



Scott Simons Architects  
15 Franklin Street Art, Portland, ME 04101-4169 • 207-772-4656 – 207-828-4656

**TRANSMITTAL**

To:

Mike Nugent Inspector of Buildings City of Portland  Faxed to 874-8716	Date: August 13, 2003  Project: Breakwater Multi-Purpose Building SSA Job #. 00116.60  Attn: Mike Nugent
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Please find enclosed the following items: Submittal

Copies	Dated	Pages	Description
1	04.23.03	1	Accessibility Certificate, City of Portland
1	04.23.03	1	BOCA Compliance Declaration, City of Portland
1	04.23.03	1	Certificate of Design, City of Portland
1	04.25.03	4	Statement of Special Inspections

These are transmitted:

☒ for approval    ☐ for your use    ☐ as requested    ☐ for review and comment

**Remarks:**

Mike:

I have found a copy of your faxed sent on August 4, 2003. I was away on vacation and the fax ended up on a co-worker's desk.

I've enclosed copies of the formwork that we filed with you in April of this year. I think we also supplied 11" x 17" sets of document with those forms. If they are not on record let me know and I will have a set printed today.

I will hand deliver the geotech report from S.W. Cole and project specifications today marked for your attention.

Concerning the classification of type 2A Construction, I'll take a look and give you a call this afternoon.

Thanks for your attention.

Copy To: Nick Nash at Thaxter Company

Austin Smith



CITY OF PORTLAND  
ACCESSIBILITY CERTIFICATE

Designer: SCOTT SIMONS ARCHITECTS

Address of Project 856 BRIGHTON AVENUE

Nature of Project BREAKWATER SCHOOL

MULTI-PURPOSE BUILDING

Date APRIL 23, 2003

The technical submissions covering the proposed construction work as described above have been have been designed in compliance with applicable referenced standards found in the Maine Human Rights Law and Federal Americans with Disability Act.

(SEAL)



Signature Scott Simons

Title ARCHITECT

Firm SCOTT SIMONS ARCHITECT

Address 15 FRANKLIN STREET ART

PORTLAND, MAINE 04101

Telephone 207.772.4656



## CITY OF PORTLAND MAINE

389 Congress St., Rm 315

Portland, ME 04101

Tel. - 207-874-8704

Fax - 207-874-8716

TO: Inspector of Buildings City of Portland, Maine  
Planning & Urban Development  
Division of Housing & Community Services

FROM DESIGNER: SCOTT SIMONS ARCHITECTS  
15 FRANKLIN STREET ART  
PORTLAND, MAINE 04101

DATE: APRIL 23, 2003

Job Name: BREAKWATER SCHOOL MULTI-PURPOSE BUILDING

Address of Construction: 856 BRIGHTON AVENUE

### THE BOCA NATIONAL BUILDING CODE/1999 Fourteenth EDITION

Construction project was designed according to the building code criteria listed below:

Building Code and Year BOCA 1999 Use Group Classification(s) A-3

Type of Construction 2A Bldg. Height 24'-0" Bldg. Sq. Footage 4,620 SF

Seismic Zone Av = 0.11 Group Class I

Roof Snow Load Per Sq. Ft. 42 PSF Dead Load Per Sq. Ft. 20 PSF ROOF 65 PSF FLOOR

Basic Wind Speed (mph) 85 MPH Effective Velocity Pressure Per Sq. Ft. 18.5

Floor Live Load Per Sq. Ft. 100 PSF

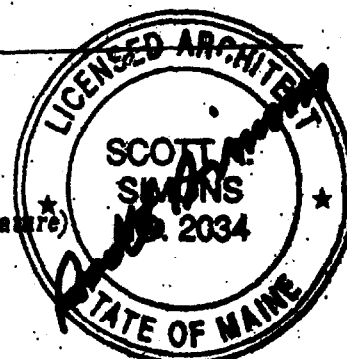
Structure has full sprinkler system? Yes ☒ No ☐ Alarm System? Yes ☒ No ☐  
Sprinkler & Alarm systems must be installed according to BOCA and NFPA Standards with approval from the Portland Fire Department.

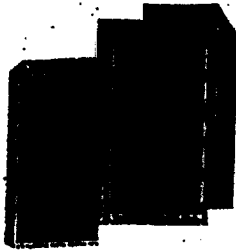
Is structure being considered unlimited area building: Yes ☒ No ☐

If mixed use, what subsection of 313 is being considered NA

List Occupant loading for each room or space, designed into this Project.

(Designers Stamp & Signature)





CITY OF PORTLAND  
BUILDING CODE CERTIFICATE  
389 Congress St., Rm 315  
Portland, ME 04101

TO: Inspector of Buildings City of Portland, Maine  
Department of Planning & Urban Development  
Division of Housing & Community Service

FROM: AUSTIN SMITH / SCOTT SIMONS ARCHITECTS

RE: Certificate of Design

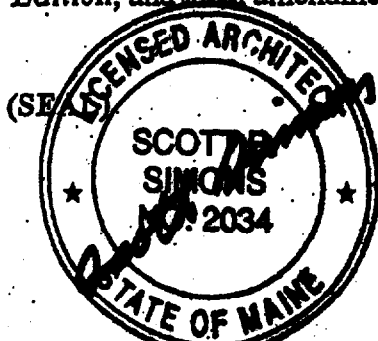
DATE: APRIL 23, 2003

These plans and/or specifications covering construction work on:

BREAKWATER SCHOOL MULTI-PURPOSE BUILDING

850 BRIGHTON AVENUE, PORTLAND

Have been designed and drawn up by the undersigned, a Maine registered architect/engineer according to the BOCA National Building Code/1999 Fourteenth Edition; and local amendments.



Signature Scott Simons

Title ARCHITECT

Firm SCOTT SIMONS ARCHITECTS

Address 15 FRANKLIN STREET ART  
PORTLAND, MAINE 04101

As per Maine State Law:

\$50,000.00 or more in new construction; repair, expansion, addition, or modification for Building or Structures, shall be prepared by a registered design Professional.



5 Balsam Lane  
Falmouth, ME 04105-2448  
Phone: (207) 878-8038  
Fax: (207) 878-8293

### TRANSMITTAL

To: Scott Simons Architects

Date: April 25, 2003  
Project: Breakwater Multi-Purpose  
Project N<sup>o</sup>: 01034

Attn: Austin Smith

☒ Attached ☐ Under separate cover via \_\_\_\_\_  
☐ Drawings ☐ Specifications ☐ Calculations ☐ Report ☐ Shop Drawings  
☒ Other: \_\_\_\_\_  
☐ For Approval ☐ For Signature ☐ For Review and Comment  
☒ For your use ☐ Reviewed ☐ Returned for Corrections  
☐ Other: \_\_\_\_\_

<u>Copies</u>	<u>Date</u>	<u>No.</u>	<u>Description</u>
1	4/25/03		Statement of Special Inspections

Remarks:

Austin,

This must be signed by an Owner's Representative and delivered to the Building Department.

Signed: *DT*

Copy to:

*If enclosures are not as noted, please call (207) 878-8038.*

## STATEMENT OF SPECIAL INSPECTIONS

**PROJECT:** Breakwater School Multi-Purpose Building

**LOCATION:** 856 Brighton Avenue  
Portland, Maine

**OWNER:** Breakwater School  
856 Brighton Avenue  
Portland, ME

**ARCHITECT OF RECORD:** Scott Simons Architects  
15 Franklin Street Arterial  
Portland, ME 04101

**STRUCTURAL ENGINEER OF RECORD:** Structural Design Consulting, Inc.  
5 Balsam Lane  
Falmouth, ME 04105

This Statement of Special Inspections is submitted as a condition of permit issuance in accordance with Section 1705.0 of the 1999 BOCA National Building Code. It includes a Schedule of Special Inspection Services applicable to this project as well as the name of the Special Inspector, and the names of other agencies intended to be retained for conducting these inspections.

The Special Inspector shall keep records of all inspections listed herein, and shall periodically furnish Interim Special Inspection Reports to the Building Code Official and to the Architect of Record. All discrepancies shall be brought to the immediate attention of the Contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Code Official and the Architect of Record. A Final Report of Special Inspections documenting completion of all special inspections and correction of all discrepancies noted in inspection records shall be submitted to the Building Code Official.

Job site safety is solely the responsibility of the Contractor. Materials and activities to be inspected are not to include the Contractor's equipment and methods used to erect or install the materials listed.

Prepared by:

David Tetreault  
Signature

4/25/03  
Date



Owner's Authorization:

Building Code Official's Acceptance

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## ***SPECIAL INSPECTION AGENCIES***

**1. SPECIAL INSPECTOR:**

David Tetreault, P.E.  
Structural Design Consulting, Inc.  
5 Balsam Lane  
Falmouth, ME 04105

**2. TESTING AGENCY:**

S.W. Cole Engineering, Inc  
286 Portland Road  
Gray, ME 04039-9586

**3. TESTING AGENCY:**

*Note The inspection and testing agents shall be engaged by the Owner or the Owner's Agent and not by the Contractor or Subcontractor whose work is being inspected or tested. Any conflict of interest shall be disclosed to the Building Official prior to commencement of work.*

## **SCHEDULE OF SPECIAL INSPECTION SERVICES**

### **1. Soils and Foundations**

<b>Item</b>	<b>Agent No.</b>	<b>Scope</b>
Subgrade Preparation	2	Observe excavation and footing bearing surface.
Structural Fill placement	2	Observe placement and compaction of structural fill.

### **2. Cast-In-Place Concrete**

<b>Item</b>	<b>Agent No.</b>	<b>Scope</b>
Mix Design	1	Review suppliers mix design and laboratory test reports or strength tests.
Reinforcement Installation	1	Inspect placement of reinforcement prior to placement of concrete.
Concrete Placement	1	Inspect concreting operations during placement.
Material Testing	2	Sample and test concrete for slump, air content, temperature and compressive strength

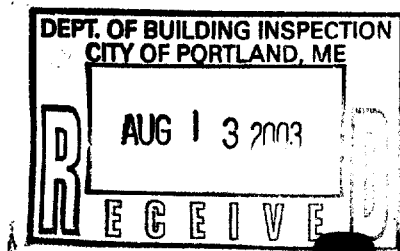
### **3. Structural Steel**

<b>Item</b>	<b>Agent No.</b>	<b>Scope</b>
Materials	1	Review material for conformance with Contract Documents.
Welding	2	Perform visual inspection of all welds. Welds deemed questionable by visual inspection, all partial and full penetration welds, and any other welds indicated on the Contract Documents shall be tested by Liquid penetrant inspection, magnetic particle inspection, radiographic inspection or Ultrasonic Inspection
Details	2	Review framing details for conformance with Contract Documents.



SEA  
1000 1000 1000

**GEOTECHNICAL ENGINEERING AND  
EXPLORATION COORDINATION SERVICES  
PROPOSED ADDITION  
BREAKWATER SCHOOL  
856 BRIGHTON AVENUE  
PORTLAND, MAINE  
98-190 S      June 4, 1998**



**S.W. COLE**

**ENGINEERING, INC.  
GEOTECHNICAL CONSULTANTS**



# **S.W.COLE**

**ENGINEERING, INC.**  
**GEOTECHNICAL CONSULTANTS**

33 Londonderry Rd., #6, Londonderry, NH 03053 TEL (603) 437-9600 FAX (603) 437-9656

Six Liberty Drive, Bangor, ME 04401 TEL (207) 848-5714 FAX (207) 848-2403  
Gray Plaza, P. O. Box 378, Gray, ME 04039 TEL (207) 657-2866 FAX (207) 657-2840  
161 Water St., P. O. Box 220, Caribou, ME 04736 TEL (207) 496-1511 FAX (207) 496-1501

**98-190 S**  
**June 4, 1998**

**Breakwater School Building Committee**  
**C/O Whitten Architects**  
**P.O. Box 404**  
**Portland, ME 04112**

**Subject: Geotechnical Engineering & Exploration Coordination Services**  
**Proposed Additions**  
**Breakwater School**  
**856 Brighton Avenue**  
**Portland, Maine**

**Dear Mr. Whitten:**

In accordance with our proposal dated April 10, 1998, we have made a subsurface investigation for the proposed additions to the existing Breakwater School in Portland, Maine.

## **1.0 INTRODUCTION**

### **1.1 Scope of Work**

The purpose of the investigation was to explore the subsurface conditions and provide recommendations relative to foundation design and earthwork associated with the proposed building construction. The investigation included the making of four test boring explorations, one test pit, laboratory testing and a geotechnical evaluation of the findings as they relate to the proposed construction. The contents of this report are subject to the limitations set forth in Attachment A.

### **1.2 Proposed Construction**

S.W. COLE ENGINEERING, INC.  
98-190 S  
June 4, 1998

explorations, based on our observations and testing of the samples, are attached as Sheets 2 through 7. A key of the notes and symbols used on the logs is attached as Sheet 8. The elevations noted on the logs were interpolated from existing elevations noted on the site plan.

## **2.2 Laboratory Testing**

Laboratory testing was performed on selected samples recovered from the explorations. Moisture content, penetrometer strength and Atterberg limit test results are noted on the boring and test pit logs. The results of two-grain size analyses are presented graphically on Sheet 9. One consolidation test was performed on an undisturbed sample obtained from boring B-2, sample 2-S and is shown graphically on Sheet 10.

## **3.0 SITE AND SUBSURFACE CONDITIONS**

### **3.1 Site Location and Surficial Conditions**

The site is located on the east side of Capisic Street and southwest side of Brighton Avenue at the existing Breakwater School property in Portland, Maine. The site of the additions is located on the northwest side of the existing Breakwater School structure. The site is currently mostly open, paved or gravel surfaced and relatively flat at about elevation 60 to 61.

A one story masonry structure measuring about 70 by 70 feet in plan dimensions is located northwest of the proposed additions. A portion of the new paved parking area and future multi-purpose room is located within the existing structure footprint. We understand the existing structure is to be removed prior to new construction.

### **3.2 Subsurface Conditions**

The borings generally encountered granular fill soils overlying silty sand and gray silty clay with depth.

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98-190 S  
June 4, 1998

Groundwater was encountered in boring B-2 at a depth of 8.0 feet below the ground surface, at the time of drilling. Soils were generally saturated in the remaining borings at depths of 6 to 8 feet. Due to the relatively short time period of drilling, accurate groundwater levels could not be obtained. Groundwater likely fluctuates closer to the ground surface seasonally. Long term groundwater information is not available.

#### **4.0 EVALUATION AND RECOMMENDATIONS**

##### **4.1 Site Suitability and Site Preparation**

Based on the findings at the exploration locations and our understanding of the project, it is our opinion that the site is suitable for construction of the additions on conventional spread footing foundations with slab on grade floors. However, special consideration must be given to the future multi-purpose room addition do to potentially excessive settlements. This is discussed further in Section 4.4.

Site preparation should include the removal of all pavement, topsoil and subsurface structures including existing foundations from within the building footprint and areas of proposed new pavement. The site is underlain by an uncontrolled granular fill varying in thickness from 2.5 to 5.5 feet below the ground surface. Based on a proposed finish lower level floor elevation of 57.56 for the northwest classroom addition, the fill soils will likely be removed in order to attain bottom of slab grade. However, the granular fill soils beneath the proposed paved areas and future multi-purpose room addition will need to be proof-rolled. The areas should be proofed-rolled using a vibrator roller compactor capable of imposing a dynamic load on the order of 10 kips. This will help densify possible loose zones beneath the paved and addition areas. A soils technician should be on site during soils densification to observe subgrade suitability and the densification process. Any areas that continue to yield after 3 to 5 passes of the compaction

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98-190 S  
June 4, 1998

than necessary. Should the subgrade become soft, loose or difficult to work, we recommend that the unsuitable soils be removed and replaced with a clean, compacted granular fill or crushed stone. All excavations should be properly shored and/or sloped to protect against slumping and sloughing of the sidewalls. We recommend that temporary unsupported excavations be cut to a slope of 1.5H to 1V or flatter. All excavations should be consistent with the OSHA trenching regulations.

#### **4.4 Settlement Analysis**

We have made an analysis of post-construction consolidation related settlements of the underlying compressible gray clay beneath the proposed classroom and multi-purpose room additions. Our analysis has been based upon the following:

1. The existing grading information shown on Sheet 1
2. As much as 4.5 feet of cut beneath the floor slab (Classroom Addition)
3. A lower level floor elevation of 57.56 (Classroom Addition) and finish floor elevation of 61.0 (Multi-Purpose Addition)
4. The consolidation information from Boring B-2, sample 2-S
5. Assumed Ground Floor Level Load=100psf, and
6. Structural loading as provided by Dave Tetreault of Structural Design Consulting.
  - Interior Column Load=105 kips (DL&LL) (Classroom Addition)
  - Exterior Column Loads = 18 to 62 kips (DL&LL) (Classroom Addition)
  - Exterior Column Loads = 8 to 17 kips (DL&LL) (Multi-Purpose Addition if 1 story)
  - Exterior column loads = 20 to 40 kips (DL&LL) (Multi-Purpose Addition if 2 story)

Based on the above, we estimate that long-term consolidation of the gray silty clay (1 to 3+ years) are on the order of a ¼ of an inch or less for the classroom addition and 2 inches for the multi-purpose room addition. Based on recent conversations with Rob Whitten (Whitten Architects) and Austin Smith (Scott Simons Architects), we understand that 2 inches of settlement beneath the multi-purpose room addition are not considered

Sieve Size	Percent Finer By Weight	
	Select Fill	Crushed Stone
4 Inches	100	—
3 Inches	90-100	—
2 Inches	—	100
1½ Inches	—	95-100
¾ Inch	—	35-70
½ Inch	25-90	—
3/8 Inch	—	10-30
#4	—	0-5
#40	0-30	—
#200	0-5	—

Sub-slab fill and any fill placed below footing areas should be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. The crushed stone layer below the slabs and footings (if necessary) should be compacted utilizing a vibratory plate compactor. Exterior foundation backfill should be compacted to at least 95 percent unless adjacent to the lower level walls where it should be compacted between 92 and 95 percent beneath paved areas, entrance slabs and adjacent sidewalks.

#### **4.6 Sequence of Construction (Multi-Purpose Room Addition)**

We offer the following sequence of construction for the earthwork and foundation phase for this addition. The existing fill soils should be excavated to elevation 58.5 and proof-rolled (see Section 4.1). After proof -rolling the subgrade a 6-inch layer of compacted crushed stone should be placed to serve as a free draining layer. The exterior foundation footings and walls should then be cast. Crushed stone should be placed adjacent to the interior face of the foundation walls up to the bottom of the lightweight

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98-190 S  
June 4, 1998

#### **4.8 Control Joints**

Based on the use of lightweight flowable fill, post construction settlements are expected to be within tolerable limits. We recommend that control joints be provided in the floor slabs, and foundation walls to accommodate minor post-construction movement and shrinkage in the concrete as it cures.

#### **4.9 Foundation Drainage**

We recommend that interior and exterior peripheral underdrain systems be provided at footing grade for the classroom addition and an exterior peripheral underdrain system be provided for the multi-purpose addition. Rigid underdrain pipe, 4 inches in diameter, should be utilized. The underdrain pipe should have perforations of 1/4 to 5/8 inch. We recommend that at least 6 inches of 3/4 inch crushed stone bedding be provided around the underdrains and that the stone be wrapped with a non-woven geotextile filter fabric having an apparent opening size of at least 70. The underdrains must have positive gravity outlets. In the daylight lower level area, an exterior underdrain with weepholes through the foundation wall near footing grade could be used. Exterior foundation backfill should be sealed with a surficial layer of clayey or loamy soil in areas that are not to be paved or occupied by entrance slabs. This is to reduce direct surface water infiltration into the backfill. General underdrain details are provided on Sheets 11 and 12.

#### **4.10 Vapor Retarder**

We recommend that a high quality vapor retarder be considered below the slab to reduce water vapor transmission. The material must have sufficient durability to withstand the direct contact with the subslab stone and construction activity. The vapor retarder must have a lower permeativity value than the finished floor surface. A non-woven geotextile fabric could be used directly beneath the vapor retarder if puncture of the selected vapor retarder product from the crushed stone is a concern.

#### **4.11 Entrances and Sidewalks**

Entrance approaches and sidewalks should be designed to reduce the effects of differential frost action between doorways and entrances. We recommend that 4.5 feet of

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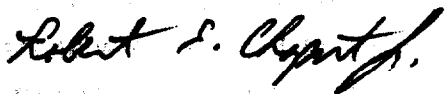
98-190 S

June 4, 1998

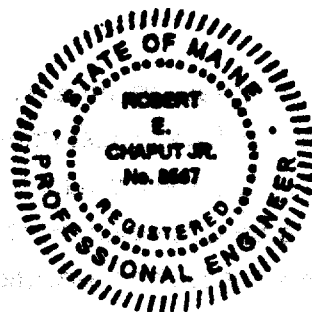
It has been a pleasure to be of assistance to you with this phase of your project. If you have any questions or if we may be of further assistance, please do not hesitate to contact us.

Very truly yours,

S. W. COLE ENGINEERING, INC.



Robert E. Chaput, Jr., P.E.





## BORING LOG

BORING NO.:	B-1
SHEET:	1 OF 1
PROJECT NO.:	98-190 S
DATE START:	04-24-98
DATE FINISH:	04-24-98
ELEVATION:	62.0' +/-
SWC REP.:	REC

PROJECT / CLIENT: PROPOSED ADDITIONS / BREAKWATER SCHOOL  
LOCATION: 866 BRIGHTON AVENUE PORTLAND, MAINE  
DRILLING FIRM: GREAT WORKS PUMP & TEST BORINGS, INC. DRILLER: PETER MICHAUD

	TYPE	SIZE I.D.	HAMMER WT	HAMMER FALL
CASING:	HS	4 1/4"		
SAMPLER:	SS	1 3/8"	140 LB	30"
CORE BARREL:				

WATER LEVEL INFORMATION  
NO FREE WATER OBSERVED  
SOILS SATURATED AT 8.0'

[illegible]

LES:

D=SPLIT SPOON  
C=3" SHELBY TUBE  
U=3.5" SHELBY TUBE

**SOIL CLASSIFIED BY:**

X	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
	LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

**BORING NO.:** B-1

**ENGINEERING, INC.**  
**TECHNICAL CONSULTANTS**

**BORING NO.:** **B-2**

**SHEET:** 2 OF 2

PROJECT NO.: 98-190 S

DATE START: 04-24-88

DATE FINISH: 04-24-88

**ELEVATION:** 61.0' +/-

SWC REP.: REC

**PROJECT / CLIENT: PROPOSED ADDITIONS / BREAKWATER SCHOOL**

**LOCATION:** 855 BRIGHTON AVENUE PORTLAND, MAINE

**DRILLING FIRM: GREAT WORKS PUMP & TEST BORINGS, INC.**

**DRILLER : PETER MICHAUD**

	TYPE	SIZE I.D.	HAMMER WT	HAMMER FALL
CASING:	HS	4 1/4"		
SAMPLER:	SS	1 3/8"	140 LB	30"
CORE BARREL:				

### WATER LEVEL INFORMATION

**WATER AT 8.0' +/-**

GRAY SILTY CLAY			
qu = 0.91 ksf	W = 42.8%	WI = 34.5	Wp = 15.7
	- SOFT -		
	W = 48.0%		qp = 0.8-1.25 ksf

ROD PROBE  
44'-70' WO1M  
70'-86' HYDRAULIC PUSH  
COULD NOT GO BEYOND 86'  
BECAUSE OF LACK OF DRILLING EQUIPMENT  
LIKELY GRAY SILTY CLAY TO 86'

**BOTTOM OF BORING AT 86.0'**

**SALES:****SOIL CLASSIFIED BY:**

D=SPLIT SPOON  
C=3" SHELBY TUBE  
U=3.5" SHELBY TUBE

X
X
X

DRILLER - VISUALLY  
SOIL TECH. - VISUALLY  
LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

**BORING NO.:** **B-2**



## BORING LOG

**BORING NO.:** **B-4**

**SHEET:** 1 OF 1

PROJECT NO.: 98-190 S

DATE START: 04-24-88

**DATE FINISH:** 04-24-98

ELEVATION: 61.0' +/-

SWC REP.: REC

**PROJECT / CLIENT: PROPOSED ADDITIONS / BREAKWATER SCHOOL**

**LOCATION:** 856 BRIGHTON AVENUE PORTLAND, MAINE

**DRILLING FIRM:** **GREAT WORKS PUMP & TEST BORINGS, INC.**

**DRILLER : PETER MICHAUD**

**CASING:** HS 4 1/4"

**SAMPLER:** SS 1 3/8" 140 LB 30"

**CORE BARREL:**

### WATER LEVEL INFORMATION

**NO FREE WATER OBSERVED**

**SOILS SATURATED AT 6.0'**

[illegible]

## **KEY TO THE NOTES & SYMBOLS**

### **Test Boring and Test Pit Explorations**

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

#### **Key to Symbols Used:**

w	-	water content, percent (dry weight basis)
q <sub>u</sub>	-	unconfined compressive strength, kips/sq. ft. - based on laboratory unconfined compressive test
S <sub>v</sub>	-	field vane shear strength, kips/sq. ft.
L <sub>v</sub>	-	lab vane shear strength, kips/sq. ft.
q <sub>p</sub>	-	unconfined compressive strength, kips/sq. ft. based on pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W <sub>L</sub>	-	liquid limit - Atterberg test
W <sub>p</sub>	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass. RQD is computed from recovered core samples.

#### **Description of Proportions:**

0 to 5% TRACE

5 to 12% SOME

12 to 35% "Y"

35+% AND

**REFUSAL: Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

**REFUSAL: Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

**B-2, 2-S**

Depth 40'-42'

Pc = 2.5 ± ksf

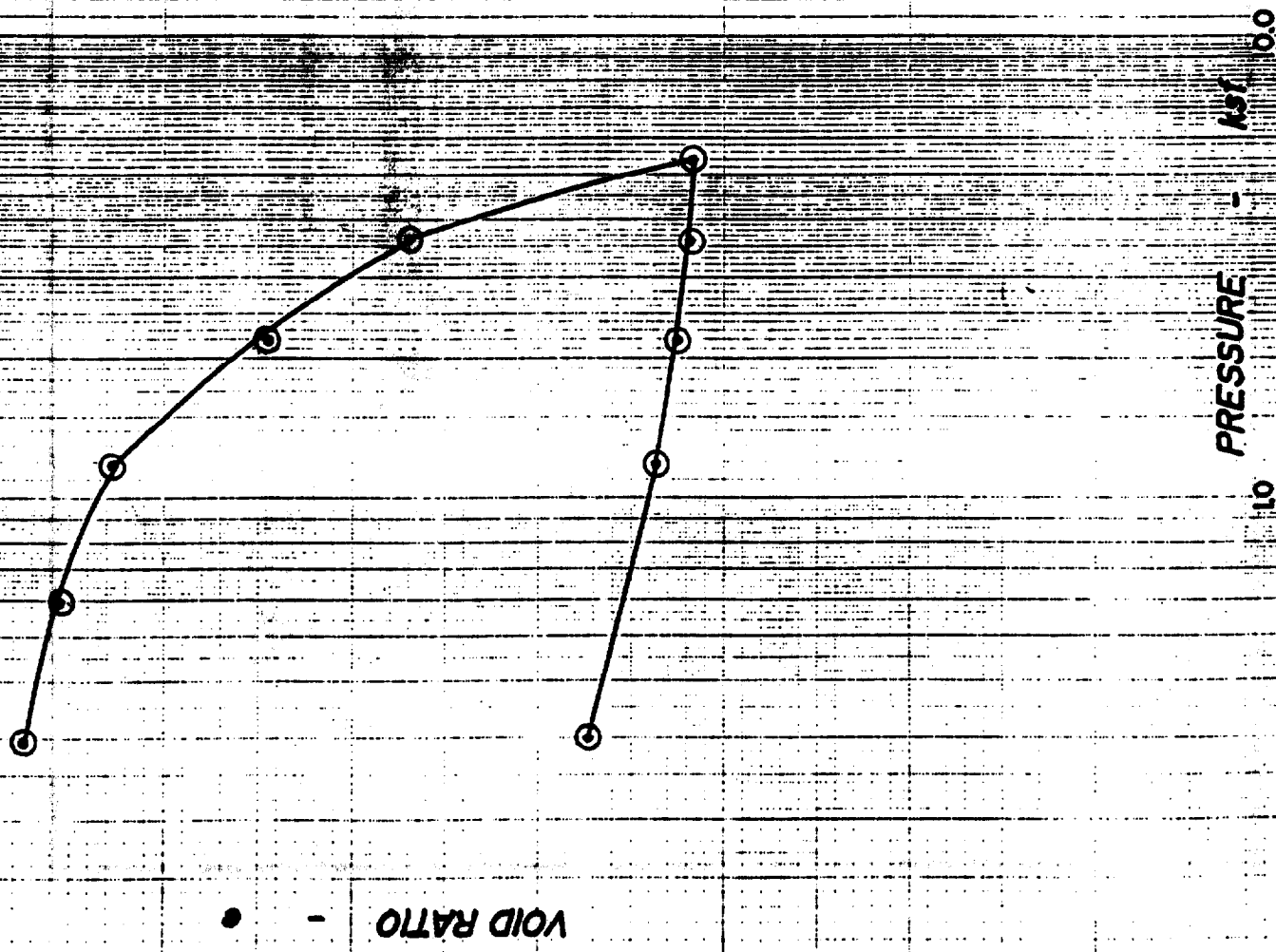
Cc = 0.88

Cr = 0.03

W = 42.8%

Wl = 34.5

Wp = 15.7



**S.W.COILE**

ENGINEERING, INC.  
GEOTECHNICAL CONSULTANTS

Breakwater School Building Committee

## CONSOLIDATION TEST

Proposed Breakwater School Additions

856 Brighton Avenue

Portland, Maine

Job No.

98-190 S

Date :

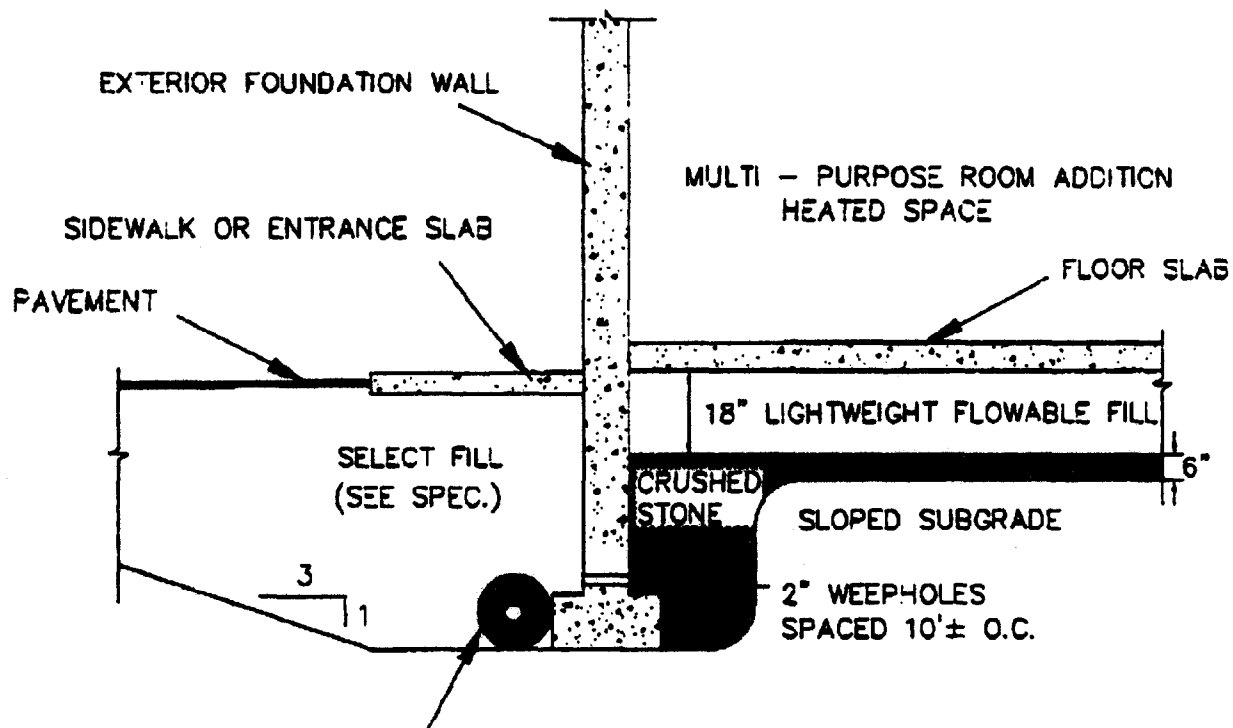
05/13/98

As Shown

10

Scale

Sheet



PERFORATED UNDERDRAIN PIPE  
BEDDED IN 6" OF 3/4" CRUSHED  
STONE WRAPPED IN GEOTEXTILE  
FILTER FABRIC

#### NOTES :

1. UNDERDRAIN INSTALLATION  
REQUIREMENTS AND SELECT  
FILL SPECIFICATIONS ARE  
CONTAINED WITHIN THIS  
REPORT.

**S.W. COLE**

ENGINEERING, INC.  
GEOTECHNICAL CONSULTANTS

Breakwater School Building Committee

### UNDERDRAIN DETAILS

Proposed Breakwater School Additions  
856 Brighton Avenue  
Portland, Maine

Job No. 98-190 S  
Date: 06/03/98

Scale Not to Scale  
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