

# **B E C K E R**

structural engineers, inc.

## Special Inspections Report

84 Marginal Way  
Office Building & Parking Structure

Portland, Maine

October 6, 2008

Prepared for:

Atlantic Bayside Trust, LLC  
50 Portland Pier  
Suite 400  
Portland, ME 04101

In conjunction with:

The City of Portland  
389 Congress Street  
City Hall Room 315  
Portland, Maine 04101

84 Marginal Way  
Office Building & Parking Structure

Portland, Maine  
October 6, 2008

Special Inspections Report

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Project: 84 Marginal Way, Portland, Maine  
Date Prepared: 5/25/2007

## Structural Statement of Special Inspections (Continued)

### Final Report of Special Inspections (SSIC/SI 1)

[To be completed by the Structural Special Inspections Coordinator (SSIC/SI 1). Note that all Agent's Final Reports must be received prior to issuance.]

Project: 84 Marginal Way  
Location: Marginal Way and Preble Streets, Portland, Maine  
Owner: Atlantic Bayside Trust, LLC  
Owner's Address:

Architect of Record: Judy Johnson Harriman Associates  
(name) (firm)

Structural Registered Design  
Professional in Responsible Charge: Paul B. Becker, P. E. Becker Structural Engineers  
(name) (firm)

To the best of my information, knowledge and belief, the Special Inspections required for this project, and itemized in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,  
Structural Special Inspection Coordinator

PAUL B. BECKER

(Type or print name)

BECKER STRUCTURAL ENGINEERS, INC

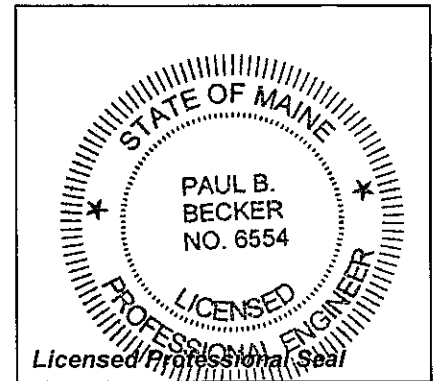
(Firm Name)

[Signature]

Signature

10.6.08

Date



## Structural Statement of Special Inspections (Continued)

### List of Agents

Project: 84 Marginal Way

Location: Marginal Way and Preble Streets, Portland, Maine

Owner: Capital, LLC

This Statement of Special Inspections encompass the following discipline: **Structural (Foundation)**

(Note: Statement of Special Inspections for other disciplines may be included under a separate cover)

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- Soils and Foundations
- Cast-in-Place Concrete
- Precast Concrete System
- Masonry Systems
- Structural Steel
- Wood Construction
- Special Cases

Special Inspection Agencies	Firm	Address, Telephone, e-mail
1. STRUCTURAL Special Inspections Coordinator (SSIC)	Becker Structural Engineers	75 York Street Portland, Maine 04101 (207) 879-1838 paul@beckerstructural.com
2. Special Inspector (SI 1)	Becker Structural Engineers	same
3. Special Inspector (SI 2)	S. W. Cole Engineering	286 Portland Road Gray, Maine 04039 (207) 657-2866 pkohler@swcole.com
4. Testing Agency (TA 1)	S. W. Cole Engineering	same
5. Testing Agency (TA 2)		
6. Other (O1)		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.



## Structural Schedule of Special Inspections

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### Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided to the Special Inspector for their records. *NOTE VERIFICATION THAT QUALIFIED INDIVIDUALS ARE AVAILABLE TO PERFORM STIPULATED TESTING AND/OR INSPECTION SHOULD BE PROVIDED PRIOR TO SUBMITTING STATEMENT. AGENT QUALIFICATIONS IN SCHEDULE ARE SUGGESTIONS ONLY; FINAL QUALIFICATIONS ARE SUBJECT TO THE DISCRETION OF THE REGISTERED DESIGN PROFESSIONAL PREPARING THE SCHEDULE.*

#### Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge or Special Inspector of Record deems it appropriate that the individual performing a stipulated test or inspection have a specific certification, license or experience as indicated below, such requirement shall be listed below and shall be clearly identified within the schedule under the Agent Qualification Designation.

PE/SE	Structural Engineer – a licensed SE or PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
EIT	Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination

#### Experienced Testing Technician

ETT	Experienced Testing Technician – An Experienced Testing Technician with a minimum 5 years experience with the stipulated test or inspection
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#### American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

#### American Welding Society (AWS) Certification

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

#### American Society of Non-Destructive Testing (ASNT) Certification

ASNT	Non-Destructive Testing Technician – Level II or III.
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#### International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

#### National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

#### Other

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Project: 84 Marginal Way, Portland, Maine

Date Prepared: 3/5/2007

**Structural Schedule of Special Inspections**  
**SOILS & FOUNDATION CONSTRUCTION**

VERIFICATION AND INSPECTION	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
IBC Section 1704.7, 1704.8, 1704.9						
1. Verify existing soil conditions, fill placement and load bearing requirements						
a. Prior to placement of prepared fill, determine that the site has been prepared in accordance with the approved soils report.	Y	P	IBC 1704.7.1	TA1	PE/GE, EIT or ETT	X
b. During placement and compaction of fill material, verify material being used and maximum lift thickness comply with the approved soils report.	Y	P	IBC 1704.7.2	TA1	PE/GE, EIT or ETT	X
c. Test in-place dry density of compacted fill complies with the approved soils report.	Y	p	IBC 1704.7.2	TA1	PE/GE, EIT or ETT	X
2. Pile foundations:						
a. Observe and record procedures for static load testing of piles.	Y	C	IBC 1704.8	TA1	PE/GE, EIT or ETT	X
b. Observe and record procedures for dynamic load testing of piles.	Y	C		TA1	PE/GE, EIT or ETT	X
c. Record installation of each pile and results of load test. Include cutoff and tip elevations of each pile relative to permanent reference.	Y	C		TA1	PE/GE, EIT or ETT	X
d. Test welded splices of steel piles	Y	C	AWS D1.1	TA1	AWS-CWI	X
3. Pier foundations: Verify installation of pier foundations for buildings assigned to Seismic Design Category C, D, E or F.	NA	N				
a. Verify pier diameter and length	NA	N				
b. Verify pier embedment (socket) into bedrock	NA	N				
c. Verify suitability of end bearing strata	NA	N				

## Structural Schedule of Special Inspections

### CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
IBC Section 1704.4						
1. Inspection of reinforcing steel, including prestressing tendons, and placement	Y	P	ACI 318: 3.5, 7.1-7.7	SII	PE/SE or EIT	X
2. Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5B	N	N	Welding of Reinf Not Allowed			
3. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased	Y	C	IBC 1912.5	SII	PE/SE or EIT	X
4. Verifying use of required design mix	Y	P	ACI 318: Ch 4, 5.2-5.4	TA1	ACI-CFTT or ACI-STT	X
5. At time fresh concrete is sampled to fabricate specimens for strength test, perform slump and air content test and temperature	Y	C	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	TA1	ACI-CFTT or ACI-STT	X
6. Inspection of concrete and shotcrete placement for proper application techniques	Y	C	ACI 318: 5.9, 5.10	SII	PE/SE or EIT	X
7. Inspection for maintenance of specified curing temperature and techniques	Y	P	ACI 318: 5.11-5.13	SII	PE/SE or EIT	X
8. Inspection of Prestressed Concrete						
a. Application of prestressing force.	N	N				
b. Grouting of bonded prestressing tendons in seismic force resisting system	N	N				
9. Erection of precast concrete members	Y	P	ACI 318: Ch 16	SII	PE/SE or EIT	X
10. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms beams and structural slabs	N	N				

**Structural Schedule of Special Inspection Services**  
**FABRICATION AND IMPLEMENTATION PROCEDURES – PRECAST CONCRETE PLANK**

VERIFICATION AND INSPECTION  IBC Section 1704.2	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Fabrications Procedures: Review of fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At the completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents. -OR- 2. PCI Certification	Y	S	Fabricator shall submit one of the two qualifications	SII	PE/SE or EIT	X
3. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents.	Y	S	IBC 1704.2.2	SII	PE/SE or EIT	X

## Structural Statement of Special Inspections (Continued)

### List of Agents

Project: 84 Marginal Way

Location: Marginal Way and Preble Streets, Portland, Maine

Owner: Atlantic Bayside Trust, LLC

This Statement of Special Inspections encompass the following discipline: **Structural (Superstructure)**

(Note: Statement of Special Inspections for other disciplines may be included under a separate cover)

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## Structural Schedule of Special Inspections

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#### Experienced Testing Technician

ETT	Experienced Testing Technician – An Experienced Testing Technician with a minimum 5 years experience with the stipulated test or inspection
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ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

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ASNT	Non-Destructive Testing Technician – Level II or III.
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#### International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

#### National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

#### Other

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## Structural Schedule of Special Inspections CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION  IBC Section 1704.4	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Inspection of reinforcing steel, including prestressing tendons, and placement	N		ACI 318: 3-5, 7.1-7.7			
2. Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5B	N		Welding of Reinf Not Allowed			
3. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased	Y	C	IBC 1912.5	SII	PE/SE or EIT	X
4. Verifying use of required design mix	Y	P	ACI 318: Ch 4, 5.2-5.4	TAI	ETT	X
5. At time fresh concrete is sampled to fabricate specimens for strength test, perform slump and air content test and temperature	Y	C	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	TAI	ACI-CFTT or ACI-STT or ETT	X
6. Inspection of concrete placement for proper application techniques	Y	C	ACI 318: 5.9, 5.10	SII TAI	PE/SE or EIT or ETT	X
7. Inspection for maintenance of specified curing temperature and techniques	Y	P	ACI 318: 5.11-5.13	SII	PE/SE or EIT	X
8. Inspection of Prestressed Concrete						
a. Application of prestressing force.	Y	S	ACI 318: 18.20	SII	PE/SE or EIT	X
b. Grouting of bonded prestressing tendons in seismic force resisting system	N		ACI 318: 18.18.4			
9. Erection of precast concrete members	Y	P	ACI 318: Ch 16	SII	PE/SE or EIT	X
10. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms beams and structural slabs	Y	S	ACI 318: 6.2	SII	ACI-STT	X

**Structural Schedule of Special Inspections**  
**MASONRY CONSTRUCTION – LEVEL 1 (NON-ESSENTIAL FACILITY)**

VERIFICATION AND INSPECTION  IBC Section 1704.5	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. As masonry construction begins, the following shall be verified to ensure compliance:						
a. Proportions of site-prepared mortar.	Y	P	ACI530.1, 2.6A	TA1	ETT	X
b. Construction of mortar joints.	Y	P	ACI530.1, 3.3B	SI1	PE/SE or EIT	X
c. Location of reinforcement and connectors.	Y	P	ACI530.1, 3.4, 3.6A	SI1	PE/SE or EIT	X
d. Prestressing technique.	N		ACI530.1, 3.6B			
e. Grade and size of prestressing tendons and anchorages.	N		ACI530.1, 2.4B, 2.4H			
2. The inspection program shall verify:						
a. Size and location of structural elements.	Y	P	ACI530.1, 3.3G	SI1	PE/SE or EIT	X
b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.	Y	P	ACI530, 1.2.2(e), 2.1.4, 3.1.6	SI1	PE/SE or EIT	X
c. Specified size, grade and type of reinforcement.	Y	P	ACI530, 1.12, ACI530.1, 2.4, 3.4	SI1	PE/SE or EIT	X
d. Welding of reinforcing bars.	N		ACI530, 2.1.10.6.2, 3.2, 4(b)			
e. Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).	Y	P	IBC 2104.3, 2104.4; ACI530.1, 1.8C, 1.8D	SI1	PE/SE or EIT	X
f. Application and measurement of prestressing force.	N		ACI530.1, 3.6B			
3. Prior to grouting, the following shall be verified to ensure compliance:						
a. Grout space is clean.	Y	P	ACI530.1, 3.2D	SI1	PE/SE or EIT	X
b. Placement of reinforcement and connectors and prestressing tendons and anchorages.	Y	P	ACI530, 1.12, ACI530.1, 3.4	SI1	PE/SE or EIT	X
c. Proportions of site-prepared grout and prestressing grout for bonded tendons.	N		ACI530.1, 2.6B			
d. Construction of mortar joints.	Y	P	ACI530.1, 3.3B	SI1	PE/SE or EIT	X
4. Grout placement shall be verified to ensure compliance with code and construction document provisions.	Y	C	ACI530.1, 3.5	SI1	PE/SE or EIT	X
a. Grouting of prestressing bonded tendons.	N		ACI530.1, 3.6C			
5. Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.	Y	C	IBC 2105.2.2, 2105.3; ACI530.1, 1.4	TA1	ETT	X
6. Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified.	Y	P	ACI530.1, 1.5	SI1	PE/SE or EIT	X



**Structural Schedule of Special Inspections - STEEL CONSTRUCTION**

VERIFICATION AND INSPECTION IBC Section 1704.3	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT T	AGENT QUALIFICATION	TASK COMPLETED
<b>1. Material verification of high-strength bolts, nuts and washers:</b>						
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	Y	S	Applicable ASTM material specifications; AISC 335, Section A3.4; AISC LRFD, Section A3.3	SII	PE/SE or EIT	X
b. Manufacturer's certificate of compliance required.	Y	S		SII	PE/SE or EIT	X
<b>2. Inspection of high-strength bolting</b>						
a. Bearing-type connections.	Y	P	AISC LRFD Section M2.5	TAI	AWS/AISC-SSI	X
b. Slip-critical connections.	Y	C or P (method dependent)	IBC Sect 1704.3.3	TAI	AWS/AISC-SSI	X
<b>3. Material verification of structural steel (IBC Sect 1708.4):</b>						
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	Y	S	ASTM A 6 or ASTM A 568 IBC Sect 1708.4	SII	PE/SE or EIT	X
b. Manufacturers' certified mill test reports.	Y	S	ASTM A 6 or ASTM A 568 IBC Sect 1708.4	SII	PE/SE or EIT	X
<b>4. Material verification of weld filler materials:</b>						
a. Identification markings to conform to AWS specification in the approved construction documents.	Y	S	AISC, ASD, Section A3.6; AISC LRFD, Section A3.5	SII	PE/SE or EIT	X
b. Manufacturer's certificate of compliance required.	Y	S		SII	PE/SE or EIT	X
<b>5. Submit current AWS D1.1 welder certificate for all field welders who will be welding on this project.</b>	Y	S	AWS D1.1	SII/TAI	PE/SE or EIT	X
<b>6. Inspection of welding (IBC 1704.3.1):</b>						
<b>a. Structural steel:</b>						
1) Complete and partial penetration groove welds.	Y	C	AWS D1.1	TAI	AWS-CWI	X
2) Multipass fillet welds.	Y	C		TAI	AWS-CWI	X
3) Single-pass fillet welds > 5/16"	Y	C		TAI	AWS-CWI	X
4) Single-pass fillet welds < 5/16"	Y	P		TAI	AWS-CWI	X
5) Floor and deck welds.	Y	P		AWS D1.3	TAI	AWS-CWI
<b>b. Reinforcing steel (IBC Sect 1903.5.2):</b>						
1) Verification of weldability of reinforcing steel other than ASTM A706.	N					
2) Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls and shear reinforcement.	N		AWS D1.4 ACI 318-3.5.2			
3) Shear reinforcement.	N					
4) Other reinforcing steel.	N					
<b>7. Inspection of steel frame joint details for compliance (IBC Sect 1704.3.2) with approved construction documents:</b>						
a. Details such as bracing and stiffening.	Y	P		SII	PE/SE or EIT	X
b. Member locations.	Y	P		SII	PE/SE or EIT	X
c. Application of joint details at each connection.	Y	P		SII	PE/SE or EIT	X

Project: 84 Marginal Way, Portland, Maine  
 Date Prepared: 5/25/2007

**Structural Schedule of Special Inspection Services**  
**FABRICATION AND IMPLEMENTATION PROCEDURES – STRUCTURAL STEEL**

VERIFICATION AND INSPECTION  IBC Section 1704.2	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Fabrications Procedures: Review of fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At the completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents. -OR- 2. AISC Certification	Y  Y	S	Fabricator shall submit one of the two qualifications		PE/SE or EIT	X
3. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents.	Y	S	IBC 1704.2.2		PE/SE or EIT	X

Project: 84 Marginal Way, Portland, Maine  
 Date Prepared: 5/25/2007

**FABRICATION AND IMPLEMENTATION PROCEDURES – PRECAST CONCRETE STRUCTURAL ELEMENTS**

VERIFICATION AND INSPECTION  IBC Section 1704.2	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Fabrications Procedures: Review of fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At the completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents. -OR- 2. PCI Certification	Y	S	Fabricator shall submit one of the two qualifications		PE/SE or EIT	X
3. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents.	Y	S	IBC 1704.2.2		PE/SE or EIT	X

Project: 84 Marginal Way, Portland, Maine

Date Prepared: 5/25/2007

## Structural Schedule of Special Inspections

### SEISMIC RESISTANCE - STRUCTURAL

VERIFICATION AND INSPECTION	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
IBC Section 1707						
1. Special inspections for seismic resistance. Special inspection as specified in this section is required for the following:			Seismic Design Category: C			
a. The seismic-force-resisting systems in structures assigned to Seismic Design Category C, D, E or F	Y	P	IBC 1707.1	SII	PE/SE or EIT	X
2. Structural steel: Continuous special inspection for structural welding in accordance with AISC 341.	Y	P	IBC 1702.2	SII	AWS-CWI	X
3. Structural wood:						
a. Continuous special inspection during field gluing operations of elements of the seismic-force-resisting system.	N		IBC 1702.3			
b. Periodic special inspections for nailing, bolting, anchoring and other fastening of components within the seismic-force-resisting system, including drag struts, braces and hold-downs	N		IBC 1702.3			
4. Cold-formed steel framing: Periodic special inspections during welding operations of elements of the seismic-force-resisting system. Periodic special inspections for screw attachment, bolting, anchoring and other fastening of components within the seismic-force-resisting system, including struts, braces, and hold-downs	N					
4. Seismic isolation system. Provide periodic special inspection during the fabrication and installation of isolator units and energy dissipation devices if used as part of the seismic isolation system	N		IBC 1707.8			

The program of Structural/Special Tests and Inspections does not relieve the Contractor or its subcontractors of their responsibilities and obligations for quality control of the work, for any design work which is included in the scope of services, and for full compliance with the requirements of the Construction Documents. Furthermore, the detection of, or the failure to detect, deficiencies or defects in work during testing and inspection conducted pursuant to the Program does not relieve the Contractor or its subcontractors of their responsibility to correct all deficiencies or defects, whether detected or undetected, in all parts of work, and to otherwise comply with all requirements of the Construction Documents. Additional disclaimers and/or qualifications may be included in the Owner-Special Inspection agreement.

02000 *Site work*

GTR Pile Dynamic Load Test Report 02000.1



84 Marginal Way MOB

Transmittal 00028

06/11/07

**Transmittal To** **Transmittal From**

Ethan Rhile  
 Becker Structural  
 75 York Street  
 Portland, ME 04101-4550  
 T: 207-879-1838

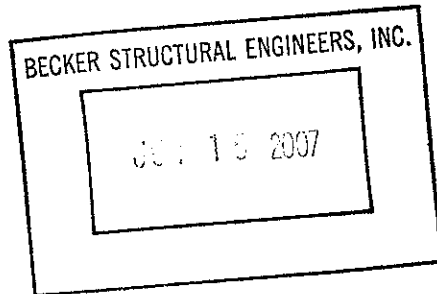
Seth Bickford  
 Pizzagalli Construction Company  
 84 Marginal Way  
 Portland, MAINE 04101  
 F: 207-879-1822

T: F:

<b>WE ARE SENDING:</b>		<b>SUBMITTED FOR:</b>		<b>ACTION TAKEN:</b>	
<input type="checkbox"/> Shop Drawings	<input type="checkbox"/> Letter	<input type="checkbox"/> Approval	<input type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Submitted	
<input type="checkbox"/> Prints	<input type="checkbox"/> Change Order	<input checked="" type="checkbox"/> As Requested	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Approved as Noted	
<input type="checkbox"/> Plans	<input type="checkbox"/> Specifications			<input type="checkbox"/> Returned After Loan	
<input type="checkbox"/> Samples				<input type="checkbox"/> Resubmit	
<input checked="" type="checkbox"/> Other:				<input type="checkbox"/> Submit	
<b>Reference:</b>		<b>SENT VIA:</b>		<input type="checkbox"/> Returned	
		<input checked="" type="checkbox"/> Attached		<input type="checkbox"/> Returned for Corrections	
		<input type="checkbox"/> Separate Cover Via:		<input type="checkbox"/> Due Date:	

ITEM NO.	COPIES	DATE	ITEM	NUMBER	REV. NO.	DESCRIPTION	STATUS
1	2	06/11/07				Submittal #02300 1.05 G6-1 GTR Dynamic REC Load (PDA) Test Procedure Report	

**Remarks**



CC: Ed H. Marsh , Mike LaPointe, Paul Kohler

Signed: \_\_\_\_\_  
 Seth Bickford

84 Marginal Way MOB

Submittal 02300 1.05 G6-1-001

Dynamic Load Test Procedure Report

Primary Submittal Information

Project No: 12571	Date Sent: 6/7/2007	Category: Certification
Submittal No: 02300 1.05 G6-1	Due Date:	Type: POSTCON
Review Cycle: Dynamic Load Test Proced	Resubmittal? No	Priority:

Sent To For Review Responsible Subcontractor or Vendor Manufacturer

Paul Kohler S.W. Cole Engineering, Inc. 286 Portland Road Gray, ME 04039 T:207-657-2866 F:207-657-2840	Chris Roy Vynorius Pile Driving Inc. 150 Elm Street Salisbury, MA 01952 T:(978) 462-7765 F:(978) 462-5331	
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Items Being Submitted

Submittal #02300 1.05 G6-1 GTR Dynamic Load (PDA) Test Procedure Report

Contractor's Review Comments



# 84 Marginal Way MOB

Submittal 02300 1.05 G6-1-001

## Dynamic Load Test Procedure Report

### Primary Submittal Information

Project No: 12571	Date Sent: 6/7/2007	Category: Certification
Submittal No: 02300 1.05 G6-1	Due Date:	Type: POSTCON
Review Cycle: Dynamic Load Test Proced	Resubmittal? No	Priority:

### Sent To For Review Responsible Subcontractor or Vendor Manufacturer

Paul Kohler S.W. Cole Engineering, Inc. 286 Portland Road Gray, ME 04039 T:207-657-2866 F:207-657-2840	Chris Roy Vynorius Pile Driving Inc. 150 Elm Street Salisbury, MA 01952 T:(978) 462-7765 F:(978) 462-5331	
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### Items Being Submitted

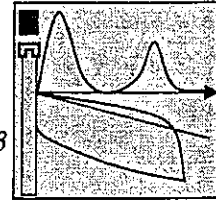
Submittal #02300 1.05 G6-1 GTR Dynamic Load (PDA) Test Procedure Report

### Contractor's Review Comments



## GEOSCIENCES TESTING AND RESEARCH, INC.

55 Middlesex Street, Suite 225, N. Chelmsford, MA 01863  
Ph: (978)251-9395, Fx: (978)251-9396



May 29, 2007

GTR Project No. 07.119

Mr. Chris Roy  
Vynorius Piledriving, Inc.  
150 Elm Street  
Salisbury, MA 01952

Re: Dynamic Pile Testing Report  
84 Marginal Way  
Portland, ME

Dear Chris:

At your request, we have performed dynamic pile testing at the above-referenced site on May 18, 21 and 29, 2007. The dynamic testing was requested in order to evaluate pile capacity, driving stresses, and hammer performance during test pile installation. Testing was conducted using the Pile Driving Analyzer™ (PDA) Model 586 PAK, which records, digitizes, and processes the force and acceleration signals for use in the Case Method and CAPWAP analyses. The dynamic testing was carried out in general accordance with ASTM D4945, "Standard Test Method for High Strain Dynamic Testing of Piles".

### Background

The site is located in Portland, Maine at 84 Marginal Way. The proposed construction consists of an office building and parking garage structure. Sixteen-inch, precast, prestressed, concrete (PPC) piles are proposed for the support of the structure. Ten indicator piles (TP1 through TP10) were tested during end of driving and/or restrike on May 18, 21 and 29, 2007. Refer to Table 1 for the test pile designations and associated production pile numbering system.

### Field Details

#### *Soil*

Six borings were performed in the proposed structure footprint area. The subsurface conditions consist of approximately 13 to 15 feet of loose to dense granular fill. The fill is composed of sand with minor amounts of silt and gravel. Over the lower portions, the fill contains large percentages of cobbles, ash, glass, and brick. A stiff silty clay layer underlies the fill to depths of around 20 to 22 feet. In some borings a thin layer of silty sand and organics was encountered between the fill and stiff clay. The silty clay extends to depths of around 90 to 100

feet below grade and becomes soft and normally consolidated. Below the clay is a medium dense to very dense glacial till deposit. The glacial till is composed of sand and gravel with minor amounts of silt. The lower half of the till layer is dense to very dense. In borings B-1 through B-3, a medium dense glacial outwash layer consisting of silty sand was encountered between the clay and glacial till. Highly weathered, Sulfidic Schist bedrock underlies the glacial till at depths ranging from around 120 to 140 feet below ground surface. Groundwater was observed around 6 feet below grade at the time of drilling. For a more detailed description of the subsurface conditions, refer to the Geotechnical Report and/or the boring logs.

### *Pile*

The test piles consisted of 16-inch square, precast, prestressed, concrete (PPC) piles 120 to 140 feet in length. The piles 140 feet in length consisted of two 70 feet long sections joined with a mechanical splice. The required design load is 125 tons. An additional 35-ton downdrag load has been estimated for the piles on this project. Based on a factor of safety of 2.0, the ultimate capacity is 320 tons (640 kips). Based on a factor of safety of 2.25, the ultimate capacity is 360 tons (720 kips). The cross-sectional area of the piles is 256 square inches. Steel plates were attached to the tips of the piles.

The maximum allowable compressive driving stress is 4.4 kips per square inch (ksi), based on AASHTO guidelines of 85% of the compressive strength minus the prestress ( $0.85f_c - f_p$ ). The maximum allowable tensile driving stress is 0.9 ksi, based on AASHTO guidelines of the three times the square root of the compressive strength plus the prestress ( $3f_c^{1/2} + f_p$ ). The design compressive strength and prestress were reported to be 6 ksi and 0.7 ksi, respectively.

### *Driving System*

A Pilemer DHK-7 hydraulic hammer with a rated energy of 60.8 kip-ft (ram weight of 15.4 kips and a maximum equivalent stroke of 3.94 feet) was used to drive the piles. The cushion material, as reported by the manufacturer, is a MC904 Blue Nylon, with an area of 491 in<sup>2</sup>, elastic modulus of 175 ksi, and thickness of 2 inches. The helmet weight is 2.2 kips. Nine inches of plywood was used for the pile cushion.

### *Instrumentation*

The instrumentation consists of two strain gages and two accelerometer transducers attached approximately 4 feet below the pile top. One strain gage and one accelerometer were placed on opposite faces of the concrete pile to minimize the effects of uneven impact and pile bending. This instrumentation provides information about driving stresses (compressive and tensile), hammer performance (transferred energy), and pile bearing capacity.

The PDA is a computer fitted with a data acquisition and signal conditioning system. During driving, the strain and acceleration signals are recorded and processed for each hammer blow. The strain signal is converted to a force record and the acceleration signal is converted to a velocity record. The PDA saves selected hammer blows containing this information to disk and determines the compressive stresses, displacement, and energy at the point of measurement

(pile top). In addition, the tensile stresses can be calculated and the pile bearing capacity determined using a procedure known as the Case Method. This information can be viewed on the computer screen during driving. Selected blows can be further processed to predict the static pile capacity using CAPWAP analyses. Refer to Appendix A for further details on dynamic pile testing, the Case Method and CAPWAP analyses.

## Results

### *General*

The results of the dynamic testing program are summarized in Table 1, which includes the driven depth, blow count, hammer setting, maximum transferred energy, maximum pile top displacement, and maximum compressive and tensile stresses. The blow count was observed by a representative of S.W. Cole. Refer to the test pile logs in Appendix B for details. The transferred energy, maximum pile top displacement, and maximum compressive stress are determined by the PDA at the gage locations and represent the maximum average values over the blow numbers indicated in Table 1. The maximum tensile stresses are estimated by the PDA and can be located anywhere along the pile.

Also included in Table 1 is the pile bearing capacity as determined by the Case Method in the field and CAPWAP analysis in the office. Three separate PDA plots of various parameters with depth are presented in Appendix C during end of driving for all test piles, during restrrike for selected test piles (TP1, TP2, TP5, TP9 and TP10), and during re-driving and second restrrike of test pile TP1. This enables graphical inspection of the maximum values with depth and/or blow number. Refer to the pile driving logs in Appendix B for further information on blow count and penetration. Appendix C also contains the above data in tabular form for the final blows of penetration during end of driving (driving criteria) and first few blows during restrrike.

The Case Method capacity in Table 1 represents an average over the presented blow(s). Selected CAPWAP analyses were performed from either end of driving (EOD) and/or beginning of restrrike (BOR) data to confirm field Case Method capacities and evaluate soil resistance distribution. Appendix D contains the full results of the CAPWAP analyses and Table 2 summarizes the CAPWAP results.

### *Field Observations and Hammer Performance*

Ten test piles, designated as TP1 through TP10, were installed around the site. Refer to Figure 1, which provides the approximate locations of the test piles within the building footprint relative to the borings (based on S.W. Cole's Exploration Location Plan, dated May 16, 2006). The site grade was around elevation +10 feet to +11 feet at the time of driving. Test piles TP6 and TP7 were inserted within the pile cap excavations (bottom of excavation around elevation +6 feet). All test piles were driven with the Pilemer DHK-7 hammer operating at the minimum stroke during easy driving conditions through the fill/organics and clay. In many cases, the piles ran under the weight of the hammer to depths of 50 to 80 feet below grade. The dynamic test instrumentation was attached to the test piles at depths of around 75 to 95 feet. The piles were driven to final penetrations ranging between 104 and 120 feet below grade (115 feet and 103.5

feet below bottom of pile cap excavation for test piles TP6 and TP7, respectively). The final blow counts typically ranged between 9 and 10 blows per inch (bpi). Test piles TP3, TP6, and TP8 did not achieve a blow count higher than 6 bpi during testing. Refer to Figure Profiles AA through CC for the blow counts and pile penetration depths within the soil profiles.

The hammer was operated at setting number 8 during the end of driving. Nine inches of plywood pile cushion was used for each test pile, although in some cases the cushion was re-used from the pile driven previously. The transferred energies typically ranged between 25 and 29 kip-ft at EOD.

Restrike tests were performed on test piles TP1, TP2 and TP5 (after a three-day setup period) and T9 and TP10 (after an eight-day setup period) with transferred energies ranging between 20 and 33 kip-ft. During the restrike of test pile TP1, the restrike blow count and capacity decreased (pile was driven to 9 bpi at EOD) after several inches and the pile was redriven to 10 bpi around 5 feet deeper to a final penetration of 109.5 feet. Following the redrive of TP1, it was restrike tested after an eight day set-up period with a transferred energy of 32 kip-ft. The blow counts were typically greater than 10 bpi for all restrike tested piles

#### *Pile Integrity and Stresses*

The maximum compressive stresses did not exceed the allowable limit of 4.4 ksi during end of driving with the hammer operating at setting number 8 (typically less than 3.0 ksi). The tensile driving stresses were less than the allowable limit of 0.9 ksi throughout testing (typically less than 0.5 ksi).

The pile cap should be positioned directly over the pile axial center of gravity to maintain good hammer alignment during driving. This minimizes bending stresses and keeps local stress concentrations to a minimum. In general, the records did not indicate significant misalignment or bending during testing.

#### *Pile Bearing Capacity*

The EOD Case Method capacity ranged between approximately 600 and 680 kips for test piles driven to blow counts of 10 bpi or greater. The restrike Case Method capacities indicated a modest to significant increase in capacity between EOD and restrike (10 to 100+ kips) for test piles TP1, TP2, TP5, TP9 and TP10. The selected CAPWAP analyses were generally 5 to 10% greater than the respective Case Method capacities estimated in the field. Typically 75 to 90% of the pile capacity was developed in end bearing. Table 2 presents the results of the CAPWAP analyses in more detail. The total capacity, frictional capacity, end bearing capacity, and percentage of end bearing are included. The quake and damping soil parameters are also presented in Table 2.

## Conclusions

The presented data from the dynamic measurements and their analyses leads to the following findings and conclusions:

1. A blow count averaging 10 blows per inch yields a CAPWAP capacity at the end of driving of 660 kips (average) and 600 kips (minimum). The restrike CAPWAP capacity is 750 kips (average) and 655 kips (minimum). Around 75% to 90% of the pile capacity is developed in end bearing.
2. The WEAP analyses indicate that the compressive and tensile driving stresses were below the allowable limit for the cases analyzed.
3. We recommend a driving criterion of 10 bpi for 6 consecutive inches to achieve an average long-term capacity of 750 kips. The minimum long term capacity is 655 kips, based on test pile TP1. The hammer should be operated at setting 8, so that the transferred energy is at least 25 kip-ft at EOD. Nine inches of plywood should be used for the pile cushion. The plywood should be replaced when it becomes worn or starts to burn.
4. Abbreviated criteria of 15 blows per inch or 10 blows per half inch can be used where the piles take up abruptly.
5. During easy driving conditions, the hammer should be operated at a reduced stroke to limit tensile stresses. The stroke can be increased gradually as the resistance increases. The plywood pile cushion should be replaced when it becomes worn.
6. Test piles TP3, TP6, and TP8 did not achieve the required capacity or established blow count of 10 bpi during EOD testing. These piles should be redriven to the required blow count. Test piles TP1, TP2, TP4, TP5, TP7, TP9, and TP10 achieved sufficient capacity as determined by CAPWAP. We understand that the owner's field representatives are responsible for ensuring that the piles are driven to the above-recommended driving criteria. The project team should be notified if piles do not achieve the required criteria, are driven out of tolerance per specifications, or if the hammer is not working adequately.

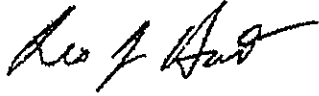
Static pile capacity evaluations determined from dynamic testing provide an estimate of the axial pile bearing capacity at the time of testing. At very high blow counts (low pile set), the Case Method and CAPWAP analyses tend to predict lower capacities, since not all of the soil resistance along the pile side, and particularly at the pile toe, may be fully mobilized. Other factors not considered in this analysis are bending, lateral and uplift requirements, cyclic loading, effective stress changes (e.g. due to changes in the water table, excavations, and/or fills), settlement, and pile group effects. The foundation designer should evaluate if any of these issues are applicable to the pile design.

This report has been prepared in accordance with generally accepted geotechnical engineering principles with specific application to this project. Our conclusions are based on

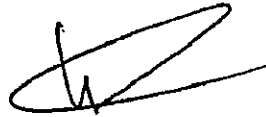
applicable standards of practice, including any information reported to and/or prepared for us. No other warranty, expressed or implied, is made.

We have appreciated this opportunity to work with you on this project. If you have any questions regarding this report, please contact us at (978) 251-9395.

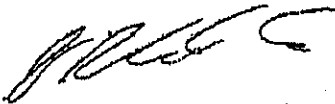
Sincerely,  
Geosciences Testing and Research, Inc.



Leo J. Hart  
Project Manager



Kevin Martin, P.E.  
Reviewer



Les R. Chernauskas, P.E.  
Principal Engineer  
Attachments: Tables 1 and 2, Appendices A - D  
07.119 Marginal Way DLT Report.doc



**TABLES**





**TABLE 1**  
**84 MARGINAL WAY - PORTLAND, ME**  
**SUMMARY OF DYNAMIC TESTING**  
**16" PPC - PILEMER DKH-7**

Test Pile	Date of Driving	Time of Driving	Depth Below Grade (feet)	Blow Number(s)	Blow Count (bpf)	Stroke Setting	Maximum Transferred Energy (kip-ft)	Maximum Pile Top Displ. (in)	Maximum Comp. Stress (ksi)	Maximum Tensile Stress (ksi)	Case Method Capacity (kips)	CAPWAP Capacity (kips)
TP1	5/18/2007	EOD	104.5	191-217	8,9,9	8	25	0.83	2.4	0.5	578	-
	5/21/2007	BOR	104.5	5	10,9	8	25	0.66	2.6	0.2	590	-
	5/21/2007	EOR	109.5	438-468	12,10,10	8	30	0.83	2.9	0.3	625	630
	5/29/2007	BOR	109.5	5	13	8	32	0.81	3.1	0.2	640	655
TP2	5/18/2007	EOD	112.5	726-763	10,10,10	8	27	0.82	2.8	0.8	600	600
	5/21/2007	BOR	112.5	7	-30	8	20	0.67	2.0	0.5	660	710
TP3	5/18/2007	EOD	115	704-738	30 bpf	8	25	0.84	2.4	0.7	271	-
TP4	5/18/2007	EOD	112.5	855-859	8,8,9	8	32	0.90	2.8	0.5	657	690
	5/18/2007	EOR	109	768-792	6,7,8,7,8,9	8	27	0.75	2.6	0.3	627	720
TP5	5/21/2007	BOR	109	5	23	8	33	0.64	3.2	0.5	790	850
	5/21/2007	EOD	115	1393-1429	60 bpf	8	28	0.92	2.6	0.3	304	-
TP7	5/21/2007	EOD	103.5	928-966	9,9,11,13,15	8	22	0.71	2.2	0.2	644	670
	5/21/2007	EOD	116.5	902-920	6,6,6,6,6,6	8	29	0.95	2.7	0.6	474	-
TP9	5/21/2007	EOD	113	987-1013	9,10,10	8	33	0.82	3.1	0.4	602	635
	5/29/2007	BOR	113	6	17 3/4"	8	31	0.71	3.0	0.5	740	730
TP10	5/21/2007	EOD	104	745-775	9,10,12	8	31	0.89	2.7	0.3	679	680
	5/29/2007	BOR	104	6	13 1/4"	8	30	0.72	2.8	0.5	770	810

**Notes:**

1. Indicates end of driving (EOD), beginning of restrrike (BOR), or end of redrive (EOR).
2. The driven depth was referenced to the existing site grade next to the pile.
3. The blow count was reported by S. W. Cole personnel.
4. The maximum transferred energy, maximum pile top displacement, and maximum compressive stress are measured by the PDA at the gage locations. These values represent the maximum values averaged over the presented blow numbers.
5. The maximum tensile stress is estimated by the PDA and represents the maximum value at any time during driving at any location along the pile.
6. The Case Method capacity was determined using the RMX method and a JC value of 0.5. This value represents the maximum values averaged over the presented blow numbers.

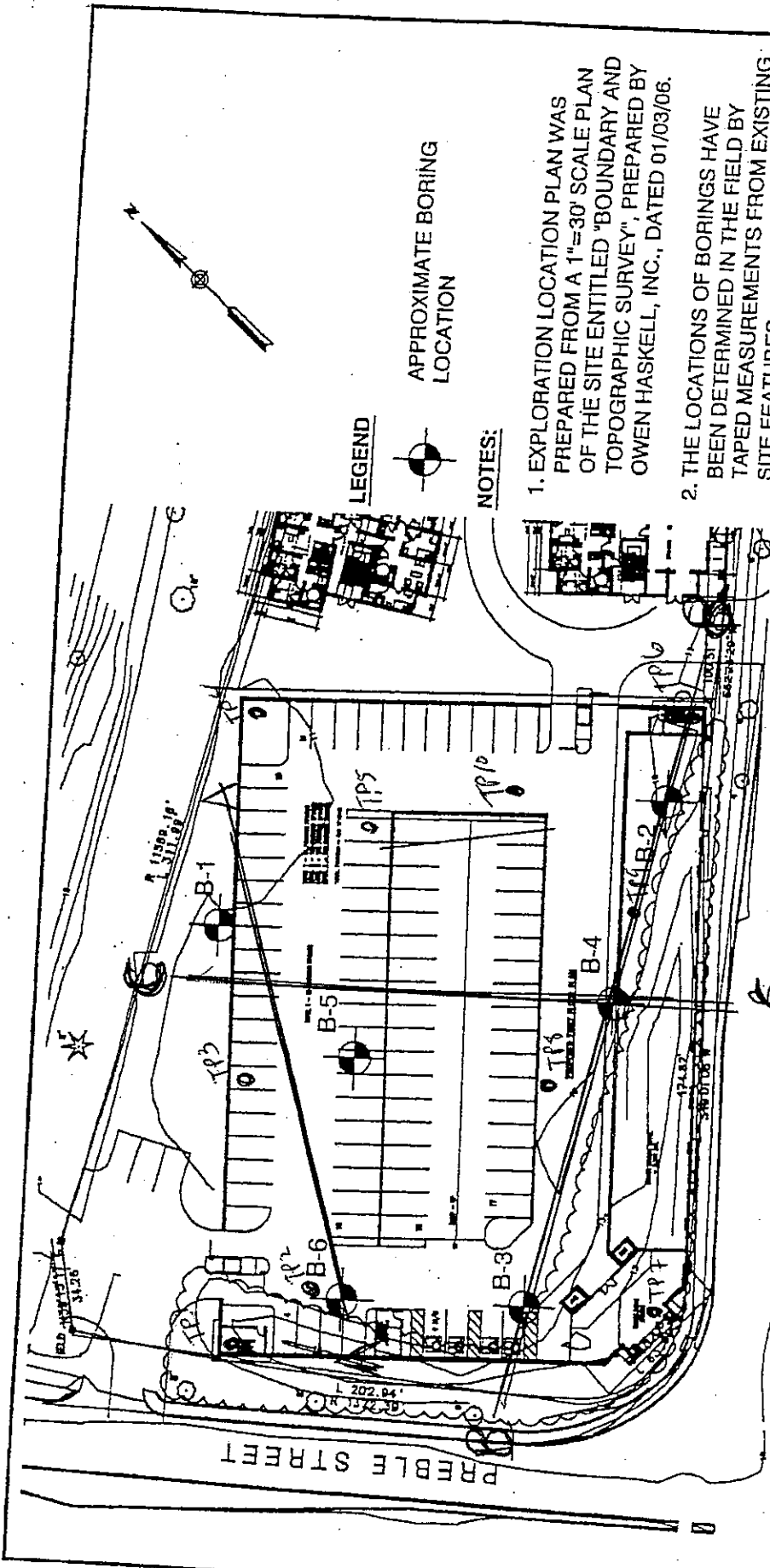


**TABLE 2**  
**84 MARGINAL WAY - PORTLAND, ME**  
**SUMMARY OF CAPWAP RESULTS**  
**16" PPC - PILEMER DKH-7**



Test Pile	Time of Driving	Date Tested	Pile Penetration (feet)	Blow Number	Capacity (kips)		Percent End Bearing (%)	Quake		Damping	
					Side	Tip		Side (in)	Tip (in)	Side (sec/ft)	Tip (sec/ft)
TP1	EOR	5/21/07	109.5	465	95	535	85	0.10	0.47	0.17	0.07
	BOR2	5/29/07	109.5	5	100	555	85	0.20	0.48	0.17	0.08
TP2	EOD	5/18/07	112.5	758	65	535	89	0.07	0.36	0.20	0.22
	BOR	5/21/07	112.5	7	185	525	74	0.09	0.16	0.20	0.20
TP4	EOD	5/18/07	112.5	857	170	520	75	0.07	0.52	0.15	0.05
TP5	EOD	5/18/07	109.0	790	115	605	84	0.13	0.35	0.40	0.06
	BOR	5/21/07	109.0	5	175	675	79	0.13	0.20	0.40	0.07
TP7	EOD	5/21/07	103.5	962	160	510	76	0.05	0.24	0.10	0.15
TP9	EOD	5/21/07	113.0	1005	115	520	82	0.18	0.49	0.10	0.10
	BOR	5/29/07	113.0	6	156	575	79	0.10	0.26	0.27	0.10
TP10	EOD	5/21/07	104.0	771	80	600	88	0.05	0.47	0.15	0.07
	BOR	5/29/07	104.0	6	207	603	74	0.13	0.29	0.15	0.11

**FIGURES**



**LEGEND**



APPROXIMATE BORING  
LOCATION

**NOTES:**

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=30' SCALE PLAN OF THE SITE ENTITLED "BOUNDARY AND TOPOGRAPHIC SURVEY", PREPARED BY OWEN HASKELL, INC., DATED 01/03/06.
2. THE LOCATIONS OF BORINGS HAVE BEEN DETERMINED IN THE FIELD BY TAPED MEASUREMENTS FROM EXISTING SITE FEATURES.



**S.W. COLE**  
ENGINEERING, INC.

CAPITAL, LLC

**PILE # EXPLORATION LOCATION PLAN**  
PROPOSED OFFICE AND PARKING GARAGE STRUCTURE  
84 MARGINAL WAY  
PORTLAND, MAINE

**FIGURE 1**

Job No. 06-0124  
Date: 05/16/06  
Scale 1"=60'  
Sheet 1

**ADDITIONAL NOTES**

1. PILE LOCATIONS ARE CONSIDERED APPROXIMATE.
2. PILES A-A, B-B, C-C ARE APPROXIMATE

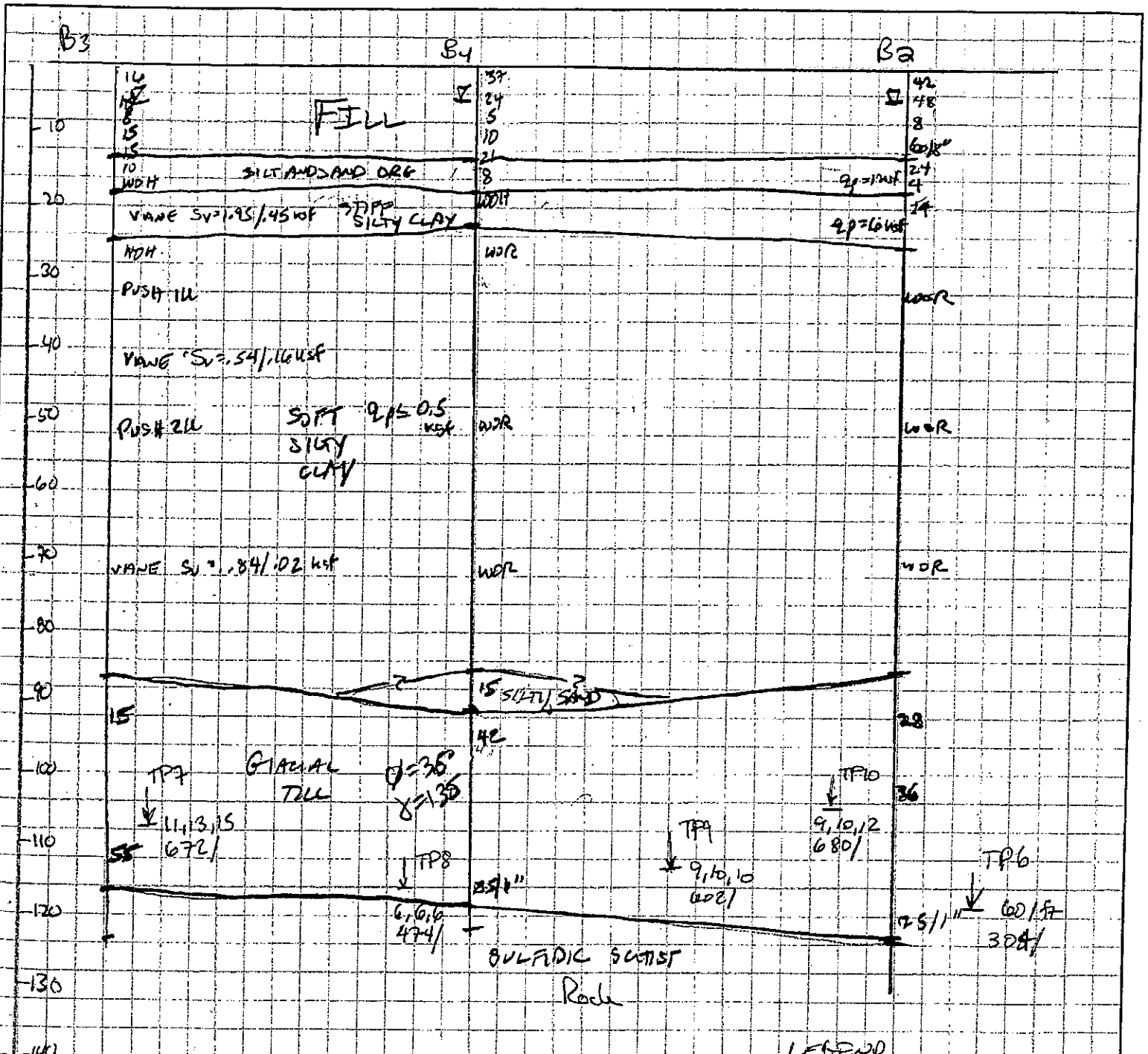


# GEOSCIENCES TESTING AND RESEARCH, INC.

Specializing in Dynamic and Static Testing & Analysis of Deep Foundations

55 Middlesex Street, Suite 225, North Chelmsford, Massachusetts 01863 (978) 251-9395 Fax (978) 251-9396

JOB 071A ②  
 SHEET NO. 2 OF 4  
 CALCULATED BY LRC DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 SCALE \_\_\_\_\_



PROFILE B-B

LEGEND

- TP2 → TEST PILE
- ↓ → APPROX TDP PEN
- 10, 10, 10 ← E.O.D. BLOW COUNT
- 600/710 ← BDR CAPACITY
- ↑ ← E.O.D. CAPACITY

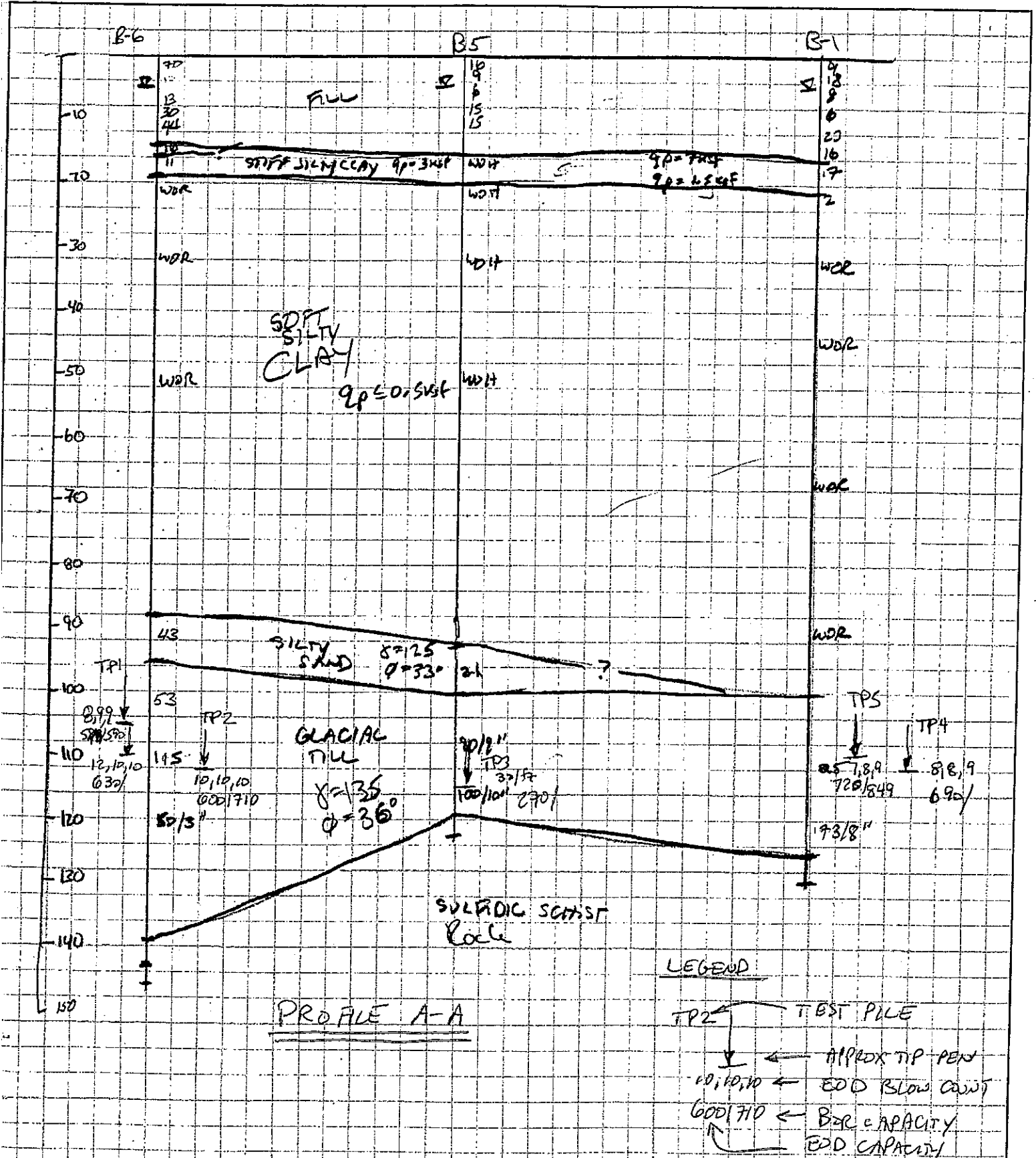


# GEOSCIENCES TESTING AND RESEARCH, INC.

Specializing in Dynamic and Static Testing & Analysis of Deep Foundations

55 Middlesex Street, Suite 22.5, North Chelmsford, Massachusetts 01863 (978) 251-9395 Fax (978) 251-9396

JOB 87-119 ③  
 SHEET NO. 3 OF 4  
 CALCULATED BY WRC DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 SCALE \_\_\_\_\_



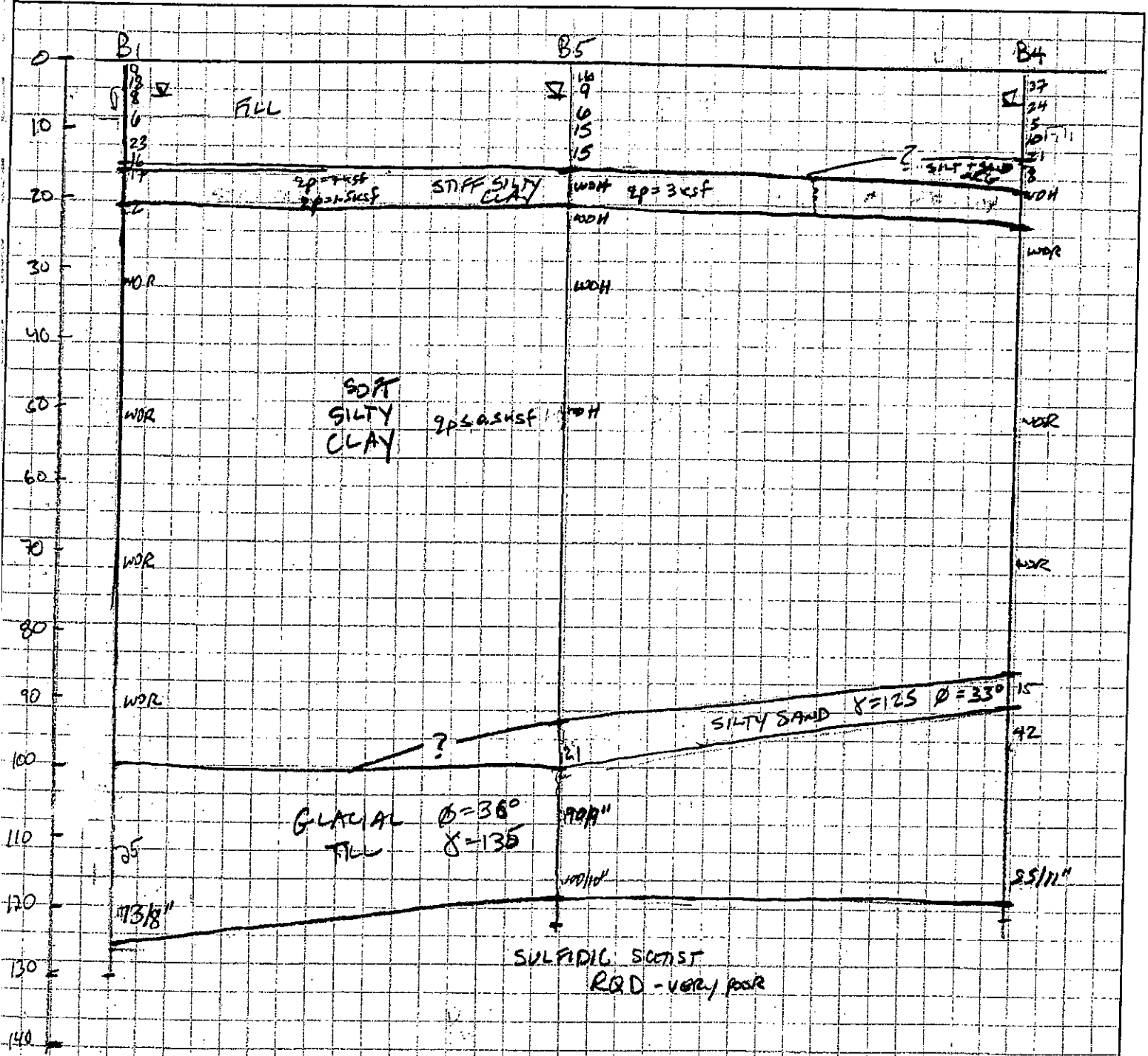


# GEOSCIENCES TESTING AND RESEARCH, INC.

Specializing in Dynamic and Static Testing & Analysis of Deep Foundations

55 Middlesex Street, Suite 225, North Chelmsford, Massachusetts 01863 (978) 251-9395 Fax (978) 251-9396

JOB 07-119 ①  
SHEET NO. 1 OF 4  
CALCULATED BY LRC DATE 4/24/67  
CHECKED BY KM DATE 4/24/67  
SCALE \_\_\_\_\_



PROFILE C-C

**APPENDIX A**  
**DYNAMIC TESTING AND**  
**ANALYSIS LITERATURE**



## PILES

Bengt H.Fellenius, Editor

### Introduction to the Dynamics of Pile Testing

Garland Likins, Frank Rausche, and Mohamad Hussein

Piles are frequently required for a wide range of buildings, bridges, towers, dams, and other massive structures. A variety of pile types installed by different driving equipment of all types and even layered soils makes establishing a safe but economical installation difficult. Traditionally, static analysis, probe piles, dynamic formulae, and static testing are used to verify pile foundations. With computers and modern electronic measurements, improved techniques for analysis and construction control are now available to obtain a safe and economical solution.

#### Background

Pile capacity may be estimated from static analysis based on soil mechanics principles and CPT and/or SPT field tests. Unfortunately, different soil testing and evaluation methods produce widely different solutions.

Static testing involves the application and measurement of static loads and pile movements. In practice, static testing either proves the pile can safely hold the service load (proof test), or establishes an allowable load based on the capacity. Unfortunately, proof testing is more prevalent, resulting in greater foundation costs due to unnecessarily long piles. Because of the relatively high costs and time required for static test, generally only a few piles are tested. The capacity or failure definition is also the subject of considerable discussion and measurements often contain substantial errors (Fellenius, 1980).

For centuries, engineers have tried to use dynamic formulae to estimate capacity. Dynamic formulae are inac-

curate due to their over-simplicity in modelling the hammer, driving system, pile, and soil. In fact, most foundation engineers today agree that dynamic formulae are dangerously unreliable.

#### Wave Equation Analysis of Piles (WEAP)

Taking advantage of wave propagation theories, in the 1950's, a discrete numerical solution with realistic hammer, pile and soil models was developed (Smith 1960) and became known as the "Wave Equation" to which various improvements have been added (Goble and Rausche, 1986). Based upon assumptions of hammer efficiency and soil properties, the computerized solution assumes a capacity and computes a penetration resistance (blow count) and stresses, producing a so-called bearing graph. Soil strength changes with time (set-up or relaxation) due to remolding or pore pressure dissipation, should be considered; at every site, some piles should be restruck and the penetration resistance recorded. Although the wave equation is an excellent tool, because the solution depends on assumptions, the only method to assure accurate results is the measurement of hammer and/or pile performance during pile driving or during restruck to confirm the input assumptions.

#### Dynamic Measurements

Pile hammers are complex devices. Extensive studies (Rausche et al., 1985b) show considerable scatter of efficiency values for different hammers making measurements a necessity. Observations of the ram travel during operation (stroke, blows per minute, etc.) is recommended. By detecting the sound

of and time between hammer blows, the Saximeter calculates the blows per minute (or ram stroke for single acting diesel hammers). By employing radar technology, a Hammer Performance Analyzer can measure the ram velocity with time (Likins, 1988).

The techniques most widely employed today for both measurement and analysis of piles were developed by Professor G.G. Goble at Case Institute of Technology, hence collectively the Case Method (Rausche et al., 1985a). The Case Method requires the measurement of pile force and velocity during a hammer blow. Reusable transducers are quickly attached to any pile type; driven, drilled shaft, or caisson. These data are sufficient for evaluating pile driving stresses, pile integrity, hammer performance, and pile capacity. All these closed-form solution results are computed in a fraction of a second for each hammer blow by the Pile Driving Analyzer (PDA) in the field.

#### Capacity Methods

Using wave propagation theory and assuming a uniform elastic pile, the Case Method total soil resistance (R) active during pile driving can be calculated. This total resistance, R, is the sum of static, S, (displacement dependent) and dynamic, D, (velocity dependent) components. To extract the static resistance, the following must be carried out: (A) elimination of the damping component; (B) correction for early unloading of shaft resistance; (C) time dependent soil strength changes (i.e., set-up or relaxation); and (D) no, or very small, pile penetration will mobilize only a portion of the total resistance. The method and these considerations have been

thoroughly covered (Rausche et al., 1985a).

CAPWAP is a further numerical analysis method for confirming the PDA calculated pile capacity. To start the CAPWAP analysis, a wave equation soil model is assumed and entered with the hammer model replaced by the measured velocity. CAPWAP then calculates the force necessary to induce the imposed velocity. If the computed and measured forces do not agree, the soil model is changed and the analysis repeated (Rausche et al., 1972). This alternative process is repeated until no further improvement in the force match can be obtained. Results indicate the static soil resistance distribution, quake and damping factors, and stresses along the pile shaft. The CAPWAP analysis can therefore be used to confirm the wave equation soil assumptions.

### Dynamic Pile Testing

The delays and expenses of static testing are leading reasons why dynamic testing is often requested as a replacement for or supplement to static tests. Several piles can be tested per day, and therefore dynamic testing is very cost effective. As many soils change strength with time, restriking the pile after a waiting period often results in more economical foundations for piles with set-up (capacity increase) or prevents major problems due to relaxation (capacity loss). "Refusal" driving may underpredict the capacity (similar analogy to static proof tests with small movement only indicting that part of the capacity has been mobilized). Dynamic testing also provides extra information on hammer performance, driving stresses, and pile integrity which is not available by static testing alone. The driving criterion is usually established with one particular hammer but can be extended to all types of other hammers, of the same make or different, by comparing capacity and transferred energy results from the PDA.

Most problems on a piling site are due to the hammer system since the installing equipment is also relied upon for construction control. Therefore, all larger projects should have a well

planned programme of periodic dynamic monitoring to confirm consistent hammer performance and soil conditions across the site. In particular, since the trend in recent years has been to higher capacity piles. When hammer problems occur, early detection is critical to the foundation quality.

On many concrete pile projects, the pile shaft integrity is confirmed using Low Strain Testing by a small hand-held hammer (Rausche et al., 1988). The pile Integrity Tester™ hardware and software, developed for this function, present results in both time and frequency domain. This method is simple and quick but only investigates shaft integrity and is subject to some limitations. The test can be economically applied to a large number of piles to establish typical records, minimize misinterpretations of single results, and assure good quality control.

Dynamic pile testing methods have become widely accepted within the last decade and benefit all parties associated with a pile project. Since dynamic testing with the PDA and CAPWAP is so flexible, engineers are creatively adapting this technique to their specific projects. The engineer is presented with much more information to assist in design and construction control. The contractor obtains information on the performance of his hammer system which can be used to reduce driving time and lower his costs. Knowledge of stresses and pile integrity, can lead to procedures to reduce damage. The owner is assured of a higher quality foundation since more piles are tested. The faster dynamic testing reduces construction time and is less expensive than static tests. Testing indicator piles often verifies adequate capacity at smaller penetration depth for reduced time and cost of the foundation. If problems are detected, they can be corrected early in a project at comparatively modest cost and reduce legal problems or construction claims.

Because of the lower cost and additional information provided, dynamic pile testing has been rapidly gaining acceptance worldwide. The research begun in 1964 led to the formation of

Pile Dynamics, Inc. in 1972 to further develop and promote the equipment and methods. Through extensive efforts of education, training, and strong client support, over 200 PDA units have been placed into operation in 30 countries with about 2000 projects being tested yearly. As engineers have realized the benefits, this has further resulted in inclusion in specifications and codes of practice by many agencies governing pile testing.

### Summary

Static testing to failure is ideal to assess static bearing capacity but is very expensive and time consuming, limiting the number of piles tested. Wave Equation is excellent for predicting the dynamics of pile driving if assumptions are realistic. Dynamic measurements and analysis can verify these assumptions. On site, the Case Method with a Pile Driving Analyzer can calculate pile capacity, monitor hammer performance and pile stresses, and investigate pile integrity. Because of their flexibility and low cost, dynamic testing methods may be applied to a relatively large percentage of the piles to cut costs, increase pile loads, or eliminate problems. The Pile Integrity Tester can evaluate shaft integrity of all piles at a reasonable cost.

A well conceived and properly executed testing programme will give engineers, contractors, and owners confidence in the behaviour of the foundation. Installation difficulties will be detected early in the project and corrected. Decisions and production driving will be kept on schedule, minimizing delays, unnecessary costs, and claims aiding the project toward timely completion to the satisfaction of the owner. Dynamic pile testing has become both routine and widespread as specifications and codes of practice recognize the value of this powerful technique.

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*Frank Rausche and Mohamad  
Hussein, Goble Rausche Likins and  
Associates, Inc., Cleveland, Ohio, USA.*

# GRL Software: Case Pile Wave Analysis Programs

## CAPWAPC™, P.I.T.WAP™

### PROGRAM HISTORY AND BACKGROUND

In the late 1960's, under the sponsorship of the Ohio Department of Transportation, a program was developed at Case Institute of Technology in Cleveland, Ohio<sup>(1)</sup>, which determined the Smith<sup>(2)</sup> soil resistance parameters from pile top measurements. Originally, a large computer automatically solved the problem for relatively short piles.

CAPWAP determines that set of soil resistance parameters which produces a best match between measured and computed pile top forces and velocity. Rather than modeling and analyzing the hammer, one of the two measured curves is used as a pile top boundary condition. The complementary quantity is computed and compared with the appropriate measured curve. CAPWAP is based on the premise that best agreement between measured and computed pile top curves is achieved with a set of soil resistance parameters which most closely approximates the actual soil behavior. The soil resistance model is represented by three parameters: ultimate resistance, quake and damping. The program can be run interactively by the engineer or in a completely automatic mode. Obviously, as in all pile testing, the resulting values represent the soil at the time of testing. Extensive correlations have been made and reported<sup>(3,4,5)</sup>.

Features of the new CAPWAPC™ program which models the

pile with Continuous segments include:

- SI, metric, imperial units
- Case Method bearing capacity based on a closed form solution
- Residual Stress Analysis
- Low Strain Record Matching (P.I.T.WAP)
- PEBWAP (Pile End Bearing Wave Analysis Procedure) calculates pile toe resistance vs pile toe movement for end bearing piles
- Comprehensive numerical and (color) graphics output
- CAPWEAP, a wave equation analysis using pile top measurements instead of a hammer model
- Static load-set curve based on the CAPWAPC results
- Matching of forces, velocities or upwards traveling waves

GRL offers CAPWAPC analyses by its experienced engineers. However, the program is compatible with the Pile Driving Analyzer™ and may be acquired by PDA owners in executable form. It requires the following hardware:

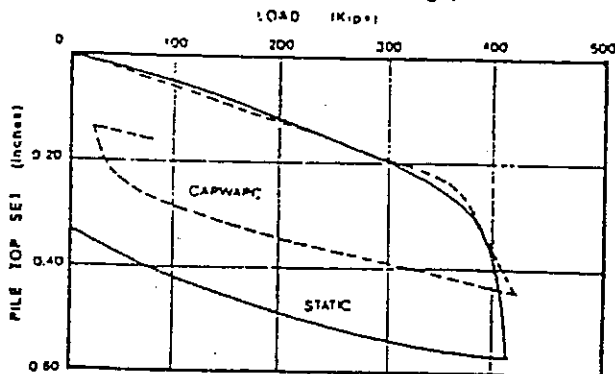
- IBM-PC, AT, 386 or other compatible with graphics, 640K ram, Hard disk and one floppy drive
- Serial Port for HP7400 Series Plotter or compatible
- Parallel Port for printer (graphics or Laser printer preferred)

The CAPWAPC Software System includes GRLWEAP (Wave Equation of Pile Driving), GRUMAGE (Wave Equation Demonstrator), DATPRO, P.I.T.WAP and other utilities. Program updates are made available to users with current software support.

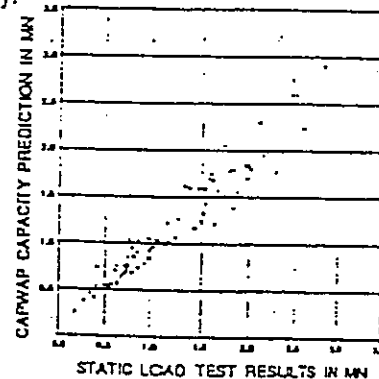
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4. Niyama, S., De A. Martins, J.A. de Medeiros, C., Jr. and Likins, G.E., Jr., 'Dynamic Pile Instrumentation in a Calcareous Sand Close to PCR-2 Platform, Brazil', *Application of Stress-Wave Theory on Piles*, *Second International Conference*, Edited by G. Holm, H. Bradenbery, C.-J. Gravare, Swedish Pile Commission, Stockholm, 1985, pp. 306-312.
5. Seidel, J. and Rausche F., 'Correlation of Static and Dynamic Pile Tests on Large Diameter Drilled Shafts', *Application of Stress-Wave Theory*, Stockholm 1985, pp.313-318.

Correlation of CAPWAPC computed and measured static load test curves from a PDA and CAPWAPC demonstration at the 1988 DFI annual conference in Raleigh, NC.



Correlation of ultimate bearing capacity values from CAPWAPC and load tests based on the research work at Case Institute of Technology.



## Goble Rausche Likins and Associates, Inc.

Cleveland 216-831-5131  
(Main Office)

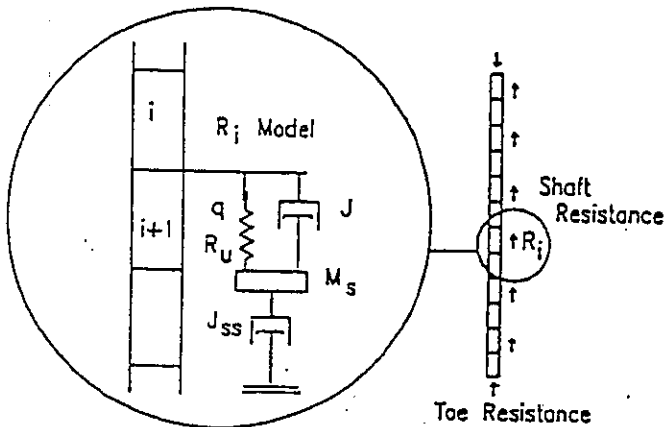
Denver 303-494-0702  
Philadelphia 215-544-2770

Orlando 407-826-9539  
Seattle 206-775-5785

# CAPWAP™

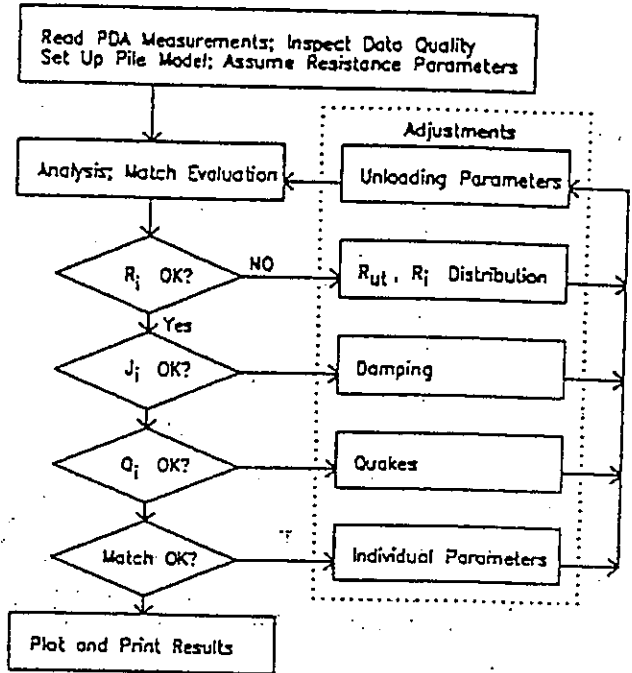
## The CAPWAP Pile and Soil Model

The pile is modeled as a series of continuous segments (with impedances matching pile cross sectional changes) of approximately 1 m (3.3 ft) length. Concentrated soil resistance forces are attached to each or every second pile segment along the embedded pile. Major parameters of this model include at each segment,  $i$ , the ultimate resistance,  $R_u$ , the quake,  $q$ , the damper,  $J$ , and the radiation damping model consisting of  $J_{ss}$  and mass,  $M_s$ .



## The CAPWAP Procedure

The following block diagram outlines the basic procedure for iterative calculation of soil model parameters in CAPWAP. Either the automatic or manual mode of CAPWAP are utilized to perform the necessary calculations.



## Final Results

For each shaft soil segment and the pile toe the CAPWAP calculated results include ultimate capacities,  $R_u$ , Smith type damping factors, and soil quakes. The  $R_u$ -values are also presented in the form of unit skin friction both with respect to pile length and pile circumferential area. The 'up' and 'down' summations represent the forces in the pile at the predicted ultimate capacity and the total friction to a certain depth, respectively. The damping factors are also presented in the form of Case damping. Parameters which modify the basic elasto-plastic static soil resistance component are also appended to the table. They optionally include a soil plug at the pile toe, a toe resistance gap, unloading quakes, a negative ultimate capacity limit, consideration of residual stresses and radiation damping.

## The Soil Parameter Summary Table

Final CAPWAP Capacity:  $R_u$  516.8, Skin 427.8, Toe 89.0 Kips

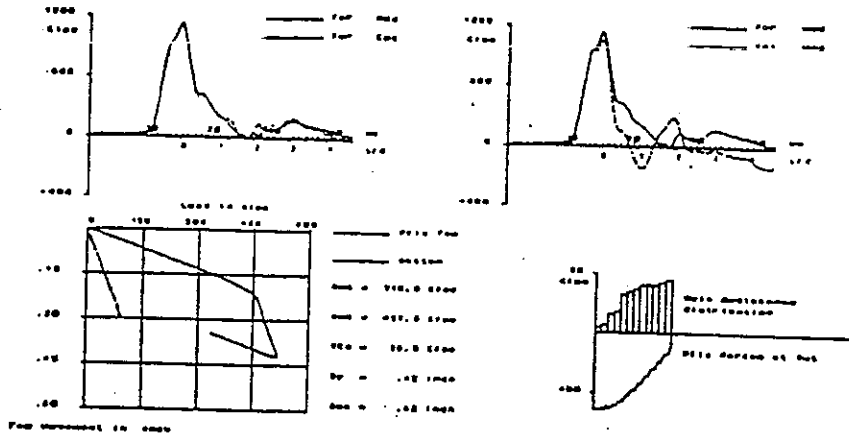
Soil Sgmt. No.	Depth Below Gages ft	Depth Below Grade ft	$R_u$ Kips	Sum of $R_u$ Up Kips	Sum of $R_u$ Down Kips	Unit Resist. w. Respect to Depth Area Kips/ft	Smith Damping s/ft	Quake inch
1	6.7	6.7	5.4	516.8				
2	13.3	13.3	8.6	502.8	5.4	.81	.09	.120
3	20.0	20.0	19.2	483.6	14.0	1.29	.14	.120
4	26.7	26.7	22.0	461.6	33.2	2.88	.31	.120
5	33.3	33.3	38.3	423.3	55.2	3.30	.35	.120
6	40.0	40.0	41.2	382.1	93.4	5.74	.61	.120
7	46.7	46.7	44.1	338.1	134.6	6.18	.66	.120
8	53.3	53.3	47.9	290.2	178.7	6.61	.70	.120
9	60.0	60.0	48.9	241.3	226.6	7.18	.76	.120
10	66.7	66.7	47.9	193.4	275.5	7.33	.78	.120
11	73.3	73.3	50.8	142.7	323.3	7.18	.76	.120
12	80.0	80.0	53.7	89.0	374.1	7.62	.81	.120
Average Skin Values			35.6			5.35	.57	.120
Toe			89.0					
						26.33	.180	.285
Soil Model Parameters/Extensions						Skin	Toe	
Case Damping						.509	.076	
Unloading Quake	(% of loading quake)					1	100	
Reloading Level	(% of $R_u$ )					100	0	
Unloading Level	(% of $R_u$ )					0		

# CAPWAPC™

## Final Summary Plot

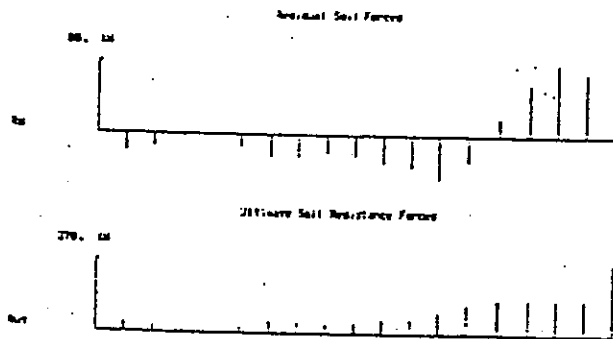
Computed and measured pile top forces and/or velocity matches (upper left) demonstrate the quality of the final result. The simulated static test (lower left) is calculated from pile and soil stiffness and CAPWAPC predicted  $R_v$ -values. The resulting pile top load set curve may be compared with actual static load tests.

The Resistance Distribution Plot (lower right) depicts the final results underneath measured force and velocity (upper right) with time and length scales chosen such that the impact time corresponds to the pile top and the pile toe reflection to the end bearing.



## Residual Force Graph and Table

CAPWAPC includes the residual stress analysis (RSA) feature, earlier introduced into GRLWEAP™. The calculation process involves several dynamic trial analyses with intermediate static calculations which yield the state of equilibrium at the end of the hammer blow. The thus computed forces remaining in pile and soil are presented in both a table and bar graph (the ultimate soil resistance forces are also included for comparison).



Soil Sgmnt No.	Depth Below Gages m	Pile Residual Forces kN	Pile Stress kN/cm <sup>2</sup>	Soil Residual Forces kN	Displ. mm
Pile Top					
1	4.0	14.08	.18	-14.08	3.101
2	6.0	24.18	.31	-10.10	3.083
3	8.0	28.08	.36	-3.90	3.054
4	10.0	30.52	.39	-2.44	3.019
5	12.0	40.56	.52	-10.04	2.981
6	14.0	59.52	.76	-18.96	2.931
7	16.0	78.57	1.00	-19.04	2.857
8	18.0	93.94	1.20	-15.38	2.760
9	20.0	111.42	1.42	-17.48	2.644
10	22.0	134.38	1.71	-22.96	2.506
11	24.0	161.76	2.06	-27.38	2.340
12	26.0	198.49	2.53	-36.73	2.140
13	28.0	220.10	2.80	-21.62	1.894
14	30.0	205.40	2.62	14.70	1.622
15	32.0	161.98	2.06	43.42	1.368
16	34.0	101.86	1.30	60.12	1.168
17	36.0	48.23	.61	53.63	1.042
Toe				48.23	

## The Extrema Table

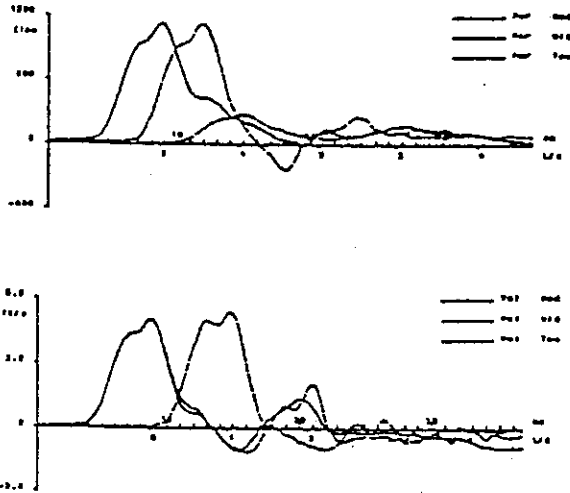
Maxima of compression and tension forces and stresses, velocities, displacements and transferred energies at a limited number of points are listed as part of the final output. The table also contains absolute stress maxima including their location and time of occurrence.

Pile Sgmnt No.	Depth below Gages m	max. Force kN	min. Force kN	max. Comp. Stress kN/cm <sup>2</sup>	max. Tension Stress kN/cm <sup>2</sup>	max. trnsfd. Energy kN - m	max. Veloc. m/s	max. Displ. cm
1	1.0	1821.8	-48.6	23.21	-.62	42.30	3.8	3.601
3	3.0	1923.1	-56.8	24.50	-.72	37.31	3.8	3.150
7	7.0	1843.3	-98.7	23.48	-1.26	31.07	3.7	2.710
10	10.0	1829.1	-148.7	23.30	-1.89	28.02	3.6	2.390
14	14.0	1786.2	-190.1	22.75	-2.42	23.65	3.5	1.970
17	17.0	1645.4	-188.9	21.22	-2.41	19.21	3.4	1.670
21	21.0	1569.5	-188.6	19.99	-2.40	15.02	3.3	1.290
25	25.0	1429.2	-151.0	18.21	-1.92	11.19	3.0	.940
28	28.0	1323.0	-118.9	16.85	-1.51	9.03	2.8	.700
32	32.0	1192.4	.0	15.19	.00	6.29	2.5	.460
35	35.0	956.3	.0	12.18	.00	4.29	2.6	.340
36	36.0	986.6	.0	12.57	.00	3.44	2.5	.306
Absolute	4.0			24.50	-2.60		(T= 36.1 ms)	
	20.0						(T= 64.8 ms)	

# CAPWAP™, P.I.T.WAP™

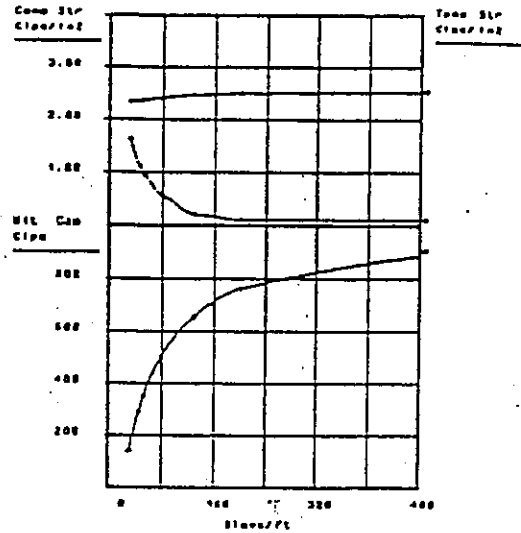
## Pile Variable Histories

The example CAPWAP output shows forces and velocities at three different locations. Displacements, resistance forces and transferred energies may also be graphed.



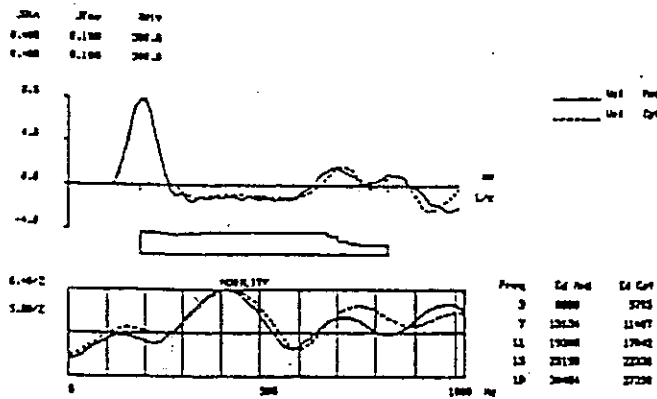
## CAPWEAP

Similar to a conventional wave equation, CAPWEAP produces a bearing graph relating bearing capacity and pile stresses to blow count. The analysis uses the CAPWAP predicted static and dynamic soil resistance parameters. The hammer is replaced by the measured pile top input.



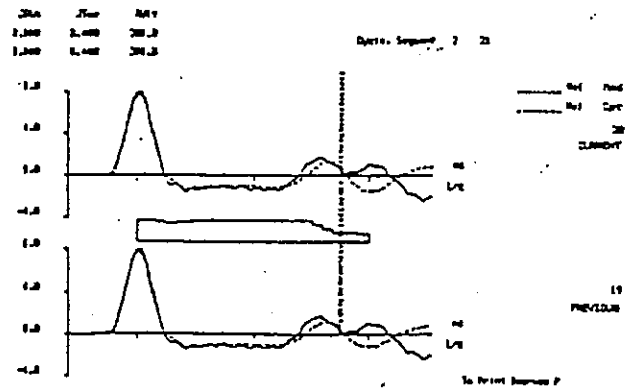
## P.I.T.WAP

This program (related to CAPWAP) matches pile top velocities based on low strain records (obtained from the impact of a small hand-held hammer). Program options include calculated and measured velocity vs time comparisons and Fast Fourier Transforms leading to the Mobility or Mechanical Admittance of the pile.



## P.I.T.WAP Automatic Mode

The final result from P.I.T.WAP is the pile Impedance as a function of depth. These values (typically every 250 mm or 10 inches) may be automatically calculated after the engineer has assigned certain soil resistance variables. The program displays the progress of adjustments as shown below. It indicates with a cursor the locations where the adjustments are being made in the current analysis cycle.



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**APPENDIX B**  
**TEST PILE DRIVING LOGS**





• Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

**PILE DRIVING RECORD**

Client : Capital LLC  
 Project : 84 Marginal Way  
 General Contractor : Pizzagalli Construction Company  
 Pile Contractor : Vynorious Pile Driving  
 Pile Type : 16-inch PPC  
 Pile Hammer : Pilmer Hydraulic DKH-7

Job Number : #06-0124.2  
 Pile Number : IP (10) #185  
 Ground Elevation : 10-ft  
 Batter : Plumb  
 Design Capacity : 160-tons  
 Rated Energy (ft/lb) : 60,800

Cut Off Elev.: 

6.5
-----

  
 Tip Elev.: 

-113.5
--------

Net Driven Length: 

120
-----

Section	Length	Length Cut	Date Driven
1	120	0	5/21/07
2			
3			
4			
<b>Totals</b>		120	0

Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (inch)	Stroke/Blows
1	28	31		61	7	91	24 +/-	1	6
2	29	32		62	8	92	30 +/-	2	6
3	20	33		63	5	93	30 +/-	3	7
4	14	34		64	5	94	36 +/-	4	7
5	15	35		65	4	95	36 +/-	5	8
6	20	36		66	4	96	36 +/-	6	9
7	23	37		67	5	97	36 +/-	7	9
8	36	38		68	5	98	35	8	10
9	32	39		69	5	99	33	9	10
10	16	40		70	5	100	34	10	9
11	8	41		71	7	101	45	11	10
12	6	42		72	5	102	60 +/-	12	12
13	3	43		73	5	103	72 +/-	13	
14	5	44		74	5	104		14	
15	5	45		75	5	105		15	
16	6	46		76	6	106		16	
17	6	47		77	6	107		17	
18	7	48	3	78	8	108		18	
19	6	49	3	79	8	109		19	
20	4	50	4	80	6	110		20	
21	4	51	3	81	8	111		21	
22	4	52	4	82	9	112		22	
23	W OF H	53	4	83	17	113		23	
24		54	6	84	34	114		24	
25		55	6	85	36 +/-	115		25	
26		56	6	86	36 +/-	116		26	
27		57	6	87	31	117		27	
28		58	7	88	23	118		28	
29		59	3	89	17	119		29	
30		60	6	90	24 +/-	120		30	

Remarks 

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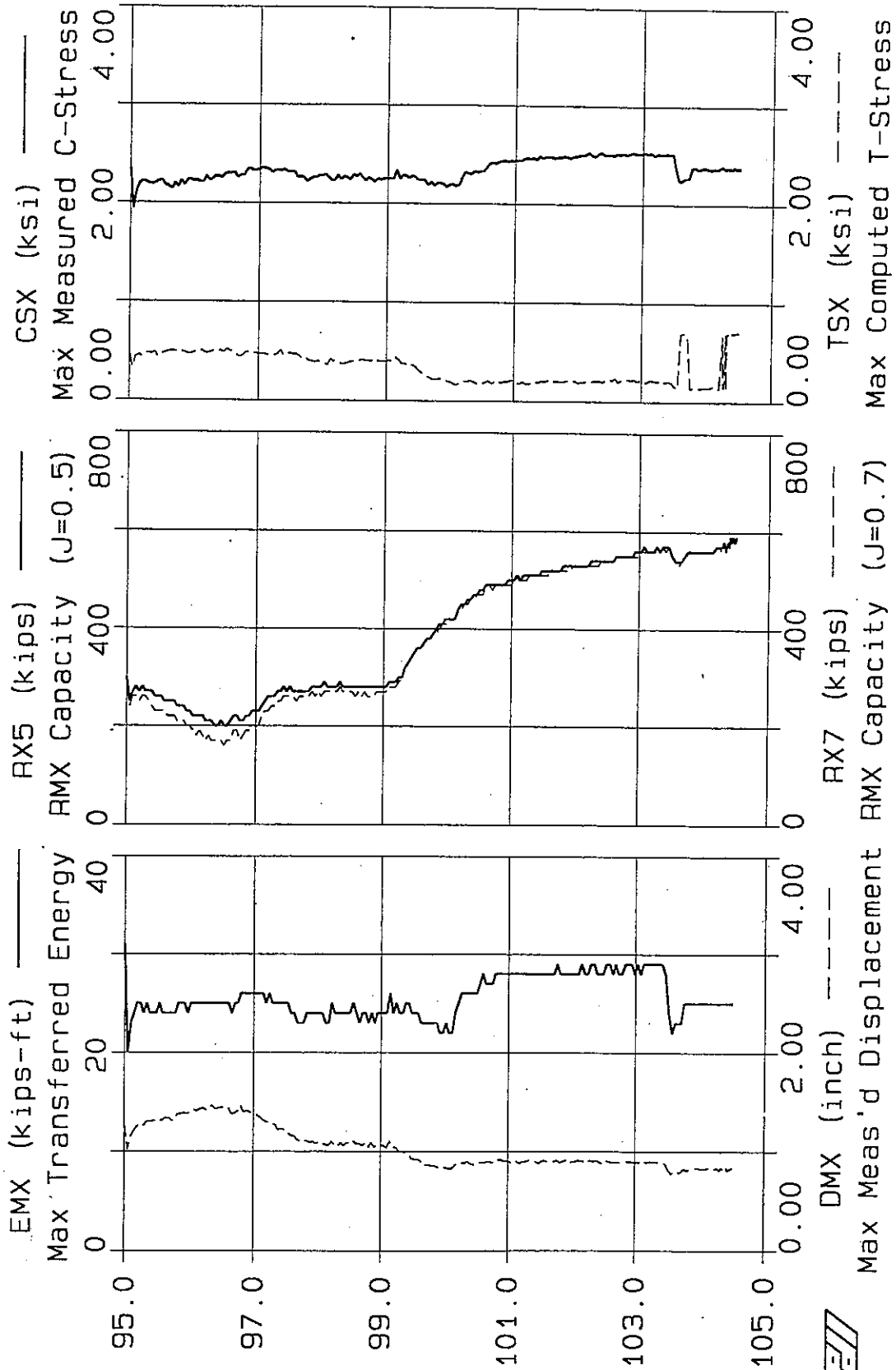
**APPENDIX C  
PDA VARIABLES**

- **Plot 1 (left): Maximum Transferred Energy and Maximum Pile Top Displacement**
- **Plot 2 (middle): Maximum Case Method Capacity ( $J_c=0.5$  and  $0.7$ )**
- **Plot 3 (right): Maximum Measured Compression Stress at Pile Top and Maximum Computed Tensile Stress**

18-May-07

GTR

Marginal Way, MARTP1, 16" PPC



P E N E T R A T I O N f t

Pile: MARTP1  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 136.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13000 ft/s  
 EM: 5478 KSI

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
191	104.25	25	0.67	0.83	2.38	2.28	54.4	731	570	570	20
192		25	0.17	0.82	2.37	2.29	27.1	732	570	560	104
193		25	0.15	0.84	2.36	2.30	54.3	722	570	560	104
194		25	0.17	0.83	2.36	2.28	54.2	727	570	570	104
195		25	0.69	0.83	2.37	2.31	27.1	729	570	570	104
196		25	0.69	0.82	2.38	2.30	54.2	735	580	570	104
197		25	0.14	0.81	2.38	2.27	54.3	741	580	570	104
198		25	0.70	0.83	2.37	2.33	54.3	727	570	570	104
199		25	0.69	0.83	2.37	2.29	54.2	728	570	570	104
200		25	0.69	0.84	2.37	2.31	54.3	724	570	560	104
201		25	0.71	0.83	2.37	2.32	27.1	727	570	570	104
202		25	0.71	0.83	2.37	2.33	54.2	732	570	570	104
203		25	0.72	0.83	2.36	2.34	54.3	729	580	580	104
204		25	0.70	0.83	2.38	2.35	54.2	733	580	570	104
205		25	0.70	0.83	2.37	2.34	54.3	734	580	570	104
206		25	0.70	0.84	2.37	2.34	54.2	731	580	570	104
207		25	0.70	0.81	2.39	2.31	54.2	743	590	580	104
208		25	0.70	0.84	2.37	2.36	54.2	729	580	580	104
209		25	0.70	0.83	2.37	2.33	54.3	737	580	580	104
210		25	0.70	0.81	2.38	2.32	54.3	740	580	580	104
211		25	0.70	0.81	2.37	2.34	54.3	738	590	580	104
212		25	0.70	0.82	2.36	2.33	54.2	736	590	580	104
213		25	0.71	0.83	2.37	2.32	54.3	730	580	580	104
214		25	0.70	0.82	2.36	2.32	54.3	734	580	580	104
215		25	0.71	0.83	2.39	2.35	54.2	733	580	580	104
216		25	0.71	0.83	2.36	2.34	54.2	734	590	580	104
217	104.50	25	0.70	0.84	2.38	2.37	54.2	738	590	580	104

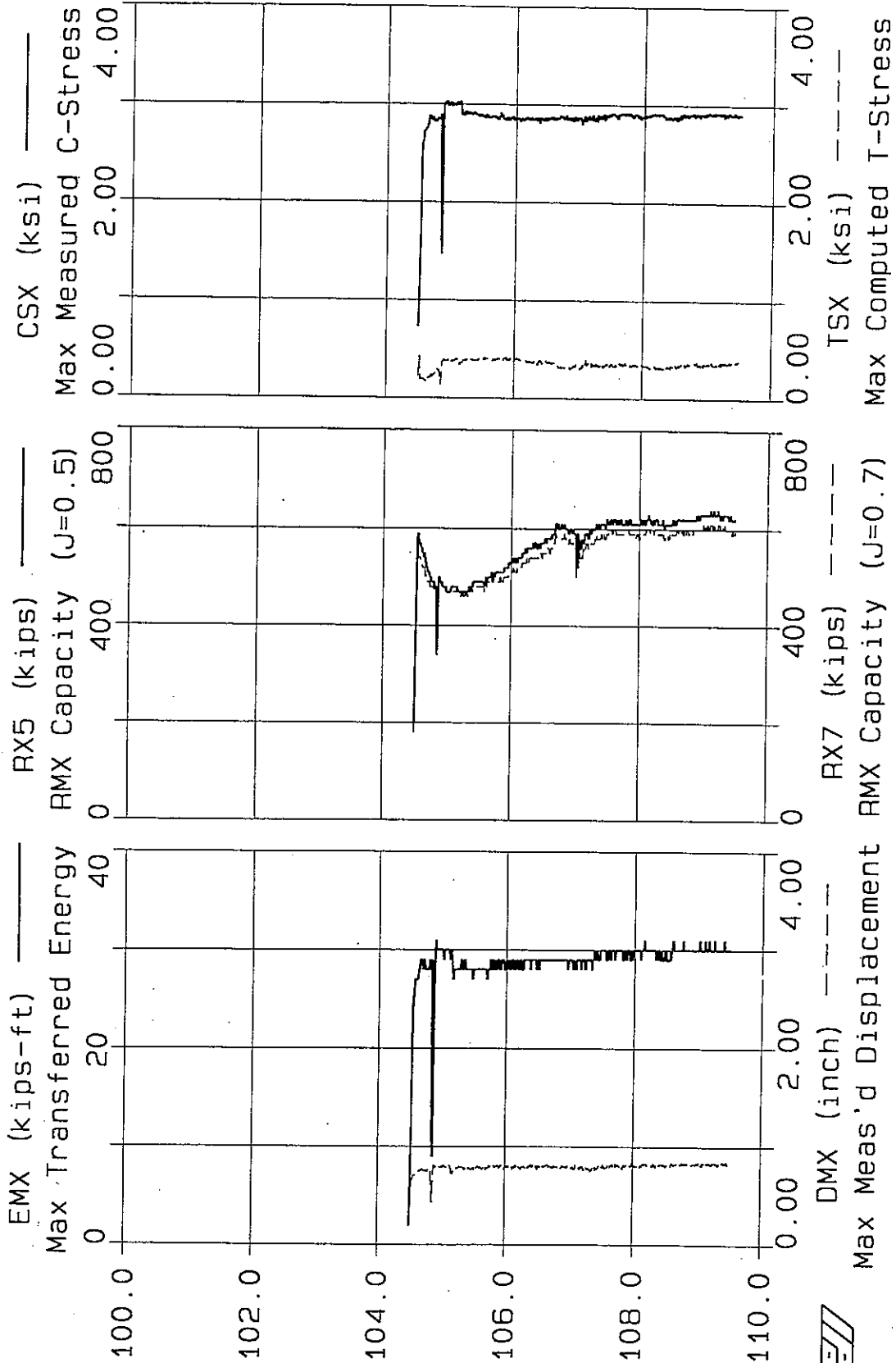
	EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7
AVG	25	0.62	0.83	2.37	2.32	51.2	732	578	573
STD	0	0.20	0.01	0.01	0.03	8.7	5	7	7
MAX	25	0.72	0.84	2.39	2.37	54.4	743	590	580
#BLS	27	27	27	27	27	27	27	27	27

DRIVEN (18-May-07 : MARTP1.Q01)

21-May-07

GTR

Marginal Way, MARTP1 (3DR), 16" PPC



P E N E T R A T I O N f t



File: MARTP1 (3DR)  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 136.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13000 ft/s  
 EM: 5474 KSI

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

BL#	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips
4	24	0.19	0.65	2.45	2.15	53.8	886	580	540
5	25	0.20	0.66	2.62	2.27	53.0	921	590	550
6	26	0.20	0.69	2.62	2.31	53.1	901	570	540
7	27	0.20	0.71	2.73	2.34	52.4	926	570	540
8	27	0.19	0.71	2.72	2.42	52.4	929	570	540
9	27	0.19	0.71	2.74	2.36	52.2	924	560	530
10	27	0.19	0.71	2.76	2.39	52.1	931	560	530
11	27	0.17	0.73	2.76	2.38	52.3	908	550	520
12	28	0.18	0.73	2.80	2.39	52.1	924	550	520
13	28	0.16	0.74	2.80	2.40	50.8	918	540	520
14	29	0.16	0.74	2.89	2.44	50.0	954	550	520
15	29	0.21	0.76	2.86	2.42	50.5	925	540	510
16	29	0.21	0.76	2.88	2.41	50.4	926	530	500
17	29	0.21	0.76	2.86	2.39	50.5	919	520	500
18	28	0.21	0.76	2.84	2.34	50.9	904	520	490
19	29	0.24	0.77	2.87	2.36	50.4	916	510	490
20	29	0.22	0.77	2.84	2.34	50.8	904	510	490
21	28	0.23	0.76	2.83	2.30	50.8	904	510	490
22	28	0.24	0.75	2.83	2.28	50.7	911	500	480
23	28	0.24	0.76	2.84	2.30	50.8	903	500	480
24	28	0.25	0.76	2.82	2.28	51.0	891	490	480

	EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7
AVG	28	0.20	0.73	2.78	2.35	51.5	915	539	512
STD	1	0.03	0.03	0.11	0.07	1.1	15	29	23
MAX	29	0.25	0.77	2.89	2.44	53.8	954	590	550
#BLS	21	21	21	21	21	21	21	21	21

DRIVEN (21-May-07 : MARTP1R.Q01)



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**PILE DRIVING RECORD**

Client : Capital LLC  
 Project : 84 Marginal Way  
 General Contractor : Pizzagalli Construction Company  
 Pile Contractor : Vynorious Pile Driving  
 Pile Type : 16-Inch PPC  
 Pile Hammer : Pilmer Hydraulic DKH-7

Job Number : #06-0124.2  
 Pile Number : IP (1) #1  
 Ground Elevation : 10-ft  
 Batter : Plumb  
 Design Capacity : 160-tons  
 Rated Energy (ft/lb) : 60,800

Cut Off Elev.: 6.5  
 Tip Elev.: -133.5

Net Driven Length: 140

Section	Length	Length Cut	Date Driven
1	70	0	5/18/07
2	70		5/18/07
3			
4			
<b>Totals</b>		<b>140</b>	<b>0</b>

Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (inch)	Stroke/Blows
1	9	31		61		91	16	1	7
2	7	32		62		82	16	2	7
3	7	33		63		93	16	3	8
4	6	34		64		94	17	4	8
5	7	35		65		95	18	5	9
6	W of H	36		66		96	15	6	9
7		37		67		97	10	7	9
8		38		68		98	9	8	9
9		39		69		99	17	9	9
10		40		70	2	100	24	10	9
11		41		71	3	101	24 +/-	11	9
12		42		72	2	102	21	12	9
13		43		73	3	103	24	13	9
14		44		74	3	104	30 +/-	14	11
15		45		75	3	105	81	15	11
16		46		76	2	106	70	16	12
17		47		77	2	107	75 +/-	17	10
18		48		78	2	108	75 +/-	18	10
19		49		79	2	109		19	
20		50		80	2	110		20	
21		51		81	3	111		21	
22		52		82	4	112		22	
23		53		83	3	113		23	
24		54		84	3	114		24	
25		55		85	4	115		25	
26		56		86	6	116		26	
27		57		87	7	117		27	
28		58		88	7	118		28	
29		59		89	7	119		29	
30		60		90	10	120		30	

Remarks: Re-strike performed on 5/21/07. Pile was driven approximately 5 more feet.

Field Representative : PJO

Sheet Number : 1



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### PILE DRIVING RECORD

Client: Capital LLC  
 Project: 84 Marginal Way  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Type: 16-Inch PPC  
 Pile Hammer: Pilmer Hydraulic DKH-7

Job Number: #06-0124.2  
 Pile Number: IP (2) #38  
 Ground Elevation: 10-ft  
 Batter: Plumb  
 Design Capacity: 160-tons  
 Rated Energy (ft/lb): 60,800

Cut Off Elev.: 6.5  
 Tip Elev.: -133.5

Net Driven Length: 140

Section	Length	Length Cut	Date Driven
1	70	0	5/18/07
2	70		5/18/07
3			
4			
<b>Totals</b>		<b>140</b>	<b>0</b>

Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (inch)	Stroke/Blows
1	8	31		81	4	81	17	1	6
2	7	32		82	4	82	21	2	6
3	6	33		83	5	83	16	3	6
4	2	34		84	6	84	18	4	7
5	2	35	2	85	6	85	26	5	7
6	2	36	2	86	6	86	28	6	7
7	3	37	1	87	6	87	31	7	7
8	1	38	2	88	6	88	30 +/-	8	8
9	1	39	2	89	6	89	30 +/-	9	8
10	1	40	2	90	6	90	30 +/-	10	10
11	2	41	3	91	5	91	24	11	10
12	1	42	2	92	4	92	19	12	10
13	1	43	2	93	4	93	18	13	Re-strike 30/ 5"
14	2	44	1	94	4	94	28	14	
15	5	45	2	95	3	95	25	15	
16	6	46	2	96	3	96	38	16	
17	6	47	1	97	4	97	48 +/-	17	
18	7	48	2	98	4	98	60	18	
19	5	49	2	99	4	99	60	19	
20	4	50	2	100	6	100	60	20	
21	2	51	3	101	5	101	70 +/-	21	
22	2	52	4	102	6	102	70 +/-	22	
23	1	53	4	103	6	103		23	
24	W OF H	54	5	104	6	104		24	
25		55	5	105	5	105		25	
26		56	5	106	6	106		26	
27		57	5	107	5	107		27	
28		58	4	108	4	108		28	
29		59	4	109	5	109		29	
30		60	4	110	14	110		30	

Remarks: Re-strike performed on 5/21/07.

Field Representative: PJO





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**PILE DRIVING RECORD**

Client : Capital LLC  
 Project : 84 Marginal Way  
 General Contractor : Pizzagalli Construction Company  
 Pile Contractor : Vynorious Pile Driving  
 Pile Type : 16-inch PPC  
 Pile Hammer : Pilmer Hydraulic DKH-7

Job Number : #06-0124.2  
 Pile Number : IP (3) #11  
 Ground Elevation : 10-ft  
 Batter : Plumb  
 Design Capacity : 160-tons  
 Rated Energy (ft/lb) : 60,800

Cut Off Elev.: 6.5  
 Tip Elev.: -113.5

Section	Length	Length Cut	Date Driven
1	120	0	5/18/07
2			
3			
4			
<b>Totals</b>		120	0

Net Driven Length: 120

Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (inch)	Stroke/Blows
1	7	31		61		91	6	1	
2	7	32		62		92	5	2	
3	7	33		63		93	5	3	
4	7	34		64		94	5	4	
5	9	35		65	3	95	6	5	
6	7	36		66	3	96	7	6	
7	8	37		67	3	97	13	7	
8	7	38		68	3	98	24 +/-	8	
9	6	39		69	3	99	24 +/-	9	
10	4	40		70	2	100	24	10	
11	3	41		71	4	101	23	11	
12	3	42		72	4	102	30	12	
13	3	43		73	4	103	33	13	
14	3	44		74	4	104	36	14	
15	3	45		75	3	105	60 +/-	15	
16	2	46		76	5	106	60 +/-	16	
17	2	47		77	4	107	70 +/-	17	
18	1	48		78	4	108	80 +/-	18	
19	1	49		79	4	109	80 +/-	19	
20	1	50		80	3	110	60 +/-	20	
21	W OF H	51		81	4	111	48 +/-	21	
22		52		82	4	112	48 +/-	22	
23		53		83	4	113	48 +/-	23	
24		54		84	3	114	36 +/-	24	
25		55		85	4	115	30 +/-	25	
26		56		86	4	116	30 +/-	26	
27		57		87	4	117	36 +/-	27	
28		58		88	4	118	50 +/-	28	
29		59		89	5	119	36 +/-	29	
30		60		90	5	120		30	

Remarks

Field Representative : PJO

Sheet Number : 11



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**PILE DRIVING RECORD**

Client: Capital LLC  
 Project: 84 Marginal Way  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Type: 16-inch PPC  
 Pile Hammer: Pilmer Hydraulic DKH-7

Job Number: #06-0124.2  
 Pile Number: IP (4) #20  
 Ground Elevation: 10-ft  
 Batter: Plumb  
 Design Capacity: 160-tons  
 Rated Energy (ft/lb): 60,800

Cut Off Elev.: 6.5  
 Tip Elev.: -113.5

Section	Length	Length Cut	Date Driven
1	120	0	5/18/07
2			
3			
4			
<b>Totals</b>	<b>120</b>	<b>0</b>	

Net Driven Length: 120

Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (Inch)	Stroke/Blows
1	9	31	1	61	3	91	32	1	6
2	9	32		62	4	92	41	2	7
3	9	33	2	63	4	93	48 +/-	3	7
4	9	34		64	3	94	48 +/-	4	8
5	9	35	2	65	3	95	40	5	8
6	5	36	1	66	4	96	36 +/-	6	9
7	5	37		67	5	97	30 +/-	7	
8	5	38	1	68	4	98	25	8	
9	5	39	2	69	3	99	38	9	
10	6	40	1	70	4	100	48 +/-	10	
11	7	41	1	71	3	101	48 +/-	11	
12	6	42	2	72	7	102	36 +/-	12	
13	6	43	2	73	7	103	36 +/-	13	
14	6	44	1	74	7	104	30 +/-	14	
15	6	45	1	75	6	105	30 +/-	15	
16	9	46	1	76	5	106	30 +/-	16	
17	11	47	1	77	5	107	38	17	
18	10	48	2	78	5	108	48 +/-	18	
19	10	49	1	79	5	109	51	19	
20	10	50	2	80	4	110	48 +/-	20	
21	4	51	6	81	5	111	55 +/-	21	
22	4	52	7	82	4	112		22	
23	5	53	6	83	5	113		23	
24	5	54	6	84	5	114		24	
25	3	55	6	85	6	115		25	
26	4	56	5	86	7	116		26	
27	2	57	6	87	8	117		27	
28	3	58	3	88	10	118		28	
29	3	59	4	89	12	119		29	
30	2	60	3	90	19	120		30	

Remarks:

Field Representative: PJO

Sheet Number: 20



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**PILE DRIVING RECORD**

Client : Capital LLC  
 Project : 84 Marginal Way  
 General Contractor : Pizzagalli Construction Company  
 Pile Contractor : Vynorious Pile Driving  
 Pile Type : 16-inch PPC  
 Pile Hammer : Pilmer Hydraulic DKH-7

Job Number : #06-0124.2  
 Pile Number : IP (5) #73  
 Ground Elevation : 10-ft  
 Batter : Plumb  
 Design Capacity : 160-tons  
 Rated Energy (ft/lb) : 80,800

Cut Off Elev.: 6.5  
 Tip Elev.: -113.5

Section	Length	Length Cut	Date Driven
1	120	0	5/18/07
2			
3			
4			
<b>Totals</b>	<b>120</b>	<b>0</b>	

Net Driven Length: 120

Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (inch)	Stroke/Blows
1	12	31		61	1	91	6	1	5
2	10	32		62		92	13	2	6
3	11	33		63	1	93	27	3	5
4	11	34		64		94	27	4	5
5	11	35		65	1	95	34	5	6
6	13	36		66		96	31	6	6
7	14	37		67	1	97	36 +/-	7	6
8	14	38		68		98	42	8	7
9	14	39		69	1	99	50 +/-	9	8
10	15	40		70		100	36 +/-	10	7
11	12	41		71	1	101	36 +/-	11	8
12	12	42		72		102	36 +/-	12	9
13	12	43		73	1	103	30 +/-	13	Re-strike 23/1"
14	12	44		74		104	30 +/-	14	
15	12	45		75	1	105	40 +/-	15	
16	7	46		76	1	106	48 +/-	16	
17	8	47		77		107	60 +/-	17	
18	7	48		78	1	108	60 +/-	18	
19	9	49		79	2	109		19	
20	8	50		80	5	110		20	
21	2	51		81	5	111		21	
22	2	52		82	5	112		22	
23	2	53		83	6	113		23	
24	2	54		84	5	114		24	
25	2	55		85	6	115		25	
26	2	56		86	6	116		26	
27	W OF H	57		87	5	117		27	
28		58		88	6	118		28	
29		59		89	6	119		29	
30		60		90	6	120		30	

Remarks Re-strike performed on 5/21/07.

Field Representative : PJO

Sheet Number : 73



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### PILE DRIVING RECORD

Client : Capital LLC  
 Project : 84 Marginal Way  
 General Contractor : Pizzagalli Construction Company  
 Pile Contractor : Vynorious Pile Driving  
 Pile Type : 16-inch PPC  
 Pile Hammer : Pilmer Hydraulic DKH-7

Job Number : #06-0124.2  
 Pile Number : IP (6) #280  
 Ground Elevation : 6-ft  
 Batter : Plumb  
 Design Capacity : 160-tons  
 Rated Energy (ft/lb) : 60,800

Cut Off Elev.: 8.5  
 Tip Elev.: -113.5

Section	Length	Length Cut	Date Driven
1	120	0	5/21/07
2			
3			
4			
<b>Totals</b>	<b>120</b>	<b>0</b>	

Net Driven Length: 120

Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (inch)	Stroke/Blows
1	10	31	W OF H	61		91	13	1	
2	10	32		62		92	13	2	
3	10	33		63		93	15	3	
4	10	34		64		94	12	4	
5	10	35		65		95	15	5	
6	8	36		66		96	15	6	
7	8	37		67		97	21	7	
8	8	38		68		98	30 +/-	8	
9	8	39		69		99	36 +/-	9	
10	4	40		70		100	48 +/-	10	
11	4	41		71		101	48 +/-	11	
12	4	42		72		102	60 +/-	12	
13	4	43		73		103	60 +/-	13	
14	4	44		74		104	85 +/-	14	
15	5	45		75	25	105	80 +/-	15	
16	4	46		76	40	106	60 +/-	16	
17	4	47		77	33	107	60 +/-	17	
18	3	48		78	32	108	60 +/-	18	
19	4	49		79	28	109	60 +/-	19	
20	5	50		80	22	110	50 +/-	20	
21	3	51		81	24	111	55 +/-	21	
22	3	52		82	24	112	60 +/-	22	
23	3	53		83	30	113	60 +/-	23	
24	5	54		84	20	114	60 +/-	24	
25	3	55		85	20	115	60 +/-	25	
26	3	56		86	12	116	60 +/-	26	
27	3	57		87	12	117	40 +/-	27	
28	3	58		88	14	118	48 +/-	28	
29	3	59		89	13	119	50 +/-	29	
30	3	60		90	13	120	60 +/-	30	

Remarks:

Field Representative : PJO



• Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

**PILE DRIVING RECORD**

Client : Capital LLC  
 Project : 84 Marginal Way  
 General Contractor : Pizzagalli Construction Company  
 Pile Contractor : Vynorious Pile Driving  
 Pile Type : 16-inch PPC  
 Pile Hammer : Pilmer Hydraulic DKH-7

Job Number : #06-0124.2  
 Pile Number : IP (7) #247  
 Ground Elevation : 6-ft  
 Batter : Plumb  
 Design Capacity : 160-tons  
 Rated Energy (ft/lb) : 60,800

Cut Off Elev.: 6.5  
 Tip Elev.: -113.5

Section	Length	Length Cut	Date Driven
1	120	0	5/21/07
2			
3			
4			
<b>Totals</b>	<b>120</b>	<b>0</b>	

Net Driven Length: 120

Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (inch)	Strokes/Blows
1	W OF H	31		61		91	37	1	6
2		32		62		92	40	2	6
3		33		63		93	27	3	6
4		34		64		94	27	4	6
5		35		65		95	38	5	6
6		36		66		96	60 +/-	6	6
7		37		67		97	80 +/-	7	6
8		38		68		98	80 +/-	8	9
9		39		69		99	50 +/-	9	9
10		40		70		100	40 +/-	10	11
11		41		71		101	48 +/-	11	13
12		42		72		102	40 +/-	12	15
13		43		73		103	80 +/-	13	
14		44		74		104		14	
15		45		75		105		15	
16		46		76		106		16	
17		47		77		107		17	
18		48		78		108		18	
19		49		79		109		19	
20		50		80		110		20	
21		51		81	12	111		21	
22		52		82	14	112		22	
23		53		83	17	113		23	
24		54		84	18	114		24	
25		55		85	20 +/-	115		25	
26		56		86	20 +/-	116		26	
27		57		87	22	117		27	
28		58		88	21	118		28	
29		59		89	19	119		29	
30		60		90	28	120		30	

Remarks

Field Representative : PJO

Sheet Number : 247



• Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

**PILE DRIVING RECORD**

Client : Capital LLC  
 Project : 84 Marginal Way  
 General Contractor : Pizzagalli Construction Company  
 Pile Contractor : Vynorious Pile Driving  
 Pile Type : 16-inch PPC  
 Pile Hammer : Plimer Hydraulic DKH-7

Job Number : #06-0124.2  
 Pile Number : IP (B) #147  
 Ground Elevation : 10-ft  
 Batter : Plumb  
 Design Capacity : 160-tons  
 Rated Energy (ft/lb) : 80,800

Cut Off Elev.: 6.5  
 Tip Elev.: -113.5

Section	Length	Length Cut	Date Driven
1	120	0	5/21/07
2			
3			
4			
<b>Totals</b>	<b>120</b>	<b>0</b>	

Net Driven Length: 120

Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (inch)	Stroke/Blows
1	12	31		61		91	11	1	8
2	11	32		62		92	10	2	6
3	12	33		63		93	8	3	6
4	12	34		64		94	7	4	8
5	12	35		65		95	24	5	6
6	24	36		66		96	16	6	8
7	25	37		67		97	15	7	6
8	24	38		68		98	23	8	6
9	25	39		69		99	30	9	6
10	25	40		70		100	37	10	6
11	2	41		71		101	36 +/-	11	6
12	2	42		72		102	48 +/-	12	6
13	3	43		73		103	48 +/-	13	
14	2	44		74		104	36 +/-	14	
15	3	45		75	1	105	30 +/-	15	
16	W O F H	46		76	2	106	23	16	
17		47		77	1	107	22	17	
18		48		78	1	108	24	18	
19		49		79	1	109	22	19	
20		50		80	2	110	24 +/-	20	
21		51		81	1	111	24 +/-	21	
22		52		82	3	112	30 +/-	22	
23		53		83	22	113	48 +/-	23	
24		54		84	30	114	60 +/-	24	
25		55		85	21	115	60 +/-	25	
26		56		86	20	116	65 +/-	26	
27		57		87	14	117		27	
28		58		88	12	118		28	
29		59		89	13	119		29	
30		60		90	11	120		30	

Remarks

Field Representative : PJO

Sheet Number : 147



• Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

**PILE DRIVING RECORD**

Client : Capital LLC  
 Project : 84 Marginal Way  
 General Contractor : Pizzagalli Construction Company  
 Pile Contractor : Vynorious Pile Driving  
 Pile Type : 16-inch PPC  
 Pile Hammer : Pilmer Hydraulic DKH-7

Job Number : #06-0124.2  
 Pile Number : IP (9) #208  
 Ground Elevation : 10-ft  
 Batter : Plumb  
 Design Capacity : 160-tons  
 Rated Energy (ft/lb) : 60,800

Cut Off Elev.: 6.5  
 Tip Elev.: -113.5

Net Driven Length: 120

Section	Length	Length Cut	Date Driven
1	120	0	5/21/07
2			
3			
4			
<b>Totals</b>	<b>120</b>	<b>0</b>	

Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (feet)	Stroke/Blows	Depth (inch)	Stroke/Blows
1	14	31		61		91	22	1	9
2	7	32		62		92	24	2	9
3	4	33		63		93	24	3	9
4	8	34		64		94	23	4	9
5	15	35		65		95	24	5	10
6	24	36		66		96	28	6	10
7	30	37		67		97	24	7	
8	26	38		68		98	24 +/-	8	
9	17	39		69		99	30 +/-	9	
10	18	40		70		100	18	10	
11	20	41		71		101	23	11	
12	W OF H	42		72		102	24	12	
13		43		73		103	31	13	
14		44		74		104	31	14	
15		45		75		105	31	15	
16		46		76		106	38	16	
17		47		77		107	60 +/-	17	
18		48		78		108	65 +/-	18	
19		49		79		109	70 +/-	19	
20		50		80		110	72	20	
21		51		81		111	65 +/-	21	
22		52		82		112	72	22	
23		53		83		113	80 +/-	23	
24		54		84		114		24	
25		55		85	12	115		25	
26		56		86	14	116		26	
27		57		87	15	117		27	
28		58		88	23	118		28	
29		59		89	22	119		29	
30		60		90	24	120		30	

Remarks

Field Representative : PJO

Sheet Number : 208

File: MARTP1 (3DR)  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 136.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13000 ft/s  
 EM: 5474 KSI

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
438		31	0.38	0.85	2.91	2.64	53.5	872	630	600	124
439		30	0.37	0.84	2.91	2.58	53.6	874	630	610	124
440		30	0.36	0.84	2.90	2.58	53.7	867	620	600	124
441		30	0.37	0.84	2.92	2.58	53.6	877	630	600	124
442		30	0.36	0.83	2.89	2.58	53.7	871	630	600	124
443		30	0.37	0.84	2.91	2.60	53.6	872	620	600	124
444		30	0.37	0.83	2.90	2.62	53.6	879	630	600	124
445		30	0.37	0.82	2.93	2.58	53.6	888	630	610	124
446		30	0.36	0.82	2.91	2.57	53.7	882	630	600	124
447		30	0.36	0.84	2.91	2.61	53.7	876	630	600	124
448		30	0.36	0.81	2.91	2.57	53.7	886	630	610	124
449		30	0.37	0.82	2.91	2.57	53.6	880	630	600	124
450		30	0.37	0.84	2.91	2.58	53.7	873	630	600	124
451		30	0.38	0.83	2.90	2.54	53.7	872	630	600	124
452		30	0.37	0.82	2.90	2.58	53.5	883	630	600	124
453		30	0.37	0.83	2.91	2.60	53.4	881	630	600	124
454		30	0.37	0.84	2.90	2.60	53.5	874	630	600	124
455		30	0.38	0.83	2.91	2.57	53.6	873	620	600	124
456		31	0.38	0.85	2.93	2.58	53.5	872	620	600	124
457		30	0.38	0.83	2.90	2.57	53.6	874	620	600	124
458		30	0.37	0.84	2.91	2.60	53.7	872	630	600	124
459		30	0.36	0.83	2.90	2.54	53.7	876	620	600	124
460		30	0.36	0.84	2.91	2.57	53.7	870	620	590	124
461		30	0.36	0.83	2.89	2.55	53.8	870	620	590	124
462		30	0.37	0.84	2.90	2.57	53.7	870	620	600	124
463		30	0.39	0.85	2.90	2.54	53.7	860	620	590	124
464		30	0.38	0.84	2.91	2.58	53.6	872	620	590	124
465		30	0.37	0.82	2.90	2.55	53.6	878	620	600	124
466		30	0.38	0.82	2.91	2.52	53.7	878	620	600	124
467		30	0.39	0.82	2.91	2.51	53.8	875	620	590	124
468	109.50	30	0.38	0.83	2.90	2.58	53.8	874	620	590	124

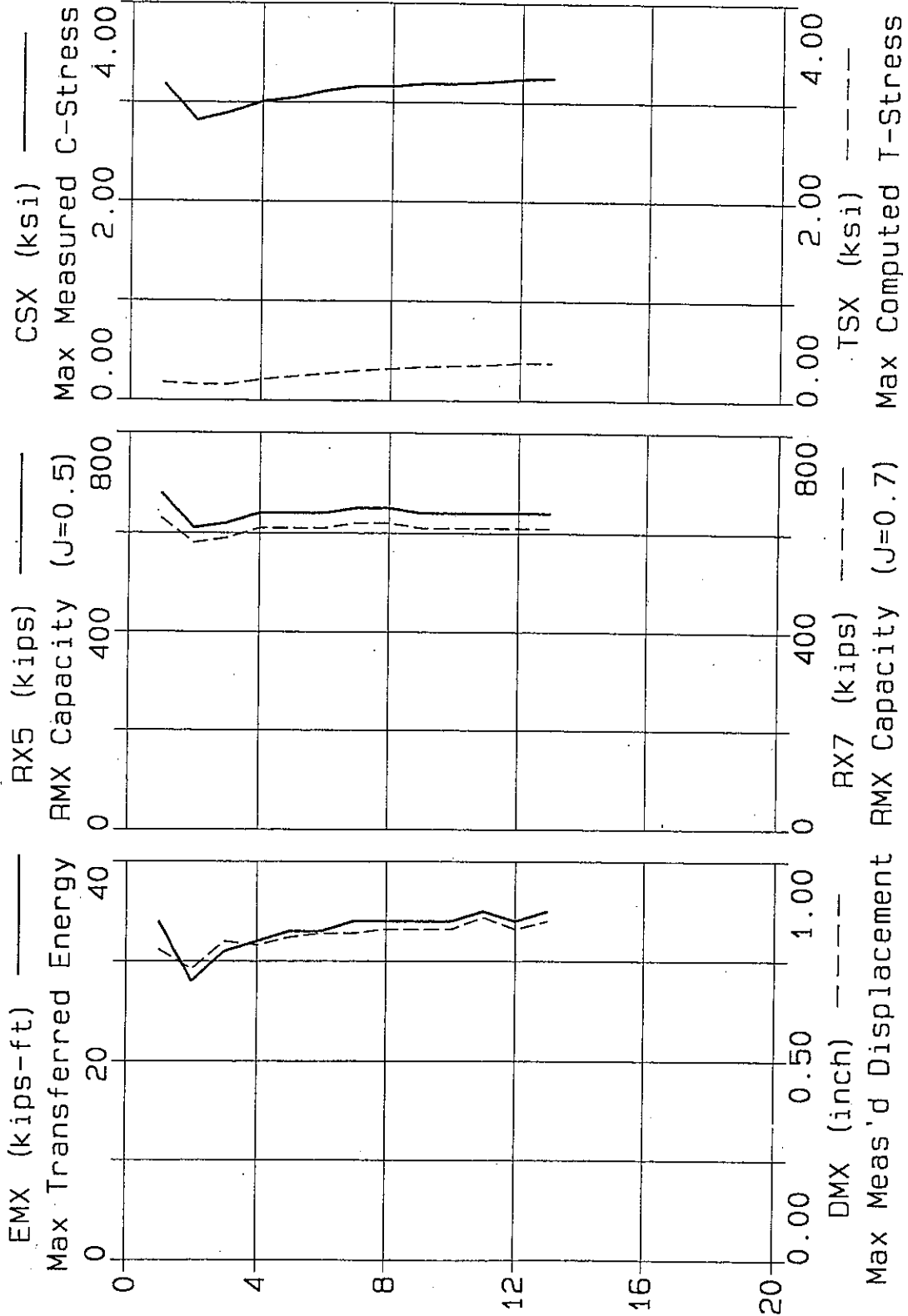
	EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7
AVG	30	0.37	0.83	2.91	2.57	53.6	875	625	599
STD	0	0.01	0.01	0.01	0.03	0.1	6	5	5
MAX	31	0.39	0.85	2.93	2.64	53.8	888	630	610
#BLS	31	31	31	31	31	31	31	31	31



29-May-07

GTR

Marginal Way, TP1 Restrike #2, 16" PPC



Pile: TP1 Restrike #2  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 136.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13500 ft/s  
 EM: 5908 KSI

QUT: UNDEFINED

RX5: RMX Capacity (J=0.5)

RX7: RMX Capacity (J=0.7)

EMX: Max Transferred Energy

STK: Stroke (O.E.Diesels)

DMX: Max Meas'd Displacement

CSX: Max Measured C-Stress

CSB: Max Meas C-Toe Stress

TSX: Max Computed T-Stress

BL#	depth ft	QUT	RX5 kips	RX7 kips	EMX kips-ft	STK ft	DMX inch	CSX ksi	CSB ksi	TSX ksibl/ft	BLC
1	110.00	1066	680	630	34	0.00	0.78	3.19	2.88	0.18	0
2		910	610	580	28	5.49	0.73	2.82	2.82	0.16	0
3		925	620	590	31	5.69	0.80	2.90	2.97	0.16	0
4		974	640	610	32	5.84	0.79	3.01	3.05	0.21	0
5		974	640	610	33	5.85	0.81	3.05	3.06	0.24	0
6		983	640	610	33	6.04	0.82	3.12	3.10	0.27	0
7		1000	650	620	34	6.10	0.82	3.16	3.09	0.30	0
8		993	650	620	34	6.06	0.83	3.16	3.09	0.32	0
9		992	640	610	34	6.04	0.83	3.19	3.09	0.34	0
10		986	640	610	34	6.04	0.83	3.19	3.05	0.35	0
11		976	640	610	35	6.04	0.86	3.21	3.07	0.36	0
12		998	640	610	34	6.06	0.83	3.24	3.01	0.38	0
13		982	640	610	35	6.05	0.85	3.25	3.04	0.38	0

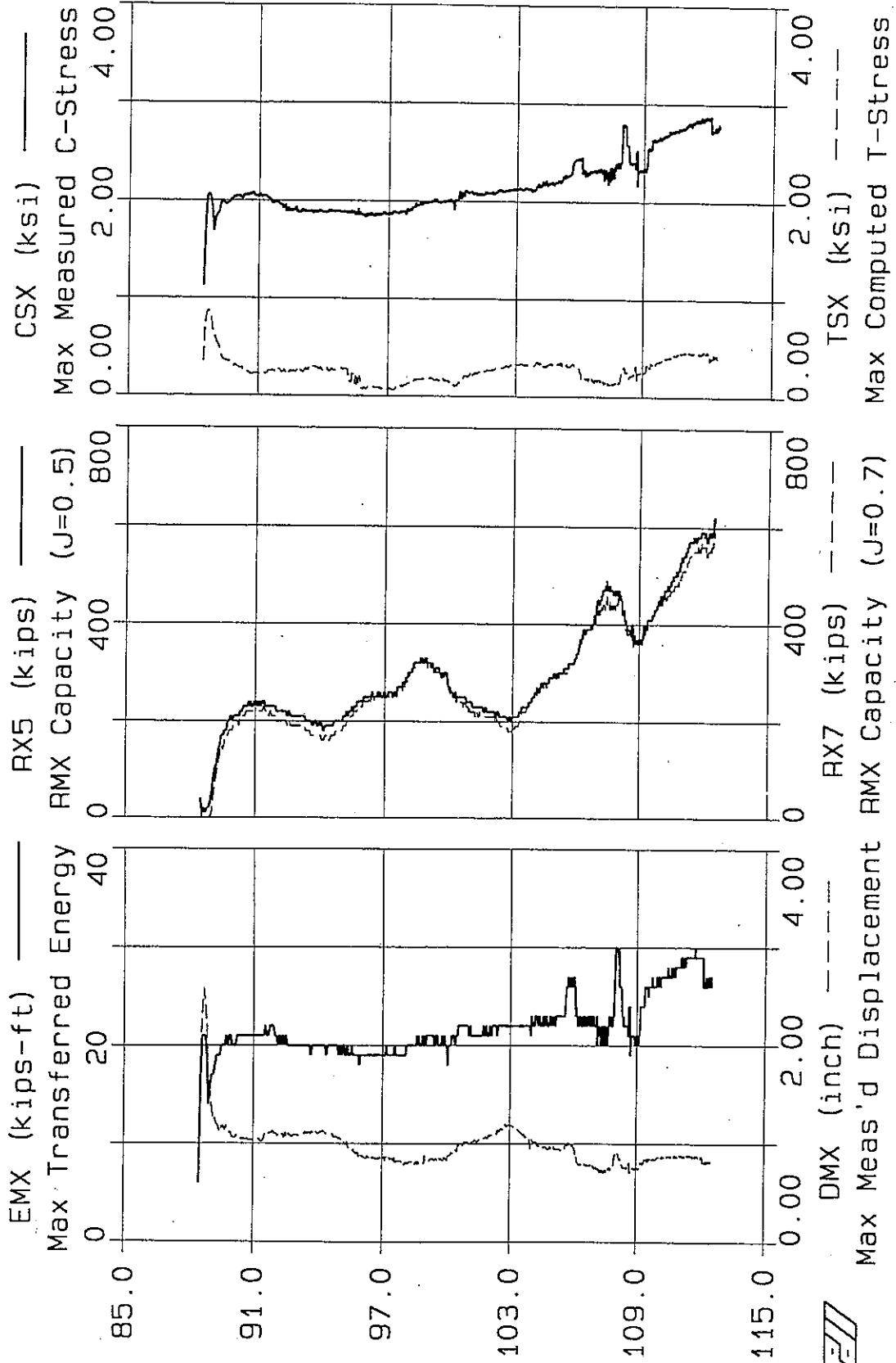
	QUT	RX5	RX7	EMX	STK	DMX	CSX	CSB	TSX
AVG	981	641	609	33	5.48	0.81	3.11	3.02	0.28
STD	37	16	13	2	1.66	0.03	0.13	0.09	0.08
MAX	1066	680	630	35	6.10	0.86	3.25	3.10	0.38
MIN	910	610	580	28	0.00	0.73	2.82	2.82	0.16
#BLS	13	13	13	13	13	13	13	13	13

DRIVEN (29-May-07 : MARTP1R2.Q01)

18-May-07

GTR

Marginal Way, MARTP2 (EOD), 16" PPC



File: MARTP2 (EOD)

Info: 16" PPC

AR: 256.0 in^2

LE: 136.0 ft

Proj: Marginal Way

SP: 0.150 k/ft^3

WS: 13000 ft/s

EM: 5478 KSI

Pg1

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EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

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BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
726		2.6	0.40	0.81	2.74	2.24	54.6	724	58	55	152
727		2.7	0.40	0.83	2.73	2.29	54.6	701	58	55	152
728		2.6	0.41	0.81	2.73	2.27	54.6	735	58	55	152
729		2.7	0.40	0.82	2.74	2.25	54.6	730	59	56	152
730		2.6	0.41	0.81	2.73	2.25	54.6	714	58	56	152
731		2.6	0.40	0.80	2.75	2.24	54.6	763	59	56	152
732		2.7	0.44	0.82	2.75	2.28	54.4	723	59	56	152
733		2.6	0.41	0.82	2.73	2.26	54.6	732	59	55	152
734		2.6	0.42	0.81	2.73	2.20	54.7	732	58	55	152
735		2.7	0.41	0.83	2.77	2.27	54.4	727	59	56	152
736		2.6	0.44	0.80	2.72	2.17	54.4	755	58	56	152
737		2.7	0.40	0.83	2.76	2.27	54.6	717	59	56	152
738		2.6	0.43	0.82	2.73	2.25	54.6	725	58	55	152
739		2.6	0.41	0.81	2.75	2.25	54.4	738	59	56	152
740		2.7	0.42	0.83	2.74	2.27	54.6	708	59	55	152
741		2.6	0.43	0.82	2.74	2.25	54.7	718	58	55	152
742		2.7	0.41	0.83	2.77	2.28	54.4	714	59	56	152
743		2.7	0.42	0.82	2.77	2.27	54.5	723	59	56	152
744		2.7	0.41	0.82	2.74	2.27	54.7	725	59	56	152
745		2.7	0.42	0.82	2.75	2.25	54.5	718	59	56	152
746		2.7	0.42	0.83	2.76	2.28	54.7	702	59	56	152
747		2.7	0.42	0.83	2.78	2.28	54.6	715	59	56	152
748		2.6	0.42	0.81	2.73	2.19	54.5	753	59	56	152
749		2.7	0.41	0.82	2.73	2.26	54.8	704	59	56	152
750		2.6	0.43	0.81	2.74	2.25	54.5	747	59	56	152
751		2.7	0.42	0.84	2.78	2.32	54.6	715	60	57	152
752		2.7	0.43	0.83	2.76	2.30	54.6	704	60	57	152
753		2.7	0.43	0.83	2.75	2.31	54.6	707	60	57	152
754		2.7	0.42	0.83	2.77	2.33	54.6	718	61	58	152
755		2.7	0.42	0.82	2.77	2.28	54.5	735	61	58	152
756		2.7	0.41	0.82	2.77	2.33	54.6	732	61	58	152
757		2.7	0.41	0.81	2.78	2.32	54.6	767	62	59	152
758		2.7	0.40	0.82	2.80	2.36	54.6	746	62	59	152
759		2.6	0.43	0.81	2.76	2.25	54.7	767	61	58	152
760		2.7	0.40	0.83	2.77	2.31	54.6	719	62	59	152
761		2.7	0.41	0.83	2.78	2.36	54.7	721	62	59	152
762		2.7	0.40	0.81	2.79	2.33	54.5	768	62	59	152
763	112.50	2.7	0.39	0.82	2.76	2.33	54.9	729	62	59	152

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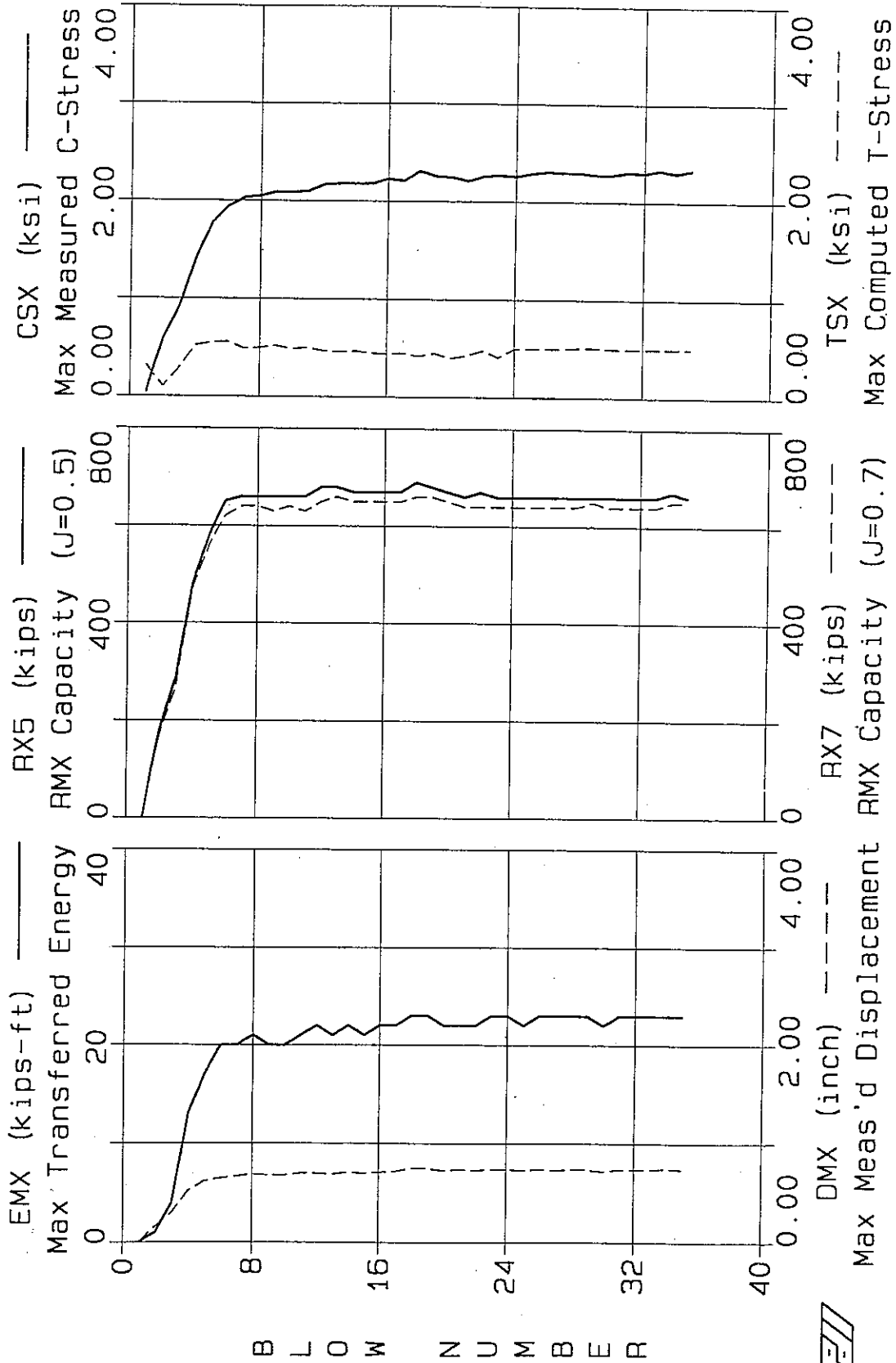
	EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7
AVG	2.7	0.41	0.82	2.75	2.28	54.6	728	60	57
STD	0.0	0.01	0.01	0.02	0.04	0.1	19	1	1
MAX	2.7	0.44	0.84	2.80	2.36	54.9	768	62	59
#BLS	38	38	38	38	38	38	38	38	38

DRIVEN (18-May-07 : MARTP2.Q01)

21-May-07

GTR

Marginal Way, MARTP2 (3DR), 16" PPC

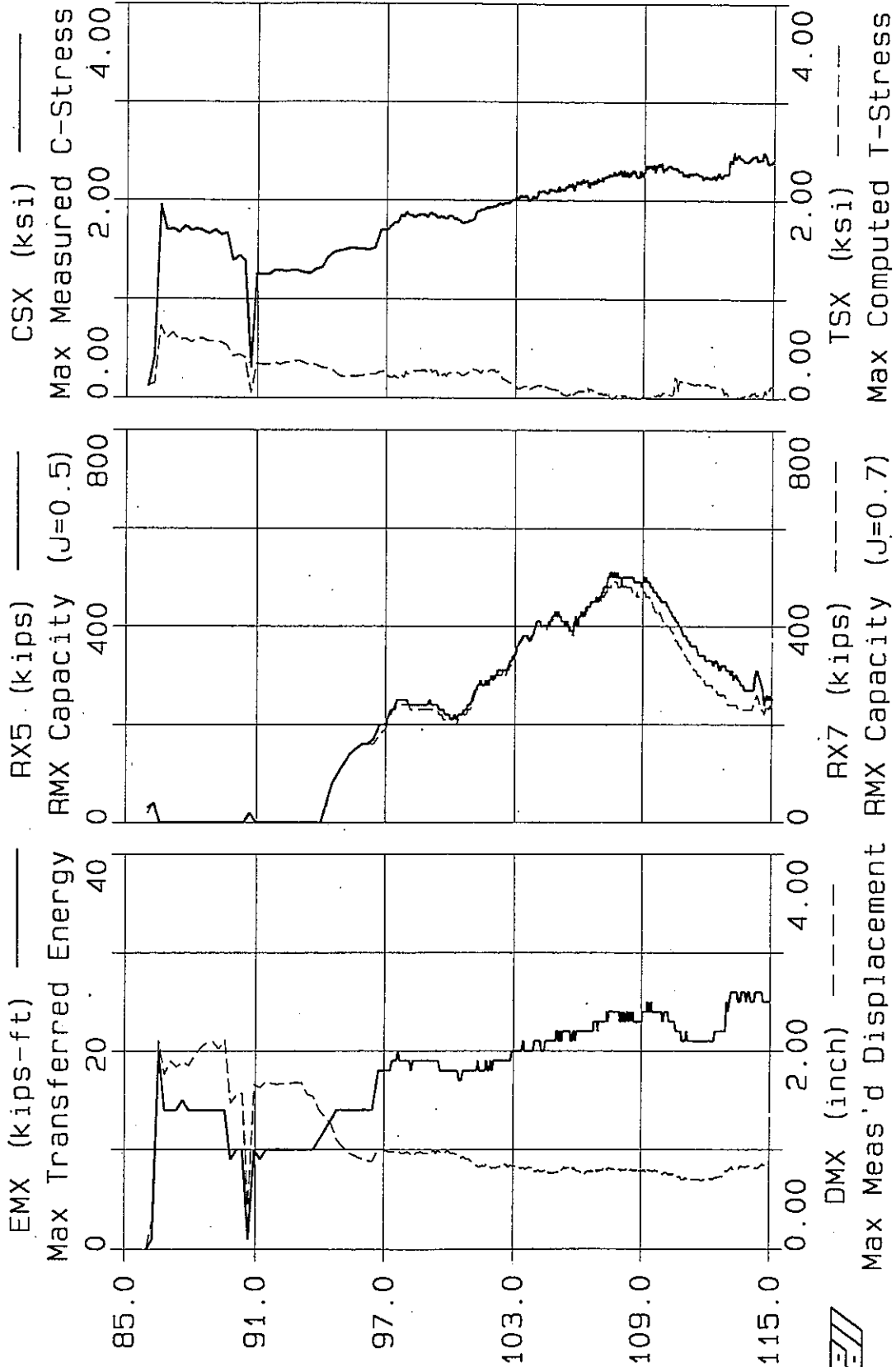




GTR

18-May-07

Marginal Way, MARTP3 (EOD), 16" PPC



P E N E T R A T I O N f t



Pile: MARTP3 (EOD)  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 116.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13000 ft/s  
 EM: 5478 KSI

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

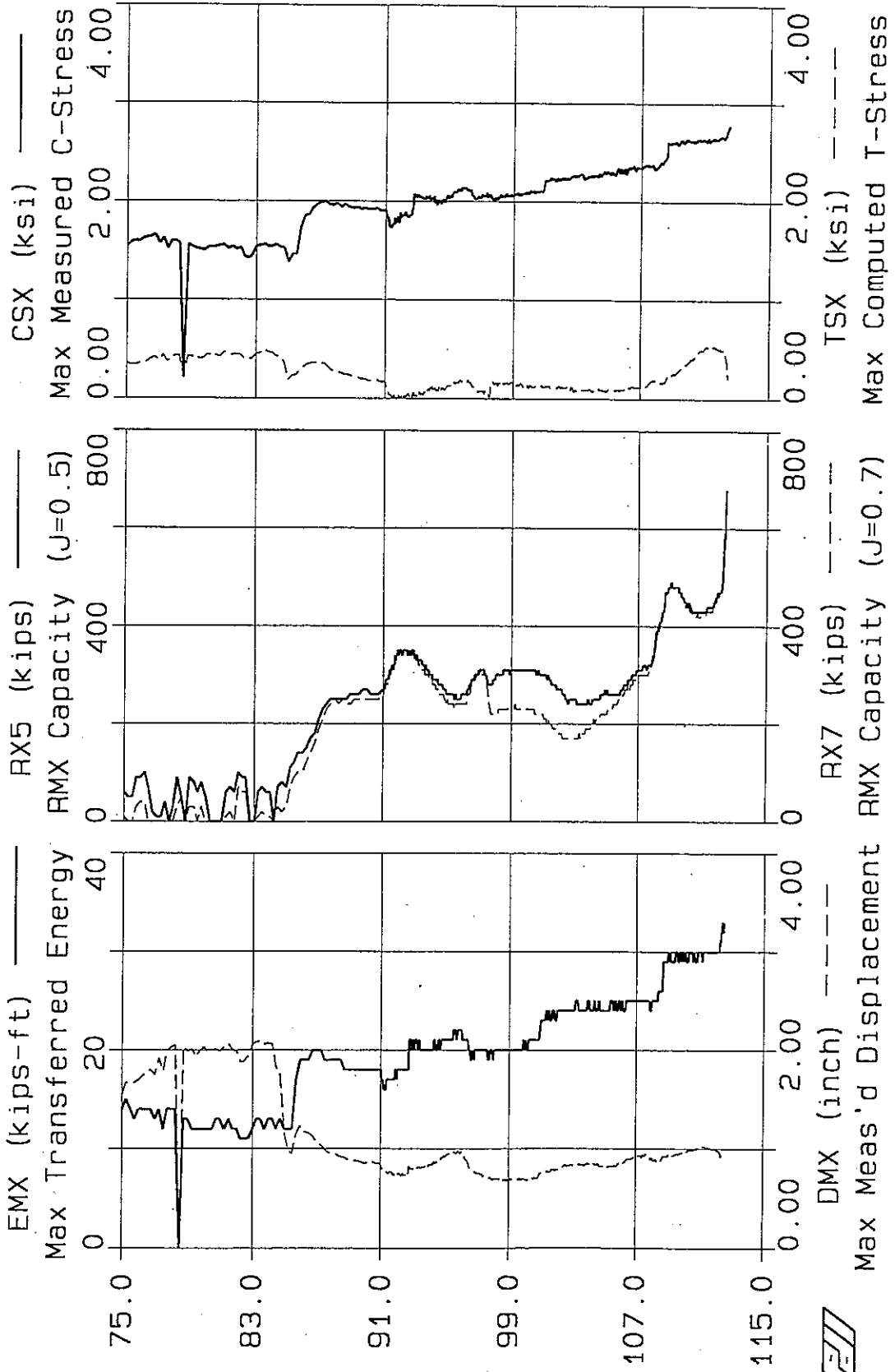
BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
704		26	0.01	0.83	2.39	1.91	48.9	509	270	230	28
706		25	0.01	0.82	2.41	1.91	49.0	523	270	230	28
708		26	0.03	0.83	2.43	1.96	48.9	518	270	230	28
710		26	0.05	0.84	2.45	1.94	48.9	516	270	230	28
712		25	0.05	0.83	2.44	1.96	49.0	514	270	230	28
714		25	0.06	0.83	2.46	1.93	49.0	523	270	240	28
716		25	0.02	0.81	2.40	1.94	48.9	534	300	250	28
718		26	0.04	0.81	2.41	2.06	48.8	543	310	260	28
720		26	0.00	0.82	2.42	2.04	48.7	539	300	250	28
722		26	0.01	0.81	2.41	2.04	48.7	545	290	240	28
724		26	0.00	0.83	2.49	2.07	48.8	534	280	230	28
726		26	0.04	0.84	2.47	1.99	48.9	516	270	230	28
728		25	0.08	0.86	2.43	1.89	49.0	488	240	220	28
730		25	0.04	0.84	2.37	1.79	49.0	500	250	230	28
732		25	0.04	0.86	2.38	1.81	49.1	495	260	240	28
734		25	0.11	0.86	2.38	1.78	49.1	486	250	230	28
736		25	0.12	0.85	2.40	1.79	49.0	496	260	240	28
738	115.00	25	0.12	0.87	2.41	1.81	49.0	489	250	230	28

	EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7
AVG	25	0.05	0.84	2.42	1.92	48.9	515	271	236
STD	1	0.04	0.02	0.03	0.10	0.1	19	19	10
MAX	26	0.12	0.87	2.49	2.07	49.1	545	310	260
#BLS	18	18	18	18	18	18	18	18	18

DRIVEN (18-May-07 : MARTP3.Q01)

Marginal Way, MARTP4 (EOD), 16" PPC



File: MARTP4 (EOD)  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 116.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13000 ft/s  
 EM: 5478 KSI

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

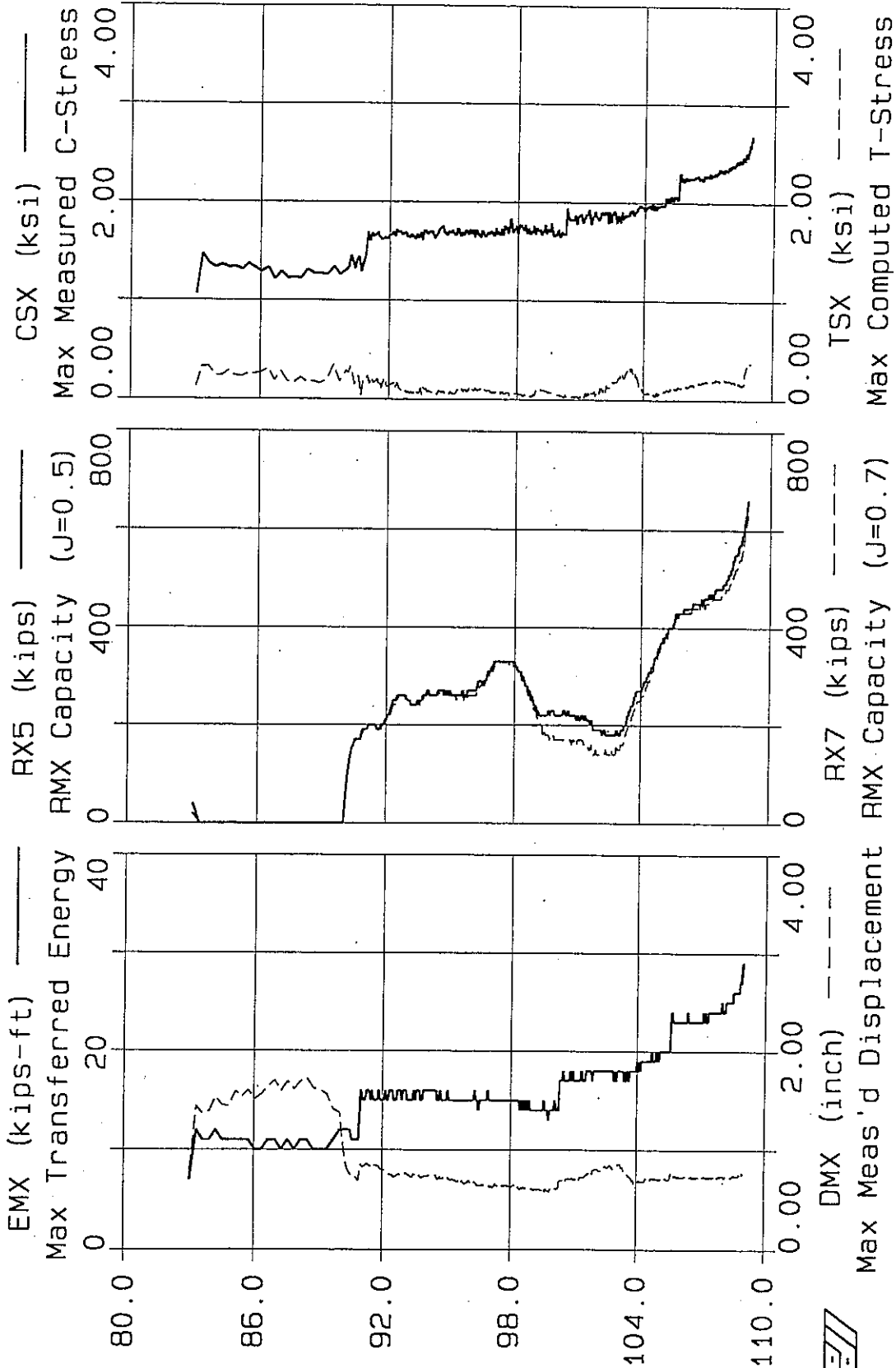
BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
835	112.25	30	0.50	0.98	2.67	1.76	48.2	690	480	480	34
837		31	0.49	0.98	2.67	1.80	48.2	690	490	480	96
839		31	0.47	0.98	2.67	1.85	48.1	678	490	490	96
841		31	0.46	0.96	2.69	1.98	48.1	685	520	520	96
843		31	0.45	0.96	2.70	2.05	48.1	682	540	540	96
845		32	0.41	0.94	2.72	2.16	48.1	700	560	550	96
847		32	0.39	0.92	2.71	2.21	48.1	729	580	570	96
849		32	0.39	0.92	2.74	2.21	48.1	731	580	570	96
851		32	0.38	0.92	2.74	2.18	48.0	707	580	560	96
853		33	0.35	0.94	2.74	2.28	48.0	669	600	580	96
855		32	0.30	0.91	2.75	2.35	48.0	702	630	600	96
857		32	0.22	0.90	2.76	2.45	48.0	720	660	630	96
859	112.50	33	0.21	0.89	2.78	2.48	47.9	765	680	650	96
		32		.90	2.76	2.42	44.0		657		
		EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7	
	AVG	32	0.39	0.94	2.72	2.14	48.1	704	568	555	
	STD	1	0.10	0.03	0.04	0.24	0.1	27	64	54	
	MAX	33	0.50	0.98	2.78	2.48	48.2	765	680	650	
	#BLS	13	13	13	13	13	13	13	13	13	

DRIVEN (18-May-07 : MARTP4.Q01)

18-May-07

GTR

Marginal Way, MARTP5 (E00), 16" PPC



P E N E T R A T I O N    f t



File: MARTP5 (EOD)  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 116.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13000 ft/s  
 EM: 5478 KSI

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

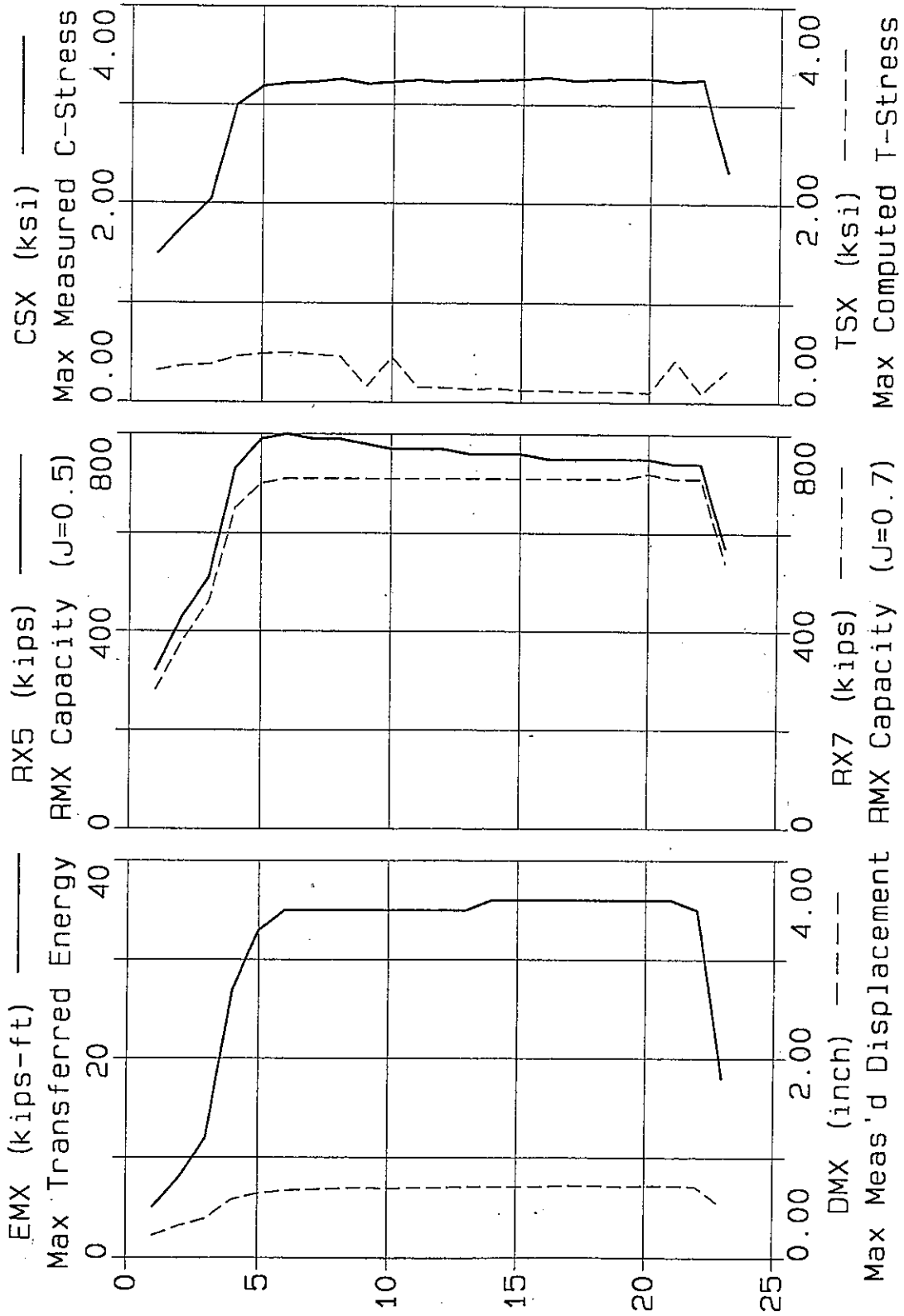
BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
768	108.75	26	0.28	0.74	2.51	2.25	49.3	630	590	560	54
770		26	0.33	0.74	2.46	2.24	49.5	618	600	570	96
772		26	0.33	0.74	2.52	2.35	49.3	623	600	580	96
774		27	0.34	0.76	2.51	2.42	49.3	619	610	580	96
776		27	0.34	0.75	2.54	2.44	49.2	650	620	590	96
778		27	0.36	0.74	2.55	2.44	49.0	670	620	600	96
780		28	0.37	0.76	2.60	2.51	48.8	690	630	600	96
782		27	0.37	0.75	2.57	2.49	49.1	674	630	610	96
784		27	0.36	0.76	2.58	2.47	49.2	672	630	610	96
786		29	0.37	0.77	2.64	2.56	48.7	693	650	620	96
788		28	0.37	0.76	2.63	2.51	48.8	701	650	620	96
790		29	0.37	0.77	2.68	2.54	48.6	696	660	630	96
792	109.00	29	0.38	0.77	2.63	2.56	48.7	704	660	630	96
		EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7	
AVG		27	0.35	0.75	2.57	2.44	49.0	665	627	600	
STD		1	0.03	0.01	0.06	0.11	0.3	33	23	23	
MAX		29	0.38	0.77	2.68	2.56	49.5	704	660	630	
#BLS		13	13	13	13	13	13	13	13	13	

DRIVEN (18-May-07 : MARTP5.Q01)

21-May-07

GTR

Marginal Way, MARTP5 (3DR), 16" PPC



B L O W N U M B E R



Pile: MARTP5 (3DR)  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 116.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13000 ft/s  
 EM: 5474 KSI

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

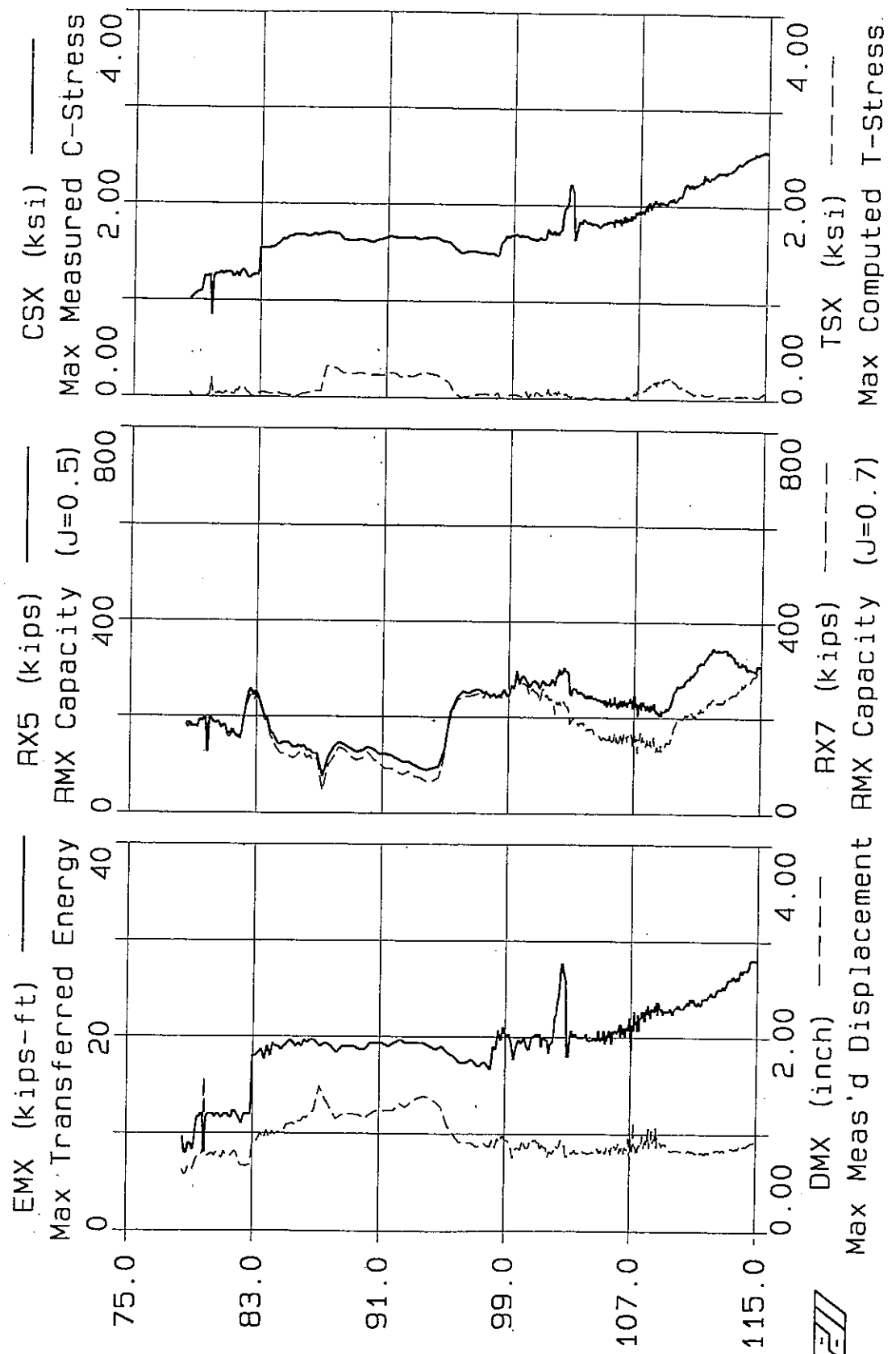
BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
Comment: JC = 0.30											
1	<del>112.50</del>	5	0.32	0.22	1.49	0.63	0.0	548	320	280	0
2	109	8	0.37	0.32	1.78	1.22	83.4	651	430	380	0
3		12	0.38	0.39	2.04	1.65	75.9	763	510	460	0
4		27	0.46	0.58	3.00	2.54	53.0	1029	730	650	0
5		33	0.49	0.64	3.19	2.81	49.6	1138	790	700	0
6		35	0.50	0.67	3.22	2.93	49.7	1118	800	710	0
7		35	0.48	0.68	3.23	3.00	50.0	1056	790	710	0
8		35	0.46	0.69	3.26	2.99	50.2	1048	790	710	0
9		35	0.16	0.70	3.21	2.97	50.3	1022	780	710	0
10		35	0.46	0.69	3.23	2.95	50.4	1033	770	710	0
11		35	0.15	0.70	3.25	3.03	50.5	1017	770	710	0
12		35	0.15	0.70	3.23	3.00	50.6	1018	770	710	0
13		35	0.13	0.71	3.24	3.01	50.6	1018	760	710	0
14		36	0.14	0.71	3.25	3.00	50.6	1006	760	710	0
15		36	0.12	0.71	3.26	3.02	50.6	996	760	710	0
16		36	0.12	0.71	3.28	3.00	50.7	1002	750	710	0
17		36	0.11	0.72	3.25	3.01	50.7	987	750	710	0
18		36	0.11	0.72	3.26	3.01	50.7	984	750	710	0
19		36	0.11	0.71	3.27	3.02	50.6	1021	750	710	0
20		36	0.10	0.72	3.27	3.02	50.7	998	750	720	0
21		36	0.43	0.72	3.24	3.06	50.7	994	740	710	0
22		35	0.09	0.71	3.26	2.97	50.7	1010	740	710	0
23		18	0.32	0.52	2.32	2.31	74.9	740	570	540	0
		EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7	
	AVG	31	0.27	0.64	3.00	2.70	52.0	965	710	656	
	STD	10	0.16	0.14	0.53	0.65	14.8	145	126	121	
	MAX	36	0.50	0.72	3.28	3.06	83.4	1138	800	720	
	#BLS	23	23	23	23	23	23	23	23	23	

DRIVEN (21-May-07 : MARTP5R.Q01)

21-May-07

GTR

Marginal Way, MARTP6 (EOD), 16" PPC



P E N E T R A T I O N f t



Pile: MARTP6 (EOD)  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 116.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13000 ft/s  
 EM: 5474 KSI

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
1393		28	0.03	0.89	2.56	2.09	48.6	647	300	280	73
1395		28	0.02	0.90	2.58	2.10	48.7	651	300	290	73
1397		28	0.04	0.91	2.54	2.11	48.6	629	300	290	73
1399		28	0.04	0.92	2.56	2.10	48.7	566	290	280	73
1401		28	0.04	0.90	2.56	2.09	48.6	658	300	290	73
1403		28	0.03	0.91	2.56	2.07	48.6	620	300	290	73
1405		28	0.05	0.91	2.57	2.07	48.6	602	300	290	73
1407		28	0.04	0.92	2.58	2.07	48.6	616	300	290	73
1409		28	0.06	0.92	2.56	2.06	48.6	598	300	290	73
1411		28	0.05	0.91	2.59	2.11	48.5	620	310	300	73
1413		28	0.06	0.92	2.59	2.10	48.5	609	310	300	73
1415		28	0.06	0.91	2.58	2.06	48.5	670	310	300	73
1417		28	0.06	0.93	2.56	2.07	48.5	600	310	300	73
1419		28	0.07	0.92	2.57	2.07	48.5	618	310	300	73
1421		28	0.08	0.93	2.55	2.06	48.6	607	300	290	73
1423		28	0.08	0.93	2.55	2.08	48.6	618	310	300	73
1425		28	0.07	0.92	2.58	2.08	48.6	627	310	300	73
1427		28	0.09	0.92	2.58	2.07	48.6	633	310	300	73
1429	115.00	28	0.09	0.92	2.58	2.09	48.6	631	310	300	73

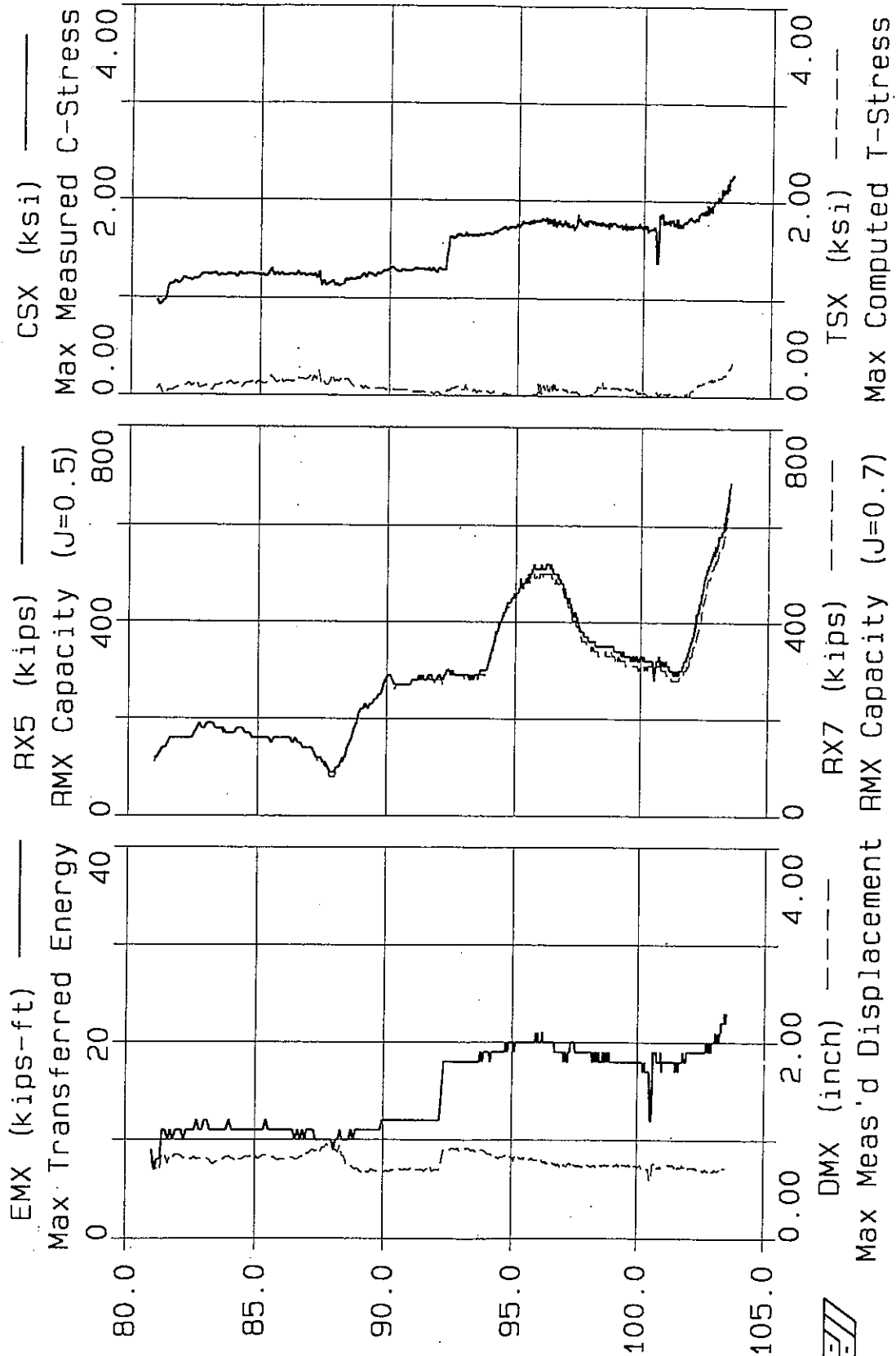
	EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7
AVG	28	0.06	0.92	2.57	2.08	48.6	622	304	294
STD	0	0.02	0.01	0.01	0.02	0.1	24	6	7
MAX	28	0.09	0.93	2.59	2.11	48.7	670	310	300
#BLS	19	19	19	19	19	19	19	19	19

DRIVEN (21-May-07 : MARTP6.Q01)

21-May-07

GTR

Marginal Way, MARTP7 (EOD), 16" PPC



Pile: MARTP7 (EOD)  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 116.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13000 ft/s  
 EM: 5474 KSI

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
928		21	0.23	0.70	2.19	2.38	49.4	739	610	580	160
930		21	0.24	0.70	2.18	2.55	49.6	741	610	580	160
932		21	0.24	0.70	2.12	2.42	49.9	728	610	580	160
934		21	0.25	0.70	2.12	2.44	49.9	731	610	580	160
936		22	0.26	0.71	2.19	2.53	49.5	746	620	590	160
938		22	0.26	0.71	2.20	2.55	49.5	752	620	590	160
940		22	0.26	0.72	2.24	2.63	49.2	758	630	600	160
942		22	0.27	0.71	2.22	2.66	49.4	756	630	610	160
944		22	0.28	0.71	2.22	2.69	49.5	756	630	610	160
946		22	0.29	0.71	2.23	2.68	49.4	755	640	610	160
948		22	0.28	0.71	2.24	2.66	49.4	760	640	620	160
950		22	0.29	0.71	2.23	2.52	49.4	756	650	630	160
952		22	0.30	0.72	2.23	2.59	49.4	749	650	630	160
954		22	0.30	0.71	2.24	2.74	49.4	767	660	650	160
956		22	0.31	0.71	2.26	2.78	49.4	764	670	650	160
958		23	0.31	0.72	2.26	2.77	49.3	767	670	650	160
960		22	0.32	0.71	2.25	2.79	49.4	763	680	650	160
962		22	0.33	0.71	2.28	2.79	49.3	767	680	660	160
964		22	0.34	0.71	2.26	2.76	49.4	764	680	660	160
966	103.50	23	0.35	0.72	2.27	2.72	49.4	766	690	670	160

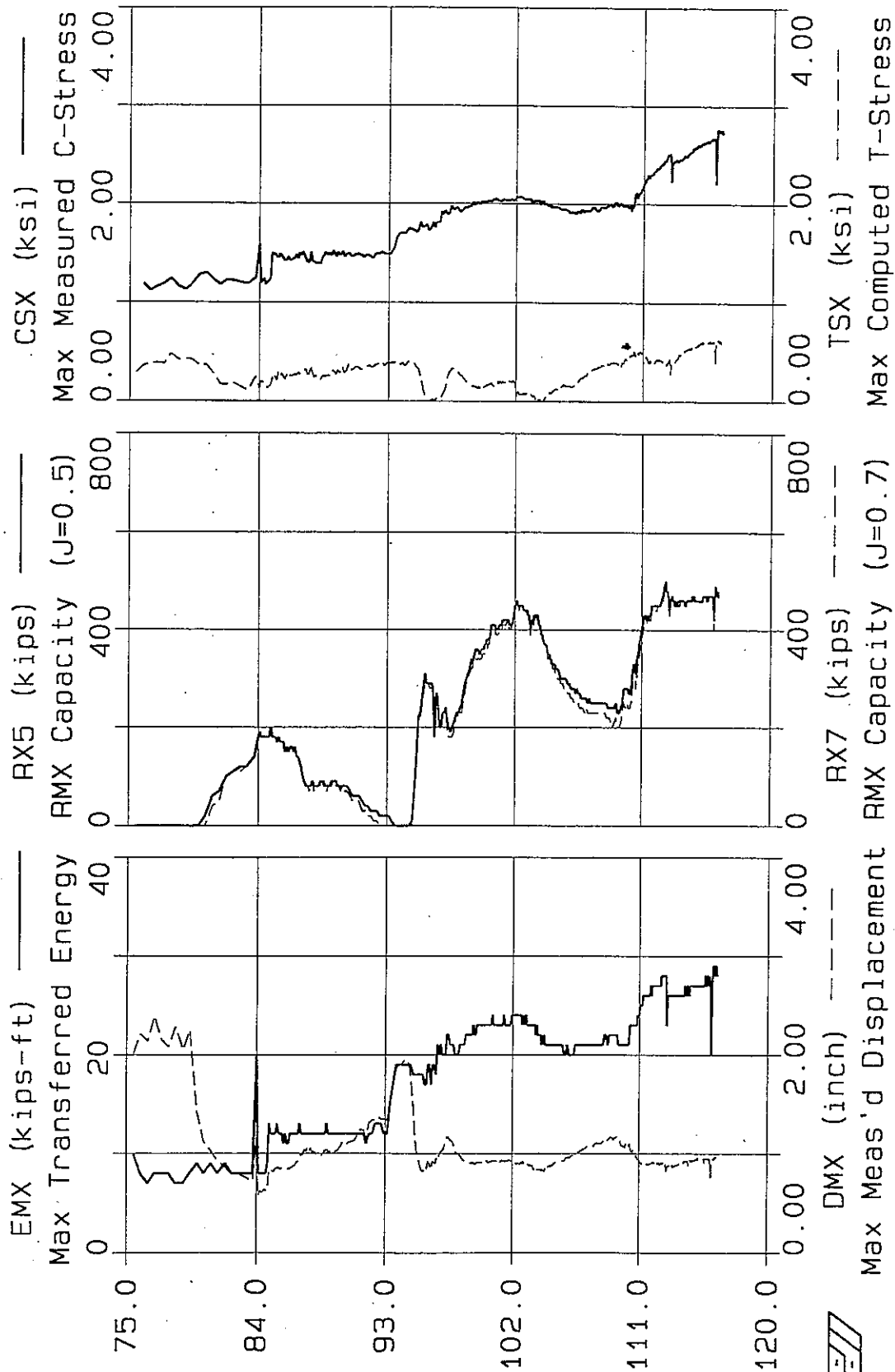
	EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7
AVG	22	0.29	0.71	2.22	2.63	49.5	754	644	620
STD	1	0.03	0.01	0.04	0.13	0.2	12	27	31
MAX	23	0.35	0.72	2.28	2.79	49.9	767	690	670
#BLS	20	20	20	20	20	20	20	20	20

DRIVEN (21-May-07 : MARTP7.Q01)

21-May-07

GTR

Marginal Way, MARTP8 (EOD), 16" PPC



P E N E T R A T I O N    f t

File: MARTP8 (EOD)

Info: 16" PPC

AR: 256.0 in<sup>2</sup>

LE: 116.0 ft

Proj: Marginal Way

SP: 0.150 k/ft<sup>3</sup>

WS: 13000 ft/s

EM: 5474 KSI

Pg1

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
902	116.25	29	0.61	0.95	2.75	2.05	51.4	738	480	480	53
904		28	0.61	0.94	2.75	2.02	51.5	735	480	480	72
905		29	0.63	0.95	2.75	2.02	25.8	731	480	480	72
906		29	0.62	0.95	2.76	2.02	51.5	733	480	480	72
907		29	0.63	0.96	2.75	2.01	51.6	726	480	480	72
908		28	0.62	0.95	2.75	2.02	51.7	728	470	470	72
909		29	0.62	0.95	2.74	1.98	51.7	729	480	480	72
910		29	0.61	0.95	2.74	1.98	51.7	727	470	470	72
911		28	0.61	0.94	2.73	1.98	51.8	727	470	470	72
912		29	0.60	0.96	2.74	1.98	51.8	728	480	480	72
913		29	0.60	0.97	2.75	2.01	51.7	724	470	470	72
914		28	0.62	0.95	2.74	1.96	51.7	728	470	470	72
915		29	0.61	0.96	2.74	1.96	51.7	723	470	470	72
916		29	0.60	0.96	2.76	1.97	51.7	728	470	470	72
917		29	0.60	0.97	2.74	1.97	51.7	719	470	470	72
918		28	0.62	0.95	2.74	1.94	51.8	725	470	470	72
919		29	0.61	0.96	2.74	1.96	51.7	723	470	470	72
920	116.50	29	0.59	0.96	2.72	1.95	51.8	720	470	470	72

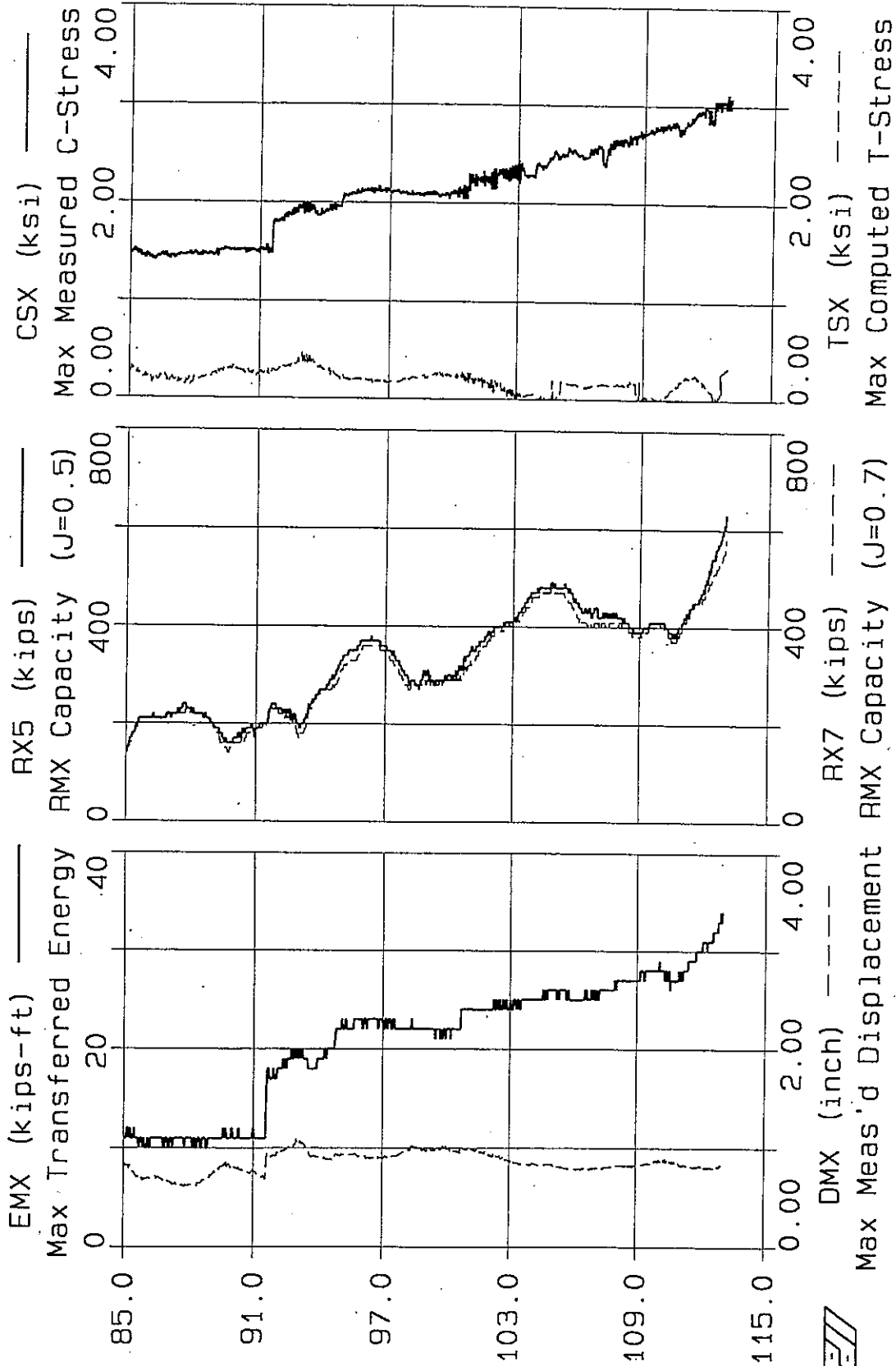
	EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7
AVG	29	0.61	0.95	2.74	1.99	50.2	727	474	474
STD	0	0.01	0.01	0.01	0.03	6.1	5	5	5
MAX	29	0.63	0.97	2.76	2.05	51.8	738	480	480
#BLS	18	18	18	18	18	18	18	18	18

DRIVEN (21-May-07 : MARTP8.Q01)

21-May-07

GTR

Marginal Way, MARTP9 (EOD), 16" PPC



P E N E T R A T I O N f t

File: MARTP9 (EOD)  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 116.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13500 ft/s  
 EM: 5908 KSI

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

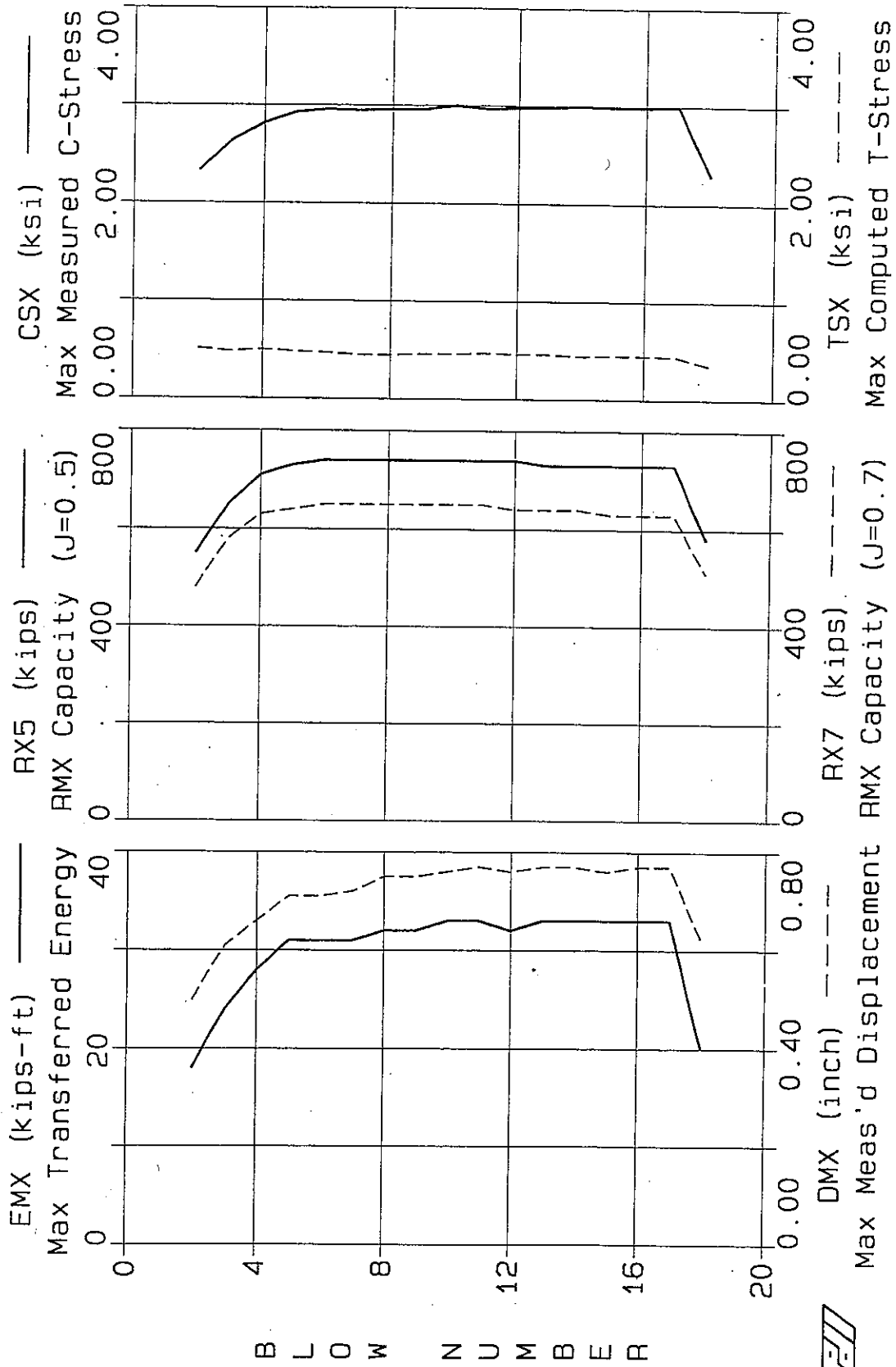
BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
987		33	0.31	0.82	2.97	2.30	50.8	954	580	530	120
989		33	0.30	0.81	3.06	2.33	50.8	953	590	530	120
991		33	0.32	0.81	3.09	2.39	50.8	975	590	540	120
993		33	0.31	0.81	3.02	2.31	50.8	926	590	540	120
995		33	0.32	0.81	3.12	2.40	50.8	980	600	550	120
997		33	0.31	0.82	3.04	2.37	50.8	955	600	550	120
999		33	0.32	0.81	3.07	2.34	50.7	960	600	550	120
1001		34	0.32	0.83	3.06	2.43	50.8	918	600	550	120
1003		33	0.32	0.83	3.02	2.35	50.8	900	610	550	120
1005		33	0.33	0.82	2.97	2.40	50.8	904	600	550	120
1007		33	0.34	0.82	3.06	2.35	50.8	920	610	560	120
1009		34	0.33	0.83	3.05	2.41	50.7	899	610	560	120
1011		34	0.34	0.83	3.03	2.38	50.7	901	620	570	120
1013	113.00	34	0.33	0.83	3.08	2.42	50.7	922	630	580	120

	EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7
AVG	33	0.32	0.82	3.05	2.37	50.8	933	602	551
STD	0	0.01	0.01	0.04	0.04	0.0	29	13	14
MAX	34	0.34	0.83	3.12	2.43	50.8	980	630	580
#BLS	14	14	14	14	14	14	14	14	14

DRIVEN (21-May-07 : MARTP9.MDF)

Marginal Way, TP9 Restrike, 16" PPC





Pile: TP9 Restrike  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 116.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13000 ft/s  
 EM: 5474 KSI

EMX: Max Transferred Energy  
 STK: Stroke (O.E.Diesels)  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

TSX: Max Computed T-Stress  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

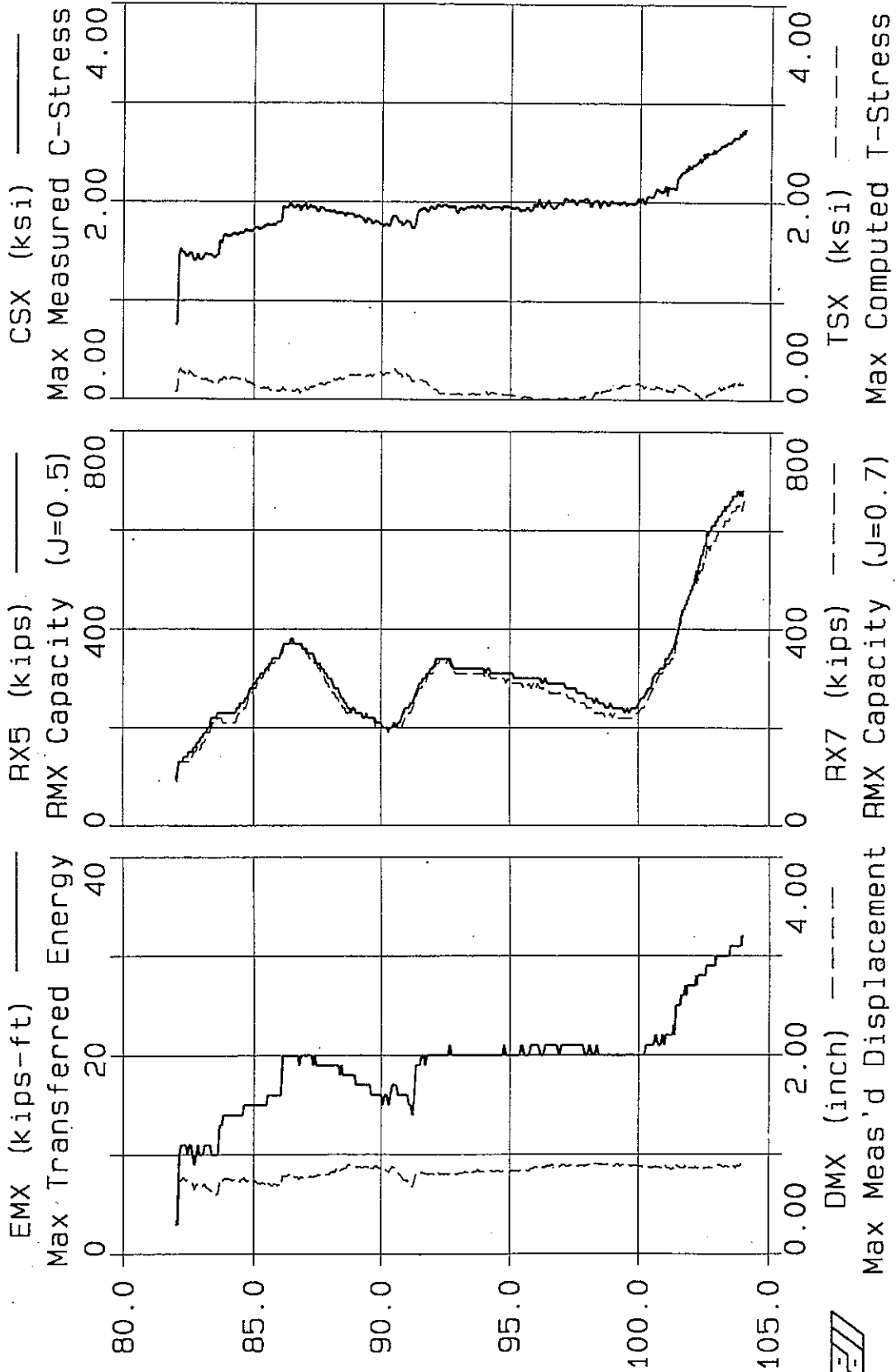
BL#	EMX kips-ft	STK ft	DMX inch	CSX ksi	CSB ksi	TSX ksi	QUT	RX5 kips	RX7 kips
2	18	5.19	0.50	2.33	1.40	0.51	660	550	480
3	24	5.70	0.61	2.64	2.09	0.48	704	650	580
4	28	6.00	0.66	2.82	2.53	0.50	796	710	630
5	31	6.12	0.71	2.93	2.86	0.48	764	730	640
6	31	6.09	0.71	2.96	3.02	0.47	780	740	650
7	31	6.06	0.72	2.95	3.14	0.45	778	740	650
8	32	6.05	0.75	2.96	3.25	0.45	751	740	650
9	32	6.07	0.75	2.96	3.33	0.46	761	740	650
10	33	6.03	0.76	3.00	3.43	0.46	761	740	650
11	33	6.04	0.77	2.97	3.45	0.47	768	740	650
12	32	5.98	0.76	2.98	3.45	0.46	774	740	640
13	33	6.03	0.77	2.99	3.49	0.46	762	730	640
14	33	5.97	0.77	3.00	3.48	0.44	770	730	640
15	33	5.97	0.76	2.99	3.47	0.45	784	730	630
16	33	5.97	0.77	2.99	3.48	0.45	768	730	630
17	33	5.96	0.77	3.00	3.48	0.44	779	730	630
18	20	3.21	0.62	2.29	2.75	0.35	606	580	510
AVG	EMX 30	STK 5.79	DMX 0.72	CSX 2.87	CSB 3.06	TSX 0.46	QUT 751	RX5 709	RX7 621
STD	5	0.70	0.08	0.23	0.59	0.03	49	59	50
MAX	33	6.12	0.77	3.00	3.49	0.51	796	740	650
MIN	18	3.21	0.50	2.29	1.40	0.35	606	550	480
#BLS	17	17	17	17	17	17	17	17	17

DRIVEN (29-May-07 : MARTP9R.Q01)

21-May-07

GTR

Marginal Way, MARTP10 (EOD), 16" PPC



PENETRATION ft

Pile: MARTP10 (EOD)

Info: 16" PPC

AR: 256.0 in^2

LE: 116.0 ft

Proj: Marginal Way

SP: 0.150 k/ft^3

WS: 13000 ft/s

EM: 5474 KSI

Pg1

EMX: Max Transferred Energy  
 TSX: Max Computed T-Stress  
 DMX: Max Meas'd Displacement  
 CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress

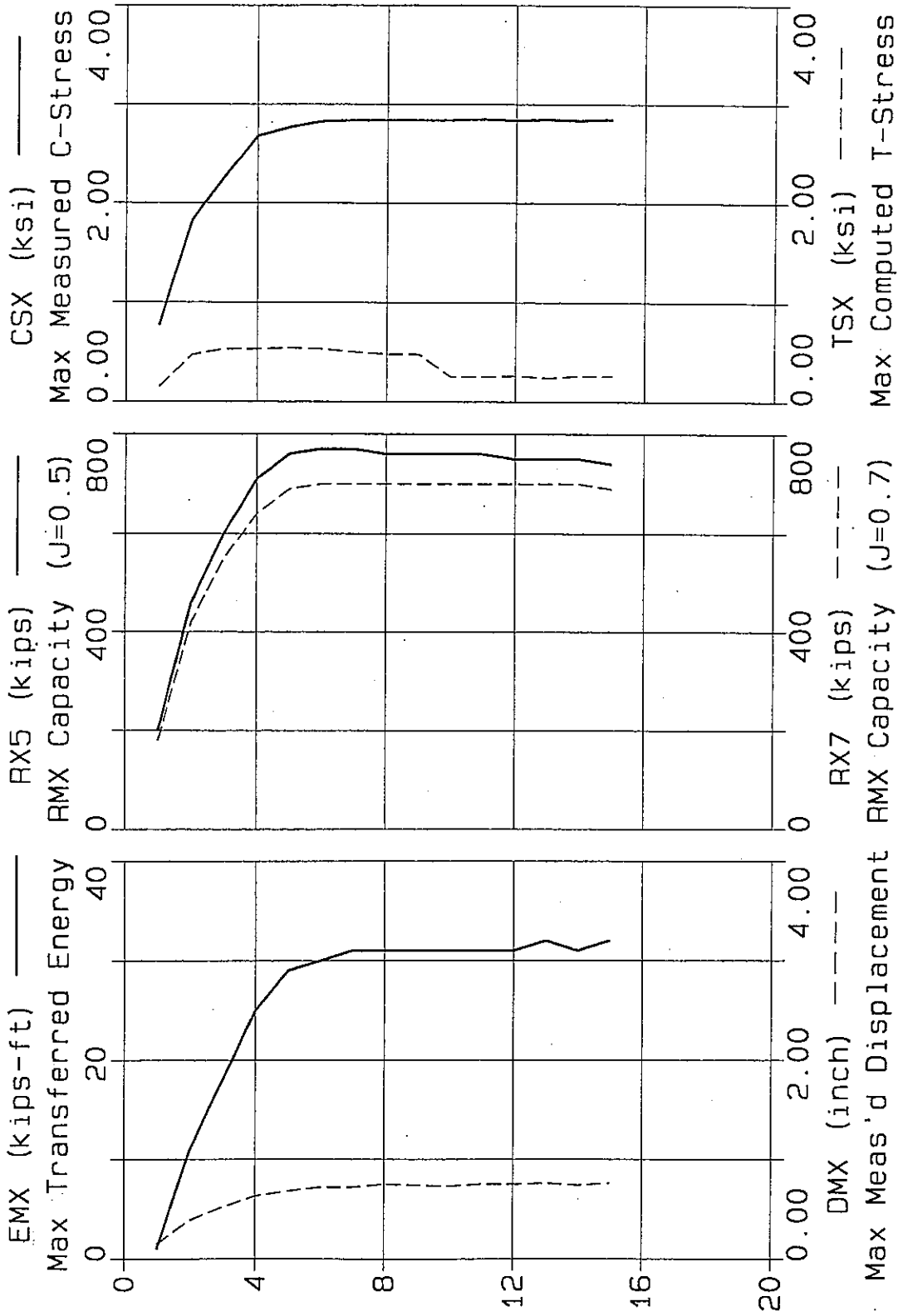
BPM: Blows Per Minute  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)  
 RX7: RMX Capacity (J=0.7)

BL#	depth ft	EMX kips-ft	TSX ksi	DMX inch	CSX ksi	CSB ksi	BPM bl/min	QUT	RX5 kips	RX7 kips	BLC bl/ft
745	103.75	31	0.16	0.88	2.65	2.67	50.4	852	680	650	59
747		31	0.17	0.88	2.66	2.64	50.4	844	680	650	120
749		31	0.17	0.89	2.67	2.68	50.3	799	680	650	120
751		31	0.16	0.89	2.67	2.66	50.3	797	680	650	120
753		31	0.19	0.89	2.71	2.68	50.2	800	680	650	120
755		31	0.17	0.88	2.70	2.64	50.3	817	680	650	120
757		31	0.16	0.88	2.68	2.59	50.4	793	670	650	120
759		31	0.17	0.88	2.68	2.66	50.3	801	680	650	120
761		31	0.16	0.89	2.71	2.63	50.4	794	680	650	120
763		31	0.16	0.89	2.73	2.57	50.4	788	680	650	120
765		31	0.16	0.89	2.72	2.62	50.4	805	680	650	120
767		32	0.16	0.91	2.73	2.62	50.4	744	670	640	120
769		31	0.17	0.89	2.73	2.65	50.4	785	680	650	120
771		32	0.18	0.89	2.70	2.67	50.4	801	680	650	120
773		32	0.16	0.89	2.75	2.68	50.3	790	680	650	120
775	104.00	32	0.18	0.88	2.73	2.67	50.4	817	680	660	120

	EMX	TSX	DMX	CSX	CSB	BPM	QUT	RX5	RX7
AVG	31	0.17	0.89	2.70	2.65	50.4	802	679	650
STD	0	0.01	0.01	0.03	0.03	0.1	24	3	4
MAX	32	0.19	0.91	2.75	2.68	50.4	852	680	660
#BLS	16	16	16	16	16	16	16	16	16

DRIVEN (21-May-07 : MARTP10.Q01)

Marginal Way, TP10 Restrike, 16" PPC



B L O W N U M B E R



Pile: TP10 Restrike  
 Info: 16" PPC  
 AR: 256.0 in<sup>2</sup>  
 LE: 116.0 ft

Proj: Marginal Way  
 SP: 0.150 k/ft<sup>3</sup>  
 WS: 13000 ft/s  
 EM: 5474 KSI

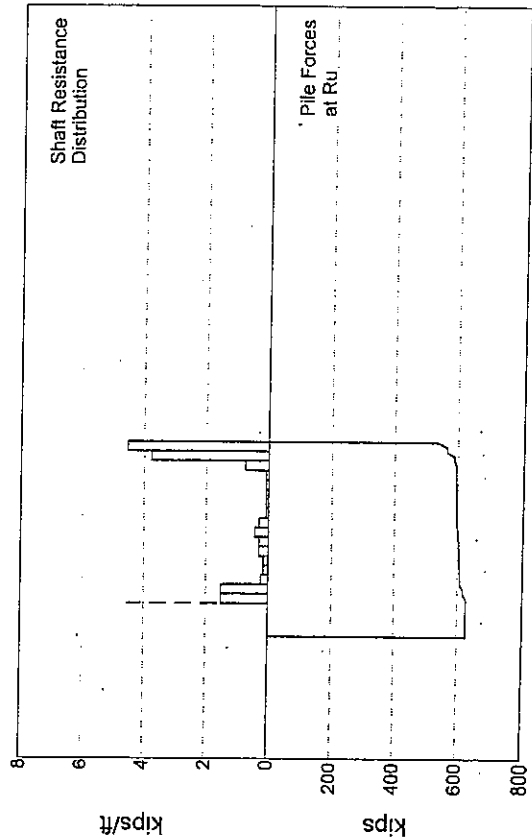
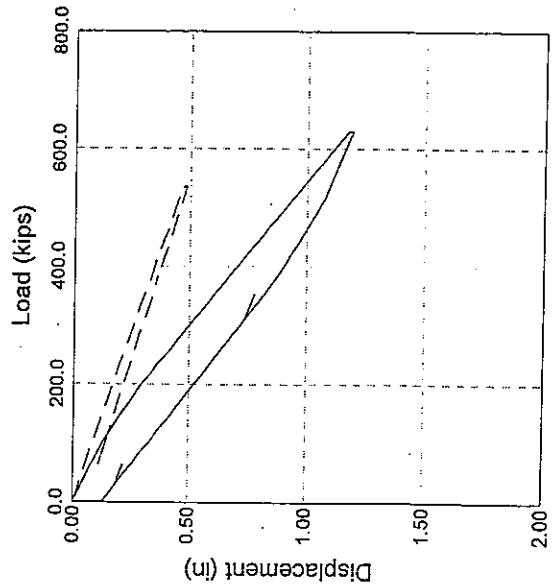
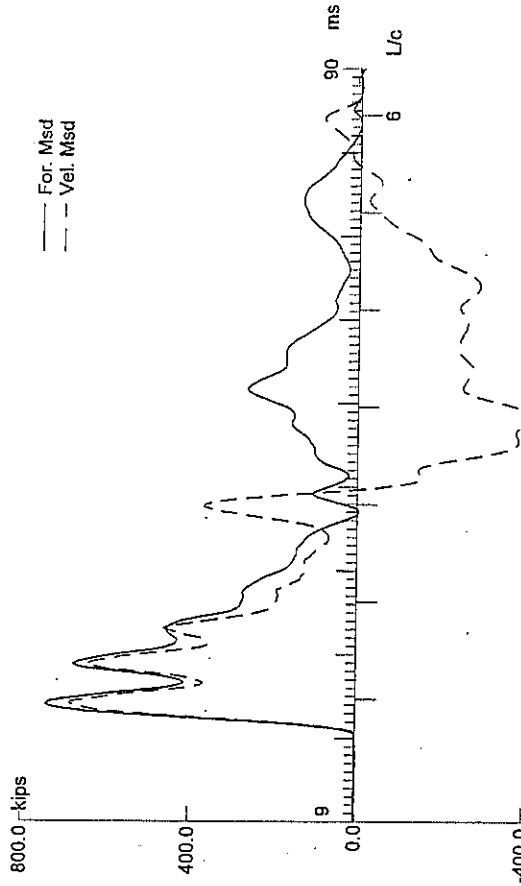
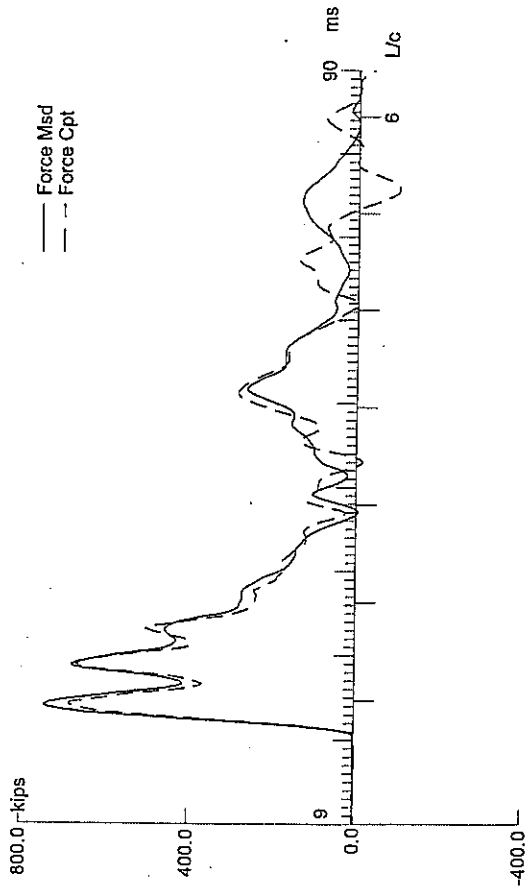
CSX: Max Measured C-Stress  
 CSB: Max Meas C-Toe Stress  
 TSX: Max Computed T-Stress  
 QUT: UNDEFINED  
 RX5: RMX Capacity (J=0.5)

RX7: RMX Capacity (J=0.7)  
 EMX: Max Transferred Energy  
 STK: Stroke (O.E.Diesels)  
 DMX: Max Meas'd Displacement

BL#	CSX ksi	CSB ksi	TSX ksi	QUT	RX5 kips	RX7 kips	EMX kips-ft	STK ft	DMX inch
4	2.68	2.49	0.53	916	710	640	25	5.49	0.63
5	2.77	2.97	0.54	953	760	690	29	5.82	0.68
6	2.83	3.21	0.53	923	770	700	30	5.85	0.72
7	2.84	3.25	0.50	957	770	700	31	5.82	0.72
8	2.84	3.28	0.48	890	760	700	31	5.79	0.75
9	2.84	3.29	0.48	907	760	700	31	5.76	0.74
10	2.84	3.28	0.25	971	760	700	31	5.73	0.73
11	2.85	3.30	0.25	929	760	700	31	5.71	0.75
12	2.84	3.31	0.26	925	750	700	31	5.72	0.75
13	2.85	3.32	0.24	928	750	700	32	5.72	0.76
14	2.84	3.28	0.26	1006	750	700	31	5.72	0.74
15	2.85	3.32	0.26	949	740	690	32	5.70	0.76
AVG	2.82	3.19	0.38	938	753	693	30	5.74	0.73
STD	0.05	0.24	0.14	31	16	17	2	0.09	0.04
MAX	2.85	3.32	0.54	1006	770	700	32	5.85	0.76
MIN	2.68	2.49	0.24	890	710	640	25	5.49	0.63
#BLS	12	12	12	12	12	12	12	12	12

DRIVEN (29-May-07 : MARTP10R.Q01)

**APPENDIX D**  
**CAPWAP RESULTS**



Marginal Way; Pile: MARTP1R  
 16" PPC; Blow: 465  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 630.0; along Shaft 95.0; at Toe 535.0 kips

Soil Sgmt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				630.0					
1	29.9	3.4	10.0	620.0	10.0	1.51	0.28	0.168	0.100
2	36.5	10.0	10.0	610.0	20.0	1.51	0.28	0.168	0.100
3	43.1	16.6	1.5	608.5	21.5	0.23	0.04	0.168	0.100
4	49.8	23.3	1.0	607.5	22.5	0.15	0.03	0.168	0.100
5	56.4	29.9	1.0	606.5	23.5	0.15	0.03	0.168	0.100
6	63.0	36.5	2.0	604.5	25.5	0.30	0.06	0.168	0.100
7	69.7	43.2	2.0	602.5	27.5	0.30	0.06	0.168	0.100
8	76.3	49.8	3.0	599.5	30.5	0.45	0.08	0.168	0.100
9	82.9	56.4	2.0	597.5	32.5	0.30	0.06	0.168	0.100
10	89.6	63.1	0.5	597.0	33.0	0.08	0.01	0.168	0.100
11	96.2	69.7	0.5	596.5	33.5	0.08	0.01	0.168	0.100
12	102.8	76.3	0.5	596.0	34.0	0.08	0.01	0.168	0.100
13	109.5	83.0	0.5	595.5	34.5	0.08	0.01	0.168	0.100
14	116.1	89.6	0.5	595.0	35.0	0.08	0.01	0.168	0.100
15	122.7	96.2	5.0	590.0	40.0	0.75	0.14	0.168	0.100
16	129.4	102.9	25.0	565.0	65.0	3.77	0.71	0.168	0.100
17	136.0	109.5	30.0	535.0	95.0	4.52	0.85	0.168	0.100
Avg. Skin			5.6			0.87	0.16	0.168	0.100
Toe				535.0			300.94	0.067	0.470

Soil Model Parameters/Extensions

	Skin	Toe
Case Damping Factor	0.148	0.331
Unloading Quake (% of loading quake)	50	90
Reloading Level (% of Ru)	100	100
Unloading Level (% of Ru)	65	
Resistance Gap (included in Toe Quake) (in)		0.060

CAPWAP match quality: 5.56 (Force Match)  
 Observed: final set = 0.100 in; blow count = 120 b/ft  
 Computed: final set = 0.081 in; blow count = 148 b/ft



Marginal Way; Pile: MARTP1R  
 16" PPC; Blow: 465  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

EXTREMA TABLE

File Sgmnt No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	680.8	-98.7	2.659	-0.385	29.40	6.3	0.858
2	6.6	680.9	-84.6	2.659	-0.330	29.47	6.3	0.852
4	13.3	681.6	-75.4	2.662	-0.294	29.32	6.3	0.839
6	19.9	685.6	-83.8	2.678	-0.327	29.23	6.3	0.829
8	25.5	693.0	-88.6	2.707	-0.346	29.08	6.2	0.815
10	33.2	679.4	-79.2	2.653	-0.309	27.72	6.1	0.795
12	39.8	661.7	-65.4	2.584	-0.255	26.27	6.1	0.771
14	46.4	659.3	-62.3	2.575	-0.243	25.98	6.1	0.758
16	53.1	658.3	-91.8	2.571	-0.358	25.80	6.1	0.748
18	59.7	657.4	-103.9	2.567	-0.406	25.61	6.1	0.738
20	66.3	655.1	-118.7	2.558	-0.464	25.28	6.0	0.725
22	73.0	652.8	-130.8	2.549	-0.511	24.92	6.0	0.710
24	79.6	647.8	-123.4	2.530	-0.482	24.45	6.0	0.695
26	86.2	644.0	-108.0	2.515	-0.422	24.05	6.0	0.679
28	92.9	642.7	-99.8	2.510	-0.390	23.71	6.0	0.659
30	99.5	641.4	-108.9	2.505	-0.425	23.29	7.0	0.637
32	106.1	640.2	-111.5	2.500	-0.436	22.85	7.3	0.614
34	112.8	640.9	-108.0	2.503	-0.422	22.33	6.6	0.588
36	119.4	678.2	-100.8	2.649	-0.394	21.66	6.0	0.559
38	126.0	700.8	-94.5	2.737	-0.369	20.72	7.1	0.531
40	132.7	639.0	-68.7	2.495	-0.268	18.33	7.6	0.502
41	136.0	635.8	-66.3	2.483	-0.259	16.63	7.4	0.486
Absolute	122.7			2.742			(T = 36.0 ms)	
	73.0				-0.511		(T = 71.2 ms)	

Marginal Way; Pile: MARTE1R  
16" PPC; Blow: 465  
GTR

Test: 21-May-2007  
CAPWAP® Ver. 2000-1

CASE METHOD

J =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
RS1	538.1	448.5	359.0	269.4	179.9	90.4	0.8	0.0	0.0	0.0
RMX	757.6	701.3	675.1	654.4	633.7	613.8	594.3	582.1	574.1	570.2
RSU	538.1	448.5	359.0	269.4	179.9	90.4	0.8	0.0	0.0	0.0

RAU= 566.3 (kips); RA2= 631.9 (kips)

Current CAPWAP Ru= 630.0 (kips); Corresponding J(Rs)= 0.00; J(Rx)=0.42

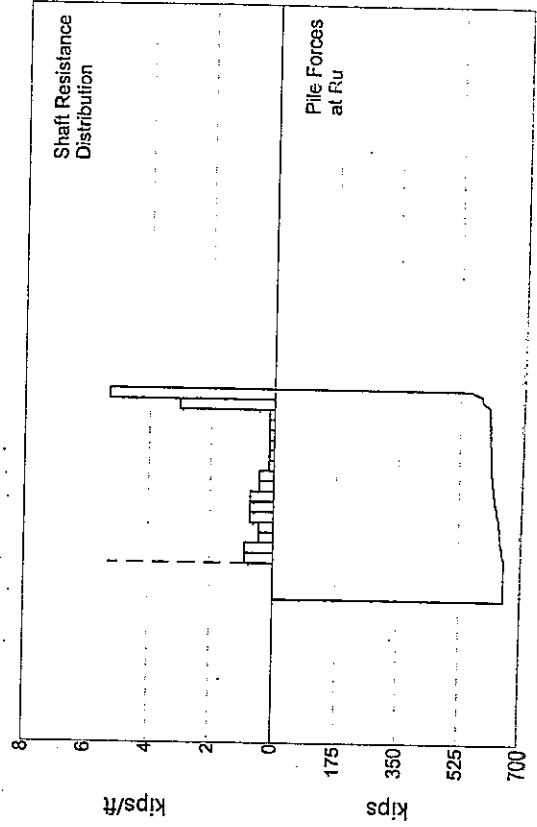
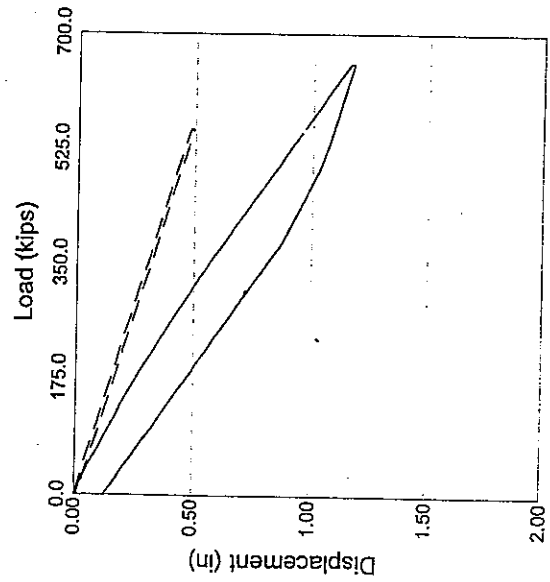
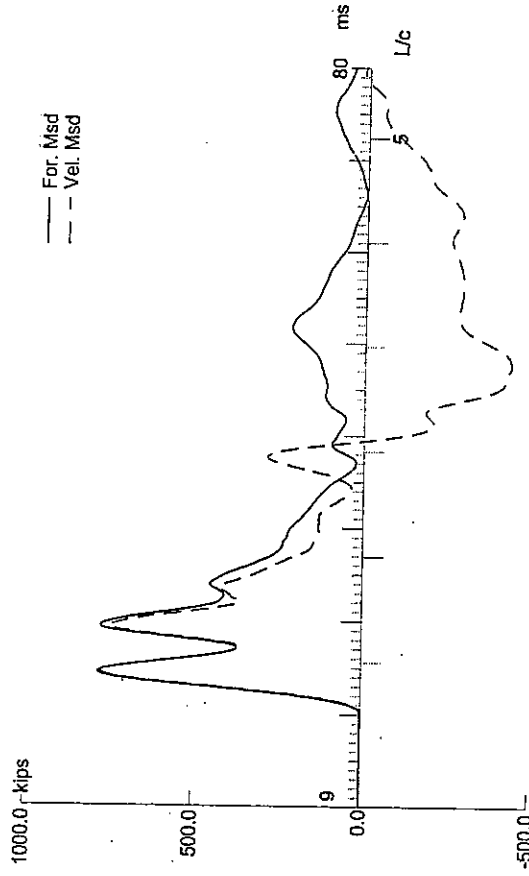
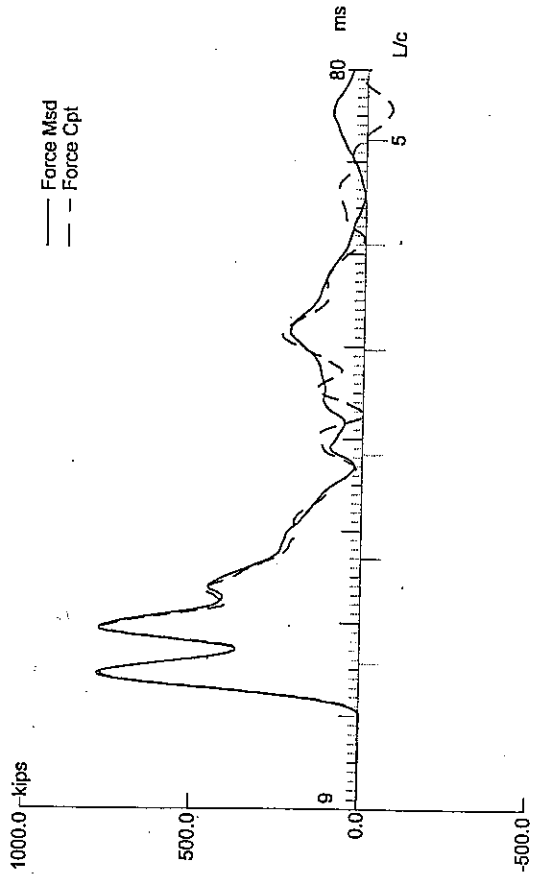
VMX	VFN	VF1*Z	FT1	FMX	DMX	DFN	EMX	RLT
ft/s	ft/s	kips	kips	kips	in	in	kip-ft	kips
6.43	0.00	694.1	739.4	744.5	0.862	0.100	31.0	773.4

Marginal Way; Pile: MARTP1R  
16" PEC; Blow: 465  
GTR

Test: 21-May-2007  
CAPWAP® Ver. 2000-1

PILE PROFILE AND PILE MODEL

Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5476.9	150.186	5.330
136.00	256.00	5476.9	150.186	5.330
Toe Area	1.778	ft <sup>2</sup>		
Top Segment Length	3.32 ft, Top Impedance 107.88 kips/ft/s			
Pile Damping	3.0 %, Time Incr 0.255 ms, Wave Speed 13000.0 ft/s			



Marginal Way; Pile: MARTPLR2  
 16" PPC; Blow: 5  
 GTR

Test: 29-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 654.5; along Shaft 99.9; at Toe 554.6 kips

Soil Sgmt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				654.5					
1	29.9	3.9	6.0	648.5	6.0	0.90	0.17	0.170	0.200
2	36.5	10.5	6.0	642.5	12.0	0.90	0.17	0.170	0.200
3	43.1	17.1	3.0	639.5	15.0	0.45	0.08	0.170	0.200
4	49.8	23.8	3.0	636.5	18.0	0.45	0.08	0.170	0.200
5	56.4	30.4	5.0	631.6	23.0	0.75	0.14	0.170	0.200
6	63.0	37.0	5.0	626.6	28.0	0.75	0.14	0.170	0.200
7	69.7	43.7	5.0	621.6	33.0	0.75	0.14	0.170	0.200
8	76.3	50.3	3.0	618.6	36.0	0.45	0.08	0.170	0.200
9	82.9	56.9	3.0	615.6	39.0	0.45	0.08	0.170	0.200
10	89.6	63.6	1.0	614.6	40.0	0.15	0.03	0.170	0.200
11	96.2	70.2	1.0	613.6	41.0	0.15	0.03	0.170	0.200
12	102.8	76.8	1.0	612.6	42.0	0.15	0.03	0.170	0.200
13	109.5	83.5	1.0	611.6	43.0	0.15	0.03	0.170	0.200
14	116.1	90.1	1.0	610.6	44.0	0.15	0.03	0.170	0.200
15	122.7	96.7	1.0	609.6	45.0	0.15	0.03	0.170	0.200
16	129.4	103.4	20.0	589.6	65.0	3.01	0.57	0.170	0.200
17	136.0	110.0	35.0	554.6	99.9	5.27	0.99	0.170	0.200
Avg. Skin			5.9			0.91	0.17	0.170	0.200
Toe			554.6				311.97	0.080	0.480

Soil Model Parameters/Extensions

	Skin	Toe
Case Damping Factor	0.152	0.396
Unloading Quake (% of loading quake)	15	100
Reloading Level (% of Ru)	100	100
Resistance Gap (included in Toe Quake) (in)		0.040
Soil Plug Weight (kips)		0.55

CAPWAP match quality: 2.70 (Force Match)  
 Observed: final set = 0.077 in; blow count = 156 b/ft  
 Computed: final set = 0.056 in; blow count = 213 b/ft

EXTREMA TABLE

Pile Sgmnt No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	766.8	-75.8	2.995	-0.296	32.56	6.9	0.838
2	6.6	767.0	-71.2	2.995	-0.278	32.66	6.9	0.833
4	13.3	767.0	-65.9	2.995	-0.257	32.47	6.9	0.817
6	19.9	768.7	-69.9	3.002	-0.273	32.29	6.8	0.803
8	26.5	772.6	-77.2	3.017	-0.301	32.18	6.8	0.792
10	33.2	765.1	-77.0	2.988	-0.301	31.48	6.7	0.784
12	39.8	757.4	-74.1	2.958	-0.289	30.80	6.7	0.776
14	46.4	754.9	-73.7	2.948	-0.288	30.38	6.7	0.764
16	53.1	752.9	-79.8	2.940	-0.311	29.89	6.6	0.749
18	59.7	747.6	-91.0	2.919	-0.355	29.28	6.6	0.737
20	66.3	741.9	-91.6	2.897	-0.358	28.68	6.5	0.726
22	73.0	735.5	-91.7	2.872	-0.358	28.03	6.5	0.711
24	79.6	732.1	-94.2	2.859	-0.368	27.55	6.5	0.696
26	86.2	728.0	-87.8	2.843	-0.343	27.08	6.5	0.680
28	92.9	727.1	-80.8	2.840	-0.316	26.77	6.5	0.664
30	99.5	726.0	-83.8	2.835	-0.327	26.41	7.3	0.646
32	106.1	725.0	-87.6	2.831	-0.342	25.93	7.7	0.624
34	112.8	726.5	-93.5	2.837	-0.365	25.28	7.1	0.597
36	119.4	776.6	-96.2	3.033	-0.376	24.52	6.5	0.567
38	126.0	834.1	-98.7	3.257	-0.386	23.77	7.2	0.538
40	132.7	755.3	-78.3	2.950	-0.306	21.71	7.9	0.509
41	136.0	722.7	-78.8	2.822	-0.308	19.65	7.8	0.494
Absolute	126.0			3.257			(T = 35.9 ms)	
	129.4				-0.389		(T = 74.0 ms)	

Marginal Way; Pile: MARTP1R2  
 16" PPC; Blow: 5  
 GTR

Test: 29-May-2007  
 CAPWAP® Ver. 2000-1

CASE METHOD

J =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
RS1	651.4	561.3	471.1	381.0	290.8	200.7	110.5	20.4	0.0	0.0
RMX	888.3	824.3	760.4	696.4	643.5	627.4	611.4	595.3	584.8	575.1
RSU	651.4	561.3	471.1	381.0	290.8	200.7	110.5	20.4	0.0	0.0

RAU= 567.6 (kips); RA2= 646.1 (kips)

Current CAPWAP Ru= 654.5 (kips); Corresponding J(Rs)= 0.00; J(Rx)=0.38

VMX	VFN	VT1*Z	FT1	FMX	DMX	DFN	EMX	RLT
ft/s	ft/s	kips	kips	kips	in	in	kip-ft	kips
6.92	0.00	774.7	778.2	782.0	0.843	0.077	33.6	876.6

Marginal Way; Pile: MARTE1R2  
16" PPC; Blow: 5  
GTR

Test: 29-May-2007  
CAPWAP® Ver. 2000-1

PILE PROFILE AND PILE MODEL

Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5906.3	150.186	5.330
136.00	256.00	5906.3	150.186	5.330

Toe Area                      1.778              ft<sup>2</sup>

Top Segment Length        3.32 ft, Top Impedance    112.03 kips/ft/s

Wave Damping        2.0 %, Time Incr    0.246 ms, Wave Speed    13500.0 ft/s



Marginal Way; Pile: MARTP2  
 .16" PPC; Blow: 758  
 GTR

Test: 18-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 600.2; along Shaft 65.0; at Toe 535.2 kips

Soil Sgmt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				600.2					
1	29.9	6.4	15.0	585.2	15.0	2.26	0.42	0.200	0.070
2	36.5	13.0	5.0	580.2	20.0	0.75	0.14	0.200	0.070
3	43.1	19.6	3.0	577.2	23.0	0.45	0.08	0.200	0.070
4	49.8	26.3	1.0	576.2	24.0	0.15	0.03	0.200	0.070
5	56.4	32.9	1.0	575.2	25.0	0.15	0.03	0.200	0.070
6	63.0	39.5	1.0	574.2	26.0	0.15	0.03	0.200	0.070
7	69.7	46.2	1.0	573.2	27.0	0.15	0.03	0.200	0.070
8	76.3	52.8	1.0	572.2	28.0	0.15	0.03	0.200	0.070
9	82.9	59.4	1.0	571.2	29.0	0.15	0.03	0.200	0.070
10	89.6	66.1	1.0	570.2	30.0	0.15	0.03	0.200	0.070
11	96.2	72.7	1.0	569.2	31.0	0.15	0.03	0.200	0.070
12	102.8	79.3	1.0	568.2	32.0	0.15	0.03	0.200	0.070
13	109.5	86.0	1.0	567.2	33.0	0.15	0.03	0.200	0.070
14	116.1	92.6	1.0	566.2	34.0	0.15	0.03	0.200	0.070
15	122.7	99.2	1.0	565.2	35.0	0.15	0.03	0.200	0.070
16	129.4	105.9	5.0	560.2	40.0	0.75	0.14	0.200	0.070
17	136.0	112.5	25.0	535.2	65.0	3.77	0.71	0.200	0.070
Avg. Skin			3.8			0.58	0.11	0.200	0.070
Toe			535.2				301.04	0.220	0.360

Soil Model Parameters/Extensions

	Skin	Toe	Smith Type
Case Damping Factor	0.120	1.091	
Unloading Quake (% of loading quake)	11	40	
Reloading Level (% of Ru)	100	100	
Unloading Level (% of Ru)	85		

CAPWAP match quality: 5.77 (Force Match)  
 Observed: final set = 0.100 in; blow count = 120 b/ft  
 Computed: final set = 0.042 in; blow count = 282 b/ft

Marginal Way; File: MARTP2  
 16" PPC; Blow: 758  
 GTR

Test: 18-May-2007  
 CAPWAP® Ver. 2000-1

EXTREMA TABLE

Pile Sgmnt No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	659.3	-186.0	2.575	-0.727	26.45	6.1	0.831
2	6.6	658.9	-127.5	2.573	-0.498	26.34	6.1	0.823
4	13.3	658.5	-134.3	2.572	-0.525	26.27	6.1	0.805
6	19.9	661.9	-102.8	2.585	-0.402	26.12	6.1	0.789
8	26.5	673.2	-132.3	2.629	-0.517	25.95	6.0	0.777
10	33.2	645.3	-124.4	2.520	-0.486	24.31	6.1	0.766
12	39.8	636.8	-126.0	2.487	-0.492	23.68	5.9	0.751
14	46.4	628.6	-129.4	2.455	-0.505	23.24	5.9	0.739
16	53.1	572.2	-144.0	2.234	-0.562	22.93	6.8	0.726
18	59.7	629.6	-142.6	2.459	-0.557	22.51	6.4	0.712
20	66.3	628.2	-116.4	2.453	-0.455	21.80	5.8	0.669
22	73.0	627.2	-101.7	2.449	-0.397	21.51	5.8	0.652
24	79.6	626.1	-114.3	2.445	-0.446	21.11	6.0	0.632
26	86.2	625.1	-115.7	2.441	-0.452	20.64	5.8	0.608
28	92.9	624.2	-89.2	2.438	-0.348	20.16	5.8	0.584
30	99.5	622.6	-86.5	2.431	-0.338	19.61	6.5	0.558
32	106.1	621.0	-94.7	2.425	-0.370	18.91	7.4	0.528
34	112.8	641.3	-66.9	2.504	-0.261	18.08	6.6	0.495
36	119.4	670.4	-68.6	2.618	-0.268	17.20	6.0	0.460
38	126.0	716.5	-62.5	2.798	-0.244	16.30	7.6	0.425
40	132.7	729.9	-49.8	2.851	-0.195	15.12	8.1	0.389
41	136.0	754.8	-34.1	2.947	-0.133	14.02	7.5	0.371
Absolute	136.0			2.947			(T = 37.9 ms)	
	3.3				-0.727		(T = 78.2 ms)	

Marginal Way; File: MARTP2  
16" PPC; Blow: 758  
GTR

Test: 18-May-2007  
CAPWAP® Ver. 2000-1

CASE METHOD

J =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
RS1	527.2	480.2	433.1	386.0	338.9	291.9	244.8	197.7	150.7	103.6
RMX	817.5	778.8	745.0	711.2	680.2	651.6	624.9	611.6	598.2	584.8
RSU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RAU= 450.8 (kips); RA2= 491.3 (kips)

Current CAPWAP Ru= 600.2 (kips); Corresponding J(Rs)= 0.00; J(Rx)=0.78

VMX	VFN	VF1*Z	FT1	FMX	DMX	DFN	EMX	RLT
ft/s	ft/s	kips	kips	kips	in	in	kip-ft	kips
6.11	0.29	491.6	506.3	713.2	0.838	0.087	27.8	711.8

Marginal Way; Pile: MARTP2  
 16" PPC; Blow: 758  
 GTR

Test: 18-May-2007  
 CAPWAP® Ver. 2000-1

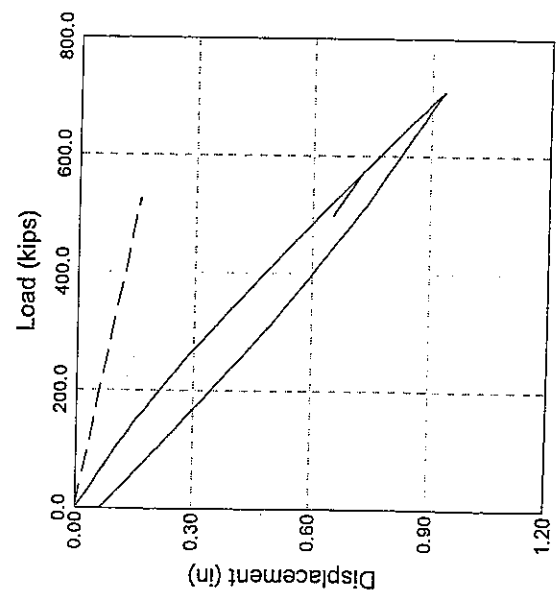
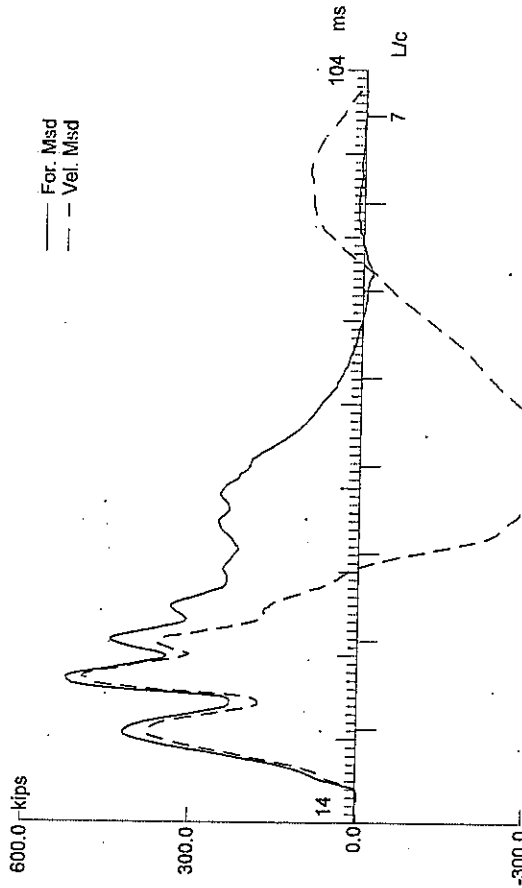
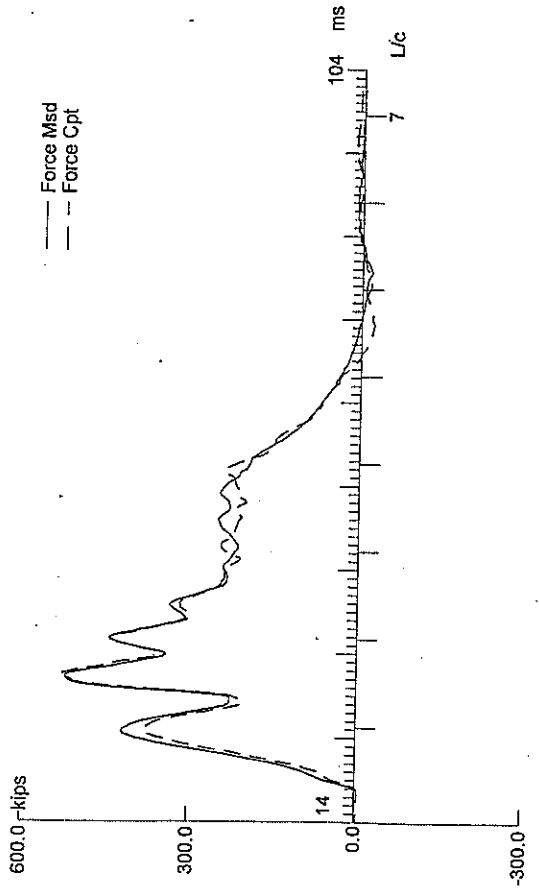
PILE PROFILE AND PILE MODEL

Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5476.9	150.186	5.330
136.00	256.00	5476.9	150.186	5.330

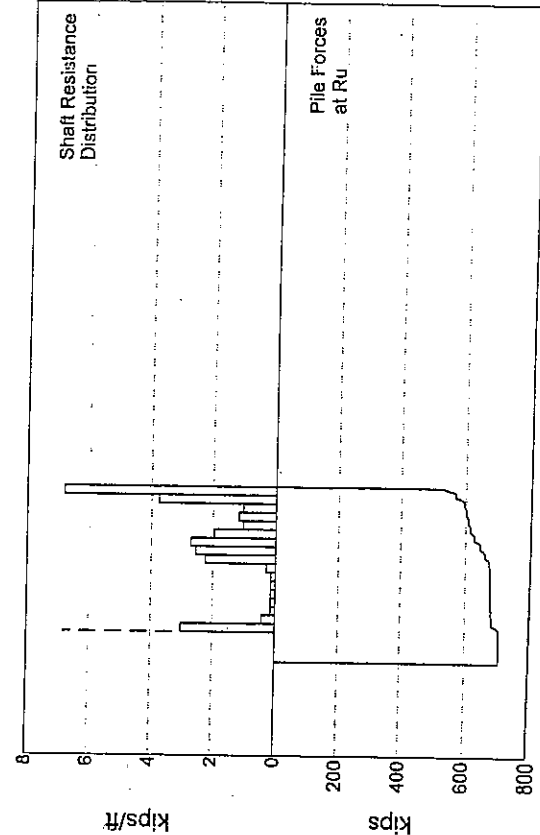
Toe Area 1.778 ft<sup>2</sup>

Segmnt Number	Dist. B.G. ft	Impedance kips/ft/s	Imped. Change %	Tension		Compression		Circ. ft
				Slack in	Eff.	Slack in	Eff.	
1	3.32	107.88	0.00	0.000	0.000	0.000	0.000	5.330
19	63.02	107.88	0.00	0.000	0.000	-0.030	0.310	5.330
20	66.34	107.88	0.00	0.000	0.000	0.000	0.000	5.330
41	136.00	107.88	0.00	0.000	0.000	0.000	0.000	5.330

File Damping 2.0 %, Time Incr 0.276 ms, Wave Speed 12000.0 ft/s



$R_u = 710.0$  kips  
 $R_s = 185.0$  kips  
 $R_b = 525.0$  kips  
 $D_y = 0.93$  in  
 $D_{mx} = 0.93$  in



Marginal Way; Pile: MARTP2R  
 16" PPC; Blow: 7  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 710.0; along Shaft 185.0; at Toe 525.0 kips

Soil Sgmnt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				710.0					
1	29.9	6.4	20.0	690.0	20.0	3.01	0.57	0.200	0.090
2	36.5	13.0	3.0	687.0	23.0	0.45	0.08	0.200	0.090
3	43.1	19.6	1.0	686.0	24.0	0.15	0.03	0.200	0.090
4	49.8	26.3	1.0	685.0	25.0	0.15	0.03	0.200	0.090
5	56.4	32.9	1.0	684.0	26.0	0.15	0.03	0.200	0.090
6	63.0	39.5	1.0	683.0	27.0	0.15	0.03	0.200	0.090
7	69.7	46.2	1.0	682.0	28.0	0.15	0.03	0.200	0.090
8	76.3	52.8	2.0	680.0	30.0	0.30	0.06	0.200	0.090
9	82.9	59.4	15.0	665.0	45.0	2.26	0.42	0.200	0.090
10	89.6	66.1	17.0	648.0	62.0	2.56	0.48	0.200	0.090
11	96.2	72.7	18.0	630.0	80.0	2.71	0.51	0.200	0.090
12	102.8	79.3	13.0	617.0	93.0	1.96	0.37	0.200	0.090
13	109.5	86.0	7.0	610.0	100.0	1.06	0.20	0.200	0.090
14	116.1	92.6	8.0	602.0	108.0	1.21	0.23	0.200	0.090
15	122.7	99.2	7.0	595.0	115.0	1.06	0.20	0.200	0.090
16	129.4	105.9	25.0	570.0	140.0	3.77	0.71	0.200	0.090
17	136.0	112.5	45.0	525.0	185.0	6.78	1.27	0.200	0.090
Avg. Skin			10.9			1.64	0.31	0.200	0.090
Toe			525.0				295.31	0.200	0.160

Soil Model Parameters/Extensions	Skin	Toe
Case Damping Factor	0.343	0.973
Reloading Level (% of Ru)	100	100
Unloading Level (% of Ru)	60	
Resistance Gap (included in Toe Quake) (in)		0.060
Soil Plug Weight (kips)		0.85

CAPWAP match quality: 2.41 (Force Match)  
 Observed: final set = 0.033 in; blow count = 360 b/ft  
 Computed: final set = 0.004 in; blow count = 3048 b/ft

Marginal Way; Pile: MARTP2R  
 1.6" PPC; Blow: 7  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

EXTREMA TABLE

Pile Sgmnt No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	528.8	-22.8	2.065	-0.089	20.39	4.6	0.676
2	6.6	528.4	-31.9	2.063	-0.125	20.36	4.6	0.669
4	13.3	530.1	-41.3	2.070	-0.161	20.19	4.5	0.654
6	19.9	537.7	-49.8	2.100	-0.195	19.99	4.5	0.638
8	26.5	547.4	-57.6	2.138	-0.225	19.76	4.4	0.620
10	33.2	520.7	-51.9	2.034	-0.203	17.98	4.3	0.600
12	39.8	526.2	-58.1	2.055	-0.227	17.42	4.2	0.578
14	46.4	534.2	-65.0	2.086	-0.254	16.94	4.1	0.554
16	53.1	544.4	-71.3	2.126	-0.278	16.40	4.0	0.528
18	59.7	545.2	-79.2	2.129	-0.309	15.86	3.9	0.502
20	66.3	552.5	-86.2	2.158	-0.337	15.31	3.8	0.476
22	73.0	573.9	-92.5	2.241	-0.361	14.75	3.7	0.450
24	79.6	591.2	-97.4	2.309	-0.380	14.11	3.6	0.423
26	86.2	580.6	-93.4	2.267	-0.365	12.86	3.5	0.394
28	92.9	585.6	-87.5	2.287	-0.342	11.61	3.2	0.367
30	99.5	603.4	-80.7	2.356	-0.315	10.39	2.7	0.339
32	106.1	608.1	-76.9	2.375	-0.300	9.31	2.6	0.309
34	112.8	608.7	-76.8	2.377	-0.300	8.36	2.5	0.276
36	119.4	608.5	-75.6	2.376	-0.295	7.34	2.4	0.243
38	126.0	619.5	-74.6	2.419	-0.292	6.32	2.3	0.208
40	132.7	593.6	-61.4	2.318	-0.240	5.09	2.2	0.174
41	136.0	614.5	-62.3	2.400	-0.243	4.33	2.1	0.159
Absolute	122.7			2.434			(T = 41.6 ms)	
	82.9				-0.393		(T = 78.6 ms)	

Marginal Way; Pile: MARTP2R  
 16" PPC; Blow: 7  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

CASE METHOD

J =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
RS1	551.5	527.3	503.0	478.8	454.5	430.3	406.0	381.8	357.5	333.3
RMX	776.2	752.1	728.4	704.8	681.7	662.5	646.4	636.6	627.8	620.4
RSU	547.6	522.9	498.3	473.6	449.0	424.3	399.7	375.1	350.4	325.8

RAU= 478.0 (kips); RA2= 493.5 (kips)

Current CAPWAP Ru= 710.0 (kips); Corresponding J(Rs)= 0.00; J(Rx)=0.28

VMX	VFN	VT1*Z	FT1	FMX	DMX	DFN	EMX	RLT
ft/s	ft/s	kips	kips	kips	in	in	kip-ft	kips
4.60	0.00	378.0	416.0	521.4	0.683	-0.065	21.1	742.8



Marginal Way; Pile: MARTP2R  
16" PPC; Blow: 7  
GTR

Test: 21-May-2007  
CAFWAP® Ver. 2000-1

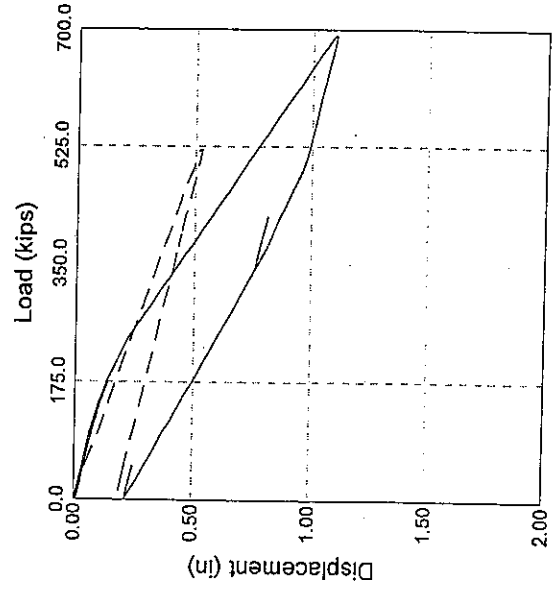
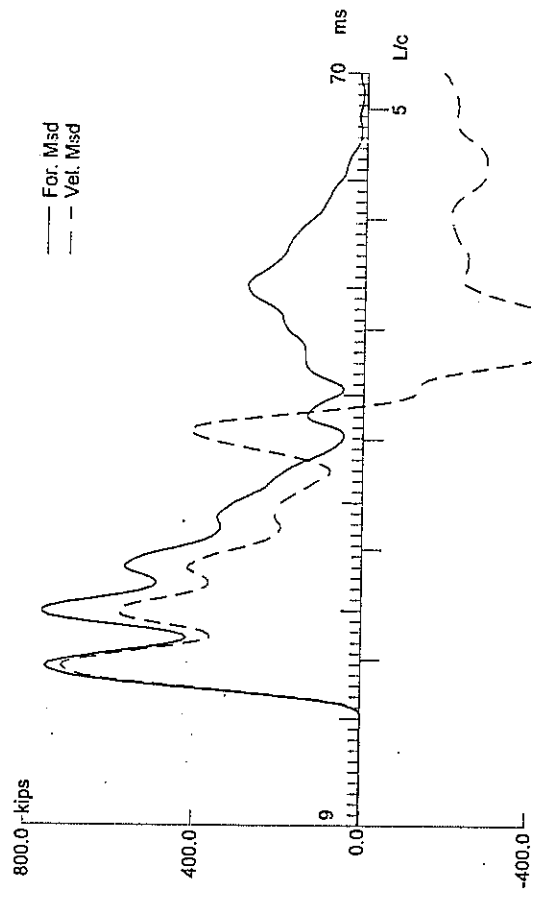
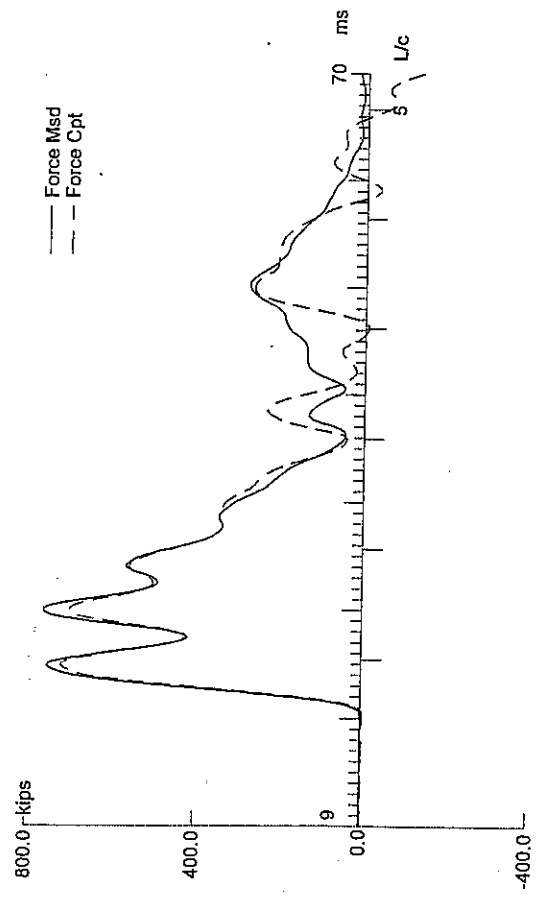
PILE PROFILE AND PILE MODEL

Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5476.9	150.186	5.330
136.00	256.00	5476.9	150.186	5.330

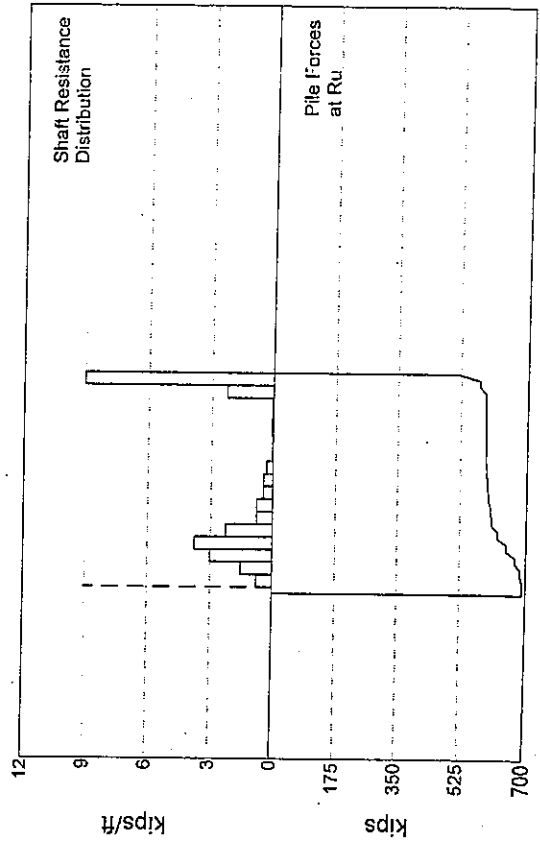
Toe Area 1.778 ft<sup>2</sup>

Top Segment Length 3.32 ft, Top Impedance 107.88 kips/ft/s

Pile Damping 2.0 %, Time Incr 0.255 ms, Wave Speed 13000.0 ft/s



Ru = 690.1 kips  
 Rs = 170.1 kips  
 Rb = 520.0 kips  
 Dy = 1.09 in  
 Dmx = 1.10 in



Marginal Way; Pile: MARTP4  
 16" PPC; Blow: 857  
 GTR

Test: 18-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 690.1; along Shaft 170.1; at Toe 520.0 kips

Soil Sgmnt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				690.1					
1	9.9	6.4	5.0	685.1	5.0	0.75	0.14	0.150	0.070
2	16.6	13.1	10.0	675.1	15.0	1.51	0.28	0.150	0.070
3	23.2	19.7	20.0	655.1	35.0	3.02	0.57	0.150	0.070
4	29.8	26.3	25.0	630.1	60.0	3.77	0.71	0.150	0.070
5	36.5	33.0	15.0	615.1	75.0	2.26	0.42	0.150	0.070
6	43.1	39.6	5.0	610.1	80.0	0.75	0.14	0.150	0.070
7	49.7	46.2	5.0	605.1	85.0	0.75	0.14	0.150	0.070
8	56.3	52.8	3.0	602.1	88.0	0.45	0.08	0.150	0.070
9	63.0	59.5	3.0	599.1	91.0	0.45	0.08	0.150	0.070
10	69.6	66.1	2.0	597.1	93.0	0.30	0.06	0.150	0.070
11	76.2	72.7	0.3	596.8	93.3	0.05	0.01	0.150	0.070
12	82.9	79.4	0.3	596.5	93.6	0.05	0.01	0.150	0.070
13	89.5	86.0	0.5	596.0	94.1	0.08	0.01	0.150	0.070
14	96.1	92.6	0.5	595.5	94.6	0.08	0.01	0.150	0.070
15	102.7	99.2	0.5	595.0	95.1	0.08	0.01	0.150	0.070
16	109.4	105.9	15.0	580.0	110.1	2.26	0.42	0.150	0.070
17	116.0	112.5	60.0	520.0	170.1	9.05	1.70	0.150	0.070
Avg. Skin			10.0			1.51	0.28	0.150	0.070
Toe			520.0				292.50	0.050	0.520

Soil Model Parameters/Extensions

	Skin	Toe
Case Damping Factor	0.228	0.232
Unloading Quake (% of loading quake)	100	66
Reloading Level (% of Ru)	100	100
Unloading Level (% of Ru)	20	
Resistance Gap (included in Toe Quake) (in)		0.150
Soil Plug Weight (kips)		1.50

CAPWAP match quality: 5.38 (Force Match)  
 Observed: final set = 0.111 in; blow count = 108 b/ft  
 Computed: final set = 0.121 in; blow count = 99 b/ft

Marginal Way; File: MARTP4  
 16" PPC; Blow: 857  
 GTR

Test: 18-May-2007  
 CAPWAP® Ver. 2000-1

EXTREMA TABLE

File Sgmnt No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	717.3	-180.1	2.801	-0.703	33.54	6.3	0.858
2	6.6	725.3	-201.9	2.833	-0.789	33.53	6.3	0.851
4	13.3	730.7	-191.1	2.854	-0.746	32.90	6.2	0.839
6	19.9	731.9	-173.1	2.858	-0.676	31.74	6.0	0.827
8	26.5	710.9	-167.6	2.776	-0.654	29.48	5.8	0.809
10	33.1	673.0	-158.1	2.628	-0.617	26.61	5.7	0.786
12	39.8	649.8	-148.6	2.538	-0.580	24.71	5.7	0.762
14	46.4	644.1	-143.6	2.515	-0.561	24.11	5.6	0.749
16	53.0	637.3	-127.1	2.489	-0.496	23.54	5.6	0.739
18	59.7	633.9	-121.7	2.475	-0.475	23.13	5.6	0.726
20	66.3	629.2	-138.8	2.457	-0.542	22.66	5.8	0.710
22	72.9	625.5	-137.3	2.443	-0.536	22.19	5.6	0.691
24	79.5	625.4	-117.7	2.443	-0.460	21.78	6.1	0.669
26	86.2	625.0	-123.5	2.441	-0.482	21.34	6.9	0.646
28	92.8	628.1	-121.1	2.453	-0.473	20.88	7.1	0.622
29	96.1	637.5	-117.0	2.490	-0.457	20.65	6.8	0.610
30	99.4	637.9	-115.1	2.491	-0.449	20.34	6.3	0.597
31	102.7	624.7	-112.2	2.440	-0.438	20.08	5.8	0.584
32	106.1	629.7	-110.8	2.459	-0.433	19.80	6.3	0.571
33	109.4	643.2	-109.2	2.512	-0.427	19.54	6.9	0.558
34	112.7	626.5	-98.8	2.447	-0.386	18.16	7.4	0.545
35	116.0	625.1	-105.1	2.441	-0.410	13.93	7.7	0.530
Absolute	23.2			2.895			(T = 24.2 ms)	
	6.6				-0.789		(T = 71.4 ms)	

Marginal Way; File: MARTP4  
 16" PPC; Blow: 857  
 GTR

Test: 18-May-2007  
 CAPWAP® Ver. 2000-1

CASE METHOD

J =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
RS1	679.5	600.4	521.3	442.3	363.2	284.1	205.1	126.0	46.9	0.0
RMX	787.1	767.7	748.4	729.9	711.4	693.9	678.3	663.9	656.1	656.1
RSU	679.5	600.4	521.3	442.3	363.2	284.1	205.1	126.0	46.9	0.0

RAU= 656.1 (kips); RA2= 769.1 (kips)

Current CAPWAP Ru= 690.1 (kips); Corresponding J(Rs)= 0.00; J(Rx)=0.52

VMX	VFN	VT1*Z	FT1	FMX	DMX	DFN	EMX	RLT
ft/s	ft/s	kips	kips	kips	in	in	kip-ft	kips
6.39	0.00	715.7	754.3	762.4	0.865	0.107	34.4	849.1

Marginal Way; Pile: MARTP4  
16" PPC; Blow: 857  
GTR

Test: 18-May-2007  
CAPWAP® Ver. 2000-1

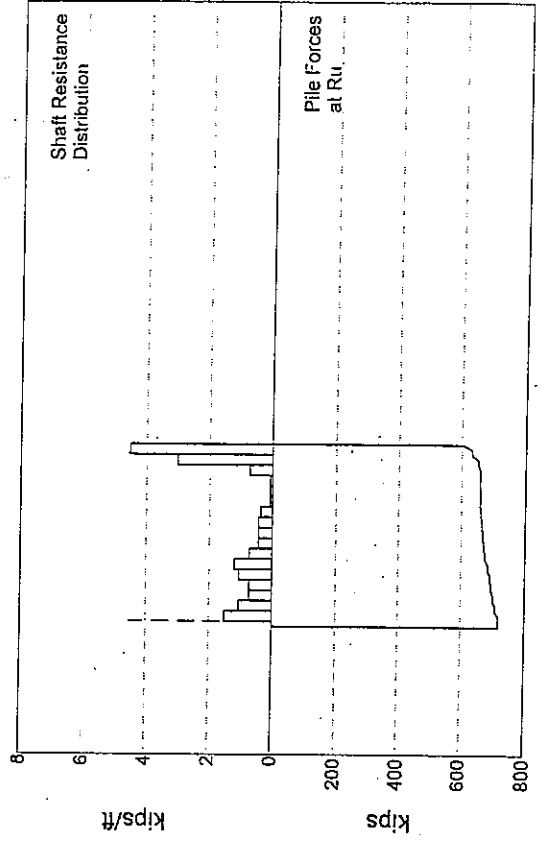
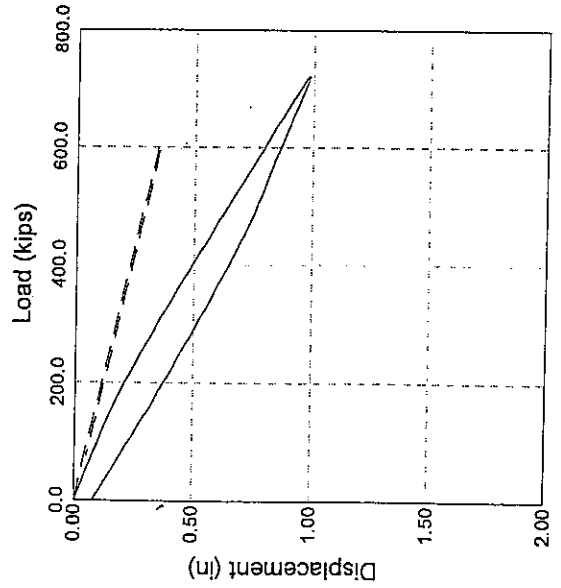
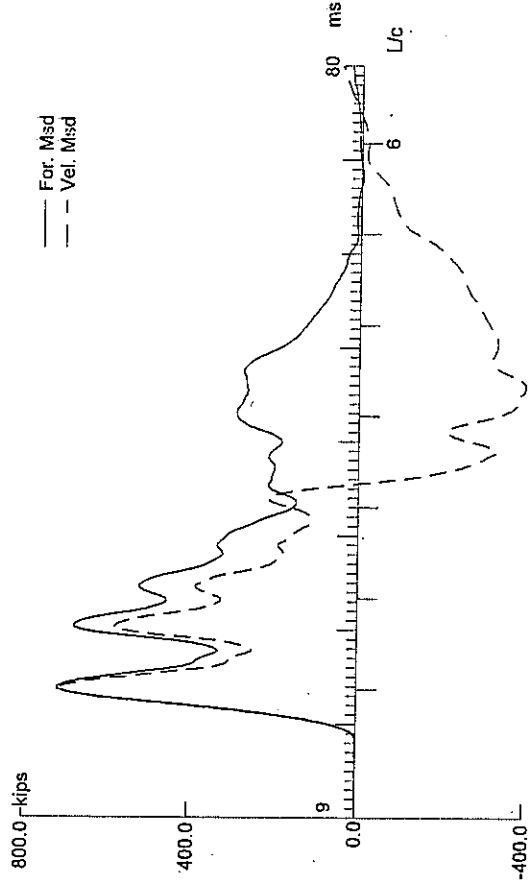
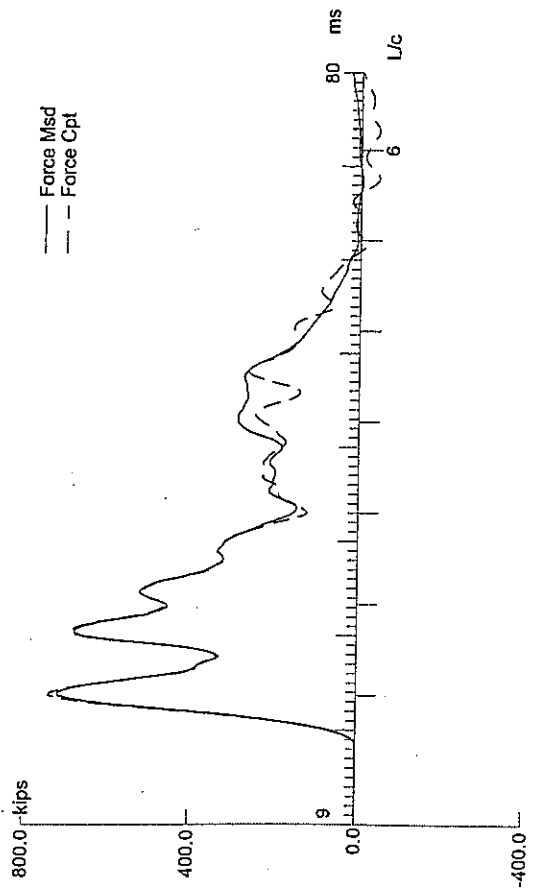
FILE PROFILE AND FILE MODEL

Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5906.3	150.186	5.330
116.00	256.00	5906.3	150.186	5.330

Toe Area 1.778 ft<sup>2</sup>

Top Segment Length 3.31 ft, Top Impedance 112.03 kips/ft/s

Pile Damping 2.0 %, Time Incr 0.255 ms, Wave Speed 13000.0 ft/s



Marginal Way; File: MARTP5  
 16" PPC; Blow: 790  
 GTR

Test: 18-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 720.4; along Shaft 115.1; at Toe 605.4 kips

Soil Sgmt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				720.4					
1	9.9	6.4	10.0	710.4	10.0	1.51	0.28	0.400	0.130
2	16.6	13.1	7.0	703.4	17.0	1.06	0.20	0.400	0.130
3	23.2	19.7	5.0	698.4	22.0	0.75	0.14	0.400	0.130
4	29.8	26.3	5.0	693.4	27.0	0.75	0.14	0.400	0.130
5	36.5	33.0	7.0	686.4	34.0	1.06	0.20	0.400	0.130
6	43.1	39.6	8.0	678.4	42.0	1.21	0.23	0.400	0.130
7	49.7	46.2	5.0	673.4	47.0	0.75	0.14	0.400	0.130
8	56.3	52.8	3.0	670.4	50.0	0.45	0.08	0.400	0.130
9	63.0	59.5	3.0	667.4	53.0	0.45	0.08	0.400	0.130
10	69.6	66.1	3.0	664.4	56.0	0.45	0.08	0.400	0.130
11	76.2	72.7	2.5	661.9	58.5	0.38	0.07	0.400	0.130
12	82.9	79.4	0.5	661.4	59.0	0.08	0.01	0.400	0.130
13	89.5	86.0	0.5	660.9	59.5	0.08	0.01	0.400	0.130
14	96.1	92.6	0.5	660.4	60.0	0.08	0.01	0.400	0.130
15	102.7	99.2	5.0	655.4	65.0	0.75	0.14	0.400	0.130
16	109.4	105.9	20.0	635.4	85.1	3.02	0.57	0.400	0.130
17	116.0	112.5	30.0	605.4	115.1	4.53	0.85	0.400	0.130
Avg. Skin			6.8			1.02	0.19	0.400	0.130
Toe			605.4				340.52	0.060	0.350

Soil Model Parameters/Extensions

	Skin	Toe
Case Damping Factor	0.411	0.324
Reloading Level (% of Ru)	100	100
Unloading Level (% of Ru)	65	
Resistance Gap (included in Toe Quake) (in)		0.070
Soil Plug Weight (kips)		1.40

CAPWAP match quality: 2.55 (Force Match)  
 Observed: final set = 0.111 in; blow count = 108 b/ft  
 Computed: final set = 0.102 in; blow count = 118 b/ft



Marginal Way; Pile: MARTP5  
 16" PPC; Blow: 790  
 GTR

Test: 18-May-2007  
 CAPWAP® Ver. 2000-1

EXTREMA TABLE

Pile Sgment No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	738.7	-42.7	2.885	-0.167	31.32	6.3	0.769
2	6.6	748.3	-48.2	2.922	-0.188	31.29	6.3	0.761
4	13.3	724.2	-37.9	2.828	-0.148	29.55	6.2	0.742
6	19.9	708.8	-40.7	2.768	-0.159	28.35	6.1	0.727
8	26.5	702.0	-38.3	2.742	-0.150	27.46	6.0	0.712
10	33.1	695.8	-39.2	2.717	-0.153	26.51	5.9	0.694
12	39.8	682.3	-52.2	2.664	-0.204	25.22	5.8	0.672
14	46.4	663.2	-58.4	2.590	-0.228	23.74	5.7	0.649
16	53.0	652.1	-51.8	2.547	-0.202	22.67	5.7	0.626
18	59.7	646.6	-45.0	2.525	-0.176	21.87	5.6	0.602
20	66.3	640.5	-48.8	2.501	-0.191	20.99	5.6	0.576
22	72.9	633.2	-57.4	2.473	-0.224	20.06	5.6	0.549
24	79.5	633.4	-57.4	2.474	-0.224	19.38	5.6	0.526
26	86.2	639.5	-56.8	2.497	-0.222	18.90	5.5	0.503
28	92.8	716.2	-66.2	2.797	-0.259	18.29	5.4	0.476
29	96.1	742.0	-67.9	2.898	-0.265	17.94	5.4	0.461
30	99.4	761.4	-67.4	2.973	-0.263	17.48	5.4	0.445
31	102.7	784.3	-66.6	3.063	-0.260	17.01	5.5	0.428
32	106.1	787.7	-61.7	3.076	-0.241	16.12	5.7	0.410
33	109.4	790.2	-61.7	3.086	-0.241	15.62	6.1	0.392
34	112.7	729.3	-44.8	2.848	-0.175	13.74	6.4	0.376
35	116.0	690.8	-44.0	2.698	-0.172	11.68	6.4	0.359
Absolute	109.4			3.086			(T = 35.6 ms)	
	96.1				-0.265		(T = 70.7 ms)	

Marginal Way; File: MARTP5  
 16" PPC; Blow: 790  
 GTR

Test: 18-May-2007  
 CAPWAP® Ver. 2000-1

CASE METHOD

J =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
RS1	716.7	643.7	570.7	497.8	424.8	351.8	278.8	205.8	132.8	59.8
RMX	872.7	834.8	797.9	762.4	733.5	721.2	708.8	696.5	684.1	671.9
RSU	716.7	643.7	570.7	497.8	424.8	351.8	278.8	205.8	132.8	59.8

RAU= 654.5 (kips); RA2= 508.4 (kips)

Current CAPWAP Ru= 720.4 (kips); Corresponding J(Rs)= 0.00; J(Rx)=0.51

VMX	VEN	VT1*Z	FT1	FMX	DMX	DFN	EMX	RLT
ft/s	ft/s	kips	kips	kips	in	in	kip-ft	kips
6.47	0.00	724.7	721.9	721.9	0.775	0.123	31.2	834.3

Marginal Way; Pile: MARTP5  
16" PPC; Blow: 790  
GTR

Test: 18-May-2007  
CAPWAP® Ver. 2000-1

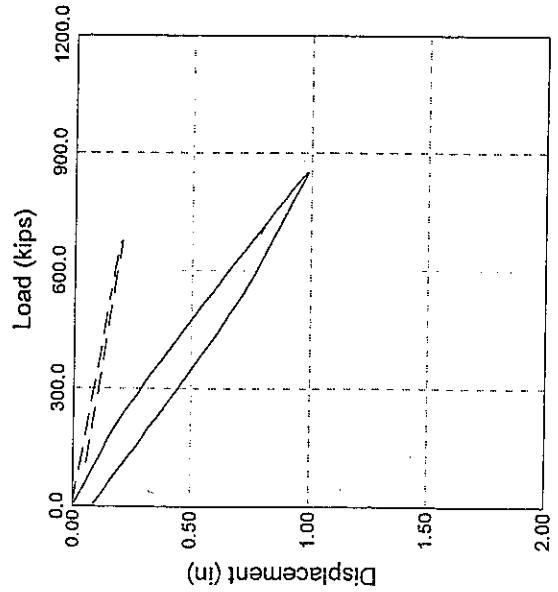
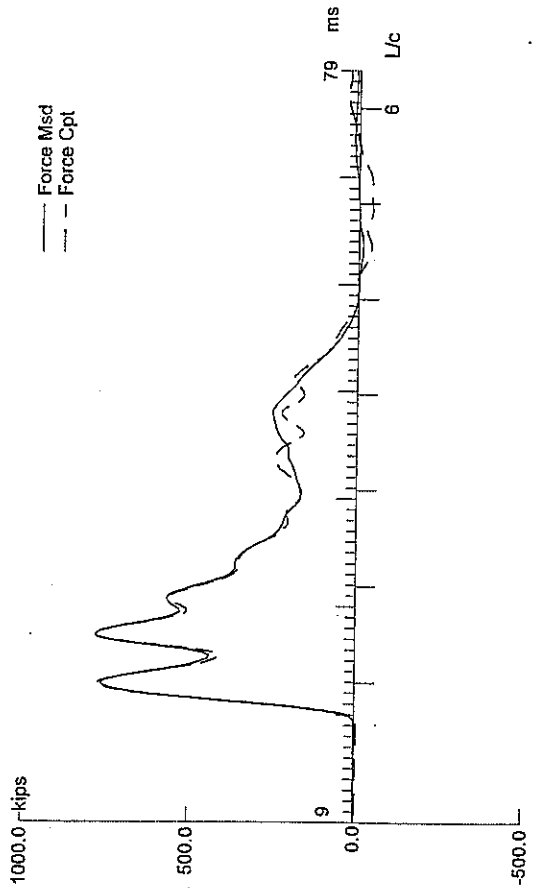
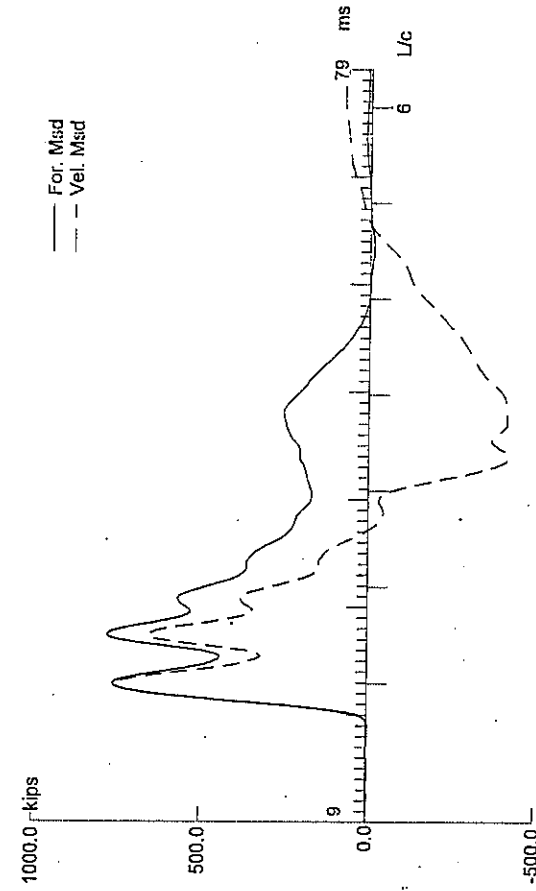
FILE PROFILE AND PILE MODEL

Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5906.3	150.186	5.330
116.00	256.00	5906.3	150.186	5.330

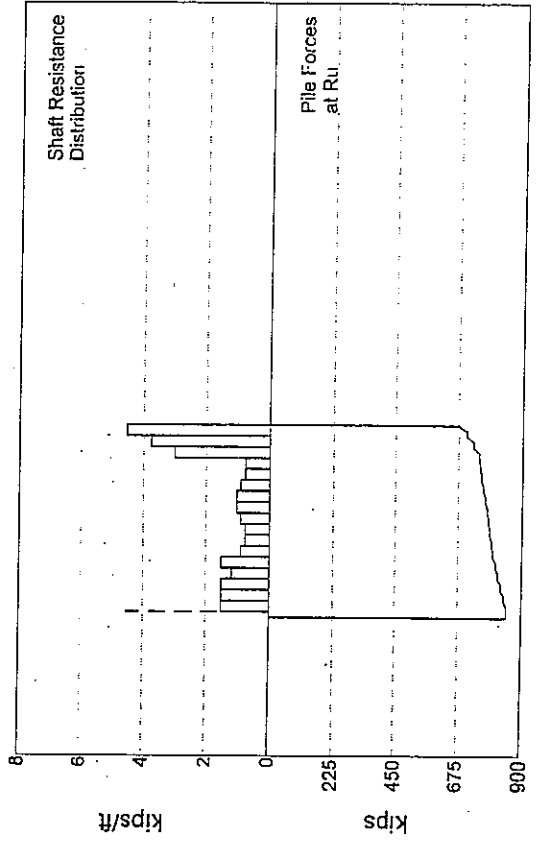
Toe Area                    1.778            ft<sup>2</sup>

Top Segment Length        3.31 ft, Top Impedance   112.03 kips/ft/s

File Damping            3.0 %, Time Incr   0.246 ms, Wave Speed   13500.0 ft/s



Ru = 849.4 kips  
 Rs = 174.9 kips  
 Rb = 674.5 kips  
 Dy = 0.98 in  
 Dmx = 0.99 in



Marginal Way; Pile: MARTP5R  
 16" PPC; Blow: 5  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 849.4; along Shaft 174.9; at Toe 674.5 kips

Soil Sgmt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				849.4					
1	9.9	6.4	10.0	839.4	10.0	1.51	0.28	0.400	0.130
2	16.6	13.1	10.0	829.4	20.0	1.51	0.28	0.400	0.130
3	23.2	19.7	10.0	819.4	30.0	1.51	0.28	0.400	0.130
4	29.8	26.3	8.0	811.4	38.0	1.21	0.23	0.400	0.130
5	36.5	33.0	10.0	801.4	48.0	1.51	0.28	0.400	0.130
6	43.1	39.6	6.0	795.4	54.0	0.90	0.17	0.400	0.130
7	49.7	46.2	5.0	790.4	59.0	0.75	0.14	0.400	0.130
8	56.3	52.8	5.0	785.4	64.0	0.75	0.14	0.400	0.130
9	63.0	59.5	6.0	779.4	69.9	0.90	0.17	0.400	0.130
10	69.6	66.1	7.0	772.4	76.9	1.06	0.20	0.400	0.130
11	76.2	72.7	7.0	765.4	83.9	1.06	0.20	0.400	0.130
12	82.9	79.4	6.0	759.4	89.9	0.90	0.17	0.400	0.130
13	89.5	86.0	5.0	754.5	94.9	0.75	0.14	0.400	0.130
14	96.1	92.6	5.0	749.5	99.9	0.75	0.14	0.400	0.130
15	102.7	99.2	20.0	729.5	119.9	3.02	0.57	0.400	0.130
16	109.4	105.9	25.0	704.5	144.9	3.77	0.71	0.400	0.130
17	116.0	112.5	30.0	674.5	174.9	4.52	0.85	0.400	0.130
Avg. Skin			10.3			1.55	0.29	0.400	0.130
Toe			674.5				379.41	0.070	0.200

Soil Model Parameters/Extensions

	Skin	Toe
Case Damping Factor	0.649	0.438
Unloading Quake (% of loading quake)	100	90
Reloading Level (% of Ru)	100	100
Unloading Level (% of Ru)	50	
Resistance Gap (included in Toe Quake) (in)		0.010
Soil Plug Weight (kips)		0.55

CAPWAP match quality: 2.28 (Force Match)  
 Observed: final set = 0.043 in; blow count = 276 b/ft  
 Computed: final set = 0.042 in; blow count = 288 b/ft

EXTREMA TABLE

File Sgmnt No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	773.1	-42.7	3.019	-0.167	32.60	6.9	0.670
2	6.6	786.2	-52.0	3.070	-0.203	32.70	6.9	0.663
4	13.3	767.3	-55.0	2.996	-0.215	31.11	6.7	0.649
6	19.9	747.7	-64.4	2.920	-0.252	29.62	6.5	0.637
8	26.5	727.9	-68.9	2.843	-0.269	28.17	6.4	0.624
10	33.1	713.7	-68.4	2.787	-0.267	26.96	6.3	0.609
12	39.8	690.3	-68.8	2.696	-0.269	25.44	6.2	0.590
14	46.4	678.6	-71.7	2.650	-0.280	24.34	6.1	0.567
16	53.0	670.7	-71.7	2.619	-0.280	23.34	6.0	0.543
18	59.7	664.1	-75.7	2.593	-0.296	22.32	5.9	0.518
20	66.3	655.3	-75.5	2.559	-0.295	21.06	5.8	0.488
22	72.9	647.8	-78.4	2.530	-0.306	19.50	5.7	0.453
24	79.5	700.7	-80.1	2.736	-0.313	17.80	5.7	0.414
26	86.2	702.9	-78.5	2.745	-0.307	16.35	5.6	0.377
28	92.8	777.3	-74.9	3.036	-0.292	15.13	5.4	0.342
29	96.1	830.3	-75.3	3.242	-0.294	14.62	5.3	0.323
30	99.4	854.4	-72.6	3.337	-0.284	13.77	5.2	0.304
31	102.7	876.6	-72.4	3.423	-0.283	13.15	5.2	0.283
32	106.1	845.2	-58.8	3.301	-0.230	11.58	5.4	0.262
33	109.4	834.3	-56.9	3.258	-0.222	11.06	5.4	0.243
34	112.7	767.1	-39.0	2.996	-0.152	9.53	5.3	0.225
35	116.0	760.4	-38.7	2.969	-0.151	8.54	5.0	0.205
Absolute	102.7 76.2			3.423	-0.320		(T = (T =	34.9 ms 63.0 ms)

Marginal Way; Pile: MARTP5R  
 16" PPC; Blow: 5  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

CASE METHOD

J =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
RS1	872.2	807.0	741.8	676.6	611.5	546.3	481.1	415.9	350.7	285.5
RMX	1009.9	967.7	925.5	883.4	841.2	799.1	756.9	715.0	690.3	677.4
RSU	941.7	883.4	825.2	766.9	708.7	650.4	592.2	533.9	475.7	417.4

RAU= 553.1 (kips); RA2= 672.0 (kips)

Current CAPWAP Ru= 849.4 (kips); Corresponding J(Rs)= 0.04; J(Rx)=0.38

VMX	VFN	VT1*Z	FT1	FMX	DMX	DFN	EMX	RLT
ft/s	ft/s	kips	kips	kips	in	in	kip-ft	kips
7.09	0.00	764.9	759.2	777.3	0.676	0.046	33.3	1106.8

Marginal Way; Pile: MARTP5R  
16" PPC; Blow: 5  
GTR

Test: 21-May-2007  
CAPWAP® Ver. 2000-1

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FILE PROFILE AND PILE MODEL

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Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5476.9	150.186	5.330
116.00	256.00	5476.9	150.186	5.330

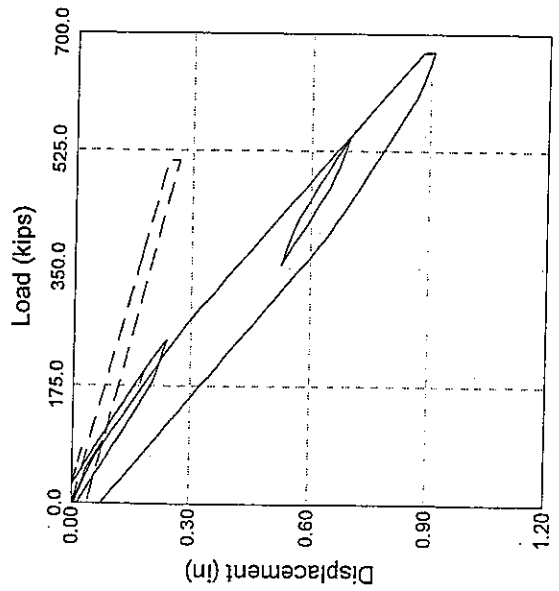
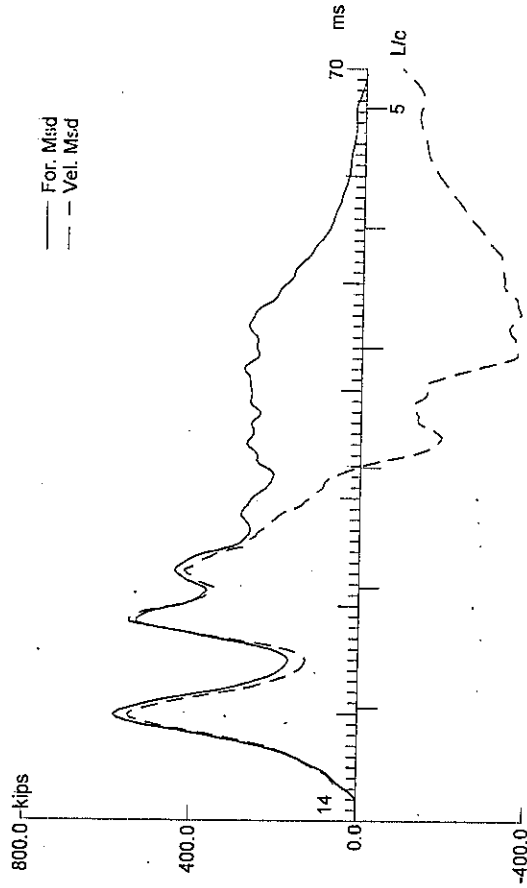
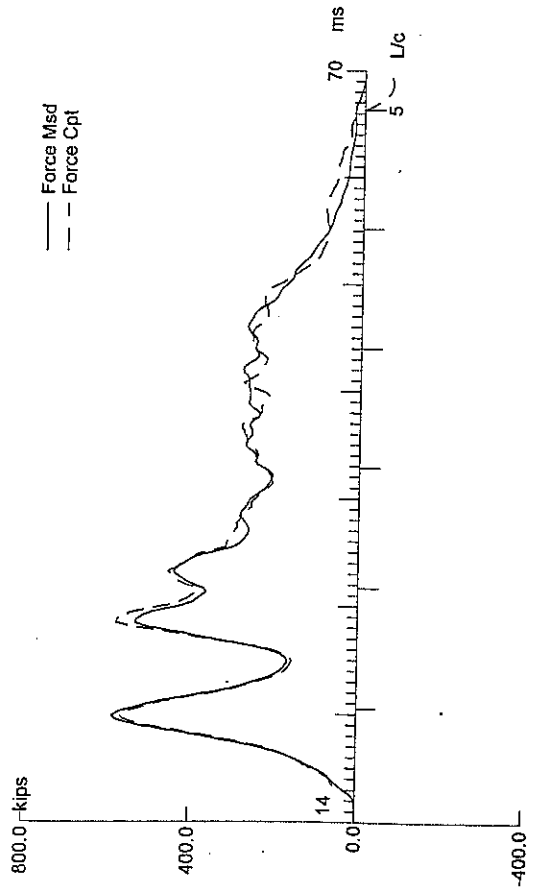
Toe Area                      1.778              ft<sup>2</sup>

Top Segment Length        3.31 ft, Top Impedance    107.88 kips/ft/s

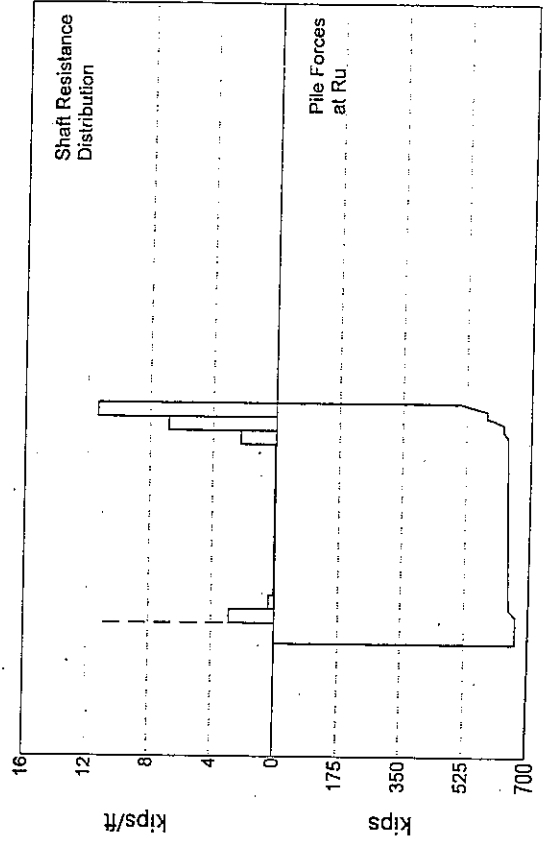
Pile Damping    3.0 %, Time Incr   0.255 ms, Wave Speed   13000.0 ft/s



GTR



$R_u = 672.4$  kips  
 $R_s = 162.1$  kips  
 $R_b = 510.3$  kips  
 $D_y = 0.88$  in  
 $D_{mx} = 0.91$  in



Marginal Way; Pile: MARTP7  
 16" PPC; Blow: 962  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 672.4; along Shaft 162.1; at Toe 510.3 kips

Soil Sgmt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				672.4					
1	16.6	4.1	19.0	653.4	19.0	2.87	0.54	0.100	0.050
2	23.2	10.7	2.5	650.9	21.5	0.38	0.07	0.100	0.050
3	29.8	17.3	0.5	650.4	22.0	0.08	0.01	0.100	0.050
4	36.5	24.0	0.5	649.9	22.5	0.08	0.01	0.100	0.050
5	43.1	30.6	0.5	649.4	23.0	0.08	0.01	0.100	0.050
6	49.7	37.2	0.5	648.9	23.5	0.08	0.01	0.100	0.050
7	56.3	43.8	0.5	648.4	24.0	0.08	0.01	0.100	0.050
8	63.0	50.5	0.5	647.9	24.5	0.08	0.01	0.100	0.050
9	69.6	57.1	0.5	647.4	25.0	0.08	0.01	0.100	0.050
10	76.2	63.7	0.5	646.9	25.5	0.08	0.01	0.100	0.050
11	82.9	70.4	0.5	646.4	26.0	0.08	0.01	0.100	0.050
12	89.5	77.0	0.5	645.9	26.5	0.08	0.01	0.100	0.050
13	96.1	83.6	0.5	645.4	27.0	0.08	0.01	0.100	0.050
14	102.7	90.2	15.0	630.4	42.0	2.26	0.42	0.100	0.050
15	109.4	96.9	45.0	585.4	87.1	6.79	1.27	0.100	0.050
16	116.0	103.5	75.0	510.3	162.1	11.32	2.12	0.100	0.050
Avg. Skin			10.1			1.57	0.29	0.100	0.050
Toe			510.3				287.06	0.150	0.240

Soil Model Parameters/Extensions	Skin	Toe
Case Damping Factor	0.150	0.709
Unloading Quake (% of loading quake)	40	95
Reloading Level (% of Ru)	100	100
Unloading Level (% of Ru)	35	
Resistance Gap (included in Toe Quake) (in)		0.070
Soil Plug Weight (kips)		0.25

CAPWAP match quality: 2.73 (Force Match)  
 Observed: final set = 0.067 in; blow count = 180 b/ft  
 Computed: final set = 0.072 in; blow count = 167 b/ft

Marginal Way; Pile: MARTP7  
 16" PPC; Blow: 962  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

EXTREMA TABLE

Pile Sgmt No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	576.1	-86.6	2.250	-0.338	23.49	5.1	0.720
2	6.6	576.3	-92.9	2.250	-0.363	23.45	5.1	0.713
4	13.3	577.2	-97.4	2.254	-0.380	23.23	5.0	0.696
6	19.9	549.5	-103.4	2.146	-0.404	21.57	5.0	0.677
8	26.5	547.1	-110.2	2.136	-0.430	21.07	5.0	0.656
10	33.1	550.2	-112.6	2.149	-0.440	20.62	5.0	0.632
12	39.8	552.7	-109.6	2.158	-0.428	20.10	5.0	0.606
14	46.4	564.7	-109.7	2.205	-0.428	19.68	5.0	0.583
16	53.0	580.7	-110.5	2.268	-0.431	19.30	5.0	0.562
18	59.7	624.9	-111.9	2.440	-0.437	18.88	4.9	0.538
20	66.3	640.1	-112.9	2.500	-0.441	18.36	4.9	0.512
22	72.9	659.7	-112.9	2.576	-0.441	17.79	4.9	0.485
24	79.5	726.0	-113.6	2.835	-0.444	17.14	4.9	0.456
26	86.2	760.2	-114.0	2.969	-0.445	16.40	4.8	0.424
28	92.8	747.1	-113.3	2.918	-0.442	15.53	4.7	0.390
29	96.1	730.6	-114.1	2.853	-0.446	15.04	4.6	0.372
30	99.4	719.8	-117.7	2.811	-0.460	14.52	4.5	0.353
31	102.7	722.4	-118.7	2.821	-0.464	14.03	4.5	0.335
32	106.1	714.1	-116.1	2.789	-0.453	13.07	4.4	0.317
33	109.4	722.5	-117.5	2.822	-0.459	12.63	4.5	0.299
34	112.7	685.1	-97.0	2.675	-0.379	10.95	4.4	0.283
35	116.0	700.6	-95.5	2.736	-0.373	9.06	4.2	0.266
Absolute	86.2 102.7			2.969	-0.464		(T = 35.9 ms) (T = 65.3 ms)	

Marginal Way; File: MARTP7  
 16" PPC; Blow: 962  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

CASE METHOD

J =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
RS1	649.9	601.7	553.4	505.1	456.8	408.5	360.2	311.9	263.6	215.3
RMX	767.7	742.5	722.9	710.4	698.0	685.5	673.0	660.6	652.9	646.8
RSU	649.9	601.7	553.4	505.1	456.8	408.5	360.2	311.9	263.6	215.3

RAU= 455.1 (kips); RA2= 479.6 (kips)

Current CAPWAP Ru= 672.4 (kips); Corresponding J(Rs)= 0.00; J(Rx)=0.60

VMX	VFN	VT1*Z	FT1	FMX	DMX	DFN	EMX	RLT
ft/s	ft/s	kips	kips	kips	in	in	kip-ft	kips
5.16	0.00	551.1	581.7	585.2	0.728	0.067	23.2	702.1

Marginal Way; File: MARTP7  
16" PPC; Blow: 962  
GTR

Test: 21-May-2007  
CAPWAP® Ver. 2000-1

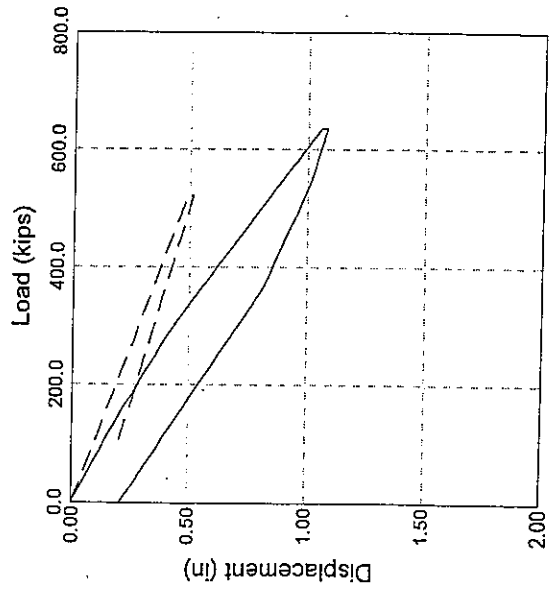
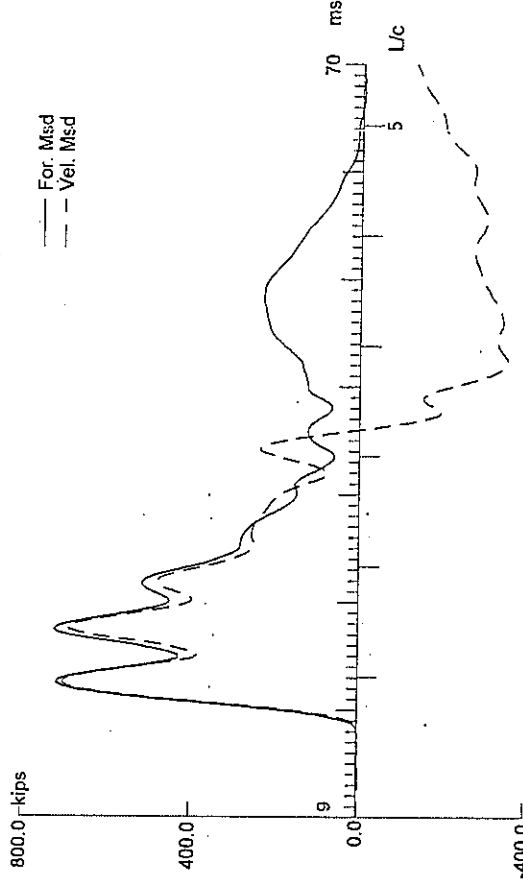
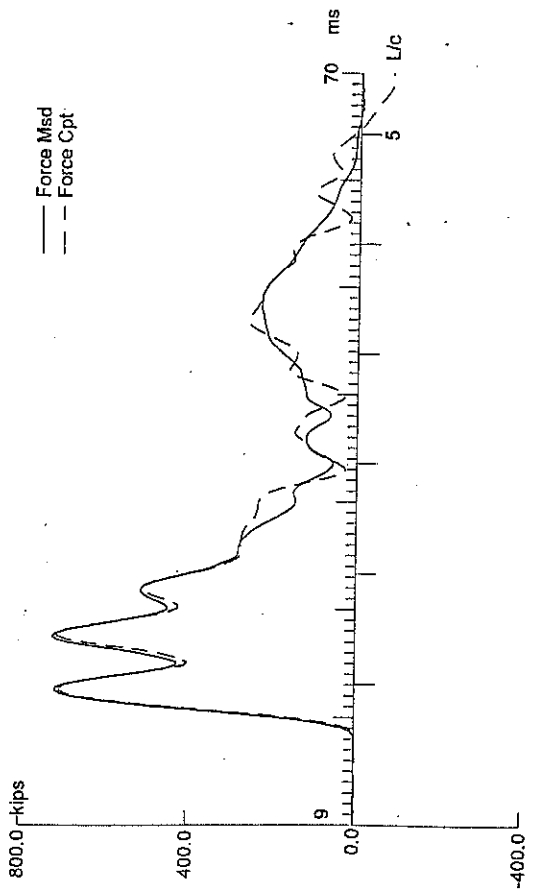
PILE PROFILE AND PILE MODEL

Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5476.9	150.186	5.330
116.00	256.00	5476.9	150.186	5.330

Toe Area 1.778 ft<sup>2</sup>

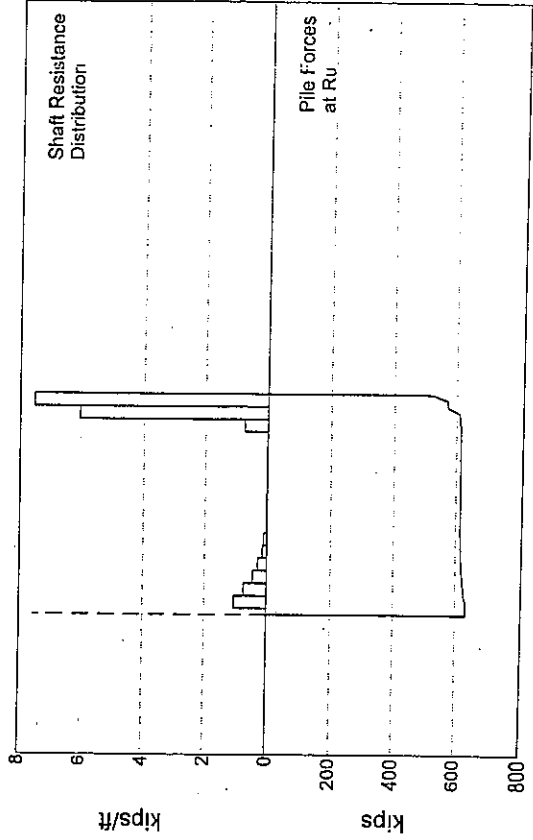
Top Segment Length 3.31 ft, Top Impedance 107.88 kips/ft/s

Pile Damping 2.0 %, Time Incr 0.255 ms, Wave Speed 13000.0 ft/s



Pile Top  
Pile Bottom

Ru = 635.4 kips  
Rs = 114.9 kips  
Rb = 520.6 kips  
Dy = 1.06 in  
Dmx = 1.08 in



Marginal Way; File: MARTP9  
 16" PPC; Blow: 1005  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 635.4; along Shaft 114.9; at Toe 520.6 kips

Soil Sgmnt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				635.4					
1	9.9	6.9	7.0	628.4	7.0	1.06	0.20	0.100	0.180
2	16.6	13.6	5.0	623.4	12.0	0.75	0.14	0.100	0.180
3	23.2	20.2	3.0	620.4	15.0	0.45	0.08	0.100	0.180
4	29.8	26.8	2.0	618.4	17.0	0.30	0.06	0.100	0.180
5	36.5	33.5	1.0	617.4	18.0	0.15	0.03	0.100	0.180
6	43.1	40.1	0.7	616.7	18.7	0.11	0.02	0.100	0.180
7	49.7	46.7	0.2	616.5	18.9	0.03	0.01	0.100	0.180
8	56.3	53.3	0.2	616.3	19.1	0.03	0.01	0.100	0.180
9	63.0	60.0	0.2	616.1	19.3	0.03	0.01	0.100	0.180
10	69.6	66.6	0.1	616.0	19.4	0.02	0.00	0.100	0.180
11	76.2	73.2	0.1	615.9	19.5	0.02	0.00	0.100	0.180
12	82.9	79.9	0.1	615.8	19.6	0.02	0.00	0.100	0.180
13	89.5	86.5	0.1	615.7	19.7	0.02	0.00	0.100	0.180
14	96.1	93.1	0.1	615.6	19.8	0.02	0.00	0.100	0.180
15	102.7	99.7	5.0	610.6	24.8	0.75	0.14	0.100	0.180
16	109.4	106.4	40.0	570.6	64.8	6.04	1.13	0.100	0.180
17	116.0	113.0	50.0	520.6	114.9	7.55	1.42	0.100	0.180
Avg. Skin			6.8			1.02	0.19	0.100	0.180
Toe			520.6				292.82	0.100	0.490

Soil Model Parameters/Extensions

	Skin	Toe
Case Damping Factor	0.103	0.464
Unloading Quake (% of loading quake)	16	80
Reloading Level (% of Ru)	100	100
Unloading Level (% of Ru)	80	
Resistance Gap (included in Toe Quake) (in)		0.030
Soil Plug Weight (kips)		1.35

CAPWAP match quality: 3.43 (Force Match)  
 Observed: final set = 0.100 in; blow count = 120 b/ft  
 Computed: final set = 0.079 in; blow count = 152 b/ft

Marginal Way; Pile: MARTP9  
 16" PPC; Blow: 1005  
 GTR

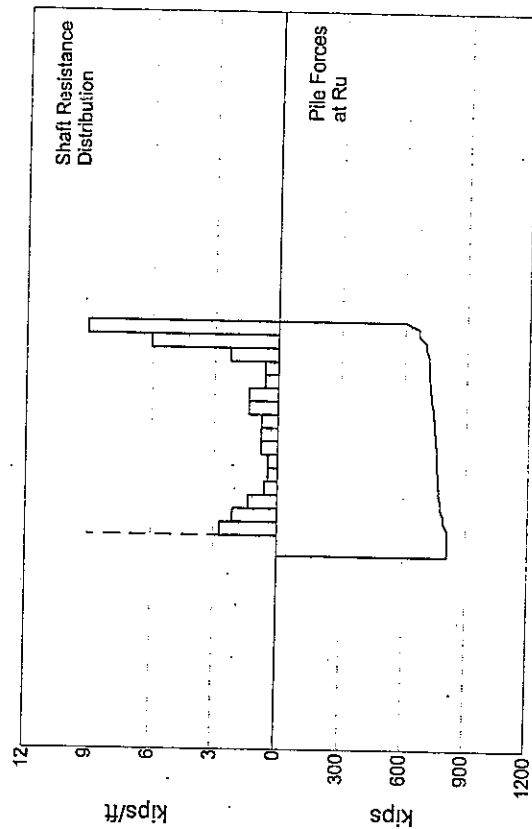
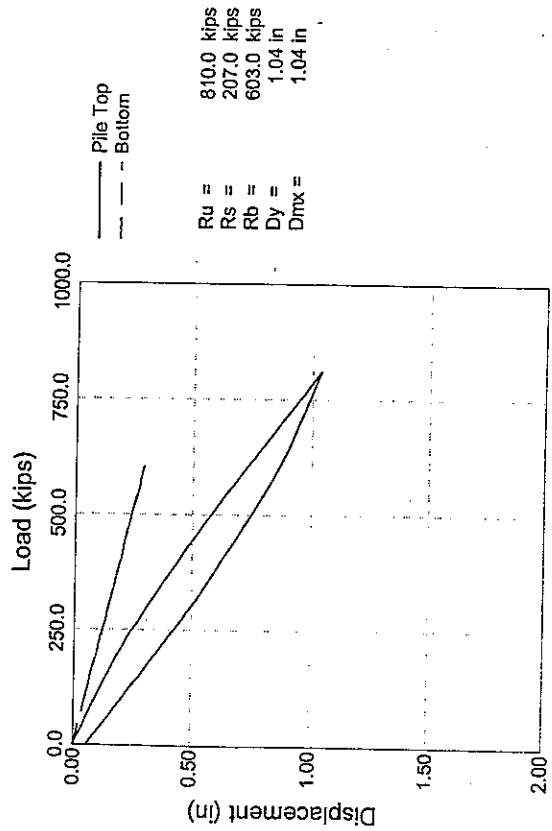
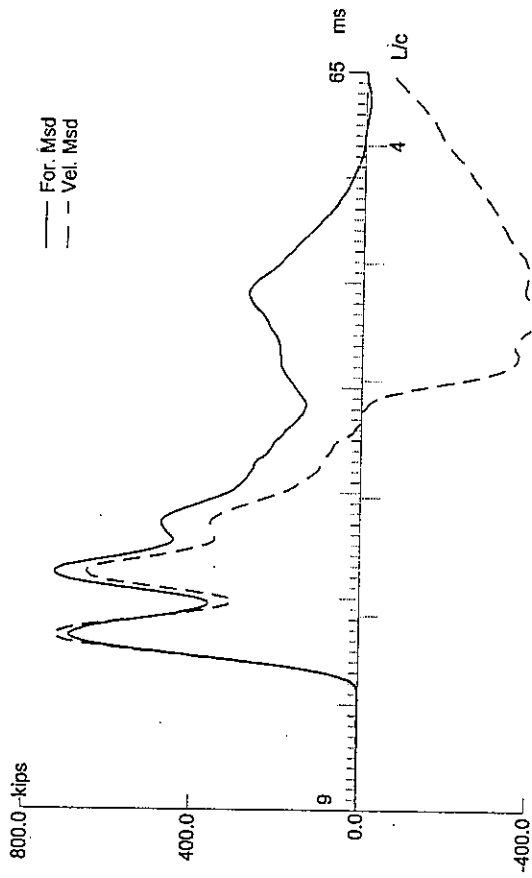
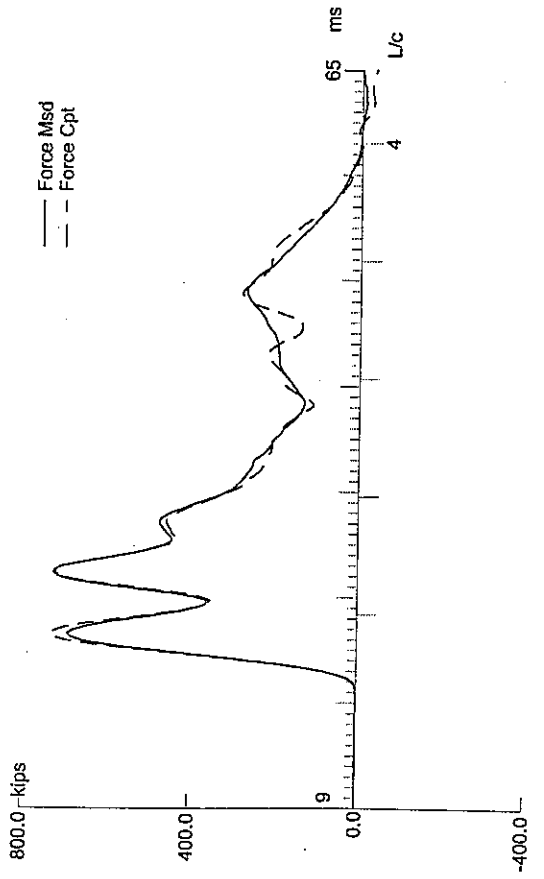
Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

EXTREMA TABLE

Pile Sgmnt No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	712.5	-81.1	2.782	-0.317	33.35	6.2	0.865
2	6.6	713.3	-83.7	2.786	-0.327	33.36	6.2	0.859
4	13.3	702.4	-84.9	2.743	-0.332	32.52	6.2	0.844
6	19.9	694.7	-85.5	2.713	-0.334	31.92	6.2	0.831
8	26.5	691.4	-84.6	2.700	-0.331	31.57	6.2	0.822
10	33.1	689.3	-90.4	2.692	-0.353	31.23	6.1	0.807
12	39.8	688.4	-94.1	2.688	-0.367	30.92	6.1	0.791
14	46.4	686.9	-100.2	2.683	-0.391	30.75	6.1	0.779
16	53.0	686.0	-112.5	2.679	-0.439	30.55	6.1	0.764
18	59.7	685.5	-122.7	2.677	-0.479	30.22	6.1	0.744
20	66.3	684.5	-128.5	2.673	-0.502	29.79	6.1	0.721
22	72.9	702.9	-126.0	2.745	-0.492	29.31	6.1	0.696
24	79.5	683.2	-124.4	2.668	-0.486	28.75	6.2	0.669
26	86.2	682.6	-128.7	2.666	-0.503	28.14	6.8	0.641
28	92.8	685.6	-128.9	2.677	-0.503	27.54	6.8	0.613
29	96.1	694.6	-127.0	2.713	-0.496	27.21	6.5	0.598
30	99.4	731.2	-125.4	2.855	-0.490	26.87	6.0	0.584
31	102.7	784.7	-125.1	3.064	-0.489	26.56	5.9	0.569
32	106.1	811.4	-119.6	3.169	-0.467	25.97	6.1	0.556
33	109.4	822.7	-124.2	3.213	-0.485	25.67	6.5	0.541
34	112.7	755.6	-90.8	2.951	-0.355	23.18	6.9	0.528
35	116.0	725.2	-86.7	2.832	-0.339	20.61	7.0	0.513
Absolute	109.4			3.213			(T = 33.4 ms)	
	89.5				-0.506		(T = 76.2 ms)	



GTR



Marginal Way; File: MARTP10R  
 16" PPC; Blow: 6  
 GTR

Test: 29-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 810.0; along Shaft 207.0; at Toe 603.0 kips

Soil Sgmt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				810.0					
1	16.6	4.6	18.0	792.0	18.0	2.72	0.51	0.150	0.130
2	23.2	11.2	14.0	778.0	32.0	2.11	0.40	0.150	0.130
3	29.8	17.8	9.0	769.0	41.0	1.36	0.25	0.150	0.130
4	36.5	24.5	4.0	765.0	45.0	0.60	0.11	0.150	0.130
5	43.1	31.1	3.0	762.0	48.0	0.45	0.08	0.150	0.130
6	49.7	37.7	3.0	759.0	51.0	0.45	0.08	0.150	0.130
7	56.3	44.3	5.0	754.0	56.0	0.75	0.14	0.150	0.130
8	63.0	51.0	5.0	749.0	61.0	0.75	0.14	0.150	0.130
9	69.6	57.6	5.0	744.0	66.0	0.75	0.14	0.150	0.130
10	76.2	64.2	9.0	735.0	75.0	1.36	0.25	0.150	0.130
11	82.9	70.9	9.0	726.0	84.0	1.36	0.25	0.150	0.130
12	89.5	77.5	4.0	722.0	88.0	0.60	0.11	0.150	0.130
13	96.1	84.1	4.0	718.0	92.0	0.60	0.11	0.150	0.130
14	102.7	90.7	15.0	703.0	107.0	2.26	0.42	0.150	0.130
15	109.4	97.4	40.0	663.0	147.0	6.03	1.13	0.150	0.130
16	116.0	104.0	60.0	603.0	207.0	9.05	1.70	0.150	0.130
Avg. Skin			12.9			1.99	0.37	0.150	0.130
Toe			603.0				339.19	0.110	0.290

Soil Model Parameters/Extensions

	Skin	Toe
Case Damping Factor	0.288	0.615
Unloading Quake (% of loading quake)	70	100
Reloading Level (% of Ru)	100	100
Unloading Level (% of Ru)	35	
Resistance Gap (included in Toe Quake) (in)		0.050
Soil Plug Weight (kips)		0.50

CAPWAP match quality: 2.91 (Force Match)  
 Observed: final set = 0.050 in; blow count = 240 b/ft  
 Computed: final set = 0.030 in; blow count = 406 b/ft

Marginal Way; Pile: MARTP10R  
 16" PPC; Blow: 6  
 GTR

Test: 29-May-2007  
 CAPWAP® Ver. 2000-1

EXTREMA TABLE

Pile Sgmt No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	731.1	-43.7	2.855	-0.171	30.71	6.7	0.708
2	6.6	736.9	-57.7	2.878	-0.225	30.80	6.7	0.704
4	13.3	748.3	-66.3	2.922	-0.259	30.73	6.6	0.695
6	19.9	725.7	-75.1	2.834	-0.293	29.08	6.5	0.684
8	26.5	706.8	-83.8	2.760	-0.327	27.76	6.4	0.671
10	33.1	694.2	-86.6	2.711	-0.338	26.86	6.4	0.657
12	39.8	689.7	-87.0	2.694	-0.340	26.35	6.3	0.641
14	46.4	687.3	-96.0	2.684	-0.375	25.88	6.3	0.623
16	53.0	685.6	-104.2	2.678	-0.407	25.34	6.2	0.603
18	59.7	680.9	-107.9	2.659	-0.422	24.53	6.2	0.578
20	66.3	677.3	-108.5	2.645	-0.424	23.58	6.1	0.550
22	72.9	674.8	-114.0	2.635	-0.445	22.50	6.1	0.518
24	79.5	665.1	-116.3	2.597	-0.454	21.22	6.0	0.486
26	86.2	674.8	-115.0	2.635	-0.449	20.03	6.0	0.456
28	92.8	766.2	-114.0	2.992	-0.445	19.02	5.9	0.422
29	96.1	812.4	-113.5	3.173	-0.443	18.55	5.8	0.404
30	99.4	841.0	-110.5	3.284	-0.432	17.84	5.8	0.385
31	102.7	860.9	-109.7	3.362	-0.428	17.29	5.7	0.366
32	106.1	846.6	-101.8	3.306	-0.398	16.14	5.8	0.347
33	109.4	839.2	-100.6	3.277	-0.393	15.63	5.9	0.328
34	112.7	768.8	-81.0	3.002	-0.316	13.76	6.0	0.310
35	116.0	777.0	-80.9	3.034	-0.316	11.93	5.8	0.292
Absolute	102.7			3.362			(T = 35.4 ms)	
	82.9				-0.461		(T = 64.0 ms)	

Marginal Way; Pile: MARTP10R  
16" PPC; Blow: 6  
GTR

Test: 29-May-2007  
CAPWAP® Ver. 2000-1

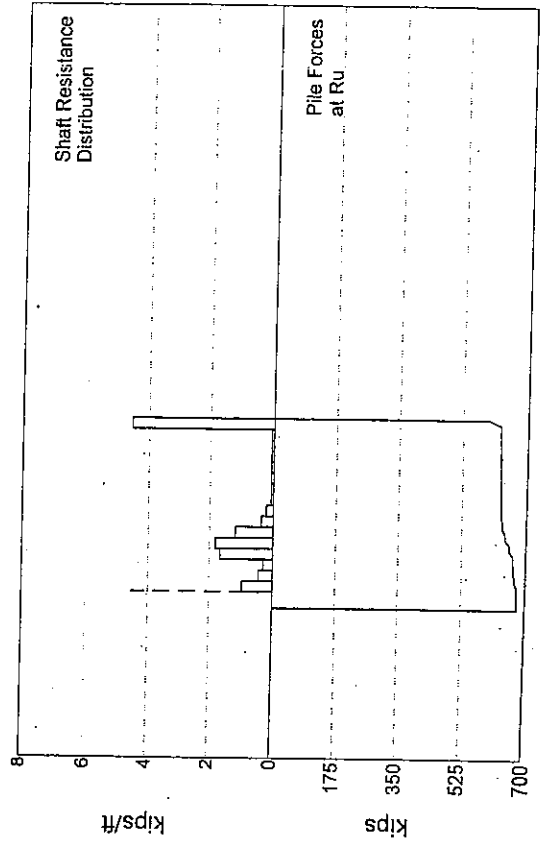
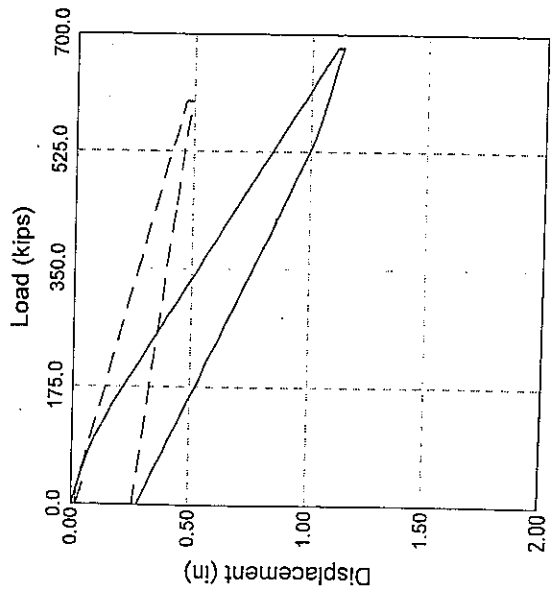
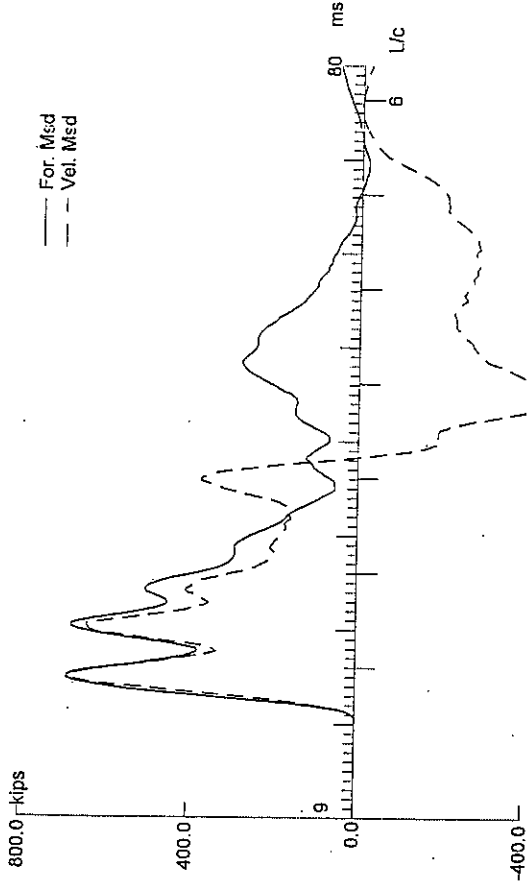
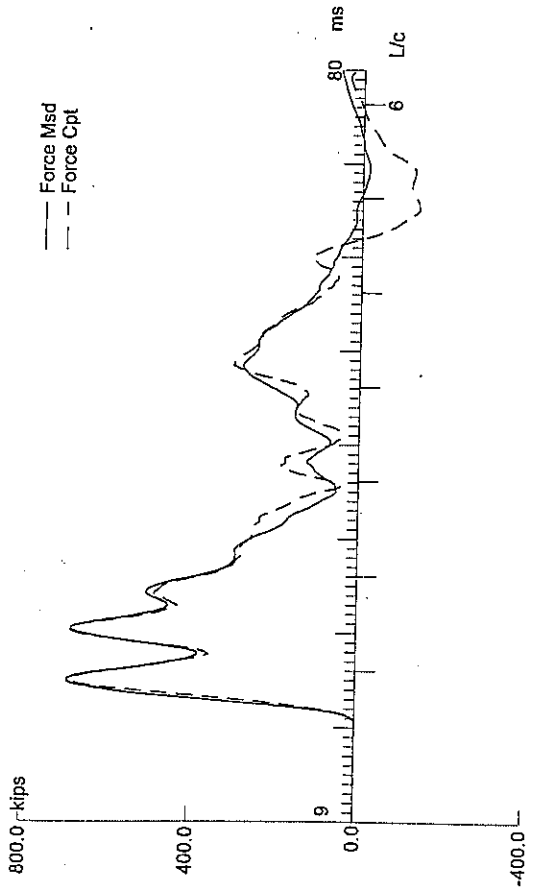
PILE PROFILE AND PILE MODEL

Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5476.9	150.186	5.330
116.00	256.00	5476.9	150.186	5.330

Toe Area 1.778 ft<sup>2</sup>

Top Segment Length 3.31 ft, Top Impedance 107.88 kips/ft/s

Pile Damping 2.0 %, Time Incr 0.255 ms, Wave Speed 13000.0 ft/s



Marginal Way; Pile: MARTP10  
 16" PPC; Blow: 771  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 680.0; along Shaft 80.0; at Toe 600.0 kips

Soil Sgmt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				680.0					
1	16.6	4.6	6.5	673.5	6.5	0.98	0.18	0.150	0.050
2	23.2	11.2	3.0	670.5	9.5	0.45	0.08	0.150	0.050
3	29.8	17.8	2.0	668.5	11.5	0.30	0.06	0.150	0.050
4	36.5	24.5	11.0	657.5	22.5	1.66	0.31	0.150	0.050
5	43.1	31.1	12.0	645.5	34.5	1.81	0.34	0.150	0.050
6	49.7	37.7	8.0	637.5	42.5	1.21	0.23	0.150	0.050
7	56.3	44.3	2.5	635.0	45.0	0.38	0.07	0.150	0.050
8	63.0	51.0	1.5	633.5	46.5	0.23	0.04	0.150	0.050
9	69.6	57.6	0.5	633.0	47.0	0.08	0.01	0.150	0.050
10	76.2	64.2	0.5	632.5	47.5	0.08	0.01	0.150	0.050
11	82.9	70.9	0.5	632.0	48.0	0.08	0.01	0.150	0.050
12	89.5	77.5	0.5	631.5	48.5	0.08	0.01	0.150	0.050
13	96.1	84.1	0.5	631.0	49.0	0.08	0.01	0.150	0.050
14	102.7	90.7	0.5	630.5	49.5	0.08	0.01	0.150	0.050
15	109.4	97.4	0.5	630.0	50.0	0.08	0.01	0.150	0.050
16	116.0	104.0	30.0	600.0	80.0	4.53	0.85	0.150	0.050
Avg. Skin			5.0			0.77	0.14	0.150	0.050
Toe				600.0			337.50	0.070	0.470

Soil Model Parameters/Extensions

	Skin	Toe
Case Damping Factor	0.111	0.389
Unloading Quake (% of loading quake)	100	50
Reloading Level (% of Ru)	100	100
Unloading Level (% of Ru)	30	
Resistance Gap (included in Toe Quake) (in)		0.120
Soil Plug Weight (kips)		0.75

CAPWAP match quality: 4.18 (Force Match)  
 Observed: final set = 0.100 in; blow count = 120 b/ft  
 Computed: final set = 0.073 in; blow count = 164 b/ft

Marginal Way; File: MARTP10  
 16" PPC; Blow: 771  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

EXTREMA TABLE

Pile Sgmnt No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	687.9	-139.2	2.687	-0.543	31.67	6.3	0.893
2	6.6	697.1	-150.3	2.722	-0.587	31.67	6.3	0.885
4	13.3	702.6	-171.9	2.744	-0.671	31.47	6.2	0.869
6	19.9	690.9	-183.6	2.698	-0.717	30.60	6.2	0.855
8	26.5	685.1	-188.4	2.675	-0.736	30.04	6.1	0.837
10	33.1	682.6	-183.9	2.666	-0.718	29.42	6.0	0.814
12	39.8	669.8	-173.8	2.616	-0.679	27.88	5.9	0.790
14	46.4	651.8	-166.6	2.546	-0.651	26.31	5.9	0.769
16	53.0	638.1	-157.9	2.492	-0.617	25.25	5.9	0.750
18	59.7	633.7	-153.6	2.475	-0.600	24.71	5.8	0.730
20	66.3	630.5	-145.0	2.462	-0.566	24.24	5.8	0.709
22	72.9	629.3	-135.7	2.458	-0.530	23.83	6.0	0.687
24	79.5	627.9	-130.9	2.452	-0.511	23.35	6.9	0.662
26	86.2	626.5	-139.2	2.446	-0.544	22.86	7.6	0.638
28	92.8	625.6	-137.1	2.443	-0.536	22.26	7.1	0.610
29	96.1	625.5	-132.4	2.443	-0.517	21.92	6.4	0.595
30	99.4	671.9	-125.3	2.624	-0.489	21.48	5.9	0.578
31	102.7	716.2	-122.9	2.797	-0.480	21.05	6.2	0.561
32	106.1	733.8	-117.8	2.866	-0.460	20.59	6.6	0.544
33	109.4	724.2	-110.8	2.828	-0.433	20.20	7.0	0.527
34	112.7	704.4	-107.0	2.751	-0.418	19.77	7.5	0.511
35	116.0	696.3	-104.3	2.719	-0.407	17.93	7.7	0.494
Absolute	106.1 29.8			2.866	-0.738		(T = (T =	35.7 ms 69.3 ms)

Marginal Way; Pile: MARTP10  
 16" PPC; Blow: 771  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

CASE METHOD

J =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
RS1	550.9	468.5	386.1	303.7	221.3	138.9	56.5	0.0	0.0	0.0
RMX	796.6	747.8	732.6	717.4	702.3	687.1	672.1	657.3	647.1	642.0
RSU	550.9	468.5	386.1	303.7	221.3	138.9	56.5	0.0	0.0	0.0

RAU= 629.9 (kips); RA2= 715.0 (kips)

Current CAPWAP Ru= 680.0 (kips); Corresponding J(Rs)= 0.00; J(Rx)=0.55

VMX	VFN	VT1*Z	FT1	FMX	DMX	DFN	EMX	RLT
ft/s	ft/s	kips	kips	kips	in	in	kip-ft	kips
6.33	0.00	683.0	691.9	691.9	0.899	0.100	32.2	774.0



Marginal Way; Pile: MARTP10  
16" PPC; Blow: 771  
GTR

Test: 21-May-2007  
CAPWAP® Ver. 2000-1

PILE PROFILE AND PILE MODEL

Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5476.9	150.186	5.330
116.00	256.00	5476.9	150.186	5.330

Toe Area                      1.778      ft<sup>2</sup>

Top Segment Length        3.31 ft, Top Impedance    107.88 kips/ft/s

Wave Damping        3.0 %, Time Incr    0.255 ms, Wave Speed    13000.0 ft/s

Marginal Way; Pile: MARTP9  
 16" PPC; Blow: 1005  
 GTR

Test: 21-May-2007  
 CAPWAP® Ver. 2000-1

CASE METHOD

J =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
RS1	719.8	649.5	579.2	508.9	438.5	368.2	297.9	227.6	157.2	86.9
RMX	842.3	785.1	728.0	670.8	631.4	606.4	581.8	557.8	546.2	546.2
RSU	719.8	649.5	579.2	508.9	438.5	368.2	297.9	227.6	157.2	86.9

RAU= 533.2 (kips); RA2= 548.0 (kips)

Current CAPWAP Ru= 635.4 (kips); Corresponding J(Rs)= 0.12; J(Rx)=0.39

VMX	VFN	VT1*Z	FT1	EMX	DMX	DFN	EMX	RLT
ft/s	ft/s	kips	kips	kips	in	in	kip-ft	kips
6.29	0.00	704.1	719.0	724.3	0.870	0.070	34.0	867.5

Marginal Way; File: MARTP9  
16" PPC; Blow: 1005  
GTR

Test: 21-May-2007  
CAPWAP® Ver. 2000-1

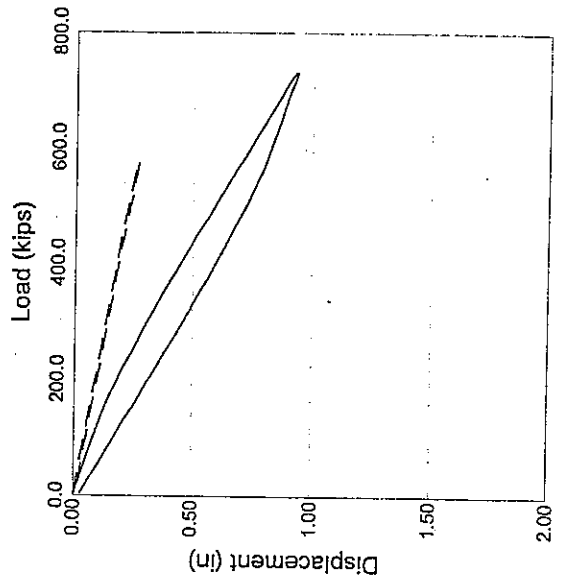
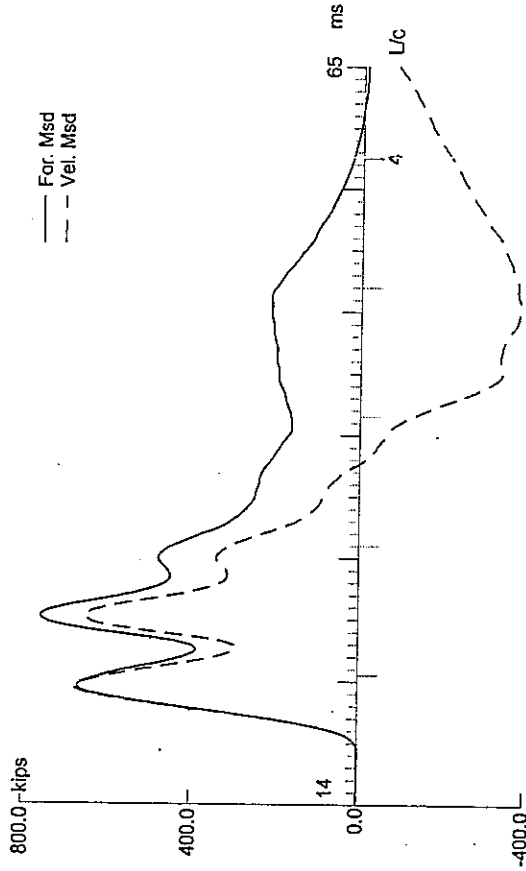
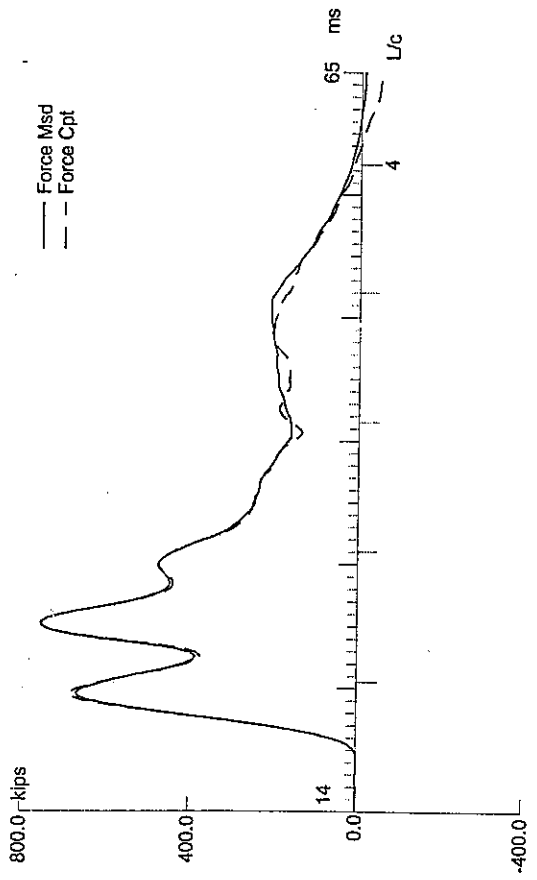
PILE PROFILE AND PILE MODEL

Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5906.3	150.186	5.330
116.00	256.00	5906.3	150.186	5.330

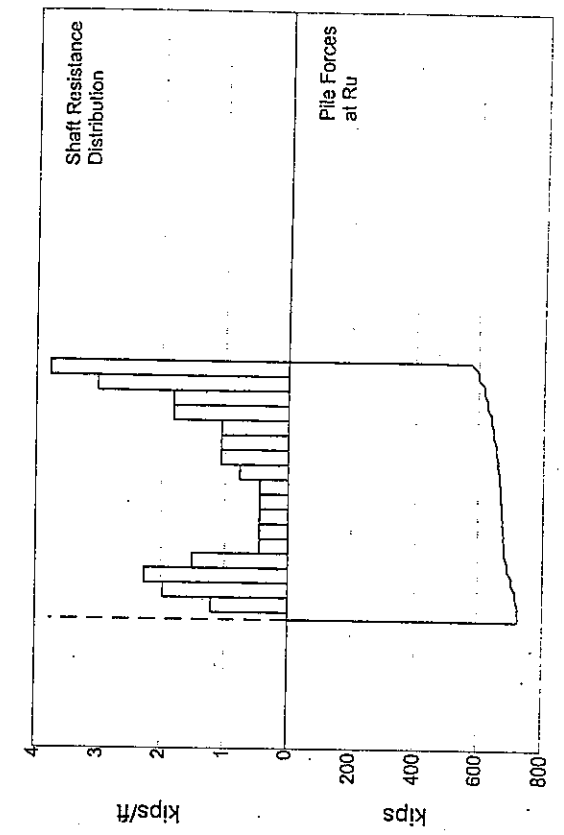
Toe Area 1.778 ft<sup>2</sup>

Top Segment Length 3.31 ft, Top Impedance 112.03 kips/ft/s

File Damping 3.0 %, Time Incr 0.255 ms, Wave Speed 13000.0 ft/s



Ru = 731.4 kips  
 Rs = 156.1 kips  
 Rb = 575.3 kips  
 Dy = 0.93 in  
 Dmx = 0.93 in



Marginal Way; File: MARTP9R  
 16" PPC; Blow: 6  
 GTR

Test: 29-May-2007  
 CAPWAP® Ver. 2000-1

CAPWAP FINAL RESULTS

Total CAPWAP Capacity: 731.4; along Shaft 156.1; at Toe 575.3 kips

Soil Sgmt No.	Dist. Below Gages ft	Depth Below Grade ft	Ru kips	Force in Pile kips	Sum of Ru kips	Unit Resist. (Depth) kips/ft	Unit Resist. (Area) ksf	Smith Damping Factor s/ft	Quake in
				731.4					
1	9.9	6.9	8.0	723.4	8.0	1.21	0.23	0.270	0.100
2	16.6	13.6	13.0	710.4	21.0	1.96	0.37	0.270	0.100
3	23.2	20.2	15.0	695.4	36.0	2.26	0.42	0.270	0.100
4	29.8	26.8	10.0	685.4	46.0	1.51	0.28	0.270	0.100
5	36.5	33.5	3.0	682.4	49.0	0.45	0.08	0.270	0.100
6	43.1	40.1	3.0	679.4	52.0	0.45	0.08	0.270	0.100
7	49.7	46.7	3.0	676.4	55.0	0.45	0.08	0.270	0.100
8	56.3	53.3	3.0	673.4	58.0	0.45	0.08	0.270	0.100
9	63.0	60.0	3.0	670.4	61.0	0.45	0.08	0.270	0.100
10	69.6	66.6	5.0	665.4	66.0	0.75	0.14	0.270	0.100
11	76.2	73.2	7.0	658.4	73.0	1.06	0.20	0.270	0.100
12	82.9	79.9	7.0	651.4	80.0	1.06	0.20	0.270	0.100
13	89.5	86.5	7.0	644.4	87.1	1.06	0.20	0.270	0.100
14	96.1	93.1	12.0	632.4	99.1	1.81	0.34	0.270	0.100
15	102.7	99.7	12.0	620.4	111.1	1.81	0.34	0.270	0.100
16	109.4	106.4	20.0	600.4	131.1	3.02	0.57	0.270	0.100
17	116.0	113.0	25.0	575.3	156.1	3.77	0.71	0.270	0.100
Avg. Skin			9.2			1.38	0.26	0.270	0.100
Toe				575.3			323.63	0.170	0.260

Soil Model Parameters/Extensions

	Skin	Toe
Case Damping Factor	0.390	0.906
Reloading Level (% of Ru)	10	10
Unloading Level (% of Ru)	13	
Resistance Gap (included in Toe Quake) (in)		0.070
Soil Plug Weight (kips)		0.53

CAPWAP match quality: 3.68 (Force Match)  
 Observed: final set = 0.050 in; blow count = 240 b/ft  
 Computed: final set = 0.017 in; blow count = 725 b/ft

Marginal Way; Pile: MARTP9R  
 16" PPC; Blow: 6  
 GTR

Test: 29-May-2007  
 CAPWAP® Ver. 2000-1

EXTREMA TABLE

Pile Sgmnt No.	Dist. Below Gages ft	max. Force kips	min. Force kips	max. Comp. Stress ksi	max. Tens. Stress ksi	max. Trnsfd. Energy kip-ft	max. Veloc. ft/s	max. Displ. in
1	3.3	751.4	-46.4	2.934	-0.181	29.94	6.2	0.677
2	6.6	753.5	-57.4	2.943	-0.224	29.95	6.1	0.671
4	13.3	739.2	-65.0	2.887	-0.254	28.93	6.0	0.657
6	19.9	714.0	-71.9	2.788	-0.281	27.42	5.8	0.645
8	26.5	682.6	-77.3	2.666	-0.302	25.71	5.8	0.631
10	33.1	663.5	-83.3	2.591	-0.325	24.51	5.7	0.616
12	39.8	663.3	-88.0	2.591	-0.344	24.02	5.6	0.600
14	46.4	663.9	-88.5	2.593	-0.346	23.50	5.6	0.582
16	53.0	665.1	-89.8	2.597	-0.351	22.92	5.6	0.562
18	59.7	669.1	-92.7	2.613	-0.362	22.27	5.5	0.539
20	66.3	681.5	-96.0	2.661	-0.375	21.52	5.5	0.513
22	72.9	687.9	-99.3	2.686	-0.388	20.53	5.4	0.484
24	79.5	673.5	-97.1	2.630	-0.379	19.37	5.3	0.455
26	86.2	682.6	-95.2	2.666	-0.372	18.20	5.2	0.423
28	92.8	736.9	-95.1	2.878	-0.371	16.96	5.0	0.390
29	96.1	763.9	-94.7	2.983	-0.370	16.49	4.9	0.372
30	99.4	764.4	-91.3	2.985	-0.357	15.40	4.8	0.354
31	102.7	784.3	-91.2	3.063	-0.356	14.92	4.7	0.336
32	106.1	780.8	-86.6	3.049	-0.338	13.90	4.7	0.318
33	109.4	789.3	-86.6	3.082	-0.338	13.43	4.7	0.300
34	112.7	758.9	-80.3	2.964	-0.314	12.20	4.7	0.283
35	116.0	774.5	-80.1	3.025	-0.313	11.29	4.7	0.266
Absolute	109.4			3.082			(T = 35.9 ms)	
	69.6				-0.388		(T = 64.0 ms)	

Marginal Way; Pile: MARTP9R  
16" PPC; Blow: 6  
GTR

Test: 29-May-2007  
CAPWAP® Ver. 2000-1

CASE METHOD

J =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
RS1	788.8	733.2	677.6	622.0	566.4	510.7	455.1	399.5	343.9	288.3
RMX	973.4	929.7	885.9	842.2	798.4	754.7	710.9	667.2	624.0	610.0
RSU	834.7	783.6	732.6	681.5	630.5	579.5	528.4	477.4	426.4	375.3

RAU= 542.0 (kips); RA2= 581.3 (kips)

Current CAPWAP Ru= 731.4 (kips); Corresponding J(Rs)= 0.10; J(Rx)=0.55

VMX	VEN	VT1*Z	FT1	FMX	DMX	DFN	EMX	RLT
ft/s	ft/s	kips	kips	kips	in	in	kip-ft	kips
6.27	0.00	676.1	669.0	758.8	0.684	0.050	30.1	985.2

Marginal Way; File: MARTP9R  
16" PPC; Blow: 6  
GTR

Test: 29-May-2007  
CAPWAP® Ver. 2000-1

FILE PROFILE AND PILE MODEL

Depth ft	Area in <sup>2</sup>	E-Modulus ksi	Spec. Weight lb/ft <sup>3</sup>	Circumf. ft
0.00	256.00	5476.9	150.186	5.330
116.00	256.00	5476.9	150.186	5.330

Toe Area 1.778 ft<sup>2</sup>

Top Segment Length 3.31 ft, Top Impedance 107.88 kips/ft/s

File Damping 2.0 %, Time Incr 0.255 ms, Wave Speed 13000.0 ft/s



02000 *Site work*  
SW Cole Pile Installation Report 02000.2



• Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

06-0124.2

July 2, 2007

Capital LLC  
Attention: Edward H. Marsh, Jr.  
Atlantic National Trust  
50 Portland Pier, Suite 400  
Portland, ME 04101

**RECEIVED**  
SEP 10 2008

Subject: Pile Completion Letter  
Proposed Office Building and Parking Garage  
84 Marginal Way  
Portland, Maine

JOB # \_\_\_\_\_

Dear Ed,

In accordance with our Agreement Addendum No.2 dated May 15, 2007, we have observed the installation of 16 inch pre-cast, pre-stressed, concrete (PPC) piles for the Proposed Office Building and Parking Garage project at 84 Marginal Way in Portland, Maine. The observations were conducted between May 18, 2007 and June 29, 2007.

Based on our observations during driving, the piles were installed in accordance with the final set criteria established by Vynorious Piledriving, Inc., the pile installation contractor and their subcontractor Geosciences Testing and Research, Inc. A total of 281 piles were installed by driving the PPC sections with a Pilemer DKH-7 hydraulic hammer. A summary of the pile installation data is attached. The individual pile installation logs will be retained in our project file.

We trust this letter meets your needs. Please call if you have any questions or require additional assistance.

Sincerely,

**S.W. COLE ENGINEERING, INC.**

A handwritten signature in black ink, appearing to read 'Paul F. Kohler', with a horizontal line extending to the right.

Paul F. Kohler, P.E.  
Senior geotechnical Engineer



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					11.0	12.0	10.0	10.0	10.0	11.0			
#1	140.0	9.0	30.5	109.5	11.0	11.0	12.0	10.0	10.0	13.0	-100.5	05/18/07	Indicator Pile #1
#2	120.0	9.0	16.5	103.5	10.0	10.0	10.0	10.0	10.0	11.0	-94.5	06/28/07	
#3	115.0	9.0	5.0	110.0	10.0	10.0	10.0	10.0	10.0	11.0	-101.0	06/28/07	
#4	115.0	9.0	7.0	108.0	10.0	10.0	10.0	10.0	10.0	11.0	-99.0	06/28/07	
#5	115.0	9.0	6.0	109.0	10.0	10.0	11.0	11.0	11.0	11.0	-100.0	06/28/07	
#6	120.0	9.0	3.5	116.5	10.0	10.0	10.0	10.0	11.0	11.0	-107.5	06/28/07	
#7	120.0	9.0	10.5	109.5	10.0	10.0	10.0	10.0	10.0	11.0	-100.5	06/28/07	
#8	120.0	9.0	6.0	114.0	10.0	10.0	10.0	11.0	11.0	11.0	-105.0	06/28/07	
#9	120.0	9.0	13.0	107.0	10.0	11.0	11.0	11.0	12.0	12.0	-98.0	06/28/07	
#10	120.0	9.0	14.0	106.0	10.0	10.0	10.0	11.0	11.0	12.0	-97.0	06/29/07	
#11	120.0	9.0	0.0	120.0	18.0	18.0	18.0	19.0	20.0	20.0	-111.0	05/18/07	Restruck on 6/28/07 (Down)
#12	120.0	9.0	8.5	111.5	10.0	11.0	11.0	12.0	13.0	13.0	-102.5	06/28/07	
#13	120.0	9.0	7.0	113.0	10.0	10.0	11.0	11.0	12.0	12.0	-104.0	06/28/07	
#14	120.0	9.0	6.0	114.0	10.0	10.0	10.0	11.0	11.0	12.0	-105.0	06/28/07	
#15	115.0	9.0	3.0	112.0	10.0	10.0	11.0	12.0	12.0	12.0	-103.0	06/29/07	
#16	115.0	9.0	4.5	110.5	10.0	10.0	11.0	12.0	12.0	12.0	-101.5	06/29/07	
#17	115.0	9.0	4.5	110.5	10.0	11.0	11.0	12.0	12.0	12.0	-101.5	06/29/07	
#18	115.0	9.0	7.0	108.0	10.0	10.0	11.0	12.0	12.0	12.0	-99.0	06/29/07	
#19	115.0	9.0	8.0	107.0	10.0	10.0	10.0	11.0	11.0	11.0	-98.0	06/29/07	
#20	120.0	9.0	8.5	111.5	6.0	7.0	7.0	8.0	8.0	9.0	-102.5	05/18/07	Indicator Pile #4
#21	120.0	9.0	17.5	102.5	10.0	10.0	10.0	11.0	11.0	11.0	-93.5	06/28/07	
#22	120.0	9.0	16.5	103.5	10.0	10.0	10.0	11.0	11.0	12.0	-94.5	06/28/07	



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					10.0	11.0	12.0	13.0	14.0	15.0			
#23	120.0	9.0	20.0	100.0	10.0	11.0	11.0	12.0	12.0	13.0	-91.0	06/28/07	
#24	115.0	9.0	15.5	99.5	10.0	10.0	10.0	11.0	11.0	11.0	-90.5	06/29/07	
#25	115.0	9.0	10.0	105.0	10.0	10.0	10.0	10.0	11.0	11.0	-96.0	06/29/07	
#26	115.0	9.0	8.0	107.0	10.0	10.0	10.0	10.0	11.0	11.0	-98.0	06/29/07	
#27	115.0	9.0	2.0	113.0	10.0	10.0	10.0	10.0	10.0	11.0	-104.0	06/29/07	
#28	115.0	9.0	11.0	104.0	10.0	10.0	10.0	10.0	10.0	11.0	-95.0	06/29/07	
#29	115.0	9.0	2.0	113.0	10.0	10.0	10.0	10.0	11.0	11.0	-104.0	06/29/07	Walked 6-10" @ 5' Down
#30	115.0	5.7	10.5	104.5	8.0	8.0	10.0	11.0	11.0	14.0	-98.8	06/11/07	
#31	110.0	9.0	4.0	106.0	8.0	9.0	10.0	10.0	12.0	6 1/2	-97.0	06/11/07	
#32	110.0	5.7	7.0	103.0	10.0	10.0	12.0	11.0	11.0	11.0	-97.3	06/11/07	
#33	115.0	9.0	3.0	112.0	9.0	9.0	10.0	10.0	10.0	14.0	-103.0	06/11/07	
#34	115.0	9.0	5.0	110.0	9.0	10.0	10.0	11.0	12.0	12.0	-101.0	06/11/07	
#35	115.0	9.0	3.8	111.2	8.0	8.0	9.0	10.0	10.0	17.0	-102.2	06/11/07	
#36	115.0	9.0	2.8	112.2	9.0	9.0	10.0	11.0	11.0	12.0	-103.2	06/11/07	
#37	115.0	9.0	9.5	105.5	8.0	9.0	9.0	12.0	12.0	6 1/2	-96.5	06/12/07	
#38	140.0	9.0	25.5	114.5	8.0	8.0	10.0	10.0	10.0	30 1/2	-105.5	05/18/07	Indicator Pile #2
#39	110.0	9.0	6.5	103.5	5.0	5.0	5.0	5.0	12.0	16.0	-94.5	06/13/07	
#40	110.0	9.0	11.0	99.0	9.0	10.0	11.0	10.0	10.0	14.0	-90.0	06/15/07	
#41	115.0	9.0	4.5	110.5	9.0	6.0	10.0	10.0	10.0	14.0	-101.5	06/12/07	
#42	110.0	9.0	15.5	94.5	10.0	10.0	10.0	11.0	11.0	11.0	-85.5	06/15/07	
#43	115.0	9.0	6.0	109.0	9.0	10.0	10.0	10.0	10.0	13.0	-100.0	06/12/07	
#44	110.0	9.0	5.0	105.0	10.0	10.0	10.0	10.0	11.0	11.0	-96.0	06/15/07	



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					9.0	10.0	11.0	12.0	13.0	14.0			
#45	110.0	9.0	4.8	105.2	9.0	9.0	10.0	10.0	11.0	14.0	-96.2	06/15/07	
#46	115.0	9.0	9.2	105.8	9.0	10.0	11.0	12.0	11.0	10.0	-96.8	06/15/07	
#47	110.0	9.0	7.5	102.5	11.0	12.0	14.0	16.0	16.0	17.0	-93.5	06/25/07	
#48	110.0	9.0	17.5	92.5	11.0	11.0	13.0	14.0	15.0	15.0	-83.5	06/25/07	
#49	115.0	9.0	9.1	105.9	10.0	11.0	10.0	10.0	10.0	10.0	-96.9	06/18/07	
#50	110.0	9.0	8.5	101.5	10.0	11.0	13.0	14.0	16.0	17.0	-92.5	06/25/07	
#51	110.0	9.0	11.5	98.5	11.0	12.0	12.0	14.0	14.0	15.0	-89.5	06/25/07	
#52	115.0	9.0	11.0	104.0	10.0	10.0	14.0	14.0	14.0	14.0	-95.0	06/25/07	Restruck on 6/25/07 (Down)
#53	110.0	9.0	7.5	102.5	11.0	12.0	12.0	13.0	14.0	14.0	-93.5	06/25/07	
#54	110.0	9.0	14.5	95.5	12.0	12.0	14.0	14.0	15.0	15.0	-86.5	06/25/07	
#55	115.0	9.0	-1.0	116.0	10.0	10.0	11.0	11.0	12.0	12.0	-107.0	06/25/07	
#56	115.0	9.0	1.0	114.0	11.0	11.0	12.0	13.0	14.0	15.0	-105.0	06/25/07	
#57	115.0	9.0	6.0	109.0	10.0	10.0	11.0	12.0	12.0	12.0	-100.0	06/26/07	
#58	115.0	9.0	-0.5	115.5	10.0	11.0	11.0	12.0	12.0	13.0	-106.5	06/25/07	
#59	115.0	9.0	-1.5	116.5	10.0	10.0	11.0	11.0	12.0	12.0	-107.5	06/26/07	
#60	115.0	9.0	4.0	111.0	10.0	10.0	11.0	12.0	12.0	13.0	-102.0	06/25/07	
#61	115.0	9.0	8.5	106.5	10.0	10.0	11.0	11.0	11.0	12.0	-97.5	06/26/07	Walked 6-10"NNE @ 10' Down
#62	115.0	9.0	12.0	103.0	10.0	11.0	12.0	12.0	13.0	13.0	-94.0	06/26/07	
#63	115.0	9.0	5.0	110.0	10.0	10.0	10.0	10.0	11.0	11.0	-101.0	06/26/07	
#64	115.0	9.0	1.5	113.5	10.0	10.0	10.0	10.0	11.0	11.0	-104.5	06/26/07	
#65	115.0	9.0	8.5	106.5	10.0	10.0	10.0	10.0	11.0	11.0	-97.5	06/26/07	
#66	115.0	9.0	6.5	108.5	10.0	10.0	10.0	10.0	11.0	11.0	-99.5	06/26/07	



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					10.0	10.0	11.0	12.0	12.0	12.0			
#67	115.0	9.0	12.0	103.0	10.0	10.0	11.0	12.0	12.0	12.0	-94.0	06/26/07	
#68	115.0	9.0	4.0	111.0	10.0	10.0	10.0	11.0	11.0	11.0	-102.0	06/26/07	
#69	115.0	9.0	10.5	104.5	10.0	10.0	10.0	10.0	11.0	11.0	-95.5	06/27/07	
#70	115.0	9.0	12.5	102.5	10.0	10.0	11.0	11.0	11.0	12.0	-93.5	06/27/07	
#71	115.0	9.0	6.5	108.5	10.0	10.0	10.0	10.0	11.0	11.0	-99.5	06/27/07	
#72	115.0	9.0	10.0	105.0	10.0	10.0	10.0	10.0	11.0	11.0	-96.0	06/27/07	
#73	120.0	9.0	11.0	109.0	7.0	8.0	7.0	8.0	9.0	23.0	-100.0	05/18/07	Indicator Pile #5
#74	115.0	9.0	8.0	107.0	10.0	10.0	10.0	10.0	11.0	11.0	-98.0	06/27/07	
#75	115.0	9.0	12.0	103.0	10.0	10.0	11.0	11.0	11.0	11.0	-94.0	06/27/07	Walked 6" E.@ 10' Down
#76	115.0	9.0	14.0	101.0	10.0	10.0	10.0	10.0	10.0	11.0	-92.0	06/27/07	
#77	115.0	9.0	-1.0	116.0	10.0	10.0	10.0	10.0	11.0	11.0	-107.0	06/27/07	
#78	115.0	9.0	7.0	108.0	10.0	10.0	11.0	11.0	11.0	11.0	-99.0	06/27/07	
#79	115.0	9.0	9.0	106.0	10.0	10.0	11.0	12.0	12.0	12.0	-97.0	06/27/07	
#80	115.0	9.0	9.0	106.0	10.0	10.0	11.0	11.0	11.0	12.0	-97.0	06/27/07	Walked 6" E.@ 5' Down
#81	115.0	9.0	16.0	99.0	10.0	10.0	10.0	10.0	11.0	11.0	-90.0	06/27/07	Walked 6" E.@ 5' Down
#82	110.0	9.0	9.5	100.5	10.0	10.0	10.0	11.0	11.0	11.0	-91.5	06/28/07	
#83	115.0	9.0	5.5	109.5	10.0	10.0	10.0	10.0	10.0	11.0	-100.5	06/28/07	
#84	115.0	9.0	8.0	107.0	10.0	10.0	10.0	10.0	11.0	12.0	-98.0	06/28/07	
#85	115.0	9.0	7.5	107.5	10.0	10.0	11.0	11.0	11.0	12.0	-98.5	06/28/07	
#86	115.0	9.0	6.0	109.0	10.0	10.0	10.0	10.0	11.0	11.0	-100.0	06/28/07	
#87	115.0	9.0	19.0	96.0	10.0	10.0	10.0	10.0	10.0	11.0	-87.0	06/28/07	
#88	120.0	9.0	5.5	114.5	7.0	8.0	8.0	11.0	12.0	12 3/4	-105.5	06/12/07	



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					9.0	10.0	11.0	8 1/2	11.0	12.0			
#89	115.0	9.0	2.0	113.0	9.0	10.0	10.0	11.0	8 1/2	11.0	-104.0	06/12/07	
#90	115.0	5.0	4.0	111.0	9.0	10.0	10.0	12.0	12.0	14.0	-106.0	06/08/07	
#91	115.0	5.0	6.5	108.5	7.0	8.0	9.0	9.0	12.0	12 3/4	-103.5	06/11/07	
#92	115.0	5.0	4.5	110.5	8.0	9.0	10.0	12.0	12.0	13 3/4	-105.5	06/11/07	
#93	115.0	5.0	4.5	110.5	8.0	9.0	9.0	9.0	9.0	15.0	-105.5	06/08/07	
#94	115.0	5.0	4.8	110.2	9.0	10.0	10.0	10.0	11.0	10 1/2	-105.2	06/11/07	
#95	120.0	9.0	4.0	116.0	9.0	9.0	10.0	10.0	10.0	14.0	-107.0	06/12/07	
#96	120.0	9.0	3.5	116.5	11.0	10.0	10.0	10.0	10.0	11.0	-107.5	06/12/07	
#97	120.0	6.0	6.0	114.0	5.0	5.0	5.0	5.0	16.0	16.0	-108.0	06/12/07	
#98	120.0	9.0	5.0	115.0	6.0	6.0	7.0	7.0	13.0	6 1/4	-106.0	06/12/07	
#99	115.0	7.0	0.0	115.0	14.0	14.0	14.0	14.0	15.0	15.0	-108.0	06/15/07	Restruck 6/28/07 (Down)
#100	115.0	9.2	2.0	113.0	9.0	10.0	10.0	11.0	11.0	11.0	-103.8	06/15/07	
#101	115.0	9.0	4.5	110.5	10.0	10.0	10.0	11.0	11.0	11.0	-101.5	06/27/07	
#102	115.0	9.0	3.5	111.5	10.0	10.0	10.0	10.0	11.0	11.0	-102.5	06/27/07	
#103	115.0	9.0	5.0	110.0	10.0	10.0	10.0	11.0	11.0	11.0	-101.0	06/27/07	
#104	115.0	9.0	7.0	108.0	10.0	10.0	10.0	11.0	11.0	12.0	-99.0	06/28/07	
#105	115.0	9.0	6.5	108.5	10.0	10.0	10.0	11.0	11.0	12.0	-99.5	06/28/07	
#106	115.0	6.0	2.5	112.5	8.0	10.0	10.0	11.0	11.0	15.0	-106.5	06/08/07	
#107	115.0	6.0	5.0	110.0	10.0	11.0	10.0	10.0	11.0	11.0	-104.0	06/08/07	
#108	120.0	5.0	0.0	120.0	9.0	10.0	10.0	10.0	10.0	11.0	-115.0	06/11/07	
#109	120.0	9.2	16.5	103.5	9.0	10.0	10.0	10.0	12.0	14.0	-94.3	06/12/07	
#110	120.0	9.2	17.5	102.5	9.0	11.0	11.0	11.0	11.0	11.0	-93.3	06/12/07	



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					9.0	10.0	11.0	12.0	13.0	14.0			
#111	120.0	9.0	3.5	116.5	9.0	10.0	9.0	10.0	11.0	13.0	-107.5	06/12/07	
#112	120.0	7.0	0.0	120.0	7.0	7.0	7.0	10.0	12.0	15.0	-113.0	06/12/07	
#113	120.0	9.0	3.5	116.5	10.0	10.0	11.0	10.0	11.0	10.0	-107.5	06/12/07	
#114	110.0	9.2	5.8	104.2	10.0	10.0	11.0	11.0	11.0	6 1/2	-95.0	06/15/07	
#115	110.0	9.2	6.5	103.5	9.0	9.0	10.0	12.0	11.0	13.0	-94.3	06/15/07	
#116	110.0	9.0	9.0	101.0	9.0	11.0	10.0	11.0	11.0	12.0	-92.0	06/15/07	
#117	120.0	9.0	18.5	101.5	8.0	10.0	10.0	11.0	10.0	11.0	-92.5	06/15/07	
#118	110.0	9.0	10.5	99.5	9.0	9.0	10.0	12.0	12.0	5 1/2	-90.5	06/15/07	
#119	115.0	9.0	5.5	109.5	10.0	10.0	10.0	11.0	11.0	11.0	-100.5	06/26/07	
#120	115.0	9.0	17.5	97.5	10.0	10.0	10.0	12.0	12.0	12.0	-88.5	06/26/07	
#121	115.0	9.0	1.5	113.5	10.0	10.0	10.0	11.0	11.0	11.0	-104.5	06/26/07	
#122	115.0	9.0	0.0	115.0	10.0	10.0	10.0	11.0	11.0	11.0	-106.0	06/26/07	
#123	115.0	9.0	9.0	106.0	10.0	10.0	10.0	11.0	11.0	11.0	-97.0	06/26/07	
#124	115.0	9.0	-0.5	115.5	12.0	12.0	14.0	14.0	14.0	17.0	-106.5	06/27/07	Had to be restruck. (Down)
#125	115.0	9.0	13.5	101.5	10.0	10.0	10.0	10.0	11.0	11.0	-92.5	06/27/07	
#126	115.0	9.0	10.0	105.0	10.0	10.0	10.0	10.0	11.0	11.0	-96.0	06/27/07	
#127	115.0	9.0	7.0	108.0	10.0	10.0	10.0	10.0	10.0	11.0	-99.0	06/28/07	Walked 6" S. @ 5'Down
#128	115.0	9.0	11.0	104.0	10.0	10.0	10.0	10.0	11.0	11.0	-95.0	06/28/07	
#129	110.0	6.0	0.0	110.0	10.0	10.0	12.0	10.0	11.0	10.0	-104.0	05/25/07	
#130	115.0	6.0	8.7	106.3	10.0	10.0	10.0	11.0	11.0	11.0	-100.3	05/29/07	
#131	115.0	6.0	6.6	108.4	10.0	10.0	11.0	10.0	11.0	11.0	-102.4	05/29/07	
#132	110.0	5.5	2.5	107.5	2.0	2.0	2.0	10.0	17.0	16.0	-102.0	05/31/07	





**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					8.0	8.0	8.0	13.0	14.0	13.0			
#133	120.0	9.0	5.5	114.5	8.0	8.0	8.0	13.0	14.0	13.0	-105.5	05/31/07	
#134	120.0	9.0	6.0	114.0	9.0	9.0	9.0	10.0	10.0	13.0	-105.0	05/31/07	
#135	120.0	9.0	8.0	112.0	9.0	10.0	10.0	10.0	11.0	11.0	-103.0	05/31/07	
#136	120.0	9.0	20.2	99.8	8.0	10.0	10.0	13.0	13.0	13.0	-90.8	05/31/07	
#137	120.0	9.0	19.0	101.0	9.0	10.0	10.0	11.0	11.0	11.0	-92.0	05/31/07	
#138	120.0	9.0	3.0	117.0	9.0	9.0	10.0	10.0	11.0	11.0	-108.0	05/31/07	
#139	120.0	7.0	0.0	120.0	9.0	9.0	10.0	10.0	10.0	10.0	-113.0	05/31/07	
#140	120.0	9.0	19.0	101.0	8.0	9.0	10.0	10.0	11.0	17.0	-92.0	06/01/07	
#141	120.0	9.0	2.0	118.0	9.0	9.0	9.0	10.0	10.0	11.0	-109.0	05/31/07	
#142	120.0	9.0	8.0	112.0	10.0	10.0	10.0	10.0	10.0	10.0	-103.0	06/01/07	
#143	110.0	9.0	8.5	101.5	10.0	9.0	10.0	10.0	14.0	4 1/4	-92.5	06/01/07	
#144	120.0	9.0	5.5	114.5	9.0	10.0	9.0	10.0	10.0	14.0	-105.5	06/01/07	
#145	120.0	9.0	9.0	111.0	10.0	10.0	10.0	10.0	10.0	11.0	-102.0	06/01/07	
#146	110.0	9.0	2.5	107.5	10.0	10.0	10.0	10.0	10.0	12.0	-98.5	06/01/07	
#147	120.0	9.0	3.0	117.0	13.0	12.0	12.0	12.0	11.0	11.0	-108.0	05/21/07	Indicator Pile #8
#148	120.0	9.0	7.0	113.0	10.0	10.0	11.0	13.0	12.0	6 1/2	-104.0	05/30/07	
#149	110.0	9.0	13.2	96.8	6.0	6.0	6.0	10.0	13.0	13.0	-87.8	06/01/07	
#150	110.0	9.0	10.2	99.8	9.0	9.0	10.0	11.0	10.0	13.0	-90.8	06/01/07	
#151	110.0	9.0	0.0	110.0	11.0	10.0	8.0	12.0	11.0	12.0	-101.0	05/30/07	
#152	110.0	9.0	14.5	95.5	7.0	7.0	7.0	7.0	11.0	15.0	-86.5	06/01/07	
#153	110.0	9.0	12.7	97.3	9.0	10.0	10.0	11.0	11.0	12.0	-88.3	06/01/07	
#154	115.0	9.0	14.0	101.0	6.0	11.0	12.0	11.0	12.0	8 1/2	-92.0	05/30/07	



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					5.0	5.0	5.0	11.0	13.0	16.0			
#155	110.0	9.0	14.5	95.5	5.0	5.0	5.0	11.0	13.0	16.0	-86.5	05/30/07	
#156	110.0	9.0	7.5	102.5	9.0	9.0	10.0	10.0	12.0	14.0	-93.5	06/01/07	
#157	110.0	9.0	11.5	98.5	7.0	9.0	9.0	9.0	13.0	16.0	-89.5	06/01/07	
#158	115.0	9.0	10.5	104.5	10.0	10.0	10.0	10.0	10.0	10.0	-95.5	06/04/07	
#159	110.0	9.0	12.5	97.5	9.0	9.0	9.0	9.0	12.0	17.0	-88.5	06/04/07	
#160	110.0	9.0	10.5	99.5	8.0	8.0	9.0	12.0	12.0	12.0	-90.5	06/04/07	
#161	110.0	9.0	6.5	103.5	10.0	10.0	10.0	10.0	10.0	10.0	-94.5	06/04/07	
#162	110.0	9.0	10.5	99.5	10.0	10.0	10.0	10.0	10.0	10.0	-90.5	06/04/07	
#163	110.0	9.0	8.5	101.5	9.0	10.0	10.0	10.0	10.0	12.0	-92.5	06/04/07	
#164	110.0	9.0	9.5	100.5	9.0	10.0	11.0	11.0	11.0	12.0	-91.5	06/04/07	
#165	110.0	9.0	4.1	105.9	10.0	10.0	10.0	10.0	10.0	10.0	-96.9	06/04/07	
#166	110.0	9.0	9.5	100.5	8.0	9.0	10.0	11.0	11.0	12.0	-91.5	06/04/07	
#167	110.0	9.0	12.1	97.9	10.0	10.0	10.0	10.0	10.0	10.0	-88.9	06/04/07	
#168	115.0	9.0	2.5	112.5	8.0	8.0	11.0	11.0	13.0	5 1/4	-103.5	06/05/07	
#169	110.0	9.0	5.5	104.5	11.0	9.0	11.0	11.0	12.0	4 1/4	-95.5	06/05/07	
#170	110.0	9.0	6.0	104.0	8.0	10.0	12.0	10.0	11.0	11.0	-95.0	06/05/07	
#171	115.0	9.0	6.2	108.8	9.0	9.0	10.0	10.0	10.0	13.0	-99.8	06/05/07	
#172	110.0	9.0	3.5	106.5	9.0	11.0	11.0	10.0	11.0	12.0	-97.5	06/05/07	
#173	110.0	9.0	5.5	104.5	8.0	8.0	8.0	10.0	12.0	13.0	-95.5	06/05/07	
#174	110.0	7.0	0.0	110.0	9.0	10.0	9.0	11.0	11.0	13.0	-103.0	06/05/07	
#175	110.0	9.0	3.5	106.5	9.0	9.0	10.0	10.0	10.0	13.0	-97.5	06/05/07	
#176	115.0	9.0	6.5	108.5	7.0	7.0	11.0	11.0	13.0	6 1/4	-99.5	06/05/07	



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynortous Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					7.0	8.0	8.0	12.0	12.0	12.0			
#177	115.0	9.0	6.0	109.0	7.0	7.0	8.0	8.0	12.0	16.0	-100.0	06/06/07	
#178	120.0	9.0	12.0	108.0	8.0	8.0	8.0	15.0	12.0	8 1/2	-99.0	06/06/07	
#179	110.0	9.0	3.5	106.5	9.0	11.0	11.0	11.0	12.0	12.0	-97.5	06/06/07	
#180	120.0	9.0	10.9	109.1	8.0	8.0	11.0	11.0	13.0	5 3/4	-100.1	06/06/07	
#181	110.0	9.0	1.2	108.8	8.0	9.0	9.0	13.0	12.0	12.0	-99.8	06/06/07	
#182	110.0	7.0	0.0	110.0	12.0	12.0	13.0	13.0	13.0	14.0	-103.0	06/06/07	Restruck 6/27/07 (Down)
#183	110.0	9.0	7.2	102.8	9.0	9.0	11.0	11.0	11.0	14.0	-93.8	06/06/07	
#184	110.0	9.0	8.5	101.5	6.0	10.0	10.0	11.0	12.0	8 1/2	-92.5	06/07/07	
#185	120.0	9.0	16.0	104.0	10.0	10.0	9.0	10.0	12.0	12 1/4	-95.0	05/21/07	Indicator Pile #10
#186	110.0	9.0	4.9	105.1	11.0	10.0	10.0	10.0	11.0	11.0	-96.1	06/07/07	
#187	110.0	9.0	7.5	102.5	8.0	9.0	8.0	9.0	16.0	6 1/4	-93.5	06/07/07	
#188	110.0	9.0	12.9	97.1	9.0	10.0	11.0	11.0	11.0	11.0	-88.1	06/07/07	
#189	110.0	6.0	0.0	110.0	9.0	9.0	9.0	10.0	12.0	14.0	-104.0	06/08/07	
#190	120.0	9.0	7.5	112.5	9.0	9.0	9.0	10.0	13.0	14 3/4	-103.5	06/07/07	
#191	115.0	9.0	6.8	108.2	10.0	10.0	10.0	10.0	10.0	10.0	-99.2	06/08/07	
#192	115.0	9.0	4.5	110.5	9.0	12.0	10.0	12.0	10.0	12.0	-101.5	06/08/07	
#193	110.0	8.0	0.0	110.0	10.0	10.0	10.0	10.0	11.0	11.0	-102.0	06/07/07	
#194	120.0	9.2	16.0	104.0	9.0	10.0	10.0	12.0	10.0	10.0	-94.8	05/22/07	
#195	110.0	9.2	6.7	103.3	9.0	10.0	10.0	11.0	11.0	11.0	-94.1	05/25/07	
#196	110.0	9.2	6.0	104.0	9.0	10.0	11.0	11.0	11.0	11.0	-94.8	05/25/07	
#197	110.0	9.2	8.0	102.0	8.0	8.0	10.0	11.0	10.0	13.0	-92.8	05/30/07	
#198	110.0	9.2	10.5	99.5	9.0	10.0	10.0	10.0	12.0	10.0	-90.3	05/31/07	



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					9.0	9.0	10.0	10.0	10.0	10.0			
#199	110.0	9.2	8.3	101.7	9.0	9.0	10.0	10.0	10.0	12.0	-92.5	05/31/07	
#200	110.0	9.0	0.5	109.5	9.0	9.0	10.0	10.0	10.0	11.0	-100.5	05/29/07	
#201	110.0	9.0	10.9	99.1	8.0	9.0	11.0	10.0	11.0	13.0	-90.1	05/31/07	
#202	110.0	9.0	11.1	98.9	7.0	8.0	9.0	11.0	11.0	13.0	-89.9	05/31/07	
#203	115.0	9.0	10.5	104.5	10.0	10.0	10.0	10.0	14.0	14.0	-95.5	05/30/07	
#204	110.0	9.0	5.5	104.5	9.0	9.0	13.0	12.0	11.0	7 1/2	-95.5	05/30/07	
#205	110.0	9.0	12.5	97.5	9.0	9.0	10.0	11.0	14.0	15.0	-88.5	06/04/07	
#206	110.0	9.0	4.5	105.5	10.0	10.0	10.0	10.0	10.0	10.0	-96.5	06/04/07	
#207	110.0	9.0	0.0	110.0	8.0	10.0	11.0	10.0	13.0	4 1/4	-101.0	06/05/07	
#208	120.0	9.0	6.5	113.5	9.0	9.0	9.0	10.0	10.0	17 1/4	-104.5	05/21/07	Indicator Pile #9
#209	110.0	9.0	6.1	103.9	10.0	10.0	10.0	10.0	10.0	10.0	-94.9	06/05/07	
#210	115.0	9.0	2.5	112.5	8.0	8.0	10.0	10.0	11.0	13.0	-103.5	06/05/07	
#211	115.0	9.0	2.2	112.8	10.0	10.0	10.0	10.0	10.0	10.0	-103.8	06/05/07	
#212	120.0	9.0	10.0	110.0	10.0	10.0	10.0	12.0	11.0	11.0	-101.0	06/06/07	
#213	120.0	9.0	1.5	118.5	9.0	14.0	10.0	10.0	11.0	11.0	-109.5	06/06/07	
#214	120.0	9.0	5.5	114.5	8.0	11.0	10.0	11.0	10.0	8 1/2	-105.5	06/08/07	
#215	120.0	6.0	0.0	120.0	8.0	8.0	11.0	11.0	11.0	12.0	-114.0	06/08/07	
#216	115.0	8.5	0.0	115.0	12.0	11.0	11.0	10.0	12.0	11.0	-106.5	06/08/07	
#217	120.0	9.2	2.8	117.2	10.0	10.0	14.0	10.0	10.0	14.0	-108.0	06/08/07	
#218	120.0	9.0	3.0	117.0	8.0	10.0	11.0	11.0	11.0	11.0	-108.0	06/07/07	
#219	120.0	9.0	4.2	115.8	10.0	10.0	11.0	11.0	11.0	11.0	-106.8	06/07/07	
#220	120.0	9.2	2.5	117.5	9.0	10.0	10.0	11.0	12.0	11.0	-108.3	06/07/07	



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					9.0	8.0	12.0	11.0	11.0	12.0			
#221	120.0	9.0	5.2	114.8	9.0	8.0	12.0	11.0	11.0	12.0	-105.8	06/07/07	
#222	110.0	9.0	0.0	110.0	8.0	10.0	10.0	10.0	10.0	12.0	-101.0	05/29/07	
#223	110.0	9.0	9.0	101.0	10.0	10.0	9.0	10.0	10.0	11.0	-92.0	05/29/07	
#224	110.0	7.5	0.0	110.0	7.0	8.0	8.0	10.0	12.0	16.0	-102.5	05/29/07	
#225	115.0	9.0	4.0	111.0	6.0	6.0	7.0	10.0	10.0	15.0	-102.0	05/29/07	
#226	110.0	9.0	1.0	109.0	8.0	8.0	7.0	7.0	8.0	16.0	-100.0	05/30/07	
#227	115.0	9.0	4.5	110.5	9.0	10.0	10.0	11.0	11.0	12.0	-101.5	05/30/07	
#228	110.0	9.0	1.5	108.5	10.0	10.0	10.0	12.0	10.0	12.0	-99.5	05/29/07	
#229	110.0	9.0	17.5	92.5	8.0	8.0	8.0	8.0	13.0	13.0	-83.5	05/31/07	4 1/4 inches out of plumb in 10-ft.
#230	110.0	9.0	13.5	96.5	9.0	9.0	9.0	9.0	10.0	10.0	-87.5	05/31/07	
#231	110.0	9.0	13.5	96.5	7.0	7.0	12.0	11.0	12.0	11.0	-87.5	05/31/07	
#232	110.0	9.0	13.0	97.0	9.0	10.0	11.0	10.0	11.0	11.0	-88.0	05/31/07	
#233	110.0	9.0	13.0	97.0	9.0	9.0	9.0	10.0	13.0	12.0	-88.0	05/31/07	
#234	110.0	5.7	11.2	98.8	8.0	9.0	9.0	9.0	12.0	15.0	-93.1	05/31/07	
#235	115.0	9.0	4.3	110.7	10.0	10.0	10.0	10.0	14.0	7 1/2	-101.7	05/30/07	
#236	115.0	9.0	7.9	107.1	10.0	10.0	10.0	10.0	10.0	12.0	-98.1	05/30/07	
#237	115.0	9.0	3.5	111.5	9.0	9.0	10.0	10.0	10.0	14 1/4	-102.5	05/30/07	
#238	115.0	9.0	2.9	112.1	9.0	11.0	11.0	11.0	11.0	6 1/2	-103.1	05/30/07	
#239	115.0	9.0	6.5	108.5	9.0	9.0	9.0	11.0	12.0	15.0	-99.5	06/04/07	
#240	115.0	9.0	8.5	106.5	9.0	9.0	12.0	12.0	11.0	13.0	-97.5	06/04/07	
#241	110.0	6.0	0.0	110.0	9.0	10.0	10.0	10.0	11.0	10.0	-104.0	06/01/07	
#242	115.0	9.0	2.7	112.3	9.0	9.0	10.0	10.0	10.0	10.0	-103.3	06/04/07	



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Pilmer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					9.0	10.0	10.0	10.0	10.0	10.0			
#243	110.0	9.2	0.0	110.0	9.0	10.0	9.0	10.0	14.0	5 1/4	-100.8	06/05/07	
#244	110.0	9.2	5.0	105.0	9.0	10.0	10.0	10.0	10.0	10.0	-95.8	06/05/07	
#245	115.0	9.2	10.0	105.0	10.0	10.0	9.0	10.0	9.0	10.0	-95.8	06/05/07	
#246	110.0	9.2	4.0	106.0	10.0	9.0	10.0	10.0	10.0	10.0	-96.8	06/05/07	
#247	120.0	6.0	15.8	104.2	9.0	9.0	9.0	11.0	13.0	15.0	-98.2	05/21/07	
#248	120.0	6.0	22.8	97.2	9.0	10.0	10.0	10.0	11.0	14.0	-91.2	05/21/07	
#249	120.0	2.5	18.9	101.1	9.0	9.0	10.0	10.0	11.0	10.0	-98.6	05/22/07	
#250	120.0	2.5	18.2	101.8	5.0	5.0	5.0	5.0	12.0	11 1/2	-99.3	05/22/07	
#251	120.0	2.5	27.3	92.7	11.0	10.0	10.0	9.0	10.0	11.0	-90.2	05/22/07	
#252	120.0	2.5	18.5	101.5	5.0	5.0	5.0	6.0	9.0	17 1/4	-99.0	05/22/07	
#253	120.0	2.5	27.2	92.8	10.0	11.0	11.0	10.0	10.0	10.0	-90.3	05/22/07	
#254	120.0	5.7	12.1	107.9	9.0	9.0	9.0	11.0	10.0	11.0	-102.2	05/22/07	
#255	120.0	5.7	16.1	103.9	8.0	8.0	8.0	11.0	13.0	3/0"	-98.2	05/22/07	
#256	120.0	5.7	14.9	105.1	5.0	7.0	8.0	9.0	12.0	10 1/2	-99.4	05/22/07	
#257	120.0	5.7	15.4	104.6	9.0	9.0	10.0	11.0	12.0	14.0	-98.9	05/22/07	
#258	120.0	5.7	15.1	104.9	8.0	8.0	8.0	10.0	10.0	4 1/2	-99.2	05/22/07	
#259	120.0	6.0	12.7	107.3	7.0	7.0	7.0	12.0	15.0	8 1/2	-101.3	05/22/07	
#260	120.0	6.0	13.1	106.9	7.0	8.0	10.0	11.0	12.0	14 1/4	-100.9	05/22/07	
#261	120.0	6.0	12.6	107.4	7.0	8.0	10.0	11.0	13.0	5 1/4	-101.4	05/23/07	
#262	120.0	6.0	11.3	108.7	7.0	7.0	8.0	12.0	13.0	16.0	-102.7	05/24/07	
#263	120.0	6.0	17.2	102.8	10.0	10.0	10.0	10.0	10.0	10.0	-96.8	05/23/07	
#264	120.0	6.0	14.6	105.4	9.0	9.0	11.0	11.0	10.0	11.0	-99.4	05/23/07	



**PILE DRIVING SUMMARY**

Client: Capital LLC  
 General Contractor: Pizzagalli Construction Company  
 Pile Contractor: Vynorious Pile Driving  
 Pile Hammer: Plimer Hydraulic DKH-7  
 Pile Type: 16-inch PPC

SWCE Job # 06-0124.2  
 Project: 84 Marginal Way  
 Location: Portland Maine  
 Rated Energy (ft-lbs): 60,800  
 Design Capacity: 160-Tons

Pile #	Pile Length (feet)	Cut-off Elev. (USGS)	Cut-off (feet)	In-place Length (feet)	Final Set (blows/inch)						Pile Tip Elev. (USGS)	Date Driven	Remarks
					10.0	10.0	10.0	10.0	10.0	10.0			
#265	120.0	6.0	18.1	101.9	10.0	10.0	10.0	10.0	12.0	12.0	-95.9	05/23/07	
#266	120.0	6.0	7.2	112.8	2.0	2.0	13.0	15.0	20.0	10 1/2	-106.8	05/23/07	
#267	120.0	9.2	6.2	113.8	3.0	3.0	3.0	4.0	4.0	7/0"	-104.6	05/23/07	
#268	120.0	9.2	6.4	113.6	7.0	8.0	8.0	8.0	12.0	3/0"	-104.4	05/23/07	
#269	115.0	9.2	1.2	113.8	9.0	12.0	10.0	10.0	10.0	10.0	-104.6	05/25/07	
#270	115.0	9.2	0.0	115.0	8.0	9.0	10.0	10.0	12.0	15 1/2	-105.8	05/25/07	
#271	120.0	6.0	16.4	103.6	9.0	9.0	9.0	9.0	9.0	10.0	-97.6	05/23/07	
#272	120.0	6.0	16.4	103.6	8.0	8.0	10.0	10.0	11.0	15.0	-97.6	05/25/07	
#273	120.0	6.0	3.8	116.2	7.0	10.0	10.0	10.0	10.0	12.0	-110.2	05/23/07	
#274	120.0	6.0	19.0	101.0	10.0	10.0	11.0	10.0	11.0	10.0	-95.0	05/25/07	
#275	120.0	6.0	20.1	99.9	8.0	8.0	10.0	12.0	13.0	13.0	-93.9	05/25/07	
#276	120.0	6.0	22.0	98.0	10.0	10.0	10.0	10.0	10.0	11.0	-92.0	05/25/07	
#277	110.0	6.0	5.1	104.9	11.0	10.0	10.0	11.0	11.0	7 1/2	-98.9	05/25/07	
#278	120.0	6.0	12.2	107.8	9.0	9.0	9.0	9.0	13.0	10 1/2	-101.8	05/25/07	
#279	120.0	9.2	11.6	108.4	10.0	10.0	10.0	10.0	10.0	11.0	-99.2	05/25/07	
#280 A	120.0	2.0	0.0	120.0	10.0	10.0	11.0	11.0	12.0	12.0	-118.0	05/21/07	
#280 B	110.0	5.0	0.0	110.0	10.0	11.0	11.0	12.0	12.0	12.0	-105.0	06/07/07	Restruck 6/27/07 (Down)

Total In-place = **30110.3**

06-0124.2

June 13, 2007

Capital LLC  
Attention: Ed Marsh  
50 Portland Pier, Suite 400  
Portland, ME 04101

Subject: Concrete Pile Plant Visit – June 6, 2007  
Vynorious Prestress Inc.  
150 Elm Street  
Salisbury, Massachusetts

Dear Mr. Marsh:

As requested, we have made a site visit to the Vynorious Prestress, Inc. (V.P.I.) plant in Salisbury, Massachusetts on 6/6/07. The purpose of the visit was to observe the pile production process and level of internal quality control.

General Process Observations:

Upon arrival to the plant site, piles produced on 6/5/07 were being detensioned and removed from the forms. These piles were placed on dunnage for future shipment. After the product was removed from the stressing beds, the forms were cleaned and reassembled to begin production again. Strands were run through the beds as well as reinforcing steel. Strands were then tensioned to design loads. After tensioning, the strands were visually inspected by Mike Barth (V.P.I.'s internal quality control inspector) and the reinforcing spirals were tied off at the appropriate intervals. A final inspection by Mike Barth was performed and then concrete was batched for placement in the forms. Mike Barth performed slump and air content tests on the first two batches of concrete. About half-way through the placement, test cylinders were cast for compressive strength. We understand that after initial set of the concrete, the beds are covered and steam cured overnight.

Discussions:

Based on discussions with Mike Barth, we understand quality control personnel are performing concrete compressive strength tests before detensioning the beds. Additional test cylinders are cured for testing at 7, 14, and 28 day strength.

Based on the documentation provided to us, this is a PCI certified plant and they provided a copy of their last audit which noted no deficiencies.





06-0124.2  
June 13, 2007

Attached to this letter are copies of the PCI audit, Steel Wire mill certs, Rebar mill certs, Strand mill certs, and Quality control concrete strength test results.

Based on our limited time at the plant, observations made, verbal information and documentation provided by V.P.I., it appears that V.P.I. has an adequate quality control program, have knowledgeable QC and plant managers, and generally have a good pile production program at the plant.

We trust this meets your current needs.

Sincerely,

Mike F. Bisson  
Senior Technician

MFB:mfb/pfb

02000 *Site work*

SW Cole Soil Compaction Testing

02000.3



# Report of Field Density

## ASTM D2922

Project: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING  
 GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

### Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
1	7/16/2007	JCM	FROM A-LINE ENTRY WAYS NE CORNER 24' E 20' S	2.8 BTOW	10	6776G	126.5	7.4	95.5	95
2	7/16/2007	JCM	FROM A-LINE ENTRY WAYS NE CORNER 3' E 15' S	1.5BT OW	12	6776G	126.9	7.4	95.8	95
3	6/30/2008	BZM	105' S OF NW CNR	11.85	6	8348G	134.8	2.1	97.9	95
3	7/16/2007	JCM	FROM A-LINE ENTRY WAYS NE CORNER 16' E 3' S	3.3BT OW	12	6776G	128.1	5.0	96.7	95
4	6/30/2008	BZM	8' S OF NW CNR	12.	6.	8348G	138.4	3.0	100.5	95
4	7/13/2007	CKT	A - LINE EXTERIOR +10' FROM CORNER	94	12	6776G	126.0	5.9	95.1	95
5	6/30/2008	BZM	20' W OF NE CNR	12.	6.	8348G	133.9	2.7	97.2	95
5	7/13/2007	CKT	A - LINE EXTERIOR +35' FROM CORNER	94	12	6776G	125.9	5.8	95.0	95
6	6/30/2008	BZM	15' S OF NE CNR	11.83	6	8348G	131.6	3.8	95.6	95
6	7/13/2007	CKT	A - LINE EXTERIOR +80' FROM CORNER	94	12	6776G	127.2	5.4	96.0	95
7	6/30/2008	BZM	35' W & 70' S OF NE CNR	11.83	6	8348G	136.4	1.9	99.1	95
7	7/13/2007	CKT	A - LINE EXTERIOR +70' FROM CORNER	96	12	6776G	127.2	5.1	96.0	95
8	6/30/2008	BZM	40' N OF SE CNR	11.70	6	8348G	135.2	1.6	98.2	95
8	7/13/2007	CKT	A - LINE EXTERIOR +20' FROM CORNER	96	12	6776G	127.3	4.6	96.1	95
9	7/13/2007	CKT	A - LINE EXTERIOR +40' FROM CORNER	96	12	6776G	127.0	6.0	95.8	95
9	6/30/2008	BZM	30' W OF SE CNR	11.98	6	8348G	132.3	1.8	96.1	95
10	6/30/2008	BZM	5' E OF SE CNR	11.83	6	8348G	131.3	2.1	95.4	95
10	7/13/2007	CKT	A - LINE EXTERIOR +75' FROM CORNER	97	12	6776G	126.9	3.2	95.8	95
11	7/13/2007	CKT	A - LINE EXTERIOR +55' FROM CORNER	97	12	6776G	129.6	4.2	97.8	95
12	7/13/2007	CKT	A - LINE EXTERIOR +5' FROM CORNER	97	12	6776G	128.0	3.6	96.6	95
13	7/27/2007	JCM	FROM NW CORNER OF BUILDING EXTERIOR - 70' N 3' W	2'BTW	12"	7174G	112.9	3.6	95.4	95
14	7/27/2007	JCM	FROM NW CORNER OF BUILDING EXTERIOR - 56' N 3' W	2'BTW	10"	7174G	112.4	3.3	95.0	95
15	7/27/2007	JCM	FROM NW CORNER OF BUILDING EXTERIOR - 16' N 3' W	2'BTW	10"	7174G	113.5	3.5	95.9	95
16	8/20/2007	CKT	G LINE - 6.6	97.6	12	7174G	115.5	0.6	97.6	95
17	8/20/2007	CKT	G LINE - 5.4	97.6	12	7174G	115.0	1.6	97.2	95



# Report of Field Density

## ASTM D2922

Project: **PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING**

Project Number: **06-0124.2**

Client: **CAPITAL LLC**

18	8/20/2007	CKT	F - 4	97.6	12	7174G	112.9	2.0	95.4	95
19	8/20/2007	CKT	D.5 - 4	97.6	12	7174G	113.9	1.4	96.3	95
20	8/28/2007	CKT	G.5 - 6.6	97.5	12	7174G	115.6	1.0	97.7	95
21	8/28/2007	CKT	H - 6	97.5	10	7174G	118.1	1.0	99.8	95
22	8/28/2007	CKT	H - 5.2	97.5	12	7174G	115.1	1.2	97.3	95
23	8/28/2007	CKT	G.5 - 4.1	97.5	12	7174G	114.2	1.6	96.5	95
24	9/5/2007	DMR	H - 2 2' OUTSIDE	TOP	12	7346G	111.6	6.8	99.4	95
25	9/5/2007	DMR	H - 4 2' OUTSIDE	TOP	12	7346G	110.4	6.9	98.3	95
26	9/5/2007	DMR	H - 6 2' OUTSIDE	TOP	12	7346G	111.4	7.2	99.2	95
27	10/31/2007	CKT	D LINE 4	TOB	6	7478G	129.8	2.1	92.1	95
28	10/31/2007	CKT	D LINE 8	TOB	6	7478G	134.3	2.4	95.2	95
29	10/31/2007	CKT	D LINE 10	TOB	6	7478G	136.8	2.0	97.0	95
30	10/31/2007	CKT	G LINE 10	TOB	6	7478G	132.8	2.7	94.2	95
31	10/31/2007	CKT	G LINE 7.6	TOB	6	7478G	128.9	2.1	91.4	95
32	10/31/2007	CKT	G LINE 4	TOB	6	7478G	132.9	2.2	94.3	95
33	10/31/2007	CKT	H LINE 4	TOB	6	7478G	133.7	2.2	94.8	95
34	10/31/2007	CKT	H LINE 7.6	TOB	6	7478G	134.5	3.0	95.4	95
35	10/31/2007	CKT	H LINE 10	TOB	6	7478G	136.2	2.1	96.6	95
36	11/1/2007	DMR	D-4	FG	4	7478G	134.6	1.7	95.5	95
37	11/1/2007	DMR	G-10	FG	4	7478G	134.9	2.0	95.7	95
38	11/1/2007	DMR	G-7.6	FG	4	7478G	134.9	1.9	95.7	95
39	11/1/2007	DMR	G-4	FG	4	7478G	135.6	1.8	96.2	95
40	11/14/2007	CKT	RAMP P-1 TO P-2 RIGHT SIDE	TOF	12	7174G	115.2	2.8	97.4	95
41	11/14/2007	CKT	RAMP P-1 TO P-2 4'ROC	TOF	12	7174G	115.4	3.2	97.5	95

### Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
6776G	5/30/2007	On Site	Structural Fill	ASTM D-1557 Modified C	132.5	6.7	
7174G	7/27/2007	On-site	Structural Fill	ASTM D-1557 Modified A	118.3	10.5	
7346G	8/16/2007	Shaw Bros - I Pit	Structural Fill	ASTM D-1557 Modified A	112.3	12.3	
7478G	9/12/2007	Shaw Bros - I Pit	Aggregate Base (Type A)	ASTM D-1557 Modified C	141.0	4.7	
8348G	4/16/2008	H-Pit	Aggregate Base (Type A)	ASTM D-1557 Modified C	137.7	5.7	



# Report of Field Density ASTM D2922

Project: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING  
GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Elevation Notes:

Comments:

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Reviewed By

*03300 Cast-in-Place Concrete*  
BSE Inspection Reports

03300.1

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

**OBSERVATION REPORT**  
Pile Installation

<b>Date:</b>	05/24/2007
<b>Time:</b>	12:20
<b>Temp:</b>	60's
<b>Weather:</b>	Sunny

**Observation Location:** General Installation of piles


**Notes:**  
We visited the site to for a general review of the pile installation procedures and materials. PBB, BH and APP also attended this visits.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

02300

structural engineers, inc.

Project:	84 Marginal Way
Location:	Portland, ME
Becker Job No:	1741

## OBSERVATION REPORT

Pile Installation

Date:	6/7/2007
Time:	9:20 am
Temp:	70 F
Weather:	Sunny

**Observation Location:** General Installation of piles


**Notes:**  
Observed pile installation and cut off procedures

**Signed:** Todd M. Neal, P.E.



# BECKER

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1691

## OBSERVATION REPORT

Cast in Place Concrete

<b>Date:</b>	06-21-2007
<b>Time:</b>	10:30AM
<b>Temp:</b>	Warm
<b>Weather:</b>	Sunny

**Observation Location:** Review of invert between 8 and 9 along A line

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Quantity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Placement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

Reviewed relative placement of invert along A line between 8 and 9 for penetration through grade beam.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1691

**OBSERVATION REPORT**  
Cast in Place Concrete

<b>Date:</b>	06-27-2007
<b>Time:</b>	8:00AM
<b>Temp:</b>	Warm
<b>Weather:</b>	Sunny

**Observation Location:** Mat 2 Inspection

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Ethan A. Rhile, P.E.

# BECKER

structural engineers, inc.

03300

Project:	84 Marginal Way
Location:	Portland, ME
Becker Job No:	1691

## OBSERVATION REPORT

Cast in Place Concrete

Date:	06-29-2007
Time:	8:30AM
Temp:	Warm
Weather:	Sunny

Observation Location: Mat 2 Placement

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

### Notes:

Observed portion of placement. Concrete sub's surveyor was schedule to arrive to verify embed location just following my departure.

Signed: Ethan A. Rhile, P.E.

# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1691

**OBSERVATION REPORT**  
Cast in Place Concrete

<b>Date:</b>	07-03-2007
<b>Time:</b>	11:00AM
<b>Temp:</b>	70 F
<b>Weather:</b>	Sunny

**Observation Location:** Mat 3 Progress, Grade Beams A-B.4, 1 to 7 Line

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Ethan A. Rhile, P.E.

# BECKER

structural engineers, inc.

03300

Project:	84 Marginal Way
Location:	Portland, ME
Becker Job No:	1691

## OBSERVATION REPORT

Cast in Place Concrete

Date:	7/11/07
Time:	10:45
Temp:	70 F
Weather:	Cloudy

Observation Location: Foundation Mat Footing No. 3

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

### Notes:

Spoke with Mike LaPointe of Pizzagalli regarding reinforcing of grade beams #6 & #9 which abut the mat foundation. Shop drawings did not coordinate with latest structural set. Mike spoke with Ethan Rhile of Becker Structural and in-place condition was determined adequate for general conformance with design intent.

Signed: Nathan Merrill, E.I.

# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1691

## OBSERVATION REPORT

Cast in Place Concrete

<b>Date:</b>	7/17/07
<b>Time:</b>	10:45 am
<b>Temp:</b>	80 F
<b>Weather:</b>	Sunny

**Observation Location:** Reinforcement for Walls on Mat No. 3, Reinforcement for Mat No. 1, Reinforcement for SF1 & SF2 along D-Line

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

Walked through site to review foundation progress and to check for general conformance to structural design intent. All that was observed appeared to meet the design intent.

**Signed:** Nathan Merrill, E.I.

# BECKER

03300

structural engineers, inc.

Project:	84 Marginal Way
Location:	Portland, ME
Becker Job No:	1691

## OBSERVATION REPORT

Cast in Place Concrete

Date:	07-19-2007
Time:	11:00AM
Temp:	Warm
Weather:	Sunny

**Observation Location:** GB's 1 to 3, A to C, SF progress, D line, GB progress B.4 to D past 7, Mat 3 walls formed.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Ethan A. Rhile, P.E.

# BECKER

structural engineers, inc.

03300

Project:	84 Marginal Way
Location:	Portland, ME
Becker Job No:	1742

## OBSERVATION REPORT

Cast in Place Concrete

Date:	07-21-2008
Time:	11:45 p.m.
Temp:	Warm
Weather:	Mostly sunny

**Observation Location:** Topping, second floor parking A to B lines

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Quantity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Placement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:** Observed finishing operations only; topping was in place at the time of my visit.

**Signed:** Ethan A. Rhile, P.E.



# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1691

**OBSERVATION REPORT**  
Cast in Place Concrete

<b>Date:</b>	7/24/2007
<b>Time:</b>	10:30am
<b>Temp:</b>	80 F
<b>Weather:</b>	Sunny

**Observation Location:** Reinforcement for Walls on Mat No. 3, Reinforcement for Mat No. 1, Reinforcement for SF1 & SF2 along D-Line

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**  
Walked through site to review foundation progress and to check for general conformance to structural design intent. All that was observed appeared to meet the design intent.

**Signed:** Nathan Merrill, E.I.

# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

**OBSERVATION REPORT**  
Cast in Place Concrete

<b>Date:</b>	07-30-2007
<b>Time:</b>	4:00PM
<b>Temp:</b>	Warm
<b>Weather:</b>	Overcast

**Observation Location:** Preparation for strip footing placement along "D" line

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

## OBSERVATION REPORT

Cast in Place Concrete

<b>Date:</b>	7/31/2007
<b>Time:</b>	1:30pm
<b>Temp:</b>	80 F
<b>Weather:</b>	Sunny

**Observation Location:** Concrete Placement for east end of strip footing on D-Line

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Nathan Merrill, E.I.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

## OBSERVATION REPORT

Cast in Place Concrete

<b>Date:</b>	07-31-2007
<b>Time:</b>	6:30 AM
<b>Temp:</b>	Warm
<b>Weather:</b>	Initially foggy, then sun

**Observation Location:** Strip footing placement at "D" line

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

AI P attended this visit along with myself.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

**OBSERVATION REPORT**  
Cast in Place Concrete

<b>Date:</b>	08-1-2007
<b>Time:</b>	12:05 p.m.
<b>Temp:</b>	Warm
<b>Weather:</b>	Sunny and clear

**Observation Location:** Grade beams and walls 1-3/A-C.2

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:** Some embedded items were still in the process of being set at the time of my visit. I did not stay for the entire placement.

**Signed:** Ethan A. Rhile, P.E.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

**OBSERVATION REPORT**  
Cast in Place Concrete

<b>Date:</b>	8/6/2007
<b>Time:</b>	12:30pm
<b>Temp:</b>	70 F
<b>Weather:</b>	Overcast

**Observation Location:** GB-13 E-Line (from 4 to 5 line)

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

Reviewed holes drilled for 3 - #9 top horizontal bars to be epoxied into existing SF3.

**Signed:** Nathan Merrill, E.I.

# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

## OBSERVATION REPORT

Cast in Place Concrete

<b>Date:</b>	08-9-2007
<b>Time:</b>	4:00 p.m.
<b>Temp:</b>	Warm (70's)
<b>Weather:</b>	Sunny and clear

**Observation Location:** G-line strip footing and adjoining grade beams.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

## OBSERVATION REPORT

Cast in Place Concrete

<b>Date:</b>	08-13-2007
<b>Time:</b>	7:00 am (part visit)
<b>Temp:</b>	Warm (70's)
<b>Weather:</b>	Sunny and clear

**Observation Location:** Placement : G-line strip footing and adjoining grade beams.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Embedded items were still being set at the time of my visit. I did not stay for the entire placement. NRM to attend later portion of placement.

**Signed:** Ethan A. Rhile, P.E.



# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

## OBSERVATION REPORT

Cast in Place Concrete

<b>Date:</b>	08-13-2007
<b>Time:</b>	11:00 a.m.
<b>Temp:</b>	70's
<b>Weather:</b>	Showers/Sun

**Observation Location:** Concrete placement on G-line strip footing and adjoining grade beams as well as (3)GB-15 between 4-line and 5-line.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:** Vertical dowels in (3)GB-15 were to be placed per CSKS-19. Vertical dowels were observed being "wet-set" into stiff concrete. The concrete was so stiff sledge hammers were used to install the dowels. I informed Michael LaPointe of Pizzagalli of my observations and we came to the conclusion that new epoxy dowels would have to be installed in-place of the "wet-set" dowels.

**Signed:** Nathan Merrill, E.I.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

**OBSERVATION REPORT**  
Cast in Place Concrete

<b>Date:</b>	08-16-2007
<b>Time:</b>	8:30 a.m.
<b>Temp:</b>	70's
<b>Weather:</b>	Partly Cloudy

**Observation Location:** GB-11 along H-line. West end of GB-10 on 11-Line

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Nathan Merrill, E.I.

# BECKER

03300

structural engineers, inc.

Project:	84 Marginal Way
Location:	Portland, ME
Becker Job No:	1741

**OBSERVATION REPORT**

Cast in Place Concrete

Date:	08-22-2007
Time:	3:00 p.m.
Temp:	70's
Weather:	Partly Cloudy

**Observation Location:** GB-11 along H-line. GB's terminating along H-Line.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Nathan Merrill, E.I.

# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

**OBSERVATION REPORT**  
Cast in Place Concrete

<b>Date:</b>	08-24-2007
<b>Time:</b>	8:30 a.m.
<b>Temp:</b>	70's
<b>Weather:</b>	Mostly Cloudy

**Observation Location:** Concrete placement @ GB-11 along H-line. GB's terminating along H-Line.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	plate washers absent from anchors @G-11
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:** Mike LaPointe informed me that plate washers were absent at the (4) anchor bolts at G-11. He said he would talk with Ethan Rhile of Becker Structural to discuss if action needs to be taken.

**Signed:** Nathan Merrill, E.I.

# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

**OBSERVATION REPORT**  
Cast in Place Concrete

<b>Date:</b>	08-30-2007
<b>Time:</b>	3:30 p.m.
<b>Temp:</b>	70's
<b>Weather:</b>	Sunny

**Observation Location:** Stem walls along A-line

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

03300

structural engineers, inc.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

## OBSERVATION REPORT

Cast in Place Concrete

<b>Date:</b>	11-08-2007
<b>Time:</b>	1:00 p.m.
<b>Temp:</b>	40's
<b>Weather:</b>	Cloudy

**Observation Location:** Sloping Grade Beams between lines 4 & 5

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Nathan Merrill, E.I.

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1742

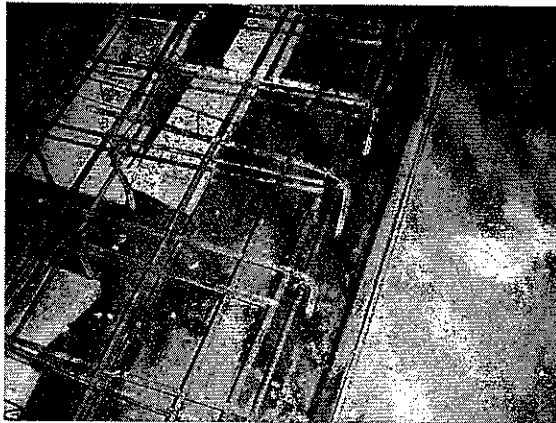
**OBSERVATION REPORT**  
Cast in Place Concrete

<b>Date:</b>	11-16-2007
<b>Time:</b>	1:00 p.m.
<b>Temp:</b>	50's
<b>Weather:</b>	Sunny

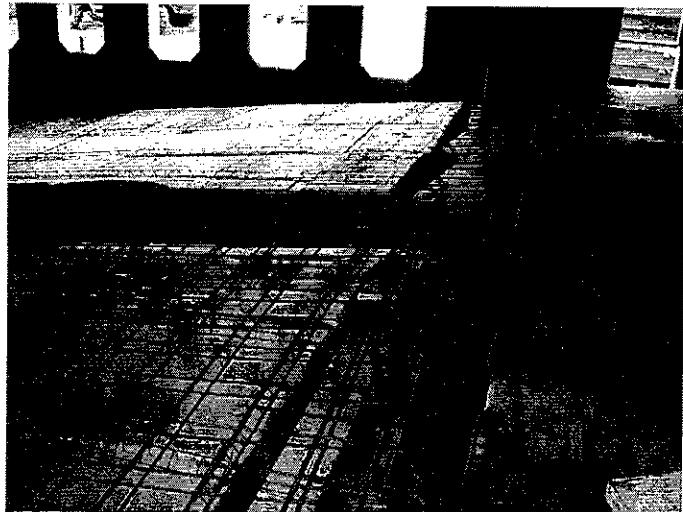
**Observation Location:** Pre-placement Review of reinforcing for Ramp Slab on Grade between lines D,G, 4, & 5.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**



Signed: Todd M. Neal, P.E.



# BECKER

03300

structural engineers, inc.

Project:	84 Marginal Way
Location:	Portland, ME
Becker Job No:	1742

**OBSERVATION REPORT**

Cast in Place Concrete

Date:	02-08-2008
Time:	9:00 a.m.
Temp:	20's
Weather:	Snow

**Observation Location:** Slab pour review at 7<sup>th</sup> level.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There was a significant amount of water dripping through deck above slab onto newly placed concrete
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

The purpose of this visit was to observe the pouring of the concrete slab at the seventh level and report any problems or issues. The only issue of note was the amount of water dripping down from the eighth floor deck onto the wet concrete. This may cause discoloration of the slab in certain areas. Our suggested remedy is to place tarps over the eighth floor deck.

**Signed: James D. Hughes, E.I.**



*03300 Cast-in-Place Concrete*  
SW Cole Compression Tests

03300.2



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 6/29/2007      **Time Cast:** 8:00      **Date Received:** 6/30/2007

**Placement Location:** MAT SLAB 1 A LINE-B.4, 1,2 3 LINES

**Placement Method:** TELEBELT TP110 - CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 160

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

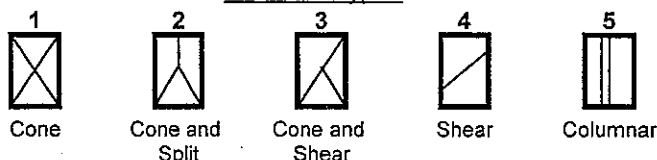
**Admixtures:** POLYHEED 997

## TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 6	<b>Load Number:</b> 3
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 7.2	<b>Mixer Number:</b> 177
<b>Air Temp (°F):</b> 60		<b>Ticket Number:</b> 4527180
<b>Conc. Temp (°F) (C-1064):</b> 76		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-1A		6.00	28.27	7/6/2007	Lab	7	4	82.0	2900
765-1B		6.00	28.27	7/27/2007	Lab	28	4	111.5	3940
765-1C		6.00	28.27	7/27/2007	Lab	28	4	114.5	4050
765-1D				Hold	Lab				

### Fracture Types



Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 6/29/2007      **Time Cast:**      **Date Received:** 7/1/2007

**Placement Location:** MAT SLAB 1 A LINE-B.4 1,2,3 LINES

**Placement Method:** TELEBETH & TB 110 - CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 160

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**      **Maximum (°F)**

### TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 6.25

**Load Number:** 7

**Air Content (%) (C-231):**      **Air WR:** 7.2

**Mixer Number:** 183

**Air Temp (°F):** 64

**Ticket Number:** 4527185

**Conc. Temp (°F) (C-1064):** 75

**Cubic Yards:** 10

**Design (psi):** 3000

### DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-2A		6.00	28.27	7/6/2007	Lab	7	4	85.0	3010
765-2B		6.00	28.27	7/27/2007	Lab	28	4	112.5	3980
765-2C		6.00	28.27	7/27/2007	Lab	28	4	121.5	4300
765-2D				Hold	Lab				

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

## Report of Concrete Compressive Strength

ASTM C-31 &amp; C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**
**General Contractor:**
**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 6/29/2007      **Time Cast:** 10:25      **Date Received:** 6/30/2007

**Placement Location:** A LINE B.4 1,2,3 LINES MAT SLAB 1

**Placement Method:** TELEBELT & TB110 - CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 160

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

### TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 6	<b>Load Number:</b> 11
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 6.4	<b>Mixer Number:</b> 180
<b>Air Temp (°F):</b> 68		<b>Ticket Number:</b> 4527193
<b>Conc. Temp (°F) (C-1064):</b> 75		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In <sup>2</sup> )	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-3A		6.00	28.27	7/6/2007	Lab	7	4	89.5	3170
765-3B		6.00	28.27	7/27/2007	Lab	28	4	124.0	4390
765-3C		6.00	28.27	7/27/2007	Lab	28	4	126.0	4460
765-3D				Hold	Lab				

#### Fracture Types



Cone



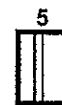
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/10/2007      **Time Cast:** 3:15      **Date Received:** 7/11/2007

**Placement Location:** GRADE BEAMS A - B.4, 4-7 ELEVATOR PIT WALLS 1 & 2 STAIR #2 WALLS

**Placement Method:** TELEBELT TRUCK

**Placement Vol. (yd<sup>3</sup>):** 190

**Cylinders Made By:** JLD

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 6.0

**Load Number:** 4

**Air Content (%) (C-231):**                      **Air WR:** 7.4

**Mixer Number:** 192

**Air Temp (°F):** 84

**Ticket Number:** 4527372

**Conc. Temp (°F) (C-1064):** 77

**Cubic Yards:** 10

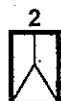
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-4A		6.00	28.27	7/17/2007	Lab	7	4	63.5	2250
765-4B		6.00	28.27	8/7/2007	Lab	28	4	115.5	4090
765-4C		6.00	28.27	8/7/2007	Lab	28	4	118.5	4190
765-4D				Hold	Lab				

#### Fracture Types



Cone



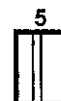
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/10/2007      **Time Cast:** 5:00      **Date Received:** 7/11/2007

**Placement Location:** GRADE BEAMS A-B.4, 4-7 ELEVATOR PIT WALLS 1 & 2 STAIR #2 WALLS

**Placement Method:** TELEBELT TRUCK

**Placement Vol. (yd<sup>3</sup>):** 190

**Cylinders Made By:** JLD

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 4.75

**Load Number:** 11

**Air Content (%) (C-231):**                      **Air WR:** 6.0

**Mixer Number:** 175

**Air Temp (°F):** 78

**Ticket Number:** 3927500

**Conc. Temp (°F) (C-1064):** 76

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in <sup>2</sup> )	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-5A		6.00	28.27	7/17/2007	Lab	7	4	62.0	2190
765-5B		6.00	28.27	8/7/2007	Lab	28	4	118.0	4170
765-5C		6.00	28.27	8/7/2007	Lab	28	4	120.0	4250
765-5D				Hold	Lab				

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 7/10/2007      **Time Cast:** 6:10      **Date Received:** 7/11/2007

**Placement Location:** GRADE BEAMS A-B.4, 4-7 ELEVATOR PIT WALLS 1 & 2 STAIR #2 WALLS

**Placement Method:** TELEBELT TRUCK

**Placement Vol. (yd<sup>3</sup>):** 190

**Cylinders Made By:** JLD

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 5.25

**Load Number:** 17

**Air Content (%) (C-231):**      **Air WR:** 5.6

**Mixer Number:** 175

**Air Temp (°F):** 65

**Ticket Number:** 4527382

**Conc. Temp (°F) (C-1064):** 74

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in <sup>2</sup> )	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-6A		6.00	28.27	7/17/2007	Lab	7	4	52.5	1860
765-6B		6.00	28.27	8/7/2007	Lab	28	4	109.5	3870
765-6C		6.00	28.27	8/7/2007	Lab	28	4	116.0	4100
765-6D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/11/2007      **Time Cast:** 11:35      **Date Received:** 7/12/2007

**Placement Location:** MAT FOUNDATION #3 E TO G, 1 TO 2.5

**Placement Method:** CONVEYOR - TELEBELT TB110

**Placement Vol. (yd<sup>3</sup>):** 177

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**      **Maximum (°F)**

### TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 6.5

**Air Content (%) (C-231):**      **Air WR:** 7.5

**Air Temp (°F):** 70

**Conc. Temp (°F) (C-1064):** 73

### DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

**Load Number:** 1

**Mixer Number:** 185

**Ticket Number:** 3927517

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in <sup>2</sup> )	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-7A		6.00	28.27	7/18/2007	Lab	7	4	62.0	2190
765-7B		6.00	28.27	8/8/2007	Lab	28	4	99.0	3500
765-7C		6.00	28.27	8/8/2007	Lab	28	4	98.5	3480
765-7D				Hold	Lab				

#### Fracture Types



1  
Cone



2  
Cone and Split



3  
Cone and Shear



4  
Shear



5  
Columnar

Remarks:



**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

**PLACEMENT INFORMATION**

**Date Cast:** 7/11/2007      **Time Cast:** 12:40      **Date Received:** 7/12/2007

**Placement Location:** MAT FOUNDATION #3 E TO G, 1 TO 2.5

**Placement Method:** CONVEYOR - TELEBELT TB110

**Placement Vol. (yd<sup>3</sup>):** 177

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

**INITIAL CURING CONDITIONS**

Temperatures

**Minimum (°F)**                      **Maximum (°F)**

**DELIVERY INFORMATION**

**Admixtures:** POLYHEED 997

**TEST RESULTS**

**Slump (in) (C-143):**                      **Slump WR:** 6 3/4

**Air Content (%) (C-231):**                      **Air WR:** 7.4

**Air Temp (°F):** 70

**Conc. Temp (°F) (C-1064):** 73

**Load Number:** 6

**Mixer Number:** 169

**Ticket Number:** 4527419

**Cubic Yards:** 60

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-8A		6.00	28.27	7/18/2007	Lab	7	4	65.0	2300
765-8B		6.00	28.27	8/8/2007	Lab	28	4	106.5	3770
765-8C		6.00	28.27	8/8/2007	Lab	28	4	103.0	3640
765-8D				Hold	Lab				

Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/11/2007      **Time Cast:** 2:00      **Date Received:** 7/12/2007

**Placement Location:** MAT END #3

**Placement Method:** CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 177

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 5.5  
**Air Content (%) (C-231):**                      **Air WR:** 6.5  
**Air Temp (°F):** 71  
**Conc. Temp (°F) (C-1064):** 77

**Load Number:** 11  
**Mixer Number:** 190  
**Ticket Number:** 4527424  
**Cubic Yards:** 110  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-9A		6.00	28.27	7/18/2007	Lab	7	4	80.0	2830
765-9B		6.00	28.27	8/8/2007	Lab	28	4	133.0	4700
765-9C		6.00	28.27	8/8/2007	Lab	28	4	128.5	4550
765-9D				Hold	Lab				

Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING &amp; PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Concrete Supplier: DRAGON PRODUCTS

**PLACEMENT INFORMATION**

Date Cast: 7/11/2007 Time Cast: 3:45 Date Received: 7/12/2007

Placement Location: NAT END #3

Placement Method: CONVEYOR

 Placement Vol. (yd<sup>3</sup>): 177

Cylinders Made By: VLT

Aggregate Size (in): 3/4

**INITIAL CURING CONDITIONS**

## Temperatures

Minimum (°F) Maximum (°F)

**DELIVERY INFORMATION**

Admixtures: POLYHEED 997

**TEST RESULTS**

Slump (in) (C-143): Slump WR: 6 1/4

Load Number: 16

Air Content (%) (C-231): Air WR: 7.0

Mixer Number: 176

Air Temp (°F): 73

Ticket Number: 4527431

Conc. Temp (°F) (C-1064): 79

Cubic Yards: 160

Design (psi): 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-10A		6.00	28.27	7/18/2007	Lab	7	4	67.5	2390
765-10B		6.00	28.27	8/8/2007	Lab	28	4	123.0	4350
765-10C		6.00	28.27	8/8/2007	Lab	28	4	119.0	4210
765-10D				Hold	Lab				

Fracture Types


Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

## Report of Concrete Compressive Strength

ASTM C-31 &amp; C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**
**General Contractor:**
**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/25/2007      **Time Cast:** 1:30      **Date Received:** 7/26/2007

**Placement Location:** MAT #1, GRADE BEAM A & B.4 LINE 7.5 TO M AT #1

**Placement Method:** CONVEYOR - TELEBELT TB110

**Placement Vol. (yd<sup>3</sup>):** 160

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

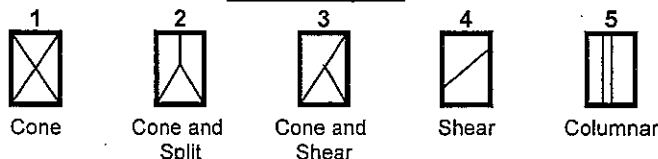
**Admixtures:** POLYHEED 997

### TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 5	<b>Load Number:</b> 4
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 7.0	<b>Mixer Number:</b> 173
<b>Air Temp (°F):</b> 85		<b>Ticket Number:</b> 4527623
<b>Conc. Temp (°F) (C-1064):</b> 78		<b>Cubic Yards:</b> 40
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-11A		6.00	28.27	8/1/2007	Lab	7	4	94.0	3330
765-11B		6.00	28.27	8/22/2007	Lab	28	4	124.0	4390
765-11C		6.00	28.27	8/22/2007	Lab	28	4	124.0	4390
765-11D				Hold	Lab				

#### Fracture Types



Remarks:

## Report of Concrete Compressive Strength

ASTM C-31 &amp; C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**
**General Contractor:**
**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/25/2007      **Time Cast:** 2:35      **Date Received:** 7/26/2007

**Placement Location:** MAT #1, GRADE BEAM A & B.4 LINE 7.5 TO M AT #1

**Placement Method:** CONVEYOR - TELEBELT TB110

**Placement Vol. (yd<sup>3</sup>):** 160

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

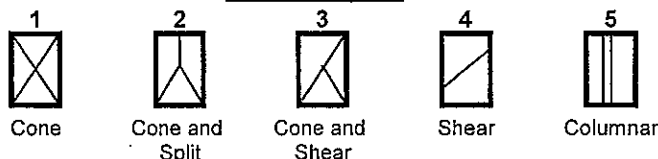
**Admixtures:** POLYHEED 997

### TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 5	<b>Load Number:</b> 7
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 6.7	<b>Mixer Number:</b> 187
<b>Air Temp (°F):</b> 86		<b>Ticket Number:</b> 4527626
<b>Conc. Temp (°F) (C-1064):</b> 81		<b>Cubic Yards:</b> 70
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-12A		6.00	28.27	8/1/2007	Lab	7	4	98.0	3470
765-12B		6.00	28.27	8/22/2007	Lab	28	4	121.5	4300
765-12C		6.00	28.27	8/22/2007	Lab	28	4	127.5	4510
765-12D				Hold	Lab				

#### Fracture Types



Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/25/2007      **Time Cast:** 4:25      **Date Received:** 7/26/2007

**Placement Location:** MAT #1 GRADE BEAM A & B.4 LINE 7.5 TO M AT #1

**Placement Method:** CONVEYOR - TELEBELT TB110

**Placement Vol. (yd<sup>3</sup>):** 160

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 5 3/4

**Load Number:** 12

**Air Content (%) (C-231):**                      **Air WR:** 6.4

**Mixer Number:** 158

**Air Temp (°F):** 86

**Ticket Number:** 3927647

**Conc. Temp (°F) (C-1064):** 79

**Cubic Yards:** 120

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-13A		6.00	28.27	8/1/2007	Lab	7	4	96.0	3400
765-13B		6.00	28.27	8/22/2007	Lab	28	4	114.5	4050
765-13C		6.00	28.27	8/22/2007	Lab	28	4	120.5	4260
765-13D				Hold	Lab				

Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**
**General Contractor:**
**Concrete Supplier:** DRAGON PRODUCTS

PLACEMENT INFORMATION
**Date Cast:** 7/30/2007      **Time Cast:** 8:45      **Date Received:** 7/31/2007

**Placement Location:** WALLS ELEVATOR #3 STAIR TOWER #1

**Placement Method:** PUMP

**Placement Vol. (yd<sup>3</sup>):** 50

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

INITIAL CURING CONDITIONS

## Temperatures

**Minimum (°F)**      **Maximum (°F)**
DELIVERY INFORMATION
**Admixtures:** POLYHEED 997

TEST RESULTS
**Slump (in) (C-143):**      **Slump WR:** 5.5

**Load Number:** 3

**Air Content (%) (C-231):**      **Air WR:** 6.7

**Mixer Number:** 191

**Air Temp (°F):** 70

**Ticket Number:** 4527666

**Conc. Temp (°F) (C-1064):** 77

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-14A		6.00	28.27	8/6/2007	Lab	7	4	89.0	3150
765-14B		6.00	28.27	8/27/2007	Lab	28	4	109.5	3870
765-14C		6.00	28.27	8/27/2007	Lab	28	4	109.0	3860
765-14D				Hold	Lab				

Fracture Types


Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/31/2007      **Time Cast:** 6:55      **Date Received:** 8/1/2007

**Placement Location:** D-LINE SPREAD FOOTING INFILLS/STAIN WELLS LINE 5, 6, 7

**Placement Method:** CONVEYER

**Placement Vol. (yd<sup>3</sup>):** 400

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

### TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 5 1/4

**Load Number:** 3

**Air Content (%) (C-231):**      **Air WR:** 7.0

**Mixer Number:** 192

**Air Temp (°F):** 75

**Ticket Number:** 4527683

**Conc. Temp (°F) (C-1064):** 77

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-15A		6.00	28.27	8/7/2007	Lab	7	4	99.5	3520
765-15B		6.00	28.27	8/28/2007	Lab	28	4	109.5	3870
765-15C		6.00	28.27	8/28/2007	Lab	28	4	117.5	4160
765-15D				Hold	Lab				

#### Fracture Types



Cone



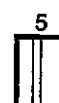
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/31/2007      **Time Cast:** 7:45      **Date Received:** 8/1/2007

**Placement Location:** D-LINE SPREAD FOOTING INFILLS/STAIN WELLS LINE 5, 6, 7

**Placement Method:** CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 400

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

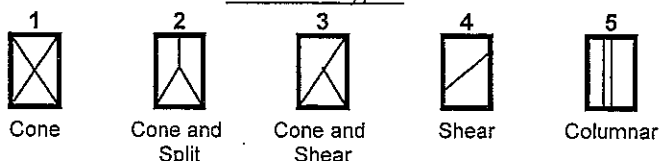
**Admixtures:** POLYHEED 997

### TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 5	<b>Load Number:</b> 6
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 6.4	<b>Mixer Number:</b> 170
<b>Air Temp (°F):</b> 78		<b>Ticket Number:</b> 4527686
<b>Conc. Temp (°F) (C-1064):</b> 78		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-16A		6.00	28.27	8/7/2007	Lab	7	4	81.0	2870
765-16B		6.00	28.27	8/28/2007	Lab	28	4	120.0	4250
765-16C		6.00	28.27	8/28/2007	Lab	28	4	132.0	4670
765-16D				Hold	Lab				

#### Fracture Types



Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

**PLACEMENT INFORMATION**

**Date Cast:** 7/31/2007      **Time Cast:** 8:40      **Date Received:** 8/1/2007

**Placement Location:** D-LINE SPREAD FOOTING INFILLS/STAIN WELLS LINE 5, 6, 7

**Placement Method:** CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 400

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

**INITIAL CURING CONDITIONS**

**Temperatures**

**Minimum (°F)**                      **Maximum (°F)**

**DELIVERY INFORMATION**

**Admixtures:** POLYHEED 997

**TEST RESULTS**

**Slump (in) (C-143):**                      **Slump WR:** 6  
**Air Content (%) (C-231):**                      **Air WR:** 6.5  
**Air Temp (°F):** 80  
**Conc. Temp (°F) (C-1064):** 79

**Load Number:** 11  
**Mixer Number:** 181  
**Ticket Number:** 4527691  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-17A		6.00	28.27	8/7/2007	Lab	7	4	97.0	3430
765-17B		6.00	28.27	8/28/2007	Lab	28	4	132.5	4690
765-17C		6.00	28.27	8/28/2007	Lab	28	4	131.5	4650
765-17D				Hold	Lab				

Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

**PLACEMENT INFORMATION**

**Date Cast:** 7/31/2007      **Time Cast:** 9:40      **Date Received:** 8/1/2007

**Placement Location:** D-LINE SPREAD FOOTING INFILLS/STAIN WELLS LINE 5, 6, 7

**Placement Method:** CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 400

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

**INITIAL CURING CONDITIONS**

**Temperatures**

**Minimum (°F)**      **Maximum (°F)**

**DELIVERY INFORMATION**

**Admixtures:** POLYHEED 997

**TEST RESULTS**

**Slump (in) (C-143):**      **Slump WR:** 5 1/4

**Load Number:** 16

**Air Content (%) (C-231):**      **Air WR:** 6.5

**Mixer Number:** 173

**Air Temp (°F):** 80

**Ticket Number:** 4527696

**Conc. Temp (°F) (C-1064):** 79

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-18A		6.00	28.27	8/7/2007	Lab	7	4	83.0	2940
765-18B		6.00	28.27	8/28/2007	Lab	28	4	121.5	4300
765-18C		6.00	28.27	8/28/2007	Lab	28	4	122.0	4320
765-18D				Hold	Lab				

**Fracture Types**



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/31/2007      **Time Cast:** 10:50      **Date Received:** 8/1/2007

**Placement Location:** D-LINE SPREAD FOOTING INFILLS/STAIN WELLS LINE 5, 6, 7

**Placement Method:** CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 400

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

### TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 6	<b>Load Number:</b> 22
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 6.2	<b>Mixer Number:</b> 158
<b>Air Temp (°F):</b> 82		<b>Ticket Number:</b> 4527702
<b>Conc. Temp (°F) (C-1064):</b> 79		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-19A		6.00	28.27	8/7/2007	Lab	7	4	78.0	2760
765-19B		6.00	28.27	8/28/2007	Lab	28	4	112.0	3960
765-19C		6.00	28.27	8/28/2007	Lab	28	4	115.0	4070
765-19D				Hold	Lab				

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Report of Concrete Compressive Strength**

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

**PLACEMENT INFORMATION**

**Date Cast:** 7/31/2007      **Time Cast:** 11:45      **Date Received:** 8/1/2007

**Placement Location:** D-LINE SPREAD FOOTING INFILLS/STAIN WELLS LINE 5, 6, 7

**Placement Method:** CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 400

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

**INITIAL CURING CONDITIONS**

**Temperatures**

**Minimum (°F)**      **Maximum (°F)**

**DELIVERY INFORMATION**

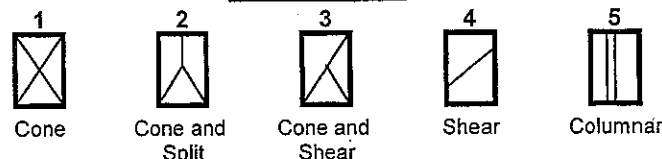
**Admixtures:** POLYHEED 997

**TEST RESULTS**

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 5	<b>Load Number:</b> 26
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 6.1	<b>Mixer Number:</b> 170
<b>Air Temp (°F):</b> 84		<b>Ticket Number:</b> 4527707
<b>Conc. Temp (°F) (C-1064):</b> 81		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-20A		6.00	28.27	8/7/2007	Lab	7	4	83.5	2950
765-20B		6.00	28.27	8/28/2007	Lab	28	4	124.0	4390
765-20C		6.00	28.27	8/28/2007	Lab	28	4	115.0	4070
765-20D				Hold	Lab				

**Fracture Types**



Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/31/2007      **Time Cast:** 1:10      **Date Received:** 8/1/2007

**Placement Location:** D-LINE SPREAD FOOTING INFILLS/STAIN WELLS LINE 5, 6, 7

**Placement Method:** CONVEYOR

**Placement Vol. (yd³):** 400

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 6.5  
**Air Content (%) (C-231):**                      **Air WR:** 6.0  
**Air Temp (°F):** 87  
**Conc. Temp (°F) (C-1064):** 82

**Load Number:** 31  
**Mixer Number:** 177  
**Ticket Number:** 4527713  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-21A		6.00	28.27	8/7/2007	Lab	7	4	74.0	2620
765-21B		6.00	28.27	8/28/2007	Lab	28	4	118.5	4190
765-21C		6.00	28.27	8/28/2007	Lab	28	4	105.5	3730
765-21D				Hold	Lab				

Fracture Types



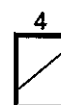
Cone



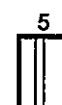
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 7/31/2007      **Time Cast:** 1:10      **Date Received:** 8/1/2007

**Placement Location:** D-LINE SPREAD FOOTING INFILLS/STAIN WELLS LINE 5, 6, 7

**Placement Method:** CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 400

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 6.5

**Load Number:** 36

**Air Content (%) (C-231):**                      **Air WR:** 6.0

**Mixer Number:** 173

**Air Temp (°F):** 87

**Ticket Number:** 4527713

**Conc. Temp (°F) (C-1064):** 82

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-22A		6.00	28.27	8/7/2007	Lab	7	4	103.0	3640
765-22B		6.00	28.27	8/28/2007	Lab	28	4	136.0	4810
765-22C		6.00	28.27	8/28/2007	Lab	28	4	139.0	4920
765-22D				Hold	Lab				

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 8/1/2007      **Time Cast:** 1:30      **Date Received:** 8/13/2007

**Placement Location:** A & C.2 LINES 1-3 LINES

**Placement Method:** BELT TRUCK

**Placement Vol. (yd<sup>3</sup>):** 80

**Cylinders Made By:** JCM

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED997

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 5 3/4

**Load Number:** 3

**Air Content (%) (C-231):**                      **Air WR:** 6.5

**Mixer Number:** 170

**Air Temp (°F):** 86

**Ticket Number:** 3927823

**Conc. Temp (°F) (C-1064):** 76

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-23A		6.00	28.27	8/14/2007	Lab	13	4	79.5	2810
765-23B		6.00	28.27	8/29/2007	Lab	28	4	85.5	3020
765-23C		6.00	28.27	8/29/2007	Lab	28	4	87.5	3100
765-23D				Hold	Lab				

Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 8/1/2007      **Time Cast:** 2:30      **Date Received:** 8/13/2007

**Placement Location:** A & C.2 LINES 1-3 LINES

**Placement Method:** BELT TRUCK

**Placement Vol. (yd<sup>3</sup>):** 80

**Cylinders Made By:** JCM

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED997

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 4.5

**Load Number:** 6

**Air Content (%) (C-231):**                      **Air WR:** 6.7

**Mixer Number:** 190

**Air Temp (°F):** 88

**Ticket Number:** 4527734

**Conc. Temp (°F) (C-1064):** 76

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-24A		6.00	28.27	8/14/2007	Lab	13	4	109.5	3870
765-24B		6.00	28.27	8/29/2007	Lab	28	4	110.5	3910
765-24C		6.00	28.27	8/29/2007	Lab	28	4	103.5	3660
765-24D				Hold	Lab				

Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 8/13/2007      **Time Cast:** 7:30      **Date Received:** 8/14/2007

**Placement Location:** G-LINE 4 TO 9.2 9.2 LINE 11 LINE

**Placement Method:** PUMP TRUCK/CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 473

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLY 997

### TEST RESULTS

**Slump (in) (C-143):** 5.75

**Load Number:** 2

**Air Content (%) (C-231):** 5.4

**Mixer Number:** 177

**Air Temp (°F):** 65

**Ticket Number:** 4527856

**Conc. Temp (°F) (C-1064):** 71

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-25A		6.00	28.27	8/20/2007	Lab	7	4	76.5	2710
765-25B		6.00	28.27	9/10/2007	Lab	28	4	124.0	4390
765-25C		6.00	28.27	9/10/2007	Lab	28	4	124.5	4400
765-25D				Hold	Lab				

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 8/13/2007      **Time Cast:** 9:00      **Date Received:** 8/14/2007

**Placement Location:** G-LINE 4 TO 9.2 9.2 LINE 11 LINE

**Placement Method:** PUMP TRUCK/CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 473

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLY 997

### TEST RESULTS

**Slump (in) (C-143):** 5.75

**Load Number:** 7

**Air Content (%) (C-231):** 6.7

**Mixer Number:** 194

**Air Temp (°F):** 70

**Ticket Number:** 4527861

**Conc. Temp (°F) (C-1064):** 71

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-26A		6.00	28.27	8/20/2007	Lab	7	4	76.0	2690
765-26B		6.00	28.27	9/10/2007	Lab	28	4	119.5	4230
765-26C		6.00	28.27	9/10/2007	Lab	28	4	119.5	4230
765-26D				Hold	Lab				

Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 8/13/2007      **Time Cast:** 10:15      **Date Received:** 8/14/2007

**Placement Location:** G-LINE 4 TO 9.2 9.2 LINE 11 LINE

**Placement Method:** PUMP TRUCK/CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 473

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLY 997

### TEST RESULTS

**Slump (in) (C-143):** 6

**Load Number:** 13

**Air Content (%) (C-231):** 6.2

**Mixer Number:** 189

**Air Temp (°F):** 75

**Ticket Number:** 4527867

**Conc. Temp (°F) (C-1064):** 71

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-27A		6.00	28.27	8/20/2007	Lab	7	4	68.5	2420
765-27B		6.00	28.27	9/10/2007	Lab	28	4	119.0	4210
765-27C		6.00	28.27	9/10/2007	Lab	28	4	112.0	3960
765-27D				Hold	Lab				

#### Fracture Types



1  
Cone



2  
Cone and Split



3  
Cone and Shear



4  
Shear



5  
Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 8/13/2007      **Time Cast:** 11:05      **Date Received:** 8/14/2007

**Placement Location:** G-LINE 4 TO 9.2 9.2 LINE 11 LINE

**Placement Method:** PUMP TRUCK/CONVEYOR

**Placement Vol. (yd³):** 473

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLY 997

## TEST RESULTS

**Slump (in) (C-143):** 5.75

**Load Number:** 17

**Air Content (%) (C-231):** 6.0

**Mixer Number:** 180

**Air Temp (°F):** 73

**Ticket Number:** 4527872

**Conc. Temp (°F) (C-1064):** 71

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-28A		6.00	28.27	8/20/2007	Lab	7	4	71.5	2530
765-28B		6.00	28.27	9/10/2007	Lab	28	4	119.0	4210
765-28C		6.00	28.27	9/10/2007	Lab	28	4	126.0	4460
765-28D				Hold	Lab				

### Fracture Types



Cone



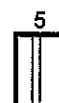
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 8/13/2007      **Time Cast:** 12:05      **Date Received:** 8/14/2007

**Placement Location:** G LINE 4 TO 9.2 9.2 LINE 11 LINE

**Placement Method:** PUMP TRUCK/CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 473

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLY 997

## TEST RESULTS

**Slump (in) (C-143):** 5.5

**Load Number:** 23

**Air Content (%) (C-231):** 5.7

**Mixer Number:** 180

**Air Temp (°F):** 78

**Ticket Number:** 4527878

**Conc. Temp (°F) (C-1064):** 72

**Cubic Yards:**

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-29A		6.00	28.27	8/20/2007	Lab	7	4	73.0	2580
765-29B		6.00	28.27	9/10/2007	Lab	28	4	118.0	4170
765-29C		6.00	28.27	9/10/2007	Lab	28	4	120.0	4250
765-29D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 8/13/2007      **Time Cast:** 1:20      **Date Received:** 8/14/2007

**Placement Location:** G LINE 4 TO 9.2 9.2 LINE 11 LINE

**Placement Method:** PUMP TRUCK/CONVEYOR

**Placement Vol. (yd³):** 473

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLY 997

### TEST RESULTS

**Slump (in) (C-143):** 6.25

**Load Number:** 28

**Air Content (%) (C-231):** 6.6

**Mixer Number:** 190

**Air Temp (°F):** 80

**Ticket Number:** 4527885

**Conc. Temp (°F) (C-1064):** 72

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-30A		6.00	28.27	8/20/2007	Lab	7	4	68.0	2410
765-30B		6.00	28.27	9/10/2007	Lab	28	4	115.0	4070
765-30C		6.00	28.27	9/10/2007	Lab	28	4	112.0	3960

#### Fracture Types



1  
Cone



2  
Cone and Split



3  
Cone and Shear



4  
Shear



5  
Columnar

Remarks:



## Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

### PLACEMENT INFORMATION

**Date Cast:** 8/13/2007      **Time Cast:** 2:40      **Date Received:** 8/14/2007  
**Placement Location:** G-LINE 4 TO 9.2 9.2 LINE 11 LINE  
**Placement Method:** PUMP TRUCK/CONVEYOR      **Placement Vol. (yd³):** 473  
**Cylinders Made By:** CKT      **Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**      **Maximum (°F)**

### DELIVERY INFORMATION

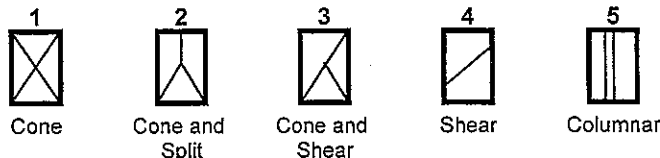
**Admixtures:** POLY 997

### TEST RESULTS

<b>Slump (in) (C-143):</b> 5.25	<b>Load Number:</b> 34
<b>Air Content (%) (C-231):</b> 5.8	<b>Mixer Number:</b> 181
<b>Air Temp (°F):</b> 71	<b>Ticket Number:</b> 4527893
<b>Conc. Temp (°F) (C-1064):</b> 71	<b>Cubic Yards:</b> 10
	<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-31A		6.00	28.27	8/20/2007	Lab	7	4	75.0	2650
765-31B		6.00	28.27	9/10/2007	Lab	28	4	128.5	4550
765-31C		6.00	28.27	9/10/2007	Lab	28	4	131.5	4650
765-31D				Hold	Lab				

#### Fracture Types



Remarks:





# Report of Concrete

ASTM C-39 Strength

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project N**

**Client:** CAPITAL LLC

**Client Con** 06-0124.2

**General Contractor:**

**Concrete Supplier:** DR.

## PLACEMENT INFORMATION

ICTS

**Date Cast:** 8/13/2007 **Time Cast:** 4:10

**Date Received:** 8/14/2007

**Placement Location:** G LINE 4 TO 9. 2 9.2 LINE 11 LINE3

**Placement Method:** PUMP TRUCK/CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 473

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLY 997

## TEST RESULTS

**Slump (in) (C-143):** 6

**Load Number:** 39

**Air Content (%) (C-231):** 6.4

**Mixer Number:** 190

**Air Temp (°F):** 71

**Ticket Number:** 4527901

**Conc. Temp (°F) (C-1064):** 72

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-32A		6.00	28.27	8/20/2007	Lab	7	4	65.0	2300
765-32B		6.00	28.27	9/10/2007	Lab	28	4	116.0	4100
765-32C		6.00	28.27	9/10/2007	Lab	28	4	114.5	4050
765-32D				Hold	Lab				

### Fracture Types



1  
Cone



2  
Cone and Split



3  
Cone and Shear



4  
Shear



5  
Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 8/13/2007      **Time Cast:** 5:00      **Date Received:** 8/14/2007

**Placement Location:** G LINE 4 TO 9.2 9.2 LINE/11 LINE

**Placement Method:** PUMP TRUCK/CONVEYOR

**Placement Vol. (yd³):** 473

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLY 997

## TEST RESULTS

**Slump (in) (C-143):** 5.5  
**Air Content (%) (C-231):** 5.6  
**Air Temp (°F):** 72  
**Conc. Temp (°F) (C-1064):** 70

**Load Number:** 41  
**Mixer Number:** 180  
**Ticket Number:** 4527903  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-33A		6.00	28.27	8/20/2007	Lab	7	4	65.5	2320
765-33B		6.00	28.27	9/10/2007	Lab	28	4	132.0	4670
765-33C		6.00	28.27	9/10/2007	Lab	28	4	127.0	4490
765-33D				Hold	Lab				

### Fracture Types



1  
Cone



2  
Cone and Split



3  
Cone and Shear



4  
Shear



5  
Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 8/13/2007      **Time Cast:** 6:00      **Date Received:** 8/14/2007  
**Placement Location:** G-LINE 4 TO 9.2 9.2 LINE 11 LINE  
**Placement Method:** PUMP TRUCK/CONVEYOR      **Placement Vol. (yd³):** 473  
**Cylinders Made By:** CKT      **Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

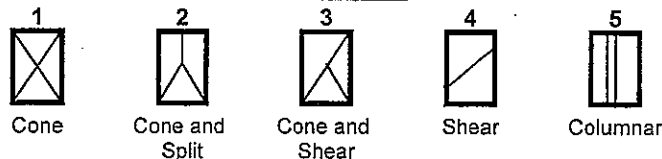
**Admixtures:** POLY 997

## TEST RESULTS

**Slump (in) (C-143):** 5.75      **Load Number:** 46  
**Air Content (%) (C-231):** 6.4      **Mixer Number:** 169  
**Air Temp (°F):** 72      **Ticket Number:** 4527908  
**Conc. Temp (°F) (C-1064):** 70      **Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-34A		6.00	28.27	8/20/2007	Lab	7	4	72.5	2570
765-34B		6.00	28.27	9/10/2007	Lab	28	4	109.5	3870
765-34C		6.00	28.27	9/10/2007	Lab	28	4	110.0	3890
765-34D				Hold	Lab				

### Fracture Types



Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 8/17/2007      **Time Cast:** 3:40      **Date Received:** 8/18/2007

**Placement Location:** SKIM WALLS MAT #1

**Placement Method:** CHUTE

**Placement Vol. (yd³):** 8.5

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

### Admixtures:

## TEST RESULTS

**Slump (in) (C-143):** 5.5

**Load Number:** 1

**Air Content (%) (C-231):** 5.5

**Mixer Number:** 173

**Air Temp (°F):** 67

**Ticket Number:** 4528005

**Conc. Temp (°F) (C-1064):** 73

**Cubic Yards:** 8.5

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-35A		6.00	28.27	8/24/2007	Lab	7	4	52.5	1860
765-35B		6.00	28.27	9/14/2007	Lab	28	4	99.5	3520
765-35C		6.00	28.27	9/14/2007	Lab	28	4	97.0	3430
765-35D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 8/21/2007      **Time Cast:** 2:38      **Date Received:** 8/22/2007  
**Placement Location:** FOUNDATION WALLS STAIR TOWER #3 BETWEEN LINES B TO B.4 & 1.6 TO 4

**Placement Method:** TAILGATE  
**Cylinders Made By:** DAC

**Placement Vol. (yd³):** 10  
**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

**Temperatures**  
**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

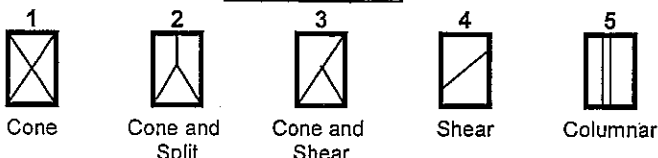
## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 5.75  
**Air Content (%) (C-231):**      **Air WR:** 6.9  
**Air Temp (°F):** 72  
**Conc. Temp (°F) (C-1064):** 73

**Load Number:** 1  
**Mixer Number:** 170  
**Ticket Number:** 4528046  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-37A		6.00	28.27	8/28/2007	Lab	7	4	66.0	2340
765-37B		6.00	28.27	9/18/2007	Lab	28	4	90.0	3180
765-37C		6.00	28.27	9/18/2007	Lab	28	4	100.5	3560
765-37D				Hold	Lab				

### Fracture Types



Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Concrete Supplier: DRAGON PRODUCTS

## PLACEMENT INFORMATION

Date Cast: 8/24/2007 Time Cast: 6:30

Date Received: 8/25/2007

Placement Location: H-LINE TO G-LINE

Placement Method: CONVEYOR

Placement Vol. (yd<sup>3</sup>): 216

Cylinders Made By: CKT

Aggregate Size (in): 3/4

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures: POLY 997

## TEST RESULTS

Slump (in) (C-143): 5.25

Load Number: 2

Air Content (%) (C-231): 6.9

Mixer Number: 192

Air Temp (°F): 65

Ticket Number: 4528082

Conc. Temp (°F) (C-1064): 72

Cubic Yards: 10

Design (psi): 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-38A		6.00	28.27	8/31/2007	Lab	7	4	76.0	2690
765-38B		6.00	28.27	9/21/2007	Lab	28	4	115.5	4090
765-38C		6.00	28.27	9/21/2007	Lab	28	4	112.0	3960
765-38D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 8/24/2007      **Time Cast:** 7:40      **Date Received:** 8/25/2007  
**Placement Location:** H-LINE TO G-LINE

**Placement Method:** CONVEYOR      **Placement Vol. (yd³):** 216  
**Cylinders Made By:** CKT      **Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

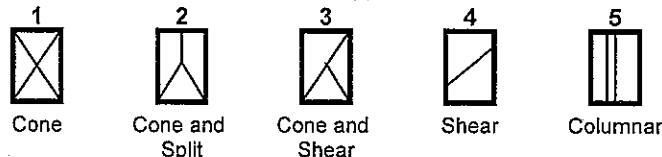
**Admixtures:** POLYHEED 997

## TEST RESULTS

<b>Slump (in) (C-143):</b> 4.5	<b>Load Number:</b> 7
<b>Air Content (%) (C-231):</b> 6.1	<b>Mixer Number:</b> 183
<b>Air Temp (°F):</b> 66	<b>Ticket Number:</b> 4528088
<b>Conc. Temp (°F) (C-1064):</b> 72	<b>Cubic Yards:</b> 10
	<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-39A		6.00	28.27	8/31/2007	Lab	7	4	87.0	3080
765-39B		6.00	28.27	9/21/2007	Lab	28	4	124.0	4390
765-39C		6.00	28.27	9/21/2007	Lab	28	4	121.5	4300
765-39D				Hold	Lab				

### Fracture Types



Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 8/24/2007      **Time Cast:** 8:50

**Date Received:** 8/25/2007

**Placement Location:** H-LINE TO G-LINE

**Placement Method:** CONVEYOR

**Placement Vol. (yd<sup>3</sup>):** 216

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**              **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

## TEST RESULTS

**Slump (in) (C-143):** 5.5  
**Air Content (%) (C-231):** 6.2  
**Air Temp (°F):** 68  
**Conc. Temp (°F) (C-1064):** 72

**Load Number:** 13  
**Mixer Number:** 191  
**Ticket Number:** 4528094  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-40A		6.00	28.27	8/31/2007	Lab	7	4	74.0	2620
765-40B		6.00	28.27	9/21/2007	Lab	28	4	109.0	3860
765-40C		6.00	28.27	9/21/2007	Lab	28	4	114.0	4030
765-40D				Hold	Lab				

### Fracture Types



1  
Cone



2  
Cone and Split



3  
Cone and Shear



4  
Shear



5  
Columnar

Remarks:





# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 8/24/2007      **Time Cast:** 10:25      **Date Received:** 8/25/2007

**Placement Location:** H-LINE TO G-LINE

**Placement Method:** CONVEYOR

**Placement Vol. (yd³):** 216

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

## TEST RESULTS

**Slump (in) (C-143):** 5.25

**Load Number:** 17

**Air Content (%) (C-231):** 6.2

**Mixer Number:** 180

**Air Temp (°F):** 71

**Ticket Number:** 4528099

**Conc. Temp (°F) (C-1064):** 71

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-41A		6.00	28.27	8/31/2007	Lab	7	4	71.0	2510
765-41B		6.00	28.27	9/21/2007	Lab	28	4	111.0	3930
765-41C		6.00	28.27	9/21/2007	Lab	28	4	112.5	3980
765-41D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 8/24/2007      **Time Cast:** 11:55      **Date Received:** 8/25/2007

**Placement Location:** H-LINE TO G-LINE

**Placement Method:** CONVEYOR

**Placement Vol. (yd³):** 216

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

## TEST RESULTS

**Slump (in) (C-143):** 5.5  
**Air Content (%) (C-231):** 6.4  
**Air Temp (°F):** 76  
**Conc. Temp (°F) (C-1064):** 72

**Load Number:** 21  
**Mixer Number:** 169  
**Ticket Number:** 4528109  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-42A		6.00	28.27	8/31/2007	Lab	7	4	69.0	2440
765-42B		6.00	28.27	9/21/2007	Lab	28	4	107.0	3790
765-42C		6.00	28.27	9/21/2007	Lab	28	4	110.0	3890
765-42D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Grout Specimen Compressive Strength

ASTM C1019

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier: F. R. CARROLL

## PLACEMENT INFORMATION

Date Cast: 8/24/2007 Time Cast: 1:45 Date Received: 8/25/2007

Placement Location: B-LINE

Placement Method: PUMP

Placement Vol. (yd³): 10

Cylinders Made By: CKT

Aggregate Size (in): 3/8

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures:

## TEST RESULTS

Slump (in) (C-143): 9.34

Batch Number: 1

Air Temp (°F): 79

Mixer Number: 17

Grout Temp (°F) (C-1064): 78

Ticket Number: 0015144

Design (psi): 2500

Specimen Designation	Area(In)²	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-43A	12.25	8/31/2007	7	18.0	1870
765-43B	10.56	9/21/2007	28	51.7	4890
765-43C	10.56	9/21/2007	28	49.2	4660
765-43D					

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 8/30/2007      **Time Cast:** 4:00      **Date Received:** 8/31/2007  
**Placement Location:** STEM WALLS: 1.4 LINE/G TO H, 1 LINE/C.2 TO E.2 AND BETWEEN LINES C TO C.2 AND 1 TO 1.4  
**Placement Method:** TAILGATE      **Placement Vol. (yd<sup>3</sup>):** 10.5  
**Cylinders Made By:** DAC      **Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

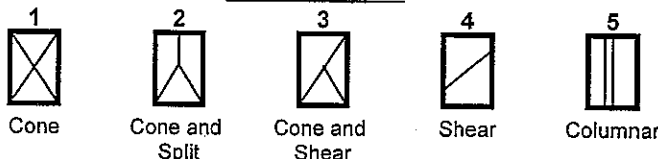
**Admixtures:**

## TEST RESULTS

**Slump (in) (C-143):** 3.75      **Load Number:** 1  
**Air Content (%) (C-231):** 5.3      **Mixer Number:** 173  
**Air Temp (°F):** 74      **Ticket Number:** 4528209  
**Conc. Temp (°F) (C-1064):** 79      **Cubic Yards:** 10.5  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-45A		6.00	28.27	9/6/2007	Lab	7	4	75.5	2670
765-45B		6.00	28.27	9/27/2007	Lab	28	4	127.0	4490
765-45C		6.00	28.27	9/27/2007	Lab	28	4	125.5	4440
765-45D				Hold	Lab				

### Fracture Types



Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 2/29/2008      **Time Cast:** 7:30      **Date Received:** 3/3/2008

**Placement Location:** LEVEL 9 SLAB

**Placement Method:** PUMP TRUCK

**Placement Vol. (yd<sup>3</sup>):** 280

**Cylinders Made By:** JO

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** 1% POZZUTEC 20 HRWR

## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 6  
**Air Content (%) (C-231):**      **Air WR:** 2.5  
**Air Temp (°F):** 4  
**Conc. Temp (°F) (C-1064):** 72

**Load Number:** 1  
**Mixer Number:** 98  
**Ticket Number:** 140122  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-84A		6.00	28.27	3/7/2008	Lab	7	4	97.9	3460
765-84B		6.00	28.27	3/28/2008	Lab	28	4	110.0	3890
765-84C		6.00	28.27	3/28/2008	Lab	28	4	121.5	4300
765-84D				Hold	Lab				

### Fracture Types



Cone



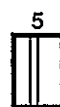
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

**Date Cast:** 2/29/2008      **Time Cast:** 10:15      **Date Received:** 3/3/2008

**Placement Location:** LEVEL 9 SLAB

**Placement Method:** PUMP TRUCK

**Placement Vol. (yd<sup>3</sup>):** 280

**Cylinders Made By:** JO

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** 1% POZZUTEC 20  
HRWR

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 6 3/4

**Load Number:** 12

**Air Content (%) (C-231):**                      **Air WR:** 2.6

**Mixer Number:** 84

**Air Temp (°F):** 11

**Ticket Number:** 140143

**Conc. Temp (°F) (C-1064):** 48

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-85A		6.00	28.27	3/7/2008	Lab	7	4	81.9	2900
765-85B		6.00	28.27	3/28/2008	Lab	28	4	112.5	3980
765-85C		6.00	28.27	3/28/2008	Lab	28	4	107.0	3790
765-85D				Hold	Lab				

#### Fracture Types



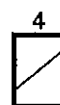
Cone



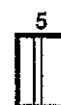
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 2/29/2008      **Time Cast:**      **Date Received:** 3/3/2008

**Placement Location:** LEVEL 9 SLAB

**Placement Method:** PUMP TRUCK

**Placement Vol. (yd<sup>3</sup>):** 280

**Cylinders Made By:** JO

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** 1% POZZUTEC 20 HRWR

## TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 5	<b>Load Number:</b> 21
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 2.4	<b>Mixer Number:</b> 116
<b>Air Temp (°F):</b> 25		<b>Ticket Number:</b> 140165
<b>Conc. Temp (°F) (C-1064):</b> 52		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Gross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-86A		6.00	28.27	3/7/2008	Lab	7	4	92.9	3290
765-86B		6.00	28.27	3/28/2008	Lab	28	4	117.5	4160
765-86C		6.00	28.27	3/28/2008	Lab	28	4	118.0	4170
765-86D				Hold	Lab				

### Fracture Types



Cone



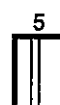
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 3/13/2008      **Time Cast:** 7:55      **Date Received:** 3/14/2008

**Placement Location:** SLAB ON DECK - 11TH FLOOR  
SLAB ON DECK PENTHOUSE

**Placement Method:** PUMP

**Placement Vol. (yd<sup>3</sup>):**

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POZZUTEC 20 + 1%  
POLYHEED 1020

## TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 6 1/4

**Load Number:** 2

**Air Content (%) (C-231):**                      **Air WR:** 2.5

**Mixer Number:** 140365

**Air Temp (°F):** 24

**Ticket Number:** 10

**Conc. Temp (°F) (C-1064):** 65

**Cubic Yards:** 6.45

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-87A		6.00	28.27	3/20/2008	Lab	7	4	87.0	3080
765-87B		6.00	28.27	4/10/2008	Lab	28	4	111.0	3930
765-87C		6.00	28.27	4/10/2008	Lab	28	4	118.0	4170
765-87D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

**Date Cast:** 3/13/2008      **Time Cast:** 8:55      **Date Received:** 3/14/2008

**Placement Location:** SLAB ON DECK - 11TH FLOOR  
SLAB ON DECK PENTHOUSE

**Placement Method:** PUMP      **Placement Vol. (yd<sup>3</sup>):**

**Cylinders Made By:** VLT      **Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**      **Maximum (°F)**

### DELIVERY INFORMATION

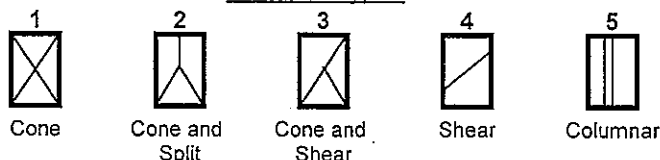
**Admixtures:** POZZUTEC 20 + 1%  
POLYHEED 1020

### TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 6.5	<b>Load Number:</b> 6
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 2.5	<b>Mixer Number:</b> 117
<b>Air Temp (°F):</b> 24		<b>Ticket Number:</b> 140369
<b>Conc. Temp (°F) (C-1064):</b> 62		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-88A		6.00	28.27	3/20/2008	Lab	7	4	89.0	3150
765-88B		6.00	28.27	4/10/2008	Lab	28	4	115.5	4090
765-88C		6.00	28.27	4/10/2008	Lab	28	4	112.5	3980
765-88D				Hold	Lab				

Fracture Types



Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 3/13/2008      **Time Cast:** 9:55      **Date Received:** 3/14/2008  
**Placement Location:** SLAB ON DECK - 11TH FLOOR  
 SLAB ON DECK PENTHOUSE  
**Placement Method:** PUMP      **Placement Vol. (yd<sup>3</sup>):**  
**Cylinders Made By:** VLT      **Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POZZUTEC 20 + 1%  
 POLYHEED 1020

## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 6.5      **Load Number:** 11  
**Air Content (%) (C-231):**      **Air WR:** 3.2      **Mixer Number:** 97  
**Air Temp (°F):** 27      **Ticket Number:** 140376  
**Conc. Temp (°F) (C-1064):** 57      **Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-89A		6.00	28.27	3/20/2008	Lab	7	4	92.5	3270
765-89B		6.00	28.27	4/10/2008	Lab	28	4	123.0	4350
765-89C		6.00	28.27	4/10/2008	Lab	28	4	115.0	4070
765-89D				Hold	Lab				

### Fracture Types



Cone



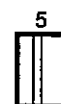
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**
**General Contractor:**
**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

<b>Date Cast:</b> 3/13/2008	<b>Time Cast:</b> 10:55	<b>Date Received:</b> 3/14/2008
<b>Placement Location:</b> SLAB ON DECK - 11TH FLOOR SLAB ON DECK PENTHOUSE		
<b>Placement Method:</b> PUMP	<b>Placement Vol. (yd<sup>3</sup>):</b>	
<b>Cylinders Made By:</b> VLT	<b>Aggregate Size (in):</b> 3/4	

### INITIAL CURING CONDITIONS

#### Temperatures

<b>Minimum (°F)</b>	<b>Maximum (°F)</b>
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### DELIVERY INFORMATION

**Admixtures:** POZZUTEC 20 + 1%  
POLYHEED 1020

### TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 6 3/4	<b>Load Number:</b> 16
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 2.5	<b>Mixer Number:</b> 106
<b>Air Temp (°F):</b> 29		<b>Ticket Number:</b> 140382
<b>Conc. Temp (°F) (C-1064):</b> 58		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-90A		6.00	28.27	3/20/2008	Lab	7	4	93.0	3290
765-90B		6.00	28.27	4/10/2008	Lab	28	4	123.0	4350
765-90C		6.00	28.27	4/10/2008	Lab	28	4	120.5	4260
765-90D				Hold	Lab				

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

**Date Cast:** 3/13/2008      **Time Cast:** 1:03      **Date Received:** 3/14/2008  
**Placement Location:** SLAB ON DECK - 11TH FLOOR  
 SLAB ON DECK PENTHOUSE  
**Placement Method:** PUMP      **Placement Vol. (yd<sup>3</sup>):**  
**Cylinders Made By:** VLT      **Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**      **Maximum (°F)**

### DELIVERY INFORMATION

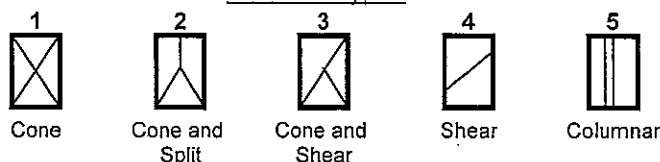
**Admixtures:** POZZUTEC 20 + 1%  
 POLYHEED 1020

### TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 6.5	<b>Load Number:</b> 22
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 3.3	<b>Mixer Number:</b> 83
<b>Air Temp (°F):</b> 31		<b>Ticket Number:</b> 140390
<b>Conc. Temp (°F) (C-1064):</b> 53		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-91A		6.00	28.27	3/20/2008	Lab	7	4	91.0	3220
765-91B		6.00	28.27	4/10/2008	Lab	28	4	114.0	4030
765-91C		6.00	28.27	4/10/2008	Lab	28	4	114.5	4050
765-91D				Hold	Lab				

Fracture Types



Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 3/13/2008      **Time Cast:** 4:00      **Date Received:** 3/14/2008  
**Placement Location:** SLAB ON DECK - 11TH FLOOR  
 SLAB ON DECK PENTHOUSE  
**Placement Method:** PUMP      **Placement Vol. (yd³):** 288  
**Cylinders Made By:** VLT      **Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

**Temperatures**  
**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

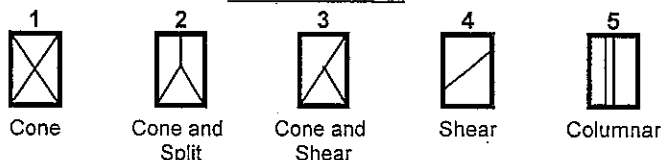
**Admixtures:** POZZUTEC 20 + 1%  
 POLYHEED 1020

## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 6 3/4      **Load Number:** 28  
**Air Content (%) (C-231):**      **Air WR:** 2.2      **Mixer Number:** 117  
**Air Temp (°F):** 35      **Ticket Number:** 140399  
**Conc. Temp (°F) (C-1064):** 56      **Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-92A		6.00	28.27	3/20/2008	Lab	7	4	100.0	3540
765-92B		6.00	28.27	4/10/2008	Lab	28	4	118.5	4190
765-92C		6.00	28.27	4/10/2008	Lab	28	4	120.0	4250
765-92D				Hold	Lab				

### Fracture Types



Remarks: Penthouse 12th Floor

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

**Date Cast:** 5/21/2008      **Time Cast:** 8:15      **Date Received:** 5/23/2008

**Placement Location:** STAIR #1 FROM FLOOR 10 WORKING DOWN (STAIR PANS)

**Placement Method:** PUMP

**Placement Vol. (yd<sup>3</sup>):** 5

**Cylinders Made By:** KBG/BZM

**Aggregate Size (in):** 3/8

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** GLENIUM 7500  
(MIDRANGE) 8500  
MBAE-90 700

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 6

**Load Number:** 1

**Air Content (%) (C-231):**                      **Air WR:** 3.0

**Mixer Number:** 106

**Air Temp (°F):** 52

**Ticket Number:** 133023

**Conc. Temp (°F) (C-1064):** 65

**Cubic Yards:** 5

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in <sup>2</sup> )	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-99A		6.00	28.27	5/28/2008	Lab	7	4	91.5	3240
765-99B		6.00	28.27	6/18/2008	Lab	28	4	116.5	4120
765-99C		6.00	28.27	6/18/2008	Lab	28	4	112.5	3980
765-99D				Hold	Lab				

#### Fracture Types



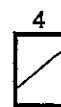
1  
Cone



2  
Cone and Split



3  
Cone and Shear



4  
Shear



5  
Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

**PLACEMENT INFORMATION**

**Date Cast:** 6/9/2008      **Time Cast:** 9:20      **Date Received:** 6/10/2008  
**Placement Location:** SOUTH EAST CORNER OF BLDG, 1ST, 2ND, 3RD FLOOR SLABS @ EDGE OF BLDG  
**Placement Method:** PUMP (NORTHEAST)      **Placement Vol. (yd<sup>3</sup>):** 27  
**Cylinders Made By:** BZM      **Aggregate Size (in):** 3/4

**INITIAL CURING CONDITIONS**

**Temperatures**

**Minimum (°F)**      **Maximum (°F)**

**DELIVERY INFORMATION**

**Admixtures:** GLENIUM 7500  
 MBAE -90 \*\*

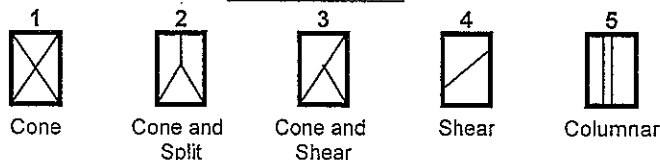
**TEST RESULTS**

**Slump (in) (C-143):** 6  
**Air Content (%) (C-231):** 1.6  
**Air Temp (°F):** 80  
**Conc. Temp (°F) (C-1064):** 78

**Load Number:** 2  
**Mixer Number:** 96  
**Ticket Number:** 145725  
**Cubic Yards:** 9  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-100A		6.00	28.27	6/16/2008	Lab	7	4	77.5	2740
765-100B		6.00	28.27	7/7/2008	Lab	28	4	96.0	3400
765-100C		6.00	28.27	7/7/2008	Lab	28	4	99.5	3520
765-100D				Hold	Lab				

Fracture Types



Remarks: \*\* FIRST LOAD ONLY



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 7/17/2008      **Time Cast:** 7:50      **Date Received:** 7/18/2008

**Placement Location:** LEVEL P-2 - RETAIL AREA - TOPPING SLAB

**Placement Method:** PUMP

**Placement Vol. (yd³):** 50

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** FIBER, CLENIUM 7500

## TEST RESULTS

**Slump (in) (C-143):** 6 1/2

**Load Number:** 3

**Air Content (%) (C-231):** 7.6

**Mixer Number:** 86

**Air Temp (°F):** 78

**Ticket Number:** 144302

**Conc. Temp (°F) (C-1064):** 83

**Cubic Yards:** 10

**Design (psi):** 5000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-101A		6.00	28.27	7/24/2008	Lab	7	4	107.5	3800
765-101B		6.00	28.27	8/14/2008	Lab	28	4	123.0	4350
765-101C		6.00	28.27	8/14/2008	Lab	28	4	122.0	4320
765-101D				9/11/2008	Lab	56			

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:





# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 10/26/2007      **Time Cast:** 8:35      **Date Received:** 10/27/2007

**Placement Location:** MAIN LOBBY 3/8 STAIR LOWER 1 & 2 ELEVATOR #3 LOBBY

**Placement Method:** TAILGATE

**Placement Vol. (yd³):** 20

**Cylinders Made By:** DMR

**Aggregate Size (in):** 3/8

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLYHEED 1020 + FIBERS

## TEST RESULTS

**Slump (in) (C-143):** 6.5  
**Air Content (%) (C-231):** 2.3  
**Air Temp (°F):** 45  
**Conc. Temp (°F) (C-1064):** 57

**Load Number:** 1  
**Mixer Number:** 78  
**Ticket Number:** 135252  
**Cubic Yards:** 11  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-51A		6.00	28.27	11/2/2007	Lab	7	4	91.0	3220
765-51B		6.00	28.27	11/23/2007	Lab	28	4	123.5	4370
765-51C		6.00	28.27	11/23/2007	Lab	28	4	121.5	4300
765-51D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 10/26/2007      **Time Cast:** 9:30      **Date Received:** 10/27/2007

**Placement Location:** MAIN LOBBY 3/8 STAIR LOWER 1 & 2 ELEVATOR #3 LOBBY

**Placement Method:** TAILGATE

**Placement Vol. (yd³):** 20

**Cylinders Made By:** DMR

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLYHEED 1020 + FIBERS

## TEST RESULTS

**Slump (in) (C-143):** 5.5  
**Air Content (%) (C-231):** 2.1  
**Air Temp (°F):** 50  
**Conc. Temp (°F) (C-1064):** 58

**Load Number:** 2  
**Mixer Number:** 101  
**Ticket Number:** 135263  
**Cubic Yards:** 9  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-52A		6.00	28.27	11/2/2007	Lab	7	4	71.5	2530
765-52B		6.00	28.27	11/23/2007	Lab	28	4	109.5	3870
765-52C		6.00	28.27	11/23/2007	Lab	28	4	105.0	3710
765-52D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING &amp; PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Concrete Supplier: AUBURN CONCRETE

### PLACEMENT INFORMATION

Date Cast: 4/24/2008 Time Cast: 7:20

Date Received: 4/24/2008

Placement Location: RETAIL AREA 7.5 TO 10.5 - LINE

Placement Method: TAILGATE

 Placement Vol. (yd<sup>3</sup>): 25

Cylinders Made By: PJO

Aggregate Size (in): 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

Minimum (°F) Maximum (°F)

### DELIVERY INFORMATION

Admixtures: POLYMESH

### TEST RESULTS

Slump (in) (C-143): 6 3/4

Load Number: 1

Air Content (%) (C-231): 3.9

Mixer Number: 117

Air Temp (°F): 60

Ticket Number: 113231

Conc. Temp (°F) (C-1064): 63

Cubic Yards: 10

Design (psi): 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-98A		6.00	28.27	5/1/2008	Lab	7	4	62.5	2210
765-98B		6.00	28.27	5/22/2008	Lab	28	4	84.5	2990
765-98C		6.00	28.27	5/22/2008	Lab	28	4	80.5	2850
765-98D		6.00	28.27	6/19/2008	Lab	56	4	84.5	2990

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 11/8/2007      **Time Cast:** 2:30      **Date Received:** 11/9/2007  
**Placement Location:** GRADE BEAM 15 - PUMP WALLS

**Placement Method:** PUMP\*      **Placement Vol. (yd<sup>3</sup>):** 26  
**Cylinders Made By:** VLT      **Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 4 3/4  
**Air Content (%) (C-231):**      **Air WR:** 6.8  
**Air Temp (°F):** 40  
**Conc. Temp (°F) (C-1064):** 61

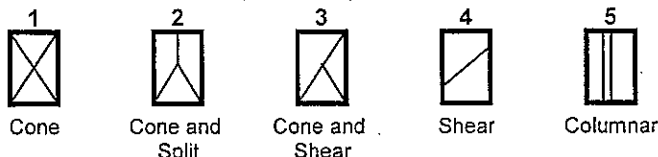
## DELIVERY INFORMATION

**Admixtures:** POLYHEED 997

**Load Number:** 1  
**Mixer Number:** 181  
**Ticket Number:** 3928329  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-56A		6.00	28.27	11/15/2007	Lab	7	4	88.0	3110
765-56B		6.00	28.27	12/6/2007	Lab	28	4	134.5	4760
765-56C		6.00	28.27	12/6/2007	Lab	28	4	135.0	4780
765-56D				Hold	Lab				

### Fracture Types



Remarks: \* NORTHEAST CONCRETE PUMPING



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 11/14/2007      **Time Cast:** 8:05      **Date Received:** 11/15/2007

**Placement Location:** RETAIL TOPPING SLAB LEVEL P-1 4 LINE TO 10'NE OF 7 LINE

**Placement Method:** CHUTE

**Placement Vol. (yd<sup>3</sup>):** 24

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/8

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLY 1020 - SUPER, POZZUTEC, FIBERMESH

## TEST RESULTS

**Slump (in) (C-143):** 6.75

**Load Number:** 1

**Air Content (%) (C-231):** 3.3

**Mixer Number:** 95

**Air Temp (°F):** 43

**Ticket Number:** 121624

**Conc. Temp (°F) (C-1064):** 63

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-58A		6.00	28.27	11/21/2007	Lab	7	4	87.0	3080
765-58B		6.00	28.27	12/12/2007	Lab	28	4	122.0	4320
765-58C		6.00	28.27	12/12/2007	Lab	28	4	117.5	4160
765-58D				Hold	Lab				

### Fracture Types



Cone



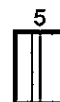
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 11/19/2007      **Time Cast:** 10:05      **Date Received:** 11/20/2007

**Placement Location:** PARKING GARAGE RAMP

**Placement Method:** PUMP

**Placement Vol. (yd³):** 30

**Cylinders Made By:** DMR

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** 1% POZZUTEC

## TEST RESULTS

**Slump (in) (C-143):** 4  
**Air Content (%) (C-231):** 5.4  
**Air Temp (°F):** 32  
**Conc. Temp (°F) (C-1064):** 38

**Load Number:** 2  
**Mixer Number:** 190  
**Ticket Number:** 3928415  
**Cubic Yards:** 10  
**Design (psi):** 5000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (ln)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-60A		6.00	28.27	11/26/2007	Lab	7	4	122.5	4330
765-60B		6.00	28.27	12/17/2007	Lab	28	4	163.5	5780
765-60C		6.00	28.27	12/17/2007	Lab	28	4	167.0	5910
765-60D				Hold	Lab				

### Fracture Types



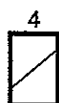
Cone



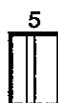
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 1/24/2008      **Time Cast:** 8:15      **Date Received:** 1/25/2008  
**Placement Location:** 5TH FLOOR - DECK

**Placement Method:** PUMP\*  
**Cylinders Made By:** VLT

**Placement Vol. (yd³):** 305  
**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

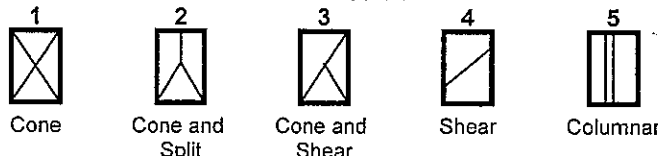
**Admixtures:** POLYHEED  
 FIBERMESH  
 POZZUTEC 20 - 1%

## TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 5.5	<b>Load Number:</b> 2
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 5.6	<b>Mixer Number:</b> 106
<b>Air Temp (°F):</b> 25		<b>Ticket Number:</b> 135611
<b>Conc. Temp (°F) (C-1064):</b> 68		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-65A		6.00	28.27	1/31/2008	Lab	7	4	95.5	3380
765-65B		6.00	28.27	2/21/2008	Lab	28	4	119.5	4230
765-65C		6.00	28.27	2/21/2008	Lab	28	4	98.5	3480
765-65D				Hold	Lab				

### Fracture Types



Remarks: \*NORTHEAST CONCRETE PUMPING

## Report of Concrete Compressive Strength

ASTM C-31 &amp; C-39

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING &amp; PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Concrete Supplier: AUBURN CONCRETE

### PLACEMENT INFORMATION

Date Cast: 1/24/2008      Time Cast: 9:00      Date Received: 1/25/2008

Placement Location: 5TH FLOOR - DECK

Placement Method: PUMP\*

 Placement Vol. (yd<sup>3</sup>): 305

Cylinders Made By: VLT

Aggregate Size (in): 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

Minimum (°F)      Maximum (°F)

### DELIVERY INFORMATION

 Admixtures: POLYHEED  
 FIBERMESH  
 POZZUTEC 20 - 1%

### TEST RESULTS

Slump (in) (C-143):	Slump WR: 6.5	Load Number: 7
Air Content (%) (C-231):		Mixer Number: 116
Air Temp (°F): 25		Ticket Number: 135626
Conc. Temp (°F) (C-1064): 63		Cubic Yards: 10
		Design (psi): 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-66A		6.00	28.27	1/31/2008	Lab	7	4	77.5	2740
765-66B		6.00	28.27	2/21/2008	Lab	28	4	110.0	3890
765-66C		6.00	28.27	2/21/2008	Lab	28	4	115.0	4070
765-66D				Hold	Lab				

#### Fracture Types



Cone



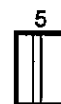
Cone and Split



Cone and Shear



Shear



Columnar

Remarks: \*NORTHEAST CONCRETE PUMPING





# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 1/24/2008      **Time Cast:** 10:15      **Date Received:** 1/25/2008

**Placement Location:** 5TH FLOOR - DECK

**Placement Method:** PUMP\*

**Placement Vol. (yd³):** 305

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLYHEED  
FIBERMESH  
POZZUTEC 20 - 1%

## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 6.5

**Load Number:** 11

**Air Content (%) (C-231):**      **Air WR:** 2.1

**Mixer Number:** 108

**Air Temp (°F):** 25

**Ticket Number:** 135635

**Conc. Temp (°F) (C-1064):** 60

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-67A		6.00	28.27	1/31/2008	Lab	7	4	96.0	3400
765-67B		6.00	28.27	2/21/2008	Lab	28	4	123.5	4370
765-67C		6.00	28.27	2/21/2008	Lab	28	4	123.0	4350
765-67D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks: \*NORTHEAST CONCRETE PUMPING

## Report of Concrete Compressive Strength

ASTM C-31 &amp; C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**
**General Contractor:**
**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

**Date Cast:** 1/24/2008      **Time Cast:** 11:26      **Date Received:** 1/25/2008

**Placement Location:** 5TH FLOOR - DECK

**Placement Method:** PUMP\*

**Placement Vol. (yd³):** 305

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED  
 FIBERMESH  
 POZZUTEC 20 - 1%

### TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 5	<b>Load Number:</b> 15
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 2.5	<b>Mixer Number:</b> 115
<b>Air Temp (°F):</b> 28		<b>Ticket Number:</b> 135647
<b>Conc. Temp (°F) (C-1064):</b> 60		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-68A		6.00	28.27	1/31/2008	Lab	7	4	99.5	3520
765-68B		6.00	28.27	2/21/2008	Lab	28	4	118.5	4190
765-68C		6.00	28.27	2/21/2008	Lab	28	4	113.5	4020
765-68D				Hold	Lab				

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks: \*NORTHEAST CONCRETE PUMPING



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 1/24/2008      **Time Cast:** 12:53      **Date Received:** 1/25/2008

**Placement Location:** 5TH FLOOR - DECK

**Placement Method:** PUMP\*

**Placement Vol. (yd<sup>3</sup>):** 305

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POLYHEED  
FIBERMESH  
POZZUTEC 20 - 1%

## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 6 3/4

**Load Number:** 21

**Air Content (%) (C-231):**      **Air WR:** 3.3

**Mixer Number:** 115

**Air Temp (°F):** 29

**Ticket Number:** 135660

**Conc. Temp (°F) (C-1064):** 50

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-69A		6.00	28.27	1/31/2008	Lab	7	4	98.5	3480
765-69B		6.00	28.27	2/21/2008	Lab	28	4	112.0	3960
765-69C		6.00	28.27	2/21/2008	Lab	28	4	120.0	4250
765-69D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks: \*NORTHEAST CONCRETE PUMPING

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

**Date Cast:** 1/24/2008      **Time Cast:** 2:43      **Date Received:** 1/25/2008

**Placement Location:** 5TH FLOOR - DECK

**Placement Method:** PUMP\*

**Placement Vol. (yd<sup>3</sup>):** 305

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POLYHEED  
FIBERMESH  
POZZUTEC 20 - 1%

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 6 3/4

**Load Number:** 27

**Air Content (%) (C-231):**                      **Air WR:** 2.9

**Mixer Number:** 108

**Air Temp (°F):** 28

**Ticket Number:** 135677

**Conc. Temp (°F) (C-1064):** 50

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-70A		6.00	28.27	1/31/2008	Lab	7	4	97.5	3450
765-70B		6.00	28.27	2/21/2008	Lab	28	4	133.0	4700
765-70C		6.00	28.27	2/21/2008	Lab	28	4	129.5	4580
765-70D				Hold	Lab				

Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks: \*NORTHEAST CONCRETE PUMPING

## Report of Concrete Compressive Strength

ASTM C-31 &amp; C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**
**General Contractor:**
**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

**Date Cast:** 1/31/2008      **Time Cast:** 7:40

**Date Received:** 2/1/2008

**Placement Location:** 6TH FLOOR - SLAB ON DECK

**Placement Method:** PUMP\*

**Placement Vol. (yd<sup>3</sup>):** 250

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                  **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:**                  POZZUTEC 20-1%  
    POLYHEED 1020

### TEST RESULTS

**Slump (in) (C-143):**                  **Slump WR:** 6 1/4  
**Air Content (%) (C-231):**              **Air WR:** 2.0  
**Air Temp (°F):**                          20  
**Conc. Temp (°F) (C-1064):**          77

**Load Number:** 2  
**Mixer Number:** 96  
**Ticket Number:** 135787  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-71A		6.00	28.27	2/7/2008	Lab	7	4	103.5	3660
765-71B		6.00	28.27	2/28/2008	Lab	28	4	112.5	3980
765-71C		6.00	28.27	2/28/2008	Lab	28	4	103.0	3640
765-71D				Hold	Lab				

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

**Date Cast:** 1/31/2008      **Time Cast:** 8:35      **Date Received:** 2/1/2008

**Placement Location:** 6TH FLOOR - SLAB ON DECK

**Placement Method:** PUMP\*

**Placement Vol. (yd<sup>3</sup>):** 250

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**                  **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** POZZUTEC 20-1%  
POLYHEED 1020

### TEST RESULTS

**Slump (in) (C-143):**                  **Slump WR:** 6.5  
**Air Content (%) (C-231):**              **Air WR:** 2.0  
**Air Temp (°F):**                          23  
**Conc. Temp (°F) (C-1064):**          65

**Load Number:** 6  
**Mixer Number:** 119  
**Ticket Number:** 135795  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-72A		6.00	28.27	2/7/2008	Lab	7	4	80.0	2830
765-72B		6.00	28.27	2/28/2008	Lab	28	4	92.5	3270
765-72C		6.00	28.27	2/28/2008	Lab	28	4	92.0	3250
765-72D				Hold	Lab				

Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks: \* NORTHEAST CONCRETE PUMPING



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 1/31/2008      **Time Cast:** 9:31      **Date Received:** 2/1/2008  
**Placement Location:** 6TH FLOOR - SLAB ON DECK  
**Placement Method:** PUMP\*      **Placement Vol. (yd³):** 250  
**Cylinders Made By:** VLT      **Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

**Temperatures**  
**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

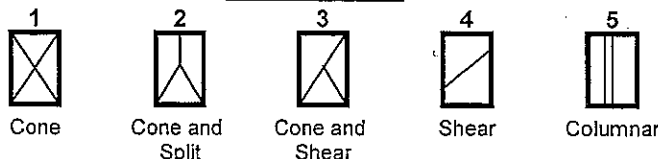
**Admixtures:** POZZUTEC 20-1%  
 POLYHEED 1020

## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 6 3/4      **Load Number:** 11  
**Air Content (%) (C-231):**      **Air WR:** 2.6      **Mixer Number:** 100  
**Air Temp (°F):** 25      **Ticket Number:** 135805  
**Conc. Temp (°F) (C-1064):** 61      **Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-73A		6.00	28.27	2/7/2008	Lab	7	4	105.0	3710
765-73B		6.00	28.27	2/28/2008	Lab	28	4	113.0	4000
765-73C		6.00	28.27	2/28/2008	Lab	28	4	113.0	4000
765-73D				Hold	Lab				

### Fracture Types



Remarks: \* NORTHEAST CONCRETE PUMPING

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

**Date Cast:** 1/31/2008      **Time Cast:** 10:55      **Date Received:** 2/1/2008

**Placement Location:** 6TH FLOOR - SLAB ON DECK

**Placement Method:** PUMP\*

**Placement Vol. (yd<sup>3</sup>):** 250

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

**Temperatures**

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:**                      POZZUTEC 20-1%  
POLYHEED 1020

### TEST RESULTS

**Slump (in) (C-143):**                      **Slump WR:** 6.5  
**Air Content (%) (C-231):**                      **Air WR:** 2.2  
**Air Temp (°F):**                      31  
**Conc. Temp (°F) (C-1064):**                      61

**Load Number:** 16  
**Mixer Number:** 96  
**Ticket Number:** 135818  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-74A		6.00	28.27	2/7/2008	Lab	7	4	93.0	3290
765-74B		6.00	28.27	2/28/2008	Lab	28	4	108.0	3820
765-74C		6.00	28.27	2/28/2008	Lab	28	4	109.0	3860
765-74D				Hold	Lab				

Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks: \* NORTHEAST CONCRETE PUMPING





# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 1/31/2008      **Time Cast:** 12:10      **Date Received:** 2/1/2008

**Placement Location:** 6TH FLOOR - SLAB ON DECK

**Placement Method:** PUMP\*

**Placement Vol. (yd<sup>3</sup>):** 250

**Cylinders Made By:** VLT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** POZZUTEC 20-1%  
POLYHEED 1020

## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 6 3/4

**Load Number:** 21

**Air Content (%) (C-231):**      **Air WR:** 2.2

**Mixer Number:** 83

**Air Temp (°F):** 33

**Ticket Number:** 118570

**Conc. Temp (°F) (C-1064):** 55

**Cubic Yards:** 10

**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-75A		6.00	28.27	2/7/2008	Lab	7	4	86.0	3040
765-75B		6.00	28.27	2/28/2008	Lab	28	4	113.0	4000
765-75C		6.00	28.27	2/28/2008	Lab	28	4	113.0	4000
765-75D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks: \* NORTHEAST CONCRETE PUMPING



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 2/8/2008      **Time Cast:** 7:40      **Date Received:** 2/10/2008  
**Placement Location:** 7TH LEVEL  
 SLAB ON DECK  
**Placement Method:** PUMP      **Placement Vol. (yd<sup>3</sup>):** 260  
**Cylinders Made By:** TAP      **Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** 1% POZZUTEC MIDRANGE

## TEST RESULTS

**Slump (in) (C-143):** 7  
**Air Content (%) (C-231):** 2.75  
**Air Temp (°F):** 23  
**Conc. Temp (°F) (C-1064):** 58

**Load Number:** 2  
**Mixer Number:** 116  
**Ticket Number:** 1357875  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-76A		6.00	28.27	2/15/2008	Lab	7	4	82.5	2920
765-76B		6.00	28.27	3/7/2008	Lab	28	4	100.1	3540
765-76C		6.00	28.27	3/7/2008	Lab	28	4	101.3	3580
765-76D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

**PLACEMENT INFORMATION**

**Date Cast:** 2/8/2008      **Time Cast:** 8:40      **Date Received:** 2/10/2008  
**Placement Location:** 7TH LEVEL  
 SLAB ON DECK  
**Placement Method:** PUMP      **Placement Vol. (yd<sup>3</sup>):** 260  
**Cylinders Made By:** TAP      **Aggregate Size (in):** 3/4

**INITIAL CURING CONDITIONS**

**Temperatures**

**Minimum (°F)**      **Maximum (°F)**

**DELIVERY INFORMATION**

**Admixtures:** 1% POZZUTEC  
 MIDRANGE

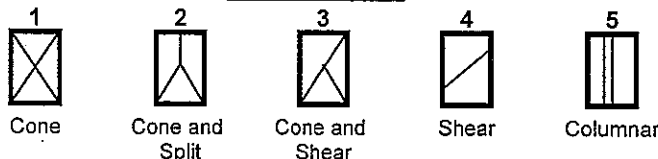
**TEST RESULTS**

**Slump (in) (C-143):** 7  
**Air Content (%) (C-231):** 2.5  
**Air Temp (°F):** 20  
**Conc. Temp (°F) (C-1064):** 52

**Load Number:** 7  
**Mixer Number:** 96  
**Ticket Number:** 135880  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-77A		6.00	28.27	2/15/2008	Lab	7	4	73.0	2580
765-77B		6.00	28.27	3/7/2008	Lab	28	4	98.2	3470
765-77C		6.00	28.27	3/7/2008	Lab	28	4	99.6	3520
765-77D				Hold	Lab				

Fracture Types



Remarks:



## Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

<b>Date Cast:</b> 2/8/2008	<b>Time Cast:</b> 10:00	<b>Date Received:</b> 2/10/2008
<b>Placement Location:</b> 7TH LEVEL SLAB ON DECK		
<b>Placement Method:</b> PUMP	<b>Placement Vol. (yd<sup>3</sup>):</b> 260	
<b>Cylinders Made By:</b> TAP	<b>Aggregate Size (in):</b> 3/4	

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** 1% POZZUTEC  
MIDRANGE

### TEST RESULTS

<b>Slump (in) (C-143):</b>	<b>Slump WR:</b> 6.5	<b>Load Number:</b> 14
<b>Air Content (%) (C-231):</b>	<b>Air WR:</b> 2.5	<b>Mixer Number:</b> 108
<b>Air Temp (°F):</b> 26		<b>Ticket Number:</b> 135889
<b>Conc. Temp (°F) (C-1064):</b> 18		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-78A		6.00	28.27	2/15/2008	Lab	7	4	95.0	3360
765-78B		6.00	28.27	3/7/2008	Lab	28	4	107.3	3800
765-78C		6.00	28.27	3/7/2008	Lab	28	4	113.2	4000
765-78D				Hold	Lab				

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 2/8/2008      **Time Cast:** 10:55      **Date Received:** 2/10/2008  
**Placement Location:** 7TH LEVEL  
 SLAB ON DECK  
**Placement Method:** PUMP      **Placement Vol. (yd³):** 260  
**Cylinders Made By:** TAP      **Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** 1% POZZUTEC MIDRANGE

## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 7      **Load Number:** 18  
**Air Content (%) (C-231):**      **Air WR:** 2.5      **Mixer Number:** 107  
**Air Temp (°F):** 22      **Ticket Number:** 135894  
**Conc. Temp (°F) (C-1064):** 47      **Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (in)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-79A		6.00	28.27	2/15/2008	Lab	7	4	73.5	2600
765-79B		6.00	28.27	3/7/2008	Lab	28	4	98.3	3480
765-79C		6.00	28.27	3/7/2008	Lab	28	4	99.7	3530
765-79D				Hold	Lab				

### Fracture Types



Cone



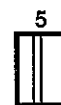
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 2/8/2008      **Time Cast:** 11:50      **Date Received:** 2/10/2008  
**Placement Location:** 7TH LEVEL  
 SLAB ON DECK  
**Placement Method:** PUMP      **Placement Vol. (yd<sup>3</sup>):** 260  
**Cylinders Made By:** TAP      **Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## TEST RESULTS

**Slump (in) (C-143):**      **Slump WR:** 6.5  
**Air Content (%) (C-231):**      **Air WR:** 2.5  
**Air Temp (°F):** 22  
**Conc. Temp (°F) (C-1064):** 48

## DELIVERY INFORMATION

**Admixtures:** 1% POZZUTEC MIDRANGE

**Load Number:** 22  
**Mixer Number:** 117  
**Ticket Number:** 135902  
**Cubic Yards:** 10  
**Design (psi):** 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In <sup>2</sup> )	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-80A		6.00	28.27	2/15/2008	Lab	7	4	98.0	3470
765-80B		6.00	28.27	3/7/2008	Lab	28	4	114.3	4040
765-80C		6.00	28.27	3/7/2008	Lab	28	4	117.3	4150
765-80D				Hold	Lab				

### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

## Report of Concrete Compressive Strength

ASTM C-31 &amp; C-39

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING &amp; PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Concrete Supplier: AUBURN CONCRETE

### PLACEMENT INFORMATION

Date Cast: 2/22/2008      Time Cast: 8:30      Date Received: 2/25/2008

Placement Location: 8TH FLOOR SLAB

Placement Method: PUMP

 Placement Vol. (yd<sup>3</sup>): 240

Cylinders Made By: TAP

Aggregate Size (in): 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

Minimum (°F)      Maximum (°F)

### DELIVERY INFORMATION

 Admixtures: 1% POZZUTEC  
 POLYHEED 1020

### TEST RESULTS

Slump (in) (C-143): 6

Load Number: 1

Air Content (%) (C-231): 3

Mixer Number: 108

Air Temp (°F): 17

Ticket Number: 139949

Conc. Temp (°F) (C-1064): 68

Cubic Yards: 10

Design (psi): 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-81A		6.00	28.27	2/29/2008	Lab	7	4	71.5	2530
765-81B		6.00	28.27	3/21/2008	Lab	28	4	90.5	3200
765-81C		6.00	28.27	3/21/2008	Lab	28	4	89.0	3150
765-81D				4/18/2008	Lab	56			

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



# Report of Concrete Compressive Strength

ASTM C-31 & C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Concrete Supplier:** AUBURN CONCRETE

## PLACEMENT INFORMATION

**Date Cast:** 2/22/2008      **Time Cast:** 9:35      **Date Received:** 2/25/2008

**Placement Location:** 8TH FLOOR SLAB

**Placement Method:** PUMP

**Placement Vol. (yd<sup>3</sup>):** 240

**Cylinders Made By:** TAP

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** 1% POZZUTEC  
POLYHEED 1020

## TEST RESULTS

<b>Slump (in) (C-143):</b>		<b>Slump WR:</b>	6	<b>Load Number:</b>	10
<b>Air Content (%) (C-231):</b>	3	<b>Air WR:</b>	2.5	<b>Mixer Number:</b>	95
<b>Air Temp (°F):</b>	17			<b>Ticket Number:</b>	139965
<b>Conc. Temp (°F) (C-1064):</b>	60			<b>Cubic Yards:</b>	10
				<b>Design (psi):</b>	3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-82A		6.00	28.27	2/29/2008	Lab	7	4	99.0	3500
765-82B		6.00	28.27	3/21/2008	Lab	28	4	125.0	4420
765-82C		6.00	28.27	3/21/2008	Lab	28	4	122.5	4330
765-82D				4/18/2008	Lab	56			

### Fracture Types



Cone



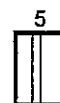
Cone and Split



Cone and Shear



Shear



Columnar

Remarks:



## Report of Concrete Compressive Strength

ASTM C-31 &amp; C-39

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**
**General Contractor:**
**Concrete Supplier:** AUBURN CONCRETE

### PLACEMENT INFORMATION

**Date Cast:** 2/22/2008      **Time Cast:** 11:45      **Date Received:** 2/25/2008

**Placement Location:** 8TH FLOOR SLAB

**Placement Method:** PUMP

**Placement Vol. (yd<sup>3</sup>):** 240

**Cylinders Made By:** TAP

**Aggregate Size (in):** 3/4

### INITIAL CURING CONDITIONS

#### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

### DELIVERY INFORMATION

**Admixtures:** 1% POZZUTEC  
POLYHEED 1020

### TEST RESULTS

<b>Slump (in) (C-143):</b> 6	<b>Slump WR:</b> 6.5	<b>Load Number:</b> 20
<b>Air Content (%) (C-231):</b> 3	<b>Air WR:</b> 2.5	<b>Mixer Number:</b> 108
<b>Air Temp (°F):</b> 23		<b>Ticket Number:</b> 139953
<b>Conc. Temp (°F) (C-1064):</b> 56		<b>Cubic Yards:</b> 10
		<b>Design (psi):</b> 3000

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area (In) <sup>2</sup>	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
765-83A		6.00	28.27	2/29/2008	Lab	7	4	86.5	3060
765-83B		6.00	28.27	3/21/2008	Lab	28	4	103.5	3660
765-83C		6.00	28.27	3/21/2008	Lab	28	4	104.0	3680
765-83D				4/18/2008	Lab	56			

#### Fracture Types



Cone



Cone and Split



Cone and Shear



Shear



Columnar

Remarks:

*03410 Structural Precast Concrete*  
BSE Inspection Reports

03410.1

# BECKER

03310

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

Date:	09-27-2007
Time:	7:45 am
Temp:	Warm
Weather:	Overcast, Chance of Showers

Project:	84 Marginal Way
Location:	Portland, Maine
Becker Job No:	1742

<b>Observation Location:</b> Precast plank at retail floor
--

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

Observed plank in field, and cored openings made in field. Spoke with PC about cored openings. PC to submit precaster coordination documentation.

**Signed:** Ethan A. Rhile, P.E.

# BECKER

03310

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

Date:	10-02-207
Time:	6:15 am
Temp:	Warm
Weather:	Sunny

Project:	84 Marginal Way
Location:	Portland, Maine
Becker Job No:	1742

<b>Observation Location:</b> Precast plank at retail floor, start of stair 1 erection
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

Visit was made with Paul Becker. Observed plank to have uneven bearing at retail floor. Sketch to grout condition to be submitted to PC.

**Signed:** Ethan A. Rhile, P.E.

# BECKER

03410

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

Date:	10-03-07
Time:	7:00 am
Temp:	60 F
Weather:	Overcast

Project:	84 Marginal Way
Location:	Portland, Maine
Becker Job No:	1742

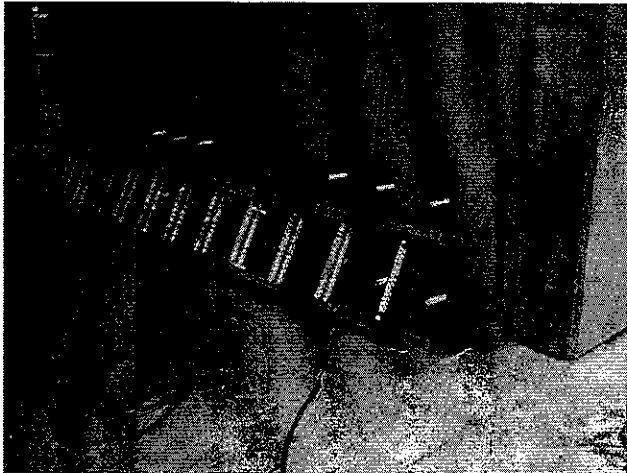
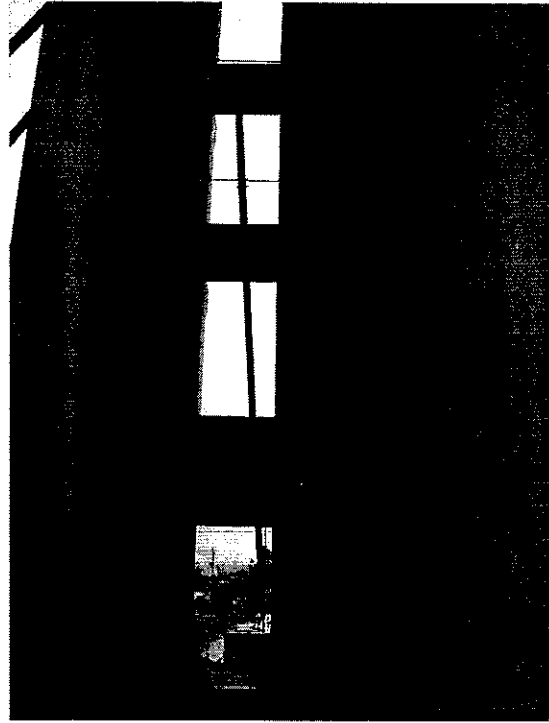
<b>Observation Location:</b> Stair Tower #1
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Photos
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Base and grout sleeves have not been grouted at this time.
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

Wall panels on lines G, F.6 and 2.2 at stair tower #1 have been erected and are currently supported by temporary shoring post and deadmen. See attached photos.

Signed: **Todd M. Neal, P.E.**



# B E C K E R

03310

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

<b>Date:</b>	10-02-207
<b>Time:</b>	2:30 pm
<b>Temp:</b>	Warm
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

**Observation Location:** Continued Erection of Stair Tower Walls at Stair wall. Review of proposed masonry wall opening.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

03410

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

Date:	10-17-07
Time:	9:00 am
Temp:	60 F
Weather:	Sunny and clear

Project:	84 Marginal Way
Location:	Portland, Maine
Becker Job No:	1742

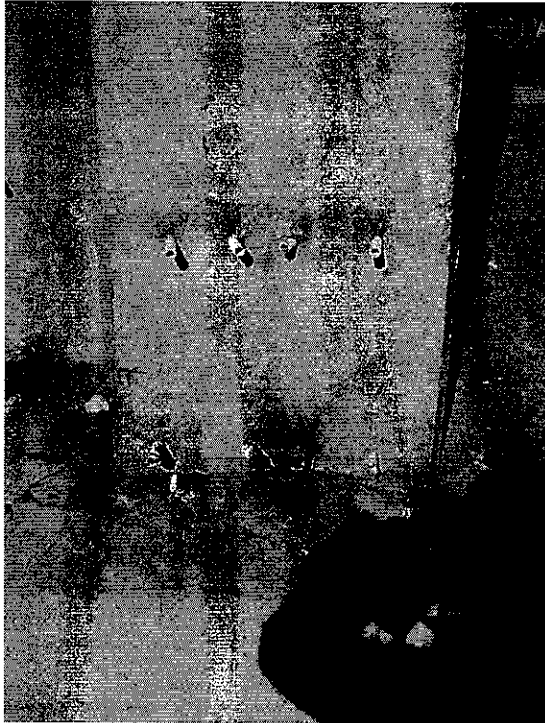
**Observation Location:** Precast has been erected from Line 1 to 4 between lines A.02 and G. This includes Stair Tower #2 (See Photos)



	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Base and grout sleeves have been grouted. See Photo 1
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	We were not able to get onto deck to check these connections at this time.
Precast Connections (other than T to T)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The connections completed to date that were visible from level P1 appear installed correctly and coated. (See Photos 2 & 3)
Additional Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reinforcement extending for CIP Foundation were severely bent at E/7 and D/7 (See Photos 4 & 5), Repair procedure to be developed for these bars
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Signed: Todd M. Neal, P.E.**





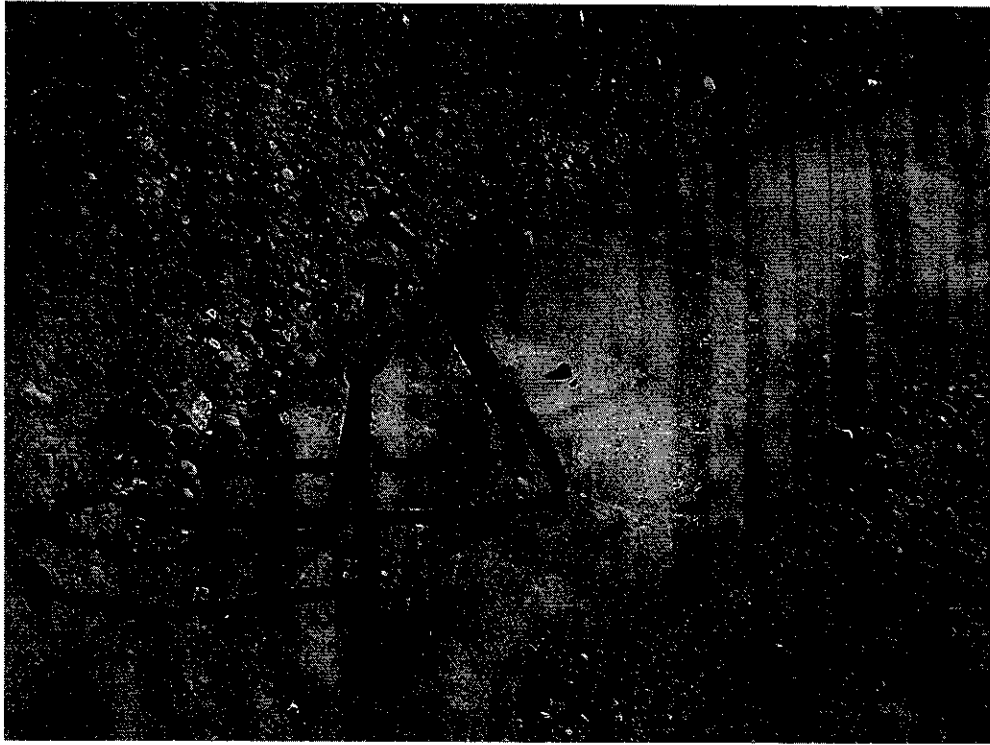
**Photo 1**



**Photo 2**



**Photo 3**



**Photo 4**



**Photo 5**

# B E C K E R

03410

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

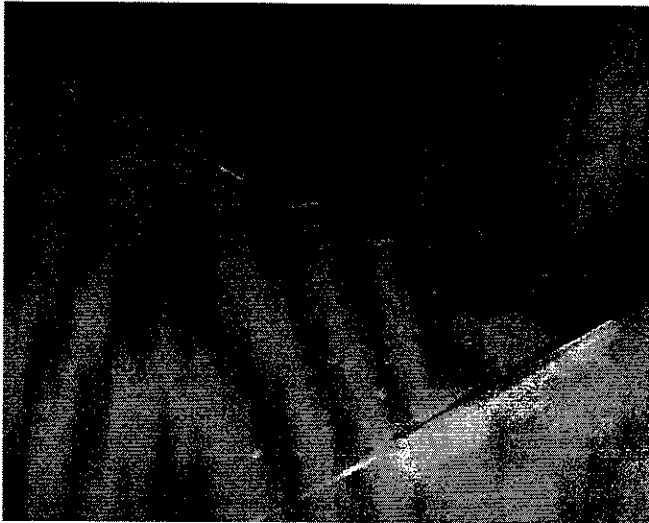
Date:	10-25-07
Time:	7:30 am
Temp:	40 F
Weather:	Sunny and clear

Project:	84 Marginal Way
Location:	Portland, Maine
Becker Job No:	1742

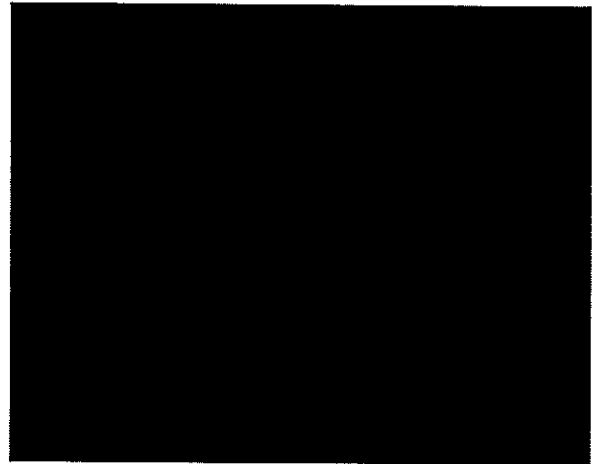
**Observation Location:** Precast has been erected from Line 1 to 5 between lines A.02 and G. This includes Stair Tower #2

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Overall the precast quality is acceptable there were a few visible spalls that appear to be the result of erection procedures. (See Photos 1 & 2)
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See comments above about spalls.
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Base and grout sleeves have been grouted.
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	We did not observe any completed connections at this time.
Precast Connections (other than T to T)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The connections completed to date that were visible from level P1 appear installed correctly and coated. (See Photos 2 & 3)
Additional Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The washes around Column D/2.2 do not match the wash on the beam on D line and there is a 2" jump that will need to be repaired (See Photo 3)
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	At the time of this observation it was noted that there was some concern about the alignment of the top surfaces of the DT's. Jacking and shimming has not been completed at this time so it is premature to comment on this issue. There are some significant difference in the area between grid lines B,D,2.2, and 4

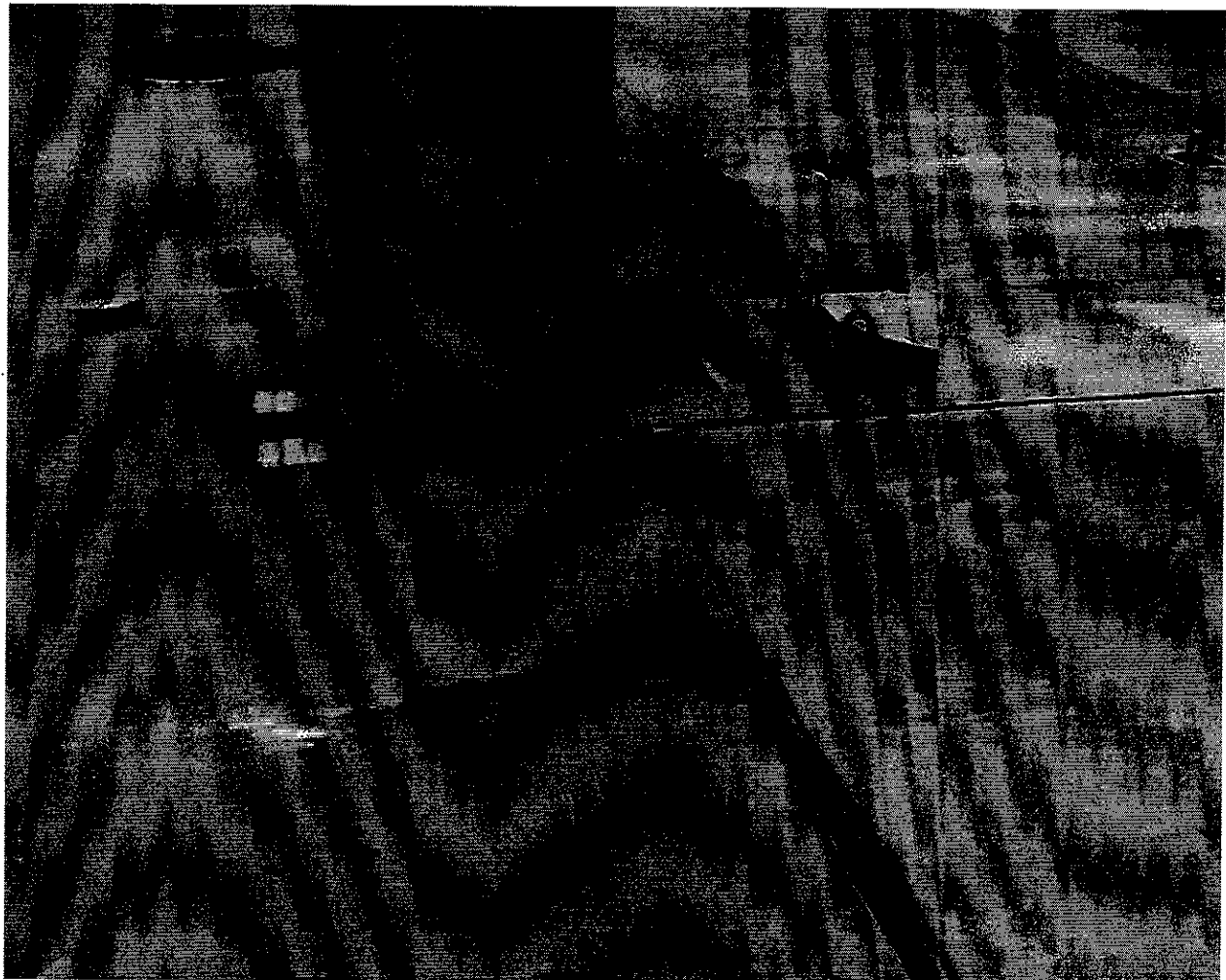
**Signed: Todd M. Neal, P.E.**



**Photo 3**



**Photo 2**



**Photo 3**

# BECKER

03310

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

<b>Date:</b>	10-30-207
<b>Time:</b>	2:15 pm
<b>Temp:</b>	Warm
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> General Review, Phase 1 progress
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

03310

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

<b>Date:</b>	10-31-207
<b>Time:</b>	1:05 pm
<b>Temp:</b>	Chilly
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> General Review, Phase 1 progress
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
Precast Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Comments
Erection Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

The intent of my visit was to monitor the flame straightening of reinforcement at the \_\_\_ column grid location. The temperature of the reinforcing was monitored with Tempstiks. The procedures appeared to follow that agreed upon with precaster.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

03310

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

<b>Date:</b>	11-14-2007
<b>Time:</b>	9:15 am
<b>Temp:</b>	Warm
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Stair 3 Erection
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

Observed two of the stair 3 panels that had been erected, along with A-line steel. Also noted that a portion of the retail topping slab was about to be trowelled after placement at the time of my visit.

**Signed:** Ethan A. Rhile, P.E.

**OBSERVATION REPORT**

Precast Concrete

Date: 11-15-07

Time: 4:00 pm

Temp: 60 F

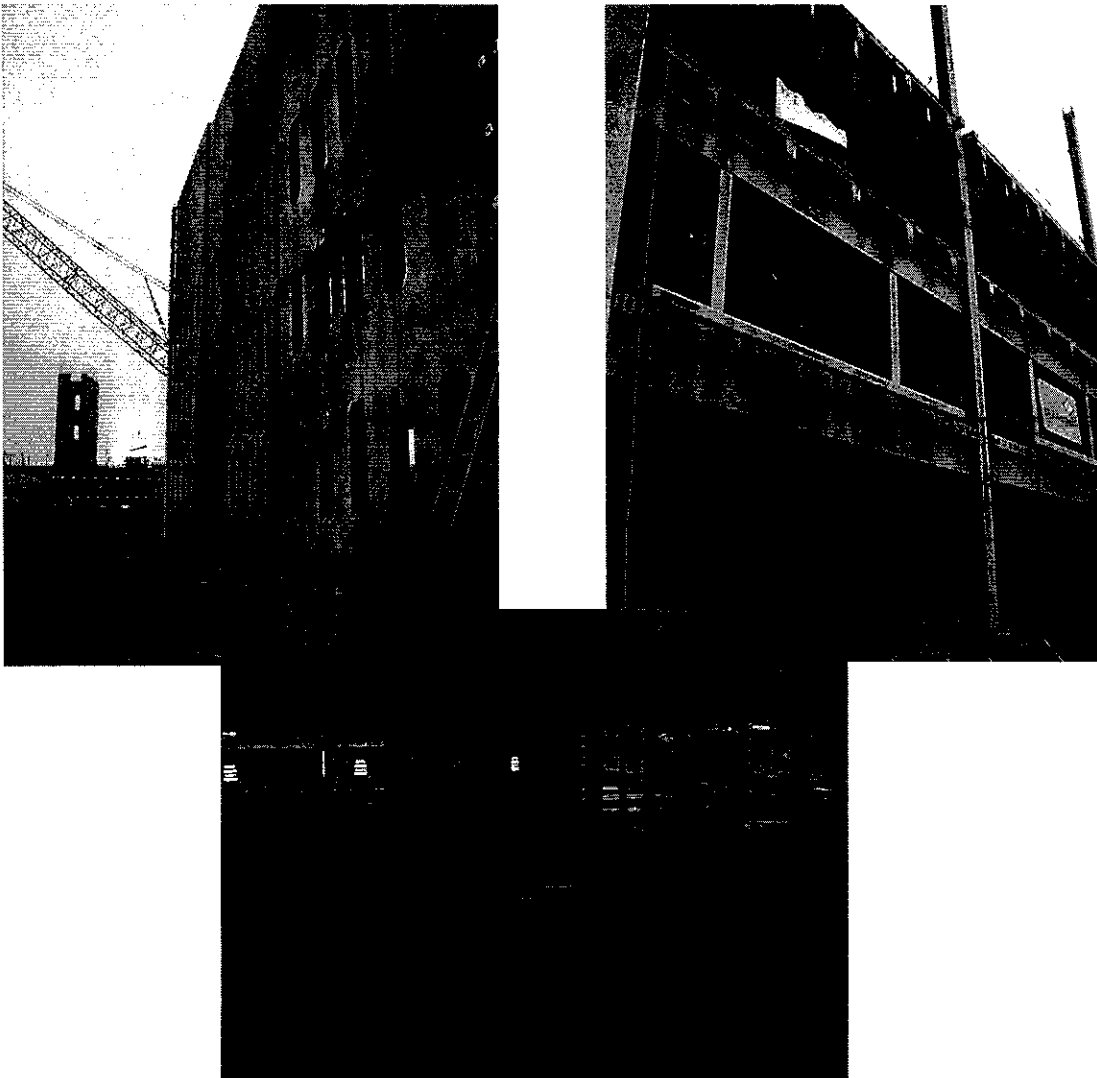
Weather: Overcast and Raining

Project: 84 Marginal Way

Location: Portland, Maine

Becker Job No: 1742

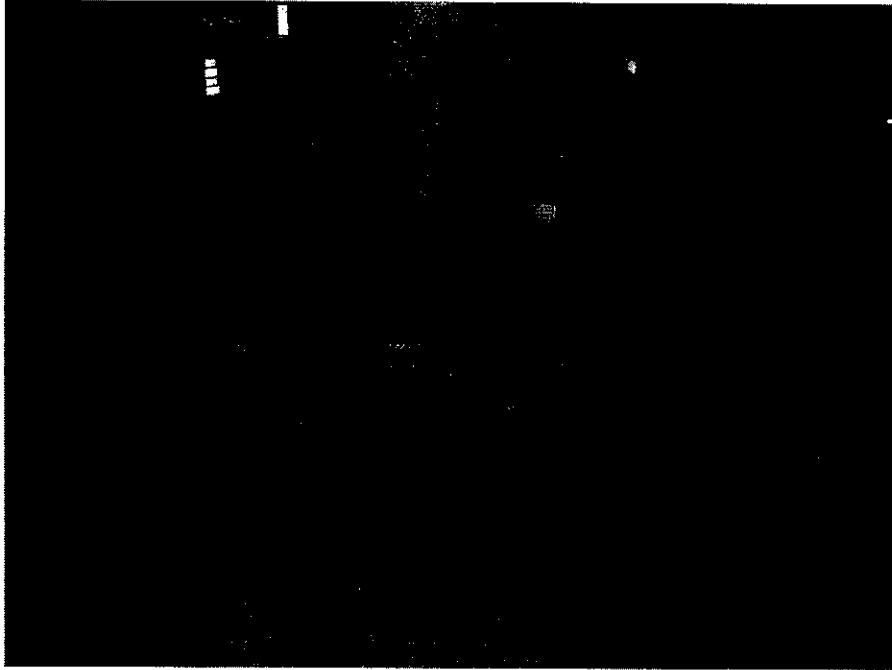
**Observation Location:** Precast has been erected from Line 1 to 4 between lines A.02 and G. This includes Stair Tower #2, connections are underway. Steel and precast has been erected between lines A & B.4 from 7 to 11, this includes stair tower #3. Topping slab has been placed on Level P1 hollow core plank. Stair framing has been installed in Stair #2. Reinforcement had been placed for CIP Slab ramp between grids D, G, 4 & 5.



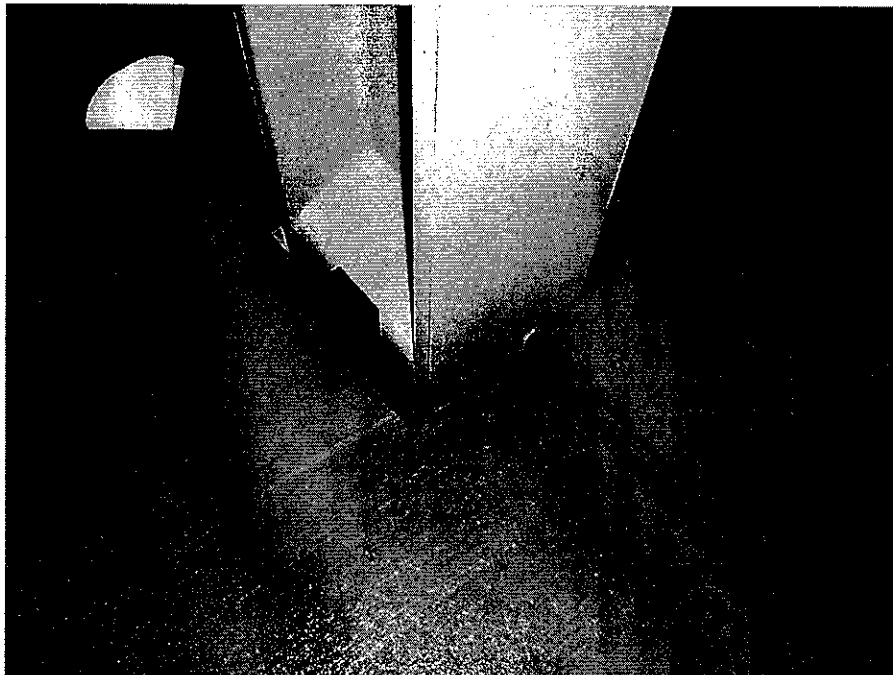


	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	To date the DT alignment is very good on this project the joints are a consistent width and there are very few areas with elevation difference across the joint. Photo 1 shows a location at 2.2/D on all levels where the DT's were cast with a wash adjacent to DT's w/o a wash. These areas will need to be ground down to create a flush transition. Photo 2 indicates a minor spall in the deck that will require repair.
Bearing Surfaces	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Base and grout sleeves have been grouted in area noted above.
Tee to Tee Connections	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DT to DT connections were being installed at this time welds looked good. These welds should be inspected prior to installing sealant as per specifications. See Photos 3 & 4
Precast Connections (other than T to T)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The connections completed to date that were visible from level P1, P2, and P3 appear installed correctly and coated.
Additional Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	On Level P4 we noted cracks in the DT flanges as follows: DT-186, North End (See Photo 5 & 6) DT-187, North End DT-188, South End These cracks should be repaired with epoxy. We are waiting for a repair procedure from Strescon
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

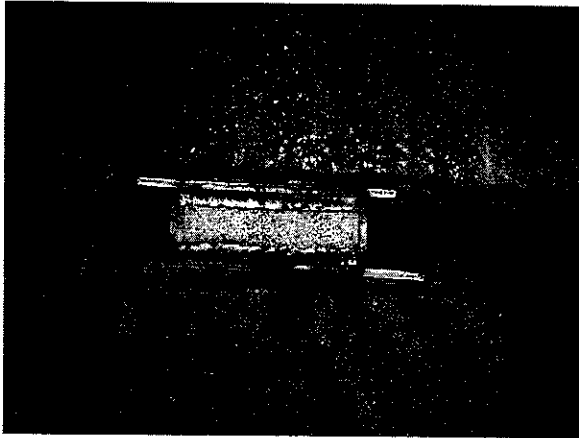
**Signed: Todd M. Neal, P.E.**



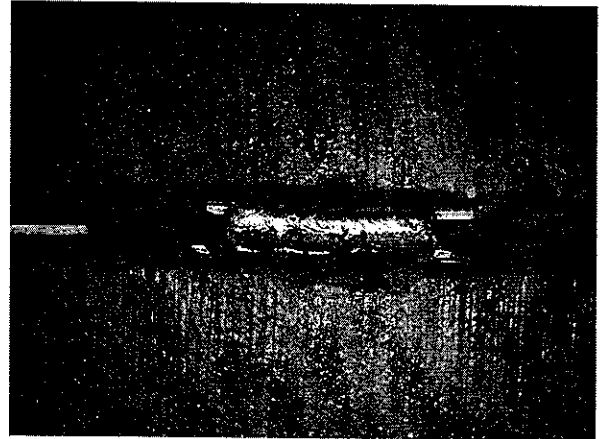
**Photo #1**



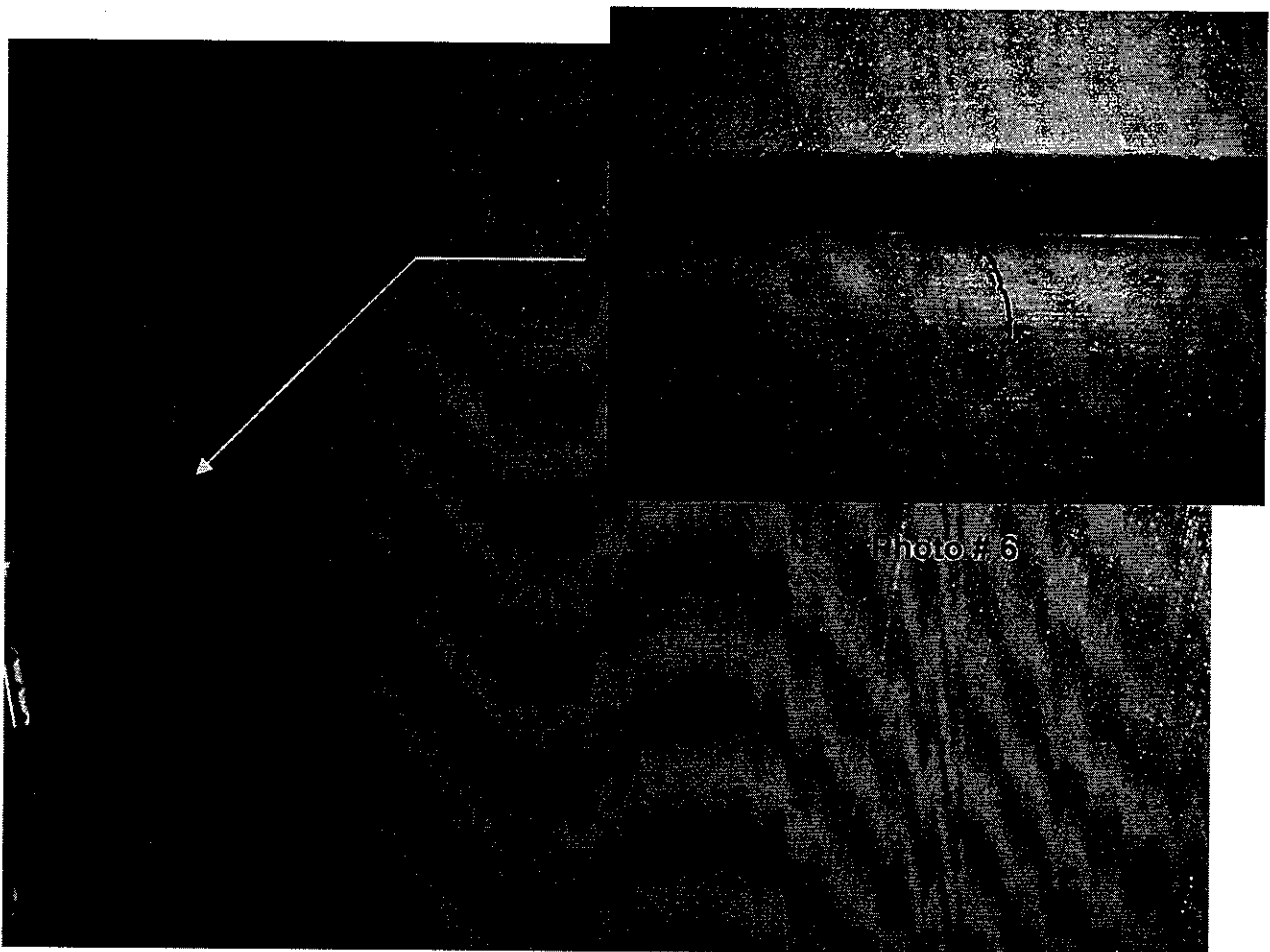
**Photo #2**



**Photo #3**



**Photo #4**



**Photo #5**

# B E C K E R

03410

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

<b>Date:</b>	11-23-2007
<b>Time:</b>	1:00 pm
<b>Temp:</b>	Cold 38 F
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

**Observation Location: Level P4 & P5**

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sealants were being installed on levels P4 & P5
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

Sealants were being installed on level P4 & P5 at temperatures below the published manufacturer's recommendations. Material was being stored outside on site at temperatures below the manufacturer's recommendations. The decks had not been cleaned and they were doing some concrete demo above the sealant. There is an increased cure time in temperatures this low. There was a lot of debris embedded in the sealant.

I discussed this issue with Mike and met with the Sealant installer following this site visit and discussed that these joints may need to be replaced and should be considered temporary.

**Signed:** Todd M. Neal, P.E.

# B E C K E R

03410

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

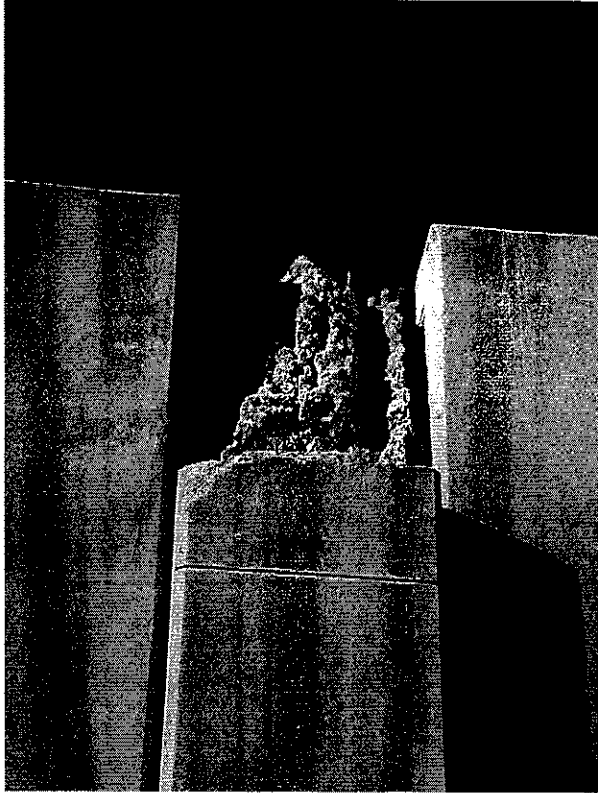
<b>Date:</b>	11-23-07
<b>Time:</b>	1:00 pm
<b>Temp:</b>	38 F
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

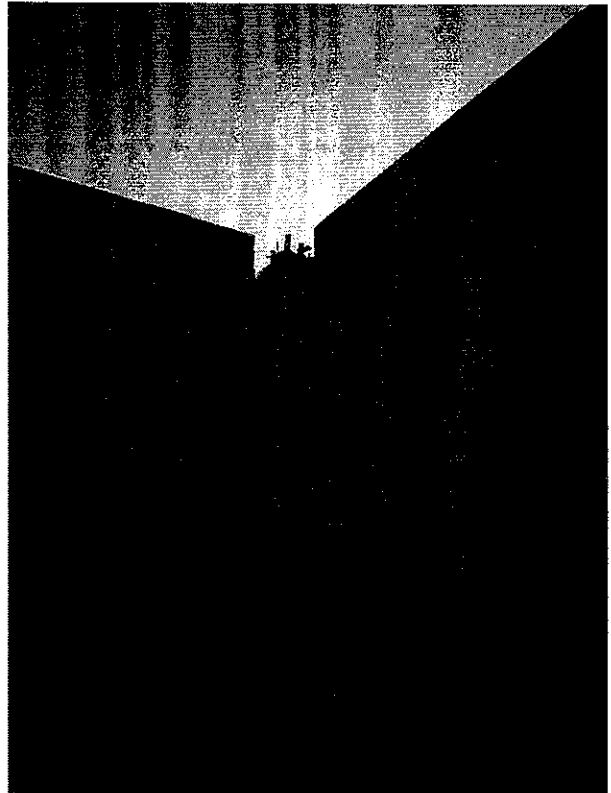
**Observation Location:** The purpose of this site visit was to review the remedial work at the pilaster at the top of the precast wall at 6/D. At this time we also noted that joint sealant had been installed on level P4 Deck. We were unaware of this installation and at this time had not approved the sealant submittal.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
Precast Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Comments
Erection Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Precast Connections (other than T to T)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items <b>6/D Remedial</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Demo work was proceeding at the time of this visit per the details provided by Strescon. See Photos #1-#3
Additional Items <b>Joint Sealant Level P4</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Joint Sealant had been installed prior to my visit we have the following concerns regarding the installation: <ol style="list-style-type: none"> <li>1. Temperature; According to the product data sheet the temperatures need to 40F and rising for this product to cure. As noted above the temperature was 38F but the temperatures have been falling to the teens in the evening. This material is also to be stored at higher temperatures when installed in the colder temps we noted the material was stored on the deck and was placed there the day before (see photo #4).</li> <li>2. We also noted a lot of debris, trash, and demo material embedded in the sealant. See Photos #4-#6.</li> <li>3. The material thickness at the ends does not appear to meet the 1/2" minimum thickness specified. See Photo #7.</li> <li>4. Sealant had been installed prior to addressing alignment and repair issues on this deck. See Photos #8 &amp; #9</li> </ol>

**Signed: Todd M. Neal, P.E.**



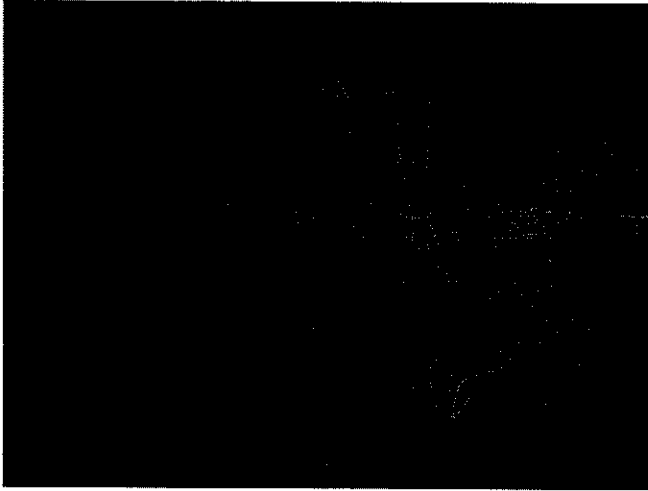
**Photo #1**



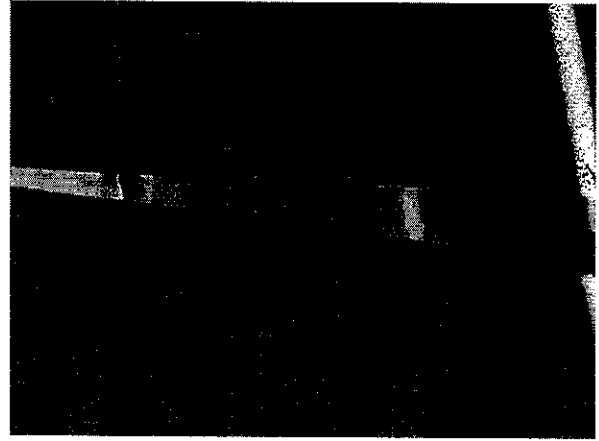
**Photo #2**



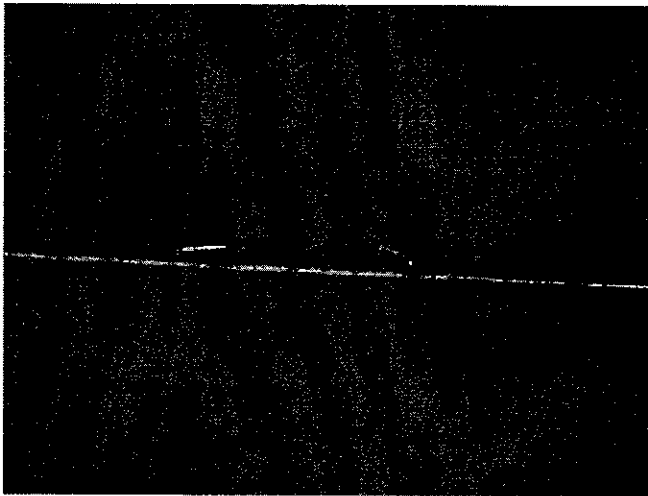
**Photo #3**



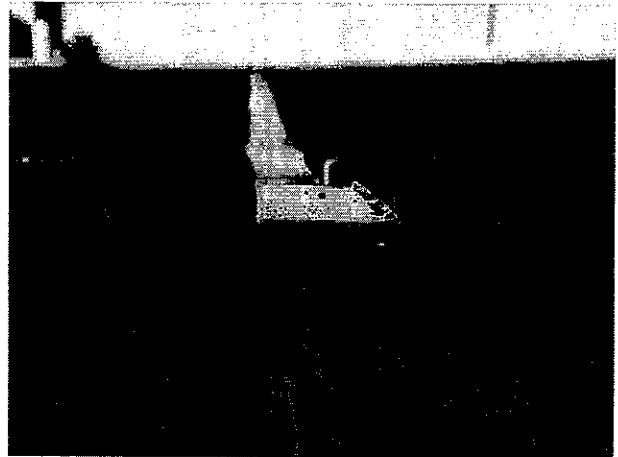
**Photo #4**



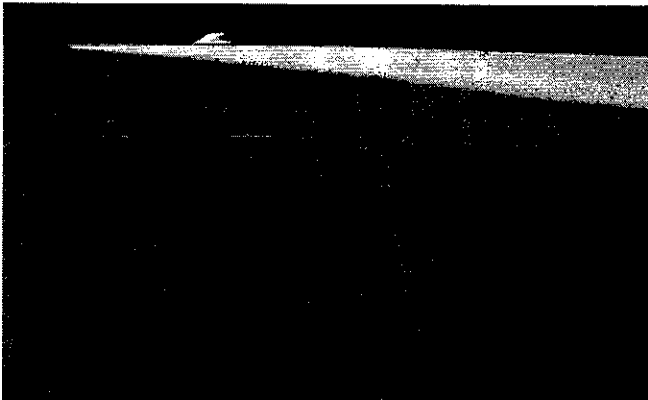
**Photo #5**



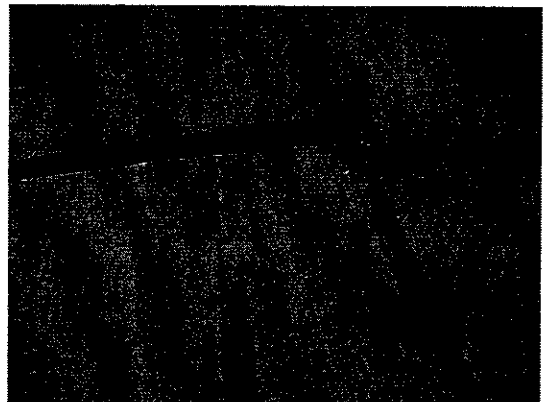
**Photo #6**



**Photo #7**



**Photo #7**



**Photo #8**

# B E C K E R

03310

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

<b>Date:</b>	11-28-2007
<b>Time:</b>	2:00 pm
<b>Temp:</b>	Cold
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

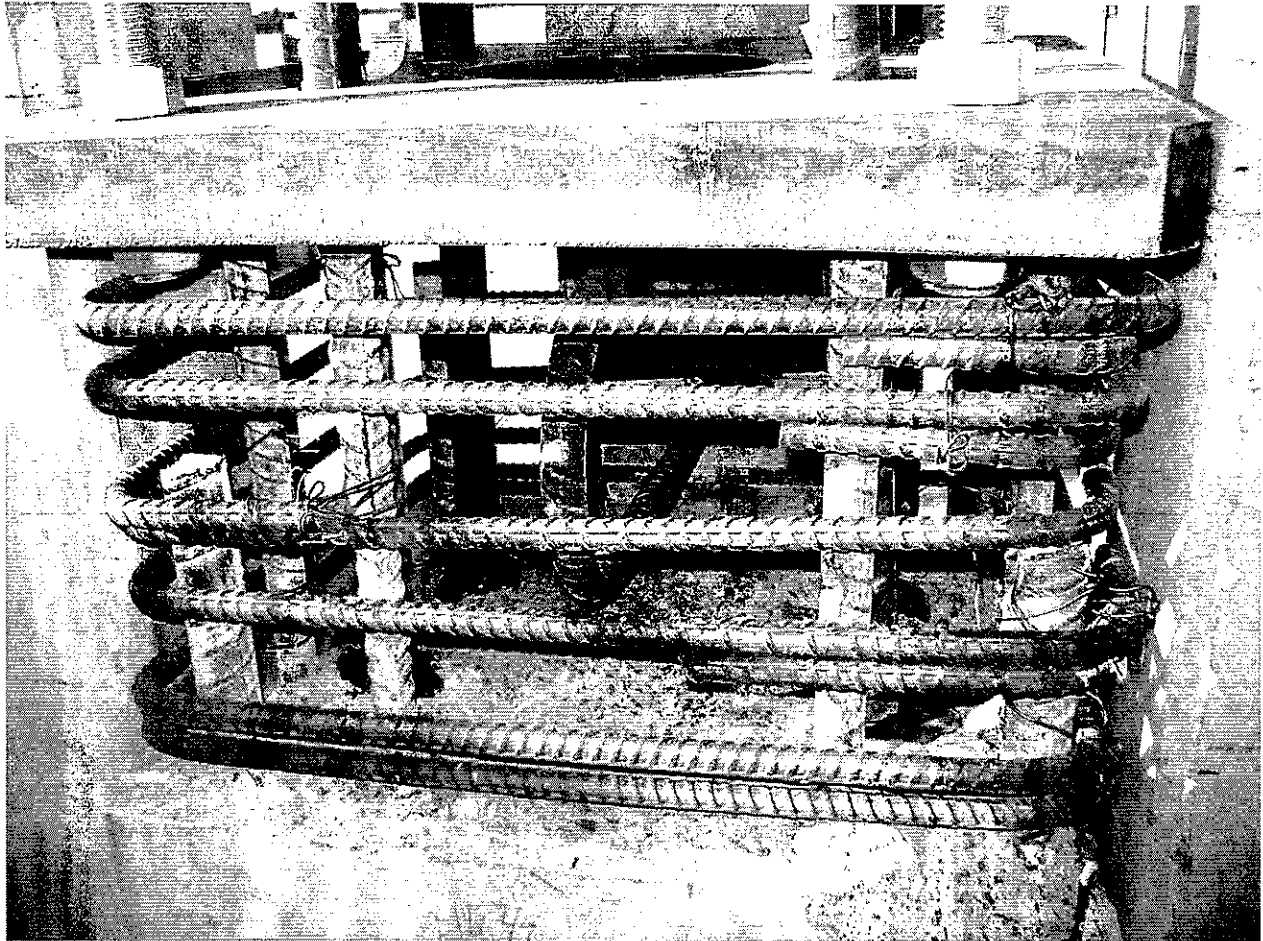
**Observation Location:** Review of pilaster repair at D/6.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit-Up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

Review of site remedial at D/6. Repair appeared to match Strescon's repair intent. See photo.





**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

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<b>OBSERVATION REPORT</b>
Precast Concrete

<b>Date:</b>	1-08-2008
<b>Time:</b>	1:00 pm
<b>Temp:</b>	Cold 55 F
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location: Level P4</b>
---------------------------------------

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Wall to pilaster connection
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

There were visible spalls on both sides of the connection. It appears that the vector connector yielded during the welding process as was evident by the cold galvanizing coating installed after the connection was complete. Strescon to review and provide remedial repairs.

**Signed:** Todd M. Neal, P.E.

# B E C K E R

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<b>OBSERVATION REPORT</b>
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Precast Concrete
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<b>Date:</b>	3-13-2008
--------------	-----------

<b>Time:</b>	9:00 am
--------------	---------

<b>Temp:</b>	Mid 30's F
--------------	------------

<b>Weather:</b>	Overcast
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<b>Project:</b>	84 Marginal Way
-----------------	-----------------

<b>Location:</b>	Portland, Maine
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<b>Becker Job No:</b>	1742
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<b>Observation Location: Installation of precast beyond footprint of building started with corner from lines F to G erected (See Photo 1)</b>
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
					Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Most of the fit-up look acceptable the column on 1 line that goes through the mid span of DT's is tight to one side of the opening. This will need to be cut to provide relief (See photo 2)
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Grouted column base were being covered with Insulating blankets.
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

**Signed:** Todd M. Neal, P.E.

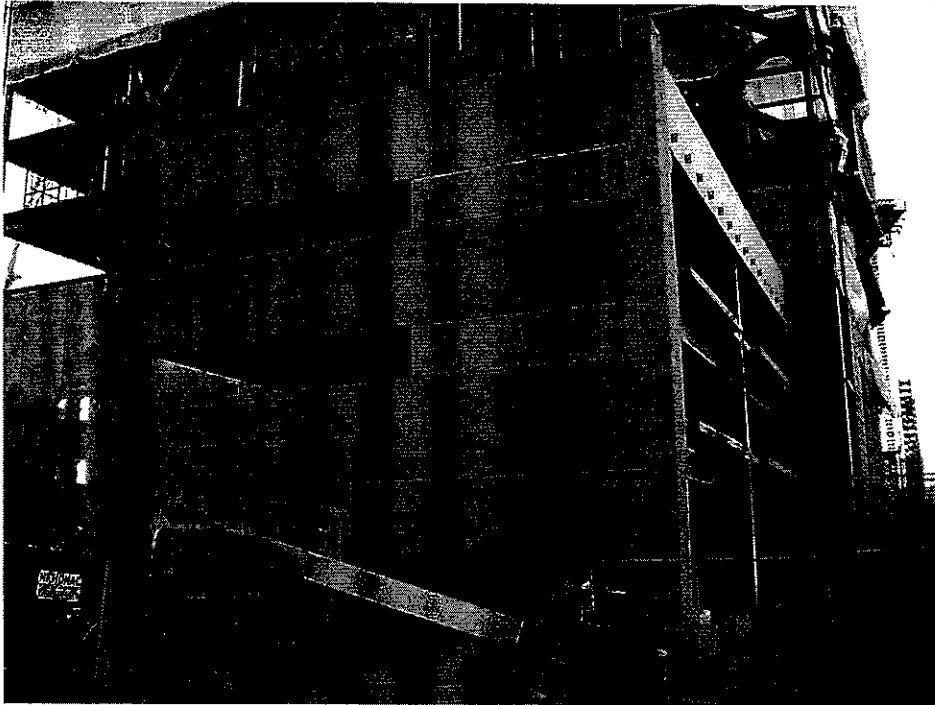
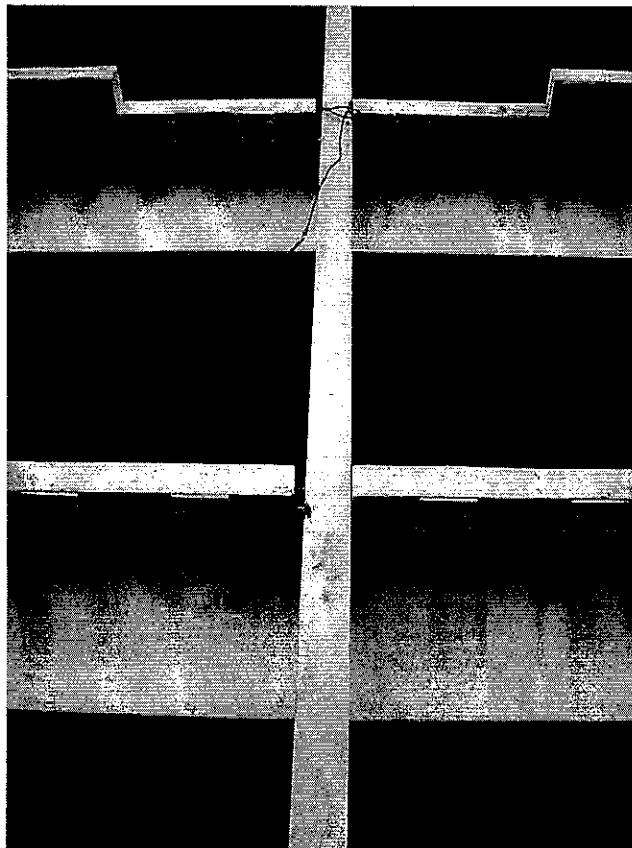


Photo 1

Photo 2



<b>OBSERVATION REPORT</b>
Precast Concrete

<b>Date:</b>	3-20-2008
<b>Time:</b>	9:00 am
<b>Temp:</b>	Mid 30's F
<b>Weather:</b>	Overcast

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

**Observation Location: Installation of precast beyond footprint of building. Precast erected between lines G & F from line 1 to 8. Installing base panels on F line & backfilling and compacting for temporary shoring on line G.**

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

**Signed:** Todd M. Neal, P.E.

# B E C K E R

03410

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<b>OBSERVATION REPORT</b>
Precast Concrete

<b>Date:</b>	3-25-2008
<b>Time:</b>	9:00 am
<b>Temp:</b>	Mid 30's F
<b>Weather:</b>	Overcast

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

**Observation Location: Installation of precast beyond footprint of building completed from line 1 to line 8 between lines F & G (See Photos 1 & 2)**

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Notes:**

**Signed:** Todd M. Neal, P.E.

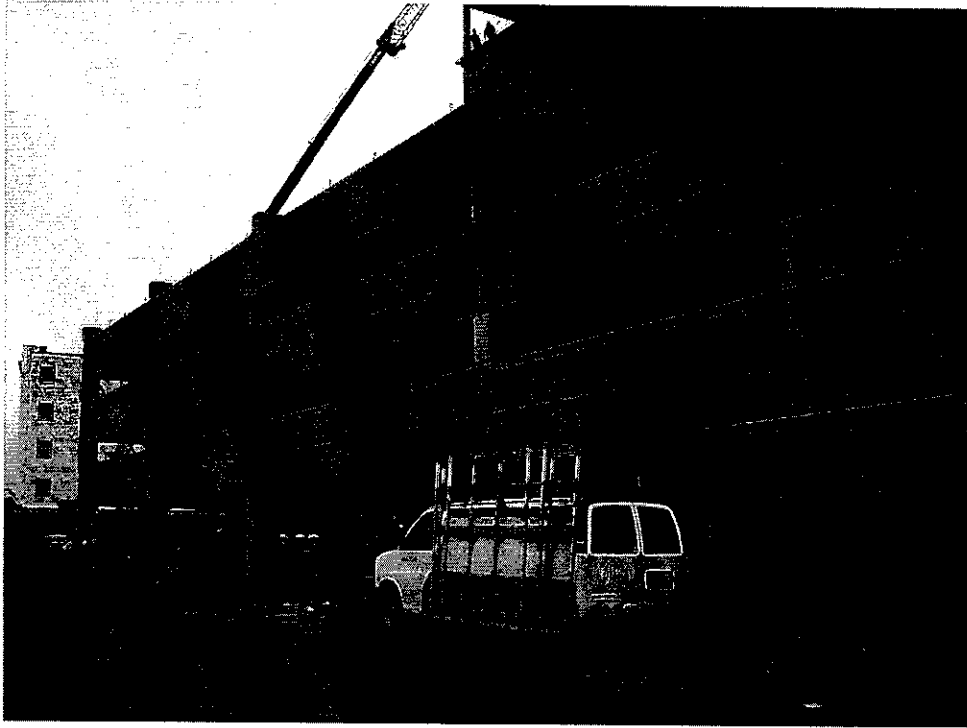


Photo 1

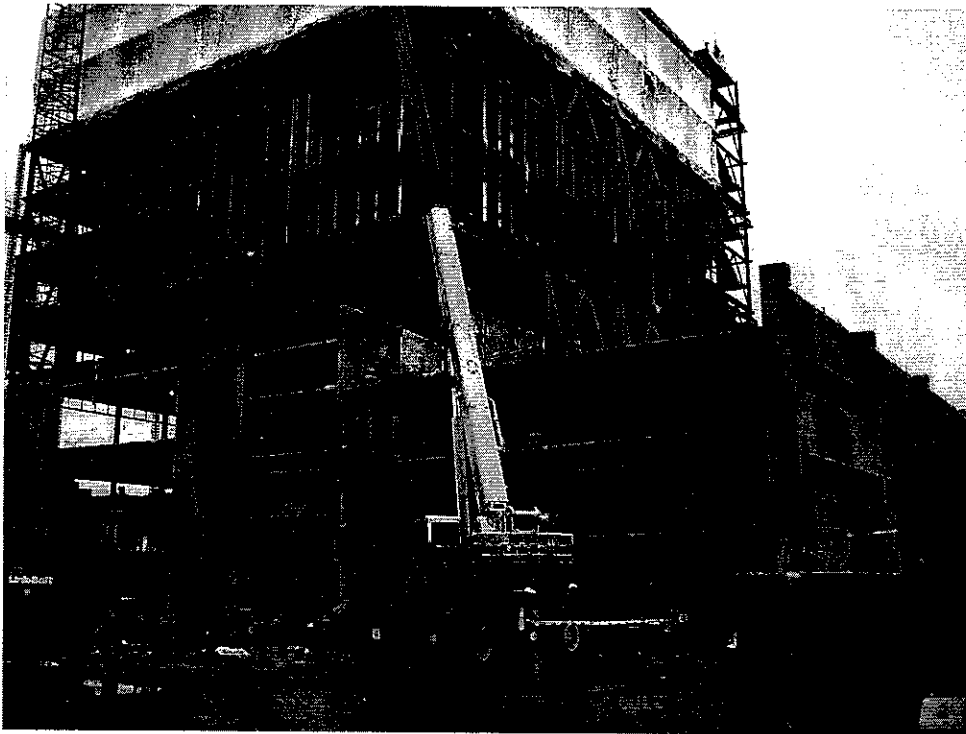


Photo 2

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	3-13-08
<b>Time:</b>	9:20am
<b>Temp:</b>	Cold
<b>Weather:</b>	Mostly sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

**Observation Location:**  
DT shoring install. Brick support beam install at roof level

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Ethan A. Rhile, P.E.



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## OBSERVATION REPORT

Precast Concrete

Date: 4-01-2008

Time: 7:00 am

Temp: Mid 30's F

Weather: Overcast

Project: 84 Marginal Way

Location: Portland, Maine

Becker Job No: 1742

Observation Location: Installation of precast beyond footprint of building started from line A to line B between beyond line 7 (See Photo 1)

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### Notes:

Signed: Todd M. Neal, P.E.



Photo 1

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## OBSERVATION REPORT

Precast Concrete

Date: 4-09 & 10-2008

Time: 9:00 am

Temp: 38 F

Weather: Clear

Project: 84 Marginal Way

Location: Portland, Maine

Becker Job No: 1742

Observation Location: Installation of precast almost complete. Erecting P5 ramp and then will move over and complete final section near stair tower 3 (See photos). On 4/10/08 had pre-con with joint sealant installer they were looking to start in approximately 3 weeks.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erection Procedures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

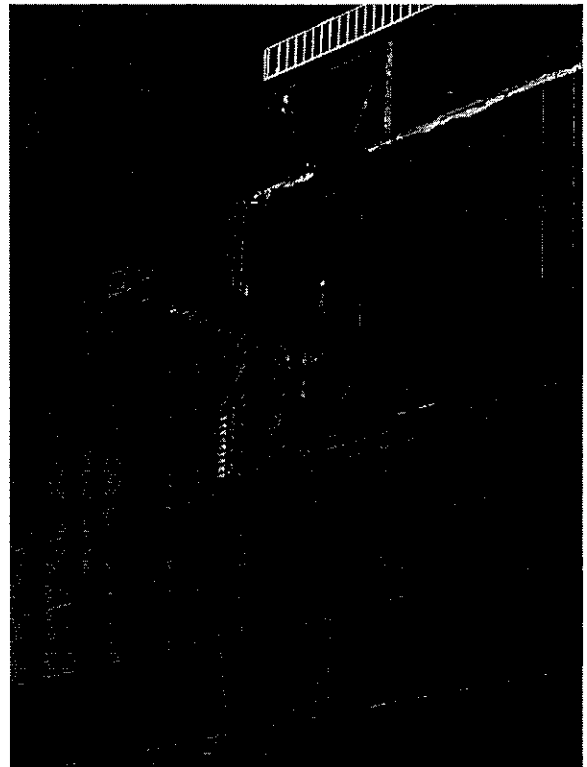
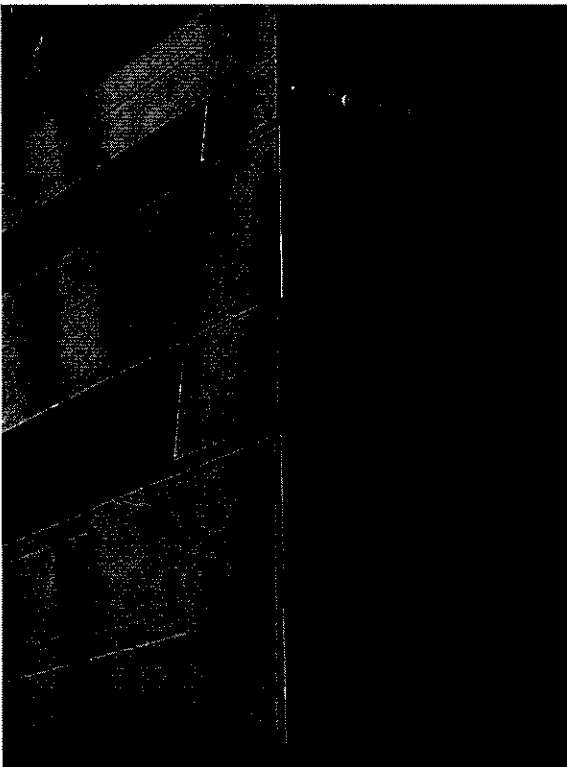
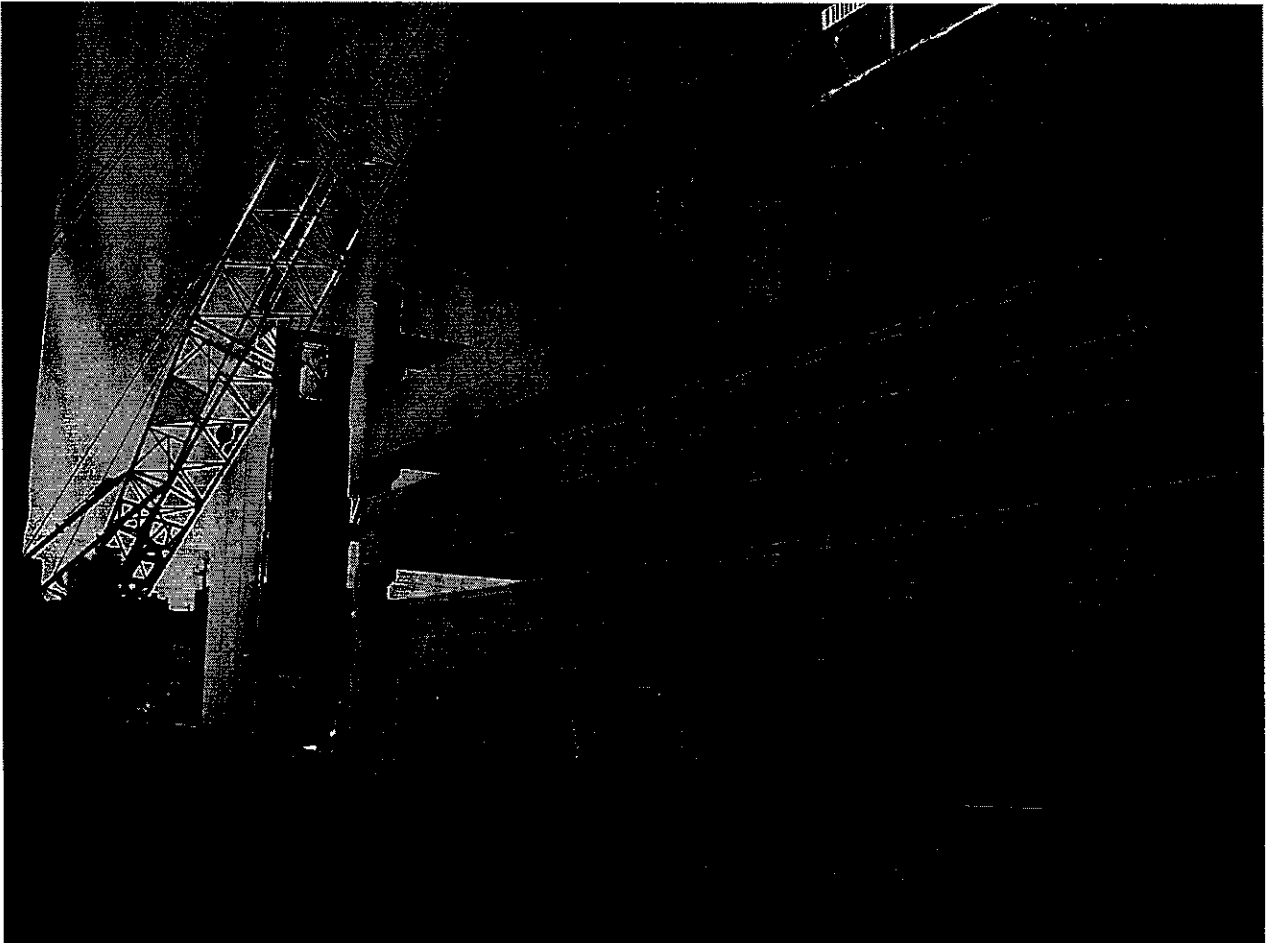
### Notes:

Signed: Todd M. Neal, P.E.

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## OBSERVATION REPORT

Precast Concrete

Date: 4-22-2008

Time: 7:00 am

Temp: 44 F

Weather: Clear

Project: 84 Marginal Way

Location: Portland, Maine

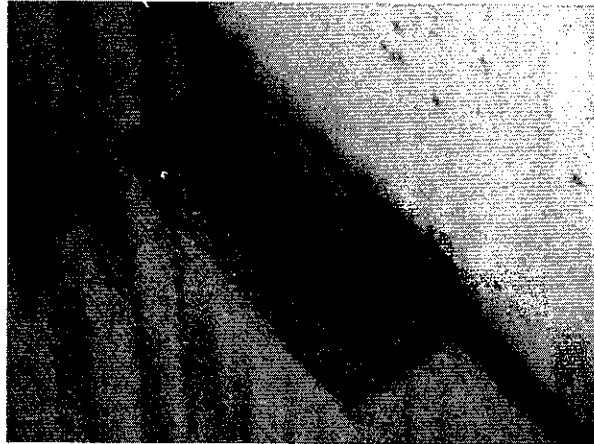
Becker Job No: 1742

Observation Location: Erection of Precast is substantially complete reviewed garage for punch list items. Punch list attached.

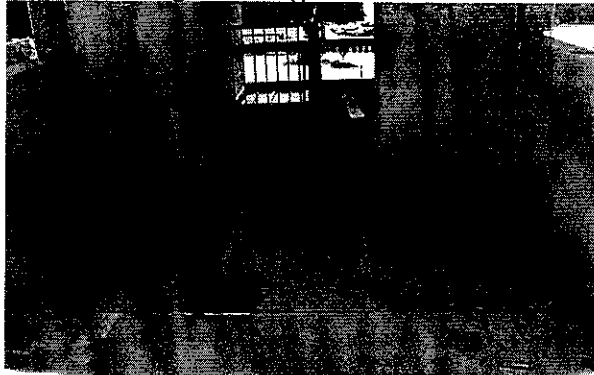
	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Following sheets for punch list items (typical)
Erection Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Notes:

Signed: Todd M. Neal, P.E.



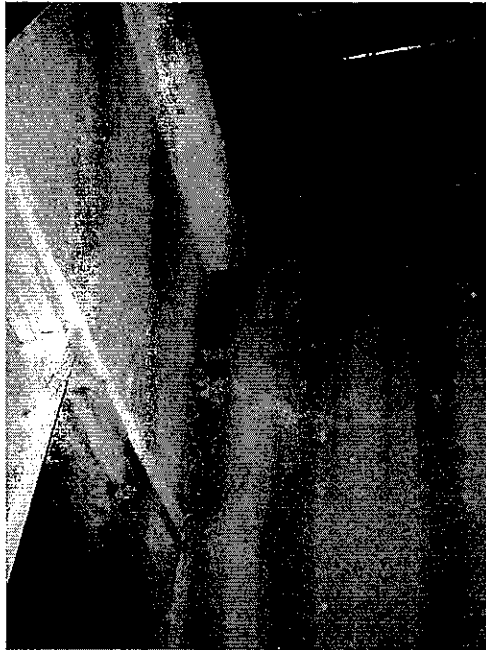
- Spalls on ITB-19 between 9.2 and 11 line
- Elevation difference DT-226/ITB-19/DT-227 (11/D line)
- Grout cracked in ITB-19 → C-10 connection (11/D line)
- Crack in flange DT-227 @ Stair



**84 Marginal Way – PC/Garage Punch List Items**

**Level P1 Ramp**

- Speed ramp @ grade BSE/Pizzagalli to resolve.
- Expansion Joint @ speed ramp → DT-30: A 2” expansion joint was indicated at Line 5 between lines D & G at the transition from CIP to Precast. The joint exist at the DT but the DT is very tight to SW 14.
- Spall @ DT-32, G-line – Additional relief may be required prior to installing joint sealant.



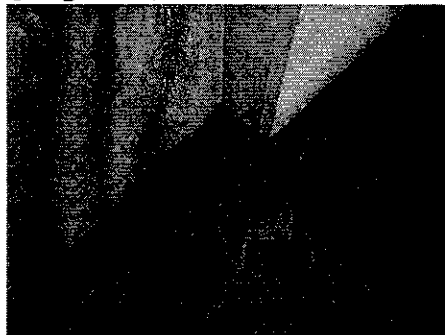
- Overhead spall (underside of DT-105/DT-106), @ 7-line Level 2 Above



- ~~S.W. Connection Joins South of 9.2 line??~~
- Lifting loop pockets (Check Strescon detail)

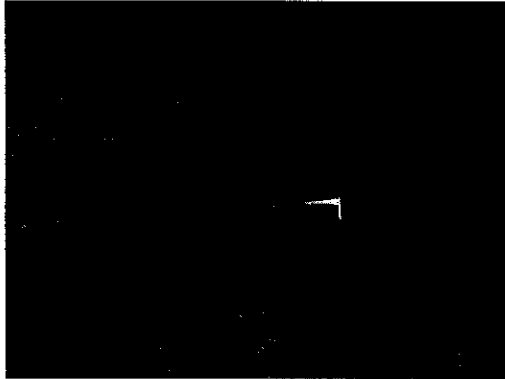
**Level P2**

- Spall @ DT-19, 9.2/G-line

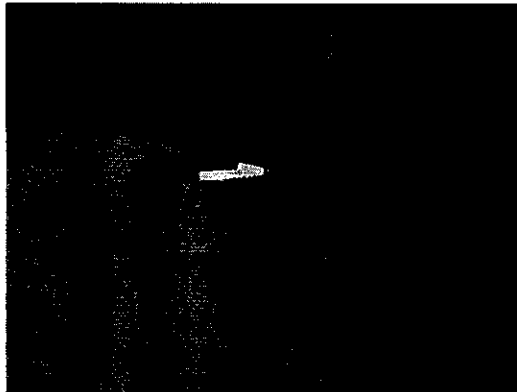




- Tight joint DT-8 → DT-9 @ H/5.4-line. Sawcut to provide ½" min joint.



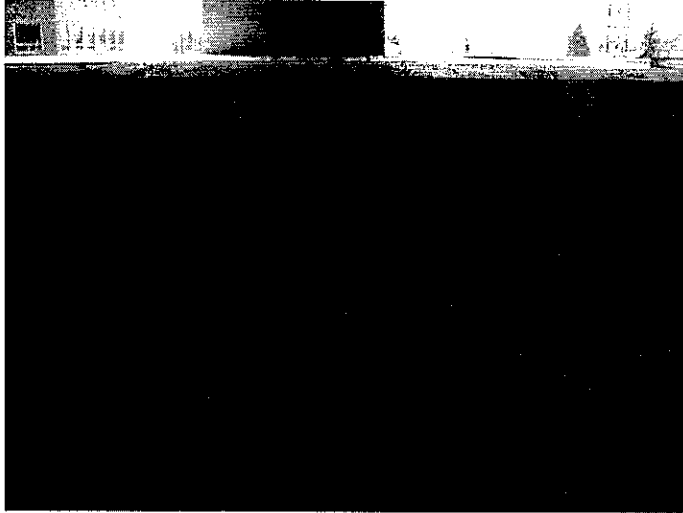
- H/5 Column/DT Connection. Remedial connection is too high and does not allow for any cover.



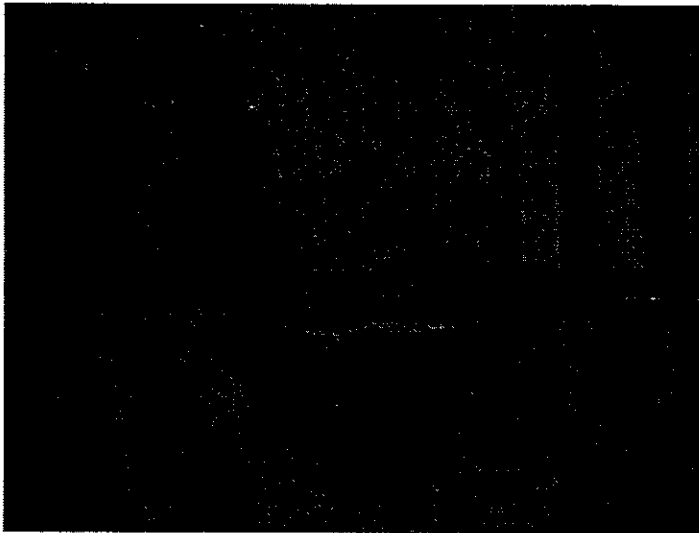
- Drain Pockets through shear walls. Pockets and top of DT's do not always align and or provide un-obstructed drainage. This occurs at many other locations throughout the garage.



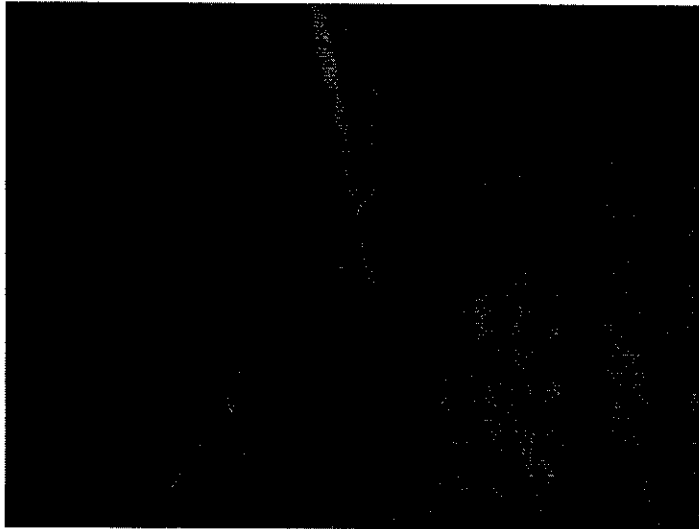
- High DT joint south of 4-line between G and H-lines (DT-3/DT-4)



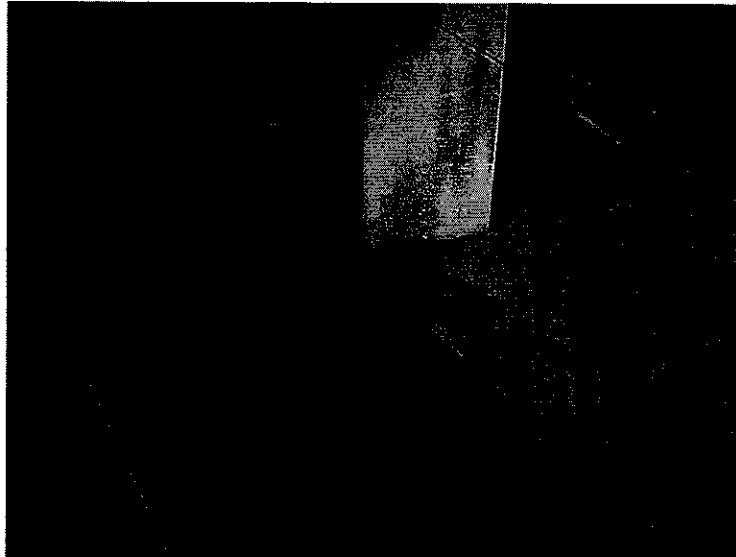
- Spalls @ Vector connectors. This is common throughout the garage. We recommend that these are ground smooth and filled with sealant.



- DT-1 block out at steel column @ G.5/1. DT flange is tight to Steel column cut in relief, min 1/2".



- Entrance to Stair #1, DT-27 (Photo P4420179)??
- Opening @ Stair #1, SW7??
- Wash each side of column @ D/2-lines, DT-25. This is typical at all levels. High edge of wash will need to be ground smooth the match adjacent wash.



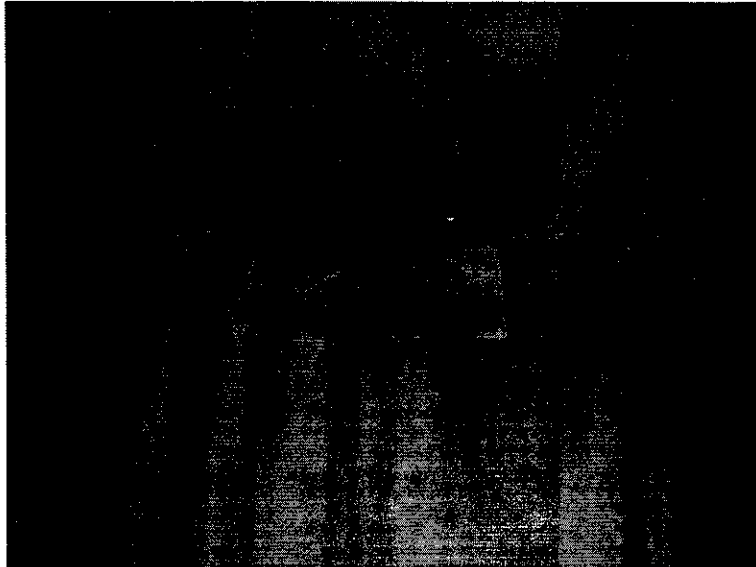
- DT-25 connection to Column at D/2. This bar repair will have limited cover.



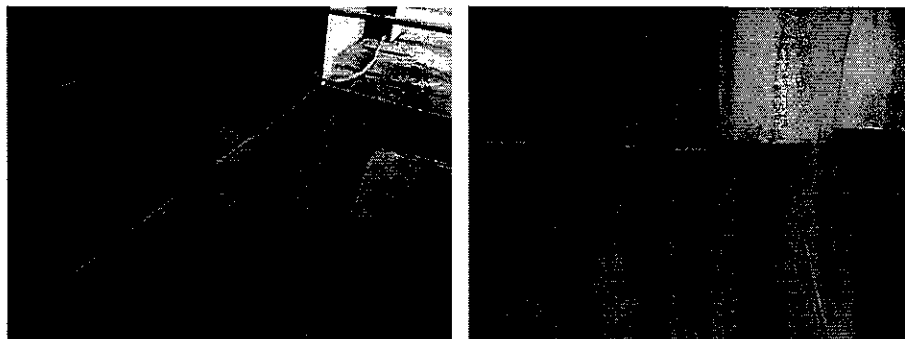
- DT-25 → SW4 connection no cover.



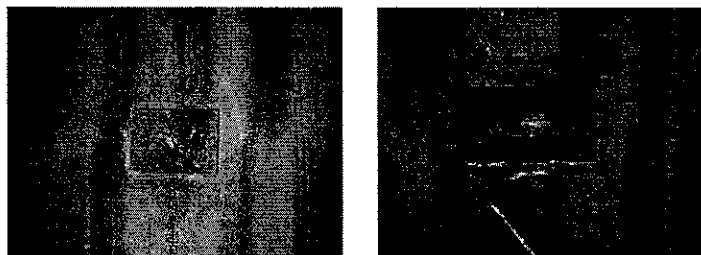
- DT-116 → SW4 remedial connection above missing bolt.



- Joint @ DT-48/DT-49, DT 49 is high at entrance to stair tower and at connection to IT beam at D/4, DT-48 is low.



- Lifting loop pockets are of various depths (limited cover over strand ends) and condition provide typical detail for filling pockets. This is typical through garage

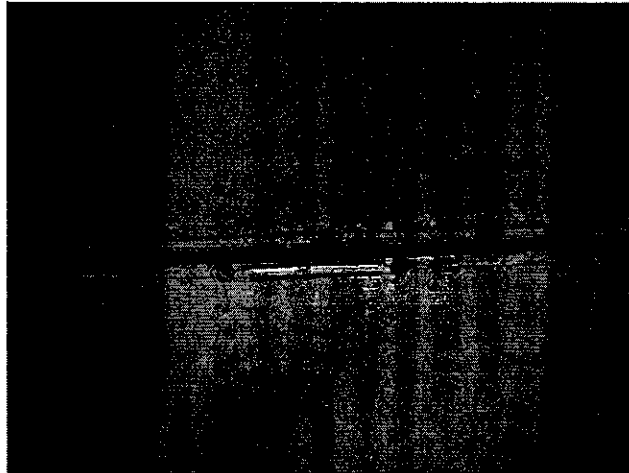


- Crack over stem, DT-67

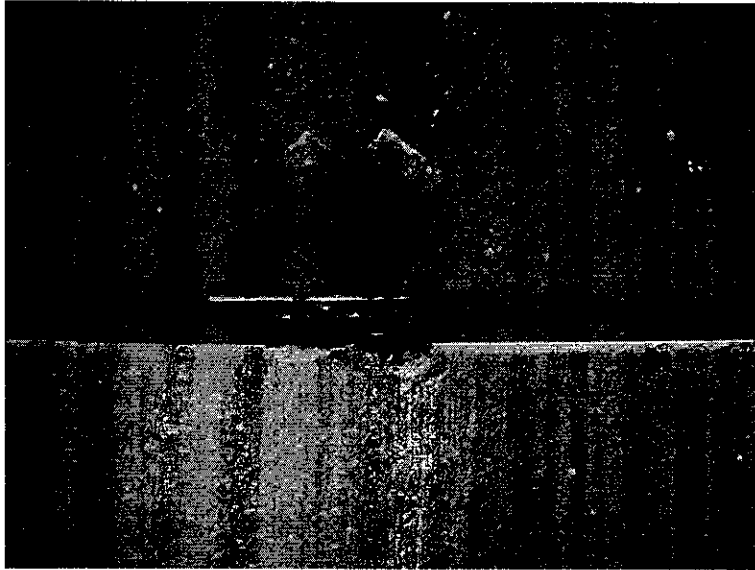


**Level P2 Ramp**

- DT-98/DT-99 missing embedded Vector connections.



- In many locations there are small spalls at the joints (near Vector Connections) and at the ends of the DT's. We expect these spalls will be cleaned out, the edges will be ground and they will be filled with sealant.

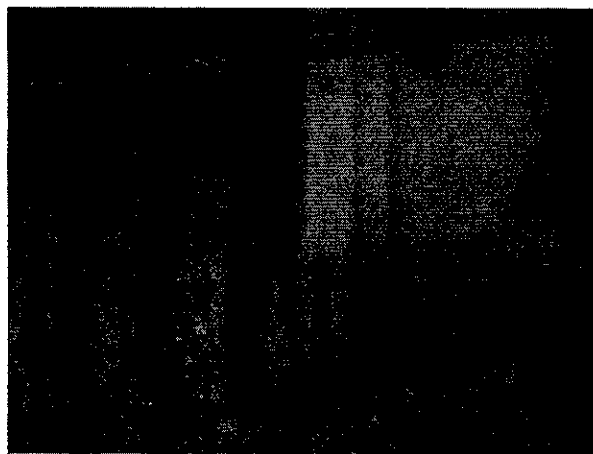


**Level P3**

- Spall @ ITB-15, D/9.2-line ITB-15 → DT transition high



- Crack in DT-90 flange @ ITB-15
- C-7/DT-86/DT-87 Corner spalled, joint does not align
- Cracks in SW-13-3/SW-13-4
- Cracks in SP-21 above
- Large spall in DT-71 between G and H-lines and @ ends
- Large joint between DT-90 and SP-16
- Spall on DT-75 @ SW-2-1 pilaster
- Spall on DT-11 @ SW-15-2
- Spall on DT-84/DT-85 @ SW-19
- Tight joint @ DT-86/DT-87 @ SW-16
- Tight joint @ DT-81/DT-82 @ SW-18
- High Joint @ DT87 → DT-86
- High Joint @ DT-89 → DT-88
- Tight joint DT-112 and DT-114 to ITB-15
- Tight joint @ ea end of DT-72 → DT-73
- Spall @ H-line DT-69 and DT-70
- Tight joint @ DT-69 and DT-70 @ ITB-5
- High joint DT-69 → DT-70 @ ITB-5
- Blockout around steel column @ DT-68 tight to column, no connections(No connection shown per struct)



- DT-93 tight to DT-94 @ SW-7

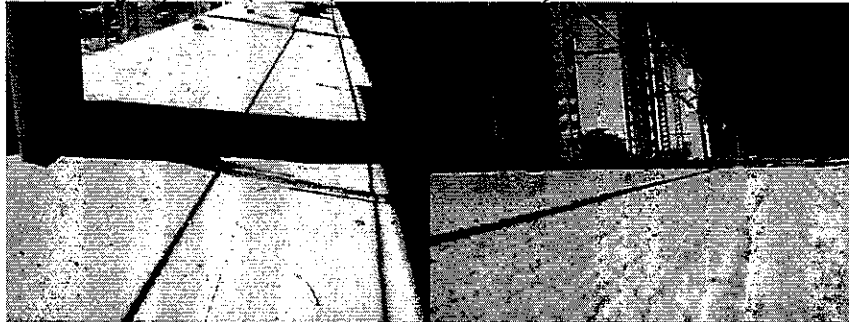


- Wash @ ea side of column (DT-92)



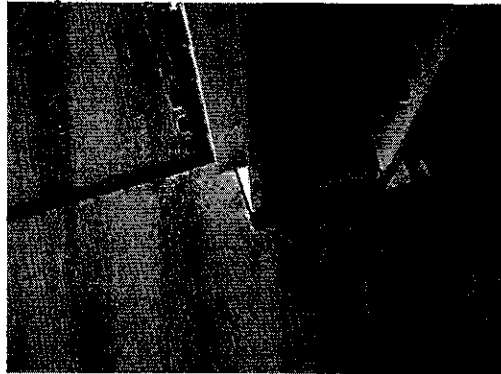
- Spall on DT-116 between D and C.2 lines
- Tight joint @ DT-116 → ITB-7
- Tight joint @ DT-116 → DT-117 @ ITB-8

- Joint high @ A line (DT-124, DT-124 and DT-128)

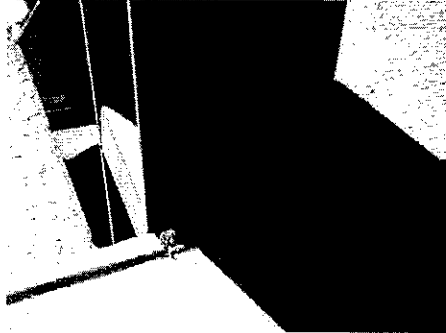


- Spall @ end of DT-130 @ SW-22

- DT-191-DT192 (above) missing connection bolts @ B/5 line. Also tight to column & spalled above.



- DT-30 tight to column on A line



- DT-131 tight to SW23 on D line
- DT-134/DT0133 tight joint @ A line

- DT-113/DT-114 tight to ITB-16 @ D line
- Crack in column C-10 (11/D line)



- Lifting loop pockets (Check Strescon detail)
- Drain pockets through shear walls

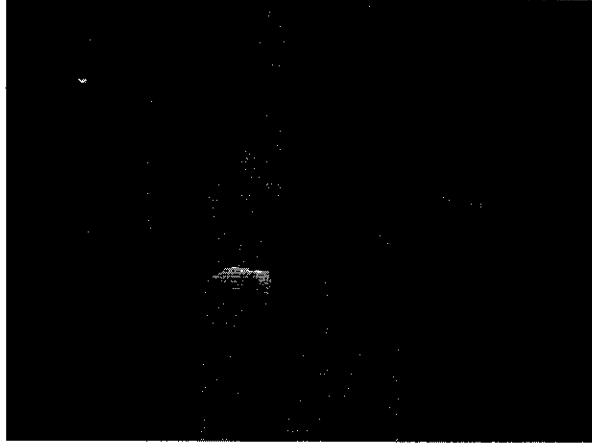
### Level P3 Ramp

- Underside of DT-213 (above) to SW-10 (D line) connx missing bolt



- Tight joint DT-173 to SW10 (D line)

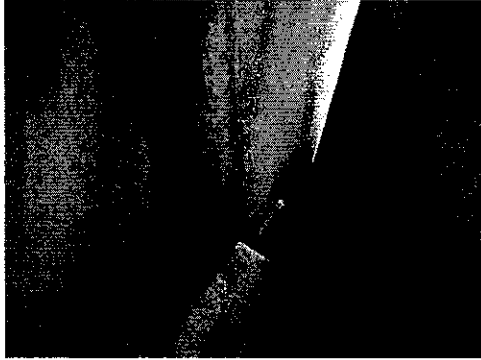
- Spall @ underside of DT-217 (above) @ SW12 (D line)



- Spall @ DT-176 @ SW13 (7 line)
- DT-176 → DT-175 joint high
- DT-178 → DT-177 joint high
- DT-179 → DT-178 joint high
- Spalls & exposed reinforcement underside of DT-217 to SW12 (& line)

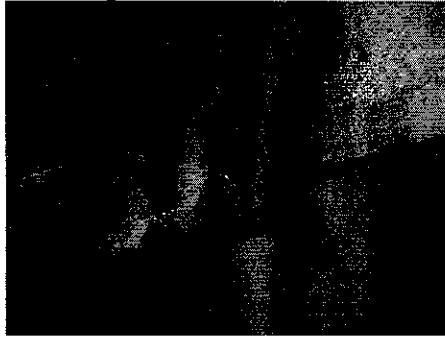


- Remove wood shim from DT-181 → SW15 (9.2/D line) joint

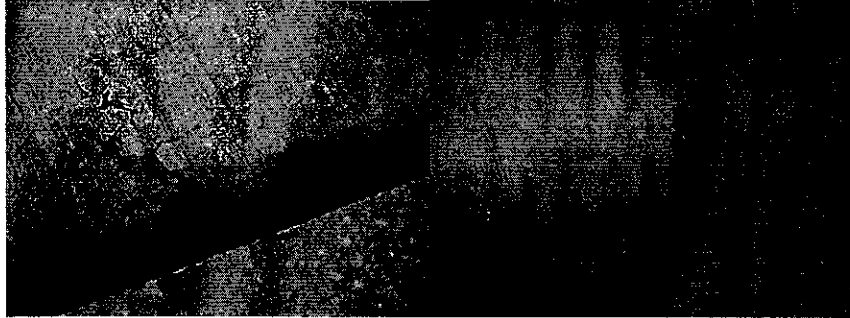


**Level P4**

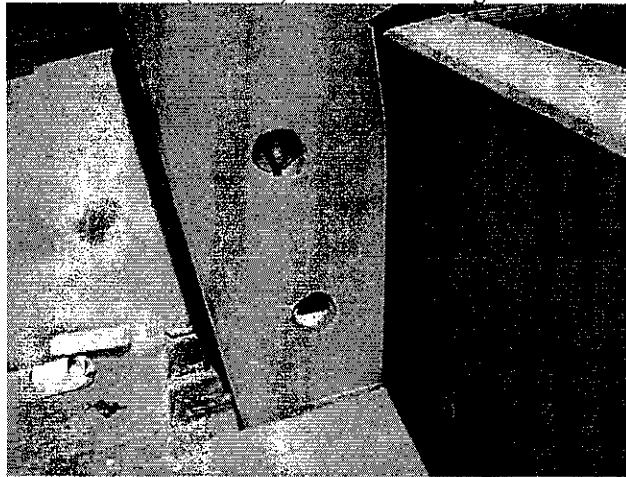
- Spall @ end of ITB-17 (9.2 line)



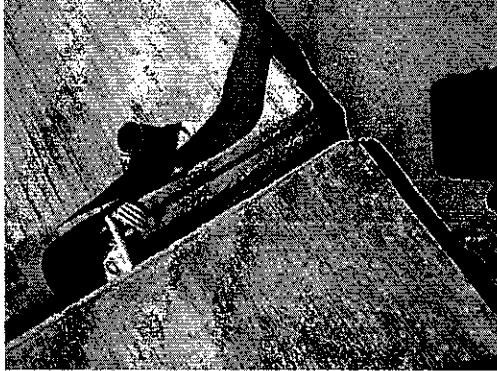
- ITB-17 high over DT-182 (9.2/H line)
- DT-183 → ITB-17 joint tight (H line)
- DT-185 spall & cracked flange @ ITB-17/DT-184 (H line)



- DT-160 → SP26 large joint, spall @ column (11/G line)
- SP-25 → C-8 (E/11 line) connection missing



- Crack in flange of DT-153

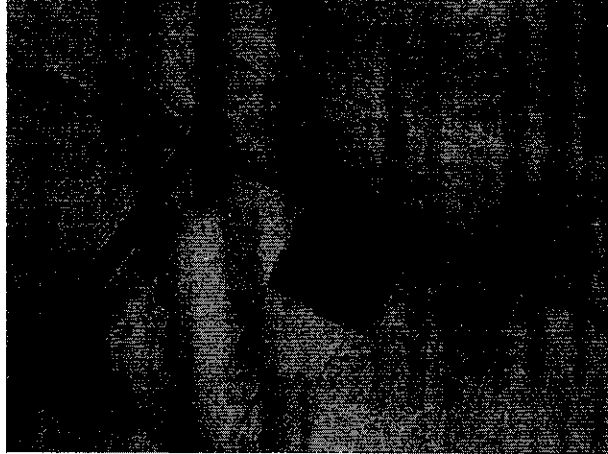


- Crack in flange of DT-156 @ drain
- Crack in flange of DT-151 @ SW18 (G line)
- Joint high DT-150 → DT-151
- Crack in flange & spall DT-149 (H line)
- Tight joint DT-145 → DT-146 (H line)
- Spall @ mid-span DT-143

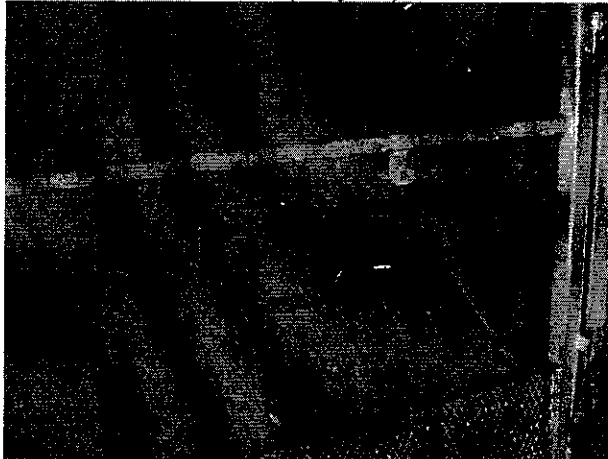


- Spall @ end of DT143 (G line)
- Cracked flange @ H-4 line (not sure which DT)

- DT-spandrel connections @ SP19 (1.4 line)



- Connection type DT-166 → SW9
- Drain Location on SW9 (really low)

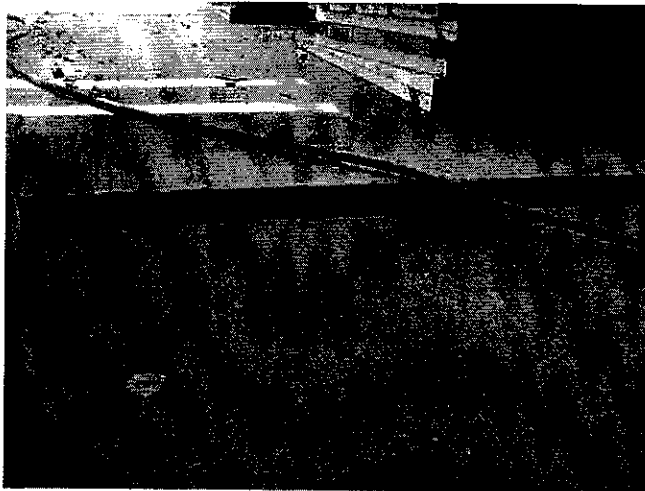


- Wash on ea side of column (DT-126 @ D/2 line) (Sim to Photo 014)
- Crack in flange DT-186 @ ITB-11 (D line)
- High joint DT-196 → DT-197 @ D line

•



- High joint DT-197 → DT-198 @ SW11 (D Line)



- High joint DT-198 → DT-199 @ A line
- Small spalls @ DT-206 → P-9, P-10 and P-11 connections
- Crack in flange DT-207 @ stair (need to confirm)
- Crack in column C-10 (D/11 line) (same as levels below)
- Spall @ DT-183 → DT-184 near D line
- Lifting loop pockets (Check Strescon detail)
- Drain pockets through shear walls

*03410 Structural Precast Concrete*  
SW Cole Grout Testing Reports

03410.2



# Report of Grout Compressive Strength

ASTM C109

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier:

## PLACEMENT INFORMATION

Date Cast: 10/9/2007 Time Cast: Date Received: 10/10/2007

Placement Location: STAIR TOWER #1

Placement Method: MIXED ONSITE

Placement Vol. (yd<sup>3</sup>):

Cylinders Made By: CMT

Aggregate Size (in): 3/4

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures:

## TEST RESULTS

Slump (in) (C-143):

Batch Number:

Air Temp (°F):

Mixer Number:

Grout Temp (°F) (C-1064):

Ticket Number:

Design (psi): 5000

Cube Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-46A	4.00	10/16/2007	7	30.3	7580
765-46B	4.00	10/16/2007	7	25.0	6250
765-46C	4.00	10/16/2007	7	31.6	7900
765-46D	4.00	11/6/2007	28	47.6	11900
765-46E	4.00	11/6/2007	28	50.0	12500
765-46F	4.00	11/6/2007	28	50.4	12600

Remarks:



# Report of Grout Compressive Strength

ASTM C109

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier: MIXED ON-SITE

## PLACEMENT INFORMATION

Date Cast: 10/10/2007 Time Cast: 9:40 Date Received: 10/11/2007

Placement Location: GROUTING NMB SLEEVES ELEVATORS

Placement Method:

Placement Vol. (yd<sup>3</sup>):

Cylinders Made By: CKT

Aggregate Size (in): FINE GROUT

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures:

## TEST RESULTS

Slump (in) (C-143):

Batch Number:

Air Temp (°F): 56

Mixer Number:

Grout Temp (°F) (C-1064): 64

Ticket Number:

Design (psi): 9300

Cube Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-47A	10.56	10/17/2007	7	53.6	5070
765-47B	10.97	11/7/2007	28	63.0	5740
765-47C	11.38	11/7/2007	28	74.0	6510
765-47D	10.56	12/5/2007	56	85.0	8050

Remarks:



# Report of Grout Compressive Strength

ASTM C109

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier:

## PLACEMENT INFORMATION

Date Cast: 3/25/2008 Time Cast: 3:05 Date Received: 3/27/2008

Placement Location: NMB SLEAVE

Placement Method: BY HAND

Placement Vol. (yd³):

Cylinders Made By: VLT

Aggregate Size (in): NA

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures: NA

## TEST RESULTS

Slump (in) (C-143):

Batch Number: 1

Air Temp (°F): 34

Mixer Number:

Grout Temp (°F) (C-1064): 72

Ticket Number:

Design (psi): 5000

Cube Designation	Area(In)²	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-93A	10.56	4/1/2008	7	60.1	5690
765-93B	11.39	4/22/2008	28	78.1	6860
765-93C	10.97	4/22/2008	28	76.8	7000
765-93D					

Remarks: SUPPLIER: BASF SS-MORTAR SPLICE SLEEVE GROUT



# Report of Grout Compressive Strength

ASTM C109

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Supplier:**

## PLACEMENT INFORMATION

**Date Cast:** 3/26/2008      **Time Cast:**      **Date Received:** 3/28/2008

**Placement Location:** SHEER WALL - BASE

**Placement Method:** BY HAND/DRY PACK

**Placement Vol. (yd<sup>3</sup>):**

**Cylinders Made By:** VLT

**Aggregate Size (in):** NA

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** NA

## TEST RESULTS

**Slump (in) (C-143):**

**Batch Number:** 1

**Air Temp (°F):** 36

**Mixer Number:**

**Grout Temp (°F) (C-1064):**

**Ticket Number:**

**Design (psi):** 3000

Cube Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-94A	11.39	4/2/2008	7	69.4	6090
765-94B	10.97	4/23/2008	28	77.2	7040
765-94C	10.97	4/23/2008	28	78.4	7150
765-94D					

Remarks: SUPPLIER: SIKG 212



# Report of Grout Specimen Compressive Strength

ASTM C1019

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier:

## PLACEMENT INFORMATION

Date Cast: 4/16/2008 Time Cast: 10:01 Date Received: 4/21/2008

Placement Location: NMB'S - G LINE, 7 + 9.2 LINE

Placement Method: BY HAND

Placement Vol. (yd³):

Cylinders Made By: VLT

Aggregate Size (in):

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures: NA

## TEST RESULTS

Slump (in) (C-143):

Batch Number: 1

Air Temp (°F): 50

Mixer Number:

Grout Temp (°F) (C-1064): 77

Ticket Number:

Design (psi): 5000

Specimen Designation	Area(In)²	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-95A	10.97	4/23/2008	7	40.4	3680
765-95B	10.97	5/14/2008	28	69.6	6350
765-95C	10.97	5/14/2008	28	63.1	5750
765-95D					

Remarks: SUPPLIER: SS MORTAR/BASF



# Report of Grout Specimen Compressive Strength

ASTM C1019

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier: DRAGON PRODUCTS

## PLACEMENT INFORMATION

Date Cast: 4/23/2008 Time Cast: 10:20 Date Received: 4/28/2008

Placement Location: LP2 2ND LEVEL PLANKING LINE 1 TO LINE 11, A + B

Placement Method: PUMP\*

Placement Vol. (yd<sup>3</sup>): 5

Cylinders Made By: VLT

Aggregate Size (in): SAND

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures: NA

## TEST RESULTS

Slump (in) (C-143):

Batch Number: 1

Air Temp (°F): 75

Mixer Number: 191

Grout Temp (°F) (C-1064): 69

Ticket Number: 3930114

Design (psi): 2000

Specimen Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-97A	10.56	4/30/2008	7	22.6	2140
765-97B	10.56	5/21/2008	28	52.0	4920
765-97C	10.56	5/21/2008	28	48.0	4540
765-97D					

Remarks: \* CCS





# Report of Grout Specimen Compressive Strength

ASTM C1019

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier:

## PLACEMENT INFORMATION

Date Cast: 10/23/2007 Time Cast: 10:35 Date Received: 10/24/2007

Placement Location: HOLLOW CORE SLAB - SEEMS/JOINTS (PRE-CAST)

Placement Method: TAILGATE

Placement Vol. (yd³): 1

Cylinders Made By: VLT

Aggregate Size (in): NA

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures: NA

## TEST RESULTS

Slump (in) (C-143):

Batch Number: 1

Air Temp (°F): 63

Mixer Number: 192

Grout Temp (°F) (C-1064):

Ticket Number: 4528905

Design (psi): 3000

Specimen Designation	Area(In)²	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-50A	10.97	10/30/2007	7	35.4	3230
765-50B	10.97	11/20/2007	28	46.7	4260
765-50C	10.97	11/20/2007	28	42.1	3840
765-50D					

Remarks:



# Report of Grout Compressive Strength

ASTM C109

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Supplier:**

## PLACEMENT INFORMATION

**Date Cast:** 10/30/2007      **Time Cast:**      **Date Received:** 10/31/2007

**Placement Location:** NMB SLEEVES 6 LINE

**Placement Method:** HAND PUMP

**Placement Vol. (yd³):**

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:**

## TEST RESULTS

**Slump (in) (C-143):**

**Batch Number:**

**Air Temp (°F):**

**Mixer Number:**

**Grout Temp (°F) (C-1064):**

**Ticket Number:**

**Design (psi):** 9300

Cube Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-53A	4.00	11/2/2007	3	30.3	7580
765-53B	4.00	11/2/2007	3	30.1	7520
765-53C	4.00	11/6/2007	7	36.9	9220
765-53D	4.00	11/6/2007	7	38.6	9650
765-53E	4.00	11/13/2007	14	44.7	11180
765-53F	4.00	11/27/2007	28	57.2	14300
765-53G	4.00	11/27/2007	28	46.4	11600
765-53H					

Remarks: MIXED ON SITE



# Report of Grout Compressive Strength

ASTM C109

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Supplier:**

## PLACEMENT INFORMATION

**Date Cast:** 10/30/2007      **Time Cast:**      **Date Received:** 10/31/2007

**Placement Location:** NMB SLEEVES 6 LINE

**Placement Method:** HAND PUMP

**Placement Vol. (yd<sup>3</sup>):**

**Cylinders Made By:** CKT

**Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:**

## TEST RESULTS

**Slump (in) (C-143):**

**Batch Number:**

**Air Temp (°F):**

**Mixer Number:**

**Grout Temp (°F) (C-1064):**

**Ticket Number:**

**Design (psi):** 9300

Cube Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-53I					

Remarks: MIXED ON SITE



# Report of Grout Compressive Strength

ASTM C109

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier: DRAGON PRODUCTS

## PLACEMENT INFORMATION

Date Cast: 10/31/2007 Time Cast: 9:50 Date Received: 11/1/2007

Placement Location: HOLLOW CORE PLANKS LINE 4 TO 6

Placement Method: TAILGATE

Placement Vol. (yd<sup>3</sup>): 1.5

Cylinders Made By: VLT

Aggregate Size (in):

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures: N/A

## TEST RESULTS

Slump (in) (C-143):

Batch Number: 1

Air Temp (°F):

Mixer Number: 181

Grout Temp (°F) (C-1064): 60

Ticket Number: 3928208

Design (psi): 3000

Cube Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-54A	10.56	11/7/2007	7	35.4	3350
765-54B	10.56	11/28/2007	28	39.6	3750
765-54C	10.56	11/28/2007	28	41.4	3920
765-54D					

Remarks:



# Report of Grout Specimen Compressive Strength

ASTM C1019

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier: A H HARRIS

## PLACEMENT INFORMATION

Date Cast: 11/5/2007 Time Cast: 2:37 Date Received: 11/6/2007

Placement Location: ANCHOR BOLT-RELOCATION & REPAIR

Placement Method: HAND

Placement Vol. (yd³):

Cylinders Made By: VLT

Aggregate Size (in): NA

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures: NA

## TEST RESULTS

Slump (in) (C-143):

Batch Number: 1

Air Temp (°F): 50

Mixer Number:

Grout Temp (°F) (C-1064): 60

Ticket Number:

Design (psi): 5000

Specimen Designation	Area(In)²	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-55A	12.25	11/12/2007	7	61.4	5010
765-55B	10.56	11/30/2007	25	68.8	6510
765-55C	10.56	12/3/2007	28	79.7	7550
765-55D	10.56	12/3/2007	28	79.0	7480

Remarks: AH HARRIS CONSTRUCTION GROUT  
5000PSI @ 3 DAYS



# Report of Grout Specimen Compressive Strength

ASTM C1019

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 11/9/2007      **Time Cast:** 8:05      **Date Received:** 11/10/2007  
**Placement Location:** FILLER BETWEEN PRECAST SLAB PANELS UNDER STORE FRONT AREA ON MARGINAL WAY SIDE  
**Placement Method:** CHUTE      **Placement Vol. (yd³):** 2  
**Cylinders Made By:** CKT      **Aggregate Size (in):** 3/4

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

### Admixtures:

## TEST RESULTS

**Slump (in) (C-143):** 6.5      **Batch Number:** 1  
**Air Temp (°F):** 34      **Mixer Number:** 177  
**Grout Temp (°F) (C-1064):** 58      **Ticket Number:** 3928342  
**Design (psi):** 3000

Specimen Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-57A	10.97	11/16/2007	7	25.9	2360
765-57B	10.97	12/7/2007	28	31.8	2900
765-57C	10.97	12/7/2007	28	33.6	3060
765-57D	10.56	1/4/2008	56	43.7	4140

Remarks:



# Report of Grout Specimen Compressive Strength

ASTM C1019

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier: DRAGON PRODUCTS

## PLACEMENT INFORMATION

Date Cast: 11/9/2007 Time Cast: 8:05 Date Received: 11/10/2007

Placement Location: *FILLER BETWEEN PRECAST SLAB PANELS UNDER STORE FRONT AREA ON MARGINAL WAY SIDE*

Placement Method: CHUTE

Placement Vol. (yd<sup>3</sup>): 2

Cylinders Made By: CKT

Aggregate Size (in): 3/4

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures:

## TEST RESULTS

Slump (in) (C-143): 6.5

Batch Number: 1

Air Temp (°F): 34

Mixer Number: 177

Grout Temp (°F) (C-1064): 58

Ticket Number: 3928342

Design (psi): 3000

Specimen Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-57A	10.97	11/16/2007	7	25.9	2360
765-57B	10.97	12/7/2007	28	31.8	2900
765-57C	10.97	12/7/2007	28	33.6	3060
765-57D	10.56	1/4/2008	56	43.7	4140

Remarks:



# Report of Grout Specimen Compressive Strength

ASTM C1019

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier:

## PLACEMENT INFORMATION

Date Cast: 11/28/2007 Time Cast: 4:00 Date Received: 11/29/2007

Placement Location:

Placement Method:

Placement Vol. (yd³):

Cylinders Made By: CKT

Aggregate Size (in): 3/4

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures:

## TEST RESULTS

Slump (in) (C-143):

Batch Number:

Air Temp (°F):

Mixer Number:

Grout Temp (°F) (C-1064):

Ticket Number:

Design (psi): 8000

Specimen Designation	Area(In)²	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-61A	10.56	11/30/2007	2	25.1	2380
765-61B	10.56	12/3/2007	5	66.0	6250
765-61C	11.38	12/12/2007	14	70.8	6220
765-61D	10.97	12/12/2007	14	94.8	8640
765-61E	11.18	12/26/2007	28	91.0	8140
765-61F	10.97	12/26/2007	28	81.8	7450
765-61G		1/23/2008	56		
765-61H		1/23/2008	56		

Remarks: HAND MIXED ON SITE - FIELD CURES





# Report of Grout Specimen Compressive Strength

ASTM C1019

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier:

## PLACEMENT INFORMATION

Date Cast: 12/18/2007 Time Cast: 11:55 Date Received: 12/19/2007

Placement Location: SHEER WALL 10 - 1 REMEDIAL (GARAGE)

Placement Method:

Placement Vol. (yd<sup>3</sup>):

Cylinders Made By: VLT

Aggregate Size (in):

## INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures:

## TEST RESULTS

Slump (in) (C-143):

Batch Number: 1

Air Temp (°F): 25

Mixer Number:

Grout Temp (°F) (C-1064): 47

Ticket Number:

Design (psi): 5000

Specimen Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-62A	10.56	12/19/2007	1	44.8	4240
765-62B	10.56	12/20/2007	2	44.8	4240
765-62C	10.56	12/21/2007	3	52.7	4990
765-62D	10.56	12/24/2007	6	49.0	4640
765-62E	10.56	12/26/2007	8	73.8	6990
765-62F	11.39	1/15/2008	28	90.5	7950
765-62G	10.56	1/15/2008	28	92.8	8790
765-62H					

Remarks: SUPPLIER: SIKA GROUT 212 - NON SHRINK - CEMENTIOUS HIGH STRENGTH/NON-SHRINK GROUT



# Report of Grout Compressive Strength

ASTM C109

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Supplier:**

## PLACEMENT INFORMATION

**Date Cast:** 12/18/2007      **Time Cast:** 3:00      **Date Received:**

**Placement Location:** TEST SAMPLES - CUBES RAPID SET GROUT

**Placement Method:**

**Placement Vol. (yd<sup>3</sup>):**

**Cylinders Made By:** VLT

**Aggregate Size (in):**

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:**

## TEST RESULTS

**Slump (in) (C-143):**

**Batch Number:** 1

**Air Temp (°F):** 25

**Mixer Number:**

**Grout Temp (°F) (C-1064):** 76

**Ticket Number:**

**Design (psi):** 9000

Cube Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-63A	4.00	12/19/2007	1	27.0	6750
765-63B	4.00	12/20/2007	2	28.0	7000
765-63C	4.00	12/21/2007	3	35.8	8950
765-63D	4.00	12/26/2007	8	44.5	11120
765-63E	4.00	1/1/2008	14	49.0	12250
765-63F	4.00	1/15/2008	28	39.8	9950

Remarks: SUPPLIER=CTS CEMENT ALL - RAPID SET



# Report of Grout Compressive Strength

ASTM C109

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier:

## PLACEMENT INFORMATION

Date Cast: 12/27/2007 Time Cast: 11:30 Date Received: 12/28/2007

Placement Location: UPPER LEVEL BASE PLATE GROUT

Placement Method:

Placement Vol. (yd<sup>3</sup>):

Cylinders Made By: CKT

Aggregate Size (in):

## INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures:

## TEST RESULTS

Slump (in) (C-143):

Batch Number:

Air Temp (°F): 35

Mixer Number:

Grout Temp (°F) (C-1064): 70

Ticket Number:

Design (psi): 9000

Cube Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-64A	4.00	12/28/2007	1	32.2	8050
765-64B	4.00	1/3/2008	7	33.5	8380
765-64C	4.00	1/4/2008	8	38.1	9520
765-64D	4.00	1/10/2008	14	37.0	9250
765-64E	4.00	1/24/2008	28	47.0	11750
765-64F					

Remarks: MIXED ON-SITE

*03410 Structural Precast Concrete*

PCI Certification

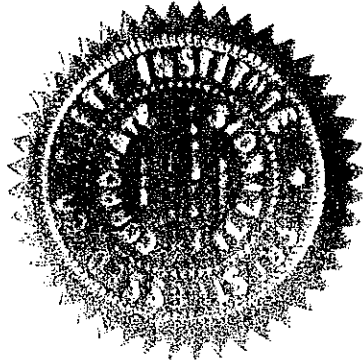
03410.3



# *Strescon Limited*

*Beford, NS*

having demonstrated the capability to produce quality products in accordance with the prescribed Plant Certification requirements is hereby recognized as a



**Certified Plant**

under the

**PCI Plant Certification Program**



Certification is dependent upon meeting qualifications confirmed by continuing audits

A handwritten signature in black ink, appearing to read 'Jim Toscas'.

Jim Toscas, President

*03410 Structural Precast Concrete*  
Certificate of Compliance 03410.4

04200 *Reinforced Masonry*  
BSE Inspection Reports

04200.1

# B E C K E R

04230

structural engineers, inc.

<b>OBSERVATION REPORT</b>
CMU

<b>Date:</b>	8/22/07
<b>Time:</b>	3:00 p.m.
<b>Temp:</b>	70's
<b>Weather:</b>	Partly Cloudy

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

<b>Observation Location:</b> Wall from B.4-7 to B.4-11
--

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	vertical dowels yet to be placed
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	bearing plate embeds yet to be placed
Lap Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ok at bond beam, vertical dowels yet to be placed
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CMU Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Layout/Fit-up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mortar/Grouting Procedure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	grouting to be at later time
Lift Height	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Clean Outs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bond Beams	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Nathan Merrill, E.I.



# B E C K E R

04230

structural engineers, inc.

<b>OBSERVATION REPORT</b>
CMU

<b>Date:</b>	8/24/07
<b>Time:</b>	1:30 p.m.
<b>Temp:</b>	80 F
<b>Weather:</b>	Partly Cloudy

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

<b>Observation Location:</b> Wall from B.4-7 to B.4-11
--

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CMU Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Layout/Fit-up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mortar/Grouting Procedure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lift Height	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Clean Outs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bond Beams	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Nathan Merrill, E.I.

# B E C K E R

04230

structural engineers, inc.

<b>OBSERVATION REPORT</b>
CMU

<b>Date:</b>	8/28/07
<b>Time:</b>	12:30 p.m.
<b>Temp:</b>	70's
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

<b>Observation Location:</b> Wall from B.4-4 to B.4-7
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
Reinforcement Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Comments
Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Placement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Embed/Anchors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lap Splices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CMU Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Layout/Fit-up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mortar/Grouting Procedure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lift Height	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Clean Outs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bond Beams	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**  
Observed grouting of wall indicated above.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

04230

structural engineers, inc.

<b>OBSERVATION REPORT</b>
CMU

<b>Date:</b>	8/24/07
<b>Time:</b>	10:45am
<b>Temp:</b>	Warm
<b>Weather:</b>	Sunny, Clear

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, ME
<b>Becker Job No:</b>	1741

<b>Observation Location:</b> Masonry Prep for precast erection
--

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Quantity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Placement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Embed/Anchors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Lap Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hot Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cold Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CMU Size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Layout/Fit-up/Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Mortar/Grouting Procedure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Lift Height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Clean Outs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bond Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

The intent was to review the sawcut portion of masonry wall where some grout was noted to have not filled the cells. Maine Masonry was drilling holes to determine cells missing grout, and indicated cells would be grouted.

**Signed:** Ethan A. Rhile, P.E.

04200      *Reinforced Masonry*  
SW Cole Masonry Testing Reports      04200.2



# Report of Mortar Compressive Strength

ASTM C109

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Supplier:**

## PLACEMENT INFORMATION

**Date Cast:** 10/22/2007      **Time Cast:** 10:11      **Date Received:** 10/23/2007

**Placement Location:** LOBBY - MAILROOM WALLS HEAD JOINT/BEAD JOINTS

**Placement Method:** BY HAND - TROWEL

**Placement Vol. (yd³):**

**Cylinders Made By:** VLT

**Aggregate Size (in):** N/A

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:**

## TEST RESULTS

**Air Temp (°F):** 72

**Batch Number:** 1

**Mortar Temp (°F) (C-1064)** 63

**Mixer Number:**

**Ticket Number:**

**Design (psi):** 1800

Cube Designation	Area(In)²	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-48A	4.00	10/29/2007	7	11.6	2900
765-48B	4.00	10/29/2007	7	10.3	2580
765-48C	4.00	11/19/2007	28	17.1	4280
765-48D	4.00	11/19/2007	28	14.8	3700
765-48E	4.00	12/17/2007	56	20.5	5120
765-48F	4.00	12/17/2007	56	18.7	4680

Remarks: SUPPLIER IS EAGLE BOND/MAINE MASONRY TYPE S MORTAR



# Report of Grout Specimen Compressive Strength

ASTM C1019

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier: MAINE MASONRY/ DRAGON

## PLACEMENT INFORMATION

Date Cast: 10/22/2007 Time Cast: Date Received: 10/23/2007

Placement Location: LOBBY MAILROOM WALL CELLS

Placement Method: BY HAND TROWEL

Placement Vol. (yd³):

Cylinders Made By: VLT

Aggregate Size (in): NA

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures: NA

## TEST RESULTS

Slump (in) (C-143):

Batch Number:

Air Temp (°F):

Mixer Number:

Grout Temp (°F) (C-1064):

Ticket Number:

Design (psi): 2500

Specimen Designation	Area(In)²	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-49A	10.97	10/29/2007	7	57.1	5210
765-49B	10.56	11/19/2007	28	49.2	4660
765-49C	10.97	11/19/2007	28	52.9	4820
765-49D	10.97	12/17/2007	56	50.2	4580

Remarks: MATERIAL TYPE: GROUT PORTLAND TYPE III MIXED WITH SAND



**Report of Grout Specimen Compressive Strength**

ASTM C1019

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier: F. R. CARROLL

**PLACEMENT INFORMATION**

Date Cast: 8/28/2007 Time Cast: 11:25 Date Received: 8/29/2007

Placement Location: B-LINE 4-7

Placement Method: PUMP

Placement Vol. (yd³): 6.5

Cylinders Made By: CKT

Aggregate Size (in): 3/8

**INITIAL CURING CONDITIONS**

Temperatures

Minimum (°F) Maximum (°F)

**DELIVERY INFORMATION**

Admixtures:

**TEST RESULTS**

Slump (in) (C-143): 10.5  
Air Temp (°F): 74  
Grout Temp (°F) (C-1064): 69

Batch Number: 1  
Mixer Number: 9  
Ticket Number: 0015178  
Design (psi): 2500

Specimen Designation	Area(In)²	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-44A	10.56	9/4/2007	7	29.1	2760
765-44B	10.97	9/25/2007	28	32.1	2930
765-44C	11.39	9/25/2007	28	28.5	2500
765-44D					

Remarks:



# Report of Grout Compressive Strength

ASTM C109

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Supplier:** DRAGON PRODUCTS

## PLACEMENT INFORMATION

**Date Cast:** 4/17/2008      **Time Cast:** 10:20      **Date Received:** 4/21/2008

**Placement Location:** HOLLOW CORE GROUT PANELS LINE 8 TO 10 ELECTRICAL ROOM, LP2

**Placement Method:** TAILGATE TO WHEEL BARREL

**Placement Vol. (yd<sup>3</sup>):** 3

**Cylinders Made By:** VLT

**Aggregate Size (in):** SAND

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**                      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:** NA

## TEST RESULTS

**Slump (in) (C-143):**

**Batch Number:** 1

**Air Temp (°F):** 56

**Mixer Number:** 177

**Grout Temp (°F) (C-1064):** 66

**Ticket Number:** 3930022

**Design (psi):** 2000

Cube Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-96A	11.39	4/24/2008	7	42.6	3740
765-96B	10.56	5/15/2008	28	56.0	5300
765-96C	10.56	5/15/2008	28	51.0	4830
765-96D					

Remarks:





# Report of Mortar Compressive Strength

ASTM C109

**Project Name:** PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

**Project Number:** 06-0124.2

**Client:** CAPITAL LLC

**Client Contract Number:**

**General Contractor:**

**Supplier:**

## PLACEMENT INFORMATION

**Date Cast:** 11/17/2007      **Time Cast:**      **Date Received:** 11/18/2007

**Placement Location:** 1 - LINE

**Placement Method:**

**Placement Vol. (yd<sup>3</sup>):**

**Cylinders Made By:** CKT

**Aggregate Size (in):**

## INITIAL CURING CONDITIONS

### Temperatures

**Minimum (°F)**      **Maximum (°F)**

## DELIVERY INFORMATION

**Admixtures:**

## TEST RESULTS

**Air Temp (°F):**

**Batch Number:**

**Mortar Temp (°F) (C-1064)**

**Mixer Number:**

**Ticket Number:**

**Design (psi):** 2500

Cube Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-59A	4.00	11/24/2007	7	14.7	3680
765-59B	4.00	11/24/2007	7	12.2	3050
765-59C	4.00	11/24/2007	7	14.8	3700
765-59D	4.00	12/15/2007	28	22.0	5500
765-59E	4.00	12/15/2007	28	20.0	5000
765-59F	4.00	12/15/2007	28	18.4	4600

Remarks: MIXED ON SITE



# Report of Mortar Compressive Strength

ASTM C109

Project Name: PORTLAND - 84 MARGINAL WAY - PROPOSED OFFICE BUILDING & PARKING GARAGE - MATERIALS TESTING

Project Number: 06-0124.2

Client: CAPITAL LLC

Client Contract Number:

General Contractor:

Supplier:

## PLACEMENT INFORMATION

Date Cast: 8/20/2007 Time Cast: 9:45 Date Received: 8/21/2007

Placement Location: B LINE WALL

Placement Method:

Placement Vol. (yd<sup>3</sup>):

Cylinders Made By: CKT

Aggregate Size (in): 3/4

## INITIAL CURING CONDITIONS

### Temperatures

Minimum (°F) Maximum (°F)

## DELIVERY INFORMATION

Admixtures:

## TEST RESULTS

Air Temp (°F): 61

Batch Number:

Mortar Temp (°F) (C-1064)

Mixer Number:

Ticket Number:

Design (psi): 2500

Cube Designation	Area(In) <sup>2</sup>	Date Of Test	Age (days)	Load (kips)	Strength (psi)
765-36A	4.00	8/27/2007	7	8.6	2150
765-36B	4.00	8/27/2007	7	8.6	2150
765-36C	4.00	9/17/2007	28	16.1	4030
765-36D	4.00	9/17/2007	28	16.6	4150
765-36E					
765-36F					

Remarks:

*05120 Structural Steel*  
BSE Inspection Reports

05120.1

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

Date:	10-02-2007
Time:	6:15am
Temp:	Warm
Weather:	Sunny

Project:	84 Marginal Way
Location:	Portland, Maine
Becker Job No:	1742

<b>Observation Location:</b> Columns along retail space (Marginal Way)
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
Bolt Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See below
Fit Up/Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Pour Stops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

Observations made with Paul Becker. Noted some locations with small gaps between base plates and leveling plates, and also some places without complete grout. However, columns had not yet been plumbed. Full bearing on grout to be confirmed after column plumbing.

**Signed:** Paul B. Becker, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	10-15-2007
<b>Time:</b>	2:45 pm
<b>Temp:</b>	Warm
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Steel along 1 line, at A to G line
--

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit Up/Plumbness	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Below
Metal Deck Welds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Pour Stops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

Tubes at end of stair 1 are located incorrectly, but appear to be tack welded only. These tubes need to be offset from cl column and may require a connection repair. Also, the tube suspension plates at level 4 along 1 line do not appear to have been fabricated to accept the brick bump outs.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	11-28-2007
<b>Time:</b>	10:00am
<b>Temp:</b>	Cold
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

**Observation Location:**  
 Review condition of steel stock piled on site, erected to date (from ground for safety)  
 Level 5 partially completed.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Weld Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fit Up/Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Pour Stops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

We reviewed materials on site along with partial completion of level 5 erection.

**Signed:** Ethan A. Rhile, P.E.

# BECKER

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

Date:	12-03-2007
Time:	11:10am
Temp:	Cold
Weather:	Overcast

Project:	84 Marginal Way
Location:	Portland, Maine
Becker Job No:	1742

**Observation Location:**

Review condition of steel stock piled on site, erected to date (from ground for safety)  
Level 5 partially completed. Could not access underside at this time do to safety considerations.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Weld Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Fit Up/Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Pour Stops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

We reviewed materials on site along with partial completion of level 5 erection.

Signed: Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	12-18-2007
<b>Time:</b>	3:00 pm
<b>Temp:</b>	Cold
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Grout product demonstration for grout to be utilized for base plate grouting on precast.
--

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Grout/Leveling Plates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit Up/Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Pour Stops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

I observed a demonstration of the grout to be utilized for grouting the base plates on top of the precast structure. We noted that the grout set up quickly despite the temperature. Samples made and were to be field cured.

**Signed:** Ethan A. Rhile, P.E.



# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	1-11-08
<b>Time:</b>	10:00
<b>Temp:</b>	Damp, Cold
<b>Weather:</b>	Rain

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b>	Fifth floor slab on metal deck preparation.
------------------------------	---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Grout/Leveling Plates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit Up/Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

At the time of my visit tubing for radiant heat was being installed at the fifth floor. A majority of the composite steel studs were in place, and installation of edge reinforcement was on going.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	1-16-08
<b>Time:</b>	12:00pm
<b>Temp:</b>	Cold
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> 6 <sup>th</sup> & 7 <sup>th</sup> floor erection progress
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Base plate grout at C/1 was not yet completed
Fit Up/Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

The pour stop condition at the 7<sup>th</sup> floor was to be pulled back to allow brick to pass. It appears that this pour stop was fabricated incorrectly. PC was informed later that day be email about this issue. Also discussed with Jared the erection tubes at stair 2.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	1-22-08
<b>Time:</b>	1:00pm
<b>Temp:</b>	Cold
<b>Weather:</b>	Overcast and light snow

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Metal deck erection at 7, upper tier columns, some framing at 8
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Comments
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

I met with Eric Price of Pizzagalli to discuss overall progress and erection issues. I also noted that some of the bolts on the canopy columns were bottomed out in the slots. These holes will need to be reamed to allow for structure deflection.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	1-30-08
<b>Time:</b>	7:40 AM
<b>Temp:</b>	Cold
<b>Weather:</b>	Light Rain

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Level 6 deck preparation.
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
					Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**  
Partial prep review.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
---------------------------

Structural Steel
------------------

<b>Date:</b>	1-31-08
<b>Time:</b>	10:30 AM
<b>Temp:</b>	Cold
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Level 6 placement, some preparation at level 7.
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Comments
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

Noted some studs that were built into boxes rather than a continuous flute at Level 7. This does not meet AISC standards for stud cover. Notified M. LaPointe and he will repair.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	2-1-08
<b>Time:</b>	1:00pm
<b>Temp:</b>	Cold
<b>Weather:</b>	Overcast and light snow

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Metal deck and stud layout at 7, framing at 8
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable		
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Comments	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
						Deck and stud layout at cross beam next to stair at 7 plan southeast
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

**Notes:**

Studs at W12x19 at 7<sup>th</sup> level framing pocketed through deck were noted and brought to attention of Mike Lapointe of Pizzagalli Construction.

**Signed:** James D. Hughes, E.I.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	2-06-08
<b>Time:</b>	9:45 AM
<b>Temp:</b>	Cold
<b>Weather:</b>	Overcast with some rain

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Level 7 prep/edge angle repair at A&7 corner.
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	2-15-08
<b>Time:</b>	10:00 AM
<b>Temp:</b>	Cold
<b>Weather:</b>	Mostly cloudy

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Upper tier erection/North side
--

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

Review of in progress erection.

**Signed:** Ethan A. Rhile, P.E.



# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	2-21-08
<b>Time:</b>	4:30pm
<b>Temp:</b>	Warmer
<b>Weather:</b>	Sun

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Level 8 placement preparation
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Comments
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

Work on placement preparation was on going at the time of my visit.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	2-22-08
<b>Time:</b>	9:30 am
<b>Temp:</b>	Cool
<b>Weather:</b>	Overcast

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b>	Level 8 placement
------------------------------	-------------------

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

Stopped in to observe partial placement of level 8 slab.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
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Structural Steel
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<b>Date:</b>	2-26-08
<b>Time:</b>	10:00 am
<b>Temp:</b>	Cool
<b>Weather:</b>	Wet/melting snow

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Level 9 placement
---

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

At the time of my visit only chairs were in place on level nine (no WWF/edge reinf.

**Signed:** Ethan A. Rhile, P.E.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	3-10-08
<b>Time:</b>	11:00 am
<b>Temp:</b>	Warmer
<b>Weather:</b>	Mostly sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

**Observation Location:**  
Level 10 prep. Remobilization of precast erection

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Comments
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

Only metal deck was down at the time of my visit.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	3-13-08
<b>Time:</b>	3:50 am
<b>Temp:</b>	Warmer
<b>Weather:</b>	Mostly sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Level 10 prep.
--

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

There were some areas where WWF had gaps in it at level 10. I notified M LaPointe and he said it would be addressed prior to placement.

**Signed:** Ethan A. Rhile, P.E.

# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
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Structural Steel
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<b>Date:</b>	4/30/08
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<b>Time:</b>	10:30 am
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<b>Temp:</b>	Warm
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<b>Weather:</b>	Mostly sunny
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<b>Project:</b>	84 Marginal Way
-----------------	-----------------

<b>Location:</b>	Portland, Maine
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<b>Becker Job No:</b>	1742
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**Observation Location:**

Plate install for bumper cables, misc curtainwall install items, kicker install line 1 level 4

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Ethan A. Rhile, P.E.

# BECKER

05120

structural engineers, inc.

**OBSERVATION REPORT**

Structural Steel

Date: 5/7/08

Time: 10:00 am

Temp: Warm

Weather: Mostly sunny

Project: 84 Marginal Way

Location: Portland, Maine

Becker Job No: 1742

**Observation Location:**

Plank &amp; structure alignment at main entry lobby.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pour Stops	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:** We discussed the plank alignment for the installation of the curtain wall structure and the interference with the vertical tubes. Solution forthcoming.

Signed: Ethan A. Rhile, P.E.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	5/20/08
<b>Time:</b>	12:00 pm
<b>Temp:</b>	Warm
<b>Weather:</b>	Mostly cloudy

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b> Roof tieback system installation
--

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Grout/Leveling Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Pour Stops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**One tube too short. Filler plate to be supplied. Tieback anchors above stair two installed up rather than facing out.**

**Signed: Ethan A. Rhile, P.E.**



# B E C K E R

03410

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Precast Concrete

<b>Date:</b>	7-14-2008
<b>Time:</b>	9:00 am
<b>Temp:</b>	70 F
<b>Weather:</b>	Clear

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

**Observation Location: Review Sealant Installation.**

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	
Precast Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Comments
Erection Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Plumbness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit-Up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bearing Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Tee Connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tee to Structure Conn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sealant has been installed on P3-P4 Ramp and Level P3 DT to DT joints 95% complete
Additional Items	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Roof membrane has been installed over retail space except at the shoring tower location at line 7

**Notes:**

The grinding of the edge of DT's is not being completed prior to installing joints and joints are not being installed continuously. They appear to be stopping half way across the DT. On ramp P3-P4 the joints are covered with brick dust (see photo 1) and it should be ensured that the sealant is completely cured before they are covered with construction debris. Spoke with sealant installers about these issues.

**Signed:** Todd M. Neal, P.E.

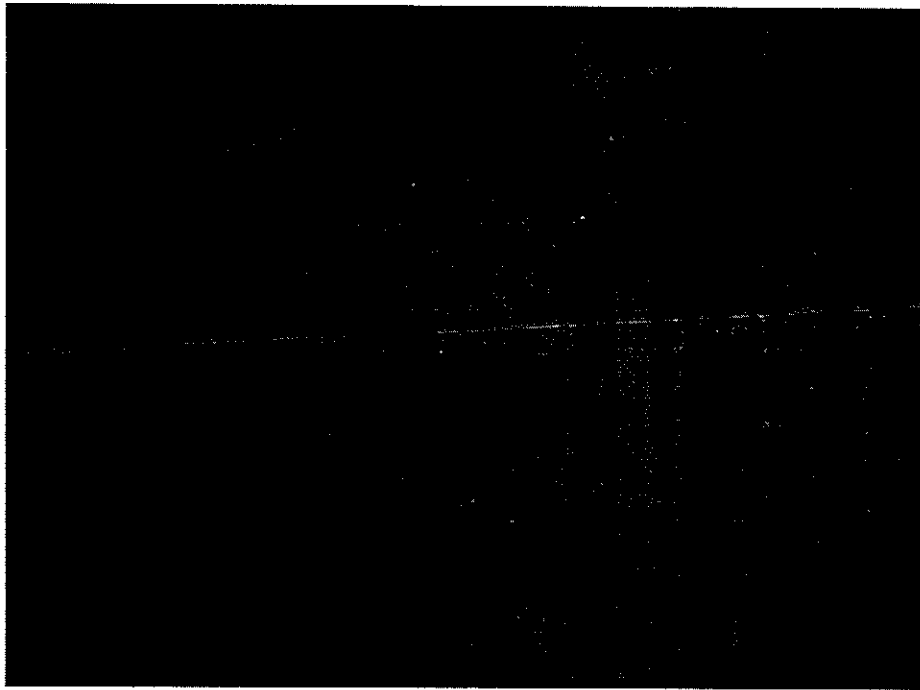
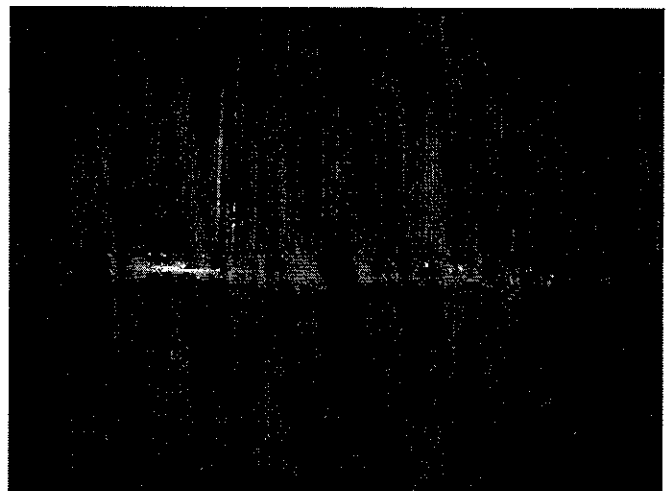
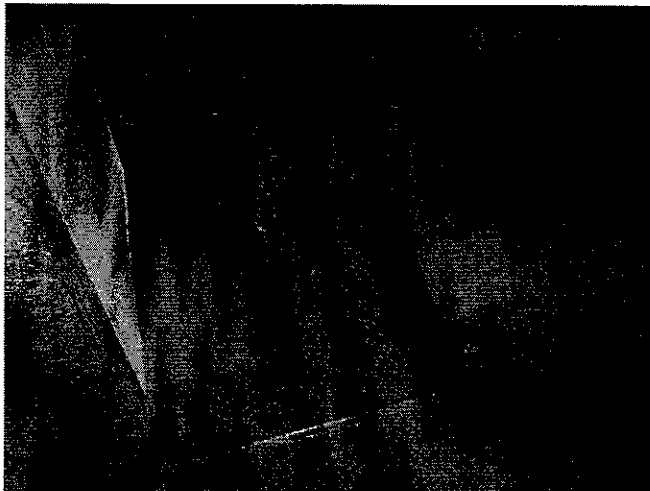


Photo 1



# B E C K E R

05120

structural engineers, inc.

<b>OBSERVATION REPORT</b>
Structural Steel

<b>Date:</b>	8/15/08
<b>Time:</b>	10:00 am
<b>Temp:</b>	Warm
<b>Weather:</b>	Sunny

<b>Project:</b>	84 Marginal Way
<b>Location:</b>	Portland, Maine
<b>Becker Job No:</b>	1742

<b>Observation Location:</b>	Beginning of large canopy/curtainwall tube installation
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	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Weld Condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Anchor Bolts, Nuts, & Washers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Grout/Leveling Plates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fit Up/Plumbness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Metal Deck Welds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Pour Stops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Notes:**

**Signed:** Ethan A. Rhile, P.E.

*05120 Structural Steel*

SW Cole (QA Labs) Reports

05120.2

Nov. 16. 2007 2:27PM

No. 9851 P. 2

# Quality Assurance Labs Inc.

NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES

80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

## INSPECTION REPORT

CUSTOMER: S. W. COLE ENG.		PAGE 1 OF 1	
ADDRESS: GRAY, ME.			
ATTENTION: ROGER DOMINGO			
COPIES:			
PROJECT: 84 MARGINAL WAY - PARKING GARAGE			
OWNER:			
CONTRACTOR: PIZZAGALLI CONSTRUCTION			
JOB No.: 06-0124.2	REPORT No.: QAL-07-2186	P. O. NUMBER:	DATE INSPECTED: 11-16-07

### REMARKS

VISUAL INSPECTION OF PARKING GARAGE PRE-CAST PANEL EMBED CONNECTIONS : GRID LINES 1 - 7, A - G LEVEL P4.

> DOUBLE TEE TO DOUBLE TEE VECTOR CONNECTIONS COMPLETE.

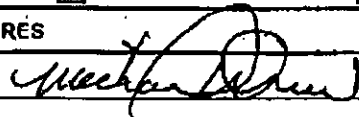
> SPANDRELS TO DOUBLE TEE CONNECTIONS COMPLETE.

NUMEROUS LOCATIONS AND ELEVATIONS DISPLAY IN-PROGRESS PRECAST CONNECTIONS .

COMPLETED ITEMS COMPLY WITH SITE DOCUMENTS AND AWS D1.1 REQUIREMENTS FOR VISUAL ACCEPTANCE .

END ITEMS !!!

FAA REPAIR STATION NUMBER RX5R187N  
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: <input type="checkbox"/> SKETCH(ES) <input type="checkbox"/> SUPPLEMENTARY SHEET(S) <input type="checkbox"/> NDT REPORTS <input type="checkbox"/> VIDEO			
SIGNATURES		CERTIFICATION	
		LEVEL	DATE
INSPECTOR	MICHAEL DREW CWI# 99050211 		M D Y 11   16   07
SUPERVISOR			

1/8/08

S.W. Cole  
286 Portland Rd.  
Gray Maine 04039

Ref: 84 Marginal Way - Project 06-0124.2  
QAL-08-0037

Attn: Roger Domingo

Dear Sir,

On 1/7/08 a site visit was made to 84 Marginal Way Project. The following items were inspected:

5<sup>th</sup> Floor Elevation

Shear Studs – 35 studs need to be rewelded as marked in yellow. Remainder complete.

All acceptable welding was IAW AWS D1.1 and applicable site DWGS.  
If you should have any further question, please advise.

Best Regards,  
Arthur Gallant  
CWI# 90100091



Jan. 23. 2008 12:33PM

# Quality Assurance Labs Inc.

No. 0885 P. 1

80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

## INSPECTION REPORT

CUSTOMER: S. W. COLE ENG.	PAGE 1 OF 1
ADDRESS: GRAY, ME.	
ATTENTION: ROGER DOMINGO	
COPIES:	
PROJECT: 132 MARGINAL WAY - PARKING GARAGE AND OFFICE COMPLEX	
OWNER:	
CONTRACTOR: PIZZAGALLI CONSTRUCTION	

JOB No.: 06-0124.2	REPORT No.: QAL-08-0057	P. O. NUMBER:	DATES INSPECTED: 01-10-08, 01-17-08, 01-22-08.
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### REMARKS

IN-PROCESS VISUAL INSPECTION OF STRUCTURAL STEEL CONNECTION:

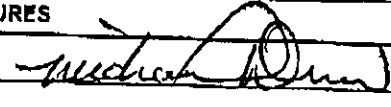
- > INSPECTION DATE 01-10-08 : 5TH LEVEL FRAMING PLAN
  - A) HIGH STRENGTH BOLTED CONNECTIONS COMPLETE FOR COLUMN TO BEAM AND BEAM TO BEAM CONNECTIONS.
  - B) REPLACED SHEAR STUDS FOR PREVIOUS FAILURES COMPLETE.
- > INSPECTION DATE 01-17-08 : 6TH LEVEL FRAMING PLAN:
  - A) SHEAR STUDS INSPECTION SHOWS NUMEROUS FAILURES, REPLACEMENT STUDS IN-PROGRESS.
  - B) DECK ATTACHMENTS SHOW LINE 7 REQUIRING ADDITIONAL PERIMETER WELDS AND LAP SCREWS.
  - C) DIAGONAL WIND BRACES IN-PROGRESS FOR WELDING.
- > INSPECTION DATE 01-22-08 : PARKING GARAGE LOWER LEVELS.
  - A) REF. FIELD NOTES FOR ALL LEVELS TO IDENTIFY MINOR SHORT COMINGS:
    - 1) LEVEL (1) STAIRWELL AT G-1 SHOWS ANGLE TO STAIR FRAME IN-PROGRESS FOR WELDING. LINE (A) SHOWS PRECAST TO BEAM EMBEDS IN-PROGRESS. LINE (A) AT COLUMN WEB CLIP MISSING BOTTOM WELD RETURN.
    - 2) LEVEL (2) AT STAIR LOCATION LINE (A) SHOWS MISSING PANEL TO PANEL TIE PLATE. LINE (A) AT COLUMN WEB CLIP MISSING BOTTOM WELD RETURN.
    - 3) LEVEL (3) SHOWS COLUMN TO COLUMN SPLICE BOLTED CONNECTION REQUIRING FINAL TORQUE.
    - 4) LEVEL (4) AT LINE (7) SHOWS (2) LOCATIONS MARKED FOR MISSING WALL VECTOR CLIPS. ALSO SHOWS SOME MISSING DOUBLE T PLANK S/S VECTOR CONNECTIONS.

COMPLETED ITEMS COMPLY WITH CONTRACT DOCUMENTS AND AWS D1.1 REQUIREMENTS FOR VISUAL ACCEPTANCE.

END ITEMS!!!

FAA REPAIR STATION NUMBER RX5R187N  
 METHOD(S), PROCESS(ES), PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED:  SKETCH(ES)  SUPPLEMENTARY SHEET(S)  NDT REPORTS  VIDEO

SIGNATURES		CERTIFICATION	DATE
INSPECTOR	MICHAEL DREW CWI# 99050211 	LEVEL	M D Y
SUPERVISOR			01   23   08

Jan. 31. 2008 2:34PM

# Quality Assurance Labs Inc.

No. 1052 P. 1

80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-0911 • FAX: (207) 799-7251

## INSPECTION REPORT

CUSTOMER: S. W. COLE ENG. PAGE 1 OF 1

ADDRESS: GRAY, ME

ATTENTION: ROGER DOMINGO

COPIES:

PROJECT: 84 MARGINAL WAY-PARKING GARAGE & OFFICE COMPLEX

OWNER:

CONTRACTOR: PIZZAGALLI CONSTRUCTION

JOB No.: 06-0124.2 REPORT No.: QAL-08-0134 P. O. NUMBER: DATES INSPECTED: 01-24-08, 01-29-08

### REMARKS

IN-PROCESS VISUAL INSPECTION OF STRUCTURAL STEEL CONNECTIONS: GRID LINES 1-7, A-G.  
 INSPECTION DATE: 01-24-08.  
 >>> REF. PREVIOUS FIELD REPORT DATED 01-23-08 FOR INSPECTION DATES 01-17-08 and 01-22-08.  
 A) ITEMS LISTED AS DECK ATTACHMENTS AND SHEAR STUDS ON REPORT DATED FOR 01-17-08 ARE COMPLETE. HOWEVER, DIAGONAL BRACE CONNECTIONS FOR LEVEL (6) FRAMING PLAN STILL SHOW TOP WELDS IN-PROGRESS.  
 B) ITEMS LISTED ON INSPECTION DATE 01-22-08 FOR ALL LEVELS AT PARKING GARAGE, SHOW ALL LISTED ITEMS NOW COMPLETE AT ALL LEVELS: IE: VECTOR CONNECTIONS, PRECAST EMBEDS, AND HIGH STRENGTH BOLTED CONNECTIONS.

INSPECTION DATE: 01-29-08.  
 > LEVEL (7) SHEAR STUD INSPECTION REVEALS APPROX 15-20 FAILED STUDS.  
 > LEVEL (5 & 6) STILL SHOW DIAGONAL BRACE CONNECTIONS IN-PROGRESS.

IN-PROCESS SITE INSPECTION TO CONTINUE FOR ALL ITEMS.

COMPLETED ITEMS COMPLY WITH CONTRACT DOCUMENTS AND AWS D1.1 REQUIREMENTS FOR VISUAL ACCEPTANCE.

END ITEMS ///

FAA REPAIR STATION NUMBER RX5R107N  
METHOD(S), PROCESS(ES), PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED:  SKETCH(ES)  SUPPLEMENTARY SHEET(S)  NDT REPORTS  VIDEO

### SIGNATURES

INSPECTOR MICHAEL DREW CWI # 99050211 *Michael Drew*

SUPERVISOR

CERTIFICATION	DATE		
	M	D	Y
		01	31   08



Feb. 8. 2008 1:57PM

No. 1187 P. 1

# Quality Assurance Labs Inc.

NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES

50 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

## INSPECTION REPORT

CUSTOMER: S. W. COLE ENG.		PAGE 1	OF 1
ADDRESS: GRAY, ME.			
ATTENTION: ROGER DOMINGO			
COPIES:			
PROJECT: 84 MARGINAL WAY - PARKING GARAGE AND OFFICE COMPLEX			
OWNER:			
CONTRACTOR: PIZZAGALLI CONSTRUCTION			
JOB No.: 06-0124.2	REPORT No.: QAL-08-0221	P. O. NUMBER:	DATES INSPECTED: 02-07-08, 02-08-08

### REMARKS

IN-PROCESS VISUAL INSPECTION OF STRUCTURAL STEEL CONNECTIONS : UPPER STEEL LEVELS AT GRID LINES 1-7, A.02 - G. INSPECTION DATES 02-07-08 AND 02-08-08.

- >>> REF. PREVIOUS FIELD REPORT DATED 01-31-08 FOR INCOMPLETE AND IN-PROCESS ITEMS :
- A) LEVEL (6) STILL SHOW FOUR LOCATIONS IN-PROGRESS FOR UPPER DIAGONAL BRACE WELDS.
  - B) LEVEL (7) ITEMS COMPLETE FOR DECKING SHEAR STUDS AND ATTACHMENTS.
  - C) LEVEL (5) COMPLETE FOR HIGH STRENGTH BOLTS AND DIAGONAL BRACE CONNECTIONS.

>>> LEVEL (7) FOR EIGHT FRAMING PLAN SHOWS AREAS MARKED WITH BLUE FLAG TAPE TO SHOW UN-TORQUED OR MISSING COLUMN TO BEAM CONNECTIONS.

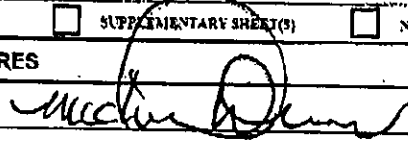
> LOCATION LINE 4 - A.02 SHOWS LEVELS 6 & 7 IN-PROGRESS FOR COLUMN TO BEAM AND DIAGONAL BRACE CONNECTIONS.

NOTE : LOCATION LINE 1-2 @ G-LINE NOT ACCESSIBLE FOR VISUAL INSPECTION AT ALL UPPER LEVELS FOR STRUCTURAL STEEL.

COMPLETED ITEMS COMPLY WITH CONTRACT DOCUMENTS AND AWS D1.1 REQUIREMENTS FOR VISUAL ACCEPTANCE.

END ITEMS ///

FAA REPAIR STATION NUMBER RX5R187N  
 METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED:	<input type="checkbox"/> SKETCH(ES)	<input type="checkbox"/> SUPPLEMENTARY SHEET(S)	<input type="checkbox"/> NDT REPORTS	<input type="checkbox"/> VIDEO
SIGNATURES			CERTIFICATION LEVEL	DATE M D Y
INSPECTOR	MICHAEL DREW CWI # 99050211			02   08   08
SUPERVISOR				

2/14/08 10:00 AM

NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES  
80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

# INSPECTION REPORT

CUSTOMER:	S. W. COLE ENG.	PAGE	1	OF	1
ADDRESS:	GRAY, ME.				
ATTENTION:	ROGER DOMINGO				
COPIES:					
PROJECT:	84 MARGINAL WAY - PARKING GARAGE AND OFFICE COMPLEX				
OWNER:					
CONTRACTOR:	PIZZAGALLI CONSTRUCTION				
JOB No.:	06-0124.2	REPORT No.:	QAL-08-0263	P. O. NUMBER:	
				DATE INSPECTED:	02-14-08

## REMARKS

IN-PROCESS VISUAL INSPECTION OF STRUCTURAL STEEL CONNECTIONS : TO VERIFY COMPLETED ITEMS AS LISTED ON FIELD REPORT DATED 02-08-08 : GRID LINES 1 - 7, A.02 - G.

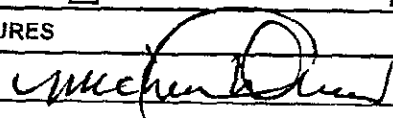
- > LEVEL ( 6 ) NOW SHOWS ALL LOCATIONS COMPLETE FOR UPPER DIAGONAL BRACE CONNECTIONS .
- > LEVEL ( 7 ) NOW COMPLETE FOR HIGH STRENGTH BOLTED COLUMN TO BEAM CONNECTIONS AND DIAGONAL BRACE CONNECTIONS .
- > LOCATION LEVELS ( 6 & 7 ) SHOW COLUMN TO BEAM AND DIAGONAL BRACE CONNECTIONS AT LINES 4 - A.02 COMPLETE .
- > LEVEL ( 8 ) SHOWS SHEAR STUDS IN-PROGRESS APPROX. 75% COMPLETE . ( TO BE INSPECTED )

COMPLETED ITEMS COMPLY WITH CONTRACT DOCUMENTS AND AWS D1.1 REQUIREMENTS FOR VISUAL ACCEPTANCE .

END ITEMS

FAA REPAIR STATION NUMBER RX5R187N  
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED:  SKETCHES  SUPPLEMENTARY SHEETS  NDT REPORTS  VIDEO

SIGNATURES		CERTIFICATION	DATE		
			M	D	Y
INSPECTOR	MICHAEL DREW CWI# 99050211 				
SUPERVISOR			02	14	08

**Quality Assurance Labs Inc.**

NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES

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**INSPECTION REPORT**

CUSTOMER: S. W. COLE ENG.		PAGE 1 OF 1	
ADDRESS: GRAY, ME.			
ATTENTION: ROGER DOMINGO			
COPIES:			
PROJECT: 84 MARGINAL WAY- PARKING GARAGE & OFFICE COMPLEX			
OWNER:			
CONTRACTOR: PIZZAGALLI CONSTRUCTION			
JOB No. 06-0124.2	REPORT No. QAL-08-0323	P. O. NUMBER:	DATES INSPECTED: 02-20-08, 02-21-08

**REMARKS**

>>> IN-PROCESS VISUAL INSPECTION OF STRUCTURAL STEEL CONNECTIONS: LEVEL ( 8 ) SHEAR STUD AND DECK INSPECTION TO INCLUDE DIAGONAL BRACES AND BOLTED CONNECTIONS .

> DIAGONAL WIND BRACE CONNECTIONS COMPLETE .

> SHEAR STUD INSPECTION REVELED APPROX. ( 8 ) FAILED STUDS , REPLACED STUDS COMPLETE .

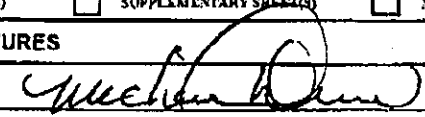
> DECKING ATTACHMENTS COMPLETE .

> HIGH STRENGTH A325 T/C BOLTS SHOW COLUMN TO COLUMN SPLICE CONNECTIONS IN-PROGRESS AT LINE ( G ) .

COMPLETED ITEMS COMPLY WITH CONTRACT DOCUMENTS AND AWS D1.1 REQUIREMENTS FOR VISUAL ACCEPTANCE .

END ITEMS ///

FAA REPAIR STATION NUMBER RX5R187N  
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED:			
<input type="checkbox"/> SKETCH(ES)	<input type="checkbox"/> SUPPLEMENTARY SHEET(S)	<input type="checkbox"/> NDT REPORTS	<input type="checkbox"/> VIDEO
SIGNATURES		CERTIFICATION	DATE
		INS	M D Y
INSPECTOR MICHAEL DREW CWI# 99050211 			02   22   08
SUPERVISOR			

**Quality Assurance Labs Inc.**

NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES

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**ULTRASONIC INSPECTION REPORT**

CUSTOMER: SW COLE (GRAY OFFICE)		DATE OF INSPECTION	M	D	Y		
ATTENTION: CRAIG		REPORT No.	02	20	08		
PROJECT: 84 MARGINAL WAY		PAGE	1	OF	1		
COMPONENT INSPECTED: 8TH FLOOR MOMENT CONNECTIONS DWG DATE 12-20-07 DWG# E-6.2		JOB No.	0601242				
AREA OF INTEREST: WELDED MOMENT CONNECTIONS		P.O. No.	0601242				
COMPONENT LOCATION: 84 MARGINAL WAY		<b>INSTRUMENT</b>					
CUSTOMER WORK ORDER No:	PART No.:	MAKE: PANAMETRICS					
MATERIAL: CARBON STEEL	HEAT No.:	MODEL: EPOCH 4					
COMPONENT SURFACE CONDITION: AS WELDED		EQUIPMENT No.:					
<b>EXAMINATION DATA</b>		MATERIAL THICKNESS: VARIOUS					
Project Code/Spec	AWS D1.1	SCREEN RANGE: 10"					
U.T. Procedure No.	U.T. Technique No.	COUPLANT: ECHO GEL					
RESULTS: AS NOTED	INDICATIONS: AS NOTED	<b>TRANSDUCERS</b>					
REMARKS: PERFORMED ULTRASONIC INSPECTION ON THE FOLLOWING 8TH FLOOR MOMENT CONNECTIONS IAW AWS D1.1  E-1 EAST & WEST D-1 EAST & WEST C-2-8' 9.5" EAST & WEST TOP ONLY C-1 WEST C-1-8' EAST & WEST A-1.8-8' EAST & WEST A-1.6 EAST, WEST, SOUTH  ACCEPT: NO CRACKS, CRACKLIKE, OR RELEVANT INDICATIONS NOTED.  REJECT C.2-3' 9.5" WEST BOTTOM NOT WELDED.  /// LAST ITEM///  FAA REPAIR STATION NUMBER RX5R187N METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE		MAKE: PANAMETRICS		EQUIPMENT No.:			
		FREQ: 2.25 MHz	ANGLE: 0°		MAKE: PANAMETRICS		
		SIZE: 25.4 mm (1.000 in.)	STYLE: SINGLE		SHAPE: ROUND		
		EQUIPMENT No.:		MAKE: PANAMETRICS		EQUIPMENT No.:	
		FREQ.: 2.25 MHz	ANGLE: 70°		MAKE:		
		SIZE: 12.7 mm (0.500 in.)	STYLE: SINGLE		SHAPE: SQUARE		
		EQUIPMENT No.:		FREQ.:		ANGLE:	
		MAKE:		SIZE:		STYLE:	
		EQUIPMENT No.:		STYLE:		SHAPE:	
		EQUIPMENT No.:		<b>REFERENCE BLOCKS</b>			
MAKE: PANAMETRICS		TYPE: IIV					
MATERIAL: CARBON STEEL		EQUIPMENT No.:					
EQUIPMENT No.:		SENSITIVITY: 56DB					
ADDITIONAL INFORMATION - SEE ATTACHED: <input type="checkbox"/> SKETCHES) <input type="checkbox"/> SUPPLEMENTARY SHEET(S) <input type="checkbox"/> VIDEO		CERTIFICATION		DATE			
SIGNATURES		M	D	Y			
INSPECTOR S. Watson	ASNT	II	02	22	08		
SUPERVISOR							
AUTHORIZED INSPECTOR							
CUSTOMER REPRESENTATIVE							
		TRANSFER VALUE:					

# INSPECTION REPORT

CUSTOMER: S. W. COLE ENG.	PAGE 1 OF 1
ADDRESS: GRAY, ME.	
ATTENTION: ROGER DOMINGO	
COPIES:	
PROJECT: 84 MARGINAL WAY -	
OWNER:	
CONTRACTOR: PIZZAGALLI CONSTRUCTION	
JOB No.: 06-0124.2	REPORT No.: QAL-08-0333
P. O. NUMBER:	DATE(S) INSPECTED: 02-25-08, 03-06-08

### REMARKS

IN-PROCESS VISUAL INSPECTION OF STRUCTURAL STEEL CONNECTIONS FOR LEVELS 9 AND 10.

LEVEL 9 SHEAR STUD INSPECTION REVEALED ( 55 ) FAILED STUDS . ALL FAILED STUDS REPLACED PER STATEMENT FROM PIZZAGALLI'S SITE SUPERINTENDENT , MIKE LaPOINTE .

A) DIAGONAL WIND BRACES IN-PROGRESS FOR UPPER WELDMENTS .

B) HIGH STRENGTH A325 T C BOLTED CONNECTIONS COMPLETED FOR BEAM TO BEAM AND BEAM TO COLUMN CONNECTIONS .

C) DECKING ATTACHMENTS COMPLETE .

> LEVEL 10 SHEAR STUD INSPECTION REVEALED APPROX. ( 15 ) FAILED STUDS TO BE REPLACED .

A) DIAGONAL WIND BRACES SHOW STAIRWELL AREA WITH SEVERAL WELDS IN-PROGRESS AT LINE ( G ) . PLUS ROOF FRAMING PENTHOUSE AREA IN-PROGRESS FOR BRACE WELDS .

B) HIGH STRENGTH A325 T C BOLTED CONNECTIONS SHOW ROOF AREA WITH IN-PROGRESS BOLTS .

C) ROOF DECKING ATTACHMENTS APPROX. 75% COMPLETE .

COMPLETED ITEMS COMPLY WITH SITE DOCUMENTS AND AWS D1.1 REQUIREMENTS FOR VISUAL ACCEPTANCE .

END ITEMS .

**FAA REPAIR STATION NUMBER RX5R187N**  
 METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED:  SKETCH(ES)  SUPPLEMENTARY SHEETS  NDI REPORTS  VIDEO

SIGNATURES		CERTIFICATION	DATE
INSPECTOR	M	D	Y
MICHAEL DREW CWI = 99050211	[Signature]	[Signature]	03   06   08
SI Pervisor			

Mar. 3. 2008 10:57AM


No. 1714 P. 1

# Quality Assurance Labs Inc.

NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES

80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04108 • TEL: (207) 799-8911 • FAX: (207) 789-7251

## ULTRASONIC INSPECTION REPORT

CUSTOMER: SW COLE (GRAY OFFICE)		DATE OF INSPECTION	M	D	Y
ATTENTION: CRAIG		REPORT No.	02	26	08
PROJECT: PORTLAND HARBOR HOTEL ANNEX		PAGE	1	OF	1
COMPONENT INSPECTED: MOMENT CONNECTION		JOB No.	07-1259		
AREA OF INTEREST: WELDED CONNECTIONS		P.O. No.	07-1259		
COMPONENT LOCATION: PORTLAND HARBOR HOTEL		<b>INSTRUMENT</b>			
CUSTOMER WORK ORDER No:	PART No.:	MAKE: PANAMETRICS			
MATERIAL: CARBON STEEL	HEAT No.:	MODEL: EPOCH 4			
COMPONENT SURFACE CONDITION: AS WELDED		EQUIPMENT No.:			
<b>EXAMINATION DATA</b>		MATERIAL THICKNESS: 12.7 mm (0.500 in.)			
		SCREEN RANGE: 10°			
Project Code/Spec	U.T. Procedure No.	U.T. Technique No.	COUPLANT: ECHOGEL		
Project Code/Spec: AWS D1.1			<b>TRANSDUCERS</b>		
RESULTS: ACCEPTABLE	INDICATIONS: NONE		MAKE: PANAMETRICS		
REMARKS: PERFORMED ULTRASONIC INSPECTION ON THE FOLLOWING CONNECTIONS IAW AWS D1.1.  REINSPECTED CONNECTION A-2 NORTH TOP WELD ONLY.  ACCEPT: NO CRACKS, CRACKLIKE, OR RELEVANT INDICATIONS NOTED.  /// LAST ITEM///		FREQ.: 5.00 MHz		ANGLE: 0°	
		SIZE: 25.4 mm (1.000 in.)			
		STYLE: SINGLE		SHAPE: ROUND	
		EQUIPMENT No.:			
		MAKE: PANAMETRICS			
		FREQ.: 2.25 MHz		ANGLE: 70°	
		SIZE: 12.7 mm (0.500 in.)			
		STYLE: SINGLE		SHAPE: SQUARE	
		EQUIPMENT No.:			
		MAKE:			
FREQ.:		ANGLE:			
SIZE:					
STYLE:		SHAPE:			
EQUIPMENT No.:					
<b>REFERENCE BLOCKS</b>					
MAKE: PANAMETRICS					
TYPE: J1W					
MATERIAL: CARBON STEEL					
EQUIPMENT No.:				SENSITIVITY: 53DB	
ADDITIONAL INFORMATION - SEE ATTACHED: <input type="checkbox"/> SKETCH(ES) <input type="checkbox"/> SUPPLEMENTARY SHEET(S) <input type="checkbox"/> VIDEO		CERTIFICATION		DATE	
<b>SIGNATURES</b>					
INSPECTOR S. WATSON 		ASNT	11	03	04
SUPERVISOR					
AUTHORIZED INSPECTOR					
CUSTOMER REPRESENTATIVE					
				TRANSFER VALUE:	

## ULTRASONIC INSPECTION REPORT

CUSTOMER: SW COLE (GRAY OFFICE)		DATE OF INSPECTION	M	D	Y		
ATTENTION: CRAIG		REPORT No.	03	06	08		
PROJECT: 84 MARGINAL WAY		PAGE	1	OF	1		
COMPONENT INSPECTED: 9TH FLOOR MOMENT CONNECTIONS DWG DATE 12-20-07 DWG# E-6,3		JOB No.	0601242				
AREA OF INTEREST: WELDED MOMENT CONNECTIONS		P.O. No.	0601242				
COMPONENT LOCATION: 84 MARGINAL WAY		<b>INSTRUMENT</b>					
CUSTOMER WORK ORDER No.:	PART No.:	MAKE: PANAMETRICS					
MATERIAL: CARBON STEEL	HEAT No.:	MODEL: EPOCH 4					
COMPONENT SURFACE CONDITION: AS WELDED		EQUIPMENT No.:					
<b>EXAMINATION DATA</b>		MATERIAL THICKNESS: VARIOUS					
Project Code/Spec: AWS D1.1		SCREEN RANGE: 10"					
U.T. Procedure No.		U.T. Technique No.					
RESULTS: AS NOTED		COUPLANT: ECHO GEL					
INDICATIONS: AS NOTED		<b>TRANSDUCERS</b>					
REMARKS: PERFORMED ULTRASONIC INSPECTION ON THE FOLLOWING 9TH FLOOR MOMENT CONNECTIONS IAW AWS D1.1  E-1 EAST & WEST D-1 EAST & WEST C-2-3' 9.5" EAST & WEST C-1 WEST C-1-8' EAST & WEST A-1.6-8' EAST & WEST A-1.6 EAST, WEST, SOUTH  ACCEPT: NO CRACKS, CRACKLIKE, OR RELEVANT INDICATIONS NOTED.  *** ALL TOP FLANGES WERE INSPECTED FROM THE BOTTOM SIDE DUE CONCRETE ALREADY POURED.  *** MULTIPLE FLANGES BELOW MINIMUM THICKNESS REQUIRED BY AWS FOR RELIABLE INSPECTION PURPOSES.  ** LAST ITEM **   <p style="text-align: center;"><b>FAA REPAIR STATION NUMBER RX5R187N</b>                  METHOD(S), PROCESS(ES), PROCEDURE(S) MERCURY FREE</p>		MAKE: PANAMETRICS		FREQ.: 2.25 MHz		ANGLE: 0°	
		SIZE: 25.4 mm (1.000 in.)		STYLE: SINGLE		SHAPE: ROUND	
		EQUIPMENT No.:		MAKE: PANAMETRICS		FREQ.: 2.25 MHz	
		SIZE: 12.7 mm (0.500 in.)		ANGLE: 70°		STYLE: SINGLE	
		SHAPE: SQUARE		EQUIPMENT No.:		MAKE:	
		FREQ.:		ANGLE:		SIZE:	
		STYLE:		SHAPE:		EQUIPMENT No.:	
		EQUIPMENT No.:		<b>REFERENCE BLOCKS</b>			
		MAKE: PANAMETRICS		TYPE: IIW			
		MATERIAL: CARBON STEEL		EQUIPMENT No.:			
EQUIPMENT No.:		SENSITIVITY: 51DB					
TRANSFER VALUE:							

# INSPECTION REPORT

CUSTOMER: S. W. COLE ENG.	PAGE	1	OF	1
ADDRESS: GRAY, ME.				
ATTENTION: ROGER DOMINGO				
COPIES:				
PROJECT: 84 MARGINAL WAY -				
OWNER:				
CONTRACTOR: PIZZAGALLI CONSTRUCTION				
JOB No.: 06-0124.2	REPORT No.: QAL-08-0416	P. O. NUMBER:	DATE INSPECTED: 03-11-08	

## REMARKS

>>> SITE VISIT FOR VISUAL INSPECTION OF STRUCTURAL STEEL CONNECTIONS: LEVELS 8,9,10, AND ROOF PENTHOUSE AREA.

> PREVIOUS ITEMS FOR LEVEL (8) 9TH LEVEL FRAMING PLAN SHOWS COLUMN TO COLUMN BOLTED SPLICE CONNECTIONS COMPLETE. ALL DIAGONAL BRACE CONNECTIONS COMPLETE.  
 NOTE: LOCATION 2-D SHOWS BOTH LEVELS 8 & 9 WITH COLUMN TO BEAM WEB CLIP ATTACHMENTS WITH MISSING TOP AND BOTTOM RETURN WELDS.

> LEVEL (9) AT LOCATION A-7 SHOWS COLUMN TO BRACE SHEAR PLATE WITH (3) MISSING BOLTS.

> LEVEL (10) REPLACED SHEAR STUDS COMPLETE AND ACCEPTABLE.


> HIGH ROOF AND PENTHOUSE FRAMING SHOWS STAIRWELLS WITH INCOMPLETE DIAGONAL BRACE CONNECTIONS AND MISSING AND UNTORQUED BOLTED CONNECTIONS. ROOF DECKING ATTACHMENTS COMPLETE. PENTHOUSE SHEAR STUDS COMPLETE.

COMPLETED ITEMS COMPLY WITH SITE DOCUMENTS AND AWS D1.1 D1.3 REQUIREMENTS FOR VISUAL ACCEPTANCE.

END ITEMS

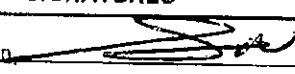
**FAA REPAIR STATION NUMBER RX5R187N**  
 METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SET ATTACHED:  SKETCHES  SUPPLEMENTARY SHEETS  NDI REPORTS  VIDEO

SIGNATURES		CERTIFICATION	DATE		
INSPECTOR	CWI#		M	D	Y
MICHAEL DREW	99050211				
SUPERVISOR			03	12	08



# ULTRASONIC INSPECTION REPORT

CUSTOMER: SW COLE (GRAY OFFICE)		DATE OF INSPECTION	M	D	Y
ATTENTION: CRAIG		REPORT No.	03	12	08
PROJECT: 84 MARGINAL WAY		PAGE	1	OF	1
COMPONENT INSPECTED: 9TH FLOOR MOMENT CONNECTIONS DWG DATE 12-20-07		JOB No.	0601242		
AREA OF INTEREST: WELDED MOMENT CONNECTIONS		P.O. No.	0601242		
COMPONENT LOCATION: 84 MARGINAL WAY		<b>INSTRUMENT</b>			
CUSTOMER WORK ORDER No.:	PART No.:	MAKE: PANAMETRICS			
MATERIAL: CARBON STEEL	HEAT No.:	MODEL: EPOCH 4			
COMPONENT SURFACE CONDITION: AS WELDED		EQUIPMENT No.:			
<b>EXAMINATION DATA</b>		MATERIAL THICKNESS: VARIOUS			
Project Code/Spec AWS D1.1		SCREEN RANGE: 10"			
U.T. Procedure No.		U.T. Technique No.			
RESULTS: AS NOTED	INDICATIONS: AS NOTED	COUPLANT: ECHO GEL			
REMARKS:		<b>TRANSDUCERS</b>			
PERFORMED ULTRASONIC INSPECTION ON THE FOLLOWING 9TH FLOOR MOMENT CONNECTIONS IAW AWS D1.1		MAKE: PANAMETRICS			
E-1 EAST & WEST		FREQ.: 2.25 MHz		ANGLE: 0°	
D-1 EAST & WEST		SIZE: 25.4 mm (1.000 in.)			
C-2-3' 9.5" EAST & WEST		STYLE: SINGLE		SHAPE: ROUND	
C-1 WEST		EQUIPMENT No.:			
C-1-8' EAST & WEST		MAKE: PANAMETRICS			
A-1.6-8' EAST & WEST		FREQ.: 2.25 MHz		ANGLE: 70°	
A-1.6 EAST, WEST, SOUTH		SIZE: 12.7 mm (0.500 in.)			
TOP FLANGES INSPECTED FROM BOTTOM SIDE OF FLANGE.		STYLE: SINGLE		SHAPE: SQUARE	
ACCEPT: NO CRACKS, CRACKLIKE, OR RELEVANT INDICATIONS NOTED.		EQUIPMENT No.:			
/// LAST ITEM.///		MAKE:			
		FREQ.:		ANGLE:	
		SIZE:			
		STYLE:		SHAPE:	
		EQUIPMENT No.:			
		<b>REFERENCE BLOCKS</b>			
		MAKE: PANAMETRICS			
		TYPE: IIW			
		MATERIAL: CARBON STEEL			
		EQUIPMENT No.:			
		SENSITIVITY: 56DB			
		TRANSFER VALUE:			
<b>FAA REPAIR STATION NUMBER RX5R187N</b>					
<b>METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE</b>					
ADDITIONAL INFORMATION - SEE ATTACHED: <input type="checkbox"/> SKETCH(ES) <input type="checkbox"/> SUPPLEMENTARY SHEET(S) <input type="checkbox"/> VIDEO					
<b>SIGNATURES</b>		<b>CERTIFICATION</b>		<b>DATE</b>	
INSPECTOR S. Watson 		ASNT II		M D Y 03   26   08	
SUPERVISOR					
AUTHORIZED INSPECTOR					
CUSTOMER REPRESENTATIVE					

April 18, 2008

S.W. Cole  
286 Portland Rd.  
Gray Maine 04039

Ref: 84 Marginal Way - Project 06-0124.2  
QAL-08-0488

Attn: Roger Domingo

Dear Sir,

On 3/19/08, 3/21/08, and 4/3/08, a site visit was made to 84 Marginal Way Project. The following items were inspected:

Tie Back Posts – Roof

Inspected all Tie Back Post to Beam connections on roof. All connections were found to be IAW AWS D1.1 and applicable site DWGS.

Precast Connections – Lines B-H, 1.4-7 and B.4-G, 7,8 – Levels 1 – 4.

Double Tee to Double Tee connections – Complete.

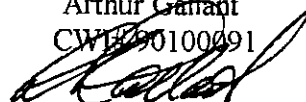
Spandrels to Double Tee connections – Complete.

Roof Framing – Lines 1-7, A-G

Joist and bridging connections – Complete.

Completed items are IAW AWS D1.1 and applicable site DWGS.  
If you should have any further questions, please advise.

Best Regards,  
Arthur Gattant  
CW13790100491



NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES  
 80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

# INSPECTION REPORT

CUSTOMER: S. W. COLE ENG	PAGE 1 OF 1
ADDRESS: GRAY, ME.	
ATTENTION: ROGER DOMINGO	
COPIES:	
PROJECT: 84 MARGINAL WAY	
OWNER:	
CONTRACTOR: PIZZAGALLI CONSTRUCTION	
JOB No.: 06-0124.2	REPORT No.: QAL-08-0887
P. O. NUMBER:	DATES INSPECTED: 5-8-08, 5-9-08, 5-13-08, 5-14-08

### REMARKS

>>>> IN-PROCESS VISUAL INSPECTION OF ROOF TOP STRUCTURAL ATTACHMENTS AND REMAINING PARKING GARAGE AREAS PREVIOUSLY NOT INSPECTED.

- > ROOF TOP STRUCTURAL STEEL CONNECTIONS COMPLETE FOR ANCHOR PEDESTAL WELDS.
- > PARKING GARAGE AREA LEVEL P1 SHOWS THE FOLLOWING LOCATIONS MARKED WITH BLUE FLAG TAPE FOR RE-WORK.
  - A) LOCATION 1.4 - G.1 MISSING PSA ATTACHMENT.
  - B) LOCATION 4 - G.5 MISSING ( 2 ) CONNECTIONS.
  - C) LOCATION 3.5 - A.02 MISSING ( 1 ) CONNECTION.
  - D) STAIRWELL AT 11 - A,B SHOWS NUMEROUS MISSING WALL CONNECTIONS WITH AREAS MARKED FOR RE-WORK.
- > LEVEL P2 SHOWS THE FOLLOWING LOCATIONS MARKED FOR RE-WORK.
  - A) LOCATION 2 - A-B SHOWS ( 4 ) MISSING PLANK EMBEDS TO W16X40 FIELD WELDS.
  - B) LOCATION 7 - A-B SHOWS ( 12 ) MISSING FLOOR TO WALL PSA CONNECTIONS
  - C) LOCATION 9.8 - 11, C.4 ELECTRICAL ROOM WITH MISSING EMBED OVERHEAD CONNECTIONS.
  - D) LOCATION 8.1 - D SHOWS MISSING OVERHEAD TIE PLATE.
  - E) LOCATIONS 7, 9, 9.5 ON LINE G SHOW TOTAL OF ( 6 ) MISSING CONNECTIONS.
- > LEVEL P3 SHOWS THE FOLLOWING LOCATIONS MARKED FOR RE-WORK :
  - A) LOCATION 4.1 - A SHOWS BEAM WEB AND PSA STRAP WITH MISSING WELDS.
  - B) LOCATION 6 - B SHOWS COLUMN TO PRECAST SLIP ANGLES WITH ( 4 ) MISSING BOLTS.
- > LEVEL P4 SHOWS THE FOLLOWING LOCATIONS MARKED FOR RE-WORK.
  - A) LOCATION 7 & 9 AT A SHOW MISSING AND UNTORQUED T/C BOLTS ( 2 )
  - B) LOCATION 9.2 - G SHOWS MISSING PLATE.
  - C) LOCATION 7.8 - H SHOWS MISSING CLIP WELDS.
- > LEVEL P5 SHOWS THE FOLLOWING LOCATIONS MARKED FOR RE-WORK.
  - A) LOCATIONS 9.2 & 9.8 D & F SHOW MISSING WELD AND RE-WORK

**FAA REPAIR STATION NUMBER RX5R187N**  
 METHOD(S), PROCESS(ES), PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED:			
<input type="checkbox"/> SKETCHES	<input type="checkbox"/> SUPPLEMENTARY SHEET(S)	<input type="checkbox"/> NDT REPORTS	<input type="checkbox"/> VIDEO
SIGNATURES		CERTIFICATION	DATE
INSPECTOR MICHAEL DREW CWI# 99050211		M	D Y
		06	14   08
SUPERVISOR			

May. 14. 2008 1:32PM

No. 3263 P. 2

NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES  
80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7261

# INSPECTION REPORT

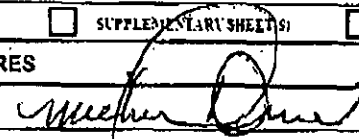
CUSTOMER: S. W. COLE ENG.			PAGE	1	OF	1	
ADDRESS: GRAY, ME.							
ATTENTION: ROGER DOMINGO							
COPIES:							
PROJECT: 84 MARGINAL WAY							
OWNER:							
CONTRACTOR: PIZZAGALI CONSTRUCTION							
JOB No.:	06-01242	REPORT No.:	QAL-08-0887	P. O. NUMBER:		DATE INSPECTED:	05-14-08

## REMARKS

>>> PAGE (2) SUPPLEMENT TO FIELD REPORT DATED 05-14-08 FOR PARKING GARAGE :

NOTE : REQUEST ENGINEERING EVALUATION FOR MULTIPLE HEAT CYCLES FROM WELDING AND GRINDING OF PRECAST EMBEDDED CONNECTIONS : IE. SOME CONNECTIONS OF FLOOR VECTOR AND PLATE TIE WELDS BEING REMOVED FOR ELEVATION CORRECTIONS. EMBED PLATES ARE SUBJECTED TO (3) HEAT CYCLES AS A RESULT OF PLANK ADJUSTMENTS FOR ELEVATIONS .

FAA REPAIR STATION NUMBER RX5R187N  
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED:		<input type="checkbox"/> SKETCH(ES)	<input type="checkbox"/> SUPPLEMENTARY SHEET(S)	<input type="checkbox"/> NDT REPORTS	<input type="checkbox"/> VIDEO
SIGNATURES				CERTIFICATION	DATE
INSPECTOR MICHAEL DREW CWI# 99050211 					M D Y
SUPERVISOR					05   14   08

# Quality Assurance Labs Inc.

NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES

80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04108 • TEL: (207) 799-8911 • FAX: (207) 780-7251

## INSPECTION REPORT

CUSTOMER: S. W. COLE ENG.		PAGE	1	OF	1
ADDRESS: GRAY, ME.					
ATTENTION: ROGER DOMINGO					
COPIES:					
PROJECT: 84 MARGINAL WAY					
OWNER:					
CONTRACTOR: PIZZAGALLI CONSTRUCTION					
JOB No.: 06-0124.2	REPORT No.: QAL-08-0934	P. O. NUMBER	DATES INSPECTED: 05 - 16 - 08		

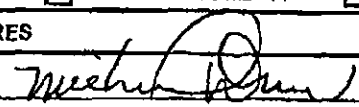
### REMARKS

>>>> SITE VISIT FOR VISUAL INSPECTION OF ROOF AREA HSS TIE-OFF FRAME ASSEMBLY :

> VISUAL INSPECTION REVEALS ALL FIELD BOLTED CONNECTIONS COMPLETE EXCEPT ( 1 ) LOCATION THAT SHOWS FINAL BOLT-UP IN-PROGRESS .

END ITEMS ///

FAA REPAIR STATION NUMBER RX5R187N  
 METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED:		<input type="checkbox"/> SKETCH(ES)	<input type="checkbox"/> SUPPLEMENTARY SHEET(S)	<input type="checkbox"/> NDT REPORTS	<input type="checkbox"/> VIDEO
SIGNATURES			CERTIFICATION	DATE	
INSPECTOR	MICHAEL DREW CWI# 99050211			M	D Y
SUPERVISOR				05	16   08

*05120 Structural Steel*  
AISC Certification

05120.3

**Mandate Erectors & Welding Ltd.**  
**1040 Route 430**  
**Big River NB E2A 6P9**  
**506-548-4431 506-546-8515 Fax**

Transmittal 94

09/11/08

Page # 1

To: Pizzagalli Construction (898)  
84 Marginal Way  
Portland, MA 04104

Attn: Mike Lapointe/Gerald Ballard

We are sending you the following:  
Request for Info via Federal Express for your information

For our Job Number 08-898

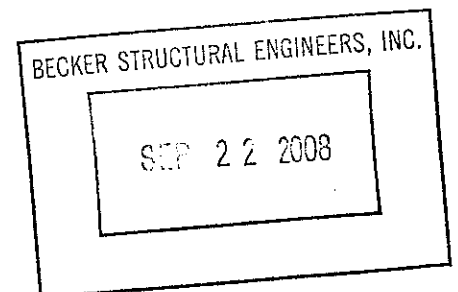
Regarding:  
84 Marginal Way

Including the following documents:

<i>Blues</i>	<i>Date</i>	<i>Number</i>	<i>Description</i>
1	09/11/08	Load 1 to 31	Custom Papers with Mill Certificates
1	09/11/08	Drops	Custom Papers with Mill Certificates Structural Steel: Beams, Bolts Welding Wire etc.
1	09/11/08	AISC Cert.	

Sincerely

*Neil Carvington/at*  
Mandate Erectors & Welding Ltd.



*American Institute of Steel Construction*

*is proud to recognize*

**Mandate Erectors & Welding Ltd.**

Big River, NB

*for successfully meeting the quality certification requirements for*

**Standard for Steel Building Structures**



*Roger E. Ferch*

Roger E. Ferch

*Certification valid through July 2009*



*05120 Structural Steel*  
Certificate of Compliance

05120.4

# MANDATE ERECTORS & WELDING LTD.

- Structural Steel Fabrication & Erection
- Custom Fabrication & Installation
- Plant Shutdowns
- Design & Build Options for Structural and Custom Projects
- Design & Fabrication of Pressure Vessels, ASME Section VIII



1040 Route 430  
Big River, New Brunswick  
E2A 6P9  
Canada  
Telephone: (506) 548-4431  
Fax: (506) 546-8515  
Email : [mandate@nb.aibn.com](mailto:mandate@nb.aibn.com)

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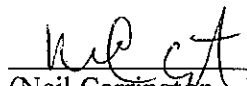
## Certificate Of Compliance – Structural Steel, Steel Joists and Metal Deck

**Project: 84 Marginal Way**

**Date: October 2, 2008**

To whom it may concern:

This document shall certify that Mandate Erectors & Welding Ltd. has completed the fabrication of structural steel, steel joists and metal decking for the 84 Marginal Way project in compliance with the provided construction drawings and in compliance with the provided specifications.

Signature   
(Neil Carrington - PM)

Date Oct 2 / 2008



**C.W.B. Div 1**



**ISO 9002**  
Registered

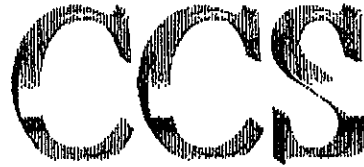


*05120 Structural Steel*  
Welder Certifications

05120.5

CCS Constructors, LLC  
138 Munson Avenue  
Morrisville, VT 05661

Ph. (802) 888-7701  
Fx. (802) 888-4746



Constructors, LLC

# Fax

To: JARED From: Terry Cuyper  
Fax: 207-874-2727 Pages: 15  
Phone: \_\_\_\_\_ Date: 9/26/08  
Re: WELDER CERT CC: \_\_\_\_\_

Urgent     For Review     Please Comment     Please Reply     Please Recycle

JARED,

WELDER CERTS. AS YOU

REQUESTED.

Terry Cuyper

**DRIVER'S LICENSE**

CLOUTIER  
DALE  
850 DAYTON ROAD  
DUNN, NC 28428

7777165

EXPIRES 05/18/2007 ISSUED 02/23/2001 BIRTH DATE 03/18/1967

WEIGHT 170 SEX M HAIR BR EYES BR HEIGHT 5 11

CLASS C

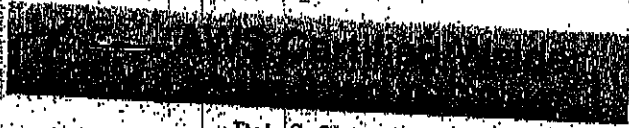
HST:

ENDS: |



ORGAN DONOR

*Dale Cloutier*



*Ph # 207-*

Cert # 0009020W

Dale S. Cloutier

SSN# 007-64-2843

1-800-443-9353 USA

Information relating to identification and certification of the  
bearer of this card may be verified by calling or writing:  
Certification Department of the American Welding Society  
850 N.W. LeJaune Road, Miami, FL 33126

This Card is the property of AWS and shall be returned on demand.

**Valid Only if Accompanied by Photo ID**

Dale S. Cloutier

# Test Date Sup Code  
2 08/01/00 G D1.1

Process  
SMAN

GAs

Filler Metal  
F4

Base Metal  
E1

Position  
A

Thickness Expires  
U 09/16/01

ANNEX

AWSD1.1 2000

WELDER, WELDING OPERATOR, OR TRACK WELDER QUALIFICATION TEST RECORD

Type of Welder Miller Ideal Arc 250

Name Steve Domin

Identification No. 009-56-6310

Welding Procedure Specification No. B2-1-8-023

Rev.

Date 09/30/2004

**Variables**

Process/Type (Table 4.10, Item (1))

Electrode (single or multiple) (Table 4.10, Item (8))

Current/Polarity

Position (Table 4.10, Item (4))

Weld Progression (Table 4.10, Item (6))

Backing (YES or NO) (Table 4.19, Item (7))

Material/Spec

Base Material

Thickness (Plate)

Groove

Fillet

Thickness: (Pipe/Tube)

Groove

Fillet

Diameter: (Pipe)

Groove

Fillet

Filler Metal (Table 4.10, Item (3))

Spec. No.

Class

E-No. (Table 4.10, Item (2))

Gas/Flux Type (Table 4.9, Item (3))

Other

Record Actual Values Used in Qualifications	Qualification Range
SMAW	
Single	
DC Rev.	
Vertical	Flat, Horizontal & Vert.
Yes	
5/16	
3/8"	1/8" - 3/4"
1/2" Groove	
ER 308L	
AWS 5.1/5.18	
F6	

Visual Inspection (4.8.1) Acceptable YES or NO YES

Guided Bend Test Results (4.30.5)

Type	Results	Type	Results
Face	Accept		
Root	Accept		

Fillet Test Results (4.30.2.3 and 4.30.4.1)

Appearance

Fracture Test Root Penetration

(Describe the location, nature, and size of any crack or tearing of specimen.)

Inspected by Richard Irick Test No. D09302004

Organization VT Nondestructive Testing, Inc. Date 09/30/2004

Fillet Size

Macro etch

Tear, Slag Inclusion - 1/8"

Radiographic Results (4.30.3.1)

Film Identification Number	Results	Remarks	Film Identification Number	Results	Remarks

Interpreted by \_\_\_\_\_ Test Number \_\_\_\_\_

Organization \_\_\_\_\_ Date \_\_\_\_\_

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section 4 of AWS D1.1, 2000 Structural Welding Code - Steel.

Inspected by Richard Irick AWS/CWI

Witnessed by Tim Prevost - CCS

Contractor CCS

Date 09/30/2004



ANNEX

AWS D1.1 2000

# WELDER, WELDING OPERATOR, OR TRACK WELDER QUALIFICATION TEST RECORD

Type of Welder LN-25

Identification No. 66310

Name Steven Dominia

Rev. \_\_\_\_\_ Date 08/29/05

Welding Procedure Specification No. B-U2a-GF

Record Actual Values Used in Qualifications: Qualification Range

**Variables**  
 Process/Type (Table 4.10, Item (1))  
 Electrode (single or multiple) (Table 4.10, Item (8))  
 Current/Polarity  
 Position (Table 4.10, Item (4))  
 Weld Progression (Table 4.10, Item (6))

Flux Core	/
Single	/
DCEN	/
Horizontal	Flat/Horizontal

Backing (YES or NO) (Table 4.10, Item (7))  
 Material/Spec  
 Base Material

Yes	/
M-1	/
1"	1/8"-unlimited

Thickness (Plate)  
 Groove

Fillet  
 Thickness: (Pipe/Tube)  
 Groove

Fillet  
 Diameter: (Pipe)  
 Groove  
 Fillet

Filler Metal (Table 4.10, Item (3))  
 Spec. No.  
 Class

E-70T7-K2	/
AWS A5.29	/
NR-311NF	/

No. (Table 4.10, Item (2))

Gas/Flux Type (Table 4.0, Item (3))  
 Other

Visual Inspection: (4.8.1) Acceptable YES or NO  
 Guided Bend Test Results (4.30.5)

Type	Results	Type	Results
Side	Accept		
Side	Accept		

Fillet Test Results (4.30.2.3 and 4.30.4.1)

Appearance \_\_\_\_\_ Fillet Size \_\_\_\_\_  
 Fracture Test Root Penetration \_\_\_\_\_ Macro etch \_\_\_\_\_

(Describe the location, nature, and size of any crack or tearing of specimen.) Tear, Slag Inclusion - 1/8"

Inspected by Richard Irick Test No. 8/29/05Dominia

Organization Vermont Nondestructive Testing, Inc. Date 08/30/05

Radiographic Results (4.30.3.1)

Film Identification			Film Identification		
Number	Results	Remarks	Number	Results	Remarks

Interpreted by \_\_\_\_\_ Test Number \_\_\_\_\_  
 Organization \_\_\_\_\_ Date \_\_\_\_\_

I, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section 4 of AWS D1.1, 2000 Structural Welding Code - Steel.

Inspected by: Richard Irick  
*Richard Irick AWS/CWI*

Witnessed by Edward Laprete

Contractor Contractors Crane Service

Date 8/30/05



ANNEX

AWS D1.1 2000

WELDER, WELDING OPERATOR, OR TRACK WELDER QUALIFICATION TEST RECORD

Type of Welder Electric

Name Steve Domina

Identification No. 009-56-6310

Date 6/6/03

Welding Procedure Specification No. Pre-qualified

Rev.

Variables  
Process/Type (Table 4.10, Item (1))  
Electrode (single or multiple) (Table 4.10, Item (8))  
Current/Polarity  
Position (Table 4.10, Item (4))  
Weld Progression (Table 4.10, Item (6))

Backing (YES or NO) (Table 4.10, Item (7))

Material/Spec.

Base Material

Thickness (Plate)

Groove

Fillet

Thickness: (Pipe/Tube)

Groove

Fillet

Diameter: (Pipe)

Groove

Fillet

Filler Metal (Table 4.10, Item (3))

Spec. No.

Class

F-No. (Table 4.10, Item (2))

Flux Type (Table 4.8, Item (3))

Other

Record Actual Values  
Used in Qualifications

Qualification Range

SMAW	
Single	
DC RCV	F.H.V.
Vertical	
Uphill	
No	
M-1	
1.00"	1.00 - Unlimited
E7018	
A5.1	
F-4	

Visual Inspection (4.30.1) Acceptable YES or NO YES

Guided Bend Test Results (4.30.5)

Type	Results	Type	Results
Side Bend	Accept		
Side Bend	Accept		

Fillet Test Results (4.30.2.3 and 4.30.4.1)

Appearance

Fracture Test Root Penetration

(Describe the location, nature, and size of any crack or tearing of specimen.)

Inspected by James Blanchard Test No. 03-6505

Organization VT Nondestructive Testing, Inc. Date

Fillet Size

Macro etch

Radiographic Results (4.30.3.1)

Film Identification			Film Identification		
Number	Results	Remarks	Number	Results	Remarks

Interpreted by \_\_\_\_\_ Test Number \_\_\_\_\_  
Organization \_\_\_\_\_ Date \_\_\_\_\_

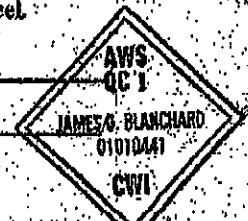
We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section 4 of AWS D1.1, 2000 Structural Welding Code - Steel.

Inspected by: James Blanchard  
*James Blanchard AWS/CWI/CWE*

Contractor CCS

Witnessed by Terry Carpenter

Date 6/6/03





WELDER, WELDING OPERATOR OR TRACK WELDER QUALIFICATION TEST RECORD

Type of Welder: LN25	Identification No.: 86310
Name: Steven Domina	Date: 8/29/2005
Welding Procedure Specification No.: B2.1-1-01B-94	Record Actual Values Used in Qualifications
Variables	Qualification Range
Process/Type (Table 4.10, Item (1))	FCAW
Electrode (single or multiple) (Table 4.10, Item (8))	Single
Current/Polarity	DCEN
Position (Table 4.10, Item (4))	Vertical
Weld Progression (Table 4.10, Item (8))	Flat/Horizontal/Vertical
Backing (YES or NO) (Table 4.10, Item (7))	Yes
Material/Spec	M-1/P-1/S-1
Base Material	Copper Bar
Thickness (Plate)	M-1
Groove	1"
Fillet	1/4" groove
Thickness: (Pipe/Tube)	
Groove	
Fillet	
Diameter: (Pipe)	
Groove	
Fillet	
Filler Metal (Table 4.10, Item (3))	E70T-B
Spec. No.	AWS A5.20
Class	NR-232
F.No. (Table 4.10, Item (2))	
Gas/Flux Type (Table 4.0, Item (3))	
Other	

VT Nondestructive Testing

Visual Inspection (4.8.1) Acceptable YES or NO			
Guided Bend Test Results (4.30.5)			
Type	Results	Type	Results
Side	Accept		
Side	Accept		
Fillet Test Results (4.30.2.3 and 4.30.4.1)			
Appearance	Fillet Size		
Fracture Test Root Penetration	Macro etch		
(Describe the location, nature and size of any crack or tearing of specimen.)			

Inspected by: Richard Irick	Test No.: S.Domina 8/29/2005
Organization: VT Nondestructive Testing	Date: 8/30/2005

Radiographic Results (4.30.3.1)					
Film Identification			Film Identification		
Number	Results	Remarks	Number	Results	Remarks

Interpreted by:	Test Number:
Organization:	Date:

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section 4 of AWS D1.1: 2000 Structural Welding Code-Steel

Inspected by: Richard Irick AWS/CWI  
 Contractor: Constructors Crane Service

Witnessed by: Edward Loprate  
 Date: 8/30/2005



**WELDER, WELDING OPERATOR OR TRACK WELDER QUALIFICATION TEST RECORD**

Type of Welder: LN25	Identification No.: 66310
Name: Steven Domina	Date: 8/29/2005
Welding Procedure Specification No. B2.1-1-018-94	Record Actual Values Used in Qualifications:
Variables	Qualification Range
Process/Type (Table 4.10, Item (1)) FCAWV	
Electrode (single or multiple) (Table 4.10, Item (8)) Single	
Current/Polarity DCEN	
Position (Table 4.10, Item (4)) Horizontal	Flat/Horizontal
Weld Progression (Table 4.10, Item (8))	
Backing (YES or NO) (Table 4.10, Item (7)) Yes	M-1/P-1/S-1
Material/Spec. Cooper Bar	Cooper Bar
Base Material M-1	
Thickness (Plate) 1"	1/8" unlimited
Groove	
Fillet	
Thickness: (Pipe/Tube) 1/4" groove	
Groove	
Fillet	
Diameter: (Pipe)	
Groove	
Fillet	
Filler Metal (Table 4.10, Item (3)) E70T1-K2	0.068
Spec. No. AWS A4.3	
Class NR-311-NI	
F.No. (Table 4.10, Item (2))	
Gas/Flux Type (Table 4.0, Item (3))	
Other	

V T Nondestructive Testing

Visual Inspection (4.8.1) Acceptable YES or NO	
Guided Bend test Results (4.30.5)	
Type	Results
Side	Accept
Side	Accept

Fillet Test Results (4.30.2.3 and 4.30.4.1)	
Appearance	Fillet Size
Fracture Test Root Penetration	Macro etch
(Describe the location, nature and size of any crack or tearing of specimen.)	

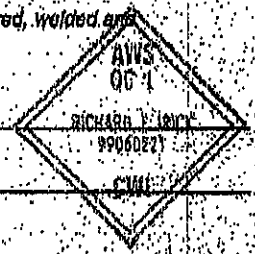
Inspected by: Richard Inck	Test No.: S.Domina 8/29/2005
Organization: V T Nondestructive Testing	Date: 8/30/2005

Radiographic Results (4.30.3.1)					
Film Identification			Film Identification		
Number	Results	Remarks	Number	Results	Remarks

Interpreted by:	Test Number:
Organization:	Date:

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section 4 of AWS D1.1, 2000 Structural Welding Code-Steel.

Inspected by: 	Witnessed by: Edward Loprete
Contractor: Constructors Crane Service	Date: 8/30/2005



**WELDER, WELDING OPERATOR OR TRACK WELDER QUALIFICATION TEST RECORD**

Type of Welder:		Identification No.:	
Name: <b>Dave LeFevre</b>		Date:	<b>9/12/2007</b>
Welding Procedure Specification No.:	<b>E2.1-Q01-00</b>	Record Actual Values Used in Qualifications:	Qualification Range:
<b>Variables:</b>		<b>SMAWV</b>	
Process Type (Table 4.10, Item (1)):		<b>Single</b>	
Electrode (single or multiple) (Table 4.10, Item (8)):		<b>DCEP</b>	
Current/Polarity:		<b>Flat</b>	<b>Flat</b>
Position (Table 4.10, Item (4)):		<b>Yes</b>	
Weld Progression (Table 4.10, Item (6)):			
Backing (YES or NO) (Table 4.10, Item (7)):			
Material/Spec:		<b>Stainless steel</b>	
Base Material:		<b>3/8"</b>	<b>1/8"-3/4"</b>
Thickness (Plate):		<b>1/4" opening</b>	
Groove:			<b>ALL</b>
Filllet:			
Thickness (Pipe/Tube):			
Groove:			
Filllet:			
Diameter (Pipe):			
Groove:			
Filllet:			
Filler Metal (Table 4.10, Item (3)):		<b>E308L</b>	
WPS No.:		<b>TAVYS A5.1</b>	
Class:		<b>E308L</b>	
F.No. (Table 4.10, Item (2)):		<b>F-1</b>	
Gas/Flux Type (Table 4.0, Item (3)):			
Other:			

Nondestructive Testing

Visual Inspection (4.8.1) Acceptable <u>YES</u> or NO			
Guided Bend Test Results (4.30.5)			
Type	Results	Type	Results
Side	Accept		
Side	Accept		


Fillet Test Results (4.30.2.3 and 4.30.4.1)	
Appearance	Fillet Size
Fracture Test Root Penetration	Macro stch
(Describe the location, nature and size of any crack or tearing of specimen.)	

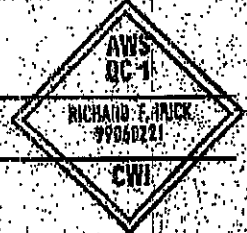
Inspected by: <b>Edward Loprete</b>	Test No.: <b>D. LeFevre</b>
Organization: <b>VT Nondestructive Testing</b>	Date: <b>9/12/2007</b>

Radiographic Results (4.30.3.1)					
Film Identification Number	Results	Remarks	Film Identification Number	Results	Remarks

Interpreted by:	Test Number:
Organization:	Date:

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section 4 of AWS D1.1, 2000 Structural Welding Code-Steel

Inspected by: 	Witnessed by: <b>Tim Prevost</b>
Contractor: <b>Richard F. Irick AWS/CWI</b>	Date: <b>9/14/2007</b>
<b>Contractors Crane Service</b>	



**VT Nondestructive Testing  
Welder/Welding Operator Performance Qualifications (WPQ)**

Stamp #: \_\_\_\_\_

Welder's Name: Dave LeFevre Social Security#: 009-50-6473

Welding Process: GMAW Type: Manual

Identification of WPS followed by welder during welding test \_\_\_\_\_

Base material(s): Carbon Steel Thickness: 3/8"

**Manual or Semiautomatic Variables for Each Process (QW-350)**

	Actual Values	Range Qualified
Backing (metal, weld metal, welded from both sides, flux, etc.): Carbon Steel		
ASME P No. <u>1</u> To ASME P No. <u>1</u>	<u>1</u>	
(X) Plate ( ) Pipe (enter diameter, if pipe)		<u>F, H, &amp; V</u>
Filler metal specification (SFA): <u>5.1</u> Classification:	<u>5.1</u>	<u>5.1</u>
Filler metal F-Number:	<u>F4</u>	<u>all</u>
Consumable insert for GTAW or PAW:		
Weld deposit thickness for each welding process:	<u>1/8" - 3/32"</u>	<u>1/8" - 3/4" fillets</u>
Welding position (1G, 5G, etc.):	<u>3G</u>	<u>F, H, &amp; V</u>
Progression (uphill/downhill):	<u>Up</u>	<u>Uphill</u>
Backing gas for GTAW, PAW, or GMAW, fuel gas for OFW:		

**Machine Welding Variables for the Processes Used**

GTAW transfer mode:		
Reverse		
Direct/Remote visual control:		
Automatic voltage control (GTAW):		
Automatic joint tracking:		
Welding position (1G, 5G, etc.):		
Consumable insert:		
Backing (metal, weld metal, welded from both sides, flux, etc.):		

**Guided Bend Test Results**

Type	Results	Notes
Root Bend	Accept	
Root Bend	Accept	
Face Bend	Accept	
Face Bend	Accept	

Visual examination results: Acceptable

Radiographic test results: \_\_\_\_\_

Filler Weld Fracture \_\_\_\_\_ Length & percent of \_\_\_\_\_

Macro Test conducted by: Richard Irick

Mechanical tests conducted by: Done by Richard F. Irick Invoice #: \_\_\_\_\_

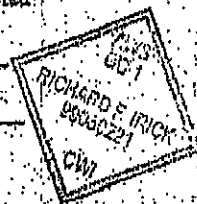
This welder qualification report is the property of: Contractors Crane Service

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of AWS D1.1.

Organization: VT Nondestructive Testing, Inc.

Date: 12/29/00

By: Richard F. Irick  
Richard F. Irick - CWI/Level III



**VT Nondestructive Testing  
Welder/Welding Operator Performance Qualifications (WPQ)**

Stamp #: \_\_\_\_\_

Welder's Name: Dave Lefevre Social Security#: 009-50-6473

Welding Process: SMAW Type: \_\_\_\_\_

Identification of WPS followed by welder during welding test: \_\_\_\_\_

Base material(s) welded: P1-S1 Thickness: 3/8"

**Manual or Semiautomatic Variables for Each Process (QW-350)**

	Actual Values	Range Qualified
Backing (metal, weld metal, welded from both sides, flux, etc.):	Yes	
ASME P No. <u>1</u> To ASME P No. _____	<u>1</u>	
(X) Plate ( ) Pipe (enter diameter, if pipe)		
Filler metal specification (SFA): <u>5.1</u> Classification:	<u>5.1</u>	<u>5.1</u>
Filler metal F-Number:	<u>4</u>	<u>all</u>
Consumable insert for GTAW or PAW:		
Weld deposit thickness for each welding process:	<u>1/8 - 3/16</u>	<u>1/8 - All</u>
Welding position (1G, 5G, etc.):	<u>1G, 2G</u>	<u>1G, 2G</u>
Progression (uphill/downhill):		
Backing gas for GTAW, PAW, or GMAW; fuel gas for OFW:		
GTAW transfer mode:		
SMAW/GTAW welding current type/polarity:		
Machine Welding variables for the process used:		
Direct/Remote visual control:		
Automatic voltage control (GTAW):		
Automatic joint tracking:		
Welding position (1G, 5G, etc.):		
Consumable insert:		
Backing (metal, weld metal, welded from both sides, flux, etc.):		

**VT Nondestructive Testing**

**Guided Bend Test Results**

Type	Results	Notes
Root Bend	Accept	
Root Bend	Accept	
Face Bend	Accept	
Face Bend	Accept	

Visual examination results: Acceptable

Radiographic test results: \_\_\_\_\_

Filler Weld Fracture: \_\_\_\_\_ Length & percent of \_\_\_\_\_

Macro Test conducted by: \_\_\_\_\_

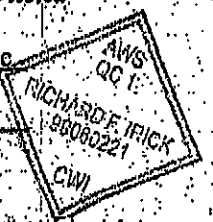
Mechanical tests conducted by: Richard F. Irick Invoice #: \_\_\_\_\_

This welder qualification report is the property of: Contractors Crane Service

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of AWS D1.1

Date: 6/15/00

Organization: VT Nondestructive Testing, Inc  
By: Richard F. Irick  
Richard F. Irick - CWI/Level III



*05500 Steel Stairs*

Kleinschmidt Inspection Report

05500.1

# ***Kleinschmidt***

*Energy & Water Resource Consultants*

## **Record of Site Visit**

### **84 Marginal Way Project**

**Date:** May 23, 2008, 1:00 pm  
**Location:** 84 Marginal Way, Portland, Maine  
1504-002  
**Visitor:** Leslie Corrow, P.E., Kleinschmidt Associates  
**Contacted:** Stacy Clark, CCS Constructors



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## **Weather and Temperature Conditions**

Partly sunny, 58°F

## **Purpose of site visit**

Visual observation of the three stair towers.

## **Site Visit Observations**

The three stair towers are in place. Not all of the concrete for the treads and landing pans has been placed yet. Not all of the handrails have been installed. The three stairs are in general conformance with the Charles Leonard Steel Services shop drawings and the field change sketches in which calculations were performed.

## **Significant issued noted and discussed with the Contractor**

None.

## **Any directives or instructions that were given**

None.

## **Any follow-up or action items that are involved**

Complete stairs per the Charles Leonard Steel Services shop drawings and field change sketches, including but not limited to, finishing placing concrete for the treads and landing pans and installing handrails.

**cc:** Rob Moore – Charles Leonard Steel Services  
Mike LaPointe – Pizzagalli Construction Company