0.5'						
1'	Light brown, SILT, some fine Sand. Moist     SILT	S-2		E	1C	
2'						
3'						
4'						
5'						
6'						
6.8'	Bottom of test pit at 6.8 feet below ground surface. No refusal encountered.	6.8'		E		
7'						
8'						
9'						
10'						
11'						
12'						
13'						

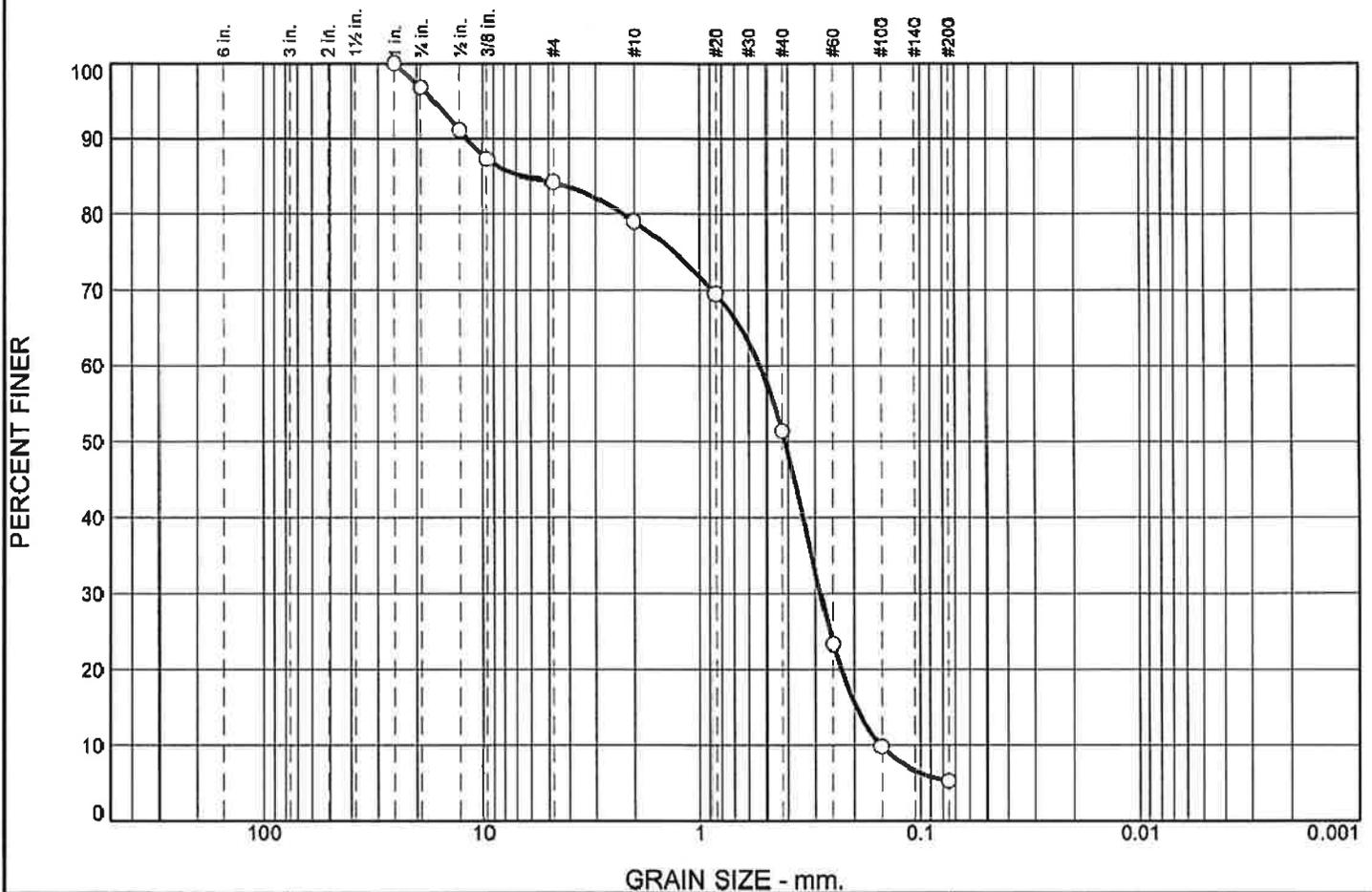
**Notes:**  
 1. Soil samples were screened for total volatile organic compounds (VOCS) using a TEI Model 580b organic vapor meter referenced to an isobutylene-in-air standard. Total VOCS detected are reported in parts per million (ppm) in the "Field Test Data" column. "ND" indicates no VOCS detected.

Test Pit Plan  Volume = <u>3.0</u> cu. yd.	Boulder Class Letter Designation    Size Range Classification A                          6" - 17" B                          18" - 36" C                          36" and Larger	Proportions Used TRACE (TR.)    0 - 10% LITTLE (LI.)    10 - 20% SOME (SO.)    20 - 35% AND                35 - 50%	Abbreviations F = Fine M = Medium C = Coarse V = Very F/M = Fine to medium F/C = Fine to coarse GR = Gray BN = Brown YEL = Yellow	GROUNDWATER ( X ) Encountered (   ) Not Encountered  Elapsed Time to Reading (Hours) <u>5 minutes</u>  Depth to Groundwater <u>6.7 feet</u>
	Excavation Effort E ---- Easy M ---- Moderate D ---- Difficult			



**APPENDIX D**  
**LABORATORY TESTING**

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	12.8	8.2	15.8	39.9	18.0	5.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	96.7		
1/2	91.0		
3/8	87.2		
#4	84.3		
#10	79.0		
#20	69.5		
#40	51.4		
#60	23.3		
#100	9.8		
#200	5.3		

**Material Description**

Brown, fine to coarse SAND, some Gravel, trace Silt.

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>85</sub>= 6.5298      D<sub>60</sub>= 0.5332      D<sub>50</sub>= 0.4127  
D<sub>30</sub>= 0.2865      D<sub>15</sub>= 0.1971      D<sub>10</sub>= 0.1525  
C<sub>u</sub>= 3.50              C<sub>c</sub>= 1.01

**Classification**

USCS= SP-SM                      AASHTO= A-3

**Remarks**

\* (no specification provided)

Sample Number: S-3                      Depth: 10-12 ft.                      Date:

Source of Sample: B-1

**GZA GeoEnvironmental, Inc.**

**Manchester, NH**

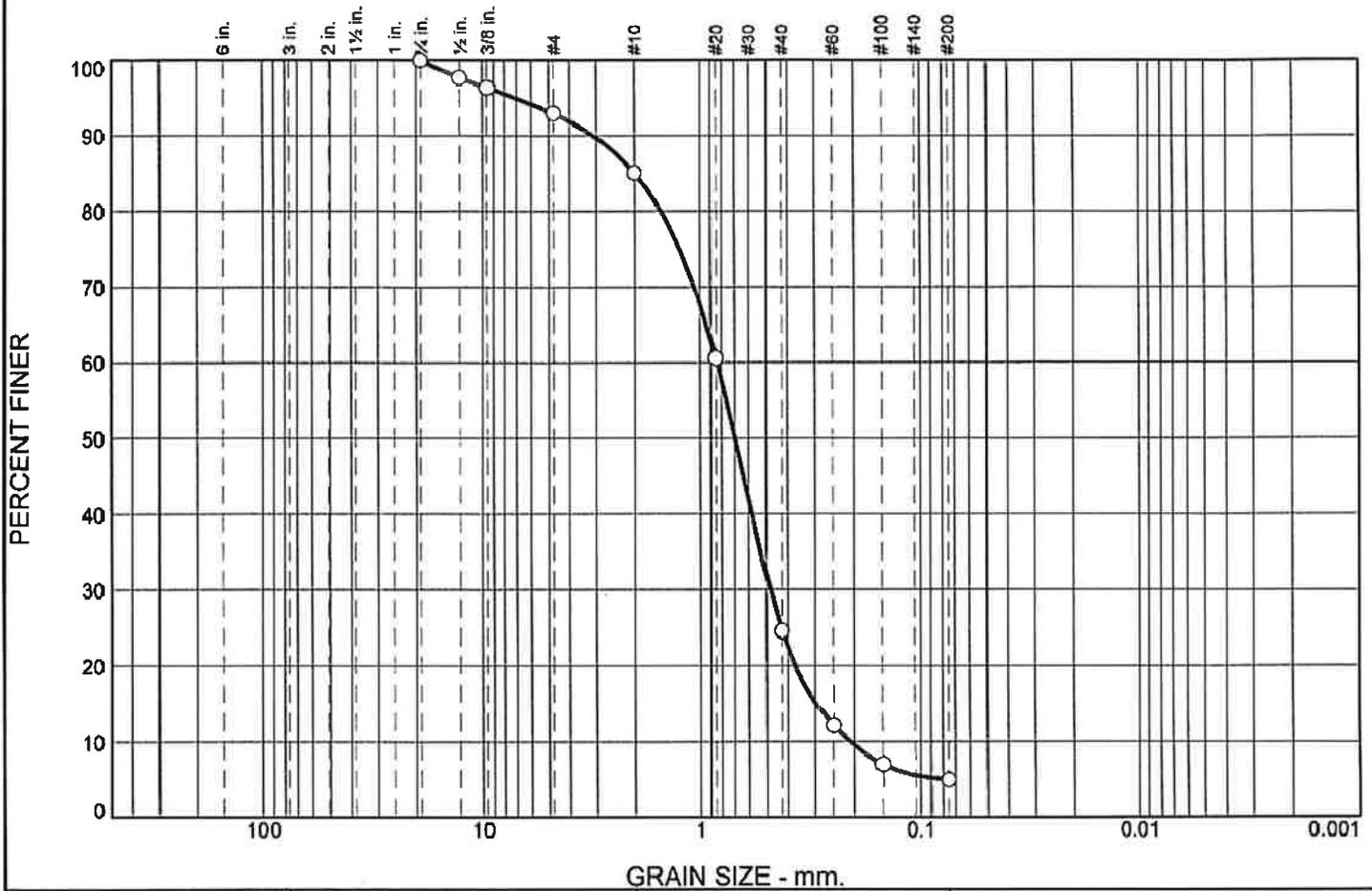
Client: W/S Development Associates, LLC

Project: River Place Hudson, NH

Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	3.7	11.3	43.3	29.5	7.2	5.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	97.6		
3/8	96.3		
#4	92.9		
#10	85.0		
#20	60.5		
#40	24.6		
#60	12.2		
#100	7.0		
#200	5.0		

**Material Description**

Brown, medium to coarse SAND, little Gravel, trace Silt.

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>85</sub>= 1.9957      D<sub>60</sub>= 0.8406      D<sub>50</sub>= 0.6956  
D<sub>30</sub>= 0.4810      D<sub>15</sub>= 0.2993      D<sub>10</sub>= 0.2091  
C<sub>u</sub>= 4.02              C<sub>c</sub>= 1.32

**Classification**

USCS= SP-SM                      AASHTO= A-1-b

**Remarks**

\* (no specification provided)

Sample Number: S-2  
Source of Sample: B-2

Depth: 5-7 ft.

Date:

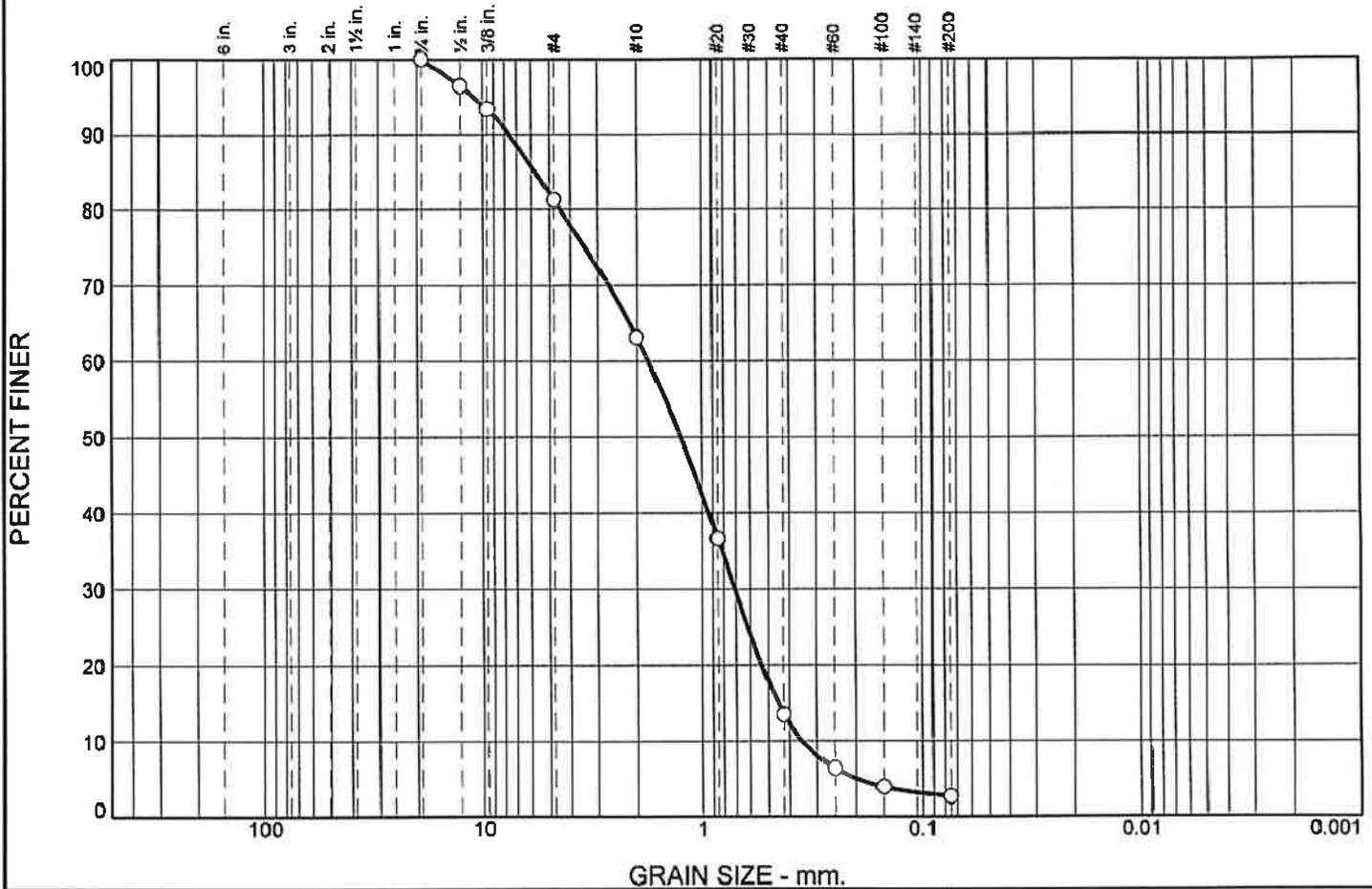
**GZA GeoEnvironmental, Inc.**  
**Manchester, NH**

Client: W/S Development Associates, LLC  
Project: River Place Hudson, NH

Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	6.7	30.2	39.2	17.6	3.6	2.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	96.3		
3/8	93.3		
#4	81.3		
#10	63.1		
#20	36.7		
#40	13.5		
#60	6.3		
#100	3.9		
#200	2.7		

**Material Description**

Brown, medium to coarse SAND and Gravel, trace Silt.

PL=	<b>Atterberg Limits</b>	PI=
	LL=	
	<b>Coefficients</b>	
D <sub>85</sub> = 5.7652	D <sub>60</sub> = 1.7718	D <sub>50</sub> = 1.2577
D <sub>30</sub> = 0.7099	D <sub>15</sub> = 0.4515	D <sub>10</sub> = 0.3539
C <sub>u</sub> = 5.01	C <sub>c</sub> = 0.80	
<b>Classification</b>		
USCS= SP	AASHTO= A-1-b	
<b>Remarks</b>		

\* (no specification provided)

Sample Number: S-2  
Source of Sample: B-3

Depth: 5-7 ft.

Date:

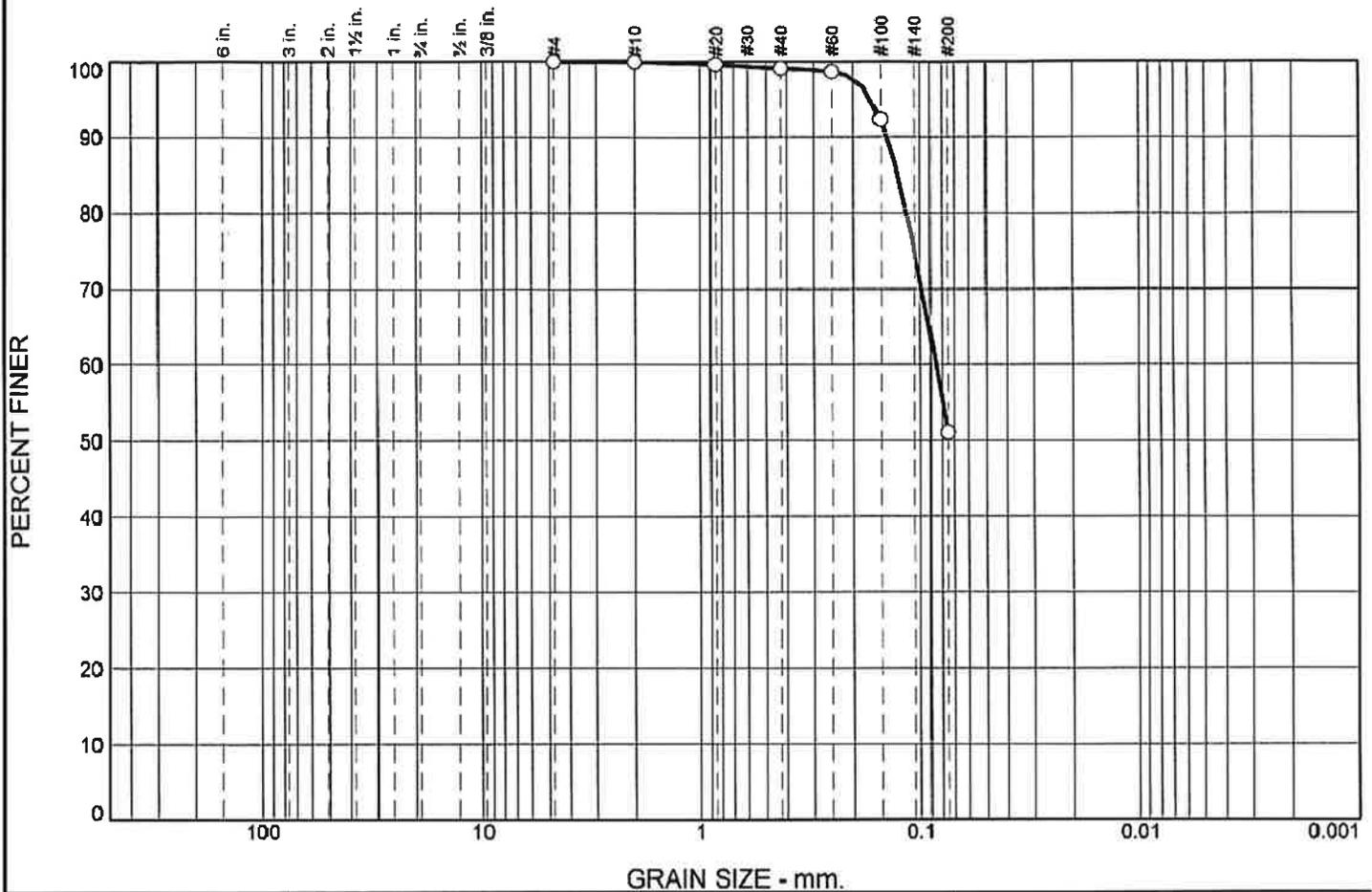
**GZA GeoEnvironmental, Inc.**  
**Manchester, NH**

Client: W/S Development Associates, LLC  
Project: River Place Hudson, NH

Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.1	0.6	0.7	47.5	51.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.6		
#40	99.0		
#60	98.6		
#100	92.1		
#200	51.1		

**Material Description**

Brown, SILT and fine Sand.

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>85</sub>= 0.1265                      D<sub>60</sub>= 0.0849                      D<sub>50</sub>=  
 D<sub>30</sub>=                                      D<sub>15</sub>=                                      D<sub>10</sub>=  
 C<sub>u</sub>=                                      C<sub>c</sub>=

**Classification**  
 USCS= ML                                      AASHTO= A-4(0)

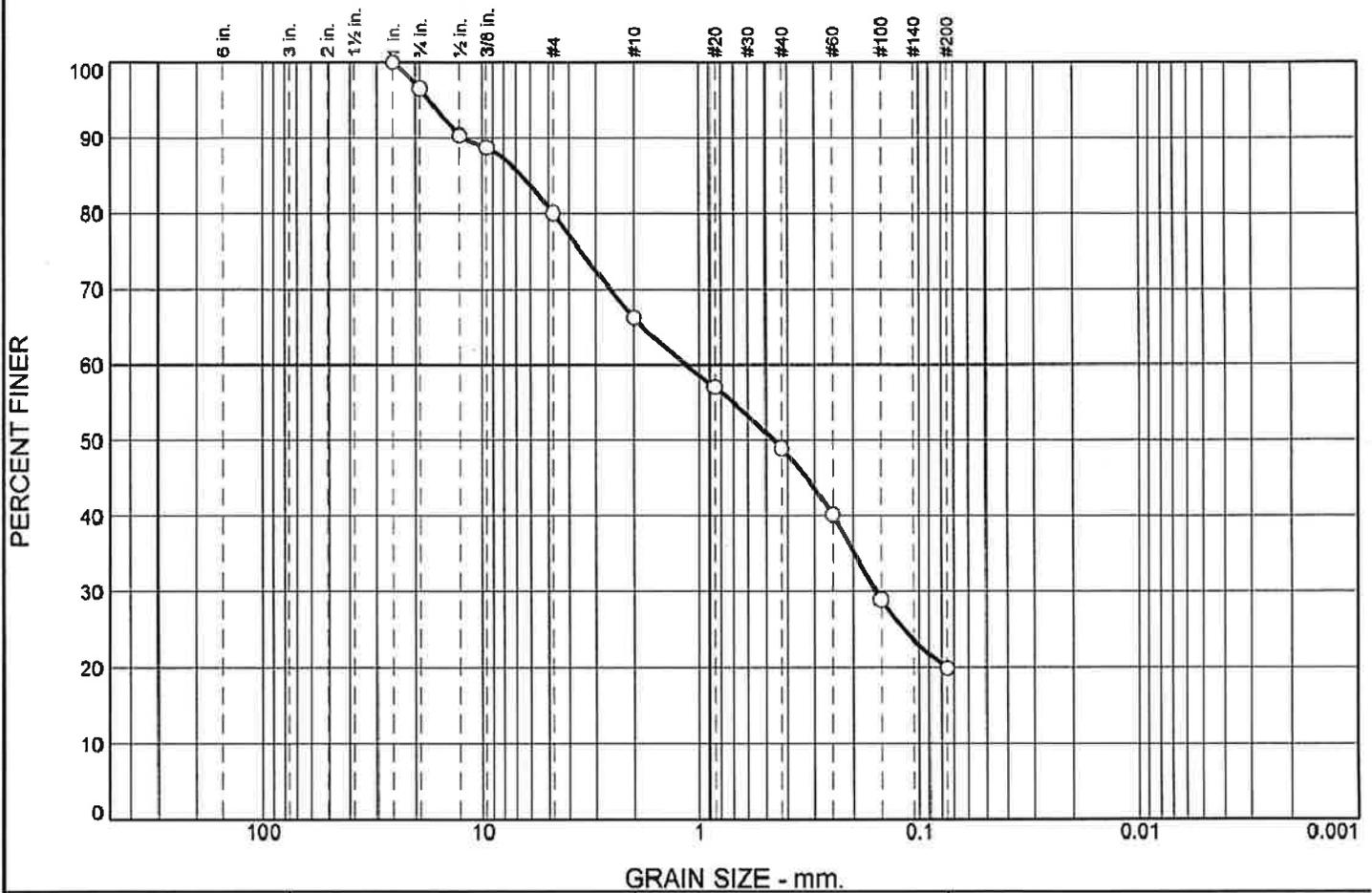
**Remarks**

\* (no specification provided)

Sample Number: S-2A                      Depth: 5-6.8 ft.                      Date:

Source of Sample: B-4

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	11.3	22.6	12.9	13.1	20.3	19.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	96.5		
1/2	90.3		
3/8	88.7		
#4	80.0		
#10	66.1		
#20	57.0		
#40	48.9		
#60	40.1		
#100	28.9		
#200	19.8		

**Material Description**

Brown, fine to medium Sand, some Gravel, little Silt.

PL=	<b>Atterberg Limits</b>	PI=
	LL=	
	<b>Coefficients</b>	
D <sub>85</sub> = 6.5879	D <sub>60</sub> = 1.1538	D <sub>50</sub> = 0.4621
D <sub>30</sub> = 0.1587	D <sub>15</sub> =	D <sub>10</sub> =
C <sub>u</sub> =	C <sub>c</sub> =	
<b>Classification</b>		
USCS= SM	AASHTO= A-1-b	
<b>Remarks</b>		

\* (no specification provided)

**Sample Number:** S-3A  
**Source of Sample:** B-5

**Depth:** 10-12 ft.

**Date:**

**GZA GeoEnvironmental, Inc.**

**Client:** W/S Development Associates, LLC

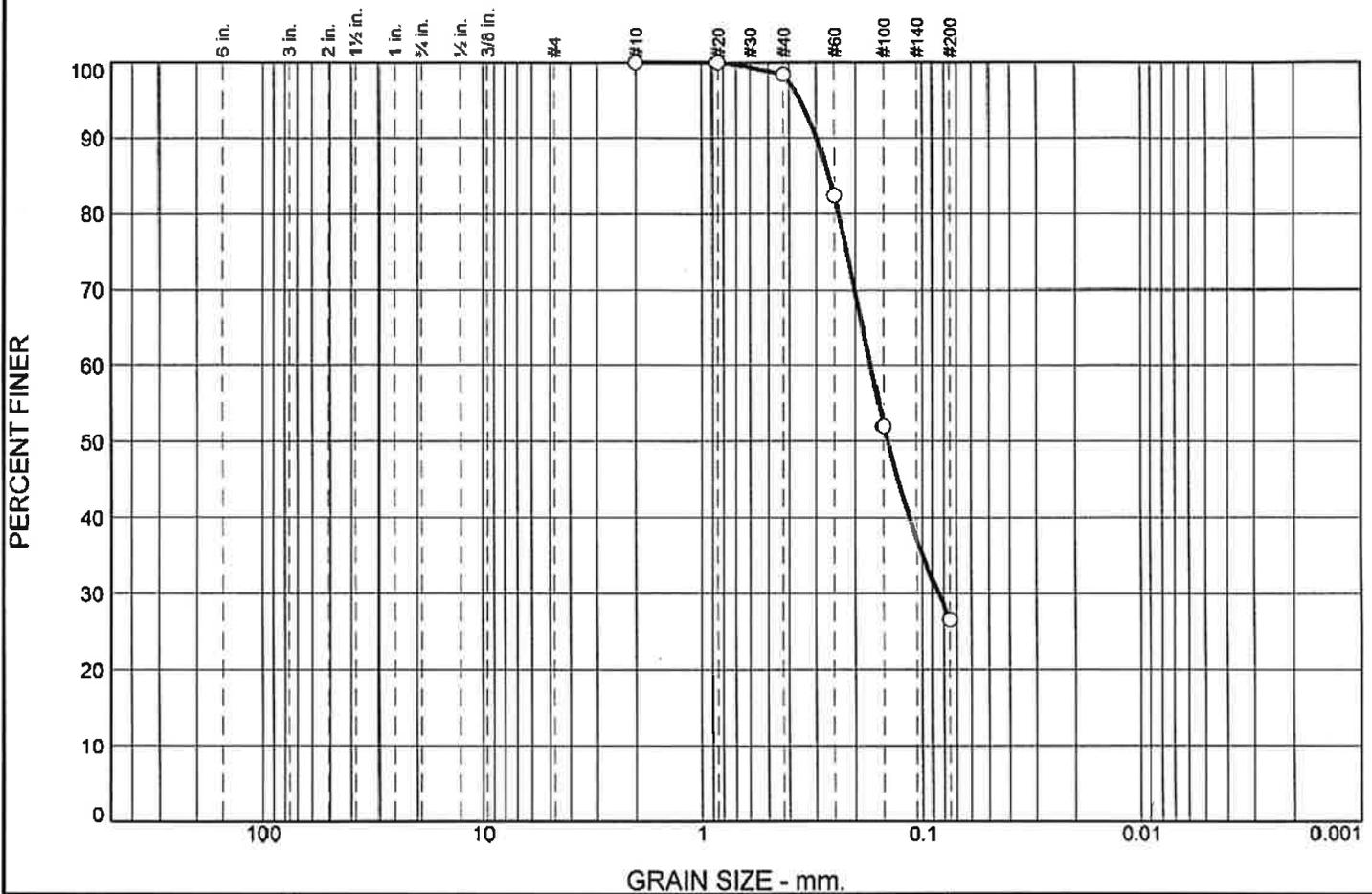
**Project:** River Place Hudson, NH

**Manchester, NH**

**Project No:** 24050.01

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.0	0.7	16.9	55.8	26.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	98.3		
#60	82.4		
#100	52.0		
#200	26.6		

\* (no specification provided)

**Material Description**

Brown, fine to medium SAND, some Silt.

PL=	<b>Atterberg Limits</b>	PI=
	LL=	
	<b>Coefficients</b>	
D <sub>85</sub> = 0.2641	D <sub>60</sub> = 0.1721	D <sub>50</sub> = 0.1445
D <sub>30</sub> = 0.0846	D <sub>15</sub> =	D <sub>10</sub> =
C <sub>u</sub> =	C <sub>c</sub> =	
<b>Classification</b>		
USCS= SM	AASHTO= A-2-4(0)	
<b>Remarks</b>		

Sample Number: S-2  
Source of Sample: B-8

Depth: 5-7 ft.

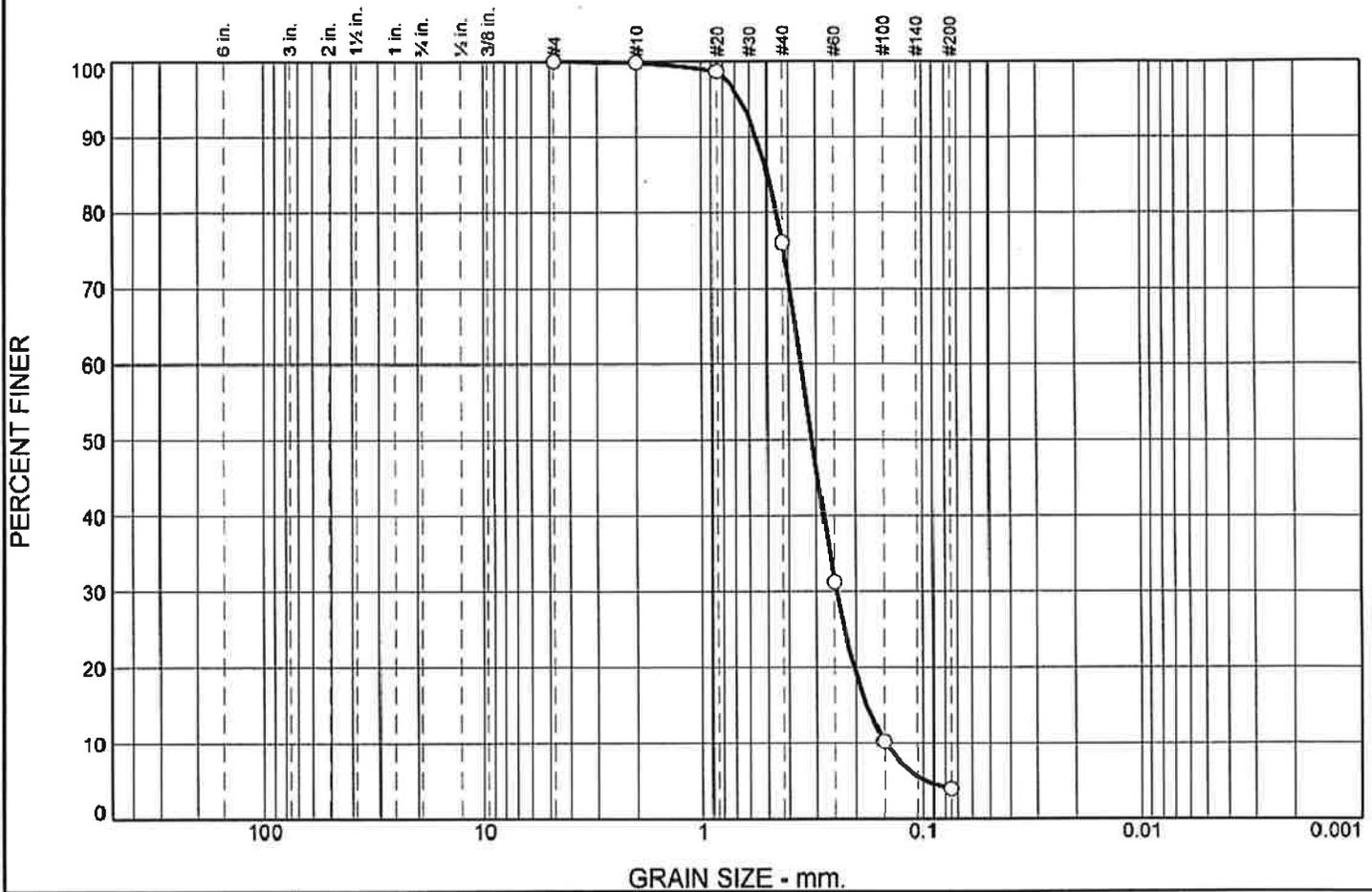
Date:

**GZA GeoEnvironmental, Inc.**  
**Manchester, NH**

Client: W/S Development Associates, LLC  
Project: River Place Hudson, NH  
Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.2	7.2	61.4	27.3	3.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	98.6		
#40	75.9		
#60	31.2		
#100	10.1		
#200	3.9		

**Material Description**

Brown, fine to medium SAND, trace Silt.

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>85</sub>= 0.4944                      D<sub>60</sub>= 0.3500                      D<sub>50</sub>= 0.3134  
D<sub>30</sub>= 0.2456                      D<sub>15</sub>= 0.1809                      D<sub>10</sub>= 0.1489  
C<sub>u</sub>= 2.35                              C<sub>c</sub>= 1.16

**Classification**

USCS= SP                                      AASHTO= A-3

**Remarks**

\* (no specification provided)

Sample Number: S-2  
Source of Sample: B-9

Depth: 5-7 ft.

Date:

**GZA GeoEnvironmental, Inc.**

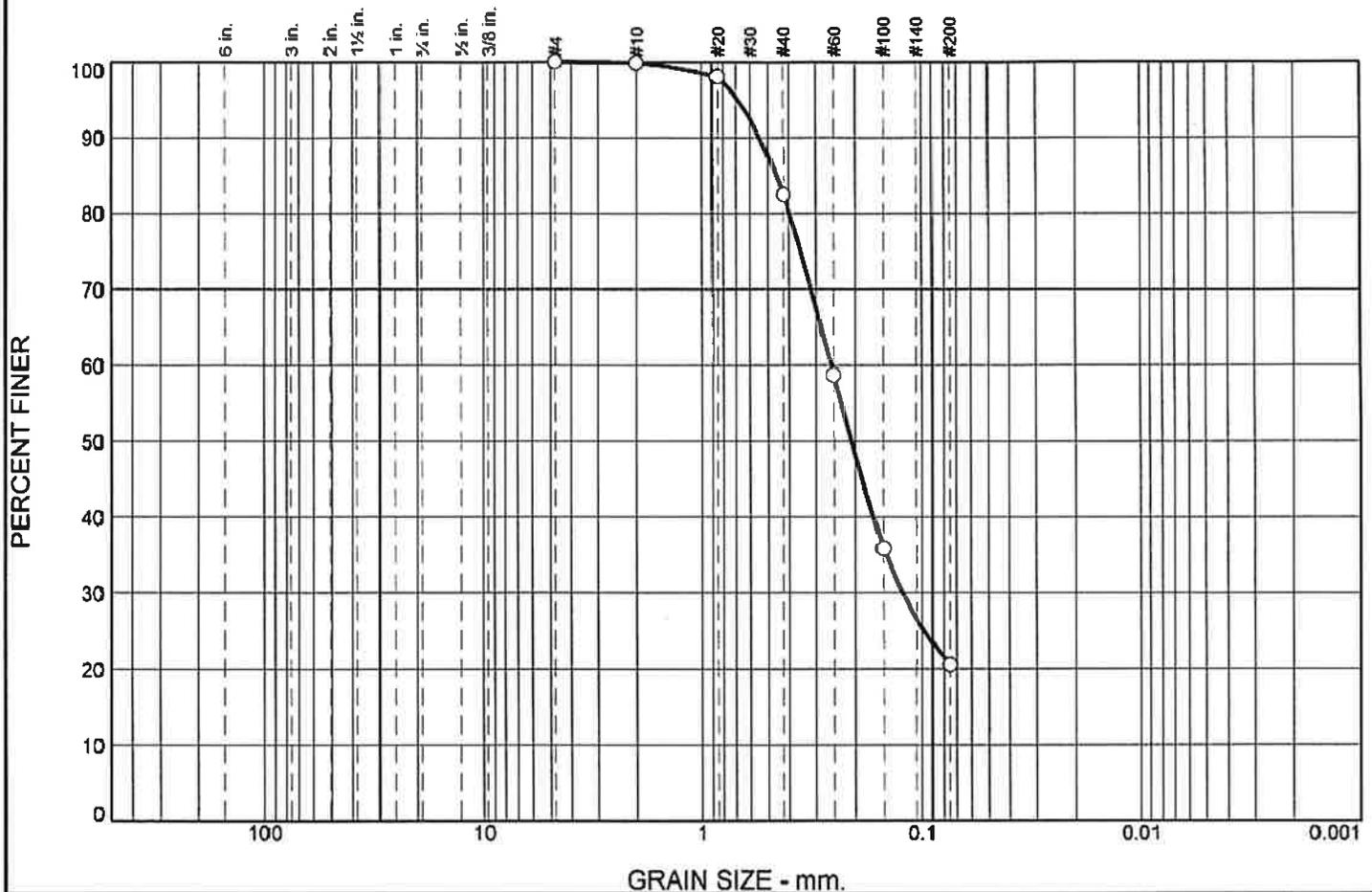
Client: W/S Development Associates, LLC  
Project: River Place Hudson, NH

**Manchester, NH**

Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.1	7.5	33.7	38.2	20.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	98.0		
#40	82.4		
#60	58.7		
#100	35.8		
#200	20.5		

\* (no specification provided)

**Material Description**

Brown, fine to medium SAND, some Silt.

PL=	<b>Atterberg Limits</b>	PI=
	LL=	
	<b>Coefficients</b>	
D <sub>85</sub> = 0.4579	D <sub>60</sub> = 0.2567	D <sub>50</sub> = 0.2092
D <sub>30</sub> = 0.1237	D <sub>15</sub> =	D <sub>10</sub> =
C <sub>u</sub> =	C <sub>c</sub> =	
<b>Classification</b>		
USCS= SM		AASHTO= A-2-4(0)
<b>Remarks</b>		

Sample Number: S-2  
Source of Sample: B-11

Depth: 4-6 ft.

Date:

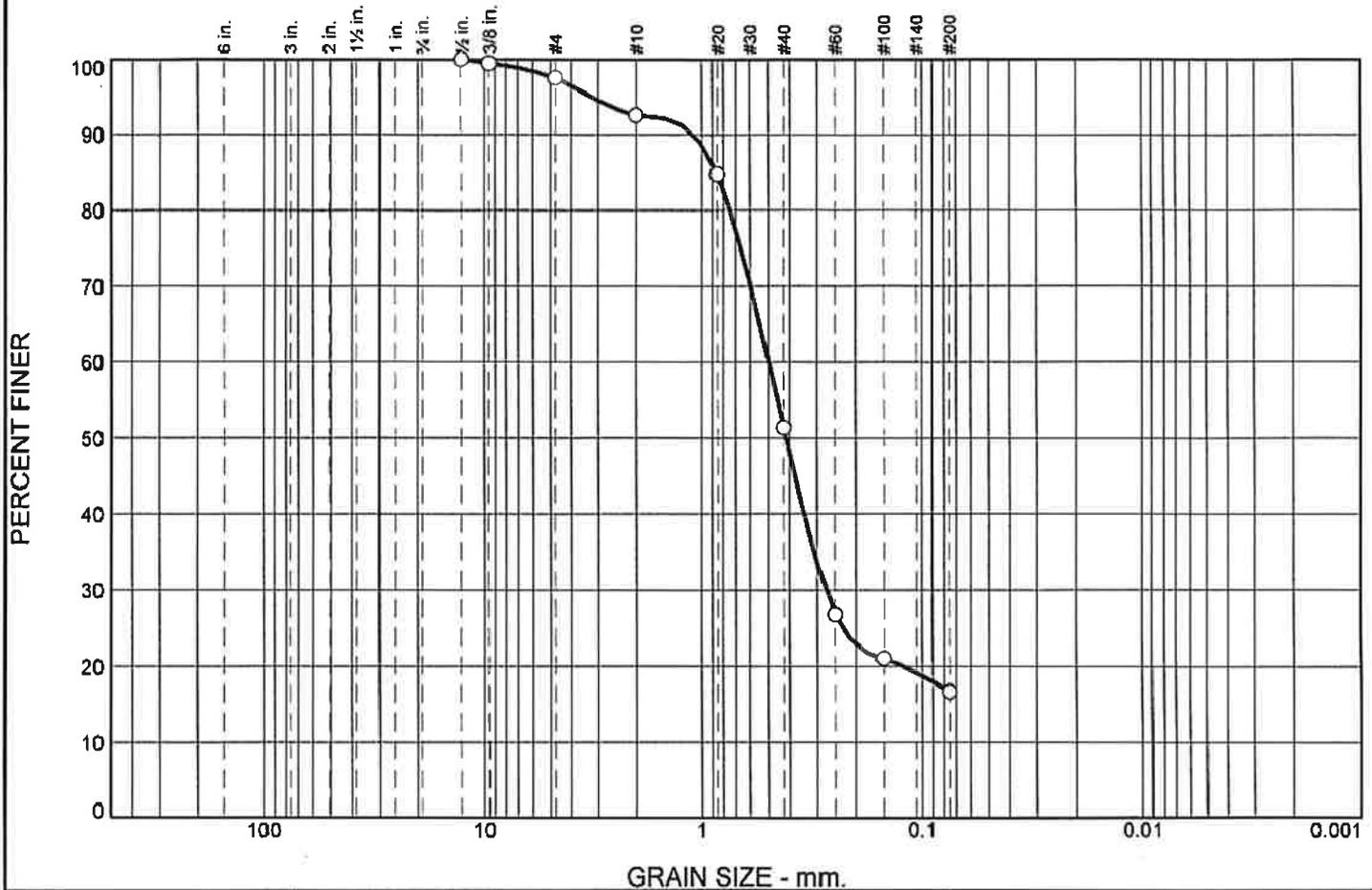
**GZA GeoEnvironmental, Inc.**  
**Manchester, NH**

Client: W/S Development Associates, LLC  
Project: River Place Hudson, NH

Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.5	7.0	22.3	43.4	10.2	16.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100.0		
3/8	99.5		
#4	97.5		
#10	92.5		
#20	84.7		
#40	51.3		
#60	26.8		
#100	21.1		
#200	16.6		

**Material Description**

Brown, fine to coarse SAND, little Silt, trace Gravel.

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>85</sub>= 0.8574                      D<sub>60</sub>= 0.4958                      D<sub>50</sub>= 0.4150  
 D<sub>30</sub>= 0.2756                      D<sub>15</sub>=                                      D<sub>10</sub>=  
 C<sub>u</sub>=                                      C<sub>c</sub>=

**Classification**

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

**Remarks**

\* (no specification provided)

Sample Number: S-2                      Depth: 5-7 ft.                      Date:

Source of Sample: B-15

**GZA GeoEnvironmental, Inc.**

**Manchester, NH**

Client: W/S Development Associates, LLC

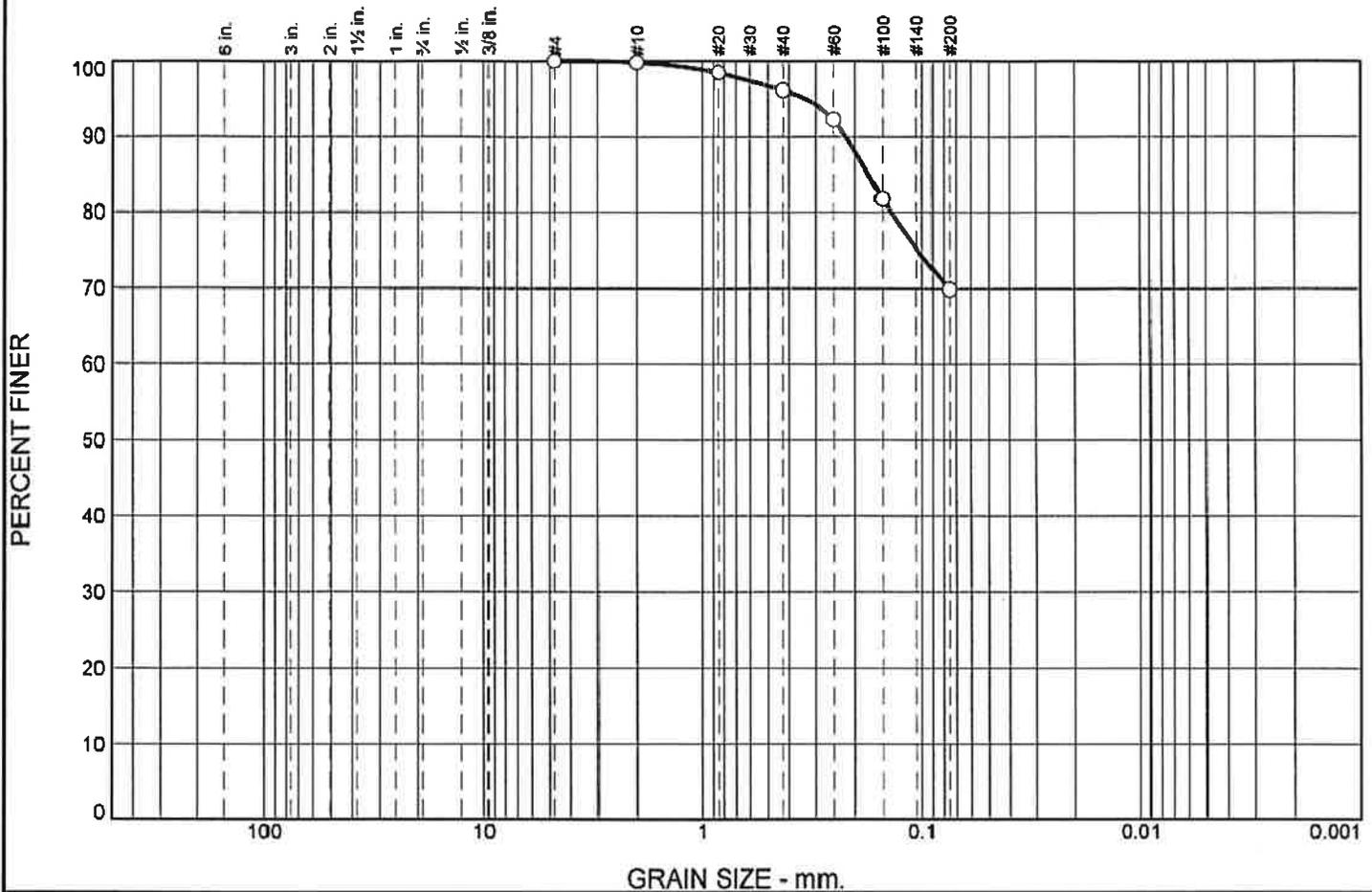
Project: River Place Hudson, NH

Project No: 24050.01

Figure



# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.2	2.5	5.1	22.4	69.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	98.4		
#40	96.0		
#60	92.2		
#100	81.6		
#200	69.8		

**Material Description**

Brown, SILT, some fine Sand.

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>85</sub>= 0.1747                      D<sub>60</sub>=                      D<sub>50</sub>=

D<sub>30</sub>=                                      D<sub>15</sub>=                      D<sub>10</sub>=

C<sub>u</sub>=                                      C<sub>c</sub>=

**Classification**

USCS= ML                                      AASHTO= A-4(0)

**Remarks**

\* (no specification provided)

Sample Number: S-2B  
Source of Sample: B-17

Depth: 4-6 ft.

Date:

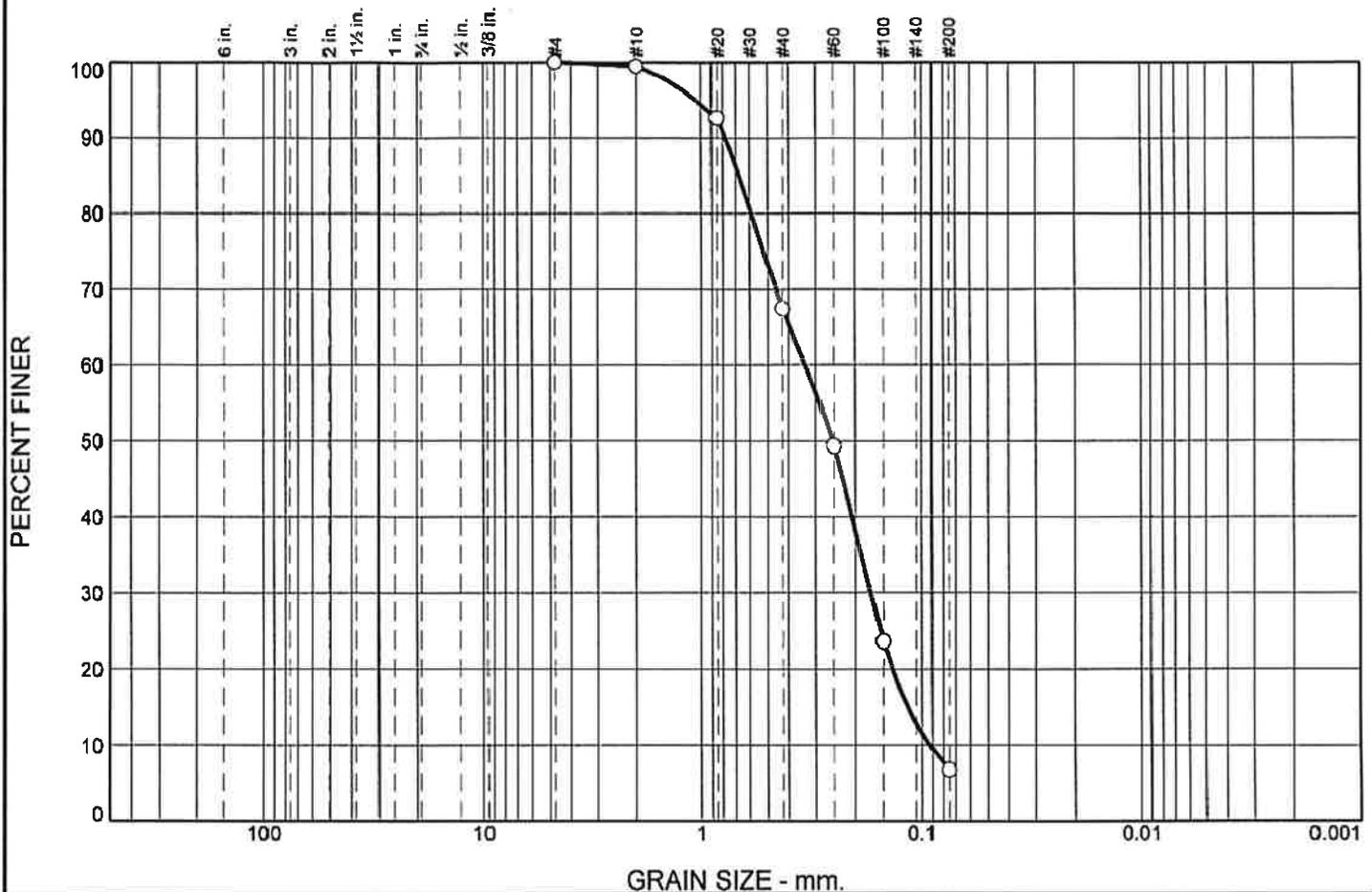
**GZA GeoEnvironmental, Inc.**  
  
**Manchester, NH**

Client: W/S Development Associates, LLC  
Project: River Place Hudson, NH

Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	32.1	60.6	6.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.5		
#20	92.6		
#40	67.4		
#60	49.3		
#100	23.6		
#200	6.8		

**Material Description**

Brown, fine to medium SAND, trace Silt.

PL=                      **Atterberg Limits**                      PI=

**Coefficients**

D<sub>85</sub>= 0.6726                      D<sub>60</sub>= 0.3367                      D<sub>50</sub>= 0.2538

D<sub>30</sub>= 0.1717                      D<sub>15</sub>= 0.1167                      D<sub>10</sub>= 0.0922

C<sub>u</sub>= 3.65                      C<sub>c</sub>= 0.95

USCS=                      **Classification**                      AASHTO=

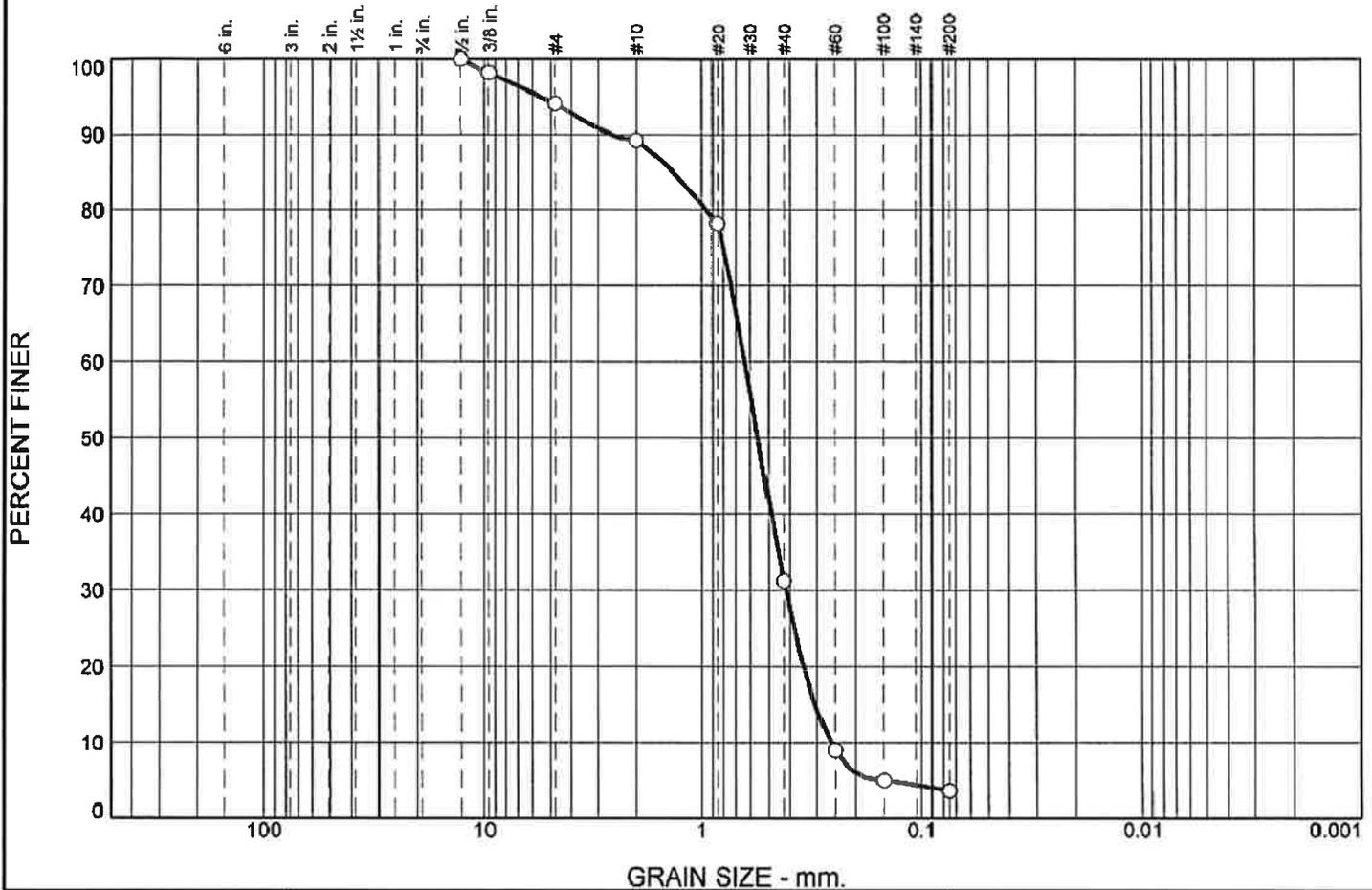
**Remarks**

\* (no specification provided)

Sample Number: S-3                      Depth: 10-12 ft                      Date:

Source of Sample: B-18

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	1.9	8.9	33.2	47.1	5.3	3.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100.0		
3/8	98.1		
#4	94.1		
#10	89.2		
#20	78.2		
#40	31.2		
#60	8.9		
#100	5.0		
#200	3.6		

**Material Description**

Brown, medium to coarse SAND, little Gravel, trace Silt.

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>85</sub>= 1.3608                      D<sub>60</sub>= 0.6336                      D<sub>50</sub>= 0.5535  
D<sub>30</sub>= 0.4167                      D<sub>15</sub>= 0.3082                      D<sub>10</sub>= 0.2623  
C<sub>u</sub>= 2.42                              C<sub>c</sub>= 1.05

**Classification**

USCS= SP                              AASHTO= A-1-b

**Remarks**

\* (no specification provided)

Sample Number: S-3                      Depth: 3.5 ft.                      Date:

Source of Sample: TP-1

**GZA GeoEnvironmental, Inc.**

**Manchester, NH**

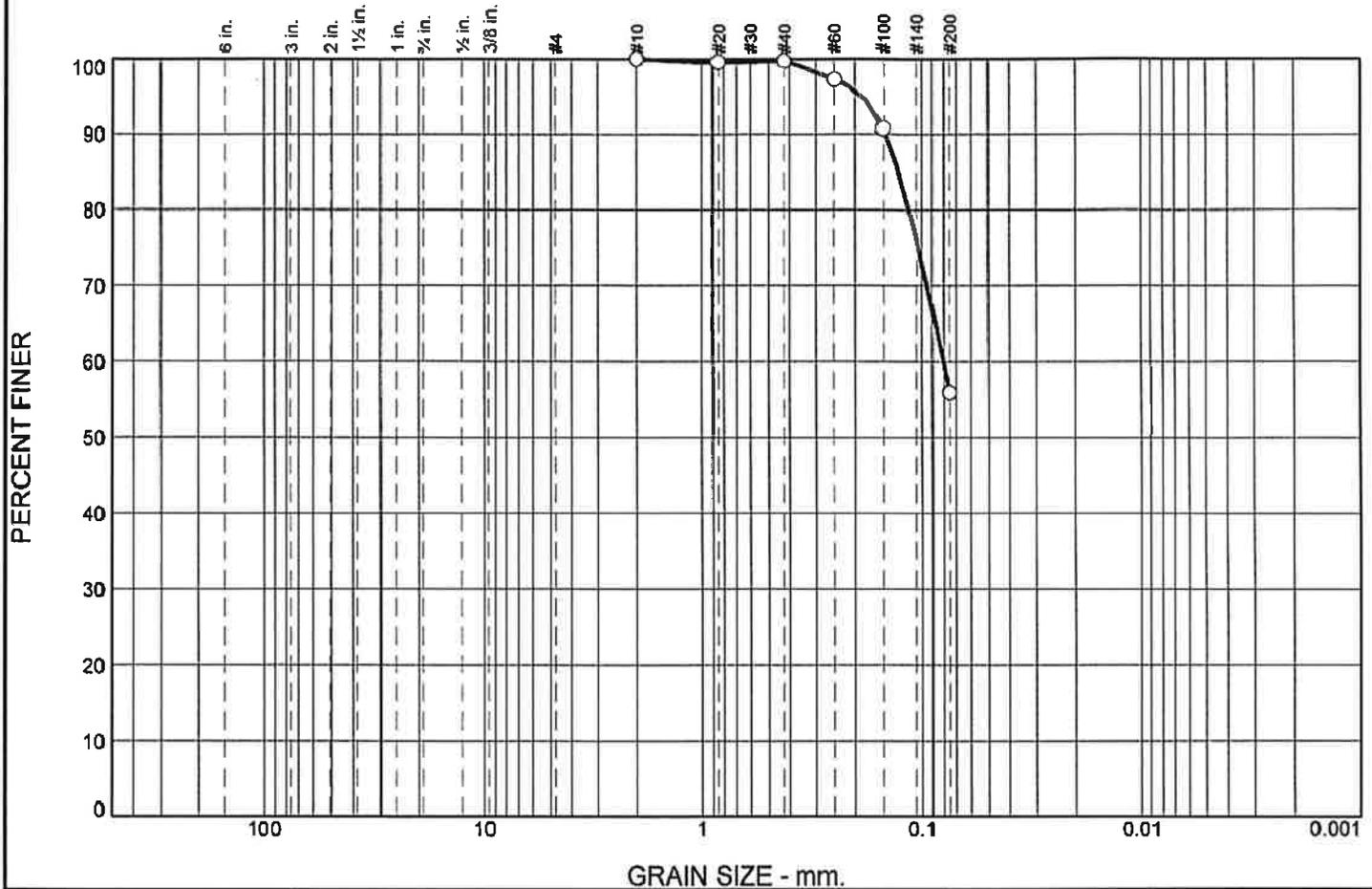
Client: W/S Development Associates, LLC

Project: River Place Hudson, NH

Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.0	0.4	2.4	41.3	55.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.6		
#40	99.7		
#60	97.2		
#100	90.7		
#200	55.9		

**Material Description**

SILT and fine Sand.

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>85</sub>= 0.1277                      D<sub>60</sub>= 0.0802                      D<sub>50</sub>=

D<sub>30</sub>=                                      D<sub>15</sub>=                                      D<sub>10</sub>=

C<sub>u</sub>=                                      C<sub>c</sub>=

**Classification**

USCS= ML                                      AASHTO= A-4(0)

**Remarks**

\* (no specification provided)

Sample Number: S-2                      Depth: 1.5 ft.                      Date:

Source of Sample: TP-2

**GZA GeoEnvironmental, Inc.**

**Manchester, NH**

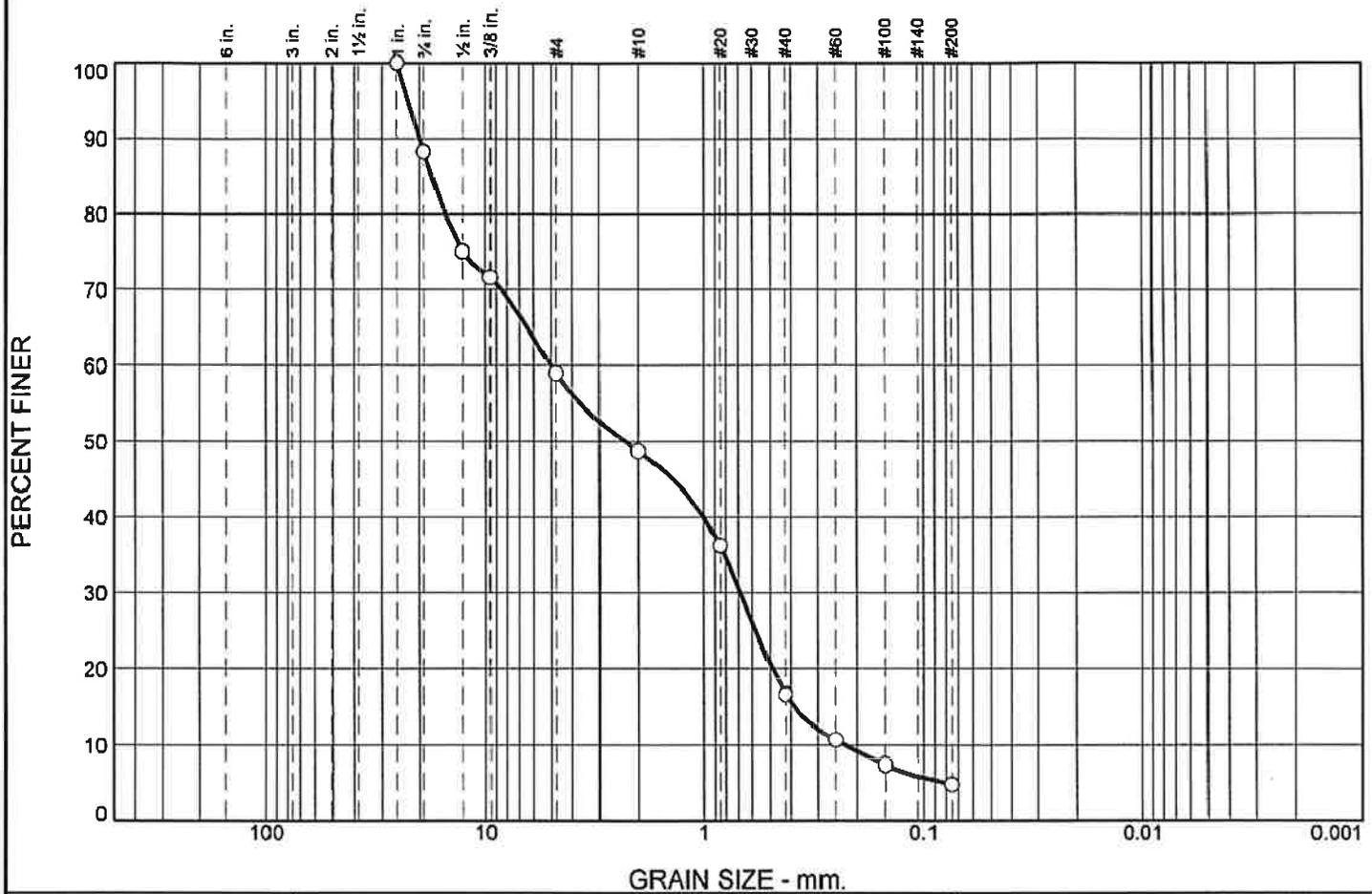
Client: W/S Development Associates, LLC

Project: River Place Hudson, NH

Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	28.4	22.9	22.8	15.2	6.0	4.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	88.2		
1/2	75.0		
3/8	71.6		
#4	59.0		
#10	48.7		
#20	36.2		
#40	16.6		
#60	10.7		
#100	7.4		
#200	4.7		

**Material Description**

Brown, GRAVEL and medium to coarse Sand, trace Silt.

PL=                      Atterberg Limits                      PI=

LL=                      Coefficients                      D<sub>50</sub>= 2.3135

D<sub>85</sub>= 17.5571                      D<sub>60</sub>= 5.0270                      D<sub>15</sub>= 0.3886                      D<sub>10</sub>= 0.2269

D<sub>30</sub>= 0.6841                      C<sub>c</sub>= 0.41

C<sub>u</sub>= 22.16

Classification

USCS= SP                      AASHTO= A-1-a

Remarks

\* (no specification provided)

Sample Number: S-1  
Source of Sample: TP-4

Depth: 0.5-6.5 ft.

Date:

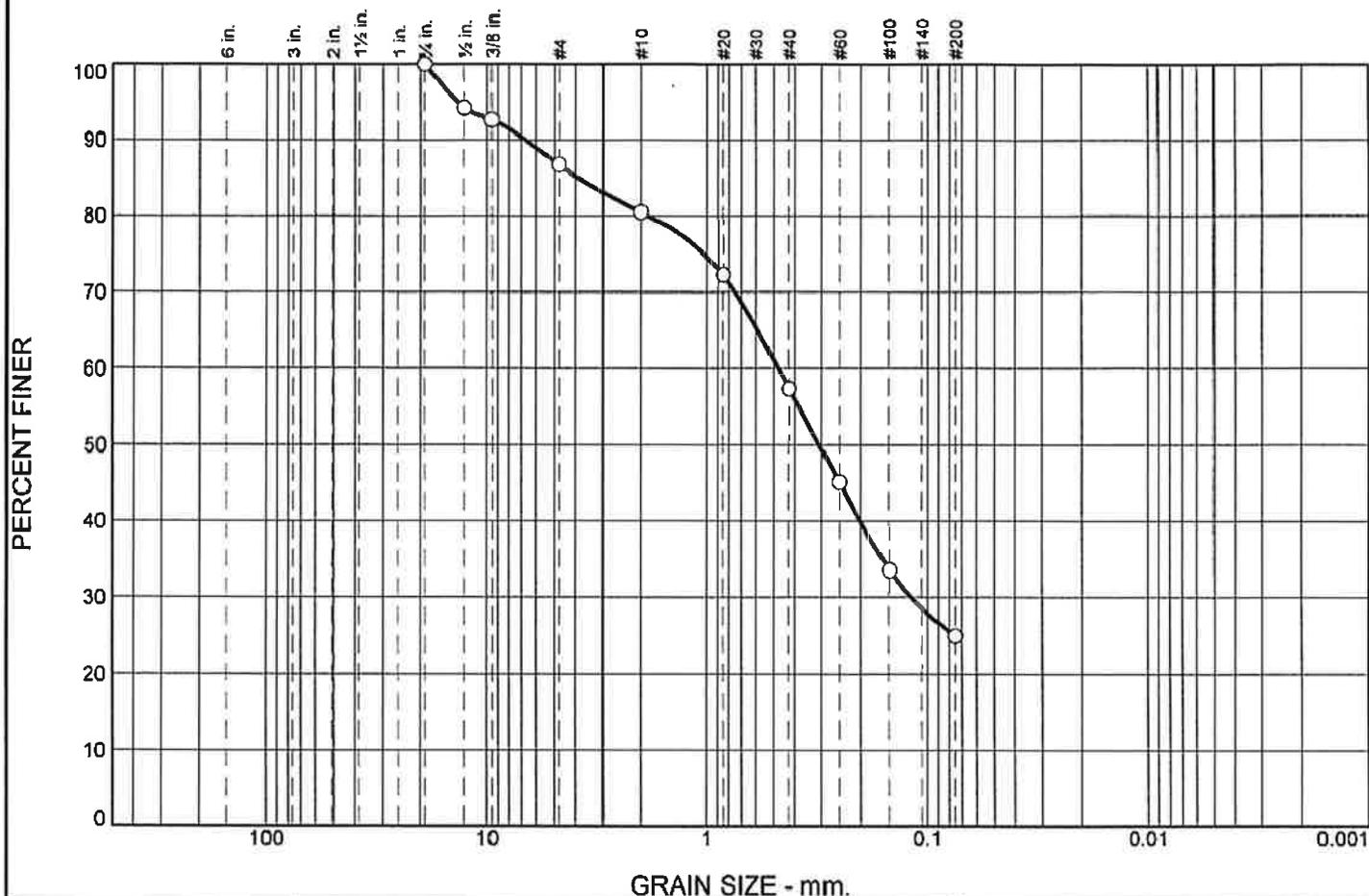
**GZA GeoEnvironmental, Inc.**  
**Manchester, NH**

Client: W/S Development Associates, LLC  
Project: River Place Hudson, NH

Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	7.4	12.2	15.0	20.4	20.1	24.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	94.1		
3/8	92.6		
#4	86.7		
#10	80.4		
#20	72.2		
#40	57.3		
#60	45.0		
#100	33.6		
#200	24.9		

**Material Description**

Brown, fine to coarse SAND, some Silt, little Gravel.

PL=	<b>Atterberg Limits</b>	PI=
	LL=	
	<b>Coefficients</b>	
D <sub>85</sub> = 3.9077	D <sub>60</sub> = 0.4758	D <sub>50</sub> = 0.3098
D <sub>30</sub> = 0.1192	D <sub>15</sub> =	D <sub>10</sub> =
C <sub>u</sub> =	C <sub>c</sub> =	
<b>Classification</b>		
USCS= SM		AASHTO= A-2-4(0)
<b>Remarks</b>		

\* (no specification provided)

Sample Number: S-1  
Source of Sample: TP-5A

Depth: 0-2.5 ft.

Date:

**GZA GeoEnvironmental, Inc.**

Client: W/S Development Associates, LLC

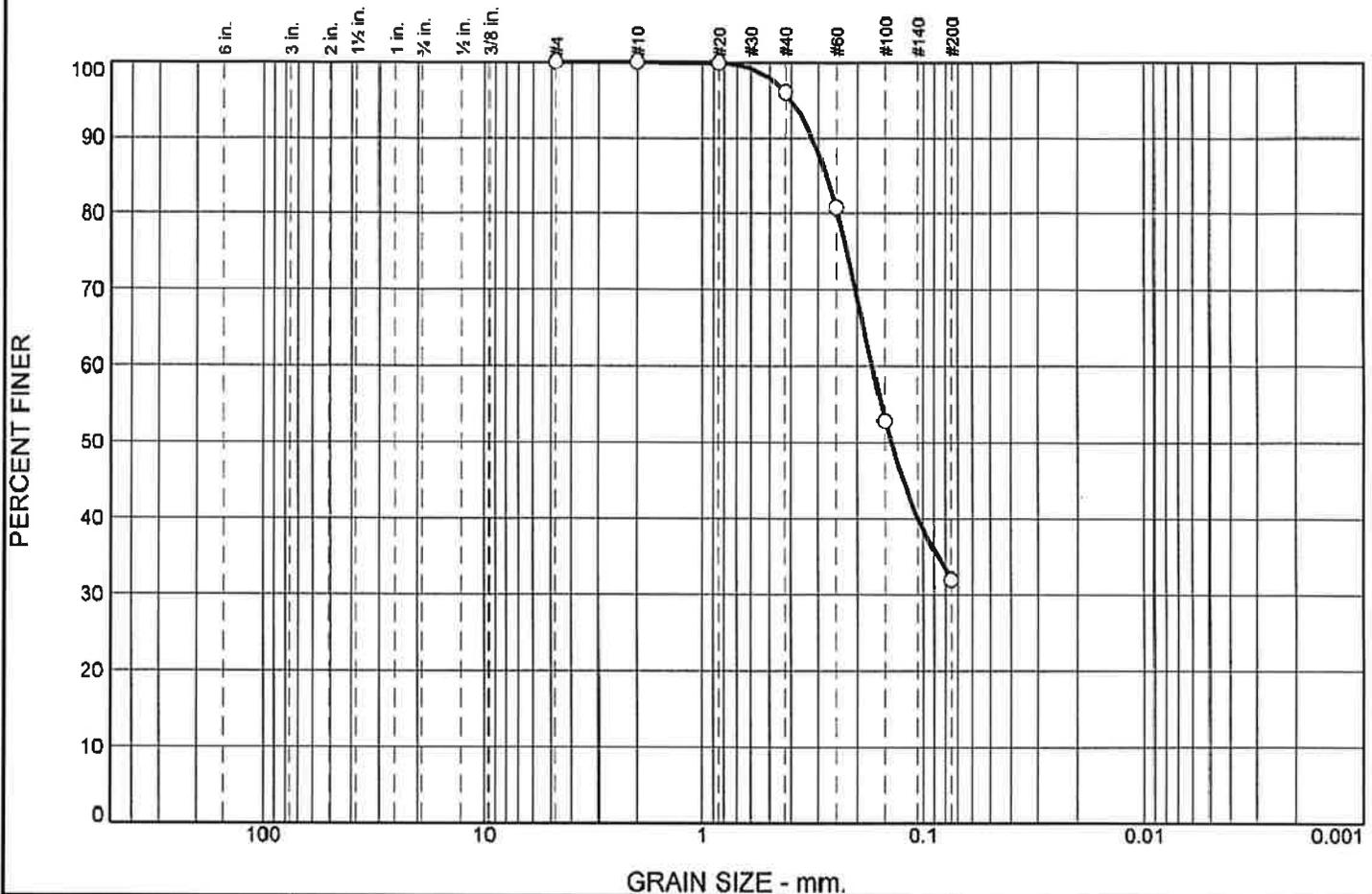
Project: River Place Hudson, NH

**Manchester, NH**

Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.0	0.8	18.5	48.7	32.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.9		
#40	96.0		
#60	80.7		
#100	52.8		
#200	32.0		

**Material Description**

Brown, fine to medium SAND, some Silt.

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>85</sub>= 0.2762                      D<sub>60</sub>= 0.1719                      D<sub>50</sub>= 0.1410

D<sub>30</sub>=                                      D<sub>15</sub>=                                      D<sub>10</sub>=

C<sub>u</sub>=    C<sub>c</sub>=

**Classification**

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

**Remarks**

\* (no specification provided)

Sample Number: S-2                      Depth: 2-3 ft.                      Date:

Source of Sample: TP-6

**GZA GeoEnvironmental, Inc.**

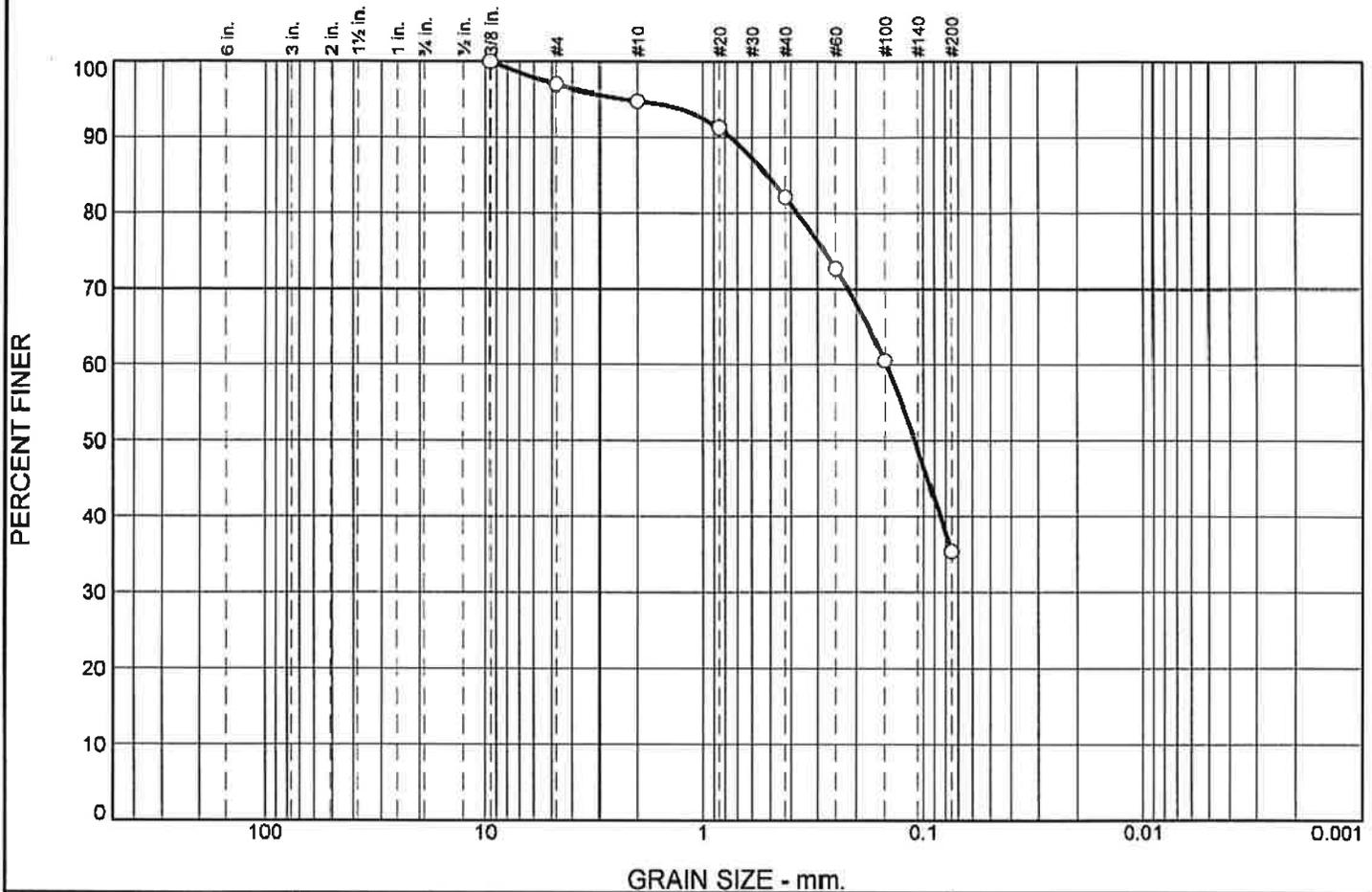
**Manchester, NH**

Client: W/S Development Associates, LLC

Project: River Place Hudson, NH

Project No: 24050.01                      Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	5.3	7.5	14.5	37.3	35.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	96.9		
#10	94.7		
#20	91.2		
#40	82.0		
#60	72.7		
#100	60.5		
#200	35.4		

**Material Description**

Brown, fine to medium SAND and Silt, trace Gravel.

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>85</sub>= 0.5149              D<sub>60</sub>= 0.1474              D<sub>50</sub>= 0.1095  
 D<sub>30</sub>=                      D<sub>15</sub>=                      D<sub>10</sub>=  
 C<sub>u</sub>=                      C<sub>c</sub>=

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

**Remarks**

\* (no specification provided)

Sample Number: S-2  
Source of Sample: TP-9

Depth: 0.7-7 ft.

Date:

**GZA GeoEnvironmental, Inc.**

Client: W/S Development Associates, LLC

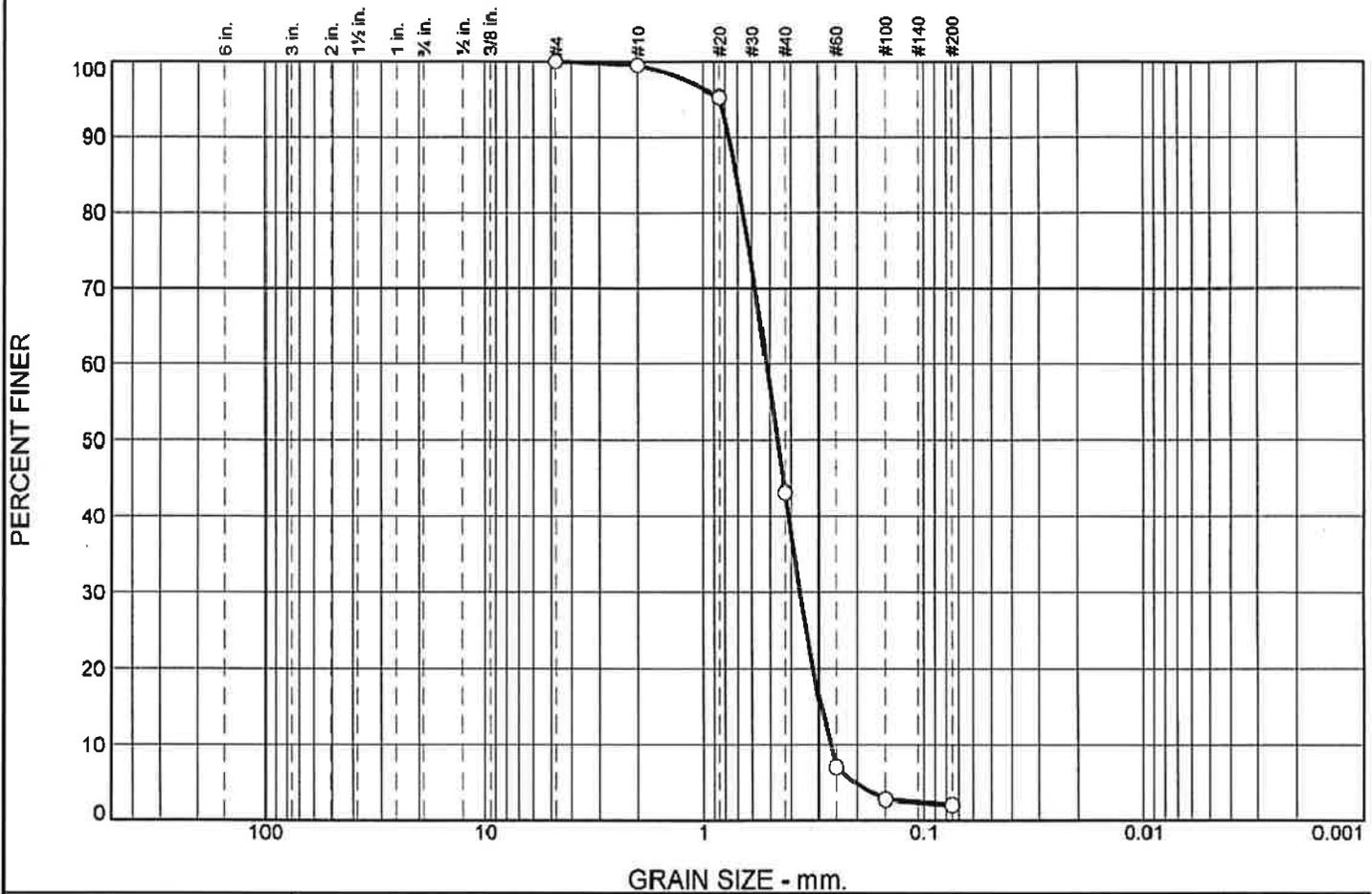
Project: River Place Hudson, NH

**Manchester, NH**

Project No: 24050.01

Figure

# Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.5	26.7	65.7	5.1	2.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.5		
#20	95.2		
#40	43.1		
#60	7.1		
#100	2.8		
#200	2.0		

**Material Description**

Brown, medium to coarse SAND, trace Silt.

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>85</sub>= 0.7078      D<sub>60</sub>= 0.5155      D<sub>50</sub>= 0.4600  
D<sub>30</sub>= 0.3638      D<sub>15</sub>= 0.2944      D<sub>10</sub>= 0.2681  
C<sub>u</sub>= 1.92              C<sub>c</sub>= 0.96

**Classification**

USCS= SP                      AASHTO= A-1-b

**Remarks**

\* (no specification provided)

Sample Number: S-3  
Source of Sample: TP-13

Depth: 1.5-6.5 ft.

Date:

**GZA GeoEnvironmental, Inc.**

Client: W/S Development Associates, LLC

Project: River Place Hudson, NH

**Manchester, NH**

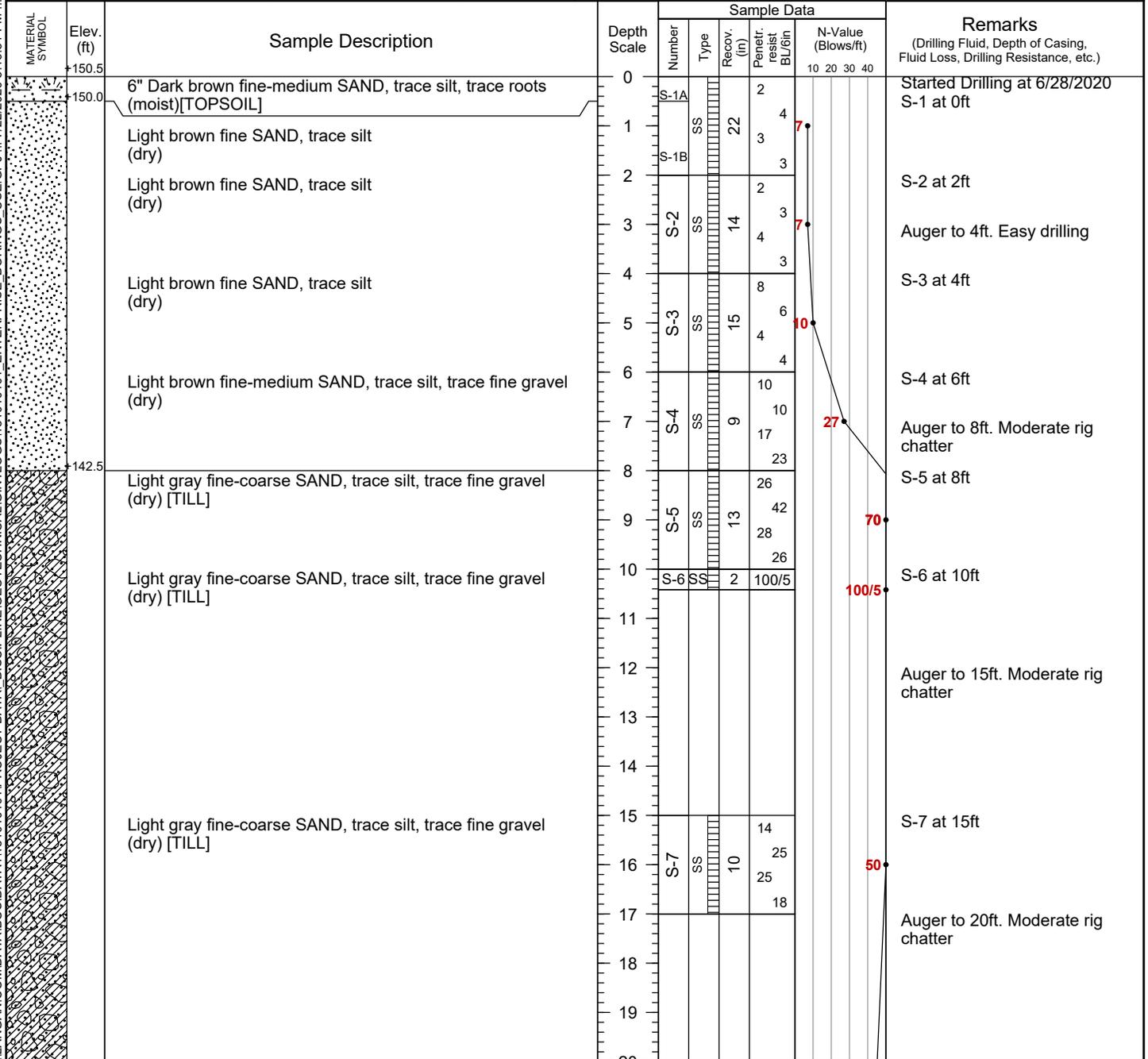
Project No: 24050.01

Figure

# **APPENDIX C BORING LOGS**

Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 150.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/28/20		Date Finished 6/29/20	
Drilling Equipment Truck Rig				Completion Depth 23 ft		Rock Depth 23 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 8	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

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Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 150.5 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	130.5	Light gray fine-coarse SAND, trace silt, trace fine gravel (dry) [TILL]	20				19		S-8 at 20ft
			21	S-8	SS	24	21	23	44
			22				17		
	127.5	Inferred Top of Bedrock	23						Bottom of boring at 6/28/2020 Boring backfilled with auger cuttings
		Bottom of Boring	24						
			25						
			26						
			27						
			28						
			29						
			30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 147.5 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/29/20		Date Finished 6/29/20	
Drilling Equipment Geoprobe 7822DT				Completion Depth 25 ft		Rock Depth 25 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 10	Undisturbed -
Casing Diameter (in) 4in		Casing Depth (ft) 8		Water Level (ft.) First 20		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Scott McGregor			
Sampler 2-inch-diameter split spoon				Field Engineer Justin Hall			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	147.5		0							
	147.2	4" Dark brown fine-coarse SAND, some silt, trace roots (moist) [TOPSOIL]		S-1A			2			Started Drilling at 6/29/2020 S-1 at 0ft
		Light brown fine SAND, some silt (dry)	1	S-1B	SS	14	2			
		Light brown fine-medium SAND, some silt, trace coarse sand, trace fine gravel (dry)	2				2			S-2 at 2ft
		Light brown fine-medium SAND, trace silt (moist)	3	S-2	SS	18	4			
			4				3			
			5	S-3	SS	13	5			Roller bit and drive casing to 4ft, Easy drilling S-3 at 4ft.
			6				6			
			7	S-4	SS	12	9			S-4 at 6ft
			8				11			
			9	S-5	SS	15	6			Roller bit and drive casing to 8ft, Easy drilling S-5 at 8ft
			10				17			
	137.5	Light brown fine-medium SAND, trace silt (moist)	11	S-6A	SS	16	10			S-6 at 10ft.
		Light brown silty fine SAND (moist)	12	S-6B			12			
			13				18			
		Light brown clayey SILT, trace fine sand (moist)	14				20			Roller bit to 14ft, Easy drilling S-7 at 14ft
			15	S-7A	SS	20	7			
			16	S-7B			8			
		Light brown fine-coarse SAND, trace silt (moist)	17				9			
	129.5		18				9			
		Light brown fine-coarse SAND, trace silt, trace f-m gravel (wet) [TILL]	19	S-8	SS	12	7			Roller bit to 19ft. Easy drilling 14-19ft S-8 at 19ft.
			20				14			

Project		Project No.						
Hudson Logistics Center		151010101						
Location		Elevation and Datum						
59 Steele Road, Hudson NH		Elev. + 147.5 (NGVD29)						
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in	
	127.5		20		SS	12	50/5	
			21					
		Light grayish brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (wet) [TILL]	22				19	
			23	S-9	SS	13	47	
			24				62	
		No Recovery Inferred Top of Bedrock	24				35	
	122.5		25	S-10	SS	0	100/0	
		Bottom of Boring	26					
			27					
			28					
			29					
			30					
			31					
			32					
			33					
			34					
			35					
			36					
			37					
			38					
			39					
			40					
			41					
			42					
			43					
			44					
			45					

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50/5

109

100/0

Roller bit to 22ft, Medium to heavy rig chatter  
Medium to hard drilling 19-22ft.  
S-9 at 22ft

Roller bit to 25ft, Medium to heavy rig chatter Medium to hard drilling 22-25ft  
S-9 at 22ft  
Roller bit and split spoon refusal at 25ft  
Bottom of boring at 6/29/2020  
Boring backfilled with auger cuttings.

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 151 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/28/20		Date Finished 6/28/20	
Drilling Equipment Truck Rig				Completion Depth 31.5 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples Disturbed 10		Undisturbed - Core -	
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 25		Completion N/A 24 HR. 24.9	
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	151.0		0	S-1A	SS	3	3	10	Started Drilling at 6/28/2020 S-1 at 0ft
	150.8	3" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]							
		Brown fine SAND, trace silt (dry)	1	S-1B	SS	10	9	15	
		Brown fine SAND, trace silt (dry)	2				10		S-2 at 2ft
			3	S-2	SS	14	3	6	Auger to 4ft, Easy drilling
			4				3		
		Brown fine SAND, trace silt (dry)	5	S-3	SS	16	4	7	S-3 at 4ft
			6				4		S-4 at 6ft
		Brown fine SAND, trace silt (dry)	7	S-4	SS	24	4	9	Auger to 8ft, Easy drilling
			8				5		
		Brown fine SAND, some silt (dry)	9	S-5	SS	24	5	11	S-5 at 8ft
			10				6		
		Brown fine SAND, some silt (dry)	11	S-6	SS	18	17	41	S-6 at 10ft
			12				20		
			13				40		Auger to 15ft, Easy drilling
			14						
		Brown fine SAND, trace silt (dry)	15				7		S-7 at 15ft
			16	S-7	SS	22	13	28	
			17				15		
			18				11		Auger to 20ft, Easy drilling
			19						
			20						

Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 151 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)	
	131.0	Brown fine SAND, trace silt (dry)	20				13		S-8 at 20ft	
			21	S-8	SS	22	17	36		Auger to 25ft, Easy drilling
			22				19			
			23				30			
				24						
			Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	25			7			S-9 at 25ft
				26	S-9	SS	21	8	19	Auger to 30ft, Light rig chatter
				27				11		
				28				14		
				29						
		Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	30			7			S-10 at 30ft	
			31	S-10	SS	23	19	50/4	Bottom of boring at 6/28/2020 Observation well installed. Refer to well construction log.	
			32					50/4		
			33							
			34							
			35							
		Bottom of Boring	36							
			37							
			38							
			39							
			40							
			41							
			42							
			43							
			44							
			45							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 157.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/28/20		Date Finished 6/28/20	
Drilling Equipment Truck Rig				Completion Depth 40.5 ft		Rock Depth 40.5 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 12	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 30	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Mike Kennedy	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	157.5		0	S-1A		4			Started Drilling at 6/28/2020
	157.3	3" Light brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]		S-1B	SS	17	4	9	S-1 at 0ft
	156.5	Light brown SILT, some fine sand, trace roots (dry)	1	S-1C		5			
		Light brown fine-medium SAND, trace silt (dry)	2			5			S-2 at 2ft
		Light brown fine-medium SAND, trace silt (dry)	3	S-2	SS	15	4	9	Auger to 4ft
		Light brown fine-medium SAND, trace silt (dry)	4			5			S-3 at 4ft
		Light brown fine-medium SAND, trace silt (dry)	5	S-3	SS	18	6	11	
		Light brown fine SAND, trace silt, trace roots (moist)	6			4			S-4 at 6ft
		Light brown fine SAND, trace silt (moist)	7	S-4	SS	16	10	16	Auger to 8ft
		Light brown fine SAND, trace silt (moist)	8			7			S-5 at 8ft
		Light brown fine-medium SAND, some silt (moist)	9	S-5	SS	24	9	17	
		Light brown fine-medium SAND, some silt (moist)	10			10			S-6 at 10ft
			11	S-6	SS	22	11	21	
			12						
			13						
			14						Auger to 15ft, easy drilling
		Light brown fine-medium SAND, trace silt (moist)	15			20			S-7 at 15ft
			16	S-7	SS	22	19	41	
			17			22			
			18						
			19						
			20						Auger to 20ft, easy drilling

Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 157.5 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)	
	137.5	Light brown fine-coarse SAND, some f-c gravel, trace silt (moist)	20				19		S-8 at 20ft	
			21	S-8	SS	24	21	42		
			22				21			
			23				16			
			24							Auger to 25ft, easy drilling
			25	S-9	SS	2	14	50/0		S-9 at 25ft, spoon bouncing
			26				56/0			
			27							
		129.5	Light brown silty fine-medium SAND, trace f-c gravel (wet) [TILL]	28						
				29						Auger to 30ft, moderate drilling
				30	S-10	SS	13	68	50	S-10 at 30ft
				31				25		
			32				25			
			33				37			
			34						Auger to 35ft, hard drilling	
		Light brown silty fine-medium SAND, trace clay, trace fine gravel (wet) [TILL]	35						S-11 at 35ft	
			36	S-11	SS	16	67	170		
			37				70			
			38				100		Auger to 40ft, hard drilling	
			39							
		Light brown silty fine-medium SAND, trace clay, trace fine gravel (wet) [TILL]	40	S-12	SS	6	100		S-12 at 40ft	
	117.0	Inferred Top of Bedrock							Bottom of boring at 6/28/2020	
		Bottom of Boring	41						Boring backfilled with auger cuttings.	
			42							
			43							
			44							
			45							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 155 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/11/20		Date Finished 6/11/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 32 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Drag Bit				Number of Samples Disturbed 10		Undisturbed -	Core -
Casing Diameter (in) 4in		Casing Depth (ft) 30		Water Level (ft.) First $\nabla$ N/E		Completion $\nabla$ N/A	24 HR. $\nabla$ N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 140	Drilling Foreman Ben Cray			
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft) +155.0	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)			
Dotted pattern		Light brown fine SAND, trace silt (dry)	0				1			Started Drilling at 6/11/2020 S-1 at 0ft	
		Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	1	S-1	SS	12	1	3			
			2				2			S-2 at 2ft	
		Light grayish brown fine-medium SAND, some fine gravel, trace silt (dry)	3	S-2	SS	12	4	19			Drill to 4.0ft Drive casing to 4.0ft
			4				15			S-3 at 4ft	
		Light grayish brown fine-medium SAND, some fine gravel, trace silt (dry)	5	S-3	SS	10	28	54			
			6				26			S-4 at 6ft	
		Light grayish brown fine-medium SAND, some fine gravel, trace silt (dry)	7	S-4	SS	18	22	48			Drill to 8.0ft Drive casing to 8.0ft
			8				26			S-5 at 8ft	
		Light grayish brown fine-medium SAND, trace silt, trace fine gravel (dry)	9	S-5	SS	11	18	42			
			10				24			S-6 at 10ft	
		Light grayish brown fine-medium SAND, some fine gravel, trace silt (dry)	11	S-6	SS	20	34	90			
			12				27			Drill to 15.0ft Drive casing to 15.0ft	
		Light grayish brown fine-medium SAND, some fine gravel, trace silt (moist)	13								
			14								
			15					41			S-7 at 15ft
			16	S-7	SS	12	15	34			
	17					19				Drill to 20.0ft Drive casing to 20.0ft, Rig Chattering	
			18			28					
			19								
			20								

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 155 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	135.0	Light grayish brown fine-medium SAND, some fine gravel, trace silt (moist) [TILL]	20				40	S-8 at 20ft	
	21		S-8	SS	16		29		94
	22					65			
	23	Light grayish brown fine-medium SAND, some fine gravel, trace silt (moist) [TILL]	24					Drill to 25.0ft Drive casing to 25.0ft, Rod Chattering	
	25					28	S-9 at 25ft		
	26		S-9	SS	17	38			
	27					39			77
	28				33	Drill to 30.0ft. Drive casing to 30.0ft, Rod Chattering			
	29	Light grayish brown fine-medium SAND, some fine gravel, trace silt (moist) [TILL]	30						S-10 at 30ft
	31		S-10	SS	21	40			
32					43	94			
123.0				51					
		Bottom of Boring	32					Bottom of boring at 6/11/2020 Boring backfilled with soil cuttings.	
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 159 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/11/20		Date Finished 6/11/20	
Drilling Equipment Truck Mounted Diedrich D-50				Completion Depth 30 ft		Rock Depth 30 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 10	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 10		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Sam DeAngelis			
Sampler 2-inch-diameter split spoon				Field Engineer Justin Hall			
Sampler Hammer Safety		Weight (lbs) 140	Drop (in) 30				

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MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/In	N-Value (Blows/ft)	
	159.0		0	S-1A	SS	4	4	13	Started Drilling at 6/11/2020 S-1 at 0ft
	158.7	3" Dark brown fine-coarse SAND, some silt, some organics (moist) [TOPSOIL]	1	S-1B	SS	17	8		
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	2			9	9		S-2 at 2ft
		Light grayish brown fine-coarse SAND, some fine gravel, trace silt (dry)	3	S-2	SS	22	9	19	
		Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (dry)	4			22	14		Auger to 4ft S-3 at 4ft
		Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (dry)	5	S-3	SS	17	16	41	Light Rig Chatter 4'-6'
		Light grayish brown fine-coarse SAND, some f-c gravel, trace silt (dry)	6			22	19		S-4 at 6ft
		Light grayish brown fine-coarse SAND, trace f-m gravel, trace silt (moist)	7	S-4	SS	17	41	60	
		Light grayish brown fine-coarse SAND, trace f-m gravel, trace silt (moist)	8			26	29		Auger to 8ft S-5 at 8ft
		Light grayish brown fine-coarse SAND, some silt, trace fine gravel (wet)	9	S-5	SS	19	21	50	Light Rig Chatter 9'-10'
			10			21	67		S-6 at 10ft
			11	S-6	SS	20	33	79	
			12			46	59		
			13						
			14						
	144.0	Light grayish brown fine-coarse SAND, trace silt, trace fine gravel (wet) [TILL]	15			10	17		Auger to 15ft S-7 at 15ft
			16	S-7	SS	20	52	69	
			17			65			
			18						
			19						
			20						

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 159 (NGVD29)

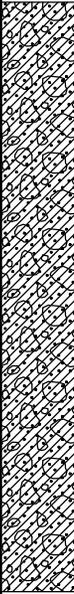
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in			
	139.0	Light grayish brown fine-coarse SAND, trace silt, trace fine gravel (wet) [TILL]	20	S-8	SS	17	84		Auger to 20ft S-8 at 20ft	
			21				84			
				22				100/5		
				23						
				24						
			Light grayish brown fine-coarse SAND, trace silt, trace fine gravel (moist) [TILL]	25	S-9	SS	18	30		Auger to 25ft S-9 at 25ft
				26				78		
				27				100/5		
				28						
			No Recovery Inferred Top of Bedrock	29						
	129.0	Bottom of Boring	30	S-10	SS	0	100/0	100/0	Auger to 30ft S-10 at 30ft Bottom of boring at 6/11/2020 Boring backfilled with auger cuttings.	
			31							
			32							
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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 159 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/10/20		Date Finished 6/10/20	
Drilling Equipment Truck Rig				Completion Depth 29.5 ft		Rock Depth 29.5 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 10	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 15		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Sam DeAngelis	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	159.0		0							
	158.4	7" Dark brown fine-coarse SAND, some silt, trace fine gravel, some roots (moist) [TOPSOIL]	0	S-1A	SS	5	7	14		Started Drilling at 6/10/2020 S-1 at 0ft
		Brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	1	S-1B	SS	7	7			
		Brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	2			7				S-2 at 2ft
			3	S-2	SS	5	8	21		
			4			13				Auger to 4ft
		Brown fine-coarse SAND, some fine gravel, trace silt (dry)	5	S-3	SS	10	15	30		S-3 at 4ft
			6			15				
		Brown to brown fine-coarse SAND, some f-c gravel, trace silt (dry)	7	S-4	SS	11	16	40		S-4 at 6ft
			8			17				
		Brown to brown fine-medium SAND, some f-c gravel, trace silt, trace weathered cobble fragments (dry)	9	S-5A	SS	13	24			Auger to 8ft
		Brown fine-coarse SAND, some silt, trace f-c gravel (moist)	10	S-5B	SS	13	51			S-5 at 8ft
		Brown fine-coarse SAND, some f-c gravel, trace silt (moist)	11	S-6	SS	17	29	56		S-6 at 10ft
			12			27				
			13			25				
			14			21				
			15			19		61		
			16			33				
			17			28				
			18			19				
			19							Auger to 15ft, easy-moderate drilling, some light rig chatter
		Brown fine-coarse SAND, some silt, trace f-c gravel (wet)	20	S-7	SS	10	26	37		S-7 at 15ft
			21			19				
			22			18				
			23			15				
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Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 159 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	139.0	Brown silty fine-coarse SAND, trace fine gravel, trace fine sand (wet) [TILL]	20	S-8	SS	12	18		S-8 at 20ft
			21				34		
			22				50/3	50/3	
			23						Auger to 25ft, hard drilling
			24						21.3 to 22ft - inferred boulder
			25				19		S-9 at 25ft
			26	S-9	SS	24	62		
			27				32	94	
			28				43		Auger to 29ft, hard drilling
			29	S-10	SS	5	100		S-10 at 29ft, auger and split spoon refusal at 29ft
	129.5	Gray silty fine-medium SAND, some clay, trace fine gravel (wet) [TILL]	30					Bottom of boring at 6/10/2020	
		Gray silty fine-medium SAND, trace fine sand, trace fine gravel, cemented (dry) [TILL]	31					Boring backfilled with auger cuttings.	
		Inferred Top of Bedrock	32						
		Bottom of Boring	33						
			34						
			35						
			36						
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			38						
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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 159 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Truck Rig				Completion Depth 21 ft		Rock Depth 21 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 8	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 10		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Mike Kennedy	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	159.0		0							
	158.4	7" Brown fine-medium SAND, some silt, some roots (moist) [TOPSOIL]		S-1A	SS	6	6	18		Started Drilling at 6/26/2020 S-1 at 0ft
		Brown fine-coarse SAND, trace silt, trace f-c gravel (moist)	1	S-1B	SS	17	11			
		Brown fine-coarse SAND, trace silt, trace f-c gravel (moist)	2			8	8			S-2 at 2ft
			3	S-2	SS	14	8	16		Auger to 4ft
		Brown fine-coarse SAND, trace silt (moist)	4			8	10			S-3 at 4ft
			5	S-3	SS	17	7	18		
		Brown fine-coarse SAND, trace silt, trace f-c gravel (moist)	6	S-4A	SS	12	12			S-4 at 6ft
	152.5	Brown silty fine-medium SAND, trace f-c gravel, trace weathered gravel fragments (moist) [TILL]	7			15	31	78		Auger to 8ft
		Brown silty fine-medium SAND, trace f-c gravel, trace weathered gravel fragments (moist) [TILL]	8	S-4B	SS	14	47			S-5 at 8ft
			9	S-5	SS	15	19	41		
			10			22	24			S-6 at 10ft
		Brown silty fine-medium SAND, trace f-c gravel, trace weathered gravel fragments (wet) [TILL]	11	S-6	SS	15	33	51		
			12			22	29			
			13			25				Auger to 15ft, moderate drilling
			14							
		Brown silty fine-medium SAND, trace f-c gravel, trace weathered gravel fragments (wet) [TILL]	15			17				S-7 at 15ft
			16	S-7	SS	19	15	32		
			17			17	17			
			18			18				Auger to 20ft, moderate drilling
			19							
			20							

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 159 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	139.0		20						
	138.0	Brown silty fine-medium SAND, trace f-c gravel, trace weathered gravel fragments (wet) [TILL]	20	S-8A	SS	8	25		S-8 at 20ft
	137.8	Gray to black fine-medium SAND, trace silt, trace fine gravel, trace rock fragments (wet) [BEDROCK]	21	S-8B			54 50/1	50/1	Auger refusal at 21.5ft Bottom of boring at 6/26/2020 Boring backfilled with auger cuttings.
		Bottom of Boring	22						
			23						
			24						
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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 157.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/29/20		Date Finished 7/1/20	
Drilling Equipment Mobile Drill B53				Completion Depth 18 ft		Rock Depth 18 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 8	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 8.5		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Mike Kennedy	
Sampler 2-inch-diameter split spoon				Field Engineer Reid Balkind			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)	
	157.5	24" Dark brown silty fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]	0						Started Drilling at 6/29/2020 S-1 at 0ft
	155.5	Brown fine SAND, some coarse gravel, trace silt (dry)	1	S-1	SS	4	4	18	
			2						S-2 at 2ft
		Brown fine-coarse SAND, some fine gravel, trace silt (dry)	3	S-2	SS	4	8	16	
			4						Auger to 4ft S-3 at 4ft
	151.5	Grayish brown fine-coarse SAND, some silt, some f-c gravel, trace weathered rock fragments (moist) [TILL]	5	S-3	SS	17	14	39	
			6						S-4 at 6ft
		Grayish brown fine-coarse SAND, some silt, some f-c gravel (wet)[TILL]	7	S-4	SS	13	26	53	
			8						Auger to 8ft S-5 at 8ft
		Grayish brown fine-medium SAND, some silt, some f-c gravel (wet)[TILL]	9	S-5	SS	10	17	41	
			10						S-6 at 10ft
		Grayish brown fine-medium SAND, some silt, trace fine gravel (wet)[TILL]	11	S-6	SS	16	27	51	
			12						
			13						
			14						
		Grayish brown fine-medium SAND, some silt, trace fine gravel (wet)[TILL]	15	S-7	SS	17	15	82	
			16						Auger to 15ft. Hard drilling and heavy chatter S-7 at 15ft
		Grayish brown fine-medium SAND, some silt, trace fine gravel(wet)[TILL]	17						
		Inferred Top of Bedrock	18	S-8	SS	7	80	50/3	S-8 at 17.5ft
	139.3		19						Auger and spoon refusal encountered at 18ft. Bottom of boring at 7/1/2020 Boring backfilled with soil cuttings
		Bottom of Boring	20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 156.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/29/20		Date Finished 6/30/20	
Drilling Equipment Truck Rig				Completion Depth 20 ft		Rock Depth 20 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 8	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)	
	156.5		0	S-1A	SS	4	4	12	Started Drilling at 6/29/2020 S-1 at 0ft
	156.3	3" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]	1	S-1B	SS	7	5		
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	2	S-2	SS	5	7		S-2 at 2ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	3	S-3	SS	5	7	12	Auger to 4ft. Light rig chatter
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	4	S-4	SS	5	7		S-3 at 4ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	5	S-5	SS	5	8	13	
	150.5	Grayish brown fine-coarse SAND, some silt, some fine gravel (moist)[TILL]	6	S-6	SS	14	8		S-4 at 6ft
		Brown fine-coarse SAND, some silt, some fine gravel (moist)[TILL]	7	S-7	SS	13	13	32	Auger to 8ft. Moderate rig chatter
		Brown fine-coarse SAND, some silt, some fine gravel (moist)[TILL]	8	S-8	SS	9	14		S-5 at 8ft
		Brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (moist) [TILL]	9	S-9	SS	9	13	22	
		Brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (moist) [TILL]	10	S-10	SS	14	14		S-6 at 10ft
		Brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (moist) [TILL]	11	S-11	SS	17	21	37	
		Brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (moist) [TILL]	12	S-12	SS	16	16		Auger to 15.0ft. Moderate rig chatter
		Brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (moist) [TILL]	13						
		Brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (moist) [TILL]	14						
		Brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (moist) [TILL]	15	S-15	SS	18	18		S-7 at 15ft
		Grayish brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (moist) [TILL]	16	S-16	SS	18	34	70	
		Grayish brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (moist) [TILL]	17	S-17	SS	18	36		Auger to 20ft. Moderate rig chatter
		Grayish brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (moist) [TILL]	18						
		Grayish brown fine-coarse SAND, some silt, some fine gravel, trace weathered rock fragments (moist) [TILL]	19						
	136.5	Dark gray fine-medium SAND, some fine gravel (moist) [WEATHERED ROCK]	20	S-8	SS	1	50/1	50/1	S-8 at 20ft Bottom of boring at 6/30/2020 Boring backfilled with auger cuttings.
	136.4	Inferred Top of Bedrock	21						
		Bottom of Boring	22						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 144.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/28/20		Date Finished 6/29/20	
Drilling Equipment Truck Rig				Completion Depth 29 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 10	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 25	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Mike Kennedy	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)		
	144.5		0							Started Drilling at 6/28/2020
	144.0	6" Orangish brown fine-medium SAND, some silt, some roots dry][TOPSOIL]	0	S-1A	SS	4	4	8		S-1 at 0ft
		Orangish brown fine-medium SAND, trace silt, trace roots (dry)	1	S-1B	SS	4	4			
		Light brown fine-medium SAND, trace silt (dry)	2			2				S-2 at 2ft
		Light brown fine-medium SAND, trace silt (dry)	3	S-2A	SS	3	3	8		
		Light brown fine-medium SAND, trace silt (dry)	3	S-2B	SS	5	4			Auger to 4ft
		Light brown fine SAND, trace silt (dry)	4			6				S-3 at 4ft
			5	S-3	SS	7	7	14		
			6			8				S-4 at 6ft
		Light brown fine-medium SAND, some silt (moist)	7	S-4	SS	10	9	18		
			8			9				Auger to 8ft
		Light brown silty fine SAND (moist)	8	S-5A	SS	8	9			S-5 at 8ft
		Light brown SILT, trace fine sand, mottled (moist)	9	S-5B	SS	8	10	18		
			10			10				S-6 at 10ft
		Light brown SILT, trace clay, trace fine sand and f-m SAND, trace silt seams 3-6 inches thick (moist)	11	S-6	SS	15	15	31		
			12			16				
			13			16				
			14							Auger to 15ft, easy drilling
		Light brown SILT, trace clay, trace fine sand and f-m SAND, trace silt seams 2-4 inches thick (moist)	15	S-7	SS	13	15			S-7 at 15ft
			16			16		35		
			17			19				
			18			22				
			19							Auger to 20ft, easy drilling
	124.5		20							

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 144.5 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	124.5	Light brown fine-medium SAND, trace silt, trace f-c gravel, with silt lenses 1 inch thick (moist)	20	S-8	SS	7	11	34	S-8 at 20ft
			21				16		
			22				18		
			23				15		
	121.5	?	24						Auger to 25ft, moderate drilling
		Light brown to brown silty fine-medium SAND, trace f-c gravel, trace weathered rock pieces (wet) [TILL]	25	S-9	SS	16	23	67	
			26				32		
			27				35		
			28	S-10	SS	11	44	72	Auger to 27ft, auger refusal S-10 at 27ft
		Light brown silty fine-medium SAND, trace f-c gravel, trace weathered rock pieces (wet) [TILL]	29				46		
				30				41	
	115.5	Bottom of Boring	31				31		
			32				32		
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 149 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/29/20		Date Finished 6/29/20	
Drilling Equipment Mobile Rig B-53				Completion Depth 43 ft		Rock Depth 38 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 11	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 29		Water Level (ft.) First 14	Completion N/A
Casing Hammer Safety		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Jeff Nitch			
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

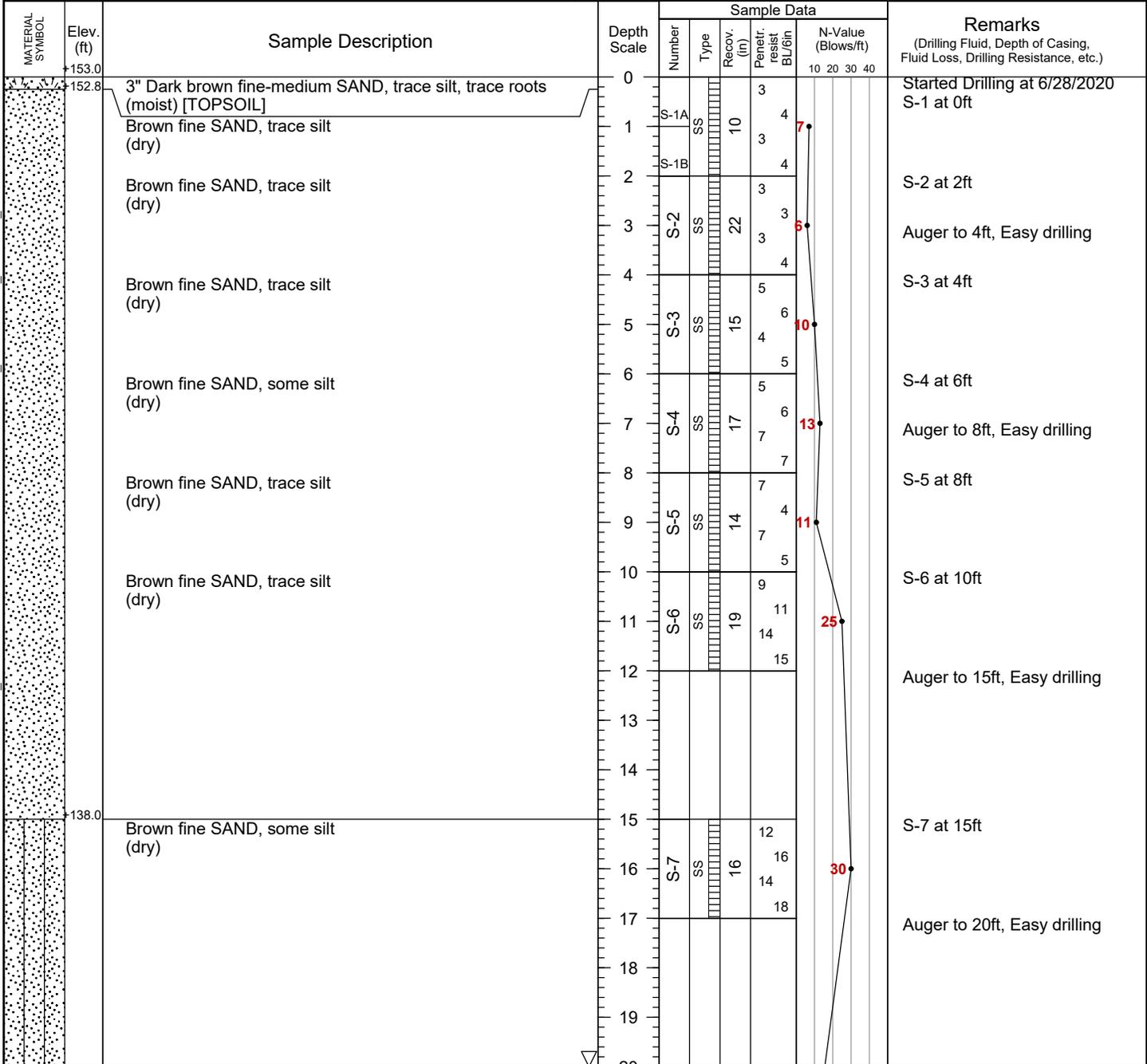
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
					Number	Type	Recov. (in)	Penetr. resist. BL/ft		N-Value (Blows/ft)
	149.0			0						Started Drilling at 6/29/2020
	148.5	6" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]		0	S-1A		2			S-1 at 0ft
		Light brown fine SAND, trace silt (dry)		1	S-1B	SS	17	3	5	
		Light brown fine-medium SAND, some silt (dry)		2			3			S-2 at 2ft
		Light brown fine-medium SAND, some silt (moist)		3	S-2	SS	14	3	5	
		Light brown fine-medium SAND, some silt (moist)		4			3			Drill to 4ft, Easy Drilling, Great wash
		Light brown fine SAND, some silt (moist)		5	S-3	SS	10	4	8	S-3 at 4ft
		Light brown fine SAND, some silt (moist)		6			7			S-4 at 6ft
		Light brown fine SAND, some silt (moist)		7	S-4	SS	11	7	14	
		Light brown fine SAND, some silt (moist)		8			8			Drill to 8ft, Easy Drilling, Gray wash
		Light brown fine-medium SAND, some silt (moist)		9	S-5	SS	9	6	12	S-5 at 8ft
		Light brown fine-medium SAND, some silt (moist)		10			11			S-6 at 10ft
		Light brown fine-medium SAND, some silt (wet)		11	S-6	SS	16	14	37	
				12			23			Drill to 14ft, Easy Drilling, Gray wash
				13			25			
				14						S-7 at 14ft
				15	S-7	SS	10	11	30	
				16			14			Drill to 19ft, Easy Drilling, Gray wash
				17			16			
				18			15			
	130.0	Light brown silty fine SAND (wet)		19	S-8	SS	15	8		S-8 at 19ft
				20			10		24	

Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 149 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
					Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	129.0			20	S-8	SS	15	14	24	Drill to 25ft, Easy Drilling, Gray wash
				21				15		
	124.7	Light brown silty fine SAND (wet)		24	S-9A			10		S-9 at 24ft
		Light brown fine-coarse SAND, trace silt (wet)		25	S-9B	SS	8	8	17	Drill to 29ft, Easy Drilling, Gray wash
				26				9		
				29						S-10 at 29ft
		Gray fine GRAVEL, trace silt, trace fine sand (wet)		30	S-10	SS	3	20	31	
				31				18		
	118.0	Dark gray BOULDER	4:45	31	C-1	NQ CORE	REC=83%	RQD=71%		Drill bit Refusal at 31ft. C-1 at 31ft
			1:20	32						Drill to 35ft, Moderate Augering, Gray wash
				33						
		Brown sandy fine GRAVEL, some silt (wet) [TILL]		35	S-11	SS	11	15	69	S-11 at 35ft
				36				16		Drill to 40ft, Moderate Drilling, Gray wash
				37				53		
	111.0	Light gray pegmatite fine-coarse grained; fresh to slightly weathered; fractures shallow dipping to near horizontal; strong; very poor quality [BEDROCK]	3:20	38						Drill bit Refusal at 38ft C-2 at 38ft
			6:12	39						Bottom of boring at 6/29/2020 Boring backfilled with soil cuttings.
			8:12	40	C-2	NQ CORE	REC=20"/60" = 33%	RQD=4"/60" = 7%		
			11:22	41						
			11:51	42						
	106.0	Bottom of Boring		43						
				44						
				45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 153 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/28/20		Date Finished 6/28/20	
Drilling Equipment Truck Rig				Completion Depth 32 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed	Undisturbed
Casing Diameter (in) N/A				Casing Depth (ft) N/A		10	-
Casing Hammer N/A				Weight (lbs) N/A		Drop (in) N/A	
Sampler 2-inch-diameter split spoon				Water Level (ft.)		First	Completion
Sampler Hammer Automatic				Weight (lbs) 140		Drop (in) 30	
				Drilling Foreman John Knepple			
				Field Engineer Jack Berritt			



Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 153 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	133.0	Brown silty fine SAND (wet)	20					S-8 at 20ft  Auger to 25ft, Easy drilling	
			21	S-8	SS	16	5 7 8		12
			22						
			23						
	128.0	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	25					S-9 at 25ft  Auger to 30ft, Easy drilling	
			26	S-9	SS	18	6 5 8 10		13
			27						
			28						
	121.0	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	30					S-10 at 30ft	
			31	S-10	SS	16	10 26 44		70
	32					16			
	33								
		Bottom of Boring	32					Bottom of boring at 6/29/2020 Boring backfilled with auger cuttings.	
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 143.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/10/20		Date Finished 6/10/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 30 ft		Rock Depth 30 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 10	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 19	Completion 19.2
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		24 HR. 19.3	
Sampler 2-inch-diameter split spoon				Drilling Foreman John Knepple			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30		Field Engineer Kenneth Idem	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	143.5		0						
	143.2	3" Brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]							Started Drilling at 6/10/2020
			1	S-1	SS	14	4	11	S-1 at 0ft
		Brown fine-medium SAND, trace silt (dry)	2				5		S-2 at 2ft
			3	S-2	SS	17	4	9	
		Brown fine-medium SAND, trace silt (dry)	4				5		Auger to 4ft, easy augering
			5	S-3	SS	14	6	18	S-3 at 4ft
		Brown fine-medium SAND, trace silt (dry)	6				9		S-4 at 6ft
			7	S-4	SS	17	11	27	
		Brown fine-medium SAND, trace silt (dry)	8				14		Auger to 8ft, easy augering
			9	S-5	SS	18	16	22	S-5 at 8ft
		Brown fine-medium SAND, trace silt (dry)	10				9		S-6 at 10ft
			11	S-6	SS	15	12	32	
		Brown fine-medium SAND, trace f-m gravel, trace silt (dry)	12				15		Auger to 15ft, easy augering
			13				16		
			14				16		
			15				16		S-7 at 15ft
			16	S-7	SS	7	12	34	
			17				16		Auger to 20ft, easy augering
			18				18		
			19				20		
			20						

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Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 143.5 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)	
	123.5	Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	20	S-8	SS	8	8		S-8 at 20ft	
			21				15		50/2	Auger to 25ft, moderate augering, light chatter
			22				50/2			
			23							
			24							
			Brown fine-coarse SAND, trace silt, trace fine gravel (wet)	25			9		24	S-9 at 25ft
				26	S-9	SS	22	11		
				27			13	11		
				28						Auger to 30ft, easy augering S-10 at 30ft
				29						
	113.5	No Recovery Inferred Top of Bedrock	30	S-10	SS	0	50/0	50/0	Split spoon and auger refusal at 30ft Bottom of boring at 6/10/2020 Observation well installed. Refer to well construction log.	
		Bottom of Boring	31							
			32							
			33							
			34							
			35							
			36							
			37							
			38							
			39							
			40							
			41							
			42							
			43							
			44							
			45							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 149 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/28/20		Date Finished 6/28/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 30.5 ft		Rock Depth 30.5 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples Disturbed 10		Undisturbed - Core -	
Casing Diameter (in) 4in		Casing Depth (ft) 4		Water Level (ft.) First 11		Completion 11.3 24 HR. N/A	
Casing Hammer N/A		Weight (lbs) 140		Drop (in) 30		Drilling Foreman Scott McGregor	
Sampler 2-inch-diameter split spoon				Field Engineer Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)		
	149.0		0							Started Drilling at 6/28/2020
	148.0	12" Dark brown fine-medium SAND, trace silt, some roots (dry) [TOPSOIL]		S-1A	SS	4	4	7	11	"Removed 6" topsoil and grass before start of boring"
		Light brown fine-medium SAND, some fine gravel, trace silt (dry)	1	S-1B	SS	4	4	7		S-1 at .5ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	2			7				S-2 at 2ft
	145.0	Grayish brown fine-coarse SAND, some silt, some fine gravel (dry)[TILL]	3	S-2	SS	14	8	11	19	
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	4			10	11	21	45	Drive casing to 4.0ft
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	5	S-3	SS	10	24	34		Drill to 4.0ft, easy drilling
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	6			12	27	30		S-3 at 4ft
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	7	S-4	SS	12	42	30	72	
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	8			16	19	22		Drill to 8.0ft, moderate drilling
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	9	S-5	SS	16	24	29	46	S-5 at 8ft
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	10			18	16	18		S-6 at 10ft
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	11	S-6	SS	18	25	24	43	
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	12			15	23	28		Drill to 14.0ft, moderate drilling
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	13			15	31	22	59	S-7 at 14ft
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	14	S-7	SS	15	22			
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	15			24	20			Drill to 19.0ft, moderate drilling
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	16	S-8	SS	24	26		51	S-8 at 19ft
			17							
			18							
			19							
			20							

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 149 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	129.0		20	S-8	SS	24	25	51	
			21				43		
			22						
			23						
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	24				15		Drill to 24.0ft, moderate to hard drilling, some rig chatter S-9 at 24ft
			25	S-9	SS	24	24	50	
			26				26		
			27						
			28						
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet)[TILL]	29				31		Drill to 29.0ft, moderate drilling S-10 at 29ft
		Inferred Top of Bedrock	30	S-10	SS	17	34	101	
			31				67		
	118.3		32				50/3		Split spoon and auger refusal Bottom of boring at 6/28/2020 Boring backfilled with soil cuttings.
		Bottom of Boring	33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 148 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Truck Rig				Completion Depth 26.5 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed	Undisturbed
Casing Diameter (in) N/A				Casing Depth (ft) N/A		10	-
Casing Hammer N/A				Weight (lbs) N/A		Drop (in) N/A	-
Sampler 2-inch-diameter split spoon				Water Level (ft.)			
Sampler Hammer Safety				Weight (lbs) 140		Drop (in) 30	
				Drilling Foreman Mike Kennedy			
				Field Engineer Taylor Sisti			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	148.0		0							
	147.4	7" Brown fine-medium SAND, some silt, some roots (dry) [TOPSOIL]		S-1A	SS	7	11	22		Started Drilling at 6/26/2020 S-1 at 0ft
		Brown fine-coarse SAND, some silt, trace f-c gravel, trace roots (dry)	1	S-1B	SS	14	9			S-2 at 2ft
		Brown fine-coarse SAND, some silt, trace f-c gravel, trace roots (dry)	2	S-2A	SS	8	10			
		Brown fine-medium SAND, some silt, some f-c gravel (dry)	3	S-2B	SS	8	12	22		Auger to 4ft
		Brown fine-coarse SAND, some silt, some f-c gravel (dry)	4			14	13			S-3 at 4ft
			5	S-3	SS	15	21	43		
			6			22	20			S-4 at 6ft
		Brown fine-coarse SAND, some silt, trace f-c gravel (dry)	7	S-4	SS	13	20	47		
			8			14	14			Auger to 8ft
	140.0	Brown fine-coarse SAND, trace silt, trace f-c gravel (moist)	9	S-5	SS	17	10	18		S-5 at 8ft
			10			8	8			
	138.0	Brown silty fine-medium SAND, trace f-c gravel, trace weathered gravel fragments (wet) [TILL]	11	S-6	SS	19	21	43		S-6 at 10ft
			12			22	22			
			13			16	16			Auger to 15ft, moderate drilling
			14							
		Brown silty fine-medium SAND, some f-c gravel, trace weathered gravel fragments (wet) [TILL]	15	S-7	SS	16	22			S-7 at 15ft
			16			30	32	62		
			17			24				
			18							Auger to 20ft, moderate drilling
			19							
			20							

Project		Project No.						
Hudson Logistics Center		151010101						
Location		Elevation and Datum						
59 Steele Road, Hudson NH		Elev. + 148 (NGVD29)						
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in	
	128.0	Gray SILT, some clay, trace f-c sand, trace fine gravel (moist) [TILL]	20	S-8	SS	22	29	72
			21				39	
			22				33	
			23				69	
			24					Auger to 24.5ft, hard drilling Auger refusal at 24.5ft
		Gray SILT, some fine sand, trace clay, trace fine gravel (moist) [TILL]	25	S-9	SS	21	51	119
			26				61	
			26				58	
	121.5		27				62	
		Bottom of Boring	27					Bottom of boring at 6/26/2020 Boring backfilled with auger cuttings.
			28					
			29					
			30					
			31					
			32					
			33					
			34					
			35					
			36					
			37					
			38					
			39					
			40					
			41					
			42					
			43					
			44					
			45					

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 146.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/27/20		Date Finished 6/28/20	
Drilling Equipment Truck Rig				Completion Depth 20 ft		Rock Depth 20 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 8	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 10		Completion N/A	Core 24 HR. 10.5
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Mike Kennedy	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	146.5		0						
	146.0	6" Light brown fine-medium SAND, some silt, some roots (moist) [TOPSOIL]		S-1A			4		Started Drilling at 6/27/2020 S-1 at 0ft
	145.0	Light brown fine-medium SAND, some silt, trace roots (moist)	1	S-1B	SS	12	5	11	
		Light brown fine-coarse SAND, trace silt, trace fine gravel, trace roots (dry)	2	S-1C			6		S-2 at 2ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	3	S-2	SS	11	8	17	Auger to 4ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	4	S-3	SS	16	7	16	S-3 at 4ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)	6	S-4	SS	15	11	23	S-4 at 6ft
		Light brown fine-coarse SAND, trace silt, trace f-c gravel (moist)	8	S-5A	SS	17	13	49	Auger to 8ft
	137.4	Light brown silty fine-medium SAND, trace f-c gravel, trace weathered gravel fragments (moist) [TILL]	9	S-5B			36		S-5 at 8ft
		Light brown silty fine-medium SAND, trace f-c gravel, trace weathered gravel fragments (wet) [TILL]	10	S-6	SS	18	25	55	S-6 at 10ft
			11				27		
			12				28		
			13				26		
			14						Auger to 15ft, moderate drilling
		Light brown silty fine-medium SAND, trace clay, trace fine gravel (wet) [TILL]	15	S-7	SS	19	17	42	S-7 at 15ft
			16				23		
			17				19		Rig break, leave hole open overnight and continue drilling in the morning
			18				18		
			19						
	126.5		20						Auger to 20ft, Hard drilling at 18.5ft

Project		Project No.										
Hudson Logistics Center		151010101										
Location		Elevation and Datum										
59 Steele Road, Hudson NH		Elev. + 146.5 (NGVD29)										
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)			
				Number	Type	Recov. (in)	Penetr. resist BU/6in	N-Value (Blows/ft)				
	+126.5		20	S-8	SS	1	50/1	10	20	30	40	S-8 at 20ft, spoon bouncing Bottom of boring at 6/28/2020 Observation well installed. Refer to well construction log.
	+126.4	Gray to black fine-medium SAND, trace silt, trace fine gravel, trace plate rock fragments (wet) [ WEATHERED ROCK] Inferred Top of Bedrock	21									
		Bottom of Boring	22									
			23									
			24									
			25									
			26									
			27									
			28									
			29									
			30									
			31									
			32									
			33									
			34									
			35									
			36									
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			41									
			42									
			43									
			44									
			45									

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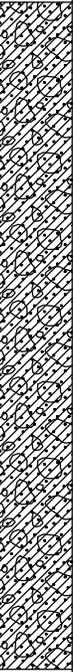
Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 150.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/30/20		Date Finished 6/30/20	
Drilling Equipment Mobile Drill B53				Completion Depth 11 ft		Rock Depth 11 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 6	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 8	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		24 HR. N/A	
Sampler 2-inch-diameter split spoon				Drilling Foreman Mike Kennedy			
Sampler Hammer Safety				Weight (lbs) 140		Drop (in) 30	
				Field Engineer Reid Balkind			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	150.5		0	S-1A		5			Started Drilling at 6/30/2020 S-1 at 0ft
	150.3	3" Dark brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]	1	S-1B	SS	15	8	16	
		Light brown fine SAND, trace silt, trace fine gravel (dry)	2			9	10		S-2 at 2ft
		Brown fine-medium SAND, trace silt, trace fine gravel (dry)	3	S-2	SS	14	9	19	
		Brown fine-coarse SAND, some fine gravel, trace silt (dry)	4			12	10		Auger to 4ft S-3 at 4ft
		Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	5	S-3	SS	16	20	38	
		Brown fine-coarse SAND, some silt, trace fine gravel (wet)	6			18	17		S-4 at 6ft
			7	S-4	SS	6	25	57	
			8			28	32		Auger to 8ft S-5 at 8ft
			9	S-5	SS	3	19	29	
			10			13	16		S-6 at 10ft
	140.5	Brown fine-medium SAND, some silt, trace f-c gravel, trace weathered rock fragments (wet) [TILL]	11	S-6	SS	18	32		
	139.3	Inferred Top of Bedrock				32	50/3	50/3	Auger and spoon refusal encountered at 11ft. Bottom of boring at 6/30/2020 Boring backfilled with auger cuttings.
		Bottom of Boring	12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 147.5 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/30/20		Date Finished 6/30/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 31 ft		Rock Depth 31 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 10	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 15	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Ben Cray	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

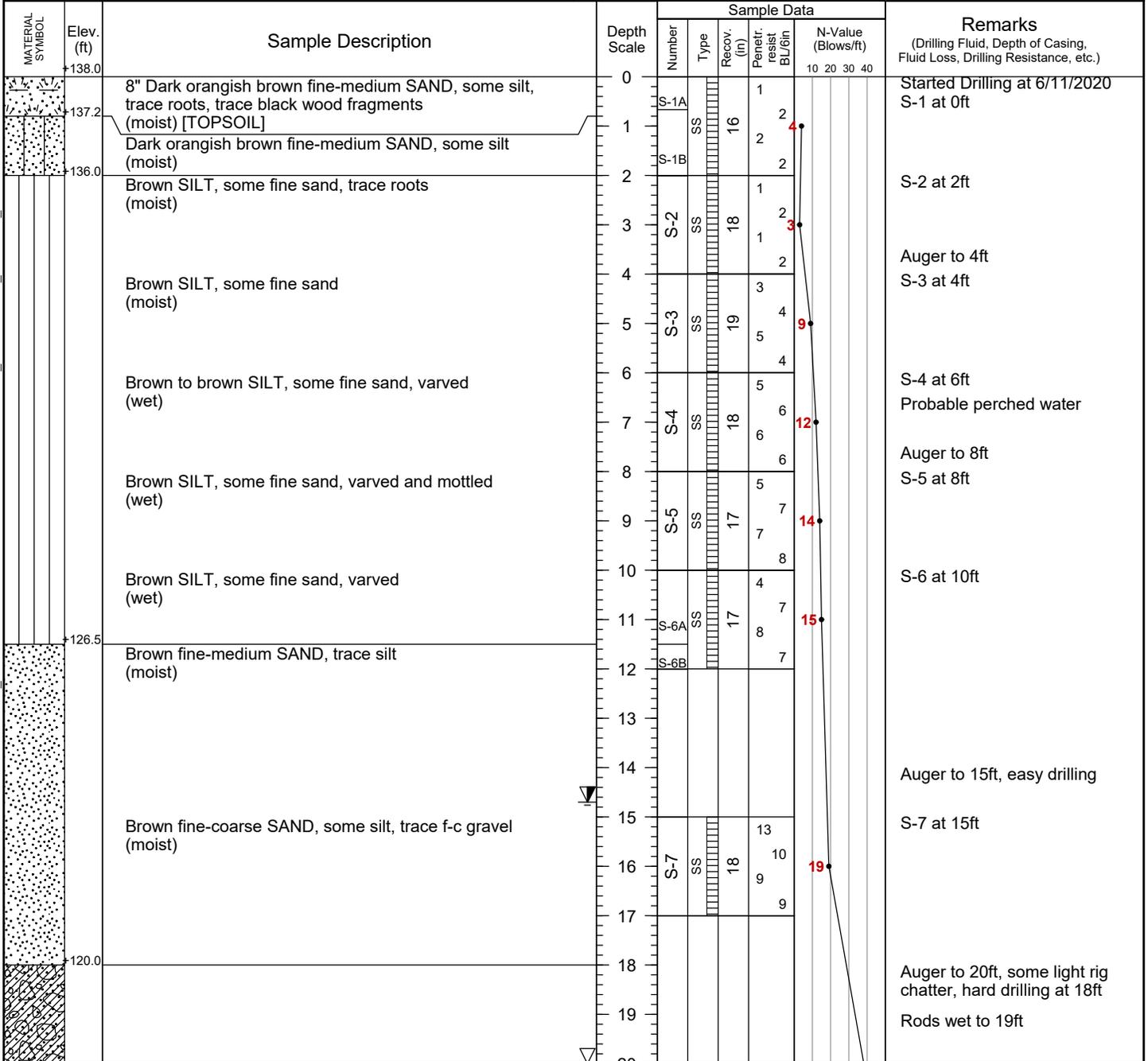
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)		
	147.5		0							
	147.2	4" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]		S-1A			1			Started Drilling at 6/30/2020 S-1 at 0ft
		Orangish brown fine SAND, some silt (dry)	1	S-1B	SS	16	5	10		
		Light brown fine SAND, some silt (dry)	2				3			S-2 at 2ft
			3	S-2	SS	17	2	6		
			4				4			Auger to 4ft, Easy Augering
	143.5	Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	4	S-3	SS	12	2	9		S-3 at 4ft
		Light brown fine-medium SAND, trace fine gravel, trace silt (dry)	6	S-4	SS	18	3	15		S-4 at 6ft
			7				7			
			8				8			Auger to 8ft, Easy Augering
		Light brown fine-coarse SAND, some fine gravel, trace silt (moist)	8	S-5A			5			S-5 at 8ft
	139.0	Light brown silty fine SAND (moist)	9	S-5B	SS	11	8	36		
			10				28			S-6 at 10ft
		Light brown silty fine-coarse SAND, some fine gravel (moist) [TILL]	10				13			
			11	S-6	SS	7	10	36		
			12				17			
			13				19			Auger to 15ft, Moderate Augering, Light Chattering
			14				14			
		Light brown silty fine-coarse SAND, some fine gravel (wet) [TILL]	15				16			S-7 at 15ft
			16	S-7	SS	16	18	36		
			17				18			
			18				20			Auger to 20ft, Moderate Augering, Medium Chattering
			19							
			20							

Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 147.5 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)	
	127.5	Light brown silty fine-medium SAND, trace fine gravel (wet) [TILL]	20	S-8	SS	10	21	10 20 30 40	S-8 at 20ft	
			21				100		Auger to 25ft, Moderate Augering, Medium Chattering	
			22							
			23							
			24							
			25				39		S-9 at 25ft	
			26		S-9	SS	15	37	103 •	Auger Refusal Roller bit drill to 30ft. Moderate Drilling, Medium Chattering
			27				66	56/6		
			28							
			29							
		30		S-10	SS	5	24	30/3	S-10 at 30.0ft	
	116.8	Light brown silty fine-medium SAND, trace fine gravel (wet) [TILL] Inferred Top of Bedrock	31					30/3 •	Bottom of boring at 6/30/2020 Boring backfilled with auger cuttings.	
		Bottom of Boring	32							
			33							
			34							
			35							
			36							
			37							
			38							
			39							
			40							
			41							
			42							
			43							
			44							
			45							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 138 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/11/20		Date Finished 6/11/20	
Drilling Equipment Diedrich D50				Completion Depth 22 ft		Rock Depth 22 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 9	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 20	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		24 HR. 14.7	
Sampler 2-inch-diameter split spoon				Drilling Foreman Jeff Nitsch			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30		Field Engineer Taylor Sisti	

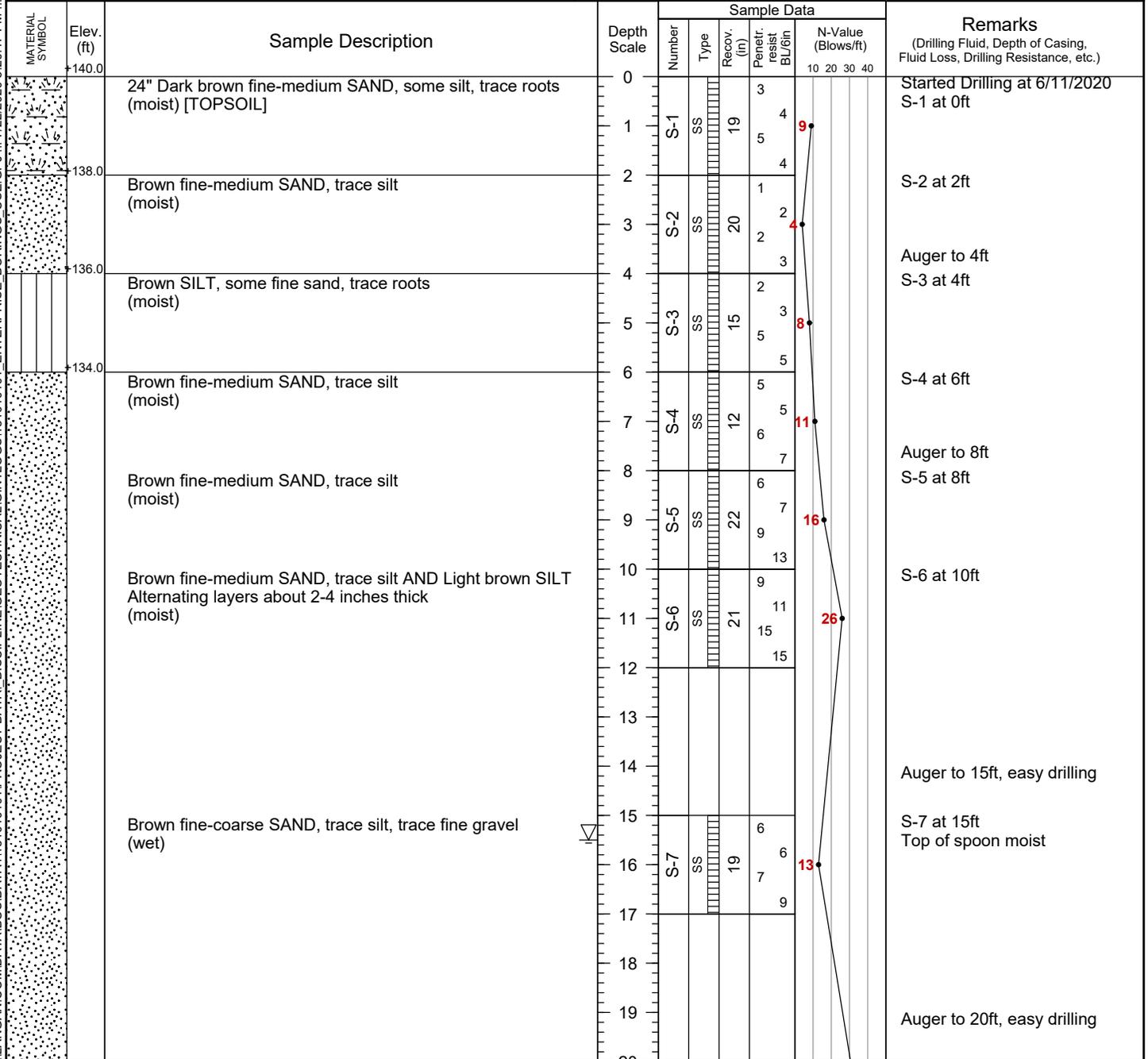


Project		Project No.						
Hudson Logistics Center		151010101						
Location		Elevation and Datum						
59 Steele Road, Hudson NH		Elev. + 138 (NGVD29)						
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in	
	118.0	Brown fine-coarse SAND, some silt, some f-c gravel (wet) [TILL]	20					
	115.9	No Recovery Inferred Top of Bedrock	21	S-8	SS	20	38	43
		Bottom of Boring	22	S-9	SS	0	50/1	50/1
			23					
			24					
			25					
			26					
			27					
			28					
			29					
			30					
			31					
			32					
			33					
			34					
			35					
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			43					
			44					
			45					

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 140 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/11/20		Date Finished 6/11/20	
Drilling Equipment Diedrich D50				Completion Depth 24 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 9	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 15.5	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitsch	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			



Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 140 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	120.0		20				17	10 20 30 40	S-8 at 20ft
	118.5	Brown to brown fine-medium SAND, some silt, trace fine gravel, trace weathered cobble fragments (wet)	21	S-8A	SS	16	19		
		Brown silty fine-medium SAND, trace f-c gravel (wet) [TILL]	22	S-8B			16		
		Brown silty fine-medium SAND, some f-c gravel (wet) [TILL]	23	S-9	SS	13	87		Auger to 22ft, auger refusal. S-9 at 22ft
	116.0	Bottom of Boring	24				36		Auger refusal at 22ft, grind on obstruction for 30 min
			25				19		Bottom of boring at 6/11/2020
			26						Boring backfilled with auger cuttings.
			27						
			28						
			29						
			30						
			31						
			32						
			33						
			34						
			35						
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			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 134.5 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/10/20		Date Finished 6/11/20	
Drilling Equipment CME75 Track Rig				Completion Depth 34 ft		Rock Depth 34 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 11	Undisturbed -
Casing Diameter (in) 4in		Casing Depth (ft) 29		Water Level (ft.) First 8		Completion 10.6	24 HR. N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Brad Perry			
Sampler 2-inch-diameter split spoon				Field Engineer Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	134.5		0						Started Drilling at 6/10/2020	
	134.0	6" Dark brown fine-medium SAND, some silt, trace fine gravel, some roots (dry) [TOPSOIL]	1	S-1A	SS	20	2	4		S-1 at 0ft
	132.5	Light brown fine-medium SAND, trace silt, trace fine gravel, some roots (dry) [FILL]	2	S-1B	SS		2			S-2 at 2ft
		Light brown fine-medium SAND, some silt (dry)	3	S-2	SS	18	3	9		Drive casing to 4.0ft
		Light brown fine-medium SAND, some silt (moist)	4	S-3	SS	12	6	24		S-3 at 4ft
		Light brown fine-coarse SAND, some silt (moist)	5	S-3	SS	12	12			S-4 at 6ft
		Light brown fine-coarse SAND, some silt (moist)	6	S-4	SS	21	12	29		Stirations of silt layers in spoon.
		Light brown fine-coarse SAND, trace silt, trace fine gravel (wet)	7	S-4	SS		13			Drive casing to 8.0ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (wet)	8	S-5	SS	9	6	12		S-5 at 8ft
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	9	S-5	SS		7			S-6 at 10ft
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	10	S-6	SS	13	5	24		Drive casing to 14.0ft
		Brown fine-coarse SAND, some silt, some fine gravel (wet)	11	S-6	SS		18			S-7 at 14ft
		Brown fine-coarse SAND, some silt, some fine gravel (wet)	12	S-7	SS	13	14	55		Drive casing to 19.0ft
		Brown fine-coarse SAND, some silt, some fine gravel (wet)	13	S-7	SS		12			S-8 at 19ft
		Brown fine-coarse SAND, some silt, some fine gravel (wet)	14	S-7	SS		11			
		Brown fine-coarse SAND, some silt, some fine gravel (wet)	15	S-8	SS	9	24	47		
		Brown fine-coarse SAND, some silt, some fine gravel (wet)	16	S-8	SS		21			
		Brown fine-coarse SAND, some silt, some fine gravel (wet)	17	S-8	SS		34			
		Brown fine-coarse SAND, some silt, some fine gravel (wet)	18	S-8	SS		27			
		Brown fine-coarse SAND, some silt, some fine gravel (wet)	19	S-8	SS	9	19			
		Brown fine-coarse SAND, some silt, some fine gravel (wet)	20	S-8	SS		24			

Project		Project No.						
Hudson Logistics Center		151010101						
Location		Elevation and Datum						
59 Steele Road, Hudson NH		Elev. + 134.5 (NGVD29)						
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in	
	114.5		20	S-8	SS	9	23	
			21				21	
	110.5	Grayish brown fine-medium SAND, some silt, some fine gravel (wet) [TILL]	24	S-9	SS	14	23	102
			25				45	
			26				57	
			26				50/3	
		Grayish brown fine-medium SAND, some silt, some fine gravel (wet) [TILL]	29	S-10	SS	19	35	91
			30				46	
			30				45	
			31				64	
		No Recovery Inferred Top of Bedrock	33					
	100.5	Bottom of Boring	34	S-11	SS	0	50/0	50/0
			35					
			36					
			37					
			38					
			39					
			40					
			41					
			42					
			43					
			44					
			45					

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 139.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/28/20		Date Finished 6/28/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 31 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 10	Undisturbed -
Casing Diameter (in) 4in		Casing Depth (ft) 4		Water Level (ft.) First 8		Completion N/A	24 HR. N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Scott McGregor			
Sampler 2-inch-diameter split spoon				Field Engineer Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft) 139.5	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft) 10 20 30 40
[Dotted Pattern]		Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	0				3		Started Drilling at 6/28/2020 S-1 at 0ft
		Light brown fine-medium SAND, some silt (dry)	1	S-1	SS	14	7	18	S-2 at 2ft
			2			11	9		
		Light brown fine-medium SAND, silt lenses (dry)	3	S-2	SS	14	8	23	Drive casing to 4.0ft Drill to 4.0ft, easy drilling S-3 at 4ft
			4			14	23		
		Light brown fine-medium SAND, trace silt (moist)	5	S-3	SS	13	14	30	S-4 at 6ft
			6			16	20		
		Light brown fine-medium SAND, some fine gravel, trace silt (wet)	7	S-4	SS	9	15	24	Drill to 8ft, easy drilling S-5 at 8ft
	8				12	15			
	Light brown fine-medium SAND, trace silt, trace fine gravel (wet)	9	S-5	SS	8	10	38	S-6 at 10ft	
		10			15	18			
	Brown fine-medium SAND, trace silt (wet)	11	S-6	SS	9	11	28	Drill to 14.0ft, easy drilling S-7 at 14ft	
		12			15	15			
	Brown fine-medium SAND, trace silt, trace fine gravel (wet)	13						Drill to 19.0ft, easy drilling S-8 at 19ft	
		14	S-7	SS	8	8	21		
			15						
			16						
			17						
			18						
			19	S-8	SS	4	10	14	
			20				8		

Project		Project No.									
Hudson Logistics Center		151010101									
Location		Elevation and Datum									
59 Steele Road, Hudson NH		Elev. + 139.5 (NGVD29)									
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)			
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)		
	119.5	Brown fine SAND, some silt, trace fine gravel (wet)	20	S-8	SS	4	6	14	Moderate rig chatter  Drill to 24.0ft, moderate to hard drilling S-9 at 24ft		
	21		16	S-9	SS	4	9	9		15	
	25		6				7				
	26		7	S-10	SS	2	16	9		18	
	29		9				7				
	30		9								
	31		7								
	108.5		Bottom of Boring	31							Bottom of boring at 6/28/2020 Boring backfilled with soil cuttings.
					32						
					33						
			34								
			35								
			36								
			37								
			38								
			39								
			40								
			41								
			42								
			43								
			44								
			45								

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 136.5 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/2/20		Date Finished 6/2/20	
Drilling Equipment Diedrich D50				Completion Depth 20 ft		Rock Depth 20.5 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 8	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 15		Completion N/A	24 HR. 15.4
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Doug Feely	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)		
	136.5		0							
	136.0	6" Brown fine-medium SAND, some f-c gravel, trace silt (dry) [FILL]	0	S-1A	SS	3	5	11		Started Drilling at 6/2/2020 S-1 at 0ft
		Brown fine SAND, trace silt (dry)	1	S-1B	SS	17	6	6		
		Brown fine SAND, trace silt (dry)	2				5			S-2 at 2ft
		Brown fine SAND, trace silt (dry)	3	S-2	SS	18	5	11		
		Brown fine SAND, trace silt (dry)	4				8			Auger to 4ft S-3 at 4ft
		Brown fine SAND, trace silt (dry)	5	S-3	SS	18	4	8		
		Brown fine SAND, trace silt, trace fine gravel (moist)	6				5			S-4 at 6ft
		Brown fine SAND, trace silt (moist)	7	S-4	SS	19	6	12		
		Brown fine SAND, trace silt (moist)	8				6			Auger to 8ft S-5 at 8ft
		Brown fine-medium SAND, trace silt (moist)	9	S-5	SS	18	3	8		
		Brown fine-medium SAND, trace silt (moist)	10				7			Auger to 10ft S-6 at 10ft
		Brown fine-medium SAND, trace silt (moist)	11	S-6	SS	16	3	7		
		Brown fine-medium SAND, trace silt (wet)	12				4			
		Brown fine-medium SAND, trace silt (wet)	13							
		Brown fine-medium SAND, trace silt (wet)	14							Auger to 15ft, easy drilling
		Brown fine-medium SAND, trace silt (wet)	15							
		Brown fine-medium SAND, trace silt (wet)	16	S-7	SS	19	2	5		S-7 at 15ft
		Brown fine-medium SAND, trace silt (wet)	17				3			
		Brown fine-medium SAND, trace silt (wet)	18				7			
	118.0	Brown fine-coarse SAND, some silt, trace fine gravel (wet) [TILL]	19							Auger to 20ft, moderate drilling at 18.5ft
	116.2	Inferred Top of Bedrock	20	S-8	SS	3	50/3	50/3		Auger to 20ft, moderate drilling at 18.5ft
		Bottom of Boring	21							Bottom of boring at 6/2/2020 Auger refusal at 20.5ft Observation well installed. Refer to well construction log.
			22							
			23							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 139.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 40.5 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples Disturbed 12		Undisturbed -	Core -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First $\nabla$ 17		Completion $\nabla$ N/A	24 HR. $\nabla$ N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	139.5		0						
	138.8	8" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]		S-1A	SS	3	5	12	Started Drilling at 6/26/2020 S-1 at 0ft
		Brown fine-medium SAND, some fine gravel, trace silt (dry)	1	S-1B	SS	19	7		
		Brown fine-medium SAND, trace silt, trace fine gravel (dry)	2			5	8		S-2 at 2ft
		Brown fine-medium SAND, trace silt, trace fine gravel (dry)	3	S-2	SS	9	10	22	Auger to 4ft, Easy Augering S-3 at 4ft
		Brown fine-medium SAND, trace silt, trace fine gravel (dry)	4			39	11		
		Brown fine-medium SAND, trace silt, trace fine gravel (dry)	5	S-3	SS	8	9	22	S-4 at 6ft
		Brown fine-medium SAND, trace silt, trace fine gravel (dry)	6			8	18		
		Brown fine-medium SAND, trace silt, trace fine gravel (dry)	7	S-4	SS	15	9	19	Auger to 8ft, Easy Augering S-5 at 8ft
		Brown fine-medium SAND, trace silt (dry)	8			3	9		
		Brown fine-medium SAND, trace silt (dry)	9	S-5	SS	19	5	11	S-6 at 10ft
		Brown fine-medium SAND, trace silt (dry)	10			6	6		
		Brown fine-medium SAND, trace silt (dry)	11	S-6	SS	15	9	17	Auger to 15ft, Easy Augering
		Brown fine-medium SAND, trace silt (dry)	12			10	11		
		Brown fine-medium SAND, trace silt (dry)	13						
		Brown fine-medium SAND, trace silt (dry)	14						
		Brown gravelly fine-coarse SAND, trace silt (moist)	15			15	7		S-7 at 15ft
		Brown gravelly fine-coarse SAND, trace silt (moist)	16	S-7	SS	6	19	31	
		Brown gravelly fine-coarse SAND, trace silt (moist)	17			12	12		Auger to 20ft, Easy Augering
		Brown gravelly fine-coarse SAND, trace silt (moist)	18						
		Brown gravelly fine-coarse SAND, trace silt (moist)	19						
		Brown gravelly fine-coarse SAND, trace silt (moist)	20						

Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 139.5 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)	
	+119.5	Brown fine-coarse SAND, some fine gravel, trace silt (wet)	20				2		S-8 at 20ft	
			21	S-8	SS	12	4	12		
			22				8			Auger to 25ft, Easy Augering
			23				9			
			24							
			25				1			S-9 at 25ft
			26	S-9	SS	24	5	16		
			27				11			Auger to 30ft, Easy Augering
			28				28			
			29							
			30				1			S-10 at 30ft
		+108.9	Brown fine-coarse SAND, trace silt (wet)	31	S-10A		9		24	
		Light brown fine SAND, some silt (wet)	32	S-10B		15			Auger to 35ft, Easy Augering	
			33			21				
		34								
		35				7			S-11 at 35ft	
		Light brown silty fine SAND (wet)	36	S-11A	SS	18				
	+103.3	Light brown silty CLAY, trace fine sand (wet)	37	S-11B		32		50		
			38			24			Auger to 40ft, Easy Augering	
		39								
		40								
	+99.5	Light brown fine-coarse SAND, some silt, some fine gravel (wet) [TILL]	41	S-12	SS	9	58		S-12 at 40ft	
	+98.8		42			50/3		50/3	Bottom of boring at 6/26/2020 Boring backfilled with auger cuttings.	
		Bottom of Boring	43							
			44							
			45							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 146 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/27/20		Date Finished 6/27/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 39.3 ft		Rock Depth 34.3 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed	
Casing Diameter (in) 4in				Casing Depth (ft) 4		Core 1	
Casing Hammer Automatic				Weight (lbs) 140		Drop (in) 30	
Sampler 2-inch-diameter split spoon				Drilling Foreman Scott McGregor			
Sampler Hammer Automatic				Weight (lbs) 140		Drop (in) 30	
				Field Engineer Reid Balkind			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Depth Scale	Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	146.0			0							
	145.6	5" Dark brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]		0	S-1A	SS	2	2			Started Drilling at 6/27/2020 S-1 at 0ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (dry)		1	S-1B	SS	3	3	7		
		Brown fine-medium SAND, trace silt (dry)		2			3				S-2 at 2ft
		Brown fine-medium SAND, trace silt (dry)		3	S-2	SS	4	8	12		
		Brown fine-medium SAND, trace silt (moist)		4			9	10			Drive casing to 4ft and washout with water S-3 at 4ft
		Brown fine-medium SAND, trace silt, trace fine gravel (moist)		5	S-3	SS	8	7	14		
		Brown fine-medium SAND, trace silt, trace fine gravel (moist)		6			10	10			Drill to 6ft and washout with water S-4 at 6ft
		Light brown fine-medium SAND, trace silt (moist)		7	S-4	SS	14	13	25		
		Light brown fine-medium SAND, trace silt (moist)		8			14	14			Drill to 8.0ft and washout with water S-5 at 8ft.
		Light brown fine-medium SAND, trace silt, trace f-c gravel (moist)		9	S-5	SS	12	11	25		
		Light brown fine-medium SAND, trace silt, trace f-c gravel (moist)		10			15	14			Drill to 10.0ft and washout with water S-6 at 10ft
		Brown fine-coarse SAND, trace silt, trace f-c gravel (wet)		11	S-6	SS	12	11	28		
				12			12	17			
				13			14	14			
				14			10	10			Drill to 14.0ft and washout with water S-7 at 14ft
				15	S-7	SS	10	9	20		
				16			10	11			
				17			15	15			
				18							
				19							
		Brown fine-coarse SAND, trace silt, trace coarse gravel (wet)		19	S-8	SS	8	6			Drill to 19.0ft and washout with water S-8 at 19ft
				20			8	6	16		

Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 146 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
					Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	126.0			20	S-8	SS	8	10	16	
				21				12		
	122.5	? ? ? ?		22						
		Light brown fine-medium SAND, some silt, trace f-c gravel, trace weathered rock fragments (wet) [TILL]		23						
				24				26		Drill to 24.0ft and washout with water
				25	S-9	SS	16	28	52	S-9 at 24ft
				26				24		
				27				34		
				28						
		Light brown fine-medium SAND, some silt, trace f-c gravel, trace weathered rock fragments (wet) [TILL]		29				16		Drill to 29.0ft and washout with water
				30	S-10	SS	5	23	40	S-10 at 29ft
				31				17		
				32				20		
				33						
	111.8	Orangish brown fine-medium SAND, some silt, trace weathered rock fragments (wet) [TILL]		34	S-11	SS	3	50/3	50/3	S-11 at 34ft
		Light gray SCHIST; fine to medium grained; very close to close fracture spacing; fractures moderately dipping to near horizontal; strong; rock quality good [BEDROCK]	4:34	35						Spoon and drill refusal at 34ft.
			3:14	36						C-1 at 34.25ft
			8:56	37	C-1	NQ				
			3:26	38						
	106.8	Bottom of Boring	3:45	39						
				40						Bottom of boring at 6/29/2020
				41						Boring backfilled with soil cuttings.
				42						
				43						
				44						
				45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 138 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/27/20		Date Finished 6/27/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 30 ft		Rock Depth 30 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples Disturbed 10		Undisturbed -	
Casing Diameter (in) 4in		Casing Depth (ft) 4		Water Level (ft.) First 19		Completion 15.6	
Casing Hammer Automatic		Weight (lbs) 140		Drop (in) 30		24 HR. N/A	
Sampler 2-inch-diameter split spoon				Drilling Foreman Scott McGregor			
Sampler Hammer Automatic				Weight (lbs) 140			
				Drop (in) 30			
				Field Engineer Reid Balkind			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	138.0		0						
	137.5	6" Dark brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]		S-1A			1		Started Drilling at 6/27/2020 S-1 at 0ft
		Brown fine-medium SAND, trace silt, trace fine gravel (dry)	1	S-1B	SS	20	4	8	
		Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	2				4		S-2 at 2ft
		Light brown fine-medium SAND, some silt, trace fine gravel (moist)	3	S-2	SS	24	5	12	
		Light brown fine-medium SAND, some silt, trace fine gravel (moist)	4				7		Drive casing to 4ft and washout with water S-3 at 4ft
		Brown fine-medium SAND, some silt (moist)	5	S-3	SS	12	10	16	
		Brown fine-medium SAND, some silt (moist)	6				11		Drill to 6.0ft and washout with water S-4 at 6ft
		Brown fine SAND, some silt (moist)	7	S-4	SS	14	11	23	
		Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	8				12		Drill to 8.0ft and washout with water S-5 at 8ft
		Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	9	S-5	SS	12	8	21	
		Brown fine-coarse SAND, some f-c gravel, trace silt (moist)	10				10		Drill to 10.0ft and washout with water S-6 at 10ft
		Brown fine-coarse SAND, some f-c gravel, trace silt (moist)	11	S-6	SS	14	11	29	
		Brown fine-coarse SAND, some f-c gravel, trace silt (moist)	12				18		
		Brown fine-coarse SAND, some f-c gravel, trace silt (moist)	13				19		
		Brown fine-coarse SAND, some f-c gravel, trace silt (moist)	14				13		Drill to 14.0ft and washout with water S-7 at 14ft
		Brown fine SAND, some silt, trace fine gravel (wet)	15	S-7	SS	4	12	28	
		Brown fine SAND, some silt, trace fine gravel (wet)	16				16		
		Brown fine SAND, some silt, trace fine gravel (wet)	17				14		
		Brown fine SAND, some silt, trace fine gravel (wet)	18						
		Brown fine SAND, some silt, trace fine gravel (wet)	19	S-8	SS	14	14		Drill to 19.0ft and washout with water S-8 at 19ft
		Brown fine SAND, some silt, trace fine gravel (wet)	20				14	24	

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 138 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	118.0		20	S-8	SS	14	10	24	
			21				12		
		No Recovery	22						
			23						
			24						S-9 at 24ft
			25	S-9	SS	0	10	22	
			26				12		
			27				10		
	111.0	? ? ? ?	28				10		
		Grayish brown fine-coarse SAND, some silt, trace weathered rock fragments (moist) [TILL]	29				14		
		Inferred Top of Bedrock	30	S-10	SS	9	35	50/3	Drill to 29.0ft and washout with water S-10 at 29ft
	107.8		31						Drill and spoon refusal encountered at 30ft. Bottom of boring at 6/27/2020 Boring backfilled with soil cuttings
		Bottom of Boring	32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 140 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/30/20		Date Finished 6/30/20	
Drilling Equipment Geoprobe 7822DT				Completion Depth 27.5 ft		Rock Depth 22.5 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 9	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 4		Water Level (ft.) First 8	Completion N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Scott McGregor			
Sampler 2-inch-diameter split spoon				Field Engineer Justin Hall			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
					Number	Type	Recov. (in)	Penetr. resist. BL/ft		N-Value (Blows/ft)	
	140.0			0						Started Drilling at 6/30/2020 S-1 at 0ft	
	139.6	5" Dark brown fine-coarse SAND, some silt, trace roots (moist) [TOPSOIL]		1	S-1A	SS	2	5	10		
		Light brown fine-medium SAND, trace silt, trace fine gravel (dry)		2	S-1B	SS	5	5			S-2 at 2ft
		Light brown fine-medium SAND, trace silt (dry)		3	S-2	SS	6	4	8		
		Light brown fine-medium SAND, trace silt (dry)		4			4	5			
		Light brown fine-medium SAND, trace silt (dry)		5	S-3	SS	8	8	20		Roller bit and drive casing to 4ft. Easy drilling S-3 at 4ft.
		Light brown fine-coarse SAND, trace silt, trace f-m gravel (moist)		6			12	15			S-4 at 6ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)		7	S-4	SS	12	10	23		
		Light brown fine-coarse SAND, trace silt, trace fine gravel (wet)		8			13	13			Roller bit to 8ft. Easy drilling S-5 at 8ft.
		Light brown fine-coarse SAND, trace silt, trace fine gravel (wet)		9	S-5	SS	10	10	23		
		Light brown fine-coarse SAND, trace silt, trace fine gravel (wet)		10			13	12			Roller bit to 10ft. Easy drilling with light rig chatter. S-6 at 10ft.
		Light brown fine-coarse SAND, trace silt, trace fine gravel (wet)		11	S-6	SS	7	8	18		
		Light brown fine-coarse SAND, trace silt, trace fine gravel (wet)		12			10	10			
		Light brown fine-coarse SAND, trace silt, trace fine gravel (wet)		13			8	8			
		Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]		14			7	7			Roller bit to 14ft. Easy to moderate drilling with light to medium rig chatter S-7 at 14ft.
		Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]		15	S-7	SS	13	22	45		
		Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]		16			13	23			
		Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]		17			7	50/5			
		Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]		18			7	18			Roller bit to 19ft. Moderate drilling with light to medium rig chatter.
		Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]		19	S-8	SS	7	18			
		Light grayish brown fine-coarse SAND, some silt, trace f-c gravel (wet) [TILL]		20			7	22	46		

Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 140 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
					Number	Type	Recov. (in)	Penetr. resist BU/6in		N-Value (Blows/ft)
	120.0	(wet) [TILL]		20	S-8	SS	7	26	48	S-8 at 19ft.
	117.5	No Recovery. Light gray SCHIST; fine to medium grained; fresh to slightly weathered; moderate fracture spacing; fractures moderately dipping; strong; rock quality excellent [BEDROCK]		21	S-8	SS	0	50/0	50/0	
			5:42	23	C-1 NQ CORE		REC=54"/60" =90%	RQD=53"/60" =88%		Roller bit to 22.5ft. Hard drilling with heavy rig chatter starting at 21ft. Likely within rock based on cuttings and chatter. C-1 at 22.5ft
			3:15	24						
			2:40	25						
			3:06	26						
			4:01	27						
	112.5	Bottom of Boring		28						Bottom of Boring at 6/30/2020 Boring backfilled with soil cuttings.
				29						
				30						
				31						
				32						
				33						
				34						
				35						
				36						
				37						
				38						
				39						
				40						
				41						
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				43						
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				45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 139 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/27/20		Date Finished 6/27/20	
Drilling Equipment Truck Rig				Completion Depth 37.5 ft		Rock Depth 32.5 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed	
Casing Diameter (in) 4in				Casing Depth (ft) 30		Core 1	
Casing Hammer Automatic		Weight (lbs) 140		Drop (in) 30		Water Level (ft.)	
Sampler 2-inch-diameter split spoon		Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30	
				Drilling Foreman Jeff Nitsch			
				Field Engineer Jack Berritt			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Sample Data						Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Depth Scale	Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)		
	139.0			0	S-1A	SS	3	3	7	10	Started Drilling at 6/27/2020 S-1 at 0ft
	138.7	4" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL] Brown fine SAND, some silt (dry) Brown fine SAND, some silt (dry)		1	S-1B	SS	4	4	7	10	
				2			2	4	7	10	S-2 at 2ft
				3	S-2	SS	3	4	7	10	Drive casing to 4.0ft. Drill to 4.0ft, Easy drilling
	135.0	Brown fine SAND, trace silt (dry)		4			4	4	7	10	S-3 at 4ft
				5	S-3	SS	5	8	13	10	
		Brown fine-medium SAND, trace silt (moist)		6			7	10	21	10	S-4 at 6ft
				7	S-4	SS	9	12	21	10	Drive casing to 8.0ft, Light rig chatter Drill to 8.0ft
		Brown fine-medium SAND, trace silt, trace fine gravel (moist)		8			8	13	21	10	S-5 at 8ft
				9	S-5	SS	9	12	21	10	
		Brown fine-medium SAND, trace silt, trace fine gravel (moist)		10			13	14	32	10	S-6 at 10ft
				11	S-6	SS	16	18	32	10	
				12			19			10	Drive casing to 14.0ft Drill to 14.0ft, Light rig chatter
				13						10	
	125.0	Grayish brown fine-medium SAND, some silt, trace weathered rock fragments (moist) [TILL]		14			12	10	22	10	S-7 at 14ft
				15	S-7	SS	14	12	22	10	
				16			13			10	Drive casing to 20.0ft Drill to 20.0ft, Light rig chatter
				17						10	
				18						10	
				19						10	
				20						10	

Project		Project No.										
Hudson Logistics Center		151010101										
Location		Elevation and Datum										
59 Steele Road, Hudson NH		Elev. + 139 (NGVD29)										
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)			
					Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)		
	119.0	Light brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]		20						S-8 at 20ft		
	21			S-8	SS	12	11	21				
	22					10		Drive casing to 25.0ft. Drill to 25.0ft, Light rig chatter				
	23					14						
	24											
		106.5	Grayish brown fine-medium SAND, some silt, trace fine gravel (moist)[TILL]		25						S-9 at 25ft	
					26	S-9	SS	11	13	42		
					27					22		
					28					20		
					29					30		
30												
31					S-10	SS	6	49	50/3	50/3		
	101.5	Gray SCHIST; fine to medium grained; fresh to slightly; close to moderate fracture spacing; fractures moderately dipping to near horizontal; strong; rock quality good [BEDROCK]		33	C-1	NQ CORE	REC=60"/60" =100%	ROD=46"/60" =77%		C-1 at 32.5ft		
				34							3:56	
				35							6:32	
				36							7:45	
				37							6:48	
				37							6:40	
	101.5	Bottom of Boring		38					Bottom of boring at 6/29/2020			
				39					Bottom of Boring			
				40								
				41								
				42								
				43								
				44								
				45								

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 158.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/11/20		Date Finished 6/11/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 43 ft		Rock Depth 38 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 11	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 35	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
					Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	158.5			0						Started Drilling at 6/11/2020	
	158.2	4" Light brown fine-coarse SAND, trace silt, trace roots (dry) [TOPSOIL]			S-1	SS	14	4	6	12	S-1 at 0ft
		Light brown fine-medium SAND, some silt (dry)		1				6			
		Light brown fine-coarse SAND, trace silt (dry)		2	S-2	SS	15	5	6		S-2 at 2ft
		Light brown fine-coarse SAND, trace silt (dry)		3				4		9	
		Light brown fine-coarse SAND, trace silt (dry)		4	S-3	SS	12	5	7		Auger to 4ft, Easy Augering.
		Light brown fine-coarse SAND, trace fine gravel, trace silt (dry)		5				3		11	S-3 at 4ft
		Light brown fine-coarse SAND, trace fine gravel, trace silt (dry)		6	S-4	SS	14	5	7		S-4 at 6ft
		Light brown fine-coarse SAND, trace fine gravel, trace silt (dry)		7				4		15	
		Light brown fine-coarse SAND, trace fine gravel, trace silt (dry)		8	S-5	SS	12	4	8		Auger to 8ft, Easy Augering.
		Light brown fine-coarse SAND, trace fine gravel, trace silt (moist)		9				5		9	S-5 at 8ft
				10	S-6	SS	19	4	5		S-6 at 10ft
				11				4		9	
				12				5		6	Auger to 15ft, Easy Augering
				13							
				14							
		Light brown fine SAND, some silt (moist)		15	S-7	SS	15	4	6		S-7 at 15ft
				16				7		13	
				17				7			Auger to 20ft, Easy Augering
				18							
				19							
				20							

Project		Project No.									
Hudson Logistics Center		151010101									
Location		Elevation and Datum									
59 Steele Road, Hudson NH		Elev. + 158.5 (NGVD29)									
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
					Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)	
	138.5	Light brown fine SAND, some silt (moist)		20						S-8 at 20ft	
				21	S-8	SS	21	7, 8, 9	17		
				22							Auger to 25ft, Easy Augering
				23							
				24							
			Light brown silty fine SAND (moist)		25						S-9 at 25ft
					26	S-9	SS	21	5, 6, 7, 8	14	
					27						Auger to 30ft, Easy Augering
					28						
					29						
			Light brown fine-medium SAND, some fine gravel, trace silt (moist)		30						S-10 at 30ft
				31	S-10	SS	18	11, 47, 41, 46	88		
				32						Auger to 35ft, Moderate Augering, Light Chattering	
				33							
				34							
		Light brown fine SAND, trace medium gravel, trace silt (wet)		35						S-11 at 35ft	
				36	S-11	SS	16	4, 7, 9, 55	16		
				37						Auger to 40ft, Hard Augering, Light Chattering	
				38						Auger Refusal at 38ft. C-1 at 38ft	
		Dark gray SCHIST; fine-medium grained; slightly weathered; moderate fracture spacing; fractures shallow dipping; rock quality fair [BEDROCK]		39							
			6:17	40	C-1	NQ CORE					
			3:59	41							
			3:46	42							
			3:29	43							
			2:15	44							
		Bottom of Boring		45						Bottom of boring at 6/11/2020 Boring backfilled with auger cuttings.	

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 134 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/28/20		Date Finished 6/28/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 29 ft		Rock Depth 29 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples 9		Disturbed 9	Undisturbed -
Casing Diameter (in) 4in		Casing Depth (ft) 4		Water Level (ft.) First $\nabla$ 24		Completion $\nabla$ N/A	24 HR. $\nabla$ N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Scott McGregor			
Sampler 2-inch-diameter split spoon				Field Engineer Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	134.0	12" Brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]	0				2		Started Drilling at 6/28/2020 S-1 at 0ft
	133.0	Light brown fine SAND, trace silt (dry)	1	S-1A	SS	16	2	5	
		Light brown fine-medium SAND, trace silt (dry)	2	S-1B	SS		2		S-2 at 2ft
		Light brown fine-medium SAND, trace silt (dry)	3	S-2	SS	14	3	11	
		Light brown fine-medium SAND, trace silt (dry)	4				4		Drive casing to 4.0ft Drill to 4.0ft, easy drilling S-3 at 4ft
		Light brown fine-medium SAND, trace silt (dry)	5	S-3	SS	10	6	12	
		Light brown fine-medium SAND, trace silt (dry)	6				6		S-4 at 6ft
		Light brown fine SAND, some silt (dry)	7	S-4	SS	13	5	11	
		Light brown fine SAND, some silt (dry)	8				6		Drill to 8.0ft, easy drilling S-5 at 8ft
		Light brown fine SAND, some silt (dry)	9	S-5	SS	10	5	12	
		Light brown fine SAND, some silt (dry)	10				7		
		Light brown fine SAND, some silt (dry)	11						
		Light brown fine SAND, some silt (dry)	12						
		Light brown fine SAND, some silt (dry)	13						
		Light brown fine SAND, some silt (dry)	14						Drill to 14.0ft, easy drilling S-6 at 14ft
		Light brown fine SAND, some silt (dry)	15	S-6	SS	9	4	14	
		Light brown fine SAND, some silt (dry)	16				6		
		Light brown fine SAND, some silt (dry)	17				8		
		Light brown fine SAND, some silt (dry)	18				8		
	115.0	Light brown SILT, some fine sand (moist)	19	S-7	SS	13	6		Drill to 19.0ft, easy drilling S-7 at 19ft
		Light brown SILT, some fine sand (moist)	20				5	10	

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 134 (NGVD29)

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MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		
	+114.0		20	S-7	SS	13	5	16	
	+113.0	? ? ? ?	21				5		
		Light brown fine-medium SAND, trace silt, trace fine gravel (wet)	24				6		Drill to 24.0ft, easy drilling S-8 at 24ft
			25	S-8	SS	7	13	49	
			26				36		
			27				15		
		No Recovery Inferred Top of Bedrock	28						
	+105.0		29	S-9	SS	0	50/1	50/1	S-9 at 29ft Split spoon and roller bit refusal. Bottom of boring at 6/28/2020 Boring backfilled with soil cuttings.
		Bottom of Boring	30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 134.5 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/11/20		Date Finished 6/11/20	
Drilling Equipment CME75 Track Rig				Completion Depth 16 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 14		Water Level (ft.) First 6	Completion 2.1
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Brad Perry			
Sampler 2-inch-diameter split spoon				Field Engineer Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	134.5		0	S-1A	SS	2	2	10	Started Drilling at 6/11/2020 S-1 at 0ft
	134.2	3" Dark brown fine-medium SAND, trace silt, trace fine gravel, some roots (dry) [TOPSOIL]	1	S-1B	SS	16	3	10	
		Light brown fine-medium SAND, trace silt (dry)	2	S-2	SS	14	2	10	S-2 at 2ft
		Light brown fine-medium SAND, silt lenses (moist)	3	S-3	SS	15	3	10	Drive casing to 4.0ft. S-3 at 4ft
		Light brown fine-medium SAND, silt lenses (wet)	4	S-4	SS	14	4	10	S-4 at 6ft
		Light brown fine-medium SAND, silt lenses (wet)	5	S-5	SS	14	6	10	S-5 at 8ft
	124.5	Brown SILT, trace fine sand (wet)	6	S-6A	SS	16	7	10	S-6 at 10ft
	123.5	Brown fine-medium SAND, silt lenses (wet)	7	S-6B	SS	14	10	10	
		Brown fine-medium SAND, silt lenses (wet)	8				14	10	
		Brown fine-medium SAND, silt lenses (wet)	9				18	10	
		Brown fine-medium SAND, silt lenses (wet)	10				18	10	
		Brown fine-medium SAND, silt lenses (wet)	11	S-7	SS	13	11	10	Drive casing to 14.0ft S-7 at 14ft
	118.5	Bottom of Boring	12				11	10	Bottom of boring at 6/11/2020 Boring backfilled with soil cuttings.

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 139 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/3/20		Date Finished 6/3/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 46 ft		Rock Depth 41 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 11	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 25	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
					Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	139.0	24" Light brown fine-medium SAND, trace gravel (moist) [TOPSOIL]		0						Started Drilling at 6/3/2020 S-1 at 0ft
	137.0	Light brown fine-medium SAND, trace silt (moist)		1	S-1	SS	15	11	23	
				2						S-2 at 2ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)		3	S-2	SS	16	10	21	
				4						Auger to 4ft. S-3 at 4ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)		5	S-3	SS	8	5	11	
				6						S-4 at 6ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)		7	S-4	SS	15	7	15	
				8						Auger to 8ft. S-5 at 8ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)		9	S-5	SS	13	14	31	
				10						S-6 at 10ft. Auger to 10ft
		Light brown gravelly fine-medium SAND, trace silt (moist)		11	S-6	SS	11	25	49	
				12						
				13						
				14						
		Light brown fine-medium SAND, some gravel, trace silt (moist)		15	S-7	SS	14	9	16	
				16						S-7 at 15ft
				17						Auger to 20ft
				18						
				19						
				20						

Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 139 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
					Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	+119.0	No Recovery		20				24		S-8 at 20ft
				21	S-8	SS	0	38	90	
				22				52		Auger to 25ft
				23				50		
				24						
		Brown sandy GRAVEL, trace silt (wet)	▽	25				12		S-9 at 25ft
				26	S-9	SS	5	15	29	
				27				14		Auger to 30ft
				28				16		
				29						
	+109.0	Brown fine-medium SAND, some gravel, trace silt (wet) [TILL]		30	S-10	SS	7	27		S-10 at 30ft
				31				100		Auger to 35ft
				32						
				33						
				34						
		No Recovery		35	S-11	SS	0	50/1	50/1	S-11 at 35ft Auger to 40ft
				36						
				37						
				38						
				39						
		No Recovery		40	S-12	SS	0	50/1	50/1	S-12 at 40ft
	+98.0			41						C-1 at 41ft
				42						
		Gray SCHIST; coarse grained; slightly weathered; wide fracture spacing; fractures moderately dipping; intact; rock quality fair; nx core [BEDROCK]		43	C-1	NQ CORE		REC=57"/60" =95%		
				44				RQD=30.5"/60" =51%		
				45						

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Project		Project No.											
Hudson Logistics Center		151010101											
Location		Elevation and Datum											
59 Steele Road, Hudson NH		Elev. + 139 (NGVD29)											
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)				
					Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)			
	+94.0								10	20	30	40	
	+93.0	Bottom of Boring	1:13	45	C-1								Bottom of boring at 6/3/2020 Boring backfilled with auger cuttings.
				46									
				47									
				48									
				49									
				50									
				51									
				52									
				53									
				54									
				55									
				56									
				57									
				58									
				59									
				60									
				61									
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				63									
				64									
				65									
				66									
				67									
				68									
				69									
				70									

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Project Hudson Logistics Center			Project No. 151010101		
Location 59 Steele Road, Hudson NH			Elevation and Datum Elev. + 139 (NGVD29)		
Drilling Company SoilTesting, Inc.			Date Started 6/9/20		Date Finished 6/9/20
Drilling Equipment Truck Mounted Diedrich D-50			Completion Depth 22 ft		Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger			Number of Samples	Disturbed	Undisturbed
Casing Diameter (in) N/A			Casing Depth (ft) N/A	Water Level (ft.) First	Core
Casing Hammer N/A		Weight (lbs) N/A	Drop (in) N/A	Completion	24 HR.
Casing Hammer Safety			Weight (lbs) 140	Drop (in) 30	N/A
Sampler 2-inch-diameter split spoon			Drilling Foreman Sam DeAngelis		
Sampler Hammer			Field Engineer Justin Hall		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	
[Cross-hatched pattern]	139.0	Dark brown gravelly fine-coarse SAND, trace silt (dry)[FILL]	0				6	Started Drilling at 6/9/2020 S-1 at 0ft
	135.0	Light brown to dark brown fine-coarse SAND, some f-c gravel (dry)[FILL]	1	S-1A	SS	17	14	
Light brown fine-coarse SAND, trace f-c gravel (dry)[FILL]		2	S-1B		16	19		
		3	S-2	SS	13	15		
		4			15	10		
Light brown medium-fine SAND (moist)		5	S-3	SS	14	11		
		6			9	10		
Light brown fine-coarse SAND, trace fine gravel (dry)		7	S-4	SS	16	6		
		8			11	11		
		9						
		10						
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							

Project		Project No.										
Hudson Logistics Center		151010101										
Location		Elevation and Datum										
59 Steele Road, Hudson NH		Elev. + 139 (NGVD29)										
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)			
				Number	Type	Recov. (in)	Penetr. resist BU/6in	N-Value (Blows/ft)				
	+119.0		20					10	20	30	40	
	+117.0	Bottom of Boring	21									
			22									Bottom of boring at 6/9/2020 Observation well installed. Refer to well construction log.
			23									
			24									
			25									
			26									
			27									
			28									
			29									
			30									
			31									
			32									
			33									
			34									
			35									
			36									
			37									
			38									
			39									
			40									
			41									
			42									
			43									
			44									
			45									

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 142 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/10/20		Date Finished 6/10/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 32 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Roller Bit				Number of Samples		Disturbed 10	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 30		Water Level (ft.) First 15	Completion N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Ben Cray			
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft) +142.0	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft) 10 20 30 40
[Dotted Pattern]		Light brown fine SAND, trace silt (dry)	0				4		Started Drilling at 6/10/2020 S-1 at 0ft
			1	S-1	SS	10	4	8	
		Light brown fine SAND, trace silt (dry)	2				4		S-2 at 2ft
			3	S-2	SS	8	4	10	Drill to 4.0ft. Drive casing to 4.0ft
		Brown fine-coarse SAND, trace fine gravel, trace silt (moist)	4				8	5	S-3 at 4ft
			5	S-3	SS	4	4	7	
		Brown fine-coarse SAND, trace fine gravel (moist)	6				2	3	S-4 at 6ft
		7	S-4	SS	6	1	3	Drive casing to 8.0ft Drill to 8.0ft	
	Brown fine-coarse SAND, trace fine gravel, trace silt (moist)	8				1	1	S-5 at 8ft	
		9	S-5	SS	2	2	3		
	No Recovery	10				1	1	S-6 at 10ft	
		11	S-6	SS	0	1	2		
		12				2	2	Drive casing to 15.0ft Drill to 15.0ft	
		13							
		14							
		15						S-7 at 15ft	
	Brown fine SAND, trace silt (wet)	16				11	11		
		17	S-7	SS	8	12	23	Drill to 20.0ft Drive casing to 20.0ft	
		18				12			
		19							
		20							

Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 142 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)	
	122.0	Brown fine SAND, trace silt (wet)	20						S-8 at 20ft	
				21	S-8	SS	7	9	16	
				22				8		
				23				8		Drive casing to 25.0ft Drill to 25.0ft
				24				7		
			Brown fine SAND, trace silt (wet)	25				13		S-9 at 25ft
				26	S-9	SS	12	8	15	
				27				7		Drive casing to 30.0ft Drill to 30.0ft, rig Chattering
				28				13		
				29						
	112.0	Brown fine-coarse SAND, trace silt, trace fine gravel (wet) [TILL]	30				18		S-10 at 30ft	
			31	S-10	SS	9	21	32		
				32				11		
	110.0	Bottom of Boring	32				12		Bottom of boring at 6/10/2020 Boring backfilled with soil cuttings.	
			33							
			34							
			35							
			36							
			37							
			38							
			39							
			40							
			41							
			42							
			43							
			44							
			45							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 131 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/27/20		Date Finished 6/27/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 24 ft		Rock Depth 24 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 9	Undisturbed -
Casing Diameter (in) 4in		Casing Depth (ft) 4		Water Level (ft.) First 8		Completion 12.1	24 HR. N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Scott McGregor			
Sampler 2-inch-diameter split spoon				Field Engineer Reid Balkind			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	131.0		0	S-1A		2			Started Drilling at 6/27/2020 S-1 at 0ft	
	130.7	3" Dark brown fine-medium SAND, trace silt, trace fine gravel (dry)[TOPSOIL]	1	S-1B	SS	16	4	10		
		Light brown fine SAND, some silt, trace fine gravel (dry)	2	S-2	SS	12	6			S-2 at 2ft
		Light brown fine SAND, some silt, trace fine gravel (dry)	3			12	30	9/2		
		Light brown fine SAND, some silt, trace fine gravel (moist)	4			7	7	28		Refusal encountered at 4.0ft. Offset boring 5ft east and restart drilling. S-3 at 4ft
		Light brown fine SAND, some silt, trace fine gravel (moist)	5	S-3	SS	8	21			
		Light brown fine SAND, some silt, trace fine gravel (moist)	6			10	23			Drill to 6.0ft and washout with water
		Light brown fine SAND, some silt (wet)	7	S-4	SS	10	13	23		S-4 at 6ft
			8			10	11			Drill to 8.0ft and washout with water
		Light brown fine SAND, some silt (wet)	9	S-5	SS	6	6	14		S-5 at 8ft
			10			6	8			
		Light brown SILT, some fine sand (wet)	11	S-6	SS	12	4	8		Drill to 10.0ft and washout with water
			12			4	4			S-6 at 10ft
			13			4	4			
		Light brown SILT, some fine sand (wet)	14			4	3	7		Drill to 14.0ft and washout with water
			15	S-7	SS	17	4			S-7 at 14ft
			16			4	6			
			17							
			18							
		Light brown SILT, some f-m sand, trace fine gravel (wet)	19	S-8	SS	10	23	11		Drill to 19.0ft and washout with water
			20			10	11	15		S-8 at 19ft

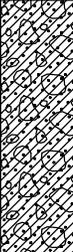
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Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 131 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	+111.0		20	S-8	SS	10	4	15	
			21				6		
			22						
		No Recovery Inferred Top of Bedrock	23						
	+107.0		24	S-9	SS	0	50/0	50/0	S-9 at 24ft. Drill and spoon refusal encountered at 24ft. Bottom of boring at 6/27/2020 Boring backfilled with soil cuttings.
		Bottom of Boring	25						
			26						
			27						
			28						
			29						
			30						
			31						
			32						
			33						
			34						
			35						
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			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 136.5 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/27/20		Date Finished 6/27/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 24 ft		Rock Depth 24 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 9	Undisturbed -
Casing Diameter (in) 4in		Casing Depth (ft) 4		Water Level (ft.) First 10		Completion 5.3	24 HR. N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Scott McGregor			
Sampler 2-inch-diameter split spoon				Field Engineer Reid Balkind			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	136.5		0	S-1A			7		Started Drilling at 6/27/2020 S-1 at 0ft
	136.3	2" Dark brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]	1	S-1B	SS	15	9	18	
		Light brown fine-medium SAND, some silt (dry)	2				10		S-2 at 2ft
		Brown fine SAND, some silt (dry)	3	S-2	SS	22	13	29	
			4				16		Drive casing to 4ft. Drill and washout with water
		Light brown fine-medium SAND, some silt, trace fine gravel (dry)	5	S-3	SS	14	13	26	S-3 at 4ft
			6				13		Open hole drilling below 4ft. Drill to 6ft and washout with water
		Light brown fine-medium SAND, some silt (moist)	7	S-4	SS	18	10	22	S-4 at 6ft
			8				12		Drill to 8ft and washout with water
		Brown fine-medium SAND, some silt, trace f-c gravel (moist)	9	S-5	SS	18	11	28	S-5 at 8ft
			10				17		Drill to 10ft and washout with water
		Brown fine-medium SAND, trace silt, trace f-c gravel (wet)	11	S-6	SS	16	14	28	S-6 at 10ft
			12				14		
			13				13		
			14				7		Drill to 14ft and washout with water
		Brown gravelly fine-coarse SAND, trace silt (wet)	15	S-7	SS	8	5	11	S-7 at 14ft
			16				6		
			17				9		
			18						
			19						
		Brown fine-medium SAND, some silt, trace fine gravel, trace weathered rock fragments (moist) [TILL]	20	S-8	SS	12	17	51	Drill to 19ft and washout with water
							22		S-8 at 19ft

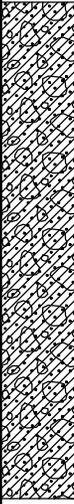
Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 136.5 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist BU/6in		N-Value (Blows/ft)
	116.5	No Recovery Inferred Top of Bedrock	20	S-8	SS	12	29	50/3	
	112.4		24	S-9	SS	0	50/1	50/1	
		Bottom of Boring	25						Drill and spoon refusal encountered at 24ft. S-9 at 24ft Bottom of boring at 6/27/2020 Boring backfilled with soil cuttings
			26						
			27						
			28						
			29						
			30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 135 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/28/20		Date Finished 6/28/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 28.3 ft		Rock Depth 28 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 10	Undisturbed -
Casing Diameter (in) 4in		Casing Depth (ft) 4		Water Level (ft.) First 14		Completion 11.4	24 HR. N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Scott McGregor			
Sampler 2-inch-diameter split spoon				Field Engineer Reid Balkind/Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

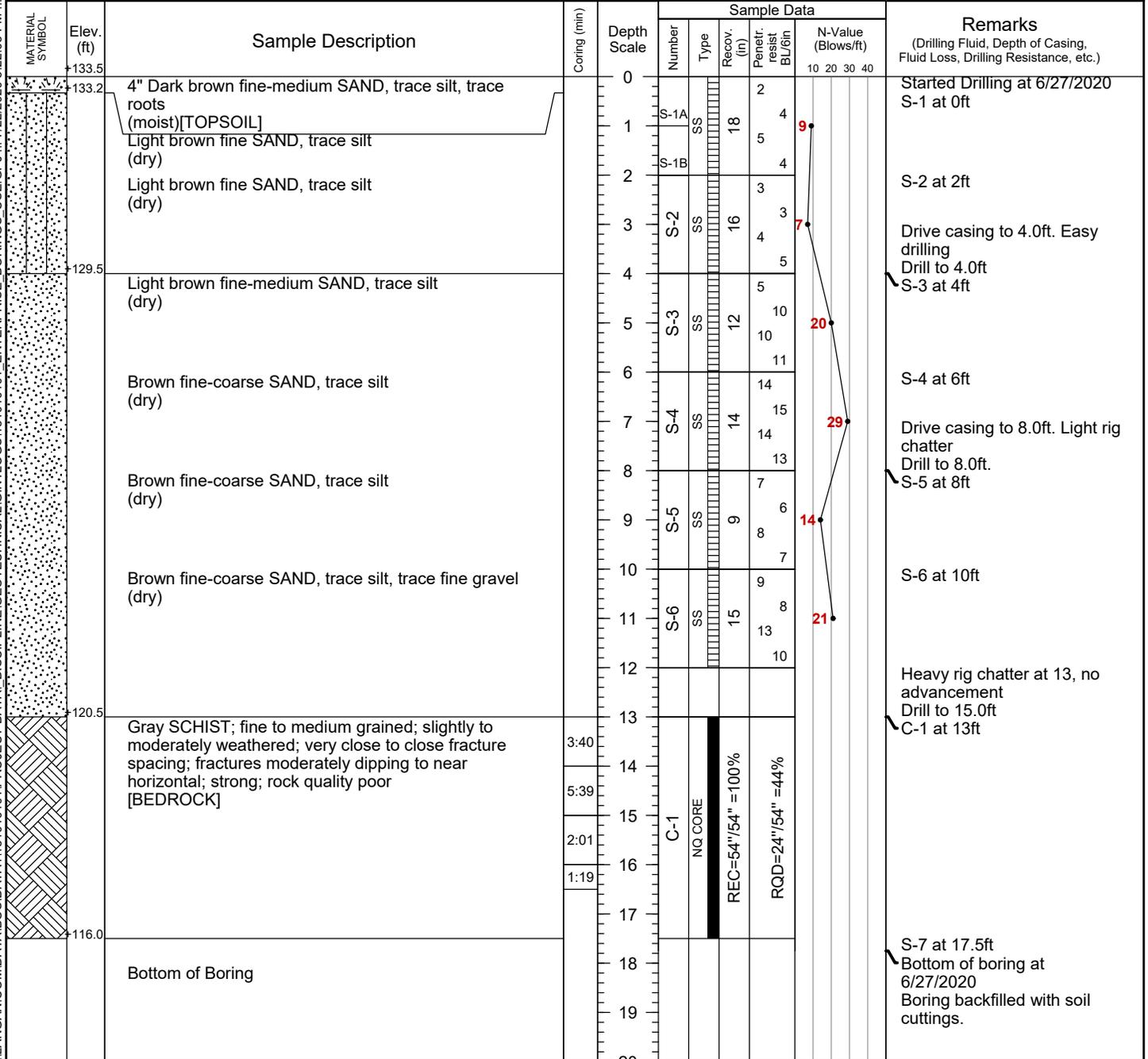
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	135.0		0							
	134.3	8" Dark brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0	S-1A	SS	3	3	15		S-1 at 0ft
		Light brown fine-medium SAND, some silt (dry)	1	S-1B	SS	20	6			
		Light brown fine-medium SAND, some silt (dry)	2			8	9			S-2 at 2ft
		Light brown fine SAND, some silt, trace fine gravel (dry)	3	S-2	SS	18	8	28		
			4			30	9			Drive casing to 4ft and washout with water
		Light brown fine-medium SAND, some silt, trace fine gravel (moist)	5	S-3	SS	16	16	35		S-3 at 4ft
			6			22	19			Drill to 6ft and washout with water
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)	7	S-4	SS	12	15	31		S-4 at 6ft
			8			17	16			
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)	9	S-5	SS	10	12	28		Drill to 8ft and washout with water
			10			13	15			S-5 at 8ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)	11	S-6	SS	8	8	23		Drill to 10ft and washout with water
			12			13	10			S-6 at 10ft
			13			13	13			
		Light brown fine-medium SAND, trace silt, trace fine gravel (wet)	14			4	4			Drill to 14.0ft, easy drilling.
			15	S-7	SS	4	5	12		S-7 at 14ft
			16			7	7			
			17			6	6			
			18							
		Light brown fine-medium SAND, some silt, some fine gravel, trace weathered rock fragments	19	S-8	SS	12	21			Switch to mud rotary
			20			61	61	165		Drill to 19.0ft, easy to moderate drilling

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 135 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	115.0	(wet) [TILL]	20	S-8	SS	12	44 50/3	105	S-8 at 19ft
			21						
			22						
			23						
		Light brown fine SAND, some silt, trace weathered rock fragments (wet) [TILL]	24	S-9	SS	8	11	16	Drill to 24.0ft, moderate to hard drilling S-9 at 24ft
			25				8		
			26				8 50/4		
		No Recovery Inferred Top of Bedrock	27						
	107.0	Bottom of Boring	28	S-10	SS	0	50/3	50/3	Drill to 28.0ft, moderate to hard drilling Roller bit refusal at 28ft S-10 at 28ft Bottom of boring at 6/28/2020 Boring backfilled with soil cuttings.
			29						
			30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 133.5 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/27/20		Date Finished 6/27/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 17.8 ft		Rock Depth 13 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 8		Water Level (ft.) First N/E	Completion N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Jeff Nitsch			
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				



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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 143 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/3/20		Date Finished 6/3/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 32 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 10	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 9		Water Level (ft.) First N/E	Completion N/A
Casing Hammer Automatic		Weight (lbs) 140		Drop (in) 140		Drilling Foreman Ben Cray	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. (in)	N-Value (Blows/ft)		
	143.0	Light brown fine-medium SAND, trace silt (dry)	0						Started Drilling at 6/3/2020 S-1 at 0ft	
		Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	1	S-1	SS	16	15	28		S-2 at 2ft
		Brown fine-coarse SAND, trace silt (moist)	2	S-2	SS	16	9	18		Spin casing to 4 ft. Drill to 4.0ft
		Light brown fine-medium SAND, trace silt (moist)	3	S-3	SS	7	3	5		S-3 at 4ft
		Brown fine-medium SAND, trace silt (moist)	4	S-4	SS	13	3	5		S-4 at 6ft
		Brown fine-medium SAND, trace silt (moist)	5	S-5	SS	8	5	11		Spin casing to 9 ft. Drill to 10.0ft
		Brown fine-medium SAND, trace silt, trace fine gravel (moist)	6	S-6	SS	14	9	20		S-6 at 10ft
			7							
			8							
			9							
			10							
			11							
			12							
			13							Mud rotary drilling to 15 ft
			14							
			15	S-7	SS	11	7	15		S-7 at 15ft
			16							
		17								
		18							Drill to 20.0ft, smooth drilling	
		19								
	123.0		20							

Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 143 (NGVD29)

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)	
[Symbol: Brown fine-medium SAND, some silt (moist)]	123.0	Brown fine-medium SAND, some silt (moist)	20	S-8	SS	18	10	23	S-8 at 20ft	
	21		10							
	22		13							
	23		S-9	SS	16	12	29	39		S-9 at 25ft
	24					15				
	25					14				
	26					15				
	27					15				
	28					15				
	29					15				
113.0	Brown fine-medium SAND, trace silt (moist)	30	S-10	SS	15	17	39	S-10 at 30ft		
31		19								
32		20								
111.0	Bottom of Boring	Bottom of Boring	32						Bottom of boring at 6/3/2020 Boring backfilled with soil cuttings.	
33										
34										
35										
36										
37										
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45										

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 130.5 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/2/20		Date Finished 6/3/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 34.5 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 11	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 25		Water Level (ft.) First N/E	Completion N/A
Casing Hammer Automatic		Weight (lbs) 140		Drop (in) 140		Drilling Foreman Ben Cray	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)		
	130.5	Light brown fine SAND, trace silt, trace fine gravel (dry) [FILL]	0						Started Drilling at 6/2/2020 S-1 at 0ft	
			1	S-1	SS	13	8	10	19	
		Light brown fine SAND, trace silt, trace fine gravel (dry) [FILL]	2				9			S-2 at 2ft
			3	S-2	SS	12	8	7	17	Spin casing to 4 ft. Drill to 4.0ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (dry) [FILL]	4				10	9		S-3 at 4ft
			5	S-3	SS	2	10	6	13	
			6				7	6		S-4 at 6ft
	124.5	Light brown fine-medium SAND, trace silt (dry)	7	S-4	SS	18	6	4	9	Spin casing to 8 ft. Drill to 8.0ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)	8				5	6		S-5 at 8ft
			9	S-5	SS	7	6	8	14	
		Light brown fine SAND, trace silt (moist)	10				6	6		S-6 at 10ft
			11	S-6	SS	11	6	9	15	
			12				6	7		
			13							Spin casing to 15 ft. Drill to 15.0ft
			14							
		Light brown fine-coarse SAND, trace silt (moist)	15					6		S-7 at 15ft
			16	S-7	SS	10	10	10	29	
			17				19	12		
			18							Spin casing to 20 ft. Drill to 20.0ft
			19							
			20							

Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 130.5 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)	
	+110.5	Light brown fine SAND, some silt, trace fine gravel (moist)	20	S-8	SS	8	8	10 20 30 40	S-8 at 20ft	
			21			8	10	25		
			22				15			
			23							Spin casing to 25 ft. Drill to 25.0ft. Heavy rig chatter and grinding at 24 ft
			24							
			25		S-9	SS	8	44		S-9 at 25ft
			26					29		
			27					100/5	100/5	
			28							Drill to 30.0ft. Heavy rig chatter, slow advancement of rollerbit
			29							
			30							
		No Recovery	30	S-10	SS	0	6		S-10 at 30ft	
			31				WOR			
			32				WOR			
			33				WOR			
	+98.0	Brown fine-medium SAND, some silt, trace fine gravel (moist)	33	S-11	SS	7	7		S-11 at 32.5ft	
			34				5			
			35				10			
	+96.0	Bottom of Boring	35				71		15	Bottom of boring at 6/3/2020 Boring backfilled with soil cuttings.
			36							
			37							
			38							
			39							
			40							
			41							
			42							
			43							
			44							
			45							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 125 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/2/20		Date Finished 6/2/20	
Drilling Equipment CME75 Track Rig				Completion Depth 26 ft		Rock Depth 26 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 9	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 19		Water Level (ft.) First 8	Completion 8
Casing Hammer Automatic		Weight (lbs) 140		Drop (in) 30		24 HR. N/A	
Casing Sampler 2-inch-diameter split spoon				Drilling Foreman Brad Perry			
Casing Sampler Hammer Automatic				Field Engineer Olivia Chasse			
Weight (lbs) 140		Drop (in) 30					

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
[Sand Symbol]	125.0	Light brown fine-medium SAND, some fine gravel, trace silt (dry)	0				4		Started Drilling at 6/2/2020
			1	S-1	SS	4	8	17	S-1 at 0ft
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	2				9		
			3	S-2	SS	12	13	26	S-2 at 2ft. Gravel in tip
		Brown gravelly fine-coarse SAND, trace silt (moist)	4				11		
			5	S-3	SS	8	7	21	Drive casing to 4.0ft. S-3 at 4ft
		Brown gravelly fine-coarse SAND, trace silt (moist)	6				14		
			7	S-4	SS	9	35	50/5	S-4 at 6ft
[Gravel Symbol]	118.1	Gray fine to coarse GRAVEL, some coarse sand (wet)	8	S-5	SS	2	50/5	50/5	Possible obstruction
			9						
[Sand Symbol]	115.0	Gray fine-coarse SAND, some fine gravel, trace silt (wet)	10				5		S-6 at 10ft
			11	S-6	SS	9	9	16	
			12				7		
[Sand Symbol]		Brown gravelly fine-coarse SAND, trace silt (wet)	14				24		Drive casing to 14.0ft, hard drilling
			15	S-7	SS	8	18	32	S-7 at 14ft
			16				14		
[Sand Symbol]		Brown fine-medium SAND, some fine gravel, some silt (wet)	19	S-8	SS	18	26		Drive casing to 19.0ft, hard drilling.
			20				37	81	S-8 at 19ft

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 125 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
[Dotted Pattern]	+105.0		20	S-8	SS	18	44	81	Switch to mud rotary technique
			21				48		
		No Recovery	22						
			23						
			24	S-9	SS	0	50/0	50/0	Drill to 24.0ft, moderate drilling. S-9 at 24ft
		Inferred Top of Bedrock	25						
	+99.0		26						Roller bit refusal at 26ft.
		Bottom of Boring	27						Bottom of boring at 6/2/2020
			28						Boring backfilled with soil cuttings.
			29						
			30						
			31						
			32						
			33						
			34						
			35						
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			39						
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			43						
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			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 124 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/2/20		Date Finished 6/2/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 39.5 ft		Rock Depth 39.5 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 11	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 23		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	124.0	24" Light brown fine-medium SAND, trace silt, trace coarse sand (moist) [TOPSOIL]	0				4		Started Drilling at 6/2/2020	
	122.0		1	S-1	SS	24	7	26	S-1 at 0ft	
			2				19		S-2 at 2ft	
			Light brown fine-medium SAND, trace silt, trace coarse sand (moist)	3	S-2	SS	18	20	48	
			Light brown fine-medium SAND, trace silt, trace fine gravel (moist)	4				29		Auger to 4ft
			Light brown fine-medium SAND, trace silt, trace fine gravel (moist)	5	S-3	SS	15	6	25	S-3 at 4ft
			Light brown fine-medium SAND, trace silt, trace fine gravel (moist)	6				10		S-4 at 6ft
			Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	7	S-4	SS	19	19	21	
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	8				10		Auger to 8ft	
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	9	S-5	SS	9	8	27	S-5 at 8ft	
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	10				9		S-6 at 10ft	
		Light brown fine-coarse SAND, some fine gravel, trace silt (moist)	11	S-6	SS	24	14	23		
			12				10		Auger to 15ft	
			13				13			
			14				10			
			15				36		S-7 at 15ft	
			16	S-7	SS	12	37	60		
			17				23		Auger to 20ft	
			18				16			
			19							
			20							



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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 135.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/2/20		Date Finished 6/2/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 41 ft		Rock Depth 41 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 12	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 35		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. (in)	N-Value (Blows/ft)	
[Cross-hatch pattern]	135.5	Brown fine-medium SAND, trace silt (dry) [FILL]	0						Started Drilling at 6/2/2020
			1	S-1	SS	15	6	12	S-1 at 0ft
[Dotted pattern]	131.5	Brown fine-medium SAND, trace silt (moist) [FILL]	2						S-2 at 2ft
			3	S-2	SS	13	4	6	
		Brown fine-medium SAND, trace silt (moist)	4						Auger to 4ft
			5	S-3	SS	12	2	4	S-3 at 4ft
		Brown fine-coarse SAND, trace silt, trace gravel (moist)	6						S-4 at 6ft
			7	S-4	SS	7	2	4	
		Brown fine-medium SAND, trace silt (moist)	8						Auger to 8ft
		9	S-5	SS	18	3	6	S-5 at 8ft	
		10						S-6 at 10ft	
		11	S-6	SS	9	4	9		
		12						Auger to 15ft	
		13							
		14							
		15						S-7 at 15ft	
		16	S-7	SS	16	4	20		
		17						Auger to 20ft	
		18							
		19							
		20							

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Log of Boring

**B-B-BOR-43**

Sheet

2

of

2

Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 135.5 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)	
	+115.5	Brown fine SAND (moist)	20				8		S-8 at 20ft	
				21	S-8	SS	22	9 10 10	19	
				22						Auger to 25ft
				23						
				24						
			Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	25				14		S-9 at 25ft
				26	S-9	SS	18	18 16 19	34	
				27						Auger to 30ft
				28						
				29						
			Brown fine-medium SAND, some silt (moist)	30				24		S-10 at 30ft
				31	S-10	SS	18	27 26 24	53	
			32						Auger to 35ft	
			33							
			34							
		Brown fine-medium SAND, some fine gravel, trace silt (wet)	35				9		S-11 at 35ft	
			36	S-11	SS	11	10 16 13	26		
			37						Auger to 40ft	
			38							
			39							
			40							
	+95.5	Brown fine-coarse SAND, some fine gravel, trace silt (wet) [TILL] Inferred Top of Bedrock	40	S-12	SS	10	65 50/3	50/3	S-12 at 40ft	
	+94.5		41						Bottom of boring at 6/2/2020 Boring backfilled with auger cuttings.	
		Bottom of Boring	42							
			43							
			44							
			45							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 134 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/10/20		Date Finished 6/10/20	
Drilling Equipment CME75 Track Rig				Completion Depth 35 ft		Rock Depth 35 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 11	Undisturbed -
Casing Diameter (in) 4in		Casing Depth (ft) 24		Water Level (ft.) First 8		Completion 15.5	24 HR. N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Brad Perry			
Sampler 2-inch-diameter split spoon				Field Engineer Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
[Symbol]	134.0	24" Brown fine-medium SAND, some silt, trace fine gravel, some roots (dry) [TOPSOIL]	0			2		S-1 at 0ft	
	132.0		1	S-1	SS	8	4	5	
[Symbol]	132.0	Brown fine-medium SAND, some silt, trace fine gravel, trace roots (dry) [FILL]	2	S-2	SS	6	4	7	S-2 at 2ft
			3			5	2		Possible obstruction tilting split spoon
			4			4			Drive casing to 4.0ft
			5	S-3	SS	0	3	5	S-3 at 4ft
[Symbol]	124.0	Brown fine-coarse SAND, trace fine gravel, trace wood (wet) [FILL]	6			2	5		No Recovery
			7	S-4	SS	0	1		S-4 at 6ft Gravel in tip of spoon
			8			2	1		Drive casing to 8.0ft S-5 at 8ft
[Symbol]	124.0	Brown fine-medium SAND, trace silt, trace fine gravel (wet)	9	S-5	SS	5	1	3	
			10			2	1		S-6 at 10ft
[Symbol]	124.0	Brown fine-coarse SAND, some fine gravel, trace silt (wet)	11	S-6	SS	8	2	4	
			12			2	4		
			14			7			Drive casing to 14.0ft S-7 at 14ft
[Symbol]	124.0	Brown silty fine SAND (wet)	15	S-7	SS	6	6	11	
			16			6	7		
[Symbol]	124.0	Brown silty fine SAND (wet)	19	S-8	SS	6	4		Drive casing to 19.0ft S-8 at 19ft
			20			6	2		

Project		Project No.						
Hudson Logistics Center		151010101						
Location		Elevation and Datum						
59 Steele Road, Hudson NH		Elev. + 134 (NGVD29)						
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in	
	114.0		20	S-8	SS	6	3	50/4
			21				4	
	110.0	Grayish brown fine-medium SAND, some silt, some gravel (wet) [TILL]	24	S-9	SS	8	20	S-9 at 24ft
			25				25 50/4	
		Grayish brown fine-medium SAND, some silt, some gravel, trace decomposed rock (wet) [TILL]	29	S-10	SS	17	12	S-10 at 29ft
			30				29 44 37	
	+98.8	Grayish brown fine-medium SAND, some silt, some gravel, trace decomposed rock (wet) [TILL] Inferred Top of Bedrock	34	S-11	SS	8	27	S-11 at 34ft
			35				50 50/3	
		Bottom of Boring	36				50/3	Started Drilling at 6/10/2020 Boring backfilled with soil cuttings
			37					
			38					
			39					
			40					
			41					
			42					
			43					
			44					
			45					

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 129 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 29 ft		Rock Depth 29 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples Disturbed 10		Undisturbed -	
Casing Diameter (in) 4in				Casing Depth (ft) 4		Core -	
Casing Hammer Automatic		Weight (lbs) 140		Drop (in) 30		Water Level (ft.) First $\nabla$ N/E Completion $\nabla$ N/A 24 HR. $\nabla$ N/A	
Sampler 2-inch-diameter split spoon				Drilling Foreman Scott McGregor			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30		Field Engineer Jack Berritt	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	129.0		0	S-1A			7		Started Drilling at 6/26/2020 S-1 at 0ft
	128.8	2" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]							
		Brown fine-medium SAND, some silt (dry)	1	S-1B	SS	16		9	25
		Brown fine-coarse SAND, trace silt, trace fine gravel (dry)	2					16	
			3	S-2	SS	20		21	43
			4					22	
		Brown fine-medium SAND, trace silt (dry)	5	S-3	SS	13		6	16
			6					5	
		Brown fine-medium SAND, trace silt (dry)	7	S-4	SS	8		2	5
			8					3	
		Brown fine SAND, some silt (dry)	9	S-5	SS	10		6	15
			10					9	
		Brown fine SAND, some silt (dry)	11	S-6	SS	10		8	18
			12					10	
			13					12	
		Brown fine SAND, some silt (moist)	14					4	
			15	S-7	SS	15		4	9
			16					5	
			17					5	
			18						
		Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	19	S-8	SS	16		33	
			20					37	71

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 129 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
[Dotted Pattern]	109.0		20	S-8	SS	16	34	71	Drill to 24.0ft. Medium rig chatter
			21				27		
		No Recovery	22						
			23						
			24	S-9	SS	0	50/2	50/2	S-9 at 24ft
			25						
			26						Drill to 29.0ft. Heavy rig chatter
			27						
		No Recovery Inferred Top of Bedrock	28						
	100.0		29	S-10	SS	0	50/0	50/0	S-10 at 29ft Bottom of boring at 6/26/2020 Boring backfilled with soil cuttings.
		Bottom of Boring	30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center			Project No. 151010101		
Location 59 Steele Road, Hudson NH			Elevation and Datum Elev. + 134.5 (NGVD29)		
Drilling Company Atlantic Testing Laboratories			Date Started 6/26/20		Date Finished 6/26/20
Drilling Equipment Geoprobe 7822 DT			Completion Depth 27 ft		Rock Depth 22 ft
Size and Type of Bit 3-7/8in Tricone Roller Bit			Number of Samples		Disturbed 8
Casing Diameter (in) 4in			Casing Depth (ft) 4		Undisturbed -
Casing Hammer Automatic			Weight (lbs) 140		Drop (in) 30
Sampler 2-inch-diameter split spoon			Water Level (ft.) First 10		Completion 8.3
Sampler Hammer Automatic			Weight (lbs) 140		Drop (in) 30
			Drilling Foreman Scott McGregor		
			Field Engineer Jack Berritt		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Depth Scale	Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	134.5			0						Started Drilling at 6/26/2020	
	134.3	2" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]		1	S-1A	SS	10	7	15		S-1 at 0ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (dry)		2	S-1B	SS		8			S-2 at 2ft
		Grayish brown fine-medium SAND, trace silt, trace fine gravel (dry)		3	S-2	SS	20	7	19		Drive casing to 4.0ft. Drill to 4.0ft, Light rig chatter
	130.5	Grayish brown fine SAND, some silt (dry)		4				12			S-3 at 4ft
		Grayish brown fine SAND, some silt (dry)		5	S-3	SS	14	15	32		S-3 at 4ft
		Grayish brown fine SAND, some silt (dry)		6				17			S-4 at 6ft
		Grayish brown fine SAND, some silt (dry)		7	S-4	SS	10	9	20		Drill to 8.0ft. Easy drilling
		Grayish brown fine SAND, some silt (dry)		8				10			S-5 at 8ft
		Grayish brown fine SAND, some silt, trace fine gravel (wet)		9	S-5	SS	13	13	26		S-5 at 8ft
				10	S-6	SS	5	8	50/3		S-6 at 10ft
				11				50/3			Drill to 14.0ft. Heavy rig chatter
	121.5	Grayish brown fine-coarse SAND, trace silt, trace fine gravel (moist)[TILL]		14	S-7	SS	9	29	50/4		S-7 at 14ft
				15				24			Drill to 19.0ft. Heavy rig chatter
		Grayish brown fine-coarse SAND, some silt, trace fine gravel		19	S-8	SS	5	50	50/3		S-8 at 19ft
				20				50/3			

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Project		Project No.								
Hudson Logistics Center		151010101								
Location		Elevation and Datum								
59 Steele Road, Hudson NH		Elev. + 134.5 (NGVD29)								
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Coring (min)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
					Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	114.5	(moist)[TILL]		20					10 20 30 40	
	112.5	Gray SCHIST; fine to medium grained; fresh to slightly weathered; close to moderate fracture spacing; fractures steeply dipping to near horizontal; strong; rock quality fair [BEDROCK]		21						C-1 at 22ft
			7:44	22						
			4:12	23						
			3:19	24						
			4:09	25						
			3:35	26						
	107.5	Bottom of Boring		27						Bottom of boring at 6/26/2020 Boring backfilled with soil cuttings.
				28						
				29						
				30						
				31						
				32						
				33						
				34						
				35						
				36						
				37						
				38						
				39						
				40						
				41						
				42						
				43						
				44						
				45						

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Project Hudson Logistics Center			Project No. 151010101		
Location 59 Steele Road, Hudson NH			Elevation and Datum Elev. + 142 (NGVD29)		
Drilling Company Seaboard Drilling, Inc			Date Started 6/26/20		Date Finished 6/26/20
Drilling Equipment Mobile Drill B53			Completion Depth 30 ft		Rock Depth 30 ft
Size and Type of Bit 4in Hollow Stem Auger			Number of Samples Disturbed 10		Undisturbed - Core -
Casing Diameter (in) N/A		Casing Depth (ft) N/A	Water Level (ft.) First 27.5		Completion N/A 24 HR. 19.7
Casing Hammer N/A	Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Jeff Nitsch		
Sampler 2-inch-diameter split spoon			Field Engineer Reid Balkind		
Casing Hammer Automatic	Weight (lbs) 140	Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. (in)	N-Value (Blows/ft)			
	142.0	Brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	0							Started Drilling at 6/26/2020 S-1 at 0ft	
			1	S-1	SS	16	5	10			
			2				5				S-2 at 2ft
			3	S-2	SS	17	5	10			
			4				7				S-3 at 4ft Auger to 4ft
			5	S-3	SS	14	5	11			
			6				7				S-4 at 6ft
			7	S-4	SS	13	6	14			
			8				7				Auger to 8ft S-5 at 8ft
			9	S-5	SS	16	7	18			
			10				12				S-6 at 10ft
			11	S-6	SS	11	12	25	42		
			12				25				
			15				12				Auger to 15ft, Moderate drilling
			16	S-7	SS	8	20	35			S-7 at 15ft
		17				15					
		18				10					
		19									
		20									

123.5



Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 142 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	122.0	Grayish brown fine-coarse SAND, some silt, some f-c gravel, trace weathered gravel (wet) [TILL]	20				7		Auger to 20ft, Moderate drilling S-8 at 20ft
			21	S-8	SS	15	15	34	
			22				19		
			23				20		
			24						
			25				9		
			26	S-9	SS	17	14	35	
			27				21		
			28				35		
			29						
	111.9	No Recovery Inferred Top of Bedrock	30	S-10	SS	0	50/1	50/1	S-10 at 30ft Bottom of boring at 6/26/2020 Auger to 31ft. Hard drilling and heavy chatter. Auger refusal at 31ft. Observation well installed. Refer to well construction log.
		Bottom of Boring	31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center			Project No. 151010101		
Location 59 Steele Road, Hudson NH			Elevation and Datum Elev. + 137.5 (NGVD29)		
Drilling Company Seaboard Drilling, Inc		Date Started 6/28/20		Date Finished 6/28/20	
Drilling Equipment Mobile Rig B-53			Completion Depth 32 ft		Rock Depth 32 ft
Size and Type of Bit 4in Hollow Stem Auger			Number of Samples	Disturbed 10	Undisturbed -
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.) First 17	Completion N/A	24 HR. N/A	Core -
Casing Hammer N/A	Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Jeff Nitch		
Sampler 2-inch-diameter split spoon			Field Engineer Kenneth Idem		
Sampler Hammer Automatic	Weight (lbs) 140	Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)	
	137.5	6" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1A	SS	3	3		Started Drilling at 6/28/2020 S-1 at 0ft
	137.0	Brown fine SAND, some silt (dry)	1	S-1B	SS	4	4	8	
		Brown fine SAND, some silt (dry)	2			4			S-2 at 2ft
		Brown fine SAND, some silt (dry)	3	S-2	SS	3	4	7	
			4			3			Auger to 4ft, Easy Augering S-3 at 4ft
	133.5	Brown fine-medium SAND, trace silt (dry)	5	S-3	SS	4	7	13	
		Brown fine-medium SAND, trace silt (dry)	6			6			S-4 at 6ft
		Brown fine-medium SAND, trace silt (dry)	7	S-4	SS	7	7	14	
		Brown fine-medium SAND, trace silt, trace fine gravel (dry)	8			7			Auger to 8ft, Easy Augering S-5 at 8ft
			9	S-5	SS	5	7	17	
		Brown fine-medium SAND, trace silt (dry)	10			10			S-6 at 10ft
			11	S-6	SS	8	10	22	
			12			12			Auger to 15ft, Easy Augering
			13			13			
			14						
		Brown fine-coarse SAND, trace silt (moist)	15			8			S-7 at 15ft
			16	S-7	SS	9	8	14	
			17			6			Auger to 20ft, Easy Augering
			18			5			
			19						
			20						

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 137.5 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	117.5	Brown fine-coarse SAND, trace silt, some fine gravel (wet)	20						S-8 at 20ft
			21	S-8	SS	10	10	30	
			22						Auger to 25ft, Moderate Augering, Light Chattering
			23						
	114.5	?	24						S-9 at 25ft
		Brown fine-coarse SAND, some silt, some fine gravel (wet) [TILL]	25						
			26	S-9	SS	11	17	28	
			27						Auger to 30ft, Moderate Augering, Light Chattering
			28						
			29						S-10 at 30ft
		Brown fine-medium SAND, some silt, trace fine gravel (wet) [TILL]	30						
			31	S-10	SS	12	17	61	
	105.8	Inferred Top of Bedrock	32						Bottom of boring at 6/29/2020 Boring backfilled with auger cuttings.
		Bottom of Boring	33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center	Project No. 151010101
Location 59 Steele Road, Hudson NH	Elevation and Datum Elev. + 151 (NGVD29)

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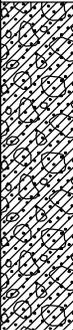
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		
	131.0		20	S-8	SS	14	12	21	
			21				14		
	129.0	?	22						
			23						
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	24	S-9	SS	9	19	40	Roller bit to 24ft. Easy drilling light rig chatter S-9 at 24ft.
			25				19		
			26				21		
			27				18		
		Light brown fine-coarse SAND, some f-c gravel, trace silt (wet)	29	S-10	SS	6	13		Roller bit to 29ft. Moderate to hard drilling, light to heavy chatter S-10 at 29ft
			30				12		
			31				18		
	120.0	Bottom of Boring	31				17		Bottom of boring at 6/30/2020 Boring backfilled with soil cuttings
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 142 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/30/20		Date Finished 6/30/20	
Drilling Equipment Truck Rig				Completion Depth 25.5 ft		Rock Depth 25.5 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 9	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Sam Deangelis	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	142.0		0						
	141.6	5" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]		S-1A	SS	4	4	8	Started Drilling at 6/30/2020 S-1 at 0ft
		Light brown fine-medium SAND, trace silt (dry)	1	S-1B	SS	18	4		
		Light brown fine-medium SAND, trace silt (dry)	2			2	5		S-2 at 2ft
		No Recovery	3	S-2	SS	13	5	10	Auger to 4ft. Easy drilling
			4			0	6		S-3 at 4ft
		Brown fine-coarse SAND, some fine gravel, trace silt (dry)	5	S-3	SS	0	7	18	
			6			16	12		S-4 at 6ft
		Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	7	S-4	SS	24	15	28	Auger to 8ft. Light rig chatter
			8			4	13		S-5 at 8ft
		Grayish brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]	9	S-5	SS	16	9	16	
			10			13	7		S-6 at 10ft
			11	S-6	SS	16	18	37	
			12			19	19		Auger to 15.0ft. Moderate rig chatter
			13			22	8		
		Grayish brown fine-coarse SAND, some silt, trace fine gravel (moist) [TILL]	14			10	10		S-7 at 15ft
			15	S-7	SS	18	11	25	
			16			18	14		Auger to 20ft. Moderate rig chatter
			17			18	18		
			18						
			19						
			20						

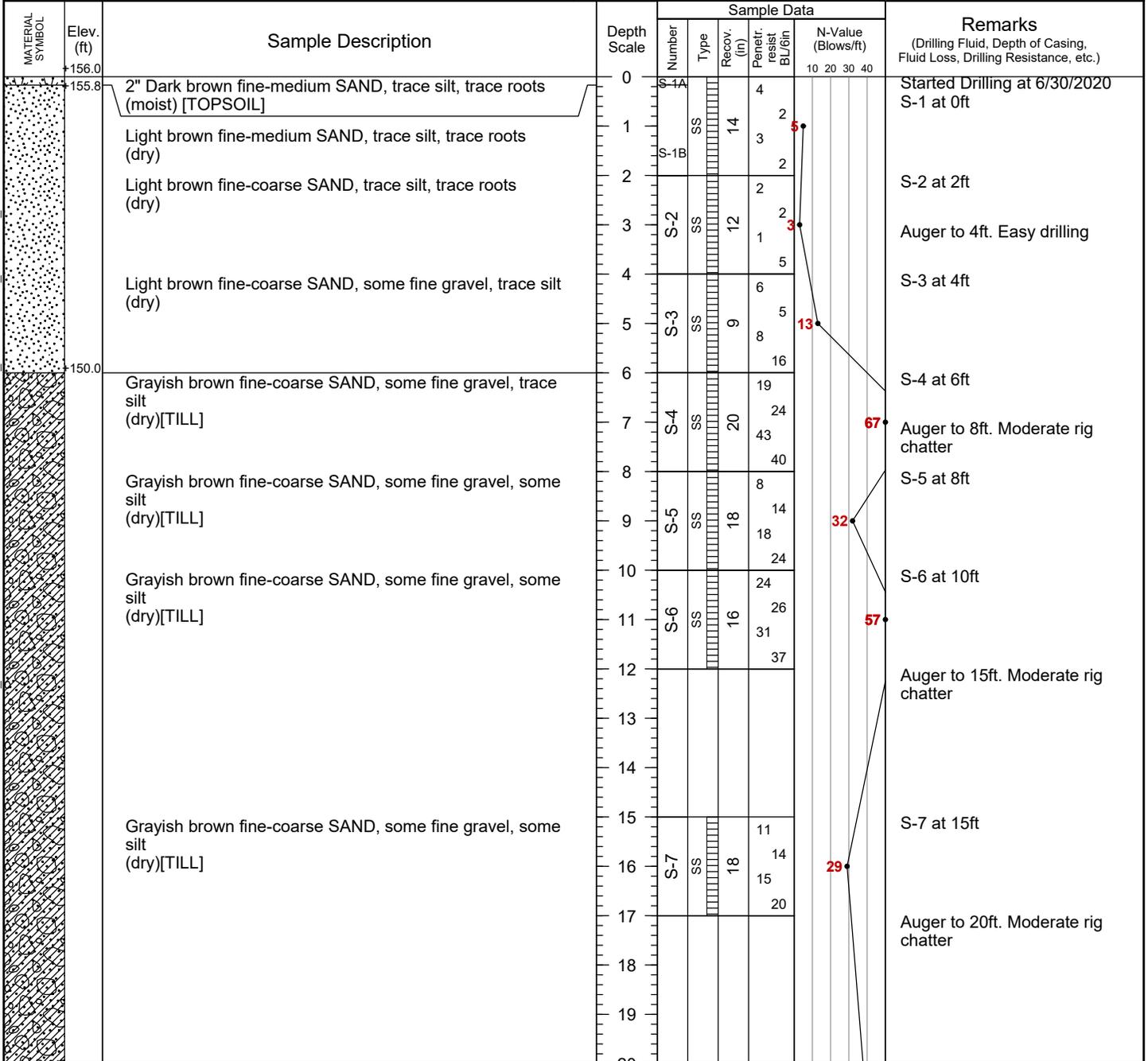
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Project		Project No.						
Hudson Logistics Center		151010101						
Location		Elevation and Datum						
59 Steele Road, Hudson NH		Elev. + 142 (NGVD29)						
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in	
	122.0	Grayish brown fine-coarse SAND, some silt, trace fine gravel (moist)[TILL]	20					S-8 at 20ft
			21	S-8	SS	20	24 22 32 39	
	116.7	Grayish brown fine-coarse SAND, some silt, trace fine gravel (moist)[TILL] Inferred Top of Bedrock	25	S-9	SS	3	100/4	100/4
		Bottom of Boring	26					Auger to 25ft. Moderate rig chatter  S-9 at 25ft Split spoon and auger refusal Bottom of boring at 6/30/2020 Boring backfilled with auger cuttings
			27					
			28					
			29					
			30					
			31					
			32					
			33					
			34					
			35					
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			40					
			41					
			42					
			43					
			44					
			45					

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 156 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/30/20		Date Finished 6/30/20	
Drilling Equipment Truck Rig				Completion Depth 26 ft		Rock Depth 26 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 9		Disturbed 9	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First $\nabla$ N/E		Completion $\nabla$ N/A	24 HR. $\nabla$ N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Sam Deangelis	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			



Project		Project No.						
Hudson Logistics Center		151010101						
Location		Elevation and Datum						
59 Steele Road, Hudson NH		Elev. + 156 (NGVD29)						
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in	
	136.0	Grayish brown fine-coarse SAND, some silt, trace fine gravel (moist)[TILL]	20	S-8	SS	23	15	S-8 at 20ft
			21				19	
			22				21	
			23				20	
			24					
		Grayish brown fine-coarse SAND, some silt, some fine gravel (moist)[TILL]	25	S-9	SS	10	24	S-9 at 25ft
	130.3	Inferred Top of Bedrock	26				100/4	
		Bottom of Boring	27					Bottom of boring at 6/30/2020 Boring backfilled with auger cuttings
			28					
			29					
			30					
			31					
			32					
			33					
			34					
			35					
			36					
			37					
			38					
			39					
			40					
			41					
			42					
			43					
			44					
			45					

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Project Hudson Logistics Center			Project No. 151010101		
Location 59 Steele Road, Hudson NH			Elevation and Datum Elev. + 137 (NGVD29)		
Drilling Company Atlantic Testing Laboratories			Date Started 6/30/20		Date Finished 6/30/20
Drilling Equipment Geoprobe 7822 DT			Completion Depth 22 ft		Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger			Number of Samples	Disturbed	Undisturbed
Casing Diameter (in) N/A			Casing Depth (ft) N/A	Water Level (ft.) First	Completion
Casing Hammer N/A		Weight (lbs) N/A	Drop (in) N/A	14	N/A
Sampler 2-inch-diameter split spoon			Drilling Foreman Ben Cray		
Sampler Hammer Automatic			Weight (lbs) 140	Drop (in) 30	Field Engineer Kenneth Idem

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	137.0		0							
	136.3	8" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0	S-1A	SS	14	2	9		Started Drilling at 6/30/2020 S-1 at 0ft
		Light brown fine SAND, some silt (dry)	1	S-1B	SS	14	4			S-2 at 2ft
		Light brown fine SAND, some silt (dry)	2				3			S-2 at 2ft
		Light brown fine SAND, some silt (dry)	3	S-2	SS	17	2	7		Auger to 4ft, Easy Augering S-3 at 4ft
		Light brown fine SAND, some silt (dry)	4				5			S-3 at 4ft
		Light brown fine-medium SAND, some silt (moist)	5	S-3	SS	16	2	5		S-4 at 6ft
		Light brown fine-medium SAND, some silt (moist)	6				4			S-4 at 6ft
		Light brown silty fine-medium SAND (moist)	7	S-4	SS	16	4	10		Auger to 8ft, Easy Augering S-5 at 8ft
		Light brown silty fine-medium SAND (moist)	8				6			S-5 at 8ft
	128.3	Light brown fine SAND, trace silt (moist)	9	S-5A	SS	21	6	18		S-6 at 10ft
		Light brown fine-medium SAND, trace silt (moist)	10	S-5B	SS	21	12			S-6 at 10ft
		Light brown fine-medium SAND, trace silt (moist)	11	S-6	SS	20	9	16		Auger to 15ft, Easy Augering
		Light brown fine-medium SAND, trace silt (moist)	12				8			Auger to 15ft, Easy Augering
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	15	S-7	SS	21	5	17		S-7 at 15ft
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	16				8			Auger to 20ft, Easy Augering
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	17				9			Auger to 20ft, Easy Augering
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	18				6			Auger to 20ft, Easy Augering
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	19							Auger to 20ft, Easy Augering
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	20							Auger to 20ft, Easy Augering

Project		Project No.						
Hudson Logistics Center		151010101						
Location		Elevation and Datum						
59 Steele Road, Hudson NH		Elev. + 137 (NGVD29)						
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in	
	+117.0	Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	20			15		S-8 at 20ft
			21	S-8	SS	24	16 16	
	+115.0	Bottom of Boring	22					Bottom of boring at 6/30/2020 Boring backfilled with auger cuttings.
			23					
			24					
			25					
			26					
			27					
			28					
			29					
			30					
			31					
			32					
			33					
			34					
			35					
			36					
			37					
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			39					
			40					
			41					
			42					
			43					
			44					
			45					

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 154.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Truck Rig				Completion Depth 29 ft		Rock Depth 29 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 10	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 15		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Mike Kennedy	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	154.5		0							
	154.0	7" Dark brown fine-medium SAND, some silt, some roots (dry) [TOPSOIL]		S-1A			8			Started Drilling at 6/26/2020 S-1 at 0ft
		Dark brown fine-coarse SAND, some silt, trace f-c gravel, trace roots (dry)	1	S-1B	SS	20	12	20		
	152.5	Dark brown fine-coarse SAND, some f-c gravel, trace silt (dry)	2				23			S-2 at 2ft
		Dark brown fine-coarse SAND, some f-c gravel, trace silt (dry)	3	S-2	SS	14	14	22		Auger to 4ft S-3 at 4ft
		Dark brown fine-coarse SAND, some f-c gravel, trace silt (dry)	4				12			
		Dark brown fine-coarse SAND, some f-c gravel, trace silt (dry)	5	S-3	SS	13	18	42		
		Dark brown fine-coarse SAND, some f-c gravel, trace silt (dry)	6				24			S-4 at 6ft
	148.5	Dark gray silty fine-medium SAND, trace f-c gravel (moist) [TILL]	7	S-4	SS	14	31	73		Auger to 8ft S-5 at 8ft
		Dark gray fine-medium SAND, some silt, trace f-c gravel, Trace weathered gravel fragments (moist) [TILL]	8				34			
		Dark gray fine-medium SAND, some silt, trace f-c gravel, Trace weathered gravel fragments (moist) [TILL]	9	S-5	SS	20	26	87		
		Dark gray fine-medium SAND, some silt, trace fine gravel (moist)[TILL]	10	S-6	SS	3	42	50/3		S-6 at 10ft, spoon bouncing
		Dark gray fine-medium SAND, some silt, trace fine gravel (moist)[TILL]	11				45			
		Dark gray fine-medium SAND, some silt, trace fine gravel (moist)[TILL]	12				52			
		Dark gray fine-medium SAND, some silt, trace fine gravel (moist)[TILL]	13							Auger to 15ft, hard drilling
		Dark gray fine-medium SAND, some silt, trace fine gravel (moist)[TILL]	14							
		Dark brown silty fine-medium SAND, trace fine gravel, trace weathered gravel fragments (wet) [TILL]	15							S-7 at 15ft
		Dark brown silty fine-medium SAND, trace fine gravel, trace weathered gravel fragments (wet) [TILL]	16	S-7	SS	17	16	32		
		Dark brown silty fine-medium SAND, trace fine gravel, trace weathered gravel fragments (wet) [TILL]	17				14			
		Dark brown silty fine-medium SAND, trace fine gravel, trace weathered gravel fragments (wet) [TILL]	18				18			Auger to 20ft, hard drilling
		Dark brown silty fine-medium SAND, trace fine gravel, trace weathered gravel fragments (wet) [TILL]	19				27			
		Dark brown silty fine-medium SAND, trace fine gravel, trace weathered gravel fragments (wet) [TILL]	20							

Project		Project No.						
Hudson Logistics Center		151010101						
Location		Elevation and Datum						
59 Steele Road, Hudson NH		Elev. + 154.5 (NGVD29)						
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in	
	134.5	Dark gray silty fine-medium SAND, trace clay, trace fine gravel, trace weathered gravel fragments (wet) [TILL]	20				31	
			21	S-8	SS	20	33	81
			22				48	
			23				43	
			24					
			25				53	
			26	S-9	SS	24	76	143
			27				67	
			28	S-10	SS	20	64	127
			29				40	
	125.8	Bottom of Boring	30			62		Bottom of boring at 6/26/2020
			31			65		Boring backfilled with auger cuttings
			32			50/3		
			33					
			34					
			35					
			36					
			37					
			38					
			39					
			40					
			41					
			42					
			43					
			44					
			45					

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 137 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/11/20		Date Finished 6/11/20	
Drilling Equipment Truck Mounted Diedrich D-50				Completion Depth 22 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 8		Disturbed 8	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 11.5		Completion N/A	Core 24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Sam DeAngelis	
Sampler 2-inch-diameter split spoon				Field Engineer Justin Hall			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	137.0		0	S-1A	SS	4	4	15	Started Drilling at 6/11/2020 S-1 at 0ft
	136.7	4" Dark brown fine-coarse SAND, some silt (moist) [TOPSOIL]	1	S-1B	SS	17	5	10	
		Light brown fine-coarse SAND, trace f-c gravel, trace roots, trace silt (dry)	2			12	12		S-2 at 2ft
		Light brown fine-coarse SAND, trace f-c gravel, trace silt (dry)	3	S-2	SS	16	13	15	Light Rig Chatter 2'-5'
		Light brown fine-coarse SAND, some f-m gravel, trace silt (dry)	4			14	10		Auger to 4ft S-3 at 4ft
		Light brown fine-coarse SAND, some f-c gravel, trace silt (dry)	5	S-3	SS	16	19	20	
		Light brown fine-coarse SAND, some f-c gravel, trace silt (dry)	6			22	28		S-4 at 6ft
		Light brown fine-coarse SAND, some f-c gravel, trace silt (dry)	7	S-4	SS	18	61	44	Light to Medium Rig Chatter 7'-8'
		Light brown fine-coarse SAND, some f-c gravel, trace silt (dry)	8			46	41		Auger to 8ft S-5 at 8ft
		Light brown fine-coarse SAND, some f-c gravel, trace silt (moist)	9	S-5	SS	14	51	47	
			10			82	43		S-6 at 10ft
			11	S-6	SS	20	37	41	
			12			39			
			13						
			14						
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	15			14	14		Auger to 15ft S-7 at 15ft
			16	S-7	SS	15	18	25	
			17			27			
			18						
			19						
			20						

Project		Project No.						
Hudson Logistics Center		151010101						
Location		Elevation and Datum						
59 Steele Road, Hudson NH		Elev. + 137 (NGVD29)						
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in	
	117.0	Light brown fine-coarse SAND, trace fine gravel, trace silt (wet)	20			43		Auger to 20ft S-8 at 20ft
	115.0		21	S-8	SS	15	42 60 58	
		Bottom of Boring	22					Bottom of boring at 6/11/2020 Boring backfilled with auger cuttings.
			23					
			24					
			25					
			26					
			27					
			28					
			29					
			30					
			31					
			32					
			33					
			34					
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			42					
			43					
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			45					

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 128.5 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 29 ft		Rock Depth 29 ft	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples 10		Disturbed -	
Casing Diameter (in) 4in				Casing Depth (ft) 4		Core -	
Casing Hammer Automatic		Weight (lbs) 140		Drop (in) 30		Water Level (ft.) First $\nabla$ N/E Completion $\nabla$ N/A 24 HR. $\nabla$ N/A	
Sampler 2-inch-diameter split spoon				Drilling Foreman Scott McGregor			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30		Field Engineer Jack Berritt	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	128.5		0	S-1A	SS	4	4	11	Started Drilling at 6/26/2020 S-1 at 0ft
	128.3	2" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]	1	S-1B	SS	10	7	11	
		Brown fine SAND, trace silt (dry)	2			5	6		S-2 at 2ft
		Brown fine SAND, trace silt (dry)	3	S-2	SS	21	7	15	Drive casing to 4.0ft, Easy drilling
		Brown fine SAND, trace silt (dry)	4			10	8		Drill to 4.0ft
		Brown fine SAND, trace silt (dry)	5	S-3	SS	9	9	16	S-3 at 4ft
		Brown fine SAND, trace silt (dry)	6			7	7		S-4 at 6ft
		Brown fine SAND, trace silt (dry)	7	S-4	SS	10	7	14	Drill to 8.0ft, Easy drilling
		Brown fine SAND, trace silt (dry)	8			6	9		S-5 at 8ft
	120.5	Brown fine-medium SAND, some silt (dry)	9	S-5	SS	10	6	13	
		Brown fine SAND, some silt (dry)	10			7	8		S-6 at 10ft
		Brown fine SAND, some silt (dry)	11	S-6	SS	12	7	15	
		Brown fine SAND, some silt (moist)	12			8	9		Drill to 14.0ft, Easy drilling
		Brown fine SAND, some silt (moist)	13						
		Brown fine SAND, some silt (moist)	14			5			S-7 at 14ft
		Brown fine SAND, some silt (moist)	15	S-7	SS	13	5	12	
		Brown fine SAND, some silt (moist)	16			7	7		Drill to 19.0ft, Light rig chatter
		Brown fine SAND, some silt, trace fine gravel (moist)	17						
		Brown fine SAND, some silt, trace fine gravel (moist)	18						
		Brown fine SAND, some silt, trace fine gravel (moist)	19	S-8	SS	12	5		S-8 at 19ft
		Brown fine SAND, some silt, trace fine gravel (moist)	20			21	21	36	

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 128.5 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	108.5		20	S-8	SS	12	15	36	Drill to 24.0ft, Medium rig chatter
			21				11		
			22						
	105.5	? ? ? ?	23						S-9 at 24ft
		Dark brown fine-coarse SAND, trace silt, trace fine gravel, trace decomposed rock fragments (moist) [TILL]	24	S-9	SS	9	36	50/3	
			25						S-10 at 29ft Bottom of boring at 6/26/2020 Boring backfilled with soil cuttings.
		No Recovery Inferred Top of Bedrock	26						
			27						
			28						
	+99.5		29	S-10	SS	0	50/0	50/0	
		Bottom of Boring	30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 141 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/14/20		Date Finished 6/14/20	
Drilling Equipment DIEDRICH D-50				Completion Depth 22 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 8	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 19		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitch	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	141.0		0						Started Drilling on 6/14/2020 S-1 at 0ft	
	140.3	7" Brown fine-medium SAND, trace silt, trace fine gravel, trace roots (dry) [TOPSOIL]	1	S-11	SS	16	3	5		
		Brown fine - medium SAND, trace silt (dry)	2	S-1B	SS		3			S-2 at 2ft
		Brown fine-medium SAND, trace silt, trace fine gravel (dry)	3	S-2	SS	14	3	8		
			4				5			Auger to 4ft, Easy Augering . S-3 at 4ft
		Brown fine-medium SAND, some fine gravel, trace silt (dry)	5	S-3	SS	7	12	25		
			6				13			S-4 at 6ft
		Brown fine-medium SAND, trace silt, trace fine gravel (dry)	7	S-4	SS	13	11	24		
			8				13			Auger to 8ft, Moderate Augering, Medium Chattering . S-5 at 8ft
		Brown fine-coarse SAND, some silt, some fine gravel (dry) [TILL]	9	S-5	SS	10	8	100/4		
			10				10			S-6 at 10ft
		Brown fine-medium SAND, some fine gravel, trace silt (moist) [TILL]	11	S-6	SS	3	3	50/1		Auger to 15ft, Hard Augering, Medium Chattering
			12							
			13							
			14							
		Brown fine-coarse SAND, some silt, some fine gravel (moist) [TILL]	15				36			S-7 at 15ft
			16	S-7	SS	15	29	61		
			17				32			Auger to 20ft, Hard Augering, Heavy Chattering
			18				48			
			19							
			20							

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Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 141 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist BU/6in		N-Value (Blows/ft)
	+121.0	Brown fine SAND, some silt, some fine gravel (moist) [TILL]	20			28		S-8 at 20ft	
			21	S-8	SS	16	28		60
			22			32			
			23			35			
	+119.0	Bottom of Boring	22					Bottom of boring on 6/14/2020 Observation well installed. Refer to well construction log.	
			23						
			24						
			25						
			26						
			27						
			28						
			29						
			30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 145 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/12/20		Date Finished 6/12/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 7		Disturbed -	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First $\nabla$ N/E		Completion $\nabla$ N/A	24 HR. $\nabla$ N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Ben Cray	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	145.0	Light brown fine SAND, trace silt (dry)	0				1		Started Drilling at 6/12/2020 S-1 at 0ft	
	1		1	S-1	SS	18	2	4		
	2	Light brown fine SAND, trace silt (dry)	2				2		S-2 at 2ft	
	3		3	S-2	SS	15	2	5		Auger to 4 ft
	4	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	4				7		S-3 at 4ft	
	5		5	S-3	SS	6	7	16		
	6	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	6				14		S-4 at 6ft	
	7		7	S-4	SS	21	11	21		Auger to 8 ft
	8	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	8				7		S-5 at 8ft	
	9		9	S-5	SS	15	9	18		
	10	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	10				18		S-6 at 10ft	
	11		11	S-6	SS	22	20	38	58	
	12		12					51		Auger to 15 ft, rig chattering
	13		13							
	14		14							
	15	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	15				21			S-7 at 15ft
	16		16	S-7	SS	17	20	21	41	
17	Bottom of Boring	17							Bottom of boring at 6/12/2020 Boring backfilled with auger cuttings.	
		18								
		19								
		20								

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 149 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/12/20		Date Finished 6/12/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 15 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 7		Disturbed -	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First $\nabla$ N/E		Completion $\nabla$ N/A	24 HR. $\nabla$ N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Ben Cray	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
[Dotted Pattern]	149.0	Light brown fine SAND, trace silt (dry)	0				2		Started Drilling at 6/12/2020
			1	S-1	SS	18	4	8	S-1 at 0ft
		Light brown fine SAND, trace silt (dry)	2				2		S-2 at 2ft
			3	S-2	SS	14	2	6	Auger to 4 ft
		Light brown fine SAND, trace silt (dry)	4				2		S-3 at 4ft
			5	S-3	SS	16	4	9	S-4 at 6ft
		Light brown fine-medium SAND, trace silt (dry)	6				9		S-4 at 6ft
		7	S-4	SS	24	9	24	Auger to 8 ft	
		8				12		S-5 at 8ft	
		9	S-5	SS	13	6	16	S-5 at 8ft	
		10				7		S-6 at 10ft	
		11	S-6	SS	14	9	17	S-6 at 10ft	
		12				10		Auger to 15 ft, rig chattering	
		13				10			
		14				8			
	133.8	Light brown fine SAND, trace silt, trace fine gravel (dry)	15	S-7	SS	1	50/3	50/3	S-7 at 15ft
		Bottom of Boring	16						Bottom of boring at 6/12/2020 Boring backfilled with auger cuttings.
			17						
			18						
			19						
			20						

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Project Hudson Logistics Center			Project No. 151010101		
Location 59 Steele Road, Hudson NH			Elevation and Datum Elev. + 155 (NGVD29)		
Drilling Company Seaboard Drilling, Inc		Date Started 6/8/20		Date Finished 6/8/20	
Drilling Equipment Diedrich D50			Completion Depth 16 ft		Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger			Number of Samples	Disturbed	Undisturbed
Casing Diameter (in) N/A			Casing Depth (ft) N/A	Water Level (ft.) First	Core
Casing Hammer N/A		Weight (lbs) N/A	Drop (in) N/A	Completion	24 HR.
Sampler 2-inch-diameter split spoon			Drilling Foreman Jeff Nitsch		
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Field Engineer Taylor Sisti	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	155.0		0							
	154.7	3" Light brown fine-medium SAND, some silt, some roots (dry) [TOPSOIL]		S-1A	SS	21	2			Started Drilling at 6/8/2020 S-1 at 0ft
		Light brown fine-medium SAND, trace silt, trace roots (dry)	1	S-1B	SS	21	2			
		Light brown fine-medium SAND, trace silt (dry)	2				2			S-2 at 2ft
		Light brown fine-medium SAND, trace silt (moist)	3	S-2	SS	15	2			Auger to 4ft
		Light brown fine-medium SAND, trace silt (moist)	4				4			S-3 at 4ft
		Light brown fine-medium SAND, trace silt (moist)	5	S-3	SS	22	3			S-4 at 6ft
		Light brown fine-medium SAND, trace silt (moist)	6				5			
		Light brown fine-medium SAND, trace silt (moist)	7	S-4	SS	16	3			Auger to 8ft
		Light brown fine-medium SAND, trace silt (moist)	8				4			S-5 at 8ft
		Light brown fine SAND, trace silt (moist)	9	S-5	SS	15	3			S-6 at 10ft
		Light brown fine SAND, trace silt (moist)	10				4			
		Light brown fine SAND, trace silt (moist)	11	S-6	SS	20	4			
		Light brown fine SAND, trace silt (moist)	12				4			
		Light brown fine SAND, trace silt (moist)	13				5			Auger to 14ft, easy drilling
		Light brown fine SAND, some silt (moist)	14	S-7	SS	14	4			S-7 at 14ft
		Light brown fine SAND, some silt (moist)	15				5			
		Light brown fine SAND, some silt (moist)	16				4			
		Light brown fine SAND, some silt (moist)	17				4			
		Light brown fine SAND, some silt (moist)	18				4			
		Light brown fine SAND, some silt (moist)	19				4			
		Light brown fine SAND, some silt (moist)	20				6			Bottom of boring at 6/8/2020 Boring backfilled with auger cuttings.

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 149 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/8/20		Date Finished 6/9/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 15.5 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 7		Disturbed -	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First $\nabla$ N/E		Completion $\nabla$ N/A	24 HR. $\nabla$ N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Sam Deangelis	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)			
	149.0	Light brown fine SAND, trace silt, trace roots (dry)	0							Started Drilling at 6/8/2020 S-1 at 0ft	
			1	S-1	SS	8	6	12			
			2				6				S-2 at 2ft
			3	S-2	SS	13	6	11			Auger to 4 ft
			4				5				S-3 at 4ft
			5	S-3	SS	17	7	19			
			6				9				S-4 at 6ft
			7	S-4	SS	18	7	30			Auger to 8 ft
			8				13				S-5 at 8ft
			9	S-5	SS	16	15	34			
			10				16				S-6 at 10ft
			11	S-6	SS	18	18	43			
			12				20				Auger to 15 ft
			13				18				
			14				25				
		15	S-7	SS	7	14	50/2			S-7 at 15ft	
	133.3	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	15								
		Bottom of Boring	16							Bottom of boring at 6/9/2020 Boring backfilled with auger cuttings.	
			17								
			18								
			19								
			20								

Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 164.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/29/20		Date Finished 6/29/20	
Drilling Equipment Mobile Drill B53				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 8	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		24 HR. N/A	
Sampler 2-inch-diameter split spoon				Drilling Foreman Mike Kennedy			
Sampler Hammer Safety				Weight (lbs) 140		Drop (in) 30	
				Field Engineer Reid Balkind			

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MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	164.5		0							
	164.0	6" Dark brown fine-medium SAND, trace silt, trace fine gravel, trace roots (dry) [TOPSOIL]	0	S-1A	SS	4	4	9		Started Drilling at 6/29/2020 S-1 at 0ft
		Light brown fine-coarse SAND, some silt, trace fine gravel (dry)	1	S-1B	SS	5	5			
		Light brown fine-medium SAND, some silt, trace fine gravel (dry)	2			6	6			S-2 at 2ft
		Light brown fine SAND, some silt (moist)	3	S-2	SS	5	5	11		
			4			6	6			S-3 at 4ft. Auger to 4ft
		Light brown fine SAND, some silt (moist)	5	S-3	SS	8	8	17		
		Light brown fine SAND, some silt (moist)	6			8	8			S-4 at 6ft
			7	S-4	SS	6	6	13		
			8			7	7			S-5 at 8ft. Auger to 8ft
	156.5	Light brown SILT, some fine sand (wet)	8	S-5	SS	7	7	16		
			9			11	11			
			10	S-6	SS	5	5	10		S-6 at 10ft
	154.5	Light brown fine-medium SAND, trace silt (moist)	11			5	5			
			12			5	5			
			13							
			14							
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)	15	S-7	SS	6	6	15		Auger to 15ft. Easy drilling S-7 at 15ft
			16			7	7			
			17			8	8			
	147.5	Bottom of Boring	17			9	9			Bottom of boring at 6/29/2020 Boring backfilled with soil cuttings
			18							
			19							
			20							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 162 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/28/20		Date Finished 6/28/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 16 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 4		Water Level (ft.) First 8	Completion 5.1
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Scott McGregor			
Sampler 2-inch-diameter split spoon				Field Engineer Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Blows/in		N-Value (Blows/ft) 10 20 30 40
	162.0	12" Brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]	0				3		Started Drilling at 6/28/2020 S-1 at 0ft
	161.0	Light brown fine-medium SAND, trace silt, trace roots (dry)	1	S-1A	SS	18	5	9	
		Light brown fine SAND, some silt (dry)	2	S-1B	SS		3		S-2 at 2ft
		Light brown fine SAND, some silt, trace fine gravel (dry)	3	S-2	SS	20	5	14	
			4				13		
			5	S-3	SS	14	10	21	Drive casing to 4.0ft Drill to 4.0ft, smooth drilling S-3 at 4ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)	6				8		S-4 at 6ft
		Light brown fine-medium SAND, trace silt, trace fine gravel (wet)	7	S-4	SS	10	7	14	
			8				9		Switch to mud rotarty drilling Drill to 8.0ft, easy drilling S-5 at 8ft
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	9	S-5	SS	1	8	18	
			10				11		S-6 at 10ft
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	11	S-6	SS	8	9	19	
			12				10		
			13				5		
		Light brown fine-coarse SAND, some fine gravel, trace silt (wet)	14				8		Drill to 14.0ft, easy drilling S-7 at 14ft
			15	S-7	SS	3	6	14	
			16				8		
	146.0	Bottom of Boring	16				9		Bottom of boring at 6/28/2020 Boring backfilled with soil cuttings.
			17						
			18						
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 136 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/9/20		Date Finished 6/9/20	
Drilling Equipment CME75 Track Rig				Completion Depth 16 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 14		Water Level (ft.) First 14	Completion N/A
Casing Hammer N/A		Weight (lbs) 140		Drop (in) 30		Drilling Foreman Brad Perry	
Sampler 2-inch-diameter split spoon				Field Engineer Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	136.0		0	S-1A		1			Started Drilling at 6/9/2020 S-1 at 0ft
	135.8	3" Dark brown fine-medium SAND, trace silt, trace fine gravel, some roots (dry)[TOPSOIL]	1	S-1B	SS	7	3	8	
	134.0	Orangish brown SAND, trace silt, trace fine gravel (dry) [FILL]	2			5			S-2 at 2ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	3	S-2	SS	9	4	9	
		No Recovery	4			4			Drive casing to 4.0ft S-3 at 4ft
		Light brown fine-medium SAND, trace silt (dry)	5	S-3	SS	0	3	9	
		Light brown fine SAND, some silt (dry)	6			6	5		S-4 at 6ft
		Light brown fine-medium SAND, trace silt (dry)	7	S-4	SS	14	7	13	
		Light brown fine SAND, some silt (dry)	8			7			Drive casing to 8.0ft S-5 at 8ft
		Light brown fine-medium SAND, trace silt (dry)	9	S-5	SS	7	4	11	
		Light brown fine-medium SAND, trace silt (dry)	10			6	5		S-6 at 10ft
			11	S-6	SS	12	12	21	
			12			9	9		
			13			12			
		Brown fine-medium SAND, trace silt (wet)	14	S-7	SS	8	6	16	
			15			9	7		Drive casing to 14.0ft S-7 at 14ft
			16			10			Bottom of boring at 6/9/2020 Boring backfilled with soil cuttings.
	120.0	Bottom of Boring	17						
			18						
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 149.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/12/20		Date Finished 6/12/20	
Drilling Equipment Truck Mounted Diedrich D-50				Completion Depth 10.5 ft		Rock Depth 10.5 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed	Undisturbed
Casing Diameter (in) N/A				Casing Depth (ft) N/A		6	-
Casing Hammer N/A				Weight (lbs) N/A		Drop (in) N/A	Core -
Sampler 2-inch-diameter split spoon				Water Level (ft.)			
Sampler Hammer Safety				Weight (lbs) 140		Drop (in) 30	
				Drilling Foreman Sam DeAngelis			
				Field Engineer Justin Hall			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)		
	149.5		0							
	149.2	4" Dark brown fine-coarse SAND, some silt, some organics (moist) [TOPSOIL]		S-1A			3			Started Drilling on 6/12/2020.
		Light brown fine SAND, trace silt (moist)	1	S-1B	SS	13	3		5	S-1 at 0ft
		Light brown fine SAND, some silt (moist)	2				5			S-2 at 2ft
		Light brown fine-coarse SAND, trace fine gravel, trace silt (dry)	3	S-2A	SS	16	8		24	
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	4	S-2B			16			S-3 at 4ft
		Light brown fine-coarse SAND, trace fine gravel, trace silt (dry)	5	S-3	SS	10	11		41	Light Rig Chatter 4'-7'
		Light brown fine-coarse SAND, trace fine gravel, trace silt (dry)	6				25			S-4 at 6ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	7	S-4A	SS	14	20		66	
			8	S-4B			33			S-5 at 8ft
			9	S-5	SS	8	35			
		No Recovery Inferred Top of Bedrock	10				38		100/2	Medium to Heavy Rig Chatter 8'-10.5'. Auger to 10' Auger grinding at 10', continue augering through obstruction
	139.0	Bottom of Boring	11	S-6	SS	0	84		100/0	S-6 at 10.5ft. Auger and spoon refusal 10.5ft. Bottom of boring on 6/12/2020. Boring backfilled with auger cuttings.
			12				100/2			
			13							
			14							
			15							
			16							
			17							
			18							
			19							
			20							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 163 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/8/20		Date Finished 6/8/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 7		Disturbed -	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	163.0		0						
	162.7	3" Brown fine SAND, trace silt (dry) [TOPSOIL]	0	S-1	SS	12	3	4	Started Drilling at 6/8/2020 S-1 at 0ft
		Brown fine-medium SAND, trace silt (dry)	2	S-2	SS	15	4	11	S-2 at 2ft
	159.0	Brown fine-medium SAND, trace silt, trace fine gravel (dry) [TILL]	4	S-3	SS	16	15	28	Auger to 4ft, easy drilling S-3 at 4ft
		Brown fine-medium SAND, trace silt, trace fine gravel (dry) [TILL]	6	S-4	SS	15	42	43	S-4 at 6ft
		Brown fine-medium SAND, trace silt, trace fine gravel (dry) [TILL]	8	S-5	SS	14	12	24	Auger to 8ft, easy drilling S-5 at 8ft
		Brown fine-medium SAND, trace silt, trace fine gravel (dry) [TILL]	10	S-6	SS	18	31	37	S-6 at 10ft
		Brown gravelly fine-medium SAND, trace silt (moist) [TILL]	15	S-7	SS	13	35	50	S-7 at 15ft
	146.0	Bottom of Boring	17				28		Bottom of boring at 6/8/2020 Boring backfilled with auger cuttings.

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 163 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/28/20		Date Finished 6/28/20	
Drilling Equipment Mobile Rig B-53				Completion Depth 15.5 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First N/E	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitch	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	
	163.0		0					
	162.5	6" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]		S-1A		4		
		Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	1	S-1B	SS	12	9	
		Light brown fine-medium SAND, some fine gravel, trace silt (dry)	2			4		S-2 at 2ft
		Light gray fine SAND, some silt, trace fine gravel (dry)	3	S-2	SS	12	12	
		Light gray fine SAND, some silt, trace fine gravel (dry)	4			4		Auger to 4ft, Easy Augering
		Light gray fine SAND, some silt, trace fine gravel (dry)	5	S-3	SS	16	35	
		Light gray fine SAND, some silt, trace fine gravel (dry)	6			20		S-4 at 6ft
		Light brown fine SAND, some silt, trace fine gravel (dry) [TILL]	7	S-4	SS	13	36	
		Light brown fine SAND, some silt, trace fine gravel (dry) [TILL]	8			10		Auger to 8ft, Moderate Augering, Light Chattering
		Light brown fine SAND, some silt, trace fine gravel (dry) [TILL]	9	S-5	SS	16	32	
		Light brown fine SAND, some silt, trace fine gravel (dry) [TILL]	10			11		S-6 at 10ft
		Light brown fine-medium SAND, some silt, trace fine gravel (moist) [TILL]	11	S-6	SS	19	48	
			12			21		Auger to 15ft, Moderate Augering, Light Chattering
			13			21		
			14	S-7	SS	20	64	
			15			22		Auger Refusal at 13.5ft
			16			28		S-7 at 13.5ft
			17			36		
			18			38		
		Bottom of Boring	19					
			20					Bottom of boring at 6/29/2020 Boring backfilled with auger cuttings.

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 161 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/29/20		Date Finished 6/29/20	
Drilling Equipment Truck Rig				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First N/E	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		24 HR. N/A	
Sampler 2-inch-diameter split spoon				Drilling Foreman John Knepple			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30		Field Engineer Jack Berritt	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	161.0		0	S-1A			3		Started Drilling at 6/29/2020 S-1 at 0ft
	160.8	2" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]	1	S-1B	SS	6	6	13	
		Light brown fine-medium SAND, trace silt (dry)	2			6	7		S-2 at 2ft
		Light brown fine-medium SAND, trace silt (dry)	3	S-2	SS	18	4	9	Auger to 4ft. Easy drilling
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	4	S-3	SS	14	5	14	S-3 at 4ft
		Brown fine-coarse SAND, some silt, trace fine gravel (dry)	5	S-3	SS	14	9		S-4 at 6ft
			6			13	10		S-4 at 6ft
			7	S-4	SS	14	20	41	Auger to 8ft. Moderate rig chatter
			8			13	21		S-5 at 8ft
	153.0	Grayish brown fine-coarse SAND, some silt, trace fine gravel (dry) [TILL]	9	S-5	SS	16	8	34	
		Grayish brown fine-coarse SAND, some silt, trace fine gravel (dry) [TILL]	10			16	15		S-6 at 10ft
			11	S-6	SS	15	12		
			12			15	17		
			13			15	14	29	Auger to 15ft. Moderate rig chatter
			14			15	15		
			15			15	16		
		Grayish brown fine-coarse SAND, some silt, trace fine gravel (dry) [TILL]	16	S-7	SS	20	10	33	S-7 at 15ft
			17			20	18		
	144.0	Bottom of Boring	18			15	15		Bottom of boring at 6/29/2020
			19			16	16		Boring backfilled with auger cuttings
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 148 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/8/20		Date Finished 6/8/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 9 ft		Rock Depth 9 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 5		Disturbed -	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Sam Deangelis	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/In	N-Value (Blows/ft)	
	148.0	Light brown fine SAND, trace silt (dry)	0				3		Started Drilling at 6/8/2020 S-1 at 0ft
			1	S-1	SS	10	3	7	
		Light brown fine SAND, trace silt (dry)	2				3		S-2 at 2ft
			3	S-2	SS	12	4	9	Auger to 4 ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	4				6		S-3 at 4ft
			5	S-3	SS	10	7	25	
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	6				30		S-4 at 6ft
			7	S-4	SS	13	35	61	Auger to 8 ft
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	8				42		S-5 at 8ft
		Inferred Top of Bedrock	9	S-5	SS	5	25	50/1	Auger refusal at 9ft Bottom of boring at 6/8/2020 Boring backfilled with auger cuttings.
	Bottom of Boring								
			10						
			11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 144 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/28/20		Date Finished 6/28/20	
Drilling Equipment Mobile Rig B-53				Completion Depth 8.5 ft		Rock Depth 8.5 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 5	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitch	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/In		N-Value (Blows/ft)	
	144.0		0							
	143.5	6" Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]		S-1A	SS	2				Started Drilling at 6/28/2020 S-1 at 0ft
		Orangish brown fine-medium sand, some silt (moist)	1	S-1B	SS	19	9			
		Light brown fine SAND, trace silt (dry)	2			6				S-2 at 2ft
			3	S-2	SS	18	13			
		Light brown fine-medium SAND, some silt (dry)	4			4				S-2 at 2ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	5	S-3A	SS	5				Auger to 4ft, Easy Augering S-3 at 4ft
			6	S-3B	SS	16	20			
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	7			11				S-4 at 6ft
		Light brown sandy fine GRAVEL, trace silt (dry)	8	S-4	SS	15	40			
		Inferred Top of Bedrock	9	S-5	SS	3	50/2			Auger to 8ft, Moderate Augering, Medium Chattering S-5 at 8ft Bottom of boring at 6/29/2020 Boring backfilled with auger cuttings
	135.3		10							Bottom of Boring
			11							
			12							
			13							
			14							
			15							
			16							
			17							
			18							
			19							
			20							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 162 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/27/20		Date Finished 6/27/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 17 ft		Rock Depth 17 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples Disturbed 7 Undisturbed - Core -			
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First $\nabla$ N/E Completion $\nabla$ N/A		24 HR. $\nabla$ N/A	
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/In	N-Value (Blows/ft)	
[Symbol]	162.0	Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	0				2		Started Drilling at 6/27/2020
			1	S-1	SS	4	3	5	S-1 at 0ft
[Symbol]	158.8	Dark brown fine SAND, trace silt, trace roots (dry) [TOPSOIL]	2				3		S-2 at 2ft
			3	S-2A	SS	16	2	4	
[Symbol]	152.0	Light brown fine-medium SAND, trace silt (dry)	4	S-2B			2		Auger to 4ft, Easy Augering
		Light brown fine-medium SAND, trace silt (dry)	5	S-3	SS	10	4	5	S-3 at 4ft
[Symbol]	152.0	Light brown fine-medium SAND, trace silt (dry)	6				4		S-4 at 6ft
			7	S-4	SS	10	9	11	
[Symbol]	145.0	Light brown fine-coarse SAND, trace silt (moist)	8				10	20	Auger to 8ft, Easy Augering
			9	S-5	SS	14	6	17	S-5 at 8ft
[Symbol]	145.0	Light brown fine-coarse SAND, some silt, some fine gravel (moist) [TILL]	10				18		S-6 at 10ft
			11	S-6	SS	18	32	35	
[Symbol]	145.0		12				38	73	Auger to 15ft, Easy Augering
			13				50		
[Symbol]	145.0	Light brown fine SAND, some silt, some fine gravel (moist) [TILL]	15				17		S-7 at 15ft
			16	S-7	SS	15	18	45	63
	145.0	Bottom of Boring	17				40		Bottom of boring at 6/27/2020 Boring backfilled with auger cuttings.

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 161.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/10/20		Date Finished 6/10/20	
Drilling Equipment Truck Rig				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 10	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Sam DeAngelis	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	161.5		0							
	161.0	6" Light brown fine-medium SAND, some silt, trace f-c gravel, some roots (moist) [TOPSOIL]		S-1A	SS	4	4	19		Started Drilling at 6/10/2020 S-1 at 0ft
		Light brown fine-medium SAND, trace silt, trace f-c gravel (dry)	1	S-1B	SS	16	11			
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	2			6	9			S-2 at 2ft
			3	S-2	SS	13	12	21		
			4			9	10			Auger to 4ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	5	S-3	SS	11	8	17		S-3 at 4ft
			6			10	7			
		Light brown fine-coarse SAND, trace silt (moist)	7	S-4	SS	20	11	25		S-4 at 6ft
			8			14	8			
		Light brown silty fine-medium SAND, some f-c gravel, trace weathered cobble fragments (moist)	9	S-5	SS	24	12	55		Auger to 8ft S-5 at 8ft
			10			31	24			
		Light brown silty fine-medium SAND, trace f-c gravel (wet)	11	S-6	SS	18	26	83		S-6 at 10ft
			12			35	35			
			13			48	33			
			14							Auger to 15ft, moderate drilling, some light rig chatter
		Light brown silty fine-coarse SAND, trace f-c gravel (wet)	15	S-7	SS	15	13	45		S-7 at 15ft
			16			24	21			
			17			21	23			
	144.5	Bottom of Boring	17							Bottom of boring at 6/10/2020 Boring backfilled with auger cuttings.
			18							
			19							
			20							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 162 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/29/20		Date Finished 6/29/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 15.5 ft		Rock Depth 15.5 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/In	N-Value (Blows/ft)		
	162.0		0							Started Drilling at 6/29/2020
	161.8	3" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]		S-1A	SS	4	5	11		S-1 at 0ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	1	S-1B	SS	12	6			
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	2				5			S-2 at 2ft
			3	S-2	SS	16	4	9		Auger to 4ft. Light rig chatter
			4				5			
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	5	S-3	SS	17	10	21		S-3 at 4ft
			6				11			
	156.0	Grayish brown fine-coarse SAND, some silt, some fine gravel (moist) [TILL]	7	S-4	SS	20	20	52		Auger to 8ft. Light rig chatter
		Grayish brown fine-coarse SAND, some silt, some fine gravel (moist)[TILL]	8				18			
			9	S-5	SS	16	13	24		S-5 at 8ft
			10				11			
		Grayish brown fine-coarse SAND, some silt, some fine gravel (moist)[TILL]	11	S-6	SS	18	18	27		S-6 at 10ft
			12				14			
			13				13			
			14				14			
	146.6	Grayish brown fine-coarse SAND, some silt, some fine gravel(moist)[TILL] Inferred Top of Bedrock	15	S-7	SS	3	100/5	100/5		S-7 at 15ft Bottom of boring at 6/29/2020 Boring backfilled with auger cuttings
		Bottom of Boring	16							
			17							
			18							
			19							
			20							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 152.5 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/29/20		Date Finished 6/29/20	
Drilling Equipment Truck Rig				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 7		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	Core 24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	152.5		0							
	152.1	5" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]		S-1A	SS	2	2			Started Drilling at 6/29/2020 S-1 at 0ft
		Light brown fine SAND, trace silt (dry)	1	S-1B	SS	15	2			
		Light brown fine SAND, trace silt, trace roots (dry)	2			2	3			S-2 at 2ft
			3	S-2	SS	24	3			Auger to 4ft. Easy drilling
			4			4	5			
		Light brown fine SAND, trace silt (dry)	5	S-3	SS	13	7			S-3 at 4ft
			6			5	5			
		Brown fine SAND, trace silt (dry)	7	S-4	SS	21	6			S-4 at 6ft
			8			7	13			Auger to 8ft. Easy drilling
		Light brown fine SAND, trace silt (dry)	9	S-5	SS	16	6			S-5 at 8ft
			10			15	7			
	142.5	Brown fine-medium SAND, some silt (moist)	11	S-6	SS	24	11			S-6 at 10ft
			12			14	12			
			13			17	14			
			14				18			Auger to 15ft. Light rig chatter
			15				22			
		Brown fine-medium SAND, some silt, trace fine gravel (moist)	16	S-7	SS	14	8			S-7 at 15ft
			17			21	21			
	135.5	Bottom of Boring	18			23	23			Bottom of boring at 6/29/2020 Boring backfilled with auger cuttings Bottom of Boring
			19			20	20			
			20				44			

Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 162 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/29/20		Date Finished 6/29/20	
Drilling Equipment Mobile Drill				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First N/E	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Mike Kennedy	
Sampler 2-inch-diameter split spoon				Field Engineer Reid Balkind			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

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MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	162.0		0	S-1A		5			Started Drilling at 6/29/2020
	161.8	2" Dark brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]							S-1 at 0ft
		Light brown fine SAND, some f-c gravel, some silt (dry)	1	S-1B	SS	8		17	
		Brown fine SAND, some silt, trace fine gravel (dry)	2						S-2 at 2ft
			3	S-2	SS	14		8	
			4						S-3 at 4ft. Auger to 4ft
	158.0	Brown fine-coarse SAND, trace silt, trace f-c gravel (moist)	4						
			5	S-3	SS	16		23	
		Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	6						S-4 at 6ft
			7	S-4	SS	16		16	
		Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	8						S-5 at 8ft. Auger to 8ft
			9	S-5	SS	12		17	
		Brown fine-coarse SAND, trace silt, trace fine gravel (moist)	10						S-6 at 10ft
			11	S-6	SS	15		13	
			12						
			13						
			14						
		Brown fine-coarse SAND, trace silt (moist)	15						S-7 at 15ft. Auger to 15ft
			16	S-7	SS	14		13	
			17						Bottom of boring at 6/29/2020
	145.0	Bottom of Boring	17						Boring backfilled with soil to grade
			18						
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 153.5 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/11/20		Date Finished 6/11/20	
Drilling Equipment Diedrich D50				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 7		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	Core 24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitsch	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)		
	153.5		0							
	153.1	5" Orangish brown fine-medium SAND, some silt, trace roots (moist) [TOPSOIL]	0	S-1A	SS	13	1	2		Started Drilling at 6/11/2020 S-1 at 0ft
		Orangish brown fine-medium SAND, trace silt, trace roots (moist)	1	S-1B	SS	1	1	2		
		Light brown fine-medium SAND, trace silt, trace fine gravel (moist)	2				1			S-2 at 2ft
			3	S-2	SS	9	2	4		Auger to 4ft
		Light brown fine-medium SAND, some silt, trace fine gravel (moist)	4				2			S-3 at 4ft
			5	S-3	SS	10	4	8		
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	6				3			S-4 at 6ft
			7	S-4	SS	16	5	13		Auger to 8ft
		Light brown fine SAND, trace silt (moist)	8				8			S-5 at 8ft
			9	S-5	SS	15	3	8		
		Light brown fine SAND, trace silt (moist)	10				5			S-6 at 10ft
			11	S-6	SS	21	5	10		
			12				5			
			13				6			Auger to 15ft, easy drilling
			14							
		Light brown fine-medium SAND, trace silt (moist)	15				5			S-7 at 15ft
			16	S-7	SS	16	5	11		
			17				6			
			18				7			Bottom of boring at 6/11/2020 Boring backfilled with auger cuttings.
		Bottom of Boring	17							
			19							
			20							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 163 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/11/20		Date Finished 6/11/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 7		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	Core 24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman John Knepple	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/In	N-Value (Blows/ft)	
	163.0		0	S-1A		4			Started Drilling at 6/11/2020
	162.7	3" Brown fine-medium SAND, trace silt (dry) [TOPSOIL]							S-1 at 0ft
			1	S-1B	SS	17		11	
		Brown fine-medium SAND, trace silt (dry)	2			6			S-2 at 2ft
			3	S-2	SS	13		13	
		Brown fine-medium SAND, trace silt (dry)	4			6			Auger to 4ft, easy augering
			5	S-3	SS	16		11	S-3 at 4ft
		Brown fine-medium SAND, trace silt (dry)	6			8			S-4 at 6ft
			7	S-4	SS	16		15	
		Brown fine-medium SAND, trace silt (dry)	8			7			Auger to 8ft, easy augering
			9	S-5	SS	14		12	S-5 at 8ft
		Brown fine SAND, trace silt (dry)	10			9			S-6 at 10ft
			11	S-6	SS	15		15	
			12			7			Auger to 15ft, easy augering
			13						
			14						
	148.0	Brown silty fine SAND (moist)	15			6			S-7 at 15ft
			16	S-7	SS	19		18	
	146.0	Bottom of Boring	17			9			Bottom of boring at 6/11/2020
			18						Boring backfilled with auger cuttings.
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 145 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/2/20		Date Finished 6/2/20	
Drilling Equipment Diedrich D50				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First N/E	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Doug Feely	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)	
	+145.0		0				12		Started Drilling at 6/2/2020
	+144.0	Dark brown fine-coarse SAND, some f-c gravel, trace silt (dry) [FILL]		S-1A	SS	14	7		S-1 at 0ft
		Light brown fine-medium SAND, trace silt (dry)	1	S-1B	SS		7	14	
		Light brown fine SAND, trace silt (moist)	2				9		S-2 at 2ft
			3	S-2	SS	24	5	11	Auger to 4ft
		Light brown fine SAND, trace silt (moist)	4				6		S-3 at 4ft
			5	S-3	SS	14	2	9	Auto hammer broke, switch to safety hammer
		Light brown fine SAND, trace silt (moist)	6				5		S-4 at 6ft
			7	S-4	SS	14	3	7	Auger to 8ft
		Light brown fine SAND, trace silt (moist)	8				4		S-5 at 8ft
			9	S-5	SS	18	3	6	Auger to 10ft
		Light brown fine SAND, trace silt (moist)	10				3		S-6 at 10ft
			11	S-6	SS	18	4	5	
			12				5	10	
			13				6		
			14						Auger to 15ft, easy drilling
		Light brown fine-medium SAND, trace silt, trace fine-coarse gravel (moist)	15				4		S-7 at 15ft
			16	S-7	SS	19	4	8	
			17				4		Bottom of boring at 6/2/2020
		Bottom of Boring	18						Boring backfilled with auger cuttings.
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 116.5 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/9/20		Date Finished 6/9/20	
Drilling Equipment CME75 Track Rig				Completion Depth 16 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 14		Water Level (ft.) First 6	Completion 6.4
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Brad Perry			
Sampler 2-inch-diameter split spoon				Field Engineer Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	116.5		0							
	116.3	4" Brown fine-medium SAND, trace silt, some roots (dry) [TOPSOIL]		S-1A			2			Started Drilling at 6/9/2020 S-1 at 0ft
		Light brown fine-medium SAND, some fine gravel (dry)	1	S-1B	SS	14	4	9		
		Light brown fine SAND, trace silt (dry)	2				5			S-2 at 2ft
		Light brown fine SAND, trace silt (dry)	3	S-2	SS	20	12	29		
		Light brown fine SAND, trace silt (dry)	4				17			Drive casing to 4ft S-3 at 4ft
		Brown gravelly fine-coarse SAND, trace silt (wet)	5	S-3	SS	10	14	36		
		Brown fine-coarse SAND, some fine gravel (wet)	6				22			S-4 at 6ft Decomposed rock in tip of spoon
		Brown fine-coarse SAND, some fine gravel (wet)	7	S-4	SS	16	20	45		
		Brown fine-coarse SAND, some fine gravel (wet)	8				25			Drive casing to 8.0ft S-5 at 8ft
		Brown fine-coarse SAND, some fine gravel (wet)	9	S-5	SS	8	12	25		
		Light brown fine-medium SAND, trace silt (wet)	10				13			S-6 at 10ft
		Grayish brown gravelly fine-coarse SAND, trace silt (wet)	11	S-6A	SS	18	11	29		
			12	S-6B			13			
			13				16			
			14				17			
			15	S-7	SS	5	7	36		Drive casing to 14.0ft S-7 at 14ft
			16				18			Bottom of boring at 6/9/2020 Boring backfilled with soil cuttings
			17				18			
			18				17			
			19							
			20							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 110 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/9/20		Date Finished 6/9/20	
Drilling Equipment CME75 Track Rig				Completion Depth 13 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed	Undisturbed
Casing Diameter (in) 4in				Casing Depth (ft) 8		5	-
Casing Hammer Automatic				Weight (lbs) 140		Drop (in) 30	
Sampler 2-inch-diameter split spoon				Water Level (ft.)			
Sampler Hammer Automatic				Weight (lbs) 140		Drop (in) 30	
				Drilling Foreman Brad Perry			
				Field Engineer Olivia Chasse			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	+110.0		0	S-1A			3		Started Drilling at 6/9/2020 S-1 at 0ft
	+109.8	4" Dark brown fine-medium SAND, trace silt, some roots (dry) [TOPSOIL]	1	S-1B	SS	20	5	13	
		Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	2				8		S-2 at 2ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	3	S-2	SS	17	10	23	
			4				12		Drive casing to 4.0ft S-3 at 4ft
	+106.0	Brown silty fine SAND, some fine gravel, trace decomposed rock (moist)	5	S-3	SS	5	18	32	
			6				14		S-4 at 6ft
	+104.0	Grayish brown gravelly coarse-medium SAND, some fine gravel (moist)	7	S-4	SS	8	50	63	
		Gray fine GRAVEL (moist)	8	S-5	SS	1	26	50/2	Drive casing to 8.0ft S-5 at 8ft
			9				16		
			10						
			11						
			12						
			13						
	+96.5	Inferred Top of Bedrock	14						Roller bit to 13.5ft, grinding on rock since 8ft
		Bottom of Boring	15						Bottom of boring at 6/9/2020
			16						Boring backfilled with soil cuttings.
			17						
			18						
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 118.5 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/2/20		Date Finished 6/2/20	
Drilling Equipment Diedrich D50				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 17	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitsch	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	118.5	Light brown fine-coarse SAND, trace silt, trace fine gravel, trace asphalt fragments (moist)[FILL]	0	S-1	SS	13	5	32	Started Drilling at 6/2/2020 S-1 at 0ft
	115.5	Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)[FILL]	1			14	18		
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	2	S-2A	SS	17	12	43	S-2 at 2ft
		Light brown fine-coarse SAND, trace silt	3	S-2B	SS	27	17		Auger to 4ft
		Light brown fine-coarse SAND, trace silt (moist)	4			6	26		S-3 at 4ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	5	S-3	SS	14	8	18	S-4 at 6ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	6			11	10		
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	7	S-4	SS	16	9	20	Auger to 8ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	8			9	11		S-5 at 8ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	9	S-5	SS	15	4	13	Auger to 10ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	10			2	6		S-6 at 10ft
		Light brown fine SAND, trace silt (moist)	11	S-6	SS	16	7	13	
			12			8	9		
			13						
			14						Auger to 15ft, easy drilling
			15	S-7	SS	9	10	25	S-7 at 15ft Spoon tip wet
			16			13	13		
			17			12	15		Bottom of boring at 6/2/2020 Boring backfilled with auger cuttings.
		Bottom of Boring	17			15			
			18						
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 148 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/15/20		Date Finished 6/15/20	
Drilling Equipment Diedrich D50				Completion Depth 32 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 9	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 30	Completion 24 HR. 29.9
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Sam DeAngelis	
Sampler 2-inch-diameter split spoon				Field Engineer Justin Hall			
Sampler Hammer Safety		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)	
	148.0	Dark brown to black fine-coarse SAND, some silt, trace organics, trace leaves and brush (moist) [FILL]	0						Started Drilling at 6/15/2020 S-1 at 0ft
			1	S-1	SS	10	4	9	Justin Hall
		Dark brown to black fine-coarse SAND, some silt, trace organics, trace leaves and brush (moist) [FILL]	2						S-2 at 2ft
			3	S-2	SS	8	5	8	Auger to 4ft
		Dark brown to black fine-coarse SAND, some silt, trace organics, trace leaves and brush (moist) [FILL]	4						S-3 at 4ft
			5	S-3	SS	6	2	3	
		Dark brown to black fine-coarse SAND, some silt, trace organics, trace leaves, brush and roots (moist) [FILL]	6						S-4 at 6ft
			7	S-4	SS	14	2	4	
			8						
			9						Auger to 10ft
		Dark brown to black fine-coarse SAND, some silt, trace fine gravel, trace organics (moist) [FILL]	10						S-5 at 10ft
			11	S-5A	SS	24	10	25	
			12	S-5B			46	48	71
	136.0	Dark brown to black fine-medium SAND, trace silt, trace organics, trace wood, leaves (moist) [FILL]	12						S-6 at 12ft
			13						Auger to 14ft, easy drilling
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	14						S-7 at 14ft
			15	S-6	SS	14	7	14	28
		Light brown fine-medium SAND, trace silt (moist)	16						S-8 at 16ft
			17	S-7	SS	18	10	15	28
			18						
		Light brown fine-medium SAND, trace silt (moist)	19	S-8	SS	15	6	7	18
			20						

Project		Project No.									
Hudson Logistics Center		151010101									
Location		Elevation and Datum									
59 Steele Road, Hudson NH		Elev. + 148 (NGVD29)									
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist BU/6in	N-Value (Blows/ft)			
	128.0		20								
			21								
			22								
			23								
			24								
			25								
			26								
			27								
			28								
			29								
			30								
		Brown fine-medium SAND, some silt (wet)	30				5				
			31	S-9	SS	22	7				
			31				10				
			32				10				
	115.0	Bottom of Boring	33								
			34								
			35								
			36								
			37								
			38								
			39								
			40								
			41								
			42								
			43								
			44								
			45								

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Auger to 30ft

S-9 at 30ft

Auger to 33ft  
Bottom of boring at 6/15/2020  
Observation well installed.  
Refer to well construction log.



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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 127 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 15	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Ben Cray	
Sampler 2-inch-diameter split spoon				Field Engineer Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	127.0		0						
	126.7	4" Brown fine-medium SAND, trace silt, trace fine gravel, some roots (dry) [TOPSOIL]	0	S-1	SS	4	2	23	Started Drilling on 6/26/2020 S-1 at 0ft
		Light brown fine SAND, trace silt (dry)	1				6		
			2				17		S-2 at 2ft
			3	S-2	SS	12	22	30	
		Light brown fine-medium SAND, trace silt (dry)	4				16		Auger to 4ft, easy drilling. S-3 at 4ft
			5	S-3	SS	15	14	9	
		Light brown fine-medium SAND, trace silt (dry)	6				5		S-4 at 6ft
			7	S-4	SS	21	8	14	
		Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	8				6		Auger to 8ft, easy drilling S-5 at 8ft
			9	S-5	SS	14	4	10	
		Light brown fine SAND, some silt (dry)	10				4		S-6 at 10ft
			11	S-6	SS	19	6	14	
			12				8		
			13				6		
			14				6		
		Light brown fine SAND, some silt (wet)	15	S-7	SS	17	5	11	Auger to 15ft, easy drilling . S-7 at 15ft
			16				5		
			17				6		
	110.0	Bottom of Boring	17				4		Bottom of boring on 6/26/2020 Boring backfilled with auger cuttings
			18						
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 142 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Mobile Drill B53				Completion Depth 16 ft		Rock Depth 16 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitsch	
Sampler 2-inch-diameter split spoon				Field Engineer Reid Balkind			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	142.0		0							
	141.3	8" Dark brown fine-medium SAND, trace silt, trace fine gravel, trace roots (dry) [TOPSOIL]		S-1A		2				Started Drilling at 6/26/2020 S-1 at 0ft
		Light brown fine-coarse SAND, trace silt (dry)	1	S-1B	SS	17	4	9		
		Light brown fine-coarse SAND, some silt, trace f-c gravel (dry)	2			4	5			S-2 at 2ft
		Brown fine-coarse SAND, some f-c gravel, trace silt (dry)	3	S-2	SS	17	8	15		
			4			4	7			Auger to 4ft S-3 at 4ft
		Brown fine-coarse SAND, some f-c gravel, trace silt (dry)	5	S-3	SS	10	8	22		
			6			10	14			S-4 at 6ft
		Brown fine-coarse SAND, some f-c gravel, trace silt (dry)	7	S-4	SS	8	12	23		
			8			8	10			
		Brown fine-coarse SAND, trace silt, trace coarse gravel (dry)	9	S-5	SS	11	11	17		Auger to 8ft S-5 at 8ft
			10			11	9			
		Gray coarse GRAVEL (dry)	11	S-6	SS	2	11	17		S-6 at 10ft
			12			2	9			
			13							
	128.5	?	14							
			15	S-7	SS	9	22	50/3		Auger to 15ft, Hard drilling, Light chatter S-7 at 15ft Spoon and Auger refusal at 16ft
	126.3	Brown fine-coarse SAND, some silt, trace f-c gravel, trace weathered gravel (moist)[TILL] Inferred Top of Bedrock	16							Bottom of boring at 6/26/2020 Boring backfilled with auger cuttings
		Bottom of Boring	17							
			18							
			19							
			20							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 135.5 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Mobile Drill B53				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 7		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 15		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitsch	
Sampler 2-inch-diameter split spoon				Field Engineer Reid Balkind			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)		
	135.5		0	S-1A		4				Started Drilling at 6/26/2020
	135.2	3" Dark brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL] Brown fine SAND, some silt (moist)	1	S-1B	SS	14	6	13		S-1 at 0ft
		Brown fine SAND, some silt, trace fine gravel (moist)	2			4	6			S-2 at 2ft
		Brown fine-medium SAND, some silt, trace fine gravel (moist)	3	S-2	SS	14	4	9		Auger to 4ft S-3 at 4ft
		Brown fine-medium SAND, some silt, trace fine gravel (moist)	4			3	5			
		Brown fine-medium SAND, some silt, trace fine gravel (moist)	5	S-3	SS	17	5	12		S-4 at 6ft
		Brown fine-medium SAND, some silt, trace fine gravel (moist)	6			6	7			
		Brown fine-medium SAND, some silt (moist)	7	S-4	SS	17	10	20		Auger to 8ft S-5 at 8ft
		Brown fine-medium SAND, some silt (moist)	8			8	11			
		Brown fine-medium SAND, some silt (moist)	9	S-5	SS	21	8	17		S-6 at 10ft
		Brown fine-medium SAND, some silt (moist)	10			10	9			
		Brown fine-medium SAND, some silt (moist)	11	S-6	SS	16	9	18		
		Brown fine-medium SAND, some silt (moist)	12			9	9			
		Brown sandy SILT (wet)	15			5	6	14		Auger to 15ft, Easy drilling S-7 at 15ft
		Brown sandy SILT (wet)	16	S-7	SS	19	8			
		Brown sandy SILT (wet)	17			6	6			Bottom of boring at 6/26/2020 Boring backfilled with auger cuttings
		Bottom of Boring	18							
		Bottom of Boring	19							
		Bottom of Boring	20							

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 111 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/9/20		Date Finished 6/9/20	
Drilling Equipment Diedrich D50				Completion Depth 22 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 8		Disturbed 8	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 12		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitsch	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

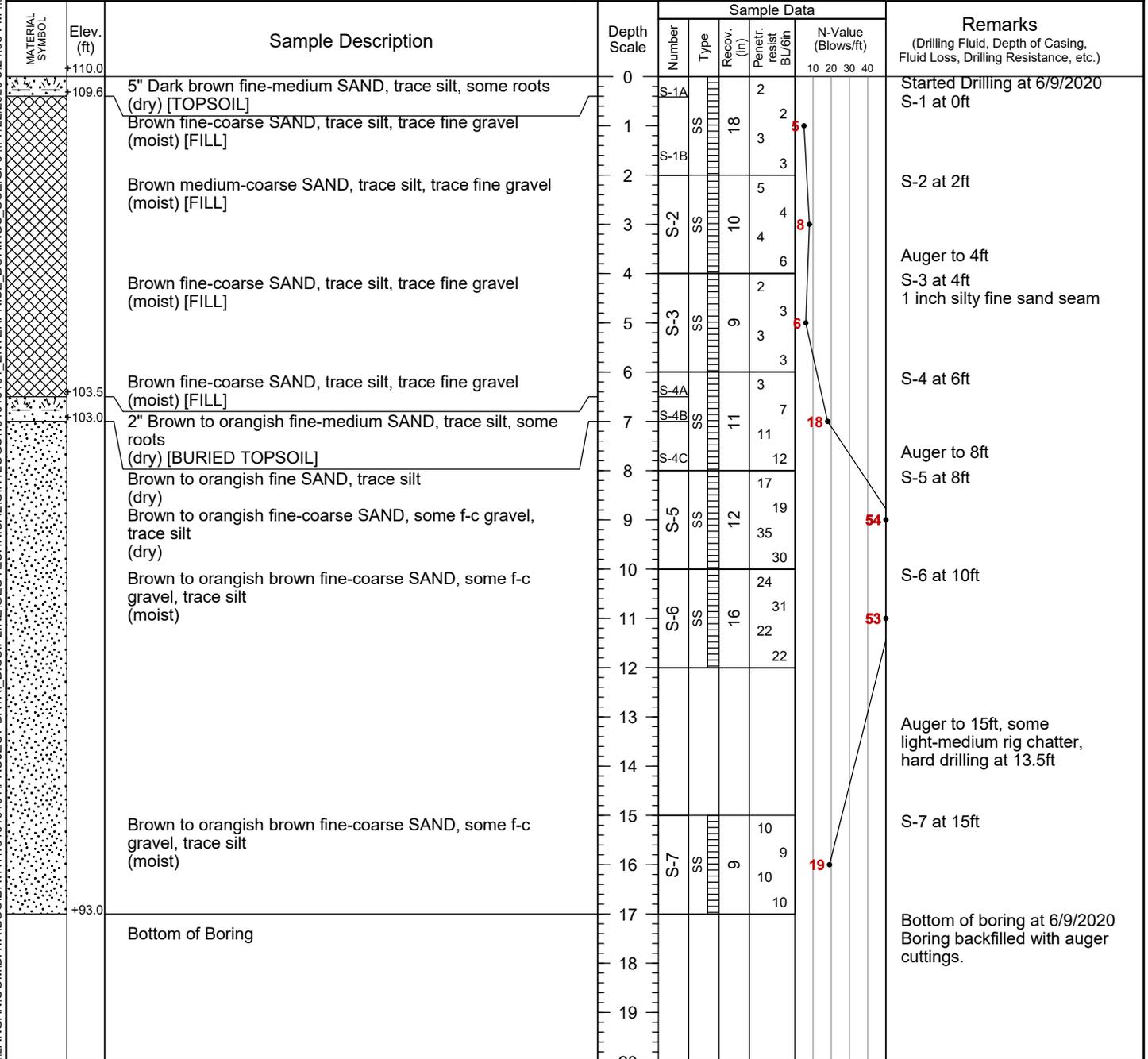
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	111.0		0				2		Started Drilling at 6/9/2020
	110.1	10" Orangish brown fine-medium SAND, some silt, trace roots (moist) [TOPSOIL]	0	S-1A	SS	22	3	8	S-1 at 0ft
		Orangish brown silty fine-medium SAND, trace fine gravel (dry)	1	S-1B	SS	11	5		
		Orangish brown silty fine-medium SAND (dry)	2	S-2A	SS	22	15		S-2 at 2ft
		Orangish tan fine SAND, some silt (dry)	3	S-2B	SS	16	15	31	Auger to 4ft
		Orangish tan silty fine SAND, mottled (moist)	4			14	4		S-3 at 4ft
			5	S-3	SS	19	6	13	
			6			7	7		S-4 at 6ft
		Orangish brown silty fine SAND (moist)	7	S-4	SS	17	7	13	Auger to 8ft
			8			9	5		S-5 at 8ft
		Orangish brown to tan fine SAND, some silt (moist)	9	S-5	SS	24	8	17	
			10			8	8		S-6 at 10ft, spoon tip wet
		Orangish tan fine SAND, some silt (moist)	11	S-6	SS	21	8	18	
			12			10	9		
			13						Auger to 15ft, easy drilling
			14						
		Orangish brown silty fine SAND (wet)	15				4		S-7 at 15ft
			16	S-7	SS	19	5	10	
			17				5		
			18				6		Auger to 20ft, easy drilling
			19						
			20						

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 111 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	+91.0	Orangish brown silty fine SAND (wet)	20				4		S-8 at 20ft
	+89.3	Orangish brown fine-coarse SAND, trace silt, trace coarse gravel (wet) Bottom of Boring	21	S-8A	SS	24	7	16	
	+89.0		22	S-8B			9		Bottom of boring at 6/9/2020 Boring backfilled with auger cuttings.
		23							
		24							
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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 110 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/9/20		Date Finished 6/9/20	
Drilling Equipment Diedrich D50				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First N/E		Completion N/A	24 HR. N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitsch	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			



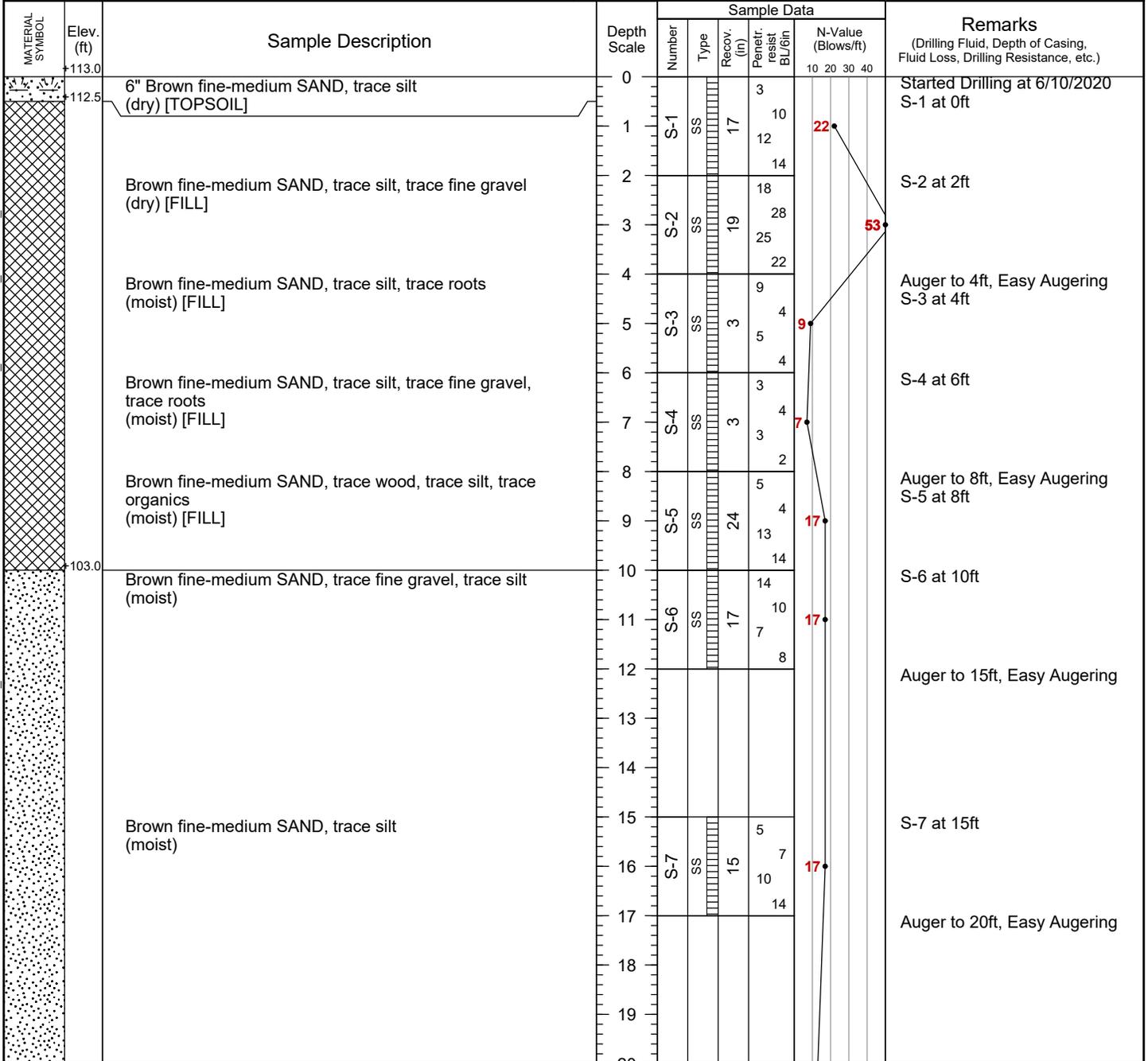
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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 110 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/10/20		Date Finished 6/10/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 19 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 8	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 15	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Ben Cray	
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Blows/in		N-Value (Blows/ft)
	+110.0	12" Brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]	0				2		Started Drilling at 6/10/2020 S-1 at 0ft
			1	S-1	SS	5	13		
			2				14		S-2 at 2ft
	108.0	Brown fine SAND, trace silt, trace fine gravel (dry)	3	S-2	SS	14	5		Auger to 4 ft
			4				3		
		Brown fine SAND, trace silt (dry)	5	S-3	SS	17	2		S-3 at 4ft
			6				1		
		Brown fine SAND, trace silt (dry)	7	S-4	SS	7	2		S-4 at 6ft
			8				2		
		Brown fine SAND, trace silt (dry)	9	S-5	SS	2	2		Auger to 8 ft
			10				2		
		Brown fine SAND, trace silt (dry)	11	S-6	SS	24	13		S-5 at 8ft
			12				26		
		Light brown fine-medium SAND, trace silt (dry)	13				20		S-6 at 10ft
			14				15		
			15				11		
			16	S-7	SS	14	10		Auger to 15 ft
		Light brown fine-coarse SAND, trace silt (wet)	17				8		
			18	S-8	SS	18	10		S-7 at 15ft
			19				8		
			20				7		S-8 at 17ft
			21				6		
	+91.0	Bottom of Boring	22				6		Bottom of boring at 6/10/2020 Boring backfilled with auger cuttings.

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 113 (NGVD29)			
Drilling Company SoilTesting, Inc.				Date Started 6/10/20		Date Finished 6/10/20	
Drilling Equipment CME Truck-Mounted Drill Rig				Completion Depth 22 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed	Undisturbed
Casing Diameter (in) N/A				Casing Depth (ft) N/A		8	-
Casing Hammer N/A				Weight (lbs) N/A		Drop (in) N/A	-
Sampler 2-inch-diameter split spoon				Water Level (ft.)		First	Completion
Sampler Hammer Automatic				Weight (lbs) 140		Drop (in) 30	24 HR.
				Drilling Foreman John Knepple		N/A	N/A
				Field Engineer Kenneth Idem			



Project		Project No.						
Hudson Logistics Center		151010101						
Location		Elevation and Datum						
59 Steele Road, Hudson NH		Elev. + 113 (NGVD29)						
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. BU/6in	
	+93.0	Brown fine-medium SAND, trace silt (wet)	20					S-8 at 20ft
			21	S-8	SS	16	5 6 6	
	+91.0	Bottom of Boring	22					Bottom of boring at 6/10/2020 Boring backfilled with auger cuttings.
			23					
			24					
			25					
			26					
			27					
			28					
			29					
			30					
			31					
			32					
			33					
			34					
			35					
			36					
			37					
			38					
			39					
			40					
			41					
			42					
			43					
			44					
			45					

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 118.5 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First N/E	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Ben Cray	
Sampler 2-inch-diameter split spoon				Field Engineer Kenneth Idem			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	118.5		0						
	118.0	6" Dark brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]		S-1A			3		Started Drilling on 6/26/2020 S-1 at 0ft
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	1	S-1B	SS	14	10	23	
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	2				13		S-2 at 2ft
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	3	S-2	SS	13	9	30	
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	4				19		Auger to 4ft, easy to moderate drilling. S-3 at 4ft
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	5	S-3	SS	12	4	15	
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	6				9		S-4 at 6ft
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	7	S-4	SS	18	6	31	
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	8				22		S-5 at 8ft. Auger to 8ft, easy to moderate drilling
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	9	S-5	SS	10	13	24	
		Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	10				11		S-6 at 10ft
		Light brown fine SAND, trace silt (dry)	11	S-6	SS	7	10	33	
			12				7		
			13				14		
			14				19		
			15				16		
			16	S-7	SS	16	9	21	Auger to 15ft, easy to moderate drilling Gravel in auger cuttings at 13ft S-7 at 15ft
			17				8		Bottom of boring on 6/26/2020 Boring backfilled with auger cuttings.
			18				13		
			19				11		
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 123.5 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 16 ft		Rock Depth N/E	
Size and Type of Bit 3-7/8in Tricone Roller Bit				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) 4in				Casing Depth (ft) 4		Water Level (ft.) First N/E	Completion N/A
Casing Hammer Automatic		Weight (lbs) 140	Drop (in) 30	Drilling Foreman Scott McGregor			
Sampler 2-inch-diameter split spoon				Field Engineer Jack Berritt			
Sampler Hammer Automatic		Weight (lbs) 140	Drop (in) 30				

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		
	123.5		0	S-1A			4		Started Drilling at 6/26/2020 S-1 at 0ft
	123.2	3" Dark brown fine-medium SAND, trace silt, trace roots (moist) [TOPSOIL]							
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	1	S-1B	SS	13	12	16	S-2 at 2ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	2				15		
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	3	S-2	SS	18	31	71	Drive casing to 4.0ft, Light rig chatter
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	4				33		Drill to 4.0ft S-3 at 4ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	5	S-3	SS	10	23	35	
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	6				19		S-4 at 6ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	7	S-4	SS	2	7	29	Drill to 8.0ft. Light rig chatter
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	8				16		S-5 at 8ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	9	S-5	SS	9	12	24	
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	10				12		S-6 at 10ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	11	S-6	SS	10	11	26	
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	12				12		Drill to 14.0ft. Light rig chatter
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	13				14		
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	14	S-7	SS	11	18	31	S-7 at 14ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	15				17		
	107.5	Bottom of Boring	16				14		Bottom of boring at 6/26/2020
			17				13		Boring backfilled with soil cuttings.
			18						
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 145.5 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Mobile Drill B53				Completion Depth 13 ft		Rock Depth 13 ft	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First N/E	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitsch	
Sampler 2-inch-diameter split spoon				Field Engineer Reid Balkind			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft	N-Value (Blows/ft)	
	145.5		0	S-1A	SS	4	4		Started Drilling at 6/26/2020 S-1 at 0ft
	145.2	3" Dark brown fine-medium SAND, trace silt, trace fine gravel, trace roots (dry) [TOPSOIL] Light tannish brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	1	S-1B	SS	16	9	14	
		Light tannish brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	2			7	7		S-2 at 2ft
		Brown fine-coarse SAND, trace silt, trace fine gravel (dry)	3	S-2	SS	15	7	14	
		Light brown sandy SILT (moist)	4	S-3A	SS	3	8		Auger to 4ft S-3 at 4ft
	140.9	Light brown sandy SILT (moist)	5	S-3B	SS	13	7	15	
		Light brown sandy SILT (moist)	6	S-4A	SS	9	5		S-4 at 6ft
	139.3	Brown fine SAND, some silt (moist)	7	S-4B	SS	14	7	14	
		Brown fine SAND, some silt (moist)	8	S-5	SS	4	6		Auger to 8ft S-5 at 8ft
		Brown fine SAND, some silt (moist)	9			17	5	11	
		Brown fine SAND, some silt (moist)	10	S-6	SS	7	7		S-6 at 10ft
		No Recovery Inferred Top of Bedrock	11			15	10	18	
	132.4	Bottom of Boring	12	S-7	SS	0	50/1	50/1	Auger to 13ft. S-7 at 13ft Auger and spoon refusal at 13ft Bottom of boring at 6/26/2020 Boring backfilled with auger cuttings

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 119 (NGVD29)			
Drilling Company Atlantic Testing Laboratories				Date Started 6/26/20		Date Finished 6/26/20	
Drilling Equipment Geoprobe 7822 DT				Completion Depth 17 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples		Disturbed 7	Undisturbed -
Casing Diameter (in) N/A				Casing Depth (ft) N/A		Water Level (ft.) First 16	Completion N/A
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Ben Cray	
Sampler 2-inch-diameter split spoon				Field Engineer Olivia Chasse			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			Number	Type	Recov. (in)	Penetr. resist. Bl/In	
119.0		0	S-1A	SS	2	2	Started Drilling on 6/26/2020. S-1 at 0ft
118.7	4" Light brown fine-medium SAND, trace silt, trace fine gravel, some roots (dry) [TOPSOIL] Brown fine to medium SAND, trace silt (dry)	1	S-1B	SS	9	3	
117.0	Dark brown fine-medium SAND, some silt, some organics, trace historic roots (moist)	2	S-2	SS	2	3	S-2 at 2ft
	Dark brown fine-medium SAND, some silt, trace organics, trace historic roots (moist)	3	S-3A	SS	5	3	S-3 at 4ft. Auger to 4ft, easy drilling
114.5	Dark brown fine-medium SAND, some silt, trace organics, trace historic roots (moist)	4	S-3B	SS	2	2	
	Light brown fine-medium SAND, some fine gravel, trace silt (dry)	5	S-4	SS	14	3	S-4 at 6ft
	Light brown fine-medium SAND, some fine gravel, trace silt (dry)	6	S-5	SS	35	30	
	Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	7	S-6	SS	37	27	S-5 at 8ft. Auger to 8ft, easy to moderate drilling
	Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	8	S-7A	SS	26	26	
	Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	9	S-7B	SS	15	11	Auger to 10ft, easy drilling . S-6 at 10ft
	Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	10		SS	13	10	
	Light brown fine SAND, some silt (moist)	11		SS	10	11	Auger to 15ft, easy drilling. S-7 at 15ft
	Brown fine-coarse SAND, some silt, some fine gravel (wet)	12		SS	8	13	
102.0	Bottom of Boring	13				16	Bottom of boring on 6/26/2020 Boring backfilled with auger cuttings
		14					
		15					
		16					
		17					
		18					
		19					
		20					

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Project Hudson Logistics Center			Project No. 151010101		
Location 59 Steele Road, Hudson NH			Elevation and Datum Elev. + 126 (NGVD29)		
Drilling Company Seaboard Drilling, Inc			Date Started 6/26/20		Date Finished 6/26/20
Drilling Equipment Mobile Drill B53			Completion Depth 17 ft		Rock Depth N/E
Size and Type of Bit 4in Hollow Stem Auger			Number of Samples 7		Disturbed 7
Casing Diameter (in) N/A			Casing Depth (ft) N/A		Undisturbed -
Casing Hammer N/A			Weight (lbs) N/A		Drop (in) N/A
Sampler 2-inch-diameter split spoon			Water Level (ft.) First N/E		Completion N/A
Sampler Hammer Automatic			Weight (lbs) 140		Drop (in) 30
			Drilling Foreman Jeff Nitsch		
			Field Engineer Reid Balkind		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)
	126.0	12" Dark brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]	0				2		Started Drilling at 6/26/2020 S-1 at 0ft
	125.0	Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	1	S-1A	SS	20	3	9	
		Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	2	S-1B	SS		7		S-2 at 2ft
		Light brown fine SAND, some silt (dry)	3	S-2	SS	12	5	10	
		Light brown fine SAND, some silt, trace fine gravel (dry)	4				5		Auger to 4ft S-3 at 4ft
		Light brown fine SAND, some silt, trace fine gravel (dry)	5	S-3	SS	12	10	18	
		Light brown fine SAND, some silt, trace fine gravel (dry)	6				7		S-4 at 6ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	7	S-4	SS	16	6	13	
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	8				7		Auger to 8ft S-5 at 8ft
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	9	S-5	SS	16	2	10	
		Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	10				5		S-6 at 10ft
		Light brown to gray gravelly fine-coarse SAND, trace silt (dry)	11	S-6	SS	17	5	13	
			12				6		
			13				7		
			14				8		
			15				13		Auger to 15ft, Hard drilling from 13ft S-7 at 15ft
			16	S-7	SS	13	23	55	
			17				32		
			18				42		Bottom of boring at 6/26/2020 Boring backfilled with auger cuttings.
			19						
			20						

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Project Hudson Logistics Center				Project No. 151010101			
Location 59 Steele Road, Hudson NH				Elevation and Datum Elev. + 115 (NGVD29)			
Drilling Company Seaboard Drilling, Inc				Date Started 6/9/20		Date Finished 6/9/20	
Drilling Equipment Diedrich D50				Completion Depth 29 ft		Rock Depth N/E	
Size and Type of Bit 4in Hollow Stem Auger				Number of Samples 9		Disturbed 9	Undisturbed -
Casing Diameter (in) N/A		Casing Depth (ft) N/A		Water Level (ft.) First 25		Completion 23	24 HR. 24.4
Casing Hammer N/A		Weight (lbs) N/A		Drop (in) N/A		Drilling Foreman Jeff Nitsch	
Sampler 2-inch-diameter split spoon				Field Engineer Taylor Sisti			
Sampler Hammer Automatic		Weight (lbs) 140		Drop (in) 30			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
				Number	Type	Recov. (in)	Penetr. resist. Bl/ft		N-Value (Blows/ft)	
	115.0		0							
	114.1	11" Dark brown fine-medium SAND, some silt, some roots (moist) [TOPSOIL]		S-1A	SS	22	3	5	12	Started Drilling at 6/9/2020 S-1 at 0ft
		Light brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	1	S-1B	SS	7	7			
		Light brown fine-medium SAND, trace silt (dry)	2			7	6			S-2 at 2ft
		Light brown fine-coarse SAND, trace silt (moist)	3	S-2	SS	20	6	6	12	Auger to 4ft S-3 at 4ft 2 inch thick silty fine sand seam
		Light brown fine-coarse SAND, trace silt (moist)	4	S-3	SS	16	4	3	7	S-4 at 6ft
		Light brown fine-coarse SAND, trace silt (moist)	5	S-4	SS	21	7	7	14	Auger to 8ft S-5 at 8ft
		Light brown fine-coarse SAND, trace silt (moist)	6	S-5	SS	17	4	5	10	S-6 at 10ft
		Light brown fine-coarse SAND, trace silt (moist)	7	S-6	SS	17	4	4	9	
			8				5			
			9				6			
			10							
			11							
			12							
			13							Auger to 15ft, easy drilling
			14							
		Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	15	S-7	SS	14	4	5	12	S-7 at 15ft
			16				7			
			17				6			
			18							Auger to 20ft, easy drilling
			19							
			20							

Project		Project No.							
Hudson Logistics Center		151010101							
Location		Elevation and Datum							
59 Steele Road, Hudson NH		Elev. + 115 (NGVD29)							
MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. BU/6in		N-Value (Blows/ft)
	+95.0	Light brown fine-coarse SAND, trace silt, trace fine gravel (moist)	20				6		S-8 at 20ft  Auger to 25ft, easy drilling  S-9 at 25ft  Auger to 29ft Bottom of boring at 6/9/2020 Install observation well. Refer to well construction log.
			21	S-8	SS	12	7	15	
			22				8		
			23				21		
			24						
			25						
			26	S-9	SS	11	2	2	
			27				2	2	
			28						
			29						
	+86.0	Bottom of Boring	30						
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Project Hudson Logistics Center			Project No. 151010101		
Location 59 Steele Road, Hudson NH			Elevation and Datum Elev. + 169 (NGVD29)		
Drilling Company SoilTesting, Inc.		Date Started 6/30/20		Date Finished 6/30/20	
Drilling Equipment Mobile Drill B53			Completion Depth 10 ft		Rock Depth 10 ft
Size and Type of Bit 4in Hollow Stem Auger			Number of Samples	Disturbed	Undisturbed
Casing Diameter (in) N/A			Casing Depth (ft) N/A	Water Level (ft.) First	Core
Casing Hammer N/A		Weight (lbs) N/A	Drop (in) N/A	Completion	24 HR.
Sampler 2-inch-diameter split spoon			Drilling Foreman Mike Kennedy		
Sampler Hammer Safety		Weight (lbs) 140	Drop (in) 30	Field Engineer Reid Balkind	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)	
				Number	Type	Recov. (in)	Penetr. resist. Bl/In		N-Value (Blows/ft)
	169.0		0	S-1A		4	4		Started Drilling at 6/30/2020
	168.7	4" Dark brown fine-medium SAND, trace silt, trace roots (dry) [TOPSOIL]				7	7		S-1 at 0ft
		Light brown fine-medium SAND, trace silt (dry)	1	S-1B	SS	17	6	13	
		Light brown fine-medium SAND, trace silt (dry)	2			5	5		S-2 at 2ft
		Light brown fine-medium SAND, trace silt (dry)	3	S-2	SS	13	5	10	
		Light brown fine SAND, some silt, trace fine gravel (moist)	4			5	5		Auger to 4ft
		Light brown to gray fine-coarse SAND, trace silt, trace f-c gravel, trace weathered rock fragments (dry)	5	S-3	SS	17	6	12	S-3 at 4ft
			6			7	12		
			7	S-4	SS	15	15	67	S-4 at 6ft
			8			34	34		
			9	S-5	SS	20	28	100	Auger to 8ft
			10			44	44		S-5 at 8ft
			11			56	56		
			12			50/3	50/3		Bottom of boring at 7/1/2020
			13						Spoon and auger refusal encountered at 10ft.
			14						Boring backfilled with auger cuttings
			15						
			16						
			17						
			18						
			19						
			20						

# **APPENDIX D TEST PIT LOGS**

# LOG OF TEST PIT B-B-TP-02

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 9:22:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 153 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 7.2 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 304E		FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+153.0	6" Light brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
	+152.5	Light brown fine SAND, trace silt, trace roots (moist)	1			
	+151.8	Light brown fine SAND, trace silt (moist)	2			
		Light brown fine SAND, trace silt (moist)	3			
			4			
			5			
			6			
			7			
	+145.8	Bottom of Test Pit at 7.2ft	8			Bottom of Test Pit at 7.2ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

# LOG OF TEST PIT B-B-TP-04

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 9:43:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 156 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 9 ft	WATER LEVEL - First N/E
EQUIPMENT Takeuchi TB260		FOREMAN Wanderley Docarno	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+156.0	Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.  Roots to 1ft
	+155.3	Brown fine-coarse SAND, some f-c gravel, trace silt (dry)	1			
			2			
			3			
			4			
			5			
			6			
			7			
			8			
			9			
	+147.0	Bottom of Test Pit at 9ft	9			Bottom of Test Pit at 9ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			10			
			11			

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# LOG OF TEST PIT B-B-TP-05

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 10:56:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 152.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 8 ft	WATER LEVEL - First 7 ft
EQUIPMENT CAT 305E		FOREMAN Josh Mclevy	LANGAN PERSONNEL Olivia Chasse
		WATER LEVEL - Completion 7 ft	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+152.5	6" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+152.0	Light brown fine-medium SAND, trace silt, trace roots (dry)	1			
	+151.0		2			Roots to 1.5ft
		Brown fine-coarse SAND, some f-c gravel, trace silt (dry)	3			
			4			
			5			
			6			
	+145.5	Brown fine-coarse SAND, some f-c gravel, trace silt (wet)	7			Groundwater encountered at 7ft.
	+144.5	Bottom of Test Pit at 8ft	8			Bottom of Test Pit at 8ft. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

# LOG OF TEST PIT B-B-TP-07

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 10:02:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 145.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 6.3 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 304E		FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+145.5	6-7" Light brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+144.9	Light brown to brown fine-medium SAND, trace silt, trace roots (moist)	1			
	+143.8	Light brown fine-medium SAND, trace silt (moist)	2			
			3			
			4			
			5			
			6			
	+139.2	Bottom of Test Pit at 6.3ft	7			Bottom of Test Pit at 6.3ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

# LOG OF TEST PIT B-B-TP-08

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 8:20:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 144.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 6.5 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E		FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+144.5	6" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+144.0	Brown fine-medium SAND, some f-m gravel, trace silt (dry)[FILL]	1			
	+141.5	Dark brown fine-medium SAND, some silt, trace roots (dry)[TOPSOIL]	3			
	+141.0	Light brown fine-medium SAND, trace silt, trace f-m gravel (dry)	4			
	+138.0	Bottom of Test Pit at 6.5ft	7			Bottom of Test Pit at 6.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

# LOG OF TEST PIT B-B-TP-10

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 9:55:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 143.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 8 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E		FOREMAN Josh Mclevy	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+143.5	Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+143.0	Brown fine-coarse SAND, some f-c gravel, trace silt (dry)	1			Roots to 1ft.
			2			
			3			
			4			
			5			
			6			
			7			
			8			
	+135.5	Bottom of Test Pit at 8ft	8			Bottom of Test Pit at 8ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

# LOG OF TEST PIT B-B-TP-11

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/30/2020 1:11:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 142.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 6.8 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 304E	FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+142.5	5" Light brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+142.1	Light brown fine-medium SAND, some silt, trace roots (moist)	1			
	+141.1	Light brown fine-medium SAND, some silt, trace roots (moist)	2			
	+139.3	Light brown fine-medium SAND, trace silt (moist)	3			
	+135.7	Bottom of Test Pit at 6.8ft	4			
			5			Bottom of Test Pit at 6.8ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			6			
			7			
			8			
			9			
			10			
			11			

# LOG OF TEST PIT B-B-TP-12

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/30/2020 11:07:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 135 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 2.8 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E	FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+135.0	6-7" Light brown fine-medium SAND, some silt, some roots, trace f-c gravel (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+134.5	Light brown fine-coarse SAND, some f-c gravel, trace silt, trace roots (dry)	1			
	+134.0	Light brown fine-coarse SAND, some f-c gravel, trace silt (dry)	2			
	+133.5	Light gray BEDROCK, slightly weathered surface (dry)	3			
	+132.2	Bottom of Test Pit at 2.8ft	4			Black phone line wire encountered at 2ft deep during excavation, along north edge of test pit. Fill inferred above to ground surface and about 1ft on either side of wire. Wire left exposed for groundskeeper. Groundskeeper confirmed line is not in use and was previously abandoned. Top of rock encountered between 1.5 and 2.8ft, rock dips toward north. Non-rippable rock with mini-excavator. Bottom of Test Pit between 1.5 and 2.8ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			5			
			6			
			7			
			8			
			9			
			10			
			11			

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# LOG OF TEST PIT B-B-TP-13

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 7:33:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 146 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 7 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E		FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+146.0	12" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.  Roots to 1ft
	+145.0	Light brown fine-medium SAND, some f-m gravel, trace silt (dry)	1			
	+143.0	Light brown fine SAND, some fine gravel, trace silt (dry)	3			
	+139.0	Bottom of Test Pit at 7ft	7			Bottom of Test Pit at 7ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

# LOG OF TEST PIT B-B-TP-14

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/30/2020 8:37:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 138 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 8 ft	WATER LEVEL - First N/E
EQUIPMENT Takeuchi TB260	FOREMAN Wanderley Docarno	WATER LEVEL - Completion N/E
	LANGAN PERSONNEL Taylor Sisti	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+138.0	6-7" Light brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
	+137.5	Light brown fine-medium SAND, trace silt, trace f-c gravel, trace roots (dry)	1			
	+136.6	Light brown to brown fine-medium SAND, trace silt, trace f-c gravel (dry)	2			
	+135.6	Light brown fine-coarse SAND, some f-c gravel, trace silt, and fine SAND, trace silt layers 3-10 inches thick, trace cobbles up to 6 inches (dry)	3			
			4			
			5			
			6			
			7			
			8			
	+130.0	Bottom of Test Pit at 8ft				Bottom of Test Pit at 8ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

# LOG OF TEST PIT B-B-TP-16

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 12:06:00 PM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 140 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 7.5 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 304E		FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+140.0	5-6" Dark brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+139.5	Orangish brown silty fine SAND, some roots (moist)	1			
	+137.5	Light brown fine-medium SAND, trace silt (moist)	3			
	+132.5	Bottom of Test Pit at 7.5ft	8			
			4			
			5			
			6			
			7			
			9			
			10			
			11			

# LOG OF TEST PIT B-B-TP-17

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/3/2020 12:08:00 PM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 125.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 7 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E		FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Jack Berritt	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+125.5	6" Brown fine-medium SAND, trace silt, trace fine gravel, trace roots (dry) [TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
	+125.0	Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	1			
	+124.0	Brown fine SAND, trace silt (moist)	2			
	+122.5	Brown fine-medium SAND, trace silt (moist)	3			
			4			
			5			
			6			
			7			
	+118.5	Bottom of Test Pit at 7ft	7			Bottom of Test Pit at 7ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

# LOG OF TEST PIT B-B-TP-18

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/3/2020 11:32:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 135 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 7 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E		FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+135.0	3" Gray fine GRAVEL, some f-m sand, trace silt (dry) [FILL]	0			Test pit in gravel access road. Vertical sidewalls mostly maintained. No redox.
	+134.8	Light brown fine-medium SAND, some fine gravel, trace silt (dry)	1			
	+132.5	Grayish brown fine-coarse GRAVEL, some f-c sand, trace silt (dry)	2			
	+132.3	Light brown fine-medium SAND, some f-m gravel, trace silt (dry)	3			
			4			
			5			
			6			
			7			
			8			
			9			
			10			
	+128.0	Bottom of Test Pit at 7ft	11			Bottom of Test Pit at 7ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

# LOG OF TEST PIT B-B-TP-19

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/29/2020 1:56:00 PM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 134 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 9.5 ft	WATER LEVEL - First N/E
EQUIPMENT Takeuchi TB260		FOREMAN Wanderley Docarno	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+134.0	8" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+133.3	Light brown fine-medium SAND, some f-m gravel, trace silt (dry)	1			
			2			
			3			
			4			
			5			
			6			
			7			
			8			
			9			
	+130.0	Light brown fine-medium SAND, trace silt (dry)	4			
			5			
			6			
			7			
			8			
			9			
	+124.5	Bottom of Test Pit at 9.5ft	10			Bottom of Test Pit at 9.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			11			

# LOG OF TEST PIT B-B-TP-20

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 8:43:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 136.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 8 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E		FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+136.5	6" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+136.0	Light brown fine-medium SAND, trace silt (dry)	1			
	+134.5	Light brown fine SAND, trace silt lenses (dry)	2			
			3			Roots to 4.5ft
			4			
			5			
			6			
			7			
	+128.5	Bottom of Test Pit at 8ft	8			Bottom of Test Pit at 8ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

# LOG OF TEST PIT B-R-TP-01

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/18/2020 7:32:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 143 (NGVD29)	
EXCAVATION CONTRACTOR	DEPTH 6.5 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E	FOREMAN Wanderley Docarno	WATER LEVEL - Completion N/E
	LANGAN PERSONNEL Olivia Chasse	

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+143.0	5-7" Light brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained. No Redox.
	+142.4	Light brown fine-coarse SAND, some silt, trace f-c gravel, trace roots, trace cobbles up to 4 inches (moist)	1			
	+141.2	Light brown fine-coarse SAND, trace silt, trace f-c gravel, trace roots, trace cobbles up to 6 inches (moist)	2			
	+140.0	Light brown fine-coarse SAND, trace silt, trace f-c gravel, trace cobbles up to 3 inches (moist)	3			
	+136.5	Bottom of Test Pit at 6.5ft	7			Bottom of Test Pit at 6.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

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# LOG OF TEST PIT B-R-TP-04

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/29/2020 9:30:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 148 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 9.5 ft	WATER LEVEL - First N/E
EQUIPMENT Takeuchi TB260	FOREMAN Wanderley	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+148.0	6" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.  Roots to 3ft
	+147.5	Light brown fine SAND, trace silt, trace fine gravel (dry)	1			
			2			
			3			
	+144.0	Brown fine-medium SAND, some silt, some f-c gravel (dry)	4			
	+143.5	Light brown fine SAND, trace silt, trace fine gravel (dry)	5			
			6			
			7			
	+140.5	Brown fine-medium SAND, some silt, some f-c gravel (dry)	8			
	+140.0	Light brown fine SAND, trace silt, trace fine gravel (dry)	9			
	+138.5	Bottom of Test Pit at 9.5ft	10			Bottom of Test Pit at 9.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			11			

# LOG OF TEST PIT B-S-TP-01

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/18/2020 2:01:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 148.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.5 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E	FOREMAN Wanderley Docarno	WATER LEVEL - Completion N/E
	LANGAN PERSONNEL Taylor Sisti	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+148.5	5-7" Light brown fine-medium SAND, some silt, some roots (dry) [TOPSOIL]	0			Vertical sidewalls mostly maintained. No redox.
	+148.0	Light brown fine-medium SAND, some silt, trace roots (dry)	1			
	+147.1	Light brown fine-medium SAND, trace silt, trace roots (dry)	2			
	+144.7	Light brown fine-coarse SAND, trace silt, trace f-c gravel, trace cobbles up to 8 inches (dry)	4			
	+141.0	Bottom of Test Pit at 7.5ft	8			Bottom of Test Pit at 7.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

# LOG OF TEST PIT B-S-TP-02

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/30/2020 2:13:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 165 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 8 ft	WATER LEVEL - First N/E
EQUIPMENT Takeuchi TB260	FOREMAN Wanderley	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+165.0	8" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained.No redox.  Roots to 1ft
	+164.3	Light brown fine-medium SAND, trace silt, trace fine gravel (dry)	1			
			2			
			3			
			4			
			5			
			6			
			7			
			8			
			9			
			10			
			11			

Bottom of Test Pit at 8ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.

# LOG OF TEST PIT B-S-TP-04

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 11:43:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 162 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 8.2 ft	WATER LEVEL - First N/E
EQUIPMENT Takeuchi TB260		FOREMAN Wanderley Docarno	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+162.0	5-6" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No Redox.
	+161.5	Orangish brown fine-coarse SAND, some silt, trace f-c gravel, trace roots (dry)	1			
	+160.7	Light brown to orangish brown fine-coarse SAND, some f-c gravel, trace silt, trace cobbles up to 8 inches, and f-m SAND, trace silt layers 6-18 inches (dry)	2			
			3			
			4			
			5			
	+156.2	Grayish brown fine-medium SAND, some silt, trace f-c gravel, trace cobbles up to 12 inches (moist)[TILL]	6			
			7			
			8			
	+153.8	Bottom of Test Pit at 8.2ft				Bottom of Test Pit at 8.2ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

# LOG OF TEST PIT B-S-TP-05

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/18/2020 2:31:00 PM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 147 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 7 ft	WATER LEVEL - First N/E ▽
EQUIPMENT Takeuchi TB260		FOREMAN Pat Polster	WATER LEVEL - Completion N/E ▼
		LANGAN PERSONNEL Taylor Sisti	

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+147.0	5" Dark brown fine-medium SAND, some silt, some roots (dry) [TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+146.6	Light brown fine-coarse SAND, some f-c gravel, trace silt (dry) [FILL]	1			
	+145.8	Dark brown fine-medium SAND, some silt, some roots (dry) [TOPSOIL]				
	+145.6	Orangish brown fine-medium SAND, some silt, trace roots (dry)	2			
	+144.8	Light brown fine-medium SAND, some silt (dry)	3			
			4			
			5			
			6			
			7			
	+140.0	Bottom of Test Pit at 7ft	8			Bottom of Test Pit at 7ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

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# LOG OF TEST PIT B-S-TP-08

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 10:42:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 162 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 8 ft	WATER LEVEL - First N/E
EQUIPMENT Takeuchi TB260		FOREMAN Wanderley Docarno	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+162.0	6" Brown fine-medium SAND, some roots, trace silt (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+161.5	Light brown fine-medium SAND, trace silt, some roots (dry)	1			
			2			
			3			
	+158.5	Brown fine-coarse SAND, some f-c gravel, trace silt (dry)	4			Roots to 4ft
			5			
			6			
			7			
	+156.5	Light brown fine-medium SAND, trace silt, trace f-c gravel (dry)	8			Bottom of Test Pit at 8ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

# LOG OF TEST PIT B-S-TP-09

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 11:36:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 161 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 8 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E		FOREMAN Josh Mclevy	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+161.0	8" Brown fine-medium SAND, trace silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+160.3	Light brown fine-medium SAND, some f-m gravel, trace silt (dry)[FILL]	1			
	+159.0	Dark brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	2			
	+158.5	Brown fine-medium SAND, trace silt, trace roots (dry)	3			
	+157.0	Light brown fine-coarse SAND, some fine gravel, trace silt (dry)	4			
			5			Roots to 4ft
			6			
			7			
			8			
	+153.0	Bottom of Test Pit at 8ft	8			Bottom of Test Pit at 8ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
			11			

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# LOG OF TEST PIT B-S-TP-10

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/30/2020 2:06:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 156 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.5 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 304E	FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+156.0	7" Dark brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+155.4	Orangish brown fine-medium SAND, some silt, trace roots (moist)	1			
	+154.8	Light brown fine-medium SAND, trace silt, trace roots (moist)	2			
	+153.0	Light brown fine-medium SAND, trace silt (moist)	3			
	+148.5	Bottom of Test Pit at 7.5ft	8			Bottom of Test Pit at 7.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			4			
			5			
			6			
			7			
			9			
			10			
			11			

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# LOG OF TEST PIT B-S-TP-11

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 12:29:00 PM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 153.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 8 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E		FOREMAN Josh Mclevy	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+153.5	24" Light brown fine-medium SAND, trace silt, some roots (dry)	0			Leaf litter at surface. Vertical sidewalls maintained. No redox.
			1			
			2			
	+151.5	Light brown fine-medium SAND, some silt, some f-c gravel, trace boulders (dry)	3			Roots to 3ft
			4			
			5			
			6			
			7			
	+145.5	Bottom of Test Pit at 8ft	8			Bottom of Test Pit at 8ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with leaf litter removed prior to excavation.
			9			
			10			
			11			

# LOG OF TEST PIT B-S-TP-13

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 1:24:00 PM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 135 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 8.5 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E		FOREMAN Josh Mclevy	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+135.0	12" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+134.0	Light brown fine-medium SAND, trace silt, trace roots (dry)	1			
			2			Roots to 2.5ft
			3			
			4			
			5			
	+130.5	Brown fine-coarse SAND, trace silt, trace f-c gravel (dry)	6			
			7			
			8			
			9			
	+126.5	Bottom of Test Pit at 8.5ft	10			Bottom of Test Pit at 8.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			11			

# LOG OF TEST PIT B-S-TP-14

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/3/2020 1:35:00 PM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 154.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7.5 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E	FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+154.5	Light brown fine-medium SAND, trace silt, some roots (moist)	0			Located adjacent to gravel maintenance path. Vertical sidewalls maintained. No redox.
			1			
			2			
			3			
			4			
			5			
			6			
	+152.9	Light brown fine-medium SAND, trace silt (moist)				
			7			
			8			
			9			
			10			
	+147.0	Bottom of Test Pit at 7.5ft				Bottom of Test Pit at 7.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			11			

# LOG OF TEST PIT B-S-TP-15

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/29/2020 9:40:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 113.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 7 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E	FOREMAN Josh Mclevy	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+113.5	6" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.  Roots to 0.5ft
	+113.0	Light brown fine-medium SAND, trace silt, trace f-c gravel, trace plastic and PVC pieces (dry) [FILL]	1			
	+111.0	Grayish brown silty fine SAND (dry)	3			
	+110.5	Brown to grayish fine-medium SAND, some silt, some f-c gravel (dry)[TILL]	4			
	+106.5	Bottom of Test Pit at 7ft	7			Bottom of Test Pit at 7ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

# LOG OF TEST PIT B-S-TP-17

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/29/2020 10:46:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 109.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 7 ft	WATER LEVEL - First N/E
EQUIPMENT Takeuchi		FOREMAN Wanderley Docarno	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+109.5	6" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+109.0	Light brown fine SAND, trace silt (dry) [FILL]	1			
	+107.5	Brown fine-medium SAND, some f-c gravel, trace silt, trace cobbles, trace plastic pieces (dry) [FILL]	2			
	+102.5	Bottom of Test Pit at 7ft	7			Excavator bucket refusal on boulders at 7ft. Bottom of fill material not encountered. Bottom of Test Pit at 7ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

# LOG OF TEST PIT B-S-TP-18

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/29/2020 11:30:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 114 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 7 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E		FOREMAN Josh Mclevy	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+114.0	12" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.  Roots to 1ft
	+113.0	Light brown fine-medium SAND, some f-c gravel, trace silt (dry)[FILL]	1			
			2			
			3			
			4			
	+109.5	Dark brown fine-medium SAND, some silt, trace f-c gravel, some plastic pieces, trace organics, trace rubber pieces (dry)[FILL]	5			
	+108.5	Light brown fine-medium SAND, trace silt, trace f-c gravel (dry)	6			
	+107.0	Bottom of Test Pit at 7ft	7			Bottom of Test Pit at 7ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

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# LOG OF TEST PIT B-S-TP-19

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/29/2020 12:39:00 PM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 120 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 7.5 ft	WATER LEVEL - First N/E
EQUIPMENT Takeuchi TB260		FOREMAN Wanderley Docarno	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+120.0	9-10" Dark brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+119.2	Light brown fine-coarse SAND, trace silt, trace f-c gravel (moist)	1			
	+118.1	Light brown to gray fine-coarse rounded GRAVEL, trace silt, trace f-c sand, and COBBLES up to 8 inches (moist)	2			
			3			
			4			
			5			
	+114.5	Light brown gravelly fine-coarse SAND, trace silt, trace cobbles up to 8 inches (moist)	6			
			7			
			8			Bottom of Test Pit at 7.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			9			
			10			
	+112.5	Bottom of Test Pit at 7.5ft	11			

# LOG OF TEST PIT B-S-TP-20

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/29/2020 1:16:00 PM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 130.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 7 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 305E		FOREMAN Josh Mclevy	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Olivia Chasse	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+130.5	6" Brown fine-medium SAND, trace silt, trace roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No Redox.  Roots to 0.5ft
	+130.0	Light brown fine-medium SAND, some f-c gravel, trace silt (dry)	1			
	+128.5	Light brown fine-medium SAND, trace silt (dry)	2			
			3			
			4			
			5			
			6			
			7			
	+123.5	Bottom of Test Pit at 7ft	7			Bottom of Test Pit at 7ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

# LOG OF TEST PIT B-S-TP-21

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/29/2020 2:13:00 PM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 143.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 7 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 304E		FOREMAN Josh McLevy	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti	

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+143.5	9-11" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+142.6	Light brown fine-medium SAND, some silt, trace roots (dry)	1			
	+142.1	Light brown fine-medium SAND, trace silt (dry)	2			
			3			
			4			
			5			
			6			
	+136.5	Bottom of Test Pit at 7ft	7			Bottom of Test Pit at 7ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			8			
			9			
			10			
			11			

# LOG OF TEST PIT B-S-TP-22

PROJECT NAME Hudson Logistics Center	PROJECT NUMBER 151010101	DATE 6/30/2020 7:26:00 AM
LOCATION 59 Steele Road, Hudson, NH	ELEVATION Elev. + 115 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries	DEPTH 9.5 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 304E	FOREMAN Pat Polster	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti

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Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+115.0	4" Light brown fine-medium SAND, some silt, some roots (moist)[TOPSOIL]	0			Vertical sidewalls maintained. No redox.
	+114.7	Light brown to brown fine-medium SAND, some silt, trace f-c gravel, trace roots, trace plastic, trace organics (moist)[FILL]	1			
	+112.3	Light brown to brown silty fine SAND, trace f-c gravel, trace roots (moist)	3			G-1 at 4ft. Infiltration test B-IT-22 at 4ft, see log for details.
	+111.0	Light brown to brown silty fine SAND, trace f-c gravel, trace cobbles up to 5 inches (moist)	4	G-1	GRAB	
			5			
			6			
			7			
			8			
			9			
	+105.5	Bottom of Test Pit at 9.5ft	10			Bottom of Test Pit at 9.5ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			11			

# LOG OF TEST PIT B-S-TP-23

PROJECT NAME Hudson Logistics Center		PROJECT NUMBER 151010101	DATE 6/30/2020 7:44:00 AM
LOCATION 59 Steele Road, Hudson, NH		ELEVATION Elev. + 115.5 (NGVD29)	
EXCAVATION CONTRACTOR Polster Industries		DEPTH 8 ft	WATER LEVEL - First N/E
EQUIPMENT CAT 304E		FOREMAN Josh McLevy	WATER LEVEL - Completion N/E
		LANGAN PERSONNEL Taylor Sisti	

\\LANGAN.COM\DATA\BOS\DATA\151010101\PROJECT DATA\DISCIPLINE\GEO\TECHNICAL\GINTLOGS\151010101 ENTERPRISE TEST PITS.GPJ ... 7/20/2020 9:21:25 AM ... Report: Log - LANGANTP

Symbol	ELEV (feet)	DESCRIPTION	Depth Scale	SAMPLE		REMARKS
				Number	Type	
	+115.5	9" Dark brown fine-medium SAND, some silt, some roots (dry)[TOPSOIL]	0			Vertical sidewalls moderately maintained. No redox.
	+114.7	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	1			
			2			G-1 at 2ft. Infiltration test B-IT-23 at 2ft, see log for details.
			3	G-1	GRAB	
	+112.3	Light brown gravelly fine-coarse SAND, trace silt, trace cobbles up to 4 inches (dry)	4			
	+111.4	Light brown fine-coarse SAND, trace silt, trace fine gravel (dry)	5			
			6			
			7			
			8			
	+107.5	Bottom of Test Pit at 8ft	9			Bottom of Test Pit at 8ft, no groundwater encountered. Test pit backfilled with excavated soils in compacted lifts to grade. Surface restored with grass removed prior to excavation.
			10			
			11			

# **APPENDIX E**

# **TEST PIT PHOTOGRAPHS**

# B-B-TP-02



151010101  
Hudson Logistics Center  
Hudson, NH

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# B-B-TP-04



151010101  
Hudson Logistics Center  
Hudson, NH

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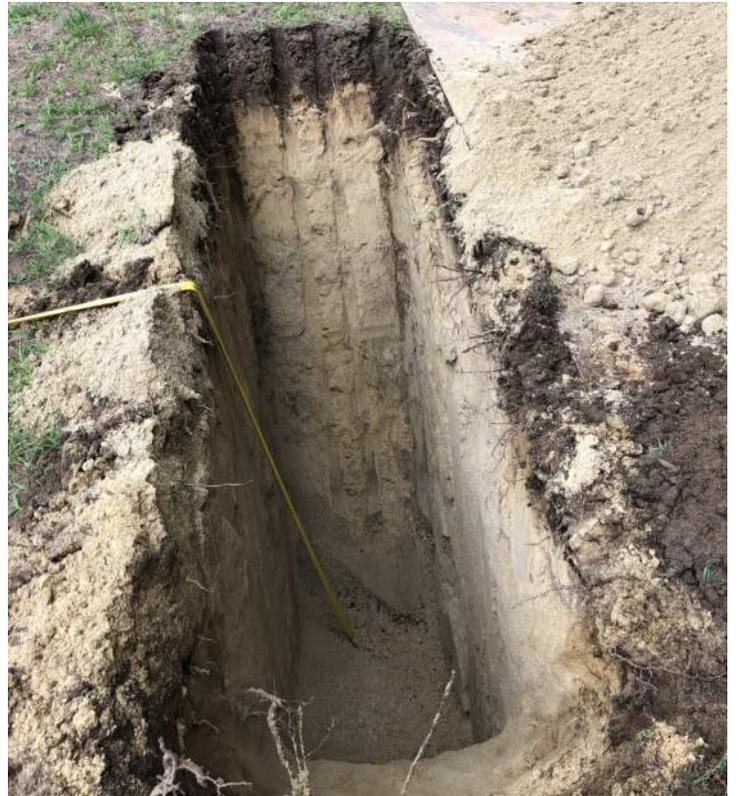
**B-B-TP-05**



151010101  
Hudson Logistics Center  
Hudson, NH

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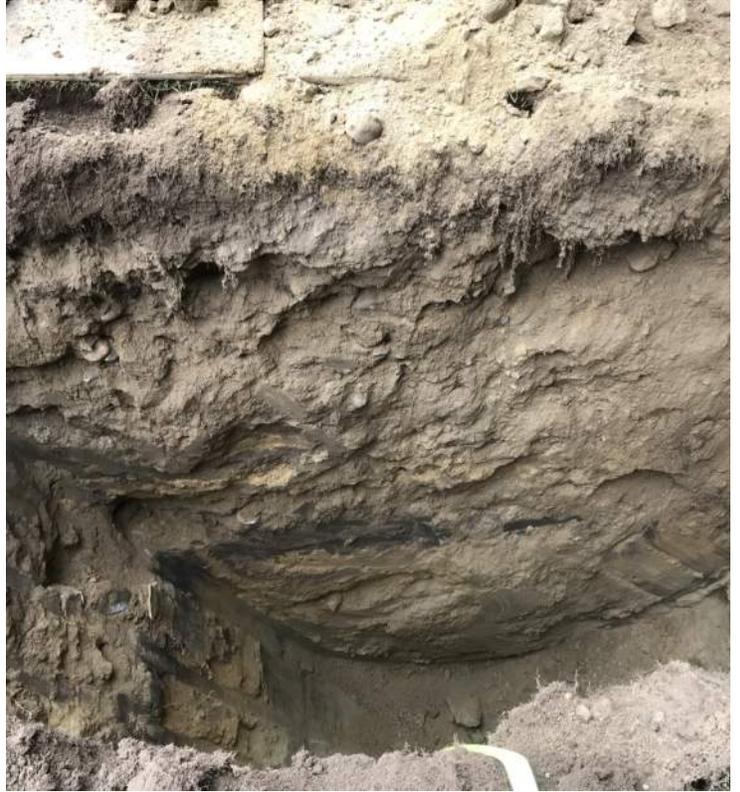
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151010101  
Hudson Logistics Center  
Hudson, NH

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**B-B-TP-08**



151010101  
Hudson Logistics Center  
Hudson, NH

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# B-B-TP-10



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

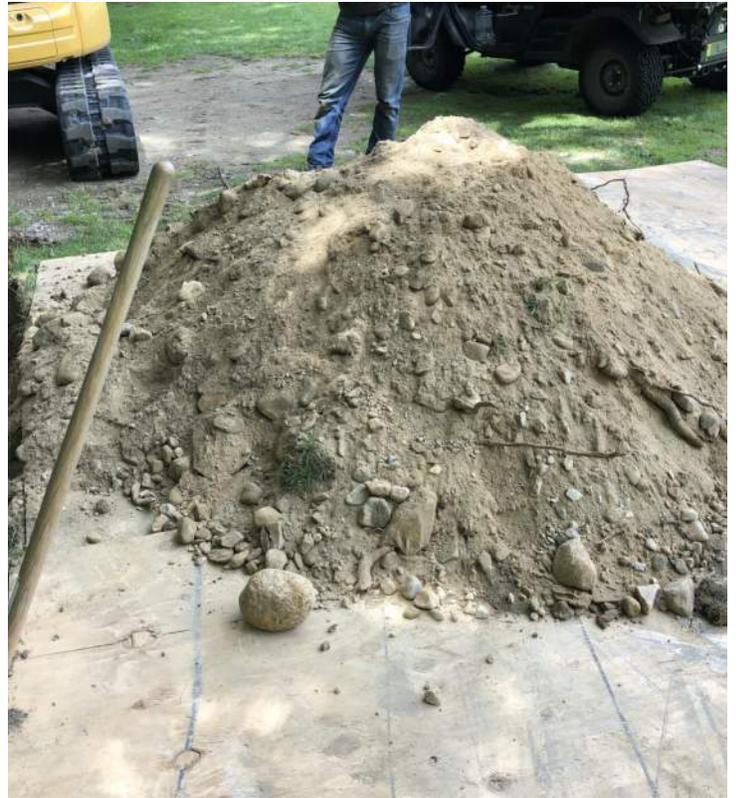
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151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

# B-B-TP-12



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

# B-B-TP-13



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

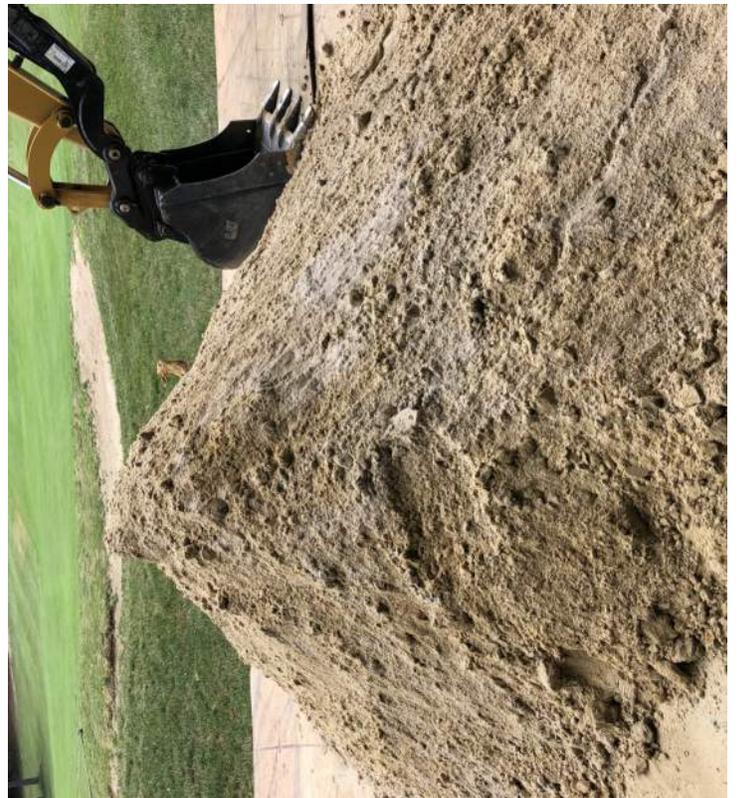
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151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

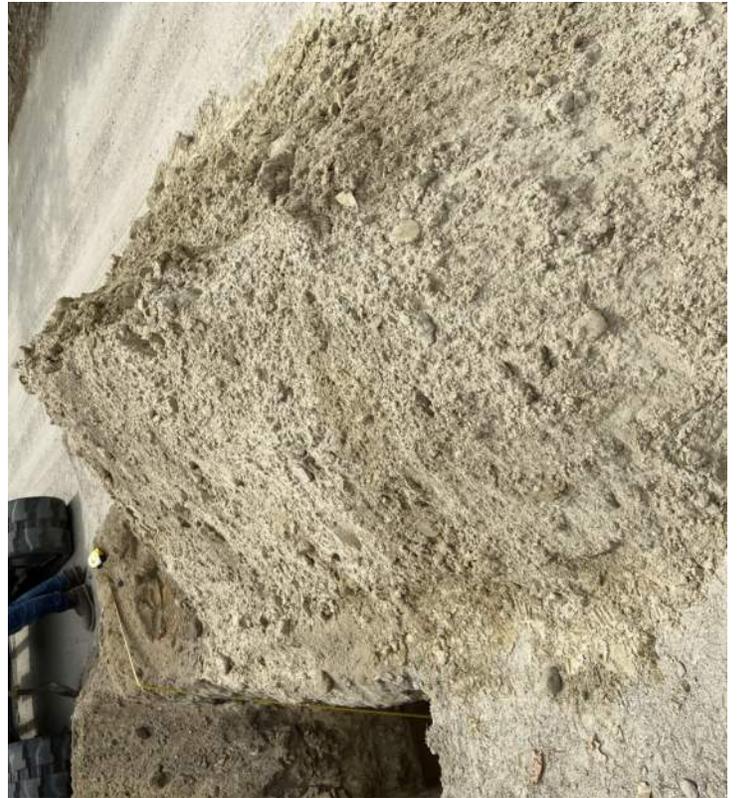
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151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

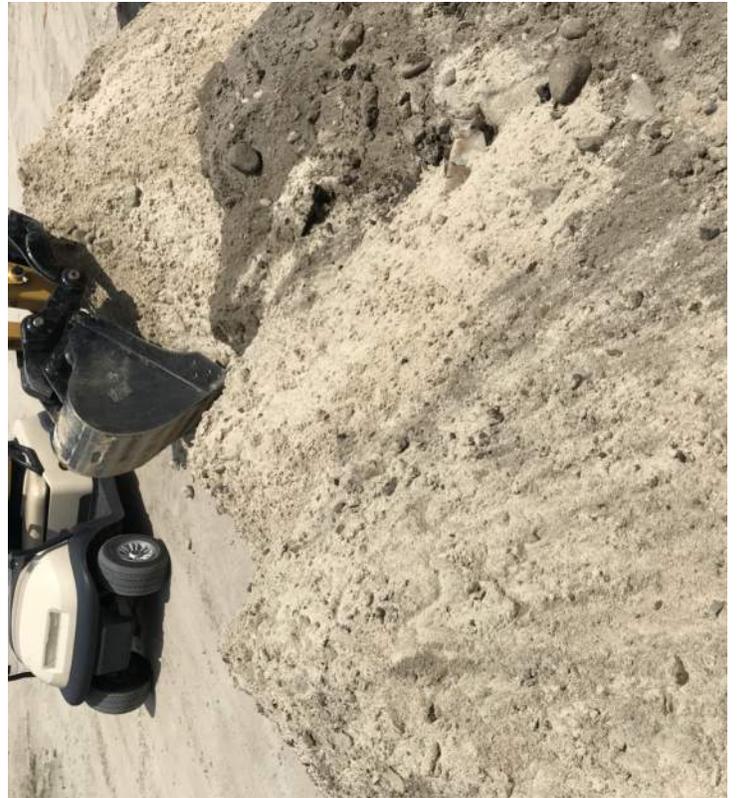
# B-B-TP-17



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

# B-B-TP-18



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

# B-B-TP-19



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

# B-B-TP-20



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

# B-R-TP-01



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

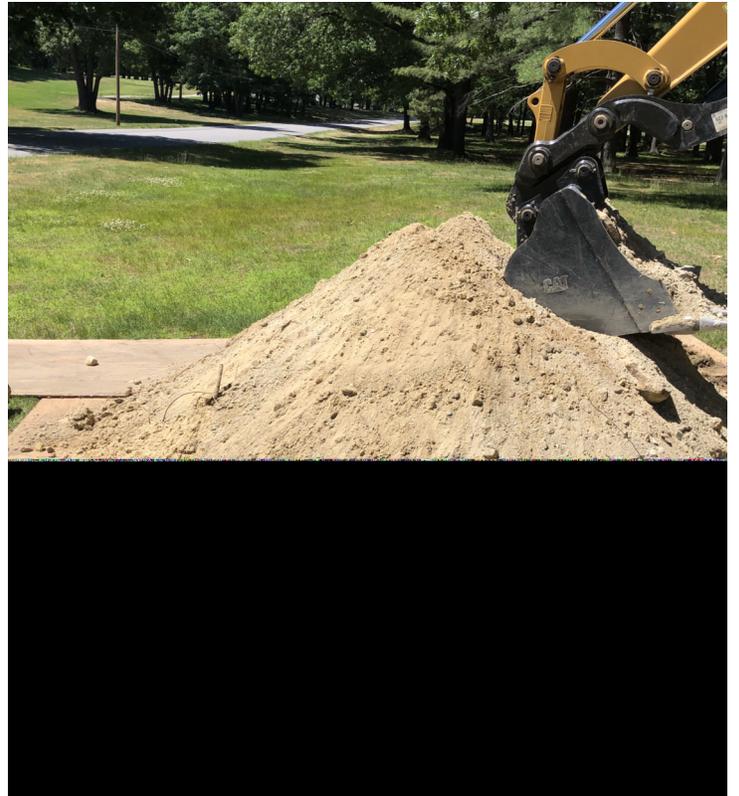
# B-R-TP-04



151010101  
Hudson Logistics Center  
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# B-S-TP-01



151010101  
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Hudson, NH

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**B-S-TP-02**



151010101  
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# B-S-TP-04



151010101  
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**B-S-TP-05**



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

# B-S-TP-08



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

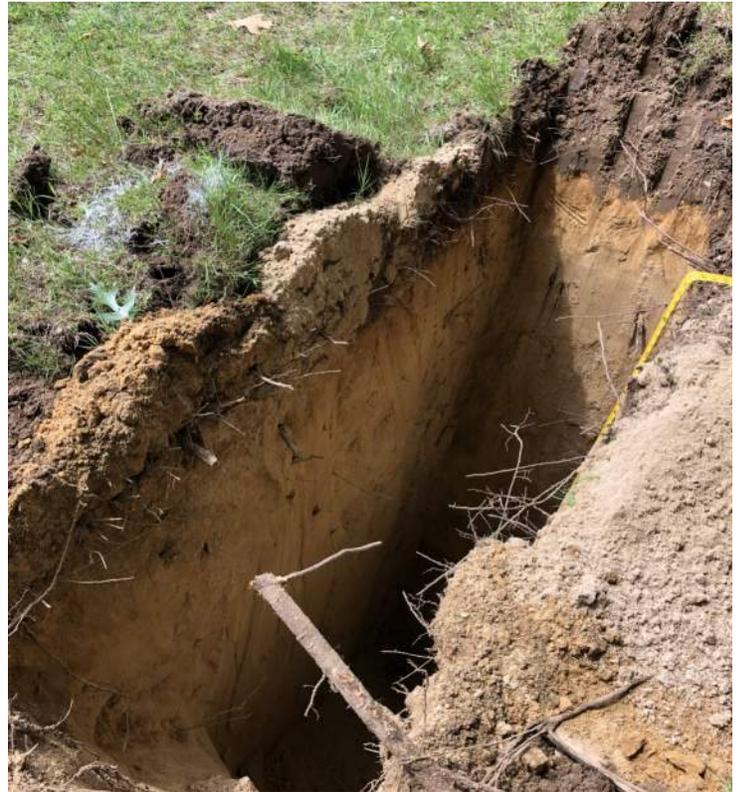
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151010101  
Hudson Logistics Center  
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# B-S-TP-10



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

# B-S-TP-11



151010101  
Hudson Logistics Center  
Hudson, NH

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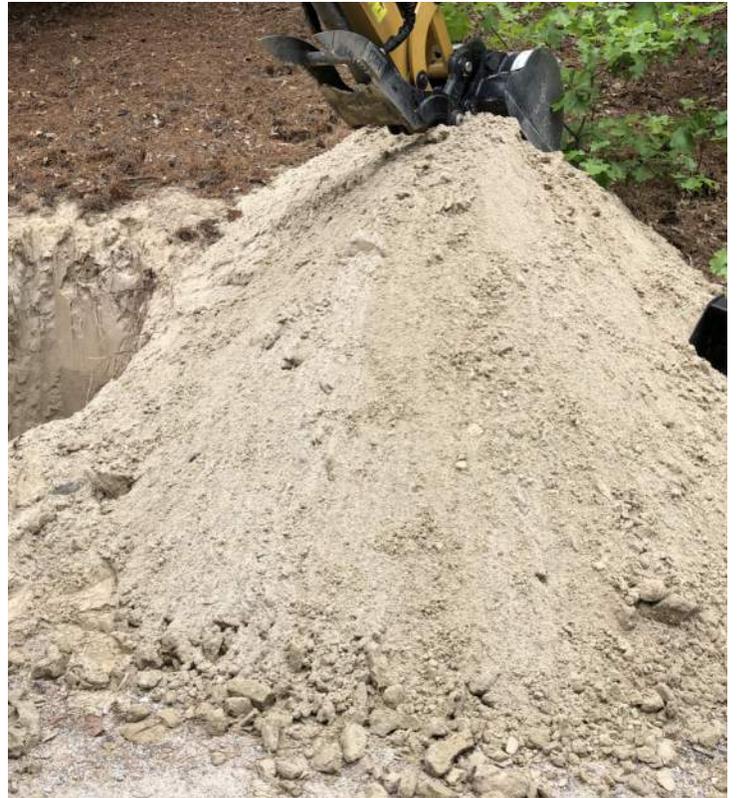
# B-S-TP-13



151010101  
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Hudson, NH

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# B-S-TP-14



151010101  
Hudson Logistics Center  
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**LANGAN**

# B-S-TP-15



151010101  
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**B-S-TP-17**



151010101  
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Hudson, NH

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# B-S-TP-18



151010101  
Hudson Logistics Center  
Hudson, NH

**LANGAN**

# B-S-TP-19



151010101  
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# B-S-TP-20



151010101  
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# B-S-TP-21



151010101  
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**B-S-TP-22**



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# B-S-TP-23



151010101  
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**APPENDIX F  
WELL CONSTRUCTION LOGS &  
READINGS**

Lot B  
Summary of Groundwater Elevations  
Hudson, New Hampshire  
Langan Project No.: 151010101

Monitoring Well Lot ID	B								
Monitoring Well ID	B-B-BOR-03(OW)	B-B-BOR-15(OW)	B-S-BOR-17A(OW)	B-B-BOR-18(OW)	B-B-BOR-21(OW)	B-B-BOR-24(OW)	B-B-BOR-30(OW)	B-S-BOR-33A(OW)	B-B-BOR-47(OW)
Ground Surface Elevation (feet)	151.0	143.5	148.0	146.5	138.0	136.5	115.0	139.0	142.0
Installation Date	6/28/2020	6/10/2020	6/15/2020	6/27/2020	6/11/2020	6/2/2020	6/9/2020	6/9/2020	6/26/2020
Reference Point	Ground Surface	Ground Surface	Ground Surface	Ground Surface	Ground Surface	Ground Surface	Ground Surface	Ground Surface	Ground Surface
<b>June 20, 2020</b>									
Depth to Groundwater (feet)	NI	19.2	29.7	NI	14.2	15.1	22.5	13.9	NI
Groundwater Elevation (feet)	NA	124.3	118.3	NA	123.8	121.4	92.5	125.1	NA
<b>June 30, 2020</b>									
Depth to Groundwater (feet)	24.9	19.5	29.9	10.5	14.7	15.4	22.5	14.1	19.7
Groundwater Elevation (feet)	126.1	124.0	118.1	136.0	123.3	121.1	92.5	124.9	122.3
<b>July 1, 2020</b>									
Depth to Groundwater (feet)	NM	NM	NM	NM	NM	NM	NM	NM	NM
Groundwater Elevation (feet)	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>July 19, 2020</b>									
Depth to Groundwater (feet)	NM	NM	29.8	NM	NM	15.6	22.5	14.2	NM
Groundwater Elevation (feet)	NA	NA	118.2	NA	NA	120.9	92.5	124.8	NA
<b>July 20, 2020</b>									
Depth to Groundwater (feet)	25.6	19.5	29.9	11.6	15.4	15.9	22.6	14.5	20.7
Groundwater Elevation (feet)	125.4	124.0	118.1	134.9	122.6	120.6	92.4	124.5	121.3
<b>July 29, 2020</b>									
Depth to Groundwater (feet)	25.8	20.3	30.0	12.0	15.7	16.1	22.6	14.6	21.0
Groundwater Elevation (feet)	125.2	123.2	118.0	134.5	122.3	120.4	92.5	124.4	121.0

Notes:

- "Depth to Groundwater" results are shown in feet below ground surface. "Groundwater Elevation" is given in feet and references the National Geodetic Vertical Datum of 1929 (NGVD 1929).
- Ground surface elevations were estimated by Langan by interpolating between the ground surface contours shown on the existing conditions plan provided by Hayner/Swanson, Inc. (HSI) of Nashua, New Hampshire. As such, the elevations should be considered approximate.
- Abbreviations  
NI = Not Installed  
NA = Not Applicable  
NM = Not Measured

## WELL CONSTRUCTION SUMMARY

Well No. B-B-BOR-03(OW)

<b>PROJECT</b> Project Hudson	<b>PROJECT NO.</b> 151010101
<b>LOCATION</b> 59 Steele Road, Hudson, NH	<b>ELEVATION AND DATUM</b> Approx. 151 NGVD29
<b>DRILLING AGENCY</b> SoilTesting, Inc.	<b>DATE STARTED</b> 6/28/2020 <b>DATE FINISHED</b> 6/28/2020
<b>DRILLING EQUIPMENT</b> Truck Rig	<b>DRILLER</b> John Knepple
<b>SIZE AND TYPE OF BIT</b> 4" Hollow Stem Auger	<b>INSPECTOR</b> Jack Berritt

**METHOD OF INSTALLATION**

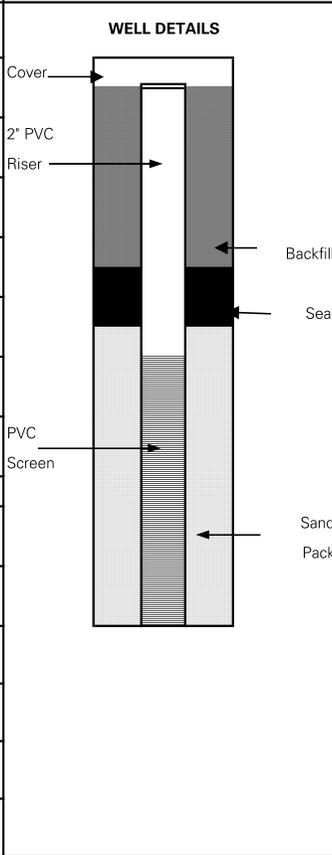
Boring B-B-BOR-03(OW) was advanced to about 31.3ft with 4" HSA. The screen and riser for the well was placed into the borehole. #2 filter sand was poured around the pipe to 1ft above the screen as the augers were removed. A 1-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

**METHOD OF WELL DEVELOPMENT**

N/A

<b>TYPE OF CASING</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF BACKFILL MATERIAL</b> Auger cuttings
<b>TYPE OF SCREEN</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF SEAL MATERIAL</b> 3/8" Bentonite Chips
<b>BOREHOLE DIAMETER</b> 4"	<b>TYPE OF FILTER MATERIAL</b> FilPro #2 sand

TOP OF CASING	ELEVATION	DEPTH (ft)
	el. 151	0
TOP OF BACKFILL	ELEVATION	DEPTH (ft)
	el. 150.5	0.5
TOP OF SEAL	ELEVATION	DEPTH (ft)
	el. 143	8
TOP OF FILTER	ELEVATION	DEPTH (ft)
	el. 142	9
TOP OF SCREEN	ELEVATION	DEPTH (ft)
	el. 141	10
BOTTOM OF BORING	ELEVATION	DEPTH (ft)
	el. 119.7	31.3
<b>SCREEN LENGTH</b>	20ft	
<b>SLOT SIZE</b>	0.1in	



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Ground Surface	0.0
Brown fine SAND trace silt trace fine gravel	10.0
	30.0

**GROUNDWATER ELEVATIONS**

DATE	ELEVATION	DEPTH TO WATER (ft)
6/30/2020	126.10	24.90
7/20/2020	125.40	25.60
7/29/2020	125.20	25.80

**LANGAN MA, Inc.**

## WELL CONSTRUCTION SUMMARY

Well No. B-B-BOR-15(OW)

<b>PROJECT</b> Project Hudson	<b>PROJECT NO.</b> 151010101
<b>LOCATION</b> 59 Steele Road, Hudson, NH	<b>ELEVATION AND DATUM</b> Approx. 143.5 NGVD29
<b>DRILLING AGENCY</b> SoilTesting, Inc.	<b>DATE STARTED</b> 6/10/2020 <b>DATE FINISHED</b> 6/10/2020
<b>DRILLING EQUIPMENT</b> CME Truck-Mounted Drill Rig	<b>DRILLER</b> John Knepple
<b>SIZE AND TYPE OF BIT</b> 4" Hollow Stem Auger	<b>INSPECTOR</b> Kenneth Idem

**METHOD OF INSTALLATION**

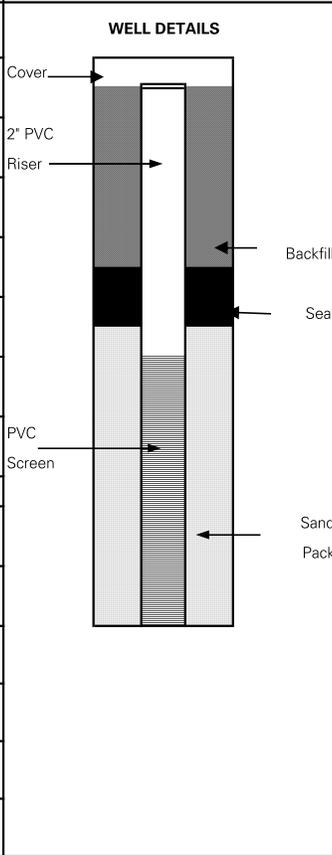
Boring B-B-BOR-15(OW) was advanced to about 30ft with 4" HSA. The boring was backfilled with soil cuttings to about 25ft. The screen and riser for the well was placed into the borehole. #2 filter sand was poured around the pipe to 3ft above the screen as the augers were removed. A 3-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

**METHOD OF WELL DEVELOPMENT**

N/A

<b>TYPE OF CASING</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF BACKFILL MATERIAL</b> Auger cuttings
<b>TYPE OF SCREEN</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF SEAL MATERIAL</b> 3/8" Bentonite Chips
<b>BOREHOLE DIAMETER</b> 4"	<b>TYPE OF FILTER MATERIAL</b> FilPro #2 sand

TOP OF CASING	ELEVATION	DEPTH (ft)
	el. 143.5	0
TOP OF BACKFILL	ELEVATION	DEPTH (ft)
	el. 143	0.5
TOP OF SEAL	ELEVATION	DEPTH (ft)
	el. 134.5	9
TOP OF FILTER	ELEVATION	DEPTH (ft)
	el. 131.5	12
TOP OF SCREEN	ELEVATION	DEPTH (ft)
	el. 128.5	15
BOTTOM OF BORING	ELEVATION	DEPTH (ft)
	el. 113.5	30
<b>SCREEN LENGTH</b>	10ft	
<b>SLOT SIZE</b>	0.1in	



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Ground Surface	0.0
Brown fine-medium SAND, trace silt trace fine gravel	15.0
	25.0

**GROUNDWATER ELEVATIONS**

DATE	ELEVATION	DEPTH TO WATER (ft)
6/20/2020	124.30	19.20
6/30/2020	124.00	19.50
7/20/2020	124.00	19.50
7/29/2020	123.20	20.30
DATE	ELEVATION	DEPTH TO WATER (ft)

**LANGAN MA, Inc.**

## WELL CONSTRUCTION SUMMARY

Well No. B-S-BOR-17A(OW)

<b>PROJECT</b> Project Hudson	<b>PROJECT NO.</b> 151010101
<b>LOCATION</b> 59 Steele Road, Hudson, NH	<b>ELEVATION AND DATUM</b> Approx. 148 NGVD29
<b>DRILLING AGENCY</b> SoilTesting, Inc.	<b>DATE STARTED</b> 6/15/2020 <b>DATE FINISHED</b> 6/15/2020
<b>DRILLING EQUIPMENT</b> Diedrich D50	<b>DRILLER</b> Sam DeAngelis
<b>SIZE AND TYPE OF BIT</b> 4" Hollow Stem Auger	<b>INSPECTOR</b> Justin Hall

**METHOD OF INSTALLATION**

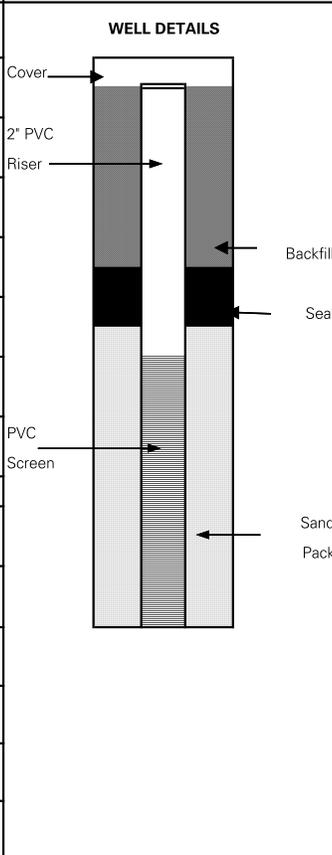
Boring B-S-BOR-17A(OW) was advanced to about 33ft with 4" HSA. The screen and riser for the well was placed into the borehole. #2 filter sand was poured around the pipe to 2.5ft above the screen as the augers were removed. A 2-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

**METHOD OF WELL DEVELOPMENT**

N/A

<b>TYPE OF CASING</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF BACKFILL MATERIAL</b> Auger cuttings
<b>TYPE OF SCREEN</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF SEAL MATERIAL</b> 3/8" Bentonite Chips
<b>BOREHOLE DIAMETER</b> 4"	<b>TYPE OF FILTER MATERIAL</b> FilPro #2 sand

	ELEVATION	DEPTH (ft)
<b>TOP OF CASING</b>	el. 148	0
<b>TOP OF BACKFILL</b>	el. 147.5	0.5
<b>TOP OF SEAL</b>	el. 129	19
<b>TOP OF FILTER</b>	el. 127	21
<b>TOP OF SCREEN</b>	el. 125	23
<b>BOTTOM OF BORING</b>	el. 115	33
<b>SCREEN LENGTH</b>	10ft	
<b>SLOT SIZE</b>	0.1in	



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Ground Surface	0.0
Dark Brown fine SAND trace silt trace organics FILL	12.0
Brown fine-medium SAND, trace silt	33.0

GROUNDWATER ELEVATIONS		
DATE	ELEVATION	DEPTH TO WATER (ft)
6/20/2020	118.30	29.70
6/30/2020	118.10	29.90
7/9/2020	118.20	29.80
7/20/2020	118.10	29.90
7/29/2020	118.00	30.00
DATE	ELEVATION	DEPTH TO WATER (ft)

**LANGAN MA, Inc.**

## WELL CONSTRUCTION SUMMARY

Well No. B-B-BOR-18(OW)

<b>PROJECT</b> Project Hudson	<b>PROJECT NO.</b> 151010101
<b>LOCATION</b> 59 Steele Road, Hudson, NH	<b>ELEVATION AND DATUM</b> Approx. 146.5 NGVD29
<b>DRILLING AGENCY</b> SoilTesting, Inc.	<b>DATE STARTED</b> 6/27/2020 <b>DATE FINISHED</b> 6/28/2020
<b>DRILLING EQUIPMENT</b> Truck Rig	<b>DRILLER</b> Mike Kennedy
<b>SIZE AND TYPE OF BIT</b> 4" Hollow Stem Auger	<b>INSPECTOR</b> Taylor Sisti

**METHOD OF INSTALLATION**

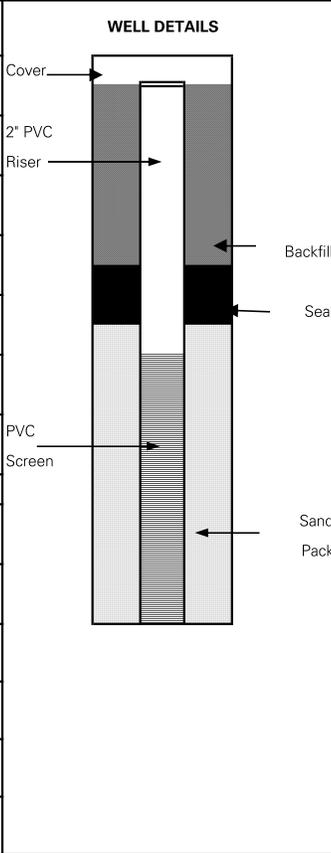
Boring B-B-BOR-18(OW) was advanced to about 20.1ft with 4" HSA. The screen and riser for the well was placed into the borehole. #2 filter sand was poured around the pipe to 2ft above the screen as the augers were removed. A 2-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

**METHOD OF WELL DEVELOPMENT**

N/A

<b>TYPE OF CASING</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF BACKFILL MATERIAL</b> Auger cuttings
<b>TYPE OF SCREEN</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF SEAL MATERIAL</b> 3/8" Bentonite Chips
<b>BOREHOLE DIAMETER</b> 4"	<b>TYPE OF FILTER MATERIAL</b> FilPro #2 sand

	ELEVATION	DEPTH (ft)
<b>TOP OF CASING</b>	el. 146.5	0
<b>TOP OF BACKFILL</b>	el. 146	0.5
<b>TOP OF SEAL</b>	el. 141.5	5
<b>TOP OF FILTER</b>	el. 139.5	7
<b>TOP OF SCREEN</b>	el. 137.5	9
<b>BOTTOM OF BORING</b>	el. 126.4	20.1
<b>SCREEN LENGTH</b>	10ft	
<b>SLOT SIZE</b>	0.1in	



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Ground Surface	0.0
Light brown fine SAND, trace silt trace fine gravel	9.0
TILL	19.0

**GROUNDWATER ELEVATIONS**

DATE	ELEVATION	DEPTH TO WATER (ft)
6/30/2020	136.00	10.50
7/20/2020	134.90	11.60
7/29/2020	134.50	12.00

**LANGAN MA, Inc.**

## WELL CONSTRUCTION SUMMARY

Well No. B-B-BOR-21(OW)

<b>PROJECT</b> Project Hudson	<b>PROJECT NO.</b> 151010101
<b>LOCATION</b> 59 Steele Road, Hudson, NH	<b>ELEVATION AND DATUM</b> Approx. 138 NGVD29
<b>DRILLING AGENCY</b> Seaboard Drilling, Inc	<b>DATE STARTED</b> 6/11/2020 <b>DATE FINISHED</b> 6/11/2020
<b>DRILLING EQUIPMENT</b> Diedrich D50	<b>DRILLER</b> Jeff Nitsch
<b>SIZE AND TYPE OF BIT</b> 4" Hollow Stem Auger	<b>INSPECTOR</b> Taylor Sisti

**METHOD OF INSTALLATION**

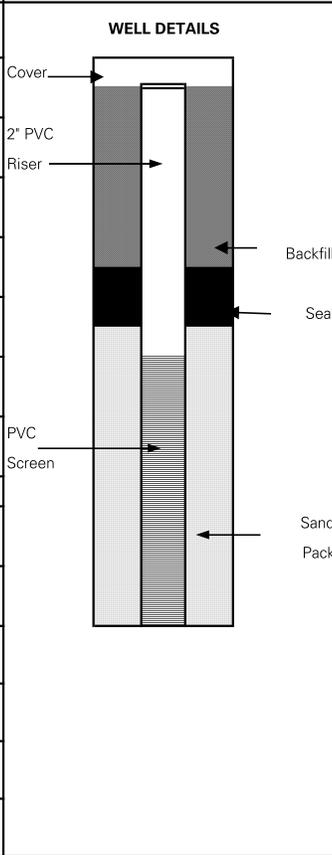
Boring B-B-BOR-21(OW) was advanced to about 22ft with 4" HSA. The screen and riser for the well was placed into the borehole. #2 filter sand was poured around the pipe to 1ft above the screen as the augers were removed. A 2-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

**METHOD OF WELL DEVELOPMENT**

N/A

<b>TYPE OF CASING</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF BACKFILL MATERIAL</b> Auger cuttings
<b>TYPE OF SCREEN</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF SEAL MATERIAL</b> 3/8" Bentonite Chips
<b>BOREHOLE DIAMETER</b> 4"	<b>TYPE OF FILTER MATERIAL</b> FilPro #2 sand

TOP OF CASING	ELEVATION	DEPTH (ft)
	el. 138	0
TOP OF BACKFILL	ELEVATION	DEPTH (ft)
	el. 137.5	0.5
TOP OF SEAL	ELEVATION	DEPTH (ft)
	el. 129	9
TOP OF FILTER	ELEVATION	DEPTH (ft)
	el. 127	11
TOP OF SCREEN	ELEVATION	DEPTH (ft)
	el. 126	12
BOTTOM OF BORING	ELEVATION	DEPTH (ft)
	el. 116	22
<b>SCREEN LENGTH</b>	10ft	
<b>SLOT SIZE</b>	0.1in	



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Ground Surface	0.0
Brown SILT some fine sand varied	11.5
Brown fine SAND, trace silt trace f-c gravel	18.0
TILL	22.0

**GROUNDWATER ELEVATIONS**

DATE	ELEVATION	DEPTH TO WATER (ft)
6/20/2020	123.80	14.20
6/30/2020	123.30	14.70
7/20/2020	122.60	15.40
7/29/2020	122.30	15.70

**LANGAN MA, Inc.**

## WELL CONSTRUCTION SUMMARY

Well No. B-B-BOR-24(OW)

<b>PROJECT</b> Project Hudson	<b>PROJECT NO.</b> 151010101
<b>LOCATION</b> 59 Steele Road, Hudson, NH	<b>ELEVATION AND DATUM</b> Approx. 136.5 NGVD29
<b>DRILLING AGENCY</b> Seaboard Drilling, Inc.	<b>DATE STARTED</b> 6/2/2020 <b>DATE FINISHED</b> 6/2/2020
<b>DRILLING EQUIPMENT</b> Track Rig	<b>DRILLER</b> Doug Feely
<b>SIZE AND TYPE OF BIT</b> 4" Hollow Stem Auger	<b>INSPECTOR</b> Taylor Sisti

**METHOD OF INSTALLATION**

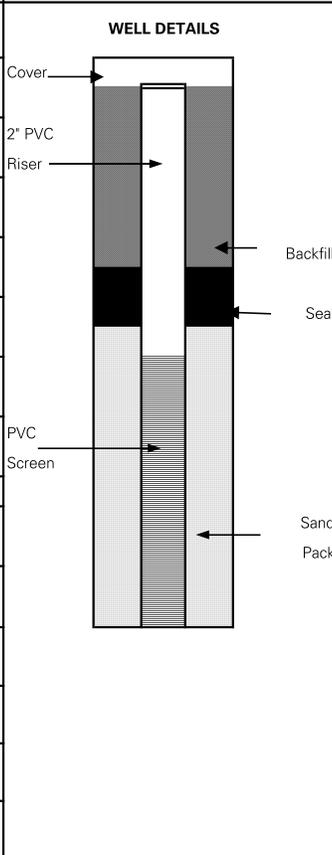
Boring B-B-BOR-24(OW) was advanced to about 20ft with 4" HSA. The screen and riser for the well was placed into the borehole. #2 filter sand was poured around the pipe to 2.5ft above the screen as the augers were removed. A 2-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

**METHOD OF WELL DEVELOPMENT**

N/A

<b>TYPE OF CASING</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF BACKFILL MATERIAL</b> Auger cuttings
<b>TYPE OF SCREEN</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF SEAL MATERIAL</b> 3/8" Bentonite Chips
<b>BOREHOLE DIAMETER</b> 4"	<b>TYPE OF FILTER MATERIAL</b> FilPro #2 sand

	ELEVATION	DEPTH (ft)
<b>TOP OF CASING</b>	el. 136.5	0
<b>TOP OF BACKFILL</b>	el. 136	0.5
<b>TOP OF SEAL</b>	el. 131	5.5
<b>TOP OF FILTER</b>	el. 129	7.5
<b>TOP OF SCREEN</b>	el. 126.5	10
<b>BOTTOM OF BORING</b>	el. 116.5	20
<b>SCREEN LENGTH</b>	20ft	
<b>SLOT SIZE</b>	0.1in	



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Ground Surface	0.0
Brown fine SAND, trace silt	
Seal	10.0
Brown fine-medium SAND, trace silt	
Sand Pack	18.0
TILL	20.0

**GROUNDWATER ELEVATIONS**

DATE	ELEVATION	DEPTH TO WATER (ft)
6/20/2020	121.40	15.10
6/30/2020	121.10	15.40
7/9/2020	120.90	15.60
7/20/2020	120.60	15.90
7/29/2020	120.40	16.10
DATE	ELEVATION	DEPTH TO WATER (ft)

**LANGAN MA, Inc.**

## WELL CONSTRUCTION SUMMARY

Well No. B-S-BOR-30(OW)

<b>PROJECT</b> Project Hudson	<b>PROJECT NO.</b> 151010101
<b>LOCATION</b> 59 Steele Road, Hudson, NH	<b>ELEVATION AND DATUM</b> Approx. 115 NGVD29
<b>DRILLING AGENCY</b> Seaboard Drilling, Inc.	<b>DATE STARTED</b> 6/9/2020 <b>DATE FINISHED</b> 6/9/2020
<b>DRILLING EQUIPMENT</b> Diedrich D50	<b>DRILLER</b> Jeff Nitsch
<b>SIZE AND TYPE OF BIT</b> 4" Hollow Stem Auger	<b>INSPECTOR</b> Taylor Sisti

**METHOD OF INSTALLATION**

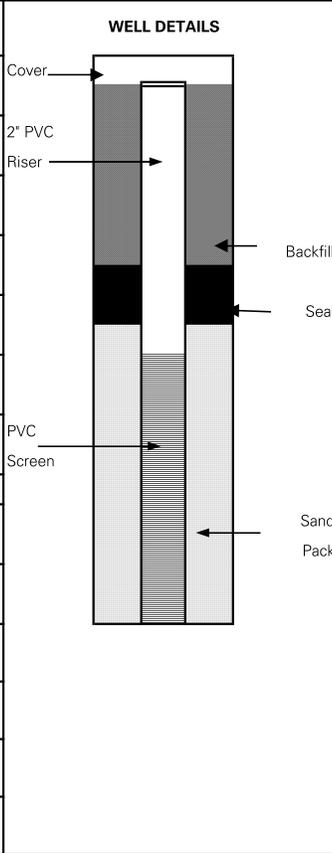
Boring B-S-BOR-30(OW) was advanced to about 29ft with 4" HSA. The screen and riser for the well was placed into the borehole. #2 filter sand was poured around the pipe to 2ft above the screen as the augers were removed. A 2-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

**METHOD OF WELL DEVELOPMENT**

N/A

<b>TYPE OF CASING</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF BACKFILL MATERIAL</b> Auger cuttings
<b>TYPE OF SCREEN</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF SEAL MATERIAL</b> 3/8" Bentonite Chips
<b>BOREHOLE DIAMETER</b> 4"	<b>TYPE OF FILTER MATERIAL</b> FilPro #2 sand

TOP OF CASING	ELEVATION	DEPTH (ft)
	el. 115	0
TOP OF BACKFILL	ELEVATION	DEPTH (ft)
	el. 114.5	0.5
TOP OF SEAL	ELEVATION	DEPTH (ft)
	el. 100	15
TOP OF FILTER	ELEVATION	DEPTH (ft)
	el. 98	17
TOP OF SCREEN	ELEVATION	DEPTH (ft)
	el. 96	19
BOTTOM OF BORING	ELEVATION	DEPTH (ft)
	el. 86	29
<b>SCREEN LENGTH</b>	10ft	
<b>SLOT SIZE</b>	0.1in	



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Ground Surface	0.0
Light brown fine SAND, trace silt trace fine gravel	29.0

**GROUNDWATER ELEVATIONS**

DATE	ELEVATION	DEPTH TO WATER (ft)
6/20/2020	92.50	22.50
6/30/2020	92.50	22.50
7/9/2020	92.50	22.50
7/20/2020	92.40	22.60
7/29/2020	92.40	22.60
DATE	ELEVATION	DEPTH TO WATER (ft)

**LANGAN MA, Inc.**

## WELL CONSTRUCTION SUMMARY

Well No. B-B-BOR-33A(OW)

<b>PROJECT</b> Project Hudson	<b>PROJECT NO.</b> 151010101
<b>LOCATION</b> 59 Steele Road, Hudson, NH	<b>ELEVATION AND DATUM</b> Approx. 139 NGVD29
<b>DRILLING AGENCY</b> SoilTesting, Inc.	<b>DATE STARTED</b> 6/2/2020 <b>DATE FINISHED</b> 6/2/2020
<b>DRILLING EQUIPMENT</b> Truck Mounted Diedrich D-50	<b>DRILLER</b> Sam DeAngelis
<b>SIZE AND TYPE OF BIT</b> 4" Hollow Stem Auger	<b>INSPECTOR</b> Justin Hall

**METHOD OF INSTALLATION**

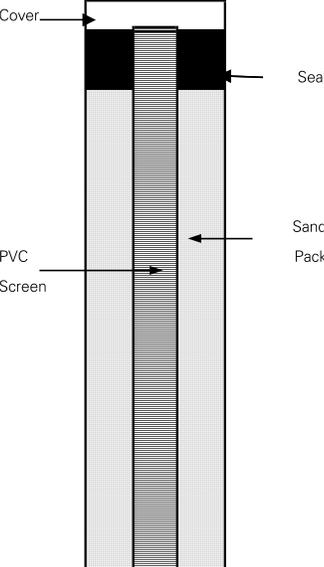
Boring B-B-BOR-33A(OW) was advanced to about 8ft with 4" HSA. The screen and riser for the well was placed into the borehole. #2 filter sand was poured around the pipe to 2ft above the screen as the augers were removed. A 2-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

**METHOD OF WELL DEVELOPMENT**

N/A

<b>TYPE OF CASING</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF BACKFILL MATERIAL</b> Auger cuttings
<b>TYPE OF SCREEN</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF SEAL MATERIAL</b> 3/8" Bentonite Chips
<b>BOREHOLE DIAMETER</b> 4"	<b>TYPE OF FILTER MATERIAL</b> FilPro #2 sand

	ELEVATION	DEPTH (ft)
<b>TOP OF CASING</b>	el. 139	0
<b>TOP OF BACKFILL</b>	el. 138.5	0.5
<b>TOP OF SEAL</b>	el. 131	8
<b>TOP OF FILTER</b>	el. 129	10
<b>TOP OF SCREEN</b>	el. 127	12
<b>BOTTOM OF BORING</b>	el. 131	8
<b>SCREEN LENGTH</b>	10ft	
<b>SLOT SIZE</b>	0.1in	

WELL DETAILS		SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Cover		Ground Surface	0.0
Seal	Seal	Dark brown fine SAND trace silt, trace f-c gravel FILL	4.0
Sand Pack	Sand Pack	Light brown fine SAND, trace fine gravel	8.0
PVC Screen	PVC Screen	Stopped sampling	22.0

**GROUNDWATER ELEVATIONS**

DATE	ELEVATION	DEPTH TO WATER (ft)
6/20/2020	125.10	13.90
6/30/2020	124.90	14.10
7/9/2020	124.80	14.20
7/20/2020	124.50	14.50
7/29/2020	124.40	14.60
<b>DATE</b>	<b>ELEVATION</b>	<b>DEPTH TO WATER (ft)</b>

**LANGAN MA, Inc.**

## WELL CONSTRUCTION SUMMARY

Well No. B-B-BOR-47(OW)

<b>PROJECT</b> Project Hudson	<b>PROJECT NO.</b> 151010101
<b>LOCATION</b> 59 Steele Road, Hudson, NH	<b>ELEVATION AND DATUM</b> Approx. 142 NGVD29
<b>DRILLING AGENCY</b> Seaboard Drilling, Inc.	<b>DATE STARTED</b> 6/26/2020 <b>DATE FINISHED</b> 6/26/2020
<b>DRILLING EQUIPMENT</b> Mobile Drill B53	<b>DRILLER</b> Jeff Nitsch
<b>SIZE AND TYPE OF BIT</b> 4" Hollow Stem Auger	<b>INSPECTOR</b> Reid Balkind

**METHOD OF INSTALLATION**

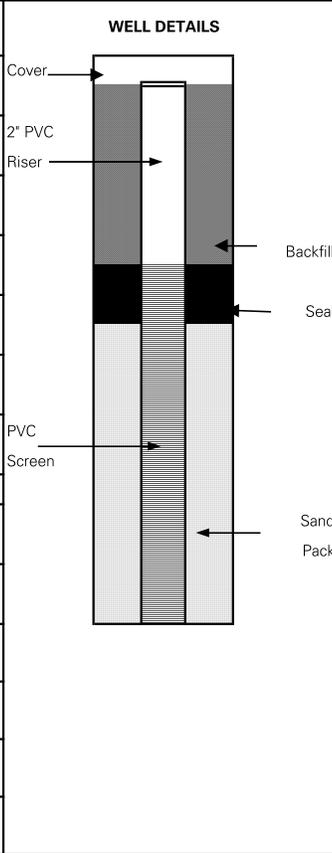
Boring B-B-BOR-47(OW) was advanced to about 30.1ft with 4" HSA. The screen and riser for the well was placed into the borehole. A 4-foot seal of 3/8" Bentonite Chips was placed above the filter sand. The remaining augers were removed and the remainder of the borehole was backfilled with auger cuttings. A curb box was installed at grade.

**METHOD OF WELL DEVELOPMENT**

N/A

<b>TYPE OF CASING</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF BACKFILL MATERIAL</b> Auger cuttings
<b>TYPE OF SCREEN</b> PVC <b>DIAMETER</b> 2in.	<b>TYPE OF SEAL MATERIAL</b> 3/8" Bentonite Chips
<b>BOREHOLE DIAMETER</b> 4"	<b>TYPE OF FILTER MATERIAL</b> FilPro #2 sand

	ELEVATION	DEPTH (ft)
<b>TOP OF CASING</b>	el. 142	0
<b>TOP OF BACKFILL</b>	el. 141.5	0.5
<b>TOP OF SEAL</b>	el. 125	17
<b>TOP OF FILTER</b>	el. 121	21
<b>TOP OF SCREEN</b>	el. 121	21
<b>BOTTOM OF BORING</b>	el. 111.9	30.1
<b>SCREEN LENGTH</b>	10ft	
<b>SLOT SIZE</b>	0.1in	



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
Ground Surface	0.0
Brown fine coarse SAND, trace silt, trace f-c gravel	18.5
TILL	31.0

**GROUNDWATER ELEVATIONS**

DATE	ELEVATION	DEPTH TO WATER (ft)
6/30/2020	122.30	19.70
7/20/2020	121.30	20.70
7/29/2020	121.00	21.00

**LANGAN MA, Inc.**

**APPENDIX G**  
**LABORATORY TESTING RESULTS**



Client: Langan Engineering	Project: Project Hudson	Location: Hudson, NH	Project No: GTX-311848
Boring ID: ---	Sample Type: ---	Tested By: ckg	Checked By: jsc
Sample ID: ---	Test Date: 06/17/20	Test Id: 559905	
Depth : ---			

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
B-B-BOR-04	S- 6	10-12 ft	Moist, yellowish brown silty sand	6.8
B-B-BOR-05	S- 9	25-27 ft	Moist, olive silty sand	8.9
B-B-BOR-07	S- 9	25-27 ft	Moist, olive silty sand	9.1
B-B-BOR-12	S- 3	4-6 ft	Moist, yellowish brown silty sand	13.0
B-B-BOR-21	S- 3	4-6 ft	Moist, light olive brown silt with sand	22.4
B-B-BOR-22	S- 3	4-6 ft	Moist, light olive brown sandy silt	20.6
B-B-BOR-24	S- 7	15-17 ft	Moist, light olive brown silty sand	23.1
B-B-BOR-30	S- 11	35-37 ft	Moist, light yellowish brown silty sand	17.6
B-B-BOR-31	S- 7	14-16 ft	Moist, light yellowish brown silty with sand	25.3
B-B-BOR-32	S- 6A	10-11 ft	Moist, olive brown silt with sand	27.2

Notes: Temperature of Drying : 110° Celsius



Client:	Langan Engineering		
Project:	Project Hudson		
Location:	Hudson, NH	Project No:	GTX-311848
Boring ID:	---	Sample Type:	---
Sample ID:	---	Test Date:	06/15/20
Depth :	---	Test Id:	559410
		Tested By:	ckg
		Checked By:	jsc

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
B-B-BOR-36	S- 7	14-16 ft	Moist, olive brown sand with silt and gravel	11.2
B-B-BOR-41	S- 3	4-6 ft	Moist, olive brown sand with silt and gravel	6.3
B-B-BOR-42	S- 8	20-22 ft	Moist, light olive brown sand with silt and gravel	3.2
B-B-BOR-43	S- 5	8-10 ft	Moist, olive brown silty sand	14.6
B-B-BOR-43	S- 8	20-22 ft	Moist, pale brown silty sand	7.9
B-B-BOR-44	S- 8	19-21 ft	Moist, light olive brown silt with sand	27.8
B-S-BOR-05	S- 4	6-8 ft	Moist, light yellowish brown sand with silt and gravel	2.5
B-S-BOR-14	S- 2	2-4 ft	Moist, pale brown silty sand	10.1
B-S-BOR-14	S- 3	4-6 ft	Moist, very pale brown silty sand	6.8
B-S-TP-22	G- 1	2-3 ft	Moist, light yellowish brown sand with silt and gravel	4.9

Notes: Temperature of Drying : 110° Celsius



Client:	Langan Engineering		
Project:	Project Hudson		
Location:	Hudson, NH	Project No:	GTX-311848
Boring ID:	B-S-BOR-28	Sample Type:	jar
Sample ID:	S-3A	Test Date:	07/08/20
Depth :	4-6 ft	Test Id:	562925
Test Comment:	---		
Visual Description:	Moist, dark brown silty clay		
Sample Comment:	---		

## Moisture, Ash, and Organic Matter - ASTM D2974

Boring ID	Sample ID	Depth	Description	Moisture Content, %	Ash Content, %	Organic Matter, %
B-S-BOR-28	S-3A	4-5 ft	Moist, dark brown silty clay	19	97.0	3.0

Notes: Moisture content determined by Method A and reported as a percentage of oven-dried mass; dried to a constant mass at temperature of 105° C  
Ash content and organic matter determined by Method C; dried to constant mass at temperature 440° C



Client:	Langan Engineering		
Project:	Project Hudson		
Location:	Hudson, NH	Project No:	GTX-311848
Boring ID:	---	Sample Type:	---
Sample ID:	---	Test Date:	06/22/20
Depth :	---	Test Id:	559919
		Tested By:	ckg
		Checked By:	jsc

**Amount of Material Passing #200 Sieve - ASTM D1140**

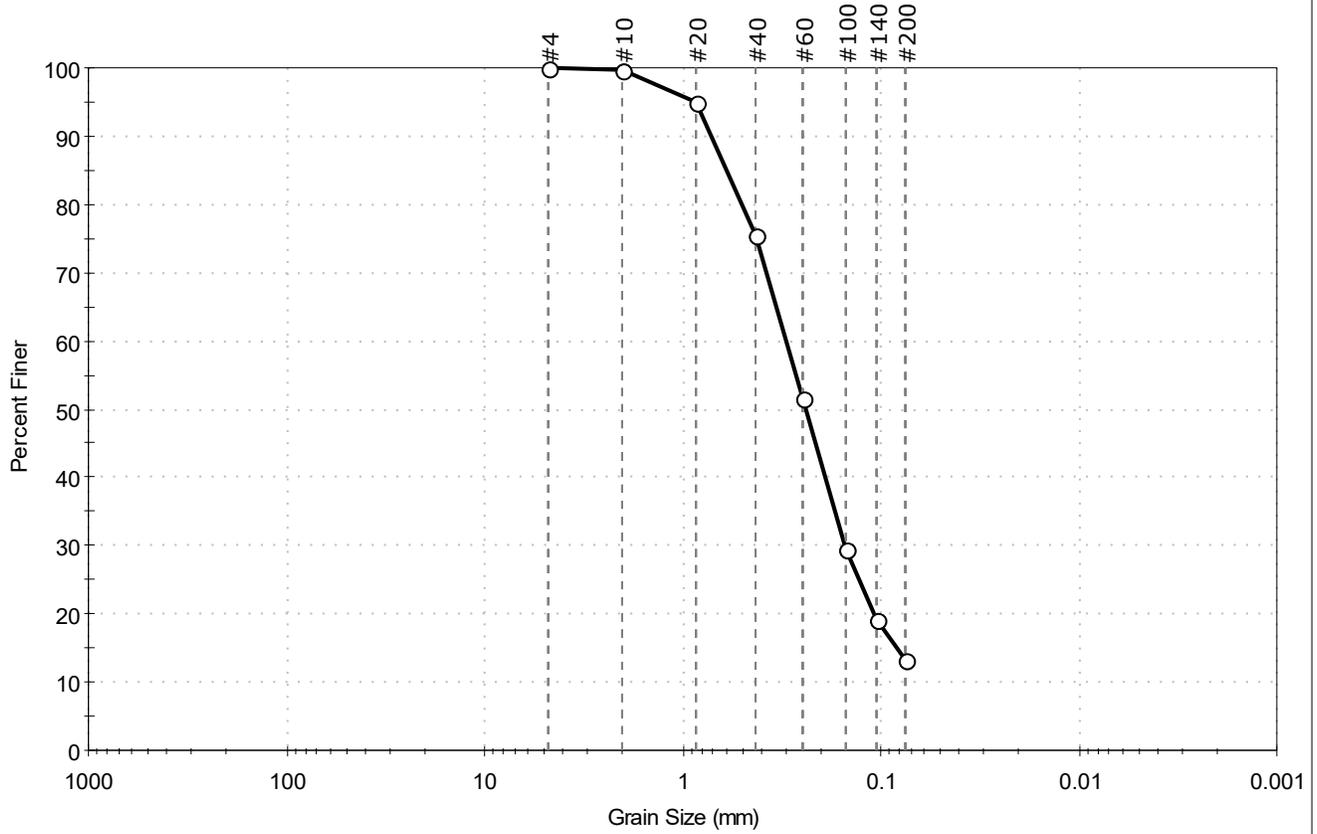
Boring ID	Sample ID	Depth	Visual Description	Fines, %
B-B-BOR-05	S-9	25-27 ft	Moist, olive silty sand	38.0
B-B-BOR-21	S-3	4-6 ft	Moist, light olive brown silt with sand	77.8
B-B-BOR-24	S-7	15-17 ft	Moist, light olive brown silty sand	27.3
B-B-BOR-32	S-6A	10-11 ft	Moist, olive brown silt with sand	76.1
B-B-BOR-44	S-8	19-21 ft	Moist, light olive brown silt with sand	72.3

Notes: Tests performed using Method B - washing using a wetting agent  
 Dry mass of test specimen was determined directly



Client: Langan Engineering	Project: Project Hudson	Location: Hudson, NH	Project No: GTX-311848
Boring ID: B-B-BOR-04	Sample Type: jar	Tested By: ckg	Checked By: jsc
Sample ID: S-6	Test Date: 07/09/20	Test Id: 562965	
Depth: 10-12 ft			
Test Comment: ---			
Visual Description: Moist, yellowish brown silty sand			
Sample Comment: ---			

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	86.7	13.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	95		
#40	0.42	75		
#60	0.25	52		
#100	0.15	29		
#140	0.11	19		
#200	0.075	13		

<u>Coefficients</u>	
D <sub>85</sub> = 0.5962 mm	D <sub>30</sub> = 0.1521 mm
D <sub>60</sub> = 0.3013 mm	D <sub>15</sub> = 0.0832 mm
D <sub>50</sub> = 0.2410 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

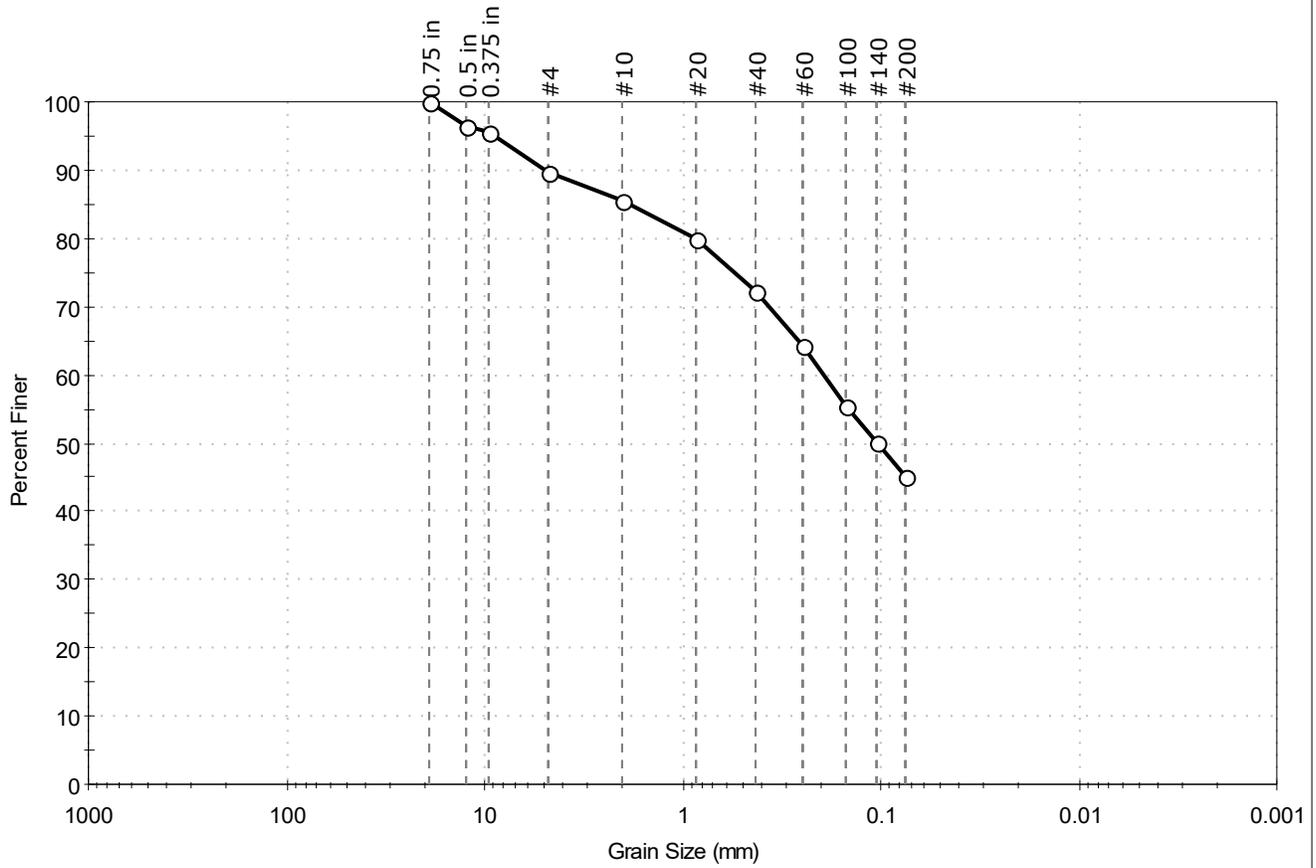
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: Langan Engineering	Project: Project Hudson	Location: Hudson, NH	Project No: GTX-311848
Boring ID: B-B-BOR-07	Sample Type: jar	Tested By: ckg	Checked By: bfs
Sample ID: S-9	Test Date: 06/22/20	Test Id: 559921	
Depth : 25-27 ft			
Test Comment: ---			
Visual Description: Moist, olive silty sand			
Sample Comment: ---			

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	10.3	44.7	45.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	97		
0.375 in	9.50	95		
#4	4.75	90		
#10	2.00	86		
#20	0.85	80		
#40	0.42	72		
#60	0.25	64		
#100	0.15	55		
#140	0.11	50		
#200	0.075	45		

<b>Coefficients</b>	
D <sub>85</sub> = 1.8513 mm	D <sub>30</sub> = N/A
D <sub>60</sub> = 0.1958 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.1044 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

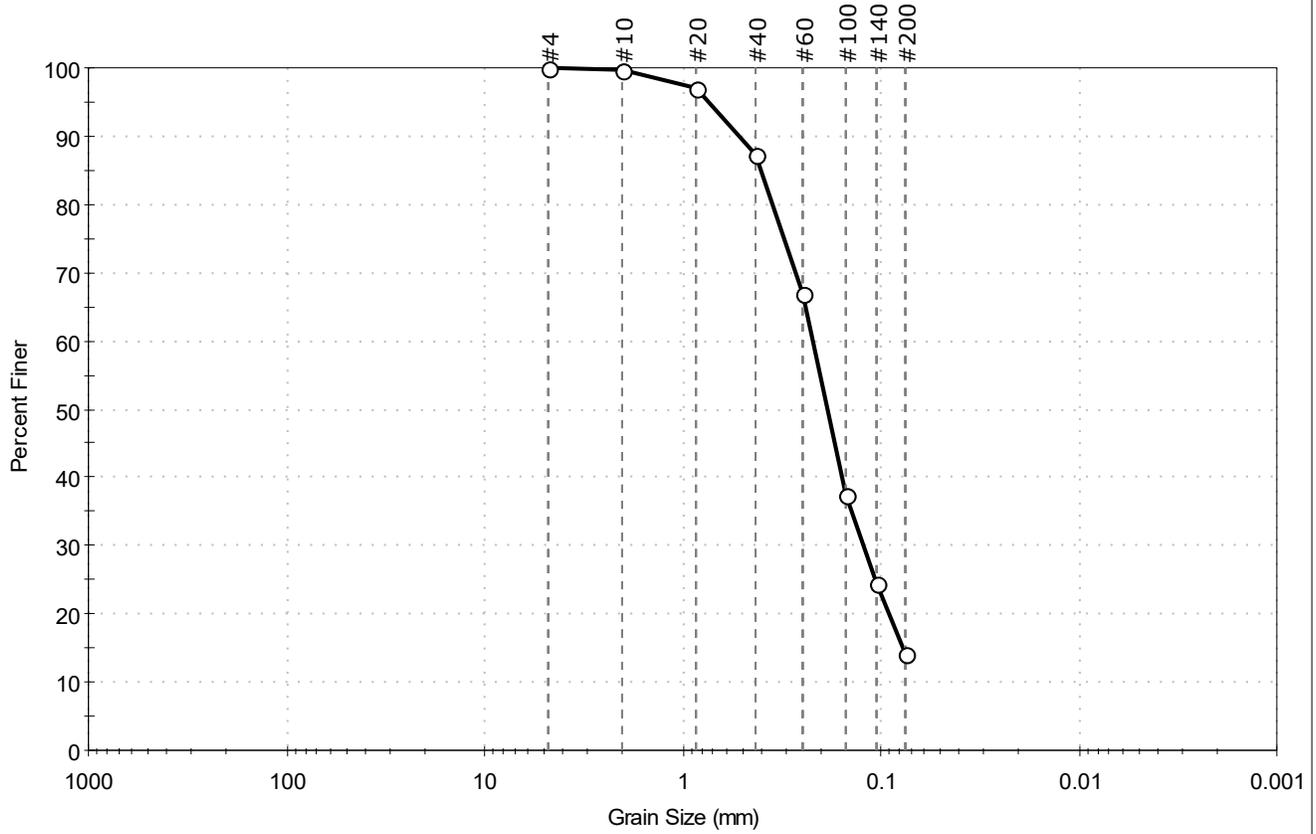
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



Client: Langan Engineering	Project: Project Hudson	Project No: GTX-311848
Location: Hudson, NH	Boring ID: B-B-BOR-12	Sample Type: jar
Sample ID: S-3	Test Date: 07/09/20	Tested By: ckg
Depth: 4-6 ft	Test Id: 562933	Checked By: jsc
Test Comment: ---	Visual Description: Moist, yellowish brown silty sand	Sample Comment: ---

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	85.8	14.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	97		
#40	0.42	87		
#60	0.25	67		
#100	0.15	38		
#140	0.11	25		
#200	0.075	14		

<u>Coefficients</u>	
D <sub>85</sub> = 0.4010 mm	D <sub>30</sub> = 0.1226 mm
D <sub>60</sub> = 0.2212 mm	D <sub>15</sub> = 0.0773 mm
D <sub>50</sub> = 0.1861 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

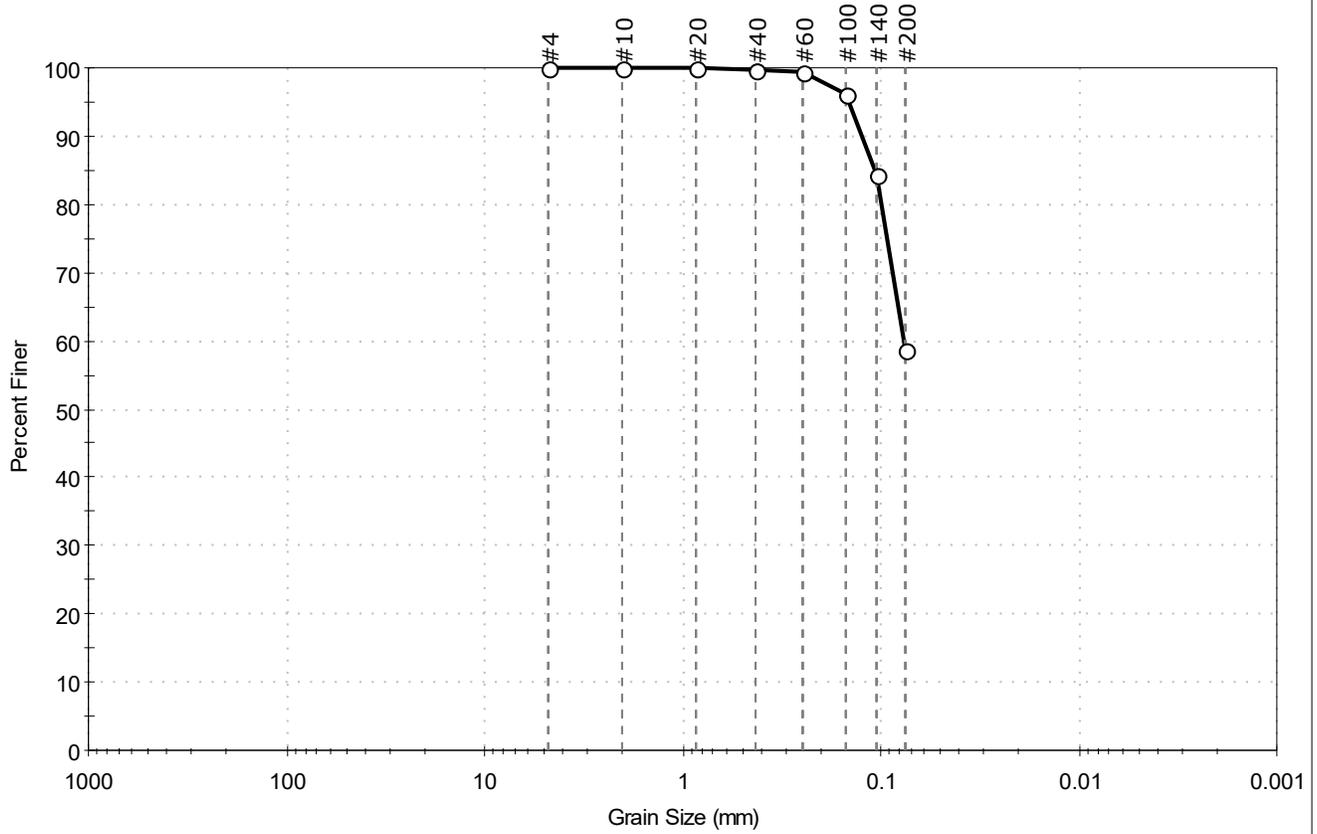
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: Langan Engineering	Project: Project Hudson	Project No: GTX-311848
Location: Hudson, NH	Boring ID: B-B-BOR-22	Sample Type: jar
Sample ID: S-3	Test Date: 06/22/20	Tested By: ckg
Depth: 4-6 ft	Test Id: 559920	Checked By: bfs
Test Comment: ---	Visual Description: Moist, light olive brown sandy silt	Sample Comment: ---

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	41.2	58.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	96		
#140	0.11	84		
#200	0.075	59		

<u>Coefficients</u>	
D <sub>85</sub> = 0.1079 mm	D <sub>30</sub> = N/A
D <sub>60</sub> = 0.0763 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

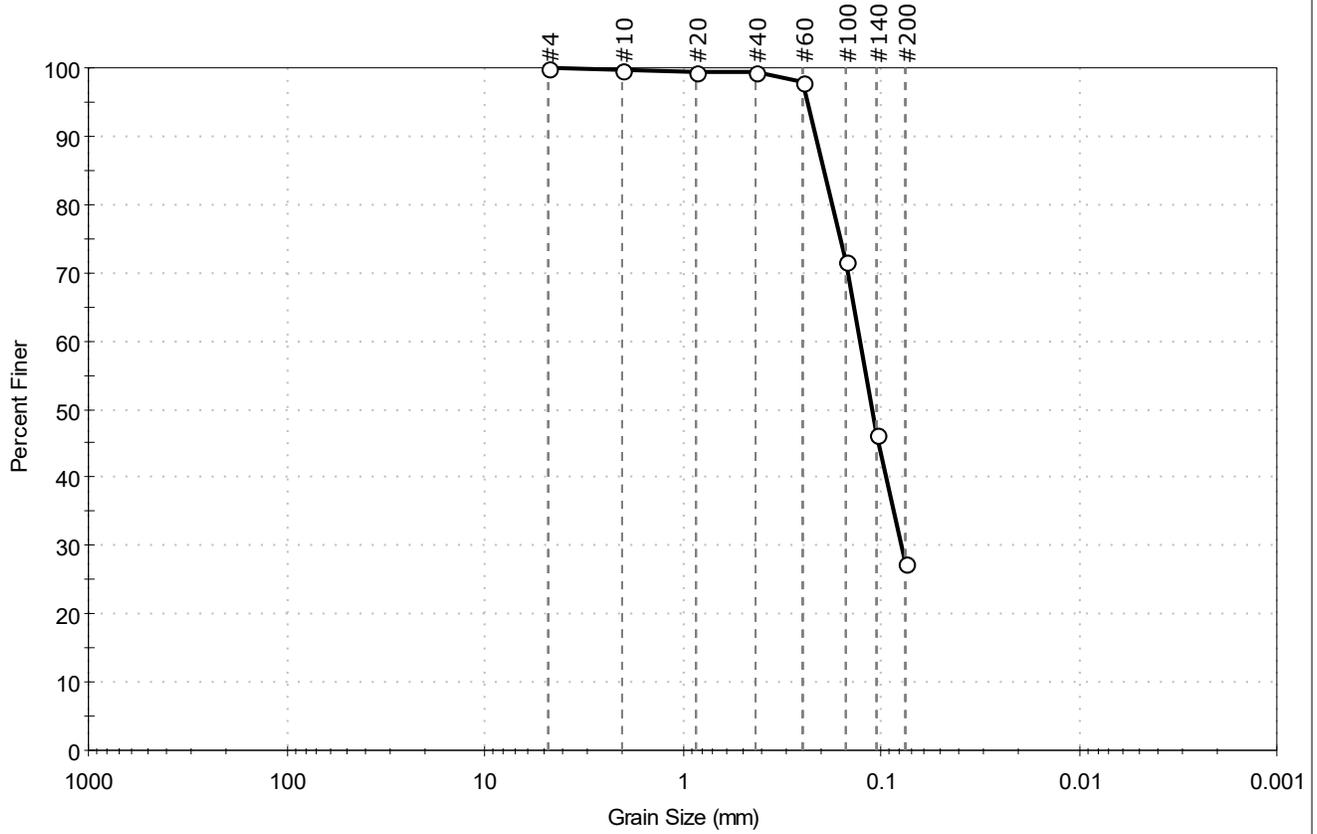
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: Langan Engineering	Project: Project Hudson	Project No: GTX-311848
Location: Hudson, NH	Boring ID: B-B-BOR-30	Sample Type: jar
Sample ID: S-11	Test Date: 06/22/20	Tested By: ckg
Depth: 35-37 ft	Test Id: 559923	Checked By: bfs
Test Comment: ---	Visual Description: Moist, light yellowish brown silty sand	Sample Comment: ---

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	72.6	27.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	98		
#100	0.15	72		
#140	0.11	46		
#200	0.075	27		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1944 mm	D <sub>30</sub> = 0.0787 mm
D <sub>60</sub> = 0.1280 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.1117 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

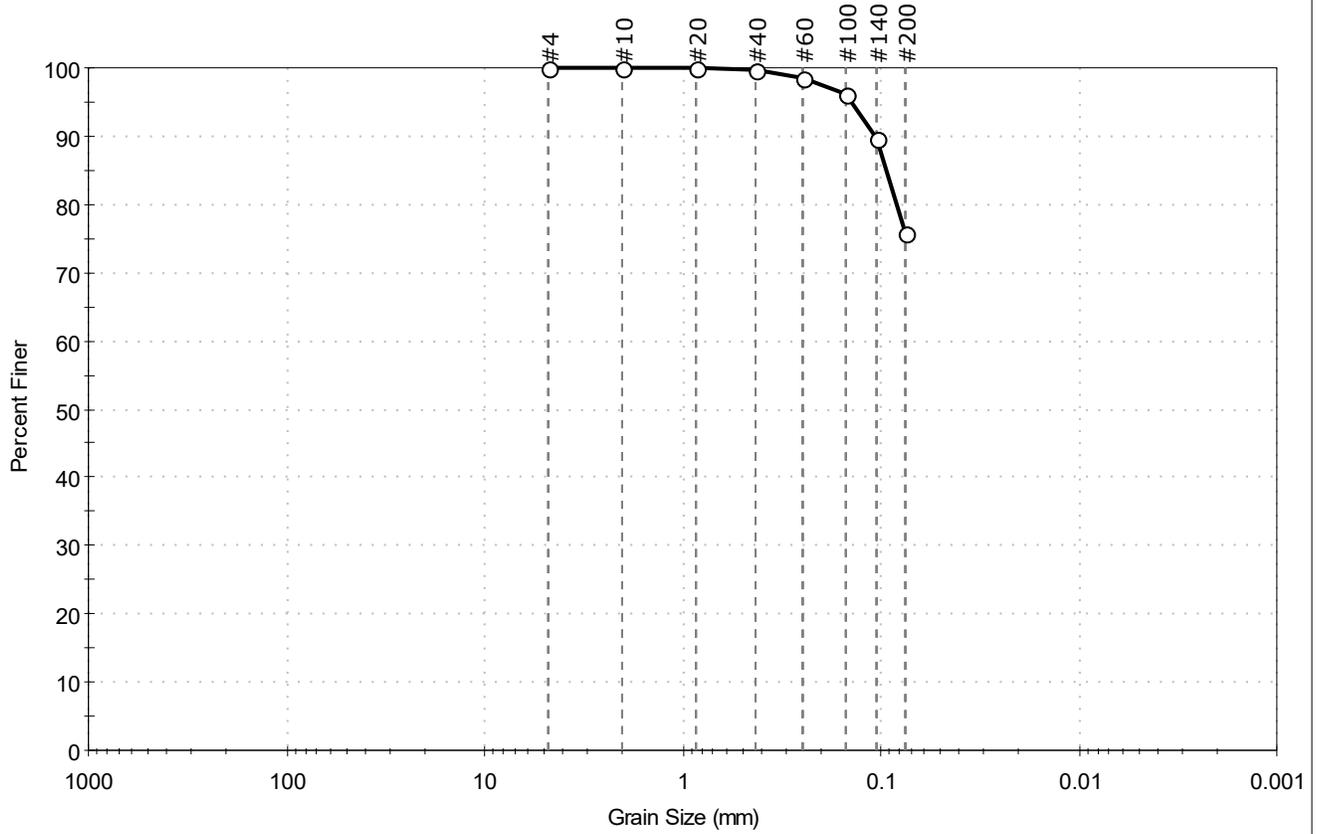
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: Langan Engineering	Project: Project Hudson	Location: Hudson, NH	Project No: GTX-311848
Boring ID: B-B-BOR-31	Sample Type: jar	Tested By: ckg	Checked By: jsc
Sample ID: S-7	Test Date: 07/09/20	Test Id: 562932	
Depth: 14-16 ft			
Test Comment: ---	Visual Description: Moist, light yellowish brown silty with sand		
Sample Comment: ---			

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	24.1	75.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	96		
#140	0.11	90		
#200	0.075	76		

<u>Coefficients</u>	
D <sub>85</sub> = 0.0942 mm	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

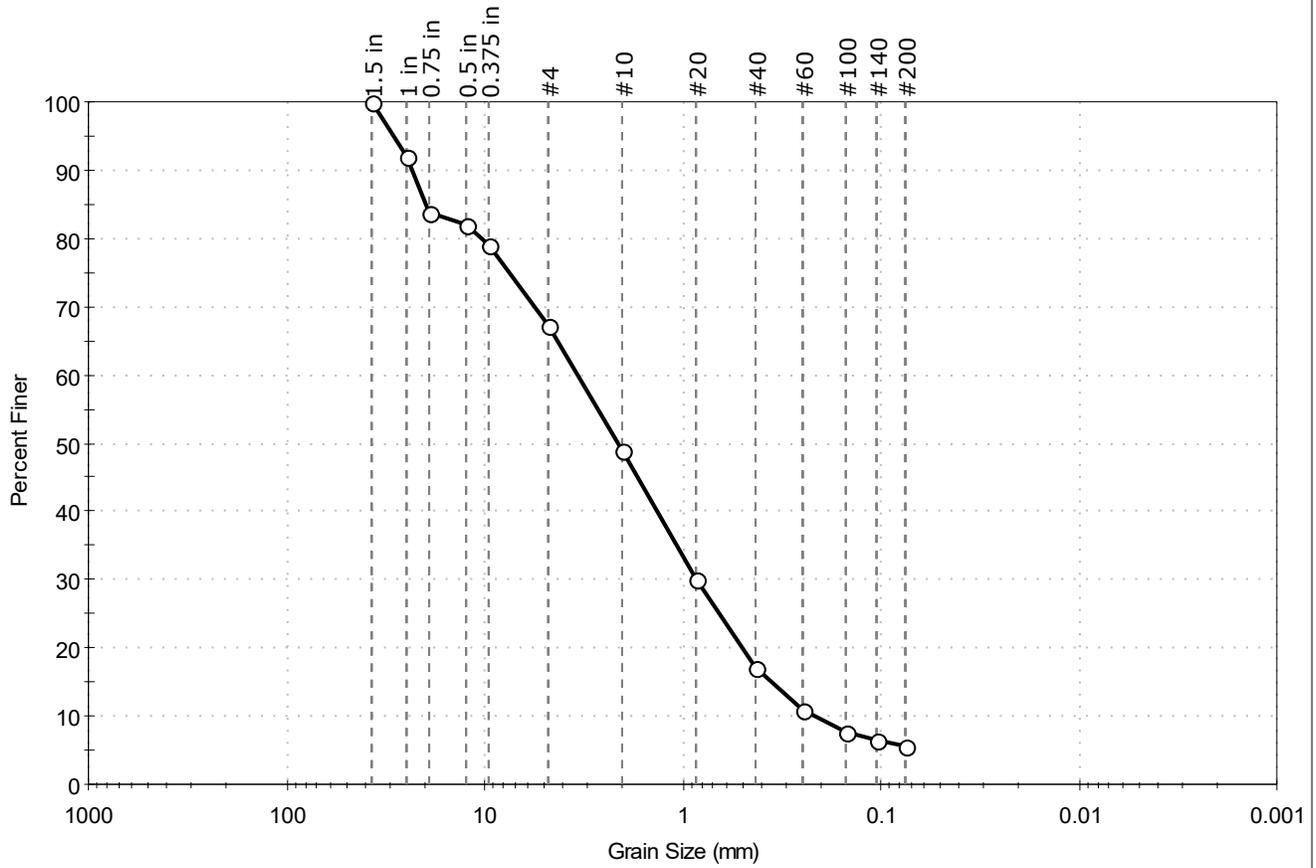
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: Langan Engineering	Project: Project Hudson	Location: Hudson, NH	Project No: GTX-311848
Boring ID: B-B-BOR-36	Sample Type: jar	Tested By: ckg	Checked By: jsc
Sample ID: S-7	Test Date: 07/09/20	Test Id: 562931	
Depth: 14-16 ft			
Test Comment: ---	Visual Description: Moist, olive brown sand with silt and gravel		
Sample Comment: ---			

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	32.7	61.8	5.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	92		
0.75 in	19.00	84		
0.5 in	12.50	82		
0.375 in	9.50	79		
#4	4.75	67		
#10	2.00	49		
#20	0.85	30		
#40	0.42	17		
#60	0.25	11		
#100	0.15	8		
#140	0.11	6		
#200	0.075	5.5		

<u>Coefficients</u>	
D <sub>85</sub> = 19.7770 mm	D <sub>30</sub> = 0.8491 mm
D <sub>60</sub> = 3.3748 mm	D <sub>15</sub> = 0.3552 mm
D <sub>50</sub> = 2.1096 mm	D <sub>10</sub> = 0.2139 mm
C <sub>u</sub> = 15.777	C <sub>c</sub> = 0.999

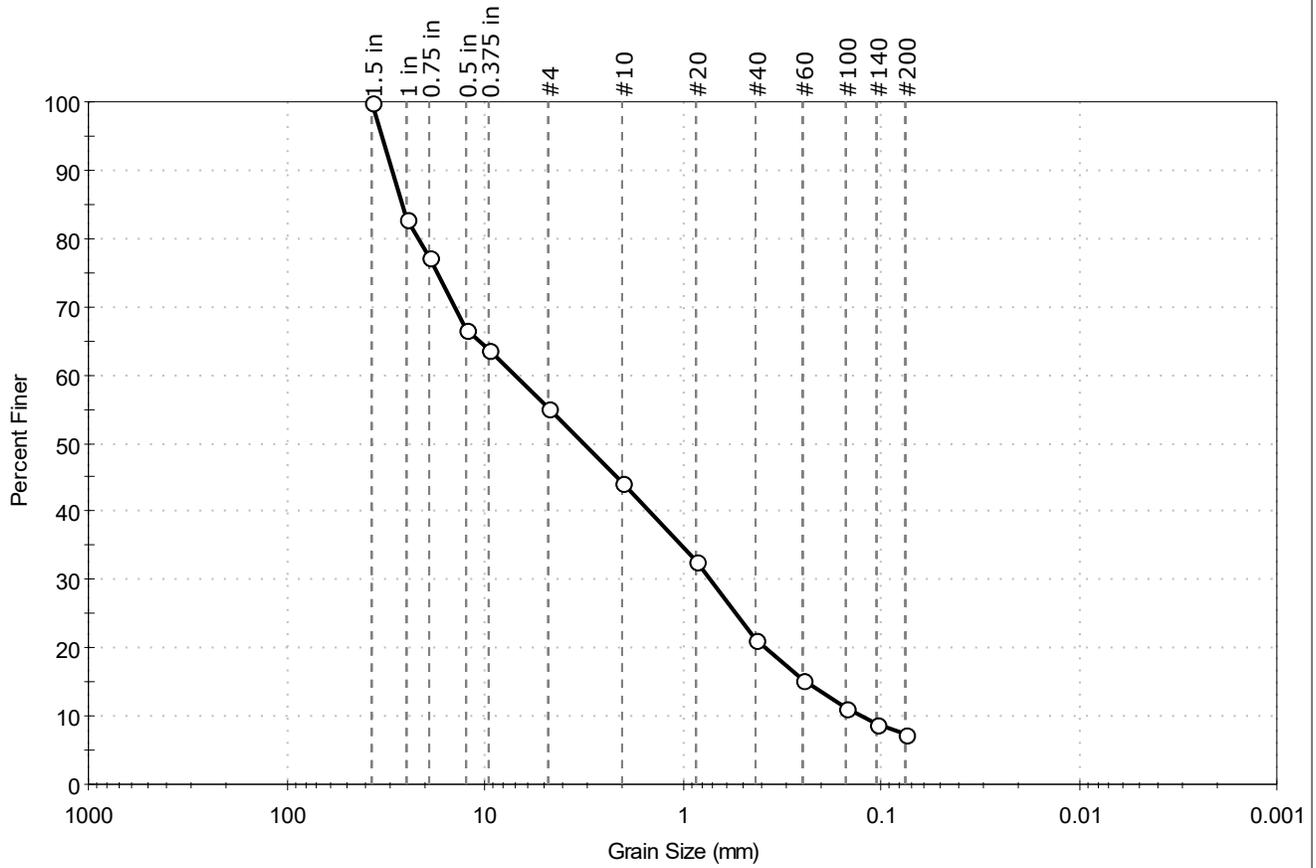
<u>Classification</u>	
ASTM	N/A
AASHTO	Stone Fragments, Gravel and Sand (A-1-a (1))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



Client:	Langan Engineering		
Project:	Project Hudson		
Location:	Hudson, NH	Project No:	GTX-311848
Boring ID:	B-B-BOR-41	Sample Type:	jar
Sample ID:	S-3	Test Date:	06/10/20
Depth :	4-6 ft	Test Id:	559412
Test Comment:	---		
Visual Description:	Moist, olive brown sand with silt and gravel		
Sample Comment:	---		

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	44.7	48.0	7.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	83		
0.75 in	19.00	77		
0.5 in	12.50	67		
0.375 in	9.50	64		
#4	4.75	55		
#10	2.00	44		
#20	0.85	33		
#40	0.42	21		
#60	0.25	15		
#100	0.15	11		
#140	0.11	9		
#200	0.075	7.3		

<u>Coefficients</u>	
D <sub>85</sub> = 26.3464 mm	D <sub>30</sub> = 0.7178 mm
D <sub>60</sub> = 6.9822 mm	D <sub>15</sub> = 0.2385 mm
D <sub>50</sub> = 3.1344 mm	D <sub>10</sub> = 0.1231 mm
C <sub>u</sub> = 56.720	C <sub>c</sub> = 0.599

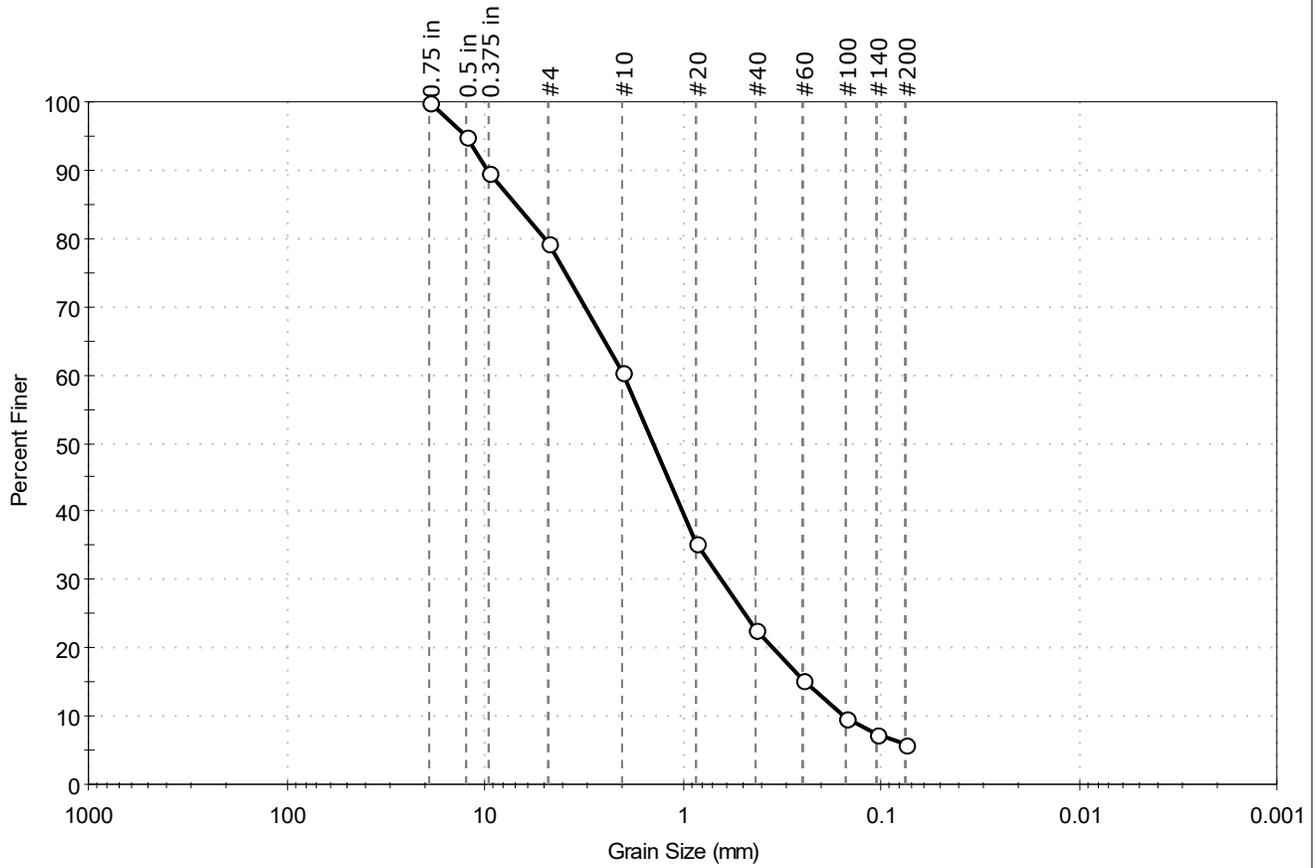
<u>Classification</u>	
ASTM	N/A
AASHTO	Stone Fragments, Gravel and Sand (A-1-a (1))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



Client:	Langan Engineering		
Project:	Project Hudson		
Location:	Hudson, NH	Project No:	GTX-311848
Boring ID:	B-B-BOR-42	Sample Type:	jar
Sample ID:	S-8	Test Date:	06/11/20
Depth :	20-22 ft	Test Id:	559415
Test Comment:	---		
Visual Description:	Moist, light olive brown sand with silt and gravel		
Sample Comment:	---		

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	20.8	73.3	5.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	95		
0.375 in	9.50	90		
#4	4.75	79		
#10	2.00	61		
#20	0.85	35		
#40	0.42	23		
#60	0.25	15		
#100	0.15	10		
#140	0.11	7		
#200	0.075	5.9		

<u>Coefficients</u>	
D <sub>85</sub> = 6.9792 mm	D <sub>30</sub> = 0.6322 mm
D <sub>60</sub> = 1.9626 mm	D <sub>15</sub> = 0.2405 mm
D <sub>50</sub> = 1.3956 mm	D <sub>10</sub> = 0.1538 mm
C <sub>u</sub> = 12.761	C <sub>c</sub> = 1.324

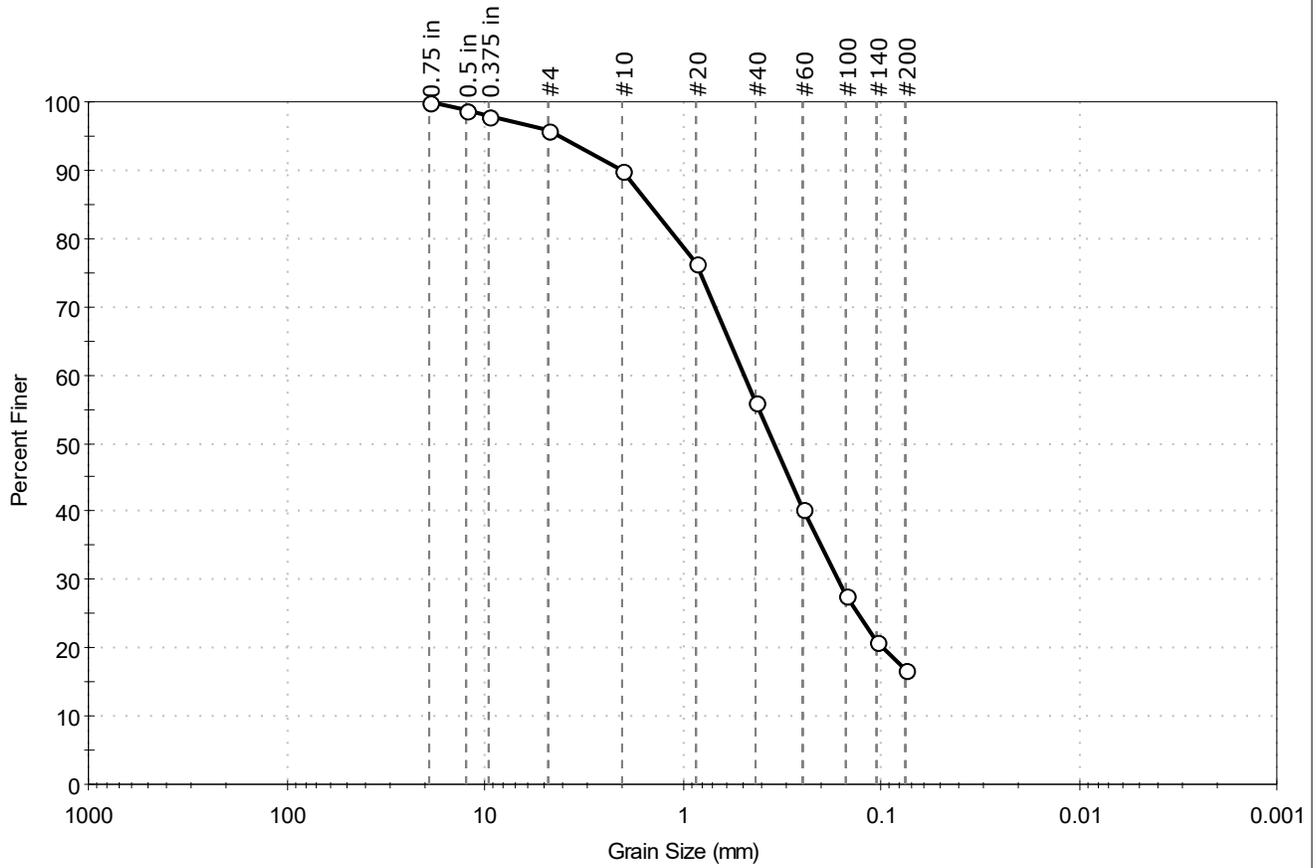
<u>Classification</u>	
ASTM	N/A
AASHTO	Stone Fragments, Gravel and Sand (A-1-b (1))

**Sample/Test Description**  
 Sand/Gravel Particle Shape : ANGULAR  
 Sand/Gravel Hardness : HARD



Client: Langan Engineering	Project: Project Hudson	Location: Hudson, NH	Project No: GTX-311848
Boring ID: B-B-BOR-43	Sample Type: jar	Tested By: ckg	Checked By: bfs
Sample ID: S-5	Test Date: 06/10/20	Test Id: 559414	
Depth: 8-10 ft			
Test Comment: ---	Visual Description: Moist, olive brown silty sand		
Sample Comment: ---			

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.0	79.2	16.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	99		
0.375 in	9.50	98		
#4	4.75	96		
#10	2.00	90		
#20	0.85	77		
#40	0.42	56		
#60	0.25	40		
#100	0.15	28		
#140	0.11	21		
#200	0.075	17		

<u>Coefficients</u>	
D <sub>85</sub> = 1.4597 mm	D <sub>30</sub> = 0.1649 mm
D <sub>60</sub> = 0.4851 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.3454 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

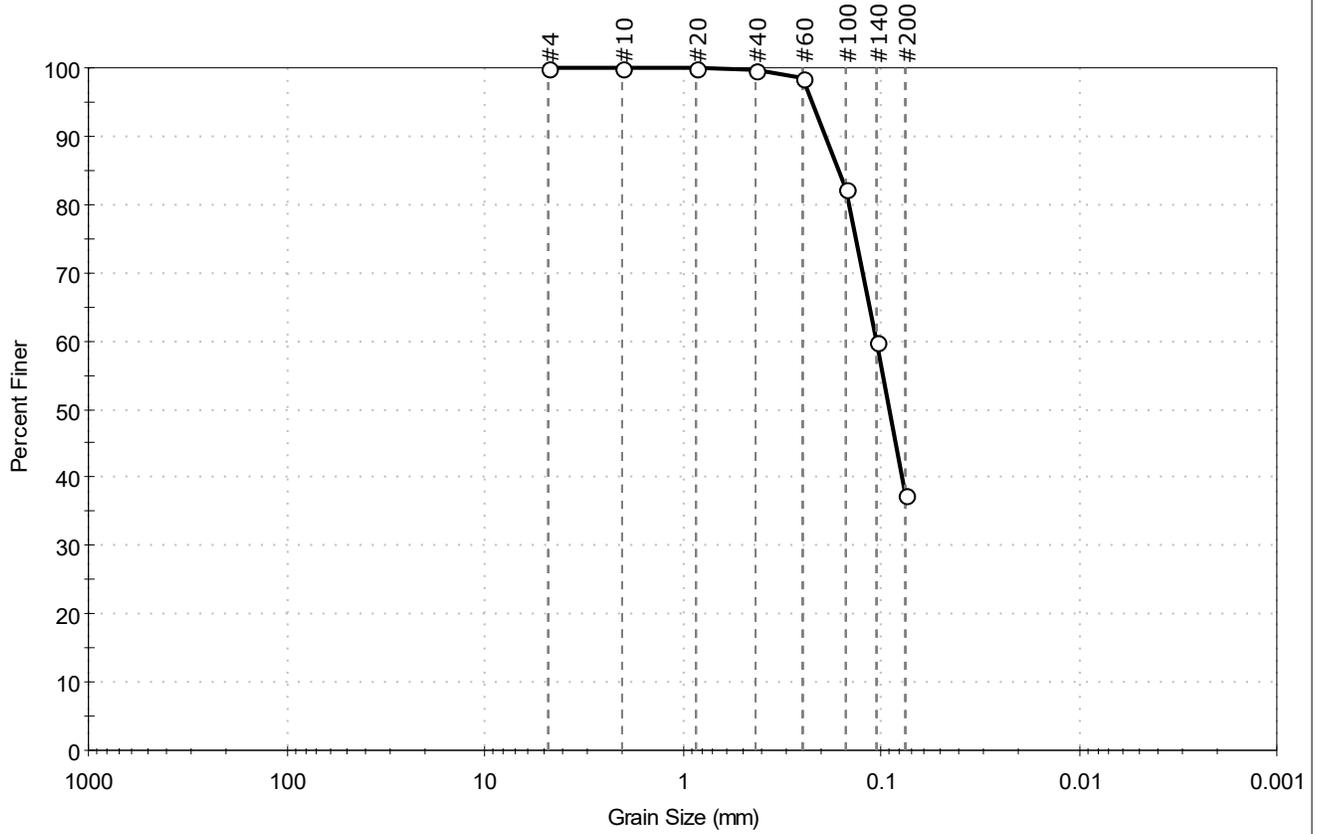
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



Client: Langan Engineering	Project: Project Hudson	Location: Hudson, NH	Project No: GTX-311848
Boring ID: B-B-BOR-43	Sample Type: jar	Tested By: ckg	Checked By: bfs
Sample ID: S-8	Test Date: 06/11/20	Test Id: 559418	
Depth: 20-22 ft			
Test Comment: ---	Visual Description: Moist, pale brown silty sand		
Sample Comment: ---			

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	62.6	37.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	98		
#100	0.15	82		
#140	0.11	60		
#200	0.075	37		

<u>Coefficients</u>	
D <sub>85</sub> = 0.1628 mm	D <sub>30</sub> = N/A
D <sub>60</sub> = 0.1062 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0911 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

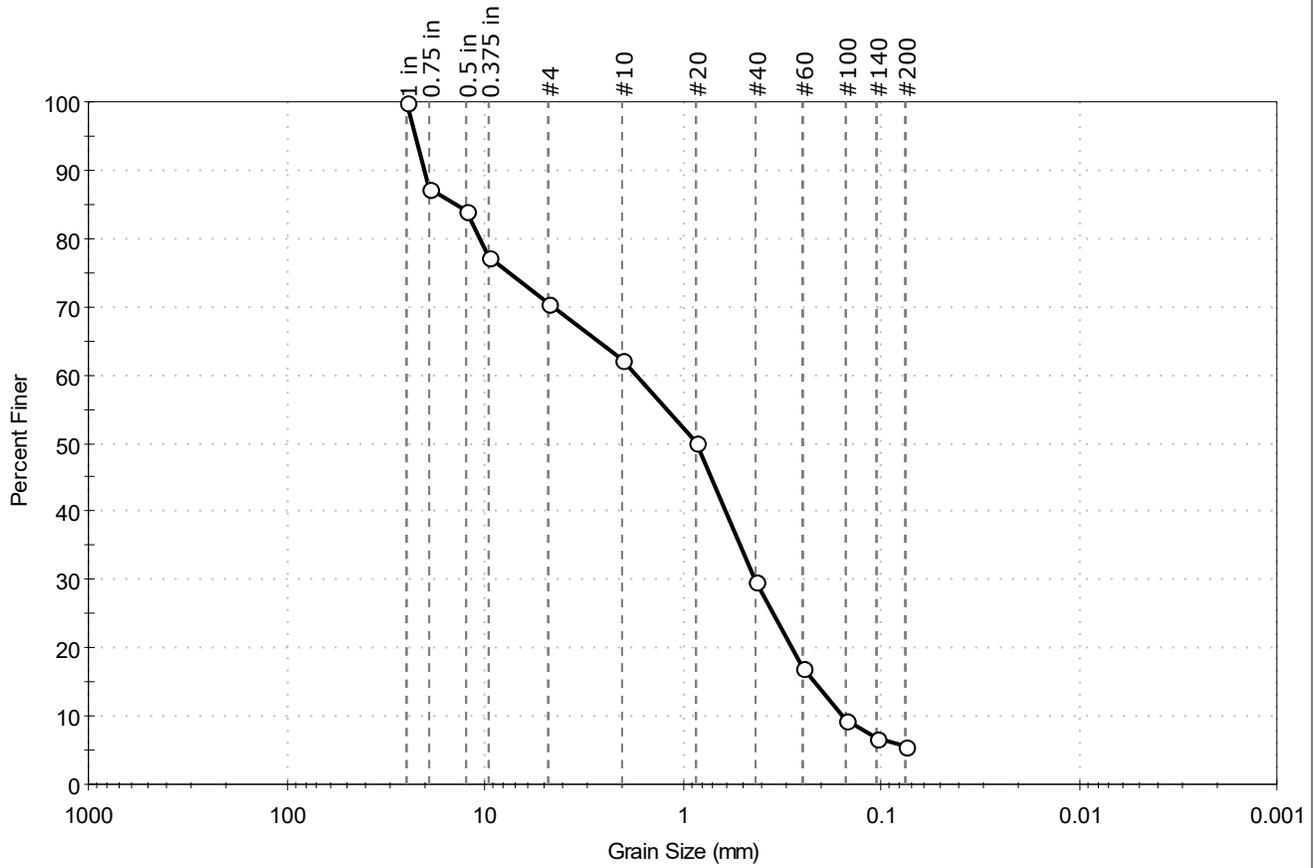
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client:	Langan Engineering		
Project:	Project Hudson		
Location:	Hudson, NH	Project No:	GTX-311848
Boring ID:	B-S-BOR-05	Sample Type:	jar
Sample ID:	S-4	Test Date:	06/22/20
Depth :	6-8 ft	Test Id:	559924
Test Comment:	---		
Visual Description:	Moist, light yellowish brown sand with silt and gravel		
Sample Comment:	---		

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	29.4	65.1	5.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	87		
0.5 in	12.50	84		
0.375 in	9.50	77		
#4	4.75	71		
#10	2.00	62		
#20	0.85	50		
#40	0.42	30		
#60	0.25	17		
#100	0.15	9		
#140	0.11	7		
#200	0.075	5.5		

<u>Coefficients</u>	
D <sub>85</sub> = 14.0030 mm	D <sub>30</sub> = 0.4262 mm
D <sub>60</sub> = 1.6943 mm	D <sub>15</sub> = 0.2177 mm
D <sub>50</sub> = 0.8460 mm	D <sub>10</sub> = 0.1559 mm
C <sub>u</sub> = 10.868	C <sub>c</sub> = 0.688

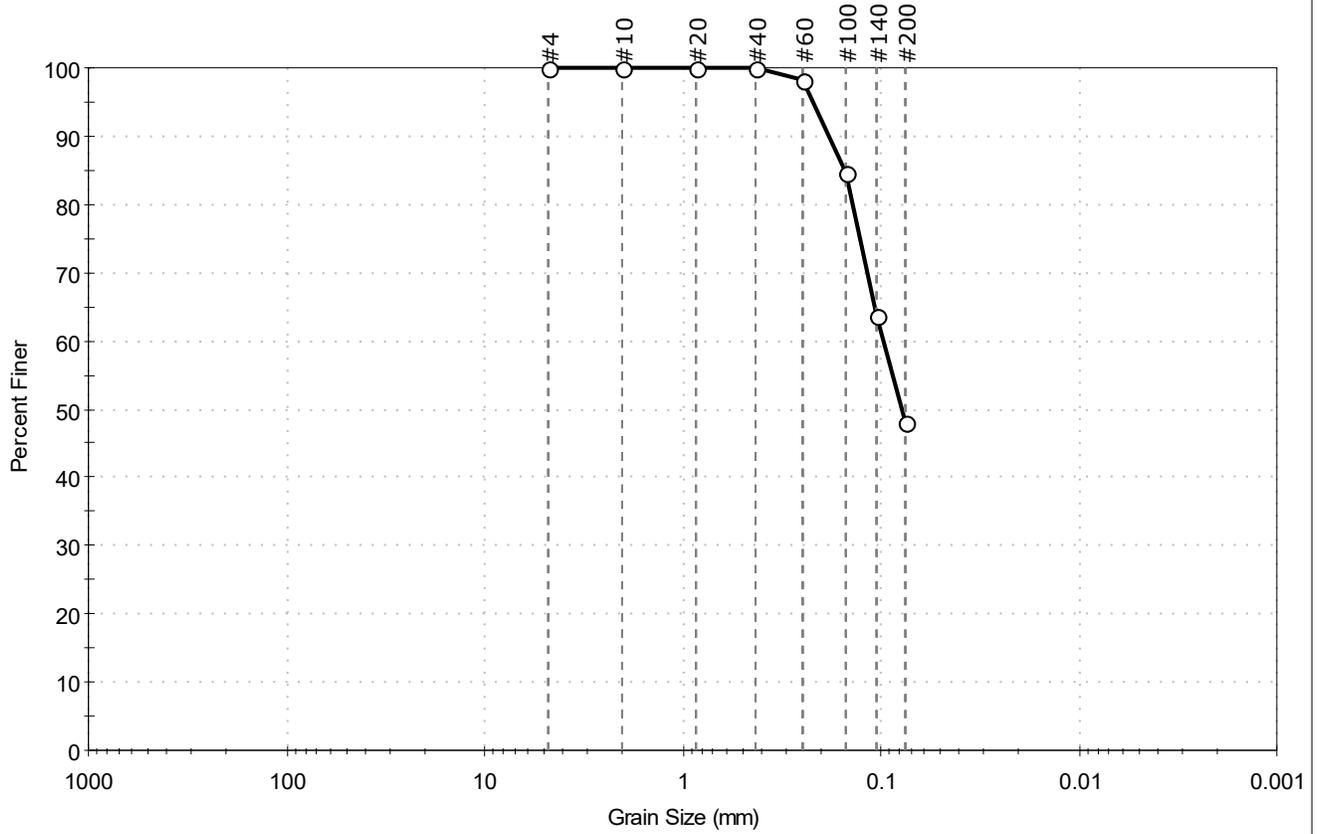
<u>Classification</u>	
ASTM	N/A
AASHTO	Stone Fragments, Gravel and Sand (A-1-b (1))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



Client: Langan Engineering	Project: Project Hudson	Location: Hudson, NH	Project No: GTX-311848
Boring ID: B-S-BOR-14	Sample Type: jar	Tested By: ckg	Checked By: bfs
Sample ID: S-2	Test Date: 06/10/20	Test Id: 559417	
Depth: 2-4 ft			
Test Comment: ---	Visual Description: Moist, pale brown silty sand	Sample Comment: ---	

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	52.0	48.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	98		
#100	0.15	85		
#140	0.11	64		
#200	0.075	48		

**Coefficients**

D <sub>85</sub> = 0.1514 mm	D <sub>30</sub> = N/A
D <sub>60</sub> = 0.0975 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0783 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

**Classification**

ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

**Sample/Test Description**

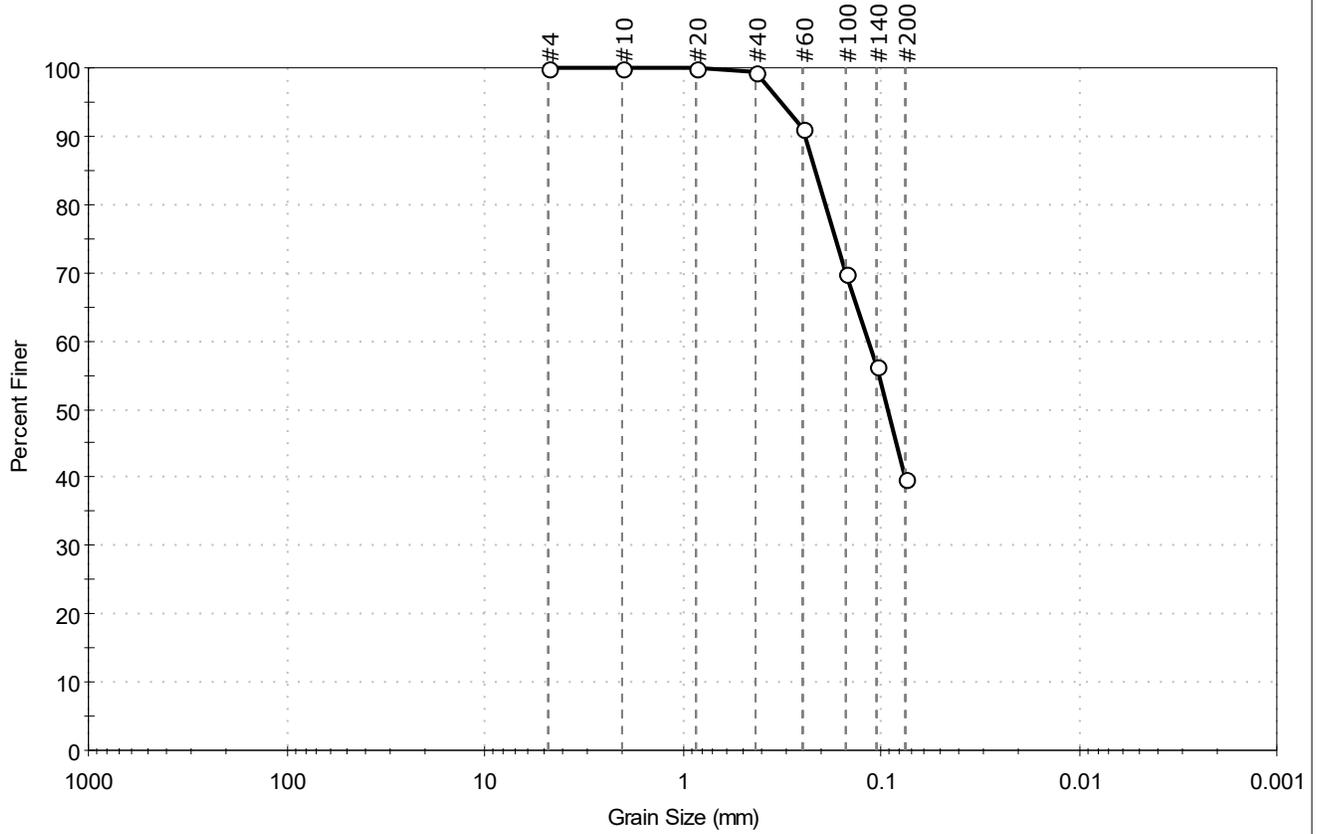
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---



Client: Langan Engineering	Project: Project Hudson	Project No: GTX-311848
Location: Hudson, NH	Boring ID: B-S-BOR-14	Sample Type: jar
Tested By: ckg	Sample ID: S-3	Test Date: 06/10/20
Checked By: bfs	Depth: 4-6 ft	Test Id: 559419
Test Comment: ---	Visual Description: Moist, very pale brown silty sand	Sample Comment: ---

## Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	60.1	39.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	91		
#100	0.15	70		
#140	0.11	56		
#200	0.075	40		

<u>Coefficients</u>	
D <sub>85</sub> = 0.2158 mm	D <sub>30</sub> = N/A
D <sub>60</sub> = 0.1164 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0928 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

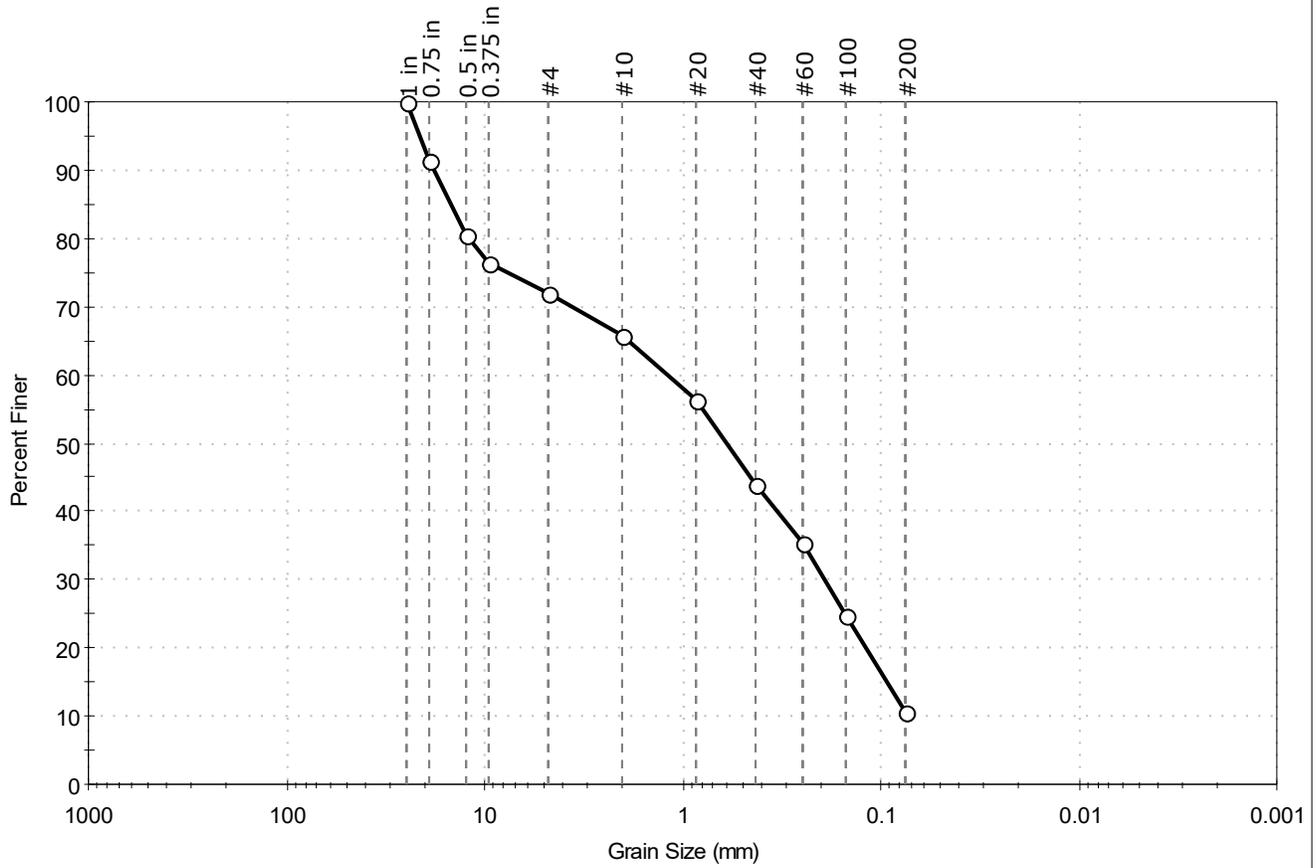
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: Langan Engineering	Project: Project Hudson	Location: Hudson, NH	Project No: GTX-311848
Boring ID: B-S-TP-22	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: G-1	Test Date: 08/03/20	Test Id: 567306	
Depth: 2-3 ft			
Test Comment: ---			
Visual Description: Moist, light yellowish brown sand with silt and gravel			
Sample Comment: ---			

## Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	28.1	61.4	10.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	91		
0.5 in	12.50	81		
0.375 in	9.50	76		
#4	4.75	72		
#10	2.00	66		
#20	0.85	56		
#40	0.42	44		
#60	0.25	35		
#100	0.15	25		
#200	0.075	11		

<b>Coefficients</b>	
D <sub>85</sub> = 14.8284 mm	D <sub>30</sub> = 0.1937 mm
D <sub>60</sub> = 1.1873 mm	D <sub>15</sub> = 0.0933 mm
D <sub>50</sub> = 0.5959 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	N/A
<b>AASHTO</b>	Stone Fragments, Gravel and Sand (A-1-b (0))

<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD



  
 GEOTECH EXPRESS INCORPORATED  
 125 NAGOG PARK  
 ACTON MA 01720-3451  
 USA

Analysis No. TS-A2008802  
 Report Date 10 July 2020  
 Date Sampled 06 July 2020  
 Date Received 09 July 2020  
 Where Sampled Acton, MA USA  
 Sampled By Client

This is to attest that we have examined: Soil for Project Name: Project Hudson; Site Location Hudson, NH; Job Number: GTX-311848

When examined to the applicable requirements of:

- ASTM D 512-12 “Standard Test Methods for Chloride Ion in Water” Method B
- ASTM D 516-16 “Standard Test Method for Sulfate Ion in Water”

Results:

ASTM D 512 – Chloride Method B

Sample		Results		Detection Limit
		ppm (mg/kg)	% <sup>1</sup>	
B-B-BOR-04		12.	0.0012	10.
S-4	6 – 8'			
B-B-BOR-04		<10.	<0.0010	
S-6	10 – 12'			
B-B-BOR-12		<10.	<0.0010	
S-2	2 – 4'			
B-B-BOR-18		<10.	<0.0010	
S-3	4 – 6'			
B-B-BOR-26		<10.	<0.0010	
S-2	2 – 4'			

NOTE: <sup>1</sup>Percent by weight as received.

CERTIFICATE OF ANALYSIS

ASTM D 516 – Sulfates (Soluble)

Sample		Results		Detection Limit
		ppm (mg/kg)	% <sup>1</sup>	
B-B-BOR-04		<10.	<0.0010	10.
S-4	6 – 8'			
B-B-BOR-04		<10.	<0.0010	
S-6	10 – 12'			
B-B-BOR-12		<10.	<0.0010	
S-2	2 – 4'			
B-B-BOR-18		<10.	<0.0010	
S-3	4 – 6'			
B-B-BOR-26		<10.	<0.0010	
S-2	2 – 4'			

NOTE: <sup>1</sup>Percent by weight as received

END OF ANALYSIS

USEPA Laboratory ID UT00930



Merrill Gee P.E. – Engineer in Charge

**APPENDIX H**  
**INFILTRATION TEST LOGS**

# LANGAN

## INFILTRATION TESTS

B-IT-22 performed in B-S-TP-22

<b>PROJECT</b>		Project Hudson	<b>PROJECT NO.</b>		151010101
<b>LOCATION</b>		59 Steele Road, Hudson, NH	<b>DATE</b>		6/29/2020
<b>INSPECTOR</b>		Olivia Chasse	<b>WEATHER</b>		Cloudy, 70s°F
<b>PRESOAK</b>	<b>TIME</b>	<b>DEPTH OF WATER IN HOLE (INCH)</b>	<b>ELEVATION AND DATUM</b>		
	Start	12:05	24	<b>Surface Elevation</b>	Approx. 115 (NGVD29)
	End	12:19	0	<b>Top of Hole Elevation</b>	Approx. 113.0 (NGVD29)
				<b>Bottom of Hole Elevation</b>	Approx. 111.0 (NGVD29)

### METHOD OF INFILTRATION TEST

B-S-TP-22 was advanced to a depth of about 2 feet below existing grade. An about 6-inch diameter, 24-inch deep hole was dug by hand with a post hole digger. The circumference of the hole was then lined with a 6-inch diameter, 30-inch long PVC pipe. Before running infiltration tests, the hole was presoaked with 24 inches of water and allowed to drain. For each infiltration test, the hole was filled with water to a predetermined depth of 24 inches. Then, the time was recorded after one hour or the time for the water to drain 24 inches was recorded. The tables below outline the calculations for determining the average rate in which the water dissipated. Test pit B-S-TP-22 was advanced to termination depth following completion of the infiltration test.

	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 1	0	24	-	-	-	Light brown to brown fine SAND, some fine to coarse gravel, trace silt, trace cobbles
	960	0	960	1.50	90.00	
<b>Average Rate:</b>					<b>90.0</b>	<b>inches/hour</b>
	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 2	0	24	-	-	-	Light brown to brown fine SAND, some fine to coarse gravel, trace silt, trace cobbles
	1380	0	1380	1.04	62.61	
<b>Average Rate:</b>					<b>62.6</b>	<b>inches/hour</b>
	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 3	0	24	-	-	-	Light brown to brown fine SAND, some fine to coarse gravel, trace silt, trace cobbles
	1380	0	1380	1.04	62.61	
<b>Average Rate:</b>					<b>62.6</b>	<b>inches/hour</b>
	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 4	0	24	-	-	-	Light brown to brown fine SAND, some fine to coarse gravel, trace silt, trace cobbles
	1560	0	1560	0.92	55.38	
<b>Average Rate:</b>					<b>55.4</b>	<b>inches/hour</b>
<b>Lowest Average Rate:</b>					<b>55.4</b>	<b>inches/hour</b>

# LANGAN

## INFILTRATION TESTS

B-IT-23 performed in B-S-TP-23

<b>PROJECT</b>		Project Hudson	<b>PROJECT NO.</b>		151010101
<b>LOCATION</b>		59 Steele Road, Hudson, NH	<b>DATE</b>		6/29/2020
<b>INSPECTOR</b>		Olivia Chasse	<b>WEATHER</b>		Cloudy, 70s°F
<b>PRESOAK</b>	<b>TIME</b>	<b>DEPTH OF WATER IN HOLE (INCH)</b>	<b>ELEVATION AND DATUM</b>		
	Start	12:40	24	<b>Surface Elevation</b>	Approx. 115.5 (NGVD29)
	End	12:50	0	<b>Top of Hole Elevation</b>	Approx. 115.5 (NGVD29)
				<b>Bottom of Hole Elevation</b>	Approx. 113.5 (NGVD29)

### METHOD OF INFILTRATION TEST

An about 6-inch diameter, 24-inch deep hole was dug below surface grade, by hand with a post hole digger. The circumference of the hole was then lined with a 6-inch diameter, 30-inch long PVC pipe. Before running infiltration tests, the hole was presoaked with 24 inches of water and allowed to drain. For each infiltration test, the hole was filled with water to a predetermined depth of 24 inches. Then, the time was recorded after one hour or the time for the water to drain 24 inches was recorded. The tables below outline the calculations for determining the average rate in which the water dissipated. Test pit B-S-TP-23 was advanced to to termination depth following completion of the infiltration test.

	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 1	0	24	-	-	-	Light brown fine to coarse SAND, trace silt, trace fine gravel
	960	0	960	1.50	90.00	
<b>Average Rate:</b>					<b>90.0</b>	<b>inches/hour</b>
	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 2	0	24	-	-	-	Light brown fine to coarse SAND, trace silt, trace fine gravel
	1320	0	1320	1.09	65.45	
<b>Average Rate:</b>					<b>65.5</b>	<b>inches/hour</b>
	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 3	0	24	-	-	-	Light brown fine to coarse SAND, trace silt, trace fine gravel
	1080	0	1080	1.33	80.00	
<b>Average Rate:</b>					<b>80.0</b>	<b>inches/hour</b>
	TIME (SEC)	DEPTH OF WATER (IN)	TIME INTERVAL (SEC)	RATE (IN/MIN)	RATE (IN/HOUR)	SOIL CONDITIONS
TEST 4	0	24	-	-	-	Light brown fine to coarse SAND, trace silt, trace fine gravel
	1200	0	1200	1.20	72.00	
<b>Average Rate:</b>					<b>72.0</b>	<b>inches/hour</b>
<b>Lowest Average Rate:</b>					<b>65.5</b>	<b>inches/hour</b>

# **APPENDIX I PAVEMENT DESIGN**

**APPENDIX I.1  
FLEXIBLE PAVEMENT DESIGN  
SITE AREAS (LOTS A, B, C)**

**Project Information:**

**Project Title:** Hudson Logistic Center  
**Project Town:** Hudson  
**Project State:** New Hampshire  
**Client:** Hudson Logistic Center

**Project No.:** 151010101  
**Performed By:** NA  
**Date:** 6/16/2020  
**Location:** Site Areas (All Lots)

**Design Information:**

- o Design Life: 20 years
  - o Initial Serviciability (Po): 4.2
  - o Terminal Serviciability Index (TSI): 2.5
  - o Serviciability (Po - TSI): 1.7
  - o Reliability Factor (R): 0.90
  - o Standard Deviation (Sd): 0.45
  - o Direction Distribution Factor (Do): 1.00
  - o Lane Distribution Factor (DI): 1.00
  - o Soil Description: FILL & SP/SM
  - o USCS Symbol: SP/SM
  - o California Bearing Ratio (CBR): 10
  - o Resilient Modulus (MR): 15000 PSI
- CBR Based on: Estimated Value  
 \*MR = CBR\*1,500      5 <= CBR <= 10  
 \*MR = 3000\*CBR^0.65      CBR > 10

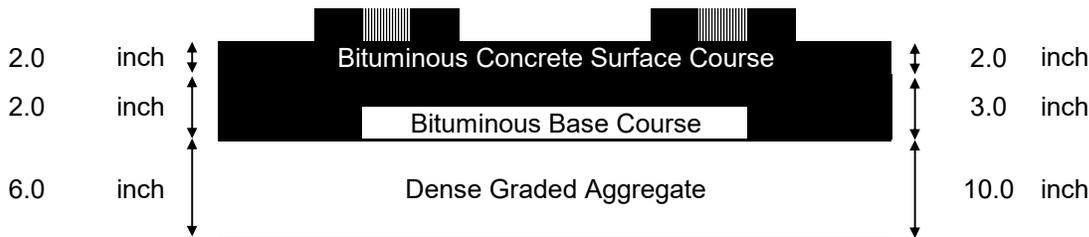
**Summary of Results**

**Standard Section**

Design ESAL: 11,422

**Heavy Duty Section**

Design ESAL: 2,177,920



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 Langan Engineering and Environmental Services, Inc.  
 Langan, CT, Inc.  
 Langan International LLC  
 collectively known as Langan

Project	Hudson Logistic Center
Hudson	New Hampshire

Drawing Title	Pavement Design Summary Sheet
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Project No.	151010101
Date	6/16/2020
Scale	Not to Scale
Drawn By	NA

Drawing No.	P.01
Sheet 1 of 4	

## Calculate Equivalent 18-kip Single Axle Loading (ESALs)

### Equivalent Single Axle Loads per Vehicle

<b>○ Typical Car:</b>		Load Equivalency Factors:	
(S) Front Single Axle: 2 kips		LEF = 0.001045	<u>Calculated ESALs</u> (1 axle)(0.001045)+(1 axle)(0.001045) = <b>0.00209 /car</b>
(S) Rear Single Axle: 2 kips		LEF = 0.001045	
<b>○ Typical Delivery Van:</b>			
(S) Front Single Axle: 8 kips	LEF = 0.0343		<u>Calculated ESALs</u> (1 axle)(0.0343)+(1 axle)(0.0343) = <b>0.0686 /truck</b>
(S) Truck Rear Axle: 8 kips	LEF = 0.0343		
<b>○ Typical Truck and Trailer (HS20):</b>			
(S) Front Single Axle: 12 kips	LEF = 0.189		<u>Calculated ESALs</u> ((Front axle)(0.189)+(Rear axle)(0.8905) +(Trailer Tandem)(0.8905)) = <b>1.97 /truck</b>
(T) Truck Rear Axle: 32 kips	LEF = 0.8905		
(T) Trailer Axle: 32 kips	LEF = 0.8905		
(S) = single axle, (T) = Tandem, (3) = Triple Axles			

**Traffic Loading**      ○ Design Life:      20    years    (From Sheet P.01)

### Standard Pavement Section

Vehicle Types	Current Traffic	% Increase	Design Traffic	ESAL Factor	Design ESAL
Passenger Cars	651	115%	5,465,145	0.00209	11,422
Light Trucks	0	115%	0	0.0686	0

**Standard Design ESAL:**      11,422

### Heavy Duty Pavement Section

Vehicle Types		Growth Factors	Design Traffic	ESAL Factor	Design ESAL
Passenger Cars	651	115%	5,465,145	0.00209	11,422
Light Trucks	0	115%	0	0.0686	0
Heavy Trucks	131	115%	1,099,745	1.97	2,166,498

**Heavy Duty Design ESAL:**      2,177,920

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	Date <b>6/16/2020</b>	Scale <b>Not to Scale</b>	Drawn By <b>NA</b>	Sheet 2 of 4
	Hudson	New Hampshire		

**Design Information (from P.01):**

- Reliability Factor (R): 0.90
- Standard Deviation (Sd): 0.45
- Resilient Modulus (MR): 15
- Servicibility (Po - TSI): 1.7

**Traffic Information (from P.02):**

- **Standard ESALs (W18):**  
 11,422  
 (millions) 0.011
- **Heavy Duty ESALs (W18):**  
 2,177,920  
 (millions) 2.18

**From Nomograph:**

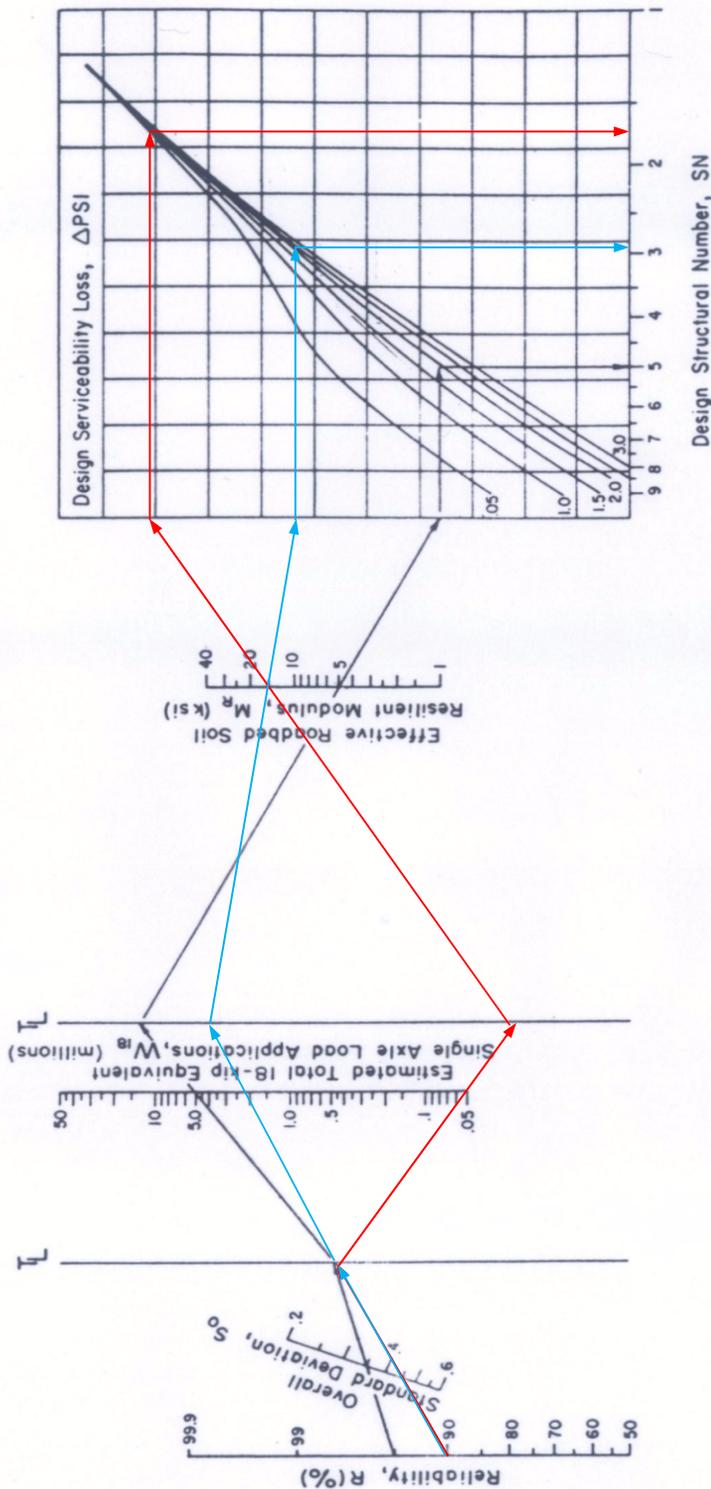
Design Structural Number (SN)

Standard Section:

**1.8**

Heavy Duty Section:

**3.0**



**Figure 11.25** Design chart for flexible pavements based on mean values for each input (1 ksi = 6.9 MPa). (From the *AASHTO Guide for Design of Pavement Structures*. Copyright 1986. American Association of State Highway and Transportation Officials, Washington, DC. Used by permission.)

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Project	Hudson Logistic Center
Hudson	New Hampshire

Drawing Title	AASHTO Flexible Pavement Nomograph
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Project No.	151010101
Date	6/16/2020
Scale	As Shown
Drawn By	NA

Drawing No.	P.03
Sheet 3 of 4	

**Flexible Pavement Section Calculation:**

Standard Section:

Structural Number:  
 $SN = D1(a1)+D2(a2)+D3(a3)$

Material	Spec	Thickness (inch)	TDS	SN
Bituminuous Concrete Surface Course	Class 2	D1 2.0	a1 0.44	0.88
Bituminuous Concrete Binder Course	Class 1	D2 2.0	a2 0.44	0.88
Dense Graded Aggregate	Subbase	D3 6.0	a3 0.11	0.66

Calculated Structural Number for Section: **2.42**  
 Check Calculated SN is > Design SN: OK  
 Design Light Duty Structural Number SN: 1.8 (from P.03)

Heavy Duty Section:

Material	Spec	Thickness (inch)	Layer Strength	SN
Bituminuous Concrete Surface Course	Class 2	D1 2.0	a1 0.44	0.88
Bituminuous Concrete Binder Course	Class 1	D2 3.0	a2 0.44	1.32
Dense Graded Aggregate	Subbase	D3 10.0	a3 0.11	1.10

Calculated Structural Number for Section: **3.30**  
 Check Calculated SN is > Design SN: OK  
 Design Heavy Duty Structural Number SN: 3.0 (from P.03)

Minimum Pavement Section

Material	Spec	Thickness (inch)
Bituminuous Concrete (Total)		4.0
Dense Graded Aggregate	Subbase	6.0



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 Langan, C.T., Inc.  
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 Collective y known as Langan

Project	Hudson Logistic Center
Hudson	New Hampshire

Drawing Title	Flexible Pavement Section Calculation
---------------	---------------------------------------

Project No.	151010101
Date	6/16/2020
Scale	As Shown
Drawn By	NA

Drawing No.	P.04
Sheet 4 of 4	

**APPENDIX I.2  
RIGID PAVEMENT DESIGN  
SITE AREAS (LOTS A, B, C)**



DESIGN SUMMARY REPORT FOR

JOINTED-PLAIN CONCRETE PAVEMENT (JPCP)

DATE CREATED:

Wed Sep 02 2020 17:37:26 GMT-0400 (Eastern Daylight Time)

Project Description

Project Name: Lot B - SD      Owner:      Zip Code:  
 Designer's Name:      Route:  
 Project Description:

Design Summary

	Doweled	Undoweled		Doweled	Undoweled
Recommended Design Thickness:	5.00 in.	5.00 in.	Maximum Joint Spacing:	8 ft.	8 ft.
Calculated Minimum Thickness:	4.77 in.	4.77 in.			

Pavement Structure

**SUBBASE**  
 Calculated Composite K-Value of Substructure: 467 psi/in

Minimum Pavement Section: 5-inches of concrete over 4-inches of aggregate base

Layer Type	Resilient Modulus	Layer Thickness
JOINTED PLAIN CONCRETE SURFACE		
Granular Base	25,000 psi	6 in
SUBGRADE		

**CONCRETE**

Compressive Strength: 4500 psi      Edge Support: Yes  
 Modulus of Elasticity: 4000000 psi      Macrobbers in Concrete: No  
 Calculated Flexural Strength: 627 psi

**SUBGRADE**

CBR: 10 %  
 Calculated MRSG Value 9,389 psi

Project Level

**TRAFFIC**

Spectrum Type: ACI 330 Traffic Spectrum A  
 Design Life: 30 years

**USER DEFINED TRAFFIC**

Trucks Per Day: 46  
 Traffic Growth Rate %: 0 % per year  
 Directional Distribution: 100 %  
 Design Lane Distribution: 100 %

**GLOBAL**

Reliability: 95 %  
 % Slabs Cracked at End of Design Life: 5 %

Avg Trucks/Day in Design Lane Over the Design Life: 46  
 Total Trucks in Design Lane Over the Design Life: 504,045

Design Method

The PCA design methodology from StreetPave, was used to produce these results.



DESIGN SUMMARY REPORT FOR

JOINTED-PLAIN CONCRETE PAVEMENT (JPCP)

DATE CREATED:

Mon Jul 13 2020 13:17:55 GMT-0400 (Eastern Daylight Time)

Project Description

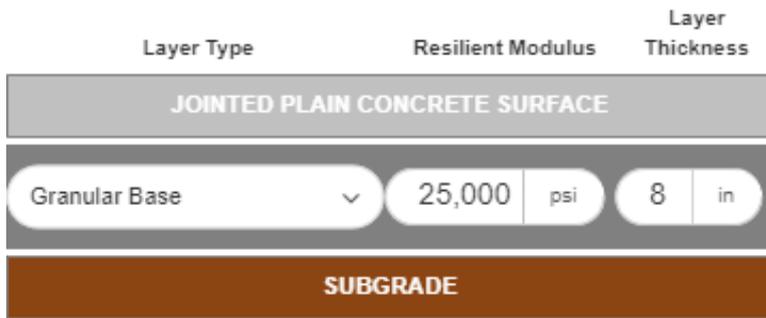
Project Name: Lot B - HD      Owner:      Zip Code:  
 Designer's Name:      Route:  
 Project Description:

Design Summary

Recommended Design Thickness:	Doweled 5.75 in.	Undoweled 5.75 in.	Maximum Joint Spacing:	Doweled 9 ft.	Undoweled 9 ft.
Calculated Minimum Thickness:	5.57 in.	5.57 in.			

Pavement Structure

**SUBBASE**      Minimum Pavement Section: 8-inches of concrete over 6-inches of aggregate base  
 Calculated Composite K-Value of Substructure: 490 psi/in



**CONCRETE**

Compressive Strength: 4000 psi      Edge Support: Yes  
 Modulus of Elasticity: 4000000 psi      Macrobbers in Concrete: No  
 Calculated Flexural Strength: 580 psi

**SUBGRADE**

CBR: 10 %  
 Calculated MRSG Value 9,389 psi

Project Level

**TRAFFIC**

Spectrum Type: ACI 330 Traffic Spectrum D  
 Design Life: 30 years

**USER DEFINED TRAFFIC**

Trucks Per Day: 46  
 Traffic Growth Rate %: 0 % per year  
 Directional Distribution: 100 %  
 Design Lane Distribution: 100 %

**GLOBAL**

Reliability: 95 %  
 % Slabs Cracked at End of Design Life: 5 %

Avg Trucks/Day in Design Lane Over the Design Life: 46  
 Total Trucks in Design Lane Over the Design Life: 504,045

Design Method

The PCA design methodology from StreetPave, was used to produce these results.

**APPENDIX I.3**  
**FLEXIBLE PAVEMENT DESIGN**  
**ROADWAYS**

**Project Information:**

**Project Title:** Hudson Logistic Center  
**Project Town:** Hudson  
**Project State:** New Hampshire  
**Client:** Hudson Logistic Center

**Project No.:** 151010101  
**Performed By:** NA  
**Date:** 6/16/2020  
**Location:** Roadways (Walmart Blvd. & Green Meadow Drive)

**Design Information:**

- Design Life: 20 years
  - Initial Serviciability (Po): 4.2
  - Terminal Serviciability Index (TSI): 2.5
  - Serviciability (Po - TSI): 1.7
  - Reliability Factor (R): 0.90
  - Standard Deviation (Sd): 0.45
  - Direction Distribution Factor (Do): 1.00
  - Lane Distribution Factor (DI): 1.00
  - Soil Description: FILL & SP/SM
  - USCS Symbol: SP/SM
  - California Bearing Ratio (CBR): 10
  - Resilient Modulus (MR): 15000 PSI
- CBR Based on: Estimated Value  
 \*MR = CBR\*1,500      5 <= CBR <= 10  
 \*MR = 3000\*CBR^0.65      CBR > 10

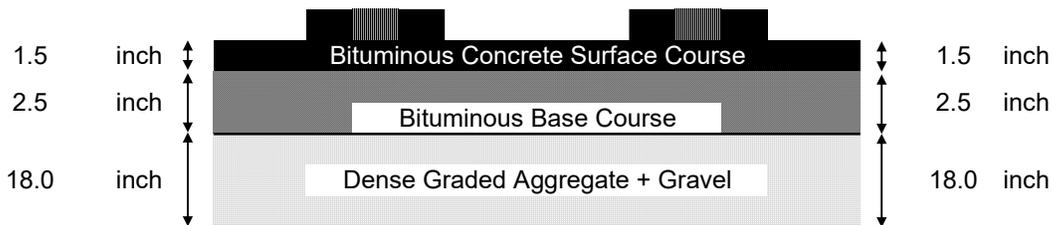
**Summary of Results**

**Northern Access Roadway (Walmart Blvd.)**

Design ESAL: 2,173,340

**Southern Access Roadway (Green Meadow Drive)**

Design ESAL: 1,684,723



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	Hudson Logistic Center	Pavement Design Summary Sheet - Roadways	151010101	P.01
	Hudson	New Hampshire	Date	Sheet
			6/16/2020	Not to Scale
		Drawn By	NA	Sheet 1 of 4

### Calculate Equivalent 18-kip Single Axle Loading (ESALs)

#### Equivalent Single Axle Loads per Vehicle

- |  |  | Load Equivalency Factors: | Calculated ESALs   |                      |
|--|--|---------------------------|--|----------------------|
| ○ <b>Typical Car:</b>                      |  |                           |  |                      |
| (S) Front Single Axle: 2 kips              |  | LEF = 0.001045            | (1 axle)(0.001045)+(1 axle)(0.001045)                                    | <b>0.00209 /car</b>  |
| (S) Rear Single Axle: 2 kips               |  | LEF = 0.001045            |  |                      |
| ○ <b>Typical Delivery Van:</b>             |  |                           |  |                      |
| (S) Front Single Axle: 8 kips              |  | LEF = 0.0343              | (1 axle)(0.0343)+(1 axle)(0.0343) =                                      | <b>0.0686 /truck</b> |
| (S) Truck Rear Axle: 8 kips                |  | LEF = 0.0343              |  |                      |
| ○ <b>Typical Truck and Trailer (HS20):</b> |  |                           |  |                      |
| (S) Front Single Axle: 12 kips             |  | LEF = 0.189               | ((Front axle)(0.189)+(Rear axle)(0.8905)<br>+(Trailer Tandem)(0.8905)) = | <b>1.97 /truck</b>   |
| (T) Truck Rear Axle: 32 kips               |  | LEF = 0.8905              |  |                      |
| (T) Trailer Axle: 32 kips                  |  | LEF = 0.8905              |  |                      |
- (S) = single axle, (T) = Tandem, (3) = Triple Axles

**Traffic Loading**      ○ Design Life:      20    years    (From Sheet P.01)

#### Northern Access Roadway (Walmart Blvd.)

Vehicle Types	Current Traffic	% Increase	Design Traffic	ESAL Factor	Design ESAL
Passenger Cars	390	115%	3,274,050	0.00209	6,843
Light Trucks	0	115%	0	0.0686	0
Heavy Trucks	131	115%	1,099,745	1.97	2,166,498

**Heavy Duty Design ESAL:**      **2,173,340**

#### Southern Access Roadway (Green Meadow Drive)

Vehicle Types	Current Traffic	% Increase	Design Traffic	ESAL Factor	Design ESAL
Passenger Cars	941	115%	7,899,695	0.00209	16,510
Light Trucks	25	115%	209,875	0.0686	14,397
Heavy Trucks	100	115%	839,500	1.97	1,653,815

**Heavy Duty Design ESAL:**      **1,684,723**

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	Hudson Logistic Center	ESAL Calculation	151010101	P.02
			Date	
			6/16/2020	
Hudson	New Hampshire	Scale	Sheet 2 of 4	
		Not to Scale		
		Drawn By		
		NA		

**Design Information (from P.01):**

- Reliability Factor (R): 0.90
- Standard Deviation (Sd): 0.45
- Resilient Modulus (MR): 15
- Servicibility (Po - TSI): 1.7

**Traffic Information (from P.02):**

- Northern ESALs (W18): 2,173,340  
(millions) 2.173
- Southern ESALs (W18): 1,684,723  
(millions) 1.68

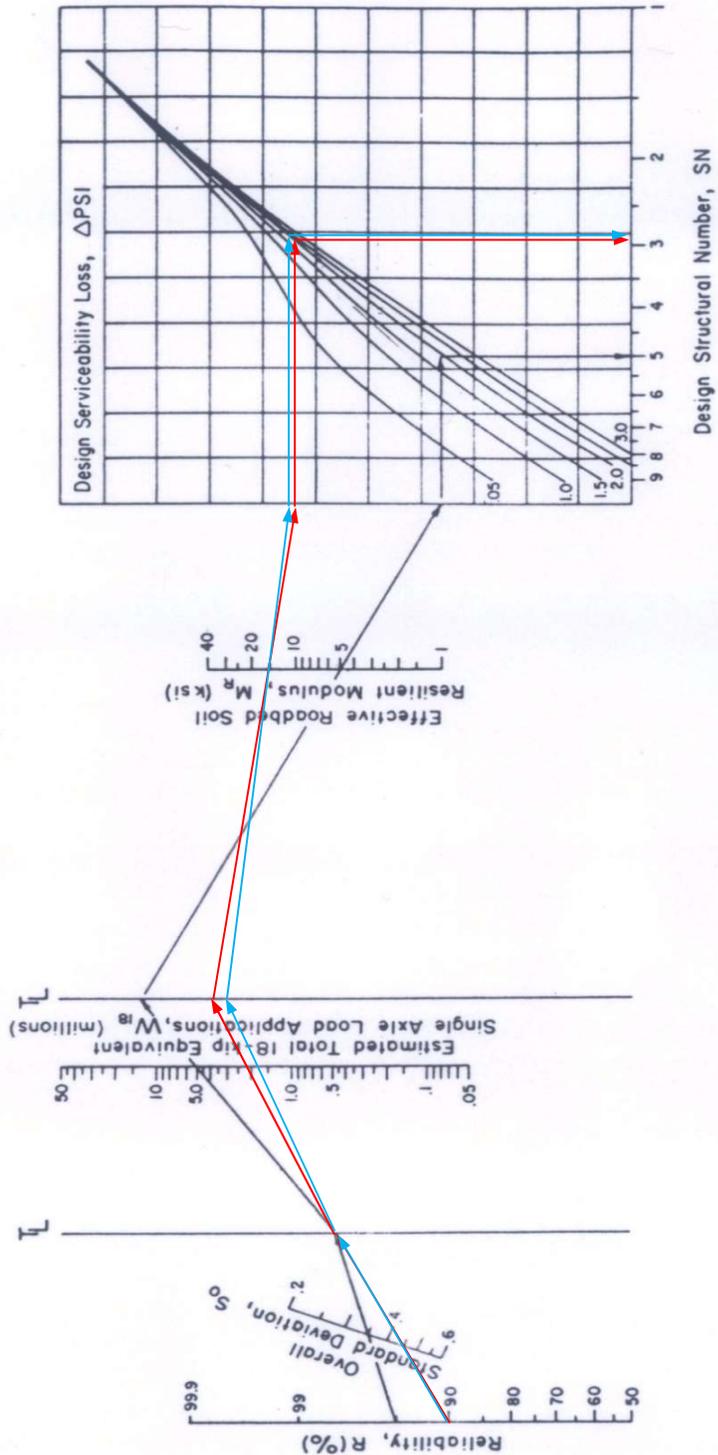
**From Nomograph:**

Design Structural Number (SN)

N. Roadway (Walmart Blvd.):



S. Roadway (Green Meadow Dr.):



**Figure 11.25** Design chart for flexible pavements based on mean values for each input (1 ksi = 6.9 MPa). (From the *AASHTO Guide for Design of Pavement Structures*. Copyright 1986. American Association of State Highway and Transportation Officials, Washington, DC. Used by permission.)

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Project	Hudson Logistic Center
Hudson	New Hampshire

Drawing Title	AASHTO Flexible Pavement Nomograph
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Project No.	151010101
Date	6/16/2020
Scale	As Shown
Drawn By	NA

Drawing No.	P.03
Sheet 3 of 4	

**Flexible Pavement Section Calculation:**

Northern Access Roadway (Walmart Blvd.) Section:

Structural Number:  
SN = D1(a1)+D2(a2)+D3(a3)

Material	Spec	Thickness (inch)	TDS	SN
Bituminuous Concrete Surface Course		D1 1.5	a1 0.44	0.66
Bituminuous Concrete Binder Course		D2 2.5	a2 0.44	1.10
Gravel		D3 6.0	a3 0.11	0.66
Dense Graded Aggregate	Subbase	D4 12.0	a4 0.11	1.32

Calculated Structural Number for Section: **3.74**  
 Check Calculated SN is > Design SN: OK  
 Design Structural Number SN: 2.9 (from P.03)

Southern Access Roadway (Green Meadow Drive) Section:

Material	Spec	Thickness (inch)	Layer Strength	SN
Bituminuous Concrete Surface Course		D1 1.5	a1 0.44	0.66
Bituminuous Concrete Binder Course		D2 2.5	a2 0.44	1.10
Gravel		D3 6.0	a3 0.11	0.66
Dense Graded Aggregate	Subbase	D4 12.0	a4 0.11	1.32

Calculated Structural Number for Section: **3.74**  
 Check Calculated SN is > Design SN: OK  
 Design Structural Number SN: 2.9 (from P.03)

Minimum Pavement Section

Material	Spec	Thickness (inch)
Bituminuous Concrete (Total)		4.0
Gravel		6.0
Dense Graded Aggregate	Subbase	12.0

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	Hudson New Hampshire	Hudson Logistic Center Flexible Pavement Section Calculation	151010101	P.04
			Date	
			Scale	As Shown
			Drawn By	Sheet 4 of 4
			NA	