

BRIDGE INSPECTION REPORT

1808745
Structure File Number

BRIDGE NUMBER CUY 00090 2043 R

YEAR BUILT 1938

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

DECK	out/out 77.4 Deck Area 14,241 sqft		2 INTEGRAL CONCRETE (MONOLITHIC)	
1. FLOOR	1 REINF CONCRT (PRESTRSD, PRECAST)	1	2. WEARING SURFACE	Thk 3.1 Wear Date 8/2/2005 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	0 OTHER-NATURAL(OFF THE BRIDGE ENDS) 1
7. EXPANSION JOINTS	N NONE		8. SUMMARY	8
SUPERSTRUCTURE				
9. ALIGNMENT	Max Spans 60	1	10. BEAMS/GIRDERS/SLAB	3 ROLLED STEEL 2
11. DIAPHRAGMS or CROSSFRAMES		2	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			28. PROTECTIVE COATING SYSTEM	Paint Date 1/1/1993 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)	2	34. ABUTMENT SEATS	6 STUB-CAPPED PILE (SINGLE ROW PILES) Abutment: ON PILING 1
35. PIERS		2	36. PIER SEATS	B TOWER Piers: ON PILING 1
37. BACKWALLS			38. WINGWALLS	1
39. FENDERS and DOLPHINS	Piers = 02 NN NN Spans = 3		40. SCOUR	2 1
41. SLOPE PROTECTION	N NONE-NATURAL PROTECTION(GRA)		42. SUMMARY	Dive Date 9/26/2007 6
CULVERTS				
43. GENERAL	N NONE/NOT APPLICABLE		44. ALIGNMENT	
45. SHAPE			46. SEAMS	
47. HEADWALLS or ENDWALLS	Culvert Length 0		48. SCOUR	Culvert Fill Depth 0
49.			50. SUMMARY	
CHANNEL				
51. ALIGNMENT		1	52. PROTECTION	5 RIP RAP (DUMPED ROCK OR ROCK) 2
53. WATERWAY ADEQUACY	8 SLIGHT CHANCE OVERTOPPING	1	54. SUMMARY	6
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 7
GENERAL				
61. NAVIGATION LIGHTS			62. WARNING SIGNS	Maint Resp 1 OHIO TRAN DEPT
63. SIGN SUPPORTS	Signs on = N MVC on = 9999 Under C = 0		64. UTILITIES	
65. VERTICAL CLEARANCE	Under NC = 0	N	66. GENERAL APPRAISAL & OPERATIONAL STATUS	6 A
67. INSPECTED BY			68. REVIEWED BY	

SIGNED

PE Number

AWH
INITIALS

SIGNED

70223 AWH
PE Number INITIALS

DATE 10/21/2010

1 1 1 1 1 N N 1
SURVEY

DATE 2/14/2011

DECK

FLOOR: A FEW CRACKS. <1% DETERIORATED.

WEARING SURFACE: A FEW CRACKS. <1% DETERIORATED.

SUPERSTRUCTURE

BEAMS: RUSTING & RUSTED SECTION LOSS. NO SPLICE PLATES ON THE BOTTOMS OF THE LOWER FLANGES AT THE FIELD SPLICES IN SPAN #2; SEE ATTACHED PHOTO 1 DATED 10/05/05.

XFRAMES: RUSTED THRU HOLES IN A FEW CROSSFRAMES; SEE ATTACHED PHOTOS 2 & 3 DATED 10/05/05 (1ST XFRAME WEST OF PIER #1 IN BAY #5R). BENT CHANNEL OF FIRST XFRAME EAST OF PIER #2 IN BAY #3; SEE ATTACHED PHOTO 4 DATED 9/25/07.

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

SUBSTRUCTURE

ABUTMENTS: CRACKS. A FEW DELAMINATIONS AND SPALLS; SEE ATTACHED PHOTOS P5 AND P6 DATED 11/07/05 (START ABUTMENT BELOW BEAM #8).

PIERS: FAILED PATCHES AND SPALLS ON COLUMNS.

SCOUR: NO CHANGE FROM LAST DIVE INSPECTION ON 9/25/07 THAT IS ATTACHED WITH THIS REPORT.

CHANNEL

PROTECTION: 28" OF START ABUT FOOTER EXPOSED & 6" OF FINISH ABUT FOOTER EXPOSED TO AIR.

APPROACHES

GENERAL

KB DRY SUIT ON 10/21/10 WITH AH & AP.



1808745 10_5_05 P1 no lower splice plates.jpg



1808745 10_5_05 P2 rusted thru holes in xframe.jpg



1808745 10_5_05 P3 closeup of P2.jpg



1808745 10_5_05 P4 bent crossframe channel.jpg



1808745 11_7_05 P5 start abut delamination & spall.jpg



1808745 11_7_05 P6 closeup of P5.jpg

1808745

Structural File Number

CUY-00090-2046R

Bridge Number

September 25, 2007

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)

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1. Introduction

Marine Solutions, Inc (MSI) conducted a routine underwater inspection of the CUY-00090-2046R 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-00090-2046R (SFN 1808745) 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 30 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, wet 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

- No section loss of the piles was observed.

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Pier 2

- Pile 14, area of section loss up to 4.5 inch tall with up to 6 inches of penetration located on the bottom on the north, west and south faces.

5. Conclusions

The condition of the bridge during the 2007 inspection was consistent with the 2006 inspection report. The bridge is in good condition with only minor deficiencies noted.

Appendix A
Photographs

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September 25, 2007
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 1R (north).



Photo by B. Butler 09/25/07

Photo 3. Pier 2R (southwest).

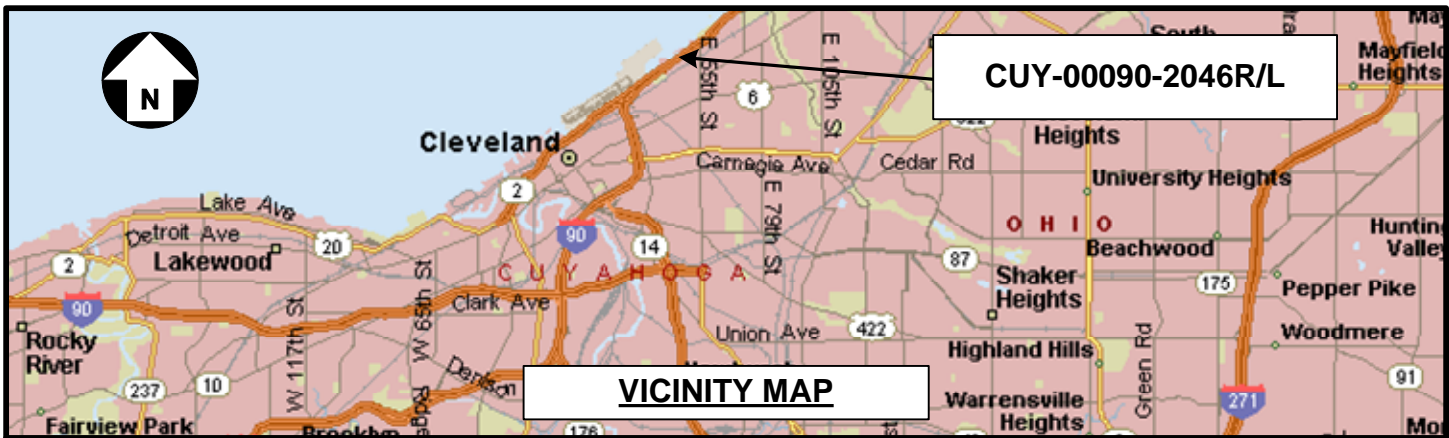



Photo by B. Butler 09/25/07

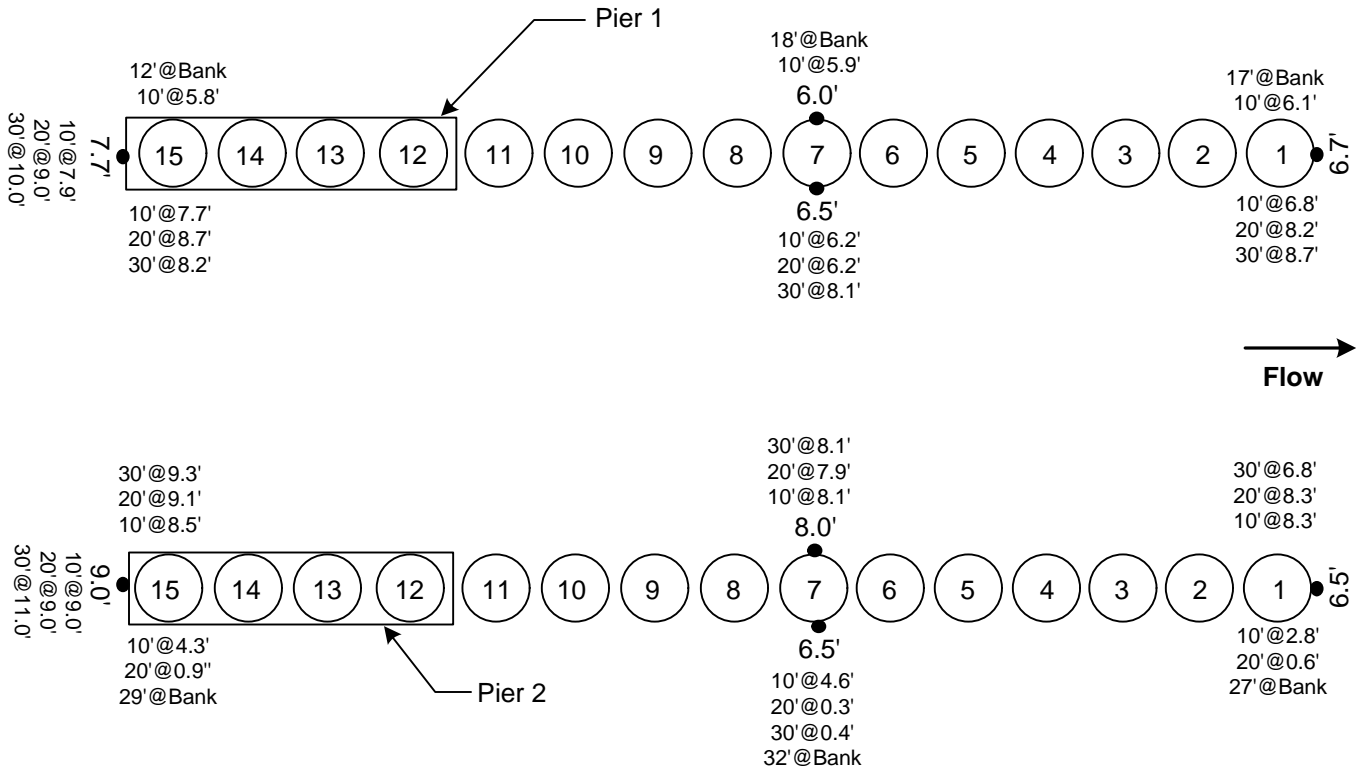
Photo 4. Typical Section Loss.

Appendix B

Figures



 <p>MSI MARINE SOLUTIONS, INC. ENGINEERING & COMMERCIAL DIVING SERVICES</p>	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		PAGE NO.: B-1
	DRAWN BY: DW	CKD. BY: ANW	Location Map		FIG. NO.: 1
	MSI JOB NO.: MSI2007008				
	FILE NAME: CUY-00090-2046R/L Location Map				



Legend:

● Depth below water
92.0'

Notes:

Pier cap not shown for clarity.



GRAPHIC SCALE:
Not to Scale

PROJECT:
ODOT District 12
2007 Underwater Bridge Inspections

INSPECTION DATE: **October 25, 2007**

SHEET:
CUY-00090-2046R
I90 over C.E.I Outlet
City of Cleveland

PAGE NO.:
B-2

DRAWN BY: **DW** CKD. BY: **ANW**

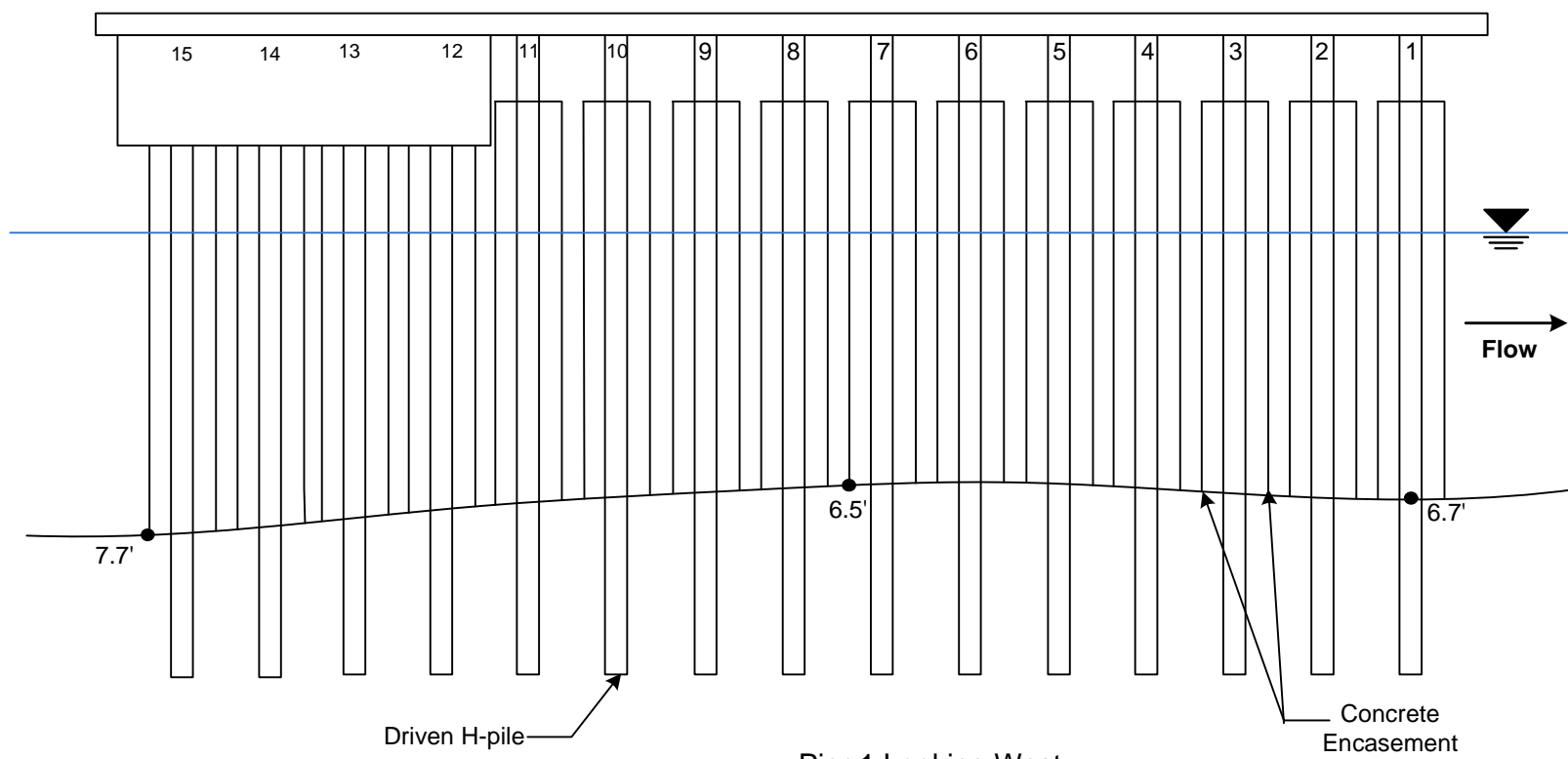
FMSM JOB NO.: **MSI2007008**

FIG. NO.:

FILE NAME: **CUY-00090-2046R - Plan**

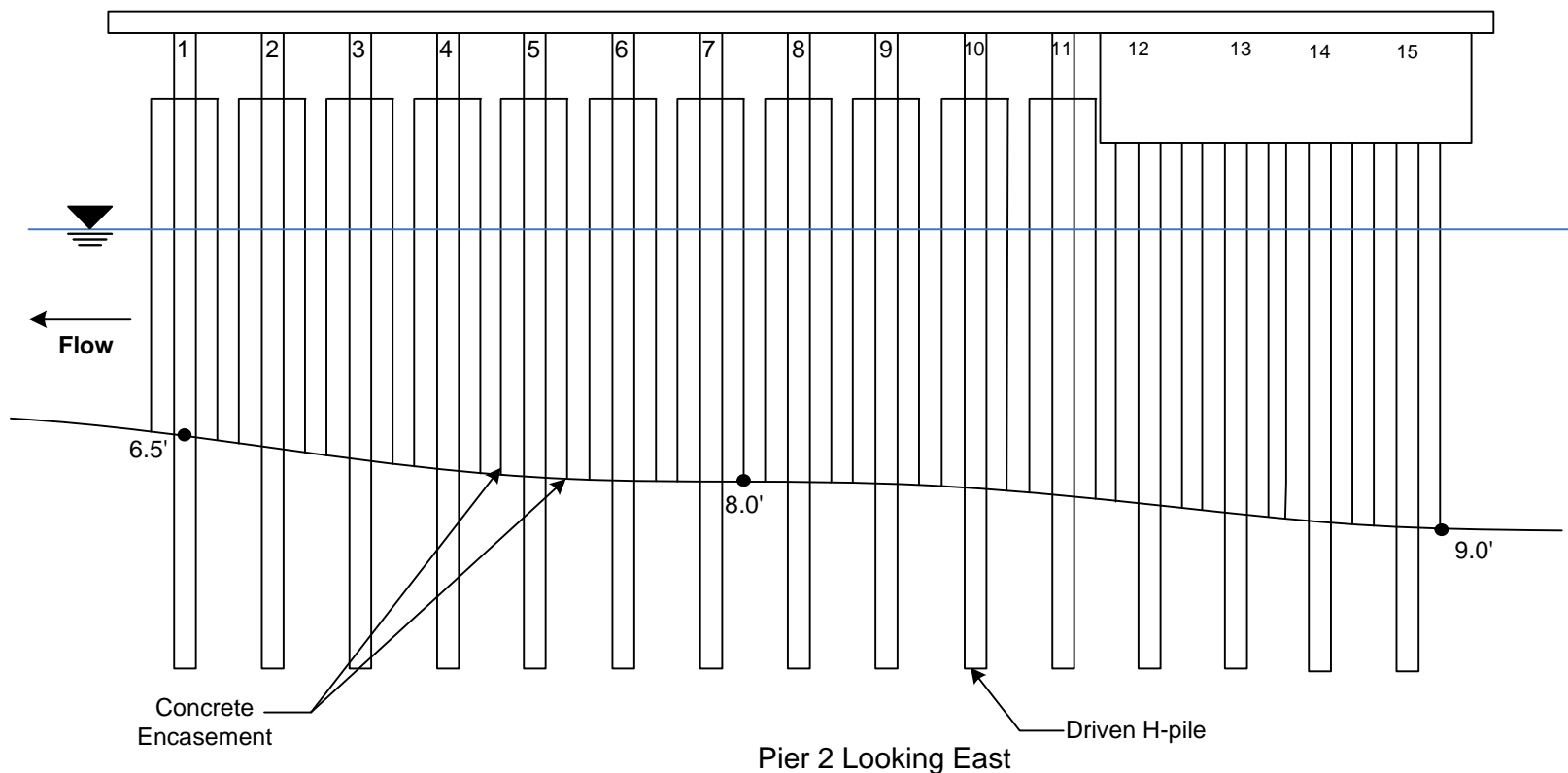
Substructure Plan View

2



Pier 1 Looking West

 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		SHEET: CUY-00090-2046R I90 over C.E.I Outlet City of Cleveland		PAGE NO.: B-3
	DRAWN BY: DW	CKD. BY: ANW			
	FMSM JOB NO.: MSI2007008		Pier 1 Looking West		FIG. NO.: 3
FILE NAME: CUY-00090-2046R - Pier 1					



<p>MSI MARINE SOLUTIONS, INC. ENGINEERING & COMMERCIAL DIVING SERVICES</p>	GRAPHIC SCALE: Not to Scale		PROJECT: ODOT District 12 2007 Underwater Bridge Inspections		
	INSPECTION DATE: October 25, 2007		SHEET: CUY-00090-2046R		PAGE NO.: B-4
	DRAWN BY: DW	CKD. BY: ANW	I90 over C.E.I Outlet City of Cleveland		FIG. NO.: 4
	FMSM JOB NO.: MSI2007008		Pier 2 Looking East		
FILE NAME: CUY-00090-2046R - Pier 2					