Phase I

Building Permit Application

Maine Yacht Center

100 Kensington Street

Portland, Maine
04103

Job No._030017

The Sheridan Corporation
33 Sheridan Drive
Fairfield, Maine
04937

The Sheridan Corporation
PO Box 259, Fairfield, ME 04937
Phone (207) 453-9311, Fax (207) 453-2820
PO Box 629, Westbrook, ME 04098
Phone (207) 774-6135 Fax (207) 774-2990
www.sheridancorp.com

LETTER OF TRANSMITTAL

DATE	6-7-04	JOB NO.	03HH17
ATTENTION	Mr. Michael Nugent, B. I.		

RE

Foundation Permit Application
for
Maine Centers for Health Care
980 Forest Avenue
Portland, Maine 04101

TO City of Portland, Maine
City Hall, Room 315
389 Congress St. Portland, Me. 04101

GENTLEMEN:

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ Hand Carry the following items

☐ Shop drawings ☐ Prints ☐ Plans and Check ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
2	6-3-04	N. A.	Application and pertinent design data in loose leaf book form
1	5-27-04	N. A.	Check in the amount of $2,415.00 for the Foundation portion (Phase I) of the Building Permit
1	6-7-04	N. A.	PDF of all plans submitted below.
			Plans:
2	6-3-04	CVR	Cover Sheet
2	5-25-04	D-3	Elevations
2	6-3-04	F-1	Foundation and Piling Plan
2	6-3-04	F-2	Foundation Anchor Bolt Details
2	6-3-04	F-3	Foundation Pier Sections
2	6-3-04	F-4	Foundation Pile Cap Details
2	6-3-04	F-5	Foundation Pile Cap Details
2	6-3-04	F-6	Foundation Sections and Details
2	6-3-04	F-7	Foundation Sections and Details
2	6-7-04	F-8	Foundation Wall elevation Isometric
			Reference Materials:
			Included below are Phase II Site Plans previously submitted to the P. B.
2	5-29-04	C-001	Cover Sheet
2	5-6-04	C-103	Site Layout
2	5-6-04	C-104	Utility Plan
2	5-6-04	C 105	Grading & Drainage Plan

SIGNED: _____

If enclosures are not as noted, kindly notify us at once.

2	5-6-04	C-106-	Erosion Control & Operations Plan
2	5-6-04	L-101	Landscaping Plan
2	5-6-04	C-201	Site Construction Details
2	5-6-04	C-203	Erosion & Sedimentation Control Details

THESE ARE TRANSMITTED as checked below:

- ☒ For approval
- ☐ For your use
- ☐ As requested
- ☐ For review and comment
- ☐ FOR BIDS DUE _____ 20
- ☐ Approved as submitted
- ☐ Approved as noted
- ☐ Returned for corrections
- ☐ _____
- ☐ Resubmit _____ copies for approval
- ☐ Submit _____ copies for distribution
- ☐ Return _____ corrected prints
- ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

We enclose our application for a Building permit for "Phase I – Footings" of this project. Included are sets of foundation plans, application forms, general and reference plans and soils reports. The remaining building structural plans to cover the rest of the project and plans from our pre-engineered building supplier, Butler Manufacturing Co. (Phase II) will be submitted under a separate cover within the next few weeks.

We also include copies of the Site Plans labeled Phase I for reference purposes only. These plans have been previously submitted to the Planning Board for review and approval.

A PDF is enclosed to cover all plans as submitted.

Thank you for your time and consideration.

COPY TO: Dan Wildes, P.M. for TSC; Steve Dailey, Chief Engineer for TSC

SIGNED: _____

If enclosures are not as noted, kindly notify us at once.

Commercial Building Permit Application

Location/Address of Construction: 100 Kensington Street, Portland, Me. 04103

Total Square Footage of Proposed Structure: 43,900

Square Footage of Lot: 3.37 acre lot

Tax Assessor's Chart Block & Lot: Chart #36 Block 5 Lot 015

Owner: Maine Yacht Center
66 Kensington Street
Portland, Me. 04103

Telephone: 842-9000

Lessee/Buyers Name (If Applicable): N/A

Applicant name, address & telephone: The Sheridan Corporation
P.O. Box 359
Fairfield, Me. 04937

Cost Of Work: 266,000.

Fee: $

Current use: Parking Lot

Proposed use: Boat Storage, Offices & Retail

Project description: Construction Permit application for a new pre engineered steel building comprised of 3 units being ; Unit #1 = 140' x 280'; Unit #2 = 50' x 90'; Unit #3 = 20' x 100' containing each object. The foundation is to be designed to support the building using a combination of steel & wood piles and spread footings with cast in place pile caps, footings & walls.

Contractor's name, address & telephone: The Sheridan Corporation
13 Sheridan Drive, P.O. Box 359, Fairfield, Me. 04937

Who should we contact when the permit is ready: Dana Stillwell (207) 453-9311

Mailing address: The Sheridan Corporation
P.O. Box 359
Fairfield, Me. 04937

Phone: (207) 453-9311

Please read the following information and refer to the Residential Application Checklist. Failure to do so could result in a delay in receiving your permit.

Subdivision or Site Plan Review: Planning Board Approval Required

Shoreland Zoning/Stream Protection: Not in Shoreland Zoning

Flood Plain Management: Not in Flood Plain

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provisions of the codes applicable to such permit.

Signature of applicant: [signature] Date: 6/26/07

Permit Fee: $100.00 for the first $100,000 of construction Cost, $5.00 for each additional $1,000.00 or part

This is not a Permit; you may not commence any work until the Permit is issued.

Introduction

Maine Yacht Center

100 Kensington Strect

Portland, Maine
04103

Job No._030017

The Sheridan Corporation
33 Sheridan Drive
Fairfield, Maine
04937

The Sheridan Corporation
Sheridan Drive
Fairfield, Maine 04937
Tel. 207-453-9311

June 2, 2004

Codes Office
389 Congress St., Rm 315
Portland, Maine 04101

Attn. Mr. Michael Nugent

Re. Information
Maine Yacht Center
100 Kensington Street,
Portland, Maine 04103

Dear Mr. Nugent

We hereby submit our application for the Phase I portion of the two phase project to build a new boat/yacht storage building, business and sales offices at 100 Kensington Street, Portland, Maine. This application for Phase I is to request a building permit to construct the building foundation as we begin the site work for this project.

This project will be comprised of three pre-engineered buildings manufactured by Butler Manufacturing Co. designed to BOCA 1999. All other design elements will be designed to meet present local and state codes that apply in your jurisdiction.

The buildings are as follows:

Unit #1 (Boat Storage)
140' wide clear span x 260' long x 35' eave x 1/2 12 double roof slope, to house boats and gear during periods of non-use.

Unit #2 (Ocean side or front building)
50' x 90' interior posted x 25' eave with a 2 12 double roof slope, being a 2 story combination of offices and sales with 2 sets of interior stair ways.

Unit #3 (Rear building)
25' x 199' clear span x 20' eave x 1/2:12 double roof slope. It is to have two floors above grade with a useable basement. This building is planned to be leased to an associated business as an office and sales facility. Two sets of interior stairs will be included and egress will be to a central veranda and on to a central walkway leading to the parking area and roadway.

All three units are free standing, but adjoining with flashing and the necessary fire separation walls

Soil conditions vary on this site and are of concern from a settlement point of view primarily in the front portions of Unit #1 and all of #2. Soils are better as one approaches the rear of Unit #1 and Unit #3. We have worked closely with Mr. Paul Kohler of S. W. Cole (soils) and Mr. John Linscott of H. H. Fleming (piles) to coordinate our design work and address these issues. Reference is made to the soil report and the pile design in this document

We have addressed these issues by designing a portion of Unit #1 and all of Unit #2 to be founded on piles. The piles will be both wood and steel as necessary and capped with concrete pile caps. Approx. 100' at the rear of Unit #2 will be founded on spread footings as will all of Unit #3. Unit #2 is to have a structural concrete slab to eliminate the chance for settlement. Unit #1 will have a bituminous paved floor slab to accommodate boat storage and allow for some expected settlement in some areas. Unit #3 will have a concrete slab on grade as settlement is expected to be of minor concern in this area.

This project includes earthwork to accommodate the offices and clients and will be built to current ADA and City standards. A storm drain will be relocated that now runs under the future building. Permission has been granted by the City of Portland Planning Board for this project and will include all requirements they have established. Copies of the site plans are included herein for your information

We ask that you review these plans and grant a permit for the foundation portion of this project at the earliest possible date. We stand ready to answer any questions that you may have in the mean time

Thank you.

Sincerely,

STATE OF MAINE
DANA C. STURTEVANT
3107
REGISTERED PROFESSIONAL ENGINEER

Dana C. Sturtevant
Engineering Manager

enc.

Building Analysis

Maine Yacht Center

100 Kensington Street

Portland, Maine
04103

Job No._030017

The Sheridan Corporation
33 Sheridan Drive
Fairfield, Maine
04937

The Sheridan Corporation
P.O. Box [illegible]
Phone [illegible]
Fax [illegible]
[illegible]

Sheridan

June 7, 2004

Mr. Michael Wight
Inspection Services Manager
City Hall, Room 315
389 Congress Street
Portland, Me. 04101

Re: Building Code Design Review
Maine Yacht Center Phase II, 100 Kennebec Street

NOTE: The following is a concise review of the building design code issues for this facility. In each item, the most restrictive code will control the design.

Codes Items: BOCA National Building Code 1999, (adopted City of Portland)
NFPA 1, 101(2003) & 14 (required by Maine State Fire Marshal)

Building Use: Unit 1. Boat storage/garage (public), BOCA – S-1 (storage), NFPA – S (storage)
Unit 2. Business, BOCA – B, NFPA– B (office & sales areas)
Unit 3. Retail marine sales, BOCA – M, NFPA– M (Mercantile)

Note: With three use groups in this building, we will apply BOCA section 313.0, Mixed Use Groups to this project.

Building Construction Type Chosen:
BOCA 7/8, N– 96 Type II (1 hr) (V-HR wood frame Type [illegible])

Building Configuration As Follows:
Unit 1. Boat storage/garage (public). Height= 1 story/35' & area= 36,400 sf.
Unit 2. Business. Height= 2 story /26' & area= 4,500 sf. (second floor 4,500 sf.)
Unit 3. Retail marine sales, footprint= 2 story /25' & area= 2,000 sf. (second floor 2,000 sf.)
Total building & footprint area = 42,900 sf.

Table 503 Limitations: Type -2B

Use Group	Height:	Area:
B	5 story /65'	22,500 sf.
S-1	4 story/50'	13,125 sf. (Most restrictive use)
M	4 story/50'	13,000 sf.

Note: Entire Building fire protected per NFPA 13 & BOCA section 903.2.1 (fire sprinklered).

Applicable BOCA area and height modifications:
Section 506.3, area increase 200 % for sprinklers
Section 504.2, height increase 1 story or 20' for sprinklers
Section 506.2, area increase 150% max for street frontage

Designer has chosen BOCA to apply Section 313.1.1 Non Separated use groups
Compliance review:

1. The building sprinkler system is per code. Thus, area increase of 200% applies (Section 506.3), and height modification of 20' (Section 504.2).

Sheridan

Section 505.2 allows street frontage increase rate to be applied to the formula of the area limits. This building has 90% frontage therefore our increase allowance is 180%.

2. Proposed building is 2 stories / 35' max high, area is 42,000 sf

3. Allowable building area calculation: S-1 area 13,125 sf. plus 13,125 sf. x 200% = 26,250 sf. (section 506.3) plus 13,125 sf. x 180% = 17,625 sf. (Section 505.2) = 57,000 sf. total allowable area with increases.

4. The building is 42,000 sf, clearly less than the 57,000 sf. allowed by code. Building height is 2 stories / 35', is less than 4 stories / 50' allowed by code.

5. The IIA construction type meets the code for this building as a non-separated mixed use.

Additional code information:

Occupancy load storage, BOCA = 1/300 sf., NFPA= employee ovd
Business, BOCA = 1/100 sf., NFPA= 1/100 sf.
Mercantile, BOCA = 1/60 sf., NFPA= 1/60 sf.

Exit travel distance:

Storage, BOCA = 250 ft. NFPA= 400 ft
Business, BOCA = 250 ft, NFPA= 250 ft
Mercantile, BOCA = 250 ft, NFPA= 250 ft
Note: All distances require sprinklers.

Egress capacity factors:

Assembly, Business & Education (data is inches per occupant)
Stairs: BOCA= .3 (.2-sprinkled), NFPA= .3
Other components: BOCA= .2(.15-sprinkled), NFPA=.2 (aisle, halls, doors, ramps, etc)

Exterior wall fire rating:

Separation distance 50' over or more, use group B, M, & S-1= 1 hours.

This building complies with these criteria.

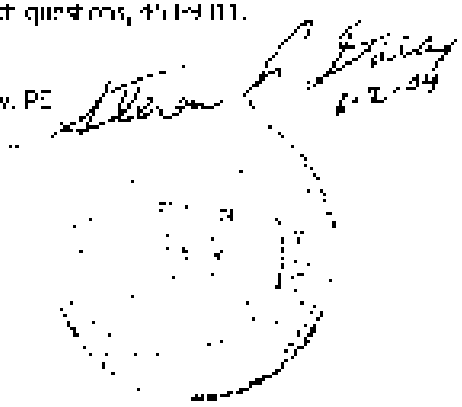
Separation walls:

NFPA required between storage and Business / Mercantile, 1 hour.
The plans presented reflect this design

Note: Alarm system may apply Electrical Designer / Subcontractor responsible for this item.

Contact me with questions, thank you.

Yours truly
Steven P. Baker, PE



Pile Design

Pile Driving Criteria

Phase I
Building Permit Application

Maine Yacht Center

100 Kensington Street

Portland, Maine
04103

Job No._030017

The Sheridan Corporation
33 Sheridan Drive
Fairfield, Maine
04937

H.B. FLEMING
89 PLEASANT AVE
SOUTH PORTLAND, MAINE 04106
Phone: 207-799-8514 Fax: 207-799-8598
www.HBFLEMING.com

Submittal

Submitted To:

Client: The Sheridan Corporation
Attention: Don Wilkie
Date: 8/25/04

Project: Maine Yacht Club
Location: Portland, ME

Subject: Pile Driving Criteria

H.B. Fleming proposes to use the following driving criteria for piles to be installed at the above location:

Hammer

- An MKT DE-30 open-ended diesel pile hammer will be used to drive the HP10x42 piles as well as the timber piles. The DE-30 has a ram weight of 2,800 lbs, a maximum stroke of 10' 6", and a rated energy of 28,000 ft-lbs.
- The hammer cushioning material consists of 2.5 inches of Hamaconx material.

Pile

- HP10x42 ASTM A572 Gr. 50 steel piles.
- Southern Yellow Pine Timber Piles w/ 3.8# CA treatment
- The Design Capacity of the HP10x42 piles is 40 tons. The Ultimate Capacity, which we have based our analysis on, is 100 tons.
- HP10x42 piles will be fitted with cast steel driving points.
- The Design Capacity of the timber piles is 25 tons. The Ultimate Capacity, which we have based our analysis on, is 62.5 tons.

Refusal

- HP10x42 piles will be driven until a blow count of 5 blows per inch is obtained for three consecutive inches. Timber piles will be driven until a blow count of 3 blows per inch is obtained for three consecutive inches.

Signed:

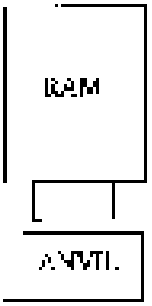
David Clifford

H.B. FLEMING PILE EQUIPMENT DATA SHEET

Project: Maine Yacht Club
Location: Portland, Me

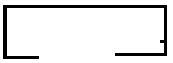
Date: 5/5/04
Client: The Sheridan Corporation

HAMMER



Manufacturer:	MKT
Model:	DE-30
Type:	Single Acting Diesel
Length of Stroke:	11' - 6"
Rated Energy at Given Stroke:	28,000 ft-lb
Modifications:	None

HAMMER CUSHION

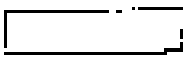


Material:	Hamortex
Thickness:	2.5"
Area:	285 in^2
Modulus of Elasticity:	29,000 psi
Coefficient of Restitution:	0.8

DRIVE HEAD

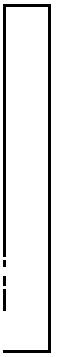
Weight:	1200 lb

PILE CUSHION



Cushion Material:	N/A
Thickness:	N/A
Modulus of Elasticity:	N/A
Coefficient of Restitution:	N/A

PILE



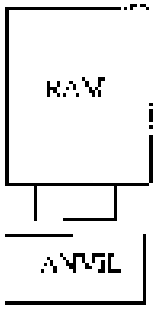
Pile Type:	10"Dia x 3
Length in Leads:	Up to 65'
Weight/LF:	42 lb
Wall Thickness:	0.420"
Taper:	N/A
Cross Sectional Area:	12.4 in^2
Design Capacity of Pile:	40 tons
Splice Description:	Full Penetration Butt Weld
Tip Treatment: Description:	Cast Steel Point

H.R. FLEMING PILE EQUIPMENT DATA SHEET

Project: Maine Yacht Club
Location: Portland, ME

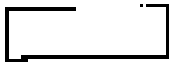
Date: 5/25/04
Client: The Sheridan Corporation

HAMMER



Manufacturer:	MKT
Model:	DE-30
Type:	Single Acting Diesel
Length of Stroke:	9' - 0"
Rated Energy at Given Stroke:	28,000 ft-lb
Modifications:	None

HAMMER CUSHION

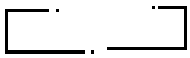


Material:	Hamortex
Thickness:	2.5"
Area:	283 in²
Modulus of Elasticity:	30,000 psi
Coefficient of Restitution:	0.8

DRIVE HEAD

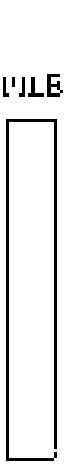
Weight:	1200 lb

PILE CUSHION



Cushion Material:	N/A
Thickness:	N/A
Modulus of Elasticity:	N/A
Coefficient of Restitution:	N/A

PILE



Pile Type:	Class B Timber Piles
Length in Leads:	N/A
Weight/LF:	N/A
Wall Thickness:	N/A
Taper:	N/A
Cross Sectional Area:	N/A
Design Capacity of Pile:	25 tons
Splice Description	N/A
Tip Treatment Description:	N/A

INTRODUCING THE VERSATILE NEW

DE33/30/20C

MAXIMUM DIESEL HAMMER FLEXIBILITY WITH RAM WEIGHTS TO 4,000 LBS.

ONE HAMMER . . . MULTIPLE RAM SIZES . . . AND ENERGY RANGES. ANOTHER MKT FIRST PROVIDING THE CONTRACTOR WITH HAMMER SIZE FLEXIBILITY AND REDUCED EQUIPMENT INVESTMENT COSTS. MKT DIESEL HAMMERS CONTINUE TO OFFER FEATURES WHICH INSURE DEPENDABLE AND PRODUCTIVE OPERATION.

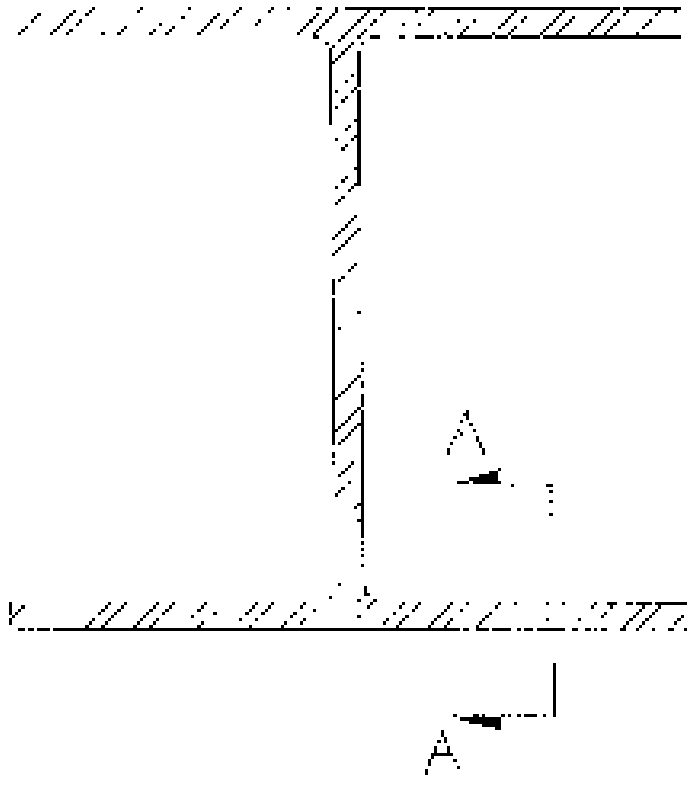
MKT MANUFACTURING INC.
[illegible] Marshall Road
St. Louis, Mo 63137
(314) 868-0255

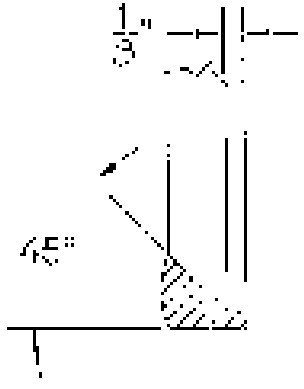
RAM WEIGHT (LBS.)	2,000	3,000	3,300	4,000
ENERGY RANGE (FT. LBS.)	54,000	45,000	66,000	60,000
BLOWS/MIN. BASED ON STANDARD FORMULA (APPROX.)	130	140	115	120
MAXIMUM PRACTICABLE STROKE	27'-0"	10'-0"	10'-0"	11'-0"
OVERALL LENGTH WITH 2 CUSHION CAPS	15'-11"	15'-11"	15'-11"	15'-11"
WEIGHT, HAMMER ONLY (LBS.)	9,450	7,250	9,250	8,750
WEIGHT, HAMMER AND UNDERWATER EQUIPMENT (LBS.)	11,100	8,900	10,700	9,400

PRODUCT LIST

SINGLE ACTING DIESEL PILE HAMMERS	DOUBLE ACTING DIESEL PILE HAMMERS
STEAM AND AIR HAMMERS	GUIDE LEADS AND ACCESSORIES
VIBRATORY PILE DRIVER/EXTRACTORS	HYDRAULIC POWER UNITS
VIBRATORY HAMMER ACCESSORIES	CONTROL SYSTEMS
PILE DRIVING RIG SYSTEMS	INSTRUMENTATION AND RIG ACCESSORIES
CUSTOM ENGINEERED PRODUCTS	

DISTRIBUTORS





SECTION A-A

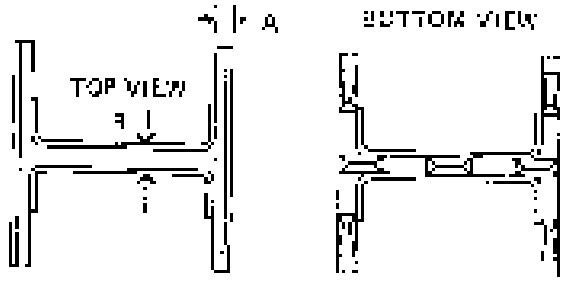
NOTES:
1. [illegible] WELDING.
2. [illegible] MAY BE REVISED.
3. ALL WELDERS MUST BE ASWS CERTIFIED.
4. WELDING ELECTRODES MUST BE E7018.

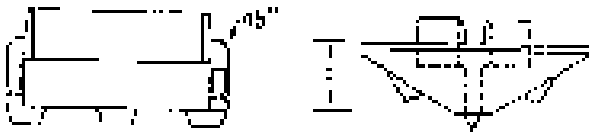
H.D. FENCING

TYPICAL GATE DETAIL

HARD-BITE

Dimensions





Material Cast Steel

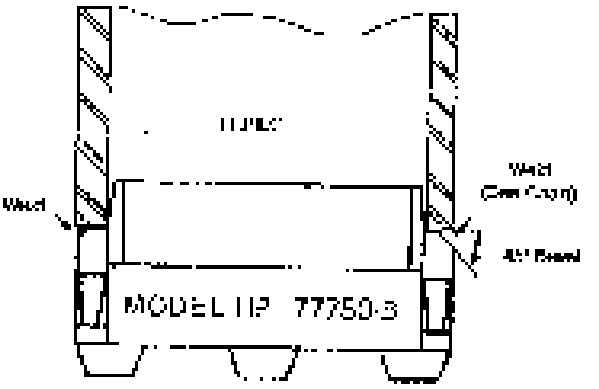
ASTM A27 65/35 - Heat Treated

	8"	10"	12"	14"
A	5/8"	3/4"	3/4"	1"
B	5/8"	3/4"	3/4"	1"
C	2-1/2"	3"	3-1/2"	4"

Installation Instructions

HARD-BITE POINT MODEL HP—7750-B

1. Fit point onto the end of square or tapered pile.
2. Weld point to the pile for either 1 or 2 layer construction using E60 or E70XX electrodes.
3. Weld across full width of flange following chart below for minimum size weld.



Pile Size	Flange Thickness	Min. Size Groove Weld
HP 14 x 117	.805	7/16
x 102	.705	3/8
x 89	.615	3/8
x 73	.505	5/16
HP 12 x 84	.685	3/8
x 74	.610	3/8
x 63	.515	5/16
x 53	.435	5/16
HP 10 x 57	.565	5/16
x 42	.420	5/16
HP 8 x 36	.445	5/16

FOR-TEK ®

FOREST TECHNOLOGY SALES

1400 Iron Horse Park, North Billerica, MA 01862
(978) 667-6011 • Fax:(978) 667-8978 • e-mail: forTEKDNPC@aol.com

SUBMITTAL

J.H. Fleming, Inc.
ATTN: Mr. John Linscott

May 25, 2004

RE: Timber Piles
Portland, Maine Project

Dear Mr. Linscott,

Following up our recent discussions, FOR-TEK will supply the pressure treated timber piles as follows:

Piles shall be Southern Yellow Pine of straightness and quality as established by the guidelines in American Society for Testing & Materials standards (ASTM D25- latest revision). All timber piles shall be class B per ASTM D25

Piles shall be pressure treated with CCA in accordance with the American Wood Preservers Association Standards to a minimum net retention of 1.0 lbs. per cubic foot (AWPA standards P5, C1, C3) for a foundation application.

With each invoice FOR-TEK will provide a certificate of compliance.

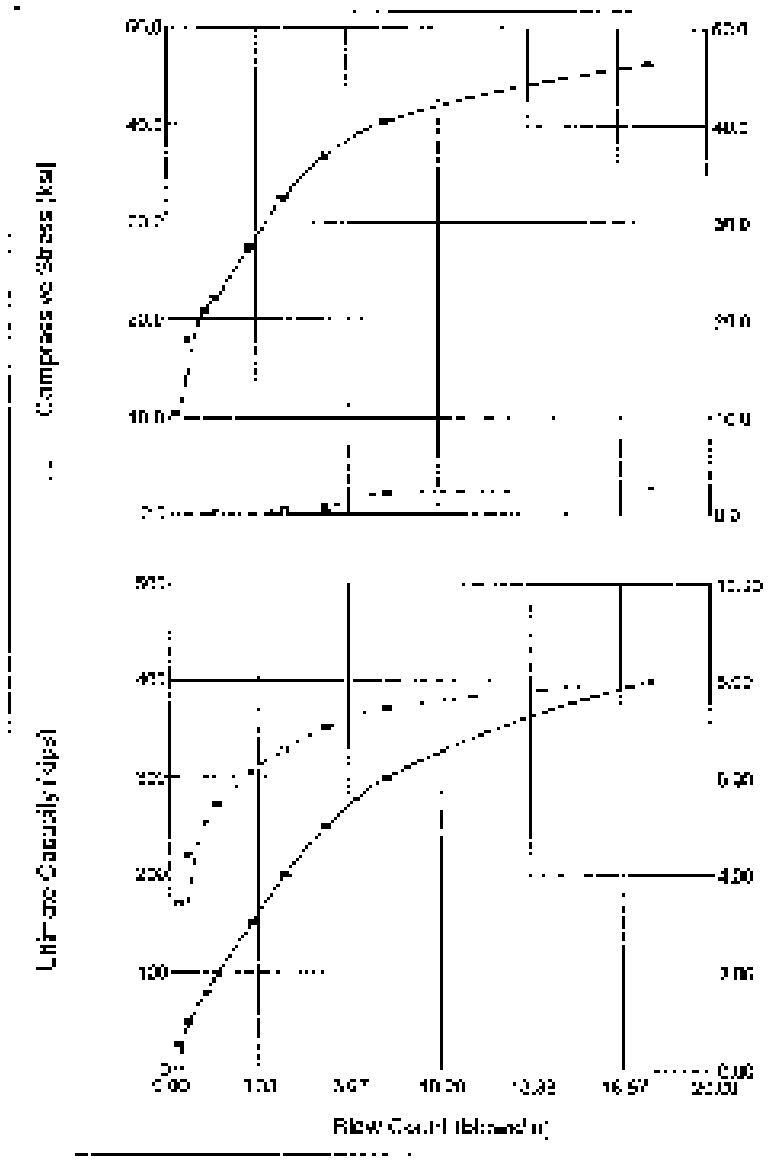
Please call us at 978 667 6011 if there are any questions

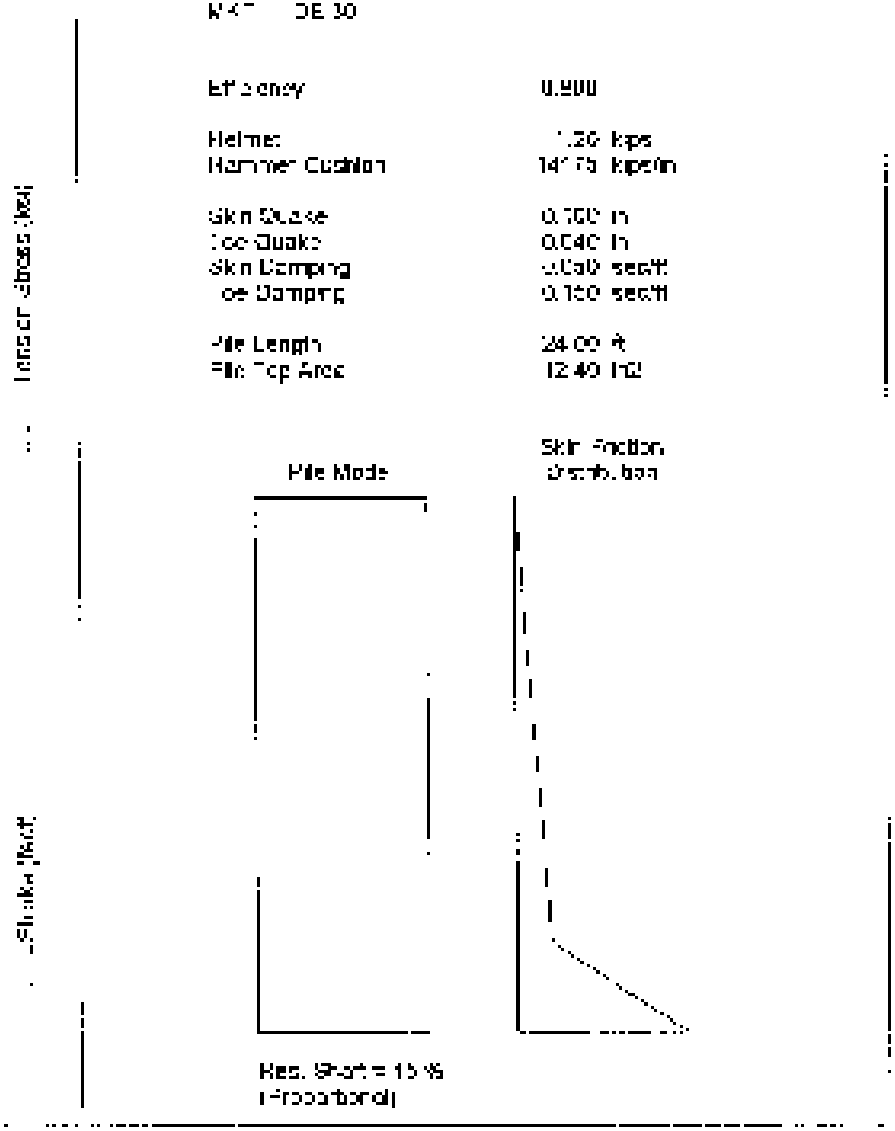
Sincerely,

Gary D. Dufek
Vice President

H.B. Fleming
: 05/25/2004 :

25 May 2004
GRLWEAP (TM) Version 1998.2





H.H. Fleming
: 05/25/2004

25-May-2004
GRLWEAP(TM) Version 1998-2

Ultimate Capacity kips	Maximum Compression Stress ksi	Tension Stress ksi	Blow Count blows/in	Stroke feet	Energy kips-ft
10.0	0.000	0.000	-0.1	0.00	0.00
25.0	10.317	0.000	0.3	3.39	11.57
50.0	17.871	0.000	0.8	4.38	10.13
80.0	20.803	0.000	1.4	5.07	9.06
100.0	22.204	0.041	1.8	5.42	8.61
150.0	27.254	0.000	3.0	6.10	8.22
200.0	32.974	0.434	4.3	6.57	8.26
250.0	36.856	0.678	5.9	7.04	8.57
300.0	40.371	2.193	8.0	7.45	8.89
400.0	46.328	2.656	17.8	8.00	9.11

H.B. Fleming
: 05/25/2004 :

25-May-2004
GRLWEAP(TM) Version 1998-2

Ultimate Capacity kips	Maximum ession trass ksi	um on Stress ksi	Blow Count blows/ft	Stroke feet	nergy kips-ft
200.0	23.147	0.274	11.0	4.00	3.88
200.0	24.478	0.309	8.3	4.44	4.51
200.0	25.222	0.343	6.7	4.89	5.37
200.0	28.043	0.364	5.8	5.33	6.15
200.0	29.764	0.387	5.1	5.78	6.92
200.0	31.354	0.410	4.5	6.22	7.68
200.0	32.784	0.410	4.2	6.67	8.44
200.0	33.941	0.473	3.9	7.11	9.21
200.0	35.170	0.455	3.6	7.56	9.97
200.0	36.366	0.484	3.4	8.00	10.73

[illegible] WAVE EQUATION ANALYSIS [illegible]

[illegible]

Hammer Model: [illegible] Made By: [illegible]

No.	Weight	Stiffn	C.o.R.	C-Slk	Dampg
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

HAMMER OPTIONS
Hammer File ID No. [illegible] Hammer Type [illegible]
Stroke Option [illegible] Stroke Convergence Crit. [illegible]
[illegible] Hammer Damping [illegible]

HAMMER DATA
Ram Weight (kips) [illegible] Ram Length (inch) [illegible]
Maximum Stroke (ft) [illegible] Actual Stroke (ft) [illegible]
Efficiency [illegible]

Maximum Pressure (psi) [illegible]
Compression Exponent [illegible]
Ram Diameter (inch) [illegible]
Combustion Delay (s) [illegible]

The Hammer Data Includes Estimates, NON-MEASURED Quantities

HAMMER CUSHION [illegible]
Cross Sect. Area (in2) [illegible] Cross Sect. Area (in2) [illegible]
Elastic-Modulus (ksi) [illegible] Elastic-Modulus (ksi) [illegible]
Thickness (inch) [illegible] Thickness (inch) [illegible]
Coeff of Restitution [illegible] Coeff of Restitution [illegible]
RoundOut (ft) [illegible] RoundOut (ft) [illegible]
Stiffness (kips/in) [illegible] Stiffness (kips/in) [illegible]

[illegible] GRLWEAP [illegible]

B.3 [illegible] Input Data

[illegible]

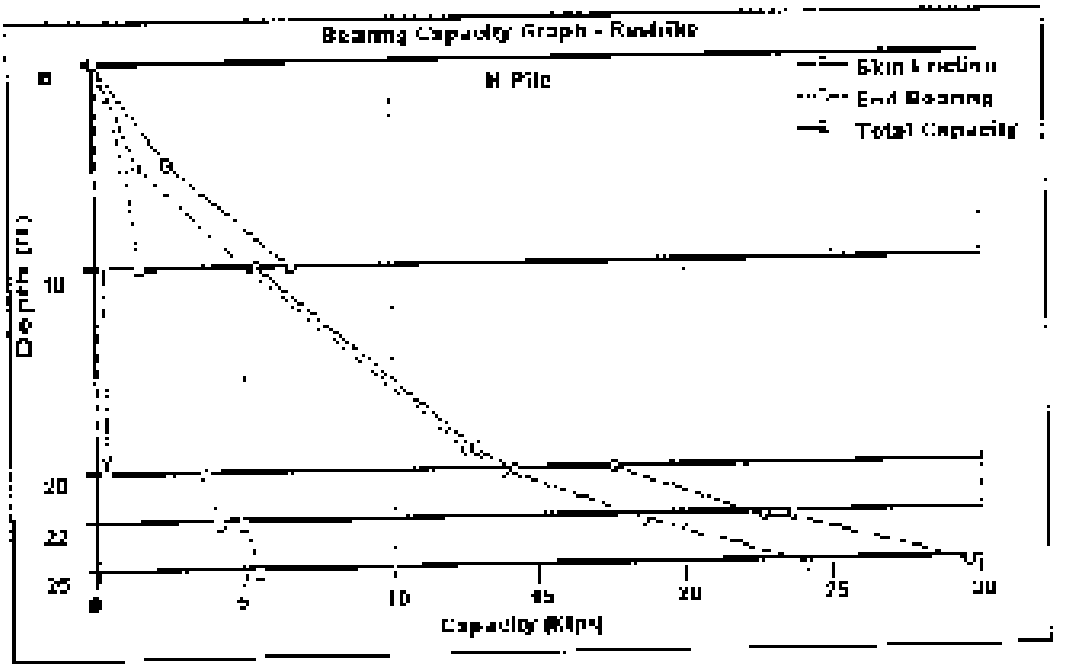
A GRLWEAP WAVE EQUATION ANALYSIS [illegible]

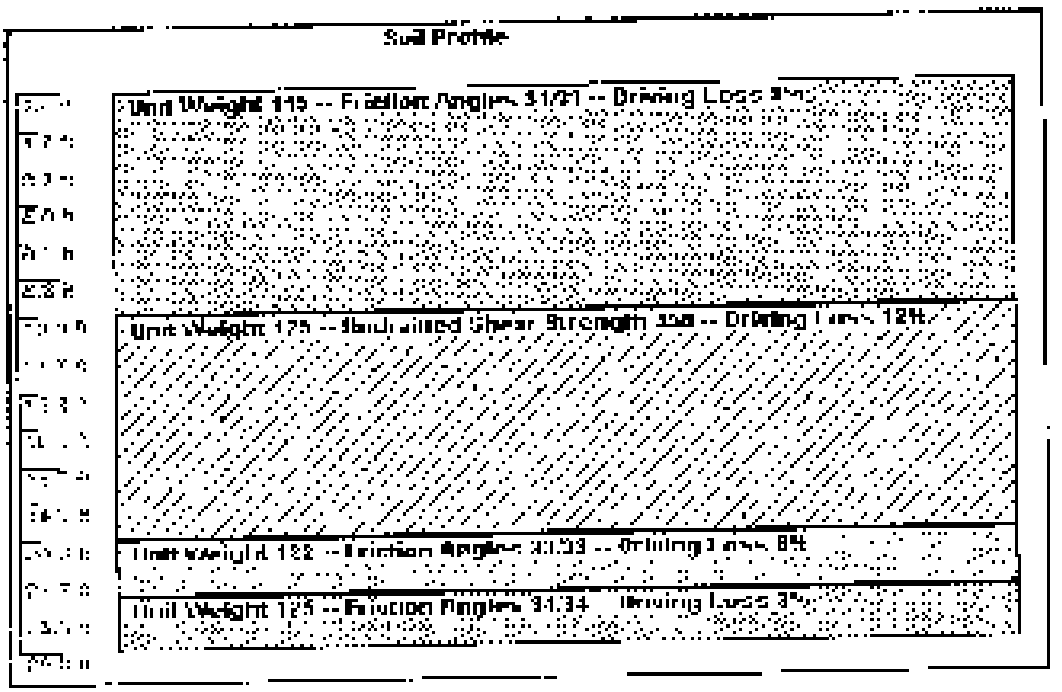
The GRLWEAP program [illegible] impact driven pile. The program [illegible]

A wave equation analysis [illegible]

The program [illegible] GRLWEAP [illegible]

[illegible] GRLWEAP [illegible]


Bearing Capacity Graph - Rendrite
H Pile
Skin Friction
End Bearing
Total Capacity
Depth (ft)
0
10
20
22
25
0
5
10
15
20
25
30
Capacity (Kips)


Soil Profile
Unit Weight 115 -- Friction Angle= 31/31 -- Driving Loss 3%
Unit Weight 125 -- Undrained Shear Strength 250 -- Driving Loss 12%
Unit Weight 122 -- Friction Angle= 31.33 -- Driving Loss 8%
Unit Weight 125 -- Friction Angle= 31.34 -- Driving Loss 3%

Soil Report

Soils Reports and Information

Maine Yacht Center

100 Kensington Street

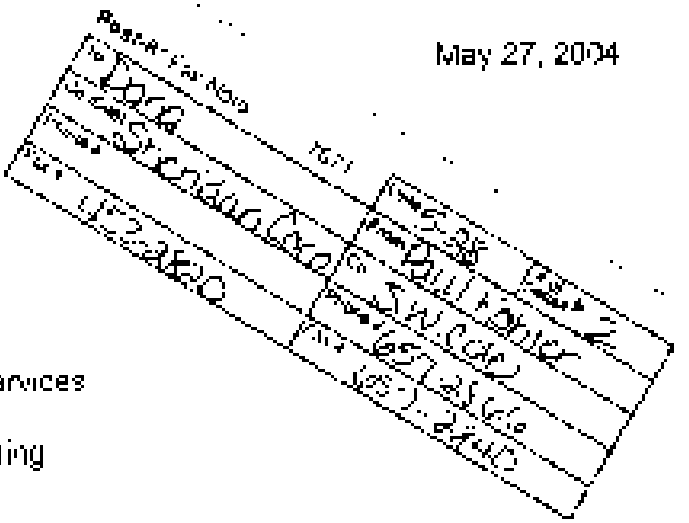
Portland, Maine
04103

Job No._030017

S.W.COLE ENGINEERING INC.
• Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

00-1065.6

May 27, 2004



The Shericen Corporation
Attention: Dana Sturdevant
33 Shencen Drive
P O. Box 359
Fairfield, ME 04937

Subject: Geotechnical Engineering Services
Proposed Piles
Proposed Boat Storage Building
Maine Yacht Center
100 Kensington Street
Portland, Maine

Dear Dana.

Based on the information you provided, we understand that the southerly 2/3rds ± of the proposed structure will be supported on piling driven to practical refusal and the northerly 1/3rd ± of the structure will be supported on spread footings. We understand that Sheridan Corporation (General Contractor) and H. B. Fleming (pile subcontractor) are jointly providing selection and design of the piles. We understand that pressure treated, Class B timber piles driven to or near bedrock to a set criteria of 3 blows per inch for 3 consecutive inches will be utilized for vertical support. The timber piles are designed for 25 tons working load. Battered steel H-piles (HP 10x42) driven to practical refusal to a set criteria of 5 blows per inch for 3 consecutive inches will be utilized to resist lateral loads. The steel H-piles are designed for a working load of 40 tons. We understand that a diesel pile driving hammer with a rated energy of 28,000 ft-lbs will be utilized.

It is our opinion that both steel and timber piling, designed and driven properly, would provide adequate support for the structure. As we have discussed, based on the information obtained at the explorations and since the site has had previous industrial

00-1065.6
May 27, 2004

uses, it should be anticipated that obstructions may exist which can create difficult driving conditions. The structural engineer (Sheridan Corporation), owner, and contractors should be prepared for over-excavation to remove obstructions, offsetting of piling, adding additional piles, replacing broken piles, etc. as needed during driving, to provide the required support. Driving shoes for the piles are recommended for both the timber and steel piling. It should be noted that our scope of work does not include pile design or approval of piles and foundation elements provided by Sheridan Corporation and H. B. Fleming. Refer to the S. W. COLE ENGINEERING, INC. soils report dated December 19, 2003 for subsurface soils information obtained at the explorations. S. W. COLE ENGINEERING INC. should be retained to observe and log the pile installation.

We trust this meets your current needs.

Sincerely,

S. W. COLE ENGINEERING, INC.

Paul F. Kohler, P.E.

PFK:bjt

S.W.COLE

• Geotechnical Engineering • Land & Site Design • Scientific & Environmental Consulting

00-065.2 C

May 10, 2004

The Sheridan Corporation
Attention: Mr. Dana Gourtsoyannis
33 Sheridan Drive
P.O. Box 359
Fairfield, ME 04937

Subject: Supplemental Geotechnical Engineering Services
Design Review Comments
Proposed Boat Storage Building
100 Kensington Road
Portland, Maine

Dear Dana:

As discussed at our meeting on April 26, 2004, we understand that the proposed finish floor elevation will be raised by about 2 feet, from 16.5 to 18.5 feet (project datum), as well as exterior grading. We have reviewed subsurface conditions and proposed building grades in order to determine potential settlement due to consolidation of the underlying compressible clay soils.

Based on the site plan provided by you and a proposed finish floor elevation of 18.5 feet, we estimate post-settlements to be on the order of 1 inch or less. Maximum settlements are expected to occur at the northerly entrance where spread footing foundations will be utilized and several feet of new fill will be placed. Since a portion of the building is pile supported, differential settlements will also approach 1 inch. Please refer to our soils report dated December 19, 2003 for subgrade preparation, backfill and compaction, and our other geotechnical recommendations.

Please call if you have any questions or if you need further assistance. We look forward to working with The Sheridan Corporation during the construction phase of the work.

Sincerely,

S. W. COLE ENGINEERING, INC.

Paul F. Kohler, P.E.

S.W.COLE ENGINEERING, INC. • Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

Letter Of Transmittal

To:	Maine Yacht Center, LLC Attention: Mason Sears 100 Kensington Street Portland, Maine 04103	Date:	December 19, 2003
		Project No:	03-1065.0
		Subject:	100 Kensington Road Portland, Maine

We are sending you: ☒ Attached ☐ Under Separate Cover

☒ Investigation Report	☐ Prints	☐ Samples
☐ Laboratory Test Report(s)	☐ Copy of Letter(s)	☐ Invoice
☐ Field Test Report(s)	☐ Specifications	☐ Other

Description:	Geotechnical Engineering Services Proposed Boat Storage Building 100 Kensington Road Portland, Maine

These are transmitted as checked below:

☒ For your information	☐ For your use
☒ As requested	☐ Returned

Remarks:

Copy to:

S. W. COLE ENGINEERING, INC.

BY: Andrew B. Simmons

Greg McPherson
Main Portland Office • P.O. Box 9841 • Portland, ME 04104-5041 • Tel (207) 828-1272 • Fax (207) 828-1275 • E-mail: info@swcole.com • www.swcole.com
Other Offices in Scarborough, Bangor and Caribou, Maine • Manchester, New Hampshire

GEOTECHNICAL ENGINEERING SERVICES
PROPOSED BOAT STORAGE BUILDING
100 KENSINGTON STREET
PORTLAND, MAINE

00-1065.5 S DECEMBER 19, 2003

PREPARED FOR:
Maine Yacht Center I, L.C.
Attention: Mason Sears
100 Kensington Street
Portland, Maine

PREPARED BY:

S.W.COLE
ENGINEERING, INC

TABLE OF CONTENTS

03-1065.5

December 19, 2003

Maine Yacht Center, LLC
Attention: Mason Sears
100 Kensington Street
Portland, ME 04103

Subject: Geotechnical Engineering Services
Proposed Boat Storage Building
100 Kensington Road
Portland, Maine

Dear Mr. Sears,

In accordance with our Agreement dated October 28, 2003 we have made a subsurface investigation at the site of the Proposed Boat Storage Building in Portland, Maine. The contents of this report are subject to the limitations set forth in Attachment A.

1.0 INTRODUCTION

1.1 Scope of Work

The purpose of the investigation was to explore the subsurface conditions at the site in order to provide geotechnical recommendations relative to foundation design for the proposed building. The investigation has included a review of previous exploration work completed in November of 2000 and December 2002 for previously proposed building concepts, the making of additional explorations, laboratory soils testing, and a geotechnical evaluation of the findings as they relate to the proposed building foundation. The boring logs and laboratory testing results of previous exploration work are attached as Appendix A.

1.2 Proposed Construction

Based on our conversations, we understand the development includes construction of a pre-engineered, steel-framed building with a heated interior. We understand that the building sidewalls will be about 35 feet high with the ridge line about 45 feet high. Based on our conversations, we understand that the building temperature will be maintained a

a minimum of 50 degrees during the winter months. The structure will be on the order of 330 feet by 160 feet in plan dimensions with a finish floor elevation of 15.5± (project datum). The majority of the building will be open for boat maintenance, interior car parking, and some moveable boat storage racks. We understand that an asphalt pavement floor will be used in areas that are anticipated to undergo settlement and concrete slab-on grade floors will be considered in areas where floor settlement is expected to be small. We understand the southerly end of the proposed building (90 by 50 feet) will be 2 levels and utilized as office, kitchen and retail space, and the northerly end (100 by 20 feet) will likely be used as retail space. The proposed building will be steel-framed construction clear span building with a typical perimeter column spacing of 20± feet. The present grade within the proposed building footprint is on the order of 16 feet on the southerly end and about 20 feet on the northerly end. It was reported to us that approximately 3 feet of sandy fill and 2 feet of crusher material (surficial fill) were placed at the southerly portion of the site in the summer of 2000. The method of placement and type of compaction effort was not documented. The subgrade conditions prior to this fill placement are also not known. At the time of this report, anticipated structural loads and floor loads are not known.

2.0 EXPLORATION AND TESTING

2.1 Exploration

Previous Explorations

Six Test Borings (B-1 through B-6) were made at the site by Maine Test Boring, Inc. of Brewer, Maine on November 15 and 16, 2000 under contract with Yacht Haven for a previously proposed building structure. Three Test Borings (B-02-1 through B-02-3) were made at the boat launch ramp site on November 20, 2002. Two Test Borings (B-02-4 and B-02-5) were made on December 9, 2002 for additional subsurface information at the boat storage structure as proposed in 2002. The locations of the test borings, shown on the "Exploration Location Plan" (attached as Sheet 1), were selected by S.W.COLE ENGINEERING, INC. based on information provided by Yacht Haven. Sheet 1 is a copy of a portion of a plan provided by Maine Yacht Center, LLC (formerly Yacht Haven I, LLC). The exploration locations shown on Sheet 1 were estimated

based on taped measurement from existing site features. Logs of explorations B-1 through B-5 (2000) and B-02-1 through B-02-6 (2002) are attached in Appendix A.

Recent Explorations

Five test borings (B-03-101 through B-03-105) were made on November 11 and 12, 2003 by Great Works Test Borings, Inc. of Rollinsford New Hampshire. These recent explorations are shown on the Exploration Location Plan. Boring Logs for the 2003 borings are attached as Sheets 2 through 7. A 5-foot rock core was obtained at Boring B-03-101 to assess the quality of the bedrock. A rock core log is attached as Sheet 8. A key to the notes and symbols used on the exploration logs is attached as Sheet 9.

2.2 Testing

Laboratory testing was performed on selected soil samples recovered from the test borings. Moisture content and in-situ strength test results are noted on the log sheets. The results of two grain size analyses from Borings B-03-101 and B-03-105 are attached as Sheets 10 and 11. An undisturbed sample of the underlying compressible clay soils was obtained at Boring B-02-4. The results of the consolidation test performed at this sample is attached in Appendix A. The results of seven grain size analyses performed for previous explorations are also attached in Appendix A.

3.0 SITE AND SUBSURFACE CONDITIONS

3.1 Site Conditions

The site is a parcel of land located at the end of Kensington Street in Portland, Maine. A residential development exists to the east, Casco Bay to the south, a railroad spur to the west and Maine Yacht Center property to the north. The ground surface is relatively flat within the proposed building area due primarily to the fill placement in 2000 and 2002. The southerly end of the site is at about elevation 16± feet while the northerly end of the site is at about elevation 20±. We understand that several above ground fuel oil tanks, which were founded at a lower elevation, once occupied the site in the area of Borings B-1 through B-5. Several bedrock outcrops and a shallow tidal area are evident at low tide, southeast of the site.

3.2 Subsurface Conditions

Currently, surficial soils within the building footprint consist of granular crusher fill. Beneath the southerly portion of the proposed building, underlying the crusher fill borings B-1, B-2, B-3 and B-03-104 generally encountered medium dense gray to brown silty sand and gravel fills, overlying loose miscellaneous granular fills with significant amounts of wood debris and organics, overlying silty sandy clays with organics to depths of about 30 to 35 feet from the ground surface. Borings B-2 and B-3, 10 to 20 feet south of the southerly wall corners, encountered 10-foot thick layers of potentially highly compressible organic soils at depths of about 13 and 23 feet respectively. Deeper soils at the southerly end of the proposed building consist of loose to medium dense silty sands overlying medium dense glacial till overlying bedrock at depths of about 35 to 44.

The crusher fill in the central portion of the building is underlain with silty sand fill soils, overlying medium stiff brown silty clay, overlying loose silt and sand and silty sand soils with occasional layers and seams of soft silty clay and sandy clay. The loose layered soils generally overlie medium dense granular soils at a depth of about 35 feet from the ground surface, overlying bedrock at depths of about 30 to 35 feet from the existing ground surface.

The northerly portion of the site is currently covered in asphalt pavement and is about 3 to 5 feet higher in elevation. The borings in the northerly portion of the building generally encountered granular fill soils overlying presumpscot formation silty clay soils. Boring B-02-3, in the northeasterly corner encountered native stiff brown silty clay at a depth of 4 feet, overlying medium gray silty clay at a depth of about 12 feet from the ground surface. Boring B-02-4, in northwesterly corner encountered granular fill to a depth of ten feet overlying medium gray silty clay. The clayey soils extended to depths of about 25 to 27 feet overlying layered medium dense silty sand soils, overlying bedrock at depths of about 55 feet.

Several borings also encountered strong petroleum odors during the drilling work. The results of P.I.D. testing from the boring explorations has been provided separately. Refer to the attached logs for a detailed description of the subsurface conditions encountered at the exploration locations.

3.3 Groundwater

Based on moisture conditions of the test boring samples and groundwater observations made in the boreholes during drilling in November of 2003 (B-03-101 through B-03-105), groundwater appeared to be at a depth of about 2 to 7 feet below the ground surface at the time of exploration. Previous test borings encountered groundwater at depths of 3 to 12 feet. It is evident that the groundwater levels are affected by the daily tide cycles. Groundwater levels will likely fluctuate daily with the tide, seasonally in response to precipitation, and due to construction activities.

3.4 Seismic and Frost Conditions

According to BOCA 1999, we interpret the subsurface conditions to correspond to a soil profile type S$_2$ with a seismic site coefficient of 2.0. The design freezing index for the Portland, Maine area is approximately 1250 Fahrenheit-Degree Days, which corresponds to a frost penetration on the order of 4.5 feet. Thus, all foundations, including pile caps and grade beams that could be exposed to freezing temperatures, including interior foundations in areas of the building that may be unheated, should be cast at least 4.5 feet below finish grade.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on a finish floor elevation of 16.5 feet, we understand that 4 to 5 feet of fill will be removed on the northerly (+20± feet) nearly one of the proposed building where current grades are at an elevation of approximately 20 to 22 feet. The removal of fill will unload the underlying soils, therefore, this portion of the building may be founded on shallow spread footing foundations with soil supported concrete slabs. Relative to liquefaction of the underlying loose sandy soils, our evaluation indicates a low potential for occurrence.

Due to the presence of loose to medium dense existing fills, underlying loose marine sediments, compressible organic soils and glaciomarine clays, the southerly and central portions of the proposed structure will require pile supported foundations and pile

supported structural floor slabs if a concrete floor system is required. Building design will need to account for potential differential settlement between the pile supported portion of the structure and shallow foundation supported portion. We understand that sufficient time is not available in the project schedule, in order to allow preloading the building site to improve the existing soils for shallow foundation support. Additionally organic soils (peats) typically do not respond well to preloading since the magnitude of settlement is usually high and decomposition and secondary compression of the organics occur for a long period of time after application of construction loads.

As we have discussed, we understand that an asphalt pavement floor is being considered for the open storage areas in lieu of a structurally supported reinforced concrete slab. This option appears viable, however subsidence of the asphalt surface and future shimming must be anticipated which could require yearly maintenance over the long term.

4.2 Shallow Foundations

It is our opinion that shallow spread footings can be used in the northerly portion of the building since 4 to 5 feet or so will be removed from this area and the organic soil materials found beneath the southerly end were not encountered at the explorations on the northerly side. Unloading the area reduces stress on the underlying soils and reduces the potential for settlement. To lessen the potential for differential settlement, we recommend an allowable bearing pressure of 2.0 ksf be used for shallow spread footings within the northerly 120 feet of the structure. Using this allowable bearing pressure, we estimate a total settlement of ½ to ¾ inches for shallow spread footing foundations placed in accordance with our recommendations presented in section 4.4.1 of this report. The structural engineer must account for differential settlement between the pile supported and shallow spread footing portions of the structure.

4.3 Deep Foundations

Consolidation of the compressible glaciomarine soils and/or organic soils could result in 6 inches or more than 1-foot of total post-construction settlement within the southerly and central portion of the building where new substantial fill and underlying organic soils

appear to be thickest and heavy rack storage loads may be located. The total and differential settlements would likely exceed the tolerable limit for the building and floor. Therefore, we recommend that the southerly and central portions of the building structure and concrete floor slabs, where utilized, be supported on end bearing driven piling. The asphalt pavement area within the southerly and central portions of the building may be constructed on compacted granular fill provided the owner understands and accepts the risk of post-construction settlement and maintenance requirements.

4.4 Foundation Design

4.4.1 Spread Footings

As discussed, shallow spread footings could be used within 120 feet of the northerly building wall line and should be designed using an allowable bearing capacity of 2.0 ksf. Spread footings exposed to freezing temperatures should be cast at least 4.5 feet below exterior finish grade. Footings should be cast on at least 1 foot of compacted crushed stone wrapped in a non-woven geotextile fabric such as Mirafi 140N. For foundations cast on crushed stone, we recommend a base friction factor of 0.70 be considered for design. The crushed stone base should extend at least 1 foot laterally from the edges of the footing. If soft or yielding soils are encountered in the excavations, the soft soils should be overexcavated and replaced with crushed stone. Spread footings should be backfilled with Select Fill both inside and out. A figure illustrating our recommendations for spread footings is shown in the "Undercut Detail" (attached as Sheet 12).

4.4.2 Pile Foundations

In our opinion, steel H-Piles or concrete filled steel pipe piles driven to end bearing on bedrock are suited for foundation and concrete slab support of the southerly and central portions of the proposed building. The piles will be subjected to loading from downdrag forces due to consolidation of the compressible soils underlying the site. Downdrag forces can be reduced by about 40 percent by coating the pile surface with bitumen, however, uplift resistance and therefore uplift capacity would also be reduced by about 40 percent. Although the proposed column loads are not known at this time, we offer the following table of pile sections and net allowable pile capacities for non-coated

piles. Our estimate of pile capacities assumes a working stress not exceeding 18 ksi in the steel piling assuming Grade 50 steel is used. It should be noted that other driven pile options, such as concrete filled steel pipe pile, concrete pile, or timber, might also be feasible.

H-PILE SECTION ASTM A572 Grade 50	ALLOWABLE COMPRESSIVE PILE CAPACITY[1]	ALLOWABLE NON-COATED UPLIFT PILE CAPACITY[2]
HP12 x 53	225 kips	9.0 kips
HP12 x 53	150 kips	8.5 kips
HP10 x 57	210 kips	7.7 kips
HP10 x 42	140 kips	7.8 kips
HP8 x 36	125 kips	6.7 kips

NOTE 1: Compressive capacity based on working stress not exceeding one-third the yield stress for piles driven to practical refusal on bedrock with hard driving shoe and a 1/16-inch reduction in steel cross sectional area due to corrosion.

NOTE 2: Uplift capacity based on non-coated sections 30 feet in length. Values calculated using average corrosion value of unpainted soil/water resistance (Meyerhof, 1976).

We recommend that the piles be driven to practical refusal in dense glacial till or on bedrock. Cast steel driving shoes should be provided for tip protection. Considering the depths to refusal encountered at the test borings, we estimate pile lengths may range from 30 to 50 feet (from existing ground surface elevation of 16 feet). Because subsurface conditions vary across the site, the actual tip elevations of driven piles will also vary with location. We recommend a stop driving criteria of 8 blows per 1-inch of penetration with a hammer energy of 20,000 lb-ft/blow. However, stop driving criteria should be reviewed relative to final design loads, pile sections, hammer characteristics, and actual driving conditions.

The BOCA National Building Code (1999) requires that pile load tests be performed on projects having piles with design capacities over 40 tons (80 kips). We recommend either limiting design allowable compressive pile capacities to 40 tons, or performing a

pile load test using a PDA. If loads exceed 40 tons, the PDA work should be done as a subcontract to the pile driving contractor and the results submitted to the geotechnical engineer for review and approval. The piling contractor should submit information relative to the pile type and pile driving equipment for geotechnical review prior to beginning driving. We recommend that S.W.COLE ENGINEERING, INC. be retained to assess final driving criteria based on hammer and pile types, as well as to observe driving of production piles. S.W.COLE ENGINEERING, INC. would monitor vibrations from pile driving, maintain pile-driving records and modifying the pile driving criteria, if necessary, based on actual driving conditions.

4.4.3 Grade Beam / Retaining Walls

Based on our understanding of the project, it appears that some exterior walls will act as a retaining walls since exterior grades on the northerly portion of the building will be about 4 to 5 feet higher in elevation than the interior concrete slab-on-grade. We recommend all foundation walls, grade beams, and pile caps be backfilled (both inside and out) with compacted Select Fill. The following soil parameters should be considered in design:

A total unit weight of granular backfill (γ_t) = 125 pcf (compacted select fill)
An angle of internal friction = 30 degrees (compacted select fill)
An active lateral earth pressure coefficient (K_a) = 0.33 (unrestrained walls)
A passive lateral earth pressure coefficient (K_p) = 3.0 (compacted select fill)
An at-rest lateral earth pressure coefficient (K_o) = 0.50 (restrained walls)

Grade beams, pile caps and foundations exposed to freezing temperatures should be cast at least 4.5 feet below finished grade.

4.4.4 Concrete Floor Slabs and Asphalt Pavement

It is our opinion that there are significant risks of higher-than-tolerable total and differential settlements for a soil-supported slab-on-grade concrete floor in the southerly and central portions of the building. Thus, concrete slabs should be pile supported in this area. Concrete floors in the northerly 160 feet of the building may be soil supported. However, some minor subsidence may occur which could cause some cracking.

Concrete slabs that are soil supported should be cast on 1 foot of compacted Select Fill. Concrete slabs that are pile supported could be cast on the existing crushed fill provided the subgrades are first proof rolled with a heavy vibratory compactor to achieve at least 95 percent of its maximum dry density. At this time, we understand that only the 50 by 90 foot, two-level southerly area will utilize a structurally supported concrete floor system.

Any subgrade areas that are soft and yielding beneath slabs or asphalt pavement should be overexcavated and replaced with Select Fill.

Asphalt pavement is more flexible and would tolerate settlement better than concrete. Thus, an asphalt pavement floor system for the central and southerly area appears feasible. It should be noted that differential settlement could occur adjacent to pile supported pile caps and grade beams that can cause reflective 'bumps' in the asphalt floor. Skimming with additional asphalt may be needed to allow smoother transitions for the fork truck traffic if this occurs. As discussed, the boat storage racks would likely cause large depressions if placed on the asphalt floors and differential settlement will cause tilting of the rack system. We anticipate that the boat racks will place large point loads on the floor, therefore, adequate bearing plates will need to be provided to prevent puncturing and cracking of the floor systems. We recommend the following cross section for asphalt pavements within the heated building.

FLEXABLE (ASPHALT) PAVEMENTS		
		Maine DOT Standard Specification
Wearing Course	1 ½"	9.5mm Hot Mix Asphalt
Binder Course	2½"	19.0mm Hot Mix Asphalt
Crushed Base	6"	703.06 Base Aggregate Type A Crushed
Granular Subbase	12"	703.06 Subbase Aggregate Type D

Based on laboratory testing, the existing crushed fill in the southerly portion of the

building appears suitable for a Type D Subbase Aggregate. Recommendations for exterior pavements are being provided by others.

4.5 Foundation Drainage

We recommend that a foundation drainage system be provided around the perimeter grade beam/frost wall for the building. The underdrain invert should be placed at least 4.0 feet below finish grade. The underdrain pipe should consist of rigid, 4-inch diameter PVC with perforations of ¼ to ½ inch enveloped in 12 inches of crushed stone bedding wrapped in a non-woven geotextile filter fabric having an apparent opening size of at least 70. The underdrain should have a positive gravity outlet. Exterior foundation backfill should be sealed with a surficial layer of clayey or loamy soil in areas that are not to be paved to reduce surface water infiltration into the foundation backfill. An Underdrain detail is attached as Sheet 12 of this report.

4.6 Excavation Work

An erosion control system should be instituted prior to any construction activity at the site to help protect adjacent drainage ways. As much vegetation should remain in place in order to provide stable construction access and to lessen the potential for erosion. Excavation work will encounter primarily the existing sandy fills but may encounter wet or saturated underlying silts, clays, and organics.

Groundwater and wet soil conditions will likely be encountered in the foundation excavations. Ditching with sump and pump dewatering techniques should be adequate to control groundwater in foundation excavations depending upon tide and groundwater conditions. It may be necessary to place a layer of geotextile filter fabric and crushed stone upon the subgrades to act as a drainage media from which to sump and pump and to provide a stable base from which to work. In any case, excavations must be properly shored and/or sloped in accordance with OSHA trenching regulations to prevent sloughing and caving of the sidewalls during construction.

In addition, contaminated soils will likely be encountered in some excavations, particularly in the northerly portion of the proposed building. We recommend screening the soils in