HALEY ALDRICH

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INTERIM GEOTECHNICAL DESIGN REPORT
PROPOSED AC HOTEL
FORE, HANCOCK AND THAMES STREETS
PORTLAND, MAINE

by Haley & Aldrich, Inc.
Portland, Maine

for Portland Norwich Group, LLC.
Lebanon, New Hampshire

File No. 30322-300
July 2016

HALEY & ALDRICH, INC.
75 Washington Avenue
Suite 1A
Portland, ME 04101
207.482.4600

7 July 2016
File No. 30322-300

Portland Norwich Group, LLC.
25 Foothill Street, Suite 1A
Lebanon, New Hampshire 03766

Attention: Ara Aftandilian
Development Manager

Subject: Interim Geotechnical Design Report
Proposed AC Hotel
Fore, Hancock and Thames Streets - Portland, Maine

Ladies and Gentlemen:

In accordance with Opechee Construction Corporations request on 1 July 2016, this Interim Geotechnical Design Report (IGDR) has been prepared by Haley & Aldrich, Inc. (Haley & Aldrich) for inclusion in a package of supporting documentation needed for financial close on the construction phase of the project. Please note that the final design phase of the project is currently ongoing and as a result, this IGDR only includes the results of subsurface investigation and laboratory testing programs completed to date. A summary of geotechnical engineering evaluations and design recommendations needed to complete the final design and Contract Document (CD) preparation phases of the subject project will be provided under separate cover at a later date. This IGDR has been prepared in accordance with our proposal dated 6 May 2016 and your subsequent authorization.

We have coordinated our work with the following project team members:

- Portland Norwich Group, LLC (PNG) — Owner
- Opechee Construction Corporation (Opechee) — General Contractor
- JSN Associates, Inc. (JSN) — Structural Engineer
- Ransom Consulting Engineers and Scientists (Ransom) — Civil Engineer

Elevation Datum

The project elevation datum and elevations referenced herein are in feet and reference Portland City Datum (PCD). Portland City Datum relates to the National Geodetic Vertical Datum of 1929 (NGVD 29) as follows:

Elevation in feet (PCD) = Elevation in ft (NGVD 29) + 0.02 ft

Site Location, Existing Site Conditions and Previous Site Use

The general location of the project site is shown on Figure 1, Project Locus. For the purposes of this report, we will refer to Fore Street as the west boundary, India Street as the south boundary, Hancock Street the north boundary and Thames Street as the east boundary. A three-story brick building (Grand Trunk Building) is present in the southeast corner of the site, at the intersection of Commercial and India Streets. An existing wastewater pump station operated by the Portland Water District (PWD Pump Station) is located at the southwest corner of the site. Based on our review of existing conditions plans provided by Opechee on 11 April 2016 (prepared by Ransom), we understand that the site has been subdivided into two separate lots, designated Lot 1 (eastern portion of site adjacent to Hancock Street) and Lot 2 (western portion of site).

No structures currently occupy the site, which is currently being used as a parking lot and a temporary laydown/storage area for ongoing construction activities on an adjacent site. The existing ground surface within the limits of the site is generally flat and ranges from approximately El. 16 (Lot 1) adjacent to Hancock Street to El. 18 in the vicinity of the PWD Pump Station and India Street (Lot 2).

Based on our review of historic Sanborn Maps, it is our understanding that the site was previously occupied by the Canadian National Railways Grand Trunk Railway System and operated as such until the mid-1980s. During operation, a circular round house was located in the northwest portion of the site, a portion of which was located within Lot 1. In addition, a large passenger depot was present that ran parallel with the Thames Street (circa 1886 through 1896), which later became a rail yard used for shipping (circa 1909 to 1980). Historical Sanborn Maps of the site are provided for informational purposes in Appendix E.

Proposed Development

Based on our review of the current site development plans provided by Opechee, we understand that the proposed AC Hotel will be constructed within the limits of Lot 1 and will consist of a six-story structure measuring approximately 100 ft by 220 ft in plan dimension. We also understand that the proposed finish floor elevation (FFE) of the structure will be El. 16 (within approximately 1 to 2 ft of existing site grades) and that below-grade (basement) space is not being considered. Additional site improvements that are being considered include a new cobblestone-surfaced site entrance off of Fore Street as well as new utility infrastructure.

Based on our review of the preliminary column layout provided by Opechee on 20 June 2016, we understand that bay spacing varies throughout the proposed building footprint but is typically on the order of 10 ft by 12 ft in plan dimension. Preliminary design column loads (axial compression) were provided by JSN on 16 June 2016 and range from approximately 10 to 180 kips. Please note that the loads provided by JSN are considered unfactored and include both dead and live loads (DL+LL).

In addition, preliminary axial uplift and lateral loads were provided by JSN on 20 May 2016. The loads range from approximately 10 to 60 kips and do not occur at each column location. Based on our discussions with JSN, we understand that it is desirable to resist axial uplift loads using the dead weight

of the footings/pile caps and uplift resistance of pile groups (if piles are used to support the structure). We also understand that it is desirable to provide resistance to lateral loads using passive lateral earth pressures acting against footings/pile caps/grade beams. Lateral resistance of pile groups (if piles are used to support the structure) can also be used to resist the lateral loads, if needed.

Subsurface Exploration Programs

Haley & Aldrich previously (2005 and 2007) completed multiple phases of subsurface explorations (test borings) at the site for a proposed six-story structure with one level of below-grade space, the footprint of which occupied both Lot 1 and Lot 2. In addition, a recent subsurface exploration program (seismic piezocone penetration testing; SCPTu) was completed within a portion of Lot 1 in June 2016 to supplement the existing subsurface information as it relates to the subject project. The approximate locations of the previous and recent subsurface explorations are shown on Figure 2, Site and Subsurface Exploration Location Plan. In addition, test boring logs, the SCPTu report and observation well installation and groundwater monitoring reports are provided in Appendices A, B and C, respectively. Each subsurface exploration program is discussed separately in the following sections of this report.

2005 SUBSURFACE EXPLORATION PROGRAM

Haley & Aldrich completed a subsurface investigation within the limits of Lot 1 and Lot 2 in December 2005, which consisted of 13 test borings, designated HA05-11 through HA05-23A. Only test borings HA05-11(OW) through HA05-14(OW) and HA05-20 through HA05-23A (including -21A and -22A) were drilled within Lot 1 and are discussed herein.

The test borings were advanced to depths ranging from approximately 9 to 79 ft below ground surface (BGS) using 2½-in. inside diameter (ID) hollow stem augers (HSAs) or 3-in. ID (NW-size) steel casing. In general, soil samples were obtained continuously or at standard 5-ft intervals by driving a 24-in. long, 1-3/8-in. ID split-spoon sampler with a 140-lb weight dropped 30 in. The number of hammer blows required to advance the sampler for each 6-in. interval was recorded and is provided on the test boring logs. The SPT N-value is the total number of the hammer blows required to advance the sampler through the middle 12-in. of the 24-in. sampling interval and is referred to herein.

In-situ vane shear tests were conducted within the glaciomarine clay deposit in test borings HA05-12 and HA05-14. Vane shear tests were performed to provide information on the undrained shear strength and compressibility characteristics of the glaciomarine clay deposit at the site. Results of the vane shear tests are summarized in Table II and can be found on the test boring logs provided in Appendix A. In addition, two, 2-½ in. ID relatively undisturbed Shelby tube samples were obtained from test borings HA05-11 and HA05-13.

Test borings HA05-11(OW), HA05-12, HA05-14(OW), HA05-20, HA05-21A and HA05-22A were advanced between approximately 3 to 7 ft into bedrock using a diamond-tipped core barrel.

Two groundwater observation wells were installed in completed boreholes HA05-11(OW) and HA05-14(OW) to provide information on the static groundwater level at the site. The observation wells consisted of 1-in. ID, machine-slotted PVC well screen and solid PVC riser pipe cut just below existing ground surface. Each observation well was outfitted with a flush-mounted steel roadway box. Observation well installation and groundwater monitoring reports are provided in Appendix C.

2007 SUBSURFACE EXPLORATION PROGRAM

Haley & Aldrich completed an additional subsurface exploration program was completed within the limits of Lot 1 and Lot 2 in March 2007, which consisted of 14 test borings, designated HA07-101 through HA07-113. Only test borings HA07-106 through HA07-113 (including -108B and -108C) were drilled within Lot 1 and are discussed herein.

The test borings were advanced to depths ranging from approximately 20 to 80 ft BGS using 2½-in. ID HSAs. Some test borings were advanced to refusal using a rod probe. This process consisted of driving a solid-stem, 2-in. diameter rod (with a 300-lb hammer dropping 18 in.), through the soil overburden to refusal at depth. Soil samples were collected at similar depth intervals using similar means and methods as those described in the previous section of this report.

2016 SUBSURFACE EXPLORATION PROGRAM

A total of six SCPTu explorations, designated HA16-SCPT1 through HA16-SCPT4A (including -SCPT3A and -SCPT4) were completed within a portion of Lot 1 on 23 and 24 June 2016 by ConeTec, Inc. of West Berlin, New Jersey. The SCPTu explorations were generally completed along the Lot 1 boundaries with Fore and Hancock Streets and immediately adjacent to previously completed test borings to provide shear wave velocity (Vs) data within overburden soils for use in determining the seismic site class. The SCPTu explorations that were advanced through the surficial fill layer (all but HA16-SCPT3 and HA16-SCPT4, which were terminated on refusal surfaces at depths of approximately 8 and 12 ft BGS, respectively) were pushed to refusal at depths ranging from approximately 37 to 73 ft BGS using a 25-ton, truck-mounted rig. The refusal surfaces were judged by Haley & Aldrich to be bedrock (HA16-SCPT1 and HA16-SCPT3A) and glaciomarine sand or glacial till (HA16-SCPT2 and HA16-SCPT4A). Shear wave velocity measurements were obtained within the overburden soils at approximate 3 to 5-ft intervals.

Generalized Subsurface Conditions

The subsurface conditions encountered at the site consist of the following geologic units presented in order of increasing depth below ground surface: fill (including bituminous concrete/Portland cement concrete), glaciomarine sand, organic deposit, glaciomarine clay, glaciomarine sand, glacial till and bedrock. Refer to the attached Table I for a summary of the soil units and thicknesses encountered within each test boring. A general description of each soil/bedrock unit is provided below and detailed soil and bedrock descriptions are provided on the test boring logs included in Appendix A.

Please note that soil descriptions provided on the test boring logs and summarized below do not represent actual field conditions other than at the specific test boring locations. Actual conditions encountered between test boring locations may vary from those described herein.

Soil Unit	Approximate Range in Encountered Thickness[1,2] (ft)	Generalized Description
Bituminous/ Portland cement concrete (PCC)	0.1 to 0.4	surficial layer of bituminous or PCC (*generally encountered in test borings adjacent to Thames Street and within the south-central portion of the proposed building footprint)*
Fill	9 to 21	very loose to very dense, poorly-graded SAND with varying amounts of silt and gravel (SP, SP-SM), silty SAND (SM) with gravel, well graded SAND with varying amounts of silt and gravel (SW-SM, SW) poorly-graded GRAVEL (GP) with sand and well graded GRAVEL (GW) with sand. The fill typically contained thin layers of SILT/CLAY and brick, concrete, glass, wood, porcelain, cinders and ash as well as other miscellaneous materials. *(encountered in each test boring)*
Organic Deposit	1 to 6	soft to hard organic SILT (ML) with sand and organic SOIL (OL/OH) with silt. *(encountered in test borings HA05-13, HA05-14(OW), HA05-20, HA07-107 and HA07-108C)*
Glaciomarine Clay	3 to 44	very stiff transitioning to very soft lean CLAY (CL) with depth. (*encountered in test borings HA05-11(OW) through HA05-14(OW), HA05-20, HA07-106 and HA07-112 through HA07-113*)
Glaciomarine Sand	0.3 to 8	loose to dense poorly-graded SAND (SP) and silty SAND (SM). (*encountered overlying the Organic Deposit in test borings HA05-13, HA05-20, HA05-21, HA07-108C HA07-109 through HA07-110 and HA07-112 through HA07-113; encountered beneath the Glaciomarine Clay in test borings HA05-12 through HA05-14(OW) and HA07-106)*
Glacial Till	1 to 17	medium dense to very dense, poorly-graded SAND (SP) with gravel and silty SAND (SM) with gravel. *(encountered in test borings HA05-12 through HA05-14(OW), HA05-21 and HA05-23A)*
Bedrock	Top of bedrock surface is highly variable within the limits of the proposed building and ranged between approximately El. 0 (south-central portion of the building) and El.-52 to El. -64 (along Hancock Street).	

GROUNDWATER CONDITIONS

As previously mentioned, two monitoring wells were installed in completed boreholes HA05-11(OW) and HA05-14(OW). A summary of water levels measured during the period October 2005 to April 2006 is provided below.

Observation Well Location (Test Boring No.)	Approximate Range in Groundwater Level
Adjacent to Fore Street (HA05-11)	El. 6.5 to El. 7.2
Intersection of Commercial & Hancock Streets (HA05-14)	El. 4.7 to El. 6.3

Water levels were measured at times corresponding to local high and low tides to determine the tidal influence on the static groundwater levels at the site. Based on the measurements, it is our opinion that the water levels at the site are not substantially influenced by tidal fluctuations in Casco Bay.

Groundwater levels can be expected to fluctuate, subject to seasonal variation, precipitation, local soil conditions, topography, leakage into and out of sewers, storm drains and other below-grade structures, and other factors. Groundwater levels encountered during construction may differ from those observed in the test borings or observation wells. Observation well installation and groundwater monitoring reports are included in Appendix C.

Laboratory Testing

A geotechnical laboratory testing program was undertaken on representative fill soil samples collected during the 2005 subsurface exploration program to aid in soil classification and to help assess the potential for reuse during site development. In general, laboratory testing was performed on disturbed soil samples collected during split-spoon sampling. All laboratory testing was performed in accordance with applicable American Society for Testing Materials (ASTM) testing procedures by Haley & Aldrich at our laboratory facility in Boston, Massachusetts. Assigned laboratory testing and results are summarized below.

Test Boring (Sample No.)	Sample Depth	Percent Gravel	Percent Sand (course/med/fine)	Percent Fines[1]	USCS Classification
HA05-11 (S1)	0.0-2.0	15.0	64.0 (12.0/27.0/25.0)	21.0	SM
HA05-13 (S2 & S3)	2.0-6.0	29.0	62.0 (8.0/27.0/27.0)	9.0	SP-SM
HA05-14 (S2)	2.0-4.0	13.0	75.0 (8.0/39.0/28.0)	12.0	SP-SM
HA05-21 (S2 & S3)	2.0-6.0	16.0	72.0 (11.0/35.0/26.0)	12.0	SP-SM

Notes:
1. Refers to the percentage of soil particles finer than the No. 200 (0.075 mm) sieve

All laboratory test results are provided in Appendix D.

Geotechnical Design Recommendations and Construction Considerations

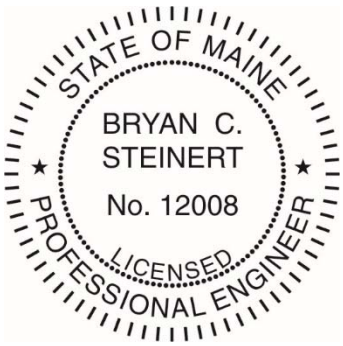
As mentioned previously, the final design phase of the project is currently ongoing. As a result, a summary of geotechnical engineering evaluations and design recommendations needed to complete the final design and CD preparation phases of the subject project will be provided under separate cover at a later date. Based on our recent discussions with you, it is our understanding that an assumption was made during the pro-forma development that the proposed building will be supported by a pile foundation system and that the ground floor slab will consist of a soil-supported slab-on-grade. The results of the geotechnical evaluations that are currently in progress will aid in determining whether pile foundation support is needed or whether the proposed building can be supported by shallow, soil-supported spread footings.

Closure

We appreciate the opportunity to serve you and look forward to our continued association with you during subsequent phases of the project. Please do not hesitate to contact us if you have any questions or comments on the information provided herein.

Sincerely yours,
HALEY & ALDRICH, INC.

Bryan C. Steinert, P.E.
Project Manager



Wayne A. Chadbourne, P.E.
Senior Associate

Enclosures:

- Table I -Subsurface Explorations
- Table II -In-Situ Vane Shear Test Results
- Figure 1 - Project Locus
- Figure 2 - Site and Subsurface Exploration Location Plan
- Appendix A - Test Boring Logs
- Appendix B – Seismic Piezocone Penetration Testing Report
- Appendix C - Observation Well Installation and Groundwater Monitoring Reports
- Appendix D - Laboratory Test Results
- Appendix E - Historic Sanborn Maps

References

1. Report entitled, “Report on Subsurface Explorations and Geotechnical Design Recommendations, The Watermark, Portland, Maine,” prepared by Haley & Aldrich, Inc. for Riverwalk, LLC., dated 16 May 2007.

TABLES

TABLE I
Subsurface Explorations
AC Hotel
Fore, Hancock and Thames Streets
Portland, Maine

Test Boring No.[1]	Estimated Ground Surface Elevation[2,3]	Thickness of Strata[4] (ft)									Approx. Elevation of Top of Bedrock[3]	Elevation of Bottom of Exploration[3]
		Bituminous Concrete / Concrete	Topsoil	Fill	Glaciomarine Deposit (clay)	Glaciomarine Deposit (sand)	Organic Deposit	Glaciomarine Deposit (clay)	Glaciomarine Deposit (sand)	Glacial Till		
HA05-11 (OW)	16.3	NE	NE	10.0	NE	NE	NE	24.3	NE	NE	-18.0	-24.1
HA05-12	15.3	NE	NE	15.0	NE	NE	NE	44.0	6.6	8.5	-58.8	-63.8
HA05-13	16.5	NE	NE	19.0	NE	5.0	4.0	23.0	4.0	>17	-	-55.5
HA05-14 (OW)	14.5	NE	0.4	14.6	2.4	8.4	6.2	29.1	3.7	7.0	-57.3	-62.5
HA05-20	17.0	0.3	NE	17.0	NE	4.3	4.2	0.6	NE	NE	-9.4	-16.2
HA05-21	16.5	NE	NE	15.5	NE	NE	NE	NE	NE	>2.1	-	-1.1
HA05-21A	16.5	NE	NE	16.4	NE	NE	NE	NE	NE	NE	0.1	-3.1
HA05-22	15.0	0.4	NE	9.9	NE	NE	NE	NE	NE	NE	NE	4.7
HA05-22A	15.0	0.4	NE	9.3	NE	NE	NE	NE	NE	NE	5.3	1.8
HA05-23	15.0	0.2	NE	>8.5	-	-	-	-	-	-	-	6.3
HA05-23A	15.0	0.2	NE	14.8	NE	NE	NE	NE	NE	>1.0	-	-1.0
HA07-106	16.5	NE	NE	13.5	NE	NE	NE	7.4	0.3	NE	-4.7	-4.7
HA07-107[5]	16.5	NE	NE	20.0	NE	NE	>0.4	-	-	-	-19.2	-19.2
HA07-108A	16.8	NE	NE	>11.0	-	-	-	-	-	-	-	5.8
HA07-108B	16.8	NE	NE	>10.6	-	-	-	-	-	-	-	6.2
HA07-108C	16.8	NE	NE	18.5	NE	2.4	>1.1	-	-	-	-38.2	-38.2
HA07-109[5]	16.0	NE	NE	18.5	NE	>3.5	-	-	-	-	-30.0	-30.0
HA07-110[5]	15.0	NE	NE	19.7	NE	>0.3	-	-	-	-	-16.5	-16.5
HA07-111[5]	16.0	NE	NE	13.5	>3.5	-	-	-	-	-	-51.9	-51.9
HA07-112[5]	15.8	NE	NE	18.5	NE	2.5	NE	>6.0	-	-	-64.0	-64.0
HA07-113[5]	14.0	NE	NE	21.0	NE	3.0	NE	>3.0	-	-	-58.9	-58.9

Notes:

[1] Test boring locations are shown on Figure 2, Site and Subsurface Exploration Location Plan.

[2] Ground surface elevations at test boring locations are approximate and were estimated by interpolating between elevation contour data.

[3] Elevations are in feet and reference Portland City Datum.

[4] "NE" indicates stratum was not encountered in test boring; ">" indicates soil samples not collected deep enough to determine full thickness of stratum; "-" indicates no soil samples taken and presence and thickness of stratum could not be determined.

[5] Elevation of top of bedrock is approximate and was determined using rod probe drilling techniques.

TABLE II
In-Situ Vane Shear Test Results
AC Hotel
Fore, Hancock and Thames Streets
Portland, Maine

Test Boring No.[1]	Estimated Ground Surface Elevation[2,3]	Vane Size (in. x in.)	Test No.	Depth below ground surface (ft)	Approx. Elevation[3] (ft)	V_{max} [4,5,7] (ft-lbs)	$V_{remolded}$ [4,5,7] (ft-lbs)	S_u [6,7] (psf)	$S_{u(remolded)}$ [6,7] (psf)
HA05-12	15.3	2x7	V_1	30.0 - 30.6	-14.7 - -15.3	27	1	1,000	40
			V_2	40.0 - 40.6	-24.7 - -25.3	120	0	>1,860	0
			V_3	50.0 - 50.6	-34.7 - -35.3	120	0	>1,860	0
HA05-14(OW)	14.5	2x7	V_1	35.3 - 36.0	-20.8 - -21.5	89	30	3,300	1,110
			V_2	45.3 - 46.0	-30.8 - -31.5	22	5	820	190

Notes:

[1] Test boring locations are shown on Figure 2, Site and Subsurface Exploration Location Plan.

[2] Ground surface elevations at test boring locations are approximate and were estimated by interpolating between elevation contour data.

[3] Elevations are in feet and reference Portland City Datum.

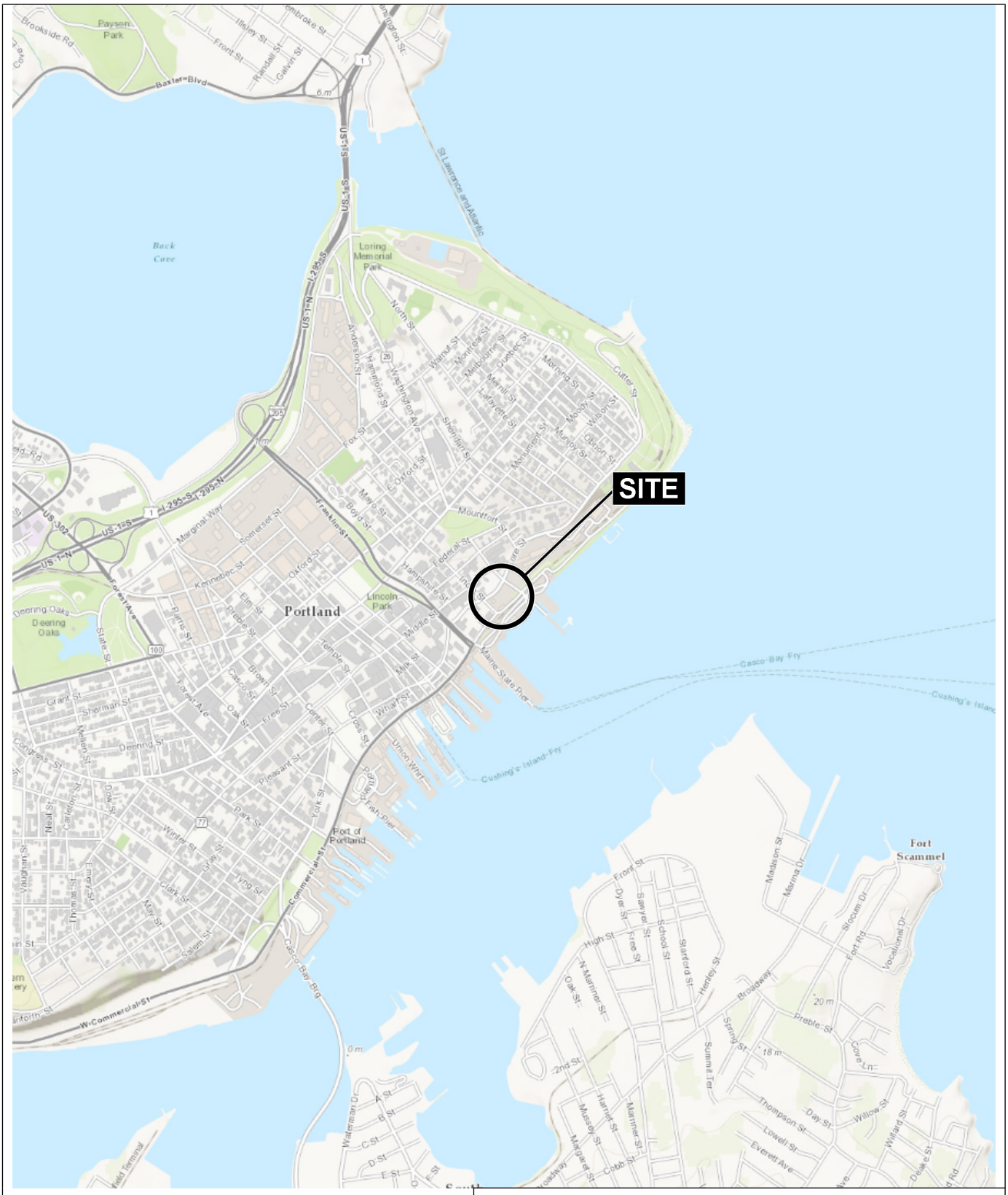
[4] Vane test numbers are shown on the test boring reports presented in Appendix A.

[5] V_{max} and $V_{remolded}$ represent direct peak and remolded vane torque values, respectively.

[6] S_u and $S_{u(remolded)}$ represent corrected undrained peak and residual undrained shear strengths, respectively, rounded to the nearest 10 psf.

[7] ft-lbs = foot-pounds of torque, psf = pounds per square foot.

FIGURES



MAP SOURCE: ESRI

SITE COORDINATES: 43°39'36"N, 70°14'53"W

HALEY ALDRICH

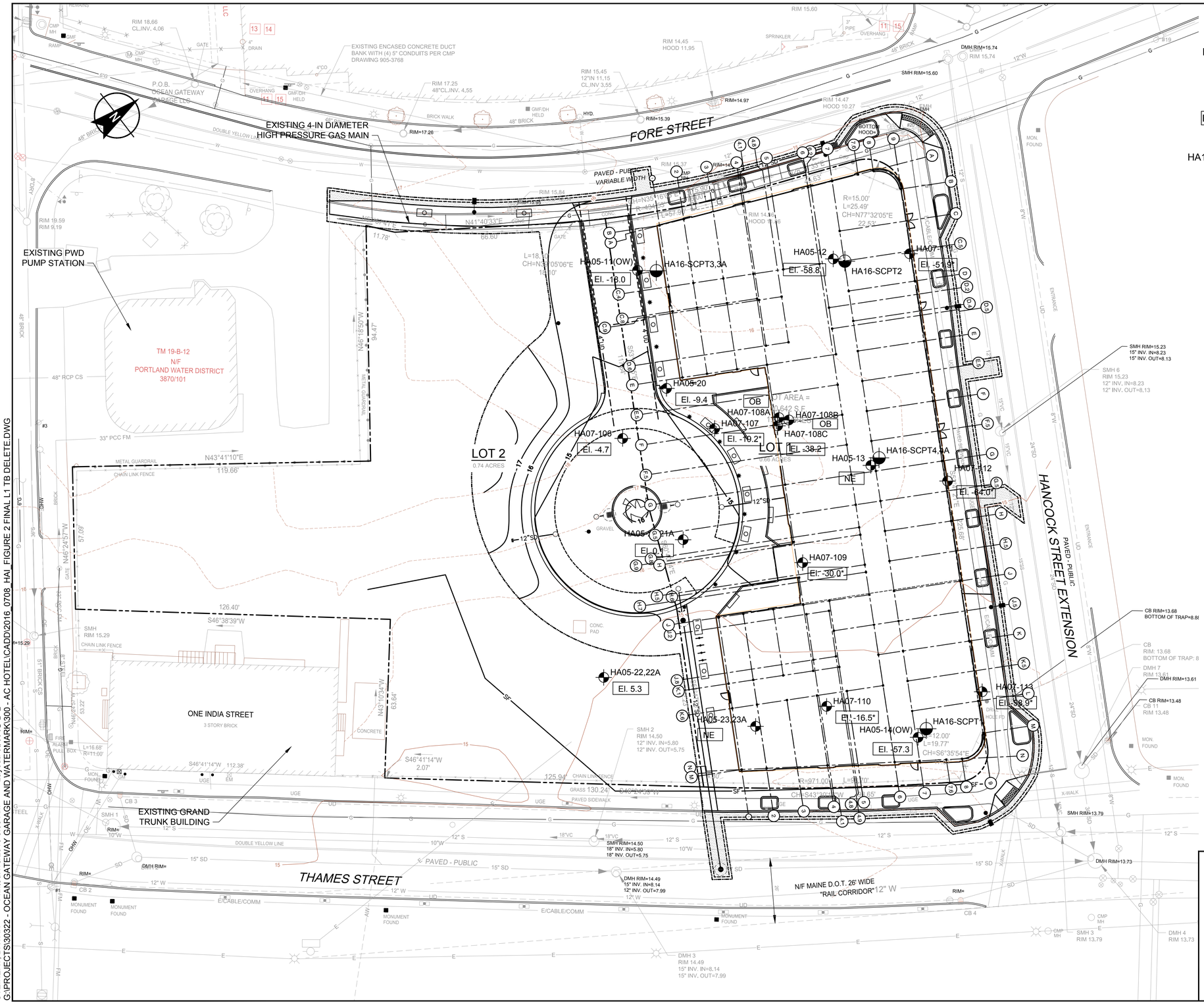
PROPOSED AC HOTEL
FORE, HANCOCK AND THAMES STREET
PORTLAND, MAINE

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
MAY 2016

FIGURE 1

30322-300_1_LOCUS.PDF



LEGEND

HA07-101 / EL. 5.5	DESIGNATION, LOCATION AND APPROXIMATE ELEVATION OF TOP OF BEDROCK OF TEST BORING DRILLED BY MAINE TEST BORING, INC. OF BREWER, MAINE IN MARCH 2007
HA05-14 / EL. -57.3	DESIGNATION, APPROXIMATE LOCATION AND APPROXIMATE ELEVATION OF TOP BEDROCK OF TEST BORING DRILLED BY MAINE TEST BORING, INC. OF BREWER, MAINE IN OCTOBER 2005
HA16-SCPT1	DESIGNATION AND APPROXIMATE LOCATION OF SEISMIC PIEZOCONE PENETRATION TEST COMPLETED BY CONETEC, INC. OF WEST BERLIN, NEW JERSEY IN JUNE 2016
(OW)	INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE
NE	DENOTES BEDROCK NOT ENCOUNTERED IN BOREHOLE
OB	DENOTES OBSTRUCTION ENCOUNTERED IN BOREHOLE; BOREHOLE ABANDONED
*	DENOTES ELEVATION OF TOP OF BEDROCK IS APPROXIMATE AND WAS DETERMINED USING ROD PROBE DRILLING TECHNIQUES

NOTES

1. EXISTING SITE CONDITIONS, CONTOURS OF EXISTING GROUND SURFACE ELEVATIONS AND LOCATION AND ORIENTATION OF EXISTING SITE FEATURES (EG. BUILDINGS, UTILITIES ETC) ARE TAKEN FROM THE ELECTRONIC AUTOCAD FILE "EC for Opechee.dwg," PROVIDED BY PROVIDED BY RANSOM CONSULTING ENGINEERS AND SCIENTISTS ON 20 MAY 2016.
2. PROPOSED SITE CONDITIONS AND THE LOCATION AND ORIENTATION OF PROPOSED SITE FEATURES ARE TAKEN FROM THE ELECTRONIC AUTOCAD FILES "grading block.dwg" AND "151.06094b.dwg," PROVIDED BY RANSOM CONSULTING ENGINEERS AND SCIENTISTS ON 20 MAY AND 22 JUNE 2016.
3. BUILDING COLUMN LAYOUT SHOWN TAKEN FROM THE ELECTRONIC AUTOCAD FILE "x-structural grid.dwg," PROVIDED BY OPECHEE CONSTRUCTION CORPORATION ON 20 JUNE 2016.
4. LOCATIONS OF THE 2005 SERIES TEST BORINGS AND THE 2016 SEISMIC PIEZOCONE PENETRATION TESTS ARE APPROXIMATE AND WERE DETERMINED IN THE FIELD BY TAPING/PACING DISTANCES FROM EXISTING SITE FEATURES. LOCATIONS OF THE 2007 SERIES OF TEST BORINGS WERE DETERMINED IN THE FIELD USING GPS SURVEY EQUIPMENT.
5. ELEVATIONS ARE IN FEET AND REFERENCE PORTLAND CITY DATUM.
6. SUBSURFACE EXPLORATIONS WERE MONITORED IN THE FIELD BY HALEY & ALDRICH PERSONNEL.
7. REFER TO APPENDIX A FOR LOGS OF 2005 AND 2007 SERIES TEST BORINGS, APPENDIX B FOR THE SEISMIC PIEZOCONE PENETRATION TESTING REPORT AND APPENDIX C FOR OBSERVATION WELL INSTALLATION AND GROUNDWATER MONITORING REPORTS.

HALEY ALDRICH

PROPOSED AC HOTEL
FORE, HANCOCK AND THAMES STREETS
PORTLAND, MAINE

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

SCALE: AS SHOWN
JULY 2016

FIGURE 2

STEINERT, BRYAN Printed: 7/8/2016 5:39 AM Layout: HA-FIG-D-L
G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\CADD\2016_0708_HAI_FIGURE 2 FINAL L1 TB DELETE.DWG

APPENDIX A

Test Boring Logs

2007 Test Boring Logs

TEST BORING REPORT

Boring No. HA07-106

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 1
Start 8 March 2007
Finish 8 March 2007
Driller D. McKeen
H&A Rep. E. Beirne
Elevation 16.5 +/-
Datum Portland City
Location See plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	SS	-	Rig Make & Model: Mobile Drill B-53 Bombardier
Inside Diameter (in.)	2.5	1.375	-	Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: 2.5 HSA 21.2 ft
				Hoist/Hammer: Winch Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				NO WELL INSTALLED			NOTE: No sample taken from 0 to 2 ft, black coarse grained fill observed in auger cuttings										
	16 12 10 9	S1 6	2.0 4.0			SW	Medium dense, yellow-grown, well graded SAND with gravel (SW), mps 1/4 in., no structure, no odor, moist -FILL-		20	25	35	20					
5	4 1 20 80	S2 10	5.0 7.0			SW	Medium dense, dark gray, well graded SAND with gravel (SW), mps 1 in., trace organics -FILL- NOTE: Brick fragments observed in auger cuttings at 7.0 ft	5	20	30	30	15				
10	9 5 11 9	S3 12	10.0 12.0			SM	Medium dense, dark gray to red, silty SAND with gravel (SM), mps 1.5 in., no structure, no odor, moist to wet, brick fragments, trace organics, fining downward -FILL-	5	15	20	70	25	15			
					13.5												
15	9 6 8 10	S4 24	15.0 17.0			CL	Stiff, gray, lean CLAY (CL), mps < 1 mm, slightly blocky structure, no odor, wet to moist, mottled, layer of very fine sand from 16.5 to 16.7 ft, trace rootlets -GLACIOMARINE DEPOSIT (Clay)-					5	95				
20	4 50/0.4	S5 11	20.0 20.9			CL	Stiff, gray, lean CLAY (CL), mps < 1 mm, slightly blocky structure, no odor, wet to moist, trace rootlets										
					20.9	SC	-GLACIOMARINE DEPOSIT (Clay)-					75	25				
					21.2		Very dense, gray, clayey SAND (SC), mps < 1 mm, no structure, no odor, wet -GLACIOMARINE DEPOSIT (Sand)- -BOTTOM OF EXPLORATION- NOTE: Auger refusal on probable bedrock at 21.2 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 21.2
Rock Cored (lin. ft.) -
Samples 5S

Boring No. HA07-106

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA07-107

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 2
Start 7 March 2007
Finish 7 March 2007
Driller D. McKeen
H&A Rep. E. Beirne
Elevation 16.5 +/-
Datum Portland City
Location See plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	SS	-	Rig Make & Model: Mobile Drill B-53 Bombardier
Inside Diameter (in.)	2.5	1.375	-	Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: 2.5 in. HSA 22 ft
				Hoist/Hammer: Winch Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0																	
	90 30 13 18	S1 15	2.0 4.0			SW	Dense, gray to black, well graded SAND with gravel (SW), mps 1 in., no structure, no odor, dry, few brick fragments -FILL-	5	15	30	25	25					
5	50 35 11 9	S2 6	5.0 7.0			SW-SM	Dense, brown, well graded SAND with silt and gravel (SW-SM), mps 1.5 in., no structure, no odor, moist, concrete chips observed at 6.3 ft -FILL-	5	10	20	25	30	10				
10	3 4 2 1	S3 6	10.0 12.0			SW	Loose, brown to black, well graded SAND with gravel (SW), mps 1/4 in., no structure, no odor, moist, large cobble in top of spoon -FILL-		13	30	30	25					
15	8 10 20 20	S4 13	15.0 17.0	NO WELL INSTALLED	15.0	ML	Very stiff, gray, SILT with sand (ML), mps < 1 mm, no structure,					10	90				
						SW	organic odor, wet, organics present	10	15	20	35	20					
					15.8		Medium dense, gray brown, well graded SAND with gravel (SW), mps 1.5 in., no structure, no odor, wet, brick fragments throughout -FILL-										
20	3 4 6 7	S5 18	20.0 22.0		20.0	SP	Loose, gray, poorly graded SAND (SP), mps 4 mm, no structure,			10	30	60					
						ML	sulfuric odor, moist to wet, layered with organics					5	95				
					20.4		Stiff, brown, organic SILT (ML), mps < 1 mm, no structure, strong sulfuric odor, moist, highly organic, probable former ocean bottom -ORGANIC DEPOSIT- NOTE: Begin rod probe at 22 ft										
25																	
30																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 35.7
Rock Cored (lin. ft.) 0
Samples 5S

Boring No. HA07-107

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000 2007.GPJ 5 Jul 16

TEST BORING REPORT

Boring No. HA07-107
File No. 30322-000
Sheet No. 2 of 2

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
30																	
35						BR	NOTE: Probe refusal at 35.7 ft										
					35.7		-BOTTOM OF EXPLORATION-										

Probe Information: AW Rod Probe (140 lb. hammer, 18 in. fall)

DEPTH	PROBE ADVANCEMENT
22'-32'	Hydraulic Push
32'-33'	30
33'-34'	38
34'-35'	32
35'-35.7'	100

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA07-108C

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 2
Start 8 March 2007
Finish 8 March 2007
Driller D. McKeen
H&A Rep. E. Beirne
Elevation 16.8 +/-
Datum Portland City
Location See plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	SS	-	Rig Make & Model: Mobile Drill B-53 Bombardier
Inside Diameter (in.)	2.5	1.375	-	Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: 2.5 in. HSA 55.0 ft
				Hoist/Hammer: Winch Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				NO WELL INSTALLED			NOTE: HA07-108A refusal on obstruction at 11.0 ft. Relocate hole to HA07-108B and redrill. Refusal on obstruction at 10.6 ft. Relocate hole to HA07-108C.										
	18 27 22 15	S1 15	2.0 4.0			SW-SM	Dense, black to yellow-brown, well graded SAND with silt and gravel (SW-SM), mps 1.5 in., no structure, no odor, dry, brick fragments throughout -FILL-	10	15	25	20	20	10				
5	8 4 3 5	S2 12	5.0 7.0			SW	Loose, yellow-brown, well graded SAND with gravel (SW), mps 1.5 in., no structure, no odor, moist, brick fragments present -FILL-		20	15	30	30	5				
10		S3	10.0				Brick fragments and pieces over dense sandy material										
15	2 11 8 4	S4 6	15.0 17.0			SM	Medium dense, brown, silty SAND with gravel (SM), mps 1 in., no structure, no odor, wet -FILL-	10	10	15	25	20	20				
					18.5												
20	10 6 5 8	S5 24	20.0 22.0			SP	Medium dense, gray, poorly graded SAND (SP), mps 4 mm, no structure, no odor, wet to moist, layers of organics at bottom				10	50	40				
					20.9	ML	-GLACIOMARINE DEPOSIT (Sand)-					15	85				
							Stiff, brown, organic SILT with sand (ML), mps < 1 mm, no structure, strong sulfuric odor, moist, highly organic, probable former ocean bottom -ORGANIC DEPOSIT-										
25							NOTE: Begin auger probe at 22.0 ft. Greater auger resistance from 51.5 to 55 ft.										
30																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 55.0
Rock Cored (lin. ft.) -
Samples 5S

Boring No. HA07-108C

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

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TEST BORING REPORT

Boring No. HA07-108C
File No. 30322-000
Sheet No. 2 of 2

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
30																	
35																	
40																	
45																	
50																	
					51.5		-GLACIAL TILL- NOTE: Auger refusal on probable bedrock.										
55					55.0		-BOTTOM OF EXPLORATION-										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA07-108C

TEST BORING REPORT

Boring No. HA07-109

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 2
Start 8 March 2007
Finish 8 March 2007
Driller D. McKeen
H&A Rep. E. Beirne
Elevation 16.0 +/-
Datum Portland City
Location See plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	SS	-	Rig Make & Model: Mobile Drill B-53 Bombardier
Inside Diameter (in.)	2.5	1.375	-	Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: 2.5 in. HSA 46.0 ft
				Hoist/Hammer: Winch Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				NO WELL INSTALLED													
	30 38 28 30	S1 19	2.0 4.0			SW	Very dense, brown, well graded SAND with gravel (SW), mps 1.5 in., no structure, no odor, dry, upper 12 in. frozen, some weathered rock fragments -FILL-	10	15	30	20	25				
5	6 3 5 7	S2 9	5.0 7.0			SW	Loose, yellow-brown, well graded SAND with gravel (SW), mps 1.5 in., no structure, no odor, moist, brick fragments -FILL-	10	15	25	20	30				
10	5 10 28 11	S3 6	10.0 12.0				Dense cobbles and brick fragments in a matrix of well graded SAND -FILL-										
15	17 14 17 7	S4 5	15.0 17.0			SW	Dense, gray, well graded SAND (SW), mps 4 mm, no structure, no odor, wet, brick fragments present, wood stuck in tip of spoon -FILL-			40	40	20					
					18.5												
20	22 30 31 15	S5 19	20.0 22.0			SP	Very dense, gray, poorly graded SAND (SP), mps 1/2 in., no structure, sulfuric odor, wet, some woody fibers at top of spoon -GLACIOMARINE DEPOSIT (Sand)- NOTE: Auger probe from 22 to 25.0 ft. Begin rod probe at 25 ft.			10	5	70	15				
25																	
30																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
3/8/07	-	0	-	11.6	11.0

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 46.0
Rock Cored (lin. ft.) -
Samples 5S

Boring No. HA07-109

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000 2007.GPJ 5 Jul 16

TEST BORING REPORT

Boring No. HA07-109
File No. 30322-000
Sheet No. 2 of 2

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
30																	
35																	
40																	
45							NOTE: Probe refusal at 46 ft.										
					46.0		-BOTTOM OF EXPLORATION-										

Probe Information: AW Rod Probe (140 lb. hammer, 18 in. fall)

DEPTH	PROBE ADVANCEMENT
25'-45.2'	Hydraulic Push
45.2'-46'	190

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA07-110

Project	AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client	Portland Norwich Group, LLC
Contractor	Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 2
Start 8 March 2007
Finish 8 March 2007
Driller D. McKeen
H&A Rep. E. Beirne
Elevation 15.0 +/-
Datum Portland City
Location See plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	SS	-	Rig Make & Model: Mobile Drill B-53 Bombardier
Inside Diameter (in.)	2.5	1.375	-	Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: 2.5 in. HSA 23 ft
				Hoist/Hammer: Winch Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0																	
	9 7 6 4	S1 NR	3.0 5.0				NOTE: No recovery, cobble stuck in tip of spoon. Sample collected from auger cuttings. -FILL-										
5																	
	6 4 5 5	S2 14	8.0 10.0			SM	Loose, yellow-brown, silty SAND (SM), mps 4 mm, no structure, no odor, moist to wet, 1.5 in. plug of clay on top of sand -FILL-			10	40	35	15				
10																	
	6 2 4 6	S3 14	13.0 15.0	NO WELL INSTALLED		SW	Loose, gray, well graded SAND with gravel (SW), mps 4 mm, no structure, no odor, wet, layer of sandy lean clay from 14 to 14.3 ft, strong sulfuric odor from 14.3 to 15 ft, weathered rock fragments present -FILL-		15	40	30	15					
15																	
	45 23 28 28	S4 22	18.0 20.0			SW	Loose, gray, well graded SAND with gravel (SW), mps 4 mm, no structure, no odor, wet										
20					19.7	SW	Loose, gray-brown, well graded SAND with gravel (SW), mps 1/2 in., no structure, sulfuric odor, moist to wet, shell fragments abundant	10	10	35	30	20	5				
						SP	Loose, gray, poorly graded SAND (SP), mps 4 mm, no structure, sulfuric odor, wet, shell fragments throughout, trace organics -GLACIOMARINE DEPOSIT (Sand)-				10	40	45				
25							NOTE: Auger probe from 20 to 23 ft. Begin rod probe at 23 ft.										
30																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 31.5
Rock Cored (lin. ft.) 0
Samples 4S

Boring No. HA07-110

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA07-110
File No. 30322-000
Sheet No. 2 of 2

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
30																	
					31.5		NOTE: Probe refusal at 31.5 ft -BOTTOM OF EXPLORATION- Probe Information: AW rod probe (140 lb., 30 in. fall) DEPTH — PROBE ADVANCEMENT 23'-30.4' — Hydraulic Push 30.4'-31.0' — 30 31'-31.5' — 100										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA07-111

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 3
Start 9 March 2007
Finish 9 March 2007
Driller D. McKeen
H&A Rep. E. Beirne
Elevation 16.0 +/-
Datum Portland City
Location See plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Mobile Drill B-53 Bombardier
Inside Diameter (in.)	2.5	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: 2.5 in. HSA 17.0 ft
				Hoist/Hammer: Winch Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0																	
	7 6 5 5	S1 17	2.0 4.0			SM	Medium dense, black, silty SAND (SM), mps 2 mm, no structure, no odor, moist, layer of gray lean clay, brick fragments present				20	55	25				
					3.2	SW	-FILL-		20	20	40	20					
5	4 4 3 4	S2 10	5.0 7.0			SW	Medium dense, brown to black, well graded SAND with gravel (SW), mps 1/2 in., no structure, no odor, moist -FILL- Loose, gray, well graded SAND with gravel (SW), mps 1/2 in., no structure, no odor, moist, mottled below 6.3 ft -FILL-										
10	2 4 13 19	S3 16	10.0 12.0	NO WELL INSTALLED		SM	Medium dense, gray, silty SAND (SM), mps < 1 mm, no structure, no odor, moist, somewhat mottled					60	40				
					11.4	SW	-FILL-		10	40	30	20					
					13.5		Medium dense, yellow-brown, well graded SAND (SW), mps 1/2 in., no structure, no odor, wet, fining upward, brick fragments present -FILL-										
15	6 9 11 11	S4 21	15.0 17.0			CL	Very stiff, gray, lean CLAY (CL), mps < 1 mm, bonded, no odor, moist, layers of very fine sand -GLACIOMARINE DEPOSIT (Clay)- NOTE: Begin rod probe at 17.0 ft					5	95				
20																	
25																	
30																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 67.9
Rock Cored (lin. ft.) -
Samples 4S

Boring No. HA07-111

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA07-111
File No. 30322-000
Sheet No. 2 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
30																	
35																	
40																	
45																	
50																	
55																	
60																	
					62.0		NOTE: Probable change to Glacial Till at 62 ft based on probe blow count.										
65							-GLACIAL TILL-										
					67.9	BR	NOTE: Probe refusal at 67.9 ft										
							-BOTTOM OF EXPLORATION-										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA07-111
File No. 30322-000
Sheet No. 3 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
							Probe Information: AW Rod Probe (140 lb. hammer / 18 in. fall)										
							DEPTH — PROBE ADVANCEMENT										
							17'-52.1' — Hydraulic Push										
							52.1'-53' — 74										
							53'-54' — 40										
							54'-55' — 34										
							55'-56' — 32										
							56'-57' — 47										
							57'-58' — 34										
							57'-59' — 37										
							59'-60' — 55										
							60'-61' — 35										
							61'-62' — 52										
							62'-63' — 99										
							63'-64' — 100										
							64'-65' — 67										
							65'-66' — 82										
							66'-67' — 62										
							67'-67.9' — 100 (0.9)										
							67.9' — 50 (0.0)										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA07-112

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 3
Start 9 March 2007
Finish 9 March 2007
Driller D. McKeen
H&A Rep. E. Beirne
Elevation 15.8 +/-
Datum Portland City
Location See plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	SS	-	Rig Make & Model: Mobile Drill B-53 Bombardier
Inside Diameter (in.)	2.5	1.375	-	Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: 2.5 in. HSA 27 ft
				Hoist/Hammer: Winch Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				NO WELL INSTALLED													
	17 10 10 11	S1 14	2.0 4.0			SW-SM	Medium dense, black to brown, well graded SAND with silt and gravel (SW-SM), mps 3/4 in., no structure, no odor, dry to moist, fining up, brick fragments present -FILL-	10	15	25	20	20	10				
5	7 8 7 6	S2 15	5.0 7.0			SW	Medium dense, light brown, well graded SAND with gravel (SW), mps 1/2 in., no structure, no odor, moist -FILL-	5	10	25	35	25					
10	3 2 2 3	S3 12	10.0 12.0			SW	Very loose, gray to yellow-brown, well graded SAND (SW), mps 1/4 in., no structure, no odor, moist, 1 in. of lean clay above sand in spoon -FILL-		5	15	30	45	5				
15	1 WOR WOR 1	S4 13	15.0 17.0			SW	Very loose, light brown, well graded SAND (SW), mps 3/4 in., no structure, no odor, wet -FILL-		5	20	40	30	5				
					18.5												
20	34 50/2	S5	20.0 22.0			SP	Very dense, gray, poorly graded SAND (SP), mps 4 mm, no structure, no odor, moist to wet -GLACIOMARINE DEPOSIT (Sand)-			5	55	35	5				
					21.0		NOTE: Driller noted change from sand to clay at approximately 21.0 ft.										
25	7 10 12 14	S6 14	25.0 27.0			CL	Very stiff, gray, lean CLAY (CL), mps < 1 mm, bonded, no odor, moist, trace organics -GLACIOMARINE DEPOSIT (Clay)-					5	95				
							NOTE: Begin rod probe at 27.0 ft.										
30																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 79.8
Rock Cored (lin. ft.) -
Samples 6S

Boring No. HA07-112

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000 2007.GPJ 5 Jul 16

TEST BORING REPORT

Boring No. HA07-112
File No. 30322-000
Sheet No. 2 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
30							NOTE: Rod probe advancement from 30 to 75 ft.										
35																	
40																	
45																	
50																	
55																	
60																	
65																	
70																	

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA07-112

TEST BORING REPORT

Boring No. HA07-112
File No. 30322-000
Sheet No. 3 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
75																	
						BR	NOTE: Probe refusal at 79.8 ft										
					79.8		-BOTTOM OF EXPLORATION-										

Probe Information: AW Rod Probe (140 / 300 lb. hammer, 18 in. fall)

DEPTH	PROBE ADVANCEMENT
27'-59'	Hydraulic Push
59'-60'	70
60'-61'	52
61'-62'	90
62'-63'	62
63'-64'	50
64'-65'	50
65'-66'	49
66'-67'	180
67'-68'	130
68'-69'	75
69'-70'	68
70'-71'	64
71'-72'	76
72'-73'	80
73'-74'	64
74'-75'	69
75'-76'	68
76'-77'	96
77'-78'	67
78'-79'	117
79'-79.5'	150
79.5'	50
79.5'-79.8'	150 (300 lb. hammer)

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA07-113

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 3
Start 12 March 2007
Finish 12 March 2007
Driller D. McKeen
H&A Rep. B. Steinert
Elevation 14.0 +/-
Datum Portland City
Location See plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	SS	-	Rig Make & Model: Mobile Drill B-53 Bombardier
Inside Diameter (in.)	2.5	1.375	-	Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: 2.5 in. HSA 27 ft
				Hoist/Hammer: Winch Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				NO WELL INSTALLED													
	6 5 3 3	S1 7	2.0 4.0			SM	Loose, gray to black, silty SAND (SM), mps 3/4 in., no structure, no odor, moist, heavy black staining in top 2 in. of spoon, brick/concrete fragments present -FILL-	0	0	10	25	50	15				
5	7 5 30 34	S2 6	5.0 7.0			SP	Dense, light brown, poorly graded SAND (SP), mps 1 in., no structure, no odor, moist, wood fibers present, trace brick fragments -FILL-	0	0	5	65	20	10				
10	WOR 1 2 3	S3 12	10.0 12.0			SP	Very loose, light brown, poorly graded SAND (SP), mps 4.75 mm, no structure, no odor, wet, trace brick fragments -FILL-	0	0	10	65	20	5				
15	6 8 39 23	S4 12	15.0 17.0			SP	Very loose, light brown, poorly graded SAND (SP), mps 4.75 mm, no structure, no odor, wet, trace brick fragments -FILL-										
					16.0	SW-SM	Very dense, gray, well graded SAND with silt and gravel (SW-SM), mps 1 in., no structure, no odor, wet, trace brick fragments, trace organics -FILL-	5	10	20	40	10	15				
20	19 28 47 48	S5 24	20.0 22.0			SW-SM	Very dense, gray, well graded SAND with silt and gravel (SW-SM), mps 1 in., no structure, no odor, wet, trace brick fragments, trace organics -FILL-	5	10	20	40	10	15				
					21.0	SM						80	20				
					24.0		Very dense, gray, silty SAND (SM), mps 0.42 mm, bonded, no odor, moist, trace organics -GLACIOMARINE DEPOSIT (Sand)-										
25	6 11 16 19	S6 24	25.0 27.0			CL	Very stiff, olive-gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, moist, trace organics -GLACIOMARINE DEPOSIT (Clay)-						100				
30							NOTE: Begin rod probe at 27 ft.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 72.9
Rock Cored (lin. ft.) -
Samples 6S

Boring No. HA07-113

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000 2007.GPJ 5 Jul 16

TEST BORING REPORT

Boring No. HA07-113
File No. 30322-000
Sheet No. 2 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
30																	
35																	
40																	
45																	
50																	
55																	
60																	
65																	
70					72.9	BR	NOTE: Probe refusal at 72.9 ft -BOTTOM OF EXPLORATION-										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA07-113

TEST BORING REPORT

Boring No. HA07-113
File No. 30322-000
Sheet No. 3 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
							Probe Information: AW Rod Probe (300 lb. hammer, 18 in. fall)										
							DEPTH — PROBE ADVANCEMENT										
							27'-'40.8' — Hydraulic Push										
							40.8'-41' — 10										
							41'-42' — 42										
							42'-43' — 36										
							43'-44' — 28										
							44'-45' — 28										
							45'-46' — 31										
							46'-47' — 30										
							47'-48' — 31										
							48'-49' — 30										
							49'-50' — 31										
							50'-51' — 27										
							51'-52' — 32										
							52'-53' — 29										
							53'-54' — 30										
							54'-55' — 28										
							55'-56' — 32										
							56'-57' — 33										
							57'-58' — 34										
							58'-59' — 41										
							59'-60' — 55										
							60'-61' — 59										
							61'-62' — 60										
							62'-63' — 51										
							63'-64' — 46										
							64'-65' — 44										
							65'-66' — 44										
							66'-67' — 50										
							67'-68' — 49										
							68'-69' — 65										
							69'-70' — 53										
							70'-71' — 46										
							71'-72' — 49										
							72'-72.9' — 50										
							72.9' — 50										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

2005 Test Boring Logs

TEST BORING REPORT

Boring No. HA05-11(OW)

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 2
Start 6 October 2005
Finish 6 October 2005
Driller R. Idano
H&A Rep. K. Stone
Elevation 16.3+/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	SS	NQ	Rig Make & Model: Mobile Drill B-53 Trailer
Inside Diameter (in.)	3.0	1 3/8	2.0	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Driven
				Hoist/Hammer: Winch/ Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	42 63 41 26	S1 15	0.0 2.0			SM	Very dense, dark-brown to brown, silty SAND with gravel (SM), mps 1.0 in., no odor, dry. -FILL-	10	10	15	20	25	20				
	9 12 10 9	S2 10	2.0 4.0			SW	Medium dense, brown, well graded SAND with gravel (SW), mps 1.0 in., no odor, dry.	10	30	15	20	25					
5	10 11 6 6	S3 4	4.0 6.0			GW	Medium dense, brown, well graded GRAVEL with sand (GW), mps 1.5 in., no odor, dry to moist, brick and bituminous concrete pieces present.	30	30	5	15	20					
	20 53 24 23	S4 7	6.0 8.0			GW	Very dense, brown to dark-gray-brown, well graded GRAVEL with sand (GW), mps 1.5 in., moist, trace ash, sample 80% brick pieces.	20	40	10	10	15	5				
	13 14 38 21	S5 8	8.0 10.0			SM	Very dense to dense, brownish-gray, silty SAND with gravel (SM), mps 1.0 in., no odor, moist to wet, includes brick fragments and trace ash. -FILL-	10	15		10	40	25				
10	7 8 15 19	S6 18	10.0 12.0		10.0	ML	Stiff to very stiff, gray-brown sandy SILT (ML), mps 1.0 in., slightly blocky texture, with gravel pieces, mottled, no odor, moist. -GLACIOMARINE DEPOSIT- (Clay)					30	70				
15	4 8 7 9	S7 21	15.0 17.0			ML	Medium stiff, gray-brown, sandy SILT (ML), mps 0.042 mm., mottled with slightly blocky texture, gray silty sand layer from 16.5 to 16.7 ft					5	95				
					16.7	CL	Olive-gray, lean CLAY (CL), mps 0.075 mm.										
20	WOR WOR WOH WOH	S8 24	20.0 22.0			CL	Very soft, gray, lean CLAY (CL), mps 0.075 mm., no odor, wet, black specks. -GLACIOMARINE DEPOSIT- (Clay)						100				
25																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
10/6/05	-	0	-	-	12.9

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 34.5
Rock Cored (lin. ft.) 5.9
Samples 8S

Boring No. HA05-11(OW)

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA05-11(OW)
File No. 30322-000
Sheet No. 2 of 2

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
25							NOTE: Inadequate tube sample collection procedure by driller, tube aborted, resample at 30 ft.										
30		U1 20	30.0 32.0			CL	Gray, lean CLAY (CL), apparent sand seam at bottom of tube. -GLACIOMARINE DEPOSIT- (Clay)						100				
	50(0 in.)	S9 0	34.3 34.5		34.3		NOTE: Split spoon refusal at 34.3 ft on probable bedrock. Advanced roller bit to 34.5 ft. Begin NQ rock core at 34.5 ft. See Core Boring Report HA05-11(OW) for details.										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA05-11(OW)
File No. 30322-000
Sheet No. 1 of 1

Depth (ft)	Drilling Rate Min./ft	Run No.	Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Well Diagram	Elev./ Depth (ft)	Visual Description and Remarks
30									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
									NOTE: Bedrock encountered at 34.3 ft. Advanced roller bit to 34.5 ft. Begin NQ rock core at 34.5
		C1	34.5 36.5	24/0	100/0			34.3	Moderately hard, fresh to slightly weathered, gray to green, aphanitic to fine grained SCHIST. Primary joint set dipping at vertical angles, extremely close to very close, undulating, fresh, open to wide.
35	5 4								
		C2	36.5 40.4	47/11	100/23				Moderately hard, fresh to slightly weathered, gray to green, aphanitic to fine grained SCHIST. Primary joint set dipping at vertical angles, extremely close to very close, undulating, fresh, open to wide.
40								40.4	-BOTTOM OF EXPLORATION-
									NOTE: Installed observation well in completed borehole. See Well Installation Report HA05-11(OW) for details.

TEST BORING REPORT

Boring No. HA05-12

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 3
Start 3 October 2005
Finish 4 October 2005
Driller B. Enos
H&A Rep. B. Steinert
Elevation 15.3+/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	SS	NQ	Rig Make & Model: Mobile Drill B-53 Truck
Inside Diameter (in.)	3.0	1 3/8	2.0	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Driven
				Hoist/Hammer: Winch/ Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	6 18 14 18	S1 8	0.0 2.0	NO WELL INSTALLED		SM	Dense, brown-black, silty SAND with gravel (SM), mps 1.0 in., no odor, damp, black staining in top 4 in. of spoon. -FILL- NOTE: Concrete and brick fragments encountered from 3.0 to 3.7 ft. Several small (8 in.) pieces of concrete encountered to 7 ft. Hard resistance during auger advancement.	5	10	10	50	10	15				
10	1 1 1 1	S2 4	10.0 12.0			SM	Loose, brown to black, silty SAND with gravel (SM), mps 1.0 in., some interbedded rust color and odor, trace organics, wet. -FILL-	5	10	10	50	10	15				
15	4 5 6 7	S3 20	15.0 17.0		15.0	CL	Stiff, olive-gray, lean CLAY (CL), mps 0.075 mm., no odor, wet, mottled. -GLACIOMARINE DEPOSIT- (Clay)						100				
20	3 4 5 4	S4 5	20.0 22.0			CL	Stiff, olive-gray, lean CLAY (CL), mps 0.075 mm., no odor, wet, mottled. -GLACIOMARINE DEPOSIT- (Clay)						100				
25					23.0												

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 74.1
Rock Cored (lin. ft.) 5.0
Samples 11S

Boring No. HA05-12

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000.GPJ 5 Jul 16

TEST BORING REPORT

Boring No. HA05-12
File No. 30322-000
Sheet No. 2 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
25	WOH WOH WOH WOH	S5 24	25.0 27.0				Very soft, gray, lean CLAY (CL), mps 0.075 mm., no odor, wet, frequent black specs -GLACIOMARINE DEPOSIT- (Clay)						100				
30							FV1 (30.0 - 30.6 ft), Su = 1,000/40 psf										
35	WOH WOH 3 5	S6 24	35.0 37.0				Very soft, gray, lean CLAY (CL), mps 0.075 mm., no odor, wet, frequent black specs						100				
					36.0	CL	-GLACIOMARINE DEPOSIT- (Clay) Medium stiff to stiff, gray, sandy lean CLAY (CL), mps 0.42 mm., no odor, wet, frequent black specs, trace fine sand in lower 12 in. of spoon.					20	80				
40							-GLACIOMARINE DEPOSIT- (Clay) FV2 (40 - 40.6 ft), Su = 1000/0 psf NOTE: Interbedded sand probable, unrealistically high Su.										
45	1 2 3 3	S7 12	45.0 47.0			CL	Medium stiff to stiff, gray, sandy lean CLAY (CL), mps 0.42 mm., no odor, wet, frequent black specs, trace fine sand. -GLACIOMARINE DEPOSIT- (Clay)					20	80				
50	3 4 5 4	S8 18	50.0 52.0			CL	Stiff, gray, sandy lean CLAY (CL), mps 0.42 mm., no odor, wet, frequent black specs, trace fine sand. -GLACIOMARINE DEPOSIT- (Clay) FV3 (50.0 - 50.6 ft), Su = 1000/0 psf					30	70				
55	2 1 WOH 2	S9 20	55.0 57.0			CL	Very soft, gray, sandy lean CLAY (CL), mps 0.42 mm., no odor, wet, frequent black specs, trace fine sand.					20	80				
					59.0												
60	2 3 4 4	S10 4	60.0 62.0			SM	Loose, gray, silty SAND (SM), mps 0.1 in., no structure, no odor, wet. -GLACIOMARINE DEPOSIT- (Sand)				40	30	30				

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA05-12
File No. 30322-000
Sheet No. 3 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
65																	
		C1	65.6 69.6		65.6		NOTE: Cored through gravel/boulders, advanced casing from 65 ft to 69.8 ft, gravel fragments observed in wash water. -GLACIAL TILL-											
70	32 18 14 40	S11 0	70.0 72.0				NOTE: No recovery.										
					74.1		NOTE: Bedrock encountered at 74.1 ft. Begin NQ rock core at 74.1 ft. See Core Boring Report HA05-12 for details. NOTES: 1. FV1 (30.0 - 30.6 ft) indicates in-situ field vane performed at depth interval listed, corrected peak / residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Rods; WOH = Weight of Hammer.										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA05-12
File No. 30322-000
Sheet No. 1 of 1

Depth (ft)	Drilling Rate Min./ft	Run No.	Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Well Diagram	Elev./ Depth (ft)	Visual Description and Remarks
70									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
									NOTE: Bedrock encountered at 74.1 ft. Begin NQ rock core at 74.1 ft.
	1	C2	74.1 79.1	60/46	100/77		NO WELL INSTALLED	74.1	Moderately hard to hard, fresh, gray, aphanitic, SCHIST. Primary joint sets dipping at horizontal to high angles, very close to close, undulating, fresh, partly open to open.
75	2								
	1								
	2								
	2							79.1	-BOTTOM OF EXPLORATION-

TEST BORING REPORT

Boring No. HA05-13

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 3
Start 30 September 2005
Finish 3 October 2005
Driller B. Enos
H&A Rep. B. Steinert
Elevation 16.5+/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	SS	-	Rig Make & Model: Mobile Drill B-53 Truck
Inside Diameter (in.)	3.0	1 3/8	-	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Driven
				Hoist/Hammer: Winch/ Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	17 12 10 10	S1 12	0.0 2.0	NO WELL INSTALLED		SM	Medium dense, brown to black, silty SAND (SM), mps 0.25 in., no odor, damp, brick fragments. -FILL-		5	5	50	20	20				
	19 24 19 17	S2 12	2.0 4.0			SM	Dense, brown to black, silty SAND (SM), mps 1.5 in., no odor, damp, brick fragments, black staining (not present in lower 6 in. of spoon)		5	5	50	20	20				
5	19 10 6 5	S3 12	4.0 6.0			SM	Medium dense, brown to black, silty SAND (SM), mps 1.5 in., no odor, damp, brick fragments, slight rust color in top 4 in. of spoon, black staining in bottom 8 in. of spoon.		5	5	50	20	20				
	4 10 13 13	S4 12	6.0 8.0			SM	Medium dense, brown to black, silty SAND (SM), mps 1.5 in., no odor, damp, brick fragments, black staining in top 3 in. of spoon.		5		55	25	15				
	12 9 6 6	S5 10	8.0 10.0			SM	Medium dense, brown to black, silty SAND (SM), mps 1.5 in., no odor, damp, brick fragments, little black staining.				55	30	15				
10	5 3 1 1	S6	10.0 12.0			SM	Medium dense, brown to black, silty SAND (SM), mps 1.5 in., no odor, damp (bottom 6 in of spoon is wet), brick fragments present.				55	30	15				
	4 1 3 3	S7 3	13.0 15.0			SM	Medium dense, brown to black, silty SAND (SM), mps 1.5 in., no odor, damp to wet, brick fragments.				55	30	15				
15	4 2 6 8	S8 0	15.0 17.0				NOTE: No recovery.										
	15 18 30 32	S9 9	17.0 19.0			SM	Medium dense, brown to black, silty SAND (SM), mps 1.5 in., no odor, damp to wet, brick fragments throughout, black staining in bottom 5 in. of spoon. -FILL-		5	5	50	20	20				
20	15 26 29 29	S10 11	19.0 21.0		19.0	SM	Very dense, gray, silty SAND (SM), mps 0.1 in., no odor, thin organic layer(0.25 in.) present at top of spoon. -GLACIOMARINE DEPOSIT- (Sand)				60	25	15				
	24 33 43 42	S11 12	21.0 23.0			SM	Very dense, gray, silty SAND (SM), mps 0.1 in., no odor, trace organics. -GLACIOMARINE DEPOSIT- (Sand)				60	25	15				
25					24.0		NOTE: Organic material observed in wash water from approximately 24.0 to 25.0 ft, strong organic odor.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 72
Rock Cored (lin. ft.) -
Samples 21S

Boring No. HA05-13

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA05-13
File No. 30322-000
Sheet No. 2 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
25	1 2 2 3	S12 12	25.0 27.0			ML	Soft, olive-gray, organic SILT (ML), mps 0.075mm., wet, very strong organic odor, high organic content, probable former ocean bottom. -ORGANIC DEPOSIT-						100				
	3 7 8 11	S13 24	27.0 29.0		28.0	CL	Medium stiff to stiff, gray, lean CLAY (CL), mps 0.075 mm., wet, slight organic odor. -GLACIOMARINE DEPOSIT- (Clay)						100				
30	3 6 7 7	S14 0	30.0 32.0				No recovery.										
35	WOH 1 WOH 1	S15 24	35.0 37.0			CL	Very soft, gray, lean CLAY (CL), mps 0.075 mm., no odor, wet.						100				
					35.5	CL	Very soft, gray, sandy lean CLAY (CL), mps 0.42 mm., no odor, wet, occasional fine sand layer. -GLACIOMARINE DEPOSIT- (Clay)					20	80				
40		U1	40.0 42.0				NOTE: U1 taken from 40.0 to 42.0 ft										
45	WOR WOH WOH WOH	S16 24	45.0 47.0			CL	Very soft, gray, sandy lean CLAY (CL), mps 0.42 mm., no odor, wet, occasional silt and fine sand layers. -GLACIOMARINE DEPOSIT- (Clay)					20	80				
50	1 2 8 8	S17 16	50.0 52.0			CL	Very soft, gray, sandy lean CLAY (CL), mps 0.42 mm., no odor, wet.					20	80				
					51.0	SM	Loose to medium dense, gray, silty SAND (SM), mps 0.42 mm., no structure, no odor, wet. -GLACIOMARINE DEPOSIT- (Sand)				10	20	70				
55	24 80 16 10	S18 8	55.0 57.0		55.0		Very dense, gray, silty SAND with gravel (SM), mps 1 in., bonded, no odor, wet, weathered rock fragments present throughout. NOTE: Pushing stone probable reason for high blow counts in first 12 in. increment and low recovery. -GLACIAL TILL-	5	10	5	10	20	50				
60	17 12 14	S19 8	60.5 62.5			SM	Medium dense, gray, silty SAND with gravel (SM), mps 1 in., bonded, no odor, wet.		15	10	10	45	20				

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA05-13
File No. 30322-000
Sheet No. 3 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
	15																
65	1 5 6 6	S20 12	65.0 67.0			SM	Medium dense, gray, silty SAND with gravel (SM),mps 1 in., bonded, no odor, wet. -GLACIAL TILL-		15	10	10	45	20				
70	27 18 27 58	S21 10	70.0 72.0			SM	Dense, gray, silty SAND with gravel (SM), mps 1 in., bonded, no odor wet. -GLACIAL TILL-		15	10	10	45	20				
					72.0		-BOTTOM OF EXPLORATION-										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA05-13

TEST BORING REPORT

Boring No. HA05-14(OW)

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 3
Start 4 October 2005
Finish 5 October 2005
Driller R. Idano
H&A Rep. K. Stone
Elevation 14.5+/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	SS	NQ	Rig Make & Model: Mobile Drill B-53 Trailer
Inside Diameter (in.)	3.0	1 3/8	2.0	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Driven
				Hoist/Hammer: Winch/ Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	10 25 25 14	S1 5	0.0 2.0		0.4	OL/ OH	-TOPSOIL-	5	5	5		55	30				
	7 9 9 12	S2 8	2.0 4.0			SM	Medium dense, light-brown silty SAND with gravel (SM), mps 0.75 in., no odor, dry, dark brown from 2.3-2.6 ft. -FILL-		15	5	5	50	25				
5	1 3 3 2	S3 7	5.0 7.0			SP- SM	Loose, dark-brown, poorly graded SAND with silt and gravel (SP-SM), mps 1.25 in., no odor, dry.	5	10	10	10	55	10				
10	21 23 14 33	S4 5	10.0 12.0			SP	Dense, brown, poorly graded SAND with gravel (SP), mps 1.0 in., brick fragments present, no odor, wet. -FILL-	5	10	10	10	65					
15	7 9 10 6	S5 0	15.0 17.0		15.0	CL	Very stiff, olive-brown, lean CLAY (CL), mps 0.075 mm., bonded, no odor, wet, mottled -GLACIOMARINE DEPOSIT- (Clay)						100				
	3 2 19 14	S6 12	17.0 19.0		17.4	SM	Dense, gray, silty SAND (SM), mps 4.0 mm., no structure, no odor, wet. -GLACIOMARINE DEPOSIT- (Sand)			15	15	50	20				
20	19 31 25 27	S7 14	20.0 22.0			SM	Very dense, gray, silty SAND (SM), mps 4.0 mm., no structure, strong organic odor, wet, brick fragments (from above) present -GLACIOMARINE DEPOSIT- (Sand)					80	20				
25																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 72
Rock Cored (lin. ft.) 5
Samples 14S

Boring No. HA05-14(OW)

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000.GPJ 5 Jul 16

TEST BORING REPORT

Boring No. HA05-14(OW)
File No. 30322-000
Sheet No. 2 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
25	6 11 8 7	S8 16	25.0 27.0		25.8		Medium dense, gray, silty SAND (SM), mps 4.0 mm., no structure, organic odor, wet.			5	5	70	20				
						ML	-GLACIOMARINE DEPOSIT- (Sand)						100				
							Stiff, olive-brown to gray-brown organic SILT (ML), mps 0.075 mm., organic odor, wet, probable former ocean bottom.										
							-ORGANIC DEPOSIT-										
30	1 2 3 4	S9 24	30.0 32.0			ML	Medium stiff, gray, organic SILT (ML), mps 0.43 mm., wood pieces, leaves and roots present throughout spoon, strong organic odor, wet, probable former ocean bottom.						100				
					32.0												
35							FV1 (35.3 - 36 ft), Su = 3302 / 1110 psf										
40	WOR WOR WOR 2	S10 24	40.0 42.0			CL	Very stiff, gray, lean CLAY (CL), mps 0.075 mm., occasional black streaks, no odor, wet.						100				
							-GLACIOMARINE DEPOSIT- (Clay)										
45							FV2 (45.3 - 46 ft), Su = 820 / 190 psf										
50	WOR WOR WOR 3	S11 24	50.0 52.0			CL	Very stiff, gray, lean CLAY (CL), mps 0.075 mm., occasional black streaks, no odor, wet.						100				
							-GLACIOMARINE DEPOSIT- (Clay)										
55																	
60	1 WOR 1 5	S12 24	60.0 62.0			CL	Very stiff, gray, lean CLAY (CL), mps 0.075 mm., occasional black streaks, no odor, wet.						100				
					61.1	SC											

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA05-14(OW)
File No. 30322-000
Sheet No. 3 of 3

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
							-GLACIOMARINE DEPOSIT- (Clay) Loose, gray, clayey SAND (SC), mps 0.43 mm., bonded, no odor, wet.					65	35				
							-GLACIOMARINE DEPOSIT- (Sand)										
65	15 10 7 7	S13 14	65.0 67.0		64.8	SM	Medium dense, gray, silty SAND with gravel (SM), mps 1.25 in., slightly bonded, no odor, wet.	5	15	10	10	30	30				
							-GLACIAL TILL-										
70	47 60 73 37	S14 6	70.0 72.0			SM	Very dense, gray to brown, silty SAND with gravel (SM), mps 0.75 in., moderately bonded, no odor, wet.		25	10	10	40	15				
					71.8		-GLACIAL TILL-										
							NOTE: Bedrock encountered at 71.8 ft. Advanced roller bit to 72 ft. Begin NQ rock core at 72.0 ft. See Core Boring Report HA05-14 for details.										
							NOTES: 1. FV1 (30.0 - 30.6 ft) indicates in-situ field vane performed at depth interval listed, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Rods; WOH = Weight of Hammer										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

CORE BORING REPORT

Boring No. HA05-14
File No. 30322-000
Sheet No. 1 of 1

Depth (ft)	Drilling Rate Min./ft	Run No.	Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Well Diagram	Elev./ Depth (ft)	Visual Description and Remarks
									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
70							NO WELL INSTALLED		NOTE: Bedrock encountered at 71.8 ft. Advanced roller bit to 72 ft. Begin NQ rock core at 72 ft.
		C1	72.0 74.4	21/13	72/64			71.8	Hard, fresh to slightly weathered, gray, aphanitic to fine grained SCHIST. Primary joints dipping at moderate to high angles, very close to close, planar to stepped, smooth to rough, tight to partly open. Horizontal secondary joints. Oxidation on some joint surfaces. NOTE: Possible seam from 72.8-73.1 ft. Core barrel advanced quickly.
75		C2	74.4 77.0	31/13	100/41				Hard, fresh to slightly weathered, gray, aphanitic to fine grained SCHIST. Primary joints dipping at moderate to high angles, very close to close, planar to stepped, smooth to rough, tight to partly open. Horizontal secondary joints. Oxidation on some joint surfaces..
								77.0	-BOTTOM OF EXPLORATION- NOTE: Installed observation well in completed borehole. See Well Installation Report HA05-14(OW) for details.

TEST BORING REPORT

Boring No. HA05-20

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 2
Start 5 October 2005
Finish 5 October 2005
Driller B. Enos
H&A Rep. B. Steinert
Elevation 17.0+/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	SS	NQ	Rig Make & Model: Mobile Drill B-53 Truck
Inside Diameter (in.)	3.0	1 3/8	2.0	Bit Type: Cutting Head
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Driven
				Hoist/Hammer: Winch/ Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0							-CONCRETE-										
	3 4 4 9	S1 15	0.3 2.3		0.3	SP	Loose, tan to black, poorly graded SAND with gravel (SP), mps 1.0 in., no odor, moist, some heavy black staining. -FILL-		15	10	50	20	5				
	8 8 8 15	S2 3	2.3 4.3			SP-SM	Medium dense, tan to black, poorly graded SAND with silt (SP-SM), mps 1.0 in., no odor, moist, some heavy black staining, bottom 1.0 in. of spoon olive-gray silty clay.			20	50	20	10				
5	9 6 4 3	S3 6	4.3 6.3			SP	Loose, tan to black, poorly graded SAND with gravel (SP), mps 1.0 in., trace clay, no odor, moist.		15	10	50	20	5				
	5 4 3 3	S4 4	6.3 8.3			SP	Loose, tan to black, poorly graded SAND with gravel (SP), mps 1.0 in., trace clay, no odor, moist.		15	10	50	20	5				
	30 70 75(0.3 ft)	S5 15	8.3 10.3	NO WELL INSTALLED		SP	Very dense, tan to black, poorly graded SAND with gravel (SP), mps 1.0 in., trace clay, no odor, wet. NOTE: Split-spoon refusal at 9.6 ft. Bricks and mortor observed in drill cuttings from 9.6 to 10.3 ft. Split-spoon refusal at 10.6 ft. Attempt NQ rock core from 10.9 to 12.8 ft, no recovery.		15	10	50	20	5				
10	75(0.3 ft)	S6 0	10.4 12.4														
	4 10 13 8	S7 0	12.8 14.8				NOTE: No Recovery										
15	10 22 23 13	S8 10	14.8 16.8			SW-SM	Dense, brown, well graded SAND with silt and gravel (SW-SM), mps 1 in., brick fragments present, gray sand in bottom 2 in. of spoon.		15	20	40	20	10				
	19 12 24 26	S9 12	16.8 18.8			SW-SM	Dense, gray, well graded SAND with silt and gravel (SW-SM).		15	20	40	20	10				
					17.3		-FILL-										
	12 7 6 6	S10 9	18.8 20.8			SP	Medium dense, gray, poorly graded SAND (SP), mps 1.0 in., strong organic odor, wet, trace organics. -GLACIOMARINE DEPOSIT- (Sand)					90	5				
20	4 12 19 16	S11 24	20.8 22.8		21.6	OL/OH	Very stiff, dark-brown ORGANIC SOIL with silt (OL/OH), mps 0.075 mm., strong organic odor, wet, probable former ocean bottom. -ORGANIC DEPOSIT-						100				
	1 3 2 4	S12 24	22.8 24.8														
25																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 26.4
Rock Cored (lin. ft.) 6.5
Samples 13S

Boring No. HA05-20

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000.GPJ 5 Jul 16

TEST BORING REPORT

Boring No. HA05-20
File No. 30322-000
Sheet No. 2 of 2

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
25	3 3 13 75(1 in.)	S13 14	24.8 26.8		25.8	OL/OH	Stiff, dark brown ORGANIC SILT with roots (OL/OH), mps 0.075 mm, no structure, organic odor, wet, probable former ocean bottom. -ORGANIC DEPOSIT-						100				
					26.4	CL	Olive-gray silt with organics to gray silty CLAY (CL), weathered rock fragments at tip of spoon. -GLACIOMARINE DEPOSIT-						100				

NOTE: Split-spoon refusal at 26.4 ft. Advance roller bit to 26.7 ft. Begin NQ rock core at 26.7 ft. See Core Boring Report HA05-20 for details.

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

CORE BORING REPORT

Boring No. HA05-20
File No. 30322-000
Sheet No. 1 of 1

Depth (ft)	Drilling Rate Min./ft	Run No.	Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Well Diagram	Elev./ Depth (ft)	Visual Description and Remarks
									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
25							NO WELL INSTALLED		NOTE: Bedrock encountered at 26.4 ft. Advanced roller bit to 26.7 ft. Begin NQ rock core at 26.7.
	3	C2	26.7 29.2	30/21	100/70			26.4	Moderately hard, fresh, gray, aphanitic to fine grained SCHIST. Joints dipping at high angles, very close to close, planar, smooth, tight to partly open, fresh to slightly weathered joint surfaces.
	2								
	2								
	6	C3	29.2 33.2	48/35	100/73				Moderatley hard, fresh, gray, aphanitic to fine grained SCHIST. Primary joint sets dipping at horizontal to low angles, with high angle to vertical secondary joints. Joints are generally close to moderate, planar to stepped, smooth to rough, partly open to open, slightly weathered, occasional soil infilling.
30									
	3								
	4								
								33.2	-BOTTOM OF EXPLORATION-

TEST BORING REPORT

Boring No. HA05-21

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 1
Start 30 September 2005
Finish 30 September 2005
Driller R. Idano
H&A Rep. K. Stone
Elevation 16.5+/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	SS	-	Rig Make & Model: Mobile Drill B-53 Trailer
Inside Diameter (in.)	2.5	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: Spun
				Hoist/Hammer: Winch/ Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	7 11 9 15	S1 14	0.0 2.0	NO WELL INSTALLED		SP	Medium dense, brown, poorly graded SAND with gravel (SP), mps 1.0 in., black staining present, no odor, dry. -FILL-	5	10	5	5	75					
	14 17 17 17	S2 13	2.0 4.0			SP	Dense, brown, poorly graded SAND with gravel (SP), mps 1.0 in., black staining present, brick fragments present, no odor, dry.	5	10	5	5	75					
5	10 11 11 9	S3 12	4.0 6.0			SP	Medium dense, brown, poorly graded SAND with gravel (SP), mps 1.0 in., black staining from 4.5-4.7ft., no odor, dry.	5	10	5	5	75					
	3 6 8 9	S4 12	6.0 8.0			SP	Medium dense, brown, poorly graded SAND with gravel (SP), mps 1.0 in., brick fragments present, no odor, dry.	5	10	5	5	75					
	10 30 18 9	S5 9	8.0 10.0			SP	Medium dense, brown, poorly graded SAND with gravel (SP), mps 1.0 in., some silt and clay from 8.3-8.5 ft., no odor, dry. -FILL-	5	10	5	5	75					
10	2 11 14 24	S6 10	10.0 12.0		10.2	SC	Medium dense, olive-brown, clayey SAND (SC), mps 0.43 mm., no odor, moist.	50	50			65	35				
					10.4	GP	Dense, brown, poorly graded GRAVEL (GP), mps 1.25 in.,appears to be weathered rock fragments, no odor, wet.										
	14 14 17 100(0.3 ft)	S7 10	12.0 14.0			GP	Dense, brown, poorly graded GRAVEL with sand (GP), mps 1.25 in., no odor, wet. -FILL-	35	35	10	10	10					
	24 50(0.4 ft)	S8 6	14.0 14.9		13.8		Piece of wood in split spoon, wood fragments. -WOOD-										
15	22 27 27 27	S9 14	15.0 17.0		15.5	SP	Very dense, gray to black, poorly graded SAND with gravel (SP), mps 1.25 in., no odor, wet. -GLACIAL TILL-	10	10	15	15	50					
	44 50(0.1 ft)	S10 8	17.0 17.6		17.6	SP	Very dense, gray, poorly graded SAND with gravel (SP). mps 1.0 in., no odor, wet. -GLACIAL TILL- -BOTTOM OF EXPLORATION-	10	10	15	15	50					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 17.6
Rock Cored (lin. ft.) -
Samples 10S

Boring No. HA05-21

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000.GPJ 5 Jul 16

TEST BORING REPORT

Boring No. HA05-21A

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 1
Start 5 October 2005
Finish 5 October 2005
Driller B. Enos
H&A Rep. B. Steinert
Elevation 16.5+/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	SS	NQ	Rig Make & Model: Mobile Drill B-53 Truck
Inside Diameter (in.)	3.0	1 3/8	2.0	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Driven
				Hoist/Hammer: Winch/ Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0							NOTE: See Test Boring Report HA05-21 for overburden details from 0-10 ft.										
10	6 9 9 10	S1 6	10.0 12.0	NO WELL INSTALLED		SW	Medium dense, brown to olive-brown, well graded SAND with gravel (SW), mps 1.0 in., no odor, wet, brick and porcelain fragments present, rock fragments in tip of spoon.	5	15	30	30	10	10				
	10 12 12 75(0.4 ft)	S2 8	12.0 14.0			SW	-FILL- Medium dense, brown to olive-brown, well graded SAND with gravel (SW), mps 1.0 in., no odor, wet, brick and porcelain fragments present.	5	15	30	30	10	10				
15							-FILL- NOTE: Wood and rock fragments observed in drill cuttings from 14.4-15.2 ft.										
	3 10 75(0.3 ft)	S3 12	15.2 17.2		16.4	SW	Very dense, gray, well graded SAND (SW), mps 1.0 in., no odor, wet, very small brick and porcelain fragments present, wood fibers in top of spoon.	5	15	30	30	10	10				
							-FILL- NOTE: Split spoon refusal at 16.4 ft. Advanced roller bit to 16.7 ft. Begin NQ rock core at 16.7 ft. See Core Boring Report HA05-21A for details.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 16.7
Rock Cored (lin. ft.) 2.9
Samples 3S, 1C

Boring No. HA05-21A

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000.GPJ 5 Jul 16

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CORE BORING REPORT

Boring No. HA05-21A
File No. 30322-000
Sheet No. 1 of 1

Depth (ft)	Drilling Rate Min./ft	Run No.	Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Well Dia-gram	Elev./ Depth (ft)	Visual Description and Remarks
									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15							NO WELL INSTALLED		NOTE: Bedrock encountered at 16.4 ft. Advanced roller bit to 16.7 ft.
								16.4	Begin NQ rock core at 16.7 ft.
	2	C1	16.7	35/31	100/89				Moderately hard to hard, moderately to slightly weathered, gray to green, aphanitic to fine grained SCHIST. Quartz vein dipping at 20-60 degrees near bottom of run. Primary joint sets dipping at moderate to high angles, close, undulating to rough, discolored, tight to moderately wide.
	5		19.6						
	4								
								19.6	-BOTTOM OF EXPLORATION-

TEST BORING REPORT

Boring No. HA05-22

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 1
Start 5 October 2005
Finish 5 October 2005
Driller B. Enos
H&A Rep. B. Steinert
Elevation 15.0+/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	SS	-	Rig Make & Model: Mobile Drill B-53 Truck
Inside Diameter (in.)	2.5	1 3/8	-	Bit Type: Roller Bit
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: Driven
				Hoist/Hammer: Winch/ Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				NO WELL INSTALLED	0.4		-BITUMINOUS CONCRETE-										
	6 6 4 5	S1 11	0.4 2.4			SM	Loose, dark-brown to black, silty SAND (SM), mps 0.1 in., no structure, no odor, damp, rust stains present.			10	50	20	20				
							-FILL-										
	6 8 6 5	S2 2	2.4 4.4				Brick fragments, no odor.										
							-FILL-										
5	3 3 4 2	S3 0	4.4 6.4				NOTE: No recovery, brick fragments present at tip of spoon.										
	5 4 7 16	S4 2	6.4 8.4			SM	Medium dense, brown, silty SAND (SM), mps 0.1 in., no structure, no odor, damp.			10	35	35	20				
							-FILL-										
	13 50(3 in.)	S5 4	8.4 10.4			SM	Very dense, brown, silty SAND (SM), mps 0.1 in., no odor, damp.			10	35	35	20				
10							-FILL-										
					10.3		-BOTTOM OF EXPLORATION-										
							NOTE: Auger refusal at 10.3 ft. Move hole and advance to confirm bedrock. See HA05-22A for details.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10.3
Rock Cored (lin. ft.) -
Samples 5S

Boring No. HA05-22

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. HA05-22A

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 1
Start 5 October 2005
Finish 5 October 2005
Driller B. Enos
H&A Rep. B. Steinert
Elevation 15+/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	-	NQ	Rig Make & Model: Mobile Drill B-53 Truck
Inside Diameter (in.)	3.0	-	2.0	Bit Type: Roller Bit
Hammer Weight (lb.)	300	-	-	Drill Mud: None
Hammer Fall (in.)	30	-	-	Casing: Driven
				Hoist/Hammer: Winch/ Safety Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0							NOTE: No samples taken. See Test Boring Report HA05-22 for over burden details.										
5																	
10				NO WELL INSTALLED	9.7		NOTE: Casing refusal at 9.7 ft. Advanced roller bit to 10.0 ft. Begin NQ rock core at 10.0 ft. See Core Boring Report HA05-22A for details.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10
Rock Cored (lin. ft.) 3.2
Samples -

Boring No. HA05-22A

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000.GPJ 5 Jul 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA05-22A
File No. 30322-000
Sheet No. 1 of 1

Depth (ft)	Drilling Rate Min./ft	Run No.	Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Well Dia-gram	Elev./ Depth (ft)	Visual Description and Remarks
									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
5									
									NOTE: Bedrock encountered at 9.7 ft. Advanced roller bit to 10 ft. Begin NQ rock core at 10.0 ft.
10								9.7	Moderately hard, fresh to slightly weathered, gray to green, aphanitic to fine grained SCHIST. Primary joint set dipping at vertical angles, extremely close to very close, undulating, fresh, open to wide.
	3	C1	10.0 12.0	24/0	100/0				
	3								
		C2	12.0 13.2	14/0	100/0				
								13.2	-BOTTOM OF EXPLORATION-

NO WELL INSTALLED

TEST BORING REPORT

Boring No. HA05-23

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 1
Start 30 September 2005
Finish 30 September 2005
Driller R. Idano
H&A Rep. K. Stone
Elevation 15+/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	SS	-	Rig Make & Model: Mobile Drill B-53 Trailer
Inside Diameter (in.)	2.5	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: Spun
				Hoist/Hammer: Winch/ Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0							-BITUMINOUS CONCRETE-										
	9 11 8 8	S1 13	0.5 2.5		0.2	SP	Medium dense, brown, poorly graded SAND with gravel (SP), mps 1.1 in., black staining present, no odor, dry. -FILL-	5	10	5	5	75					
	7 6 11 11	S2 5	2.5 4.5			SP	Medium dense, brown, poorly graded SAND with gravel (SP), mps 1.1 in., black staining present, brick fragments present, no odor, dry. -FILL-	5	10	5	5	75					
5																	
	7 6 5 4	S3 0	6.5 8.5			SP	NOTE: No recovery, brick fragment lodged in tip of spoon. -FILL-	5	10	5	5	75					
	50(0.3 ft)	S4 0	8.5 9.2	NO WELL INSTALLED	8.7		-BOTTOM OF EXPLORATION- NOTE: Auger refusal at 8.7 ft. Moved hole approximately 5 ft and continued sampling at 8.0 ft. See Test Boring Report HA05-23A for details.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
9-30-05	13:00	0.2	-	4.9	4.8

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 8.7
Rock Cored (lin. ft.) -
Samples 5S

Boring No. HA05-23

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000.GPJ 5 Jul 16

TEST BORING REPORT

Boring No. HA05-23A

Project AC Hotel Fore, Hancock and Thames Streets - Portland, Maine
Client Portland Norwich Group, LLC
Contractor Maine Test Borings, Inc.

File No. 30322-000
Sheet No. 1 of 1
Start 30 September 2005
Finish 30 September 2005
Driller R. Idano
H&A Rep. K. Stone
Elevation 15+/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	SS	-	Rig Make & Model: Mobile Drill B-53 Trailer
Inside Diameter (in.)	2.5	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing: Spun
				Hoist/Hammer: Winch/ Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0							See Test Boring Report HA05-23 for overburden details 0.0-8.0 ft.										
5																	
	7 7 4 3	S1 14	8.0 10.0	NO WELL INSTALLED	8.0	SP	Medium dense, brown, poorly graded SAND with gravel (SP), mps 1.0 in., no odor, moist. -FILL-	5	10	5	5	75					
10	WOR 4 5 2	S2 5	10.0 12.0			SP	Loose, brown, poorly graded SAND with gravel (SP), mps 1.0 in., no odor, wet. -FILL-	5	10	5	5	75					
	7 20 30 31	S3 12	12.0 14.0		12.5	SP	Very dense, brown, poorly graded SAND with gravel (SP) mps 1.25 in., no odor, wet. -FILL-	10	10	10	10	60					
15	17 20 25 30	S4 16	14.0 16.0		15.0	SM	Very dense, gray, silty SAND (SM), mps 0.43 mm., no odor, wet.					75	25				
					16.0		-GLACIAL TILL- -BOTTOM OF EXPLORATION-										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
9-30-05	14:05	0.25	-	10	DRY

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 16.0
Rock Cored (lin. ft.) -
Samples 4S

Boring No. HA05-23A

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

USCS_TB4 USCSLIB4.GLB USCSTB+CORE4.GDT G:\PROJECTS\30322 - OCEAN GATEWAY GARAGE AND WATERMARK\300 - AC HOTEL\FIELD\GINT\30322-000.GPJ 5 Jul 16

APPENDIX B

Seismic Piezocone Penetration Testing Report

PRESENTATION OF SITE INVESTIGATION RESULTS

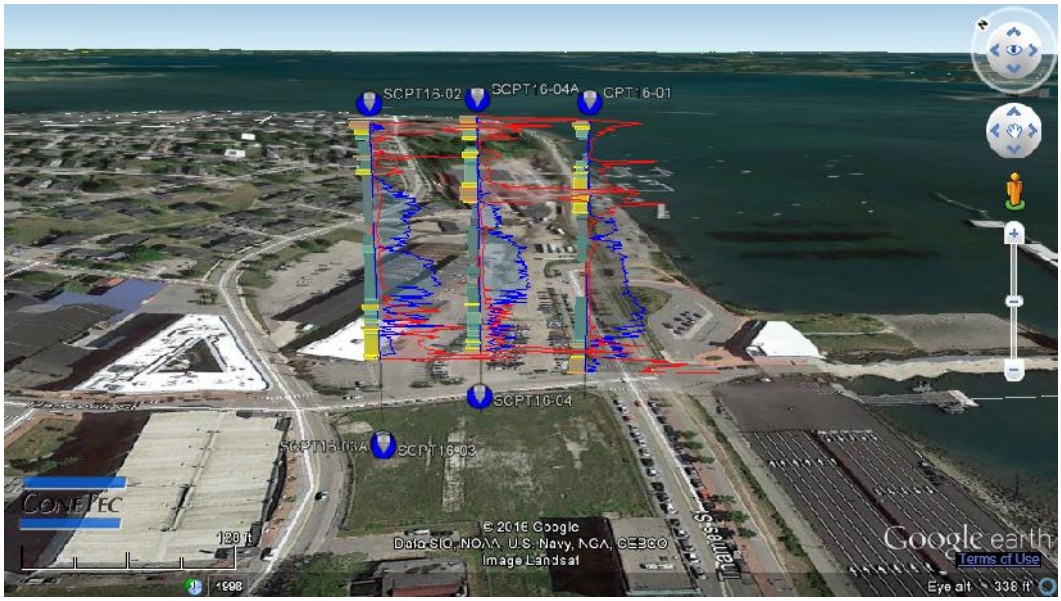
Proposed AC Hotel
Portland, Maine

Prepared for:

Haley & Aldrich

ConeTec Job No: 16-53058

Project Start Date: 23-Jun-2016
Project End Date: 24-Jun-2016
Report Date: 24-Jun-2016



Prepared by:

ConeTec Inc.
436 Commerce Lane, Unit C
West Berlin, NJ 08091

Tel: (856) 767-8600
Fax: (856) 767-4008
Toll Free: (800) 504-1116

Email: conetecNJ@conetec.com
www.conetec.com
www.conetecdataservices.com

Introduction

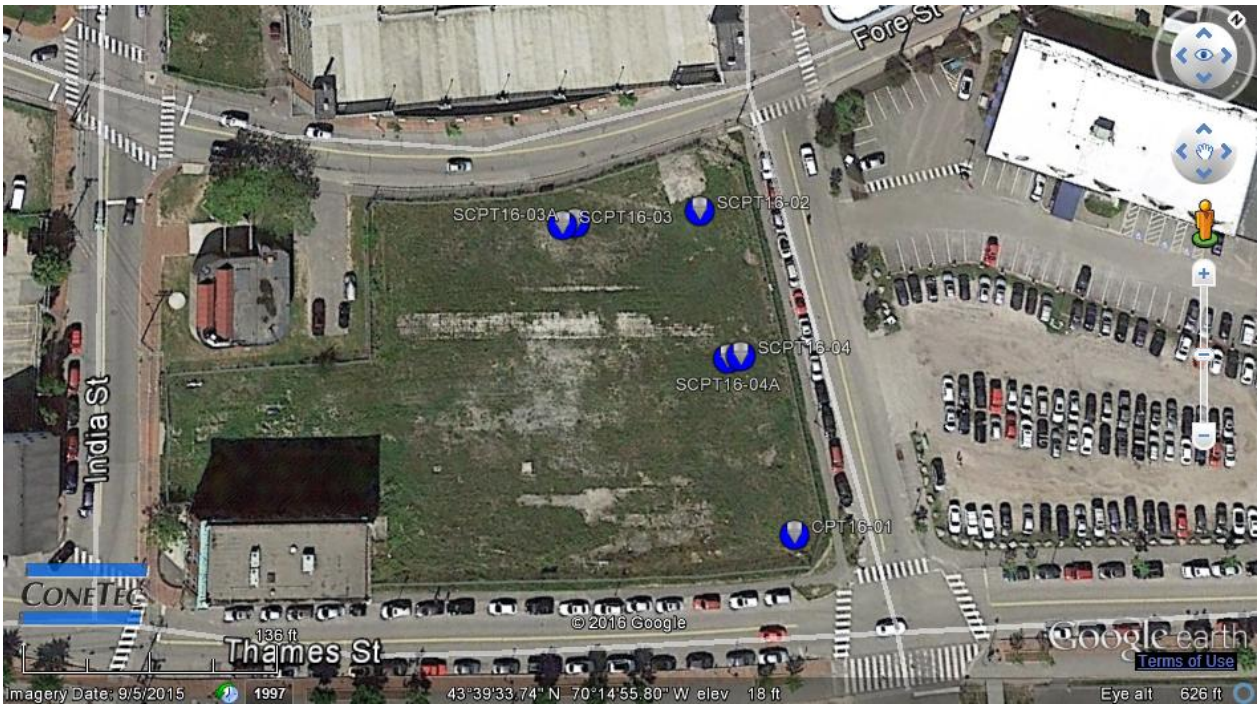
The enclosed report presents the results of a seismic piezocone penetration testing (SCPTu or SCPT) program carried out at the proposed AC Hotel site located in Portland, ME. The site investigation program was conducted by ConeTec Inc. (ConeTec), under contract to Haley & Aldrich (H&A) of Portland, Maine.

A total of 6 seismic cone penetration test were completed at 4 locations (there were two shallow refusals; refusals were offset and repushed). The SCPT program was performed to evaluate the subsurface soil conditions. SCPT sounding locations were selected and numbered under supervision of H&A personnel (Mr. Bryan Steinert).

Project Information

Project	
Client	Haley & Aldrich
Project	AC Hotel, Portland, ME
ConeTec project number	16-53058

A map from Google earth including the CPT test locations is presented below.



Rig Description	Deployment System	Test Type
CPT Truck Rig	25 ton truck mounted (twin cylinders)	SCPT

Coordinates		
Test Type	Collection Method	EPSG Number
SCPT	GPS(GlobalSat MR-350)	32619 (WGS 84 / UTM North)

Cone Penetration Test (CPT)	
Depth reference	Ground surface at the time of the investigation.
Tip and sleeve data offset	0.1 meter. This has been accounted for in the CPT data files.
Pore pressure dissipation (PPD) tests	Four pore pressure dissipation test was completed primarily to determine the phreatic surface.
Additional Comments	Shear wave velocity tests were conducted at various depth intervals at all locations.

Cone Description	Cone Number	Cross Sectional Area (cm^2)	Sleeve Area (cm^2)	Tip Capacity (bar)	Sleeve Capacity (bar)	Pore Pressure Capacity (psi)
206:T1500F15U500	206	15	225	1500	15	500

Limitations

This report has been prepared for the exclusive use of Haley & Aldrich (Client) for the project titled “AC Hotel, Portland, ME”. The report’s contents may not be relied upon by any other party without the express written permission of ConeTec. ConeTec has provided site investigation services, prepared the factual data reporting, and provided geotechnical parameter calculations consistent with current best practices. No other warranty, expressed or implied, is made.

The information presented in the report document and the accompanying data set pertain to the specific project, site conditions and objectives described to ConeTec by the Client. In order to properly understand the factual data, assumptions and calculations, reference must be made to the documents provided and their accompanying data sets, in their entirety.

The cone penetration tests (CPTu) are conducted using an integrated electronic piezocone penetrometer and data acquisition system manufactured by Adara Systems Ltd. of Richmond, British Columbia, Canada.

ConeTec's piezocone penetrometers are compression type designs in which the tip and friction sleeve load cells are independent and have separate load capacities. The piezocones use strain gauged load cells for tip and sleeve friction and a strain gauged diaphragm type transducer for recording pore pressure. The piezocones also have a platinum resistive temperature device (RTD) for monitoring the temperature of the sensors, an accelerometer type dual axis inclinometer and a geophone sensor for recording seismic signals. All signals are amplified down hole within the cone body and the analog signals are sent to the surface through a shielded cable.

ConeTec penetrometers are manufactured with various tip, friction and pore pressure capacities in both 10 cm^2 and 15 cm^2 tip base area configurations in order to maximize signal resolution for various soil conditions. The 15 cm^2 penetrometers do not require friction reducers as they have a diameter larger than the deployment rods. The 10 cm^2 piezocones use a friction reducer consisting of a rod adapter extension behind the main cone body with an enlarged cross sectional area (typically 44 mm diameter over a length of 32 mm with tapered leading and trailing edges) located at a distance of 585 mm above the cone tip.

The penetrometers are designed with equal end area friction sleeves, a net end area ratio of 0.8 and cone tips with a 60 degree apex angle.

All ConeTec piezocones can record pore pressure at various locations. Unless otherwise noted, the pore pressure filter is located directly behind the cone tip in the "u_2" position (ASTM Type 2). The filter is 6 mm thick, made of porous plastic (polyethylene) having an average pore size of 125 microns (90-160 microns). The function of the filter is to allow rapid movements of extremely small volumes of water needed to activate the pressure transducer while preventing soil ingress or blockage.

The piezocone penetrometers are manufactured with dimensions, tolerances and sensor characteristics that are in general accordance with the current ASTM D5778 standard. ConeTec's calibration criteria also meet or exceed those of the current ASTM D5778 standard. An illustration of the piezocone penetrometer is presented in Figure CPTu.

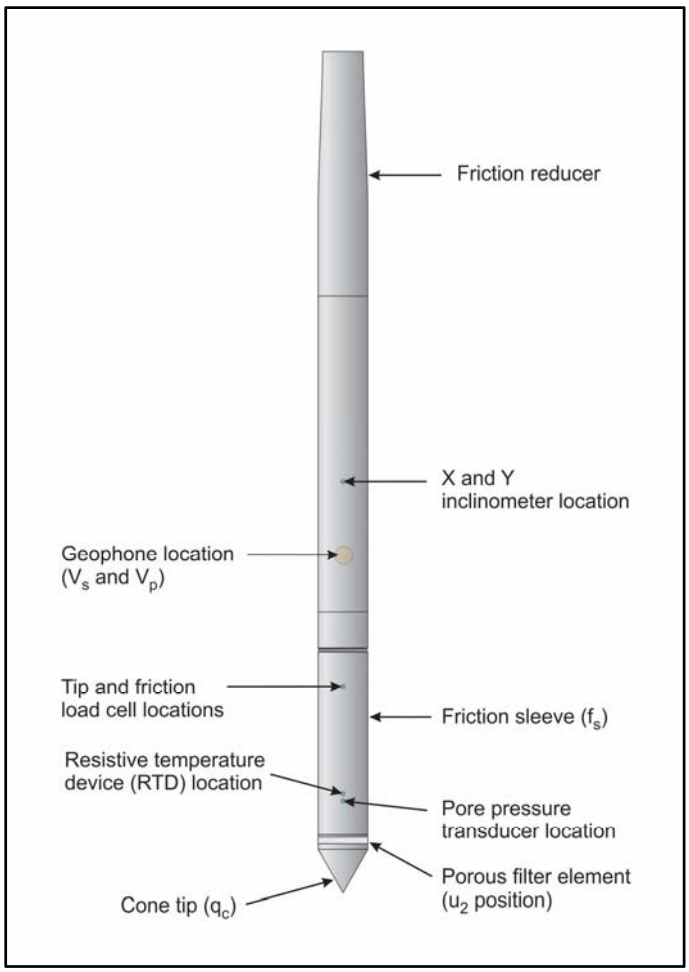


Figure CPTu. Piezocone Penetrometer (15 cm^2)

The ConeTec data acquisition systems consist of a Windows based computer and a signal conditioner and power supply interface box with a 16 bit (or greater) analog to digital (A/D) converter. The data is recorded at fixed depth increments using a depth wheel attached to the push cylinders or by using a spring loaded rubber depth wheel that is held against the cone rods. The typical recording intervals are either 2.5 cm or 5.0 cm depending on project requirements; custom recording intervals are possible. The system displays the CPTu data in real time and records the following parameters to a storage media during penetration:

- Depth
- Uncorrected tip resistance (q_c)
- Sleeve friction (f_s)
- Dynamic pore pressure (u)
- Additional sensors such as resistivity, passive gamma, ultra violet induced fluorescence, if applicable

All testing is performed in accordance to ConeTec's CPT operating procedures which are in general accordance with the current ASTM D5778 standard.

Prior to the start of a CPTu sounding a suitable cone is selected, the cone and data acquisition system are powered on, the pore pressure system is saturated with either glycerin or silicone oil and the baseline readings are recorded with the cone hanging freely in a vertical position.

The CPTu is conducted at a steady rate of 2 cm/s, within acceptable tolerances. Typically one meter length rods with an outer diameter of 1.5 inches are added to advance the cone to the sounding termination depth. After cone retraction final baselines are recorded.

Additional information pertaining to ConeTec's cone penetration testing procedures:

- Each filter is saturated in silicone oil or glycerin under vacuum pressure prior to use
- Recorded baselines are checked with an independent multi-meter
- Baseline readings are compared to previous readings
- Soundings are terminated at the client's target depth or at a depth where an obstruction is encountered, excessive rod flex occurs, excessive inclination occurs, equipment damage is likely to take place, or a dangerous working environment arises
- Differences between initial and final baselines are calculated to ensure zero load offsets have not occurred and to ensure compliance with ASTM standards

The interpretation of piezocone data for this report is based on the corrected tip resistance (q_t), sleeve friction (f_s) and pore water pressure (u). The interpretation of soil type is based on the correlations developed by Robertson (1990) and Robertson (2009). It should be noted that it is not always possible to accurately identify a soil type based on these parameters. In these situations, experience, judgment and an assessment of other parameters may be used to infer soil behavior type.

The recorded tip resistance (q_c) is the total force acting on the piezocone tip divided by its base area. The tip resistance is corrected for pore pressure effects and termed corrected tip resistance (q_t) according to the following expression presented in Robertson et al, 1986:

$$q_t = q_c + (1\text{-}a) \bullet u_2$$

where: q_t is the corrected tip resistance
q_c is the recorded tip resistance
u_2 is the recorded dynamic pore pressure behind the tip (u_2 position)
a is the Net Area Ratio for the piezocone (0.8 for ConeTec probes)

The sleeve friction (f_s) is the frictional force on the sleeve divided by its surface area. As all ConeTec piezocones have equal end area friction sleeves, pore pressure corrections to the sleeve data are not required.

The dynamic pore pressure (u) is a measure of the pore pressures generated during cone penetration. To record equilibrium pore pressure, the penetration must be stopped to allow the dynamic pore pressures to stabilize. The rate at which this occurs is predominantly a function of the permeability of the soil and the diameter of the cone.

The friction ratio (Rf) is a calculated parameter. It is defined as the ratio of sleeve friction to the tip resistance expressed as a percentage. Generally, saturated cohesive soils have low tip resistance, high

friction ratios and generate large excess pore water pressures. Cohesionless soils have higher tip resistances, lower friction ratios and do not generate significant excess pore water pressure.

A summary of the CPTu soundings along with test details and individual plots are provided in the appendices. A set of interpretation files were generated for each sounding based on published correlations and are provided in Excel format in the data release folder. Information regarding the interpretation methods used is included in an appendix.

For additional information on CPTu interpretations, refer to Robertson et al. (1986), Lunne et al. (1997), Robertson (2009), Mayne (2013, 2014) and Mayne and Peuchen (2012).

References

ASTM D5778-12, 2012, "Standard Test Method for Performing Electronic Friction Cone and Piezocone Penetration Testing of Soils", ASTM, West Conshohocken, US.

Lunne, T., Robertson, P.K. and Powell, J. J. M., 1997, “Cone Penetration Testing in Geotechnical Practice”, Blackie Academic and Professional.

Mayne, P.W., 2013, “Evaluating yield stress of soils from laboratory consolidation and in-situ cone penetration tests”, Sound Geotechnical Research to Practice (Holtz Volume) GSP 230, ASCE, Reston/VA: 406-420.

Mayne, P.W. and Peuchen, J., 2012, “Unit weight trends with cone resistance in soft to firm clays”, Geotechnical and Geophysical Site Characterization *4,* Vol. 1 (Proc. ISC-4, Pernambuco), CRC Press, London: 903-910.

Mayne, P.W., 2014, “Interpretation of geotechnical parameters from seismic piezocone tests”, CPT’14 Keynote Address, Las Vegas, NV, May 2014.

Robertson, P.K., Campanella, R.G., Gillespie, D. and Greig, J., 1986, “Use of Piezometer Cone Data”, Proceedings of InSitu 86, ASCE Specialty Conference, Blacksburg, Virginia.

Robertson, P.K., 1990, “Soil Classification Using the Cone Penetration Test”, Canadian Geotechnical Journal, Volume 27: 151-158.

Robertson, P.K., 2009, “Interpretation of cone penetration tests – a unified approach”, Canadian Geotechnical Journal, Volume 46: 1337-1355.

Shear wave velocity testing is performed in conjunction with the piezocone penetration test (SCPTu) in order to collect interval velocities. For some projects seismic compression wave (Vp) velocity is also determined.

ConeTec's piezocone penetrometers are manufactured with a horizontally active geophone (28 hertz) that is rigidly mounted in the body of the cone penetrometer, 0.2 meters behind the cone tip.

Shear waves are typically generated by using an impact hammer horizontally striking a beam that is held in place by a normal load. In some instances an auger source or an imbedded impulsive source maybe used for both shear waves and compression waves. The hammer and beam act as a contact trigger that triggers the recording of the seismic wave traces. For impulsive devices an accelerometer trigger may be used. The traces are recorded using an up-hole integrated digital oscilloscope which is part of the SCPTu data acquisition system. An illustration of the shear wave testing configuration is presented in Figure SCPTu-1.

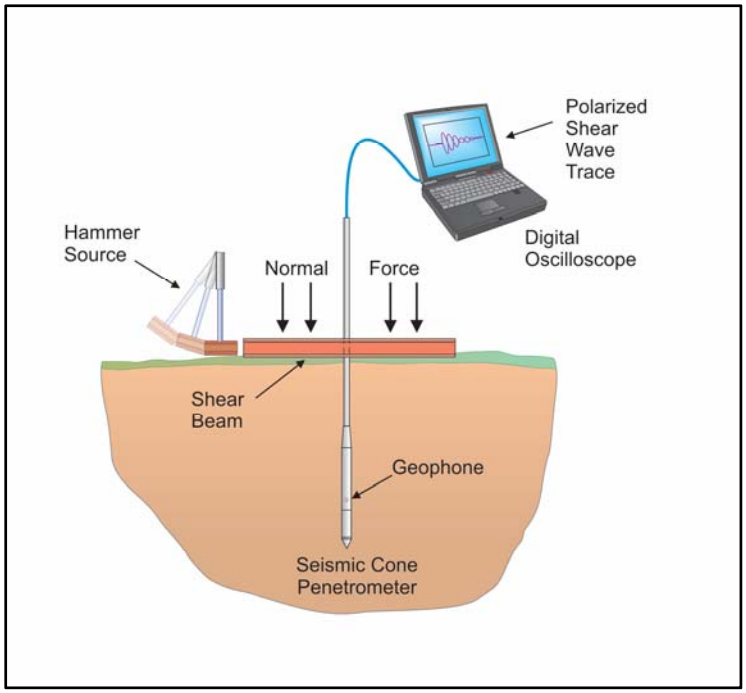


Figure SCPTu-1. Illustration of the SCPTu system

All testing is performed in accordance to ConeTec's SCPTu operating procedures.

Prior to the start of a SCPTu sounding, the procedures described in the Cone Penetration Test section are followed. In addition, the active axis of the geophone is aligned parallel to the beam (or source) and the horizontal offset between the cone and the source is measured and recorded.

Prior to recording seismic waves at each test depth, cone penetration is stopped and the rods are decoupled from the rig to avoid transmission of rig energy down the rods. Multiple wave traces are recorded for quality control purposes. After reviewing wave traces for consistency the cone is pushed to the next test depth (typically one meter intervals or as requested by the client). Figure SCPTu-2 presents an illustration of a SCPTu test.

For additional information on seismic cone penetration testing refer to Robertson et.al. (1986).

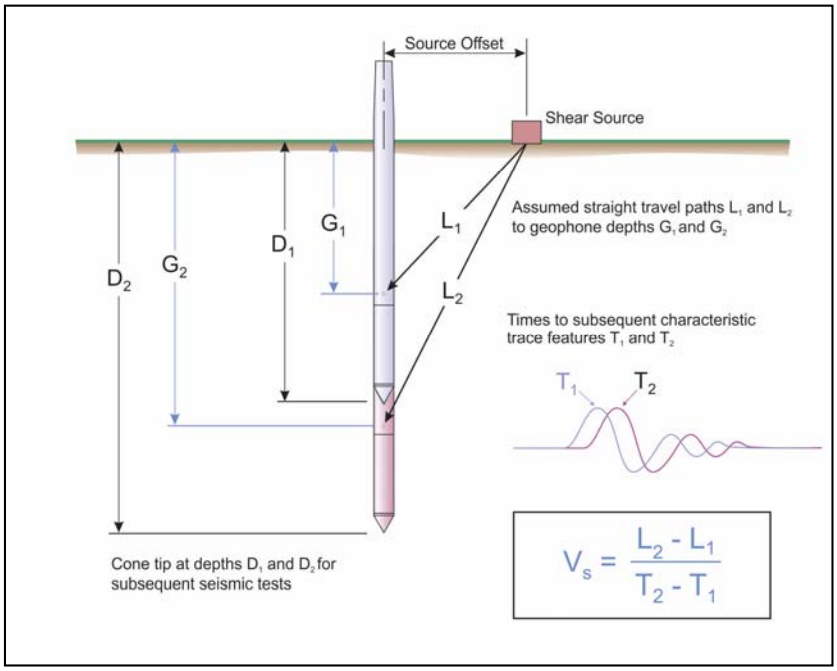


Figure SCPTu-2. Illustration of a seismic cone penetration test

Calculation of the interval velocities are performed by visually picking a common feature (e.g. the first characteristic peak, trough, or crossover) on all of the recorded wave sets and taking the difference in ray path divided by the time difference between subsequent features. Ray path is defined as the straight line distance from the seismic source to the geophone, accounting for beam offset, source depth and geophone offset from the cone tip.

The average shear wave velocity to a depth of 100 feet (30 meters) ($\bar{v}_s$) has been calculated and provided for all applicable soundings using the following equation presented in ASCE, 2010.

$$\bar{v}_s = \frac{\sum_{i=1}^{n} d_i}{\sum_{i=1}^{n} \frac{d_i}{v_{si}}}$$

where: $\bar{v}_s$ = average shear wave velocity ft/s (m/s)
d_i = the thickness of any layer between 0 and 100 ft (30 m)
v_{si} = the shear wave velocity in ft/s (m/s)
$\sum_{i=1}^{n} d_i$ = 100 ft (30 m)

Average shear wave velocity, $\bar{v}_s$ is also referenced to V_{s100} or V_{s30}.

The layer travel times refers to the travel times propagating in the vertical direction, not the measured travel times from an offset source.

Tabular results and SCPTu plots are presented in the relevant appendix.

References

American Society of Civil Engineers (ASCE), 2010, “Minimum Design Loads for Buildings and Other Structures”, Standard ASCE/SEI 7-10, American Society of Civil Engineers, ISBN 978-0-7844-1085-1, Reston, Virginia.

Robertson, P.K., Campanella, R.G., Gillespie D and Rice, A., 1986, “Seismic CPT to Measure In-Situ Shear Wave Velocity”, Journal of Geotechnical Engineering ASCE, Vol. 112, No. 8: 791-803.

The cone penetration test is halted at specific depths to carry out pore pressure dissipation (PPD) tests, shown in Figure PPD-1. For each dissipation test the cone and rods are decoupled from the rig and the data acquisition system measures and records the variation of the pore pressure (u) with time (t).

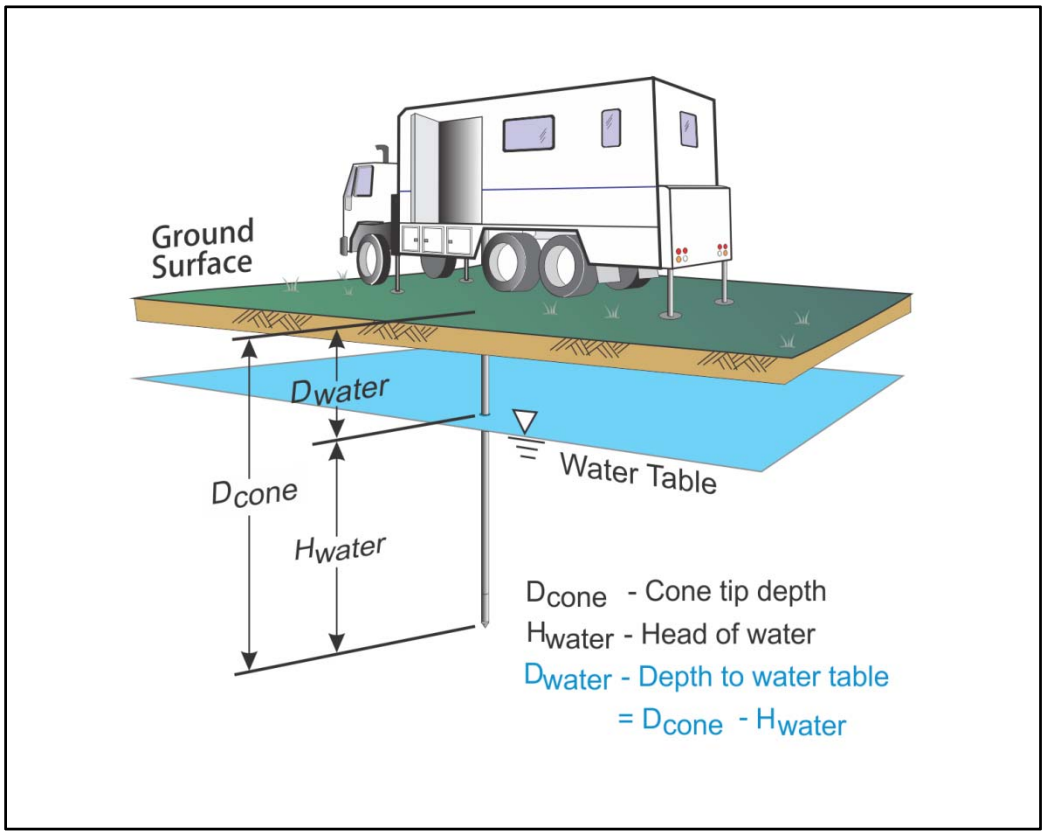


Figure PPD-1. Pore pressure dissipation test setup

Pore pressure dissipation data can be interpreted to provide estimates of ground water conditions, permeability, consolidation characteristics and soil behavior.

The typical shapes of dissipation curves shown in Figure PPD-2 are very useful in assessing soil type, drainage, in situ pore pressure and soil properties. A flat curve that stabilizes quickly is typical of a freely draining sand. Undrained soils such as clays will typically show positive excess pore pressure and have long dissipation times. Dilative soils will often exhibit dynamic pore pressures below equilibrium that then rise over time. Overconsolidated fine-grained soils will often exhibit an initial dilatory response where there is an initial rise in pore pressure before reaching a peak and dissipating.

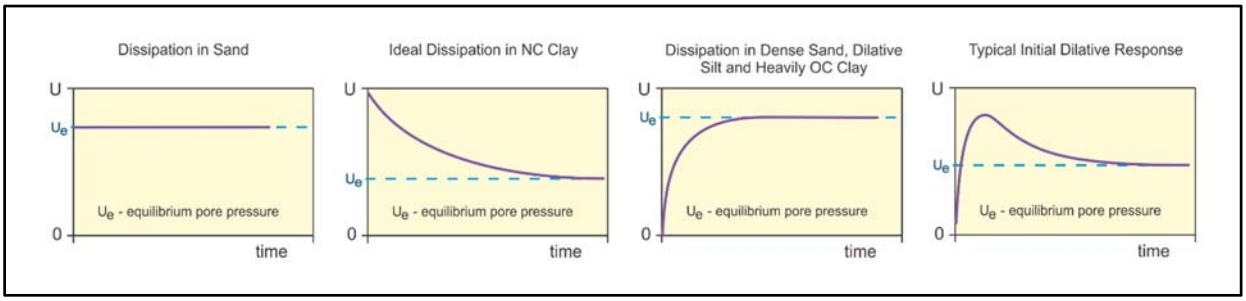


Figure PPD-2. Pore pressure dissipation curve examples

In order to interpret the equilibrium pore pressure (u_{eq}) and the apparent phreatic surface, the pore pressure should be monitored until such time as there is no variation in pore pressure with time as shown for each curve of Figure PPD-2.

In fine grained deposits the point at which 100% of the excess pore pressure has dissipated is known as t_{100}. In some cases this can take an excessive amount of time and it may be impractical to take the dissipation to t_{100}. A theoretical analysis of pore pressure dissipations by Teh and Houlsby (1991) showed that a single curve relating degree of dissipation versus theoretical time factor (T*) may be used to calculate the coefficient of consolidation (c_h) at various degrees of dissipation resulting in the expression for c_h shown below.

$$c_h = \frac{T^* \cdot a^2 \cdot \sqrt{I_r}}{t}$$

Where:

T* is the dimensionless time factor (Table Time Factor)
a is the radius of the cone
I_r is the rigidity index
t is the time at the degree of consolidation

Table Time Factor. T* versus degree of dissipation (Teh and Houlsby, 1991)

Degree of Dissipation (%)	20	30	40	50	60	70	80
T* (u_2)	0.038	0.078	0.142	0.245	0.439	0.804	1.60

The coefficient of consolidation is typically analyzed using the time (t_{50}) corresponding to a degree of dissipation of 50% (u_{50}). In order to determine t_{50}, dissipation tests must be taken to a pressure less than u_{50}. The u_{50} value is half way between the initial maximum pore pressure and the equilibrium pore pressure value, known as u_{100}. To estimate u_{50}, both the initial maximum pore pressure and u_{100} must be known or estimated. Other degrees of dissipations may be considered, particularly for extremely long dissipations.

At any specific degree of dissipation the equilibrium pore pressure (u at t_{100}) must be estimated at the depth of interest. The equilibrium value may be determined from one or more sources such as measuring the value directly (u_{100}), estimating it from other dissipations in the same profile, estimating the phreatic surface and assuming hydrostatic conditions, from nearby soundings, from client provided information, from site observations and/or past experience, or from other site instrumentation.

For calculations of c_h (Teh and Houlsby, 1991), t_{50} values are estimated from the corresponding pore pressure dissipation curve and a rigidity index (I_r) is assumed. For curves having an initial dilatory response in which an initial rise in pore pressure occurs before reaching a peak, the relative time from the peak value is used in determining t_{50}. In cases where the time to peak is excessive, t_{50} values are not calculated.

Due to possible inherent uncertainties in estimating I_r, the equilibrium pore pressure and the effect of an initial dilatory response on calculating t_{50}, other methods should be applied to confirm the results for c_h.

Additional published methods for estimating the coefficient of consolidation from a piezocone test are described in Burns and Mayne (1998, 2002), Jones and Van Zyl (1981), Robertson et al. (1992) and Sully et al. (1999).

A summary of the pore pressure dissipation tests and dissipation plots are presented in the relevant appendix.

References

Burns, S.E. and Mayne, P.W., 1998, "Monotonic and dilatory pore pressure decay during piezocone tests", Canadian Geotechnical Journal 26 (4): 1063-1073.

Burns, S.E. and Mayne, P.W., 2002, "Analytical cavity expansion-critical state model cone dissipation in fine-grained soils", Soils & Foundations, Vol. 42(2): 131-137.

Jones, G.A. and Van Zyl, D.J.A., 1981, "The piezometer probe: a useful investigation tool", Proceedings, 10th International Conference on Soil Mechanics and Foundation Engineering, Vol. 3, Stockholm: 489-495.

Robertson, P.K., Sully, J.P., Woeller, D.J., Lunne, T., Powell, J.J.M. and Gillespie, D.G., 1992, "Estimating coefficient of consolidation from piezocone tests", Canadian Geotechnical Journal, 29(4): 551-557.

Sully, J.P., Robertson, P.K., Campanella, R.G. and Woeller, D.J., 1999, "An approach to evaluation of field CPTU dissipation data in overconsolidated fine-grained soils", Canadian Geotechnical Journal, 36(2): 369-381.

Teh, C.I., and Houlsby, G.T., 1991, "An analytical study of the cone penetration test in clay", Geotechnique, 41(1): 17-34.

The appendices listed below are included in the report:

- Cone Penetration Test Summary and Standard Cone Penetration Test Plots
- BQ-Normalized Cone Penetration Test Plots
- Seismic Cone Penetration Test Plots
- Seismic Cone Penetration Test Tabular Results
- Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots

Cone Penetration Test Summary and Standard Cone Penetration Test Plots

CONETEC

Job No:	16-53058
Client:	Haley & Aldrich
Project:	AC Hotel, Portland, ME
Start Date:	23-Jun-2016
End Date:	24-Jun-2016

CONE PENETRATION TEST SUMMARY

Sounding ID	File Name	Date	Cone	Assumed Phreatic Surface[1] (ft)	Final Depth (ft)	Shear Wave Velocity Tests	Northing[2] (m)	Easting (m)	Refer to Notation Number
SCPT16-01	16-53058_SP01	23-Jun-2016	206:T1500F15U500	9.7	72.51	17	4834875	399416	
SCPT16-02	16-53058_SP02	23-Jun-2016	206:T1500F15U500	10.2	62.99	14	4834907	399367	
SCPT16-03	16-53058_SP03	24-Jun-2016	206:T1500F15U500		8.04		4834889	399351	4
SCPT16-03A	16-53058_SP03A	24-Jun-2016	206:T1500F15U500	9.7	37.40	10	4834891	399352	
SCPT16-04	16-53058_SP04	23-Jun-2016	206:T1500F15U500	10.5	11.65	2	4834892	399390	3
SCPT16-04A	16-53058_SP04A	23-Jun-2016	206:T1500F15U500	10.5	63.65	15	4834890	399388	
Totals	6 soundings				256.23	58			

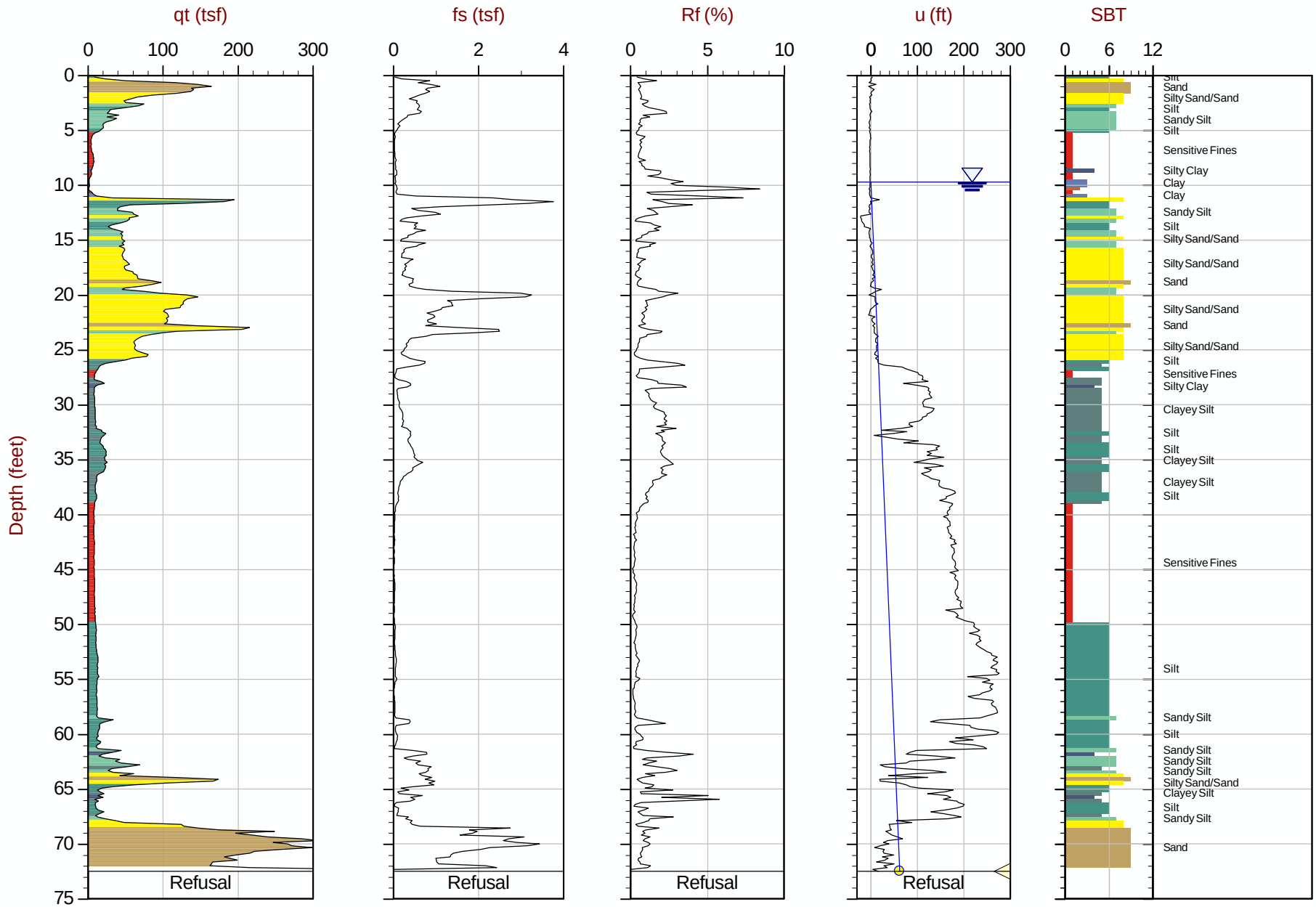
1. Assumed phreatic surface depths were determined from the pore pressure data unless otherwise noted. Hydrostatic data were used for calculated parameters.
2. Coordinates are WGS 84 / UTM Zone 19 and were collected using a MR-350 GlobalSat GPS Receiver.
3. Assumed phreatic surface estimated from dynamic pore pressure response.
4. No phreatic surface detected

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:23:16 12:59
Site: AC Hotel, Portland, ME

Sounding: CPT16-01
Cone: 206:T1500F15U500



Max Depth: 22.100 m / 72.51 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP01.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 19 N: 4834875m E: 399416m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

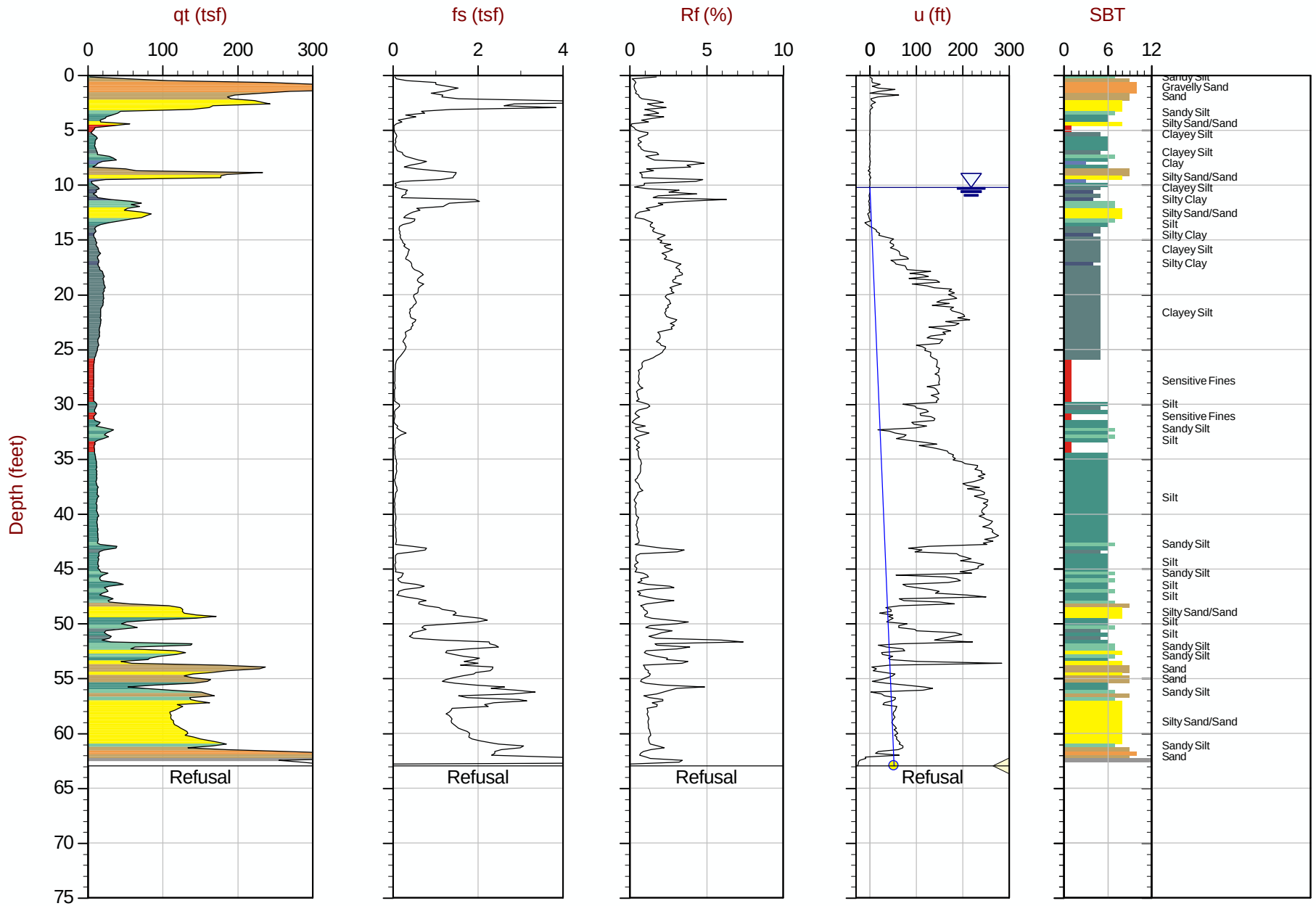
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:23:16 15:49
Site: AC Hotel, Portland, ME

Sounding: SCPT16-02
Cone: 206:T1500F15U500



Max Depth: 19.200 m / 62.99 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP02.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 19 N: 4834907m E: 399367m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

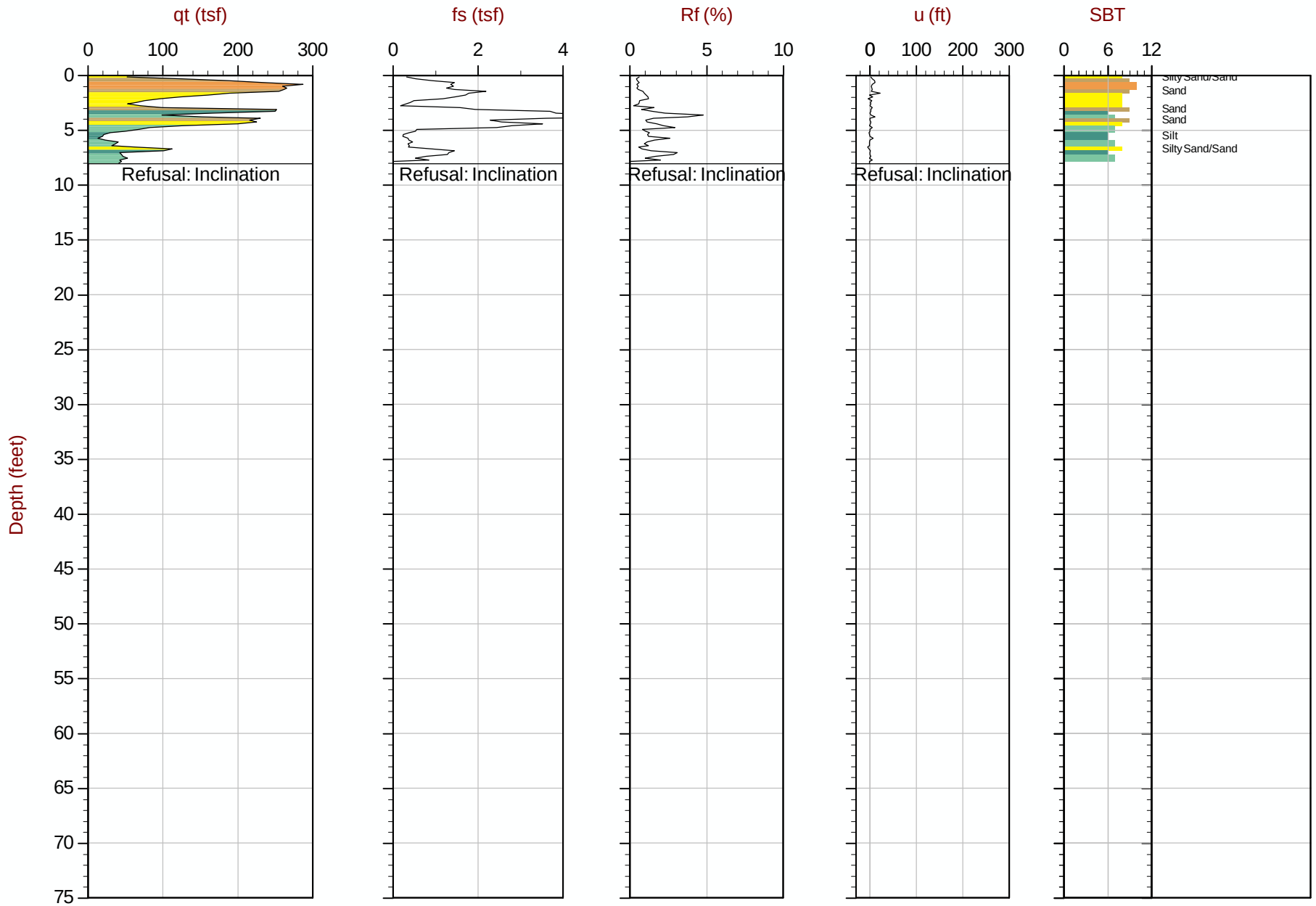
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:24:16 07:12
Site: AC Hotel, Portland, ME

Sounding: SCPT16-03
Cone: 206:T1500F15U500



Max Depth: 2.450 m / 8.04 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP03.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 19 N: 4834889m E: 399351m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

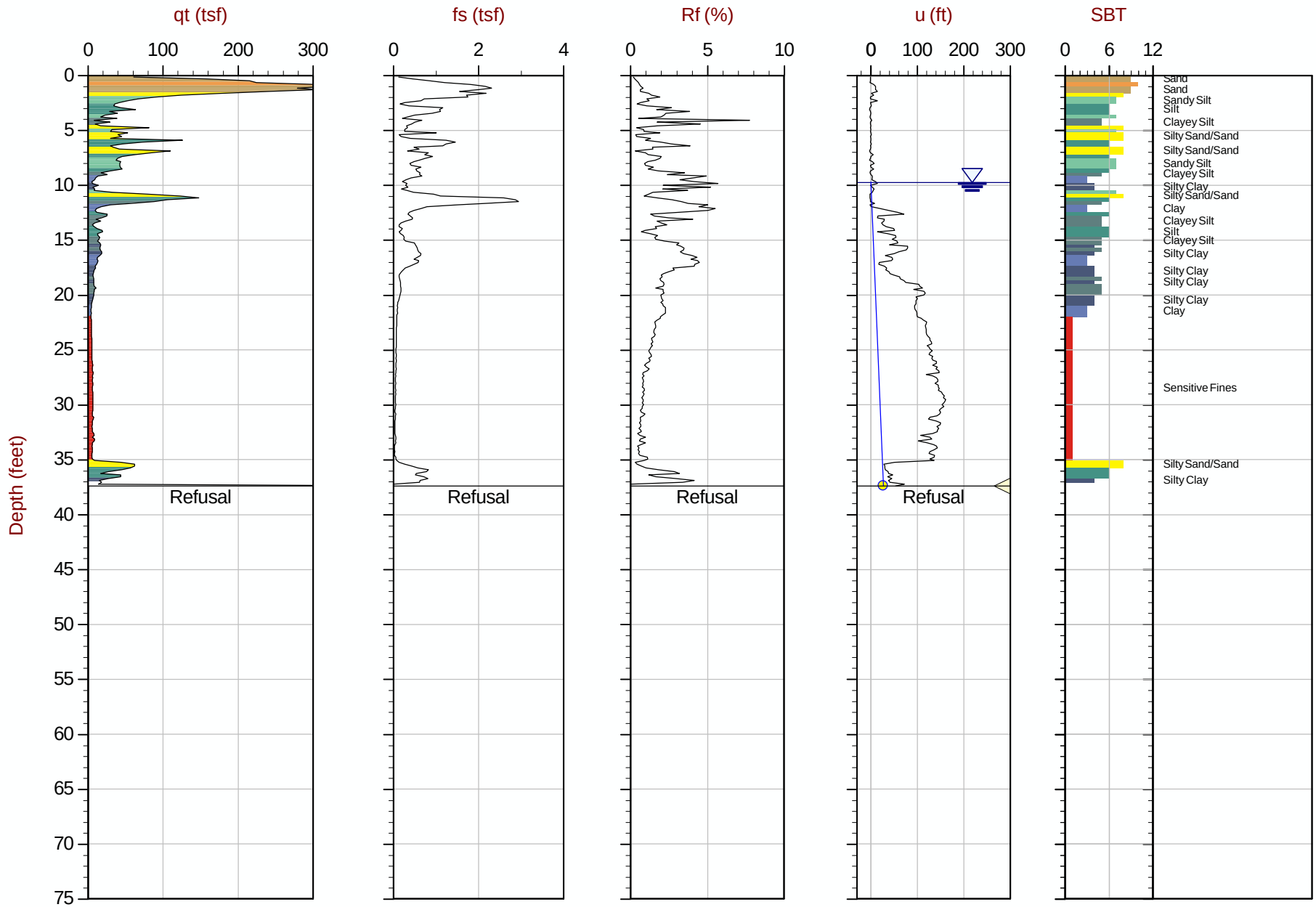
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:24:16 07:36
Site: AC Hotel, Portland, ME

Sounding: SCPT16-03A
Cone: 206:T1500F15U500



Max Depth: 11.400 m / 37.40 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP03A.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 19 N: 4834891m E: 399352m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

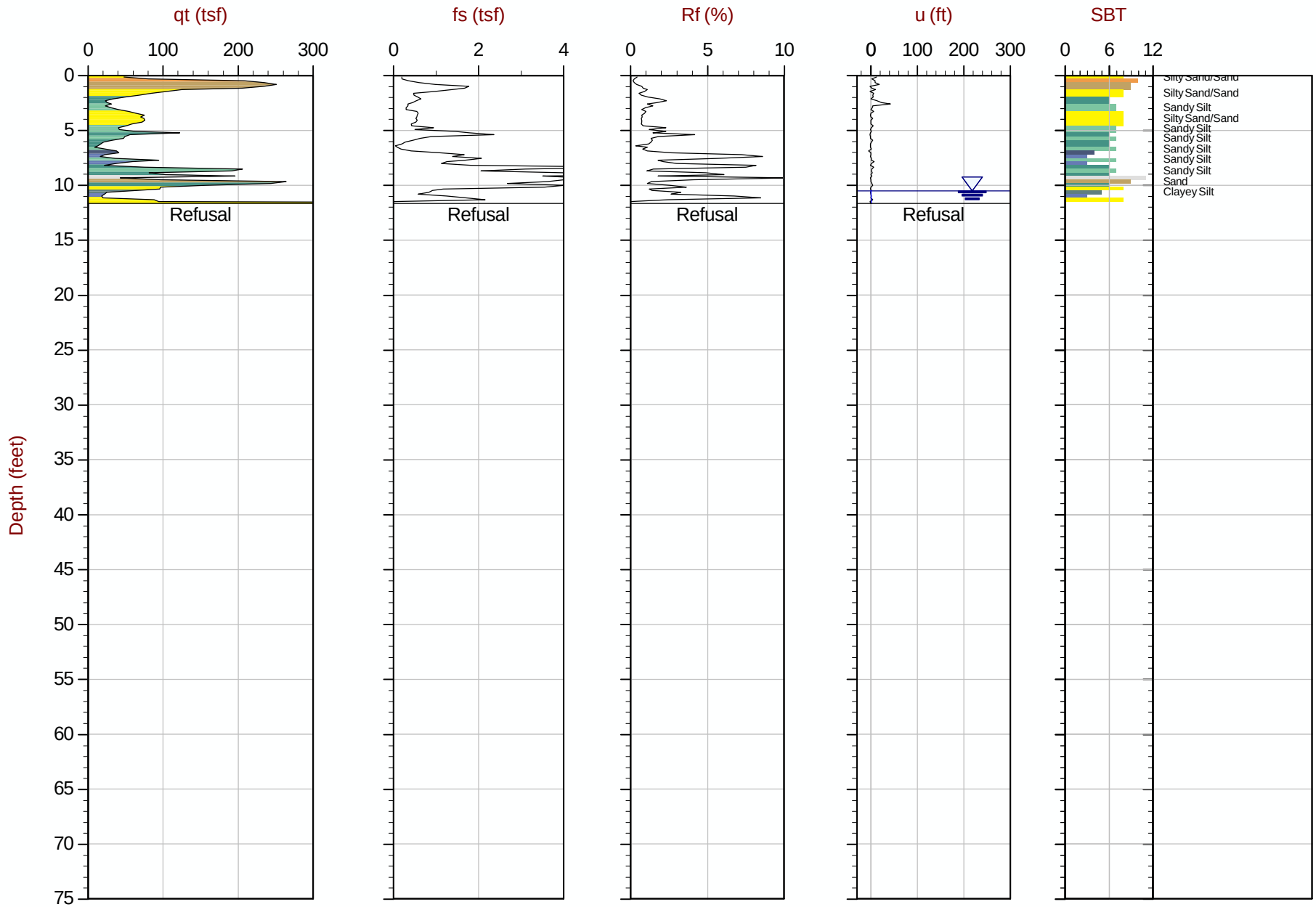
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:23:16 14:19
Site: AC Hotel, Portland, ME

Sounding: SCPT16-04
Cone: 206:T1500F15U500



Max Depth: 3.550 m / 11.65 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP04.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 19 N: 4834892m E: 399390m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

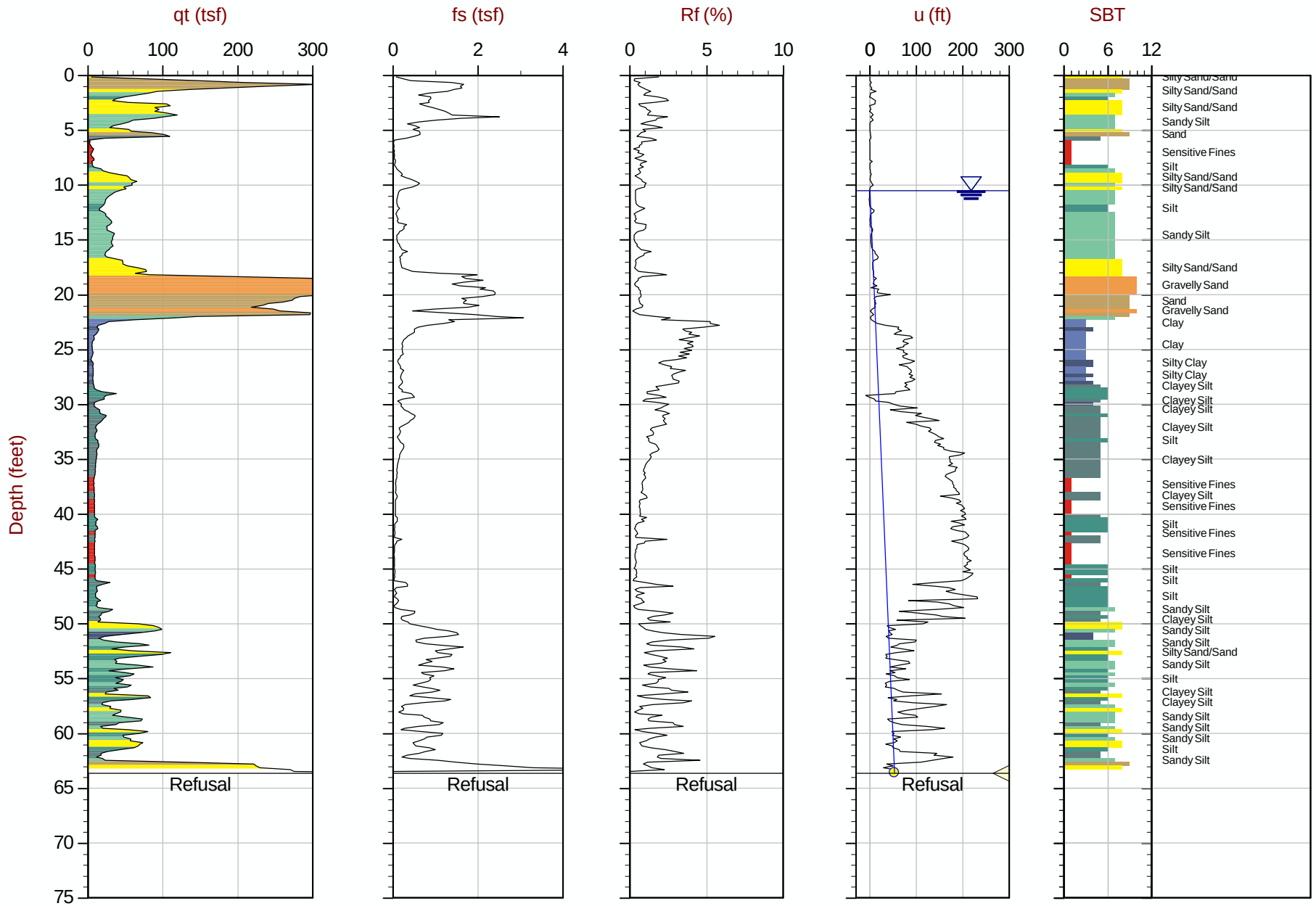
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:23:16 14:41
Site: AC Hotel, Portland, ME

Sounding: SCPT16-04A
Cone: 206:T1500F15U500



Max Depth: 19.400 m / 63.65 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP04A.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 19 N: 4834890m E: 399388m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

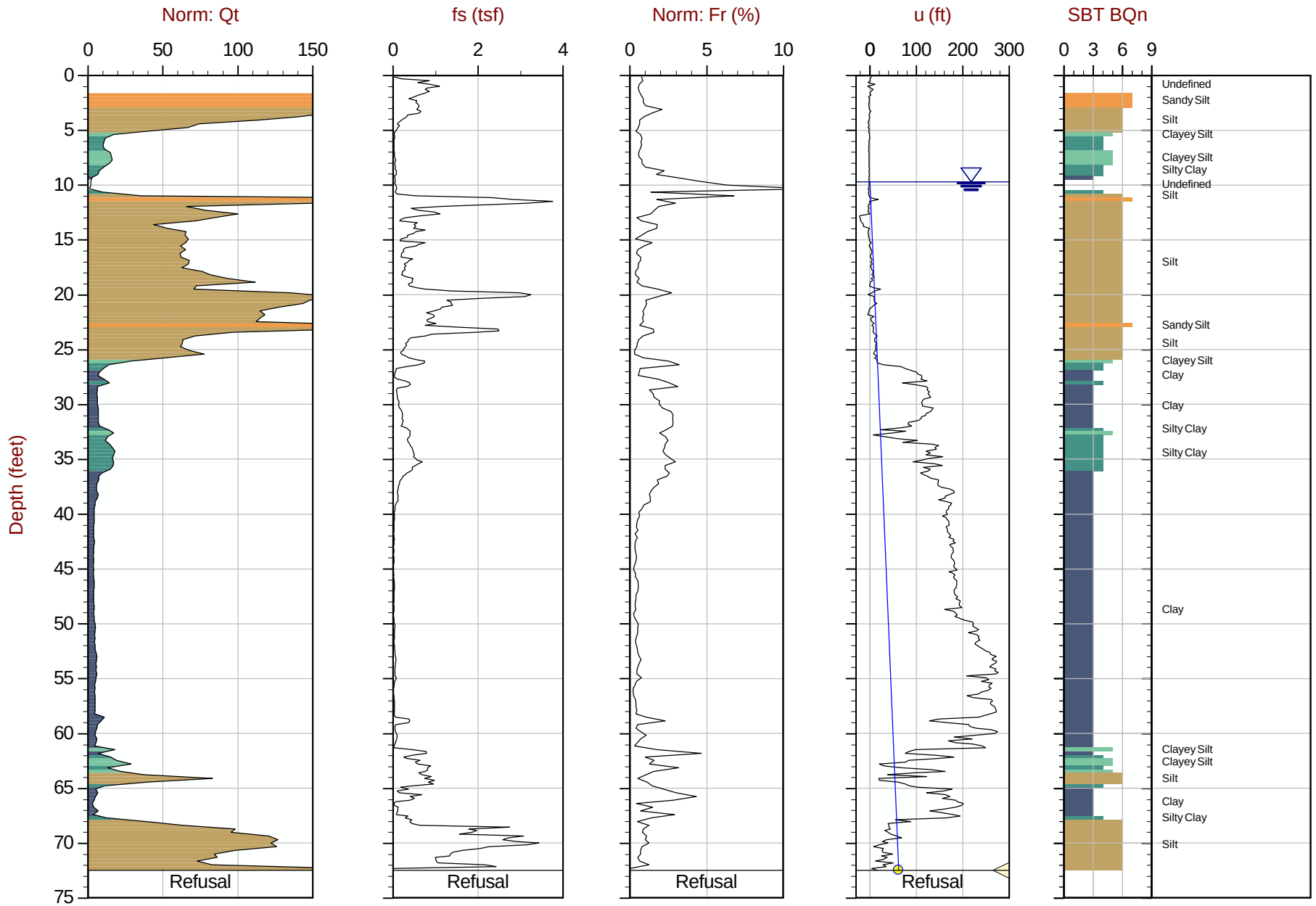
BQ-Normalized Cone Penetration Test Plots

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:23:16 12:59
Site: AC Hotel, Portland, ME

Sounding: CPT16-01
Cone: 206:T1500F15U500



Max Depth: 22.100 m / 72.51 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP01.COR

SBT: Robertson, 1990
Coords: UTM Zone 19 N: 4834875m E: 399416m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

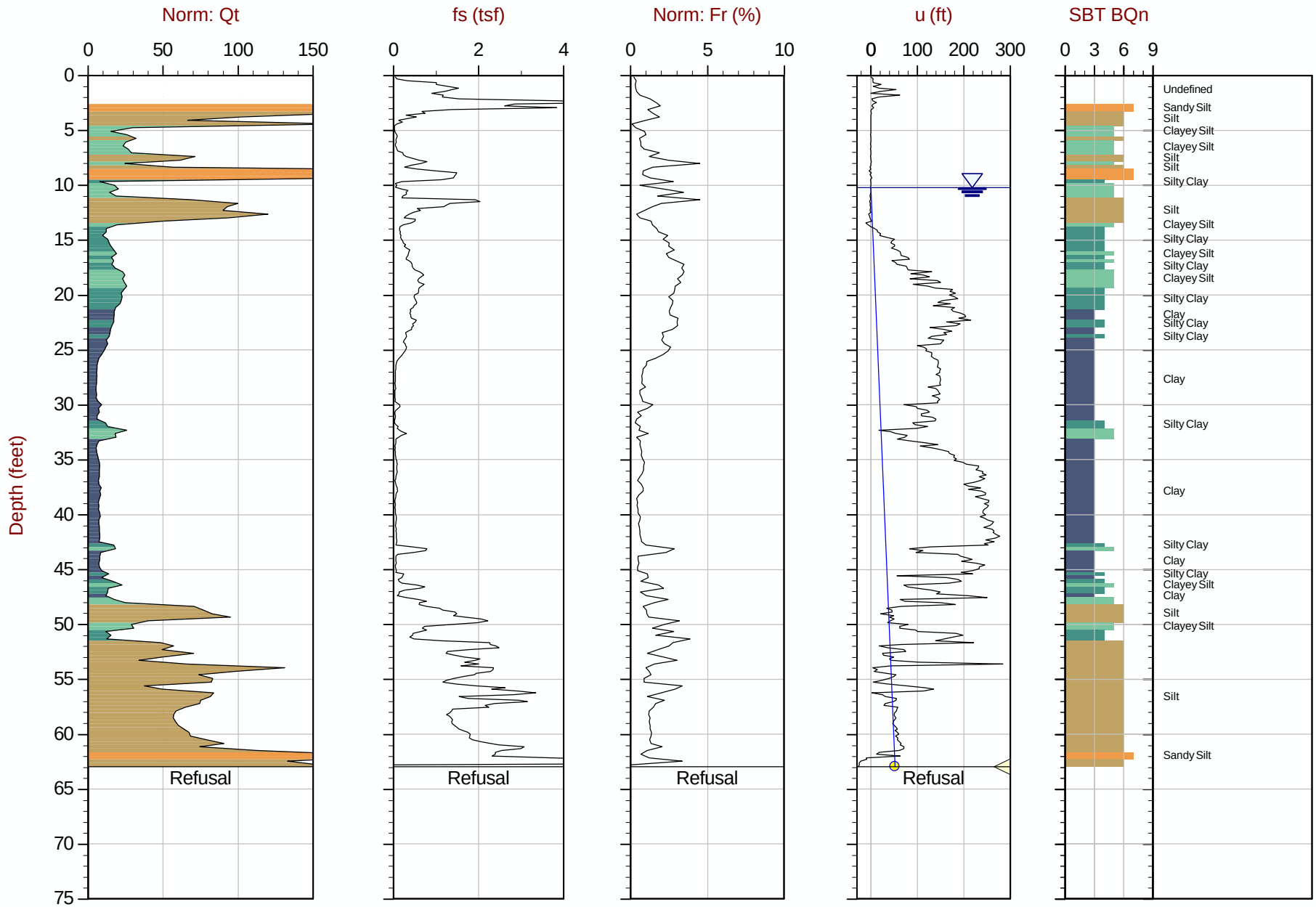
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:23:16 15:49
Site: AC Hotel, Portland, ME

Sounding: SCPT16-02
Cone: 206:T1500F15U500



Max Depth: 19.200 m / 62.99 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP02.COR

SBT: Robertson, 1990
Coords: UTM Zone 19 N: 4834907m E: 399367m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

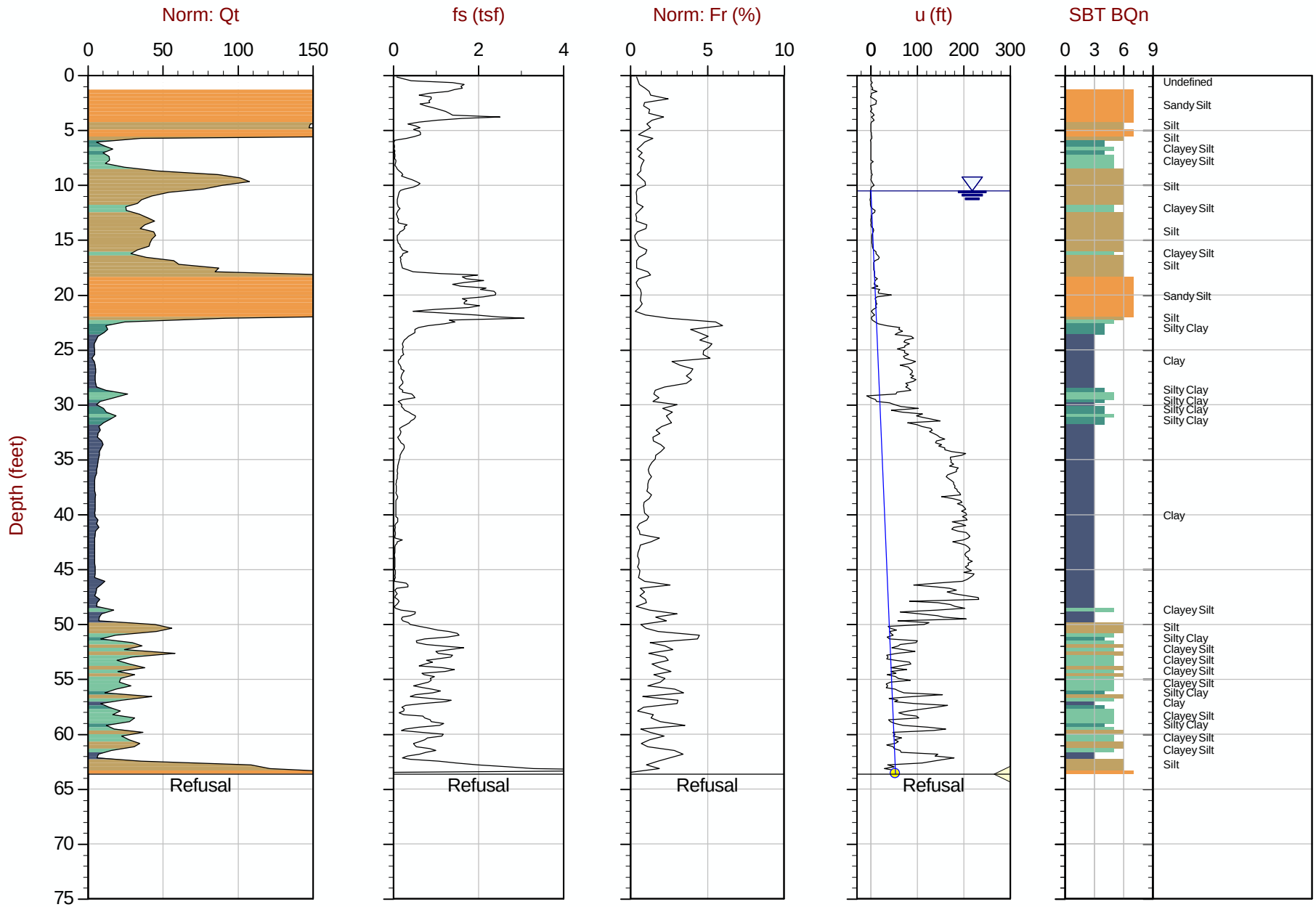
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:23:16 14:41
Site: AC Hotel, Portland, ME

Sounding: SCPT16-04A
Cone: 206:T1500F15U500



Max Depth: 19.400 m / 63.65 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP04A.COR

SBT: Robertson, 1990
Coords: UTM Zone 19 N: 4834890m E: 399388m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

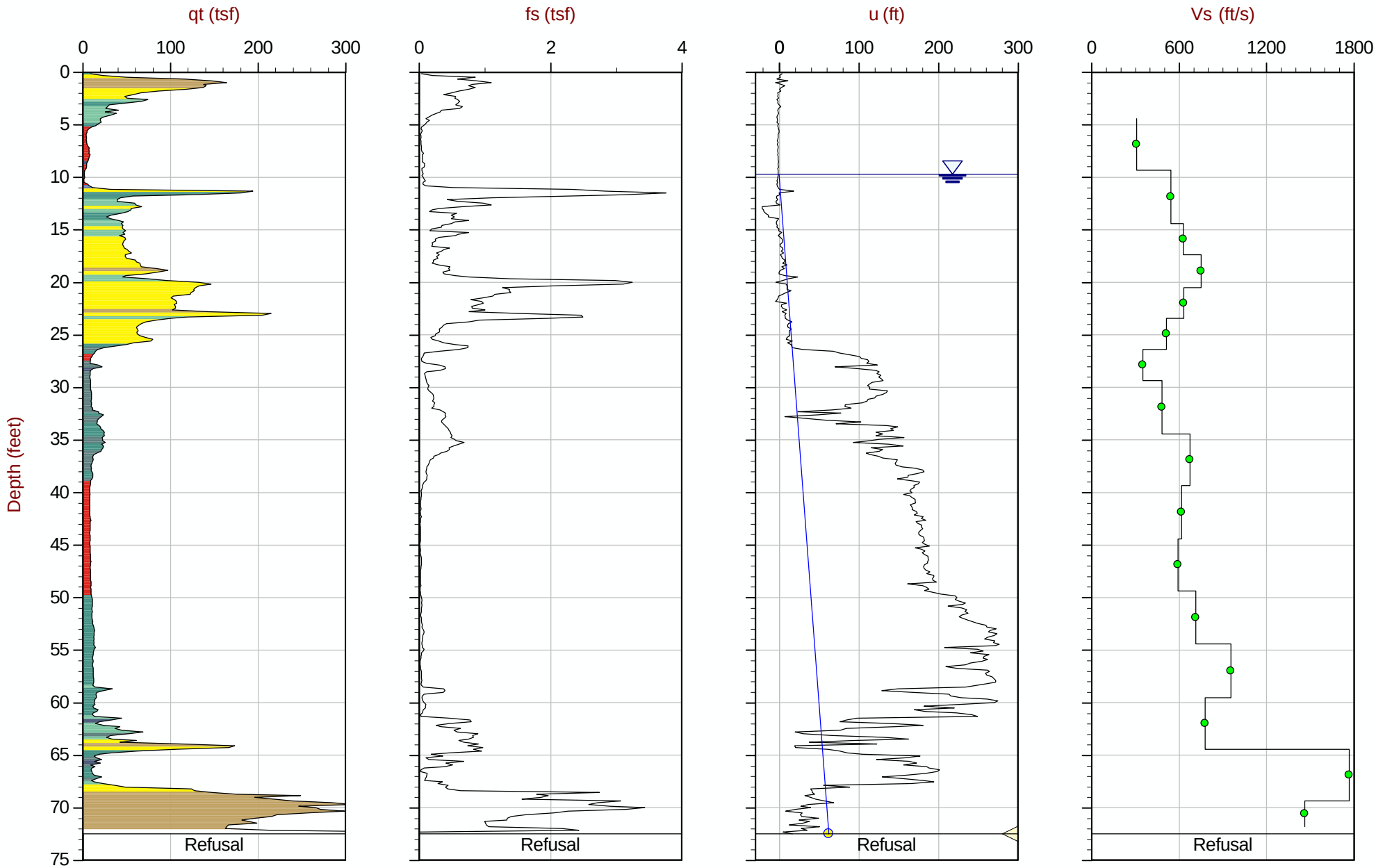
Seismic Cone Penetration Test Plots

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:23:16 12:59
Site: AC Hotel, Portland, ME

Sounding: CPT16-01
Cone: 206:T1500F15U500



Max Depth: 22.100 m / 72.51 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP01.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 19 N: 4834875m E: 399416m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

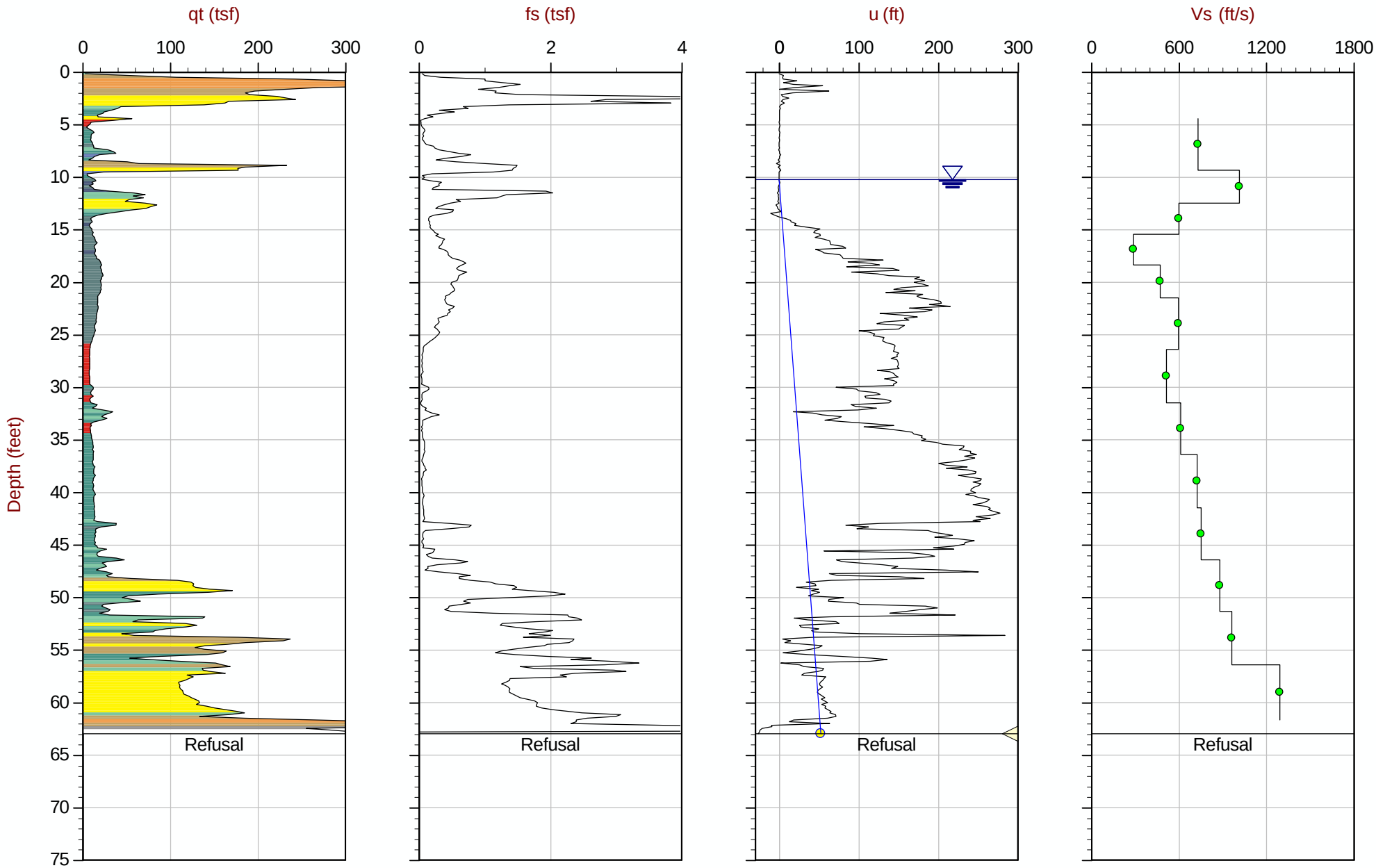
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:23:16 15:49
Site: AC Hotel, Portland, ME

Sounding: SCPT16-02
Cone: 206:T1500F15U500



Max Depth: 19.200 m / 62.99 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP02.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 19 N: 4834907m E: 399367m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

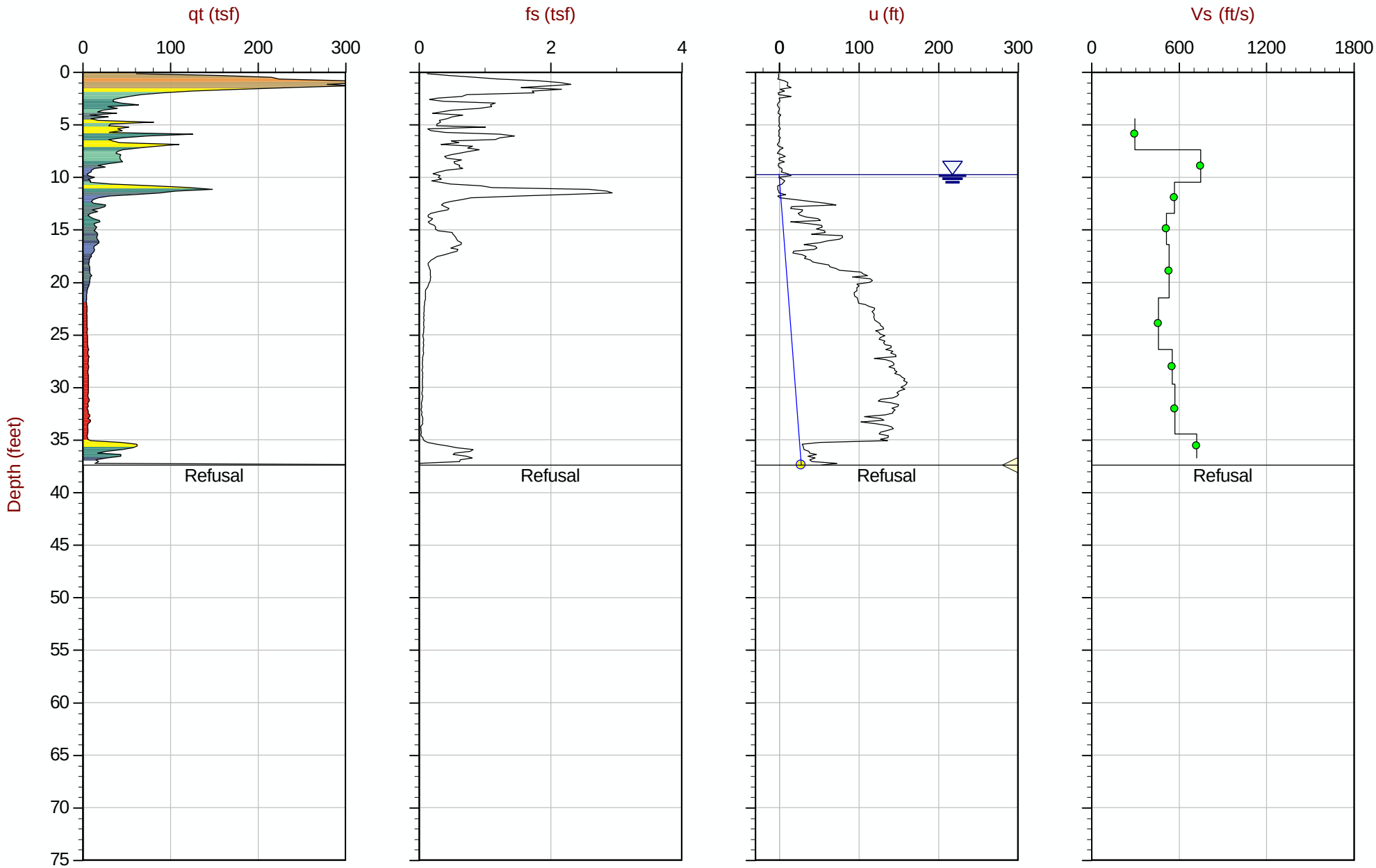
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:24:16 07:36
Site: AC Hotel, Portland, ME

Sounding: SCPT16-03A
Cone: 206:T1500F15U500



Max Depth: 11.400 m / 37.40 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP03A.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 19 N: 4834891m E: 399352m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

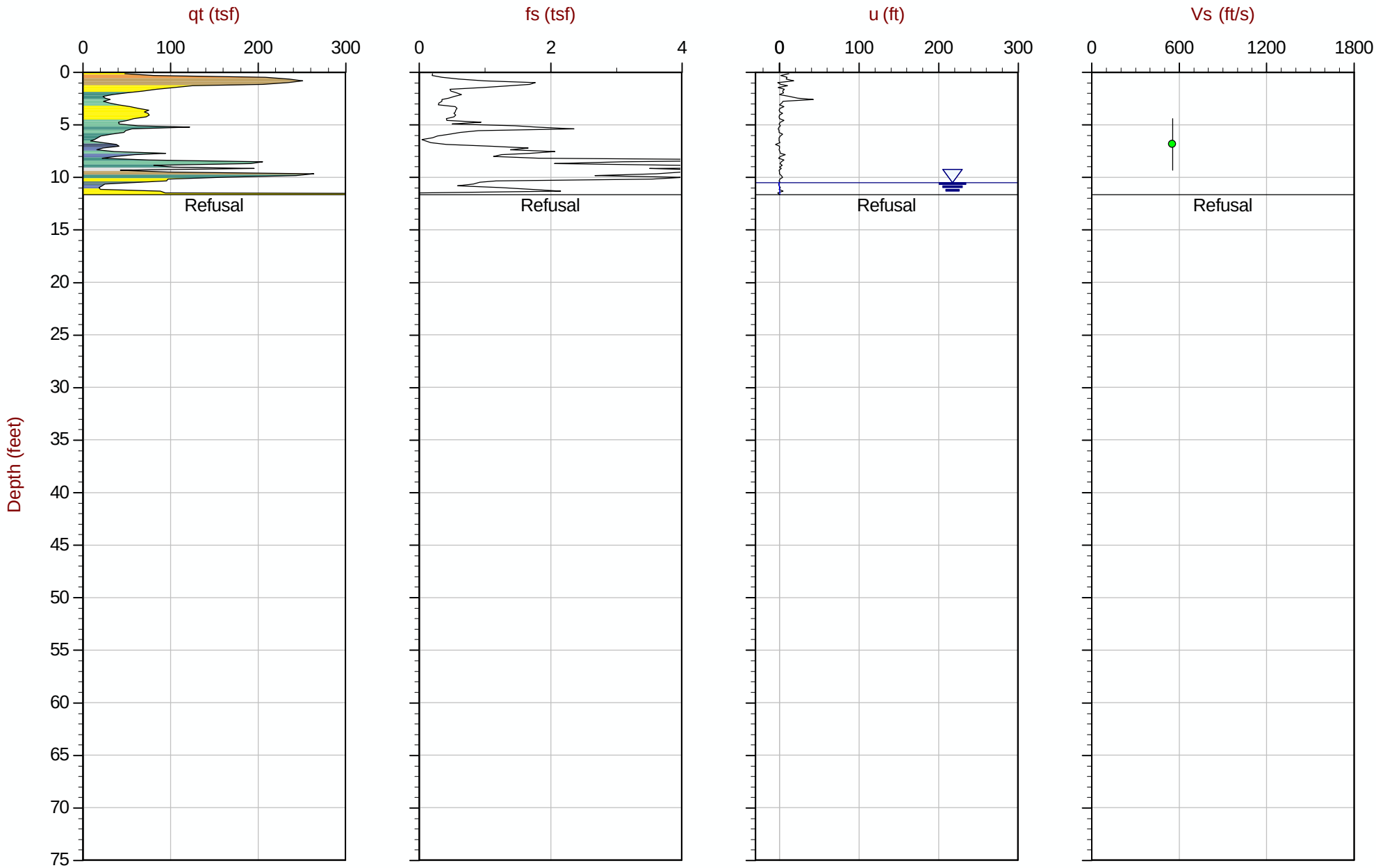
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:23:16 14:19
Site: AC Hotel, Portland, ME

Sounding: SCPT16-04
Cone: 206:T1500F15U500



Max Depth: 3.550 m / 11.65 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP04.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 19 N: 4834892m E: 399390m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

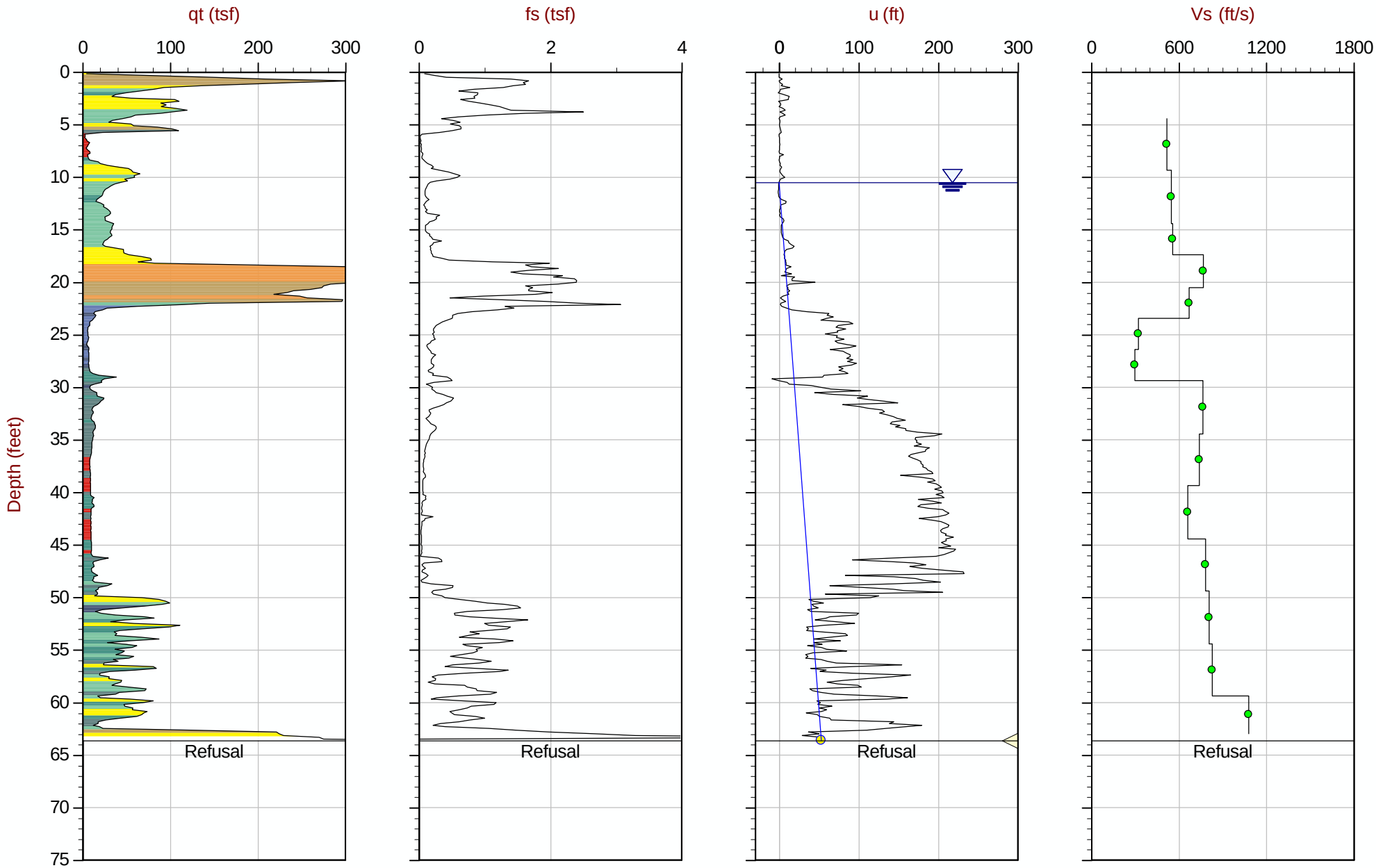
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 06:23:16 14:41
Site: AC Hotel, Portland, ME

Sounding: SCPT16-04A
Cone: 206:T1500F15U500



Max Depth: 19.400 m / 63.65 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.100 m

File: 16-53058_SP04A.COR

SBT: Robertson and Campanella, 1986
Coords: UTM Zone 19 N: 4834890m E: 399388m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Seismic Cone Penetration Test Tabular Results (Vs)

CONETEC

Job No:	16-53058
Client:	Haley & Aldrich
Project:	AC Hotel, Portland, ME
Sounding ID:	SCPT16-01
Date:	23-Jun-2016

Seismic Source:	Beam
Source Offset (ft):	1.97
Source Depth (ft):	0.00
Geophone Offset (ft):	0.66

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
5.08	4.43	4.85			
10.01	9.35	9.56	4.71	15.12	311
15.09	14.44	14.57	5.01	9.22	544
18.04	17.39	17.50	2.93	4.66	629
21.16	20.50	20.60	3.10	4.13	751
24.11	23.46	23.54	2.94	4.64	633
27.07	26.41	26.48	2.94	5.73	513
30.02	29.36	29.43	2.95	8.37	352
35.10	34.45	34.50	5.08	10.46	485
40.03	39.37	39.42	4.91	7.27	676
45.11	44.46	44.50	5.08	8.22	618
50.03	49.38	49.42	4.92	8.29	593
55.12	54.46	54.50	5.08	7.12	714
60.20	59.55	59.58	5.08	5.31	957
65.12	64.47	64.50	4.92	6.32	778
70.05	69.39	69.42	4.92	2.78	1769
72.51	71.85	71.88	2.46	1.68	1464

Job No:	16-53058
Client:	Haley & Aldrich
Project:	AC Hotel, Portland, ME
Sounding ID:	SCPT16-02
Date:	23-Jun-2016

Seismic Source:	Beam
Source Offset (ft):	1.97
Source Depth (ft):	0.00
Geophone Offset (ft):	0.66

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
5.08	4.43	4.85			
10.01	9.35	9.56	4.71	6.45	730
13.12	12.47	12.62	3.07	3.02	1014
16.08	15.42	15.55	2.92	4.87	600
19.03	18.37	18.48	2.93	10.15	289
22.15	21.49	21.58	3.10	6.59	471
27.07	26.41	26.48	4.90	8.24	595
32.15	31.50	31.56	5.07	9.88	513
37.07	36.42	36.47	4.91	8.03	612
42.16	41.50	41.55	5.08	6.99	726
47.08	46.42	46.47	4.92	6.54	751
52.00	51.35	51.38	4.92	5.60	879
57.09	56.43	56.46	5.08	5.28	962
62.34	61.68	61.71	5.25	4.06	1292

Job No:	16-53058
Client:	Haley & Aldrich
Project:	AC Hotel, Portland, ME
Sounding ID:	SCPT16-03A
Date:	24-Jun-2016

Seismic Source:	Beam
Source Offset (ft):	1.97
Source Depth (ft):	0.00
Geophone Offset (ft):	0.66

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
5.08	4.43	4.85			
8.04	7.38	7.64	2.79	9.38	298
11.15	10.50	10.68	3.04	4.06	749
14.11	13.45	13.59	2.91	5.12	568
17.06	16.40	16.52	2.93	5.71	513
22.15	21.49	21.58	5.06	9.52	531
27.07	26.41	26.48	4.90	10.68	459
30.35	29.69	29.76	3.27	5.92	553
35.10	34.45	34.50	4.75	8.30	572
37.40	36.75	36.80	2.29	3.17	723

Job No:	16-53058
Client:	Haley & Aldrich
Project:	AC Hotel, Portland, ME
Sounding ID:	SCPT16-04
Date:	23-Jun-2016

Seismic Source:	Beam
Source Offset (ft):	1.97
Source Depth (ft):	0.00
Geophone Offset (ft):	0.66

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
5.08	4.43	4.85			
10.01	9.35	9.56	4.71	8.44	558

Job No:	16-53058
Client:	Haley & Aldrich
Project:	AC Hotel, Portland, ME
Sounding ID:	SCPT16-04A
Date:	23-Jun-2016

Seismic Source:	Beam
Source Offset (ft):	1.97
Source Depth (ft):	0.00
Geophone Offset (ft):	0.66

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
5.08	4.43	4.85			
10.01	9.35	9.56	4.71	9.11	517
15.09	14.44	14.57	5.01	9.17	547
18.04	17.39	17.50	2.93	5.25	558
21.16	20.50	20.60	3.10	4.04	768
24.11	23.46	23.54	2.94	4.38	671
27.07	26.41	26.48	2.94	9.17	321
30.02	29.36	29.43	2.95	9.94	296
35.10	34.45	34.50	5.08	6.63	765
40.03	39.37	39.42	4.91	6.63	741
45.11	44.46	44.50	5.08	7.67	662
50.03	49.38	49.42	4.92	6.29	782
55.12	54.46	54.50	5.08	6.29	808
60.04	59.38	59.42	4.92	5.94	828
63.65	62.99	63.02	3.61	3.35	1078

Pore Pressure Dissipation Summary and

Pore Pressure Dissipation Plots

CONETEC

Job No:	16-53058
Client:	Haley & Aldrich
Project:	AC Hotel, Portland, ME
Start Date:	23-Jun-2016
End Date:	24-Jun-2016

CPTu PORE PRESSURE DISSIPATION SUMMARY

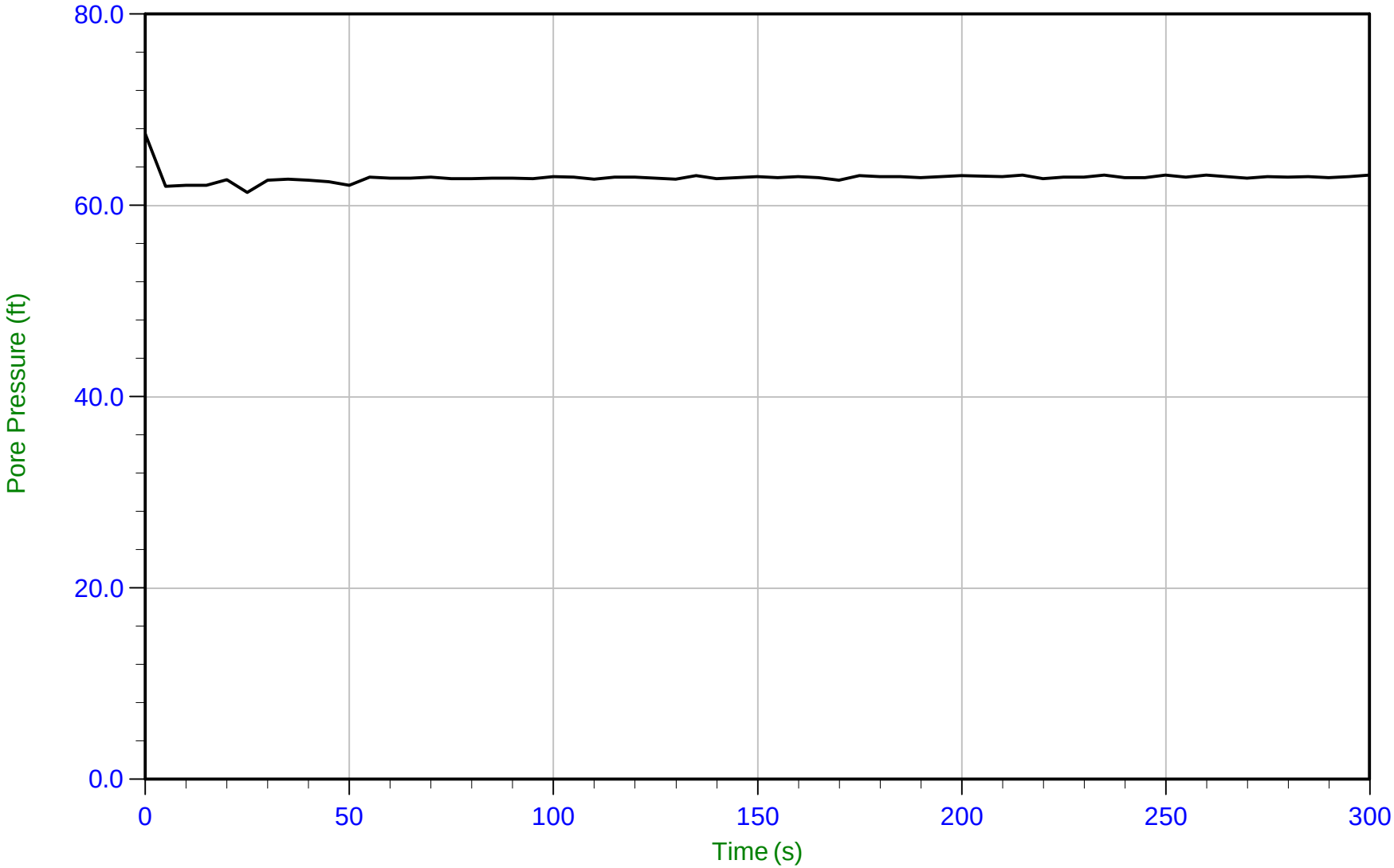
Sounding ID	File Name	Cone Area (cm^2)	Duration (s)	Test Depth (ft)	Estimated Equilibrium Pore Pressure U_{eq} (ft)	Calculated Phreatic Surface (ft)	Estimated Phreatic Surface (ft)
CPT16-01	16-53058_SP01	15	300	72.51	62.79	9.71	
SCPT16-02	16-53058_SP02	15	300	62.99	52.77	10.22	
SCPT16-03A	16-53058_SP03A	15	700	37.40	27.68	9.72	
SCPT16-04A	16-53058_SP04A	15	300	63.65	53.16	10.49	
Totals	4 dissipations		26.7 min				

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 23-Jun-2016 12:59:48
Site: AC Hotel, Portland, ME

Sounding: CPT16-01
Cone: AD206
Cone Area: 15 sq cm



Trace Summary:

Filename:
Depth: 22.100 m / 72.506 ft
Duration: 300.0 s

U Min: 61.3 ft
U Max: 67.5 ft

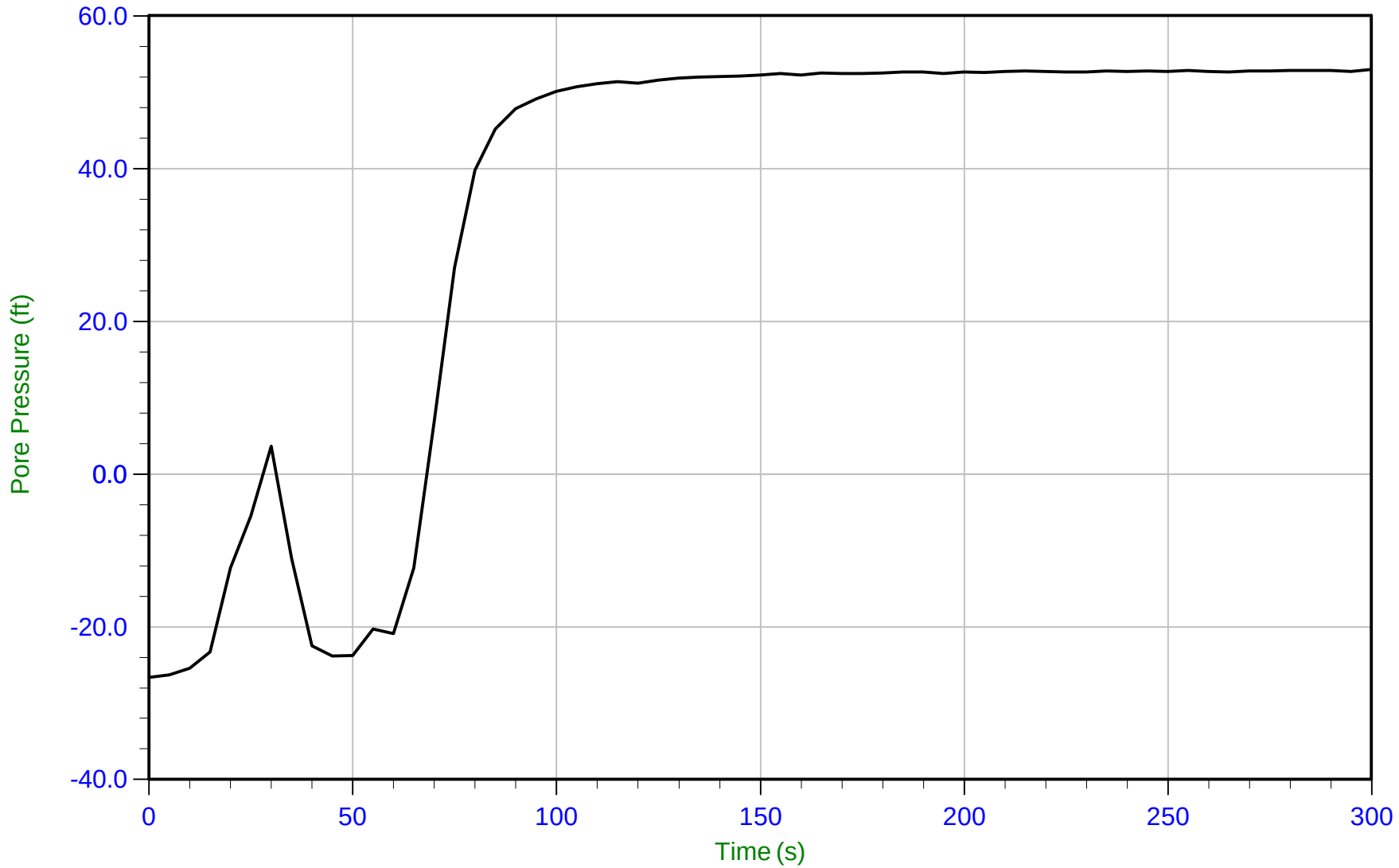
WT: 2.961 m / 9.714 ft
Ueq: 62.8 ft

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 23-Jun-2016 15:49:57
Site: AC Hotel, Portland, ME

Sounding: SCPT16-02
Cone: AD206
Cone Area: 15 sq cm



Trace Summary:

Filename: 16-53058_SP02.PPD
Depth: 19.200 m / 62.991 ft
Duration: 300.0 s

U Min: -26.6 ft
U Max: 52.9 ft

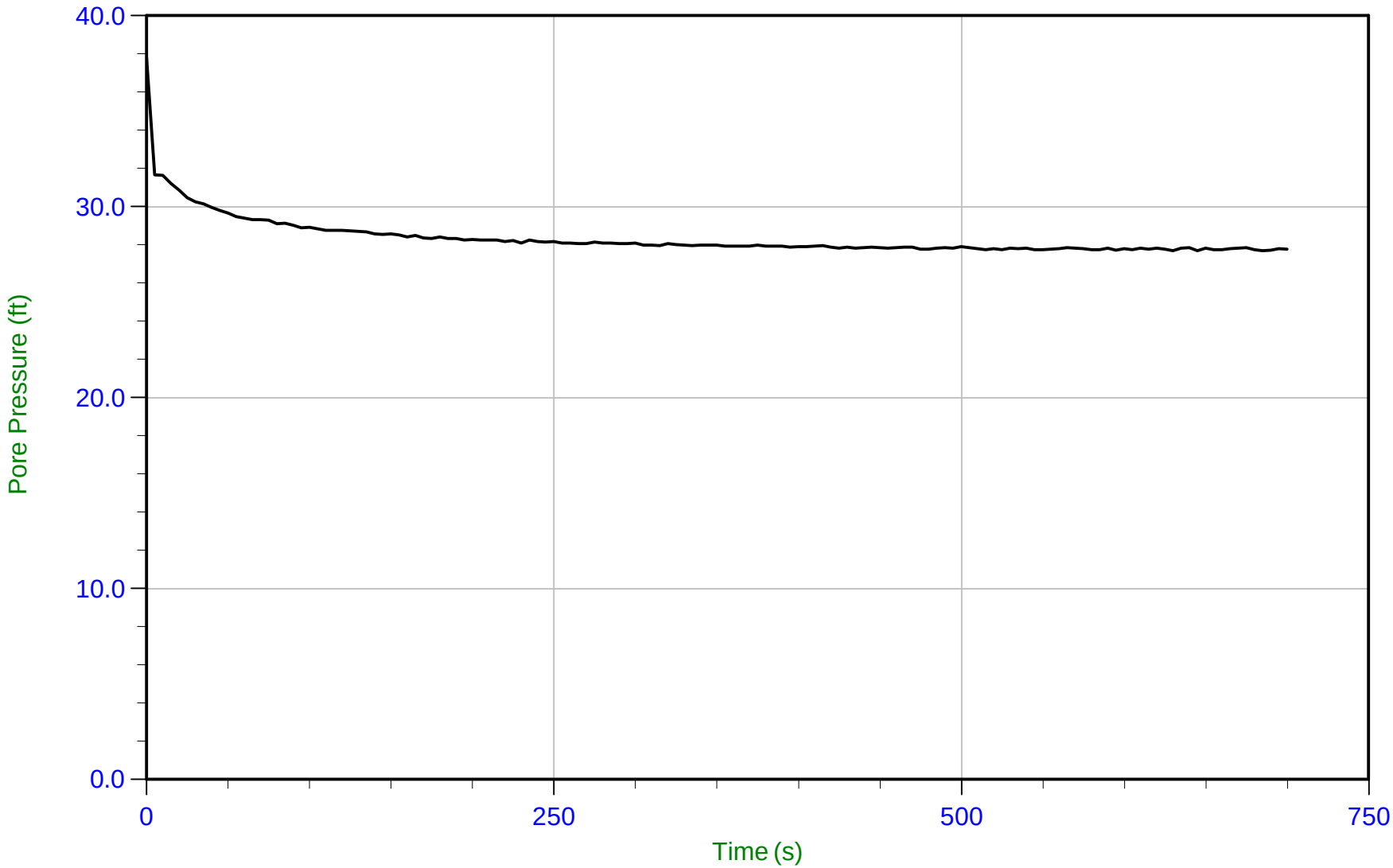
WT: 3.114 m / 10.216 ft
Ueq: 52.8 ft

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 24-Jun-2016 07:36:07
Site: AC Hotel, Portland, ME

Sounding: SCPT16-03A
Cone: AD206
Cone Area: 15 sq cm



Trace Summary:

Filename: 16-53058_SP03A.PPD
Depth: 11.400 m / 37.401 ft
Duration: 700.0 s

U Min: 27.7 ft
U Max: 37.8 ft

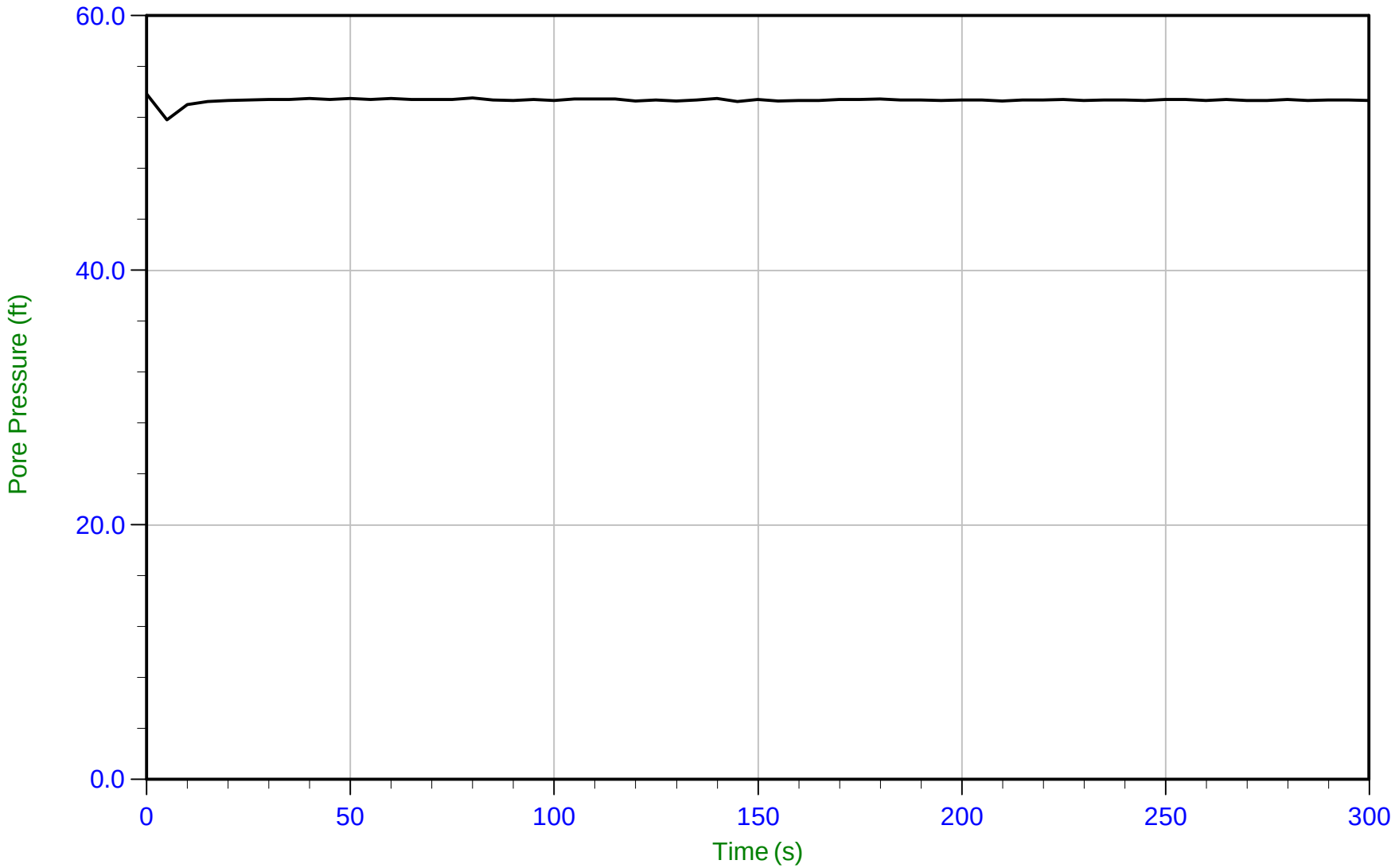
WT: 2.963 m / 9.721 ft
Ueq: 27.7 ft

CONETEC

Haley & Aldrich

Job No: 16-53058
Date: 23-Jun-2016 14:41:52
Site: AC Hotel, Portland, ME

Sounding: SCPT16-04A
Cone: AD206
Cone Area: 15 sq cm



Trace Summary:

Filename: 16-53058_SP04A.PPD
Depth: 19.400 m / 63.648 ft
Duration: 300.0 s

U Min: 51.8 ft
U Max: 53.9 ft

WT: 3.198 m / 10.492 ft
Ueq: 53.2 ft

APPENDIX C

Observation Well Installation and Groundwater Monitoring Reports

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No.

Boring No. HA05-11(OW)

PROJECT	AC Hotel	**H&A FILE NO.**	30322-000
LOCATION	Fore, Hancock and Thames Streets, Portland, Maine	**PROJECT MGR.**	W. Chadbourne
CLIENT	Portland Norwhich Group, LLC	**FIELD REP.**	B. Steinert
CONTRACTOR	Maine Test Borings, Inc.	**DATE INSTALLED**	10/13/2005
DRILLER	R. Idano	**WATER LEVEL**	NA*

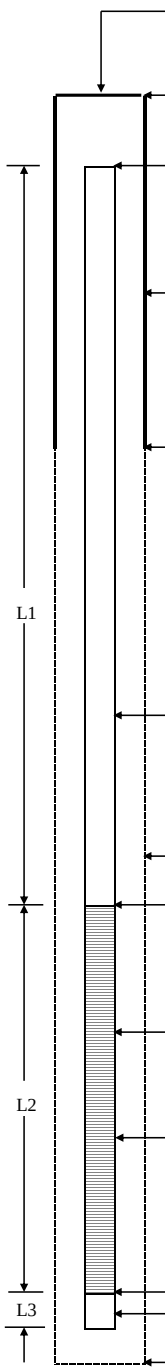
Ground El. 16.3 ± ft
El. Datum Portland City

Location See Plan

☐ **Guard Pipe**
☑ **Roadway Box**

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
	Concrete
1.0	
-FILL-	
10.0	
	Filter sand
Gray SILT (ML)	
Gray, lean CLAY (CL)	
-MARINE DEPOSIT-	
34.3	
-BEDROCK-	
40.4	**40.4**
(Bottom of Exploration)	

(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Roadway Box w/ bolts
Height of top of roadway box above ground surface	0.0 ft
Depth of top of riser pipe below ground surface	0.2 ft
Type of protective casing:	Metal
Length	0.7 ft
Inside Diameter	6.0 in
Depth of bottom of guard pipe/roadway box	0.5 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	-	-

Type of riser pipe:	Schedule 40 PVC
Inside diameter of riser pipe	1.0 in
Type of backfill around riser	Filter sand
Diameter of borehole	3.0 in
Depth to top of well screen	5.0 ft
Type of screen	Slotted Schedule 40 PVC
Screen gauge or size of openings	0.010 in
Diameter of screen	1.0 in
Type of backfill around screen	Filter sand
Depth of bottom of well screen	15.0 ft
Bottom of Silt trap	15.1 ft
Depth of bottom of borehole	40.4 ft

4.8 ft	+	10 ft	+	0.1 ft	=	14.9 ft
Riser Pay Length (L1)		Length of screen (L2)		Length of silt trap (L3)		Pay length

COMMENTS: *Well filled with water at completion.

Form 2007

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA05-11(OW)
Page 1 of 1

PROJECT	AC Hotel	**H&A FILE NO.**	30322-300
LOCATION	Fore, Hancock and Thames Streets - Portland, Maine	**PROJECT MGR.**	W. Chadbourne
CLIENT	Portland Norwich Group, LLC.	**FIELD REP.**	B. Steinert/K. Stone
CONTRACTOR	Maine Test Borings, Inc.	**DATE**	10/13/2005

ELEVATION OF REFERENCE POINT 16.3 `+/- (PCD) **REFERENCE POINT:** **Ground Surface** ☐ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
10/17/2005	7:00	4	9.1	7.2	1 hr after low tide	BCS
10/17/2005	12:45	4	9.1	7.2	1 hr after high tide	BCS
10/17/2005	17:00	4	9.1	7.2	1 hr after low tide	BCS
11/4/2005	13:00	22	9.8	6.5	1 hr after high tide	ARB
4/13/2006	7:00	182	9.1	7.2	2 hrs after low tide	ARB
4/13/2006	12:00	182	9.3	7.0	at high tide	ARB

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No. OW-1

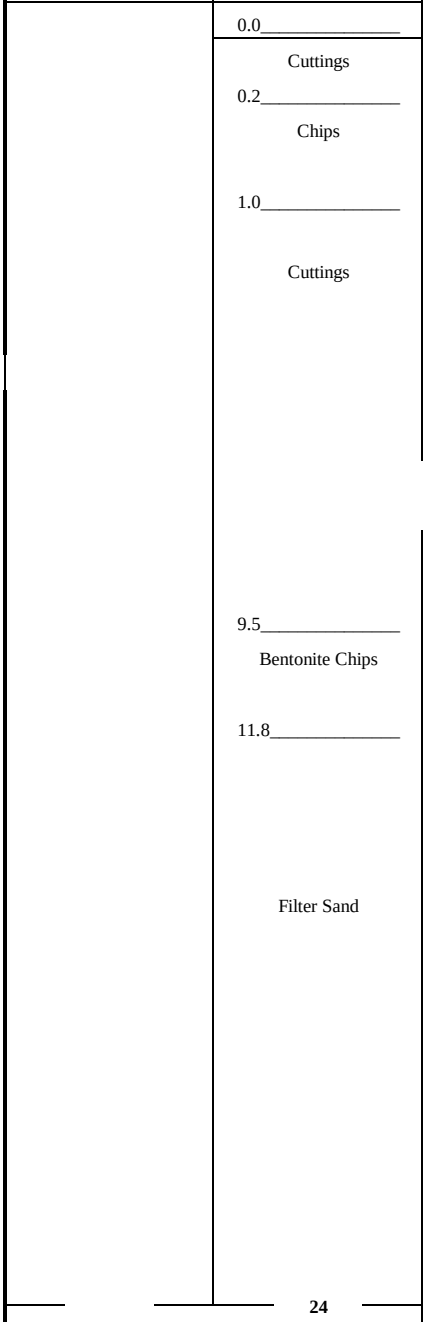
Boring No. HA05-14(OW)

PROJECT	AC Hotel	**H&A FILE NO.**	30322-000
LOCATION	Fore, Hancock and Thames Street - Portland, Maine	**PROJECT MGR.**	W. Chadbourne
CLIENT	Portland Norwich Group, LLC	**FIELD REP.**	B. Steinert
CONTRACTOR	Maine Test Borings, Inc.	**DATE INSTALLED**	10/13/2005
DRILLER	R. Idano	**WATER LEVEL**	NA*

Ground El. _____ ft **Location** See Plan ☐ **Guard Pipe**

El. Datum _____ ☑ **Roadway Box**

SOIL/ROCK CONDITIONS | **BOREHOLE BACKFILL**



Type of protective cover/lock _____

Depth of top of roadway box below ground surface 0.1 ft

Depth of top of riser pipe below ground surface 0.5 ft

Type of protective casing: B.I. Pipe

Length 0.8 ft

Inside Diameter 6.0 in

Depth of bottom of guard pipe/roadway box 0.7 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	-	-
Bentonite Seal	0.2	0.8

Type of riser pipe: Schedule 40 PVC

Inside diameter of riser pipe 1.0 in

Type of backfill around riser Filter sand

Diameter of borehole 3.0 in

Depth to top of well screen 14.0 ft

Type of screen Slotted PVC

Screen gauge or size of openings _____ in

Diameter of screen _____ in

Type of backfill around screen Filter sand

Depth of bottom of well screen 24.0 ft

Bottom of Silt trap - ft

Depth of bottom of borehole 77.0 ft

_____ ft	+	10 ft	+	0 ft	=	_____ ft
Riser Pay Length (L1)		Length of screen (L2)		Length of silt trap (L3)		Pay length

COMMENTS: *Well filled with water at completion.

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA15-14(OW)

PROJECT	AC Hotel	**H&A FILE NO.**	30322-300
LOCATION	Fore, Hancock and Thames Streets - Portland, Maine	**PROJECT MGR.**	W. Chadbourne
CLIENT	Portland Norwich Group, LLC.	**FIELD REP.**	K. Stone
CONTRACTOR	Maine Test Borings, Inc.	**DATE**	10/13/2005

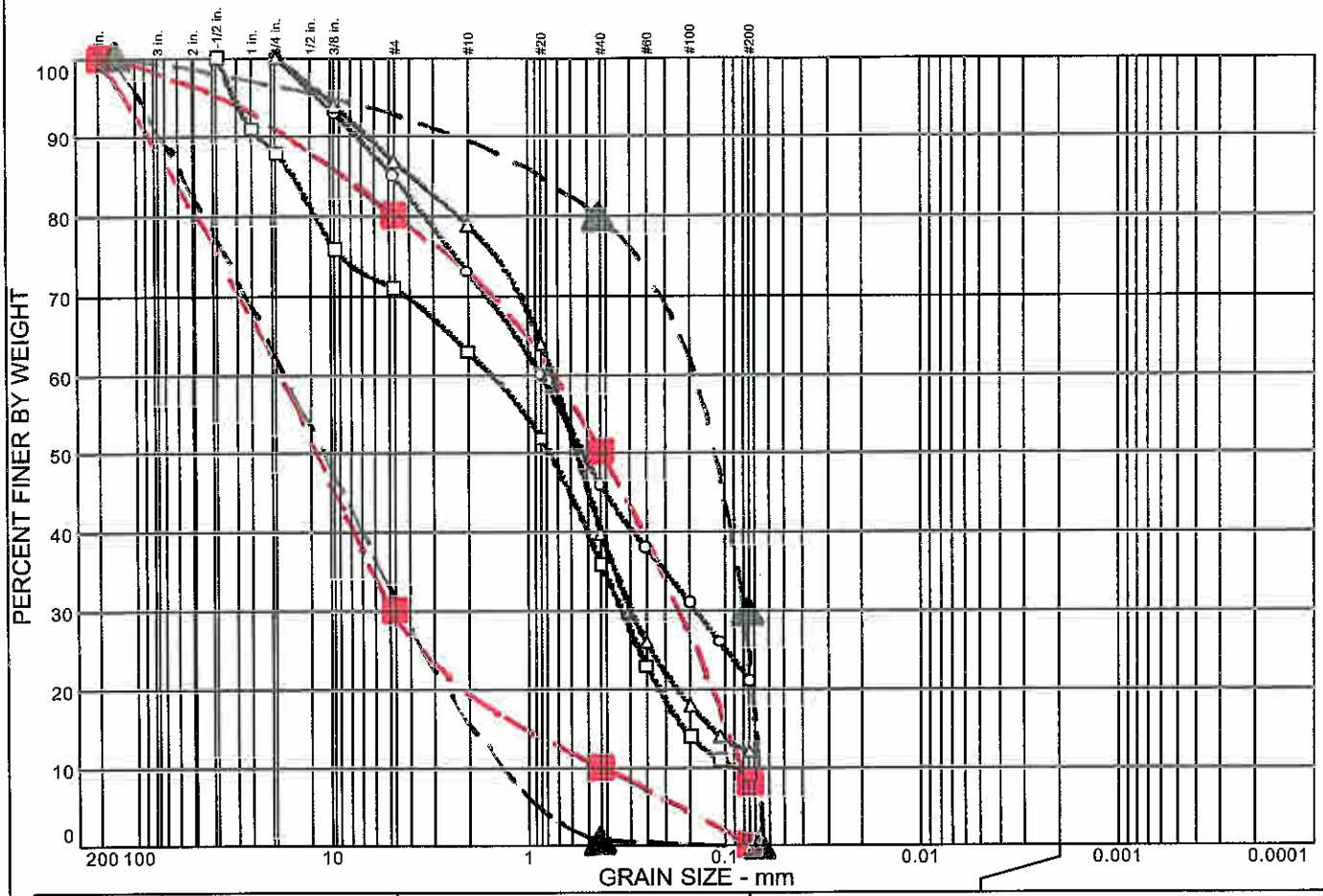
ELEVATION OF REFERENCE POINT 14.5 `+/- (PCD) **REFERENCE POINT:** **Ground Surface** ☐ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
10/14/2005	12:00	1	9.4	5.1	Reading taken by Woodard & Curran	W&C
10/17/2005	7:00	4	8.2	6.3	1 hr after low tide	BCS
10/17/2005	12:30	4	8.2	6.3	1 hr after high tide	BCS
10/17/2005	14:40	4	8.2	6.3	3 hr after high tide	BCS
10/18/2005	6:45	5	8.3	6.2	1 hr after low tide	BCS
10/18/2005	14:15	5	8.4	6.1	2 hr after high tide	BCS
11/4/2005	13:30	22	8.9	5.6	1.5 hr after high tide	ARB
1/11/2006	-	90	9.8	4.7		KDS
4/13/2006	7:40	182	9.6	4.9	2+ hrs after low tide	ARB
4/13/2006	12:10	182	9.5	5.0	at high tide	ARB
10/13/2006	-	365	-	-	could not be located, likely comprimised by Ocean Gateway const.	ECB

APPENDIX D

Laboratory Test Results

U.S. STANDARD SIEVE SIZE



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	15.0	12.0	27.0	25.0	21.0	
□	0.0	12.0	17.0	8.0	27.0	27.0	9.0	
△	0.0	0.0	13.0	8.0	39.0	28.0	12.0	

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits %			Water Content (%)	C_u	C_c	USCS
				W_L	W_P	I_P				
○	HA05-11(OW)	S01	0.0-2.0				5.8			SM
□	HA05-13	C01	2.0-6.0				5.3	16.77	0.83	SP-SM
△	HA05-14 (OW)	S02	2.0-4.0				13.5			SP-SM

	Sample Description
○	Brown Silty sand with gravel
□	Brown Poorly graded sand with silt and gravel
△	Brown Poorly graded sand with silt

Remarks:

○

□Composite sample of S02 & S03

△ maximum and minimum limits for the percentage of soil particles finer than sieve size noted per CGF recommendation

▲ maximum and minimum limits for the percentage of soil particles finer than sieve size noted per Common Fill recommendation

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UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

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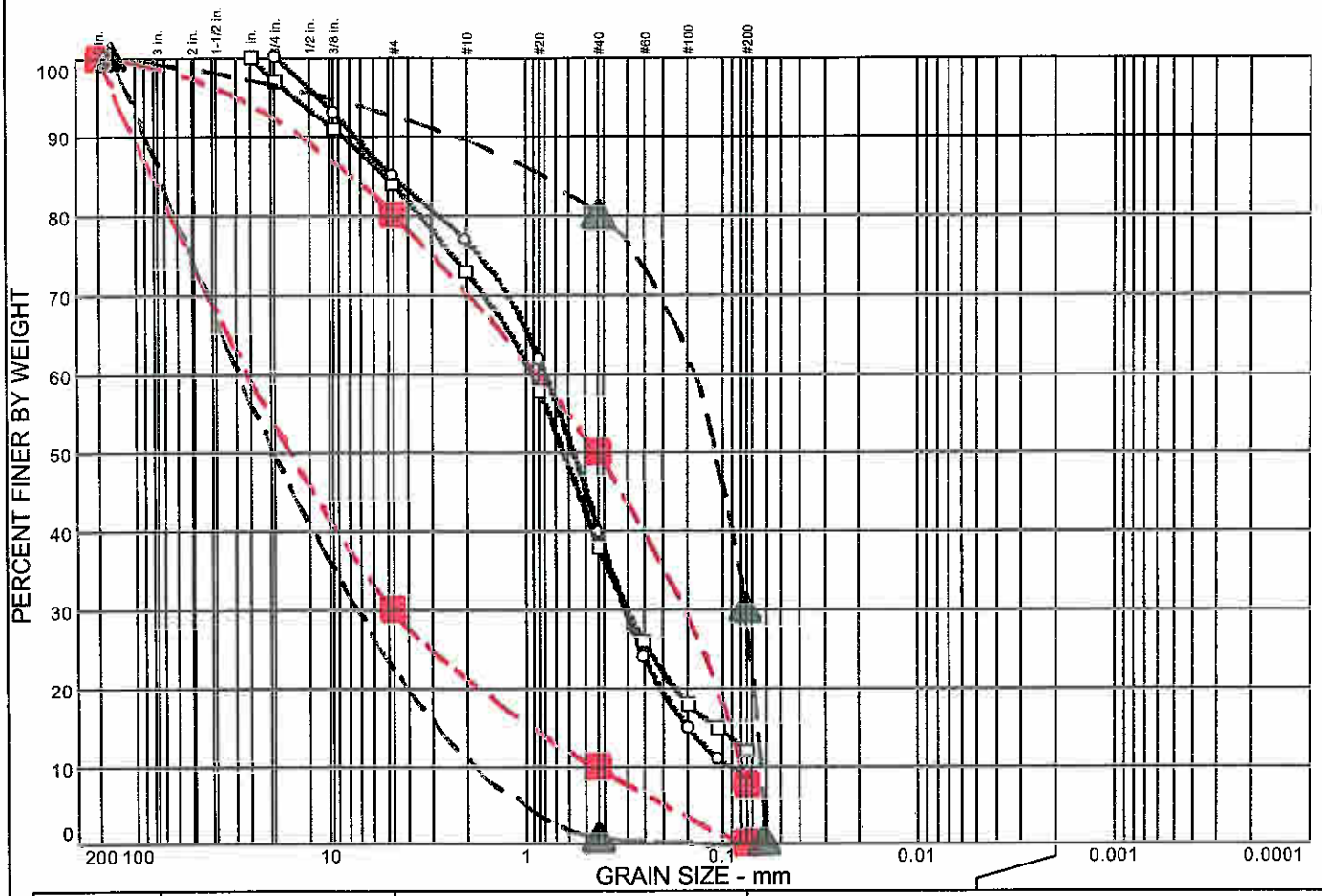
Portland, Maine

GRAIN SIZE DISTRIBUTION

DATE: 4/11/2007

FILE NO: 30322-000

U.S. STANDARD SIEVE SIZE



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	15.0	8.0	37.0	31.0	9.0	
□	0.0	3.0	13.0	11.0	35.0	26.0	12.0	

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits %			Water Content (%)	C_u	C_c	USCS
				W_L	W_P	I_P				
○	HA05-19	C01	0.5-4.5				6.8	8.59	1.34	SW-SM
□	HA05-21	C01	2.0-6.0				6.5			SP-SM

	Sample Description
○	Gray Well-graded sand with silt and gravel
□	Gray brown Poorly graded sand with silt and gravel

Remarks:

○ Composite sample of S01 & S02

□ Composite sample of S02 & S03

▬ maximum and minimum limits for the percentage of soil particles finer than sieve size noted per CGF recommendation

▲ maximum and minimum limits for the percentage of soil particles finer than sieve size noted per Common Fill recommendation

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DATE: 4/11/2007

FILE NO: 30322-000

APPENDIX E

Historic Sanborn Maps