

SIDEWALK EASEMENT

In consideration of the payment of One Dollar (\$1.00), the GULF OF MAINE RESEARCH INSTITUTE, a Maine nonprofit corporation formerly known as the Gulf of Maine Aquarium, with a with a principal place of business in Portland, Maine ("Grantor"), hereby grants to the CITY OF PORTLAND, a body politic and corporate with a place of business at 389 Congress Street, Portland, Maine 04101 ("Grantee"), a perpetual easement over a strip of land along Commercial Street in Portland, Maine, which strip of land is more particularly described on the attached Exhibit A (the "Easement Area").

The purpose of this easement is to maintain, replace, and repair within the Easement Area a sidewalk up to thirteen feet and six inches (13' 6") in width, said sidewalk to be used for pedestrian, bicycle and similar non-motorized (other than wheelchair and emergency vehicles and snow removal equipment which shall be permitted) and other pedestrian recreational uses by the public, subject, however, to such rules or ordinances which Grantee may adopt from time to time in the interest of public safety. This easement shall not become effective until completion of construction by Grantor of a sidewalk within the Easement Area as approved by the Portland Planning Board and release by Grantee of the performance guarantee for such work. Upon such completion of construction by Grantor and release by Grantee: (a) Grantee shall be solely responsible for the maintenance, repair, and replacement of the sidewalk within the Easement Area, provided that Grantee shall have no responsibility for the maintenance or replacement of trees that straddle the Easement Area and land retained by Grantor (the responsibility for which shall be borne by the Grantor, its successors or assigns); and (b) Grantor shall have no duty to maintain the Easement Area or to keep the Easement Area safe for said uses by the public.

Reserving to Grantor the use and enjoyment of the Easement Area for any purposes that will not unreasonably interfere with the use of this easement for the purposes herein set forth. Without limiting the generality of the foregoing, Grantor reserves the rights (a) to construct curb cuts and/or driveways from Commercial Street to land retained by Grantor, and (b) to install utilities within the Easement Area. Notwithstanding any other provision of this Sidewalk Easement to the contrary, in exercising those rights reserved hereunder, the Grantor agrees that it, as well as

9/22/03

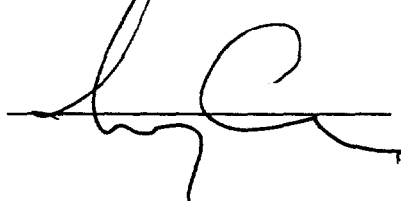
its successors or assigns, will observe the rules and ordinances of the Grantee relating to public safety affecting the said sidewalk, and that any alternation, modification or change in, over, or on the easement area will be subject to its obtaining necessary licenses and permits from all governmental entities having jurisdiction over the Easement Area.

Both Grantor and Grantee acknowledge that this easement is being provided to Grantee for purposes of public pedestrian access and recreation without charge. It is understood that the use herein granted is non-exclusive.

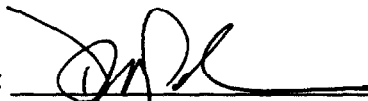
To have and to hold the said Easement and all rights granted hereunder to the said Grantee and its successors and assigns forever.

IN WITNESS WHEREOF, Grantor has caused this Easement to be executed by Donald W. Perkins, Jr., its duly authorized President, this 22nd day of September, 2003.

WITNESS



GULF OF MAINE RESEARCH INSTITUTE

By: 
Donald W. Perkins, Jr.
President

State of Maine
County of Cumberland, ss.

September 22, 2003

Personally appeared the above named Donald W. Perkins, Jr. as aforesaid, who acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of the Gulf of Maine Research Institute.

Before me,

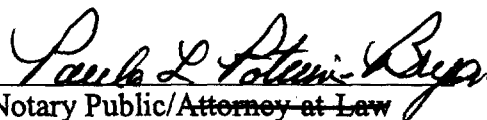

Notary Public/~~Attorney at Law~~
Print Name: _____

EXHIBIT A



**SIDEWALK EASEMENT AREA
LEGAL DESCRIPTION**

The Easement Area herein described is encumbering parcel of land now or formerly of the Gulf of Maine Aquarium, as described in a deed recorded at the Cumberland County Registry of Deeds in Deed Book 17827 at Page 22. Said parcel being a part of City of Portland Tax Assessor Map 42, Block C, Tax Lot 1-2 and being more particularly described as follows:

Beginning at a point being a point of intersection on the easterly right-of-way line of Commercial Street. Said Point of Beginning being marked by a 1 ½" Iron Pipe Found, as depicted on a plan entitled "ALTA/ACSM Land Title Survey – Tax Map 42 Block C Lot 1 – Commercial Street" prepared for Gulf of Maine Aquarium by Survey & Geodetic Consultants, Inc., dated 03/21/02, thence;

- | | |
|-----------------|---|
| N 17°-04'-46" E | A distance of three hundred seventy one and 05/100 (371.05') feet along the right-of-way of Commercial Street to a point thence; |
| S 47°-41'-36" E | A distance of fourteen and 92/100 (14.92') feet, leaving the right-of-way of Commercial Street and proceeding along the lands now or formerly of The State of Maine to a point, thence; |
| S 17°-04'-46" W | A distance of three hundred sixty five and 26/100 (365.26') feet through the lands of said Gulf of Maine Aquarium to a point, thence; |
| S 21°-54'-46" W | A distance of fifteen and 91/100 (15.91') feet through the lands of said Gulf of Maine Aquarium to a point on the line of the land of the United States of America deed book 3121 page 663, thence; |
| N 45°-05'-32" W | A distance of fourteen and 67/100 (14.67') feet along said United States of America to a 5/8" rebar on the right-of-way of Commercial Street, thence; |
| N 21°-54'-46" E | A distance of nine and 61/100 (9.61') feet along Commercial Street to the Point of Beginning. |

The above-described parcel contains a total area of 0.12 acres, or 5,142 square feet more or less.

All bearings herein being referenced to Grid North, North American Datum of 1983 referenced to the Maine West State Plane Coordinate System.

UTILITY EASEMENT

GULF OF MAINE RESEARCH INSTITUTE, a Maine nonprofit corporation formerly known as the Gulf of Maine Aquarium, with a principal place of business in Portland, Maine ("Grantor"), for consideration paid, hereby grants to the CITY OF PORTLAND, a body politic and corporate with a place of business at 389 Congress Street, Portland, Maine 04101 ("Grantee"), a perpetual easement for the purposes herein set forth (the "Easement") over certain property of Grantor on U.S. Route 1A (a.k.a. Commercial Street) in the City of Portland, County of Cumberland, and State of Maine more particularly described in the deed from the United States of America dated July 9, 2002, recorded at the Cumberland County Registry of Deeds in Book 17827, Page 22.

The Easement shall be used to convey water and sewerage and other utilities through and across existing underground lines for the benefit of adjacent property of the United States of America (which adjacent property was excepted from, and is more particularly described in, the aforementioned deed dated July 9, 2002, and is hereinafter referred to as the "Benefited Property"), and to maintain and replace said underground lines as necessary, provided that, prior to entering upon Grantor's property to so maintain or replace said lines, Grantee shall give reasonable advance notice to Grantor. In its performance of any such work, Grantee shall avoid: (i) causing any unreasonable damage to, or unreasonable interference with, any improvements on Grantor's property, and (ii) causing any unreasonable interference with any business conducted on Grantor's property. Grantee, after performing any such work, shall promptly restore Grantor's property to substantially the condition existing prior to each entry and performance of such work.

Reserving to Grantor, the use and enjoyment of its property for any purposes that will not unreasonably interfere with the use of the Easement for the purposes herein set forth, provided that no building of any kind or permanent structure shall be erected over the said underground lines. Without limiting the generality of the foregoing, Grantor reserves the rights (a) to grade, pave and stripe the surface of the land over said underground lines and use the same for vehicular traffic and parking, (b) to install above-ground utilities over said underground lines, and (c) to connect ancillary pipes, conduits and other utilities to said underground lines in order to serve the buildings which may be located from time to time upon Grantor's property (provided that in making any such connections, (i) Grantor will not unreasonably interfere with Grantee's use or enjoyment of the Easement granted herein, and (ii) Grantor will be required to obtain necessary licenses and permits from all governmental entities having jurisdiction over the Easement).

Further reserving to Grantor, the right to relocate said existing underground lines on Grantor's property from time to time, subject, however, to the following terms and conditions: (a) Grantor shall, prior to undertaking such relocation, give reasonable advance notice to Grantee; (b) Grantor shall coordinate such relocation with Grantee so as to minimize the disruption of the water and sewerage and other utilities serving the Benefited Property; and (c) Grantor shall be solely responsible for and shall pay all costs and expenses relating to such relocation.

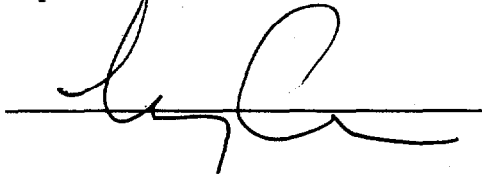
1/22/03

The Easement shall automatically terminate and expire (without any written release by Grantee) upon the acquisition of the Benefited Property by Grantor, or any corporation or organization that shall, as a result of a reorganization, merger, consolidation, or the sale of stock or assets, succeed to the business of Grantor, or any subsidiary corporation, limited liability company, or other wholly owned company of Grantor. Without limiting the foregoing, Grantee agrees to deliver a duly executed release to effectuate and make record notice of termination of the Easement upon written request by (i) Grantor, its successors or assigns and (ii) the owner of the Benefited Property.


The Easement granted herein and the terms and conditions hereof shall be binding upon and shall inure to the benefit of Grantor and Grantee, and their respective successors and assigns.

IN WITNESS WHEREOF, Grantor has caused this Easement to be executed by Donald W. Perkins, Jr., its duly authorized President, this 22nd day of September, 2003.

In presence of:



GULF OF MAINE RESEARCH INSTITUTE

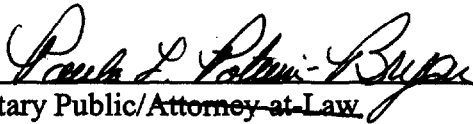
By: 
Donald W. Perkins, Jr.
President

STATE OF MAINE
COUNTY OF CUMBERLAND

Sept. 22, 2003

Then personally appeared the above-named Donald W. Perkins, Jr. and acknowledged the foregoing instrument to be his free act and deed in has said capacity and the free act and deed of said Gulf of Maine Research Institute.

Before me,


Notary Public/Attorney-at-Law
Print Name: _____
My Commission Expires: _____

**Maine Drilling & Blasting
Rock Anchor Project list**

COMPLETED PROJECTS

<u>PROJECT NAME</u>	<u>LOCATION</u>	<u>LENGTH</u>	<u>CAPACITY</u>	<u>INCLINATION</u>	<u>OWNER</u>
NH Rte 112 NH DOT # 13073	Albany,NH	40'	120 kps	20 Degrees	State of NH DOT 1 Hazen Dr. PO Box 483 PO Box 483 Concord,NH 03302-0483 Tel (603)271-3402
NH Rte 16 NH DOT # 13226	Pinkham Grant,NH	40'	120kps	20 Degree	State of NH DOT 1 Hazen Dr. PO Box 483 PO Box 483 Concord,NH 03302-0483 Tel (603)271-3402
NH Rte 119 NH DOT # 13543	Hinendale, NH	30' - 60'	25kps 180 kps	20 degree	State of NH DOT 1 Hazen Dr. PO Box 483 PO Box 483 Concord,NH 03302-0483 Tel (603)271-3402
NH Rte 302 NH DOT # 13677	Harts Location, NH	25' - 40'	120 kps	20 degrees	State of NH DOT 1 Hazen Dr. PO Box 483 PO Box 483 Concord,NH 03302-0483 Tel (603)271-3402
Reconstruction of Quincy Reservoir Dam #DACW33-98-C-0021	Quincy,MA	23'	80 kps	Vertical	US Army Corps of Engineers 696 Virginia Rd. Concord,MA 01472-2751 Tel (978)318-8204
West Point Military Academy Seismic upgrade, Michie Stadium	West Point, NY	37'	239 kps 120 kps	Vertical	US Army Corps of Engineers
Mack Point Pier Cargo terminal	Searsport, ME	100' - 140'	160 kps 240kps	Battered 24" piles	State of Maine Dept of Transportation
Lake Gardner Dam Reconstruction	Amesbury, MA	65'	140 kps	Vertical	City of Amesbury, MA Department of public works
USM Parking Garage Portland,ME	Portland,ME	36' - 65'	180 kps	Vertical 6" piles	University of Southern, ME
Augusta State House West wing connector	Augusta,ME	20'	Unstressed	Vertical	State of Maine 300 State St. Augusta,ME 04330 Tel (207)287-4547
Godfrey Dam Berlin,NH	Berlin,NH	40'	180 kps	15 Degrees	City of Berlin
Noise Barriers #30113	Quincy,MA	20'	65 kps	Vertical	Mass HighwayDept 519 Appleton Street, Arlington,MA 02476 Tel (781)648-6100

Smithfield, RI Power plant	Smithfield, RI	24'	Unstressed	Vertical	Smithfield Power Co
Berlin Airport Towers Berlin, NH	Berlin, NH	20'	Unstressed	Vertical	City of Berlin
Retaining Wall STP# 0147(15)S	Hartford, VT	20'	67 kpa	10 Degrees	State of Vermont Agency of Transportation 133 State Street Montpelier, VT (802)828-2841



Submittal Review Memo

ARCHITECTURE
ENGINEERING
PLANNING

Project Name: Gulf of Maine Research Inst Research Lab **Job #:** 0303400
To: Dave Lawrence
Ouellet Associates **Submittal #:** 23-02458-07
56 Bibber Pkwy

Brunswick, ME 04011
Submittal Title: Steel H Piles

ACTION: Please take action below:

The review was performed for the limited purpose of determining general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Modifications or comments made on the submittal during this review do not relieve the contractor from compliance with the requirements of the drawings and specifications. Approval of a specific item does not include approval of the assembly of which the item is a component. The Contractor is responsible for quantities and dimensions to be confirmed and correlated at the job site: information that pertains solely to the fabrication processes or to the means, methods, techniques sequences and procedures of construction: coordination of the work of all trades: and for performing all work in a safe and satisfactory manner.

- APPROVED
- PROVIDE AS NOTED
- REVISE AND RESUBMIT
- RESUBMIT SPECIFIC ITEM
- REJECTED:
 - Not a specified product
 - Incomplete
 - Other
- INFORMATIONAL SUBMITTAL FOR RECORD ONLY
- NOT A REQUIRED SUBMITTAL - NOT REVIEWED

SMRT, Inc.

REVIEW DATE: 11/26/03

BY: ADB

03034-00 #23

Remarks:

October 14, 2003
Revised November 10, 2003
File No. 17927.00-C,PC

Mr. Dean Sciaraffa
H.B. Fleming
89 Pleasant Avenue
South Portland, Maine 04106



Re: Dynamic Pile Testing Results
Gulf of Maine Aquarium
Portland, Maine

One Edgewater Drive
Norwood
Massachusetts
02062
781-278-3700
FAX 781-278-5701
<http://www.gza.net>

Dear Dean:

This letter summarizes the results of dynamic pile testing performed by GZA GeoEnvironmental, Inc. (GZA) at the above referenced site on October 3, 2003. The dynamic pile testing was performed in general accordance with ASTM Method Designation D4945-89, "Standard Test Method for High-Strain Testing of Piles." Dynamic pile testing was performed to measure driving stresses and hammer performance during pile installation and recommend a driving criterion based on the results of the dynamic pile testing.

Testing was performed on three (3) HP10x74 Grade 50 steel H piles with driving shoes. The ultimate pile capacity that was provided to GZA by H. B. Fleming was 360 kips, based upon a safety factor of 2.25 applied to the 160 kip (80-ton) design load. All piles were tested during initial drive.

The test piles were impact driven with an MKT DE-42 open-end diesel hammer with a ram weight of 4,000 lbs. and a rated maximum stroke of 10.5 feet yielding a rated energy of 42,000 ft-lbs. The hammer cushioning material reportedly consisted of 2.0-inches of Hamortex.

The PDA was used to make dynamic force and acceleration measurements of the tested piles. These measurements were evaluated in the field to estimate pile capacity, pile stress, and hammer performance. PDA summary sheets and plots of select averaged PDA parameters verses blow count are attached and summarized in Table 1.

Dynamic measurements during initial drive indicated acceptable hammer performance and driving stresses within the allowable limits. "Case Method" pile capacity measured at the end of drive of each test pile indicated an ultimate pile capacity in excess of the required 360 kips.

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Subsequent CAPWAP analysis performed on data recorded near the end of initial drive for Pile 2 indicated a total capacity of 600 kips with 5 kips (< 1 percent) as skin friction and 595 kips (> 99 percent) as end bearing.



The dynamic pile test results of Pile 2 indicate an ultimate "Case Method" pile capacity of 630 kips at a resistance of 15 blows per inch of pile penetration with the MKT DE-42 operating at a minimum ram stroke of 8.0 feet. Measured driving stresses and hammer performance at this driving criterion were within the allowable limits. Test Piles 58 and 42 indicated an abrupt increase in capacity and penetration resistance at take up.

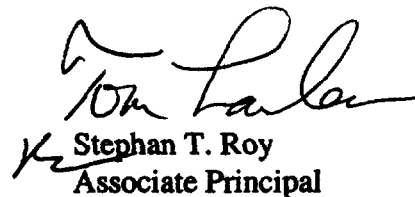
Based on the results of the dynamic pile testing, the recommended driving criteria is 15 blows per inch with the MKT DE-42 operating at a minimum ram stroke of 8.0 feet. If a pile encounters abrupt refusal, as indicated by test piles 58 and 42, the driving should be stopped when the pile penetration is 0.5 inch or less, for 10 successive hammer blows. We recommend that caution be exercised under these conditions to minimize potential pile damage and close attention must be made to driving resistance and hammer stroke. Please note restrike testing which evaluates time-dependent capacity was not performed.

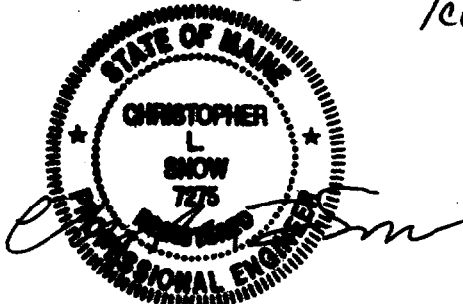
If you have any further questions, please contact either of the undersigned.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.


Michael Deery
Geotechnical Engineer


Stephan T. Roy
Associate Principal



Christopher L. Snow, P.E.
Consultant Reviewer

Attachments: Table
PDA Field Data
CAPWAP

TABLE 1

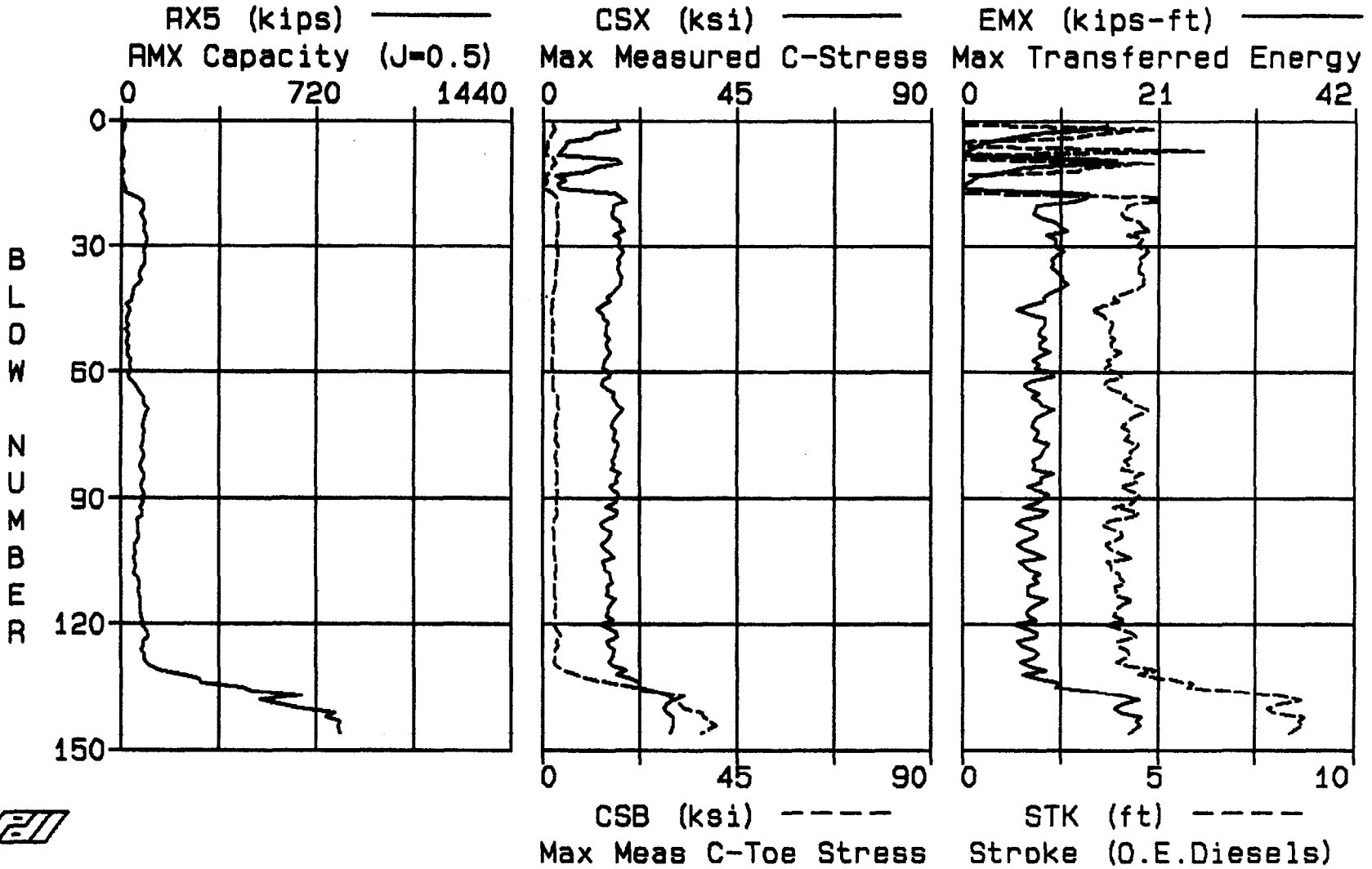
**GULF OF MAINE AQUARIUM
DYNAMIC PILE TESTING RESULTS
PORTLAND, MAINE**

PILE NO.	DATE TESTED	TEST TYPE ⁴	BLOW COUNT ³ (bpi)	PILE PENETRATION (ft)	HAMMER STROKE (ft)	TRANSFER ENERGY ⁵ (kip-ft)	PILE STRESS		PDA ⁷	CAPWAP ⁸		
							At Butt (ksi)	At Tip (ksi)	TOTAL	TOTAL	SKIN	END
									CAPACITY (kips)	CAPACITY (kips)	FRICTION (kips)	BEARING (kips)
58	10/3/2003	EOD	14 bpf-7-8/0.75"	50.5	8.6	18.7	30.0	38.2	790			
42	10/3/2003	EOD	3-6-10/0.5"	26.0	8.7	18.1	28.3	36.8	760			
2	10/3/2003	EOD	8-10-15	31.5	8.3	17.8	28.9	31.0	630	600	5	595

Notes :

1. Test pile is HP12x74, Grade 50 steel pile driven with a MKT DE-42 diesel impact hammer.
2. Ultimate pile capacity is 360 kips based upon applying a safety factor of 2.25 to the specified design load of 160 kips (80 tons).
3. Blow counts were reported by others.
4. Test type is defined as: EOD = end of drive.
5. Transferred Energy is the delivered hammer energy to the pile measured at the PDA sensors.
6. Pile Stress is the maximum force delivered to the pile divided by the pile area, measured at the sensor location.
7. PDA Total Capacity is the ultimate pile capacity predicted at the time of testing including skin and endbearing resistance.
8. CAPWAP Total Capacity, Skin Friction and End Bearing are derived from CAPWAP analysis and are reported as ultimate pile capacity.
9. Pile penetration is referenced to the subgrade.

GULF OF ME. AQUARIUM, 58_ID, MKT- DE 42/35: OED



File: 58_ID
 Info: MKT- DE 42/35: OED
 AR: 21.8 in²
 LE: 55.8 ft

Proj: GULF OF ME. AQUARIUM
 SP: 0.492 k/ft³
 WS: 16810 ft/s
 EM: 30000 KSI

Pg1

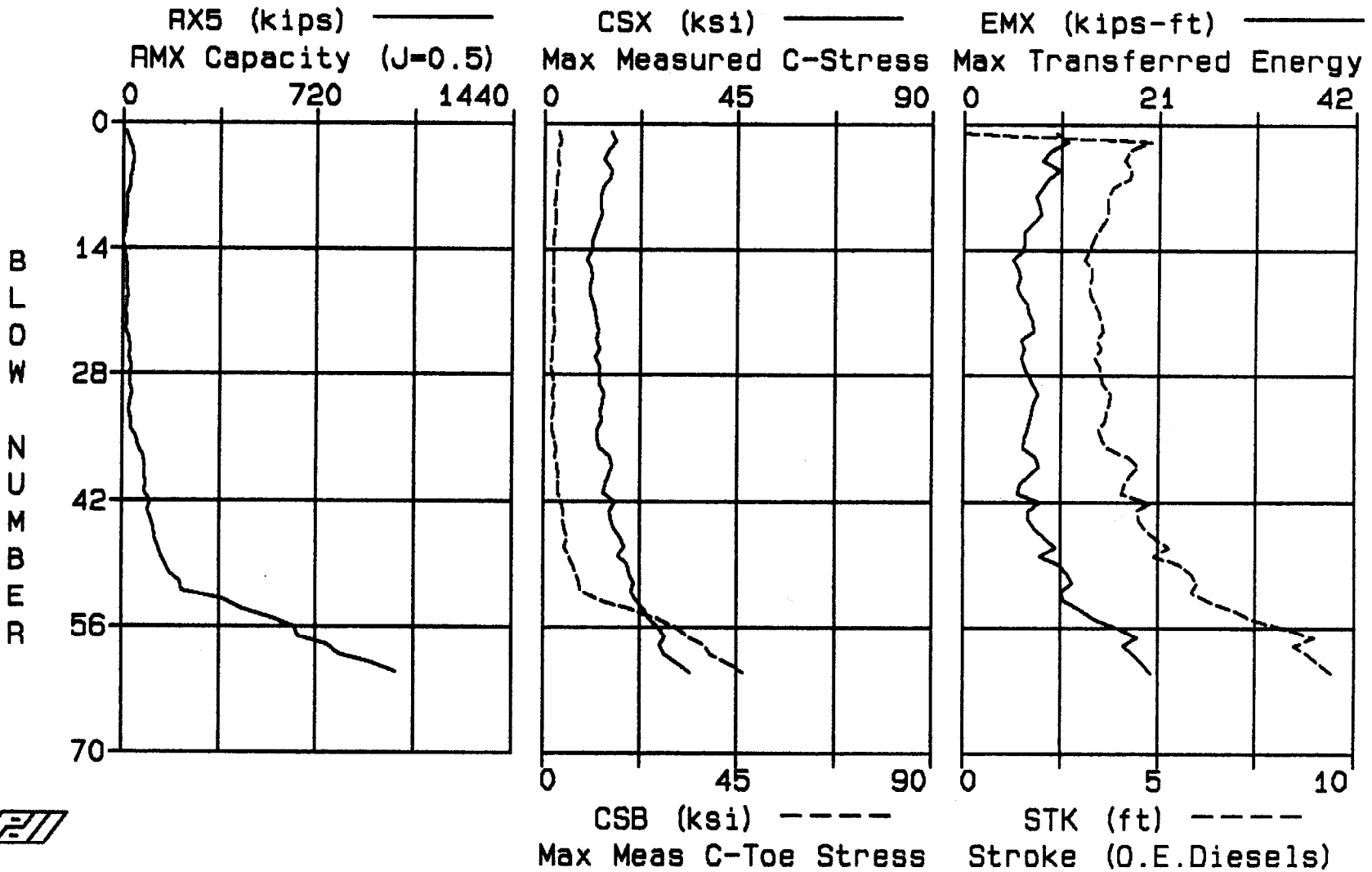
RX5: RMX Capacity (J=0.5)
 CSX: Max Measured C-Stress
 CSB: Max Meas C-Toe Stress

EMX: Max Transferred Energy
 STK: Stroke (O.E.Diesels)
 FVP: F/V Proportionality

BL#	TYPE	#Bls	RX5	CSX	CSB	EMX	STK	FVP
end			kips	ksi	ksi	kips-ft	ft	
5	AVG	5	4	12.64	2.07	8.8	2.24	102
10	AVG	5	3	9.67	1.65	6.8	2.20	103
15	AVG	5	4	6.92	1.27	2.7	1.22	84
20	AVG	5	49	14.93	2.62	9.4	2.82	104
25	AVG	5	79	16.82	3.33	8.8	4.29	104
30	AVG	5	89	17.59	3.33	10.0	4.51	103
35	AVG	5	83	17.86	3.29	9.9	4.58	103
40	AVG	5	63	17.85	3.01	10.7	4.58	104
45	AVG	5	34	14.61	2.35	8.0	3.77	104
50	AVG	5	22	14.49	2.25	8.4	3.73	103
55	AVG	5	24	15.02	2.37	8.6	3.84	104
60	AVG	5	31	14.63	2.40	8.3	3.79	104
65	AVG	5	49	14.99	2.65	7.9	3.88	104
70	AVG	5	87	17.39	3.67	8.6	4.44	104
75	AVG	5	82	16.43	3.23	7.8	4.22	104
80	AVG	5	80	17.02	3.38	8.6	4.35	104
85	AVG	5	80	16.77	3.35	8.3	4.30	103
90	AVG	5	78	16.84	3.34	8.3	4.35	104
95	AVG	5	74	16.15	3.21	7.7	4.20	105
100	AVG	5	63	14.89	2.72	7.1	3.88	103
105	AVG	5	52	14.87	2.83	7.1	3.89	104
110	AVG	5	56	15.26	3.17	7.6	3.96	104
115	AVG	5	66	15.49	2.86	7.6	4.03	103
120	AVG	5	73	14.95	2.83	6.9	3.91	104
126	AVG	5	88	16.29	3.61	7.2	4.20	102
131	AVG	5	100	16.75	3.38	7.6	4.31	105
136	AVG	5	347	21.71	16.02	9.8	5.69	104
141	AVG	5	641	29.02	32.91	17.4	8.15	102
146	AVG	4	794	30.02	38.24	18.7	8.62	101

DRIVEN (03-Oct-03 : 58_ID.MDF)

GULF OF ME. AQUARIUM, 42_ID, MKT- DE 42/35: OED



File: 42_ID
 Info: MKT- DE 42/35: OED
 AR: 21.8 in²
 LE: 55.8 ft

Proj: GULF OF ME. AQUARIUM
 SP: 0.492 k/ft³
 WS: 16810 ft/s
 EM: 30000 KSI

Pg1

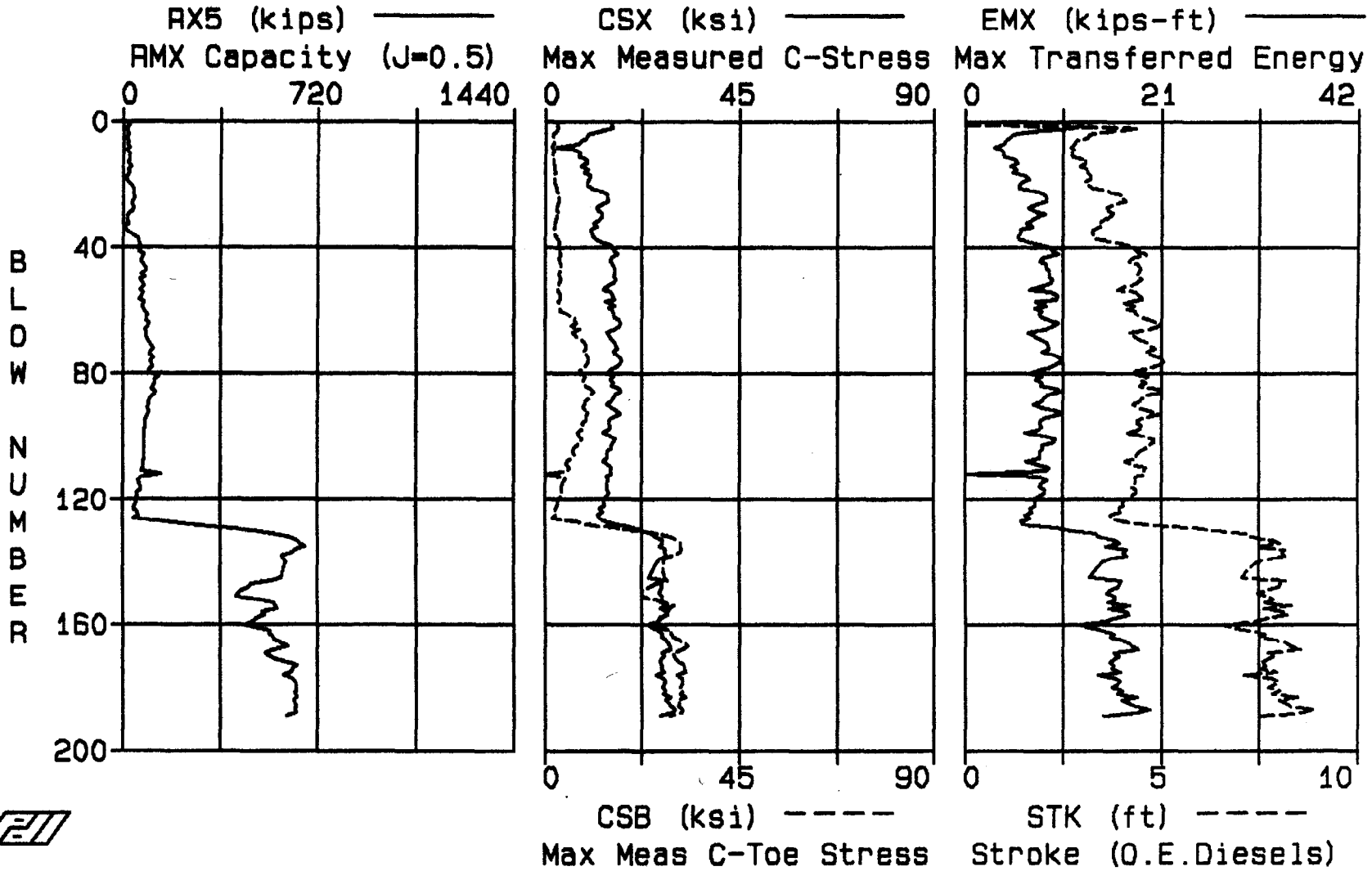
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 CSB: Max Meas C-Toe Stress

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 FVP: F/V Proportionality

BL#	TYPE	#Bls	RX5	CSX	CSB	EMX	STK	FVP
end			kips	ksi	ksi	kips-ft	ft	
5	AVG	5	29	15.37	3.49	9.9	3.49	99
10	AVG	5	20	13.78	2.87	8.4	3.84	98
15	AVG	5	8	11.47	2.51	6.5	3.33	98
20	AVG	5	15	11.12	2.32	6.2	3.29	98
25	AVG	5	18	12.41	2.32	7.0	3.50	98
30	AVG	5	29	13.00	2.10	7.1	3.55	100
35	AVG	5	32	13.06	2.29	7.1	3.61	99
40	AVG	5	77	14.82	3.21	7.1	4.18	98
45	AVG	5	101	15.61	4.44	7.2	4.51	99
50	AVG	5	147	18.72	6.20	9.8	5.32	99
55	AVG	5	359	22.27	15.40	12.0	6.50	98
60	AVG	5	757	28.33	36.78	18.1	8.74	98
61	AVG	1	1014	34.22	46.51	20.3	9.44	98

DRIVEN (03-Oct-03 : 42_ID.MDF)

GULF OF ME. AQUARIUM, 2_ID, MKT- DE 42/35: OED



File: 2_ID
 Info: MKT- DE 42/35: OED
 AR: 21.8 in²
 LE: 55.8 ft

Proj: GULF OF ME. AQUARIUM
 SP: 0.492 k/ft³
 WS: 16810 ft/s
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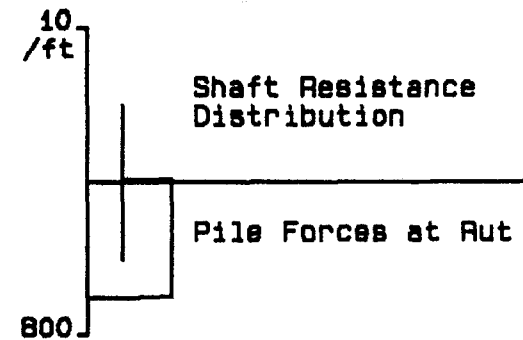
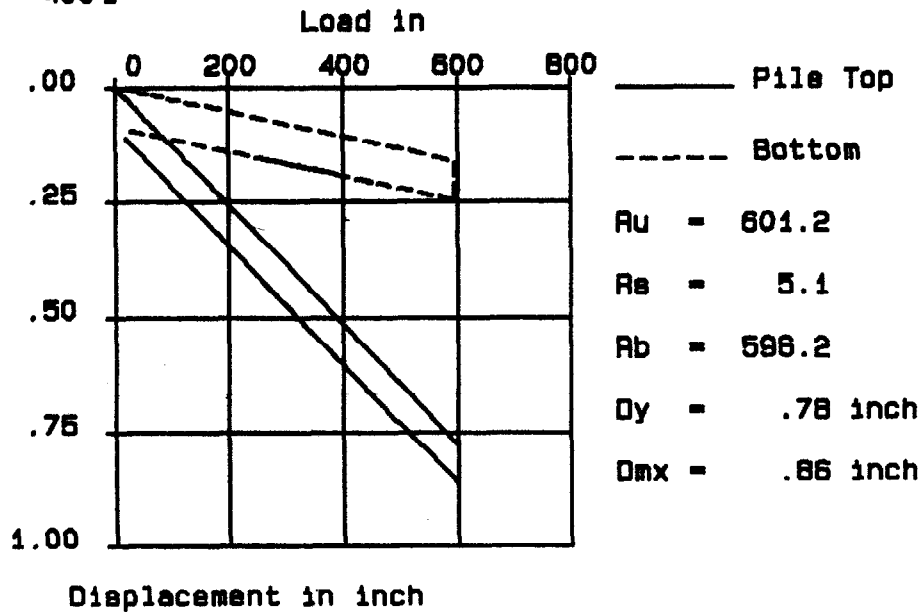
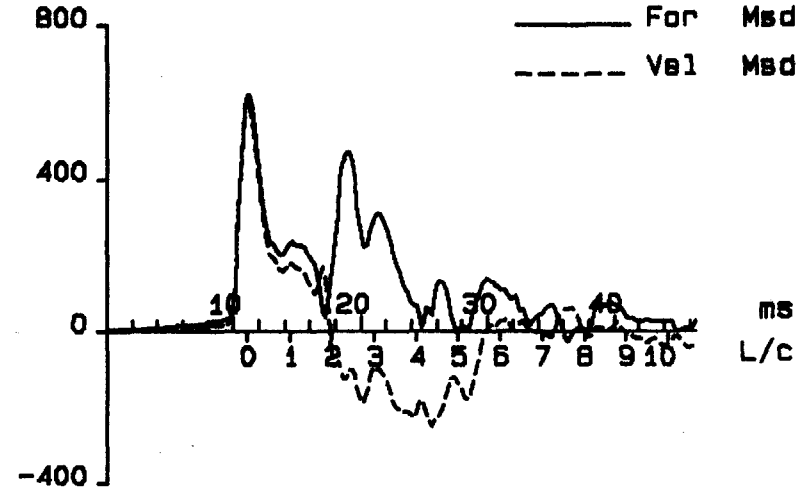
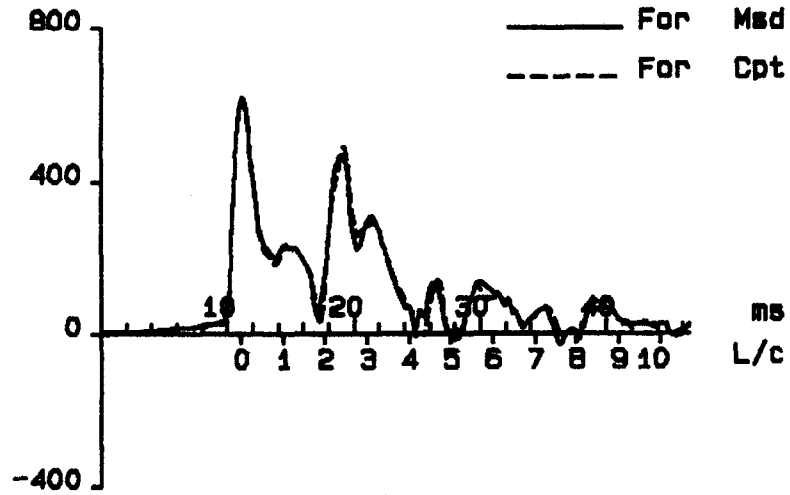
Pg1

RX5: RMX Capacity (J=0.5)
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 STK: Stroke (O.E.Diesels)
 FVP: F/V Proportionality

BL#	TYPE	#BlS	RX5	CSX	CSB	EMX	STK	FVP
end			kips	ksi	ksi	kips-ft	ft	
5	AVG	5	17	12.58	2.43	8.1	2.88	101
10	AVG	5	19	6.77	1.86	3.9	2.77	88
15	AVG	5	23	9.17	2.22	5.1	3.00	102
20	AVG	5	19	9.97	2.32	6.1	3.13	101
25	AVG	5	39	13.37	3.02	7.9	3.79	100
30	AVG	5	27	12.85	2.92	7.6	3.71	100
35	AVG	5	14	11.38	2.30	6.5	3.39	100
40	AVG	5	57	13.32	3.16	7.2	3.75	101
45	AVG	5	69	15.85	3.55	8.9	4.36	101
50	AVG	5	76	16.18	3.56	9.1	4.44	102
55	AVG	5	71	14.96	3.20	8.8	4.24	102
60	AVG	5	72	15.32	3.37	8.3	4.26	102
65	AVG	5	89	16.81	6.45	9.0	4.71	102
70	AVG	5	89	15.48	7.88	7.9	4.45	101
75	AVG	5	106	16.60	9.61	9.2	4.78	101
80	AVG	5	102	16.26	9.09	8.9	4.70	100
85	AVG	5	116	15.97	9.43	8.4	4.63	101
90	AVG	5	104	15.92	10.05	8.6	4.59	101
95	AVG	5	90	16.12	9.62	9.1	4.62	101
100	AVG	5	79	14.71	8.34	7.8	4.41	102
105	AVG	5	78	15.52	7.44	8.8	4.66	102
110	AVG	5	75	14.44	5.82	7.8	4.35	101
115	AVG	5	76	14.79	3.76	6.8	4.44	280
120	AVG	5	56	14.38	3.80	8.1	4.26	97
125	AVG	5	50	13.22	2.79	7.2	3.91	98
130	AVG	5	258	17.23	11.26	8.1	4.95	101
135	AVG	5	625	26.31	29.82	15.2	7.57	102
140	AVG	5	610	27.39	29.49	16.3	7.90	102
149	AVG	5	503	26.56	25.79	15.7	7.81	102
154	AVG	5	494	27.36	25.64	16.1	7.81	102
159	AVG	5	517	27.45	27.74	16.2	7.83	102
164	AVG	5	516	25.97	27.77	14.3	7.18	102
169	AVG	5	570	28.38	31.64	17.3	8.15	102
174	AVG	5	598	27.21	31.35	15.9	7.68	102
179	AVG	5	625	27.44	31.77	16.0	7.76	102
184	AVG	5	639	28.09	31.64	16.8	8.03	102
189	AVG	5	633	28.93	31.00	17.8	8.32	102

DRIVEN (03-Oct-03 : 2_ID.MDF)



GULF OF ME. AQUARIUM

File: 2_ID

Blow: 185

Data: MKT- DE 42/35: OED

Collected: 03-10-03

CAPWAP(R) Ver. 1996-2

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 601.2; along Shaft 5.1; at Toe 596.2

Soil Sgmt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru	Force in Pile at Ru	Sum of Ru	Unit Resist. w. Respect to Depth /ft	Resist. Area /f2	Smith Factor s/ft	Quake inch
				601.2					
1	29.5	5.2	1.0	600.2	1.0	.15	.04	2.310	.100
2	36.1	11.8	1.0	599.2	2.0	.15	.04	2.310	.100
3	42.7	18.4	1.0	598.2	3.0	.15	.04	2.310	.100
4	49.2	24.9	1.0	597.2	4.0	.15	.04	2.310	.100
5	55.8	31.5	1.0	596.2	5.1	.15	.04	2.310	.100
Average Skin Values			1.0			.16	.04	2.310	.100
Toe			596.2				3896.60	.016	.160

Soil Model Parameters/Extensions

	Skin	Toe
Case Damping Factor	.300	.250
Unloading Level (% of Ru)	0	
Resistance Gap (included in Toe Quake) (inch)		.040

GULF OF ME. AQUARIUM

File: 2_ID Blow: 185
 Collected: 03-10-03

Data: MKT- DE 42/35: OED
 CAPWAP(R) Ver. 1996-2

EXTREMA TABLE

File Sgmt No.	Dist. Below Gages ft	max. Force	min. Force	max. Comp. Stress /in2	max. Tension Stress /in2	max. Trnsfd. Energy -ft	max. Veloc. ft/s	max. Displ. in
1	3.3	608.0	-10.9	27.889	-.501	17.12	15.5	.599
2	6.6	607.7	-5.9	27.874	-.270	17.04	15.5	.588
3	9.8	607.2	-19.1	27.852	-.874	16.89	15.5	.574
5	16.4	606.3	-63.9	27.811	-2.932	16.47	15.5	.541
7	23.0	613.2	-59.8	28.128	-2.745	15.80	15.4	.498
8	26.3	621.1	-54.1	28.489	-2.484	15.42	15.1	.475
10	32.8	600.7	-47.4	27.553	-2.176	13.74	14.7	.427
12	39.4	580.0	-62.7	26.604	-2.876	12.30	14.3	.384
13	42.7	585.4	-65.5	26.852	-3.005	11.92	14.2	.361
15	49.2	527.7	-51.1	24.206	-2.345	10.25	16.4	.310
16	52.5	635.7	-45.9	29.159	-2.108	8.95	15.9	.281
17	55.8	706.2	-34.8	32.393	-1.598	8.94	13.3	.247
Absolute	55.8 42.7			32.393	-3.005	(T= (T=	24.0 ms 40.4 ms)	

CASE METHOD

	J=0.0	J=0.1	J=0.2	J=0.3	J=0.4	J=0.5	J=0.6	J=0.7	J=0.8	J=0.9
RS1	674.	620.	566.	513.	459.	405.	351.	297.	244.	190.
RMX	720.	678.	651.	631.	615.	606.	596.	591.	588.	586.
RSU	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
RAU	567.	RA2	609.							

Current CAPWAP Ru= 601.2; Corresponding J(Rs)= .14; J(Rx)= .55

VMX	VFN	VT1*Z	FT1	FMX	DMX	DFN	EMX	EFN	RLT	REN
15.27	-.87	594.2	618.0	618.0	.588	.008	17.1	9.9	628.	1232.

PILE PROFILE AND PILE MODEL

Depth ft	Area in2	E-Modulus /in2	Spec. Weight /ft3	Circumf. ft
.00	21.80	30000.0	.492	4.000
55.80	21.80	30000.0	.492	4.000

Toe Area .153 ft2

Top Segment Length 3.28 feet, Top Impedance 38.90 /ft/s

Wave Damping 1.0 %, Time Incr .195 ms, Wave Speed 16810.7 ft/s

Foundation Permit # 031234

12-3-03

All Purpose Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: <u>344-350 COMMERCIAL STREET</u>		
Total Square Footage of Proposed Structure <u>44148 SF</u>	Square Footage of Lot <u>7.816 ACRES +/- 340,470 S.F.</u>	
Tax Assessor's Chart, Block & Lot Chart# <u>A2</u> Block# <u>C</u> Lot# <u>1</u>	Owner: <u>GULF OF MAINE RESEARCH INSTITUTE</u>	Telephone: <u>207-772-2874</u>
Lessee/Buyer's Name (if Applicable)	Applicant name, address & telephone: <u>QUELLET ASSOC., Inc.</u> <u>56 Bibber Parkway</u> <u>Brunswick ME 04011</u>	Cost Of Work: \$ _____ Fee: \$ _____
Current use: <u>VACANT</u>		
If the location is currently vacant, what was prior use: <u>NAVAL RESERVE TRAINING CENTER</u>		
Approximately how long has it been vacant: <u>6 WEEKS</u>		
Proposed use: <u>GULF OF MAINE RESEARCH LABORATORY</u>		
Project description: <u>SEE EXHIBIT "A" ATTACHED</u>		
Contractor's name, address & telephone:		
Who should we contact when the permit is ready: <u>Quellet Associates, Inc.</u>		
Mailing address: <u>56 Bibber Parkway</u> <u>Brunswick ME 04011</u>		
We will contact you by phone when the permit is ready. You must come in and pick up the permit and review the requirements before starting any work with a Plan Reviewer. A stop work order will be issued and a \$100.00 fee if any work starts before the permit is picked up. PHONE: <u>207-785-0100</u>		

IF THE REQUIRED INFORMATION IS NOT INCLUDED IN THE SUBMISSIONS THE PERMIT WILL BE AUTOMATICALLY DENIED AT THE DISCRETION OF THE BUILDING/PLANNING DEPARTMENT, WE MAY REQUIRE ADDITIONAL INFORMATION IN ORDER TO APPROVE THIS PERMIT.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her 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 Officer's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature of applicant:	Date:
-------------------------	-------

This is NOT a permit, you may not commence ANY work until the permit is issued. If you are in a Historic District you may be subject to additional permitting and fees with the Planning Department on the 4th floor of City Hall

FAX FORM

R. W. GILLESPIE & ASSOCIATES, INC.
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL SPECIALISTS

86 Industrial Park Road, Suite 4
Saco, Maine 04072

200 International Drive, Suite 170
Portsmouth, NH 03801

Tel. (207) 286-8008
Fax (207) 286-2882

Tel. (603) 427-0244
Fax (603) 430-2041

FROM: Saco, Maine
 Portsmouth, NH

DATE 30 Sept. 03

PROJECT NUMBER 235-920

PROJECT NAME Gulf of Maine Research Institute

TO: Michael Nugent, Building Inspector, City of Portland - Fax No. 874-8716
Donald W. Perkins, Gulf of Maine Research Institute - Fax No. 772-6855
David M. Lawrence, Ouellet Associates - Fax No. 725-0101
Andrew D. Bradley, P.E., SMRT, Inc. - Fax No. 772-1070

FROM: Charles R. Nickerson, P.E.

NO. OF PAGES INCLUDING THIS PAGE 4

HARD COPY TO FOLLOW: YES NO

MESSAGE: Letter concerning Alternative Pile Load Test Procedure attached.
Original to follow via mail (Michael Nugent only)

PLEASE LET US KNOW IF THIS TELECOPY IS UNSATISFACTORY
THANK YOU

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R. W. Gillespie & Associates, Inc.

Geotechnical Engineering • Geohydrology • Materials Testing Services

30 September 2003

Mr. Michael Nugent (facsimile 874-8716)
Building Inspection Department
City of Portland
389 Congress Street, Room 315
Portland, Maine 04101

Subject: Alternative Pile Load Test Procedure
Gulf of Maine Research Institute
Portland, Maine
RWG&A Project No. 235-920

Dear Mr. Nugent:

R. W. Gillespie & Associates, Inc. (RWG&A) is the geotechnical engineer representing the Owner, Gulf of Maine Research Institute, for the new research building project. RWG&A completed the geotechnical investigation for the project and site. RWG&A recommended that the building be founded on 80 ton (160 kip) design capacity steel H-piles. The adopted building code for the City of Portland is the BOCA National Building Code/1996. Since the design pile capacity exceeds 40 tons (80 kips), and in accordance with section 1817.4 of the BOCA National Building Code/1996, the pile capacity is to be verified by static load test. Contract documents prepared by SMRT allowed for both static and dynamic testing of piles. The general contractor, Ouellet Associates, and pile subcontractor, H. B. Fleming, have proposed that capacity of the piles be determined by the dynamic load test method. It is the opinion of RWG&A that dynamic load testing is a suitable alternative to static load testing for the Gulf of Maine Research Institute building, if properly performed and reported.

Background - Dynamic Load Testing

The dynamic pile load test is performed in accordance with ASTM test method D4945 which provides a detailed description of the test procedure. In summary, dynamic load testing involves recording velocity and acceleration at the pile top during driving using bolt-on accelerometers and strain transducers. An electronic device, the pile driving analyzer (PDA), reduces these measurements and calculates pile stresses and ultimate pile capacity for selected hammer blow counts.

Corporate Office - 86 Industrial Park Rd., Ste 4 • Saco, ME 04072 • 207-286-8008 • Fax 207-286-2882
Branch Office - 200 International Dr., Ste 170 • Portsmouth, NH 03801 • 603-427-0244 • Fax 603-430-2041

R. W. Gillespie & Associates, Inc.

Page 2 of 3

Current Practice - Field Quality Control of Pile Installation

It is the opinion of RWG&A that pile capacity estimates using the PDA measurements make reliable estimates of pile capacity. The test method is, however, indirect, and consequently less accurate than a static load test. The current engineering practice is to tie the design geotechnical safety factor to the level of quality control and testing to be used on each project. Design investigation, quality control, and testing for the Gulf of Maine Research Institute building include the following elements:

- Subsurface investigation conducted in accordance with Section 1816.1 of the **BOCA National Building Code/1996**. The investigation was conducted by the project geotechnical engineer, RWG&A, and results were presented in a report dated 19 June 2003, Project No. 235-741.
- Static pile capacity calculation by RWG&A.
- Wave Equation Analysis of the pile driving system by the contractor's geotechnical engineer, GZA Geoenvironmental.
- Dynamic testing including PDA measurements of selected piles at the outset of the project to be performed by GZA Geoenvironmental and reviewed by RWG&A.
- Revision of the pile driving criteria if indicated by the dynamic testing results.
- Full time monitoring and preparation of detailed logs of the installation of each pile as required in section 1816.13 of the **BOCA National Building Code/1996**, to be performed by RWG&A.

Given these procedures for quality control and a 160 kip design capacity, the American Society of Civil Engineers 1997 "Standard Guidelines for Design and Installation of Pile Foundations," indicates that a geotechnical factor of safety of 2.2 is appropriate. Similar methodology is incorporated in the "AASHTO Standard Specification for Highway Bridges, 1996," wherein a geotechnical factor of safety of 2.25 is considered acceptable for highway bridge foundations. Both the ASCE Standard Guidelines and the AASHTO Standard Specification indicate that 2.0 is an acceptable factor of safety on geotechnical capacity if a static load test is performed. Current practice as specified by BOCA (Section 1817.4) is to use a factor of safety of 2.0 on geotechnical pile capacity and a static load test for piles with design capacity greater than 80 kips.

Conclusions and Recommendations

1. Dynamic load testing is an established method used in conjunction with other investigative and quality control procedures to verify the geotechnical capacity of driven piles. Published

R. W. Gillespie & Associates, Inc.

Page 3 of 3

safety factors for geotechnical capacity range from 2.2 to 2.25 for 160 kip design capacity steel H-piles that are properly installed, monitored, and tested by dynamic methods.

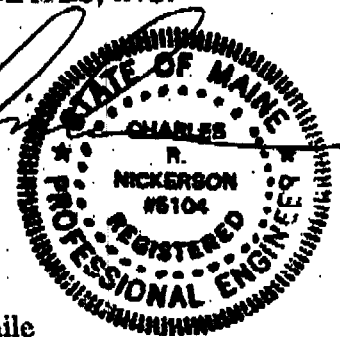
2. The alternative (dynamic) load testing proposed for the Gulf of Maine Research Institute building is acceptable if the geotechnical factor of safety is at least 2.25 and all of the above investigative and field quality control measures are carried out. The driving criteria provided in the pile contractor's submittal is based on a factor of safety of 2.25.
3. The HP12x74, ASTM A572 Grade 50, steel H-piles for the Gulf of Maine Research Institute building should be driven to an ultimate geotechnical capacity of 360 kips at the end of driving. This will provide a geotechnical factor of safety of 2.25 on the 160 kip structural design capacity, as provided by SMRT.
4. Dynamic pile testing should include PDA measurements of at least two piles.
5. Dynamic pile testing should be performed at the outset of the project.

Closure

We trust this information is sufficient to support the request to use dynamic pile load testing on the Gulf of Maine Research Institute building project. If you have any questions or require additional information, please contact us.

Sincerely,
R. W. GILLESPIE & ASSOCIATES, INC.


Charles R. Nickerson, P.E.
Chief Geotechnical Engineer



CRN:ci

Copy by Facsimile:

Donald W. Perkins, Jr. - Gulf of Maine Research Institute	772-6855
David M. Lawrence - Ouellet Associates	725-0101
Andrew D. Bradley, P.E. - SMRT	772-1070

Facsimile

G:\Projects\1\0235-920\Corresp\03\Sept03\AlternativePileLoad.wpd

RWG&A Project No. 235-920

30 September 2003

TOTAL P.04



ARCHITECTURE
ENGINEERING
PLANNING

Fax Transmission

To: Michael Nuget, City of Portland Fax #: 874-8716
From: Andrew Bradley, P.E. Date: October 1, 2003
Re: File Numbering and Boring Job #: 03034
 locations

Job Name: GMRI Laboratory

5 pages, including cover.

REMARKS:

Attached is a pile layout plan showing both sequence of installation (as indicated to me by the Contractor) and location of Test piles. Locations for the Test pile have been chosen to correspond to Soil Borings conducted by R.W. Gillespie and Associates, as per Charles Nickerson's suggestion.

Northeast

Two piles have been indicated on the Layout Plan for testing, one at B-1 another at D-9.4. An additional pile at D-7 has been identified as a possible testing location should conditions in the field require a third test.

Mid-Atlantic

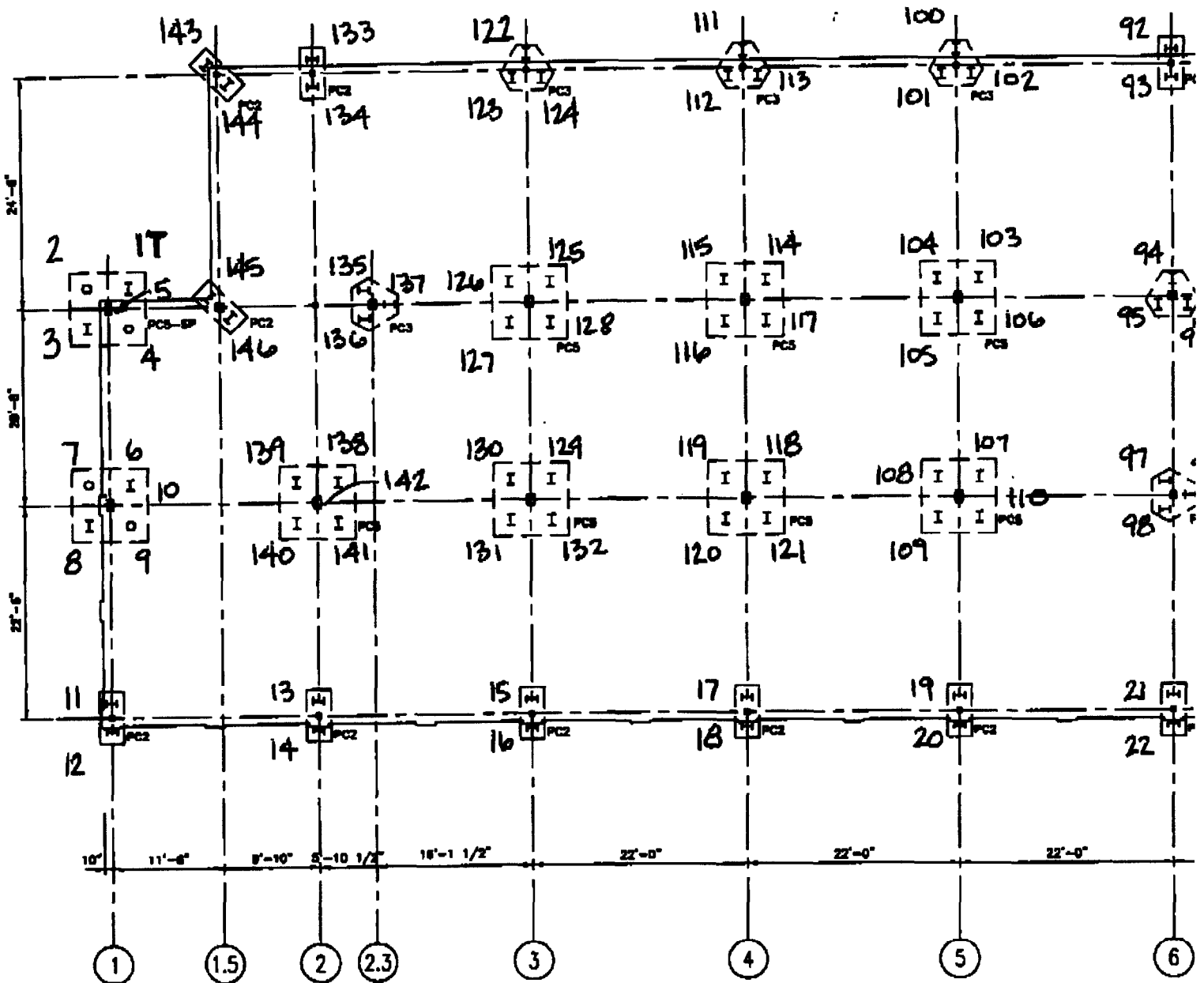
Southeast

Also attached is a Partial Site Plan with Soil Boring locations superimposed for reference, locations are approximate and were derived from the Geotechnical Report previously supplied for the project.

A hard copy will follow in the mail (Michael Nuget only).

cc: Charlie Nickerson, P.E., Gillespie and Assoc. - 286-2882
David Lawrence, Ouellet Assoc. - 725-1070
DRL, file 22.1

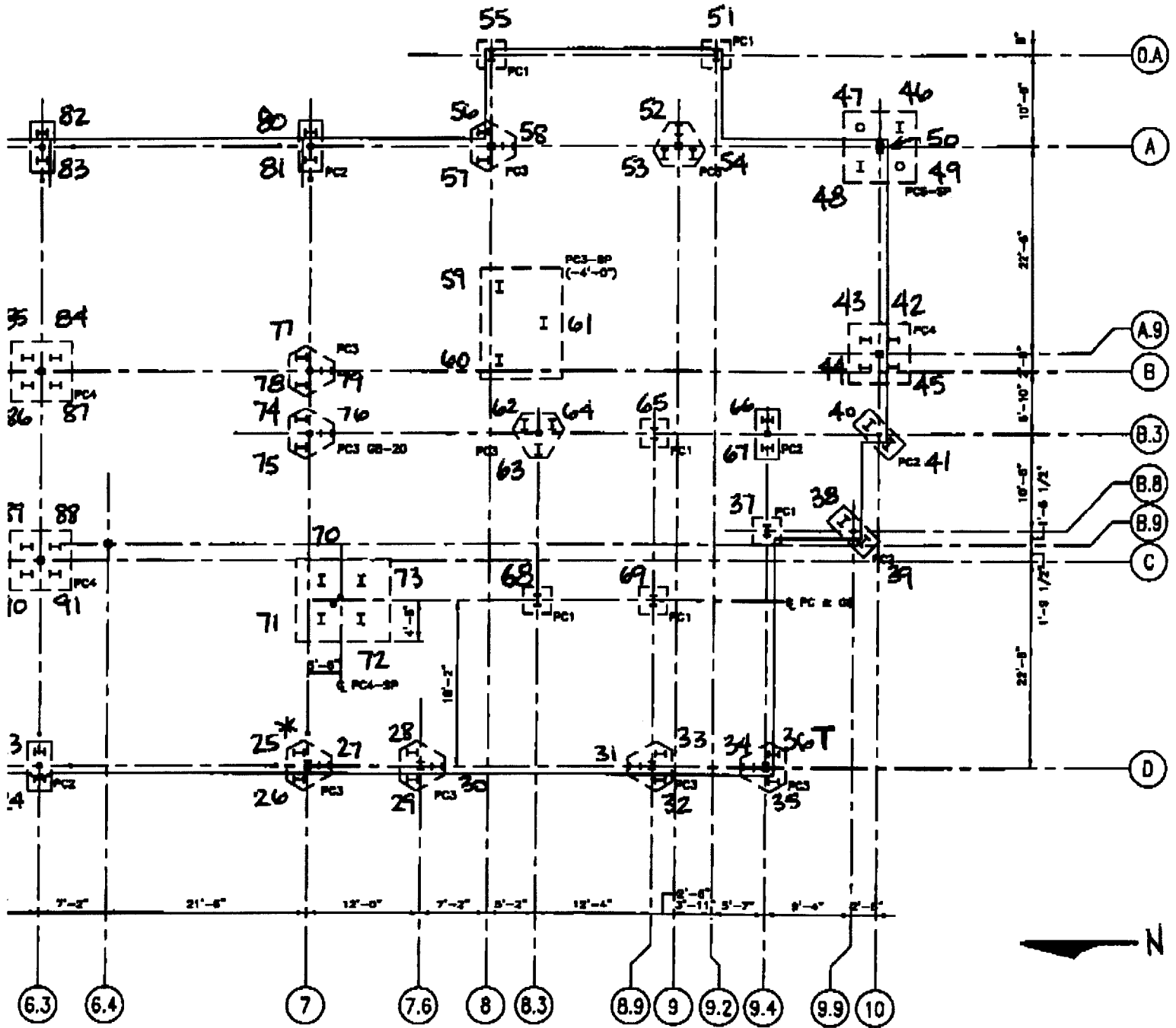
144 Fore Street
PO Box 618
Portland, Maine 04104
☎ 207 772-3846
☎ 207 772-1070
www.smrinc.com



PILE LAYOUT PLA
N.T.S.

KEY

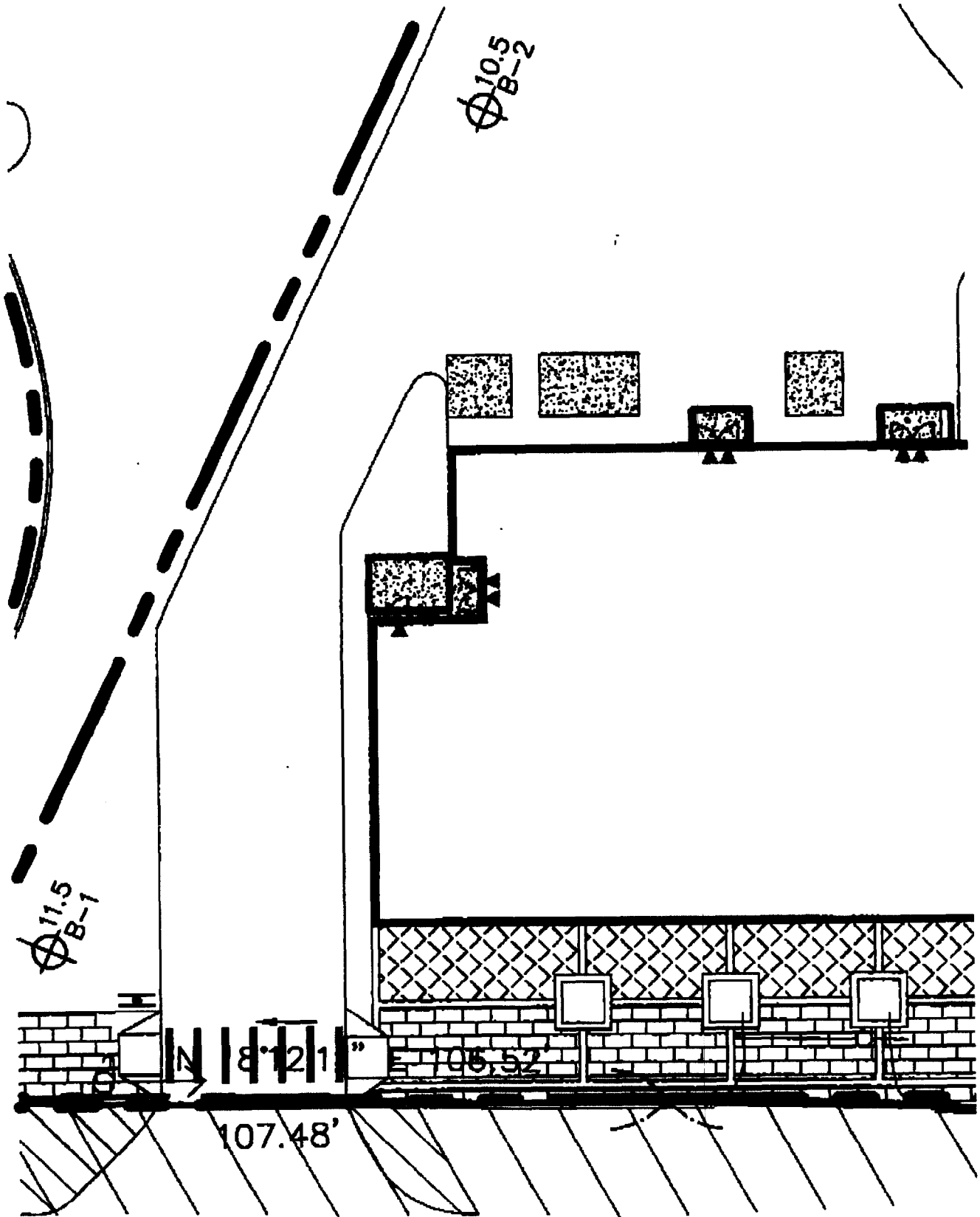
- I : H12x53 PILE
- O : PILE W/ ROCK ANCHOR
- T : DENOTES TEST PILE
- * : ADDN'L TEST PILE, AS REQUIRED



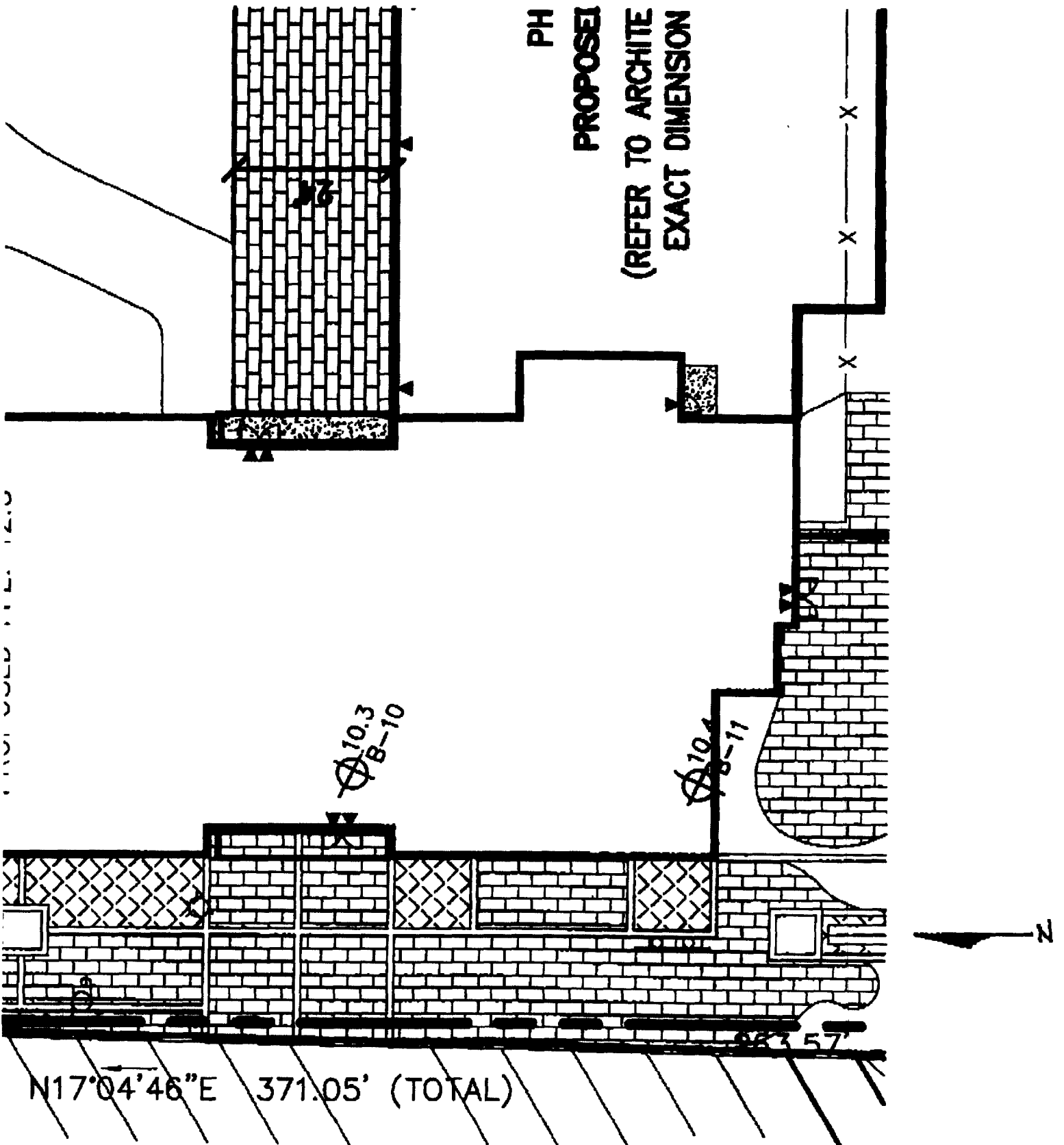
- SEQUENTIAL NUMBERING



THE GULF OF MAINE RESEARCH INSTITUTE
PORTLAND ME



PARTIAL SITE PLAN - T
NTS - AS PROVIDED BY I



IT BORING LOCATIONS
GILLESPIE & ASSOC.



THE GULF OF MAINE
RESEARCH INSTITUTE
POORLAND ME.



R. W. Gillespie & Associates, Inc.

Geotechnical Engineering • Geohydrology • Materials Testing Services

19 June 2003

Mr. Donald W. Perkins, Jr., President
Gulf of Maine Research Institute
P.O. Box 7549
Portland, Maine 04112

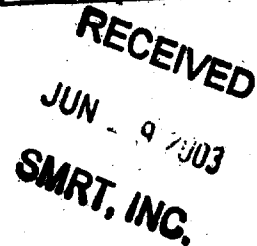
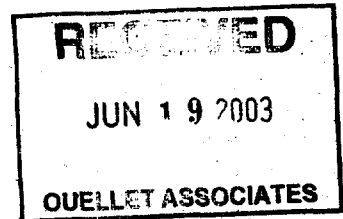
Subject: Geotechnical Investigation
Proposed Gulf of Maine Research Institute Building
Portland, Maine
RWG&A Project No. 235-741

Dear Mr. Perkins:

R. W. Gillespie & Associates, Inc., (RWG&A) is pleased to present the results of our geotechnical investigation for the proposed Gulf of Maine Research Institute Building in Portland, Maine. This work was performed in accordance with RWG&A's proposal No. P-4598.GI, dated 02 November 2001, as amended by RWG&A's letter of 27 November 2001. The purpose of the investigation was to obtain information about subsurface conditions on which to base recommendations for design and construction of foundations, ground floor slabs, and pavements. Preliminary results of the geotechnical investigation were provided in a report dated 19 December 2001. Be advised that this final report supersedes the preliminary report in its entirety.

The attached report presents the findings of subsurface explorations and engineering analyses, and provides geotechnical recommendations for design and construction of the research institute building. In summary, subsurface conditions at the site consist of a surficial layer of topsoil or asphalt underlain by fill over naturally deposited organic silt and silty clay, underlain by sand. The soils are underlain by bedrock at depths on the order of 25 to more than 100 feet. Boring B-10 was terminated at a depth of 7 feet after encountering petroleum laden soils in the fill. Free water was observed in all of the explorations at depths of approximately 7 to 10 feet below the ground surface and was locally influenced by the tidal levels in Portland Harbor.

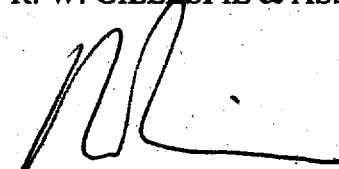
The fill, organic silt, and clay are not suitable for support of the building foundations. Therefore, the proposed structure will need to be supported on a deep foundation system which will carry the foundation loads into dense sand (i.e., glacial till) or bedrock below the silty clay. The deep foundation system should consist of HP 12x74 structural steel piles driven to end-bearing. Based on



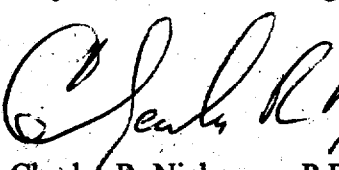
the structural loads, a design pile capacity of 80 tons will be needed. In accordance with building codes, a pile load test will be required. Structural slab ground floors are recommended in lieu of slab-on-grade ground floors due to anticipated post-construction settlements. A passive foundation venting system below the ground floor slab is recommended to prevent infiltration of petroleum and fugitive water vapors into the building.

We have enjoyed working with you and the design team on this project and look forward to a continuing relationship. If you have any questions, please do not hesitate to contact us.

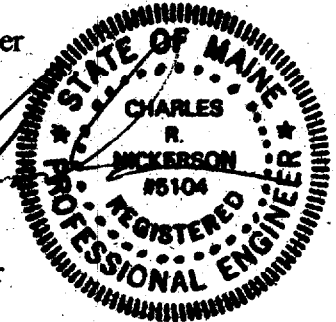
Very truly yours,
R. W. GILLESPIE & ASSOCIATES, INC.



Marc R. Grenier, P.E.
Project Geotechnical Engineer



Charles R. Nickerson, P.E.
Chief Geotechnical Engineer



MRG/CRN:ci

Copies: Mr. Andrew D. Bradley, P.E. - SMRT, Inc. (four copies)

DEPARTMENT DIRECTOR
Lee D. Urban



DIVISION DIRECTORS
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman
Planning

John N. Lufkin
Economic Development

DEPARTMENT OF PLANNING AND DEVELOPMENT

October 1, 2003

David Lawrence
Ouellet Associates
56 Bibber Parkway
Brunswick, ME 04011-7357

RE: Load test for pile foundation Gulf of Maine Research Institute (042 C001)

Dear David,

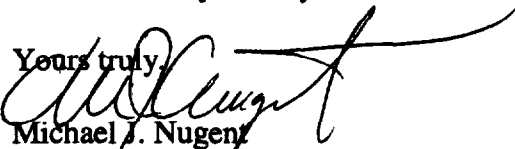
This is a response to your request to utilize dynamic load testing instead of static load testing for the proposed pile foundation. The following are the facts:

- 1) Charles Nickerson, P.E. has provided written documentation that both means of testing for this application provide comparable results and is a suitable alternative;
- 2) Staff engineers at the International Code Council (formerly BOCA) agree that dynamic testing is acceptable under the 2003 International Building Code.
- 3) The foundation system will be constructed in compliance with all other aspects of Chapter 18 of the 1999 BOCA code.

Based on this information and pursuant to Section 106.4 of the Code, this office hereby authorizes the use of dynamic load testing and authorized the commencement of piling placement. It is required that the tests and installation be performed in complete compliance with the construction documents submitted by R.W. Gillespie and associates and that a complete set of testing results and Special Inspection reports be submitted to this office for review.

Please advise of your grade beam/pile cap schedule to insure that we have appropriate permitting in place to avoid delays.

Thank you for your attention in this matter.

Yours truly,

Michael J. Nugent
Manager of Inspection Services

SPECIAL INSPECTIONS - LIST OF AGENTS

PROJECT: Gulf of Maine Research Institute

LOCATION: Portland, Maine

STRUCTURAL

ENGINEER OF RECORD: Andrew Bradley, P.E. SMRT, Inc.
Name Firm
144 Fore Street, Portland, ME 04104
Address

**ARCHITECT
OF RECORD:**

Paul Stevens, A.I.A SMRT, Inc.
Name Firm
144 Fore Street, Portland, ME 04104
Address

Following is the list of Agents selected for performance of Special Inspections for this project.

	Type	Name	Firm
1.	Special Inspector	Andrew Bradley, P.E.	SMRT, Inc.
2.	Agent	Jeff Giggey	SMRT, Inc.
3.	Agent	Tim McDonald	SMRT, Inc.
4.	Agent (Soils, Concrete Testing)	Charles Nickerson, P.E.	R.W. Gillespie and Assoc.
5.	Agent (Steel Testing)		Elite Inspection Services, Inc.
6.			
7.			
8.			
9.			
10.			



ARCHITECTURE
ENGINEERING
PLANNING

Letter of Transmittal

ATTN: Mike Nugent
Company: City of Portland
Address:

Date: October 8, 2003
From: David Lay
Re:
Project: GMRI
Job #: 03034

- ▶ We are sending you: Attached Under separate cover via _____ the following:
- Shop drawings Prints Plans Samples Specifications
- Copy of letter Change Order Other: _____

Copies	Date	No	Description
1			Schedule of Special Inspections

- ▶ These are transmitted as checked below:
- For approval Approved as submitted Resubmit _____ copies for approval
- For your use Approved as noted Submit _____ copies for distribution
- As requested Returned for corrections Return _____ corrected prints
- For review and comment Other: _____
- For BIDS DUE _____, 19_____ Prints RETURNED AFTER LOAN to us

▶ Remarks:

cc: 03034/22

144 Fore Street
PO Box 618
Portland, Maine 04104
☎ 207 772-3846
☎ 207 772-1070
www.smrtinc.com

Signature: _____



OUELLET ASSOCIATES INC.

General Contractors & Professional Managers of Construction

Partnership in Construction

- Fax
- Date October 8, 2003
- Project: Gulf of Maine Research Institute - Research Laboratory
- Subject: List of Special Inspections

Mike Nugent, City of Portland Inspections

Following please find the four page matrix of the special inspections for the project.

If you have any questions please give us a call.

David M. Lawrence
Project Manager

cc. File

SCHEDULE OF SPECIAL INSPECTIONS

Project Number: 03034

Page 1 of 4

Project: Gulf of Maine Research Institute

ITEM	SERVICE	EQUIPMENT	COMMENTS	AGENT	DATE COMPLETED	ASV
1.1a	Review Fabricator QA/QC procedures manual		One stop inspection required.			
1.1b	Review Fabricator QA/QC procedures		One stop inspection required. Visual inspection of implementation and compliance.			
1.1c	Review material certificates of compliance (bolts, nuts, welders, structural steel and weld filler material).		Verify that certificates of compliance have been approved.			
1.1d	Review welder certification.		Obtain certification numbers for all welders and all steel.			
1.1e	Review Shop Drawings.		Verify Approval.			
1.1f	Review structural steel and fabrication details match approved shop drawings. Visually inspect bolts and welds.		Verify member sizes, piece marks and connection details match approved shop drawings. Visually inspect bolts and welds.			
1.1g	Review welding of existing-remaining systems in Category C buildings.		Magnetic particle test 5% of all welds. Ultrasonic test 5% of all penetration welds.			
1.2a	Review welder certification.		Obtain certification numbers for all welders and all steel.			
1.2b	Review materials certificates of compliance (bolts, nuts, washers, and weld filler material).		Verify that certificates of compliance have been approved.			
1.2c	Review structural steel and erection for compliance to approved shop drawings.		Verify all member sizes, piece marks and connection details.			
1.2d	Inspect field bolting installation in accordance with Section 9 of RSCC Specification for Structural Joints Using ASTM A325 or A490 Bolts.		Visually inspect all bolts.			
1.2e	Review shear connections.		Visually inspect all.			

All Structural Inspections have been completed in accordance with applicable BOCA requirements.

Special Inspector

Date

002/005

SMRT, INC. 2nd Floor

10/08/2003 13:58 FAX 2077727346

SCHEDULE OF SPECIAL INSPECTIONS

Project Number: 00034

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Project: Gulf of Maine Research Institute

MATERIAL/ACTIVITY	ITEM	DESCRIPTION	INSPECTION	AGENCY	DATE
STRUCTURAL STEEL - Erection (continued)	1.2g	Review Bracing connections.	Visually inspect all.		
	1.2h	Review Column splices.	Visually inspect all.		
	1.2i	Review base metal testing for >1.5".	Ultrasonic testing of all webbs per AWS D1.1.		
	1.3a	Review Fabricator QA/QC procedures manual.	One shop inspection required.		
STEEL JOIST - Fabrication NOTE: SIER may waive Fabricator shop inspection if Fabricator is currently a member of the Steel Joist Institute.	1.3h	Review Fabricator QA/QC procedures implementation and conformance.	One shop inspection required. Visual inspection of shop conformance.		
	1.3c	Review material certificates of compliance (bolts, nuts, washers, structural steel and weld filler material).	Obtain copies of mill certificates for all structural steel, bolts and weld material.		
	1.3d	Review welder certification.	Obtain certification numbers for all welders and all steel.		
	1.3e	Review connections. Visually inspect bolts and welds.	Verify member sizes, piece marks and connection details match approved shop drawings.		
	1.4a	Review welder certification.	Obtain certification numbers for all welders and all steel.		
	1.4b	Review materials certificates of compliance (bolts, nuts, washers, and weld filler material).	Obtain copies of mill certificates for all structural steel, bolts and weld materials.		
STEEL JOIST - Erection	1.4c	Review steel joist and erection for conformance to approved shop drawings.	Verify all member sizes, piece marks and connection details.		
	1.4d	Review joist bearing connection, bearing length, and bracing.	Visually inspect all.		
	1.4e	Verify installation of joist reinforcement.	Where concurred bolts are installed over joist chords, verify installation of reinforcement.		

All Structural Inspections have been completed in accordance with applicable BOCA requirements. Special Inspector: _____ Date: _____

SCHEDULE OF SPECIAL INSPECTIONS

Project: Gulf of Maine Research Institute

Project Number: 03034

Page 3 of 4

MATERIAL ACTIVITY FROM	DESCRIPTION	APPROVAL TO THIS PROJECT	APPROVAL	DATE COMPLETED	BY
SECONDARY/MISC STRUCTURAL STEEL	1.5a	Review stair connections.	Visually inspect all.		
	1.5b	Review gir connections.	Visually inspect all.		
	1.5c	Review steel deck shop drawings.	Verify approval		
	1.5d	Review welder certification.	Obtain certification numbers for all welders.		
	1.5e	Verify number, type and location of steel deck connection to framing and side leg fasteners.	Visually inspect all.		
	1.5f	Review (link) connections/installation.	Visually inspect all. Verify member size and bearing length.		
	1.5h	Review details of steel frames.	Visually inspect all.		
	SECTION 2 CONCRETE CONSTRUCTION (BOCA 1705.3)				
CONCRETE MATERIALS	2.1a	Review mix design.	Verify approval of all mixes intended for use.		
	2.1b	Review reinforcement grade.	Inspect identifying marks on reinforcing steel.		
	2.1c	Review submittals.	Verify acceptance of proprietary products and reinforcing steel shop drawings. Review requirements of reinforcing steel on placement drawings.		
REINFORCING AND PRESTRESSING STEEL	2.2a	Inspect condition and placement of reinforcing steel.	All reinforcing steel in walls, spread footings, columns and beams and column piers. Check prior to each concrete placement.		
	2.3a	Verify acceptability of substrate.	Prior to each concrete placement.		
FORMWORK	2.3b	Verify dimensions and materials acceptability.	Prior to each concrete placement.		
	2.4a	Inspect installation of anchor bolts, masonry dowels and other embedded items.	Inspect for each concrete placement.		
CONCRETE OPERATIONS	2.5a	Field-testing of concrete slump, temperature, and air content.	All concrete placements.		

All Structural Inspections have been completed in accordance with applicable BOCA requirements.

Special Inspector

Date