STATE OF OHIO DEPARTMENT OF TRANSPORTATION

BRIDGE INSPECTION REPORT

1808311 Structure File Number | BRIDGE NUMBER **CUY 00090 2043 L** | YEAR BUILT **1952**

DIST **12** | Bridge Type **322** | TYPE SERVICE **1 5** | **CEI OUTLET CHANNEL**

DECK out/out 78.3 Deck Area 14,413 sqft 1. FLOOR — 1 REINF CONCRT (PRESTRSD, PRECAST	1	2 INTEGRAL CONCRETE (MONOLITHIC) 2. WEARING SURFACE — Thk 2	1
Left N NONE / Right N NONE 3. CURBS, SIDEWALKS AND WALKWAYS		4. MEDIAN — Lanes on 4	
5. RAILING — 1 REINFORCED CONCRETE PARAPET	1	6. DRAINAGE — 3 SCUPPERS & DWNSPTS	1
7. EXPANSION JOINTS — N NONE		8. SUMMARY	7
SUPERSTRUCTURE 9. ALIGNMENT — Max Spans 60	1	3 ROLLED STEEL 10. BEAMS/GIRDERS/SLAB	2
11. DIAPHRAGMS or CROSSFRAMES	1	12. JOISTS/STRINGERS	
13. FLOOR BEAMS		14. FlOOR BEAM CONNECTIONS	
15. VERTICALS		16. DIAGONALS	
17. END POSTS		18. TOP CHORD	
19. LOWER CHORD		20. LOWER LATERAL BRACING	
21. TOP LATERAL BRACING		22. SWAY BRACING	
23. PORTALS		24. BEARING DEVICES — 3 SLIDING (BRONZE)	1
25. ARCH		26. ARCH COLUMNS or HANGERS	
27. SPANDREL WALLS		Paint Date 1/1/1993 28. PROTECTIVE COATING SYSTEM — 5 PAINT SYSTEM OZE	7
29. PINS/HANGERS/HINGES		30. FATIGUE PRONE CONNECTIONS	
31. LIVE LOAD RESPONSE	S	32. SUMMARY	6

SUBSTRUCTURE 33. ABUTMENTS — 6 STUB-CAPPED PILE (SINGLE ROW PILES)	1	6 STUB-CAPPED PILE (SINGLE ROW PILES) 34. ABUTMENT SEATS — Abutment: ON PILING	1
35. PIERS	2	B TOWER 36. PIER SEATS — Piers: ON PILING	1
37. BACKWALLS		38. WINGWALLS	1
Piers = 02 NN NN 39. FENDERS and DOLPHINS — Spans = 3		40. SCOUR — 2	1
41. SLOPE PROTECTION — N NONE-NATURAL PROTECTION(GRA		42. SUMMARY — Dive Date 12/30/1899	6
CULVERTS 43. GENERAL — N NONE/NOT APPLICABLE		44. ALIGNMENT	
45. SHAPE		46. SEAMS	
Culvert Length 0 47. HEADWALLS or ENDWALLS		Culvert Fill Depth 0 48. SCOUR	
49.		50. SUMMARY	
CHANNEL 51. ALIGNMENT	1	52. PROTECTION — 5 RIP RAP (DUMPED ROCK OR ROCK)	1
8 SLIGHT CHANCE OVERTOPPING 53. WATERWAY ADEQUACY	1	54. SUMMARY	7
APPROACHES 55. PAVEMENT — 2 BITUMINOUS	1	56. APPROACH SLABS	1
57. GUARDRAIL — 1 STEEL BEAM	1	58. RELIEF JOINTS	
59. EMBANKMENT	1	60. SUMMARY — Percent Legal = 150	8
GENERAL 61. NAVIGATION LIGHTS		62. WARNING SIGNS — Maint Resp 1 OHIO TRAN DEPT	
Signs on = N 63. SIGN SUPPORTS — MVC on = 9999		64. UTILITIES	
Under C = 0 65. VERTICAL CLEARANCE — Under NC = 0	N	66. GENERAL APPRAISAL & OPERATIONAL STATUS	6 A

67. INSPECTED BY

SIGNED | PE Number | KJB INITIALS

DATE 10/16/2008

68. REVIEWED BY

SIGNED | 60048 PE Number | MJM INITIALS

DATE 1/26/2009

1 1 1 1 1 N N N
SURVEY

DECK

FL: SPALL IN BAY #5 BETWEEN 1ST & 2ND XFRAMES WEST OF PIER #1; SEE ATTACHED PHOTOS 1 & 2 DATED 10/05/05. PLYWOOD CAST INTO FLOOR ALONG LEFT FACE OF TOP FLANGE OF LEFT BEAM ABOVE FINISH CHANNEL PROTECTION; SEE ATTACHED PHOTOS 3 & 4 DATED 11/07/05. A FEW CRACKS. FLOOR <1% DETERIORATED.

WS: A FEW CRACKS. <1% DETERIORATED.

DRAINAGE: PARTIALLY PLUGGED SCUPPERS.

SUPERSTRUCTURE

BEAMS: PACK RUST BETWEEN SOME COVER PLATES & BOTTOM FLANGES. RUSTED SECTION LOSS. RUSTING SECTION LOSS OF LEFT BEAM WITH RUSTED THRU HOLES IN COVER PLATES IN SPAN #2. BOTTOM FLANGE COVER PLATE OF BEAM #5 IS BENT IN SPAN #2 NEAR PIER #2; SEE ATTACHED PHOTO 6 DATED 10/05/05. NO COPE HOLES AT INTERSECTING WELDS WHERE BEAMS ARE JOINED ABOVE PIERS.

PCS: 2% RUST. 1-5% DETERIORATED.

SUBSTRUCTURE

ABUTMENTS: CRACKS. MINOR DELAMINATIONS.

PIERS: FAILED PATCHES AND SPALLS ON COLUMNS; SEE ATTACHED PHOTOS 7 & 8 DATED 9/25/07. CAP SPALL ABOVE P2C5R; SEE ATTACHED PHOTO 9 DATED 10/05/05.

SCOUR: CONCRETE ENCASEMENTS OF 3 COLUMNS OF PIER #1 ARE UNDERMINED. NO CHANGE FROM LAST DIVE INSPECTION ON 9/25/07 THAT IS ATTACHED WITH THIS REPORT.

APPROACHES

PAVEMENT: A FEW CRACKS.

GENERAL

DRY-SUIT PROBING ON 9/26/08 WITH MS.

1808311 10_5_05 P1 floor spall span 1 bay 5.jpg

1808311 10_5_05 P2 closeup of P1.jpg

1808311 11_7_05 P3 plywood cast into floor.jpg

1808311 11_7_05 P4 closeup of P3.jpg

1808311 10_5_05 P6 bent beam 5 cover plate.jpg

1808311 10_5_05 P7 deep spalling of P1C15.jpg

1808311 10_5_05 P8 deep spalling of P1C15.jpg

1808311 10_5_05 P9 cap spall above P2C5R.jpg

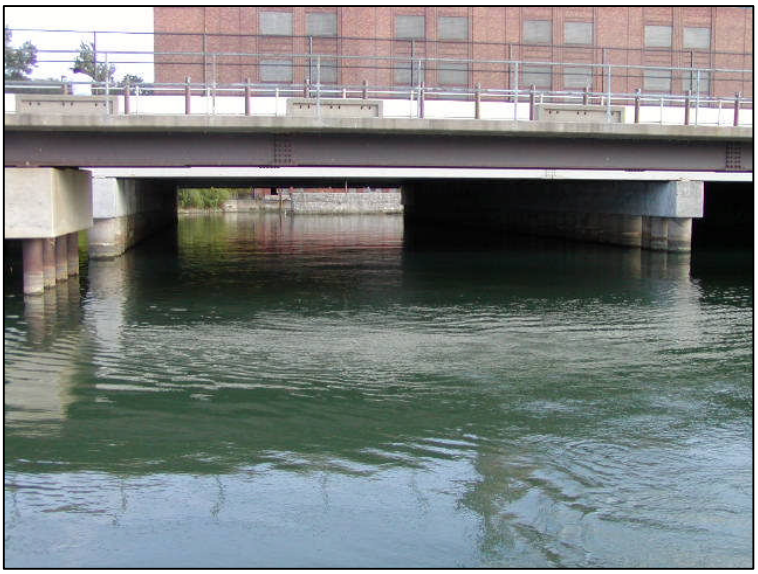
1808311	CUY-00090-2046L	September 25, 2007
Structural File Number	*Bridge Number*	*Inspection Date*

Underwater Inspection Report for:

Interstate 90 over C.E.I Outlet

Cuyahoga County, Ohio

(Three Span Steel Beam Bridge)



General Elevation View

Personnel on site during inspection:

ODOT

Ms. Andrea Persanyi

Contractor

Mr. Don W. Wilkins (Primary Diver/ Supervisor)
Mr. James A. Ritchie (Backup Diver/ Inspector)
Mr. Chris J. Kupper (Backup Diver/ Inspector)
Mr. Brian B. Butler (Tender)

Prepared for:

ODOT District 12

5500 Transportation Blvd

Garfield Heights, Ohio 44125

Prepared by:

Marine Solutions, Inc.
250 Gold Rush Drive, Suite 4
Lexington, Kentucky 40503
Phone: (859) 260-1055
awilkins@MSIdiving.com

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List of Appendixes

Appendix

1808311	CUY-00090-2046L	September 25, 2007
Structural File Number	*Bridge Number*	*Inspection Date*

1. Introduction

Marine Solutions, Inc (MSI) conducted a routine underwater inspection of the CUY-00090-2046L bridge over the C.E.I water outlet plant in the City of Cleveland, Ohio. The inspection was completed on September 25, 2007. Details of the inspection, along with observed conditions and conclusions, are provided within this report. Supplemental drawings, pictures and a location map are provided within the Appendixes.

2. Description of Structure

Bridge CUY-00090-2046L (SFN 1808311) carries Interstate 90 over the C.E.I water outlet located in Cuyahoga County, Ohio. The bridge has an overall length of approximately 184 feet. The structure is a three span steel beam bridge supported by 40 concrete encased steel pier pilings.

3. Inspection Procedure

The inspection was performed on September 25, 2007. A visual/tactile inspection was performed on the portions of the piers located below the water surface. Soundings were performed up to 30 feet out from each face of the pier. Original plans were not available for review.

Inspection Mode:	*Surface Supplied Air diving (SSA)*
Flow Direction / Velocity:	*North/ < 1 knot*
Channel Bottom:	*Silt, sand, gravel, and cobbles*
Scour Checked By:	*N/A*
Equipment Used:	*Superlite 37 helmet with hardwire communication to the surface*, w*et suit, digital camera, survey rod, lights*
Hazards Encountered:	*< 2 ft of visibility*
Hydrographic Reference:	Pier 1, top of concrete pile cap to the water surface, 7.9 feet

4. Observed Conditions

General

- The bottom material consists of silt, sand, gravel and cobbles.
- Light to moderate scaling is present on the concrete surface of the pier below the water surface.
- Light biological growth is present on the concrete surface of the pier below the water surface.
- Zebra mussel coverage on the concrete surface of the piles below the water surface was 95 to 100 percent.

Pier 1

- Pile 1, area of section loss up to 1 inch tall by 6 inches wide with up to 2 inches of penetration located on the north face.

- Pile 2, area of section loss up to 6 inches tall by 6 inches wide with up to 4 inches of penetration located on the northwest face.
- Pile 4, area of section loss up to 2 inch tall with up to 2.5 inches of penetration located at the bottom of the north face and extending around to the south face.
- Pile 5, area of section loss up to 4 inch tall with up to 3.5 inches of penetration located at the bottom of the north face and extending around to the south face.
- Pile 6, area of section loss above the water surface with exposed rebar. There are also sand bags around the entire pile at the bottom.
- Pile 7, area of section loss up to 4 inch tall with up to 4 inches of penetration located at the bottom of the north face and extending around to the south face.
- Pile 14, area of section loss up to 10 inch tall with up to 6 inches of penetration located at the bottom of the west face and extending around to the east face.
- Pile 15, area of section loss up to 4 inch tall with up to 6 inches of penetration located at the bottom of the west face and extending around to the south face.

Pier 2

- Pile 1, area of section loss up to 4 inch tall with up to 1.5 inches of penetration located at the water surface.
- Pile 19, area of section loss up to 6 inch diameter with up to 1/2 inch of penetration located at the surface on the southeast face.

5. Conclusions

The condition of the bridge during the 2007 inspection was consistent with the 2006 inspection report. Several of the piles have new and or additional areas of section loss. The bridge is in good condition with only minor deficiencies noted.

Appendix A

Photographs

1808311	CUY-00090-2046L	September 25, 2007
Structural File Number	*Bridge Number*	*Inspection Date*

Photo by B. Butler 09/25/07

Photo 1. Elevation view looking upstream (south).

Photo by B. Butler 09/25/07

Photo 2. Pier 1L (southeast).

Photo by B. Butler 09/25/07

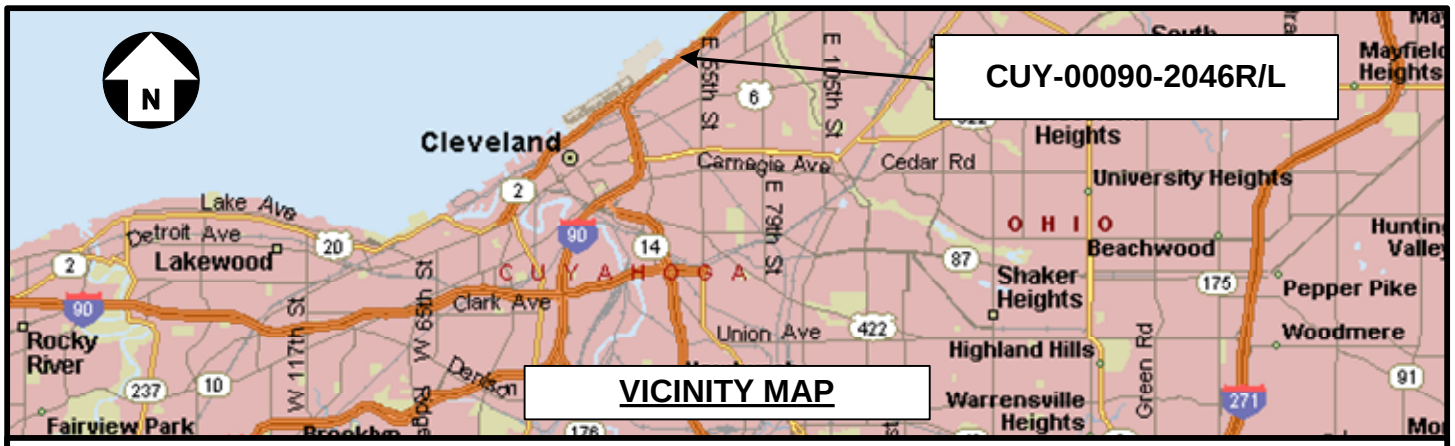
Photo 3. Pier 2L (southwest).

Photo by B. Butler 09/25/07

Photo 4. Typical Section Loss.

Appendix B

Figures



MSI MARINE SOLUTIONS, INC.
ENGINEERING & COMMERCIAL DIVING SERVICES

GRAPHIC SCALE: Not To Scale		PROJECT: ODOT District 12 2007 Underwater Bridge Inspections	
INSPECTION DATE: September 25, 2007		SHEET: CUY-00090-2046R/L Cuyahoga County Ohio Location Map	PAGE NO.: B-1
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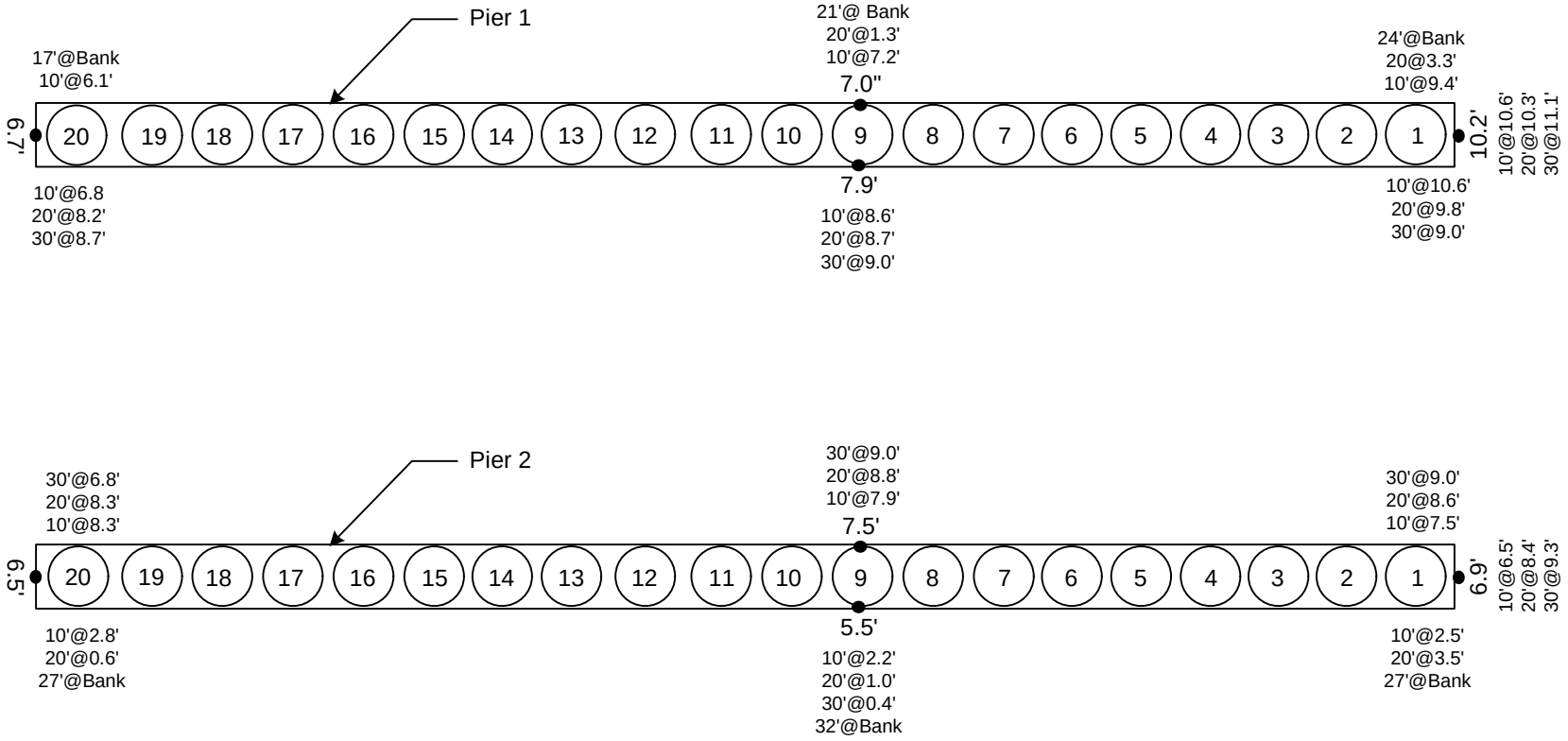
MSI JOB NO.: MSI2007008			
FILE NAME: CUY-00090-2046R/L Location Map			



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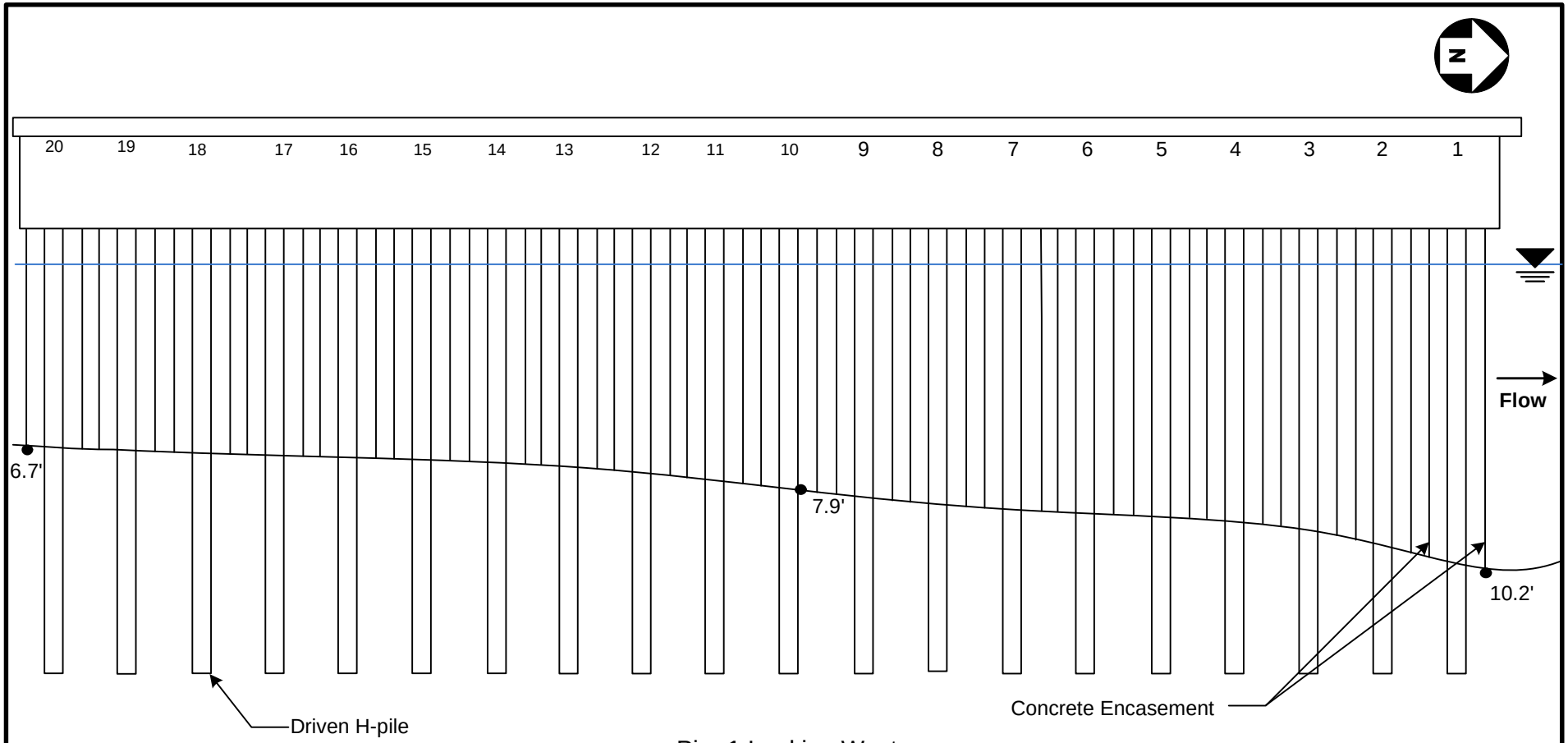
Engineering & Commercial Diving Services

GRAPHIC SCALE:	Not to Scale
PROJECT:	ODOT District 12 2007 Underwater Bridge Inspections
INSPECTION DATE:	October 25, 2007
DRAWN BY: DW / CKD. BY: ANW	
FMSM JOB NO.:	MSI2007008
FILE NAME:	CUY-00090-2046L - Plan
SHEET:	CUY-00090-2046L I90 over C.E.I Outlet City of Cleveland Substructure Plan View
PAGE NO.:	B-2
FIG. NO.:	2



Pier 1 Looking West

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GRAPHIC SCALE: Not to Scale		PROJECT: ODOT District 12 2007 Underwater Bridge Inspections	
INSPECTION DATE: October 25, 2007		SHEET: CUY-00090-2046L I90 over C.E.I Outlet City of Cleveland Pier 1 Looking West	PAGE NO.: B-3
DRAWN BY: DW	CKD. BY: ANW		FIG. NO.: 3
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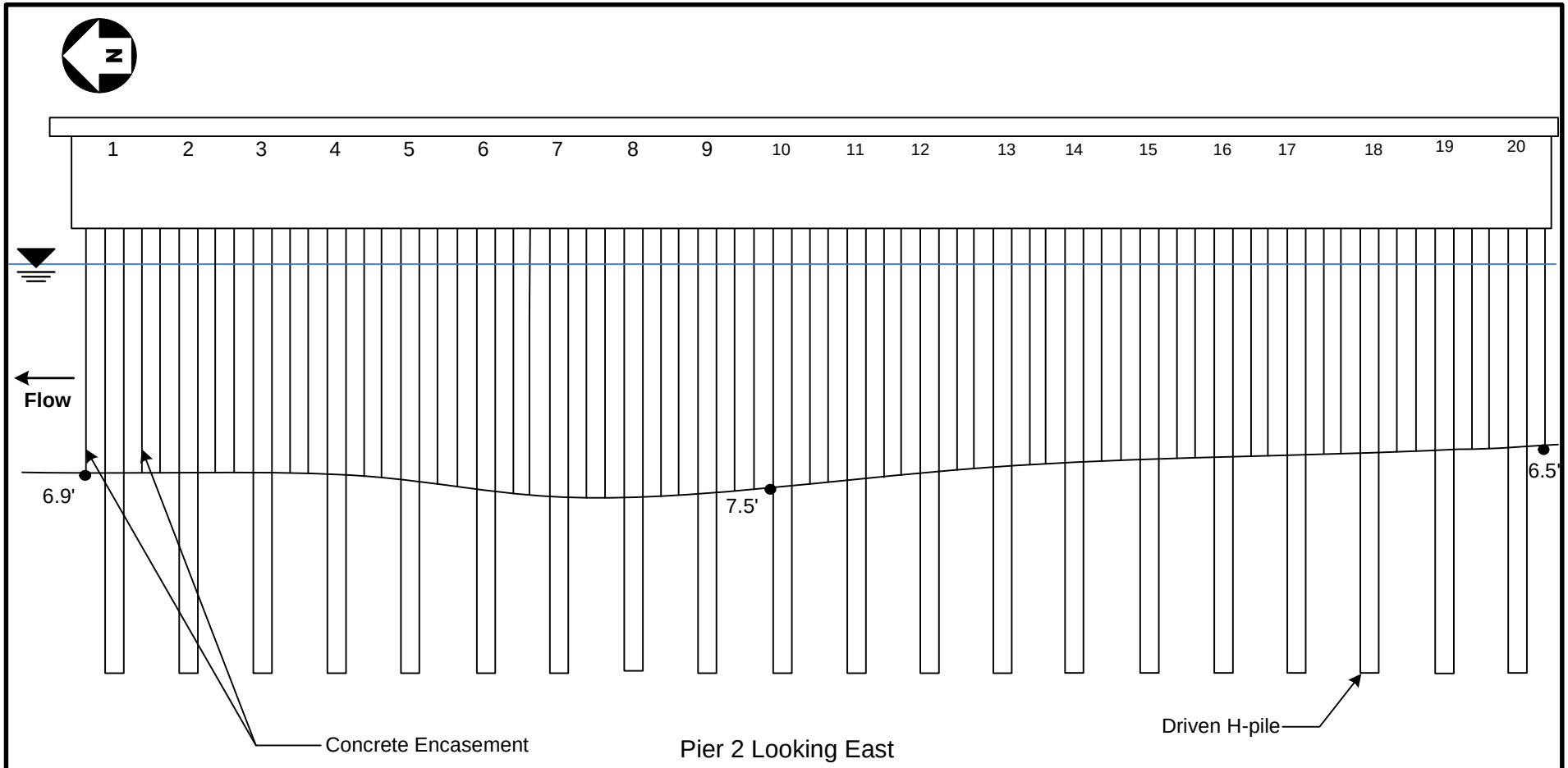

Pier 2 Looking East

MSI Marine Solutions, Inc.
Engineering & Commercial Diving Services

GRAPHIC SCALE:	Not to Scale
PROJECT:	ODOT District 12 2007 Underwater Bridge Inspections
INSPECTION DATE:	October 25, 2007
DRAWN BY:	DW
CKD. BY:	ANW
FMSM JOB NO.:	MSI2007008
FILE NAME:	CUY-00090-2046L – Pier 2
SHEET:	CUY-00090-2046L I90 over C.E.I Outlet City of Cleveland Pier 2 Looking East
PAGE NO.:	B-4
FIG. NO.:	4