EXHIBIT 15

HALEY & ALDRICH GEOTECHNICAL INFORMATION

GEOTECHNICAL DATA REPORT
midtown DEVELOPMENT
SOMERSET STREET
PORTLAND, MAINE

by

Haley & Aldrich, Inc.
Portland, Maine

for

The Federated Companies
Miami, Florida

File No. 38354-000
13 November 2014

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13 November 2014
File No. 38354-000

The Federated Companies
3301 NE 1st Avenue, Suite M-302
Miami, Florida 33137

Attention: Nick Wexler
Chief Operating Officer

Subject: Geotechnical Data Report
midtown Development
Somerset Street
Portland, Maine

Ladies and Gentlemen:

This geotechnical data report (GDR) presents the results of previously completed subsurface investigation and laboratory test programs conducted within the proposed midtown Development area, which is located along the portion of Somerset Street between Elm Street and Pearl Street, in Portland, Maine. This work was completed in accordance with our proposal, dated 15 October 2012, and your subsequent authorization.

Please recall that as originally envisioned the midtown Development was to be completed (designed and constructed) in multiple phases. Under this original development scenario we previously submitted a GDR for what was at the time (May 2013) Phase I (Phase I GDR), which included proposed structures on the parcel(s) of land between Chestnut Street and Pearl Street. The Phase I GDR was prepared in support of Fay, Spofford & Thorndike's (FSTs) Level III Site Plan Application submission to the City of Portland (City).

Based on our recent discussions with you and FST, we understand that since the submission of the original Phase I GDR the project has been modified and will be developed (designed and constructed) in a single phase. As a result, a modification of the Level III Site Plan Application to the City is required and FST has requested that we revise and resubmit the GDR to include additional subsurface information on the parcel of land between Elm Street and Chestnut Street. The ultimate goal is to have a GDR that reflects the current scope and phasing of the proposed midtown Development.

We appreciate the opportunity to help support The Federated Companies (TFC) on this significant and challenging project, and we look forward to providing continued assistance to you during subsequent phases of the project.

ELEVATION DATUM

Elevations referenced herein are in feet and reference Portland City Datum (PCD). Portland City Datum relates to tidal datum at the site as follows:

MHHW = El. 5.4
MLLW = El. -4.5

Please note that this tidal information is site specific and is taken from National Oceanic Atmospheric Administration (NOAA) tidal station No. 8418150 located on the Maine State Pier, Portland, Maine. This is the NOAA tidal station closest to the site.

SITE LOCATION, EXISTING CONDITIONS & PREVIOUS USE

The proposed midtown Development area is located in the Bayside region of Portland as shown on Figure 1, Project Locus. This portion of the Back Cove area, including the site, once consisted of tidal mudflats (see 1886 Sanborn Maps for area in Appendix E) and was filled with demolition debris (brick, concrete, rock fragments and wood), refuse, ash and soil during the 18th, 19th and 20th centuries, a great portion of which was generated by the Great Portland Fire of 1866. Historical Sanborn Maps of the site are provided for reference in Appendix E.

More specifically, the midtown Development site consists of two parcels that are separated by Chestnut Street. The southern parcel is bound by Elm Street to the south, Somerset Street to the east, Chestnut Street to the north and the Portland Trails pedestrian walkway and commercial properties to the west. The northern parcel is bound by Chestnut Street to the south, Somerset Street to the east, future Pearl Street Extension to the north and the Portland Trails pedestrian walkway and commercial properties to the west (see Figures 2 and 3, Site and Subsurface Exploration Location Plans). Ground surface elevations across the southern parcel vary from approximately El. 12 along the western boundary (Portland Trails pedestrian walkway) to approximately El. 8 along Somerset Street. The northern parcel is generally flat with existing ground surface elevations varying from approximately El. 8 to El. 10. One localized depression (bottom at approximately El. 6.5) is present near the northern end of the parcel.

PROPOSED SITE DEVELOPMENT

Based on our recent discussions with you and FST, we understand that current development plans call for an urban infill mixed-use development (midtown Development) on a 3.25-acre parcel of land located in the Bayside Area of Portland. The parcel has been subdivided into seven lots, which will be developed in one phase. We understand that the midtown Development will consist of four structures, designated midtownOne through midtownFour (midtownOne and midtownTwo on the northern parcel and midtownThree and midtownFour on the southern parcel). We also understand that midtownOne, midtownThree and midtownFour will consist of 6-story residential structures with one level (ground floor) of retail space. midtownTwo will consist of a 7-story parking garage with one level (ground floor) of retail space. Below grade space is not currently being considered for any of the proposed structures. The proposed building footprints for each structure are shown on Figures 2 and 3.

SUBSURFACE EXPLORATIONS

Multiple subsurface exploration programs have been completed in and around the midtown Development site. Explorations, consisting of test pits and test borings were excavated/drilled by Tewhey Associates in 1998 for the Portland Brownfield's project and by Haley & Aldrich for the Phase II Environmental Site Assessment (ESA) completed in 2000 on the former Union Branch Rail Line, respectively. In addition, test borings were also drilled by Haley & Aldrich in 2006 and 2008 for the proposed Bayside Parking Garage and Master Planning Study (northern parcel; midtownOne and midtownTwo) and the proposed MaineHealth and United Way Development (southern parcel; midtownThree and midtownFour). More recently, Haley & Aldrich also completed a series of test borings along and within Somerset Street in 2013 as part of the proposed Somerset Street improvements project.

The plan locations of the test pits and test borings are shown on Figures 2 (northern parcel; midtownOne and midtownTwo) and 3 (southern parcel; midtownThree and midtownFour), Site and Subsurface Exploration Location Plans. Logs detailing subsurface soil, rock and groundwater conditions encountered in the subsurface explorations (test pits and test borings) are provided in Appendix A. Each exploration program is discussed separately, in the following sections of this report.

Portland Brownfield's Project Test Pits (1998)

A total of ten test pits, designated TP-1 through TP-10, were excavated as part of the Portland Brownfield's project. Of these explorations, only TP-1 through TP-7 and TP-10 were excavated within the vicinity of the proposed midtown Development area and are discussed herein. The test pits were excavated by Commercial Paving & Recycling of Scarborough, Maine in October 1998 under the direction of Tewhey Associates and extended to depths ranging from approximately 6 to 14 ft below ground surface (BGS).

Phase II ESA Test Pits and Test Borings (2000)

A total of fifteen test borings, designated B101 through B115, and twenty-six test pits, designated TP101 through TP125 (including TP102A and TP102B), were drilled/excavated for the Phase II ESA. Of these explorations, only test borings B110-B112 and test pits TP101-TP108 and TP114-TP125 were completed within the vicinity of the proposed midtown Development area. Only these explorations are discussed herein.

The test pits were excavated by Environmental Projects, Inc. of Gray, Maine under the direction of Haley & Aldrich in November 2000. The test pits were excavated to depths ranging from approximately 3.5 to 12.5 ft BGS using a Komatsu tracked excavator.

The test borings were drilled by Maine Test Borings, Inc. of Brewer, Maine under the direction of Haley & Aldrich and were advanced to approximately 12 BGS using a Mobile Drill B-47 track mounted drill rig. Test borings were advanced using 4.25-in. ID hollow stem augers. All soil samples were collected continuously through fill soils and into naturally deposited soils by driving a 1 3/8-in. ID split-spoon sampler with a 140-lb hammer dropped from a height of 30 in., as indicated on the test boring logs. The number of hammer blows required to advance the sampler through each 6 in. interval was recorded and is provided on the test boring logs. The Standard Penetration Test (SPT) N-value is defined as the total number of blows required to advance the sampler through the middle 12 in. of the 24-in. sampling interval.

Observation wells were installed in completed boreholes B110-B112 for the purposes of groundwater sampling and analytical testing. Static water levels within the observation wells were not measured.

Bayside Parking Garage and Master Planning Test Borings (2006)

Eleven test borings, designated HA06-1 through HA06-11, were drilled in association with the proposed Bayside Parking Garage and Master Planning project. Only test borings HA06-1 through HA06-9 were drilled in the vicinity of the proposed midtown Development area and are discussed herein.

The test borings were drilled by Maine Test Borings of Hermon, Maine under the direction of Haley & Aldrich in August 2006 using a trailer-mounted Mobile Drill B-47 drill rig. Test borings were drilled to depths ranging from approximately 41 to 67 ft BGS using 3.0-in. (NW-size) and 4.0-in. (HW-size) ID steel casing. Soil samples were collected at standard, 5-ft intervals using the methodology described in the previous sections.

Test borings HA06-1 and HA06-4 were advanced approximately 14 to 23 ft into bedrock using a 2.0-in. (NQ-size) ID diamond-tipped core barrel.

In-situ vane shear tests were conducted within the marine (clay) deposit in each test boring with the exception of test boring HA06-8. Vane shear tests were performed to provide information on the undrained shear strength and compressibility characteristics of the marine clay at the site. Results of the vane shear testing are summarized in Table II and are provided on the test boring logs in Appendix A.

A single observation well was installed in completed borehole HA06-2 to provide information on the static groundwater level at the site. The observation well consisted of 2-in. ID, machine-slotted PVC pipe and solid PVC riser pipe extending approximately 3 ft above existing ground surface. The observation well was outfitted with a steel guardpipe and steel lock/cap assembly.

Observation well installation and groundwater monitoring reports are provided in Appendix B.

MaineHealth/United Way Development Test Pits and Test Borings (2008)

A total of thirteen test borings, designated HA08-1 through HA08-13, were drilled within the limits of the southern parcel (midtownThree and midtownFour) in association with the proposed MaineHealth/United Way Development.

Subsurface explorations were drilled by Maine Test Borings, Inc. of Brewer, Maine under the direction of Haley & Aldrich in July and August 2008 using track-mounted Mobile Drill B-50 drill rig. Test borings were drilled to depths ranging from 14 to 102 ft BGS using 3.0-in. (NW-size) or 4.0-in. (HW-size) ID steel casing. Soil samples were collected continuously through the fill and harbor bottom deposits and at 5-ft (standard) or 10-ft intervals thereafter using the methodology described in the previous sections.

During the test boring program fill samples were collected, preserved and screened using a Thermo 580B Photoionization Detector (PID) to check for the presence of hydrocarbons. The results of the sample screening are recorded on the Headspace Screening Report provided in Appendix C.

Test borings HA08-5, HA08-7 and HA08-13 were advanced approximately 5 to 10 ft into bedrock using a 2.0-in. (NQ-size) ID diamond-tipped core barrel.

In-situ vane shear tests were conducted within the glaciomarine clay deposit in each of the test borings with the exception of HA08-3, HA08-6, HA08-9 and HA08-12. Results of the vane shear testing are summarized in Table II and are provided on the test boring logs in Appendix A.

A total of five, relatively undisturbed samples of marine clay were obtained in test borings HA08-4, HA08-8 and HA08-10. The samples were collected to perform laboratory consolidation testing aimed at determining the compressibility characteristics and the stress history of the clay. The samples were obtained by advancing a thin-wall Shelby Tube sampler into the clay using a piston sampler. Drilling mud was used while advancing the test borings in order to minimize soil disturbance. The drilling mud consists of a relatively thick and smooth mixture of water and bentonite-based powder.

Three observation wells were installed in completed boreholes HA08-5, HA08-7 and HA08-12 to provide information on the static groundwater level and to determine whether the groundwater levels at the site are affected by tidal fluctuations in nearby Back Cove. The observation wells consisted of 2-in. ID, machine-slotted PVC pipe and solid PVC riser pipe extending approximately 3 ft above existing ground surface. The observation wells were outfitted with a steel guardpipe and steel lock/cap assembly. Observation well installation and groundwater monitoring reports are provided in Appendix B.

Upon completion of the test borings, three test pits designated TP-201 through TP-203 were excavated adjacent to the previously installed observation wells. The test pits were excavated by Environmental Projects, Inc. of Auburn, Maine under the direction of Haley & Aldrich in October 2008. The test pits were excavated to depths ranging from approximately 8 to 11 ft BGS using a Komatsu PC 35MR excavator.

Proposed Somerset Street Improvements Test Borings (2013)

A total of six test borings, designated HA13-1 through HA13-6, were drilled in January 2013 along and within Somerset Street, between Elm and Pearl Streets in association with the proposed Somerset Street Improvements project. Each test boring was drilled adjacent to either the southern parcel (HA13-1-HA13-3; midtownThree and midtownFour) or the northern parcel (HA13-4-HA13-6; midtownOne and midtownTwo) and are discussed herein.

The test borings were drilled by Northern Test Borings, Inc. (NTB) of Gorham, Maine under the direction of Haley & Aldrich using a Diedrich D50 truck-mounted drill rig and 2.5-in ID hollow stem augers (HSAs). Each test boring was advanced to a depth of 20 ft BGS. Soil samples were collected continuously through the man-placed fill, harbor bottom deposit (if present) and into the underlying marine clay using the methodology described in the previous sections of this report.

SUBSURFACE CONDITIONS

Soil Unit and Bedrock Conditions

Generally, subsurface explorations encountered the following geologic units, presented in order of increasing depth below existing ground surface:

- Bituminous/Portland cement concrete and Fill
- Harbor Bottom Deposit
- Marine Clay
- Marine Sand
- Glacial Till
- Bedrock

Not all materials were encountered at each exploration location. Refer to Table I for a summary of the "geotechnical" test borings and Appendix A for logs of test pits and test borings, respectively. A brief description of each geologic unit is provided below.

A. Bituminous/ Portland cement concrete and Fill

Bituminous concrete and concrete surfaces were encountered in explorations along the east side (Somerset Street) of northern parcel (midtownOne and midtownTwo) as well as the 2013 test borings drilled within Somerset Street. The thickness of the material ranged from approximately 0.2 to 1.0 ft.

As previously discussed, the Bayside region of the Back Cove area once consisted of tidal mudflats and has a long history of filling. The subsurface explorations referenced herein encountered approximately 8 to 14 ft of fill, which consisted of the following:

- poorly-graded to well-graded GRAVEL (SP to SW) with varying percentages of silt,
- silty GRAVEL (GM)
- silty SAND (SM) with varying percentages of gravel,
- poorly-graded to well-graded SAND (SP to SM) with varying percentages of silt,
- sandy CLAY (CL) to clayey SAND (SC)
- Rock fill was encountered in test boring HA08-2 between approximately 10 and 14 ft BGS.

The fill soils generally contained ash, cinders, metal, wood, brick and concrete fragments some portions of which were stained black.

The granular fill soils were typically loose to very dense with SPT N-values ranging from 8 to 56 bpf. The cohesive fill soils (CL to SC) were generally soft to hard with SPT N-values ranging from 2 to 67 bpf.

B. Harbor Bottom Deposit

This deposit was encountered in many of the referenced test borings drilled within the northern and southern parcels as well as along and within Somerset Street. This deposit was previously exposed at ground surface in the tidal/mudflat area of the Back Cove prior to site filling (see Sanborn maps in Appendix E). Where encountered, the thickness of the layer ranged from approximately 1 to 9 ft, generally increasing in thickness towards Back Cove. This material typically consisted of gray, sandy SILT (ML) or sandy ORGANIC SOIL (OL/OH) with varying percentages of organic matter (rootlets, wood fragments etc.) and shells. In some locations the lower portions of the deposit consisted of gray silty SAND (SM), gray SILT (ML) with varying amounts of sand or gray lean CLAY (CL) with organic matter and shells. The deposit was generally very soft to very stiff with SPT N-values ranging from 1 to 24 bpf.

C. Marine Clay

Marine clay was encountered at each test boring location. The thickness of the deposit ranged from 20 to in excess of 50 ft, typically increasing in thickness to the south and west. The upper portion of the deposit consisted of olive-gray lean CLAY (CL) and was typically medium stiff to stiff with undrained shear strengths ranging from approximately 1,000 to 1,700 psf (referred to herein as the clay "crust"). The lower portion of the deposit consisted of soft to medium stiff, gray lean CLAY (CL) with undrained shear strengths typically ranging from 400 to 800 psf. The lowest (deepest) portions of the deposit typically contained frequent fine sand seams and partings.

D. Marine Sand

Marine sand was encountered sporadically across the site (northern and southern parcels). Where encountered, the marine sand was present directly beneath the marine clay layer. The thickness ranged from approximately 3 to 12 ft and generally increased to the north and east. The material typically consisted of gray, poorly-graded SAND (SP), well-graded SAND (SW) or silty SAND (SM), and was loose to medium dense with SPT N-values ranging from 3 to 23 bpf.

E. Glacial Till

Glacial till was encountered in several test borings underlying either the marine clay or marine sand layers and ranged in thickness from approximately 2 to 30 ft (typically between 2 and 10 ft), generally increasing to the south and west. The soil unit generally consisted of two different soil types: gray, silty SAND (SM) with a small percentage of fine gravel; and gray, clayey SAND with gravel (SC). The soil was typically medium dense to very dense with SPT N-values ranging from 14 to in excess of 100 bpf. Cobbles and boulders were not encountered in the glacial till during drilling of the test borings. However, their presence within the deposit is common and they may be present at other locations where explorations were not completed.

F. Bedrock

Bedrock was encountered in the majority of explorations completed within the northern and southern parcels at depths ranging from approximately 40 to 99 ft BGS. The bedrock surface generally slopes down from north to south. Bedrock encountered and sampled in the test borings consisted of the following:

- Very soft to soft, moderately to highly weathered PHYLLITE with occasional calcite veins and quartz intrusions,
- Very soft to moderately hard, fresh to highly weathered graphitic or chlorite SCHIST with frequent calcite veins and pyrite seams,
- Moderately hard, moderately to highly weathered SILTSTONE.

All rock types encountered are considered part of the Cape Elizabeth Formation. At most test boring locations several feet (up to approximately 7 ft but more typically 1-2 ft) of highly weathered and/or decomposed bedrock was encountered as indicated on the test boring logs included in Appendix A.

Rock quality designation (RQD) is a common parameter that is used to help assess the competency of sampled bedrock. RQD is defined as the sum of pieces of recovered bedrock greater than 4 in. in length divided by the total length of the bedrock core. RQD values for bedrock encountered at the site ranged from 0 to 78 percent and were typically less than 44 percent.

Groundwater Conditions

Observation wells were installed in completed boreholes HA06-2 (northern parcel; midtownOne and midtownTwo) and HA08-5, HA08-7 and HA08-12 (southern parcel; midtownThree and midtownFour).

Groundwater levels measured in the observation well installed in completed borehole HA06-2 in August and September 2006 ranged between El. 5.2 and El. 6.4, approximately 3 to 4 ft BGS.

In addition, Haley & Aldrich initially measured groundwater levels in the observation wells installed in southern parcel periodically using a manually operated water level indicator. Beginning on 7 August 2008 downhole transducers were installed in the observation wells and were programmed to record the groundwater level in the wells every 15 minutes. This was done to determine whether the static groundwater level is influenced by tidal fluctuations in nearby Back Cove. All groundwater depths were measured relative to the existing ground surface. The transducers were removed from the observation wells on 22 August 2008. Based on the data collected between 7 and 22 August 2008, groundwater levels were measured between 6 and 8 ft below existing ground surface and did not appear to be influenced by tidal fluctuations in Back Cove.

Groundwater levels can be expected to fluctuate, subject to seasonal variation, local soil conditions, topography and precipitation. Groundwater levels encountered during construction may differ from those observed in the test borings or observation well. Observation well installation and groundwater monitoring reports are provided in Appendix B.

GEOTECHNICAL LABORATORY SOIL TESTING

A laboratory testing program was conducted in 2008 in association with the proposed MaineHealth/United Way Development. The testing program was completed to assist in soil classification, evaluate reuse potential of the in-situ fill soils, and for determination of engineering properties (strength and compressibility) of the naturally deposited marine clay soils.

The testing program included four grain size analyses, four natural water content tests, six Atterberg Limits tests, and two constant rate of strain consolidation (CRSC) tests (used to determine the compressibility and stress history characteristics of marine clay). Prior to CRSC testing, radiography tests were conducted on Shelby tube samples collected during the subsurface exploration program. Radiography tests were run on five thin-walled tube samples of soil selected for laboratory testing to aid in assessing the sample quality, general material type and presence of areas of disturbance and variations in soils retrieved.

All laboratory testing was completed in accordance with applicable ASTM test procedures. Grain size analyses were conducted by Haley & Aldrich at our laboratory in Boston, Massachusetts. Natural water content, Atterberg Limits, and CRSC tests were completed by GeoTesting Express of Acton, Massachusetts. Laboratory test results are provided in Appendix D.

SUBSURFACE CONDITIONS IMPACTS ON DEVELOPMENT

Based on the subsurface conditions encountered during the previously completed subsurface investigations we have the following general geotechnical “observations” regarding the potential impacts that the subsurface conditions may have on the proposed midtown Development:

- Due to presence and compressible nature of the fill, harbor bottom and marine clay soils present at the site, pile foundations would likely be needed to support "heavily-loaded" buildings (e.g., greater than two stories). Construction of a single level of below-grade space beneath a "heavily-loaded" building may unload the site enough to eliminate the need for piles. Further study is required.

- Due to presence and compressible nature of the fill, harbor bottom and marine clay soils present at the site, modest raises in grade would likely result in ground surface, ground floor slab and utility settlement. We recommend that this be considered when planning final site grading.

- Due to the proximity of the water table to existing grade at the site and the proposed finish floor elevations, we anticipate that a foundation drainage system would not be needed with the exception of locally depressed portions of the building footprints (elevator pits, utility vaults, etc.).

- Based on the shear strength information obtained during the exploration program and the seismic requirements of the latest edition of the IBC Code, it is likely that proposed would have to be designed in accordance with either "Site Class D" or "Site Class E" classifications.

Please note that additional analyses will be conducted to verify the accuracy of these observations for the proposed midtown Development. Based on the "soft" condition of the soils present at the site, impacts of site grading, pavement evaluations and building and utility support should be considered carefully during the design-phase of the project. We will provide foundation support and other geotechnical design recommendations under separate cover during subsequent phases of the project.

LIMITATIONS

This report has been prepared for the exclusive use of The Federated Companies relative to the proposed midtown Development project in Portland, Maine. There are no intended beneficiaries other than The Federated Companies. Haley & Aldrich shall owe no duty whatsoever to any other person or entity on account of the Agreement or the report. Use of this report by any person or entity other than The Federated Companies for any purpose whatsoever is expressly forbidden unless such other person or entity obtains written authorization from The Federated Companies and from Haley & Aldrich. Use of this report by such other person or entity without the written authorization of The Federated Companies and Haley & Aldrich shall be at such other person's or entities sole risk, and shall be without legal exposure or liability to Haley & Aldrich.

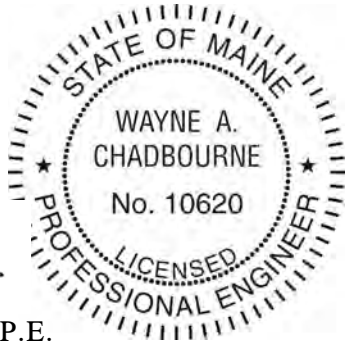
Use of this Report by any person or entity, including by The Federated Companies, for a purpose other than the proposed midtown Development project in Portland, Maine is expressly prohibited unless such person or entity obtains written authorization from Haley & Aldrich indicating that the Report is adequate for such other use. Use of this Report by any other person or entity for such other purpose without written authorization by Haley & Aldrich shall be at such person's or entities sole risk, and shall be without legal exposure or liability to Haley & Aldrich.

The analyses and recommendations are based, in part, upon the data obtained from the referenced subsurface explorations. The nature and extent of variations between explorations may not become evident until construction. If variations then appear, it may be necessary to reevaluate the recommendations of this report.

CLOSURE

We appreciate the opportunity to provide geotechnical consulting services on this project. Please do not hesitate to call if you have any questions or comments.

Sincerely yours,
HALEY & ALDRICH, INC.



Bryan C. Steinert, P.E.
Project Manager | Senior Geotechnical Engineer

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Vice President | Lead Geotechnical Engineer

Enclosures:

Table I -	Summary of Geotechnical Test Borings
Table II -	In-Situ Vane Shear Test Results (2 pages)
Figure 1 -	Project Locus
Figure 2 -	Site and Subsurface Exploration Location Plan (1 of 2)
Figure 3 -	Site and Subsurface Exploration Location Plan (2 of 2)
Appendix A –	Logs of Subsurface Explorations
Appendix B –	Observation Well Installation and Groundwater Monitoring Reports
Appendix C –	2008 Soil Screening Headspace Reports for Proposed MaineHealth/United Way Development
Appendix D -	2008 Laboratory Test Results for Proposed MaineHealth/United Way Development
Appendix E -	Historic Sanborn Maps

C: Fay, Spofford & Thorndike; Attn.: Bo Kennedy, P.E.

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REFERENCES

1. Report entitled, "Phase II Environmental Site Assessment, Union Branch Rail Line Property, Portland, Maine," prepared by Haley & Aldrich, Inc. for the Maine Department of Transportation, dated December 2000.

2. Report entitled, "Subsurface Explorations & Foundation Design Recommendations, Proposed Bayside Parking Garage, 25 Somerset Street, Portland, Maine," prepared by Haley & Aldrich, Inc. for Scott Simons Architects, dated 22 September 2006.

3. Report entitled, "Master Planning Geotechnical Investigation, Proposed Bayside Development, Parcels A and B, Somerset Street, Portland, Maine," prepared by Haley & Aldrich, Inc. for Scott Simons Architects, dated 25 October 2006.

4. Report entitled, "Geotechnical Data Report, MaineHealth/United Way Development, Somerset and Chestnut Streets, Portland, Maine," prepared by Haley & Aldrich, Inc. for Maine Medical Center, dated 10 September 2008.

5. Memorandum entitled, "Results of Test Pit Exploration Program, MaineHealth/United Way Development, Somerset and Chestnut Streets, Portland, Maine," prepared by Haley & Aldrich, Inc. for Maine Medical Center, dated 4 December 2008.

6. Memorandum entitled, "Subsurface Investigation and Geotechnical Evaluations, Proposed Somerset Street Improvements, Portland, Maine," prepared by Haley & Aldrich, Inc. for the City of Portland, dated 23 April 2013.

TABLE I
Summary of Geotechnical Test Borings
midtown Development
Somerset Street, Portland, Maine

Test Boring No. [1]	Estimated Ground Surface Elevation [2,3]	Thickness of Strata[4,5,6] (ft)						Approximate Elevation of Top of Bedrock[2,3]	Approximate Elevation of Bottom of Exploration[2,3]
		Bituminous Concrete/ Concrete	Fill	Harbor Bottom Deposit	Marine Deposits		Glacial Till		
					Clay	Sand			
2006 Bayside Parking Garage & Master Planning:									
HA06-1	9.0	NE	11.0	4.0	20.5	2.5	1.8	-30.8	-53.4
HA06-2(OW)	9.0	NE	11.3	3.7	19.5	5.5	NE	-31.0	-38.2
HA06-3	9.0	NE	5.9	9.4	23.7	NE	>3.0	NE	-33.0
HA06-4	9.0	1.0	13.5	NE	27.5	NE	3.0	-36.0	-51.2
HA06-5	10.0	0.3	13.7	NE	29.5	NE	4.0	-37.5	-42.2
HA06-6	10.0	0.4	10.1	3.0	27.0	0.8	NE	-31.3	-31.5
HA06-7	10.5	NE	13.0	NE	51.0	NE	3.0	NE	-56.5
HA06-8	12.0	NE	14.0	NE	36.2	NE	1.6	-39.8	-42.0
HA06-9	9.5	NE	10.2	NE	27.8	NE	3.5	-32.0	-33.2
2008 MaineHealth/United Way Development:									
HA08-1	11.5	0.1	8.9	5.5	54.5	NE	29.5	-87.0	-90.5
HA08-2	9.0	NE	14.0	NE	47.0	NE	5.6	-57.6	-59.7
HA08-3	11.0	1.0	11.0	4.1	>1.9	--	--	--	-7.0
HA08-4	12.0	0.5	12.5	3.9	41.9	NE	5.6	-52.4	-54.0
HA08-5(OW)	9.0	NE	10.5	2.5	40.0	NE	9.5	-53.5	-59.8
HA08-6	10.0	NE	12.3	>1.7	--	--	--	--	-4.0
HA08-7(OW)	12.0	NE	12.5	1.5	24.0	NE	22.1	-48.1	-60.0
HA08-8	9.0	NE	9.5	4.3	29.2	5.6	NE	-39.6	-41.5
HA08-9	11.0	NE	12.0	2.0	>2.0	--	--	--	-5.0
HA08-10	9.0	NE	10.0	1.3	23.9	10.3	2.0	-38.5	-40.5
HA08-11	11.0	NE	12.5	1.7	19.8	12.0	6.5	-41.5	-44.0
HA08-12(OW)	11.0	NE	11.6	2.4	>2.0	--	--	--	-5.0
HA08-13	9.0	NE	12.5	NE	27.1	7.0	NE	-37.6	-47.0
2013 Somerset Street Improvements:									
HA13-1	7.5	0.2	8.3	5.5	>6.0	--	--	--	-12.5
HA13-2	8.0	0.2	8.2	2.6	>9.0	--	--	--	-12.0
HA13-3	7.5	0.3	7.7	3	>9.0	--	--	--	-12.5
HA13-4	9.0	0.3	9.2	3.8	>6.7	--	--	--	-11.0
HA13-5	10.0	0.2	9.3	4.5	>6.0	--	--	--	-10.0
HA13-6	10.0	0.2	8.3	5.0	>6.5	--	--	--	-10.0

Notes:

[1] Approximate test boring locations are shown on Figures 2 and 3, Site and Subsurface Exploration Location Plans.

[2] Ground surface elevations at test boring locations are approximate and were estimated by interpolating between elevation contour data provided by others at the time respective exploration programs were completed.

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

[4] "NE" indicates stratum was not encountered in test boring.

[5] "--" indicates test boring was not drilled deep enough to determine presence of stratum.

[6] ">" indicates test boring was not drilled deep enough to determine full thickness of stratum.

Developed By:	BCS	11/10/2014
Checked By:	EAF	11/10/2014
Reviewed By:	WAC	11/12/2014

TABLE II

2006 Bayside Garage and Master Planning In-Situ Vane Shear Test Results
midtown Development
Somerset Street, Portland, Maine

Test Boring No.[1]	Estimated Ground Surface Elevation [2,3]	Vane Size (in. x in.)	Test No. [4]	Approximate Depth Below Existing Ground Surface (ft) Top - Bottom	Approximate Elevation [2,3] Top - Bottom	V_{max} [5,7] (in.-lbs)	$V_{remolded}$ [5,7] (in.-lbs)	S_u [6,7] (psf)	$S_{u(remolded)}$ [6,7] (psf)
HA06-1	9.0	3.5 x 8	FV1	20.4 - 21.0	-11.4 - -12.0	>600	-	>690	-
		3.5 x 8	FV2	25.4 - 26.0	-16.4 - -17.0	>600	-	>690	-
		2 x 8.5	FV3	26.3 - 27.0	-17.3 - -18.0	300	100	1,010	340
		3.5 x 8	FV4	30.4 - 31.0	-21.4 - -22.0	180	135	210	150
		3.5 x 8	FV5	31.4 - 32.0	-22.4 - -23.0	>600	-	>690	-
HA06-2(OW)	9.0	2 x 8.5	FV1	20.3 - 21.0	-11.3 - -12.0	167	49	560	170
		3.5 x 8	FV2	25.4 - 26.0	-16.4 - -17.0	519	99	590	120
		3.5 x 8	FV3	30.4 - 31.0	-21.4 - -22.0	528	31	600	40
HA06-3	9.0	2 x 8.5	FV1	15.3 - 16.0	-6.3 - -7.0	426	123	1,430	410
		2 x 8.5	FV2	25.3 - 26.0	-16.3 - -17.0	128	32	430	110
		2 x 8.5	FV3	28.3 - 29.0	-19.3 - -20.0	129	31	430	100
		2 x 8.5	FV4	35.3 - 36.0	-26.3 - -27.0	161	35	540	120
HA06-4	9.0	2 x 8.5	FV1	20.3 - 21.0	-11.3 - -12.0	255	49	860	170
		2 x 8.5	FV2	30.3 - 31.0	-21.3 - -22.0	135	50	450	170
		2 x 8.5	FV3	35.3 - 36.0	-26.3 - -27.0	145	39	490	130
		2 x 8.5	FV4	40.3 - 41.0	-31.3 - -32.0	169	39	570	130
HA06-5	10.0	3.5 x 8	FV1	20.4 - 21.0	-10.4 - -11.0	>600	-	>690	-
		2 x 8.5	FV2	21.3 - 22.0	-11.3 - -12.0	273	72	920	240
		3.5 x 8	FV3	30.4 - 31.0	-20.4 - -21.0	508	112	580	130
		3.5 x 8	FV4	40.4 - 41.0	-30.4 - -31.0	560	42	640	50
HA06-6	10.0	2 x 8.5	FV1	21.3 - 22.0	-11.3 - -12.0	184	78	620	260
		3.5 x 8	FV2	25.4 - 26.0	-15.4 - -16.0	465	338	530	390
		3.5 x 8	FV3	30.4 - 31.0	-20.4 - -21.0	>600	127	>690	150
		3.5 x 8	FV4	36.4 - 37.0	-26.4 - -27.0	231	110	260	130
		3.5 x 8	FV5	37.4 - 38.0	-27.4 - -28.0	600	131	690	150
HA06-7	10.5	2 x 8.5	FV1	20.3 - 21.0	-9.8 - -10.5	>500	-	1,680	-
		2 x 8.5	FV2	25.3 - 26.0	-14.8 - -15.5	250	83	840	270
		2 x 8.5	FV3	35.3 - 36.0	-24.8 - -25.5	175	33	590	110
		2 x 8.5	FV4	40.3 - 41.0	-29.8 - -30.5	172	49	580	170
		2 x 8.5	FV5	56.0 - 56.7	-45.5 - -46.2	258	-	860	-
HA06-9	9.5	3.5 x 8	FV1	20.4 - 21.0	-10.9 - -11.5	490	100	560	110
		3.5 x 8	FV2	30.4 - 31.0	-20.9 - -21.5	560	112	640	130

Notes:

[1] Approximate test boring locations are shown on Figures 2 and 3, Site and Subsurface Exploration Location Plans.

[2] Ground surface elevations at test boring locations are approximate and were estimated by interpolating between 2006 elevation contour data provided by others.

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

[4] Vane numbers are shown on the Test Boring Logs 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 shear strengths, respectively, rounded to the nearest 10 psf.

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

Developed By:	BCS	11/10/2014
Checked By:	EAF	11/10/2014
Reviewed By:	WAC	11/12/2014

TABLE II
2008 MaineHealth/United Way Development In-Situ Vane Shear Test Results
midtown Development
Somerset Street, Portland, Maine

Test Boring No.[1]	Estimated Ground Surface Elevation [2,3]	Vane Size (in. x in.)	Test No. [4]	Approximate Depth Below Existing Ground Surface (ft) Top - Bottom	Approximate Elevation [2,3] Top - Bottom	V_{max} [5,7] (in.-lbs)	$V_{remolded}$ [5,7] (in.-lbs)	S_u [6,7] (psf)	$S_{u(remolded)}$ [6,7] (psf)
HA08-1	11.5	2 x 8.5	FV1	25.3 - 26.0	-13.8 - -14.5	264	72	900	250
		2 x 8.5	FV2	35.3 - 36.0	-23.8 - -24.5	192	96	650	330
		2 x 8.5	FV3	45.3 - 46.0	-33.8 - -34.5	204	120	690	410
		2 x 8.5	FV4	56.3 - 57.0	-44.8 - -45.5	360	156	1,220	530
HA08-2	9.0	2 x 8.5	FV1	25.3 - 26.0	-16.3 - -17.0	180	60	610	200
		2 x 8.5	FV2	35.3 - 36.0	-26.3 - -27.0	120	36	410	120
		2 x 8.5	FV3	45.3 - 46.0	-36.3 - -37.0	168	48	570	160
		2 x 8.5	FV4	55.3 - 56.0	-46.3 - -47.0	144	36	490	120
HA08-4	12.0	3.5 x 8	FV1	22.3 - 23.0	-10.3 - -11.0	950	-	1,050	-
		3.5 x 8	FV2	27.3 - 28.0	-15.3 - -16.0	540	142	590	160
		3.5 x 8	FV3	30.3 - 31.0	-18.3 - -19.0	450	80	500	90
		3.5 x 8	FV4	35.3 - 36.0	-23.3 - -24.0	305	45	340	50
		3.5 x 8	FV5	40.3 - 41.0	-28.3 - -29.0	360	108	400	120
		3.5 x 8	FV6	45.3 - 46.0	-33.3 - -34.0	384	96	420	110
		3.5 x 8	FV7	50.3 - 51.0	-38.3 - -39.0	552	72	610	80
HA08-5(OW)	9.0	2 x 8.5	FV1	20.3 - 21.0	-11.3 - -12.0	212	75	720	260
		2 x 8.5	FV2	25.3 - 26.0	-16.3 - -17.0	213	59	720	200
		2 x 8.5	FV3	30.3 - 31.0	-21.3 - -22.0	215	51	730	170
		2 x 8.5	FV4	35.3 - 36.0	-26.3 - -27.0	175	85	600	290
		2 x 8.5	FV5	40.3 - 41.0	-31.3 - -32.0	175	55	600	190
		2 x 8.5	FV6	50.3 - 51.0	-41.3 - -42.0	205	109	700	370
HA08-7(OW)	12.0	2 x 8.5	FV1	20.3 - 21.0	-8.3 - -9.0	245	95	830	320
		2 x 8.5	FV2	25.3 - 26.0	-13.3 - -14.0	215	51	730	170
		2 x 8.5	FV3	30.3 - 31.0	-18.3 - -19.0	201	82	680	280
		2 x 8.5	FV4	35.3 - 36.0	-23.3 - -24.0	255	62	870	210
HA08-8	9.0	3.5 x 8	FV1	18.3 - 19.0	-9.3 - -10.0	420	60	460	70
		3.5 x 8	FV2	22.3 - 23.0	-13.3 - -14.0	552	48	610	50
		3.5 x 8	FV3	30.3 - 31.0	-21.3 - -22.0	346	108	380	120
		3.5 x 8	FV4	35.3 - 36.0	-26.3 - -27.0	708	132	780	150
		3.5 x 8	FV5	39.3 - 40.0	-30.3 - -31.0	936	72	1,030	80
HA08-10	9.0	3.5 x 8	FV1	19.3 - 20.0	-10.3 - -11.0	468	96	520	110
		3.5 x 8	FV2	23.3 - 24.0	-14.3 - -15.0	660	120	730	130
		3.5 x 8	FV3	27.3 - 28.0	-18.3 - -19.0	360	84	400	90
		3.5 x 8	FV4	30.3 - 31.0	-21.3 - -22.0	204	62	220	70
HA08-11	11.0	2 x 8.5	FV1	25.3 - 26.0	-14.3 - -15.0	215	50	720	170
HA08-13	9.0	2 x 8.5	FV1	20.3 - 21.0	-11.3 - -12.0	199	50	670	170
		2 x 8.5	FV2	25.3 - 26.0	-16.3 - -17.0	174	71	590	240
		2 x 8.5	FV3	30.3 - 31.0	-21.3 - -22.0	82	75	280	250
		2 x 8.5	FV4	35.3 - 36.0	-26.3 - -27.0	215	64	720	220

Notes:

[1] Approximate test boring locations are shown on Figures 2 and 3, Site and Subsurface Exploration Location Plans.

[2] Ground surface elevations at test boring locations are approximate and were estimated by interpolating between 2008 elevation contour data provided by others.

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

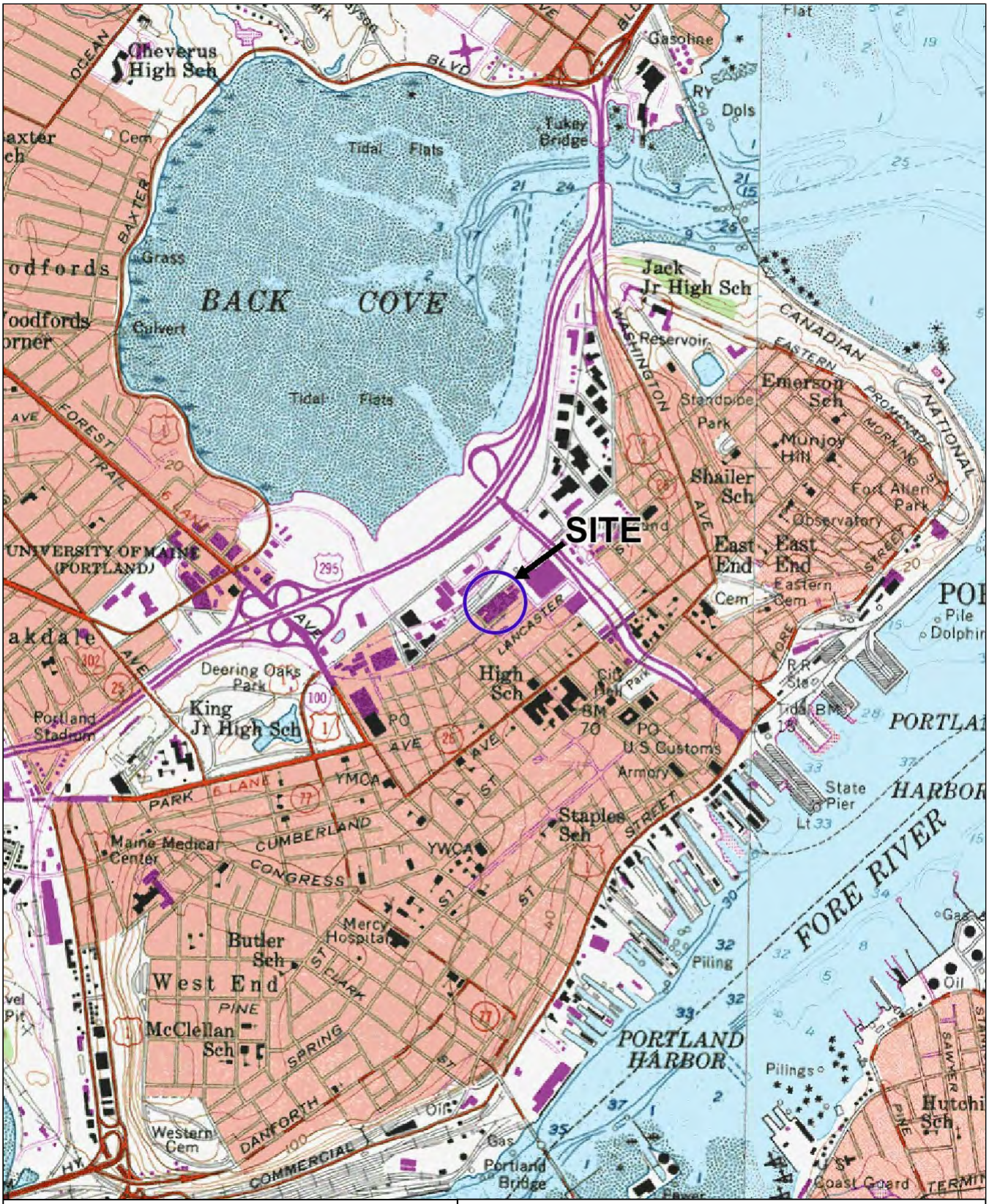
[4] Vane numbers are shown on the Test Boring Logs presented in Appendix A.

[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 shear strengths, respectively, rounded to the nearest 10 psf.

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

Developed By:	BCS	11/10/2014
Checked By:	EAF	11/10/2014
Reviewed By:	WAC	11/12/2014



SITE COORDINATES:43°39'45"N 70°15'39"W

U.S.G.S. QUADRANGLE: PORTLAND WEST, ME

HALEY & ALDRICH

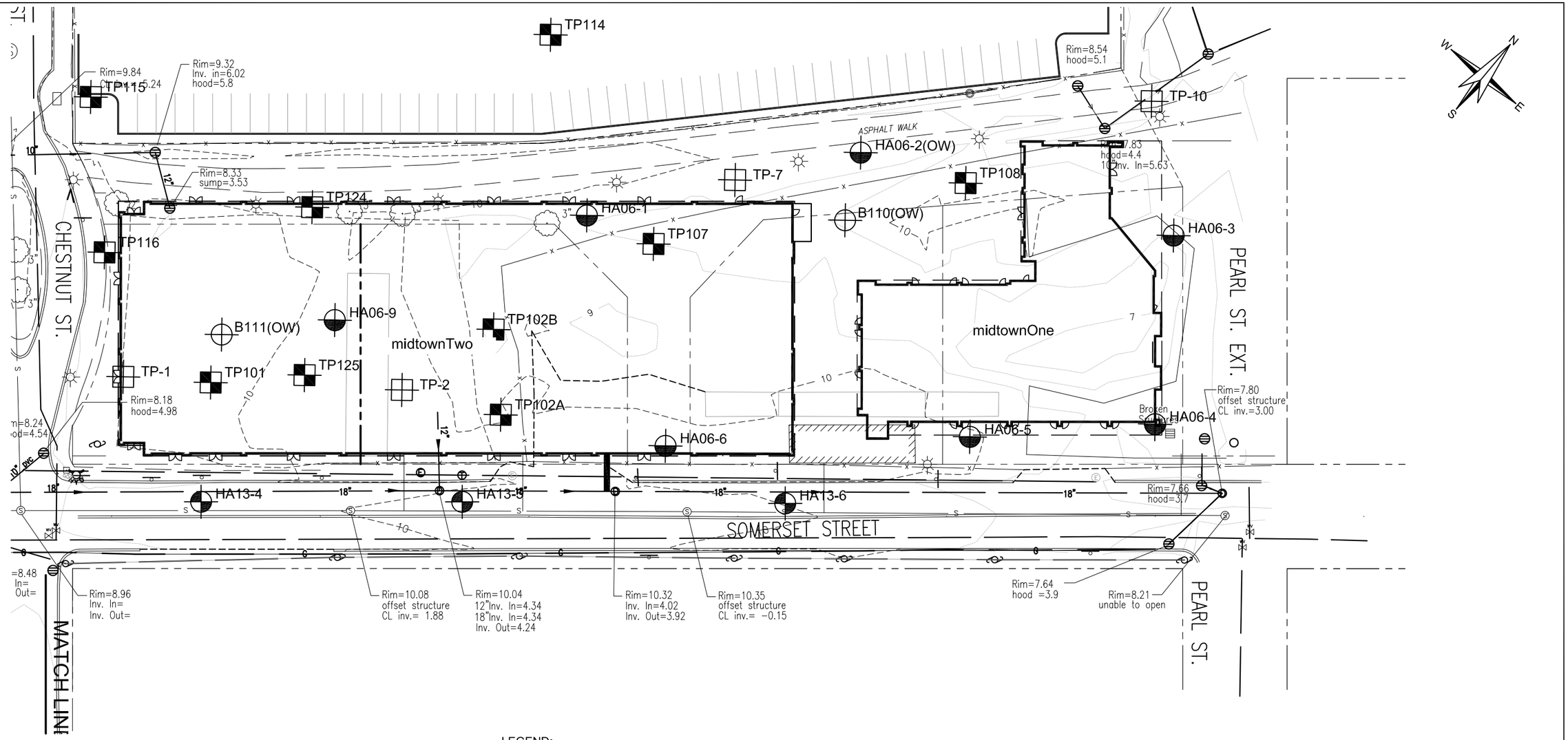
midtown DEVELOPMENT
SOMERSET STREET
PORTLAND, MAINE

PROJECT LOCUS

SCALE: 1:24,000
NOVEMBER 2014

FIGURE 1

38354-000 1.PDF



NOTES:

1. EXISTING SITE CONDITIONS, CONTOURS OF EXISTING GROUND SURFACE ELEVATIONS AND LOCATION AND ORIENTATION OF EXISTING SITE FEATURES ARE TAKEN FROM THE ELECTRONIC AUTOCAD FILE "3062-EXISTING W BLDG.dwg" PROVIDED BY FAY, SPOFFORD & THORNDIKE ON 7 NOVEMBER 2014.
2. THE LOCATION AND ORIENTATION OF PROPOSED BUILDING FOOTPRINTS ARE TAKEN FROM THE ELECTRONIC AUTOCAD FILE "3062-EXISTING W BLDG.dwg" PROVIDED BY FAY, SPOFFORD & THORNDIKE ON 7 NOVEMBER 2014.
3. LOCATIONS OF SUBSURFACE EXPLORATIONS ARE APPROXIMATE AND WERE DETERMINED BY TAPING/PACING DISTANCES FROM EXISTING SITE FEATURES.
4. ELEVATIONS ARE IN FEET AND REFERENCE PORTLAND CITY DATUM.
5. SUBSURFACE EXPLORATIONS WERE MONITORED IN THE FIELD BY HALEY & ALDRICH, INC. OR TEWHEY ASSOCIATES PERSONNEL.
6. REFER TO APPENDIX A FOR LOGS OF SUBSURFACE EXPLORATIONS.

LEGEND:

HA13-4	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NORTHERN TEST BORING OF GORHAM, MAINE ON 31 JANUARY 2013 FOR THE PROPOSED SOMERSET STREET IMPROVEMENT PROJECT
HA06-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY MAINE TEST BORINGS OF HERMON, MAINE IN AUGUST 2006 FOR THE PROPOSED BAYSIDE PARKING GARAGE AND MASTER PLANNING PROJECTS
B110	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY MAINE TEST BORINGS OF HERMON, MAINE IN NOVEMBER 2000 FOR THE UNION BRANCH RAIL LINE PROPERTY PHASE II ENVIRONMENTAL SITE ASSESSMENTS
TP101	DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT EXCAVATED BY ENVIRONMENTAL PROJECTS, INC. OF GRAY, MAINE IN NOVEMBER 2000 FOR FOR THE UNION BRANCH RAIL LINE PROPERTY PHASE II ENVIRONMENTAL SITE ASSESSMENTS
TP2	DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT EXCAVATED BY COMMERCIAL PAVING & RECYCLING OF SCARBOROUGH, MAINE IN OCTOBER 1988 FOR PORTLAND BROWNFIELDS PROJECT (PHASE II ESA)
10	ELEVATION CONTOUR OF EXISTING GROUND SURFACE
(OW)	DENOTES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

0 50 100
SCALE IN FEET

HALEY & ALDRICH

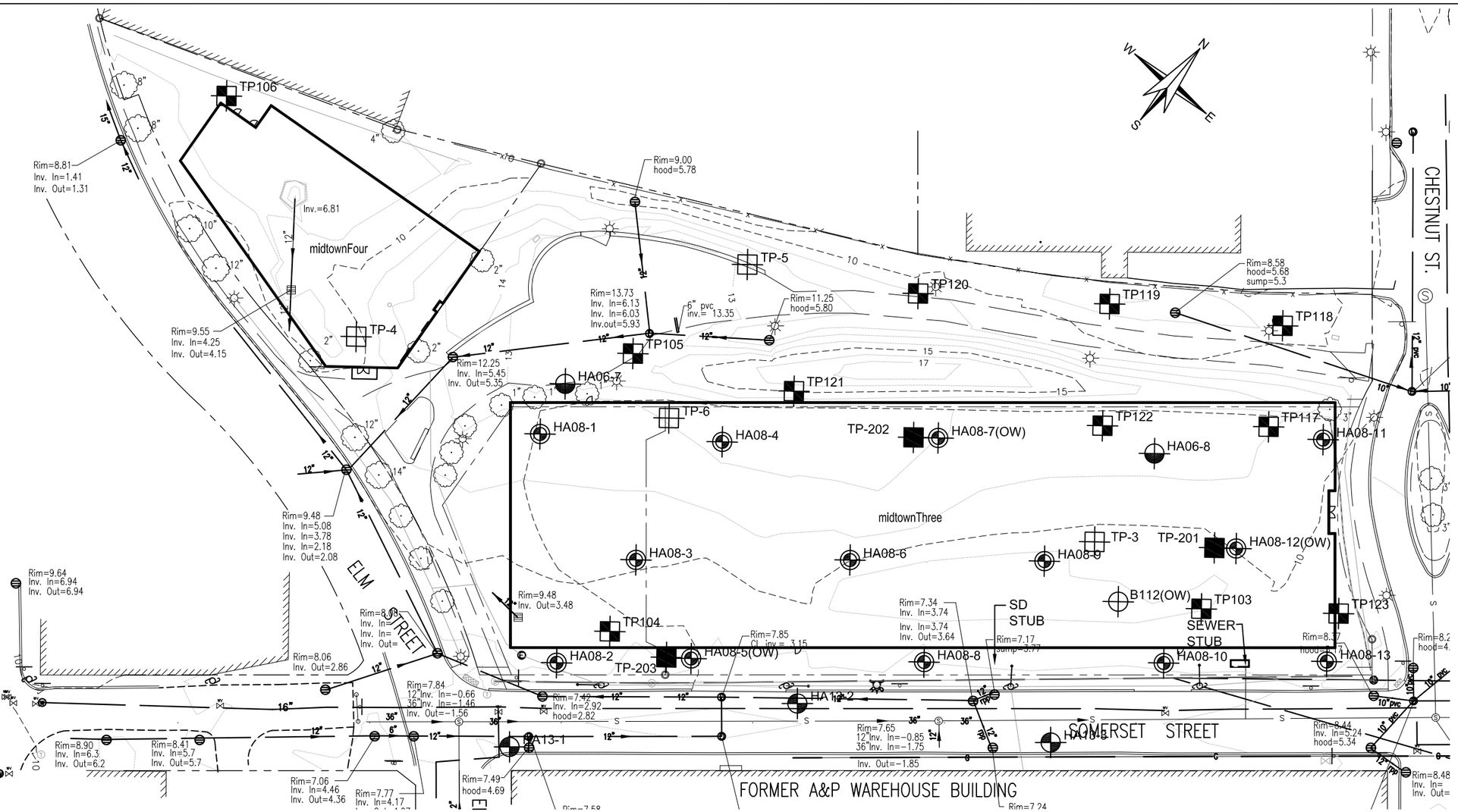
midtown DEVELOPMENT
SOMERSET STREET
PORTLAND, MAINE

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN (1 OF 2)

SCALE: AS SHOWN
NOVEMBER 2014

FIGURE 2

G:\PROJECTS\38354 - MARITIME LANDING\AUTOCAD\2013_0517_HAL FIG2.DWG



NOTES:

1. EXISTING SITE CONDITIONS, CONTOURS OF EXISTING GROUND SURFACE ELEVATIONS AND LOCATION AND ORIENTATION OF EXISTING SITE FEATURES ARE TAKEN FROM THE ELECTRONIC AUTOCAD FILE "3062-EXISTING W BLDG.dwg" PROVIDED BY FAY, SPOFFORD & THORNDIKE ON 7 NOVEMBER 2014.
2. THE LOCATION AND ORIENTATION OF PROPOSED SITE FEATURES ARE TAKEN FROM THE ELECTRONIC AUTOCAD FILE "3062-EXISTING W BLDG.dwg" PROVIDED BY FAY, SPOFFORD & THORNDIKE ON 7 NOVEMBER 2014.
3. LOCATIONS OF SUBSURFACE EXPLORATIONS ARE APPROXIMATE AND WERE DETERMINED BY TAPING/PACING DISTANCES FROM EXISTING SITE FEATURES.
4. ELEVATIONS ARE IN FEET AND REFERENCE PORTLAND CITY DATUM.
5. SUBSURFACE EXPLORATIONS WERE MONITORED IN THE FIELD BY HALEY & ALDRICH, INC. OR TEWHEY ASSOCIATES PERSONNEL.
6. REFER TO APPENDIX A FOR LOGS OF SUBSURFACE EXPLORATIONS.

LEGEND:

HA13-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NORTHERN TEST BORING OF GORHAM, MAINE ON 31 JANUARY 2013 FOR THE PROPOSED SOMERSET STREET IMPROVEMENT PROJECT
HA08-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY MAINE TEST BORINGS OF HERMON, MAINE IN 2008 FOR THE PROPOSED MAINEHEALTH/UNITED WAY DEVELOPMENT
B112	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY MAINE TEST BORINGS OF HERMON, MAINE IN NOVEMBER 2000 FOR THE UNION BRANCH RAIL LINE PROPERTY PHASE II ENVIRONMENTAL SITE ASSESSMENTS
TP-201	DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT EXCAVATED BY ENVIRONMENTAL PROJECTS, INC. OF GRAY, MAINE IN OCTOBER 2008 FOR THE MAINEHEALTH/UNITED WAY DEVELOPMENT
TP108	DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT EXCAVATED BY ENVIRONMENTAL PROJECTS, INC. OF GRAY, MAINE IN NOVEMBER 2000 FOR FOR THE UNION BRANCH RAIL LINE PROPERTY PHASE II ENVIRONMENTAL SITE ASSESSMENTS
TP4	DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT EXCAVATED BY COMMERCIAL PAVING & RECYCLING OF SCARBOROUGH, MAINE IN OCTOBER 1988 FOR PORTLAND BROWNFIELDS PROJECT (PHASE II ESA)
10	ELEVATION CONTOUR OF EXISTING GROUND SURFACE
(OW)	DENOTES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

0 60 120
SCALE IN FEET

HALEY & ALDRICH

midtown DEVELOPMENT
SOMERSET STREET
PORTLAND, MAINE

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN (2 OF 2)

SCALE: AS SHOWN
NOVEMBER 2014

FIGURE 3

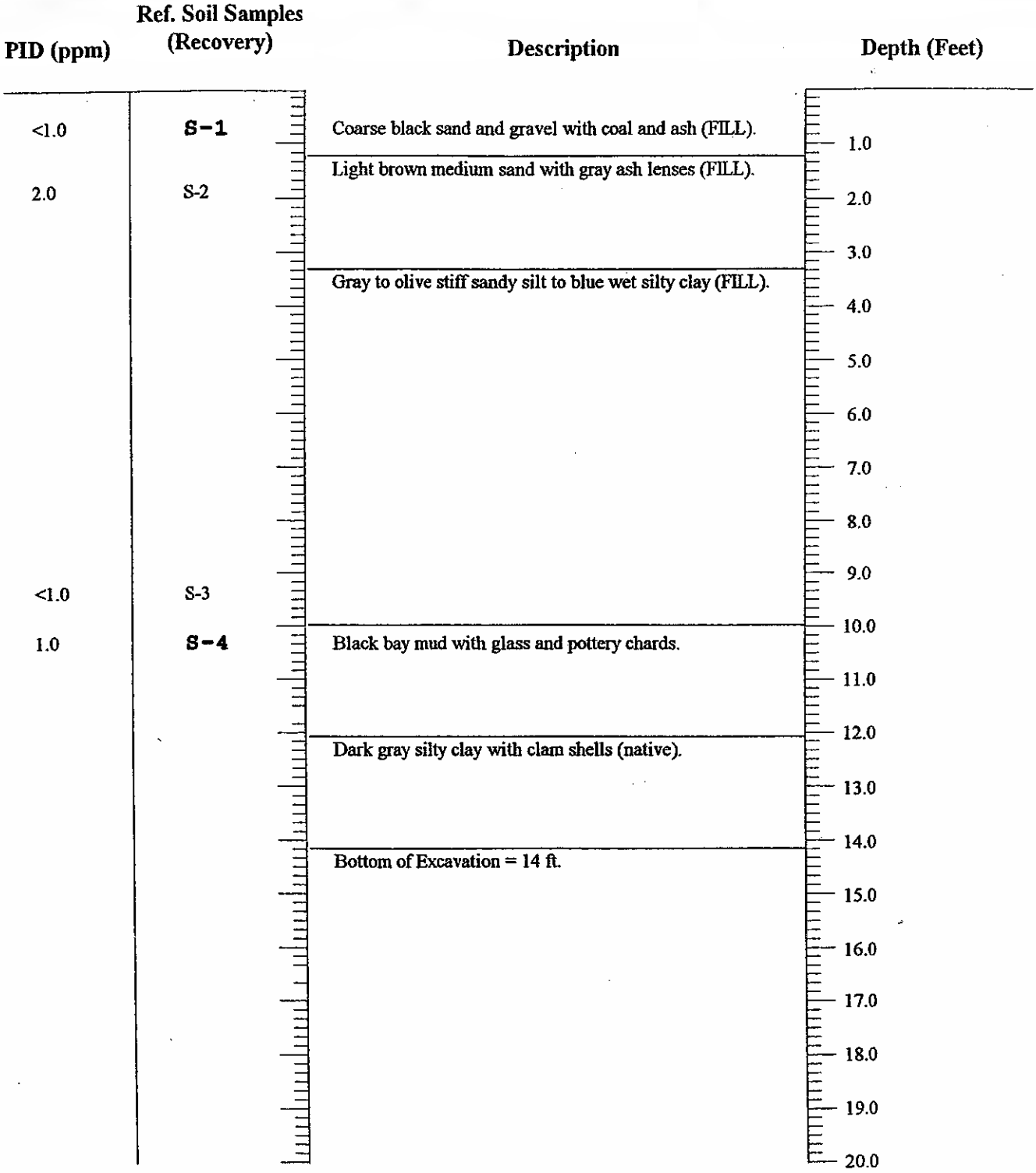
G:\PROJECTS\38354 - MARITIME LANDING\AUTOCAD\2013_0517_HAI_FIG2.DWG

APPENDIX A

Logs of Subsurface Explorations

1998 Test Pit Logs for
Phase II Environmental Site Assessment
(see Reference 1)

TEWHEY ASSOCIATES		TEST PIT LOG	
PROJECT:	Portland Brownfields - Portland Terminal	BACKHOE:	Commercial Paving
PROJECT NO:	97-005		
DATE:	10-29-98	NO:	TP-1
INVESTIGATOR	J Tewhey	LOCATION:	Middle of Site



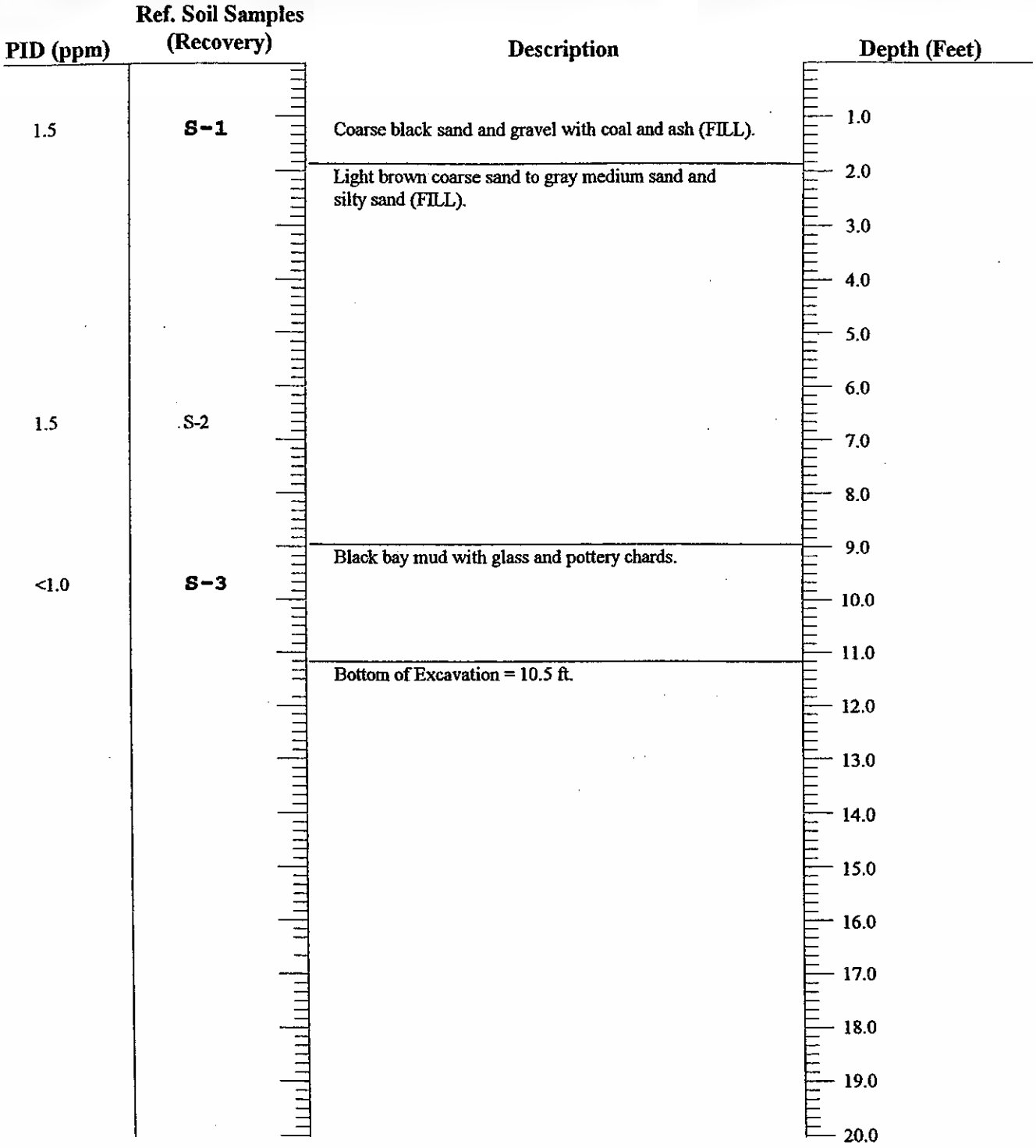
Comments:	Sample ID in **bold** indicates soil sample was submitted to laboratory for analysis.
Water Table Present:	Wetness observed at 7 ft below ground surface.

..WHEY ASSOCIATES		TEST PIT LOG	
..JECT:	Portland Brownfields Portland Terminal	BACKHOE:	Commercial Paving
..JECT NO:	97-005		
..ATE:	10-29-98	NO:	TP-2
..ESTIGATOR:	J. Tester	LOCATION:	Middle of Site

PID (ppm)	Ref. Soil Samples (Recovery)	Description	Depth (Feet)
2.1	**S-1**	Coarse black sand and gravel with coal and ash (FILL).	1.0
		Light brown medium sand, light gray at depth (FILL).	2.0
73.0	**S-2**		3.0
			4.0
			5.0
			6.0
250	**S-3**		
		Bottom of Excavation = 6 ft.	7.0
			8.0
			9.0
			10.0
			11.0
			12.0
			13.0
			14.0
			15.0
			16.0
			17.0
			18.0
			19.0
			20.0

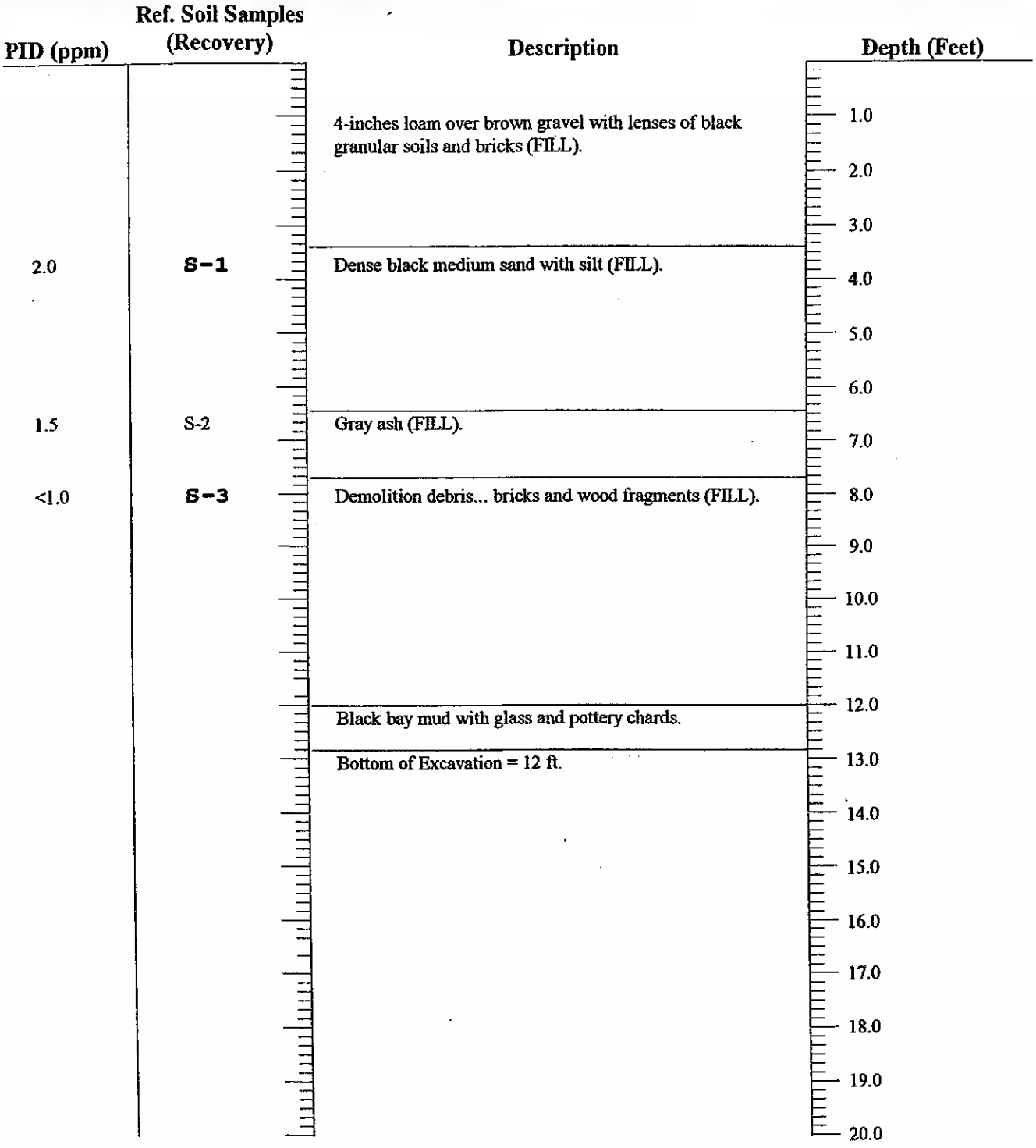
..mments:	Sample ID in **bold** indicates soil sample was submitted to laboratory for analysis.
..ter Table Present:	Wetness observed at 4 ft below ground surface.

TEWHEY ASSOCIATES		TEST PIT LOG	
PROJECT:	Portland Brownfields - Portland Terminal	BACKHOE:	Commercial Paving
PROJECT NO:	97-005		
DATE:	10-29-98	NO:	TP-3
INVESTIGATOR	J. Tewhey	LOCATION:	Middle of Site



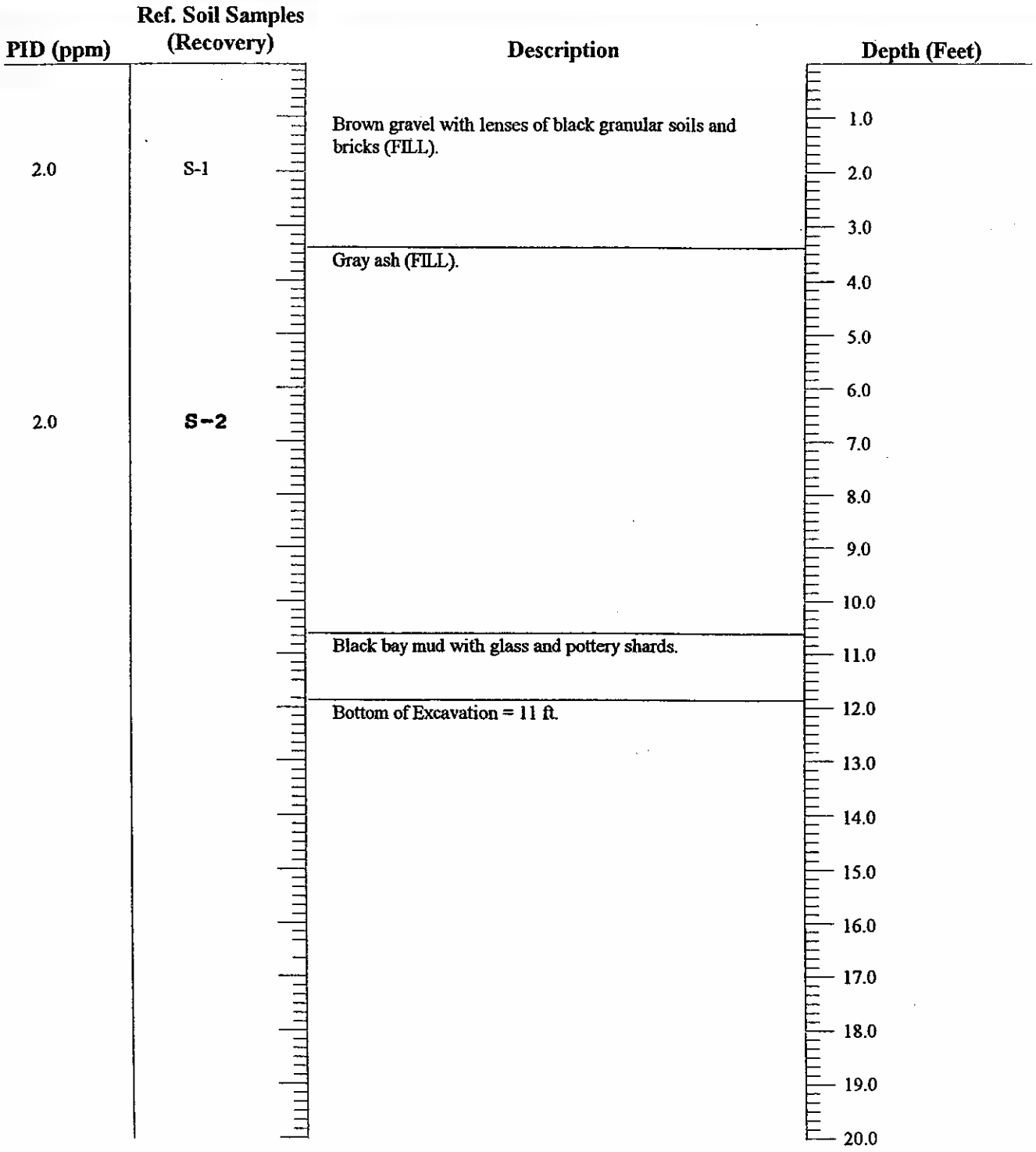
Comments:	Sample ID in **bold** indicates soil sample was submitted to laboratory for analysis.
Water Table Present:	Wetness observed at 4 ft below ground surface.

TEWHEY ASSOCIATES		TEST PIT LOG	
PROJECT:	Portland Brownfields- Portland Terminal	BACKHOE:	Commercial Paving
PROJECT NO:	97-005		
DATE:	10-29-98	NO:	TP-4
INVESTIGATOR:	J. Tewhey	LOCATION:	West Side of Site



Comments:	Sample ID in **bold** indicates soil sample was submitted to laboratory for analysis.
Water Table Present:	Wetness observed at 7 ft below ground surface.

PEWHEY ASSOCIATES		TEST PIT LOG	
PROJECT:	Portland Brownfields- Portland Terminal	BACKHOE:	Commercial Paving
PROJECT NO:	97-005		
DATE:	10-29-98	NO:	TP-5
INVESTIGATOR	J. Pewhey	LOCATION:	West Side of Site



Comments:	Sample ID in **bold** indicates soil sample was submitted to laboratory for analysis.
Water Table Present:	Wetness observed at 4 ft below ground surface.

TEWHEY ASSOCIATES		TEST PIT LOG	
PROJECT:	Portland Brownfields- Portland Terminal	BACKHOE:	Commercial Paving
PROJECT NO:	97-005		
DATE:	10-29-98	NO:	TP-6
INVESTIGATOR	J. Tewhey	LOCATION:	West Side of Site

PID (ppm)	Ref. Soil Samples (Recovery)	Description	Depth (Feet)
		Coarse black sand and gravel with coal and ash (FILL).	1.0
1.0	**S-1**		2.0
			3.0
		Dark brown, black, silty fine sand (FILL).	4.0
			5.0
2.0	S-2	Gray ash (FILL).	6.0
			7.0
2.0	**S-3**	Black dump refuse... glass, wood, pottery, metal, leather; sewerage odor (FILL).	8.0
			9.0
			10.0
		Dark gray silty clay with clam shells (native).	11.0
		Bottom of Excavation = 11 ft.	12.0
			13.0
			14.0
			15.0
			16.0
			17.0
			18.0
			19.0
			20.0

Comments:	Sample ID in **bold** indicates soil sample was submitted to laboratory for analysis.
Water Table Present:	Wetness observed at 5 ft below ground surface.

...WHEY ASSOCIATES		TEST PIT LOG	
...OJECT:	Portland Brownfields- Portland Terminal	BACKHOE:	Commercial Paving
...JECT NO:	[illegible]		
...ATE:	[illegible]	NO:	TP-[illegible]
...ESTIGATOR	J. [illegible]	LOCATION:	Middle of Site

PID (ppm)	Ref. Soil Samples (Recovery)	Description	Depth (Feet)
1.0	S-1	Coarse black sand and gravel with coal and ash (FILL).	0.0–1.0
		Blue gray silty clay (FILL).	1.0–11.0
		Dark gray silty CLAY with clam shells (native).	11.0–12.0
		Bottom of Excavation = 12 ft.	12.0

Depth scale: 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0

...ments:	Sample ID in **bold** indicates soil sample was submitted to laboratory for analysis.
...ater Table Present:	Wetness observed at 11 ft below ground surface.

...HEY ASSOCIATES — TEST PIT LOG

...JECT:	Portland Brownfields- Portland Terminal	BACKHOE:	Commercial Paving
...JECT NO:	97-005		
...TE:	10-29-98	NO.:	TP-10
...STIGATOR	[illegible]	LOCATION:	East Side of Site

PID (ppm)	Ref. Soil Samples (Recovery)	Description	Depth (Feet)
<1.0	S-1	Coarse black sand and gravel with coal and ash (FILL).	0.0 – 1.4
		Light brown medium sand (FILL).	1.4 – 2.2
		Gray silty clay (FILL).	2.2 – 5.1
2.0	S-2	Light brown medium sand (FILL).	5.1 – 7.3
		Bottom of Excavation = 7 ft.	

Depth scale: 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0

...ents:	Sample ID in bold indicates soil sample was submitted to laboratory for analysis.
...Table Present:	Wetness observed at 5 ft below ground surface.

2000 Test Pit Logs for
Phase II Environmental Site Assessment
(see Reference 1)

HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP101

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	20 November 2000
Weather	Cloudy
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:**

Location: See Plan

Groundwater depths/entry rates (in./min.):

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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	101-1 0'			>50% cinders and coal fragments in black stained matrix of medium to fine SAND with silt										
	101-2 1'	0.8	SW	-RAILYARD FILL- Yellow-brown to light brown well graded SAND with lenses of silty clay as in 101-3, dry			10	80	5	5				
2		1.5	ML	-SAND FILL- Olive gray to gray clayey SILT with sand, soft, moist										
				-CLAYEY SILT FILL-										
	101-3 3.5'													
4														
6														
8														
10		10.0		Bottom of Excavation at 10.0 ft.										

Obstructions:

Remarks: Running sand caused collapse of pit

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 10.0

Pit Length x Width 4.0 x 12.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP102A

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	20 November 2000
Weather	Cloudy
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:**	**Location:** See Plan	**Groundwater depths/entry rates (in./min.):** Water entering slowly at 5.0 ft.

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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	102A-1 0'			-RAILYARD FILL- (See 101-1)										
	102A-2 1'	0.8	SW	Red-brown, yellow-brown, light brown well-graded SAND with 3-4inch thick lenses of dark granular railbed material as in 102A-1 -SAND FILL-			10	80	5	5				
2		2.5	ML	Olive-gray to gray clayey SILT with sand, medium stiff, increasingly moist with depth -CLAYEY SILT FILL-										
4														
	102A-3 5'													
6														
8														
10		10.0		Bottom of Excavation at 10.0 ft.										

Obstructions:

Remarks: Running sand caused collapse of pit

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 10.0

Pit Length x Width 4.0 x 12.0

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

HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP102B

Project	**Union Branch Acquisition**
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	20 November 2000
Weather	Cloudy
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:**	**Location:** See Plan	**Groundwater depths/entry rates (in./min.):** Water moderate at 4.0 ft.

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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	102B-1 0.5'	0.8	SW	>50% cinders and coal fragments in black stained matrix of medium to fine SAND with silt -RAILYARD FILL- Light brown to brown well-graded SAND, mps= 1.0 inch -SAND FILL-	5	5	10	70	5	5				
2														
4	102B-2 5'													
6		7.0		Bottom of Excavation at 7.0 ft.										

Obstructions:

Remarks: Running sands at 6.0 ft., pit collapsed

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 7.0

Pit Length x Width 4.0 x 12.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP103

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	20 November 2000
Weather	Cloudy
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:**

Location: See Plan

Groundwater depths/entry rates (in./min.): Water inflow is rapid from -HARBOR BOTTOM DEPOSIT- Water slow at 3.0 ft.(perched), rapid at 10.0 ft.

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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	103-1 0'	0.5		-RAILYARD FILL- (See 101-1)										
	103-2 1'		SW	Light brown well-graded SAND, few lenses of dark granular rail bed material as in 103-1 -SAND FILL-			10	80	5	5				
2		2.0	ML	Olive-gray clayey SILT with sand and gravel, medium stiff -CLAYEY SILT FILL-										
	103-3 3'													
4		4.0	ML	Gray clayey SILT with sand, very soft -CLAYEY SILT FILL-										
	103-4 5.5'													
6														
8														
	103-5 9.5'	9.5		Black-brown organic material with some clay -HARBOR BOTTOM DEPOSIT-(FILL)										
10														
	103-6 11'	11.0	CL	Olive-gray lean CLAY with silt, trace medium sand, medium stiff, presence of clam shell fossils is diagnostic of -NATIVE SOILS- <<C>-MARINE DEPOSIT-										
12		12.0		Bottom of Exploration at 12.0 ft.										

Obstructions:

Remarks:

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 12.0

Pit Length x Width 4.0 x 14.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP104

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	20 November 2000
Weather	Cloudy
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:**

Location: See Plan

Groundwater depths/entry rates (in./min.): Water emerges from ash at 6.0 ft., has slight sheen

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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	104-1 0.5'			Gray coarse coal ash mixed with 20% silty LOAM -ASH FILL-										
	104-2 1.5'	1.5	ML	Olive-gray clayey SILT with sand, stiff -CLAYEY SILT FILL-										
2		2.5		Gray, coarse coal ash -ASH FILL-										
4														
6		6.0		Dark brown to black heterogeneous mix of ash, organic marine deposit, trash and clayey SILT -ASH AND REFUSE FILL-										
	104-3 7'													
8				Black stained coarse COAL ASH with trash, glass, ceramic, leather, metal, shell, wood										
	104-4 9'	9.5	CL	Olive-gray lean CLAY with silt -MARINE DEPOSIT-										
10		10.0		Bottom of Excavation at 10.0 ft.										

Obstructions:

Remarks:

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

Standing Water in Completed Pit

at depth 7.5 ft
measured after 0.25 hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 10.0
Pit Length x Width 4.0 x 14.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP105

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	20 November 2000
Weather	Cloudy
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:**	**Location:** See Plan	**Groundwater depths/entry rates (in./min.):**

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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				Heterogeneous mix of used brick, sheets of metal, concrete blocks in matrix of brown sandy LOAM -MIXED FILL- Solid mass of wood in matrix of black rubber/plastic prevented digging										
2														
		3.5		Bottom of Excavation at 3.5 ft.										

Obstructions: Wood and rubber/plastic massive block

Remarks:

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 3.5

Pit Length x Width 4.0 x 10.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP106

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	20 November 2000
Weather	Cloudy
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:** | **Location:** See Plan | **Groundwater depths/entry rates (in./min.):** Water entering pit slowly at 4.5 ft. (perched)

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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	106-1 0'		SW	Brown to dark brown well sorted SAND, mps=1.0 in. -SAND FILL-	10	5	5	70	5	5				
		1.0		-RAILYARD FILL- (See 101-1)										
2	106-2 1.5'													
		3.0		Gray coarse coal ash -ASH FILL-										
4	106-3 3.5'													
	106-4 4.5'	4.5		Gray-brown coarse SAND with silt										
		5.0		-MARINE DEPOSIT-										
6			ML	Olive-gray clayey SILT which becomes silty CLAY with increasing depth; stiff at 6.0 ft. to soft at 10.0 ft., fossil clam shells at 11.0 ft. -MARINE DEPOSIT-										
8														
10			CL											
		11.5		Bottom of Excavation at 11.5 ft.										

Obstructions:

Remarks: Deposit at 4.5 ft. represents former bottom sediments of back cove. Deposit at 5.0 ft. are interpreted to be native soils.

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 11.5

Pit Length x Width 4.0 x 13.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP107

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	21 November 2000
Weather	Clear
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:**

Location: See Plan

Groundwater depths/entry rates (in./min.): Water rapid at 9.5 ft.; entering pit on top of native clay soils at 9.75 ft.

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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	107-1 0'			-RAILYARD FILL- (See 101-1)										
		0.8												
		1.0	SW	Brown well-graded coarse SAND										
	107-2 1.5'		ML	Olive-brown clayey SILT with sand, medium stiff, dry										
2				-CLAYEY SILT FILL-										
4														
6														
	107-3 7'		ML	Olive-gray clayey SILT with SAND, soft, moist										
8														
	107-4 9.75'	9.8	CL	Olive-gray lean CLAY with silt and trace medium sand, medium stiff, clam shell fossils are diagnostic of native soils										
10		11.0		-MARINE DEPOSIT- Bottom of Excavation at 11.0 ft.										

Obstructions:

Remarks:

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 11.0

Pit Length x Width 4.0 x 12.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP108

Project	Union Branch Acquisition	**File No.**	80509-014
Location	Portland, Maine	**Date**	21 November 2000
Client	Maine Department of Transportation	**Weather**	Clear
Contractor	Environmental Projects, Inc.	**H&A Rep**	J. Tewhey
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket		

Ground El.: ft
El. Datum:
Location: See Plan
Groundwater depths/entry rates (in./min.): Water moderately flowing at 3.5 ft.

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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	108-1 0'			-RAILYARD FILL- (101-1)										
	108-2 1'	0.8	SW	Yellow-brown to brown well-graded SAND with thin lenses of granular material from railbed as in 108-1			5	80	10	5				
2				-SAND FILL-										
4														
6														
		7.0	SW	Gray-brown well-graded SAND										
8				-SAND FILL-										
		8.5		Bottom of Excavation at 8.5 ft.										

Obstructions:

Remarks: Wet flowing sand at 5-6 ft. caused collapse of test pit.

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

Standing Water in Completed Pit

at depth ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 8.5
Pit Length x Width 4.0 x 13.0

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

HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP114

Project	Union Branch Acquisition	**File No.**	80509-014
Location	Portland, Maine	**Date**	21 November 2000
Client	Maine Department of Transportation	**Weather**	Clear
Contractor	Environmental Projects, Inc.	**H&A Rep**	J. Tewhey
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket		

Ground El.: ft **El. Datum:**	**Location:** See Plan	**Groundwater depths/entry rates (in./min.):** Water slowly seeping at 3-4 ft.

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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				-RAILYARD FILL- (See 101-1) with lenses of gray coarse coal ash										
		1.0		Light brown to brown well-graded medium SAND -SAND FILL-										
2														
4														
		5.5												
6	114-2 6.5'			Dark olive brown well-graded coarse to medium SAND, wet -SAND FILL-		10	30	30	20	5				
8														
		9.0		Bottom of Excavation at 9.0 ft.										

Obstructions:

Remarks: Moist sands flowed into pit from side walls, causing collapse of pit

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 9.0

Pit Length x Width 4.0 x 12.0

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

HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP115

Project	**Union Branch Acquisition**
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	21 November 2000
Weather	Clear
H&A Rep	J. Tewhey

Ground El.: ft
El. Datum:

Location: See Plan

Groundwater depths/entry rates (in./min.): Water entering pit rapidly at 1.0 ft. (from culvert)

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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				-HETEROGENEOUS CLAY FILL-										
2				Note: A log platform (road) at 3.5 ft. block digging										
		3.5		Bottom of Excavation at 3.5 ft.										

Obstructions:

Remarks:

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

Standing Water in Completed Pit

at depth ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 3.5
Pit Length x Width 4.0 x 8.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP116

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	21 November 2000
Weather	Clear
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:** | **Location:** See Plan | **Groundwater depths/entry rates (in./min.):**

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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				-RAILYARD FILL- (See 101-1)										
		0.5												
		1.0												
2				Olive brown to olive gray clayey SILT with sand and gravel, medium stiff and becomimg soft at depth	5	5	5	5	20	60				
				-CLAYEY SILT FILL-										
4														
6														
8														
		9.5												
10			CL- ML	Native clay soils										
				-MARINE DEPOSIT-										
12		12.0		Bottom of Excavation at 12.0 ft.										

Obstructions:

Remarks: Clayey silt collapsed into pit, but native clay soils did not.

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 12.0

Pit Length x Width 4.0 x 14.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP117

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	21 November 2000
Weather	Clear
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:** | **Location:** See Plan | **Groundwater depths/entry rates (in./min.):** Water entering pit slowly at 5.0 ft.

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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	117-1 0.5'	1.0		-RAILYARD FILL- (See 101-1).										
2	117-2 3'			Light brown to brown poorly-graded sand, mps= 0.25 in. with wavy lenses of dark brown sand		5	10	80	5					
4		5.0		-SAND FILL-										
6				Olive-gray clayey SILT with sand			5	5	30	60				
8	117-3 7.5'			-CLAYEY SILT FILL-										
		9.5		Bottom of Excavation at 9.5 ft.										

Obstructions:

Remarks: Hole collapsed due to failure of clayey silt fill.

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 9.5

Pit Length x Width 4.0 x 11.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP118

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	21 November 2000
Weather	Clear
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:**

Location: See Plan

Groundwater depths/entry rates (in./min.): Water slowly seeping at 6.5 ft.

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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		0.5		Brown sandy loam with organics and roots -SILT FILL-										
2	118-1 2.5'			Olive-brown to olive-gray clayey SILT FILL, stiff, becomimg medium stiff to soft with depth -CLAYEY SILT FILL-										
4														
6		6.5		Olive-brown silty SAND, mps= 1.0 inch -SAND FILL-										
8	118-2 7.5'													
		8.5	SM	Black silty SAND	10	5	5	15	40	25				
		9.0		Bottom of Excavation at 9.0 ft.										

Obstructions:

Remarks: Clayey silt fill collapsed upon setting for a few minutes.

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 9.0

Pit Length x Width 4.0 x 12.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP119

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	21 November 2000
Weather	Clear
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:**

Location: See Plan

Groundwater depths/entry rates (in./min.): Water emerges from ash at 6.0 ft.

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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		0.3												
	119-1 1'			Light brown to brown well-graded SAND, mps= 1.0 in.										
		1.5		-SAND FILL-										
2	119-2 2'			Gray coarse coal ash with lenses of black railroad yard soils and light brown sand (as in 119-1)										
		3.0		-ASH FILL-										
4	119-3 4.5'			Gray coarse coal ash with mixed trash, all stained jet black, glass, brick, ceramics, leather, metal, wood										
6				-ASH AND REFUSE FILL-										
	119-4 7'													
8														
		9.5		Bottom of Excavation at 9.5 ft.										

Obstructions:

Remarks: Standing water in pit has prominent petroleum sheen; no petroleum odor (cold weather may inhibit odor)

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

Standing Water in Completed Pit

at depth 6.0 ft
measured after 0.25 hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 9.5
Pit Length x Width 4.0 x 14.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP120

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	21 November 2000
Weather	Clear
H&A Rep	J. Tewhey

Ground El.: ft
El. Datum:
Location: See Plan
Groundwater depths/entry rates (in./min.): Water entering pit rapidly from 6-7 ft.

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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	120-1 0'	0.5		Light brown poorly-graded SAND, mps= 0.25 in., grass, roots			10	80	5	5				
	120-2 1'			-RAILYARD FILL- (See 101-1)										
2		2.5												
4	120-3 5'			Gray coarse coal ash -ASH FILL-										
6														
8		8.5		Bottom of Excavation at 8.5 ft.										

Obstructions:

Remarks: Slight petroleum sheen on standing water, no petroleum odor

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

Standing Water in Completed Pit

at depth 6.5 ft
measured after 0.25 hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 8.5
Pit Length x Width 4.0 x 13.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP121

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	21 November 2000
Weather	Clear
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:** | **Location:** See Plan | **Groundwater depths/entry rates (in./min.):**

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test: Dilatancy	Toughness	Plasticity	Strength
0				Brown silty GRAVEL with sand, grass, roots	40	15	10	10	10	15				
	121-1 1'			GRAVEL FILL-										
2	121-2 2'	2.0		-RAILYARD FILL- (See 101-1)										
		2.8				5	10	80	5					
4	121-3 4.5'			Light brown to brown well-graded SAND, mps= 0.25 in., wavy lenses of dark brown sand										
				-SAND FILL-										
6														
	121-4 7'	7.0		Olive-gray calyey SILT with sand and gravel	5	5	5	5	20	60				
				-CLAYEY SILT FILL-										
8		8.0		Note: Log platform at 8.0 ft.										
				Bottom of Excavation at 8.0 ft.										

Obstructions: Wooden (log) platform or road at 8.0 ft. prevented more digging.

Remarks:

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 8.0

Pit Length x Width 4.0 x 11.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP122

Project	Union Branch Acquisition	**File No.**	80509-014
Location	Portland, Maine	**Date**	21 November 2000
Client	Maine Department of Transportation	**Weather**	Clear
Contractor	Environmental Projects, Inc.	**H&A Rep**	J. Tewhey
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket		

Ground El.: ft **El. Datum:** | **Location:** See Plan | **Groundwater depths/entry rates (in./min.):** Water seeping slowly at 3.5 ft.

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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	122-1 0.5'	1.0		-RAILYARD FILL- (See 101-1)										
2	122-2 2'	3.0		Olive-brown clayey SILT with sand and gravel -CLAYEY SILT FILL-										
4	122-3 4'	6.0		Olive-gray clayey SILT with sand and gravel (sand lenses shed water into pit) -CLAYEY SILT FILL-										
6														
8	122-4 8'	10.0		Olive-gray to gray coarse SAND with silt, some ash and marine organics from former back cove bottom -SANDY MIXED FILL-										
10	122-5 10.5'	11.5	CL	Native clay deposits (See 107-4) -MARINE DEPOSIT-										
				Bottom of Excavation at 11.5 ft.										

Obstructions:

Remarks: Water draining from sand lense between clay layers at 3.5 ft.

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 11.5

Pit Length x Width 4.0 x 12.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP123

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	21 November 2000
Weather	Clear
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:** | **Location:** See Plan | **Groundwater depths/entry rates (in./min.):**

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test: Dilatancy	Toughness	Plasticity	Strength
0	123-1 0'			-RAILYARD FILL- (See 101-1)										
	123-2 1'	1.0		Light brown well-graded SAND			5	80	10	5				
	123-3 1.5'	1.5		Olive-brwon clayey SILT with sand and gravel, dry, stiff										
2				-CLAYEY SILT FILL-										
		2.5		Olive-gray clayey SILT with sand and gravel, wet, soft										
				-CLAYEY SILT FILL-										
4	123-4 4'													
6		6.0		Gray coarse coal ash										
	123-5 7'			-ASH FILL-										
8														
		8.5		Gray coarse coal ash with trash; wood, ceramics, glass, leather, metal, brick										
	123-6 9'			-ASH AND REFUSE FILL-										
10														
	123-7 11'	11.0	CL	Native clay deposits (See 107-4)										
12				-MARINE DEPOSIT-										
		12.5		Bottom of Excavation at 12.5 ft.										

Obstructions:

Remarks:

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 12.5

Pit Length x Width 4.0 x 14.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP124

Project	**Union Branch Acquisition**
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	21 November 2000
Weather	Clear
H&A Rep	J. Tewhey

Ground El.: ft **El. Datum:**	**Location:** See Plan	**Groundwater depths/entry rates (in./min.):**

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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		0.5		-RAILYARD FILL- (See 101-1)										
				Yellow-brown to brown well-graded SAND with lenses of dark brown and gray sand -SAND FILL-										
2														
4														
		5.0	SW	Olive-gray to gray well-graded SAND -SAND FILL-										
6		6.0		Bottom of Excavation at 6.0 ft.										

Obstructions:

Remarks: Dry running sand cause collapse of pit

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

Standing Water in Completed Pit

at depth ft

measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 6.0

Pit Length x Width 4.0 x 11.0

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

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HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP125

Project	Union Branch Acquisition
Location	Portland, Maine
Client	Maine Department of Transportation
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu Excavator 0.75 Cubic Yard Bucket
File No.	80509-014
Date	21 November 2000
Weather	Clear
H&A Rep	J. Tewhey

Ground El.: ft
El. Datum:

Location: See Plan

Groundwater depths/entry rates (in./min.):

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, 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		0.5		-RAILYARD FILL-										
				Yellow brown to brown well-graded SAND with 3-4 in. thick lenses of black railyard fill										
				-SAND FILL-										
2														
4														
6		6.0		Olive gray well-graded SAND -SAND FILL-										
		7.5		Bottom of Excavation at 7.5 ft.										

Obstructions:

Remarks: Dry running sands cause collapse of hole

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

Standing Water in Completed Pit

at depth ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"		=
over 24"		=

Test Pit Dimensions (ft)

Pit Depth 7.5
Pit Length x Width 4.0 x 12.0

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

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2000 Test Boring Logs for
Phase II Environmental Site Assessment
(see Reference 1)

TEST BORING REPORT

Boring No. B110

Project: Union Branch Rail Line Property Portland, Maine
Client: Maine Department of Transportation
Contractor: Maine Test Borings, Inc.

File No. 80509-014
Sheet No. 1 of 1
Start 20 November 2000
Finish 20 November 2000
Driller D. McKeen
H&A Rep. K. Stephenson
Elevation Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Mobile B47 Bombardier
Inside Diameter (in.)	4.25	1 3/8	-	Bit Type:
Hammer Weight (lb.)		140	-	Drill Mud:
Hammer Fall (in.)		30	-	Casing:
				Hoist/Hammer: Winch/ Doughnut Hammer

Depth (ft.)	SPT*	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**, 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	2	S1	0.0				Loose, black silty SAND with gravel, roots		20	20	20	10	30				
	5	16"	2.0		0.4		-BALLAST FILL-			30	45	20	5				
	11						Medium dense, black to brown medium to fine SAND, little coarse sand, damp					15	85				
	25				1.0		-GRANULAR FILL-										
	17	S2	2.0				Hard, gray-brown clayey SILT, little fine sand				5	10	85				
	13	4"	4.0				-CLAY FILL-										
	15						Hard, gray-brown clayey SILT with sand, probable gravel, dry										
	15						Note: Water encountered at ~2.8 ft.										
	2	S3	4.0		4.0		Loose, brown SAND, wet			5	65	30					
5	4	12"	6.0				-GRANULAR FILL-										
	5																
	5																
	1	S4	6.0				Loose, gray-brown SAND, black streak ~7.0 ft., wet			10	50	40					
	3	16"	8.0														
	6																
	6																
	5	S5	8.0				Loose, gray-brown SAND, wet			5	65	30					
	4	16"	10.0														
	2																
	3																
10	1	S6	10.0		10.5	OL/ OH	Stiff, gray-brown organic SILT with shells					10	90				
	4	24"	12.0				-HARBOR BOTTOM DEPOSIT-										
	5																
	3																
					12.0		Bottom of Exploration at 12.0 ft.										
							No refusal										
							No elevated PID readings detected during drilling and sampling procedures.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
11/20/00	1315	-	4.0	6.0	2.8

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.) 12.0
Rock Cored (lin. ft.) --
Samples 6S

Boring No. B110

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

*SPT = Sampler blows per 6 in. **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. B111

Project	Union Branch Rail Line Property Portland, Maine
Client	Maine Department of Transportation
Contractor	Maine Test Borings, Inc.

File No. 80509-014
Sheet No. 1 of 1
Start 16 November 2000
Finish 17 November 2000
Driller D. McKeen
H&A Rep. K. Stephenson
Elevation Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Mobile B47 Bombardier
Inside Diameter (in.)	4.25	1 3/8	-	Bit Type:
Hammer Weight (lb.)		140	-	Drill Mud:
Hammer Fall (in.)		30	-	Casing:
				Hoist/Hammer: Winch/ Doughnut Hammer

Depth (ft.)	SPT*	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**, 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	1 4 11 10	S1 12"	0.0 2.0		0.3		Loose, dark brown to black silty SAND with cinder, roots										
							Loose, black silty SAND			10	20	60	10				
					0.6		Medium dense, gray-brown SAND with silt (damp 0-1.0 ft.)				10	80	10				
	4 5 6 8	S2 16"	2.0 4.0				Medium dense, gray-brown coarse to fine SAND, wet			15	25	50	10				
5	1 2 1 2	S3 12"	4.0 6.0				Loose, gray-brown SAND with silt (wet)		5		15	75	5				
	1 2 4 4	S4 13"	6.0 8.0				Similar to S3										
	1 2 2 2	S5 12"	8.0 10.0				Loose, gray SAND, black silty seam 9.8-9.9 ft., wet -GRANULAR FILL-										
10	1 4 3 2	S6 20"	10.0 12.0		10.5	OL/ OH	Medium stiff, gray sandy organic SILT, shells -HARBOR BOTTOM DEPOSIT-					90	10				
					11.8	CL	Soft, gray lean CLAY -MARINE DEPOSIT-					5	95				
					12.0		Bottom of Exploration at 12.0 ft. No refusal										
							No elevated PID readings detected during drilling and sampling procedures.										

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.) 12.0
Rock Cored (lin. ft.) --
Samples 6S

Boring No. B111

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

*SPT = Sampler blows per 6 in. **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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HALEY & ALDRICH

TEST BORING REPORT

Boring No. B112

Project	Union Branch Rail Line Property Portland, Maine
Client	Maine Department of Transportation
Contractor	Maine Test Borings, Inc.

File No. 80509-014
Sheet No. 1 of 1
Start 17 November 2000
Finish 17 November 2000
Driller D. McKeen
H&A Rep. K. Stephenson
Elevation
Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Mobile B47 Bombardier
Inside Diameter (in.)	4.25	1 3/8	-	Bit Type:
Hammer Weight (lb.)		140	-	Drill Mud:
Hammer Fall (in.)		30	-	Casing:
				Hoist/Hammer: Winch/ Doughnut Hammer

Depth (ft.)	SPT*	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**, 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	5 7 10 23	S1 16"	0.0 2.0				Loose, black silty SAND, glass, roots, debris				10	70	20				
					0.6		-DEBRIS FILL-										
							Medium dense, brown to light brown SAND, little silt			20	50	20	10				
							-GRANULAR FILL-										
	20 13 11 6	S2 12"	2.0 4.0		1.8		Medium dense, gray-brown silty coarse to fine SAND, glass, trace clay (till fill)		5		10	65	20				
							Medium dense, gray silty coarse to fine SAND (damp)		5		15	60	20				
	WOR WOH 1 2	S3 18"	4.0 6.0		4.0		Very soft, fine sandy SILT with clay, trace gravel and coarse to medium sand		5	10	10	25	50				
5	WOH WOH 1 1	S4 12"	6.0 8.0				Similar to S3										
	WOR WOH 2 1	S5 22"	8.0 10.0				Very loose, gray silty SAND, little gravel and clay		10	10		50	30				
					9.4		Very soft, black fine sandy SILT with coal fragments										
10	1 1 2 2	S6 24"	10.0 12.0		9.9	OL/ OH CL	Very soft, dark gray organic SILT					10	90				
							-HARBOR BOTTOM DEPOSIT-										
							Soft, gray SILT to CLAY with sand, shells										
					12.0		Bottom of Exploration at 12.0 ft. No refusal No elevated PID readings detected during drilling and sampling procedures.										

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.)	12.0
Rock Cored (lin. ft.)	--
Samples	6S

Boring No. B112

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

*SPT = Sampler blows per 6 in. **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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2006 Test Boring Logs for
Proposed Bayside Parking Garage and Master Planning Study
(see References 2 and 3)

TEST BORING REPORT

Boring No. HA06-1

Project Proposed Bayside Parking Garage & Master Planning Portland, Maine
Client Scott Simons Architects
Contractor Maine Test Borings, Inc.

File No. 33538-000
Sheet No. 1 of 3
Start August 14, 2006
Finish August 15, 2006
Driller P. Hatch
H&A Rep. B. Steinert
Elevation 9.0 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	SS	NQ	Rig Make & Model: Mobile Drill / Truck
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW Drive 45 ft
				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		S1	0.0				NOTE: S1 collected from ground surface. Fill placed for access road. -FILL-										
					2.0												
5	15 16 12 12	S2 6	5.0 7.0			SP	Medium dense, yellow brown, poorly graded SAND (SP), mps 4.75 mm, no odor, wet -FILL-	0	0	5	60	30	5				
10	7 6 3 5	S3 12	10.0 12.0	NO WELL INSTALLED		SP	Medium dense, gray, poorly graded SAND (SP), mps 4.75 mm, no odor, wet -FILL-	0	0	0	60	30	10				
					11.0	ML	Medium stiff, gray, sandy SILT (ML), mps 0.42 mm, bonded, organic odor, wet, shells throughout -HARBOR BOTTOM DEPOSIT-					20	80				
15	WOH 2 1 2	S4 24	15.0 17.0		15.0	CL	Soft, gray to olive-gray, sandy lean CLAY (CL), mps 0.42 mm, bonded, no odor, wet, layers of yellow-brown fine sand, mottled, trace organics -MARINE CLAY-					30	70				
					16.7	CL	Soft, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet -MARINE CLAY-						100				
20							FV1 (20.4 - 21.0 ft), Su > 690 psf										
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.) 40.4
Rock Cored (lin. ft.) 22.0
Samples S8

Boring No. HA06-1

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Toughness: 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. HA06-1
File No. 33538-000
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	WOR WOR WOH 1	S5 24	25.0 27.0			CL	Medium stiff, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, frequent black streaks -MARINE CLAY- FV2 (25.4 - 26.0 ft), Su = > 690 psf FV3 (26.3 - 27.0 ft), Su = 1010 psf / 340 psf						100				
30	WOR WOR 1 7	S6 24	30.0 32.0		31.0	CL	Soft, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, frequent black streaks, frequent fine sand seams at 31.0 ft -MARINE DEPOSIT- FV4 (30.4 - 31.0 ft), Su = 210 psf/150 psf FV5 (31.4 - 32.0 ft), Su > 690 psf										
35	WOR 3 5 6	S7 20	35.0 37.0		35.5	SP	Very loose to loose, gray, poorly graded SAND (SP), mps 2 mm, no structure, no odor, wet -MARINE SAND-	0	0	0	0	70	30				
					38.0		NOTE: Glacial till observed in drill cuttings from 38.0 to 39.8 ft -GLACIAL TILL-										
40	50 (0.4)	S8 0	40.0 42.0		39.8	BR	NOTE: Bedrock encountered at 39.8 ft. Advance roller bit to 40.4 ft. Begin NQ rock core at 40.4 ft. See Core Boring Report for details. NOTE: 1. FV1 (20.4 - 21.0 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 drill 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.

Boring No. HA06-1

CORE BORING REPORT

Boring No. HA06-1
File No. 33538-000
Sheet No. 3 of 3

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
							NO WELL INSTALLED		NOTE: Bedrock encountered at 39.8 ft. Advance roller bit to 40.4 ft. Begin NQ rock core at 40.4 ft.
40	6	C1	40.4 44.4	18/14	38/78	Fresh			Medium hard to hard, fresh to highly weathered, aphanitic to fine grained, gray, graphitic SCHIST. Primary joints dipping at horizontal to vertical angles, extremely close to moderately spaced, moderately wide, rough, stepped.
	2					High			
	1								
	3					Slight			
	7	C2	44.4 49.4	0/0	0/0	Comp			NOTE: No recovery
45	5								
	6								
	4								
	5								
50									NOTE: Roller cone through weathered bedrock from 49.9 to 52.2 ft.
	4	C3	52.2 57.8	67/17	100/28	Mod/ Slight			Very soft, slightly to moderately weathered, aphanitic, gray to black, graphitic SCHIST. Primary joints dipping at vertical angles parallel to foliation, extremely close to moderately spaced, partly open to moderately wide, undulating to stepped. Some calcite veins, occasional pitting, frequent pyrite seams.
	3								
	3								
55	3								
	3								
	3								Very soft to soft, slightly to moderately weathered, aphanitic, gray to black, graphitic SCHIST. Primary joints dipping at moderate to vertical angles (parallel to foliation), extremely close to moderately spaced, undulating to stepped, partly open to moderately wide, frequent calcite veins in upper half of run, occasional pitting, frequent pyrite seams.
	3	C4	57.8 62.4	55/14	100/44	Slight			
	2								
60	3								
	3								
								62.4	-BOTTOM OF EXPLORATION-

TEST BORING REPORT

Boring No. HA06-2

Project Proposed Bayside Parking Garage & Master Planning Portland, Maine
Client Scott Simons Architects
Contractor Maine Test Borings, Inc.

File No. 33538-000
Sheet No. 1 of 2
Start August 16, 2006
Finish August 17, 2006
Driller P. Hatch
H&A Rep. B. Steinert
Elevation 9.0 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	SS	-	Rig Make & Model: Mobile Drill / Truck
Inside Diameter (in.)	4.0	1.375	-	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW Drive 40.0 ft
				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							NOTE: Fill placed for access road -FILL-										
	13 31 36 23	S1 12	1.5 3.5		1.5 2.0	SP CL	Medium dense, yellow-brown to black, poorly graded SAND (SP), mps 4.75 mm, no structure, no odor, dry to moist -FILL- Hard, olive-gray, sandy lean CLAY (CL), mps 2.0 mm, bonded, mottled, no odor, dry, some reworked glacial till, reworked natural material -FILL-	0	0	0	5	10	85				
5	14 14 16 21	S3 10	5.0 7.0		5.0	SP	Medium dense, yellow-brown, poorly graded SAND (SP), mps 4.75 mm, no odor, wet -FILL-	0	0	5	80	10	5				
10	5 4 5 12	S3 16	10.0 12.0			SP	Medium dense, yellow-brown, poorly graded SAND (SP), mps 4.75 mm, no odor, wet -FILL-			20	70	5	5				
					11.3	ML	Stiff, gray, sandy SILT (ML), mps 0.42 mm, bonded, organic odor, wet, organics and shells throughout -HARBOR BOTTOM DEPOSIT-					15	85				
15	3 3 4 3	S4 24	15.0 17.0		15.0	CL	Medium stiff, olive-gray, lean CLAY (CL), mps 0.075 mm, bonded, mottled, no odor, wet -MARINE CLAY-						100				
					16.7	CL	Soft, gray, lean CLAY (CL), mps 0.075 mm, bonded, mottled, no odor, wet -MARINE CLAY-						100				
20							FV1 (20.3 - 21.0 ft), Su = 560 psf/170 psf										
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.) 41.2
Rock Cored (lin. ft.) 0.0
Samples S6

Boring No. HA06-2

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.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA06-2
File No. 33538-000
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	WOR WOR WOH WOH	S5 24	25.0 27.0			CL	Medium stiff, gray, lean CLAY (CL), mps 0.42 mm, bonded, no odor, wet, frequent black streaks, occasional fine sand seam -MARINE CLAY- FV2 (25.4 to 26.0 ft.), Su = 590 psf/120 psf FV3 (30.4 - 31.0 ft), Su = 600 psf/40 psf						100				
30																	
35	15 17 6 12	S5 4	35.0 37.0		34.5	SP	Medium dense, gray, poorly graded SAND (SP), mps 2.0 mm, no odor, wet -MARINE SAND-				5	90	5				
40	52 49 50 (0.2)	S6 0	40.0 42.0		40.0	BR	NOTE: No recovery. Split spoon refusal at 41.2 ft. -WEATHERED BEDROCK- NOTE: Rollercone refusal at 47.2 ft. BGS.										
45					47.2		-BOTTOM OF EXPLORATION- NOTE: Observation well installed in completed borehole. See Well Installation Report for details. NOTE: 1. FV1 (20.4 - 21.0 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 drill 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.

Boring No. HA06-2

TEST BORING REPORT

Boring No. HA06-3

Project Proposed Bayside Parking Garage & Master Planning Portland, Maine
Client Scott Simons Architects
Contractor Maine Test Borings, Inc.

File No. 33538-000
Sheet No. 1 of 2
Start August 9, 2006
Finish August 9, 2006
Driller T. Schaefer
H&A Rep. K. Stone
Elevation 9.0 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	SS	-	Rig Make & Model: Mobile B-47 / Truck
Inside Diameter (in.)	4.0	1.375	-	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW Drive 30.0 ft
				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																	
	18 23 18 20	S1 18	2.0 4.0			SP	Dense, black, poorly-graded SAND (SP), mps 0.75 in., no structure, slight odor, moist -FILL-		5		50	45					
5	6 5 3 6	S2 13	5.0 7.0			SP	Medium dense, dark gray, poorly-graded SAND (SP), mps 0.75 in., metal fragments present				65	35					
					5.9	ML	-FILL- Stiff, gray, sandy SILT (ML), mps 0.45 mm, numerous shell fragments present, no odor, moist -HARBOR BOTTOM DEPOSIT-					20	80				
10	5 7 4 5	S3 3	10.0 12.0	NO WELL INSTALLED		ML	Stiff, gray, sandy SILT (ML), mps 0.45 mm, numerous shell fragments present, no odor, moist -HARBOR BOTTOM DEPOSIT-					20	80				
	WOH 1 2 3	S4 24	12.0 14.0		12.0	CL	Soft, gray, lean CLAY (CL), mps 0.43 mm, wood fragments, organics present, numerous shells, frequent sand partings, no odor, wet -HARBOR BOTTOM DEPOSIT-										
15					15.3		FV1 (15.3 - 16.0 ft), Su = 1430 psf/410 psf										
20	WOR WOR WOR WOH	S5 24	20.0 22.0			CL	Soft, gray, lean CLAY (CL), mps 0.075 mm, occasional black streaks, wet -MARINE CLAY-						100				
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.) 42.0
Rock Cored (lin. ft.) -
Samples S7

Boring No. HA06-3

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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HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA06-3
File No. 33538-000
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							FV2 (25.3 - 26.0 ft), Su = 430 psf/110 psf										
		U1 24	26.0 28.0														
							FV3 (28.3 - 29.0 ft), Su = 430 psf/100 psf										
30	WOR WOR WOR WOH	S6 24	30.0 32.0			CL	Soft, gray, lean CLAY (CL), mps 0.075 mm, some black staining, wet -MARINE CLAY-						100				
35							FV4 (35.3 - 36.0 ft), Su = 540 psf/120 psf										
					39.0												
40	9 12 15 23	S7 18	40.0 42.0			SM	Medium dense, gray, silty SAND (SM), mps 0.75 in., slightly bonded, wet -GLACIAL TILL-		10	15	35	20	20				
					42.0		-BOTTOM OF EXPLORATION-										

NOTE:
1. FV1 (20.4 - 21.0 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 drill 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.

TEST BORING REPORT

Boring No. HA06-4

Project Proposed Bayside Parking Garage & Master Planning Portland, Maine
Client Scott Simons Architects
Contractor Maine Test Borings, Inc.

File No. 33538-000
Sheet No. 1 of 3
Start August 8, 2006
Finish August 8, 2006
Driller T. Schaefer
H&A Rep. K. Stone
Elevation 9.0 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	SS	NQ	Rig Make & Model: Mobile Drill / Truck
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: NW Drive 48.0 ft
				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							-CONCRETE-										
					1.0												
	15 24 32 21	S1 18	2.0 4.0			SM	Very dense, dark gray, silty SAND with gravel (SM), mps 1.0 in., bonded, slight odor, dry -FILL-	5	15	10	10	45	15				
5	9 11 11 3	S2 4	5.0 7.0		5.0	CL	Stiff, gray, sandy lean CLAY (CL), mps 2.0 mm, no odor, wet -FILL-				15	10	75				
10	2 1 1 2	S3 2	10.0 12.0	NO WELL INSTALLED		CL	Very soft, gray, sandy lean CLAY (CL), mps 2.0 mm, no odor, wet -FILL-					25	75				
	4 4 5 8	S4 13	12.0 14.0			CL	Stiff, gray, sandy lean CLAY (CL), mps 2.0 mm, no odor, wet, brick and metal fragments present -FILL-				15	10	75				
15					14.5												
	4 4 5 8	S5 13	15.0 17.0			CL	Stiff, gray, lean CLAY (CL), mps 0.075 mm, no odor, wet -MARINE CLAY-						100				
20							FVT (20.3 - 21.0 ft), Su = 860 psf/170 psf										
25																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
8/9/06	06:45	12.5	48.0	60.2	3.6

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.) 14.2
Samples S8

Boring No. HA06-4

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.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA06-4
File No. 33538-000
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	WOR WOR WOR WOR	S6 24	25.0 27.0			CL	Soft, gray, lean CLAY (CL), mps 0.43 mm, occasional sand partings, wet -MARINE CLAY-						100				
30							FV2 (30.3 - 31.0 ft), Su = 450 psf/170 psf										
35							FV3 (35.3 - 36.0 ft), Su = 490 psf/130 psf										
40	WOR WOR WOR WOR	S7 24	40.0 42.0			CL	Medium stiff, gray, lean CLAY (CL), mps 0.45 mm, occasional sand layers, wet - MARINE CLAY-						100				
					42.0		FV4 (40.3 - 41.0 ft), Su = 570 psf/130 psf -GLACIAL TILL-										
45					45.0	BR	-WEATHERED BEDROCK-										
	50 (.2)	S8	45.5 45.7		46.0		NOTE: Bedrock encountered at 45.0 ft. Advance roller bit to 46.0 ft. Begin NQ rock core at 46.0 ft. See Core Boring Report for details. NOTE: 1. FV1 (20.4 - 21.0 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 drill 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. HA06-4
File No. 33538-000
Sheet No. 3 of 3

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
45									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
									NOTE: Bedrock encountered at 45.0 ft. Advance roller bit to 46.0 ft. Begin NQ rock core at 46.0 ft.
	3	C1	46.0 50.4	24/0	45/0	Weathered		46.0	Very soft to soft, gray, highly weathered, aphanitic to fine grained PHYLLITE. Joints dipping moderate to high, extremely close to very close, planar and smooth to rough, open, occasional pits, quartz intrusion.
	4								
	2								
	2								
50	2	C2	50.4 55.4	34/0	56/0	Weathered			Very soft to soft, gray, highly weathered, aphanitic to fine grained PHYLLITE. Joints dipping moderate to high, extremely close to very close, planar and smooth to rough, open, occasional pits, no quartz, occasional calcite veins.
	2								
	4								
	2								
	2								
55	2	C3	55.4 60.2	48/5	86/10	Weathered	NO WELL INSTALLED		Very soft to soft, greenish-gray, moderately weathered, aphanitic to fine grained PHYLLITE, joints dipping moderate to high angle, very close, partly open to open, occasional calcite veins, 2 in. quartz intrusion, pyrite and staurolite present.
	2								
	2								
	2								
	4								
60	5							60.2	-BOTTOM OF EXPLORATION-

TEST BORING REPORT

Boring No. HA06-5

Project Proposed Bayside Parking Garage & Master Planning Portland, Maine
Client Scott Simons Architects
Contractor Maine Test Borings, Inc.

File No. 33538-000
Sheet No. 1 of 2
Start August 10, 2006
Finish August 11, 2006
Driller T. Schaefer
H&A Rep. B. Steinert
Elevation 10.0 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	SS	-	Rig Make & Model: Mobile Drill / Truck
Inside Diameter (in.)	4.0	1.375	-	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW Drive 20.0 ft
				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				NO WELL INSTALLED	0.3		-BITUMINOUS CONCRETE-										
	6 11 9 13	S1 14	2.0 4.0			SP	Medium dense, yellow-brown, poorly graded SAND (SP), mps 2 mm, no odor, moist	0	0	0	15	80	5				
					3.0	SP	-FILL-	0	0	0	40	50	10				
					4.0		Medium dense, gray-brown, poorly graded SAND (SP), mps 2.0 mm, fuel like odor, moist										
5							-FILL-										
	3 3 3 3	S2 15	5.0 7.0			SC	Medium stiff, gray, clayey SAND with gravel (SC), mps 1.5 in., bonded, no odor, wet, reworked glacial till	10	5	5	15	30	35				
							-FILL-										
10																	
	3 2 2 3	S3 18	10.0 12.0			SC	Soft, black to gray, clayey SAND (SC), mps 4.75 mm, bonded, slight organic odor, wet, trace shells, trace coal, wood fragments present, reworked natural material			5	10	25	60				
							-FILL-										
					14.0												
15	2 4 4 6	S4 20	15.0 17.0			CL	Medium stiff, olive-gray to gray, lean CLAY (CL), mps 0.075 mm, bonded, mottling becomes less frequent with depth, no odor, wet, some black streaks in lower portion of spoon						100				
							-MARINE CLAY-										
20							FV1 (20.4 - 21.0 ft), Su > 690 psf										
							FV2 (21.3 - 22.0 ft), Su = 920 psf / 240 psf										
					23.0												
25																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
8/11/06	12:20	0	-	44.5	10.9

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.) 52.2
Rock Cored (lin. ft.) -
Samples S7

Boring No. HA06-5

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. HA06-5
File No. 33538-000
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	WOR WOR WOR WOH	S5 24	25.0 27.0			CL	Very soft, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, frequent black streaks -MARINE CLAY-						100				
30							FV3 (30.4 - 31.0 ft), Su = 580 psf / 130 psf										
35	WOR WOR WOR WOH	S6 24	35.0 37.0			CL	Medium stiff, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, some black streaks, increased percentage of fine sand -MARINE CLAY-					10	90				
40							FV4 (40.4 - 41.0 ft), Su = 640 psf / 50 psf										
					43.5												
45	9 19 15 9	S7 12	45.0 47.0			SC	Dense, gray, clayey SAND with gravel (SC), mps 1.5 in., bonded, no odor, wet, some black weathered rock fragments -GLACIAL TILL-		15	5	25	20	35				
					47.5		-WEATHERED BEDROCK-										
50							NOTE: Rollercone refusal at 52.2 ft										
					52.2		-BOTTOM OF EXPLORATION- NOTE: 1. FV1 (20.4 - 21.0 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 drill 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.

TEST BORING REPORT

Boring No. HA06-6

Project Proposed Bayside Parking Garage & Master Planning Portland, Maine
Client Scott Simons Architects
Contractor Maine Test Borings, Inc.

File No. 33538-000
Sheet No. 1 of 2
Start August 15, 2006
Finish August 15, 2006
Driller P. Hatch
H&A Rep. B. Steinert
Elevation 10.0 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	SS	-	Rig Make & Model: Mobile Drill / Truck
Inside Diameter (in.)	4.0	1.375	-	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW Drive 40 ft
				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-										
	13 25 29 31	S1 10	0.4 2.4		0.4	SW	Very dense, brown, well graded SAND with gravel (SW), mps 1 in., no odor, dry to moist, some faint black staining	0	20	20	40	15	5				
							-FILL-										
					3.2												
5	WOH 3 3 13	S2 5	5.0 7.0			CL	Medium stiff, brown to gray, sandy lean CLAY (CL), mps 2.0 mm, slightly bonded, no odor, moist to wet, reworked natural material				15	25	60				
							-FILL-										
10	2 1 4 2	S3 15	10.0 12.0	NO WELL INSTALLED		CL	Medium stiff, brown to gray, sandy lean CLAY (CL), mps 2.0 mm, slightly bonded, no odor, moist to wet, reworked natural material				15	25	60				
					10.5	ML	-FILL-					5	95				
							Very soft, black, SILT (ML), mps 0.42 mm, bonded, organic odor, wet, trace organics, shading to gray with depth										
							-HARBOR BOTTOM DEPOSIT-										
					13.5												
15	50 (0.2)	S4 0	15.0 16.0				NOTE: Split spoon refusal at 15.2 ft on obstruction NOTE: No recovery, gray clay observed on spoon										
	71 40 30 32	S5 0	16.0 18.0				-MARINE CLAY-										
20	WOR WOR WOR WOH	S6 24	20.0 22.0			CL	Medium stiff, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, occasional black streaks						100				
							-MARINE CLAY-										
							NOTE: FV1 (21.3 - 22.0 ft), Su = 620 psf / 260 psf										
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.) 41.5
Rock Cored (lin. ft.) 0.0
Samples S8

Boring No. HA06-6

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. HA06-6
File No. 33538-000
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	WOR WOR WOH WOH	S7 24	25.0 27.0		26.0	CL	Medium stiff, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, frequent black streaks starting at 26.0 ft -MARINE CLAY- NOTE: FV2 (25.4 - 26.0 ft), Su = 530 psf / 390 psf						100				
30							FV3 (30.4 - 31.0 ft), Su > 690 psf / 150 psf										
35							FV4 (36.4 - 37.0 ft), Su = 260 psf / 130 psf FV5 (37.4 - 38.0 ft), Su = 690 psf / 150 psf										
40	5 4 50 (0.3)	S8 5	40.0 42.0		40.5	SP	Loose, gray, poorly graded SAND (SP), mps 2 mm, no odor, wet -MARINE SAND-				5	90	5				
					41.3	BR	-WEATHERED BEDROCK- -BOTTOM OF EXPLORATION-										
					41.5		NOTE: 1. FV1 (20.4 - 21.0 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 drill 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

TEST BORING REPORT

Boring No. HA06-7

Project Proposed Bayside Parking Garage & Master Planning Portland, Maine
Client Scott Simons Architects
Contractor Maine Test Borings, Inc.

File No. 33538-000
Sheet No. 1 of 3
Start 7 August 2006
Finish 8 August 2006
Driller T. Schaefer
H&A Rep. K. Stone
Elevation 10.5 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	SS	-	Rig Make & Model: Mobile Drill / Truck
Inside Diameter (in.)	3.0	1.375	-	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: NW Drive 65.0 ft
				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 11 10 18	S1 12	0.0 2.0	NO WELL INSTALLED		SM	Medium dense, dark brown, silty SAND with gravel (SM), mps 1.1 in., no odor, dry -FILL-		15	10	25	35	15				
5	6 8 7 3	S2 8	5.0 7.0			SW	Medium dense, brown, well-graded SAND with gravel (SW), mps 1.0 in., no odor, moist -FILL-		15	25	35	30					
10	9 4 5 8	S3 0	10.0 12.0				NOTE: No recovery, small piece of wood in tip of spoon. Sheen observed in wash water from 10.0 to 13.0 ft -FILL-										
					13.0												
15	7 10 13 21	S4 22	15.0 17.0			CL	Hard, olive-brown to gray, lean CLAY (CL), mps 0.42 mm, mottled, occasional fine sand and silt partings, no odor, wet -MARINE CLAY-						100				
20	3 4 6 5	S5 22	20.0 22.0			CL	Stiff, gray, lean CLAY (CL), mps 0.075 mm, no odor, wet, frequent black streaks -MARINE CLAY- FV1 (20.3 - 21.0 ft), Su = 1680 psf						100				
25																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
8/8/06	06:30	12.5	60.0	62.0	14.1

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.) 67.0
Rock Cored (lin. ft.) -
Samples S10

Boring No. HA06-7

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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HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA06-7
File No. 33538-000
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							FV2 (25.3 - 26.0 ft), Su = 840 psf / 270 psf										
30	WOR WOR WOH WOH	S6 24	30.0 32.0			CL	Medium stiff, lean CLAY (CL), mps 0.075 mm, wet, frequent black streaks -MARINE CLAY-						100				
35							FV3 (35.3 - 36.0 ft), Su = 590 psf / 110 psf										
40	WOR WOR WOR WOR	S7 24	40.0 42.0			CL	Medium stiff, lean CLAY (CL), mps 0.075 mm, wet, with frequent black streaks -MARINE CLAY-						100				
45							FV4 (40.3 - 41.0 ft), Su = 580 psf / 170 psf										
50	WOR WOR WOR WOR	S8 24	50.0 52.0			CL	Medium stiff, lean CLAY (CL), mps 0.075 mm, wet, with frequent black streaks -MARINE CLAY-						100				
55							FV5 (56.0 - 56.7 ft), Su = 860 psf										
60	WOR WOR WOR WOR	S9 24	60.0 62.0			CL	Medium stiff, lean CLAY (CL), mps 2.0 mm, wet, trace sand -MARINE CLAY-						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.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA06-7
File No. 33538-000
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
					64.0												
65	11 32 20 20	S10 15	65.0 67.0			SM	Very dense, gray, silty SAND (SM), mps 0.75 in., bonded, no odor, wet -GLACIAL TILL-		20	10	10	45	15				
					67.0		-BOTTOM OF EXPLORATION-										

NOTE:
1. FV1 (20.4 - 21.0 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 drill 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

TEST BORING REPORT

Boring No. HA06-8

Project Proposed Bayside Parking Garage & Master Planning Portland, Maine
Client Scott Simons Architects
Contractor Maine Test Borings, Inc.

File No. 33538-000
Sheet No. 1 of 2
Start 10 August 2006
Finish 10 August 2006
Driller T. Schaefer
H&A Rep. B. Steinert
Elevation 12.0 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	SS	-	Rig Make & Model: Mobile Drill / Truck
Inside Diameter (in.)	3.0	1.375	-	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: NW Drive 25.0 ft
				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	15 28 32 23	S1 12	0.0 2.0			SP-SM	Very dense, dark brown to black, poorly graded SAND with gravel (SP-SM), mps 1 in., hydrocarbon odor, moist, coal and wood fragments present -FILL-	20	10	10	40	10	10				
							NOTE: Similar material to above observed in auger cuttings from 0.0 to 5.0 ft										
5	52 52 42 28	S2 8	5.0 7.0		5.3	SW-SM	Very dense, dark brown to black, well graded SAND with silt (SW-SM), mps 4.75 mm, slight hydrocarbon odor, moist, trace coal and brick fragments -FILL-	0	0	10	50	30	10				
						SP	Medium dense to dense, yellow-brown, poorly graded SAND (SP), mps 2.0 mm, no odor, moist, wood stuck in tip of spoon -FILL-	0	0	0	15	80	5				
10	2 6 6 8	S3 12	10.0 12.0	NO WELL INSTALLED	10.5	SM	Very loose, yellow-brown to brown, silty SAND (SM), mps 4.75 mm, no odor, wet, trace wood fragments -FILL-	0	0	15	50	20	15				
						SM	Medium dense, dark brown to gray, silty SAND (SM), mps 4.75 mm, no odor, wet, some reworked natural material -FILL-	0	0	20	45	20	15				
15	4 7 8 11	S4 20	15.0 17.0		14.0	CL	Stiff, olive-gray, lean CLAY (CL), mps 0.075 mm, bonded, mottled, no odor, moist to wet -MARINE CLAY-						100				
20	WOH WOH 1 3	S5 24	20.0 22.0		17.0	CL	Very soft, gray, lean CLAY (CL), mps 1 in., bonded, no odor, wet, frequent black streaks -MARINE CLAY-						100				
25																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
8/10/06	11:00	0	-	9.1	6.8

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.) 54.0
Rock Cored (lin. ft.) 0.0
Samples S10

Boring No. HA06-8

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None; Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Toughness: 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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HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA06-8
File No. 33538-000
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	WOR WOR WOR WOR	S6 24	25.0 27.0			CL	Very soft, gray, lean CLAY (CL), mps 0.42 mm, bonded, no odor, wet, frequent black streaks and fine sand partings, trace shells -MARINE CLAY-					10	90				
30	WOR WOR WOR WOR	S7 24	30.0 32.0		30.3	CL	Very soft, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, trace shells, black streaks/specs become less frequent with depth -MARINE CLAY-						100				
40	WOR WOR WOR WOH	S8 24	40.0 42.0			CL	Very soft, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, trace fine sand -MARINE CLAY-						100				
50	3 18 26 22	S9 12	50.0 52.0		50.2	SW-SM	Dense, gray, well graded SAND with silt (SW-SM), mps 4.75 mm, bonded, no odor, wet -GLACIAL TILL-	0	0	30	40	20	10				
	38 40 52 55	S10 12	52.0 54.0		51.8	BR	-WEATHERED BEDROCK-										
					54.0		-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.

TEST BORING REPORT

Boring No. HA06-9

Project Proposed Bayside Parking Garage & Master Planning Portland, Maine
Client Scott Simons Architects
Contractor Maine Test Borings, Inc.

File No. 33538-000
Sheet No. 1 of 2
Start 10 August 2006
Finish 10 August 2006
Driller T. Schaefer
H&A Rep. B. Steinert
Elevation 9.5 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	SS	-	Rig Make & Model: Mobile Drill / Truck
Inside Diameter (in.)	4.0	1.375	-	Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW Drive 20.0 ft
				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 10 13 14	S1 20	0.0 2.0	NO WELL INSTALLED		SP	Medium dense, brown to black, poorly graded SAND (SP), mps 4.75 mm, no odor, dry, wood fragments present -FILL-	0	0	20	65	10	5				
					1.7	SP	Medium dense, yellow-brown, poorly graded SAND (SP), mps 2mm, no odor, dry -FILL-	0	0	0	15	80	5				
5	2 2 5 5	S2 16	5.0 7.0			SP	Loose, yellow-brown, poorly graded SAND (SP), mps 2 mm, no odor, moist, trace organics -FILL-				15	80	5				
					6.0	SP	Medium dense, brown, poorly graded SAND (SP), mps 2 mm, no odor, wet, trace wood -FILL-				5	90	5				
10	2 2 3 6	S3 12	10.0 12.0		10.2	CL	Medium stiff to stiff, gray, sandy lean CLAY (CL), mps 0.42 mm, bonded, slight organic odor, moist to wet, shells throughout -MARINE DEPOSIT-					40	60				
					14.0												
15	3 3 4 2	S4 15	15.0 17.0			CL	Medium stiff, olive-gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, slightly mottled						100				
					16.0	CL	-MARINE DEPOSIT- Medium stiff, gray, sandy lean CLAY (CL), mps 0.42 mm, bonded, no odor, wet -MARINE DEPOSIT-					30	70				
20							FV1 (20.4 - 21.0 ft), Su = 560 psf / 110 psf										
25																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
8/10/06	12:15	-	10.0	10.0	4.0
8/10/06	16:00	-	-	-	3.8

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.) 42.7
Rock Cored (lin. ft.) 0.0
Samples S8

Boring No. HA06-9

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. HA06-9
File No. 33538-000
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	WOR WOR WOR WOH	S5 24	25.0 27.0			CL	Medium stiff, gray, lean CLAY (CL), mps 0.075 mm, bonded, no odor, wet, black streaks -MARINE CLAY-						100				
30							FV2 (30.4 - 31.0 ft), Su = 640 psf / 130 psf										
35	WOR WOR WOR WOH	S6 24	35.0 37.0			CL	Medium stiff, gray, sandy lean CLAY (CL), mps 0.42 mm, bonded, no odor, wet, frequent fine sand seams -MARINE DEPOSIT-					30	70				
					38.0												
40	6 5 5 22	S7 14	40.0 42.0			SC	Medium dense, gray, clayey SAND (SC), mps 4.75 mm, bonded, no odor, wet -GLACIAL TILL-	0	0	5	20	40	35				
	92 50 (0.2)	S8 8	42.0 44.0		41.5 42.7	BR	-WEATHERED BEDROCK- -BOTTOM OF EXPLORATION-										

NOTE:
1. FV1 (20.4 - 21.0 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 drill 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.

Boring No. HA06-9

2008 Test Boring Logs for
Proposed MaineHealth/United Way Development
(see Reference 4)

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-1

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 4
Start 8 August 2008
Finish 12 August 2008
Driller M. Porter
H&A Rep. O. Lawlor
Elevation 11.5 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	--	Rig Make & Model: Mobile Drill B-50 Bombardier
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: NW drive to 102.0 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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				0.1		-Bituminous Concrete-										
	20 50 23 26	S1 16	1.0 3.0		GW	Very dense, gray, well-graded GRAVEL (GW), mps 1-3/8 in., no structure, no odor, wet, intermixed with 15% concrete -FILL-	35	35	10	10	10					
	5 8 100	S2 19	3.0 4.5	3.0	SM	Very dense, dark gray, silty SAND (SM), mps 1-3/8 in., no structure, no odor, moist, intermixed with 10% concrete and ash -FILL-	5	5	30	30	15	15				
5	18 13 8 6	S3 22	5.0 7.0		SM	Medium dense, dark gray, silty SAND (SM), mps 1-3/8 in., no structure, no odor, moist -FILL-	5	5	30	30	15	15				
	7 4 2 2	S4 11	7.0 9.0		SM	Loose, dark gray, silty SAND (SM), mps 1-3/8 in., no structure, no odor, wet -FILL-	5	5	30	30	15	15				
				9.0												
10	2 1 3 3	S5 7	10.0 12.0		OL/OH	Loose, gray, sandy ORGANIC SILT (OL/OH), trace shells, mps 2.0 mm, no structure, organic odor, wet -HARBOR BOTTOM DEPOSIT-					15	85				
	28 12 11 10	S6 9	12.0 14.0		OL/OH	Medium dense, gray, sandy ORGANIC SILT (OL/OH), trace shells, mps 2.0 mm, no structure, petroleum-like odor, wet, frequent sand partings					15	85				
				14.5												
15	7 11 18 21	S7 24	15.0 17.0		CL	Very stiff, olive-gray, silty lean CLAY (CL), mps 2.0 mm, brown mottling, no structure, no odor, moist -GLACIOMARINE DEPOSIT-						100	N	L	L	
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/12/08	1148		99.0	101.7	19.1
8/12/08	1230		-	76.0	7.1

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	98.5
Rock Cored (ft)	0
Samples	18S

Boring No. HA08-1

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

*Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ 10 Sep 08

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TEST BORING REPORT

Boring No. HA08-1
File No. 35611-000
Sheet No. 2 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
20																
25	WOH WOH WOH WOH	S8 24	25.0 27.0		CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist FV1 (25.3-26.0 ft), Su = 900/250 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
30																
35	WOR WOR WOH WOH	S9 21	35.0 37.0		CL	Medium stiff, dark gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV2 (35.3-36.0 ft), Su = 650/330 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
40																
45	WOR WOR WOR WOR	S10 24	45.0 47.0		CL	Very soft, dark gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV3 (45.3-46.0 ft), Su = 204/120 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	

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

Boring No. HA08-1

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-1
File No. 35611-000
Sheet No. 3 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
50						Note: Trace of sand and gravel observed in wash water.										
55																
	WOR WOR WOR WOR	NR	56.0 58.0			Note: No recovery, probable gravel or cobble pushed by spoon tip. FV4 (56.3-57.0 ft), Su = 1220/530 psf										
60	WOR WOR WOR WOR	S11 24	60.0 62.0		CL	Very soft, dark gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet, frequent fine sand seams -GLACIOMARINE DEPOSIT-					5	95	N	L	L	
65	5 1 3 10	S12 14	65.0 67.0	65.0	SC/SM	Very loose, gray, clayey SAND to silty SAND (SC/SM), mps 0.25 in., no structure, no odor, wet -GLACIOMARINE DEPOSIT-		5	15	20	45	15				
70	23 24 31 43	S13 24	70.0 72.0	69.0	SM	Very dense, gray, silty SAND with gravel (SM), mps 0.25 in., bonded, no odor, moist -GLACIAL TILL-		10	20	25	30	15				
75	44 76 81 100/4"	S14 15	75.0 77.0		SM	Very dense, gray, silty SAND with gravel (SM), mps 0.25 in., bonded, no odor, moist -GLACIAL TILL-	5	5	20	25	30	15				

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

Boring No. HA08-1

HALEY& ALDRICH

TEST BORING REPORT

Boring No. HA08-1
File No. 35611-000
Sheet No. 4 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
80	50 44 56 65	S15 19	80.0 82.0		SM	Very dense, gray, silty SAND (SM), mps 0.25 in., bonded, no odor, moist -GLACIAL TILL-	5	5	20	25	30	15				
85	57 87 102 90	S16 18	85.0 87.0		SM	Very dense, gray, silty SAND (SM), mps 0.25 in., bonded, no odor, moist -GLACIAL TILL-	5	5	20	25	30	15				
90	8 21 62 87	S17 18	90.0 92.0		SM	Very dense, gray, silty SAND (SM), mps 0.25 in., bonded, no odor, moist, occasional pockets of sandy SILT -GLACIAL TILL-	5	5	20	25	30	15				
95				98.5												
100	34 48 71 146	S18 14	100.0 102.0		BR	Highly weathered SCHIST -WEATHERED BEDROCK- Note: Unable to advance core barrel through casing at 90.0 ft, casing deflected from 90.0 to 100.0 ft.										
				102.0		BOTTOM OF EXPLORATION Notes: 1. FV1 (25.3-26.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.										

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

Boring No. HA08-1

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-2

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 3
Start 12 August 2008
Finish 13 August 2008
Driller M. Porter
H&A Rep. O. Lawlor
Elevation 9 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	--	Rig Make & Model: Mobile Drill B-50 Bombardier
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: NW drive to 68.7 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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	1 5 8 12	S1 24	0.0 2.0		SM	Medium dense, brown, silty SAND (SM), mps 0.25 in., trace wood and ash, no structure, no odor, moist -FILL-			30	30	25	15				
	12 14 12 9	NR	2.0 4.0													
	2 3 4 6	S2 19	4.0 6.0	4.0	SP	Loose, red-brown, poorly graded SAND (SP), mps 4.0 mm, no structure, no odor, moist -FILL-			30	30	40					
5	5 6 2 1	S3 14	6.0 8.0		SP	Loose, red-brown, poorly graded SAND (SP), mps 4.0 mm, no structure, no odor, moist -FILL-			30	30	40					
	1 1 1 1	S4 7	8.0 10.0	7.9	GM	Very loose, black, silty GRAVEL (GM), mps 0.5 in., trace shells and wood -FILL-	40	30	5	5		20				
10	3 11 51 54	S5 4	10.0 12.0	9.8 10.0	OL/OH GP	Very soft, black, ORGANIC SILT (OL/OH), mps 2.0 mm, no structure, organic odor, wet -FILL- Very dense, gray, poorly graded GRAVEL (GP), mps 1-3/8 in., no structure, no odor, wet -FILL- NOTE: Advanced roller bit through rock fill from 10.0 to 13.8 ft, advance casing to 15.0 ft and resume sampling.	20	45	5	5	5	100				
				14.0												
15	WOH 2 4 4	NR	15.0 17.0			Note: No recovery, probable cobble pushed by spoon tip.										
	4 6 4 4	S6 24	17.0 19.0		CL	Stiff, gray, silty lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist -GLACIOMARINE DEPOSIT-										
20																

Water Level Data

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

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 68.7
Rock Cored (ft) 0
Samples 10S
Boring No. HA08-2

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

*Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ 10 Sep 08

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-2
File No. 35611-000
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
20						Note: Advanced NW casing to 25.0 ft and wash out with roller bit. Bottom 10.0 ft of casing spun off and could not be retrieved. Relocated boring approximately 5 ft west and resumed sampling at 25.0 ft.										
25	WOH WOH WOH WOH	S7 24	25.0 27.0		CL	Very soft, dark gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV1 (25.3-26.0 ft), Su = 610/200 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
30																
35	WOR WOH WOH WOH	S8 4	35.0 37.0		CL	Medium stiff, gray, lean CLAY (CL), trace gravel, mps 1.0 in., no structure, no odor, wet FV2 (35.3-36.0 ft), Su = 410/120 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
40																
45	WOR WOH WOH WOH	S9 24	45.0 47.0		CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV3 (45.3-46.0 ft), Su = 570/160 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	

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

Boring No. HA08-2

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-2
File No. 35611-000
Sheet No. 3 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
50																
55	WOR WOR WOR WOR	NR	55.0 57.0			Note: No recovery, gravel in spoon tip. FV4 (55.3-56.0 ft), Su = 490/120 psf -GLACIOMARINE DEPOSIT-										
60				61.0		Note: Drill action indicates stratum change at 61.0 ft. Gravel in drill wash water.										
65	11 16 16 48/3"	S10 17	65.0 67.0		SM	Dense, olive-gray, silty SAND (SM), mps 4.0 mm, bonded, no odor, moist -GLACIAL TILL-			30	30	25	15				
				66.6	BR	Note: Recovery from 66.6 to 67.0 ft consists of SCHIST. -WEATHERED BEDROCK-										
				68.7		Note: Roller cone refusal. BOTTOM OF EXPLORATION										

Notes:
1. FV1 (25.3-26.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details.
2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.

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

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-3

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 2
Start 24 July 2008
Finish 24 July 2008
Driller M. Porter
H&A Rep. O. Lawlor
Elevation 11 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	--	Rig Make & Model: Mobile Drill B-50 Bombardier
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: NW drive to 18.0 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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-										
	32 17 10 7	S1 19	1.0 3.0	1.0	GW	Medium dense, gray, well-graded gravel with sand (GW), intermixed with 30% concrete fragments, no structure, no odor, moist	40	30	15	10	5					
				2.0	SM	Medium dense, gray, silty SAND (SM), mps 0.25 mm, no structure, no odor, moist			30	30	25	15				
	5 12 11 8	S2 20	3.0 5.0		SM	Medium dense, gray, silty SAND (SM), intermixed with 15% ash and cinders, mps 0.25 in, no structure, no odor, moist -FILL-			30	20	25	15				
				4.5	SW	Medium dense, red-brown, well-graded SAND (SW), mps 0.5 in., no structure, no odor, moist, sample composed entirely of cinder and ash, trace brick and coal -FILL-			30	40	30					
5	2 2 1 2	S3 9	5.0 7.0													
	9 8 6 3	S4 4	7.0 9.0		GP	Medium dense, dark brown, poorly-graded GRAVEL (GP), mps 1-3/8 in., trace cinder, glass and wood fragments -FILL-	40	35	10	5	5	5				
10	1 1 2 2	S5 20	10.0 12.0	10.0	SM	Very loose, gray, silty SAND (SM), intermixed with 15% cinders and ash, mps 0.5 in., no structure, no odor, wet, organic silt in tip of spoon -FILL-			30	30	25	15				
	1 3 3 2	S6 18	12.0 14.0	12.0	ML	Medium stiff, gray, SILT with sand (ML), mps 2.0 mm, some shell fragments, trace organic matter, no structure, hydrogen sulfide odor, moist -HARBOR BOTTOM DEPOSIT-					10	90				
	WOH WOH 1 2	S7 16	14.0 16.0		ML	Very soft, gray, SILT with sand (ML), mps 2.0 mm, some shell fragments, trace organic matter, no structure, hydrogen sulfide odor, moist					10	90				
15	WOH 2 5 7	S8 21	16.0 18.0	16.1	ML CL	Very soft, gray, SILT with sand (ML), mps 2.0 mm, some shell fragments, trace organic matter, no structure, hydrogen sulfide odor, moist Medium stiff, gray with occasional mottled brown, lean CLAY (CL), mps 2.0 mm, occasional fine sand pockets, trace root fibers, no odor, moist -GLACIOMARINE DEPOSIT-					10 5	90 95				
				18.0		BOTTOM OF EXPLORATION										

Notes:
1. WOH = Weight of Hammer.

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
7/24/08		0.25	16.0	18.0	4.0
7/24/08		0.5	-	18.0	7.5

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	18.0
Rock Cored (ft)	0
Samples	8S

Boring No. HA08-3

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

*Note: 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

TEST BORING REPORT

Boring No. HA08-4

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 3
Start 4 August 2008
Finish 4 August 2008
Driller M. Porter
H&A Rep. O. Lawlor
Elevation 12 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Mobile Drill B-50 Bombardier
Inside Diameter (in.)	4.0	1 3/8	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: Bentonite
Hammer Fall (in.)	30	30	-	Casing: HW Drive to 64.4 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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-										
	15 17 14 11	S1 23	0.5 2.5	0.5	SP-SM	Dense, dark brown, poorly-graded SAND with silt (SP-SM), trace gravel, mps 1-3/8 in., intermixed with 5% cinder, ash, no structure, no odor, moist -FILL-	5		30	40	15	10				
	14 12 12 25	S2 7	2.5 4.5		SP-SM	Medium dense, dark brown, poorly-graded SAND with silt (SP-SM), trace gravel, mps 1-3/8 in., intermixed with 5% cinder, ash, no structure, no odor, moist	5		30	40	15	10				
5	8 10 7 8	S3 24	5.0 7.0		SM	Medium dense, brown, silty SAND (SM), mps 0.5 in., intermixed with 20% cinder and ash, no structure, no odor, moist -FILL-			30	30	20	20				
	8 5 3 3	S4 4	7.0 9.0		SP-SM	Loose, dark brown, poorly-graded SAND with silt (SP-SM), mps 0.25 in., trace wood, no structure, no odor, moist			35	40	15	10				
10	2 4 4 6	S5 6	9.0 11.0		SP-SM	Loose, dark brown, poorly-graded SAND with silt (SP-SM), mps 0.25 in., trace wood, trace shells and glass, no structure, no odor, wet			35	40	15	10				
	2 3 4 3	S6 12	11.0 13.0	11.0	SM	Loose, gray, silty SAND (SM), trace gravel and roots, mps 0.25 in., no structure, no odor, wet		5	15	30	30	20				
	WOH 1 3 3	S7 21	13.0 15.0	13.0	ML	Soft, gray, sandy SILT (ML), trace fine gravel, mps 0.25 mm, trace shells, no structure, no odor, wet -HARBOR BOTTOM DEPOSIT-		5		15	30	50				
15	4 12 12 15	S8 5	15.0 17.0		ML	Very stiff, gray, sandy SILT (ML), trace fine gravel, mps 0.25 mm, trace shells, no structure, no odor, wet, clay in tip of spoon		5	10	15	20	50				
	4 6 10 14	S9 24	17.0 19.0	16.9	CL	Very stiff, gray, silty lean CLAY (CL), mps 2.0 mm., occasional brown mottling, no structure, no odor, moist -GLACIOMARINE DEPOSIT-						100	N	L	L	
20																

Water Level Data

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

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 66.0
Rock Cored (ft) 0
Samples 17S, 2U

Boring No. HA08-4

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

*Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ 10 Sep 08

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-4
File No. 35611-000
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
20	1 3 4 4	S10 24	20.0 22.0		CL	Medium stiff, gray, silty lean CLAY (CL), mps 2.0 mm, occasional brown mottling, no structure, no odor, moist						100	N	L	L	
	1 3 3 3	S11 12	22.0 24.0		CL	Stiff, gray, silty lean CLAY (CL), mps 2.0 mm, occasional brown mottling, no structure, no odor, moist FV1 (22.3-23.0 ft), Su = 1,045 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
25	P U S H	U1 23	25.0 27.0													
						FV2 (27.3-28.0 ft), Su = 590/160 psf										
30	WOR WOR WOR WOR	S12 22	30.0 32.0		CL	Medium stiff, dark gray, lean CLAY (CL), trace fine sand and gravel from 31.7 to 32.0 ft., no structure, no odor, wet FV3 (30.3-31.0 ft), Su = 500/90 psf					5	95	N	L	L	
	P U S H	U2 23	33.0 35.0													
35						FV4 (35.3-36.0 ft), Su = 340/65 psf -GLACIOMARINE DEPOSIT-										
40	WOR WOR WOR WOR	S13 22	40.0 42.0		CL	Soft, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet Su = 400/120 psf FV5 (40.3-41.0 ft), Su = 400/120 psf						100	N	L	L	
45	WOR WOR WOR WOR	S14 24	45.0 47.0		CL	Soft, gray, lean CLAY (CL), trace gravel, mps 2.0 mm, no structure, no odor, wet FV6 (45.3-46.0 ft), Su = 420/110 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	

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

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-4
File No. 35611-000
Sheet No. 3 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
50	WOR WOR WOR WOR	S15 24	50.0 52.0		CL	Medium stiff, gray, lean CLAY (CL), trace gravel, mps 2.0 mm, no structure, no odor, wet FV7 (50.3-51.0 ft), Su = 610/80 psf						100	N	L	L	
55	WOR 3 3 6	S16 24	55.0 57.0	55.4	SC	Loose, gray, clayey SAND (SC), mps 4.0 mm, no structure, no odor, wet -GLACIOMARINE DEPOSIT-					75	25				
60	13 17 24 34	S17 24	60.0 62.0	58.8	SM	Dense, gray, silty SAND (SM), trace gravel, mps 1-3/8 in., bonded, no odor, moist -GLACIAL TILL- Note: Drill action indicates probable bedrock at 64.4 ft.		5	20	30	30	15				
65				64.4		-WEATHERED BEDROCK-										
				66.0		Note: Roller bit refusal at 66.0 ft. BOTTOM OF EXPLORATION										

Notes:
1. FV1 (22.3-23.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details.
2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.

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

Boring No. HA08-4

HALEY & ALDRICH — TEST BORING REPORT

Boring No. HA08-5(OW)

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 4
Start 31 July 2008
Finish 1 August 2008
Driller M. Porter
H&A Rep. O. Lawlor
Elevation 9 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Mobile Drill B-50 Bombardier
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: NW drive to 63.8 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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	4 9 11 22	S1 11	0.0 2.0			SP	Medium dense, brown, poorly-graded SAND (SP), occasional silt pockets, trace cinder and ash, mps 1.0 in., no structure, no odor, moist -FILL-			30	40	25	5				
	22 19 13 11	S2 14	2.0 4.0			SW-SM	Dense, brown, well-graded SAND with silt (SW-SM), mps 1-3/8 in., trace cinders and ash			30	40	20	10				
5	6 5 2 3	S3 8	4.0 6.0			SW-SM	Loose, brown, well-graded SAND with silt (SW-SM), mps 1-3/8 in., trace cinders and ash -FILL-			30	40	20	10				
	2 1 1 6	S4 5	6.0 8.0			SW-SM	Very loose, brown, well-graded SAND with silt (SW-SM), mps 1-3/8 in., trace cinders and ash, wet			30	40	20	10				
	6 5 2 1	S5 7	8.0 10.0		8.0	SM	Loose, gray, silty SAND (SM), mps 0.5 in., trace shell and brick fragments, no structure, no odor, moist -FILL-			20	30	35	15				
10	2 2 3 3	S6 20	10.5 12.5		10.5	OL/OH	Medium stiff, dark gray, ORGANIC SILT (OL/OH), mps 0.25 in., trace shell fragments, no structure, organic odor, moist -HARBOR BOTTOM DEPOSIT-						100				
	10 11 14 15	S7 6	13.0 15.0		13.0	CL	Medium stiff, olive-gray, silty lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist, probable rock pushed by spoon						100	N	L	L	
15	3 4 4 5	S8 20	15.0 17.0			CL	Medium stiff, gray with brown mottles, silty lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist -GLACIOMARINE DEPOSIT-						100	N	L	L	
20																	

Water Level Data

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

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 63.8
Rock Cored (ft) 5.0
Samples 13S, 1C
Boring No. HA08-5(OW)

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

*Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ 10 Sep 08

HALEY& ALDRICH

TEST BORING REPORT

Boring No. HA08-5(OW)
File No. 35611-000
Sheet No. 2 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
20							FV1 (20.3-21.0 ft), Su = 720/260 psf										
25	WOR WOR WOH WOH	S9 24	25.0 27.0			CL	Medium stiff, gray to black, lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist FV2 (25.3-26.0 ft), Su = 720/200 psf						100	N	M	M	
30							FV3 (30.3-31.0 ft), Su = 730/170 psf -GLACIOMARINE DEPOSIT-										
35	WOR WOR WOR WOR	S10 21	35.0 37.0			CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV4 (35.3-36.0 ft), Su = 600/290 psf						100	N	L	L	
40	WOR WOR WOR WOR	S11 24	40.0 42.0			CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV5 (40.3-41.0 ft), Su = 600/190 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
45																	

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

Boring No. HA08-5(OW)

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-5(OW)
File No. 35611-000
Sheet No. 3 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
50	WOR WOR WOR WOR	S12 24	50.0 52.0			CL	Medium stiff, gray, lean CLAY (CL), fine sand in spoon tip, mps 2.0 mm, no structure, no odor, wet FV6 (50.3-51.0 ft), Su = 700/370 psf -GLACIOMARINE DEPOSIT- Note: Sand and fine gravel observed in wash water.					5	95	N	L	L	
					53.0												
55							-PROBABLE GLACIAL TILL-										
60	16 9 7 10	NR	60.0 62.0														
					62.5		Note: Casing refusal at 62.5 ft. Advanced roller bit to 63.8 ft. Begin NQ Rock Core at 63.8 ft. See Core Boring Report for Details. Notes: 1. FV1 (20.3-21.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.										
65	36 50/1"	S13 5	63.2 63.7														

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

Boring No. HA08-5(OW)

HALEY & ALDRICH

CORE BORING REPORT

Boring No. HA08-5(OW)
File No. 35611-000
Sheet No. 4 of 4

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
65	6	C1	63.8 65.4	19 0	99 0			Moderately hard, moderate to highly weathered, dark green aphanitic CHLORITE SCHIST. Foliation is extremely thin, vertical. Primary joint set is parallel to foliation, vertical, extremely close, smooth, stepped, fresh to discolored with pyrite, open. Note: RQD affected by extremely close fractures and drill action.
	7							
	6	C2	65.4 68.8	36 12	88 29		65.4	Moderately hard, moderate to highly weathered, dark green aphanitic CHLORITE SCHIST. Occasional, very thin, high angle to vertical quartz veins. Primary joint set is parallel to foliation, vertical, extremely close, smooth, stepped, fresh to discolored with pyrite, open.
	6							
	7							
70							68.8	BOTTOM OF EXPLORATION
								Note: Observation Well installed in completed borehole. See installation report for details.
75								
80								
85								
90								

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-6

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 1
Start 23 July 2008
Finish 24 July 2008
Driller M. Porter
H&A Rep. O. Lawlor
Elevation 10 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	--	Rig Make & Model: Mobile Drill B-50 Bombardier
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: NW drive to 12.0 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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	2 5 13 6	S1 22	0.0 2.0		SM	Medium dense, brown, silty SAND (SM), mps 1.0 in., no structure, no odor, moist -FILL-		5	30	30	20	15				
	13 17 17 18	S2 21	2.0 4.0		SM	Dense, gray to brown, silty SAND (SM), mps 1.0 in. trace brick fragments, cinders, wood, no structure, cinder odor, moist		5	30	30	20	15				
	5 6 9 10	S3 20	4.0 6.0		SM	Medium dense, gray to brown, silty SAND (SM), mps 1.0 in. trace brick fragments, cinders, wood, no structure, cinder odor, moist		5	30	30	20	15				
5				5.0	SW	Medium dense, light brown, well-graded SAND (SW), occasional silt pockets, mps 0.5 in., no structure, no odor, moist		5	30	35	30					
	6 2 2 2	S4 16	6.0 8.0		SW	Very loose, brown, well-graded SAND (SW), occasional pockets of dark gray sandy silt, mps 0.25 in., no structure, no odor, moist		5	30	35	30					
	3 4 3 4	S5 8	8.0 10.0		SM	Loose, dark brown, silty SAND with gravel (SM), mps 1.0 in., no structure, no odor, wet -FILL-	5	5	20	25	25	20				
10	5 4 7 5	S6 2	10.0 12.0		SM	Medium dense, dark brown, silty SAND with gravel (SM), mps 1.0 in., no structure, no odor, wet, trace brick and shell fragments	5	5	20	25	25	20				
	4 2 2 5	S7 14	12.0 14.0	12.3	SM	Loose, dark brown, silty SAND with gravel (SM), mps 1.0 in., no structure, no odor, wet, trace brick and shell fragments	5	5	20	25	25	20				
					ML	Soft, gray, sandy SILT (ML), little shell fragments, trace clay, frequent partings along fine sand seams, no odor, moist					5	95				
				14.0		-HARBOR BOTTOM DEPOSIT- BOTTOM OF EXPLORATION										

Water Level Data

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

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 14.0
Rock Cored (ft) 0
Samples 7S

Boring No. HA08-6

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

*Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ 10 Sep 08

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-7(OW)

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 4
Start 30 July 2008
Finish 31 July 2008
Driller M. Porter
H&A Rep. O. Lawlor
Elevation 12 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Mobile Drill B-50 Bombardier
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: NW drive to 62.0 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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 12 13 12	S1 15	0.0 2.0			SW- SM	Medium dense, dark brown, well-graded SAND with silt (SW-SM), mps 0.25 in., intermixed with 10% ash and brick, trace wood, no structure, no odor, moist -FILL-			30	40	20	10				
	6 12 21 25	S2 16	2.0 4.0			SW- SM	Dense, dark brown, well-graded SAND with silt (SW-SM), mps 0.25 in., intermixed with 10% ash and brick, trace wood, occasional sandy silt pockets, no structure, no odor, moist			30	40	20	10				
5	5 7 12 9	S3 24	4.0 6.0			SM	Medium dense, brown, silty SAND (SM), mps 0.25 in., intermixed with 15% cinder and ash fragments, no structure, no odor, moist -FILL-			20	30	30	20				
	3 4 5 2	S4 24	6.0 8.0		6.2	SM SM	Loose, brown, silty SAND (SM), mps 0.25 in., intermixed with 15% cinder and ash fragments, no structure, no odor, moist Loose, gray, silty SAND (SM), mps 4.0 mm, no structure, no odor, wet			20 20	30 30	30 25	20 25				
	7 15 14 10	S5 20	8.0 10.0		8.0	SW	Medium dense, light brown, well-graded SAND (SW), mps 1-3/8 in., no structure, no odor, wet -FILL-			35	30	30					
10	3 2 2 2	S6 10	10.0 12.0		10.0	SM	Very loose, gray, silty SAND (SM), trace clay, mps 4.0 mm, no structure, no odor, wet -FILL-			20	30	30	20				
	1 1 2 1	S7 17	12.0 14.0		12.5	SM OL/ OH	Very loose, gray, silty SAND (SM), trace clay, mps 4.0 mm, no structure, no odor, wet Soft, dark brown, ORGANIC SILT (OL/OH), trace sand and shells, mps 2.0 mm, no structure, organic odor, wet -HARBOR BOTTOM DEPOSIT-			20	30	30 5	20 95				
15	4 4 4 7	NR	14.0 16.0		14.0		Note: No recovery, probable gravel pushed by spoon through clay.										
	2 3 4 7	S8 24	16.0 18.0			CL	Medium stiff, mottled olive-gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist -GLACIOMARINE DEPOSIT-						100				
20																	

Water Level Data

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

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	62.0
Rock Cored (ft)	10.0
Samples	14S, 2C
Boring No.	**HA08-7(OW)**

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

*Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ 10 Sep 08

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-7(OW)
File No. 35611-000
Sheet No. 2 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
20	WOR WOH WOH WOH	S9 24	20.0 22.0			CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist FV1 (20.3-21.0 ft), Su = 830/320 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
25							FV2 (25.3-26.0 ft), Su = 730/170 psf										
30	WOH WOH WOH WOR	S10 24	30.0 32.0			CL	Medium stiff, gray, lean CLAY (CL), occasional partings along fine sand seams, no odor, moist FV3 (30.3-31.0 ft), Su = 680/280 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
35							FV4 (35.3-36.0 ft), Su = 870/210 psf										
					38.0												
40	5 5 9 19	S11 2	40.0 42.0			SM	Medium dense, gray, silty SAND with gravel (SM), mps 1-3/8 in., well bonded, no odor, wet -GLACIAL TILL-	5		15	30	30	20				
45	12 8 9 10	S12 21	45.0 47.0			SM	Medium dense, gray, silty SAND with gravel (SM), mps 1-3/8 in., well bonded, no odor, wet -GLACIAL TILL-	5	5	15	25	30	20				

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

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-7(OW)
File No. 35611-000
Sheet No. 3 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
50							Note: Drilled through cobble from 50.1 to 50.5 ft.										
	8 6 9 16	S13 22	50.5 52.5				Medium dense, silty SAND with gravel (SM), mps 1-3/8 in., well bonded, no odor, wet -GLACIAL TILL-	5	5	30	25	20	15				
55																	
60	40 75 125 50/1"	S14 12	60.0 61.6		60.1 61.6		Very dense, silty SAND with gravel (SM), mps 1-3/8 in., well bonded, no odor, wet, 1/2 to 1-3/8 in. fragments of weathered CHLORITE SCHIST -WEATHERED BEDROCK- Note: Bedrock encountered at 61.6 ft. Advanced roller bit to 62.0 ft. Begin NQ rock core at 62.0 ft. See Core Boring Report for details.	5	5	15	25	35	15				
65							Notes: 1. FV1 (20.3-21.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.										
70																	

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

Boring No. HA08-7(OW)

HALEY & ALDRICH

CORE BORING REPORT

Boring No. HA08-7(OW)
File No. 35611-000
Sheet No. 4 of 4

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	2	C1	62.0 67.0	36 6	60 10			Moderately hard, moderate to highly weathered, dark gray, aphanitic SILTSTONE. Foliation is extremely thin, high angle to vertical. Primary joint set is parallel to foliation, high angle to vertical, close to extremely close, rough, stepped to undulating, fresh to discolored with pyrite, tight.
	2							
	2							
65	2							
	2							
	2						67.0	
	2	C2	67.0 72.0	24 0	40 0			Note: Recovery consists of 1.0 to 3.0 in. pieces and fragments of hard, dark gray, slightly weathered, aphanitic SILTSTONE, due to extremely close fracture spacings and drill action.
	3							
70	3							
	3							Note: Advanced roller bit to 70.6 ft. to flush unrecovered rock fragments. Borehole caved to 65.0 ft after removal of drill rods.
	2						72.0	BOTTOM OF EXPLORATION
								Note: Observation well installed in completed borehole. See installation report for details.
75								
80								
85								
90								

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-8

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 3
Start 6 August 2008
Finish 7 August 2008
Driller M. Porter
H&A Rep. O. Lawlor
Elevation 9 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Mobile Drill B-50 Bombardier
Inside Diameter (in.)	4.0	1 3/8	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: Bentonite
Hammer Fall (in.)	30	30	-	Casing: HW Drive to 50.5 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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	2 10 13 14	S1 5	0.0 2.0	0.2	SW	-TOPSOIL- Medium dense, light brown, well-graded SAND with gravel (SW), mps 0.25 in., no structure, no odor, moist	5	5	30	40	20					
	11 14 26 29	S2 16	2.0 4.0	2.0	SM	Dense, gray-green, silty SAND with gravel (SM), mps 1 3/8 in., no structure, no odor, moist, reworked till -FILL- NOTE: Augered through cobble from 4.0 - 4.7 ft.	5	5	25	25	25	15				
5	1 1 1 3	S3 20	5.0 7.0		SM	Very loose, gray-green, silty SAND with gravel (SM), mps 1 3/8 in., no structure, no odor, moist, reworked till -FILL-	5	5	25	25	25	15				
	2 2 4 3	S4 19	7.0 9.0		SM	Loose, gray-green, silty SAND with gravel (SM), mps 1 3/8 in., no structure, no odor, moist, reworked till -FILL-	5	5	25	25	25	15				
10	3 1 1 1	S5 13	9.0 11.0	9.5	OL/OH	Very soft, dark gray, ORGANIC SILT (OL/OH), trace sand, glass and shell fragments, mps 4.0 mm, no structure, no odor, wet -HARBOR BOTTOM DEPOSIT-					5	95				
	6 13 4 6	S6 19	12.0 14.0		OL/OH	Medium dense, dark gray, ORGANIC SILT (OL/OH), trace sand, glass and shell fragments, mps 4.0 mm, no structure, no odor, wet					5	95				
15	2 3 4 7	S7 24	14.0 16.0	13.8	CL	Medium stiff, olive-gray, silty lean CLAY (CL), trace gravel, occasional brown mottles, mps 0.25 in., no structure, no odor, moist -GLACIOMARINE DEPOSIT-		5				95	N	L	L	
	WOR WOH WOH WOH	S8 24	16.0 18.0		CL	Soft, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet FV1 (18.3-19.0 ft), Su = 460/70 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/7/08			-	50.5	9.0

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 50.5
Rock Cored (ft) 0
Samples 13S, 2U

Boring No. HA08-8

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

*Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ 10 Sep 08

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-8
File No. 35611-000
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
20	P U S H	U1 18	20.0 22.0			FV2 (22.3-23.0 ft), Su = 610/50 psf										
25	WOR WOH WOH WOH	S9 24	25.0 27.0		CL	Very soft, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet -GLACIOMARINE DEPOSIT-						100				
30	WOR WOR 1 WOH	S10 24	30.0 32.0		CL	Soft, gray, lean CLAY (CL), mps 2.0 mm FV3 (30.3-31.0 ft), Su = 380/120 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
35	WOR WOR WOR WOR	S11 24	35.0 37.0		CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm FV4 (35.3-36.0 ft), Su = 780/150 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
40	P U S H	U2 24	41.0 43.0			FV5 (39.3-40.0 ft), Su = 1,030/80 psf										
45	2 6 6 7	S12 18	43.0 45.0	43.0	SP	Medium dense, gray, poorly-graded SAND (SP), trace gravel, mps 0.5 in., no structure, no odor, wet -GLACIOMARINE DEPOSIT-	5		20	30	45					
				48.6		Note: Casing refusal on probable bedrock at 48.6 ft. -WEATHERED BEDROCK-										

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

Boring No. HA08-8

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ 10 Sep 08

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-8
File No. 35611-000
Sheet No. 3 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
50																
	100/1"	S13 4	50.2 50.5	50.5		Weathered Rock fragments -WEATHERED BEDROCK- Note: Split spoon refusal BOTTOM OF EXPLORATION										

Notes:
1. FV1 (22.3-23.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details.
2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.

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

Boring No. HA08-8

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-9

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 1
Start 24 July 2008
Finish 24 July 2008
Driller M. Porter
H&A Rep. O. Lawlor

Elevation 11 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	--	Rig Make & Model: Mobile Drill B-50 Bombardier
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: NW drive to 16.0 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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	2 3 5 6	S1 3	0.0 2.0		GM	Loose, gray-brown, silty GRAVEL with sand (GM), mps 0.5 in., no structure, organic odor, wet -FILL-	15	45	10	10	5	15				
	4 6 9 11	S2 22	2.0 4.0	2.0 3.0		Note: Sample composed of cinder and ash from 2.0 to 3.0 ft.										
					SM	Medium dense, gray, silty SAND (SM), trace gravel, mps 0.25 in., no structure, no odor		5	30	30	20	15				
5	1 3 3 3	S3 22	4.0 6.0		SM	Loose, gray, silty SAND (SM), mps 0.25 in., no structure, no odor, moist -FILL-			10	30	30	30				
	1 2 3 3	S4 16	6.0 8.0		SM	Loose, gray, silty SAND (SM) with gravel, mps 0.25 in., no structure, no odor, moist Note: Groundwater encountered at 7.1 ft.	5	5	15	30	15	30				
	WOH 3 6 11	S5 10	8.0 10.0		SM	Loose, gray, silty SAND (SM) with gravel, mps 0.25 in., no structure, no odor, moist -FILL-	5	5	15	30	15	30				
10	4 5 3 2	S6 8	10.0 12.0		SM	Loose, gray, silty SAND (SM) with gravel, mps 0.25 in., no structure, no odor, moist, trace wood and glass fragments	5	5	20	30	25	15				
	2 3 4 5	S7 2	12.0 14.0	12.0	ML	Medium stiff, dark gray, SILT (ML), trace wood, mps 2.0 mm, no structure, organic odor, wet -HARBOR BOTTOM DEPOSIT-					5	95				
15	5 4 6 5	S8 20	14.0 16.0	14.0	CL	Stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist -GLACIOMARINE DEPOSIT-						100				
				16.0		BOTTOM OF EXPLORATION Note: 1. WOH = Weight of Hammer.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
7/24/08	1315	0.25	14.0	16.0	3.7

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 16.0
Rock Cored (ft) 0
Samples 8S
Boring No. HA08-9

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

*Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-06.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ 10 Sep 08

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-10

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 3
Start 7 August 2008
Finish 7 August 2008
Driller M. Porter
H&A Rep. O. Lawlor

Elevation 9 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Mobile Drill B-50 Bombardier
Inside Diameter (in.)	4.0	1 3/8	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: Bentonite
Hammer Fall (in.)	30	30	-	Casing: HW drive to 49.5 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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	5 8 17 21	S1 20	0.0 2.0		ML	Medium dense, olive-gray, sandy SILT (ML), trace gravel and brick, mps 0.25 in., bonded, no odor, moist - till fill -FILL-		5	10	15	20	50				
	17 15 14 12	S2 23	2.0 4.0	2.0	SM	Medium dense, olive-gray, silty SAND (SM), trace gravel, mps 0.25 in., no structure, no odor, moist -FILL-		5	15	30	30	20				
5	2 2 3 3	S3 19	4.0 6.0		SM	Loose, olive-gray, silty SAND (SM), trace gravel, mps 0.25 in., no structure, no odor, wet -FILL-		5	15	30	30	20				
	3 5 8 15	S4 12	6.0 8.0		SM	Medium dense, olive-gray, silty SAND (SM), trace gravel, mps 0.25 in., no structure, no odor, wet -FILL-		5	15	30	30	20				
				8.0		NOTE: Wood in spoon tip with creosote-like odor.										
	8 6 6 3	S5 7	8.0 10.0		OL/OH	Medium dense, dark gray to black, sandy ORGANIC SILT (OL/OH), trace brick and metal -HARBOR BOTTOM DEPOSIT-			10	10	10	70				
10	1 2 2 2	S6 24	10.0 12.0		OL/OH	Soft, dark gray to black, sandy ORGANIC SILT (OL/OH), trace shells -HARBOR BOTTOM DEPOSIT-						100	N	L	L	
				11.3												
	2 3 3 4	S7 15	12.0 14.0		CL	Medium stiff, gray, silty lean CLAY (CL), trace sand, mps 4.0 mm, no structure, no odor, moist -GLACIOMARINE DEPOSIT-					5	95	N	L	L	
15																
20	WOR WOR	S8 24	19.0 21.0		CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, wet						100	N	L	L	

Water Level Data

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

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 49.5
Rock Cored (ft) 0
Samples 12S, 1U

Boring No. HA08-10

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

*Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ 10 Sep 08

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-10
File No. 35611-000
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
20	WOH WOH					FV1 (19.3-20.0 ft), Su = 520/110 psf -GLACIOMARINE DEPOSIT-										
						FV2 (23.3-24.0 ft), Su = 730/130 psf Note: Wood fibers observed in wash water from 24.5 to 25.0 ft.										
25	P U S H	U1 22	25.0 27.0													
						FV3 (27.3-28.0 ft), Su = 400/90 psf										
30	WOR WOR WOR WOR	S9 24	30.0 32.0		CL	Very soft, gray, lean CLAY (CL), mps 2.0 mm, occasional fine sand partings, no odor, wet FV4 (30.0-31.0 ft), Su = 220/70 psf -GLACIOMARINE DEPOSIT-					5	95	N	L	L
35	WOR WOR 3 2	S10 24	35.0 37.0	35.2	CL SM	Very soft, gray, lean CLAY (CL), mps 2.0 mm, occasional fine sand partings, no odor, wet Loose, gray, silty SAND (SM), mps 4.0 mm, no structure, no odor, wet -GLACIOMARINE DEPOSIT-			5	10	5 70	95 15	N	L	L
40	5 2 7 7	S11 6	40.5 42.5		SW-SM	Loose, gray, well graded SAND with silt (SW-SM), mps 0.25 in., no structure, no odor, wet -GLACIOMARINE DEPOSIT-	5	5	25	25	30	10				
45	9 9 5 6	S12 6	45.5 47.5	45.5	SP-SM	Medium dense, gray, poorly graded SAND with silt (SP-SM), mps 0.25 in., no structure, no odor, wet, schist fragment in tip of spoon -GLACIAL TILL-	5	5	5	25	50	10				
				47.5	BR	-WEATHERED BEDROCK-										
				49.5												

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

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-10
File No. 35611-000
Sheet No. 3 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
						Note: Roller cone refusal. BOTTOM OF EXPLORATION										

Notes:
1. FV1 (19.3-20.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details.
2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.

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

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-11

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 3
Start 28 July 2008
Finish 29 July 2008
Driller M. Porter
H&A Rep. O. Lawlor

Elevation 11 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	--	Rig Make & Model: Mobile Drill B-50 Bombardier
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: NW drive to 55.0 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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	3 10 13 10	S1 22	0.0 2.0		SM	Medium dense, brown, silty SAND with gravel (SM), mps 0.75 in., intermixed with 10% brick, cinders, and plastics fragments, no structure, no odor, moist	5	5	25	30	20	15				
						-FILL-										
	16 34 29 29	S2 24	2.0 4.0		SM	Very dense, creosote colored, silty SAND with gravel (SM), mps 0.75 in., intermixed with 30% wood, brick, and cinders, no structure, no odor, moist	5	5	25	30	20	15				
	12 20 18 13	S3 24	4.0 6.0	4.1	SM SW	Very dense, creosote colored, silty SAND with gravel (SM), mps 0.75 in., intermixed with 30% wood, brick, and cinders, no structure, no odor, moist Dense, light brown, well-graded, SAND (SW), mps 4.0 mm, no structure, no odor, moist	5	5	25 25	30 30	20 45	15				
5	7 7 6 7	S4 16	6.0 8.0		SW	Medium dense, gray-brown, well-graded SAND (SW), mps 0.25 in., no structure, no odor, wet			30	35	35					
	7 11 18 11	S5 18	8.0 10.0		SW	Medium dense, gray, well-graded SAND (SW), mps 0.25 in., no structure, no odor, wet			35	30	30					
						-FILL-										
10	2 4 6 2	S6 13	10.0 12.0		SW	Loose, gray, well-graded SAND (SW), mps 0.25 in., occasional silt pockets, material appears reworked, no structure, no odor, wet			30	30	30	10				
						Note: Organics observed in wash water from 12.0 to 12.5 ft.										
	2 3 3 4	S7 24	12.5 14.5	12.5	SM	Loose, gray, silty SAND (SM), mps 0.25 in., some shell fragments, no structure, no odor, wet			10	10	55	25				
						-HARBOR BOTTOM DEPOSIT-										
				14.2	CL	Medium stiff, gray, silty lean CLAY (CL), mps 4.0 mm, no structure, no odor, wet with occasional brown mottles						100				
15	1 2 2 2	S8 24	15.0 17.0		CL	Soft, gray, lean CLAY (CL), mps 4.0 mm, frequent partings along fine sand seams, no odor, moist										
						-GLACIOMARINE DEPOSIT-										
20																

Water Level Data

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

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 55.0
Rock Cored (ft) 0
Samples 12S

Boring No. HA08-11

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

*Note: 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

TEST BORING REPORT

Boring No. HA08-11
File No. 35611-000
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
20																
25	WOR WOH WOH WOH	S9 24	25.0 27.0		CL	Medium stiff, gray, silty lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist FV1 (25.3-26.0 ft), Su = 720/170 psf -GLACIOMARINE DEPOSIT-						100	N	L	N	
30																
				34.0		Note: Drill action indicates probable gravel from 34.0 to 35.0 ft. Fine gravel observed in wash water.										
35	2 3 2 2	S10 19	35.0 37.0		SP-SM	Loose, gray, poorly-graded SAND with silt (SP-SM), trace gravel, mps 0.25 in., no structure, no odor, wet -GLACIOMARINE DEPOSIT-		5		5	80	10				
40	8 11 10 19	S11 4	40.0 42.0		SP-SM	Medium dense, gray, poorly-graded SAND with silt (SP-SM), trace gravel, mps 1-3/8 in., no structure, no odor, wet -GLACIOMARINE DEPOSIT-	5			5	80	10				
45																

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

Boring No. HA08-11

HALEY& ALDRICH

TEST BORING REPORT

Boring No. HA08-11
File No. 35611-000
Sheet No. 3 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
50	10 12 19 13	S12 9	50.0 52.0		SM	Dense, gray, silty SAND (SM), trace gravel, mps 0.5 in., bonded, no odor, wet		5	10	10	60	15				
						GLACIAL TILL-										
						Note: Drill action indicates probable bedrock at 52.5 ft.										
				52.5		-WEATHERED BEDROCK-										
55				55.0		Note: Casing refusal at 53.4 ft. Roller bit refusal at 55 ft.										
						BOTTOM OF EXPLORATION										

Notes:
1. FV1 (25.3-26.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details.
2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.

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

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-12(OW)

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 1
Start 24 July 2008
Finish 24 July 2008
Driller M. Porter
H&A Rep. O. Lawlor
Elevation 11 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	--	Rig Make & Model: Mobile Drill B-50 Bombardier
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: NW drive to 16.0 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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	4 10 7 7	S1 17	0.0 2.0			SM	Medium dense, gray, silty SAND with gravel (SM), trace cinders, mps 0.5 in., no structure, no odor, moist -FILL-	5	5	10	25	35	20				
	5 11 15 9	S2 21	2.0 4.0			SM	Medium dense, gray, silty SAND with gravel (SM), intermixed with 15% cinders, mps 0.5 in., no structure, no odor, moist	5	5	5	25	40	20				
	3 6 10 12	S3 18	4.0 6.0			SM	Medium dense, gray, silty SAND with gravel (SM), intermixed with 15% cinders, mps 0.5 in., no structure, no odor, moist	5	5	20	20	20	30				
5					5.0	SW	Note: Groundwater encountered at 5.4 ft. Medium dense, light brown, well-graded SAND (SW), mps 0.25 in., no structure, no odor, moist			30	40	30					
	7 11 12 11	S4 20	6.0 8.0			SW	Medium dense, light brown, well-graded SAND (SW), with occasional pockets of fine sand, mps 0.25 in., no structure, no odor, moist			30	40	30					
	7 7 15 15	S5 22	8.0 10.0			SW	Medium dense, gray, well-graded SAND (SW), mps 0.25 in., no structure, no odor, wet -FILL-			35	35	30					
10	4 4 3 2	S6 17	10.0 12.0			SW	Loose, gray, well-graded SAND (SW), mps 0.25 in., no structure, no odor, wet			35	35	30					
					11.6												
	3 4 4 3	NR	12.0 14.0			ML	Medium stiff, dark gray, SILT with sand (ML), mps 4.0 mm, no structure, no odor, moist Note: No Recovery. Probable shells in spoon tip, shells observed in wash water. -HARBOR BOTTOM DEPOSIT-				5	5	90				
					14.0												
15	1 3 3 3	S7 21	14.0 16.0			CL	Medium stiff, gray with occasional brown mottling, lean CLAY (CL), trace root fibers, mps 2.0 mm, no structure, no odor, moist -GLACIOMARINE DEPOSIT-						100				
					16.0		BOTTOM OF EXPLORATION Note: Observation well installed in completed borehole. See Well Installation Report for details.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
7/24/08		0.25	14.0	16.0	7.62

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 16.0
Rock Cored (ft) 0
Samples 7S
Boring No. HA08-12(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

*Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611-000 TB.GPJ 10 Sep 08

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA08-13

Project Maine Health/United Way Development, Portland, Maine
Client Maine Medical Center
Contractor Maine Test Borings, Inc.

File No. 35611-000
Sheet No. 1 of 3
Start 29 July 2008
Finish 29 July 2008
Driller M. Porter
H&A Rep. O. Lawlor

Elevation 9 +/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Mobile Drill B-50 Bombardier
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: NW drive to 46.6 ft.
				Hoist/Hammer: Winch Doughnut Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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	3 7 11 11	S1 20	0.0 2.0		SP-SM	Medium dense, dark brown, poorly-graded SAND with silt (SP-SM), mps 1.0 in., intermixed with 10% cinders -FILL-			30	40	20	10				
	14 11 10 8	S2 6	2.0 4.0		SP	Medium dense, brown, poorly-graded SAND (SP), occasional silt pockets, mps 1-3/8 in., intermixed with 30% cinder and ash fragments			30	40	20	10				
5	2 2 2 1	S3 8	4.0 6.0		SP	Very loose, brown, poorly-graded SAND (SP), mps 1-3/8 in., intermixed with 30% cinder and ash fragments -FILL-		5	30	40	25					
	1 4 3 3	S4 6	6.0 8.0	6.0	GW	Loose, brown to red-brown, well-graded GRAVEL (GW), mps 1-3/8 in., intermixed with 10% wood and glass fragments, no structure, no odor, wet	30	35	10	10	10					
	5 3 1 1	S5 12	8.0 10.0		GP	Very loose, gray, brown, poorly-graded GRAVEL (GP), mps 1.0 in., trace glass and wood, no structure, no odor, wet -FILL-	30	40	10	10	5	5				
10	1 1 2 107	S6 15	10.0 12.0	10.0	ML	Very loose, gray, sandy SILT (ML), mps 0.25 in., trace wood and glass, shells, no structure, no odor, wet -FILL- Note: Drilled through cobble from 12.0 to 12.4 ft.			5	10	15	70				
	2 3 3 4	S7 24	12.5 14.5	12.5	CL	Medium stiff, gray, lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist, occasional brown mottles -GLACIOMARINE DEPOSIT-						100	N	M	M	
15																
20																

Water Level Data

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

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 46.6
Rock Cored (ft) 9.4
Samples 10S, 2C
Boring No. HA08-13

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

*Note: 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

TEST BORING REPORT

Boring No. HA08-13
File No. 35611-000
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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
20	WOR WOR WOH WOH	S8 24	20.0 22.0		CL	Medium stiff, silty lean CLAY (CL), mps 2.0 mm, no structure, no odor, moist FV1 (20.3-21.0 ft), Su = ~670/170 psf -GLACIOMARINE DEPOSIT-						100	N	L	L	
25						Note: Trace fine gravel observed in wash water. FV2 (25.3-26.0 ft), Su = 590/240 psf										
30	WOR WOR WOR WOH	S9 24	30.0 32.0		CL	Soft, gray, silty lean CLAY (CL), mps 2.0 mm, occasional partings along sand seams, no odor, moist FV3 (30.3-31.0 ft), Su = 280/250 psf -GLACIOMARINE DEPOSIT-					5	95	N	L	L	
35						FV4 (35.3-36.0 ft), Su = 720/220 psf Note: Sand observed in wash water and on drill rods.										
				39.6												
40	4 2 2 4	S10 4	40.0 42.0		SP	Very loose, gray, poorly-graded SAND (SP), mps 4.0 mm, no structure, no odor, wet -GLACIOMARINE DEPOSIT-				45	50	5				
45				46.6		Note: Casing refusal at 46.6 ft. Advanced roller bit to 46.6 ft. Begin NQ rock core at 46.6 ft. See Core Boring Report for details. Notes: 1. FV1 (20.3-21.0 ft) indicates in-situ field vane performed at depth interval shown, corrected peak/residual shear strengths are provided. See Table II for details. 2. WOR = Weight of Drill Rods; WOH = Weight of Hammer.										

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

Boring No. HA08-13

HALEY& ALDRICH

CORE BORING REPORT

Boring No. HA08-13
File No. 35611-000
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
50	2 2 4 7 3	C1	46.6 51.0	40 0	76 0			Moderately hard, moderate to highly weathered, dark green, aphanitic CHLORITE SCHIST. Foliation is extremely thin, high angle. Primary joint set is parallel to foliation, high angle, very close to undulating, fresh to discolored with pyrite, very tight to tight
55	2 2 2 2 2	C2	51.0 56.0	60 42	100 70		51.0	Moderately hard, slightly weathered to fresh, dark green, aphanitic CHLORITE SCHIST. Foliation is extremely thin, high angle to vertical. Primary joint set is parallel to foliation, high angle to vertical, close to very close, smooth to polished, stepped to undulating, fresh to discolored with pyrite, very tight to tight. Occasional extremely thin to thin, high angle to vertical quartz veins
							56.0	BOTTOM OF EXPLORATION
60								
65								
70								
75								

2008 Test Pit Logs for
Proposed MaineHealth/United Way Development
(see Reference 5)

HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP-201

Project	Maine Health / United Way Development
Location	Somerset & Chestnut Streets, Portland, Maine
Client	Maine Medical Center
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu PC 35 MR
File No.	35611-000
H&A Rep	B. Steinert
Date	20 October 2008
Weather	Sunny, 50°

Ground El.: 11 +/-
El. Datum: Portland City Datum

Location: See Plan

Groundwater depths/entry rates (in./min.): 4.6 gal/min

Depth (ft)	Sample ID	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0			SW- SM	Gray-brown, well-graded SAND with silt and gravel (SW-SM), mps 8 in., no structure, no odor, dry, bricks, concrete, wood throughout, railroad ties and steel tracks in north side of test pit at ~1.5 ft	10	15	15	35	15	10				
				-FILL-										
2		2.0	SP	Black, poorly graded SAND with silt (SP), mps 4.75 mm, no structure, no odor, dry, some coal/ash fragments, trace organics			5	50	30	15				
				-FILL-										
		3.5	SP	Tan to yellow-brown, poorly graded SAND (SP), mps 4.75 mm, no structure, no odor, moist to wet with depth			10	60	20	10				
4				-FILL-										
6														
8		8.0		-BOTTOM OF EXCAVATION-										

Obstructions: None. Miscellaneous debris (bricks, wood, granite pavers), rail timbers, tracks present throughout.

Remarks: Water observed seeping into test pit excavation at approximately 8 ft below existing ground surface.

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

Standing Water in Completed Pit

at depth 6.5 ft
measured after 31 min. hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24	NA	= NA
over 24	NA	= NA

Test Pit Dimensions (ft)

Pit Length x Width (ft) 6 x 3
Pit Depth (ft) 8.0

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

HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP-202

Project	Maine Health / United Way Development
Location	Somerset & Chestnut Streets, Portland, Maine
Client	Maine Medical Center
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu PC 35 MR
File No.	35611-000
H&A Rep	B. Steinert
Date	20 October 2008
Weather	Sunny, 50°

Ground El.: 12 +/-
El. Datum: Portland City Datum
Location: See Plan
Groundwater depths/entry rates (in./min.): 3.7 gal/min

Depth (ft)	Sample ID	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests: Dilatancy	Toughness	Plasticity	Strength
0			SC	Dark brown, clayey SAND (SC), mps 2 in., no structure, slight creosote-like odor, moist, brick and porcelain fragments present, trace organics (rootlets) -FILL-		5	10	30	40	15				
2														
		3.5	SP- SM	Black, poorly graded SAND with silt (SP-SM), mps 2 mm, no structure, organic odor, moist, rootlets throughout, probable former topsoil				10	70	20				
4		4.0	SW	Light brown, well-graded SAND with gravel (SW), mps 3 in., no structure, no odor, moist	5	15	30	25	15	10				
		4.5	SM	Black, silty SAND with gravel (SM), mps 2 in., no structure, no odor, moist to wet, trace organics, brick bragments, clinker-like material -FILL-		15	15	35	15	20				
6														
		6.5	SP	Tan to yellow-brown, poorly graded SAND (SP), mps 4.75 mm, no structure, no odor, moist to wet -FILL-			10	60	15	5				
8														
10														
		11.0		-BOTTOM OF EXCAVATION-										

Obstructions: NA

Remarks: Water observed seeping into test pit excavation at approximately 11 ft below existing ground surface.

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

Standing Water in Completed Pit

at depth 8.0 ft
measured after 18 min. hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24	NA	= NA
over 24	NA	= NA

Test Pit Dimensions (ft)

Pit Length x Width (ft) 6 x 3
Pit Depth (ft) 11.0

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

HALEY & ALDRICH

TEST PIT LOG

Test Pit No. TP-203

Project	Maine Health / United Way Development
Location	Somerset & Chestnut Streets, Portland, Maine
Client	Maine Medical Center
Contractor	Environmental Projects, Inc.
Equipment Used	Komatsu PC 35 MR
File No.	35611-000
H&A Rep	B. Steinert
Date	20 October 2008
Weather	Sunny, 50°

Ground El.: 9 +/-
El. Datum: Portland City Datum
Location: See Plan
Groundwater depths/entry rates (in./min.): 4.6 gal/min

Depth (ft)	Sample ID	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0			SW- SM	Gray-brown, well-graded SAND with silt (SW-SM), mps 0.75 in., no structure, no odor, moist, trace brick fragments -FILL-		5	25	45	15	10				
2		2.0	SP	Tan to yellow-brown, poorly graded SAND (SP), mps 4.75 mm, no structure, no odor, moist			10	60	20	10				
		2.7	SW	Dark brown to black, well-graded SAND with gravel (SW), mps 3 in., no structure, no odor, moist to wet	15	10	25	35	10	5				
		3.5	SW- SM	Brown, well-graded SAND with silt (SW-SM), mps 4 in., no structure, no odor, moist, cinders, ash, bricks, concrete fragments present -FILL- Note: Gray, lean CLAY with bricks and little fine to medium sand observed in western third of test pit.			35	20	30	15				
4														
6														
8														
10														
		11.0		-BOTTOM OF EXCAVATION-										

Obstructions: NA

Remarks: Water observed seeping into test pit excavation at approximately 11 ft below existing ground surface.

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

Standing Water In Completed Pit

at depth 10.5 ft
measured after 17 min. hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24	NA	= NA
over 24	NA	= NA

Test Pit Dimensions (ft)

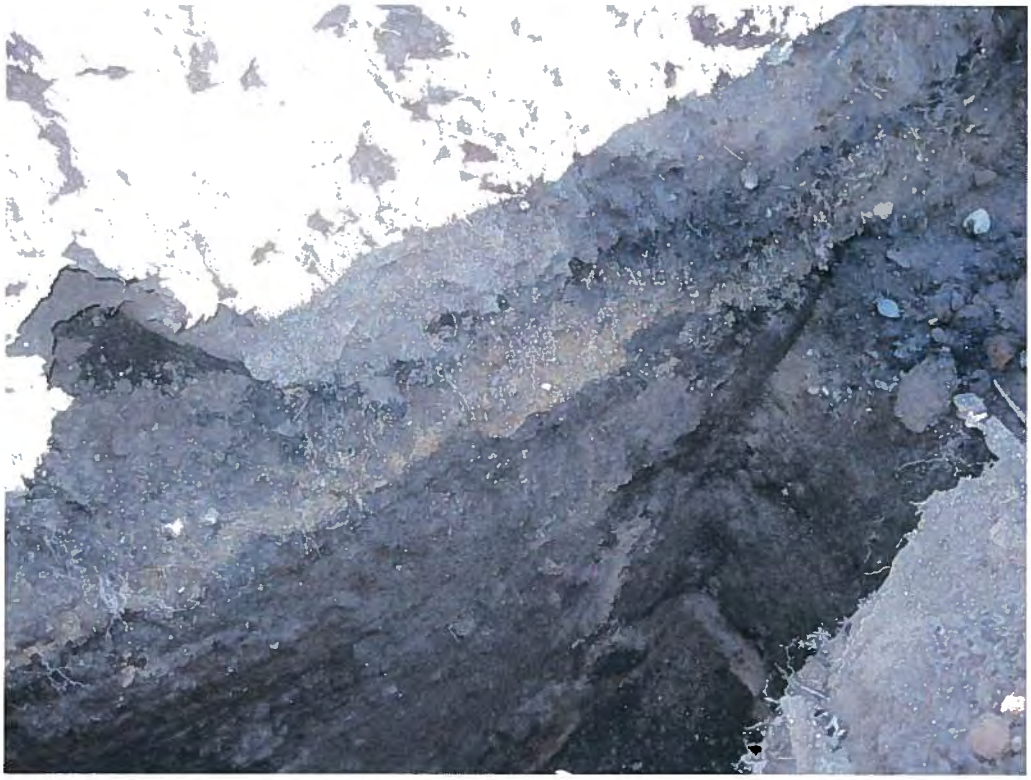
Pit Length x Width (ft) 7 x 3
Pit Depth (ft) 11.0

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

HA TESTPIT-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TP07-1.GDT G:\PROJECTS\35611\FIELD PROGRAM\35611 TP201-203.GPJ 4 Dec 08

Photograph 1. In-situ fill soils encountered in TP-201, looking northwest (10/20/08).

Photograph 2. In-situ fill soils and groundwater encountered in TP-201, looking northwest (10/20/08).



Photograph 3. In-situ fill soils encountered in TP-202, looking north (10/20/08).

Photograph 4. In-situ fill soils and groundwater encountered in TP-202, looking southeast (10/20/08).

2013 Test Boring Logs for
Proposed Somerset Street Improvements
(see Reference 6)

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA13-1

Project Proposed Improvements to Somerset Street, Portland, Maine
Client City of Portland
Contractor Northern Test Boring

File No. 39537-000
Sheet No. 1 of 1
Start January 31, 2013
Finish January 31, 2013
Driller M. Nadeau
H&A Rep. M. Snow
Elevation 7.5 (approx.)
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	--	Rig Make & Model: Diedrich D50
Inside Diameter (in.)	2.5	1.375	--	Bit Type: Cutting Head
Hammer Weight (lb)	--	140	-	Drill Mud: None
Hammer Fall (in.)	--	30	-	Casing: HSA Spun to 18.0 ft
				Hoist/Hammer: / Automatic Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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				0.2	SP	-BITUMINOUS CONCRETE-	15	20	5	30	25	5				
	9 10 12 5	S1 12	0.5 2.5			Medium dense, brown, poorly-graded SAND with gravel (SP), plastic and brick fragments, mps 2 in., no odor, dry to moist										
	2 3 8 4	S2 6	2.5 4.5		SM	Medium dense, brown to gray with occasional rust-brown, silty SAND (SM) with coal fragments, mps 1.5 in., no odor, moist -FILL-		5	10	40	30	15				
5	2 4 4 3	S3 10	4.5 6.5		SM	Loose, brown to gray-brown, silty SAND with gravel (SM), trace ash, coal, mps 2.0 in., no odor, wet	5	25	20	15	20	15				
	2 4 4 5	S4 16	6.5 8.5		SM	Loose, gray-brown, silty SAND with gravel (SM), mps 1.5 in., slight petroleum-like odor, wet		25		30	30	15				
	1 1 1	S5 12	8.5 10.0	8.5	ML	Very soft, dark brown-gray, sandy SILT with organics (ML), trace shells, mps 0.42 mm, no odor, wet					30	70				
10	1 1 1 1	S6 22	10.0 12.0		ML	Very soft, dark brown-gray, sandy SILT (ML) with organics, shells, mps 0.42 mm, no odor, wet					30	70				
	1 1 2 2	S7 24	12.0 14.0		ML	Soft, dark brown-gray, SILT to sandy SILT (ML) with organics, shells, mps 0.42 mm, no odor, wet -HARBOR BOTTOM DEPOSIT-					30	70				
15	1 2 2 3	S8 24	14.0 16.0	14.0	CL	Soft, gray, lean CLAY (CL), trace organics (black streaks), shells, mps 0.075 mm						100				
	1 1 1 1	S9 24	16.0 18.0		CL	Very soft, gray, lean CLAY (CL), mps 0.075 mm, no odor, wet -MARINE DEPOSIT-						100				
	1 1 WOH 1	S10 24	18.0 20.0		CL	Very soft, gray, lean CLAY (CL), black organics, mps 0.075 mm, no odor, wet						100				
20				20.0		Bottom of Exploration 20.0 ft - No Refusal										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
1/31/13	09:30	0	Caved	2.0	--

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample
C - Rock Core Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 20.0
Rock Cored (ft) 0.0
Samples 10S

Boring No. HA13-1

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

***Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39537 - SOMERSET ST\FIELD EXPLORATIONS\2013_0131_TEST BORINGS HA13-1_6.GPJ Apr 24, 13

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA13-2

Project Proposed Improvements to Somerset Street, Portland, Maine
Client City of Portland
Contractor Northern Test Boring

File No. 39537-000
Sheet No. 1 of 1
Start January 31, 2013
Finish January 31, 2013
Driller M. Nadeau
H&A Rep. M. Snow
Elevation 8.0 (approx.)
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	--	Rig Make & Model: Diedrich D50
Inside Diameter (in.)	2.5	1.375	--	Bit Type: Cutting Head
Hammer Weight (lb)	--	140	-	Drill Mud: None
Hammer Fall (in.)	--	30	-	Casing: HSA Spun to 18.0 ft
				Hoist/Hammer: / Automatic Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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				0.3		-BITUMINOUS CONCRETE-										
	21 60 51 30	S1 18	0.4 2.4	0.2	SW/GW	Very dense (frozen), brown, well-graded SAND and GRAVEL (SW/GW), mps 2.0 mm, no odor, moist	20	20	20	20	20					
	6 8 8 11	S2 12	2.4 4.4		SM	Medium dense, brown and gray, silty SAND with gravel (SM), brick and coal fragments, mps 1.0 in., no odor, wet -FILL-	10	25	15	20	15					
5	5 8 6 7	S3 12	4.4 6.4		GM	Medium dense, orange, BRICK with silty gravel (GM), mps 2.0 mm, no odor, wet		10	5	35	35	15				
	3 4 5 7	S4 3	6.4 8.4	6.4	SM	WOOD with gray silty sand (SM), brick pieces, mps 0.5 in., no odor, wet -FILL-					30	70				
	1 1 1	S5 19	8.4 10.0	8.4	ML	Very soft, dark gray-brown, sandy SILT (ML) with organics, shells, mps 0.42 mm, no odor, wet -HARBOR BOTTOM DEPOSIT-						100				
10	1 WOH 2 2	S6 22	10.0 12.0	11.0	CL	Soft, brown-gray, mottled lean CLAY (CL), mps 0.075 mm, no odor, wet						100				
	2 2 2 2	S7 24	12.0 14.0		CL	Soft, brown-gray, mottled lean CLAY (CL), mps 0.075 mm, no odor, wet -MARINE DEPOSIT-						100				
15	1 1 1 2	S8 24	14.0 16.0		CL	Soft, brown-gray, mottled lean CLAY (CL), mps 0.075 mm, no odor, wet						100				
				15.5	CL	Note: Auger plug stuck at 16.0 ft. Advance to 18.0 ft. -MARINE DEPOSIT-										
	WOH WOH 1 1	S9 24	18.0 20.0		CL	Very soft, gray, lean CLAY (CL), black organics, mps 0.075 mm, no odor, wet						100				
20				20.0		Bottom of Exploration 20.0 ft - No Refusal										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
1/31/13	10:40	0	Caved	1.9	--

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample
C - Rock Core Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 20.0
Rock Cored (ft) 0.0
Samples 9S

Boring No. HA13-2

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

***Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39537 - SOMERSET ST\FIELD EXPLORATIONS\2013_0131_TEST BORINGS HA13-1_6.GPJ Apr 24, 13

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA13-3

Project Proposed Improvements to Somerset Street, Portland, Maine
Client City of Portland
Contractor Northern Test Boring

File No. 39537-000
Sheet No. 1 of 1
Start January 31, 2013
Finish January 31, 2013
Driller M. Nadeau
H&A Rep. M. Snow
Elevation 7.5 (approx.)
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	--	Rig Make & Model: Diedrich D50
Inside Diameter (in.)	2.5	1.375	--	Bit Type: Cutting Head
Hammer Weight (lb)	--	140	-	Drill Mud: None
Hammer Fall (in.)	--	30	-	Casing: HSA Spun to 18.0 ft
				Hoist/Hammer: / Automatic Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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-										
	25 49 36 15	S1 20	0.4 2.4	0.3	SW	Very dense (frozen), brown, well-graded SAND with gravel (SW), mps 1.0 in., no odor, moist	5	15	25	25	25	5				
	4 4 3 3	S2 18	2.4 4.4		SM	Loose, brown, silty SAND (SM), brick fragments, mps 1.0 in., no odor, moist to wet -FILL-	5	10	10	30	30	15				
5	2 2 3 3	S3 8	4.4 6.4		ML	Medium stiff, dark gray-brown SILT with sand (ML), with wood pieces, organics, mps 1.0 in., no odor, wet		10		15	15	60				
	2 1 2 1	S4 10	6.4 8.4		ML	Medium stiff, dark gray-brown, SILT with sand (ML), with wood pieces, organics, mps 1.0 in., no odor, wet		10		15	15	60				
	1 1 WOH	S5 18	8.4 10.0	8.0	ML	Soft, dark gray-brown, sandy SILT (ML) with organics, trace shells, mps 2.0 mm, no odor, wet -HARBOR BOTTOM DEPOSIT-					30	70				
10	1 WOH 2 2	S6 24	10.0 12.0		ML	Soft, dark gray-brown, sandy SILT (ML) with organics, trace shells, mps 2.0 mm, no odor, wet					30	70				
	1 1 2 1	S7 24	12.0 14.0	11.0	CL	Soft, brown-gray, mottled lean CLAY (CL) with frequent gray fine sand layers -MARINE DEPOSIT-					15	85				
15	1 WOH 1 1	S8 24	14.0 16.0	13.5	CL	Very soft, dark gray, lean CLAY (CL) with frequent gray fine sand layers, mps 0.42 mm, no odor, wet -MARINE DEPOSIT-					15	85				
	WOH 1 1 1	S9 24	16.0 18.0		CL	Very soft, dark gray, lean CLAY (CL) with occasional fine sand layers, black organics, trace shells, mps 0.42 mm, no odor					10	90				
	1 WOH 1 WOH	S10 24	18.0 20.0		CL	Very soft, dark gray, lean CLAY (CL) with black organics, trace shells, mps 0.075 mm, no odor, wet						100				
20				20.0		Bottom of Exploration 20.0 ft - No Refusal										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
1/31/13	11:45	0	Caved	1.5	--

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample
C - Rock Core Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 20.0
Rock Cored (ft) 0.0
Samples 10S

Boring No. HA13-3

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

***Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39537 - SOMERSET ST\FIELD EXPLORATIONS\2013_0131_TEST BORINGS HA13-1_6.GPJ Apr 24, 13

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA13-4

Project Proposed Improvements to Somerset Street, Portland, Maine
Client City of Portland
Contractor Northern Test Boring

File No. 39537-000
Sheet No. 1 of 1
Start January 31, 2013
Finish January 31, 2013
Driller M. Nadeau
H&A Rep. M. Snow
Elevation 9.0 (approx.)
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	--	Rig Make & Model: Diedrich D50
Inside Diameter (in.)	2.5	1.375	--	Bit Type: Cutting Head
Hammer Weight (lb)	--	140	-	Drill Mud: None
Hammer Fall (in.)	--	30	-	Casing: HSA Spun to 18.0 ft
				Hoist/Hammer: / Automatic Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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				0.3	SW	-BITUMINOUS CONCRETE-										
	31 66 68 26	S1 20	0.5 2.5		SW	Very dense (frozen), brown, well-graded SAND with gravel (SW), mps 1.0 in., no odor, moist	5	10	15	35	30	5				
	11 10 9 6	S2 12	2.5 4.5		SW-SM	Medium dense, brown, well-graded SAND with gravel (SW-SM), mps 2.0 in., no odor, moist	10	20	20	20	20	10				
						-FILL-										
5	5 5 3 3	S3 16	4.5 6.5		SM	Loose, dark brown to brown, silty SAND with gravel (SM), mps 2.0 in., no odor, moist	15	15	10	25	20	15				
				6.0												
	4 5 3 5	S4 5	6.5 8.5		ML/SM	Loose, dark brown, sandy SILT (ML) to silty SAND (SM), mps 1.0 in., no odor, wet, 50% of sample is brick	5 5				40 55	55 40				
						-FILL-										
	2 3 2 2	S5 18	8.5 10.5		SM	Loose, dark brown, silty SAND with gravel (SM), mps 2.0 in., no odor, wet	10	5	10	30	30	15				
10				9.5	ML	Medium stiff, dark gray-brown, SILT (ML) with organics, trace shells, wood pieces, mps 0.25 in., no odor, wet					15	85				
	1 1 1	S6 16	10.5 12.0		ML	Very soft, dark brown, sandy SILT to SILT (ML) with organics, shells, mps 0.42 mm, no odor, wet					30 10	70 90				
	1 1 1 2	S7 24	12.0 14.0		ML	Very soft, dark gray-brown, SILT (ML) with organics, shells, mps 0.42 mm, no odor, wet					5	90				
				13.3		-HARBOR BOTTOM DEPOSIT-										
	1 2 1 2	S8 24	14.0 16.0		CL	Very soft, brown-gray, mottled lean CLAY (CL), mps 0.075 mm, no odor, wet						100				
15						-MARINE DEPOSIT-										
				15.5												
	WOH WOH WOH WOH	S9 24	16.0 18.0		CL CL	Soft, dark gray, lean CLAY (CL) with black organics, mps 0.075 mm, no odor, wet Very soft, dark gray, lean CLAY (CL) with black organics, mps 0.075 mm, no odor, wet						100 100				
						-MARINE DEPOSIT-										
	WOH WOH WOH 1	S10 24	18.0 20.0		CL	Very soft, dark gray, lean CLAY (CL) with black organics, mps 0.075 mm, no odor, wet						100				
20				20.0		Bottom of Exploration 20.0 ft - No Refusal										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
1/31/13	12:55	0	Caved	3.5	--

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample
C - Rock Core Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 20.0
Rock Cored (ft) 0.0
Samples 10S

Boring No. HA13-4

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

***Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39537 - SOMERSET ST\FIELD EXPLORATIONS\2013_0131_TEST BORINGS HA13-1_6.GPJ Apr 24, 13

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA13-5

Project Proposed Improvements to Somerset Street, Portland, Maine
Client City of Portland
Contractor Northern Test Boring

File No. 39537-000
Sheet No. 1 of 1
Start January 31, 2013
Finish January 31, 2013
Driller M. Nadeau
H&A Rep. M. Snow
Elevation 10.0 (approx.)
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	--	Rig Make & Model: Diedrich D50
Inside Diameter (in.)	2.5	1.375	--	Bit Type: Cutting Head
Hammer Weight (lb)	--	140	-	Drill Mud: None
Hammer Fall (in.)	--	30	-	Casing: HSA Spun to 18.0 ft
				Hoist/Hammer: / Automatic Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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				0.2	SP	-BITUMINOUS CONCRETE-	10	15	10	25	25	5				
	24 29 39 30	S1 20	0.5 2.5		SP	Very dense, brown, well-graded SAND with gravel (SW), mps 1.0 in., no odor, dry										
	10 10 7 3	S2 12	2.5 4.5		SM	Medium dense, silty SAND with gravel (SM), with brick fragments, mps 1.0 in., no odor, moist	10	10	20	25	20	15				
						-FILL-										
5	3 3 3 14	S3 12	4.5 6.5		SW-SM	Loose, brown to dark brown, well-graded SAND with gravel (SW-SM) with wood (2 in.), decomposed brick, ash, mps 1.0 in., no odor, moist to wet	10	10	20	30	20	10				
	3 3 5 5	S4 14	6.5 8.5		SW	Lose, dark brown-black, silty SAND with gravel (SW), decomposed brick, mps 0.5 in., no odor, wet		20	25	25	20	15				
	4 3 2 3	S5 18	8.5 10.5		SW	Loose, dark brown-black, silty SAND with gravel (SW), decomposed brick, mps 1.0 in., no odor, wet		20	25	25	20	15				
				9.5	ML	Medium stiff, dark brown-black, SILT (ML) with organics, shell fragments, mps 0.075 mm, no odor, wet						100				
10	2 1 2	S6 16	10.5 12.0		ML	Soft, black, sandy SILT (ML) with organics, shell fragments, mps 0.42 mm, no odor, wet					30	70				
						-HARBOR BOTTOM DEPOSIT-										
	1 1 2 4	S7 24	12.0 14.0		ML	Soft, black to dark gray, sandy SILT (ML) with organics, shells, mps 0.42 mm, no odor, wet										
				14.0	CL	Soft, gray, lean CLAY (CL), mps 0.075 mm, no odor, wet						100				
15	2 2 2 2	S8 22	14.0 16.0													
	WOH 1 1 1	S9 24	16.0 18.0		CL	Very soft, gray, lean CLAY (CL), mps 0.42 mm, no odor, wet					5	95				
						-MARINE DEPOSIT-										
	WOH WOH 1 1	S10 24	18.0 20.0		CL	Very soft, gray, lean CLAY (CL), mps 0.075 mm, no odor, wet						100				
20				20.0		Bottom of Exploration 20.0 ft - No Refusal										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
1/31/13	14:00	0	Caved	2.0	--

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample
C - Rock Core Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 20.0
Rock Cored (ft) 0.0
Samples 10S

Boring No. HA13-5

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

***Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39537 - SOMERSET ST\FIELD EXPLORATIONS\2013_0131_TEST BORINGS HA13-1_6.GPJ Apr 24, 13

HALEY & ALDRICH

TEST BORING REPORT

Boring No. HA13-6

Project Proposed Improvements to Somerset Street, Portland, Maine
Client City of Portland
Contractor Northern Test Boring

File No. 39537-000
Sheet No. 1 of 1
Start January 31, 2013
Finish January 31, 2013
Driller M. Nadeau
H&A Rep. M. Snow
Elevation 10.0 (approx.)
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	--	Rig Make & Model: Diedrich D50
Inside Diameter (in.)	2.5	1.375	--	Bit Type: Cutting Head
Hammer Weight (lb)	--	140	-	Drill Mud: None
Hammer Fall (in.)	--	30	-	Casing: HSA Spun to 18.0 ft
				Hoist/Hammer: / Automatic Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, 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				0.2	SW	-BITUMINOUS CONCRETE-	10	10	20	30	25	5				
	16 30 48 21	S1 18	0.5 2.5			Very dense (frozen), brown, well-graded SAND with gravel (SW), mps 1.0 in., no odor, dry										
	12 15 15 12	S2 18	2.5 4.5		SW-SM	Dense, brown, well-graded SAND with gravel (SW-SM), mps 2.0 in., no odor, frozen to moist	10	15	20	25	20	10				
						-FILL-										
5	6 21 16 5	S3 14	4.5 6.5		SM	Dense, brown-gray, silty SAND (SM), mps 0.5 in., no odor, moist		5	10	35	35	15				15
	1 1 2 3	S4 12	6.5 8.5		SM	Loose, dark gray-brown, silty SAND with gravel (SM), mps 1.0 in., no odor, wet	5	15	5	30	30	15				
	1 2 2	S5 10	8.5 10.0	8.5	ML	Soft, dark gray-black, sandy SILT (ML) with organics, shells, mps 0.42 mm, slight organic odor, wet					30	70				
10	1 2 2 3	S6 14	10.0 12.0		ML	Soft, dark gray-black, sandy SILT (ML) with organics, shells, mps 1.5 in. (1 gravel piece), slight organic odor, wet					30	70				
						-HARBOR BOTTOM DEPOSIT-										
	2 1 2 3	S7 18	12.0 14.0		ML	Soft, dark gray-brown, SILT (ML), with shells, mps 0.42 mm, no odor, wet					30	70				
				13.5												
15	5 4 5 7	S8 14	14.0 16.0		CL	Medium stiff, brown-gray, mottled lean CLAY (CL), mps 0.075 mm, no odor, wet						100				
						-MARINE DEPOSIT-										
	1 2 1 2	S9 23	16.0 18.0	16.5	CL	Soft, dark gray, lean CLAY (CL), mps 0.075 mm, no odor, wet						100				
						-MARINE DEPOSIT-										
	WOH 1 1 1	S10 24	18.0 20.0		CL	Very soft, dark gray, lean CLAY (CL), mps 0.075 mm, no odor, wet						100				
20				20.0		Bottom of Exploration 20.0 ft - No Refusal										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
1/31/13	15:15	0	Caved	1.25	--

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample
C - Rock Core Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 20.0
Rock Cored (ft) 0.0
Samples 10S

Boring No. HA13-6

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

***Note: 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.

H&A-TEST BORING-07-1 HA-LIB07-1R-POR-06-03-08.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39537 - SOMERSET ST\FIELD EXPLORATIONS\2013_0131_TEST BORINGS HA13-1_6.GPJ Apr 24, 13

APPENDIX B

Observation Well Installation and Groundwater Monitoring Reports

2006 Observation Well Installation and Groundwater Monitoring Reports for Proposed Bayside Parking Garage (see Reference 2)

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No.

Boring No. HA06-2(OW)

PROJECT	Proposed Bayside Parking Garage & Master Planning	H&A FILE NO.	33538-000
LOCATION	Portland, Maine	PROJECT MGR.	W. Chadbourne
CLIENT	Scott Simons Architects	FIELD REP.	B. Steinert
CONTRACTOR	Maine Test Borings, Inc.	DATE INSTALLED	8/17/2006
DRILLER	P. Hatch	WATER LEVEL	

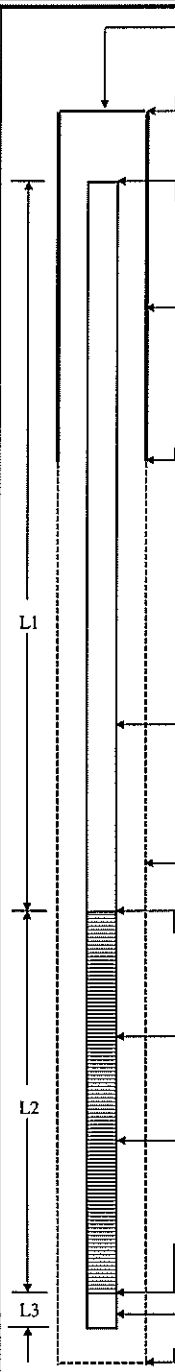
Ground El. 9.0 +/- ft
El. Datum Portland City

Location See Plan

☑ Guard Pipe
☐ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
0.0	0.0
FILL	BENTONITE CHIPS
	3.0
11.3	
HARBOR BOTTOM DEPOSIT	
15.0	
	FILTER SAND
MARINE CLAY	
34.5	
MARINE SAND	15.0
	BENTONITE CHIPS
	18.0
40.0	
WEATHERED BEDROCK	FILTER SAND
47.2	47.2

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Steel Lock / Cap
Height of top of guard pipe above ground surface.	3.6 ft
Height of top of riser pipe above ground surface	3.4 ft
Type of protective casing:	Steel Guardpipe
Length	5.2 ft
Inside Diameter	3.25 in
Depth of bottom of guard pipe/roadway box	1.6 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	-	-
Bentonite Seal	0.0	3.0

Type of riser pipe:	Schedule 40 PVC
Inside diameter of riser pipe	2.0 in
Type of backfill around riser	Filter Sand / Bentonite Chips
Diameter of borehole	4.0 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	2.0 in
Type of backfill around screen	Filter Sand
Depth of bottom of well screen	15.0 ft
Bottom of Silt trap	15.0 ft
Depth of bottom of borehole	47.2 ft

8.4 ft	+	10 ft	+	0 ft	=	18.4 ft
Riser Pay Length (L1)		Length of screen (L2)		Length of silt trap (L3)		Pay length

COMMENTS:

Form 2007

HALEY & ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HAO6-2(OW)

PROJECT	Proposed Bayside Parking Garage & Master Planning	H&A FILE NO.	33538-000
LOCATION	Portland, Maine	PROJECT MGR.	W. Chadbourne
CLIENT	Scott Simons Architects	FIELD REP.	B. Steinert
CONTRACTOR	Maine Test Borings, Inc.	DATE	8/17/2006
ELEVATION SUBTRAHEND	9.0 (Portland City Datum)		

Date	Time	Elapsed Time (days)	Depth of Water from Ground Surface	Elevation of Water	Remarks	Read By
8/17/2006	12:30	0	-0.8	9.8	bailed out after reading (bailer)	bcs
8/17/2006	12:30	0	3.8	5.2		bcs
8/21/2006	14:10	4	2.7	6.3	bailed out after reading (wale pump)	bcs
8/21/2006	14:25	4	2.6	6.4		bcs
8/22/2006	16:45	5	2.7	6.3		bcs
8/23/2006	9:45	6	2.8	6.2		bcs
8/25/2006	9:20	8	2.9	6.1		bcs
8/28/2006	6:30	11	2.8	6.2		bcs
8/30/2006	7:00	13	2.7	6.3		bcs
8/31/2006	7:35	14	2.8	6.2		bcs
9/7/2006	7:40	21	2.7	6.3		bcs
9/8/2006	16:30	22	2.9	6.2	clear water surface in bailer	mls
9/18/2006	7:20	32	3.1	5.9		bcs

2008 Observation Well Installation and Groundwater Monitoring Reports for Proposed MaineHealth/United Way Development (see Reference 4)

HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. HA08-5(OW)

Boring No. HA08-5(OW)

PROJECT	Maine Health/United Way Development	H&A FILE NO.	35611-000
LOCATION	Portland, Maine	PROJECT MGR.	W. Chadbourne
CLIENT	Maine Medical Center	FIELD REP.	O. Lawlor
CONTRACTOR	Maine Test Borings, Inc.	DATE INSTALLED	8/1/2008
DRILLER	M. Porter	WATER LEVEL	-

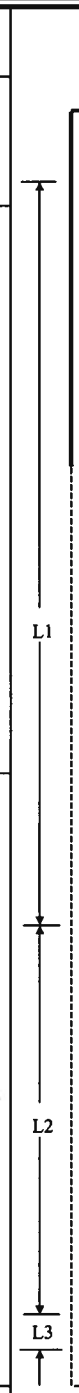
Ground El. 9.0 +/- ft
El. Datum Portland City

Location See Plan

☑ Guard Pipe
☐ Roadway Box

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
	BENTONITE
3.0	
FILL	
	FILTER SAND
10.5	
HARBOR BOTTOM DEPOSIT	
13.0	
	15.0
GLACIOMARINE DEPOSITS	
	DRILL CUTTINGS
53.0	
GLACIAL TILL	
63.8	
BEDROCK	
65.5	65.5

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock	Locked Cover
Height of top of guard pipe above ground surface	3.0 ft
Height of top of riser pipe above ground surface	2.8 ft
Type of protective casing:	Steel Guard Pipe
Length	5.0 ft
Inside Diameter	3.0 in
Depth of bottom of guard pipe/roadway box	ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	-	-
Bentonite Seal	0.0	3.0

Type of riser pipe:	Schedule 40 PVC
Inside diameter of riser pipe	2.0 in
Type of backfill around riser	Filter Sand/Bentonite
Diameter of borehole	3.0 in
Depth to top of well screen	5.0 ft
Type of screen	Mach. Slotted Sch. 40 PVC
Screen gauge or size of openings	0.010 in
Diameter of screen	2.0 in
Type of backfill around screen	Filter Sand
Depth of bottom of well screen	15.0 ft
Bottom of Silt trap	- ft
Depth of bottom of borehole	65.5 ft

7.8 ft	+	10 ft	+	0 ft	=	17.8 ft
Riser Pay Length (L1)		Length of screen (L2)		Length of silt trap (L3)		Pay length

COMMENTS:

Form 2007

HALEY&ALDRICH

GROUNDWATER MONITORING REPORT

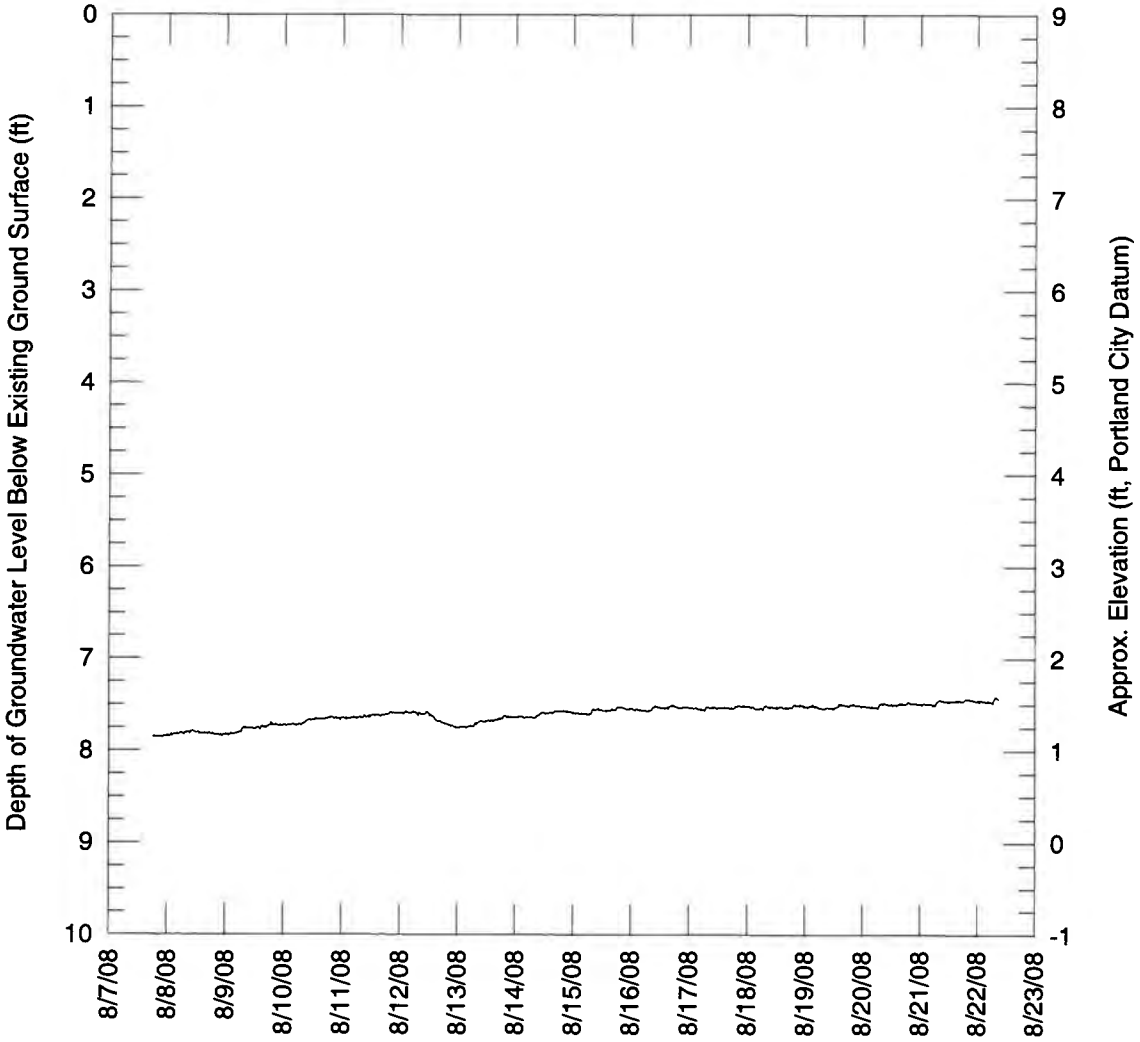
OW/PZ NUMBER
HA08-5(OW)

PROJECT	Maine Health/United Way Development	**H&A FILE NO.**	35611-000
LOCATION	Portland, Maine	**PROJECT MGR.**	W. Chadbourne
CLIENT	Maine Medical Center	**FIELD REP.**	O. Lawlor
CONTRACTOR	Maine Test Borings, Inc.	**DATE**	8/4/2008
ELEVATION SUBTRAHEND	9.0 (Approximate)		

Date	Time	Elapsed Time (days)	Depth of Water from Top of Riser Pipe	Elevation of Water	Remarks	Read By
8/4/2008	1200	0	7.3	4.5	GW level prior to well development	OEL
8/4/2008	1240	0	9.5	2.3	GW level after well development	OEL
8/7/2008	1805	3	7.9	3.9	GW level prior to level logger install.	CLH
8/22/2008	1000	18	8.3	3.5	GW level after level logger removal	CLH
10/20/2008	1200	77	10.9	0.9	GW level during TP-203 excavation	BCS
11/17/2008	1131	105	10.8	1.0		ECB
12/1/2008	1353	119	10.7	1.1		BCS

Results of Groundwater Monitoring
Observation Well HA08-5(OW)

MaineHealth/UnitedWay Development
Somerset and Chestnut Streets
Portland, Maine
Haley & Aldrich File No. 35611-000



HALEY & ALDRICH

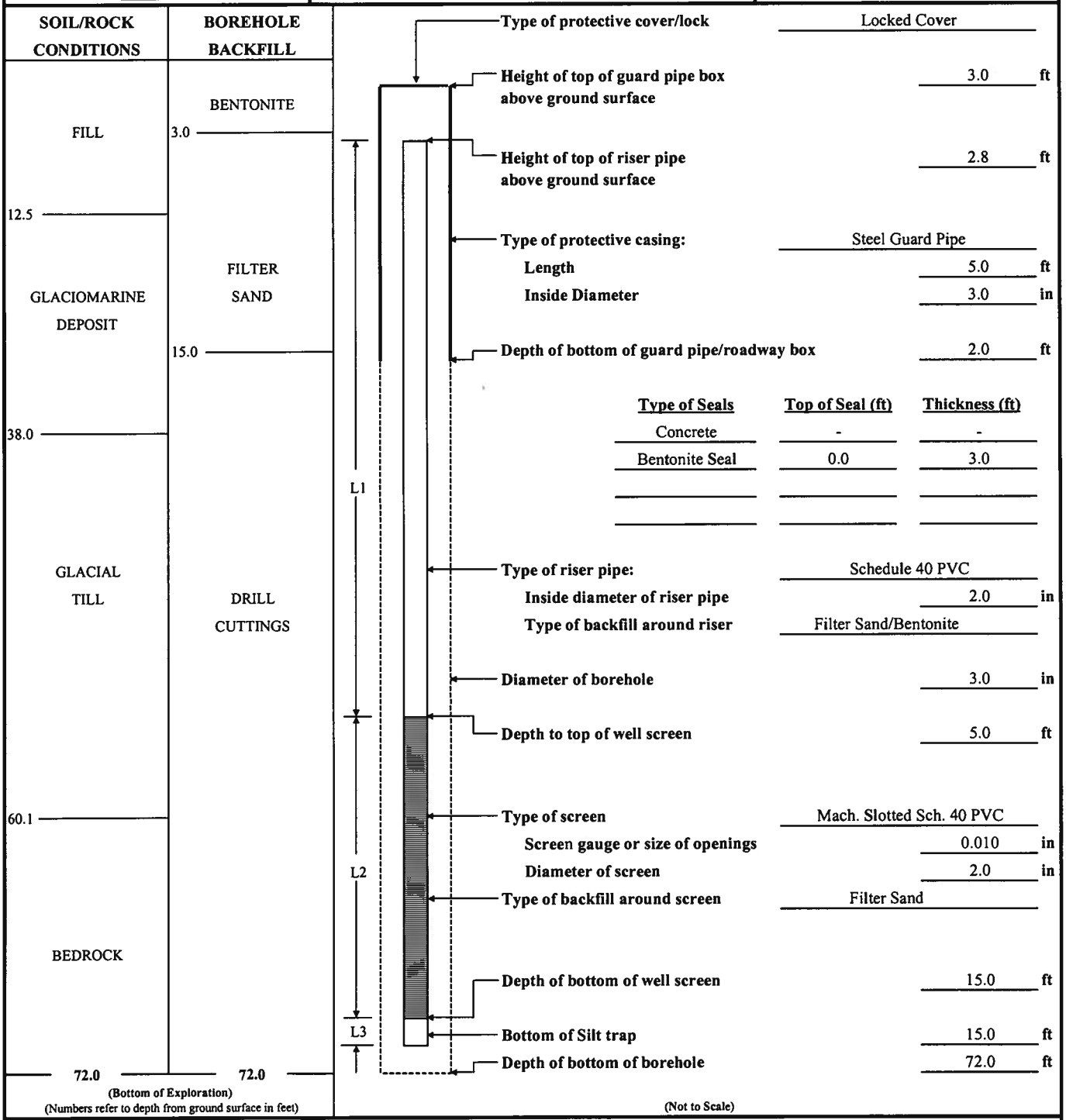
OBSERVATION WELL INSTALLATION REPORT

Well No. HA08-7(OW)
Boring No. HA08-7(OW)

PROJECT	Maine Health/United Way Development	**H&A FILE NO.**	35611-000
LOCATION	Portland, Maine	**PROJECT MGR.**	W. Chadbourne
CLIENT	Maine Medical Center	**FIELD REP.**	O. Lawlor
CONTRACTOR	Maine Test Borings, Inc.	**DATE INSTALLED**	7/31/2008
DRILLER	M. Porter	**WATER LEVEL**	-

Ground El. 12.0 +/- ft
El. Datum Portland City
Location See Plan

☑ Guard Pipe
☐ Roadway Box



Type of protective cover/lock: Locked Cover
Height of top of guard pipe box above ground surface: 3.0 ft
Height of top of riser pipe above ground surface: 2.8 ft
Type of protective casing: Steel Guard Pipe
Length: 5.0 ft
Inside Diameter: 3.0 in
Depth of bottom of guard pipe/roadway box: 2.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	-	-
Bentonite Seal	0.0	3.0

Type of riser pipe: Schedule 40 PVC
Inside diameter of riser pipe: 2.0 in
Type of backfill around riser: Filter Sand/Bentonite
Diameter of borehole: 3.0 in
Depth to top of well screen: 5.0 ft
Type of screen: Mach. Slotted Sch. 40 PVC
Screen gauge or size of openings: 0.010 in
Diameter of screen: 2.0 in
Type of backfill around screen: Filter Sand
Depth of bottom of well screen: 15.0 ft
Bottom of Silt trap: 15.0 ft
Depth of bottom of borehole: 72.0 ft

7.8 ft	+	10 ft	+	0 ft	=	17.8 ft
Riser Pay Length (L1)		Length of screen (L2)		Length of silt trap (L3)		Pay length

COMMENTS:

Form 2007

HALEY&ALDRICH

GROUNDWATER MONITORING REPORT

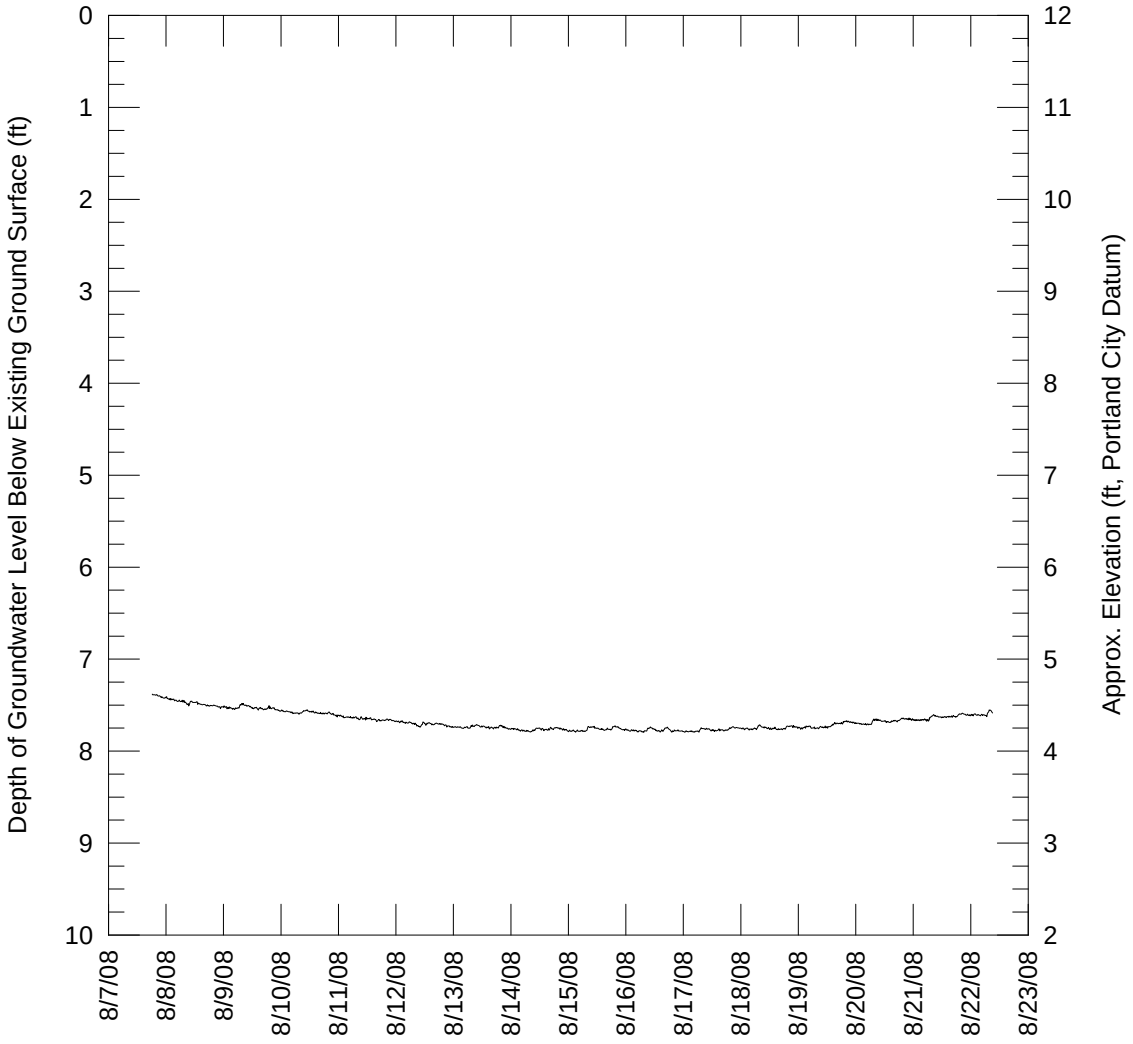
OW/PZ NUMBER
HA08-7(OW)

PROJECT	Maine Health/United Way Development	H&A FILE NO.	35611-000
LOCATION	Portland, Maine	PROJECT MGR.	W. Chadbourne
CLIENT	Maine Medical Center	FIELD REP.	O. Lawlor
CONTRACTOR	Maine Test Borings, Inc.	DATE	8/4/2008
ELEVATION SUBTRAHEND	12.0 (Approximate)		

Date	Time	Elapsed Time (days)	Depth of Water from Top of Riser Pipe	Elevation of Water	Remarks	Read By
8/4/2008	1115	0	10.3	4.5	GW level prior to well development	OEL
8/4/2008	1140	0	12.3	2.5	GW level after well development	OEL
8/7/2008	1800	3	10.2	4.6	GW level prior to level logger install.	CLH
8/22/2008	950	18	10.1	4.7	GW level after level logger removal	CLH
10/20/2008	1200	77	10.2	4.6	GW level during TP-202 excavation	BCS
11/17/2008	1134	105	10.2	4.6		ECB
12/1/2008	1354	119	9.8	5.0		BCS

Results of Groundwater Monitoring
Observation Well HA08-7(OW)

MaineHealth/UnitedWay Development
Somerset and Chestnut Streets
Portland, Maine
Haley & Aldrich File No. 35611-000



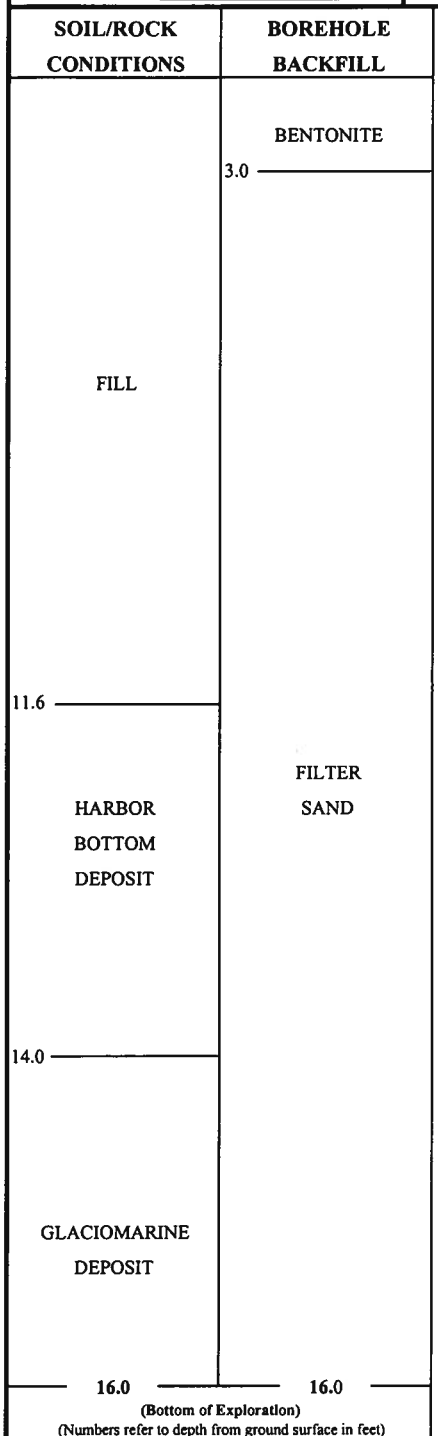
HALEY & ALDRICH

OBSERVATION WELL INSTALLATION REPORT

Well No. HA08-12(OW)
Boring No. HA08-12(OW)

PROJECT	Maine Health/United Way Development	H&A FILE NO.	35611-000
LOCATION	Portland, Maine	PROJECT MGR.	W. Chadbourne
CLIENT	Maine Medical Center	FIELD REP.	O. Lawlor
CONTRACTOR	Maine Test Borings, Inc.	DATE INSTALLED	7/24/2008
DRILLER	M. Porter	WATER LEVEL	-

Ground El. 11.0 +/- ft
El. Datum Portland City
Location See Plan
☑ Guard Pipe
☐ Roadway Box



Type of protective cover/lock	Locked Cover
Height of top of guard pipe above ground surface	3.0 ft
Height of top of riser pipe above ground surface	2.75 ft
Type of protective casing:	Steel Guard Pipe
Length	5.0 ft
Inside Diameter	3.0 in
Depth of bottom of guard pipe/roadway box	2.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	-	-
Bentonite Seal	0.0	3.0

Type of riser pipe:	Schedule 40 PVC
Inside diameter of riser pipe	2.0 in
Type of backfill around riser	Filter Sand/Bentonite
Diameter of borehole	3.0 in
Depth to top of well screen	4.0 ft
Type of screen	Mach. Slotted Sch. 40 PVC
Screen gauge or size of openings	0.010 in
Diameter of screen	2.0 in
Type of backfill around screen	Filter Sand
Depth of bottom of well screen	14.0 ft
Bottom of Silt trap	14.0 ft
Depth of bottom of borehole	16.0 ft

(Not to Scale)

6.75 ft	+	10 ft	+	0 ft	=	16.75 ft
Riser Pay Length (L1)		Length of screen (L2)		Length of silt trap (L3)		Pay length

COMMENTS:

HALEY&ALDRICH

GROUNDWATER MONITORING REPORT

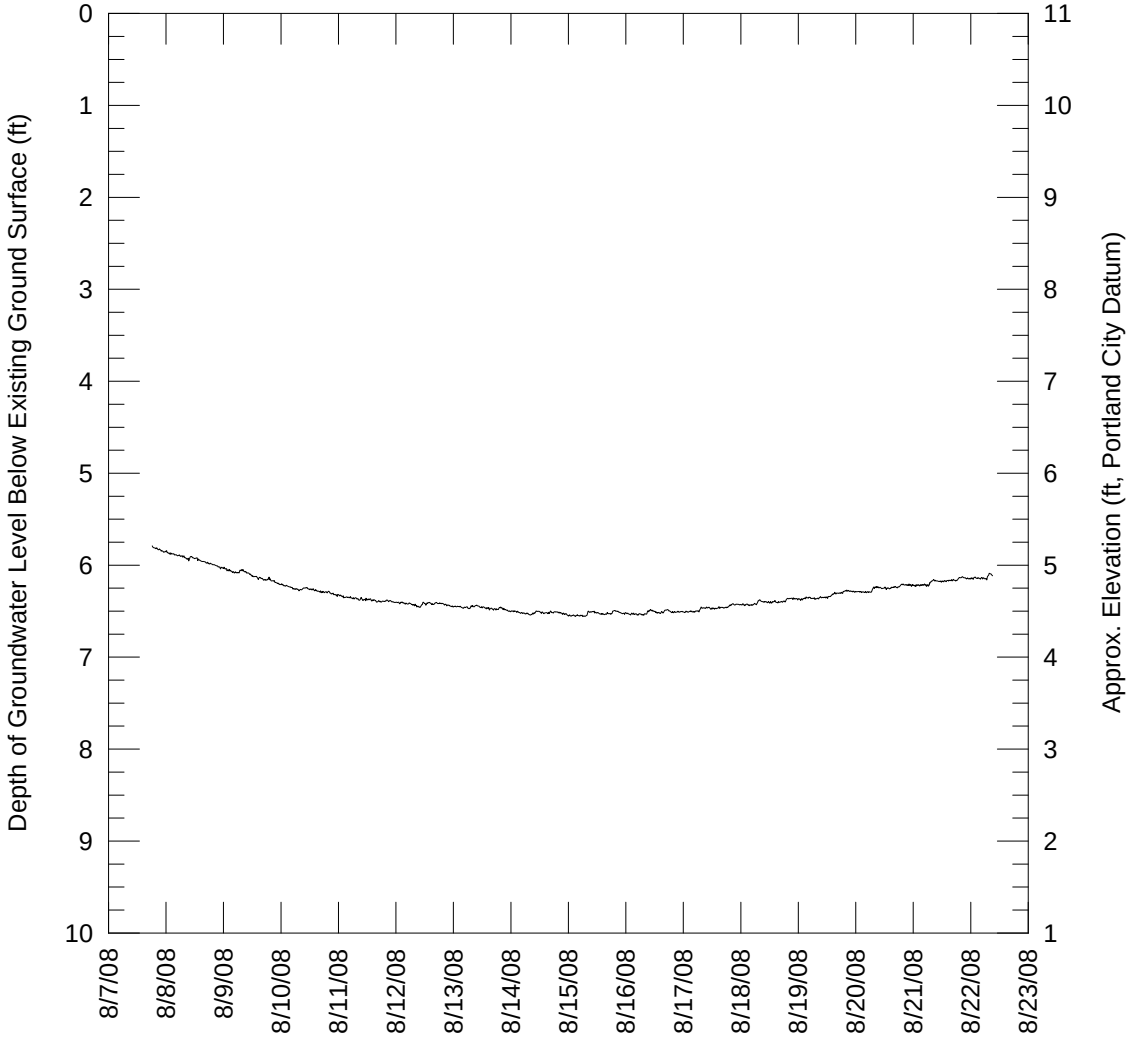
OW/PZ NUMBER
HA08-12(OW)

PROJECT	Maine Health/United Way Development	**H&A FILE NO.**	35611-000
LOCATION	Portland, Maine	**PROJECT MGR.**	W. Chadbourne
CLIENT	Maine Medical Center	**FIELD REP.**	O. Lawlor
CONTRACTOR	Maine Test Borings, Inc.	**DATE**	8/4/2008
ELEVATION SUBTRAHEND	11.0 (Approximate)		

Date	Time	Elapsed Time (days)	Depth of Water from Top of Riser Pipe	Elevation of Water	Remarks	Read By
8/4/2008	1030	0	8.9	4.9	GW level prior to well development	OEL
8/4/2008	1100	0	9.0	4.8	GW level after well development	OEL
8/7/2008	1745	3	8.6	5.2	GW level prior to level logger install.	CLH
8/22/2008	945	18	8.4	5.4	GW level after level logger removal	CLH
10/20/2008	1200	77	8.7	5.1	GW level during TP-201 excavation	BCS
11/17/2008	1137	105	8.5	5.3		ECB
12/1/2008	1358	119	8.0	5.8		BCS

Results of Groundwater Monitoring
Observation Well HA08-12(OW)

MaineHealth/UnitedWay Development
Somerset and Chestnut Streets
Portland, Maine
Haley & Aldrich File No. 35611-000



APPENDIX C

2008 Soil Screening Headspace Reports for Proposed MaineHealth/United Way Development (see Reference 4)

HALEY & ALDRICH

HEADSPACE SCREENING REPORT

PROJECT	MaineHealth / UnitedWay Development	**H&A FILE NO.**	35611-000
LOCATION	Portland, Maine	**PROJECT MGR.**	W. Chadbourne
CLIENT	Maine Medical Center	**FIELD REP**	O. Lawlor
INSTRUMENT	Thermo 580B	**DATE SAMPLED**	7/23/2008 - 7/24/2008
DATE CALIBRATED (1)	7/28/2008	**LAMP (eV)**	10.6	**DATE SCREENED**	7/28/2008
AMBIENT TEMPERATURE	RT	**CALIBRATED BY**	DAD	**SCREENING LOC.**	H&A Portland Lab

Exploration	Sample Number	Depth (ft)	Sample Description	Sample Reading (ppm)(2)	Back-Ground Reading (ppm)(2)	Remarks	GC(3)	Containers			
								Drill	Jar		
HA08-3	S1	1.0-3.0	well graded gravel with sand	0.9	0.0			X			
HA08-3	S2	3.0-5.0	silty sand with ash & cinders	1.2	0.0			X			
HA08-3	S3	5.0-7.0	cinders, ash, brick, and coal	2.8	0.0			X			
HA08-3	S4	7.0-9.0	poorly-graded gravel, cinders	1.5	0.0			X			
HA08-3	S5	10.0-12.0	silty sand, cinders and ash	14.9	0.0			X			
HA08-3	S6	12.0-14.0	silt with sand, shells, organics	0.0	0.0			X			
HA08-3	S7	14.0-16.0	silt with sand, shells, H2S odor	0.0	0.0			X			
HA08-6	S1	0.0-2.0	silty sand	0.0	0.0			X			
HA08-6	S2	2.0-4.0	silty sand, brick, cinders, wood	0.0	0.0	Tinfoil cover torn		X			
HA08-6	S3	4.0-6.0	silty to well graded sand	0.0	0.0			X			
HA08-6	S4	6.0-8.0	poorly graded sand	0.0	0.0			X			
HA08-6	S5	8.0-10.0	silty sand with gravel	0.0	0.0			X			
HA08-6	S6	10.0-12.0	silty sand w/ gravel, brick, shell	0.0	0.0			X			
HA08-6	S7	12.0-14.0	sandy silt, shell fragments	0.0	0.0			X			
HA08-9	S1	0.0-2.0	silty gravel with sand, org odor	0.0	0.0			X			
HA08-9	S2	2.0-4.0	cinders and ash to silty sand	0.0	0.0			X			
HA08-9	S3	4.0-6.0	silty sand	0.0	0.0			X			
HA08-9	S4	6.0-8.0	silty sand with gravel	0.0	0.0			X			
HA08-9	S5	8.0-10.0	silty sand with gravel	0.0	0.0			X			
HA08-9	S6	10.0-12.0	silty sand, wood and glass	0.0	0.0			X			
HA08-9	S7	12.0-14.0	silt, wood fragments, org odor	0.0	0.0	Poor sample recovery		X			
HA08-9	S8	14.0-16.0	lean clay	0.0	0.0			X			
HA08-12	S1	0.0-2.0	silty sand with gravel, cinders	0.0	0.0			X			
HA08-12	S2	2.0-4.0	silty sand with gravel, cinders	0.0	0.0			X			
HA08-12	S3	4.0-6.0	silty sand - poorly graded sand	0.0	0.0			X			

1. Instrument calibrated to the manufacturer standard.
2. ppm represents concentration of detectable volatile gaseous compounds in parts per million of air.
3. Sample assigned for gas chromatograph screening.

Sampled and relinquished by:	Received by:	Relinquished by:	Received by:
Sign: NA	**Sign:** NA	**Sign:** NA	**Sign:** NA
Print: NA	**Print:** NA	**Print:** NA	**Print:** NA
Firm: NA	**Firm:** NA	**Firm:** NA	**Firm:** NA
Date: NA **Time:** NA	**Date:** NA **Time:** NA	**Date:** NA **Time:** NA	**Date:** NA **Time:** NA

HALEY & ALDRICH — HEADSPACE SCREENING REPORT

PROJECT	MaineHealth / UnitedWay Development	**H&A FILE NO.**	35611-000
LOCATION	Portland, Maine	**PROJECT MGR.**	W. Chadbourne
CLIENT	Maine Medical Center	**FIELD REP**	O. Lawlor
INSTRUMENT	Thermo 580B	**DATE SAMPLED**	7/23/2008 - 7/24/2008
DATE CALIBRATED (1)	7/28/2008	**LAMP (eV)**	10.6
DATE SCREENED	7/28/2008		
AMBIENT TEMPERATURE	RT	**CALIBRATED BY**	DAD
SCREENING LOC.	H&A Portland Lab		

Exploration	Sample Number	Depth (ft)	Sample Description	Sample Reading (ppm)(2)	Back-Ground Reading (ppm)(2)	Remarks	GC(3)	Containers			
								Drill	Jar		
HA08-12	S4	6.0-8.0	poorly graded sand	0.0	0.0			X			
HA08-12	S5	8.0-10.0	well graded sand	0.0	0.0			X			
HA08-12	S6	10.0-12.0	well graded sand	0.0	0.0			X			
HA08-12	S7	12.0-14.0	no recovery, shells in wash	0.0	0.0			X			

1. Instrument calibrated to the manufacturer standard.
2. ppm represents concentration of detectable volatile gaseous compounds in parts per million of air.
3. Sample assigned for gas chromatograph screening.

Sampled and relinquished by:	Received by:	Relinquished by:	Received by:
Sign: NA	**Sign:** NA	**Sign:** NA	**Sign:** NA
Print: NA	**Print:** NA	**Print:** NA	**Print:** NA
Firm: NA	**Firm:** NA	**Firm:** NA	**Firm:** NA
Date: NA **Time:** NA	**Date:** NA **Time:** NA	**Date:** NA **Time:** NA	**Date:** NA **Time:** NA

HALEY & ALDRICH

HEADSPACE SCREENING REPORT

PROJECT	MaineHealth / UnitedWay Development			**H&A FILE NO.**	35611-000
LOCATION	Portland, Maine			**PROJECT MGR.**	W. Chadbourne
CLIENT	Maine Medical Center			**FIELD REP**	O. Lawlor
INSTRUMENT	Thermo 580B			**DATE SAMPLED**	7/28/2008 - 7/29/2008
DATE CALIBRATED (1)	7/30/2008	**LAMP (eV)**	10.6	**DATE SCREENED**	7/30/2008
AMBIENT TEMPERATURE	RT	**CALIBRATED BY**	DAD	**SCREENING LOC.**	H&A Portland Lab

Exploration	Sample Number	Depth (ft)	Sample Description	Sample Reading (ppm)(2)	Back-Ground Reading (ppm)(2)	Remarks	GC(3)	Containers			
								Drill	Jar		
HA08-11	S1	0.0-2.0	sand w/ brick, cinders & plastic	0.0	0.0			X			
HA08-11	S2	2.0-4.0	sand w/ brick, cinders & plastic	5.0	0.0			X			
HA08-11	S3	4.0-6.0	poorly graded sand	12.3	0.0			X			
HA08-11	S4	6.0-8.0	well graded sand	0.0	0.0			X			
HA08-11	S5	8.0-10.0	well graded sand	0.0	0.0			X			
HA08-11	S6	10.0-12.0	well graded sand	0.0	0.0			X			
HA08-13	S1	0.0-2.0	poorly graded sand, cinders	0.0	0.0			X			
HA08-13	S2	2.0-4.0	poorly graded sand,cinder&ash	0.0	0.0			X			
HA08-13	S3	4.0-6.0	poorly graded sand,cinder&ash	0.0	0.0			X			
HA08-13	S4	6.0-8.0	well graded gravel, wood&glass	0.0	0.0			X			
HA08-13	S5	8.0-10.0	gravel, wood and glass	0.0	0.0			X			
HA08-13	S6	10.0-12.0	sandy silt, wood, glass & shells	0.0	0.0			X			

1. Instrument calibrated to the manufacturer standard.
2. ppm represents concentration of detectable volatile gaseous compounds in parts per million of air.
3. Sample assigned for gas chromatograph screening.

Sampled and relinquished by:	Received by:	Relinquished by:	Received by:
Sign: NA	**Sign:** NA	**Sign:** NA	**Sign:** NA
Print: NA	**Print:** NA	**Print:** NA	**Print:** NA
Firm: NA	**Firm:** NA	**Firm:** NA	**Firm:** NA
Date: NA **Time:** NA	**Date:** NA **Time:** NA	**Date:** NA **Time:** NA	**Date:** NA **Time:** NA

HALEY & ALDRICH

HEADSPACE SCREENING REPORT

PROJECT	MaineHealth / UnitedWay Development			**H&A FILE NO.**	35611-000
LOCATION	Portland, Maine			**PROJECT MGR.**	W. Chadbourne
CLIENT	Maine Medical Center			**FIELD REP**	O. Lawlor
INSTRUMENT	Thermo 580B			**DATE SAMPLED**	7/30/2008 - 8/4/2008
DATE CALIBRATED (1)	7/30/2008	**LAMP (eV)**	10.6	**DATE SCREENED**	8/6/2008
AMBIENT TEMPERATURE	RT	**CALIBRATED BY**	DAD	**SCREENING LOC.**	H&A Portland Lab

Exploration	Sample Number	Depth (ft)	Sample Description	Sample Reading (ppm)(2)	Back-Ground Reading (ppm)(2)	Remarks	GC(3)	Containers			
								Drill	Jar		
HA08-4	S1	0.5-2.5	sand with silt, cinder and ash	69.0	0.0			X			
HA08-4	S2	2.5-4.5	sand with silt, cinder and ash	55.0	0.0			X			
HA08-4	S3	5.0-7.0	silty sand, cinder and ash	0.0	0.0			X			
HA08-4	S4	7.0-9.0	poorly graded sand with wood	40.0	0.0			X			
HA08-4	S5	9.0-11.0	sand w/ silt, wood, glass, shells	0.0	0.0			X			
HA08-5	S1	0.0-2.0	poorly graded sand, cinder, ash	123.0	0.0			X			
HA08-5	S2	2.0-4.0	poorly graded sand, cinder, ash	114.0	0.0			X			
HA08-5	S3	4.0-6.0	poorly graded sand, cinder, ash	6.0	0.0			X			
HA08-5	S4	6.0-8.0	poorly graded sand, cinder, ash	4.2	0.0			X			
HA08-5	S5	8.0-10.0	silty sand, shell and brick	2.5	0.0			X			
HA08-7	S1	0.0-2.0	sand with silt, ash, brick, wood	9.4	0.0			X			
HA08-7	S2	2.0-4.0	sand with silt, ash, brick	4.2	0.0			X			
HA08-7	S3	4.0-6.0	silty sand, cinder and ash	0.8	0.0			X			
HA08-7	S4	6.0-8.0	silty sand, cinder and ash	0.8	0.0			X			
HA08-7	S5	8.0-10.0	well graded sand	0.0	0.0			X			
HA08-7	S6	10.0-12.0	silty sand, trace clay	0.0	0.0			X			

1. Instrument calibrated to the manufacturer standard.
2. ppm represents concentration of detectable volatile gaseous compounds in parts per million of air.
3. Sample assigned for gas chromatograph screening.

Sampled and relinquished by:	Received by:	Relinquished by:	Received by:
Sign: NA	**Sign:** NA	**Sign:** NA	**Sign:** NA
Print: NA	**Print:** NA	**Print:** NA	**Print:** NA
Firm: NA	**Firm:** NA	**Firm:** NA	**Firm:** NA
Date: NA **Time:** NA	**Date:** NA **Time:** NA	**Date:** NA **Time:** NA	**Date:** NA **Time:** NA

HALEY & ALDRICH

HEADSPACE SCREENING REPORT

PROJECT	MaineHealth / UnitedWay Development	**H&A FILE NO.**	35611-000
LOCATION	Portland, Maine	**PROJECT MGR.**	W. Chadbourne
CLIENT	Maine Medical Center	**FIELD REP**	O. Lawlor
INSTRUMENT	Thermo 580B	**DATE SAMPLED**	8/6/2008 - 8/13/2008
DATE CALIBRATED (1)		**LAMP (eV)** 10.6	**DATE SCREENED** 8/13/2008
AMBIENT TEMPERATURE	RT	**CALIBRATED BY** DAD	**SCREENING LOC.** H&A Portland Lab

Exploration	Sample Number	Depth (ft)	Sample Description	Sample Reading (ppm)(2)	Back-Ground Reading (ppm)(2)	Remarks	GC(3)	Containers			
								Drill	Jar		
HA08-8	S1	0.0-2.0	poorly graded sand with gravel	0.0	0.0			X			
HA08-8	S2	2.0-4.0	silty sand with gravel	0.0	0.0			X			
HA08-8	S3	5.0-7.0	silty sand with gravel	5.9	0.0			X			
HA08-8	S4	7.0-9.0	silty sand with gravel	14.5	0.0			X			
HA08-1	S1	1.0-3.0	well graded gravel, concrete	0.0	0.0			X			
HA08-1	S2	3.0-5.0	silty sand, concrete, ash	0.0	0.0			X			
HA08-1	S3	5.0-7.0	silty sand	0.0	0.0	Tinfoil cover torn		X			
HA08-1	S4	7.0-9.0	silty sand	0.0	0.0			X			
HA08-1	S5	10.0-12.0	sandy organic soil, with shells	0.0	0.0			X			
HA08-1	S6	12.0-14.0	sandy organic soil, with shells	0.0	0.0	Tinfoil cover torn		X			
HA08-10	S1	0.0-2.0	sandy silt, brick	0.0	0.0			X			
HA08-10	S2	2.0-4.0	silty sand	0.0	0.0			X			
HA08-10	S3	4.0-6.0	silty sand	0.0	0.0			X			
HA08-10	S4	6.0-8.0	silty sand, wood w/ creosote	0.0	0.0			X			
HA08-10	S5	8.0-10.0	sandy organic silt, brick, metal	0.0	0.0			X			
HA08-2	S1	0.0-2.0	silty sand, wood and ash	0.0	0.0			X			
HA08-2	S2	4.0-6.0	poorly graded sand	0.0	0.0			X			
HA08-2	S3	6.0-8.0	poorly graded sand	0.0	0.0			X			
HA08-2	S4	8.0-10.0	silty gravel, shells and wood	0.0	0.0			X			
HA08-2	S5	10.0-12.0	poorly graded gravel	0.0	0.0			X			

1. Instrument calibrated to the manufacturer standard.
2. ppm represents concentration of detectable volatile gaseous compounds in parts per million of air.
3. Sample assigned for gas chromatograph screening.

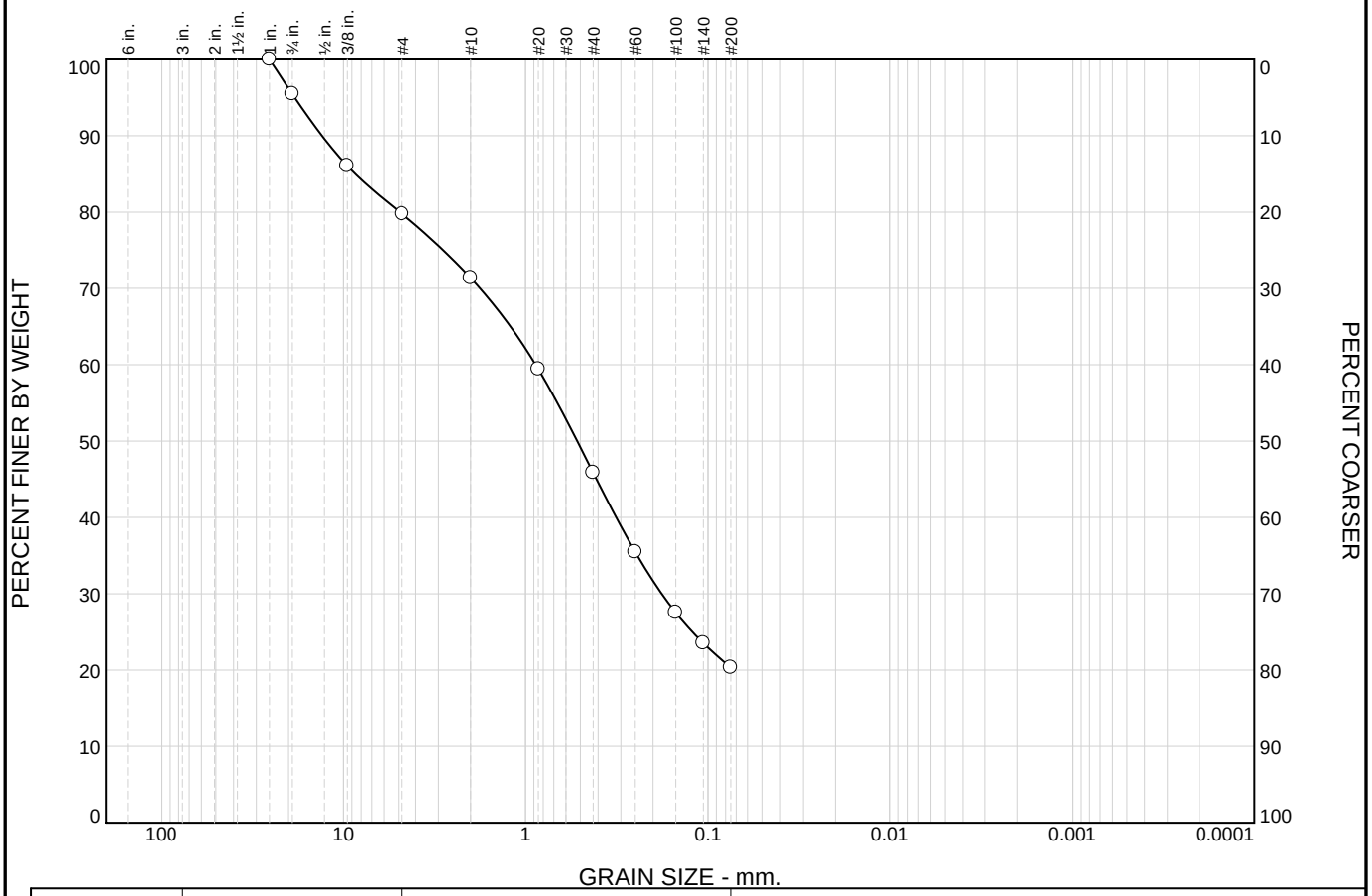
Sampled and relinquished by:	Received by:	Relinquished by:	Received by:
Sign: NA	**Sign:** NA	**Sign:** NA	**Sign:** NA
Print: NA	**Print:** NA	**Print:** NA	**Print:** NA
Firm: NA	**Firm:** NA	**Firm:** NA	**Firm:** NA
Date: NA **Time:** NA	**Date:** NA **Time:** NA	**Date:** NA **Time:** NA	**Date:** NA **Time:** NA

APPENDIX D

2008 Laboratory Test Results for
Proposed MaineHealth/United Way Development
(see Reference 4)

Grain Size Distribution Reports

U.S. STANDARD SIEVE SIZE



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	4.5	15.8	8.3	25.6	25.5	20.3	

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits %			Water Content (%)	C_u	C_c	USCS
				w_L	w_P	I_P				
○	HA08-4	C01	0.5-4.5				9.9			SM

	Sample Description
○	Dark brown silty sand with gravel

Remarks:

○Composite Sample: S01 & S02

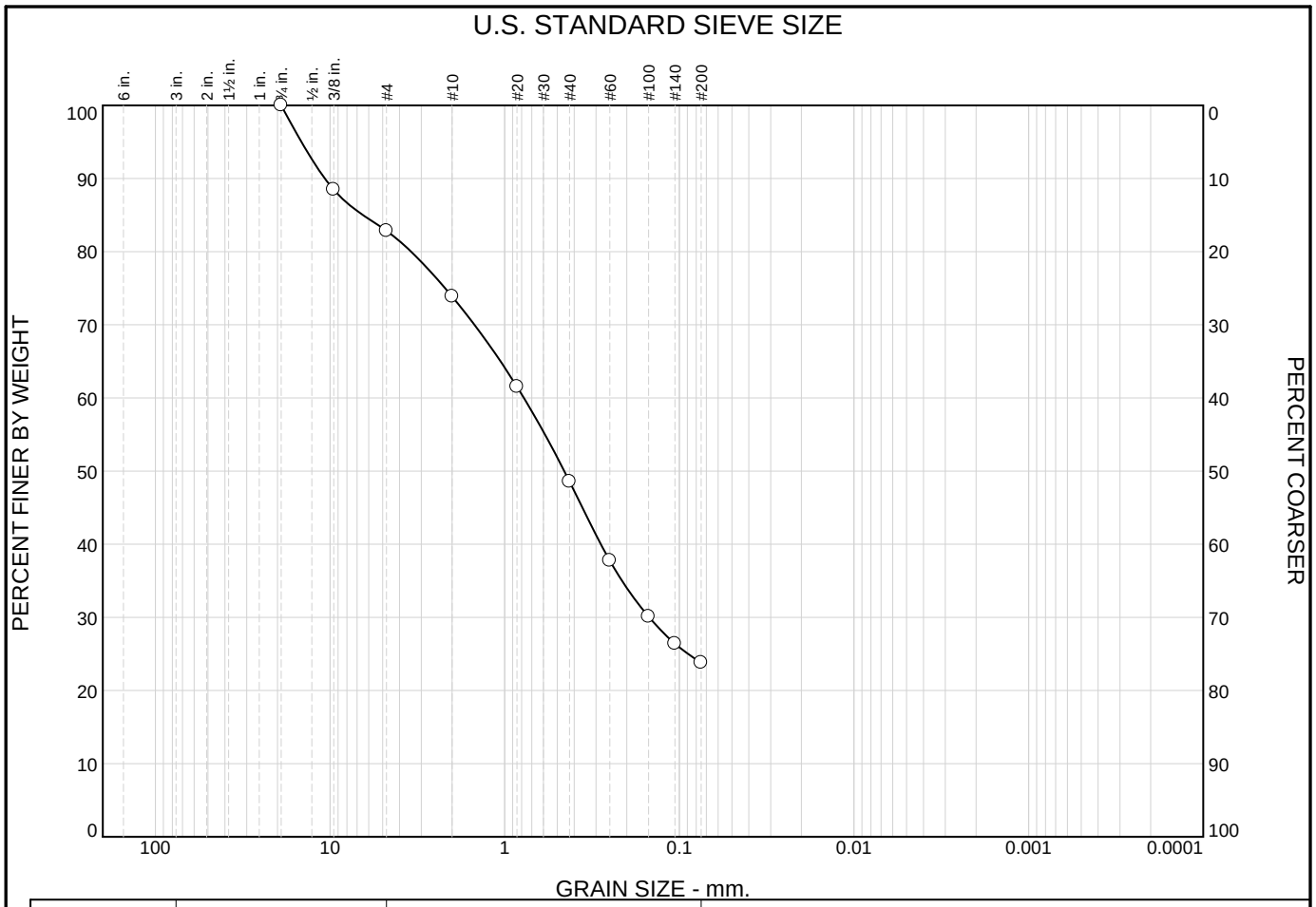
HALEY & ALDRICH

Maine Health/United Way Development
Portland, Maine

GRAIN SIZE DISTRIBUTION

DATE: 8/29/2008

FILE NO: 35611-000



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	17.2	8.9	25.3	24.8	23.8	

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits %			Water Content (%)	C_u	C_c	USCS
				w_L	w_P	I_P				
○	HA08-6	S02	2.0-4.0				16.8			SM

	Sample Description
○	Dark brown silty sand with gravel

Remarks:

HALEY & ALDRICH

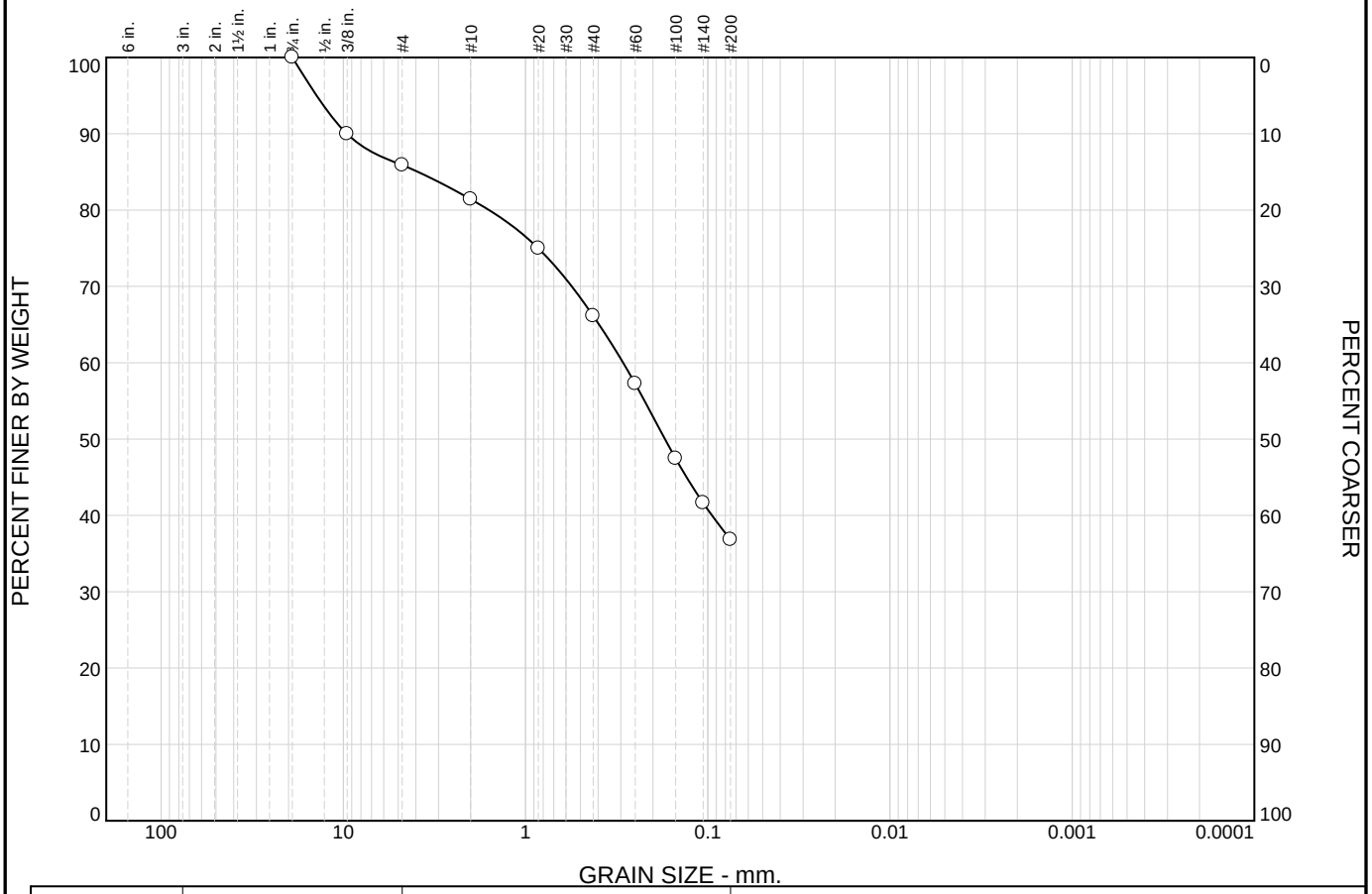
Maine Health/United Way Development
Portland, Maine

GRAIN SIZE DISTRIBUTION

DATE: 8/29/2008

FILE NO: 35611-000

U.S. STANDARD SIEVE SIZE



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	14.1	4.5	15.3	29.3	36.8	

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits %			Water Content (%)	C_u	C_c	USCS
				w_L	w_P	I_P				
○	HA08-10	C01	0.0-4.0				9.1			SM

	Sample Description
○	Brown silty sand

Remarks:

○Composite Sample: S01 & S02

HALEY & ALDRICH

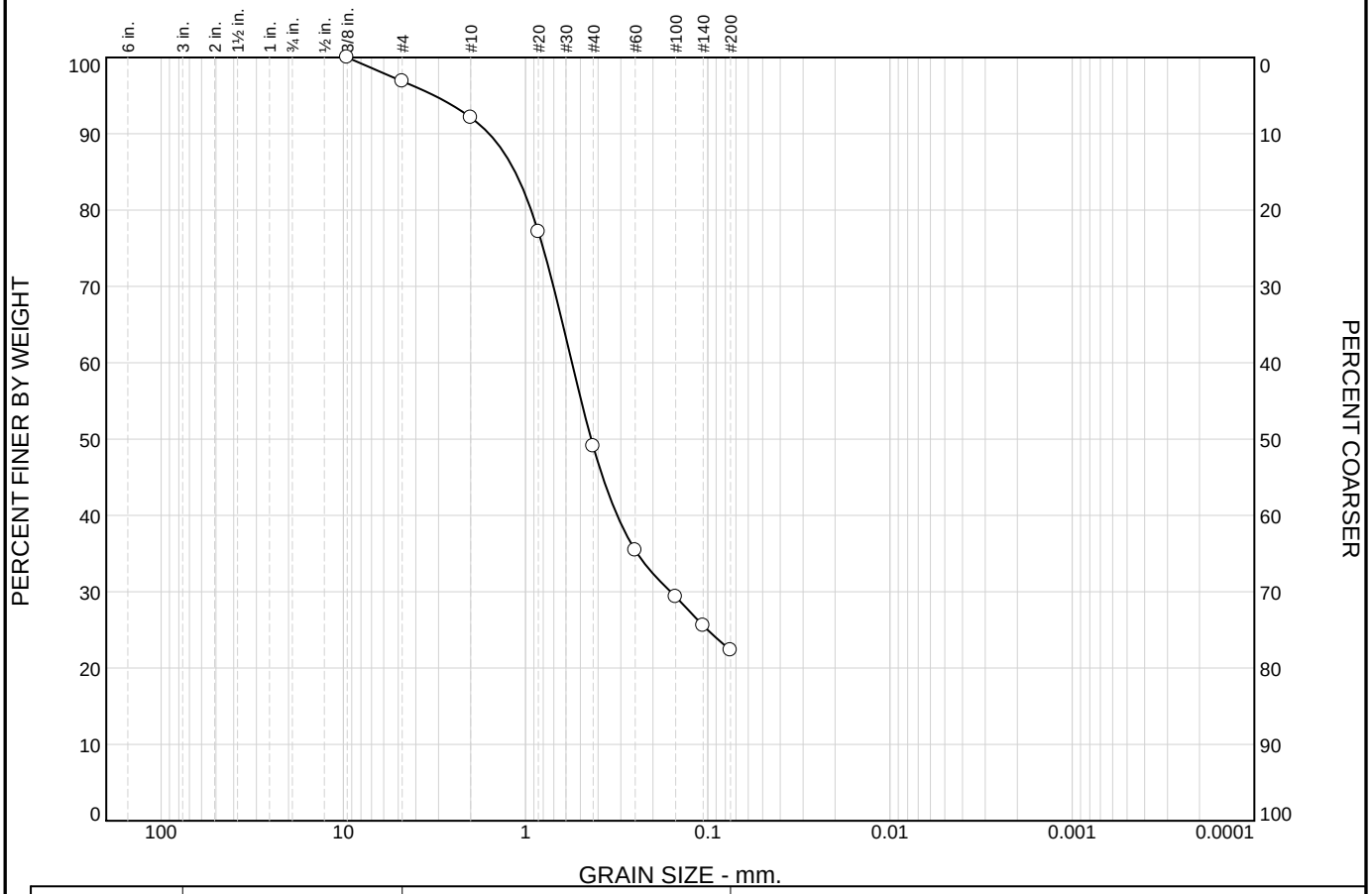
Maine Health/United Way Development
Portland, Maine

GRAIN SIZE DISTRIBUTION

DATE: 8/29/2008

FILE NO: 35611-000

U.S. STANDARD SIEVE SIZE



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.1	4.8	43.0	26.8	22.3	

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits %			Water Content (%)	C_u	C_c	USCS
				w_L	w_P	I_P				
○	HA08-12	S03	4.0-6.0				9.7			SM

	Sample Description
○	Brown silty sand

Remarks:

HALEY & ALDRICH

Maine Health/United Way Development
Portland, Maine

GRAIN SIZE DISTRIBUTION

DATE: 8/29/2008

FILE NO: 35611-000

Atterberg Limits and
Natural Water Content Reports

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.				
Project:	Maine Health / United Way Development				
Location:	Portland, ME			Project No:	GTX-8427
Boring ID:	---	Sample Type:	---	Tested By:	ap
Sample ID:	---	Test Date:	08/15/08	Checked By:	jdt
Depth :	---	Sample Id:	---		

Moisture Content of Soil - ASTM D 2216-05

Boring ID	Sample ID	Depth	Description	Moisture Content,%
HA08-4	S-12	30-32 ft	Moist, olive gray clay	38.3
HA08-4	S-13	40-42 ft	Moist, olive gray clay	41.8
HA08-8	S-10	30-32 ft	Moist, olive gray clay	42.7
HA08-8	S-11	35-37 ft	Moist, olive gray clay	30.8

Notes: Temperature of Drying : 110º Celsius

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.				
Project:	Maine Health / United Way Development				
Location:	Portland, ME			Project No:	GTX-8427
Boring ID:	---	Sample Type:	---	Tested By:	ap
Sample ID:	---	Test Date:	09/03/08	Checked By:	jdt
Depth :	---	Sample Id:	---		

Moisture Content of Soil - ASTM D 2216-05

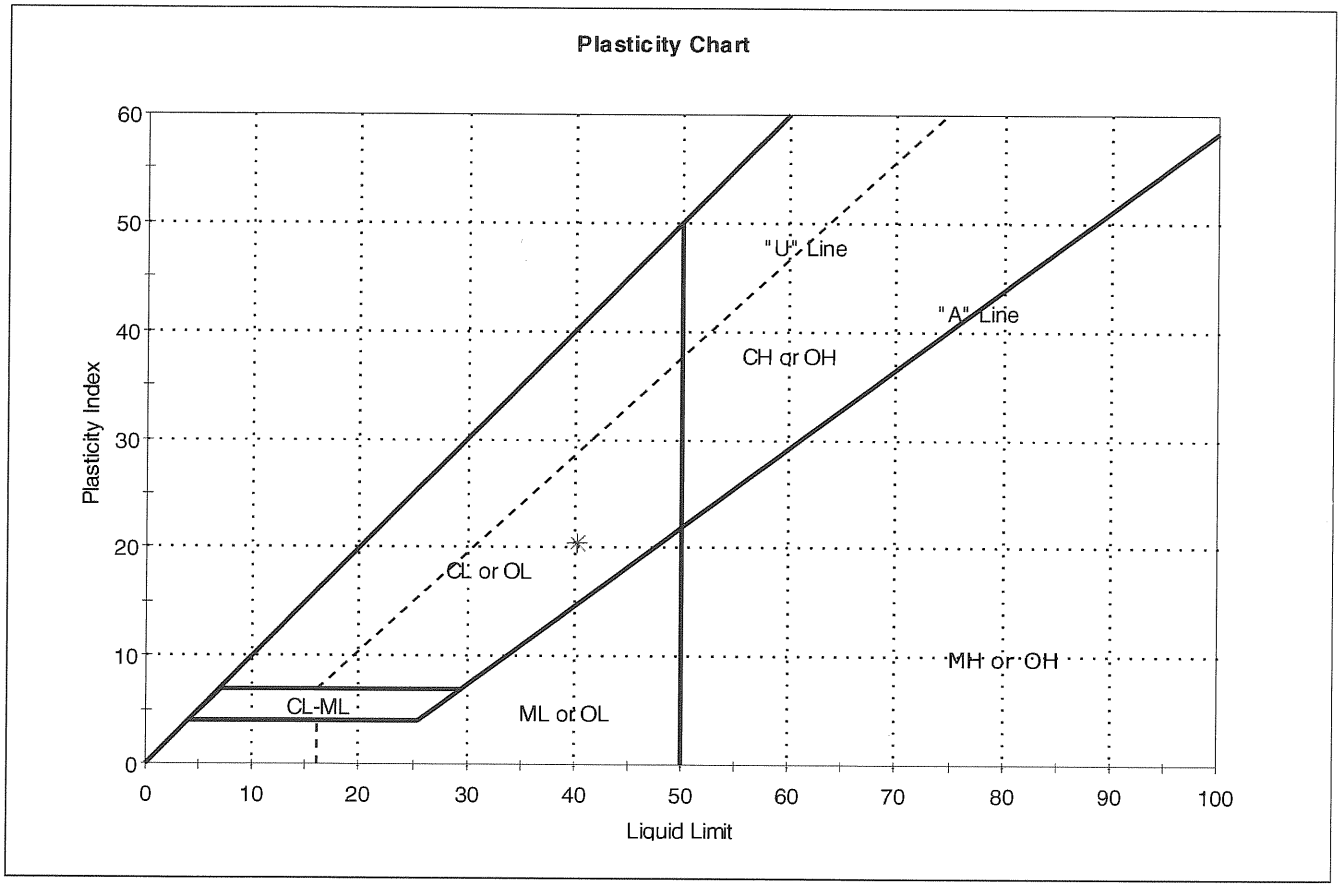
Boring ID	Sample ID	Depth	Description	Moisture Content,%
HA08-4	U-2	33-35 ft	Moist, dark greenish gray clay	31.4
HA08-10	U-1	25-27 ft	Moist, gray clay	37.9

Notes: Temperature of Drying : 110º Celsius

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.				
Project:	Maine Health / United Way Development				
Location:	Portland, ME			Project No:	GTX-8427
Boring ID:	HA08-4	Sample Type:	jar	Tested By:	ap
Sample ID:	S-12	Test Date:	08/12/08	Checked By:	jdt
Depth :	30-32 ft	Test Id:	136560		
Test Comment:	---				
Sample Description:	Moist, olive gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
✳	S-12	HA08-4	30-32 ft	38	40	20	20	1	

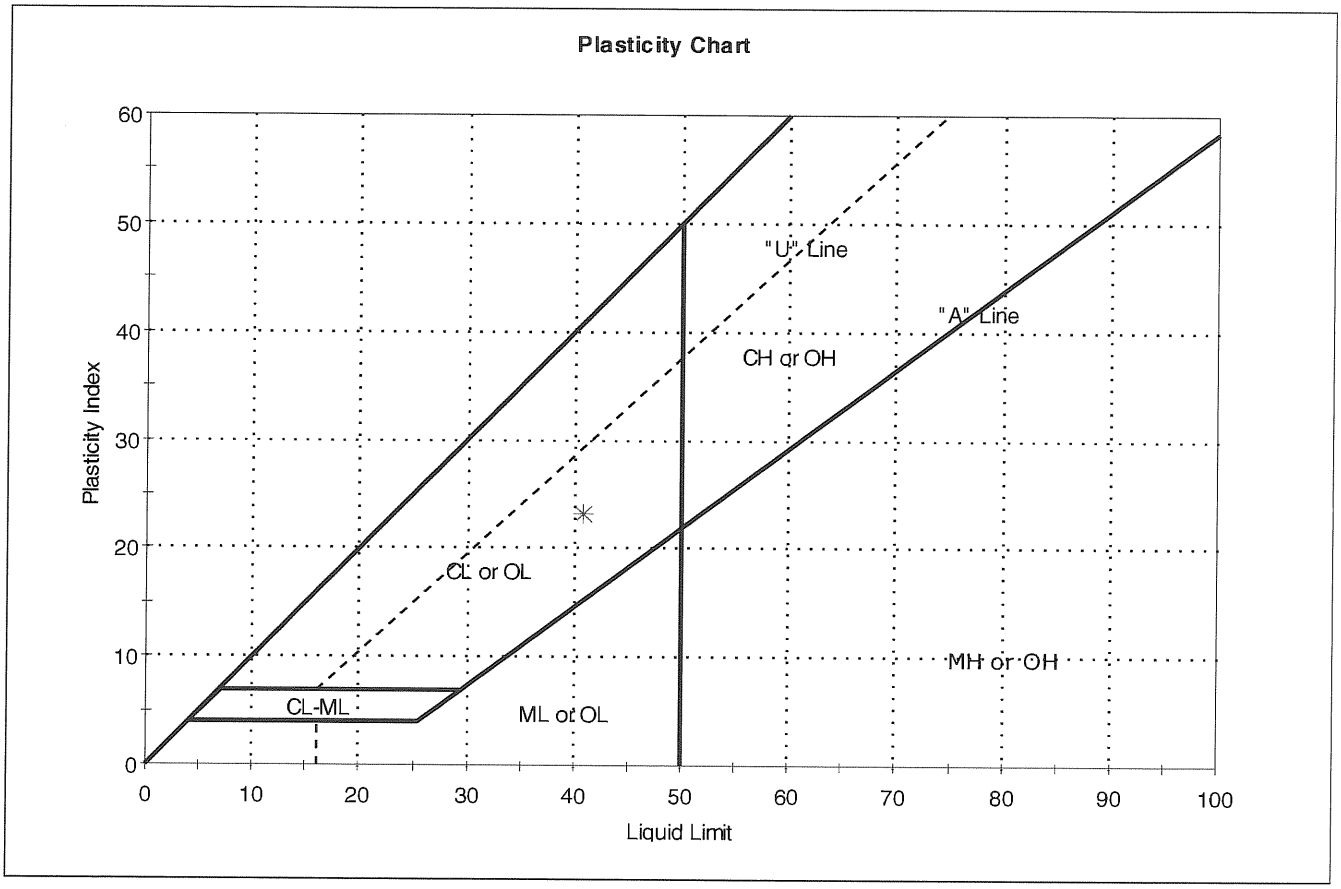
Sample Prepared using the WET method

Dry Strength: VERY HIGH
Dilentancy: SLOW
Toughness: LOW

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.		
Project:	Maine Health / United Way Development		
Location:	Portland, ME	Project No:	GTX-8427
Boring ID:	HA08-4	Sample Type: tube	Tested By: ap
Sample ID:	U-2	Test Date: 08/26/08	Checked By: jdt
Depth :	33-35 ft	Test Id: 136851	
Test Comment:	---		
Sample Description:	Moist, dark greenish gray clay		
Sample Comment:	---		

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
*	U-2	HA08-4	33-35 ft	31	41	17	24	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH

Dilentancy: SLOW

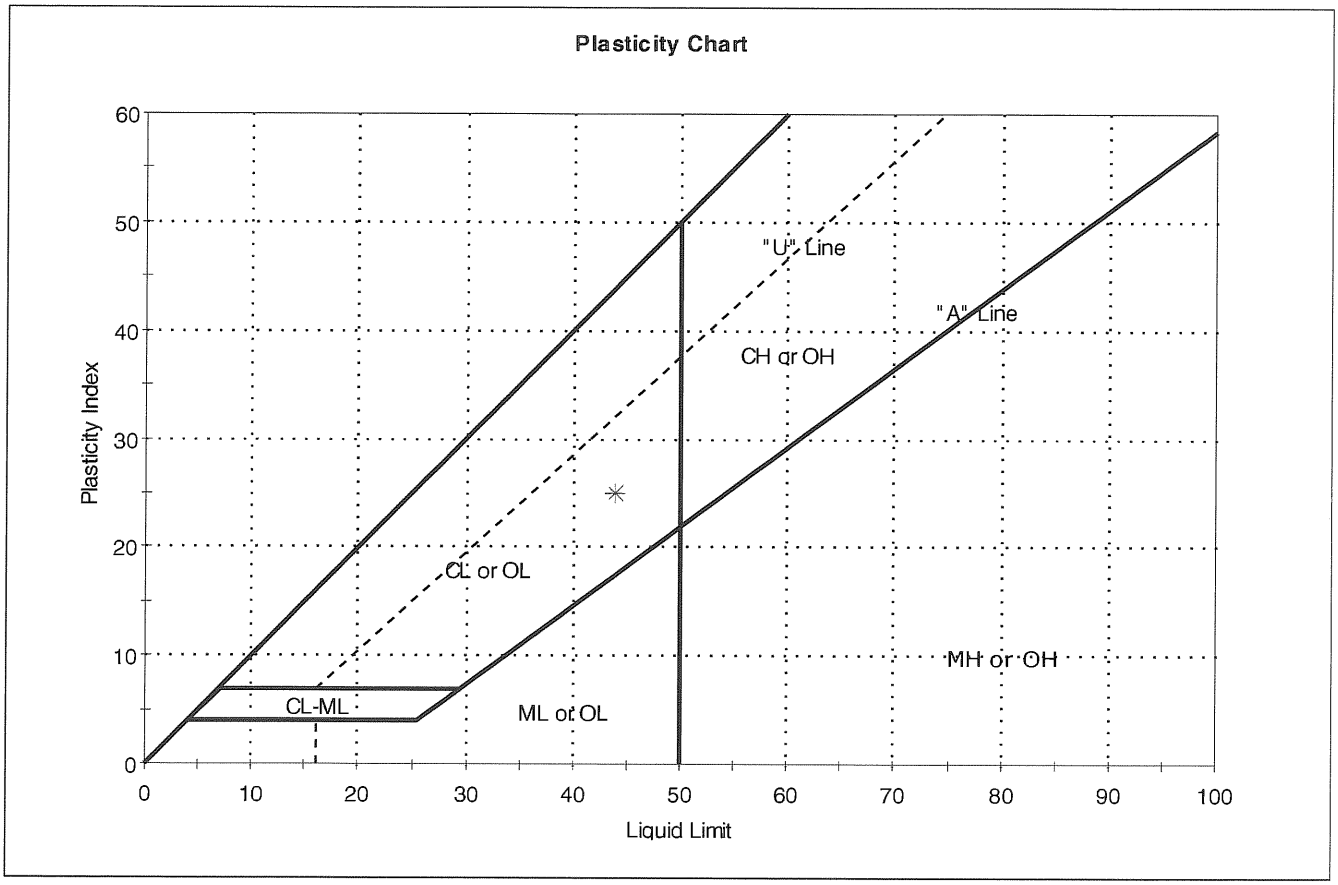
Toughness: LOW

printed 9/3/2008 12:04:16 PM

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.				
Project:	Maine Health / United Way Development				
Location:	Portland, ME			Project No:	GTX-8427
Boring ID:	HA08-4	Sample Type:	jar	Tested By:	ap
Sample ID:	S-13	Test Date:	08/13/08	Checked By:	jdt
Depth :	40-42 ft	Test Id:	136561		
Test Comment:	---				
Sample Description:	Moist, olive gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
✳	S-13	HA08-4	40-42 ft	42	44	19	25	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH

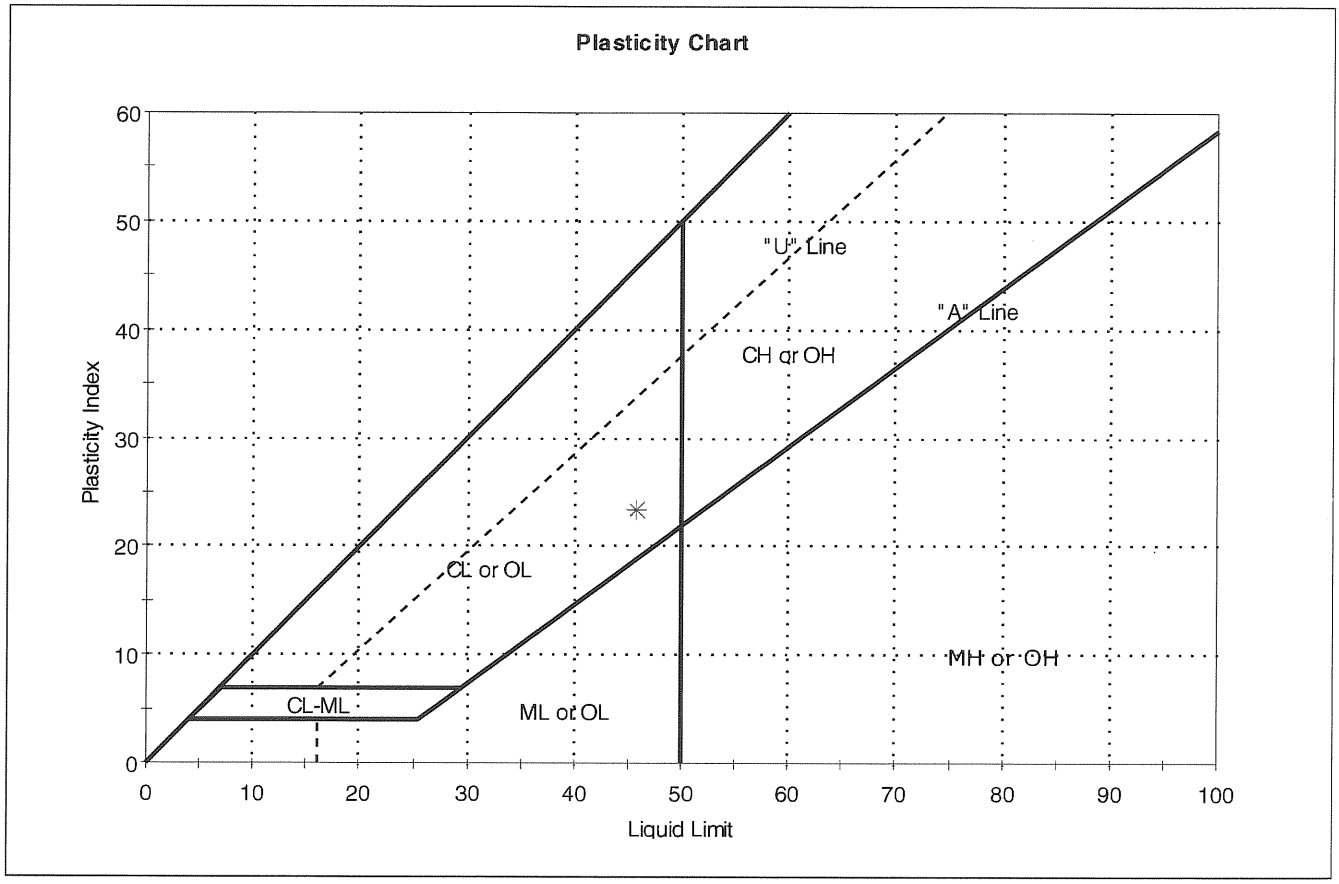
Dilentancy: SLOW

Toughness: LOW

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.				
Project:	Maine Health / United Way Development				
Location:	Portland, ME			Project No:	GTX-8427
Boring ID:	HA08-8	Sample Type:	jar	Tested By:	ap
Sample ID:	S-10	Test Date:	08/12/08	Checked By:	jdt
Depth :	30-32 ft	Test Id:	136562		
Test Comment:	---				
Sample Description:	Moist, olive gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
✳	S-10	HA08-8	30-32 ft	43	46	23	23	1	

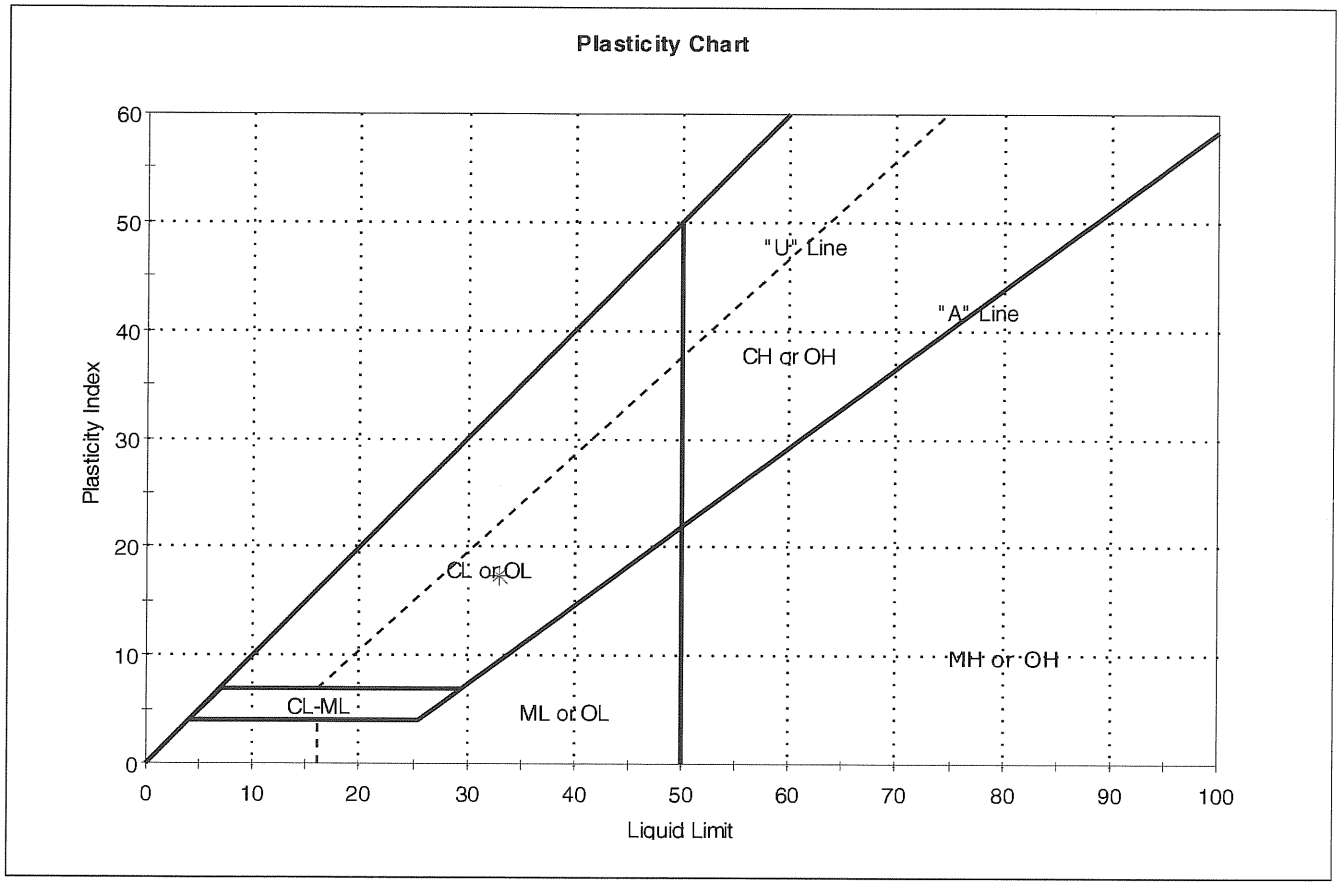
Sample Prepared using the WET method

Dry Strength: VERY HIGH
Dilentancy: SLOW
Toughness: LOW

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.				
Project:	Maine Health / United Way Development				
Location:	Portland, ME			Project No:	GTX-8427
Boring ID:	HA08-8	Sample Type:	jar	Tested By:	ap
Sample ID:	S-11	Test Date:	08/13/08	Checked By:	jdt
Depth :	35-37 ft	Test Id:	136563		
Test Comment:	---				
Sample Description:	Moist, olive gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
✳	S-11	HA08-8	35-37 ft	31	33	16	17	1	

Sample Prepared using the WET method

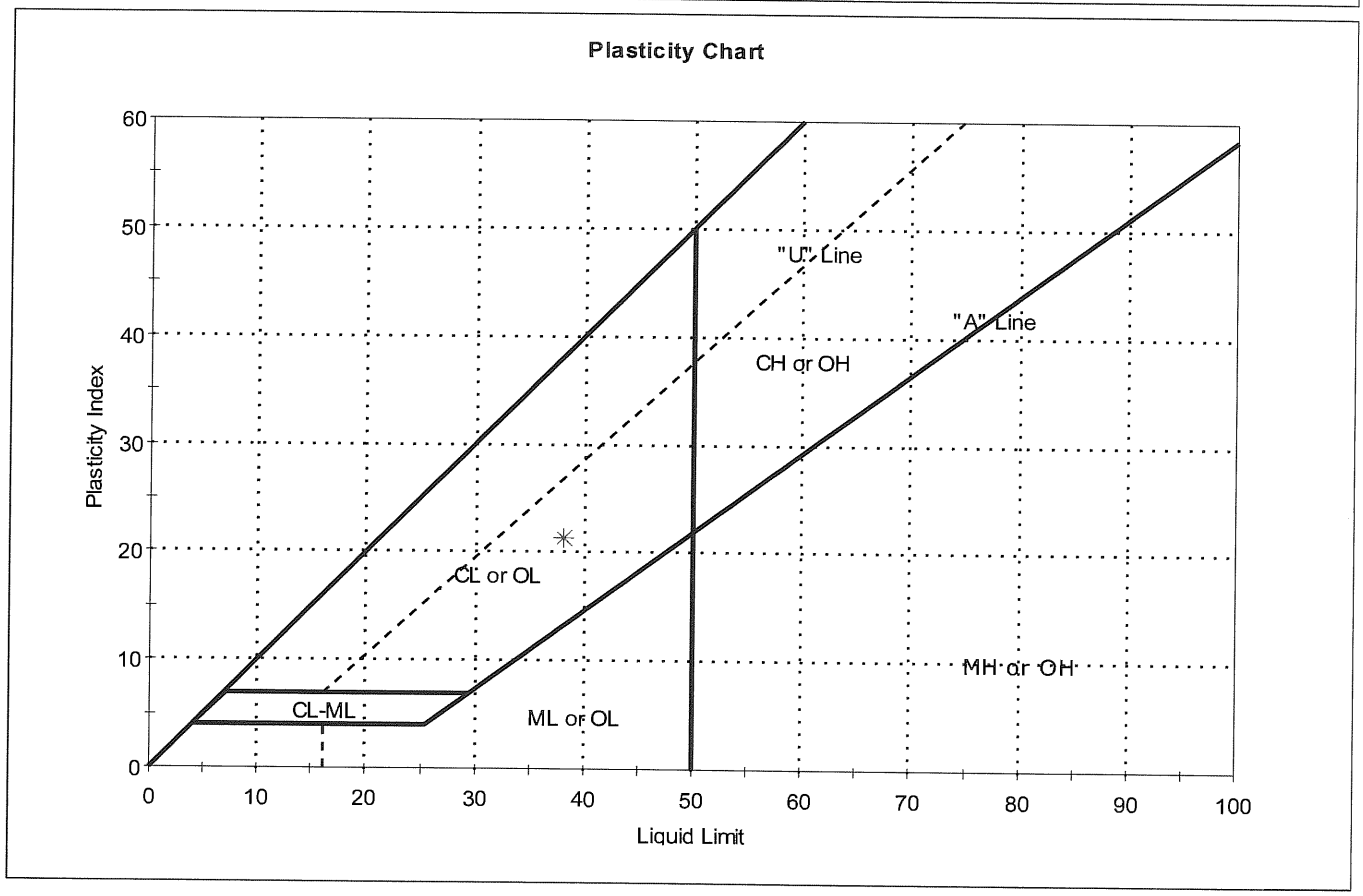
Dry Strength: VERY HIGH
Dilentancy: SLOW
Toughness: LOW

printed 8/15/2008 11:54:57 AM

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.				
Project:	Maine Health / United Way Development				
Location:	Portland, ME			Project No:	GTX-8427
Boring ID:	HA08-10	Sample Type:	tube	Tested By:	ap
Sample ID:	U-1	Test Date:	08/26/08	Checked By:	jdt
Depth :	25-27 ft	Test Id:	136852		
Test Comment:	---				
Sample Description:	Moist, gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
✳	U-1	HA08-10	25-27 ft	38	38	17	21	1	

Sample Prepared using the WET method

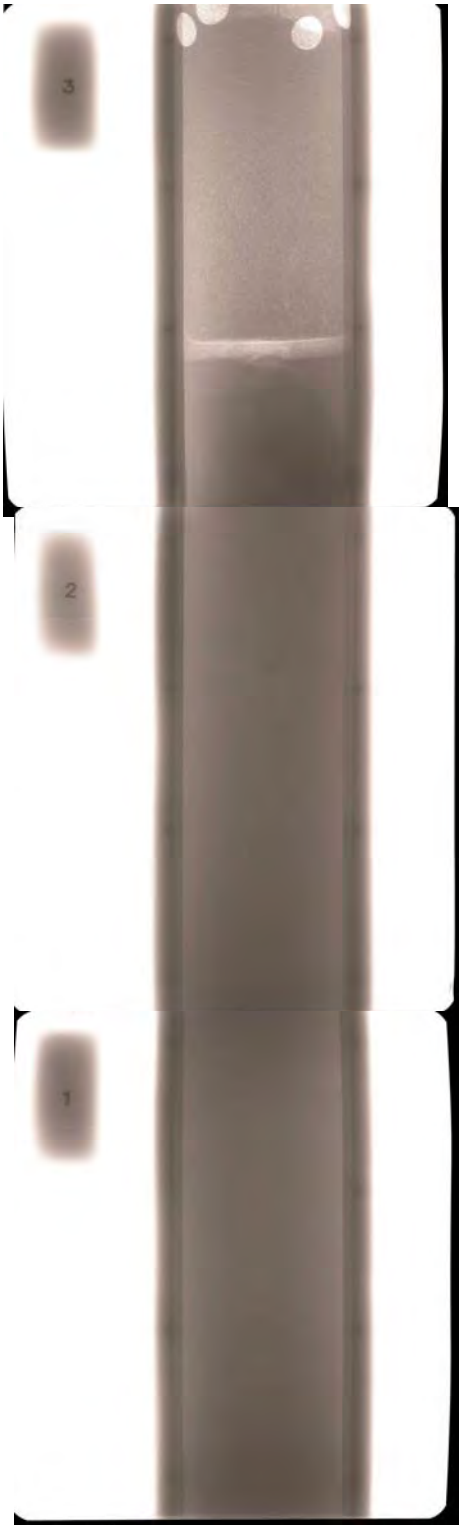
Dry Strength: VERY HIGH
Dilentancy: SLOW
Toughness: LOW

printed 8/27/2008 8:34:43 AM

Shelby Tube X-Ray Reports and
Consolidation Test Results

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.
Project Name:	Maine Health/United Way Development
Project Location:	Portland, ME
GTX #:	8427
Test Date:	08/11/08
Tested By:	edd/md
Checked By:	jdt
Boring ID:	HA08-4
Sample ID:	U-1
Depth, ft:	25-27



Top of Tube

Middle of Tube

Bottom of Tube

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.
Project Name:	Maine Health/United Way Development
Project Location:	Portland, ME
GTX #:	8427
Test Date:	08/11/08
Tested By:	edd/md
Checked By:	jdt
Boring ID:	HA08-4
Sample ID:	U-2
Depth, ft:	33-35

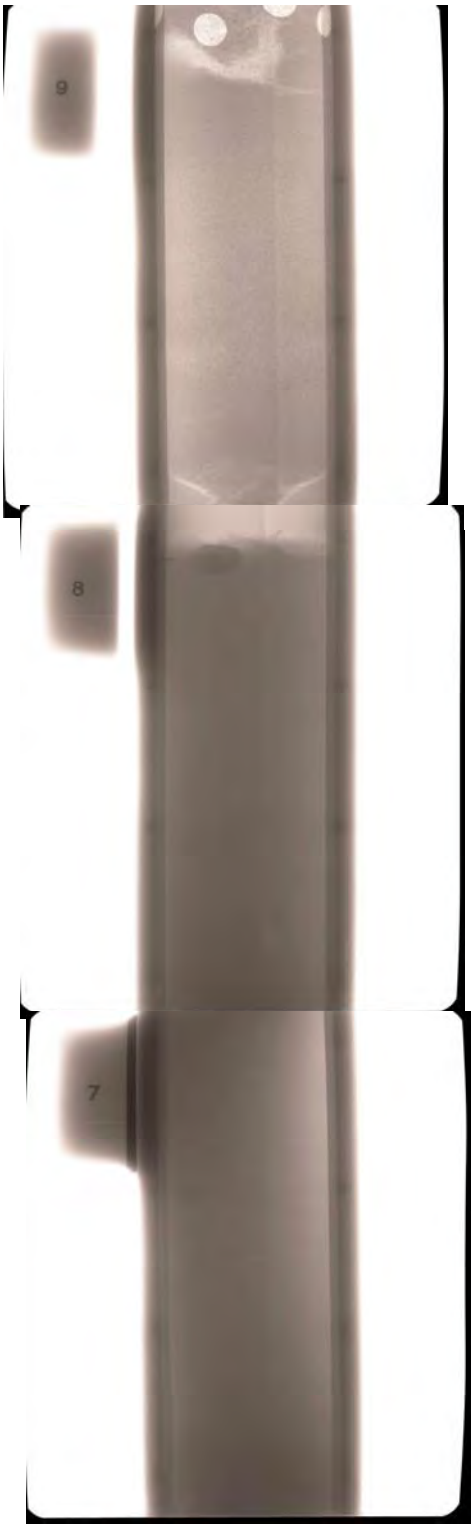
Top of Tube

Middle of Tube

Bottom of Tube

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.
Project Name:	Maine Health/United Way Development
Project Location:	Portland, ME
GTX #:	8427
Test Date:	08/11/08
Tested By:	edd/md
Checked By:	jdt
Boring ID:	HA08-8
Sample ID:	U-1
Depth, ft:	20-22



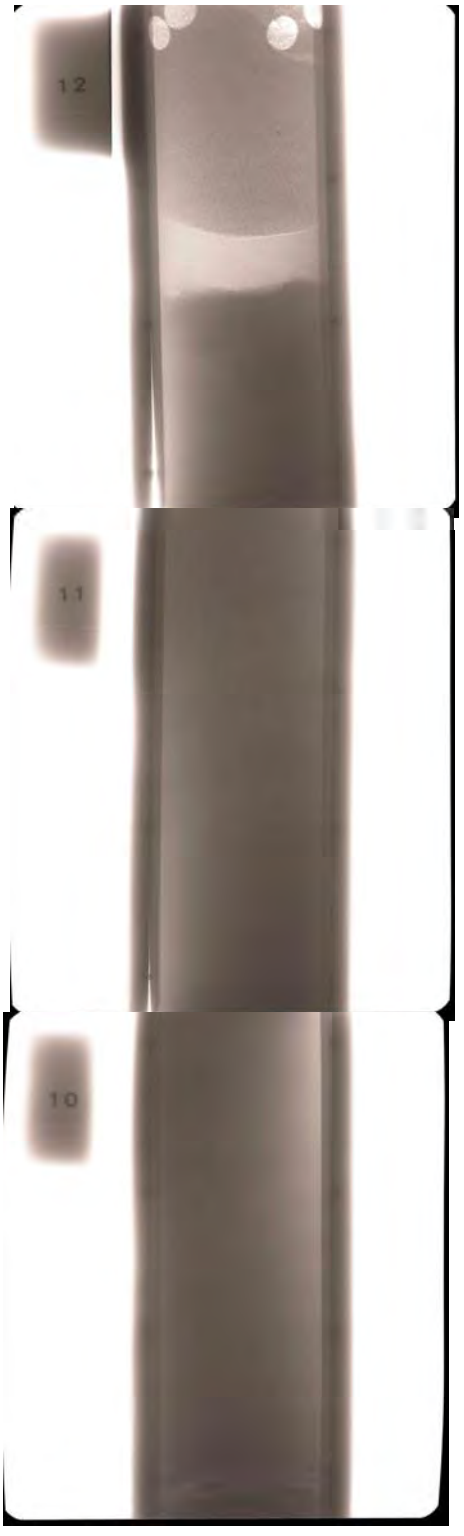
Top of Tube

Middle of Tube

Bottom of Tube

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.
Project Name:	Maine Health/United Way Development
Project Location:	Portland, ME
GTX #:	8427
Test Date:	08/11/08
Tested By:	edd/md
Checked By:	jdt
Boring ID:	HA08-8
Sample ID:	U-2
Depth, ft:	41-43



Top of Tube

Middle of Tube

Bottom of Tube

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Haley & Aldrich, Inc.
Project Name:	Maine Health/United Way Development
Project Location:	Portland, ME
GTX #:	8427
Test Date:	08/11/08
Tested By:	edd/md
Checked By:	jdt
Boring ID:	HA08-10
Sample ID:	U-1
Depth, ft:	25-27

Top of Tube

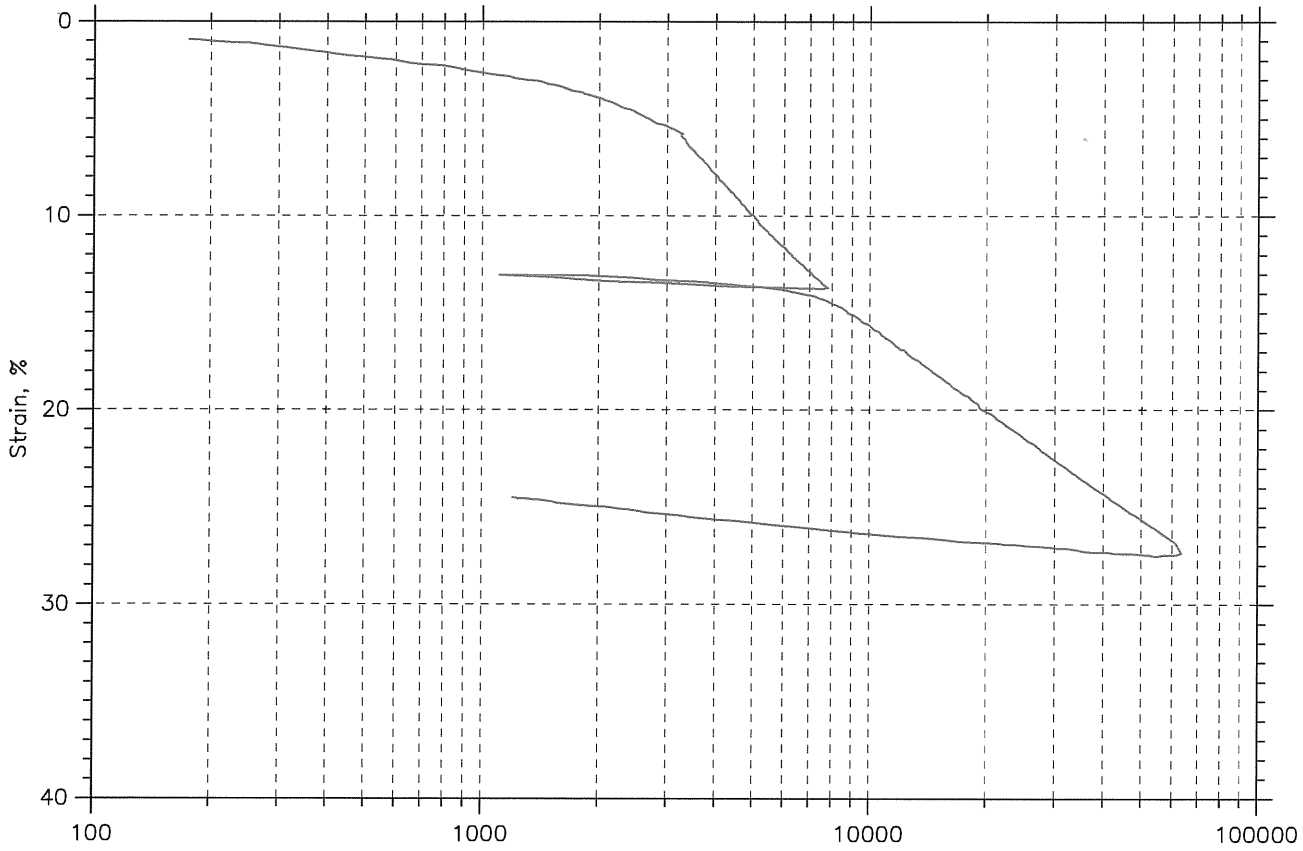
Middle of Tube

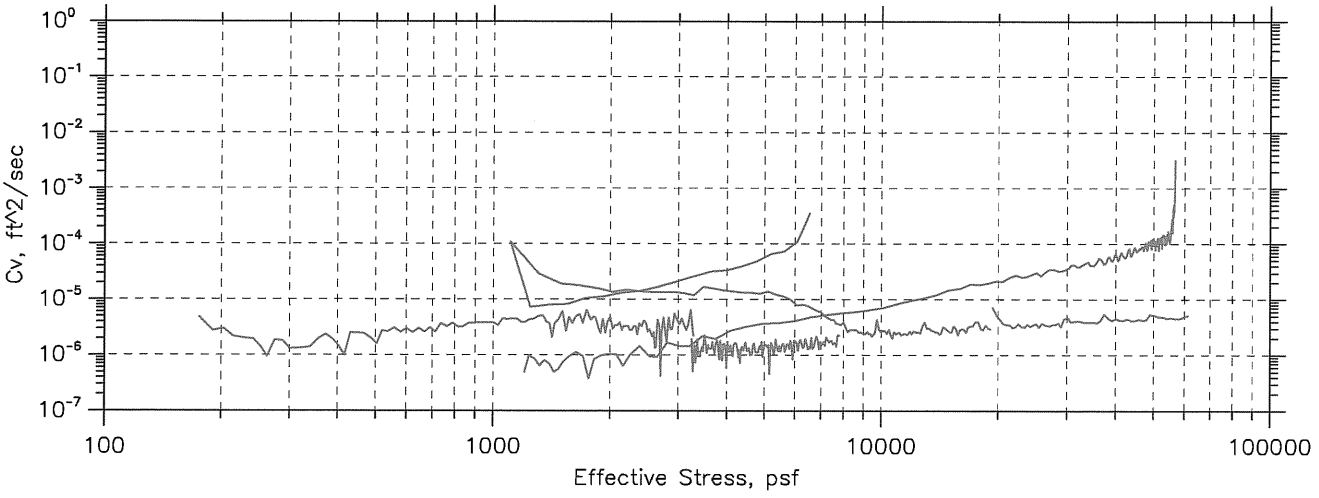
Bottom of Tube

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





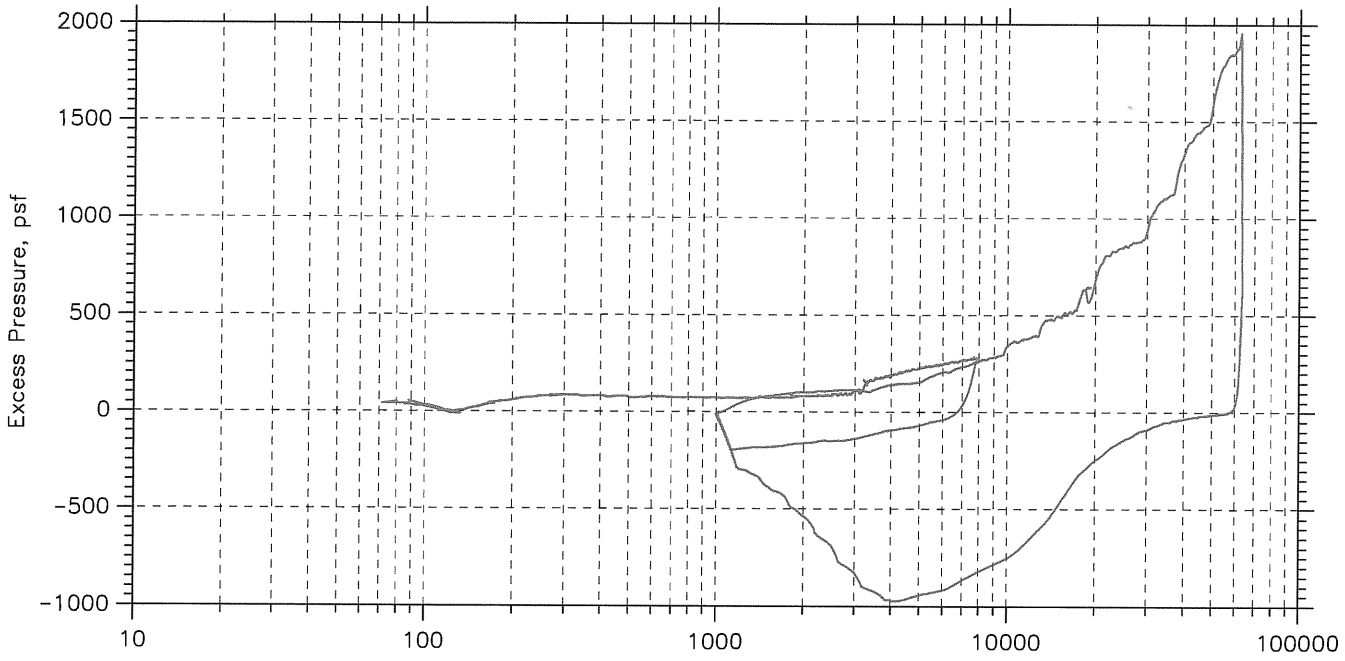
Project: Maine Health	Location: Portland, ME	Project No.: GTX-8427
Boring No.: HA-08-4	Tested By: md	Checked By: jdt
Sample No.: U-2	Test Date: 08/27/08	Depth: 33-35
Test No.: CRC-1A	Sample Type: tube	Elevation: ---
Description: Moist, dark greenish gray clay		
Remarks: System S		

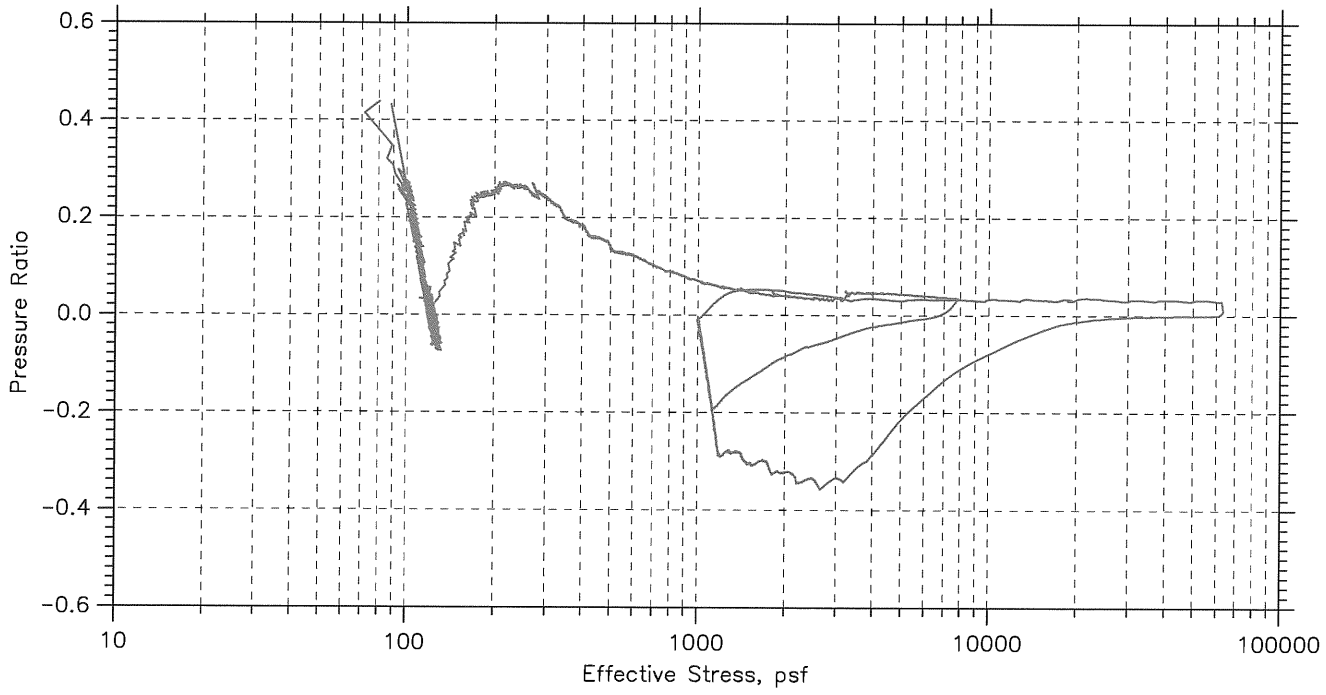
Wed, 03-SEP-2008 11:15:15

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Pressure Curves





Project: Maine Health	Location: Portland, ME	Project No.: GTX-8427
Boring No.: HA-08-4	Tested By: md	Checked By: jdt
Sample No.: U-2	Test Date: 08/27/08	Depth: 33-35
Test No.: CRC-1A	Sample Type: tube	Elevation: ---
Description: Moist, dark greenish gray clay		
Remarks: System S		

Wed, 03-SEP-2008 11:15:16

CRC TEST DATA

Project: Maine Health
Boring No.: HA-08-4
Sample No.: U-2
Test No.: CRC-1A

Location: Portland, ME
Tested By: md
Test Date: 08/27/08
Sample Type: tube

Project No.: GTX-8427
Checked By: jdt
Depth: 33-35
Elevation: ---

Soil Description: Moist, dark greenish gray clay
Remarks: System S

Estimated Specific Gravity: 2.80
Initial Void Ratio: 0.98
Final Void Ratio: 0.50

Liquid Limit: 41
Plastic Limit: 17
Plasticity Index: 24

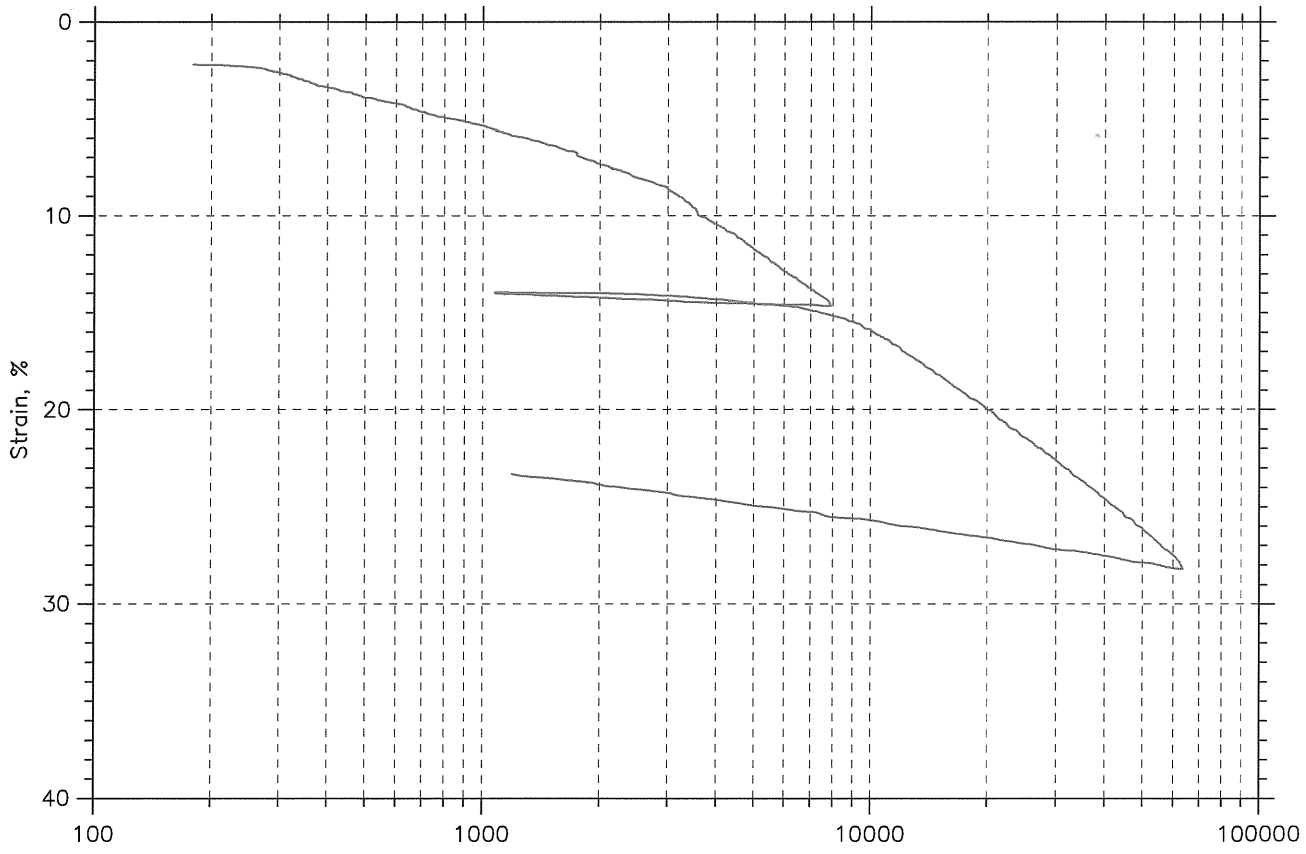
Initial Height: 1.00 in
Specimen Diameter: 2.50 in

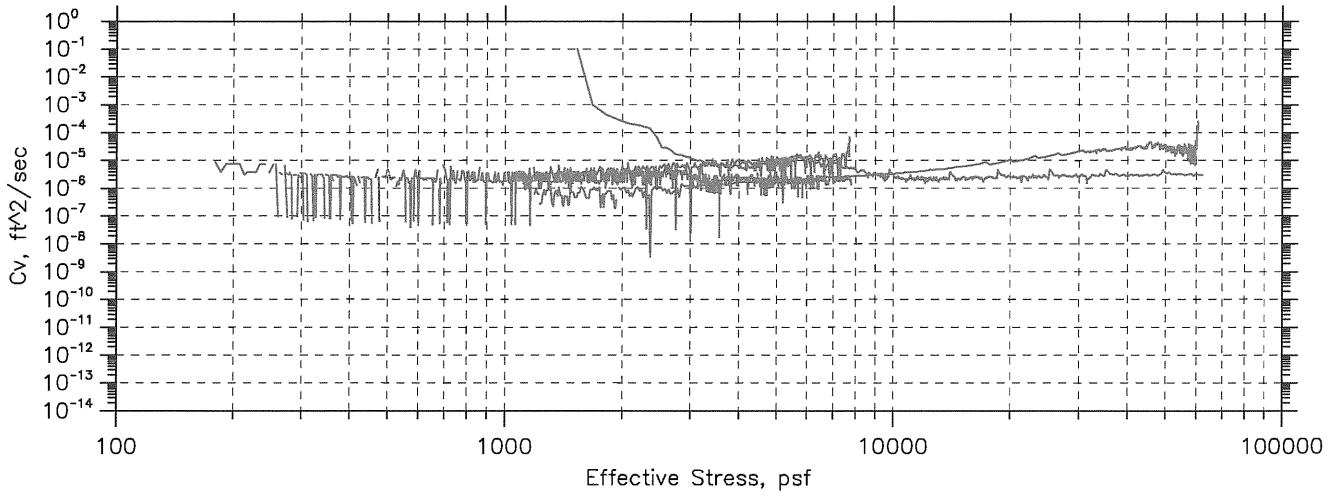
	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	3217	RING		vrayum
Wt. Container + Wet Soil, gm	211.83	353.9	336.26	140.32
Wt. Container + Dry Soil, gm	163.17	318.01	318.01	122.08
Wt. Container, gm	8.29	204.15	204.15	8.27
Wt. Dry Soil, gm	154.88	113.86	113.86	113.81
Water Content, %	31.42	31.52	16.03	16.03
Void Ratio	---	0.98	0.50	---
Degree of Saturation, %	---	90.23	90.62	---
Dry Unit Weight, pcf	---	88.366	116.9	---

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





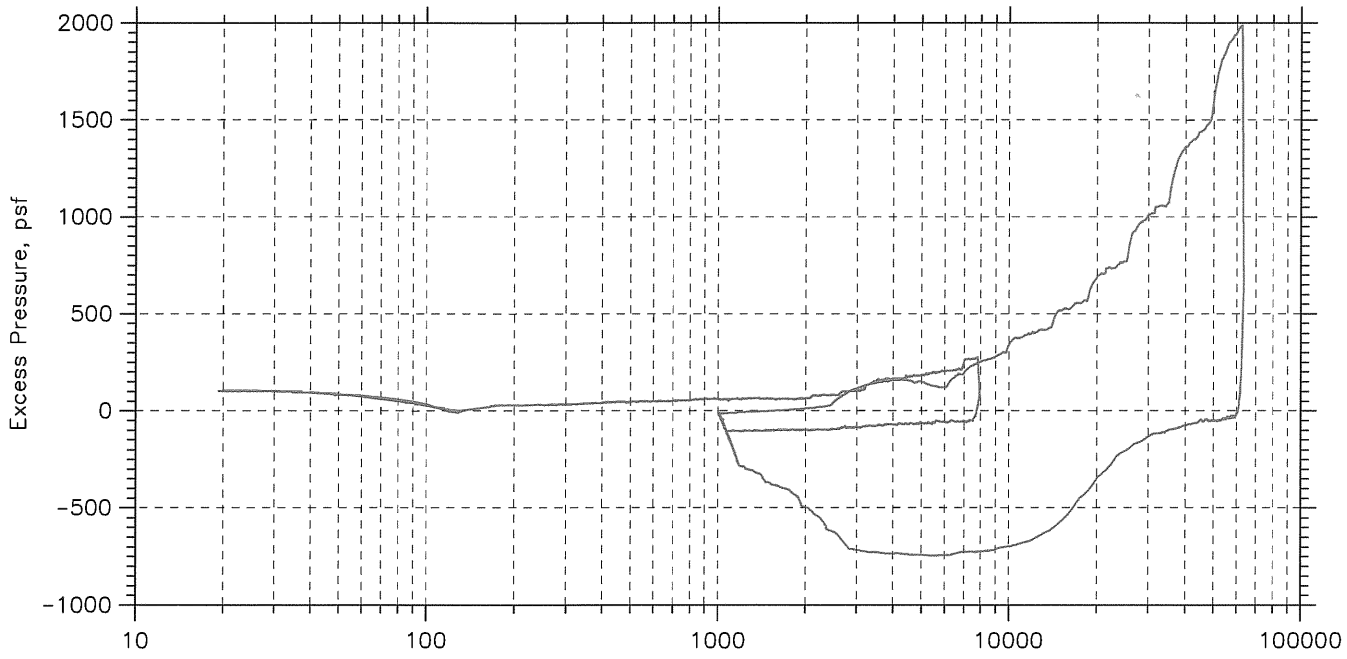
Project: Maine Health	Location: Portland, ME	Project No.: GTX-8427
Boring No.: HA-08-10	Tested By: md	Checked By: jdt
Sample No.: U-1	Test Date: 08/25/08	Depth: 25-27
Test No.: CRC-2	Sample Type: tube	Elevation: ---
Description: Moist, gray clay		
Remarks: System 0		

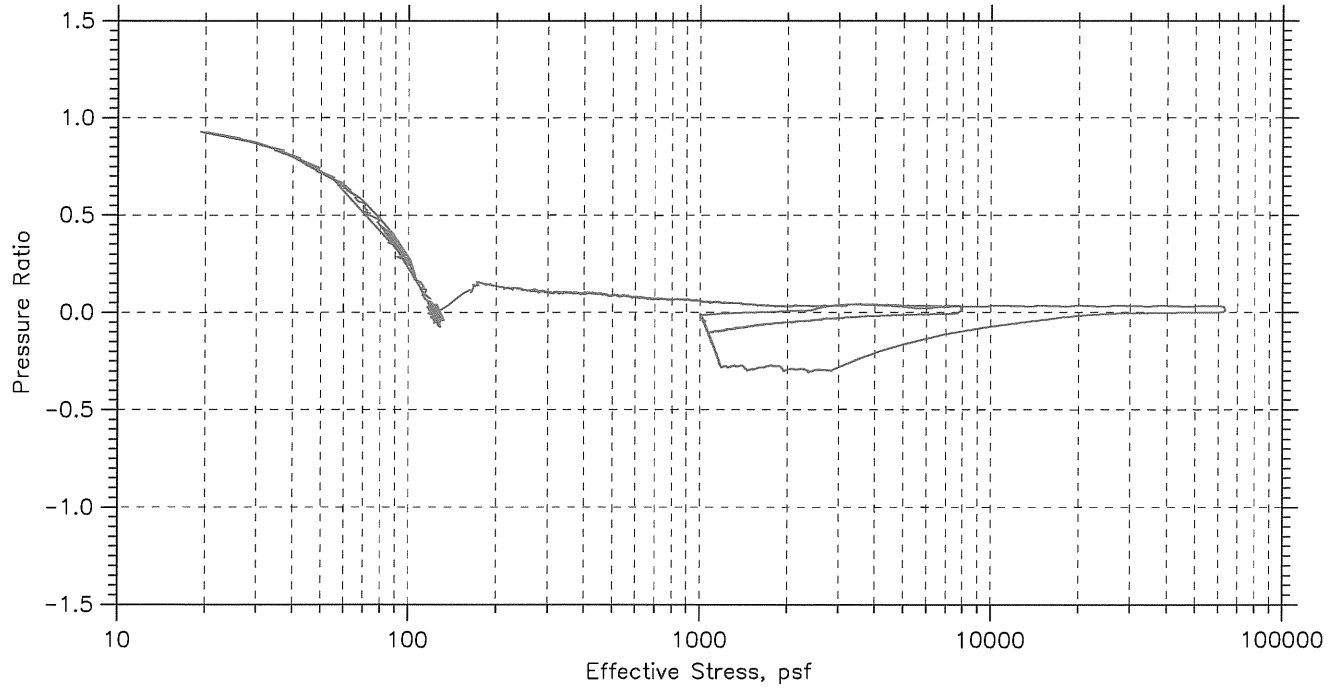
Fri, 05-SEP-2008 11:12:28

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Pressure Curves





Project: Maine Health	Location: Portland, ME	Project No.: GTX-8427
Boring No.: HA-08-10	Tested By: md	Checked By: jdt
Sample No.: U-1	Test Date: 08/25/08	Depth: 25-27
Test No.: CRC-2	Sample Type: tube	Elevation: ---
Description: Moist, gray clay		
Remarks: System 0		

CRC TEST DATA

Project: Maine Health
Boring No.: HA-08-10
Sample No.: U-1
Test No.: CRC-2

Location: Portland, ME
Tested By: md
Test Date: 08/25/08
Sample Type: tube

Project No.: GTX-8427
Checked By: jdt
Depth: 25-27
Elevation: ---

Soil Description: Moist, gray clay
Remarks: System O

Estimated Specific Gravity: 2.90
Initial Void Ratio: 1.13
Final Void Ratio: 0.64

Liquid Limit: 38
Plastic Limit: 17
Plasticity Index: 21

Initial Height: 1.00 in
Specimen Diameter: 2.50 in

	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	organic	RING		3171
Wt. Container + Wet Soil, gm	118.23	368.58	349.88	26.19
Wt. Container + Dry Soil, gm	88.77	325.88	325.88	22.93
Wt. Container, gm	8.07	216.55	216.55	8.08
Wt. Dry Soil, gm	80.7	109.33	109.33	14.85
Water Content, %	36.51	39.06	21.95	21.95
Void Ratio	---	1.13	0.64	---
Degree of Saturation, %	---	99.91	99.29	---
Dry Unit Weight, pcf	---	84.848	110.31	---

APPENDIX E

Historic Sanborn Maps

North of Chestnut Street
(midtown 1 and midtown 2)

PORTLAND
MAINE

PUBLISHED BY THE

Sanborn Map and Publishing Co.

LIMITED

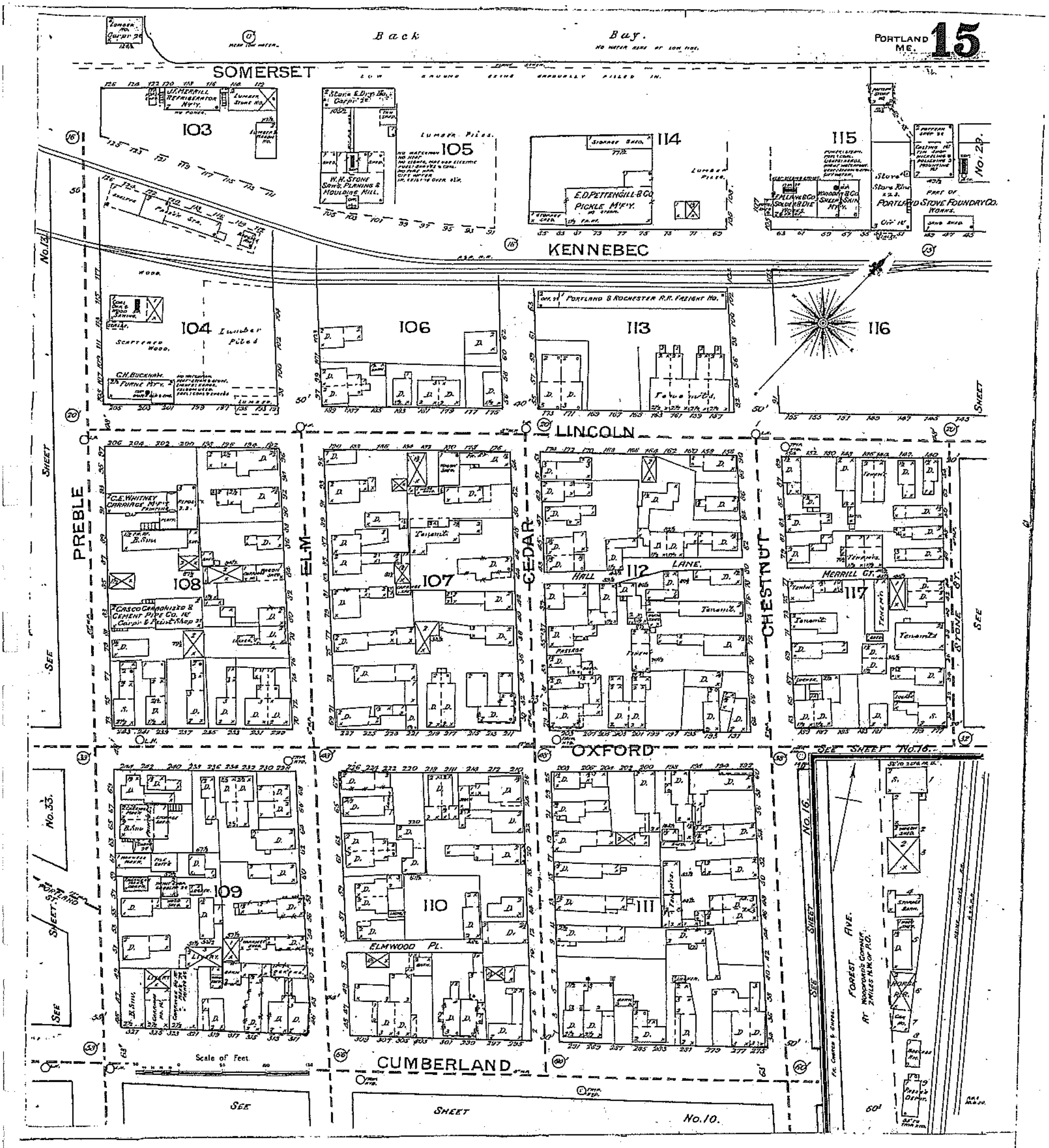
117 BROADWAY NEW YORK

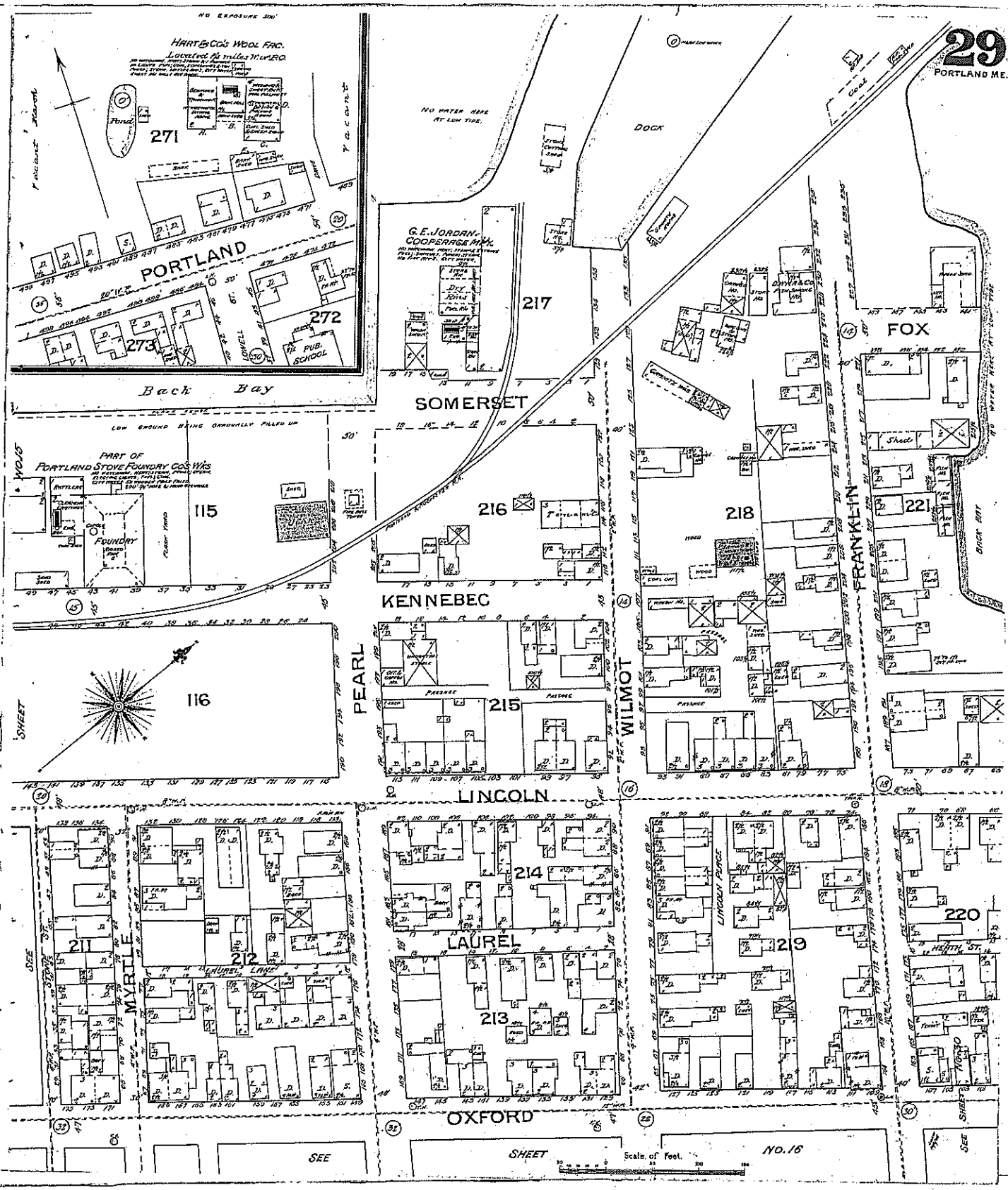
SCALE 50 FT. TO AN INCH

OCT, 1886

INDEX.

* Indicates only one side of Street shown.


PORTLAND ME.
15
Back Bay.
SOMERSET
KENNEBEC
LINCOLN
OXFORD
CUMBERLAND
PREBLE
ELM
CEDAR
CHESTNUT
STONE ST.
MERRILL CT.
HALL LANE.
ELMWOOD PL.
FOREST AVE.
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
J.F. MERRILL REFRIGERATOR M'F'Y.
W.H. STONE SAWS, PLANING & MOULDING MILL.
E.D. PETTENGILL & CO. PICKLE M'F'Y.
PORTLAND & ROCHESTER R.R. FREIGHT HO.
PART OF PORTLAND STOVE FOUNDRY CO. WORKS.
C.H. BUCKNAM. FURN. M'F'Y.
C.E. WHITNEY CARRIAGE M'F'Y.
CASCO CARBONIZED & CEMENT PIPE CO.
Lumber Piled
Scale of Feet.
SEE SHEET No.10.
SEE SHEET No.16.
SEE SHEET No.13.
SEE SHEET No.33.
No.29.


29
PORTLAND ME.
HART & CO'S WOOL FAC.
PORTLAND
271
272
273
PUB. SCHOOL
Back Bay
G.E. JORDAN, COOPERAGE M'F'R.
217
SOMERSET
PART OF PORTLAND STOVE FOUNDRY CO'S W'KS
FOUNDRY
115
116
216
KENNEBEC
218
FOX
FRANKLIN
221
215
PEARL
WILMOT
LINCOLN
214
LAUREL
213
211
212
MYRTLE
219
LINCOLN PLACE
220
OXFORD
SEE SHEET NO. 16
Scale of Feet

Insurance Maps of Portland, Maine

Published by the Sanborn-Perris Map Co. Limited

Scale 50 Feet to an Inch.

1896

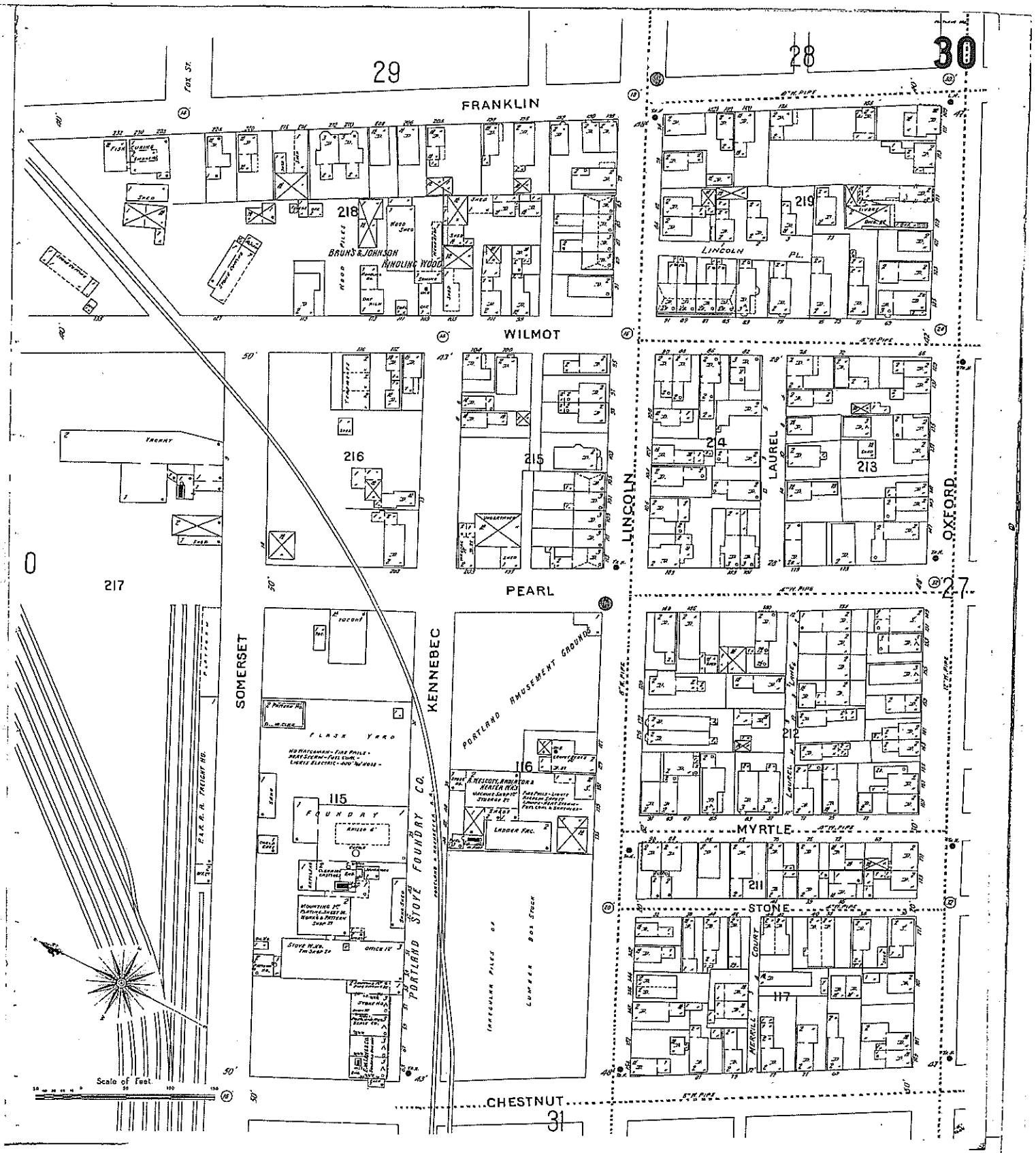
115 Broadway, New York

INDEX.

STREETS.

SPECIALS.

* Indicates only one side of Street shown.


29
28
30
FRANKLIN
FOX ST.
WILMOT
PEARL
CHESTNUT
MYRTLE
STONE
LINCOLN
LAUREL
OXFORD
SOMERSET
KENNEBEC
LINCOLN PL.
MERRILL COURT
218
219
216
215
214
213
217
212
211
117
116
115
BRUNS & JOHNSON
KINDLING WOOD
FLASK YARD
FOUNDRY
PORTLAND STOVE FOUNDRY CO.
PORTLAND AMUSEMENT GROUNDS
LUMBER BOX STOCK
P.S.P.& P. FREIGHT HS.
Scale of Feet

INSURANCE MAPS
OF

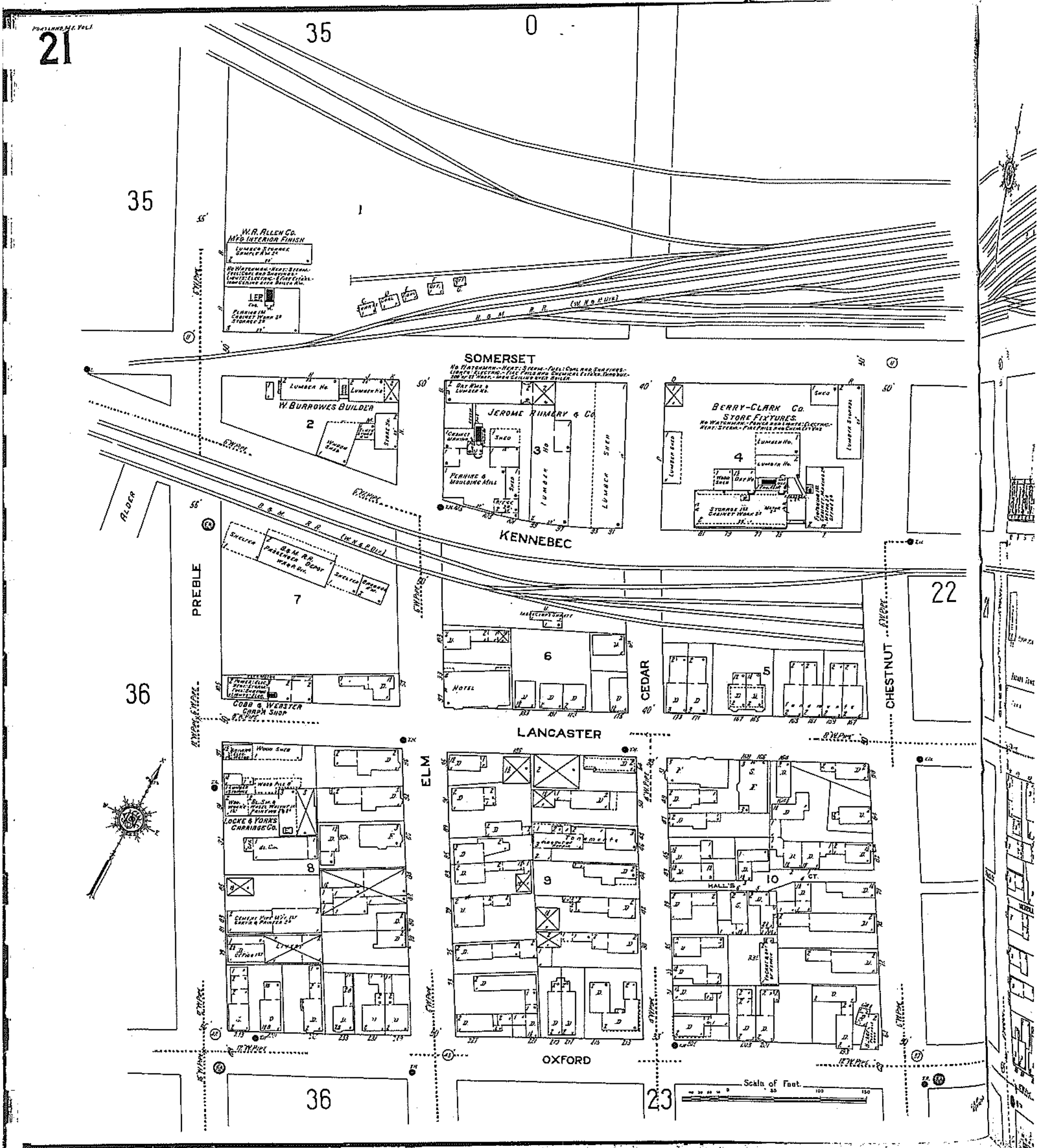
Portland

MAINE

VOLUME ONE

PUBLISHED BY THE
SANBORN MAP COMPANY
11 BROADWAY, NEW YORK

1909



21
PORTLAND, ME. VOL. I
35
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36
36
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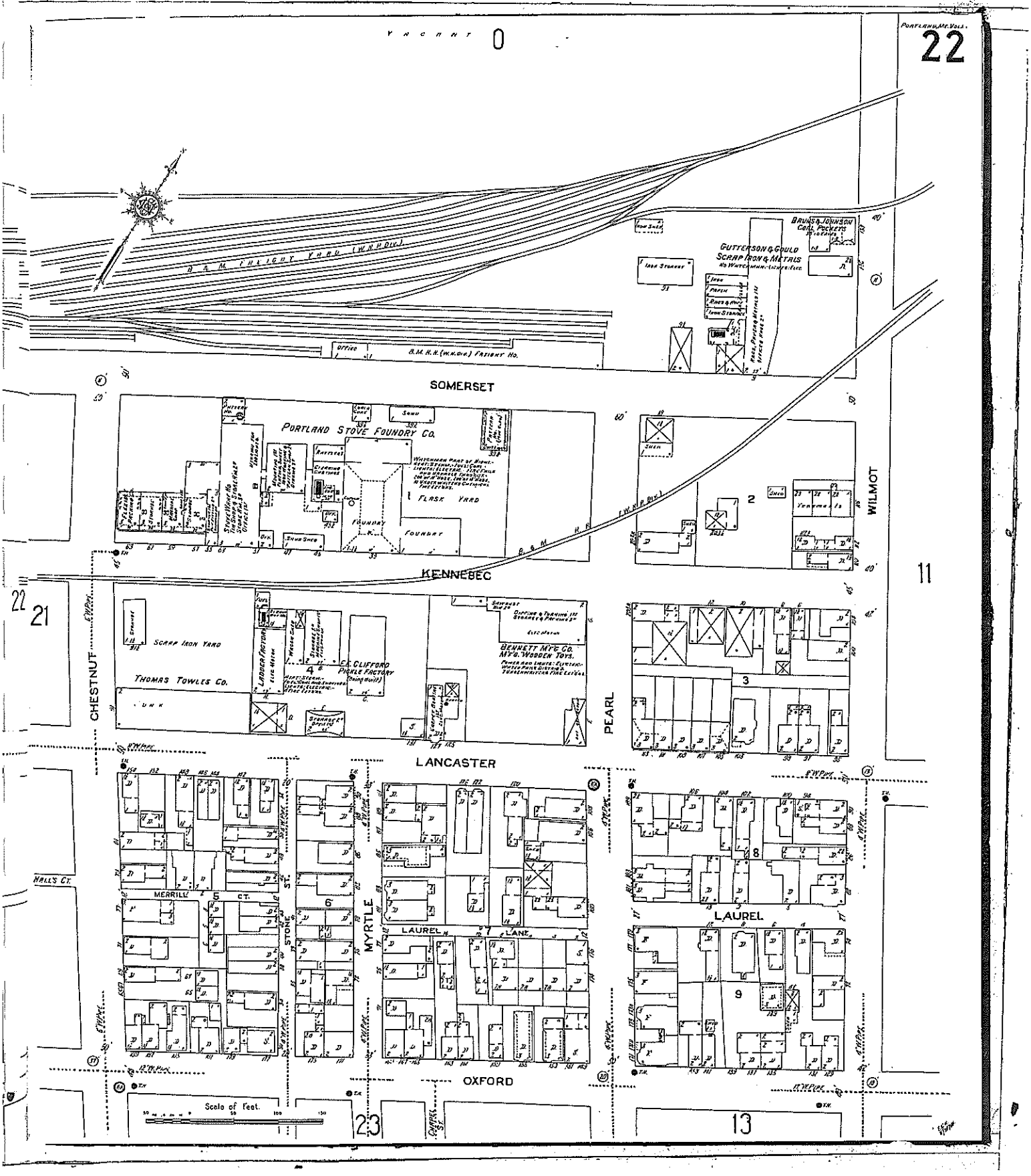
23
W.R. ALLEN CO. MFG. INTERIOR FINISH
SOMERSET
W. BURROWES BUILDER
JEROME RUMERY & CO.
BERRY-CLARK CO. STORE FIXTURES
LUMBER HO.
LUMBER SHED
PLANING & MOULDING MILL
KENNEBEC
B. & M. R.R.
B. & M. R.R. PASSENGER DEPOT W. N. & P. DIV.
ALDER
PREBLE
ELM
CEDAR
CHESTNUT
LANCASTER
OXFORD
HALL'S CT.
HOTEL
COBB & WEBSTER CARP'R SHOP
LOCKE & YORK'S CARRIAGE CO.
LIVERY
Tenements
Scale of Feet


PORTLAND, ME. VOL. I
22
VACANT 0
B. & M. FREIGHT YARD (W.N.P. DIV.)
OFFICE
B.M.R.R. (W.N.P. DIV.) FREIGHT HO.
BRUNS & JOHNSON COAL POCKETS
GUTTERSON & GOULD SCRAP IRON & METALS
SOMERSET
PORTLAND STOVE FOUNDRY CO.
FLASK YARD
FOUNDRY
B. & M. R.R. (W.N.P. DIV.)
WILMOT
KENNEBEC
22 21
CHESTNUT
SCRAP IRON YARD
THOMAS TOWLES CO.
JUNK
E.E. CLIFFORD PICKLE FACTORY
BENNETT MFG. CO. MFRS. WOODEN TOYS.
PEARL
LANCASTER
MERRILL CT.
STONE ST.
MYRTLE
LAUREL LANE
LAUREL
HALLS CT.
OXFORD
CHAPEL ST.
Scale of Feet.
23
13
11

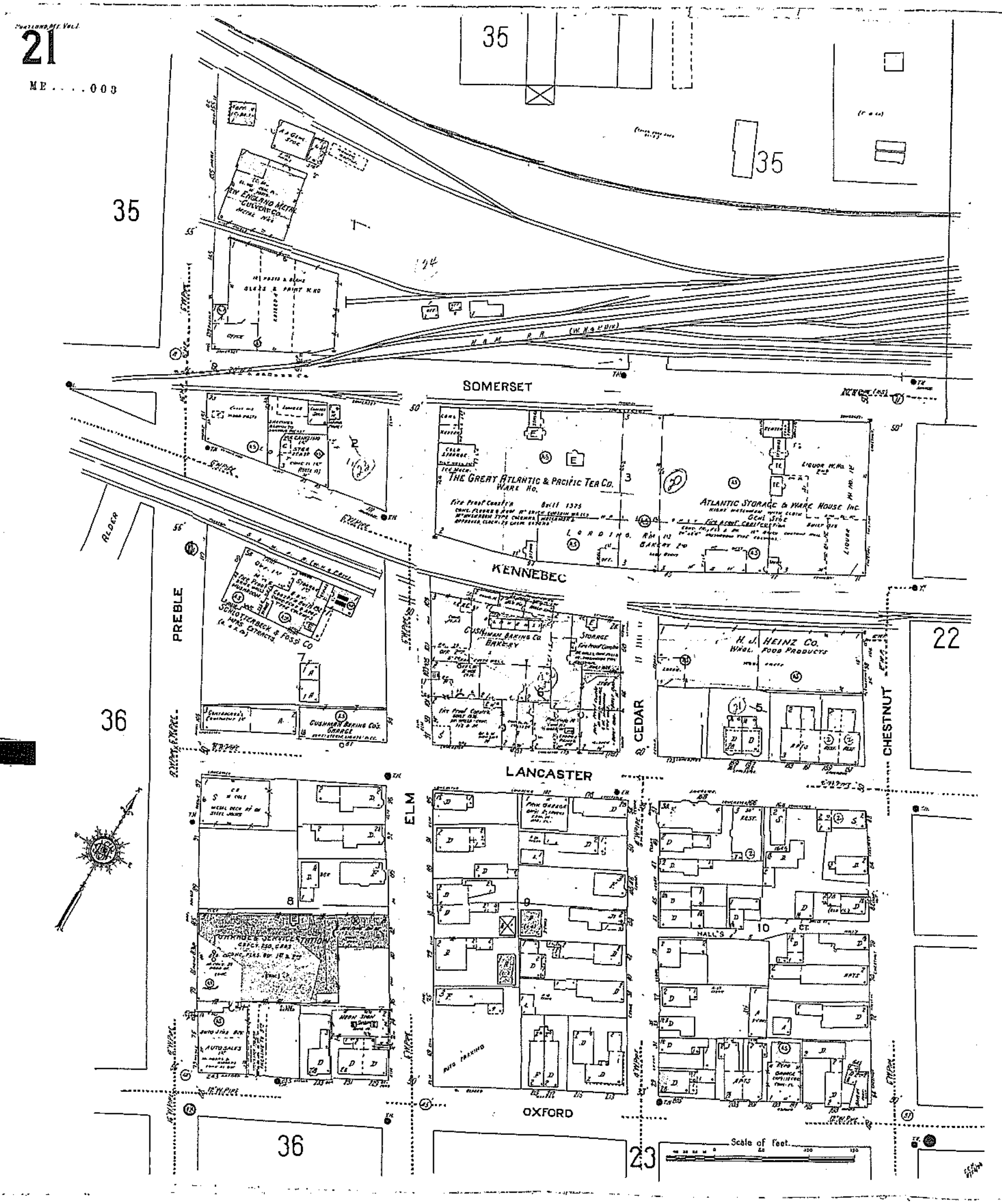
INSURANCE MAPS
OF

Portland

MAINE

VOLUME ONE

PUBLISHED BY THE
SANBORN MAP COMPANY
11 BROADWAY, NEW YORK
1909


PORTLAND, ME. Vol. I.
21
ME....003
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35
SOMERSET
KENNEBEC
LANCASTER
OXFORD
PREBLE
ELM
CEDAR
CHESTNUT
ALDER
HALL'S CT.
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36
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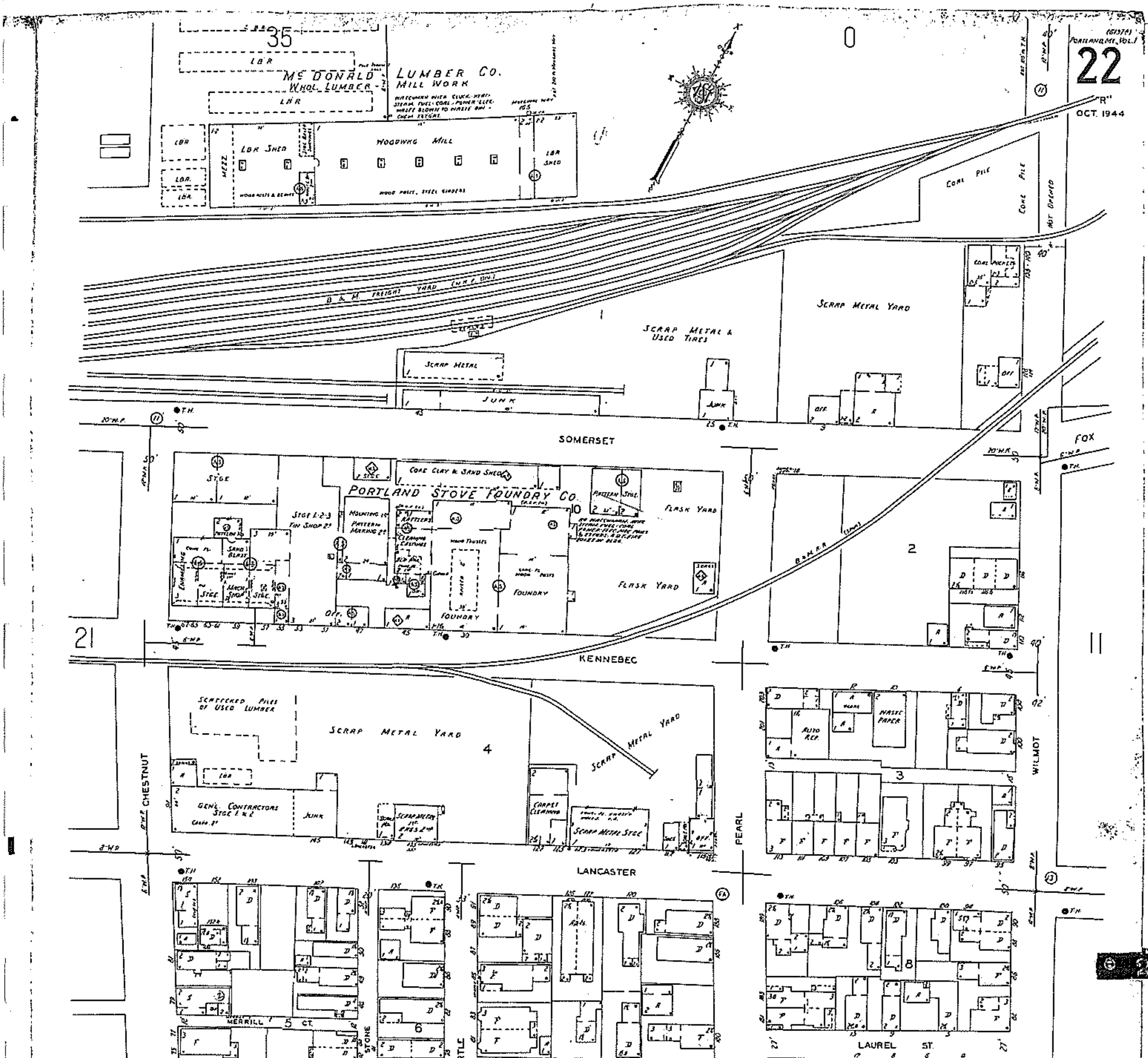
10
New England Metal Culvert Co.
Glass & Paint W.HO.
THE GREAT ATLANTIC & PACIFIC TEA CO.
WARE HO.
ATLANTIC STORAGE & WARE HOUSE INC.
Liquor W. Ho.
Loading
Bakery
CUSHMAN BAKING CO.
BAKERY
CUSHMAN BAKING CO'S GARAGE
SCHOTTERBECK & FOSS CO.
MFG. EXTRACTS
H. J. HEINZ CO.
WHOL. FOOD PRODUCTS
GARAGE & SERVICE STATION
AUTO SALES
AUTO PARKING
Storage
Apts
Rest.
Scale of Feet.


22
OCT. 1944
McDONALD LUMBER CO.
WHOL. LUMBER - MILL WORK
LBR
LBR SHED
WOODWKG MILL
COAL PILE
SCRAP METAL YARD
SCRAP METAL & USED TIRES
SCRAP METAL
JUNK
OFF.
SOMERSET
FOX
PORTLAND STOVE FOUNDRY CO.
CORE CLAY & SAND SHED
PATTERN STGE.
FLASK YARD
STGE
FOUNDRY
KENNEBEC
SCREENED PILES OF USED LUMBER
SCRAP METAL YARD
GEN'L CONTRACTORS STGE 1 & 2
JUNK
CARPET CLEANING
SCRAP METAL STGE
AUTO REP.
WASTE PAPER
WILMOT
CHESTNUT
PEARL
LANCASTER
MERRILL CT.
STONE
MYRTLE
LAUREL LA.
LAUREL ST.
OXFORD
35
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21
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23
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South of Chestnut Street
(midtown 3 and midtown 4)

PORTLAND

MAINE

PUBLISHED BY THE

Sanborn Map and Publishing Co.

LIMITED

117 BROADWAY NEW YORK

SCALE 50 FT. TO AN INCH

OCT. 1886

INDEX.

STREETS.

SPECIALS.

* Indicates only one side of Street shown.


PORTLAND ME.
15
Back Bay.
SITE (APPROX.)
SOMERSET
KENNEBEC
LINCOLN
OXFORD
CUMBERLAND
PREBLE
ELM
CEDAR
CHESTNUT
STONE ST.
FOREST AVE.
ELMWOOD PL.
HALL
LANE.
MERRILL CT.
J.F. MERRILL REFRIGERATOR MF'Y.
W.H. STONE SASH, PLANING & MOULDING MILL.
E.D. PETTENGILL & CO. PICKLE M'F'Y.
PORTLAND & ROCHESTER R.R. FREIGHT HO.
PART OF PORTLAND STOVE FOUNDRY CO. WORKS.
C.E. WHITNEY CARRIAGE M'F'Y.
CASCO CAMBOLIZED & CEMENT PIPE CO.
C.H. BUCKNAM.
Tenement.
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112
113
114
115
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Scale of Feet.
SEE SHEET No. 10.
SEE SHEET No. 16.
No. 13.
No. 22.
No. 33.

1886

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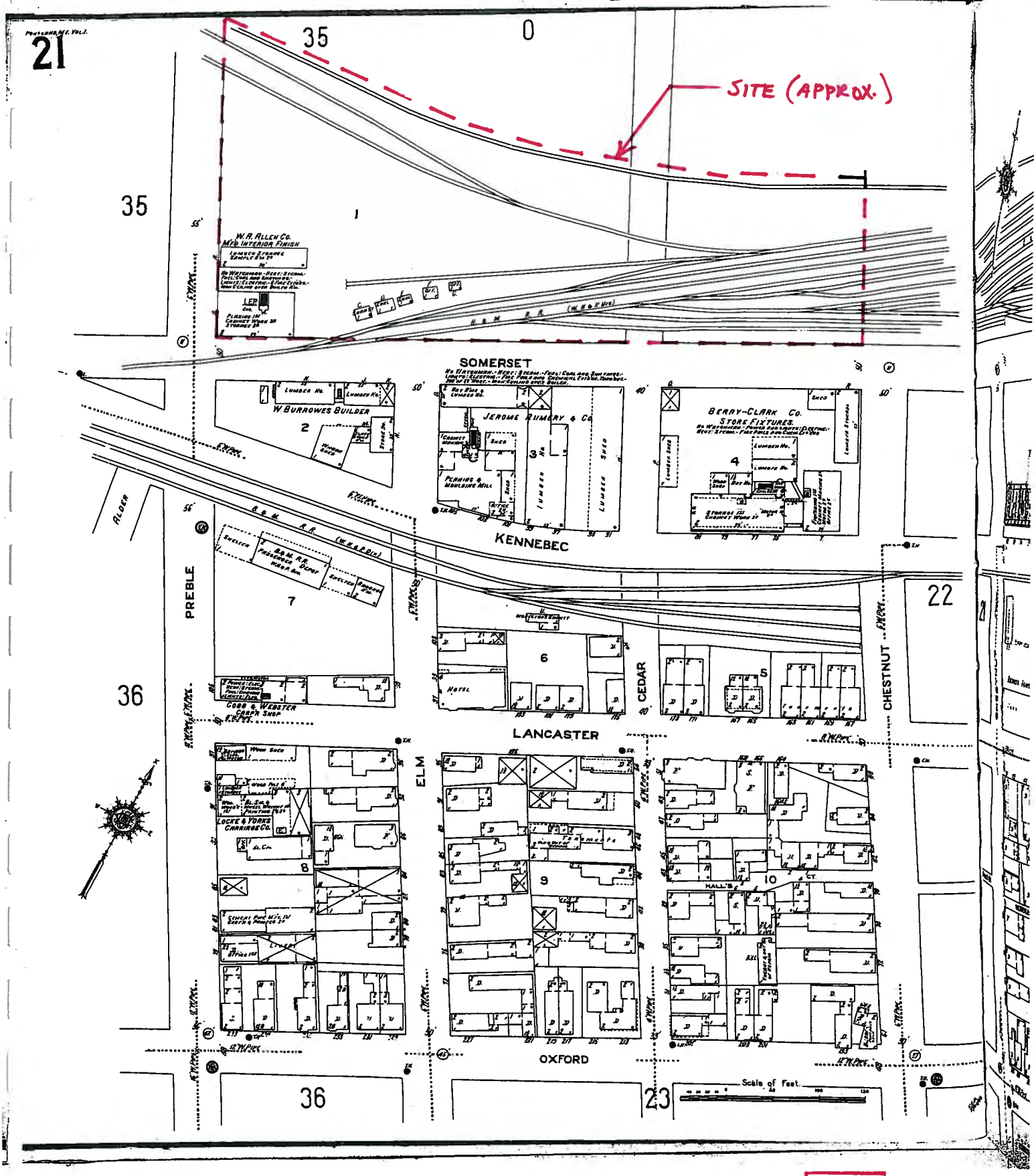
21
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SITE (APPROX.)
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W. R. ALLEN CO.
MFG INTERIOR FINISH
SOMERSET
W BURROWES BUILDER
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JEROME RUMERY & CO.
3
BERRY-CLARK CO.
STORE FIXTURES.
4
KENNEBEC
ALDEN
PREBLE
7
6
CEDAR
5
CHESTNUT
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COBB & WEBSTER
CARPN SHOP
LANCASTER
ELM
LOCKE & YORK
CARRIAGE CO.
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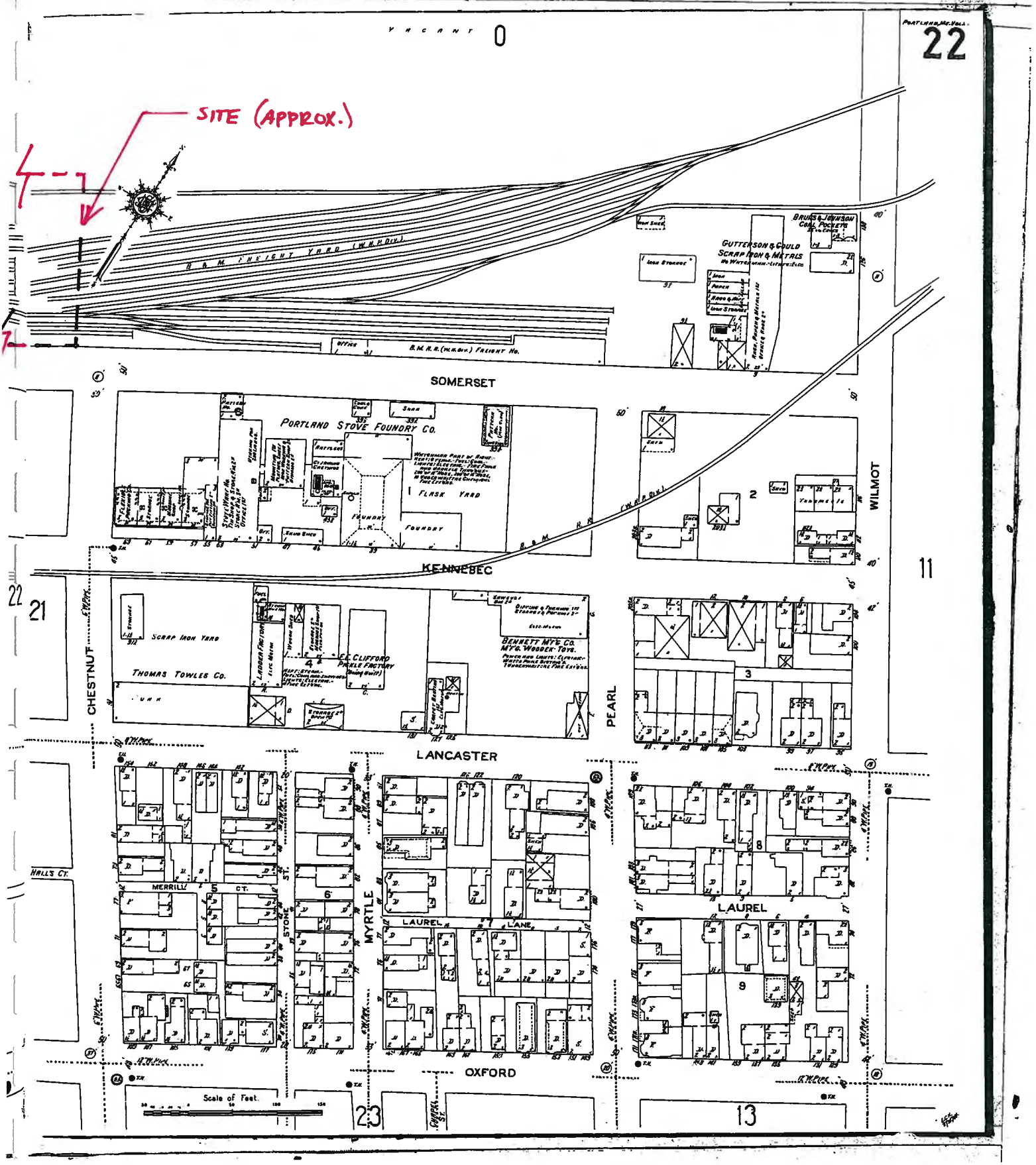
9
10
HALL'S CT
OXFORD
36
23
Scale of Feet

1909


SITE (APPROX.)
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B. & M. FREIGHT YARD (M.M.R.DIV.)
GUTTERSON & GOULD
SCRAP IRON & METALS
BRUSS & JOHNSON
COAL POCKETS
SOMERSET
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FOUNDRY
KENNEBEC
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CHESTNUT
SCRAP IRON YARD
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E.C. CLIFFORD
PICKLE FACTORY
BENNETT MFG. CO.
MFG. WOODEN TOYS.
PEARL
LANCASTER
HALLS CT.
MERRILL
CT.
STONE
ST.
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OXFORD
Scale of Feet
23
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1909

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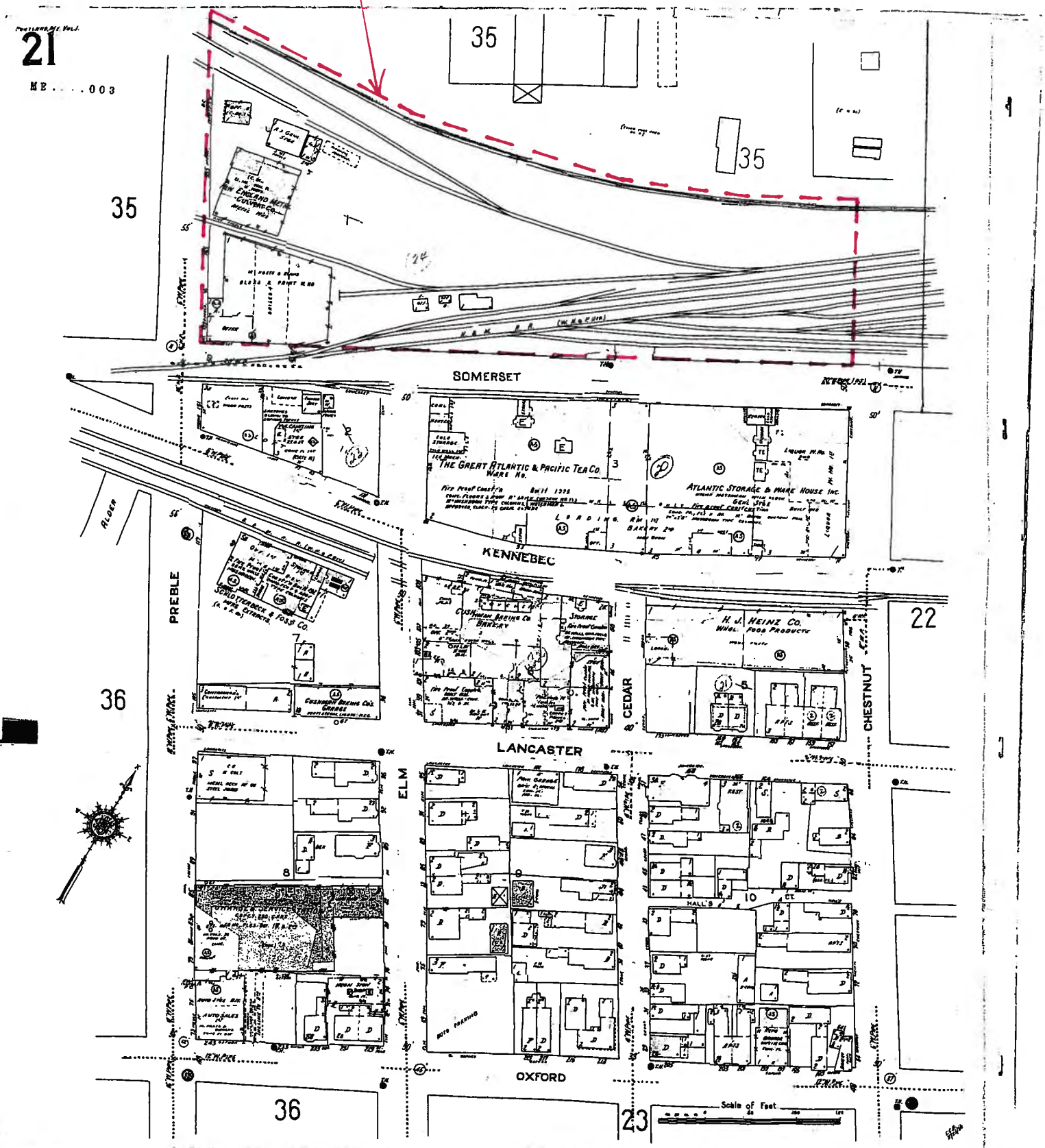
SITE (APPROX.)
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SOMERSET
THE GREAT ATLANTIC & PACIFIC TEA CO
ATLANTIC STORAGE & WARE HOUSE INC.
KENNEBEC
PREBLE
CUSHMAN BAKING CO
H. J. HEINZ CO.
CEDAR
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1909-1950