Appendix B

Diving Inspection Report

bridge, highway & rail engineering
entertainment engineering
subaqueous investigation
civil & site engineering
structural design
marine facilities
geotechnics
surveying
forensics

February 5, 2007

Bergmann Associates
1 Computer Drive South
Albany, New York 12205

Attn: Mr. Peter Melewski

Re: Underwater Investigation of the Poughkeepsie Railroad Bridge
McLaren File No. 106158

Dear Mr. Melewski:

Introduction

McLaren Engineering Group was retained by Bergmann Associates to perform an underwater investigation of the submerged portions of the substructures for Pier 2 through Pier 5 for the Poughkeepsie Railroad Bridge. The investigation was performed from November 2 to November 7, 2006. Also please find attached Appendix – A, Photographs, and Appendix – B, Figures referenced during this report.

Scope of Work

All in-water pier substructures received a visual inspection from Mean High Water line (MHW) to the mudline. Water depth were measured and recorded at eight points around the perimeter of the piers along the mudline. Probes were taken into the timber cribbing and grillage. Mudline elevation and composition were recorded. Additional investigation was performed using a "DIDSON" Sonar Camera on November 21, 2006 at Pier 2 to determine the extent of the void area observed during the initial investigation.

Methodology

The dive team conducting the investigation was composed of a Professional engineer diver, a diver and a diver tender. Dive operations were conducted from either a thirty-foot aluminum boat or a twenty-two foot fiberglass dive boat. Diving was performed using surface supplied equipment with constant two-way radio communication and real-time video recording. Divers visibility during the investigation was limited to three inches or less, making visual observation very limited. Most of the inspection was performed using tactile investigation skills. Due to high current velocity, inspections time was limited to hours of slack current.

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Bridge History

The Pennsylvania Railroad officially started the initial construction of the Poughkeepsie Railroad Bridge in 1873. However, actual bridge construction started in 1876 by the American Bridge Company who built Pier 2, installed the cribbing for Pier 3, and partially completed construction on the timber cribbing for Pier 4. Construction was suspended from 1876 to 1886 when construction was resumed by the Union Bridge Company, who modified the design and reworked Pier 2 and completed the remainder of the bridge with the first traffic across the bridge on January 1, 1889.

The overall length of the bridge is approximately 6,767 feet (see Figure 1). The main bridge (Pier 0 to Pier 7) consists of seven deck truss spans (Photo 1), three cantilever spans of 548 ft each, two connecting spans of 525 ft each and two shore spans of 201 ft each for a total river span of 3,094 ft (see Figure 2). The east and west bridge approaches are comprised of a combination of deck truss and girder spans that are supported by steel bents.

Additional work to strengthen the bridge to accommodate heavier rail loading was completed in 1907. General maintenance and several track changes were performed in subsequent years until a fire occurred on the east approach span of the bridge in 1974 causing damage that ended all rail services over the bridge.

Typical Substructure Construction

Typical substructure components of the piers consist of a heavy timber crib structure that was used as a deep dredging system. The cribbing is essentially a bottomless box and was constructed of several layers of 12 in. by 12 in. timbers positioned horizontally and fastened with steel pins, typically the exterior was then sheathed with vertical timber planking to complete the structure. The cribbing structures measures approximately 60 ft wide by 100 ft long at the bottom (see Figure 3), and tapers along the east and west faces to 50 ft wide by 100 ft long at the top. The timber cribbing was partially built on land then floated out in the river where it was positioned, sunk by filling the weighting pocket with stone and built up to the required elevation as dredges worked to remove material from the interior dredging wells until the bottom of the crib structure was founded on firm soil at approximately 130 ft below the surface of the river. The dredging wells were then filled and leveled with concrete to provide a stable foundation for the timber grillage layer.

When the concrete filled timber cribbing installation was complete the next step was constructing and placing a floating caisson over the cribbing. The caisson was designed with the bottom serving as a mat of timber grillage and was constructed of six layers of 12 in. by 12 in. timbers (see Figure 4). Once the caisson was floated into position over the previously placed cribbing, construction of the masonry faced concrete pier began within the floating caisson. As the pier construction progressed the weight of the pier gradually sunk the caisson until it rested on the cribbing. Once the masonry and concrete pier was completed the caisson was flooded and the sides were removed leaving the completed masonry and concrete portion of the pier resting on the timber grillage. The finished overall dimensions of the concrete filled masonry piers are approximately 25 ft wide by 90 ft long.

Observations

Pier 2

Pier 2 is located nearest to the western shoreline of the river (Photo 2 and Photo 3). Construction of Pier 2 varies slightly from the other piers (see Figure 5). Construction of the substructure was partially completed when the project was postponed, redesigned and work eventually started again by a different Contractor. A bottomless timber caisson was constructed around the existing pier and pumped dry, then partial demolition of the existing pier was performed, the new masonry and concrete pier constructed over the remains of the previously pier foundation and then the interior of the caisson was filled with concrete (see Figure 6).

The stone masonry portion of the pier is generally in fair condition. Typical deficiencies include intermittent areas of missing mortar from between the joints, with penetration from 4 in. to 12 in. deep, and moderately spalled and loose coping stones on the south face of the pier. Moderate efflorescence and rust staining were also evident on the face of the masonry.

The timber cribbing and grillage typically exhibit moderate rot and loss of cross sectional area with gaps between the timbers averaging 1 in. to 2 in. wide. Intermittent penetrations into the gaps of the cribbing were taken and typically varied from 12 in. to over 3 ft deep. The outer layer of vertical timber sheeting is missing from around the entire pier. Intermittent missing pieces of 12 in by 12 in. timber cribbing were also observed. A significant horizontal void area was observed behind the outermost layer of the timber crib wall, extending along the east, south and west faces of the pier. The voids are located approximately 29 ft below the water surface and extend approximately 16 ft along the south face and 56 ft along the west face. The void in the timber cribbing is 2 ft high at the south west corner and tapers down to 2 in. as it progresses along the south and west elevations. Penetrations in the void varied from 3 ft to more than 6 ft deep. The maximum height of the void on the inside of the timber cribbing at the southwest corner is unknown.

Additional investigation was performed to determine the depth of the void. A dive crew equipped with a "DIDSON" Sonar Camera performed a real time sonar survey of the void area. Interpretation of the sonar images revealed that only the outer layer of weighting pockets has been compromised revealing the stone fill (Photo 4). The inner timber wall and transverse ties appeared to be in place (Photo 5, and Photo 6). It was not possible to visually inspect or probe the timber on the interior pockets to determine their condition.

The mudline generally consists of silt and sand over scattered rip rap stone with concrete and steel debris. No signs of scour were observed in the vicinity of the pier. Water depth varied from 39 ft to 66 ft around the pier.

Pier 3

Pier 3 also has a slightly different construction. The timber grillage mat was built up of 14 layers of 12 in. by 12 in. timbers in order to bring the foundation up to the required elevation (see Figure 7).

The stone masonry portion of the pier is generally in fair condition (Photo 7 and Photo 8). Typical deficiencies include intermittent areas of missing mortar from between the joints, with penetration from 2 in. to 14 in. deep. Moderate efflorescence and rust staining were also evident on the face of the masonry.

The timber cribbing and grillage typically exhibit moderate rot and loss of cross sectional area with gaps between the timbers averaging 1 in. to 2 in. wide. Intermittent penetrations into the gaps of the cribbing were taken and typically varied from 12 in. to over 4 ft deep. The outer layer of vertical timber sheeting is missing from around the entire pier. Minor areas of intermittent missing pieces of 12 in by 12 in. timber cribbing from the outer layer, up to 4 ft long were also observed.

A significant void was discovered along the east elevation at approximately 22 feet below the water surface. The void was located at the interface between the timber grillage and the cribbing structure. The void measured approximately 4 ft high at the southeast corner and tapered down to 2 ft high at the north end of the pier. Penetrations into the void varied and were approximately 2 ft deep at the northwest corner and up to 6 ft deep at the southwest corner.

The mudline generally consists of silt and sand over scattered rip rap stone with concrete and steel debris. No signs of scour were observed in the vicinity of the pier. Water depth varied from 38 ft to 51 ft around the pier.

Pier 4

Constructions of the pier substructural elements are as described above under "**Typical Substructure Construction**". The stone masonry portion of the pier is generally in fair condition (Photo 9 and Photo 10). Typical deficiencies include intermittent areas of missing mortar from between the joints, with penetration from 4 in. to 16 in. deep.

The timber cribbing and grillage typically exhibit moderate rot and loss of cross sectional area with gaps between the timbers averaging 1 in. to 2 in. wide. Intermittent penetrations into the gaps of the cribbing were taken and typically varied from 12 in. to 2 ft deep. The outer layer of vertical timber sheeting is missing from around the entire pier. Minor areas of intermittent missing pieces of 12 in by 12 in. timber cribbing from the outer layer were also observed.

The mudline generally consists of silt and sand over scattered rip rap stone with concrete and steel debris. No signs of scour were observed in the vicinity of the pier. Water depth varied from 39 ft to 58 ft around the pier.

Pier 5

Pier 5 is located nearest to the eastern shoreline of the river (Photo 11 and Photo 12). Constructions of the pier substructural elements are as described above under "**Typical Substructure Construction**".

The stone masonry portion of the pier is generally in fair condition. Typical deficiencies include intermittent areas of missing mortar from between the joints, with penetration from 2 in. to 12 in. deep. Moderate efflorescence and rust staining were also evident on the face of the masonry.

The timber cribbing and grillage typically exhibit moderate rot and loss of cross sectional area with gaps between the timbers averaging 1 in. to 2 in. wide. Intermittent penetrations into the gaps of the cribbing were taken and typically varied from 12 in. to over 3 ft deep. The outer layer of vertical timber sheeting is missing from around the entire pier. Minor areas of intermittent missing pieces of 12 in by 12 in. timber cribbing from the outer layer, were also observed.

The mudline generally consists of silt and sand over scattered rip rap stone with concrete and steel debris. No signs of scour were observed in the vicinity of the pier. Water depth varied from 42 ft to 54 ft around the pier.

Conclusions & Recommendations

It is recommended to repair the void areas at Pier 2 and Pier 3 to stop the loss of fill from within the cribbing and restore structural integrity. These deficiencies are not an emergency or a structural stability issue at this time; however, the repairs are needed to provide long-term protection and insure stability. It is recommended that these repairs be completed within the next five years to prevent accelerated deterioration of the substructures. We strongly recommend that the deteriorated portions of Piers 2 and 3 be inspected on an annual basis until repairs are made, to arrest or respond to any sudden change of these conditions. It is our intent to avoid any dramatic increase in rehabilitation costs due to lack of attention. It is also recommended to perform an underwater inspection just prior to repair construction to confirm that the extent of deterioration has not changed.

Typically repairs to the voids involve sealing the outer surface of the void by installing formwork or grout bags. The void area is then pumped full with concrete. Estimated construction cost for these repairs is approximately $750,000 to $1,500,000. After repairs have been completed the piers should be regularly inspected at five-year intervals to monitor the deterioration of the substructure elements and recommend any additional repairs.

Permits for the repair construction will be required from various state and federal agencies. Since the permitting process approval may take an unusually long time (over 1 year), it is recommended that work on submitting the permits begin immediately so as to not delay the repairs.

Appendix A

Photographs

Photo 1 – Overall view of the river spans of the bridge, looking north.

Photo 2 – Pier 2 west and north elevation.

Photo 3 – Pier 2, south and east elevation.

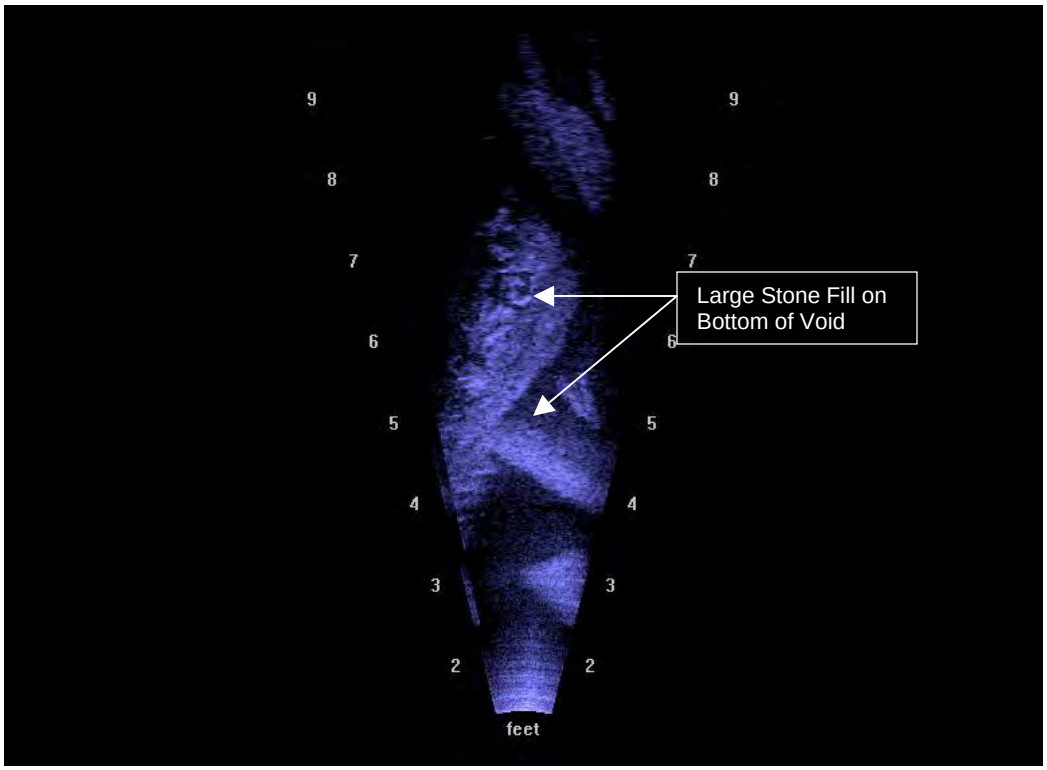


Photo 4 – Pier 2, west face, south end, sonar image from interior of the void showing large stone fill.

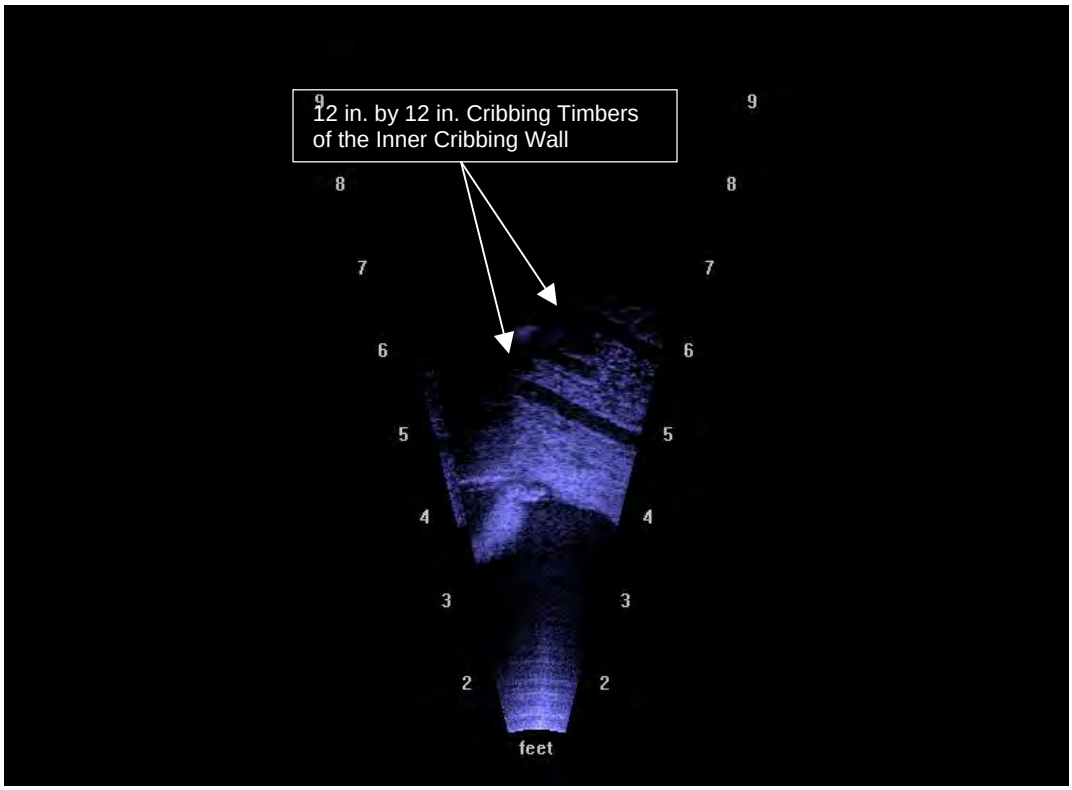


Photo 5 – Sonar image from interior of void showing inner wall timbers in place.

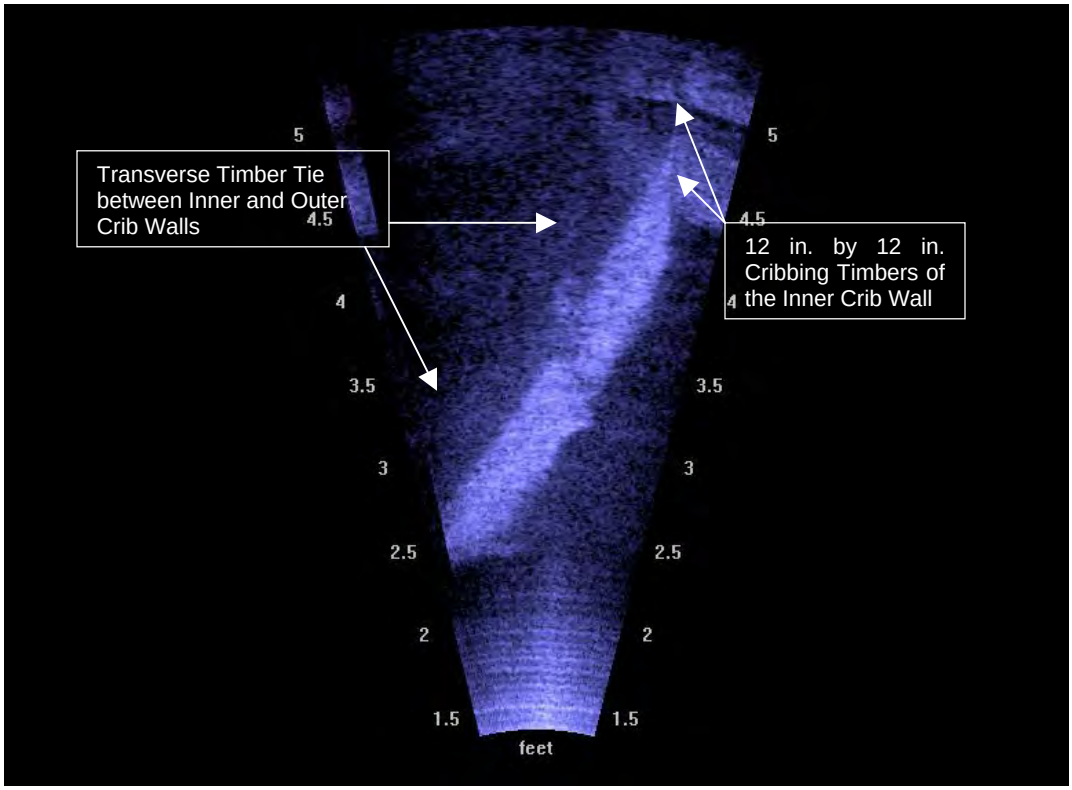


Photo 6 – Sonar image showing transverse timber tie and inner wall in place.

Photo 7 – Pier 3, north and west elevation of the pier.

Photo 8 – Pier 3, south and east face of the pier.

Photo 9 – Pier 4, north and west elevation of the pier.

Photo 10 – Pier 4, south and east elevation of the pier.

Photo 11 – Pier 5, north and west elevation of the pier.

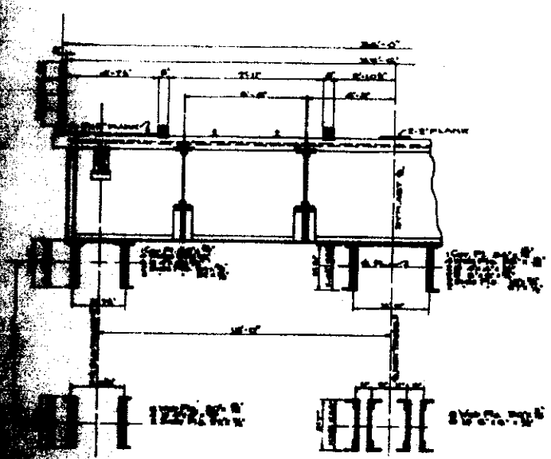
Photo 12 - Pier 5, south and east elevation of the pier.

Appendix B

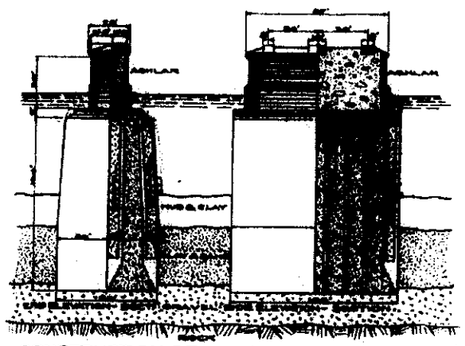
Figures

LIMITS OF 1164 PAINT CONTRACT
Single
~~Double~~ Track
~~12'-6" Centers~~
Single
~~Double~~ Track
~~14'-6" Centers~~
3898'-9" Single Track (~~[illegible]~~)
—PLAN—
Single
~~Double~~ Track
~~14'-6" Centers~~
~~Contract-C 3024~~
Dwgs # 401 to 411 incl.
Contract-C 3025
Dwgs # 501 to 509 incl.
Contract-C 3025 Dwgs # 301 to 380 incl.
6767'-9" Total Length
Contract-C 3022
Dwgs # 201 to 217 incl.
Contract-C 3021 Dwgs # 101 to 121 incl.
1033'-6" W. Approach
3093'-9" Main Bridge
2640'-0" E. Approach
200'-10½"
548'-0"
525'-0"
548'-0"
525'-0"
548'-0"
200'-10½"
Main Bridge Level
Base of Rail El. 212.87
Exp. Level
Exp.
Exp. Floor only
High Water-EL.=0.0
Highway
West Shore RR
Highway
New Bearings
New Bearings
WEST
1
2
3
4
5
6
7
Intersection of Albany and Duchess Streets
Oakfield Ct.
Talmage Ct.
Mulberry St.
ELEVATION OF BRIDGE AS BUILT
BENT 18
Reinforce Ctr. Cols.
BENTS 15 & 16
Reinforce Ctr. Cols.
BENTS 13, 14 & 17
Reinforce Ctr. Cols.
BENTS 11 & 12
New Transverse Bracing
BENTS 1 to 8 INCL.
New Transverse Bracing
BENTS OF WEST APPROACH
SHOWING
ARRANGEMENT OF REINFORCEMENT
MAIN BRIDGE SECTION
New Floor Beams & Stringers
14'-6"
14'-6"
TRUSS SPAN SECTION
EAST APPROACH
New Floor Beams, Stringers
and
Top Chord Bracing
11'-9"
11'-9"
GIRDER SPAN SECTION
EAST APPROACH
BENTS 3 to 6 INCL.
BENTS 1 & 2, 7 to 10 INCL.
BENTS 11 & 12
Reinforce O.S. Cols.
BENTS 13 to 32 INCL.
Reinforce O.S. Cols.
BENTS OF EAST APPROACH
SHOWING
ARRANGEMENT OF REINFORCEMENT
EAST
PENN CENTRA

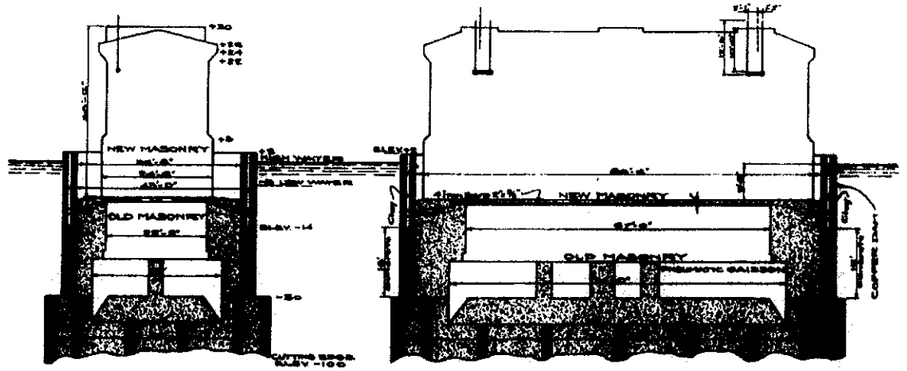
FIG.-1



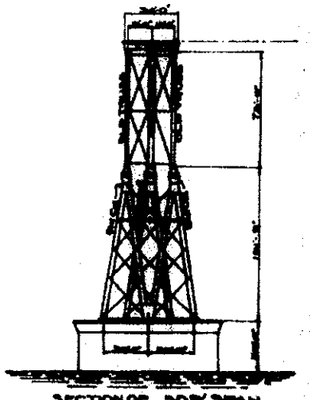
HALF SECTION OF FLOOR BEAMS & CHORDS
508' SPANS
SCALE 1/4" = 1'-0"



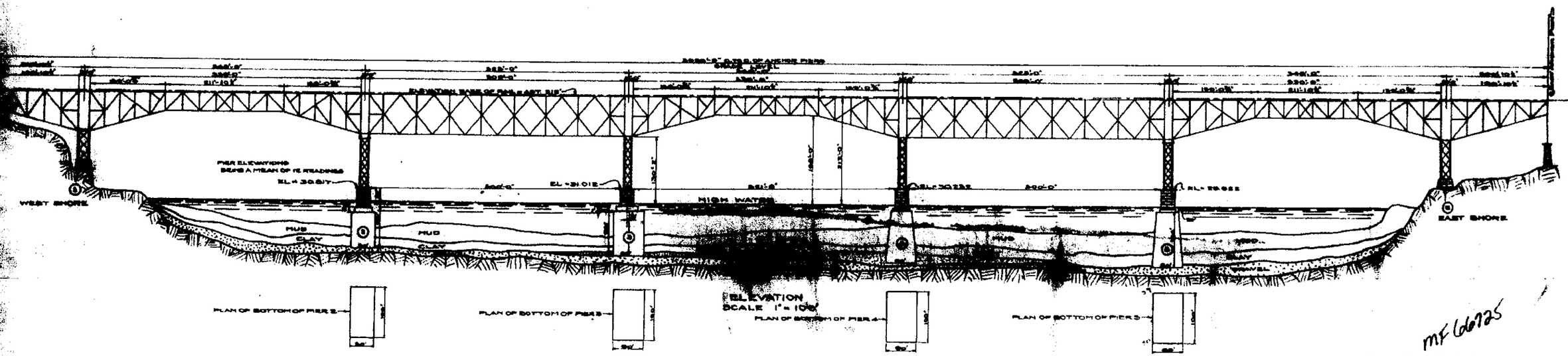
CONSTRUCTION OF PIERS NOS. 3, 4 & 5



CONSTRUCTION OF PIER NO. 2



SECTION OF 508' SPAN
SCALE 1"=50'



mf 66725

C.N.E. RAILWAY
OPERATED BY THE
N.Y., N.H. & H.R.R
GENERAL PLAN
OF
POUGHKEEPSIE BRIDGE

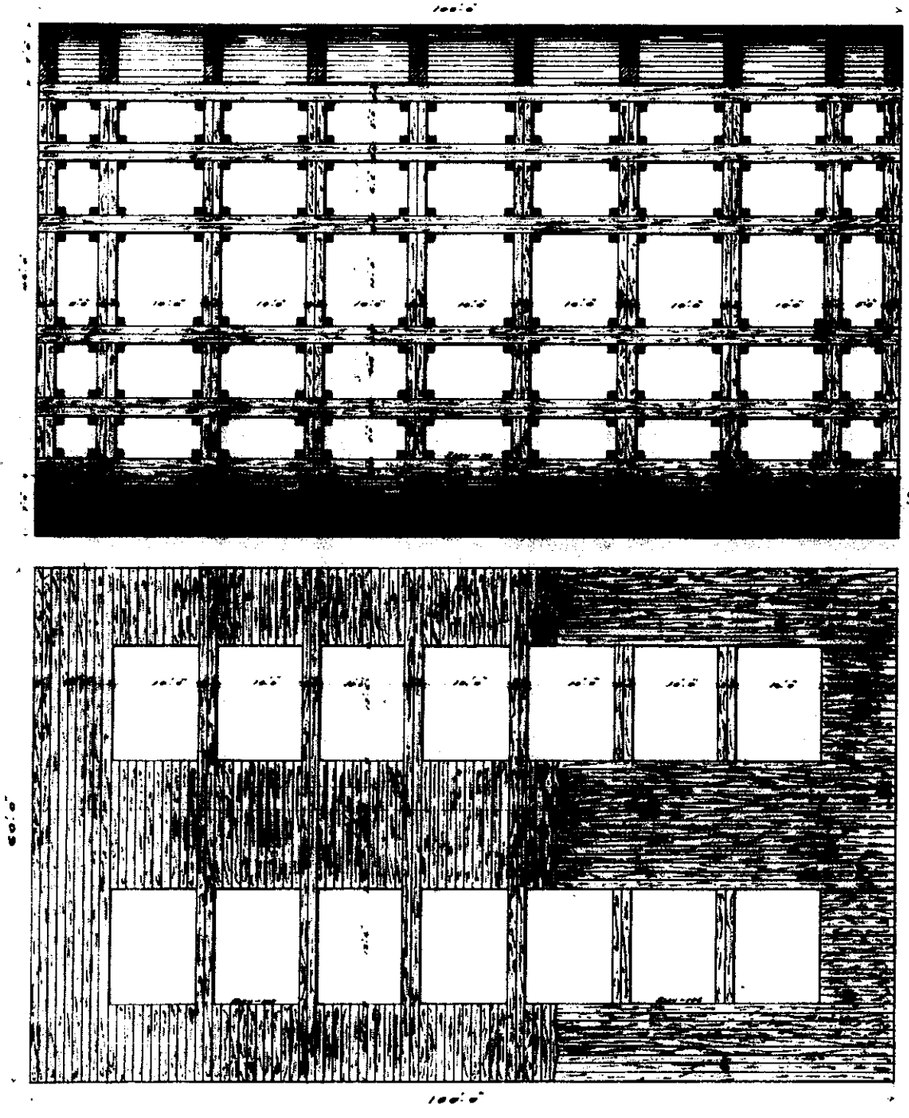
FIG.-2

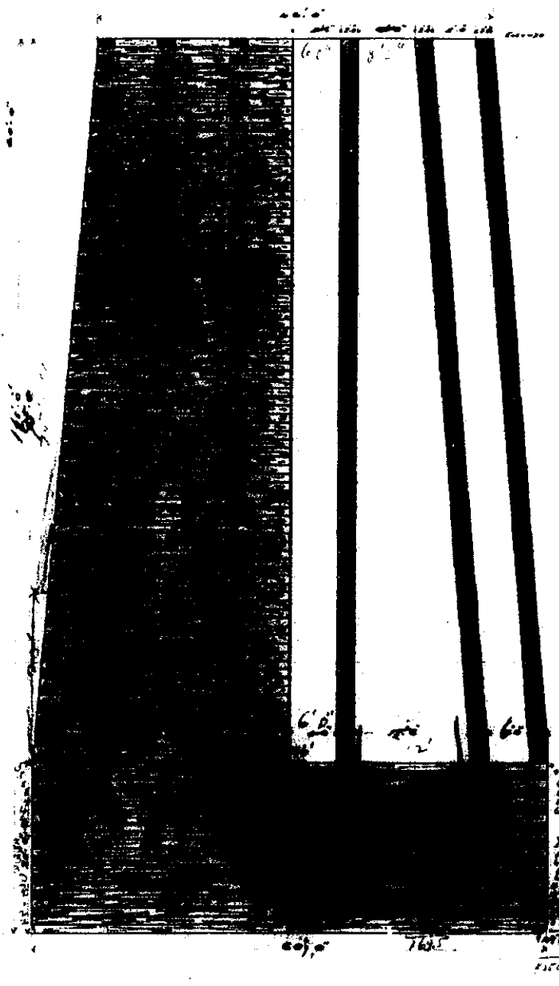
— POUGHKEEPSIE-BRIDGE —

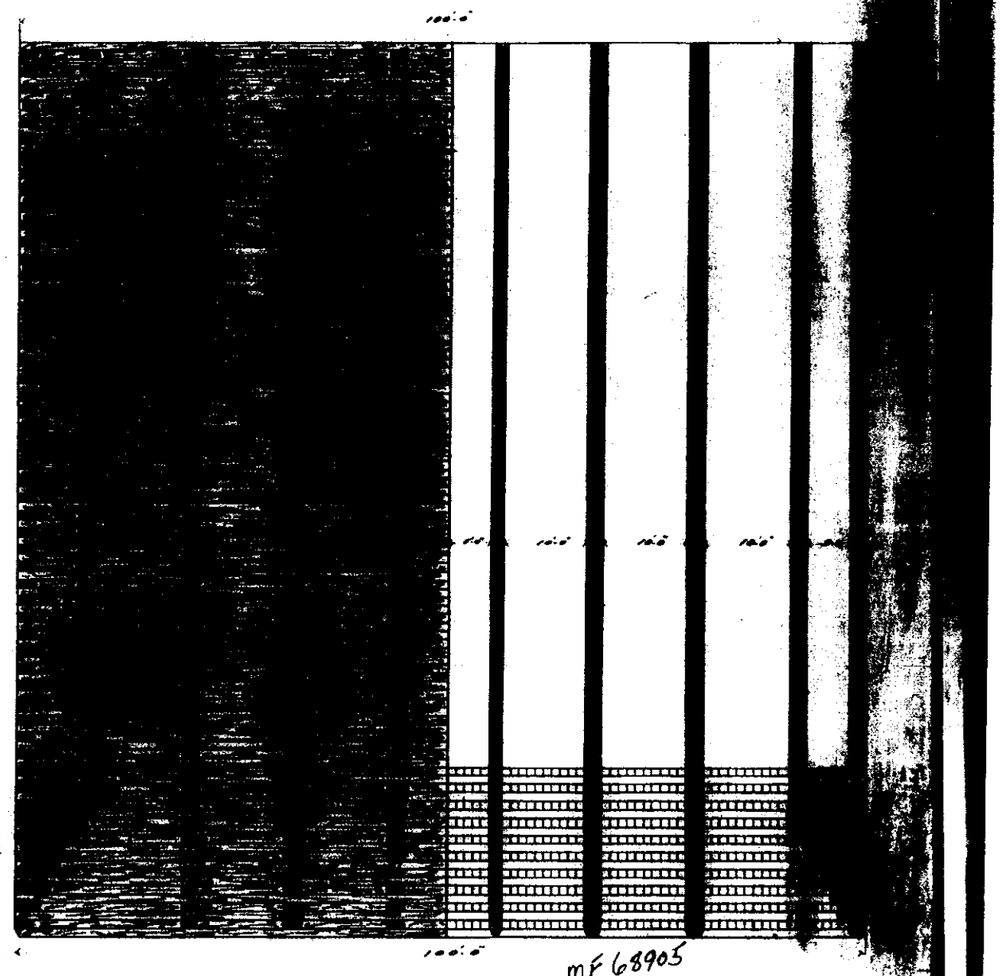
— CRIB-PIER N°5 —

— Scale 1/8 Inch = One foot —

— UNION-BRIDGE-CO —





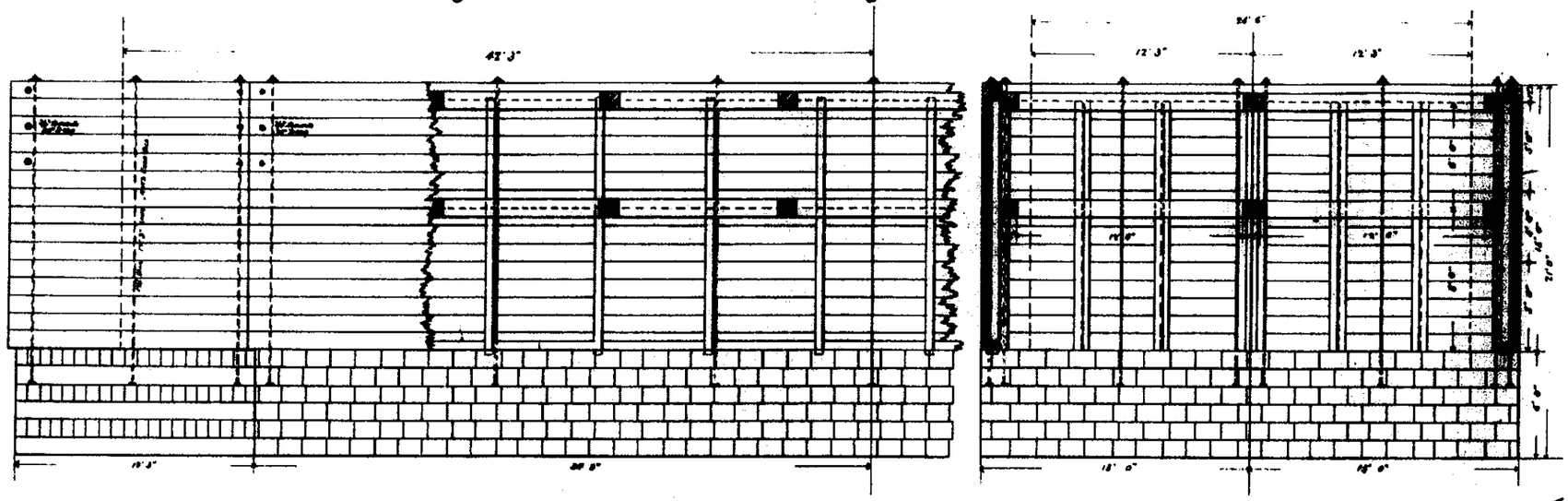


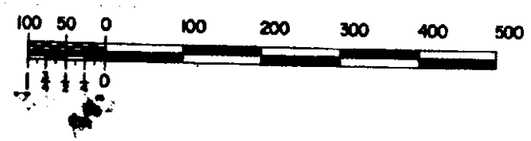
mf 68905

FIG.-3

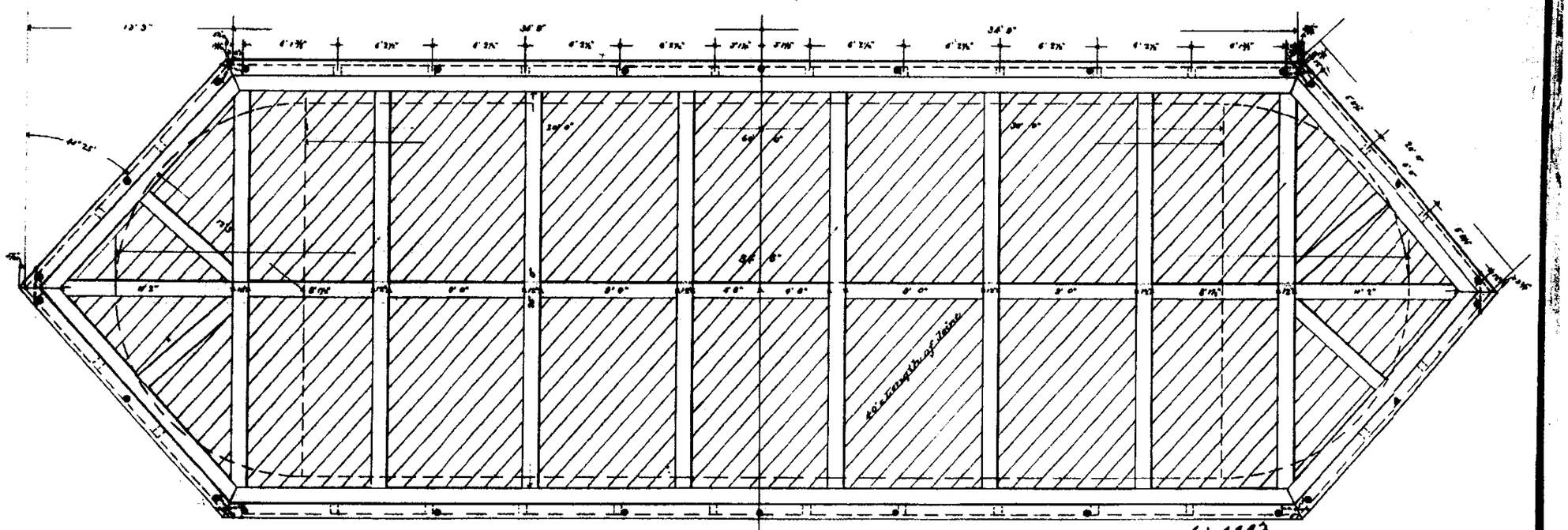
#134

General Plan of Floating Caissons for Poughkeepsie Bridge





Union Bridge Co. Oct 11th 1886.
Scale, ½" = 1 foot



MF68883

FIG.-4

#124

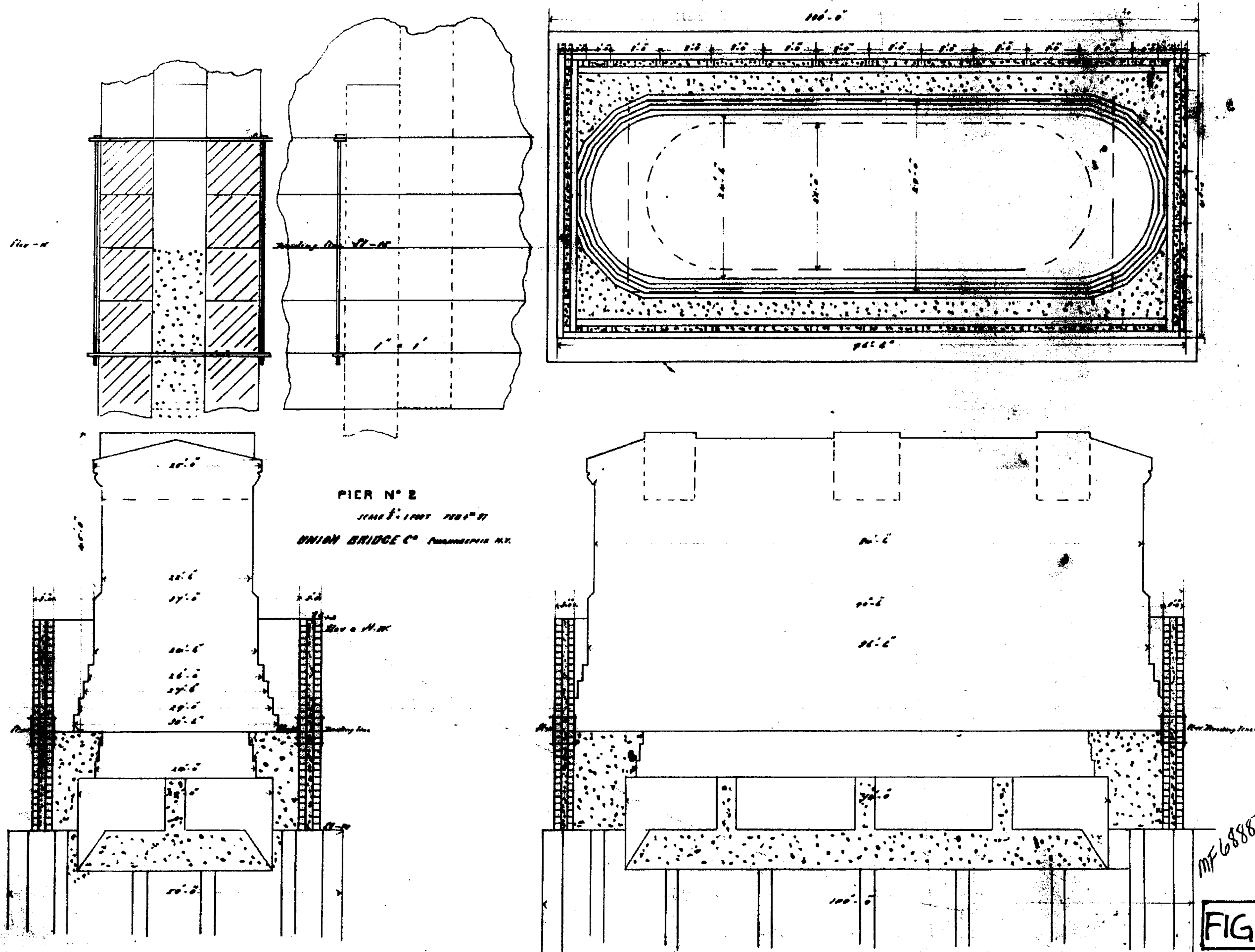
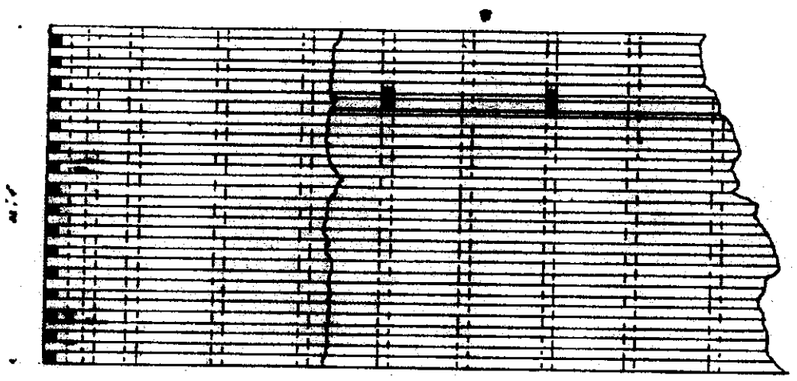
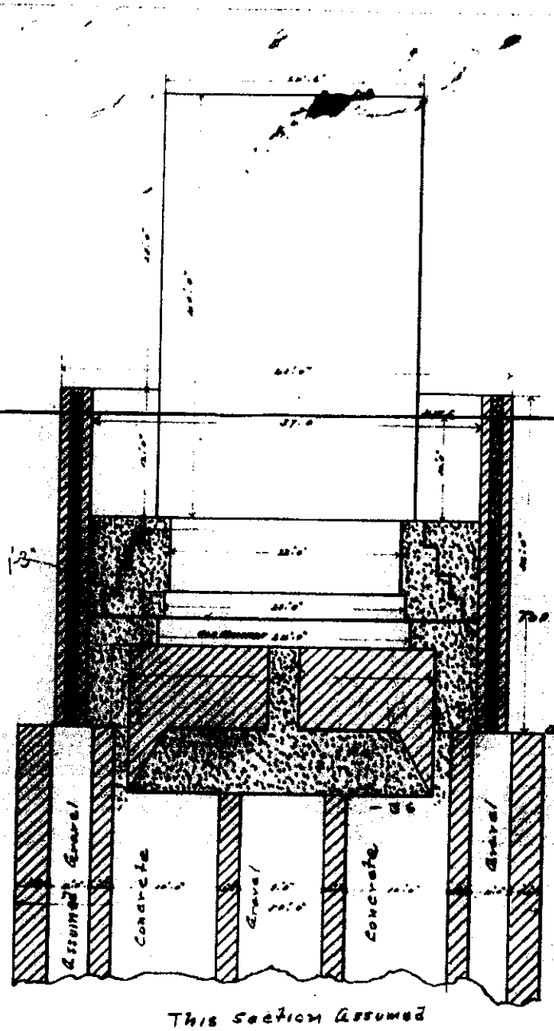


FIG.-5

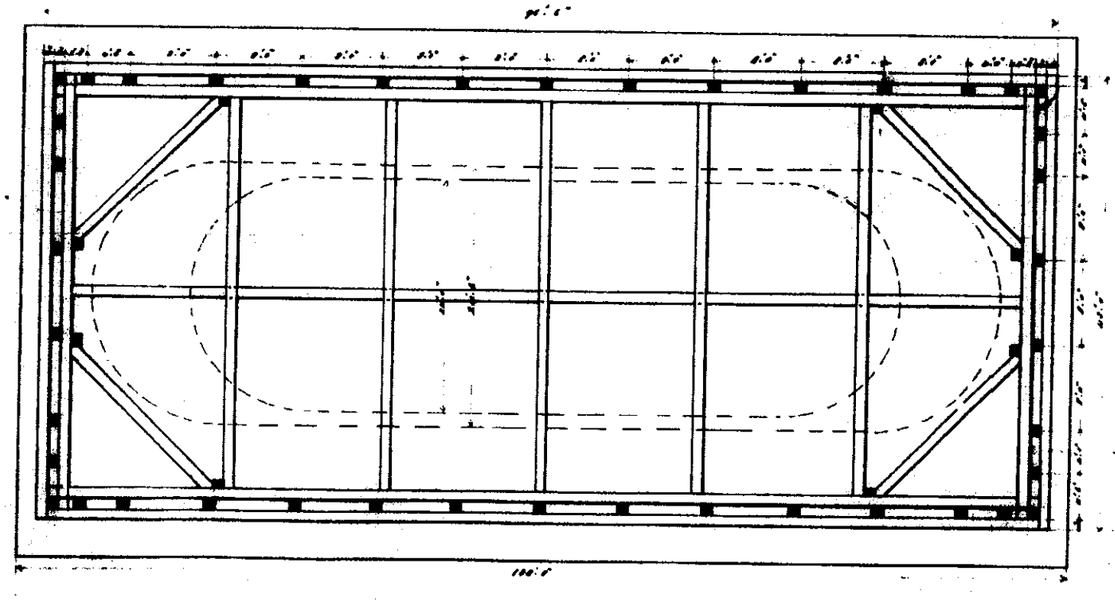
Used for estimating quantities
of masonry for Special Franchise Taxes
Jan 1918
JSM



All Pockets were filled
with Concrete
See O'Rourke's on
The Construction of Illinois
Terminal Railroad Bridges

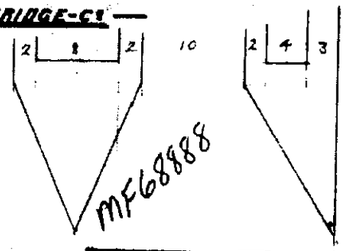


This Section Assumed
to have been used below Elev. -30



— COFFER-DAM — PIER-N°2 —

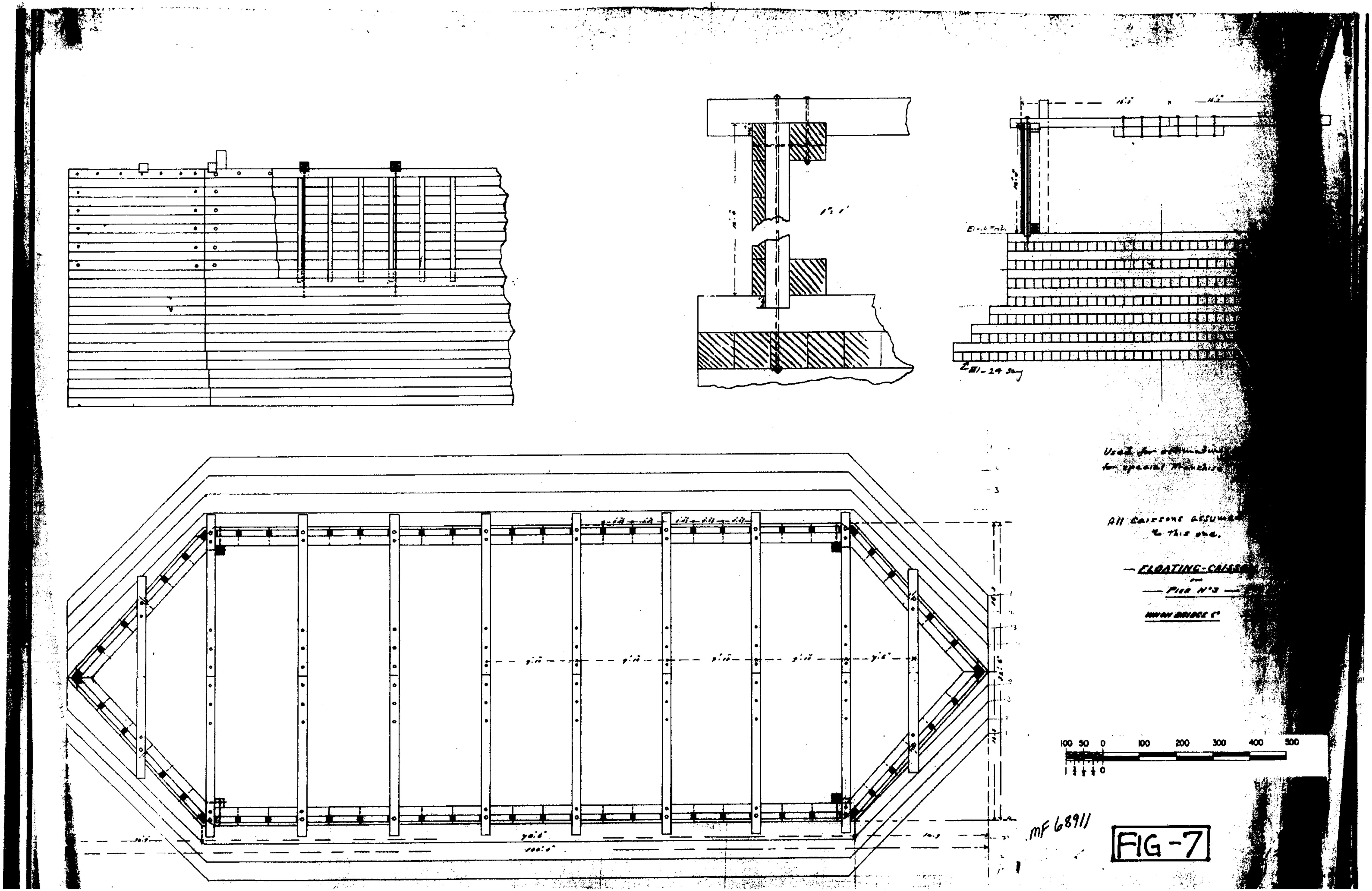
— UNION-BRIDGE-Co —



MF68888

FIG.-6

#125



Used for
for special Franchise
All Caissons assume
to this one.
FLOATING-CAISS
Pier N°3
UNION BRIDGE C°
100 50 0 100 200 300 400 500

FIG-7

M.P.: 29.08

REGION: 8 COUNTY: 6

FEATURE CARRIED: Poughkeepsie RR Bridge

FEATURE CROSSED: Hudson River

GENERAL RECOMMENDATION: 002 PRR - 3
003 PRR - 3
004 PRR - 4
005 PRR - 4

New York State Department of Transportation

2006
DIVING INSPECTION

☐ Begin Abutment ☒ Pier (s) 002-PRR, 003-PRR, 004-PRR, 005-PRR ☐ End Abutment

FLAGS:			
☐ RED ☐ RED PIA	☐ YELLOW	☐ SAFETY ☐ SAFETY PIA	☒ NONE ☐ REMOVAL ☐ INACTIVATION

Prime Consultant:

McLaren ENGINEERING GROUP

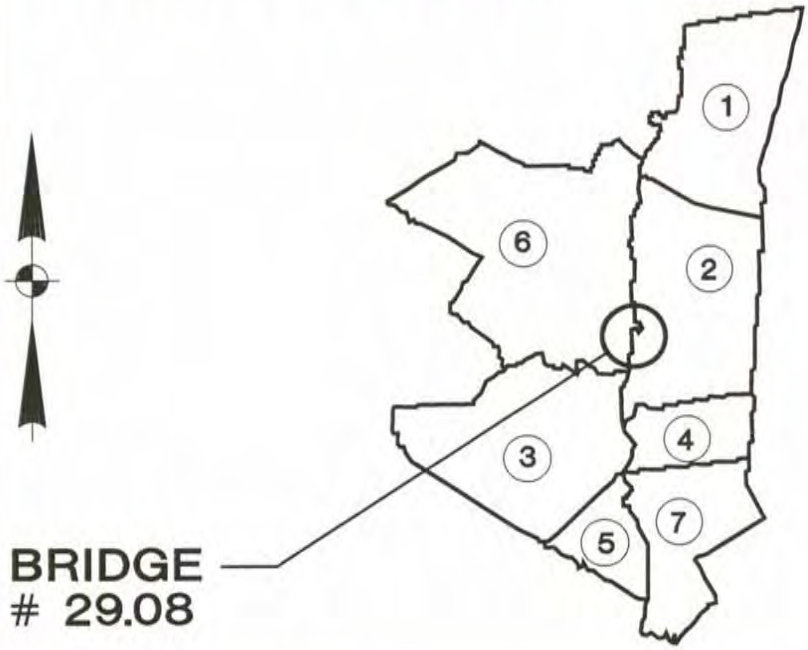
Phone (845) 353-6400 Fax (845) 353-6509

REVIEWED BY: George F. Assis

TITLE: Quality Control Engineer, PE# 073077

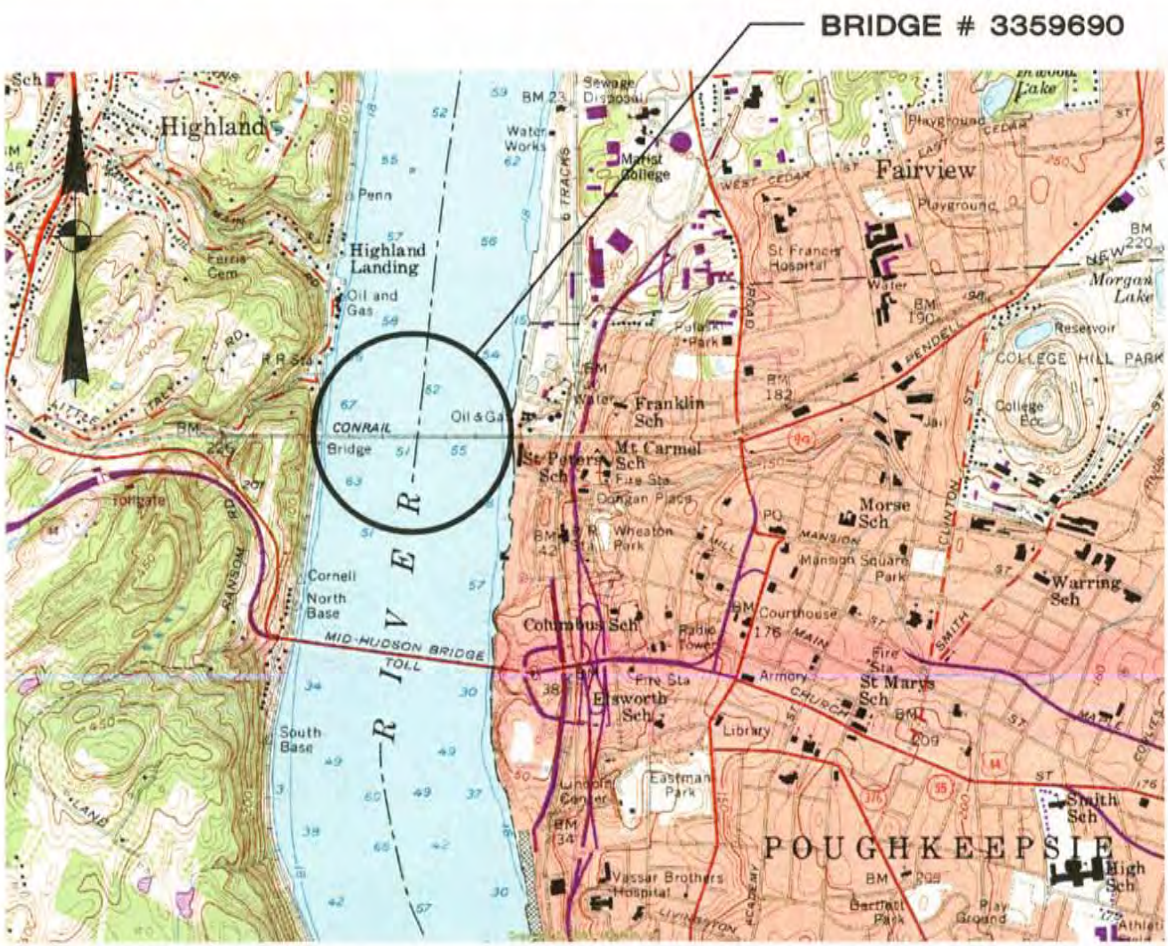
BD-400(9/97)

NYSDOT REGION 8



1 COLUMBIA
2 DUTCHES
3 ORANGE
4 PUTNAM
5 ROCKLAND
6 ULSTER
7 WESTCHESTER

General Map



Bridge Location Plan

DIVE INSPECTION REPORT

BR356c(10/94)

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SHEET 1 OF 35

BRIDGE DIVING INSPECTION AND CONDITION REPORT

FEATURE CARRIED Poughkeepsie RR Bridge

FEATURE CROSSED Hudson River

ON-SITE ENGINEER James V. Green

DIVER James V. Green

ON-SITE P.E. James V. Green

P.E. No. 078453 STATE NY

SIGNATURE

R	C	BRIDGE MILE POINT							YEAR				MONTH		DAY	
8	6	2	9	.	0	8			2	0	0	6	1	1	0	7
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

			GENERAL										CONCRETE					MASONRY			TIMBER					STEEL						
SPAN #	UNIT	CODE	VOIDS	HOLES	STRUCTURAL DAMAGE	NON-STRUCTURAL DAMAGE	DISPLACEMENT	MISSING ELEMENTS	LOSS OF FILL	EROSION	SCOUR	DEBRIS	STRUCTURAL CRACKS	NON-STRUCTURAL CRACKS	SPALLS	EROSION/SCALING	CONSTRUCTION DEFECTS	GROUT LOSS	MISSING UNITS	BROKEN UNITS	SPLITTING	MARINE BORERS	ROT	FASTENERS	MISSING ELEMENTS	DETERIORATION	CONNECTIONS	UNIT RECOMMENDATION	UNIT WORK URGENCY INDEX	UNIT DIVING INSPECTION FREQUENCY	CONTINUATION	
18	19	20																													
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
0	0	2																													
P	R	R	3	4	4	4	4	4	3	7	6	5	9	9	9	4	7	4	7	6	4	7	4	4	4	8	8	3	5	2	Y	
0	0	3																													
P	R	R	3	4	4	4	4	4	3	7	6	5	9	9	9	4	7	4	7	6	4	7	4	4	4	8	8	3	5	2	Y	
0	0	4																													
P	R	R	4	4	4	4	5	4	5	7	6	5	9	9	9	4	7	4	7	6	4	7	4	4	4	8	8	4	8	5	Y	
0	0	5																													
P	R	R	4	4	4	4	5	4	5	7	6	5	9	9	9	4	7	4	7	6	4	7	4	4	4	8	8	4	8	5	Y	

QC ENGINEER George Assi

P.E. # 073077

DATE 10/22/07

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

BRIDGE DIVING INSPECTION AND CONDITION REPORT

FEATURE CARRIED: Poughkeepsie RR Bridge

FEATURE CROSSED: Hudson River

ON-SITE ENGINEER: James V. Green

DIVER: James V. Green

ON-SITE P.E.: James V. Green

P.E. No.: 078453 STATE: NY

SIGNATURE:

R	C	BRIDGE MILE POINT						
8	6	2	9	.	0	8		
1	2	3	4	5	6	7	8	9

YEAR				MONTH		DAY	
2	0	0	6	1	1	0	7
10	11	12	13	14	15	16	17

SPAN #			UNIT CODE		
18	19	20	21	22	23
0	0	2	P	R	R

	54
Recommended Further Investigation	Y
Dive Comments	Y
Work Recommendation	Y
Safety Flag	
Structural Flag	

COMMENTS

Swift current, dive during slack.

Repair void areas within the timber cribbing to prevent loss of fill.
Repoint stone masonry joints.

Structural Flag Condition: 55 56 57

	YEAR				MONTH		DATE	
Structural Flag Date								
	58	59	60	61	62	63	64	65

	YEAR				MONTH		DATE	
Safety Flag Date								
	66	67	68	69	70	71	72	73

BR357(10/94)

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SHEET 3 OF 35

BRIDGE DIVING INSPECTION AND CONDITION REPORT

FEATURE CARRIED: Poughkeepsie RR Bridge

FEATURE CROSSED: Hudson River

ON-SITE ENGINEER: James V. Green

DIVER: James V. Green

ON-SITE P.E.: James V. Green

P.E. No.: 078453 STATE: NY

SIGNATURE:

R	C	BRIDGE MILE POINT						
8	6	2	9	.	0	8		
1	2	3	4	5	6	7	8	9

YEAR				MONTH		DAY	
2	0	0	6	1	1	0	7
10	11	12	13	14	15	16	17

SPAN #				UNIT CODE			
	18	19	20		21	22	23
	0	0	3		P	R	R

	54	COMMENTS
Recommended Further Investigation	Y	
Dive Comments	Y	Swift current, dive during slack.
Work Recommendation	Y	Repair voids within the timber grillage to prevent loss of fill.
		Repoint stone masonry joints.
Safety Flag		
Structural Flag		

Structural Flag Condition: ___ (55 56 57)

	YEAR				MONTH		DATE			YEAR				MONTH		DATE	
Structural Flag Date									Safety Flag Date								
	58	59	60	61	62	63	64	65		66	67	68	69	70	71	72	73

BR357(10/94)

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SHEET 4 OF 35

BRIDGE DIVING INSPECTION AND CONDITION REPORT

FEATURE CARRIED: Poughkeepsie RR Bridge

FEATURE CROSSED: Hudson River

ON-SITE ENGINEER: James V. Green

DIVER: James V. Green

ON-SITE P.E.: James V. Green

P.E. No.: 078453 STATE: NY

SIGNATURE:

R	C	BRIDGE MILE POINT						
8	6	2	9	.	0	8		
1	2	3	4	5	6	7	8	9

YEAR				MONTH		DAY	
2	0	0	6	1	1	0	7
10	11	12	13	14	15	16	17

SPAN #				UNIT CODE		
18	19	20		21	22	23
0	0	4		P	R	R

54

Recommended Further Investigation: N

Dive Comments: Y — Swift current, dive during slack.

Work Recommendation: Y — Repoint stone masonry joints.

Safety Flag:

Structural Flag:

COMMENTS

Structural Flag Condition: (55 56 57)

Structural Flag Date	YEAR				MONTH		DATE	
	58	59	60	61	62	63	64	65

Safety Flag Date	YEAR				MONTH		DATE	
	66	67	68	69	70	71	72	73

BR357(10/94)

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SHEET 5 OF 35

BRIDGE DIVING INSPECTION AND CONDITION REPORT

FEATURE CARRIED: Poughkeepsie RR Bridge

FEATURE CROSSED: Hudson River

ON-SITE ENGINEER: James V. Green

DIVER: James V. Green

ON-SITE P.E.: James V. Green

P.E. No: 078453 STATE: NY

SIGNATURE:

R	C	BRIDGE MILE POINT						
8	6	2	9	.	0	8		
1	2	3	4	5	6	7	8	9

YEAR				MONTH		DAY	
2	0	0	6	1	1	0	7
10	11	12	13	14	15	16	17

SPAN #				UNIT CODE		
18	19	20		21	22	23
0	0	5		P	R	R

54

Recommended Further Investigation: N

Dive Comments: Y

Work Recommendation: Y

Safety Flag:

Structural Flag:

COMMENTS

Swift current, dive during slack.

Repoint stone masonry joints.

Structural Flag Condition: (55 56 57)

Structural Flag Date: YEAR (58 59 60 61) MONTH (62 63) DATE (64 65)

Safety Flag Date: YEAR (66 67 68 69) MONTH (70 71) DATE (72 73)

NYSDOT BRIDGE DIVING
INSPECTION & CONDITION REPORT

RC	MP
8 6	2 9 . 0 8

SHEET 6 OF 35
DATE 11/07/06

GENERAL BIN SUMMARY

SUPERSTRUCTURE DESCRIPTION	Total No. of Spans: 74	Load Path: ___ Redundant X Non-Redundant	Dir/Orient: E/W

Primary Member Material: X Steel ___ Iron ___ Concrete ___ Timber ___ Other:

Primary Member Type: ___ Rolled Girder ___ PL Girder ___ Box Girder X Truss ___ Frame ___ Arch ___ Pipe ___ Slab
X Other: Built-up riveted steel girders.

Plan Review: Plans agree with field conditions? X Yes ___ No: Explain:

SITE CONDITIONS

Evidence of High Water? ___ No X Yes: Approx. height above present water level? 1.5 ft

Underwater Visibility: ___ Good ___ Fair X Poor

Tidal Waters? ___ No X Yes

Low Freeboard? X No ___ Yes

Protective Devices? X No ___ Yes: Quantity _____ Type: SSU#:

Current: ___ Negligible ___ Up to 1.0 fps X Up to 2.0 fps ___ 2.0 to 4.0 fps ___ Over 4.0 fps: Estimated Current=

Marine Growth: X Negligible ___ Moderate ___ Heavy ___ Blast Cleaning Required: Total area cleaned= _____

Type: X Algae ___ Aquatic Plants/Grasses ___ Zebra Mussel ___ Barnacles ___ Other:

Polluted Water? X No ___ Yes: Explain:

ACTIVITY LOG

Inspection Access: X Boat Shore Bridge Deck Other:

Boat Launch Location (N/A) Whites Marine, Hudson, NY

Unusual Conditions: X No ___ Yes: Explain:

Special Contact(s) for Access or Coordination: X No ___ Yes; Name(s), Organization, Address and Phone Number(s):

Insp. Consultant: X M.G. McLaren, P.C. Diving Subcontractor: X None

Date	Arrival Time	Depart. Time	Dive Hours	Temp. Range	Weather	Remarks
11/02/06	7:30 AM	3:30 PM	5	42 -55 F	Clear	U/W Inspection
11/03/06	7:30 AM	3:30 PM	5	42 -55 F	Clear	U/W Inspection
11/04/06	7:30 AM	3:30 PM	5	42 -55 F	Clear	U/W Inspection
11/05/06	7:30 AM	3:30 PM	5	42 -55 F	Clear	U/W Inspection
11/06/06	7:30 AM	3:30 PM	5	42 -55 F	Clear	U/W Inspection
11/07/06	8:00 AM	4:00 PM	4	42 -55 F	Clear	U/W Inspection
11/21/06	7:30 AM	3:30 PM	5	42 -55 F	Clear	DIDSON Sonar imaging investigation

NYSDOT BRIDGE DIVING
INSPECTION & CONDITION REPORT

R C: 8 6 | MP: 2 9 . 0 8

DATE 11/07/06

GENERAL SSU SUMMARY

SPAN #: 0 0 2 **UNIT CODE:** P R R Length: 100 Width: 50

SSU Type:	___ Concrete Solid Stem X Dry/Mortared Stone Masonry ___ Steel Sheetpile Cell or Caisson ___ Other
SSU Foundation:	___ On Piles: (___ Timber ___ Steel H ___ Concrete ___ Steel Pipe) ___ On Soil X On Bedrock ___ Unknown Type ___ Other:
Channel Bottom	X Natural: ___ Bedrock ___ Boulders ___ Cobbles X Gravel ___ Organics X Coarse or Medium Sand X Fine Sand or Silt ___ Other: X Placed: X Rip Rap, Large Stone, or Rubble Fill X Concrete Overpour, Jacket or Apron ___ Other:
Scour Protection	Does any Scour Protection exist? ___ No X Yes Is it shown on plans? X No ___ Yes Is it functioning adequately? ___ No X Yes No: Explain:

Compare Soundings to Previous

Up to 6 ft of scour on the east elevation and fill up to 5 ft on the west elevation has occured since the 2002 underwater inspection. Previous inspection used an assumed waterline elevation of +1.00 which may be in error.

Major Findings:

Large void area behind outer timber cribwall. Void is located 29 ft below water, is up to 2 ft high and extends 56 ft along the west face, and 16 ft along the south face. Penetrations into the void over 6 ft deep.

Limits to Performing Inspection: X **No** ___ **Yes:**

SPAN #: 0 0 3 **UNIT CODE:** P R R Length: 100 ft Width: 60 ft

SSU Type:	___ Concrete Solid Stem X Dry/Mortared Stone Masonry ___ Steel Sheetpile Cell or Caisson ___ Other
SSU Foundation:	___ On Piles: (___ Timber ___ Steel H ___ Concrete ___ Steel Pipe) ___ On Soil X On Bedrock ___ Unknown Type ___ Other:
Channel Bottom	X Natural: ___ Bedrock ___ Boulders ___ Cobbles X Gravel ___ Organics X Coarse or Medium Sand X Fine Sand or Silt ___ Other: ___ Placed: ___ Rip Rap, Large Stone, or Rubble Fill ___ Concrete Overpour, Jacket or Apron ___ Other:
Scour Protection	Does any Scour Protection exist? ___ No X Yes Is it shown on plans? X No ___ Yes Is it functioning adequately? ___ No X Yes No: Explain:

Compare Soundings to Previous

Fill up to 5 ft has occurred on the west elevation and fill up to 10 ft on the east elevation since the 2002 underwater inspection. Previous inspection used an assumed waterline elevation of +1.00 which may be in error.

Major Findings:

Large void area on on the east face between the timber grillage and timber cribwall. Void area is located 22 ft below water and is approximately 2 ft to 4 ft high and 2 ft to 6 ft deep.

Limits to Performing Inspection: X **No** ___ **Yes:**

NYSDOT BRIDGE DIVING
INSPECTION & CONDITION REPORT

R C: 8 6 | MP: 2 9 . 0 8

DATE 11/07/06

GENERAL SSU SUMMARY

SPAN #: 004	UNIT CODE: PRR	Length: 100 ft	Width: 60 ft

SSU Type:	___ Concrete Solid Stem X Dry/Mortared Stone Masonry ___ Steel Sheetpile Cell or Caisson ___ Other
SSU Foundation:	___ On Piles: (___ Timber ___ Steel H ___ Concrete ___ Steel Pipe) ___ On Soil X On Bedrock ___ Unknown Type ___ Other:
Channel Bottom	X Natural: ___ Bedrock ___ Boulders ___ Cobbles X Gravel ___ Organics ___ Coarse or Medium Sand X Fine Sand or Silt ___ Other: X Placed: X Rip Rap, Large Stone, or Rubble Fill ___ Concrete Overpour, Jacket or Apron ___ Other:
Scour Protection	Does any Scour Protection exist? ___ No X Yes Is it shown on plans? X No ___ Yes Is it functioning adequately? ___ No X Yes No: Explain:

Compare Soundings to Previous

No sounding data is available for comparison.

Major Findings:

Typical gaps between the timber cribbing members approximately 1 in. to 2 in. high with penetration into the gaps from 1 ft to 4 ft deep.

Limits to Performing Inspection: X **No** ___ **Yes:**

SPAN #: 005	UNIT CODE: PRR	Length: 100 ft	Width: 60 ft

SSU Type:	___ Concrete Solid Stem X Dry/Mortared Stone Masonry ___ Steel Sheetpile Cell or Caisson ___ Other
SSU Foundation:	___ On Piles: (___ Timber ___ Steel H ___ Concrete ___ Steel Pipe) ___ On Soil X On Bedrock ___ Unknown Type ___ Other:
Channel Bottom	X Natural: ___ Bedrock ___ Boulders ___ Cobbles X Gravel ___ Organics X Coarse or Medium Sand X Fine Sand or Silt ___ Other: ___ Placed: ___ Rip Rap, Large Stone, or Rubble Fill ___ Concrete Overpour, Jacket or Apron ___ Other:
Scour Protection	Does any Scour Protection exist? ___ No X Yes Is it shown on plans? X No ___ Yes Is it functioning adequately? ___ No X Yes No: Explain:

Compare Soundings to Previous

No sounding data is available for comparison.

Major Findings:

Typical gaps between the timber cribbing members approximately 1 in. to 2 in. high with penetration into the gaps from 1 ft to 4 ft deep.

Limits to Performing Inspection: X **No** ___ **Yes:**

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: 6 SHEET 9 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

SPAN NO. & UNIT CODE	RATING ITEM	RATING	REMARKS
002PRR	24	3	Voids - Voids created due to loss of ballast stone from outer timber cribwall.
			Void measures up to 2 ft high at the southwest corner, and extends 56 ft to the
			north along the west face, and 16 ft along the south face. Penetration into
			the void is greater than 6 ft.
	25	4	Holes - Several intermittent holes through the outer timber cribwall.
			Holes measure up to 1 ft high by 1 ft wide with penetration up to 4 ft.
	26	4	Structural Damage - Missing and rotted outer cribwall timbers on the south
			and west faces of the pier.
	27	4	Non-structural damage - loss of ballast stone from outer cribwall.
	28	4	Displacement - Several horizontal timbers are displaced up to 1 ft vertically.
	29	4	Missing Elements - cribwall is missing original layer of vertical timber sheathing.
	30	3	Loss of fill - Loss of balast stone fill in outer cribwall layer.
	34	9	Structural cracks - Concrete elements are covered by stone masonry
			veneer or timber cribwall.
	35	9	Non-structural cracks - Concrete elements are covered by stone masonry
			veneer or timber cribwall.
	36	9	Spalls - Concrete elements are covered by stone masonry veneer
			or timber cribwall.
	37	4	Erosion/Scaling - penetrations from 1 ft to 4 ft into the concrete fill behind
			the outer timber cribwall.
	39	4	Grout Loss - Approximately 25 percent loss of grout from the masonry joints.
	42	4	Splitting - Ends of most timber cribwall and grillage members split up to 2 in.
			wide and up to 1 ft long.
	44	4	Rot - Outer layer of timber cribwall and grillage exhibit approximately 1 in.
			to 2 in. loss of section due to rot, creating 1 in. to 3 in. gaps between the
			timbers.
	45	4	Fasteners - Most of the exposed steel pins fastening the timbers exhibit
			50 percent to 100 percent loss of cross-sectional area.
	46	4	Missing elements - cribwall is missing original layer of vertical timber sheathing.

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: 6 SHEET 10 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

SPAN NO. & UNIT CODE	RATING ITEM	RATING	REMARKS
003PRR	24	3	Voids - Voids created due to loss of concrete from under the timber grillage.
			Void measures up to 1 ft to 2 ft high, and extends along the entire east face
			of the pier, depth of the void is up to 6 ft.
	25	4	Holes - Several intermittent holes through the outer timber cribwall.
			Holes measure up to 1 ft high by 1 ft wide with penetration up to 4 ft.
	26	4	Structural Damage - Missing and rotted outer cribwall timbers on the south
			and west faces of the pier.
	27	4	Non-structural damage - loss of ballast stone from outer cribwall.
	28	4	Displacement - Several horizontal timbers are displaced up to 1 ft vertically.
	29	4	Missing Elements - cribwall is missing original layer of vertical timber sheathing.
	30	3	Loss of fill - Loss of balast stone fill in outer cribwall layer.
	34	9	Structural cracks - Concrete elements are covered by stone masonry
			veneer or timber cribwall.
	35	9	Non-structural cracks - Concrete elements are covered by stone masonry
			veneer or timber cribwall.
	36	9	Spalls - Concrete elements are covered by stone masonry veneer
			or timber cribwall.
	37	4	Erosion/Scaling - penetrations from 1 ft to 4 ft into the concrete fill behind
			the outer timber cribwall.
	39	4	Grout Loss - Approximately 25 percent loss of grout from the masonry joints.
	42	4	Splitting - Ends of most timber cribwall and grillage members split up to 2 in.
			wide and up to 1 ft long.
	44	4	Rot - Outer layer of timber cribwall and grillage exhibit approximately 1 in.
			to 2 in. loss of section due to rot, creating 1 in. to 3 in. gaps between the
			timbers.
	45	4	Fasteners - Most of the exposed steel pins fastening the timbers exhibit
			50 percent to 100 percent loss of cross-sectional area.
	46	4	Missing elements - cribwall is missing original layer of vertical timber sheathing.

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: 6 SHEET 11 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

SPAN NO. & UNIT CODE	RATING ITEM	RATING	REMARKS
004PRR	24	4	Voids - Voids created due to loss of concrete from outer timber cribwall.
			Penetrations into the voids up to 4 ft deep.
	25	4	Holes - Several intermittent holes through the outer timber cribwall.
			Holes measure up to 1 ft high by 1 ft wide and penetration up to 4 ft.
	26	4	Structural Damage - Missing and rotted outer cribwall timbers on the south
			and west faces of the pier.
	27	4	Non-structural damage - loss of ballast stone from outer cribwall.
	29	4	Missing Elements - cribwall is missing original layer of vertical timber sheathing.
	34	9	Structural cracks - Concrete elements are covered by stone masonry
			veneer or timber cribwall.
	35	9	Non-structural cracks - Concrete elements are covered by stone masonry
			veneer or timber cribwall.
	36	9	Spalls - Concrete elements are covered by stone masonry veneer
			or timber cribwall.
	37	4	Erosion/Scaling - penetrations from 1 ft to 4 ft into the concrete fill behind
			the outer timber cribwall.
	39	4	Grout Loss - Approximately 25 percent loss of grout from the masonry joints.
	42	4	Splitting - Ends of most timber cribwall and grillage members split up to 2 in.
			wide and up to 1 ft long.
	44	4	Rot - Outer layer of timber cribwall and grillage exhibit approximately 1 in.
			to 2 in. loss of section due to rot, creating 1 in. to 3 in. gaps between the
			timbers.
	45	4	Fasteners - Most of the exposed steel pins fastening the timbers exhibit
			50 percent to 100 percent loss of cross-sectional area.
	46	4	Missing elements - cribwall is missing original layer of vertical timber sheathing.

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: 6 SHEET 12 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

SPAN NO. & UNIT CODE	RATING ITEM	RATING	REMARKS
005PRR	24	4	Voids - Voids created due to loss of concrete from outer timber cribwall.
			Penetration into the voids up to 4 ft deep.
	25	4	Holes - Several intermittent holes through the outer timber cribwall.
			Holes measure up to 1 ft high by 1 ft wide and penetration up to 4 ft.
	26	4	Structural Damage - Missing and rotted outer cribwall timbers on the south
			and west faces of the pier.
	27	4	Non-structural damage - loss of ballast stone from outer cribwall.
	29	4	Missing Elements - cribwall is missing original layer of vertical timber sheathing.
	34	9	Structural cracks - Concrete elements are covered by stone masonry
			veneer or timber cribwall.
	35	9	Non-structural cracks - Concrete elements are covered by stone masonry
			veneer or timber cribwall.
	36	9	Spalls - Concrete elements are covered by stone masonry veneer
			or timber cribwall.
	37	4	Erosion/Scaling - penetrations from 1 ft to 4 ft into the concrete fill behind
			the outer timber cribwall.
	39	4	Grout Loss - Approximately 25 percent loss of grout from the masonry joints.
	42	4	Splitting - Ends of most timber cribwall and grillage members split up to 2 in.
			wide and up to 1 ft long.
	44	4	Rot - Outer layer of timber cribwall and grillage exhibit approximately 1 in.
			to 2 in. loss of section due to rot, creating 1 in. to 3 in. gaps between the
			timbers.
	45	4	Fasteners - Most of the exposed steel pins fastening the timbers exhibit
			50 percent to 100 percent loss of cross-sectional area.
	46	4	Missing elements - cribwall is missing original layer of vertical timber sheathing.

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: _____ SHEET 13 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

RECOMMENDATIONS:	
002PRR	Repair voids along the west and south faces of the timber cribwall. Fill void areas behind cribwall.
	Repoint stone masonry along the face of the pier.
003PRR	Repair voids along the east face of the timber grillage. Fill void areas under the timber grillage.
	Repoint stone masonry along the face of the pier.
004PRR	Repoint stone masonry along the face of the pier.
005PRR	Repoint stone masonry along the face of the pier.

SKETCHES

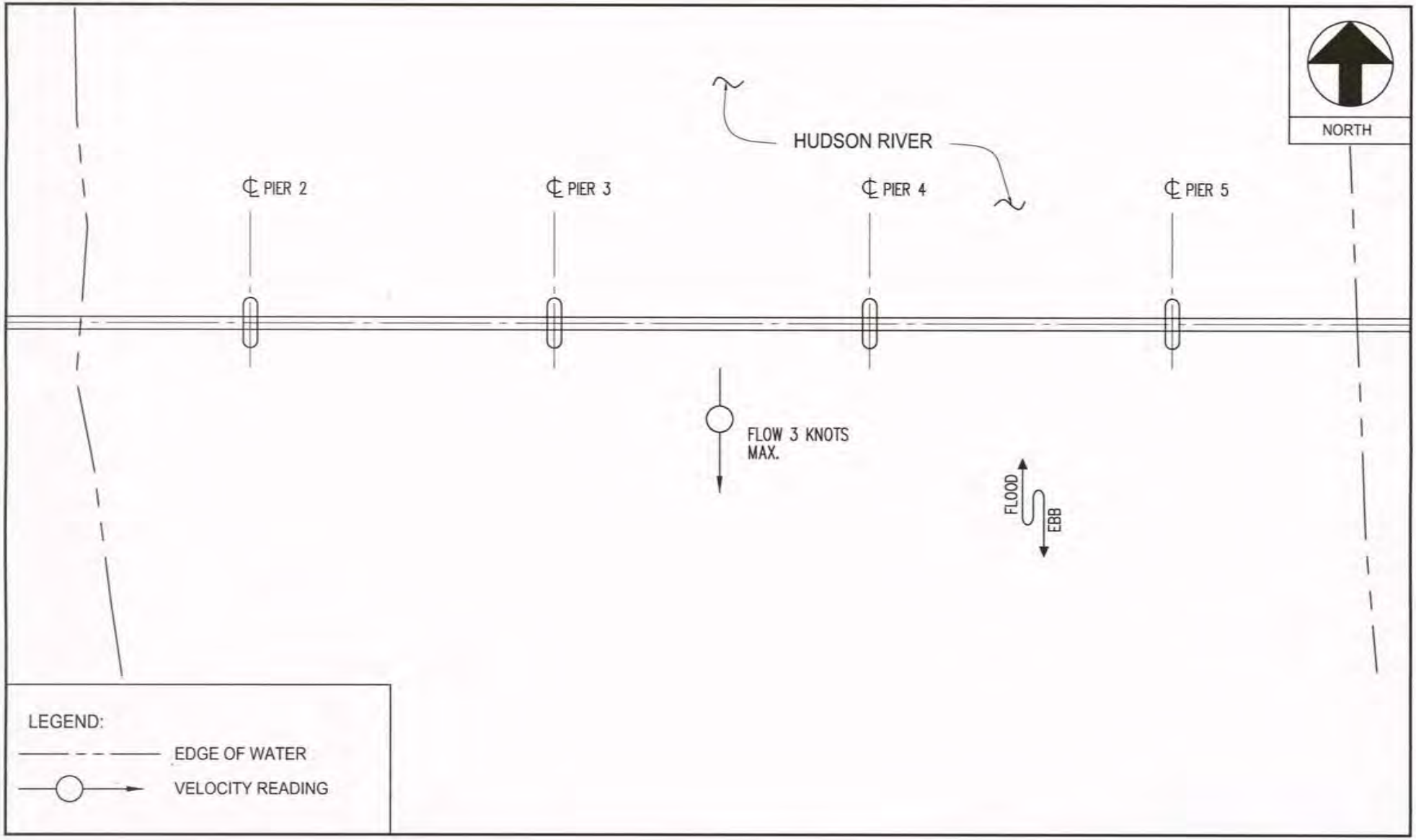
UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

BIN MP 29.08 REGION 8 COUNTY 6 Sheet 14 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

PLAN VIEW



UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

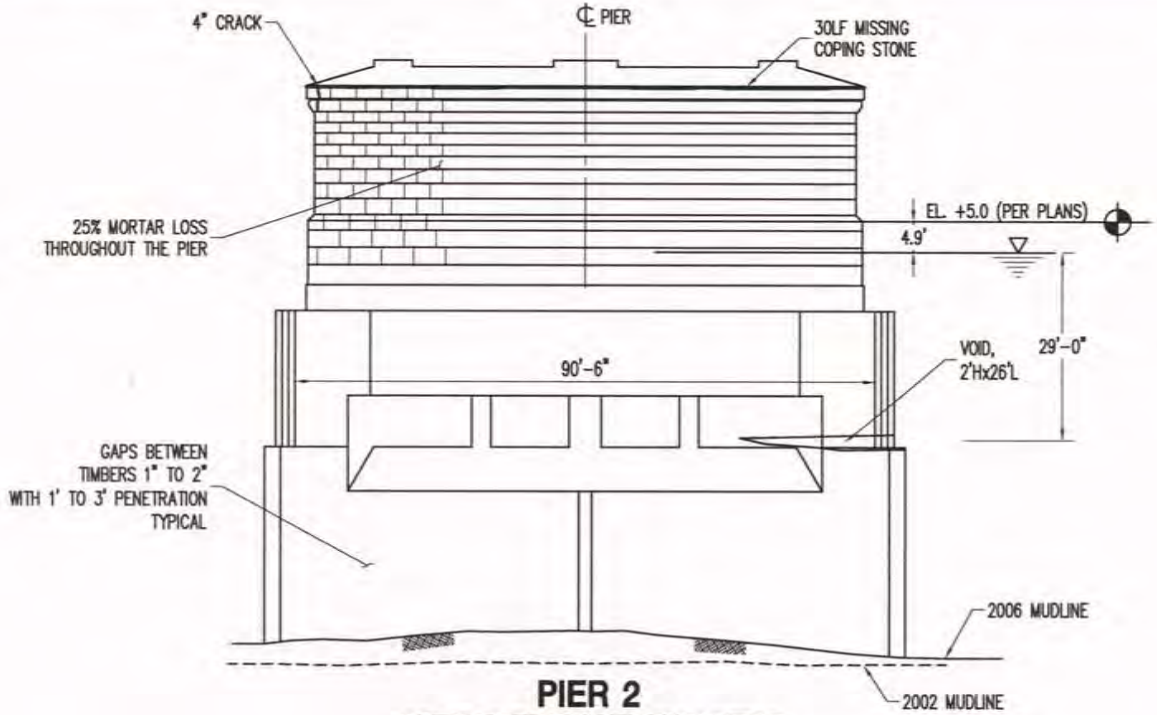
BIN 29.08 REGION 8 COUNTY 6 Sheet 15 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

UNIT: PIER 2 DIVER'S CONFIRMATION:

ELEVATION SKETCH



PIER 2
WEST ELEVATION VIEW
N.T.S.

Depth: (ft) 2006	61.0	59.0	63.0
Depth: (ft) 2002	64.0	64.0	64.0
STATION: (ft)	0+00	0+50	1+00

VIDEO TIME: Not taken due to poor visibilty

UNDERMINE HORIZ./VERT.: NONE

FOUNDATION TYPE: STONE & GRAVEL WITH CONCRETE FILLED TIMBER CRIB PILE TYPE: N/A PILE LENGTH: N/A

REMARKS:

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

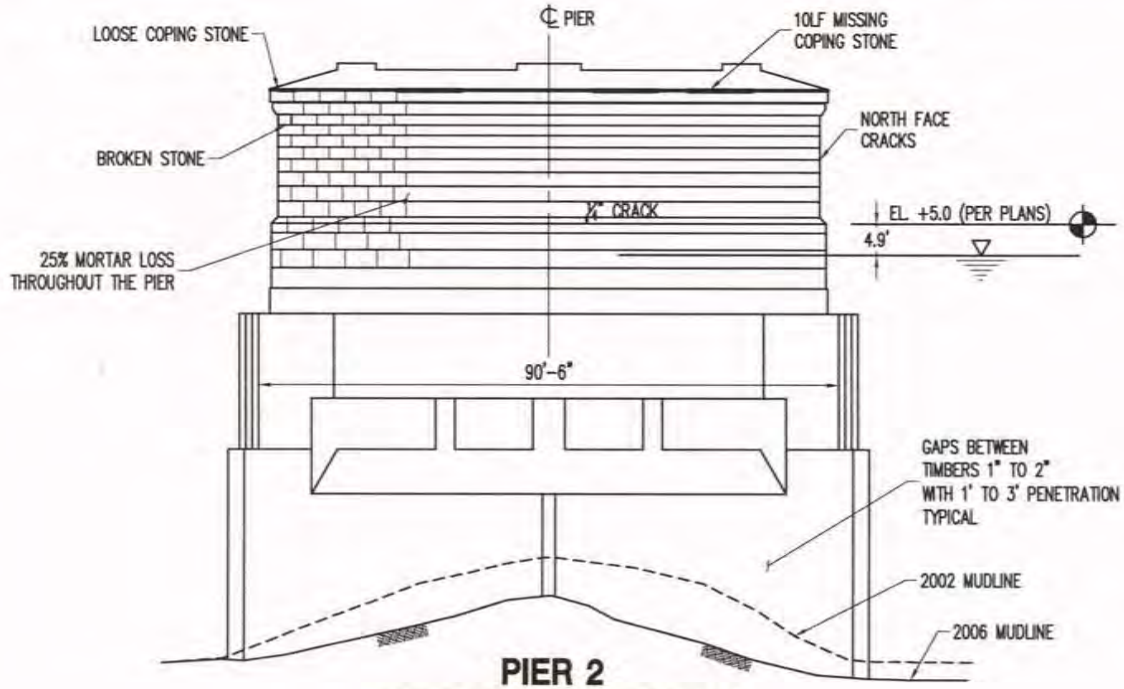
BIN 29.08 REGION 8 COUNTY 6 Sheet 16 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

UNIT: PIER 2 DIVER'S CONFIRMATION:

ELEVATION SKETCH



PIER 2
EAST ELEVATION VIEW
N.T.S.

Depth: (ft) 2006	63.0	53.0	66.0
Depth: (ft) 2002	63.0	47.0	63.0
STATION: (ft)	1+00	0+50	0+00

VIDEO TIME: Not taken due to poor visibilty

UNDERMINE HORIZ./VERT.: NONE

FOUNDATION TYPE: STONE & GRAVEL WITH CONCRETE FILLED TIMBER CRIB PILE TYPE: N/A PILE LENGTH: N/A

REMARKS:

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

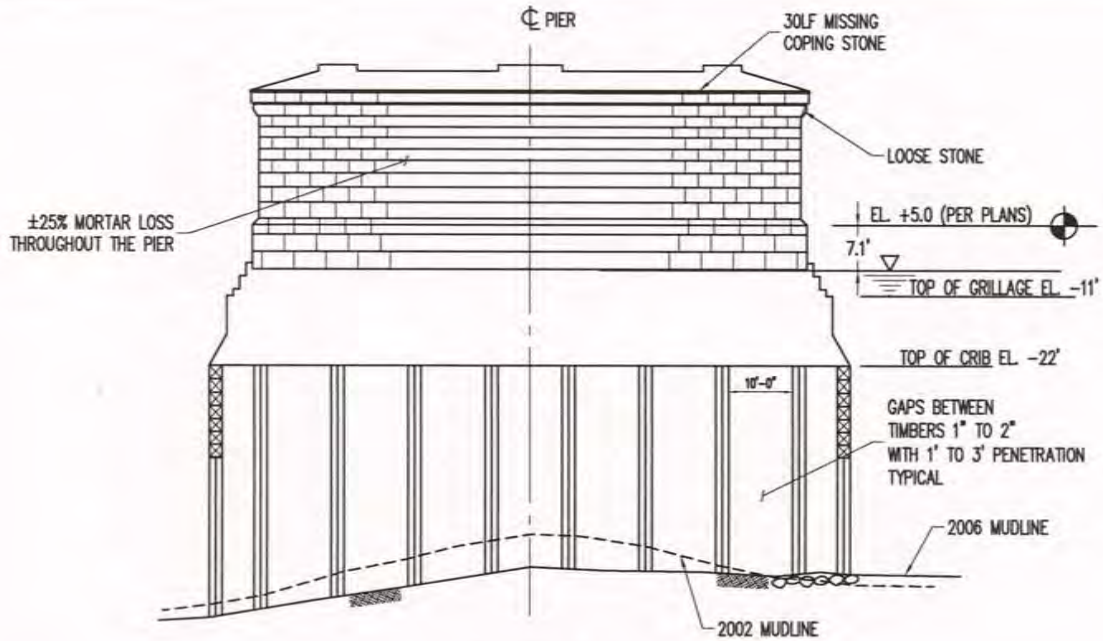
BIN 29.08 REGION 8 COUNTY 6 Sheet 17 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

UNIT: PIER 3 DIVER'S CONFIRMATION:

ELEVATION SKETCH



PIER 3
WEST ELEVATION VIEW
N.T.S.

Depth: (ft) 2006	54.0	46.0	47.0
Depth: (ft) 2002	52.0	41.0	49.0
STATION: (ft)	0+00	0+50	1+00

VIDEO TIME: Not taken due to poor visibilty

UNDERMINE HORIZ./VERT.: NONE

FOUNDATION TYPE: STONE & GRAVEL WITH CONCRETE FILLED TIMBER CRIB PILE TYPE: N/A PILE LENGTH: N/A

REMARKS:

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

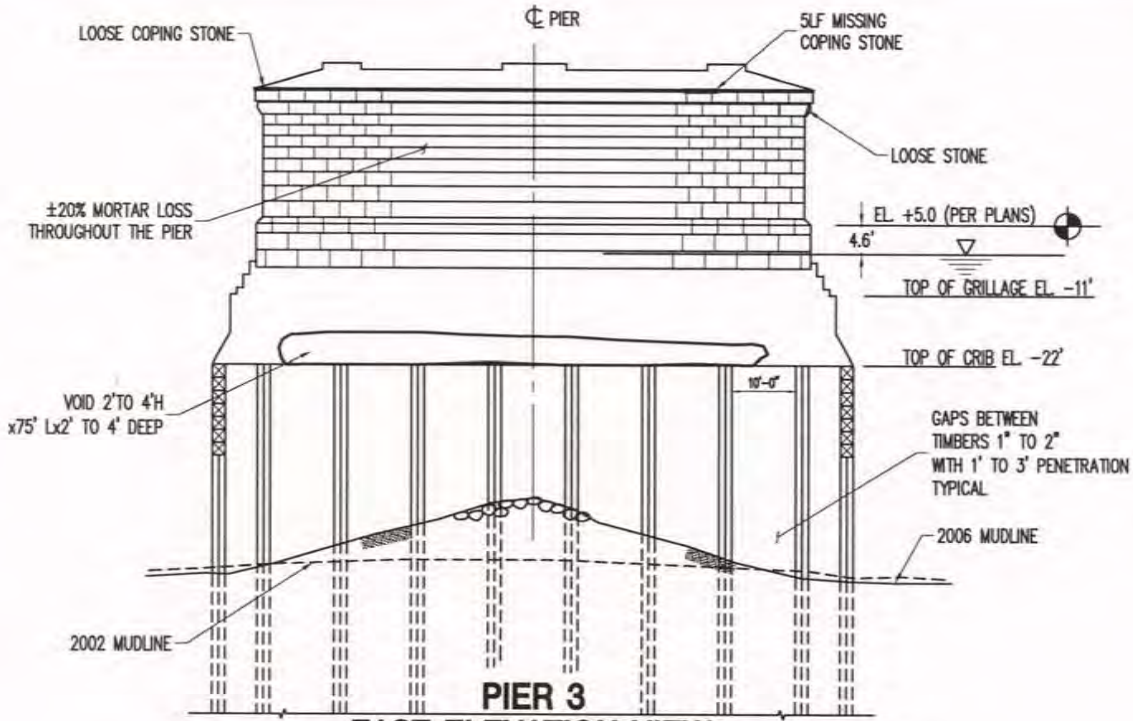
BIN 29.08 REGION 8 COUNTY 6 Sheet 18 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

UNIT: PIER 3 DIVER'S CONFIRMATION:

ELEVATION SKETCH



PIER 3

EAST ELEVATION VIEW

N.T.S.

Depth: (ft) 2006	50.0	38.0	51.0
Depth: (ft) 2002	49.0	48.0	50.0
STATION: (ft)	1+00	0+50	0+00

VIDEO TIME: Not taken due to poor visibilty

UNDERMINE HORIZ./VERT.: NONE

FOUNDATION TYPE: STONE & GRAVEL WITH CONCRETE FILLED TIMBER CRIB

PILE TYPE: N/A

PILE LENGTH: N/A

REMARKS:

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

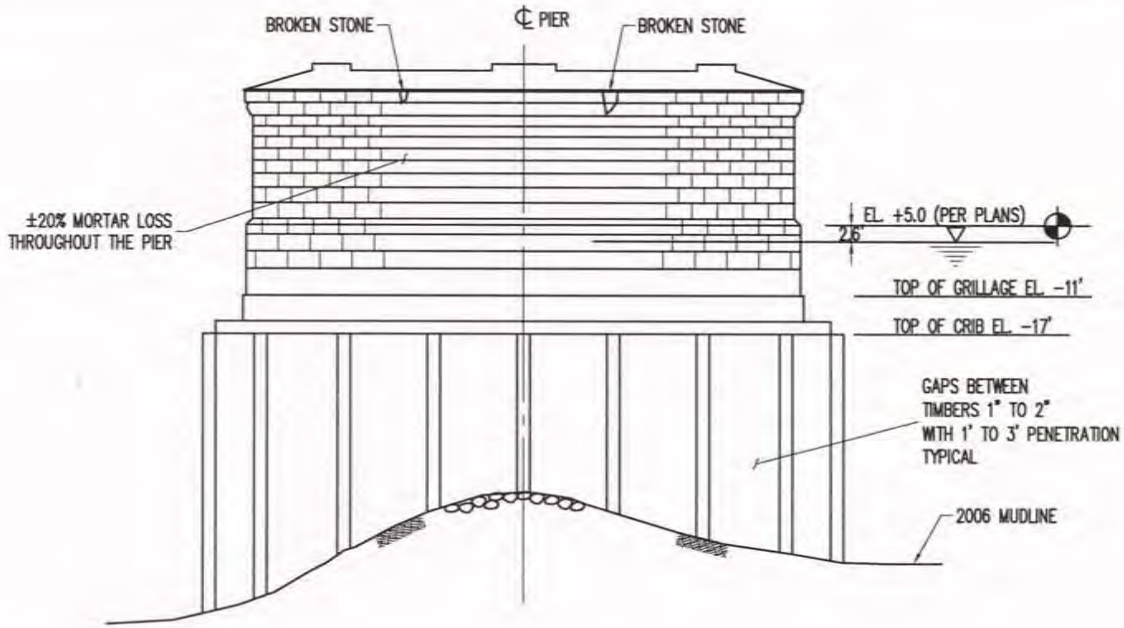
BIN 29.08 REGION 8 COUNTY 6 Sheet 19 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

UNIT: PIER 4 DIVER'S CONFIRMATION:

ELEVATION SKETCH



PIER 4
WEST ELEVATION VIEW
N.T.S.

Depth: (ft) 2006	58.0	39.0	50.0
Depth: (ft) 2002	N/A		
STATION: (ft)	0+00	0+50	1+00
VIDEO TIME:	Not taken due to poor visibilty		
UNDERMINE HORIZ./VERT.	NONE		
FOUNDATION TYPE:	STONE & GRAVEL WITH CONCRETE FILLED TIMBER CRIB	PILE TYPE: N/A	PILE LENGTH: N/A
REMARKS:			

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

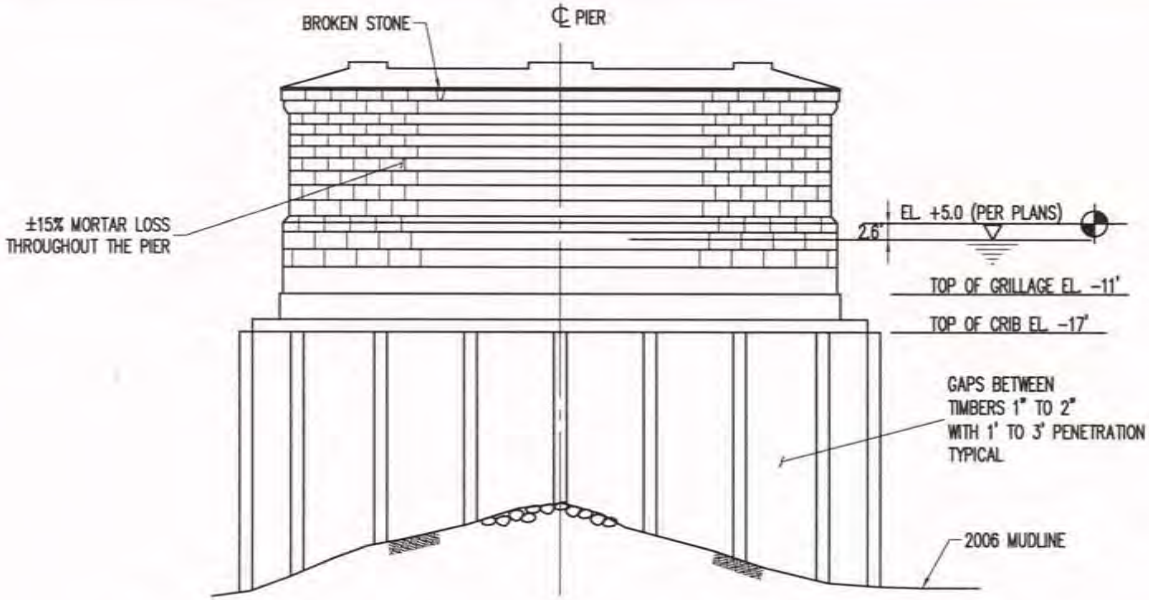
BIN 29.08 REGION 8 COUNTY 6 Sheet 20 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

UNIT: PIER 4 DIVER'S CONFIRMATION:

ELEVATION SKETCH



PIER 4
EAST ELEVATION VIEW
N.T.S.

Depth: (ft) 2006	55.0	41.0	54.0
Depth: (ft) 2002	N/A		
STATION: (ft)	1+00	0+50	0+00
VIDEO TIME:	Not taken due to poor visibilty		
UNDERMINE HORIZ./VERT.	NONE		

FOUNDATION TYPE: STONE & GRAVEL WITH CONCRETE FILLED TIMBER CRIB PILE TYPE: N/A PILE LENGTH: N/A

REMARKS:

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

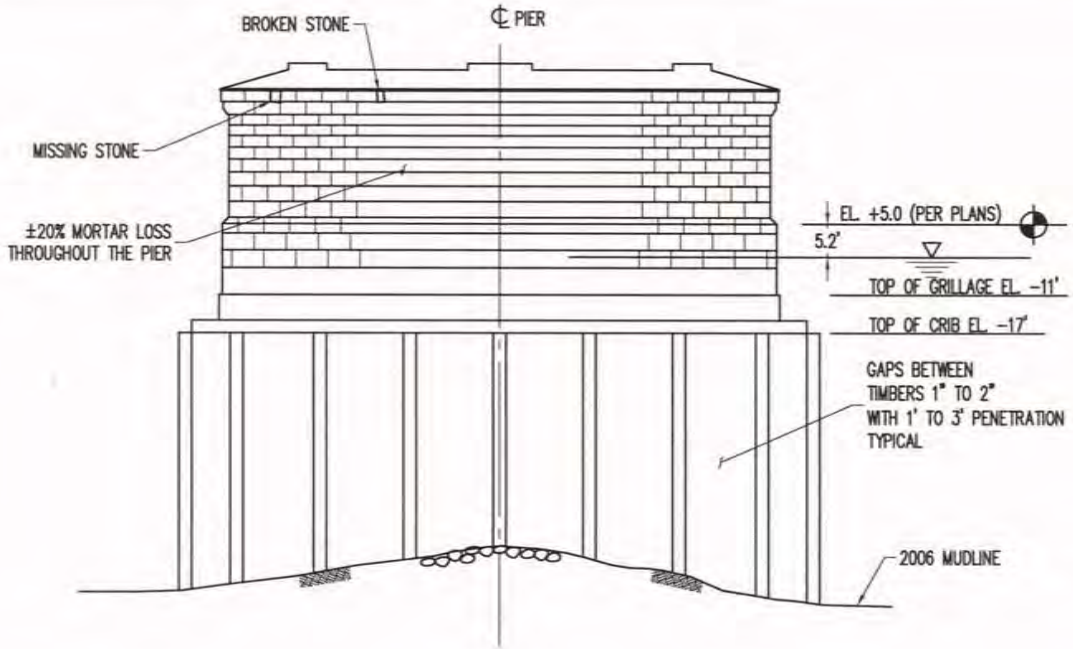
BIN 29.08 REGION 8 COUNTY 6 Sheet 21 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

UNIT: PIER 5 DIVER'S CONFIRMATION:

ELEVATION SKETCH



PIER 5
WEST ELEVATION VIEW
N.T.S.

Depth: (ft) 2006	52.0	45.0	54.0
Depth: (ft) 2002	N/A		
STATION: (ft)	0+00	0+50	1+00
VIDEO TIME:	Not taken due to poor visibilty		
UNDERMINE HORIZ./VERT.	NONE		

FOUNDATION TYPE: STONE & GRAVEL WITH CONCRETE FILLED TIMBER CRIB PILE TYPE: N/A PILE LENGTH: N/A

REMARKS:

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

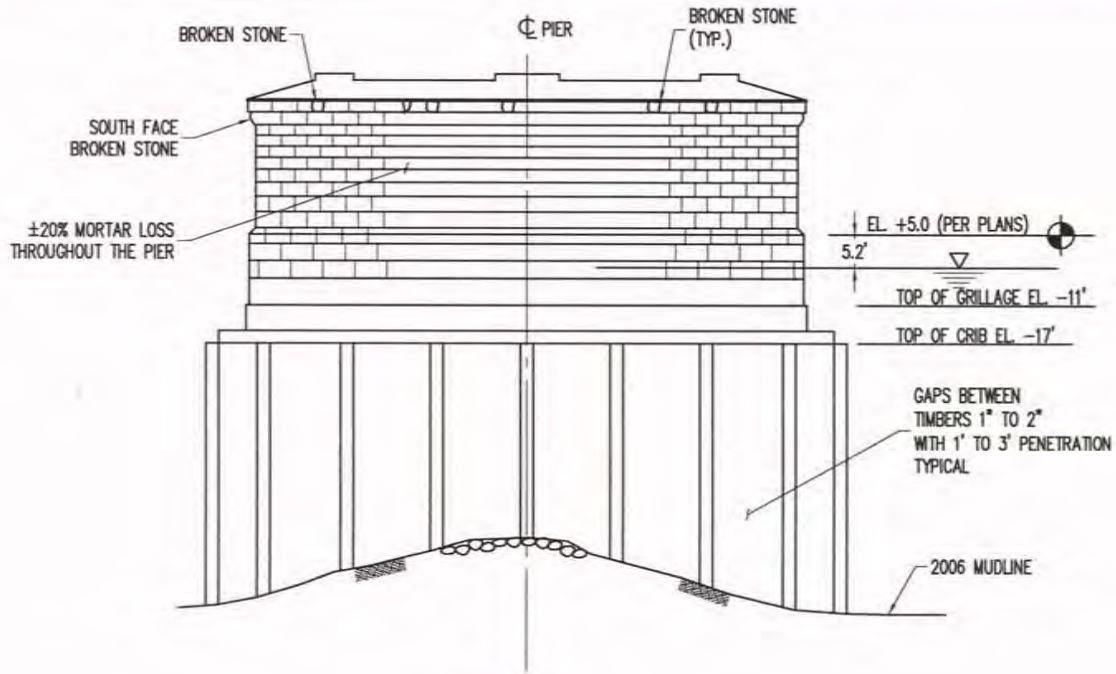
BIN 29.08 REGION 8 COUNTY 6 Sheet 22 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

UNIT: PIER 5 DIVER'S CONFIRMATION:

ELEVATION SKETCH



PIER 5
EAST ELEVATION VIEW
N.T.S.

Depth: (ft) 2006	54.0	42.0	53.0
Depth: (ft) 2002	N/A		
STATION: (ft)	1+00	0+50	0+00
VIDEO TIME:	Not taken due to poor visibilty		
UNDERMINE HORIZ./VERT.	NONE		
FOUNDATION TYPE:	STONE & GRAVEL WITH CONCRETE FILLED TIMBER CRIB	PILE TYPE: N/A	PILE LENGTH: N/A
REMARKS:			

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

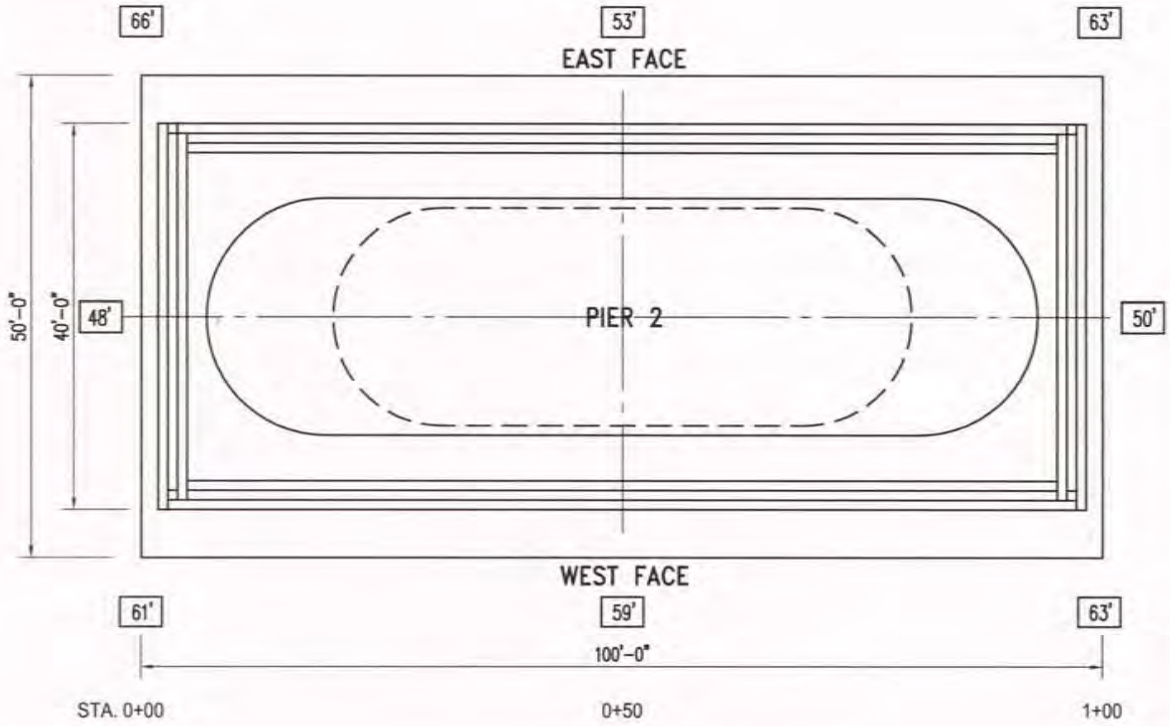
BIN 29.08 REGION 8 COUNTY 6 Sheet 23 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

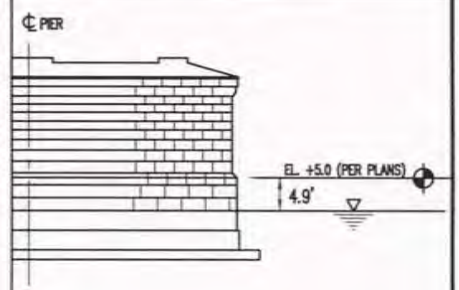
UNIT: PIER 2 DIVER'S CONFIRMATION:

SOUNDING DATA



PLAN VIEW
N.T.S.

DATUM: PIER 2
DATE 11-07-06 TIME 9:52AM



CHANNEL BOTTOM DESCRIPTION RIP-RAP, CONC. DEBRIS, SILT

SCOUR PROTECTION RIP-RAP.

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

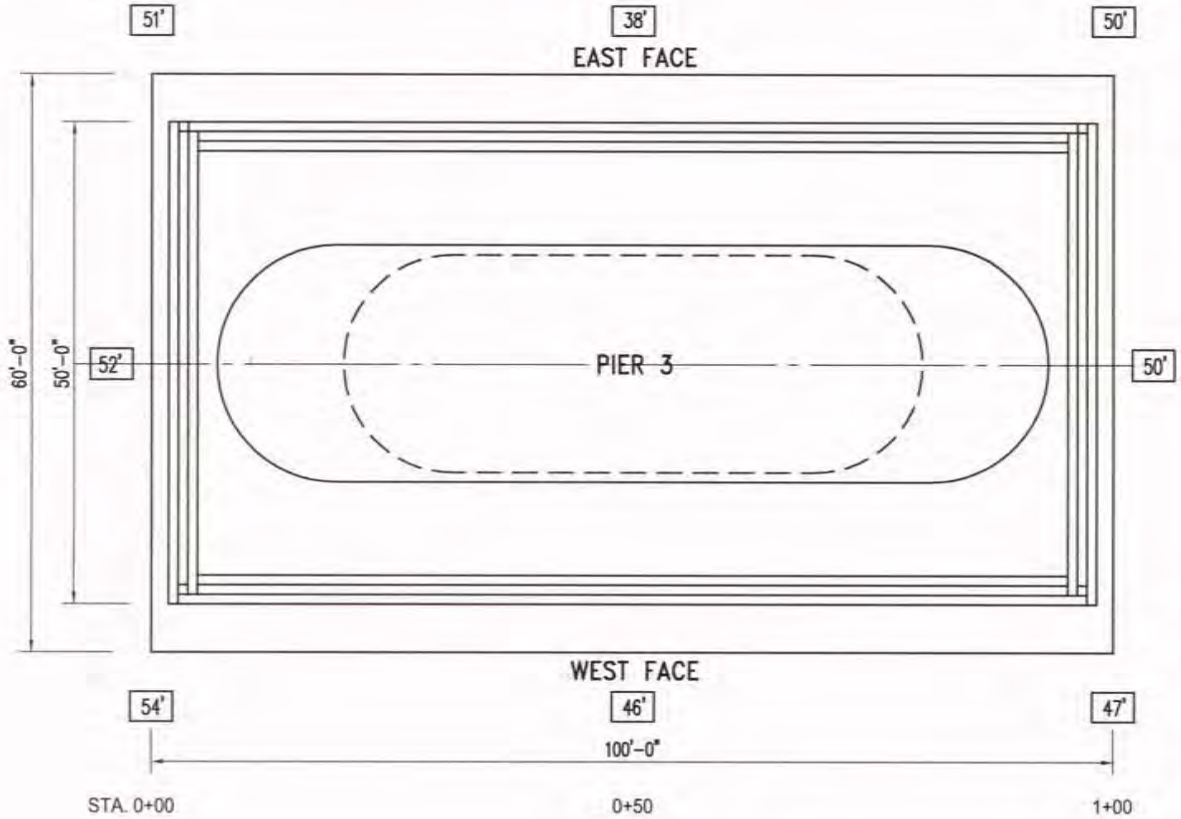
BIN 29.08 REGION 8 COUNTY 6 Sheet 24 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

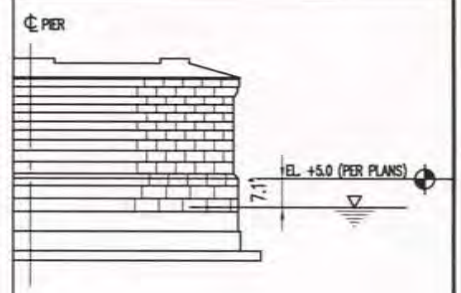
UNIT: PIER 3 DIVER'S CONFIRMATION:

SOUNDING DATA



PLAN VIEW
N.T.S.

DATUM: PIER 3
DATE 11-03-06 TIME 11:45AM



CHANNEL BOTTOM DESCRIPTION RIP-RAP, CONC. & SILT DEBRIS, SILT

SCOUR PROTECTION RIP-RAP.

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

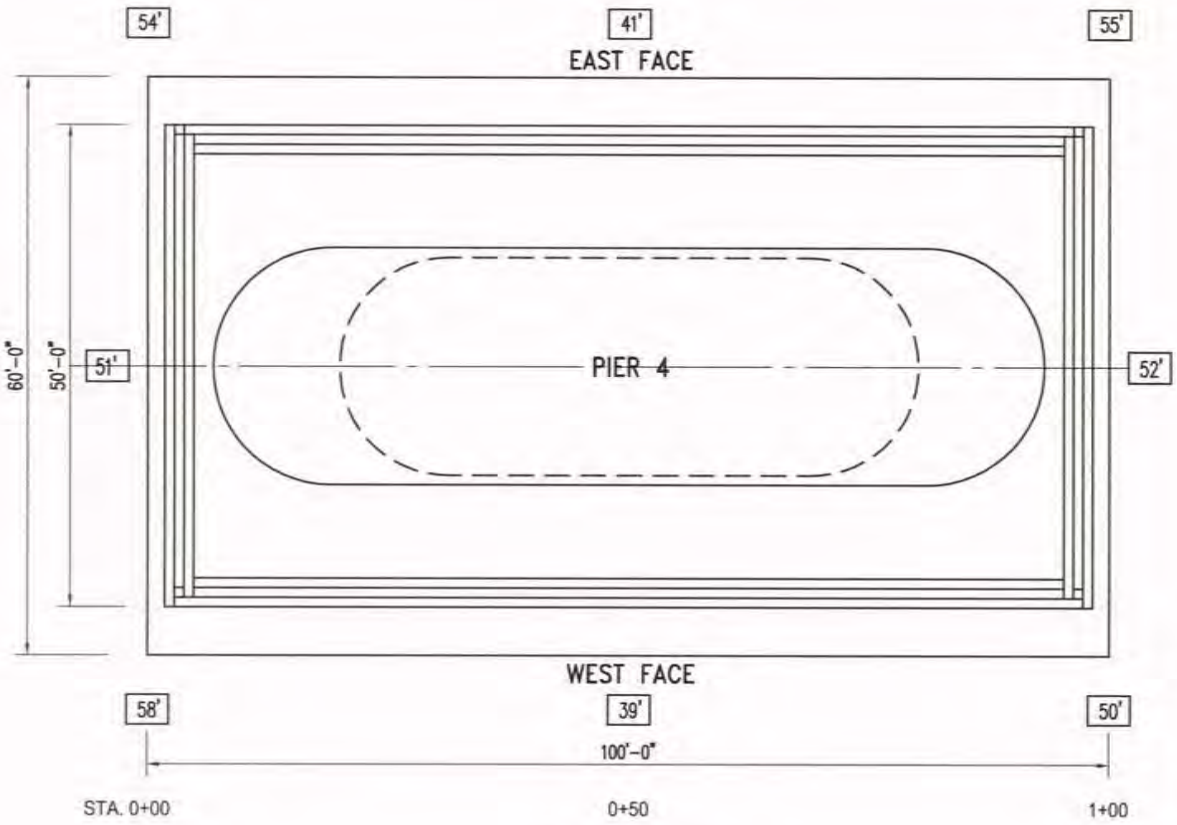
BIN 29.08 REGION 8 COUNTY 6 Sheet 25 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

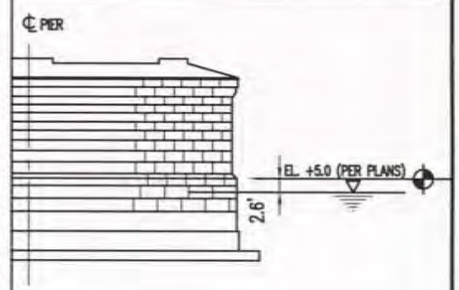
UNIT: PIER 4 DIVER'S CONFIRMATION:

SOUNDING DATA



PLAN VIEW
N.T.S.

DATUM: PIER 4
DATE 11-02-06 TIME 9:44 AM



CHANNEL BOTTOM DESCRIPTION RIP-RAP, CONC. & STEEL DEBRIS, SILT

SCOUR PROTECTION RIP-RAP.

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

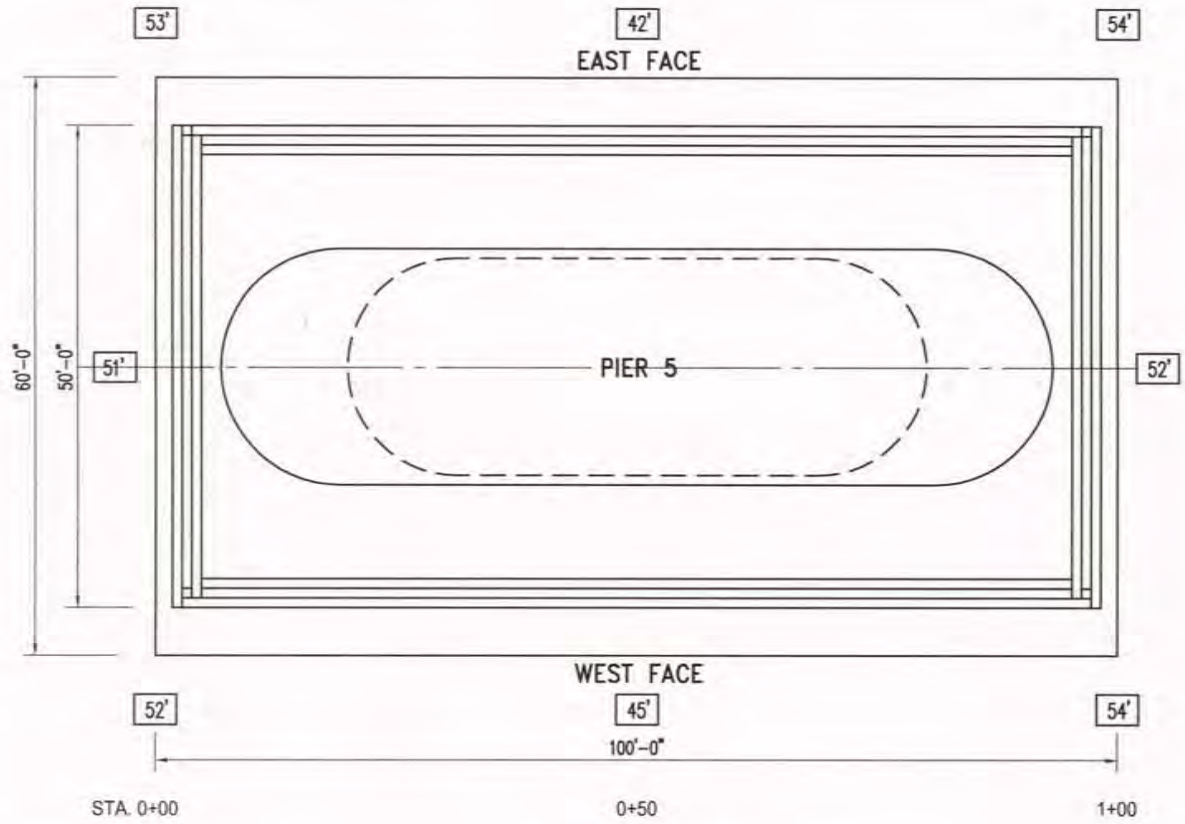
BIN 29.08 REGION 8 COUNTY 6 Sheet 26 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

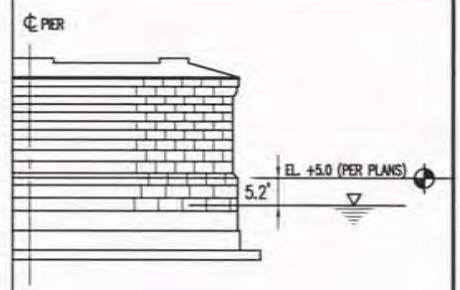
UNIT: PIER 5 DIVER'S CONFIRMATION:

SOUNDING DATA



PLAN VIEW
N.T.S.

DATUM: PIER 5
DATE 11-02-06 TIME 10:41AM



CHANNEL BOTTOM DESCRIPTION RIP-RAP, CONC. DEBRIS, SILT

SCOUR PROTECTION RIP-RAP.

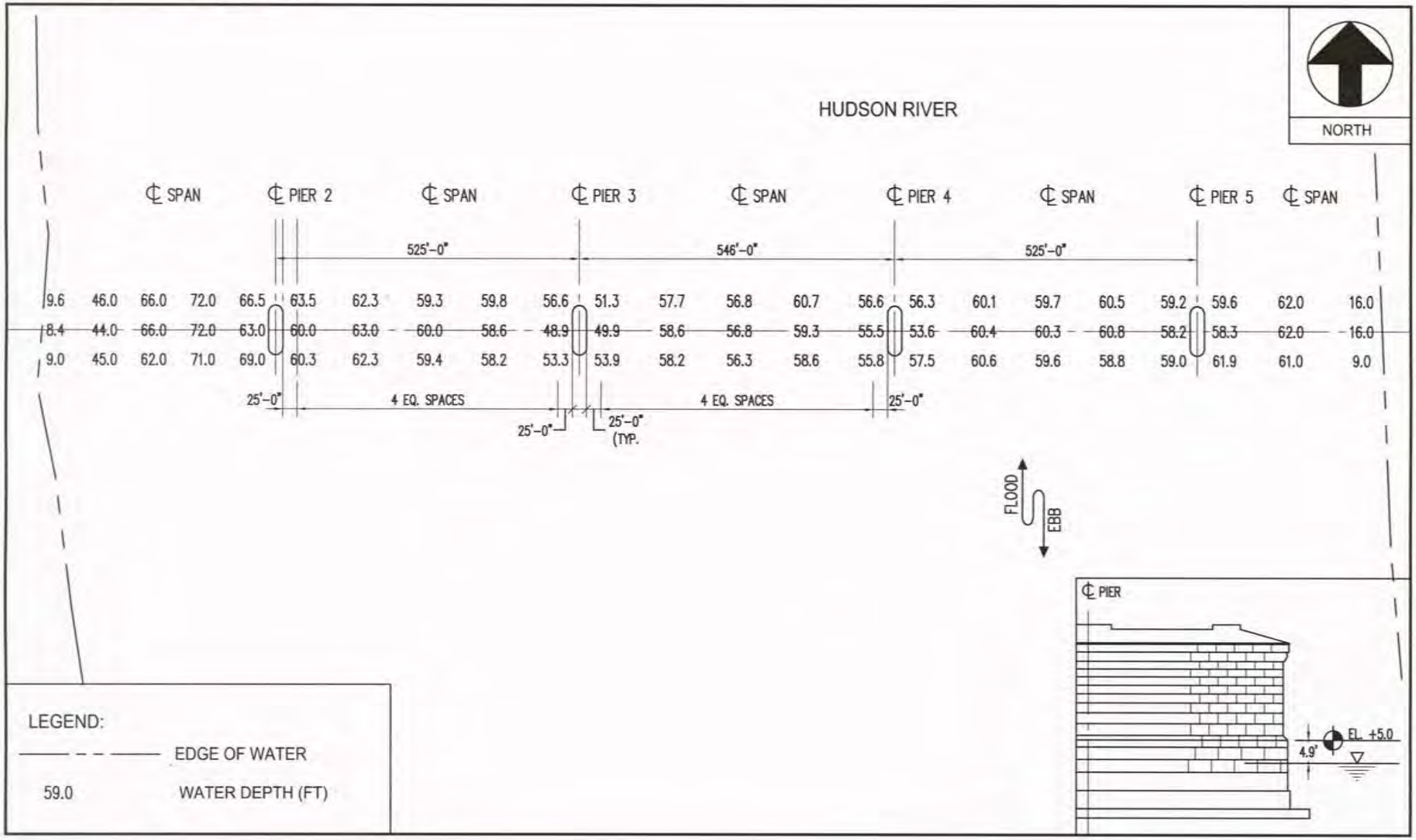
UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

BIN MP 29.08 REGION 8 COUNTY 6 Sheet 27 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

FATHOMETRIC PLAN



PHOTOGRAPHS

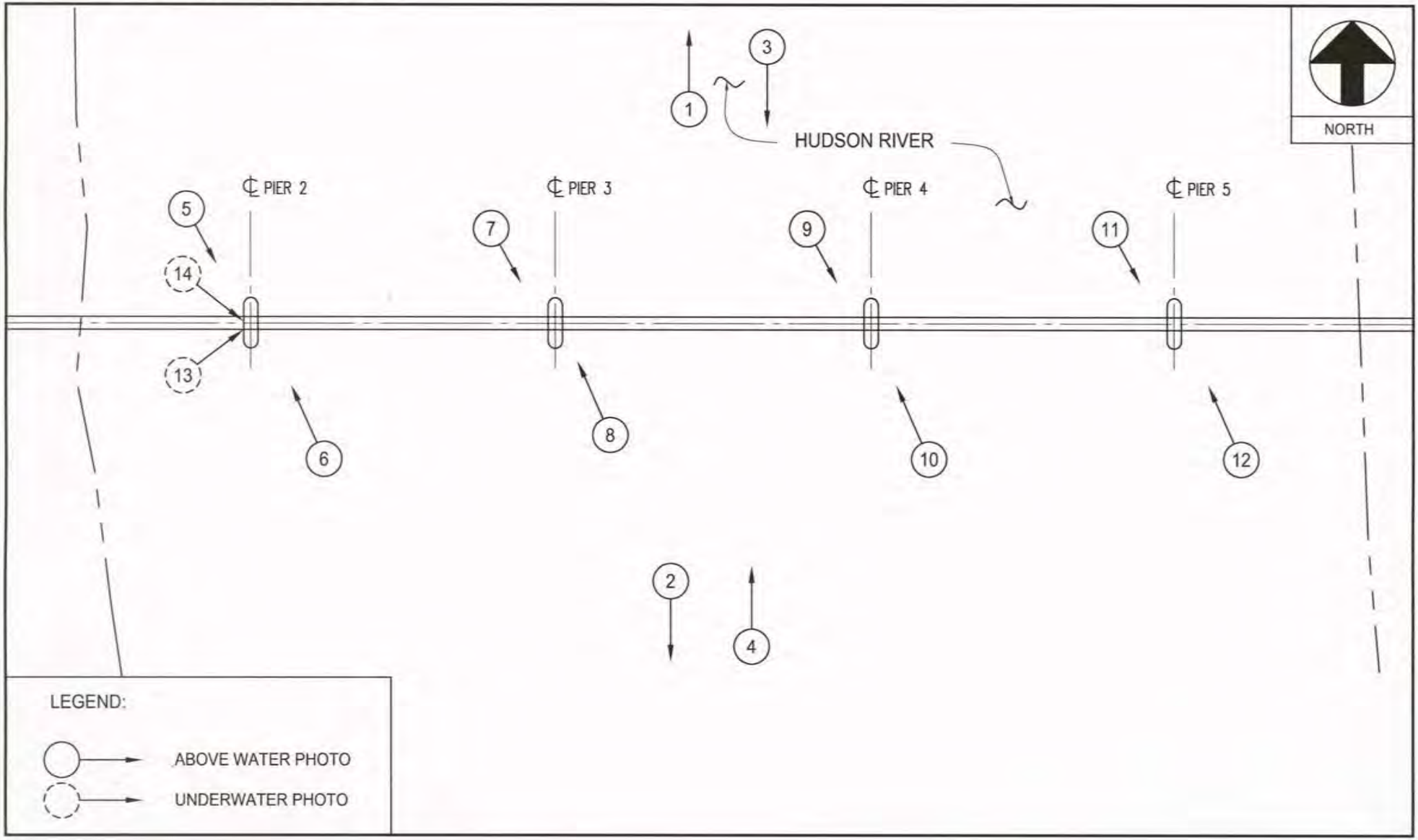
UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

BIN MP 29.08 REGION 8 COUNTY 6 Sheet 28 of 35

FEATURE CARRIED POUGHKEEPSIE RAILROAD BRIDGE FEATURE CROSSED HUDSON RIVER

INSPECTED BY James V. Green TITLE P.E./DIVER DATE 11/07/2006

PHOTO LOCATION PLAN



UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: (6) SHEET 29 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

PHOTO NO.: 1
LOCATION:
Upstream

DESCRIPTION:
General View
Looking North

REFERENCES: N/A

PHOTO NO.: 2
LOCATION:
Downstream

DESCRIPTION:
General View
Looking South

REFERENCES: N/A

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: (6) SHEET 30 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

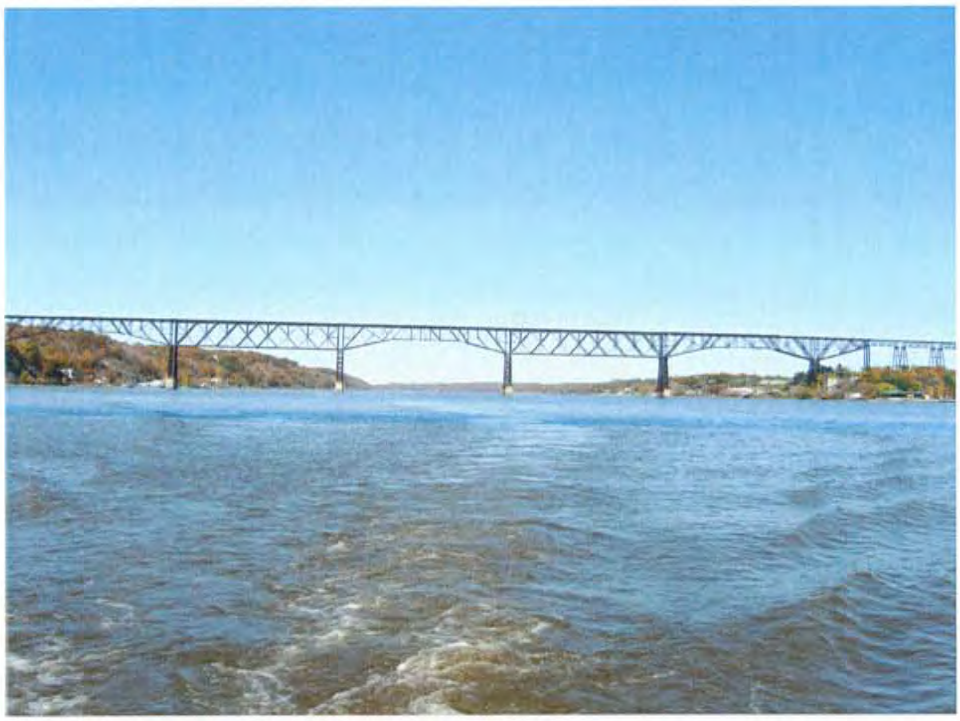


PHOTO NO.: 3
LOCATION:
South Elevation

DESCRIPTION:
General View
Looking North

REFERENCES: N/A

PHOTO NO.: 4
LOCATION:
North Elevation

DESCRIPTION:
General View
Looking South

REFERENCES: N/A

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: (6) SHEET 31 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

PHOTO NO.: 5
LOCATION:
Pier 2

DESCRIPTION:
General View
Looking Southeast

REFERENCES: N/A

PHOTO NO.: 6
LOCATION:
Pier 2

DESCRIPTION:
General View
Looking Northwest

REFERENCES: N/A

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: (6) SHEET 32 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

PHOTO NO.: 7
LOCATION:
Pier 3

DESCRIPTION:
General View
Looking Southeast

REFERENCES: N/A

PHOTO NO.: 8
LOCATION:
Pier 3

DESCRIPTION:
General View
Looking Northwest

REFERENCES: N/A

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: (6) SHEET 33 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

PHOTO NO.: 9
LOCATION:
Pier 4

DESCRIPTION:
General View
Looking Southeast

REFERENCES: N/A

PHOTO NO.: 10
LOCATION:
Pier 4

DESCRIPTION:
General View
Looking Northwest

REFERENCES: N/A

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: (6) SHEET 34 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

PHOTO NO.: 11
LOCATION:
Pier 5

DESCRIPTION:
General View
Looking Southeast

REFERENCES: N/A

PHOTO NO.: 12
LOCATION:
Pier 5

DESCRIPTION:
General View
Looking Northwest

REFERENCES: N/A

UNDERWATER BRIDGE INSPECTION AND CONDITION REPORT

M.P.: 29.08 REGION: 8 COUNTY: (6) SHEET 35 OF 35

FEATURE CARRIED: Poughkeepsie RR Bridge FEATURE CROSSED: Hudson River

INSPECTED BY: James V. Green TITLE: On-Site P.E./ Team Leader DATE: 11/07/06

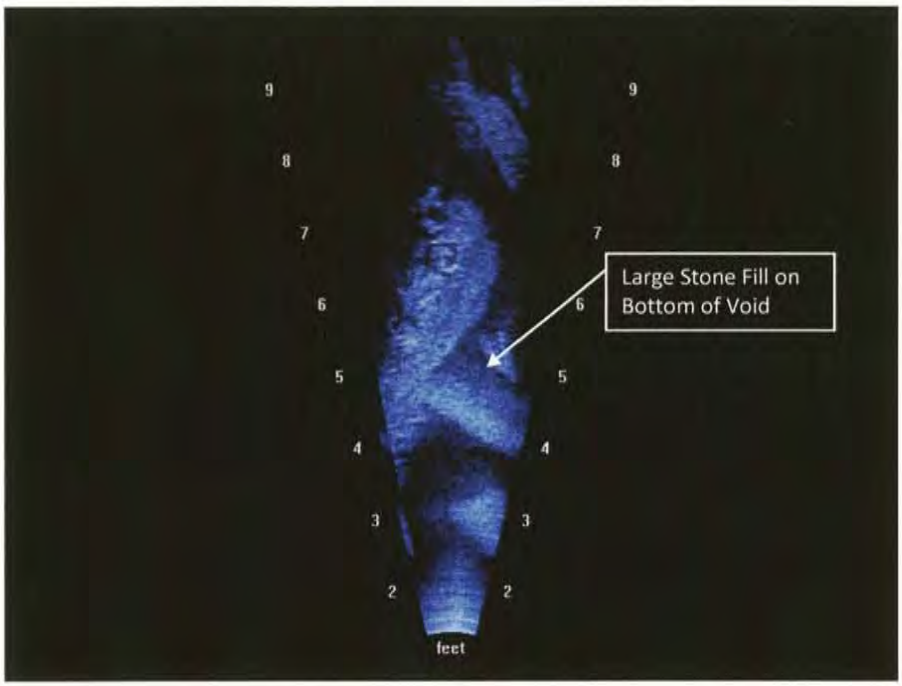


PHOTO NO.: 13
LOCATION: Pier 2

DESCRIPTION: Didson Sonar image of void area on west face of pier. Note large stone fill.

REFERENCES: BR356c - Item 24 Rated - 3

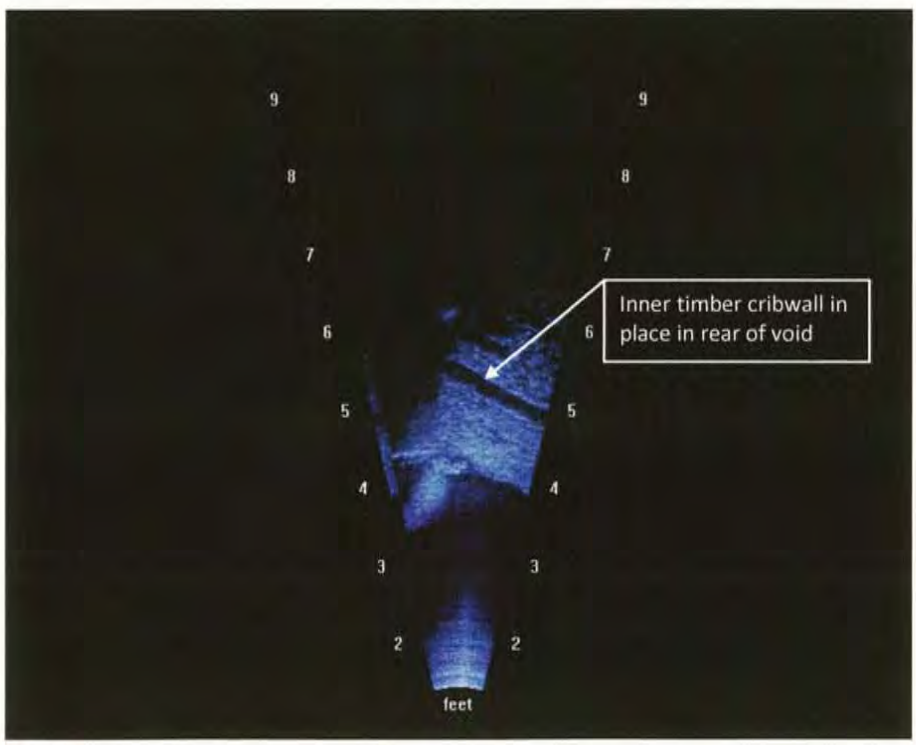


PHOTO NO.: 14
LOCATION: Pier 2

DESCRIPTION: Didson Sonar image of void area on west face of pier. Note inner timber cribwall still intact.

REFERENCES: BR356c - Item 24 Rated - 3