STATE OF OHIO DEPARTMENT OF TRANSPORTATION

BRIDGE INSPECTION REPORT

4301714 Structure File Number | BRIDGE NUMBER **LAK 00002 1656 R** | YEAR BUILT **1964**

DIST **12** | Bridge Type **322** | TYPE SERVICE **1 5** | **GRAND RIVER**

DECK out/out 36.9 Deck Area 9,784 sqft 1. FLOOR — 1 REINF CONCRT (PRESTRSD, PRECAST	1	3 LATEX MODIFIED CONCRETE OVERLAY 2. WEARING SURFACE — Thk 1.2	2
Left N NONE / Right N NONE 3. CURBS, SIDEWALKS AND WALKWAYS		4. MEDIAN — Lanes on 2	
5. RAILING — C 32" DEFLECTOR-TYPE PARAPET (NJ	1	6. DRAINAGE — 3 SCUPPERS & DWNSPTS	1
7. EXPANSION JOINTS — 2 SLIDING METAL PLATE ANGLE	3	8. SUMMARY	6
SUPERSTRUCTURE 9. ALIGNMENT — Max Spans 100	1	3 WELDED BUILT-UP STEEL 10. BEAMS/GIRDERS/SLAB	1
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 — 2 ROCKERS	1
25. ARCH		26. ARCH COLUMNS or HANGERS	
27. SPANDREL WALLS		Paint Date 1/1/1992 28. PROTECTIVE COATING SYSTEM — 0 OTHER	6
29. PINS/HANGERS/HINGES		30. FATIGUE PRONE CONNECTIONS	
31. LIVE LOAD RESPONSE	S	32. SUMMARY	7
SUBSTRUCTURE 33. ABUTMENTS — 5 STUB GRAVITY	1	5 STUB GRAVITY 34. ABUTMENT SEATS — Abutment: ON PILING	1
35. PIERS	1	2 CANTILEVER(TEE) OPEN PANEL 36. PIER SEATS — Piers: NOT ON PILING	1
37. BACKWALLS	2	38. WINGWALLS	1
Piers = 02 NN NN 39. FENDERS and DOLPHINS — Spans = 3		40. SCOUR — 3	2
41. SLOPE PROTECTION — 3 RIP RAP (DUMPED ROCK)	1	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	2	56. APPROACH SLABS	1
57. GUARDRAIL — 1 STEEL BEAM	1	58. RELIEF JOINTS	1
59. EMBANKMENT	1	60. SUMMARY — Percent Legal = 150	6
GENERAL 61. NAVIGATION LIGHTS		62. WARNING SIGNS — Maint Resp 1 OHIO TRAN DEPT	
Signs on = N 63. SIGN SUPPORTS — MVC on = 9999.9		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 | ACP INITIALS

68. REVIEWED BY

SIGNED | 60048 PE Number | MJM INITIALS

DATE 9/24/2007

1 0 0 0 1 N N N
SURVEY

DATE 3/15/2008

DECK

FLOOR: TRANSVERSE CRACKS. 30 SF OF DELAMINATIONS.
5 SF OF SPALLS (MOSTLY HAUNCH). <1% DETERIORATED.
WEARING SURFACE: CRACKS. A FEW DELAMINATIONS.1-5%
DETERIORATED.
RAILINGS: VERTICAL CRACKS.
EXPANSION JOINTS: TOP FLANGE OF RIGHT GIRDER TOUCHING FINISH
BACKWALL. START ABUTMENT BEAMS 2,3 AND 4 ARE <1/2" FROM
BACKWALL. 75~F.

SUPERSTRUCTURE

BEAMS: A FEW AREAS OF RUSTING SECTION LOSS AT BEAM ENDS.
XFRAMES: SOME RUSTING SECTION LOSS TO ENDFRAMES.
PAINT: GIRDERS ARE RUSTING NEAR LOWER ENDS OF DOWNSPOUTS
WHICH ARE 3.5" BELOW BOTTOM FLANGES. PAINT FAILING AT BEAM
ENDS. PAINT IS 5-10% DETERIORATED.

SUBSTRUCTURE

BACKWALLS: DELAMINATIONS. CRACKS MOSTLY NEAR TOPS OF BW.
WINGWALLS: SCALING. A FEW CRACKS AND SPALLS.
SCOUR: PIER 1 HAS SOME TOP HORIZONTAL SURFACE EXPOSURE OF
FOOTER AND PIER 2 HAS VERTICAL FACE EXPOSURE WITH NO
UNDERMINING, SEE DIVER REPORT FROM MARINE SOLUTIONS, INC.
FROM 9/24/07, FOR DETAILS.

CHANNEL

APPROACHES

PAVEMENT: MINOR SPALLS AT START EXPANSION JOINT. ASPHALT
PATCHES ON TOP OF FINISH BACKWALL. SOME AREAS OF BREAKING UP
PAVEMENT TO TOPS OF BOTH BACKWALLS.
GUARDRAIL: MINOR COLLISION DAMAGE TO FINISH-RIGHT (SE).

GENERAL

QAR 2007 12-0001.

4301714	LAK-00002-1656R	September 24, 2007
Structural File Number	*Bridge Number*	*Inspection Date*

Underwater Inspection Report for:

State Route 2 over Grand River

Lake 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. Brian B. Butler (Tender)

Prepared for:

ODOT District 12

5500 Transportation Blvd

Garfield Heights, Ohio 44125

Prepared by:

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Lexington, Kentucky 40503
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List of Appendixes

Appendix

4301714	LAK-00002-1656R	September 24, 2007
Structural File Number	*Bridge Number*	*Inspection Date*

1. Introduction

Marine Solutions, Inc (MSI) conducted a routine underwater inspection of the LAK-00002-1656R bridge over Grand River located in Lake County, Ohio. The inspection was completed on September 24, 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 LAK-00002-1656R (SFN 4301714) carries State Route 2 over Grand River and is located in Lake County, Ohio. The bridge has an overall length of approximately 265 feet. The structure is a three span steel beam bridge supported by two concrete piers and two abutments.

3. Inspection Procedure

The inspection was performed on September 24, 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 bedrock*
Scour Checked By:	*N/A*
Equipment Used:	*Superlite 37 Helmet with hardwire communication to surface,*, *wet suit, digital camera, survey rod, lights*
Hazards Encountered:	*< 2 ft of visibility*
Hydrographic Reference:	*Top of Pier 1L to the water surface, 13.8 feet on the downstream face*

4. Observed Conditions

Piers 1R and 2R

- The bottom material consists of silt, sand, gravel and bedrock.
- Light to moderate scaling is present on the concrete surface of the piers below the water surface.
- Light biological growth is present on the concrete surface of the piers below the water surface.
- The footing on Pier 1R is exposed on all faces.
- The footing on Pier 2R is exposed only in the center of the south face measuring approximately 3 feet wide.
- The top of footing on both piers is located 3.7 feet below the water surface.
- No undermining of either footing was observed.

- Light tree debris is present on the upstream and downstream faces of the piers.
- There is a small scour depression located on the upstream face of Pier 1R. The depression measures approximately 5 feet in diameter and 2 feet deep.

5. Conclusions

A previous underwater report was not available for this bridge for comparison. The bridge is in good condition with only minor deficiencies noted.

Appendix A

Photographs

4301714	LAK-00002-1656R	September 24, 2007
Structural File Number	*Bridge Number*	*Inspection Date*

Photo by B. Butler 09/24/07

Photo 1. Elevation view looking upstream (east).

Photo by B. Butler 09/24/07

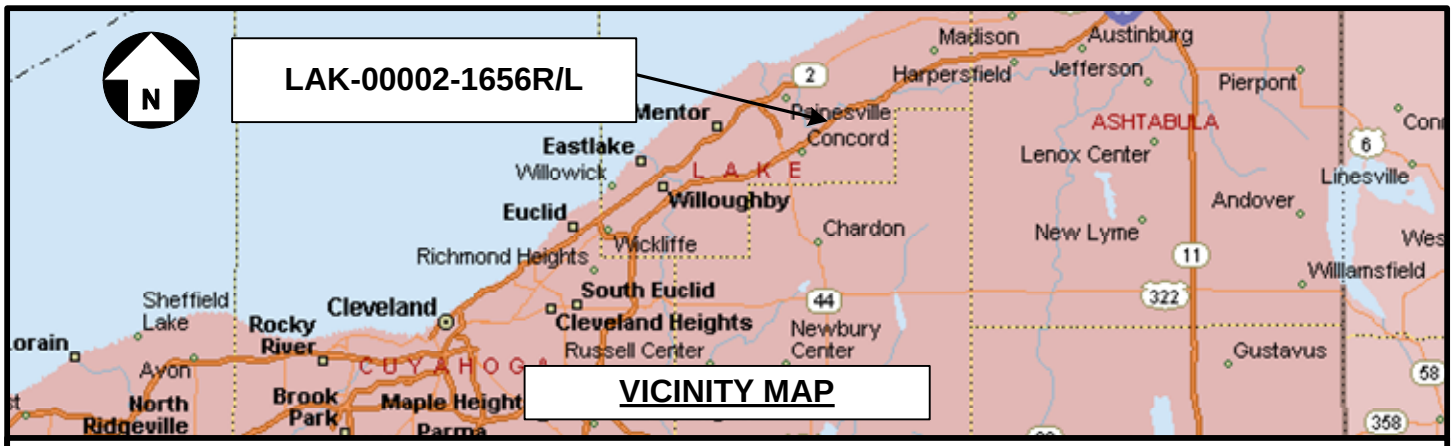
Photo 2. Elevation view looking downstream (west).

Photo by B. Butler 09/24/07

Photo 3. Pier 2 (north face).

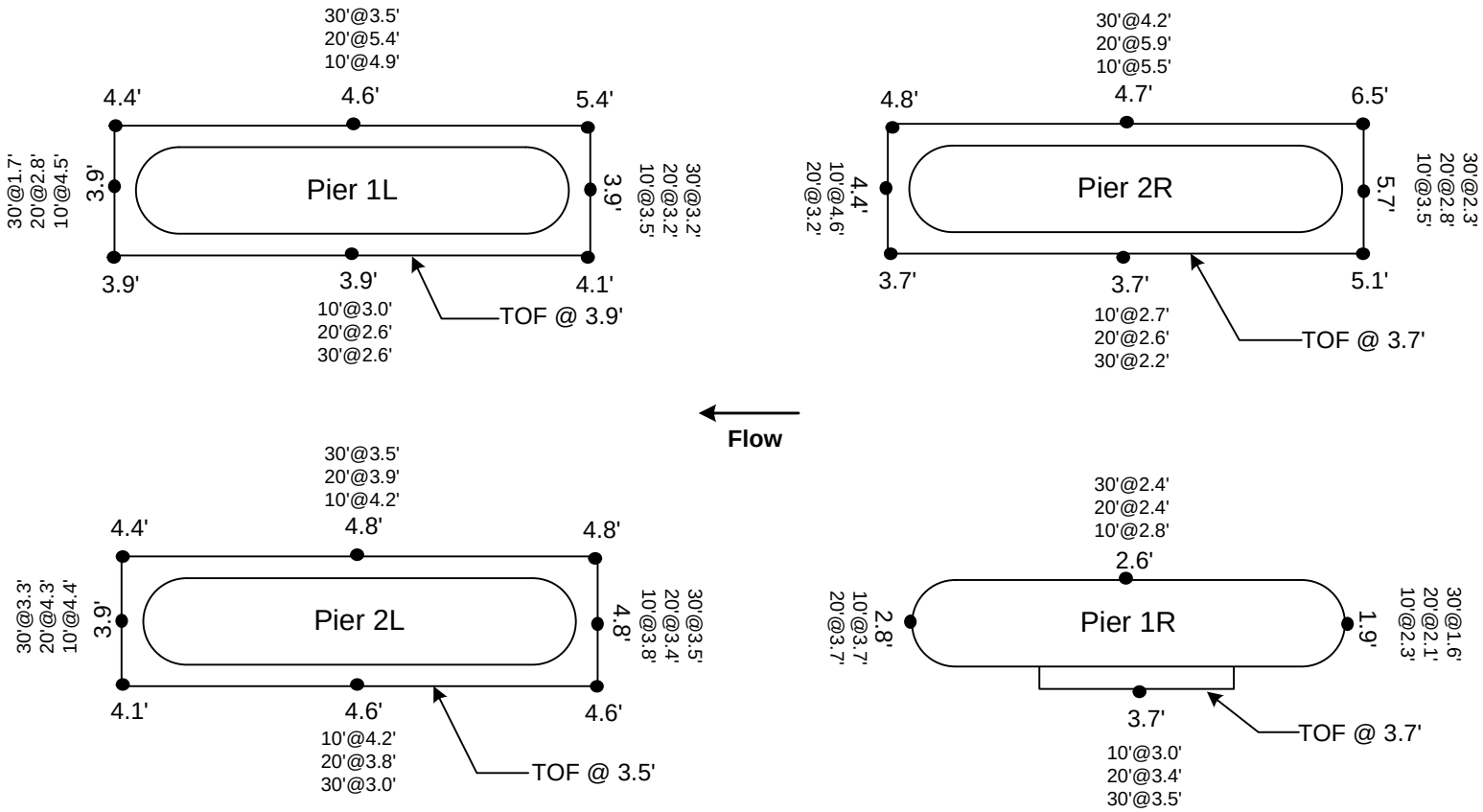
Appendix B

Figures



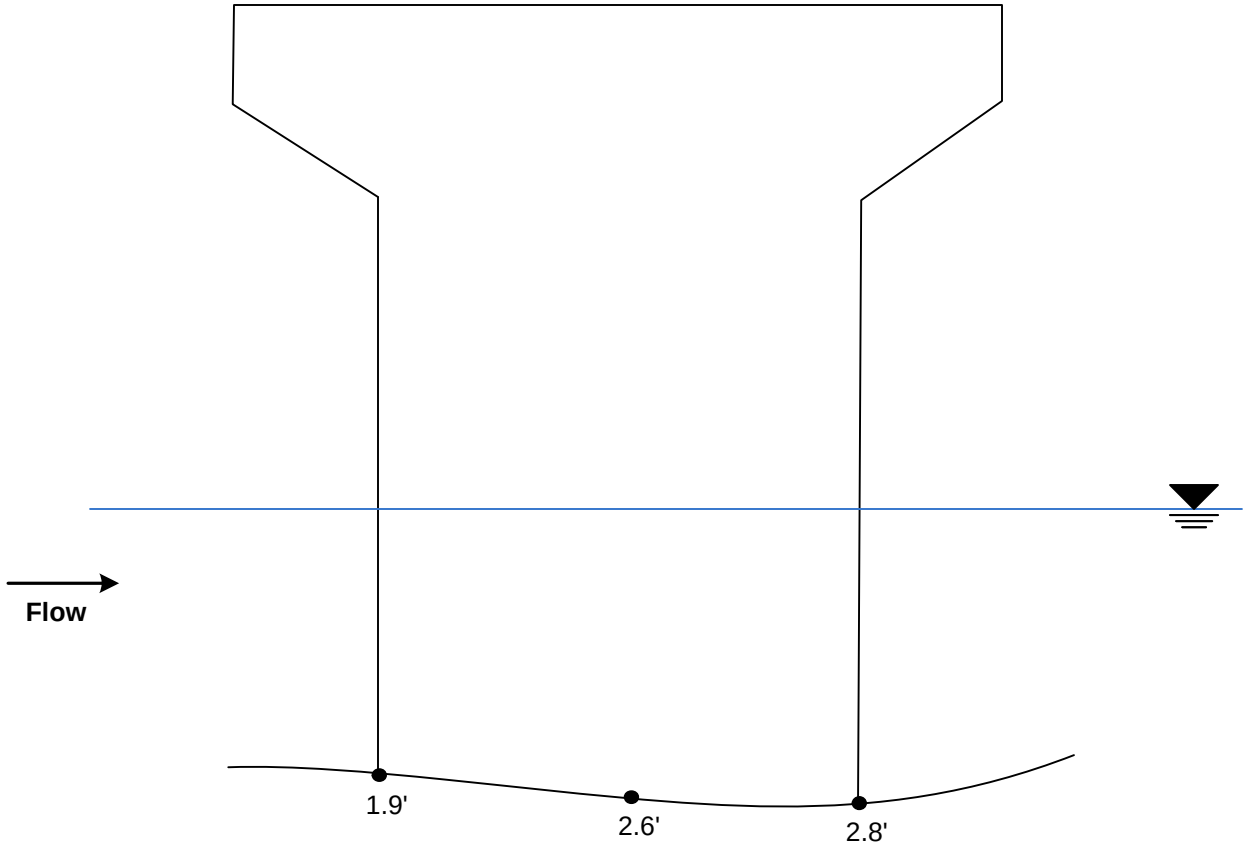
MSI MARINE SOLUTIONS, INC.
ENGINEERING & COMMERCIAL DIVING SERVICES

GRAPHIC SCALE: Not To Scale	PROJECT: ODOT District 12 2007 Underwater Bridge Inspections
INSPECTION DATE: September 24, 2007	SHEET: LAK-00002-1656R/L Lake County Ohio Location Map
DRAWN BY: DW — CKD. BY: ANW	PAGE NO.: B-1
MSI JOB NO.: MSI2007008	FIG. NO.: 1
FILE NAME: LAK-00002-1656R/L Location Map	



MSI Marine Solutions, Inc.
Engineering & Commercial Diving Services

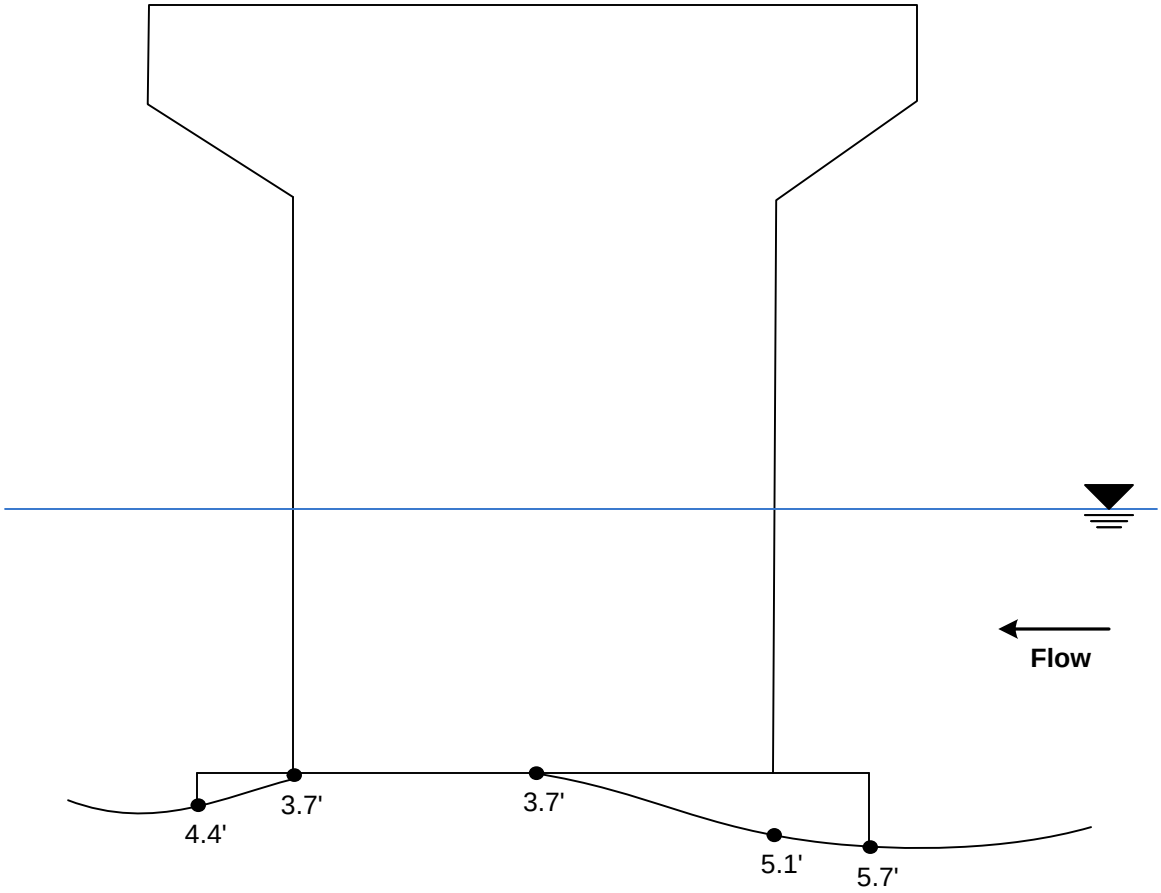
GRAPHIC SCALE:	Not to Scale
PROJECT:	ODOT District 12 2007 Underwater Bridge Inspections
INSPECTION DATE:	October 25, 2007
DRAWN BY:	DW
CKD. BY:	ANW
FMSM JOB NO.:	MSI2007008
FILE NAME:	LAK-00002-1656R/L
SHEET:	LAK-00002-1656R/L State Route 2 over Grand River Lake County Substructure Plan View
PAGE NO.:	B-2
FIG. NO.:	2



Pier 1R Looking South

MSI MARINE SOLUTIONS, INC.
ENGINEERING & COMMERCIAL DIVING SERVICES

GRAPHIC SCALE: Not to Scale		PROJECT: ODOT District 12 2007 Underwater Bridge Inspections	
INSPECTION DATE: October 24, 2007		SHEET: LAK-00002-1656R State Route 2 over Grand River Lake County Pier 1R Looking South	PAGE NO.: B-3
DRAWN BY: DW	CKD. BY: ANW		FIG. NO.: 3
FMSM JOB NO.: MSI2007008			
FILE NAME: LAK-00002-1656R – Pier 1R			



Pier 2R Looking North

MSI MARINE SOLUTIONS, INC.
ENGINEERING & COMMERCIAL DIVING SERVICES

GRAPHIC SCALE: Not to Scale		PROJECT: ODOT District 12 2007 Underwater Bridge Inspections	
INSPECTION DATE: October 24, 2007		SHEET: LAK-00002-1656R State Route 2 over Grand River Lake County Pier 2R Looking North	PAGE NO.: B-4
DRAWN BY: DW	CKD. BY: ANW		FIG. NO.: 4
FMSM JOB NO.: MSI2007008			
FILE NAME: LAK-00002-1656R – Pier 2R			