

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 7208

CSAH NO. 13

OVER THE

BLUE EARTH RIVER

DISTRICT 7 - BLUE EARTH COUNTY



PREPARED FOR THE
MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 137)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 7208, Piers 2 and 3, were generally in good condition with no defects of structural significance observed. The top of the webwall exhibited areas of section loss at both piers with exposed reinforcing at Pier 2. A 30-foot-long log was observed at the upstream end of Pier 2. A scour depression was also observed at the upstream end of Pier 2. The channel bottom appeared stable with no appreciable changes since the previous inspection.

INSPECTION FINDINGS:

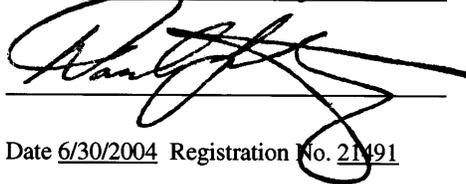
- (A) An area of section loss, 1.5 foot high and extending the entire width of Pier 2 was observed along the top corner of the webwall at the upstream end with a maximum penetration of 6 inches and exposed reinforcing steel.
- (B) An area of section loss, 7 inches high and 12 inches long, was observed at the top corner of the webwall at the upstream end of Pier 3 with 1 inch of penetration.
- (C) A log, 8 inches in diameter and 30 feet long, was observed at the upstream end of Pier 2.
- (D) A scour depression, 2 feet deep and 7 feet in radius, was observed at the upstream end of Pier 2.

RECOMMENDATIONS:

- (A) The corner spall in the top of the web wall at Pier 2, which has exposed reinforcing steel, should be monitored at the minimum. If found to be progressing in size, the area should then be repaired by removing all unsound concrete, cleaning the exposed reinforcing steel, and patching with a concrete mix designed to promote high durability with low permeability.
- (B) Monitor the timber debris at Pier 2, and if found to be increasing in the future, removal operation may become warranted.
- (C) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

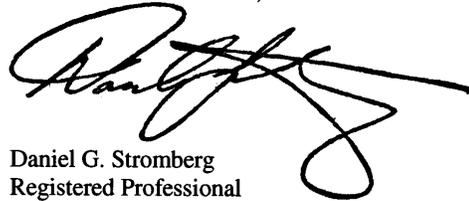
Daniel G. Stromberg



Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 7208

Feature Crossed: The Blue Earth River

Feature Carried: CSAH No. 13

Location: District 7 - Blue Earth County

Bridge Description: The superstructure of Bridge No. 7208 consists of a four span concrete beam structure supporting a reinforced concrete deck. The superstructure is supported by two concrete abutments and three concrete piers, numbered 1, 2, and 3 starting from the west. The abutments and piers are founded on steel H-piles.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: November 2, 2002

Weather Conditions: Sunny, " 35EF

Underwater Visibility: " 3 foot

Waterway Velocity: " 1 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 2 and 3

General Shape: The piers consisted of two round concrete columns connected on the lower half by a concrete web wall. The piers are each supported by two rectangular concrete footings founded on steel H-piles centered on the columns.

Maximum Water Depth at Substructure Inspected: Approximately 4.0 Feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap on the north end of Pier 2.

Water Surface: The waterline was approximately 18.6 feet below reference.
Waterline Elevation = 951.4.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

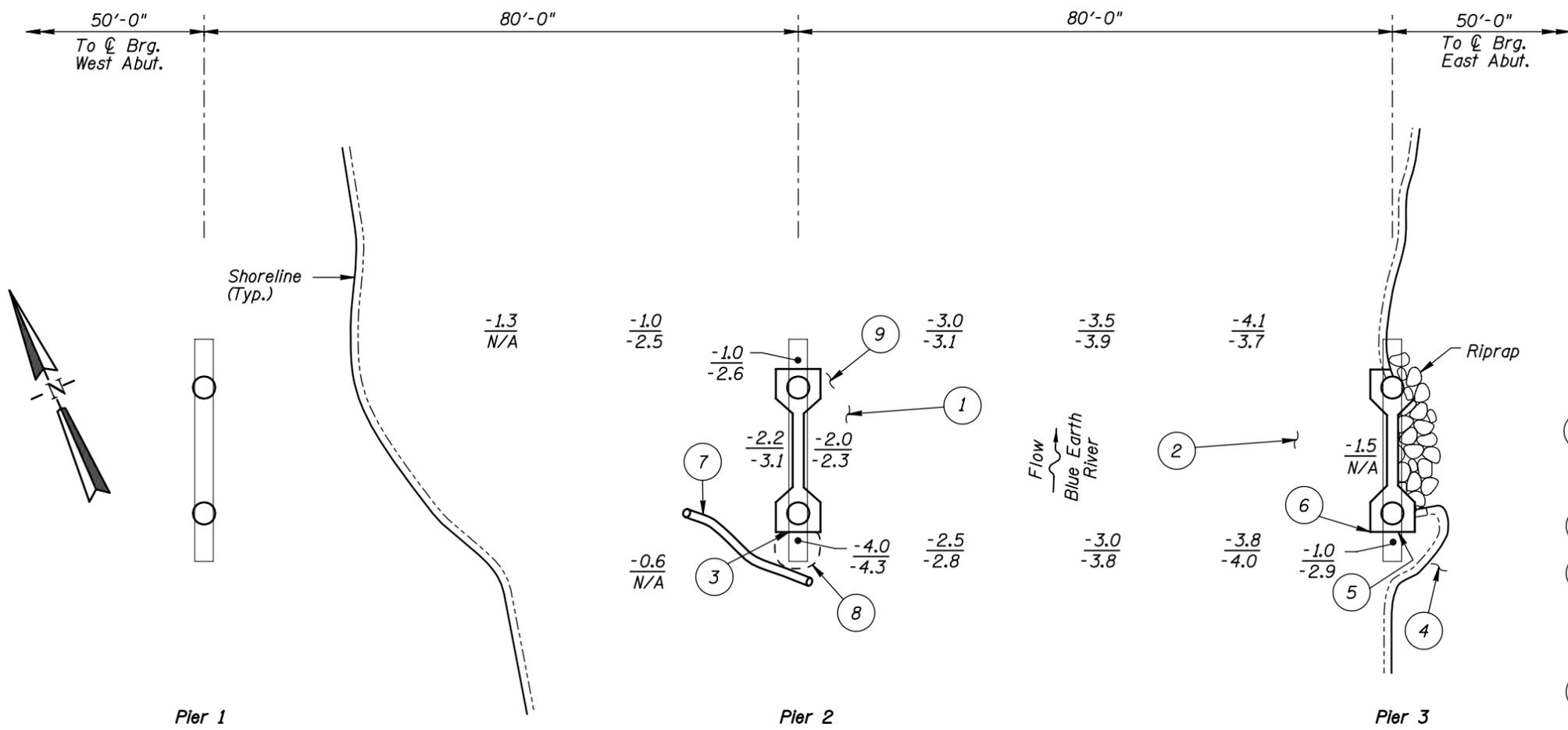
Item 61: Channel and Channel Protection: Code 6

Item 92B: Underwater Inspection: Code B/11/02

Item 113: Scour Critical Bridges: Code J/91

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

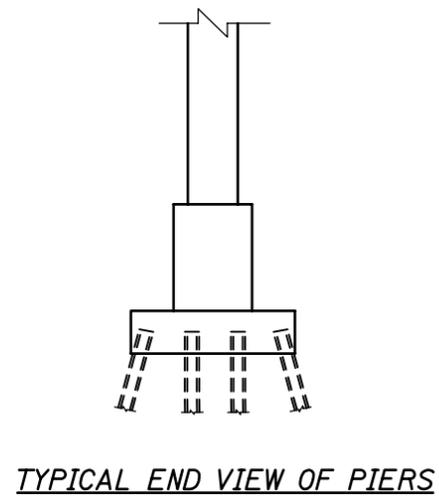
_____ Yes X No



- GENERAL NOTES:**
1. Piers 2 and 3 were inspected underwater.
 2. At the time of inspection on November 2, 2002, the waterline was located approximately 18.6 feet below the top of the pier cap at the downstream end of Pier 2. This corresponds with a waterline elevation of 951.4 based on the previous report dated September 20, 1997.
 3. Soundings indicate the water depth at the time of inspection and are measured in feet.
 4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

- INSPECTION NOTES:**
1. The channel bottom at Pier 2 consisted of silty sand on the west side and riprap, up to 2 foot in diameter, along the east side and upstream nose.
 2. The channel bottom consisted of silty clay.
 3. An area of section loss, 1.5 foot high and extending the entire width of Pier 2 was observed at the top corner of the webwall at the upstream end with a maximum penetration of 6 inches and exposed reinforcing.
 4. Moderate erosion of the embankment was observed at the upstream end of Pier 3.
 5. A hairline crack was observed at the upstream end of Pier 3 extending from the top of the webwall to the channel bottom.
 6. An area of section loss, 7 inches high and 12 inches long, was observed at the top corner of the webwall at the upstream end of Pier 3 with 1 inch of penetration.
 7. A log, 8 inches in diameter and 30 feet long, was observed at the upstream end of Pier 2.
 8. A scour depression, 2 feet deep and 7 feet in radius, was observed at the upstream end of Pier 2.
 9. A piece of steel sheet piling was observed at the downstream end of Pier 2 extending from the channel bottom to 1 foot above the waterline.

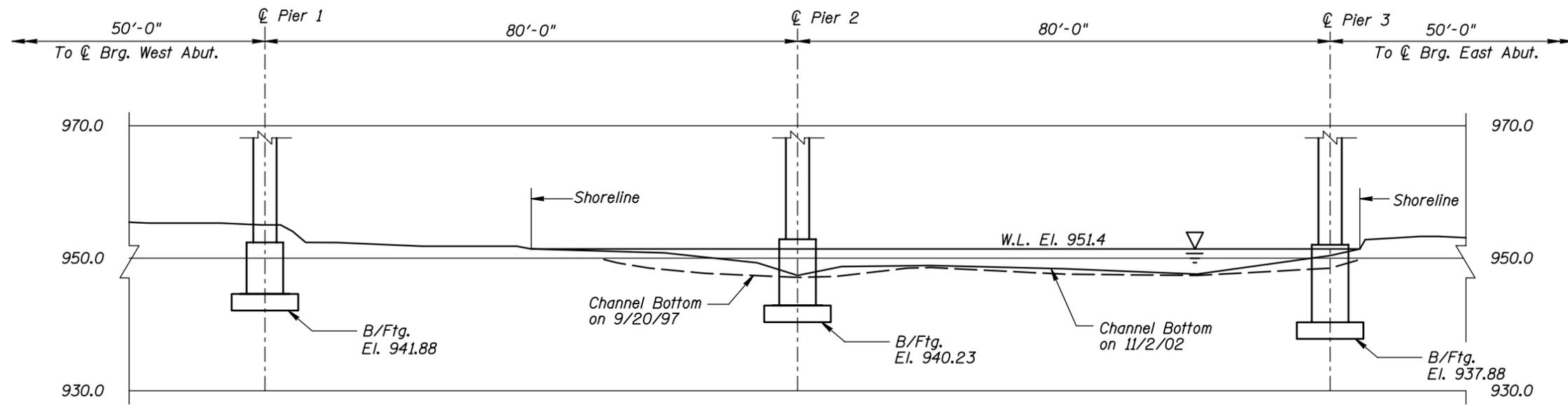
SOUNDING PLAN



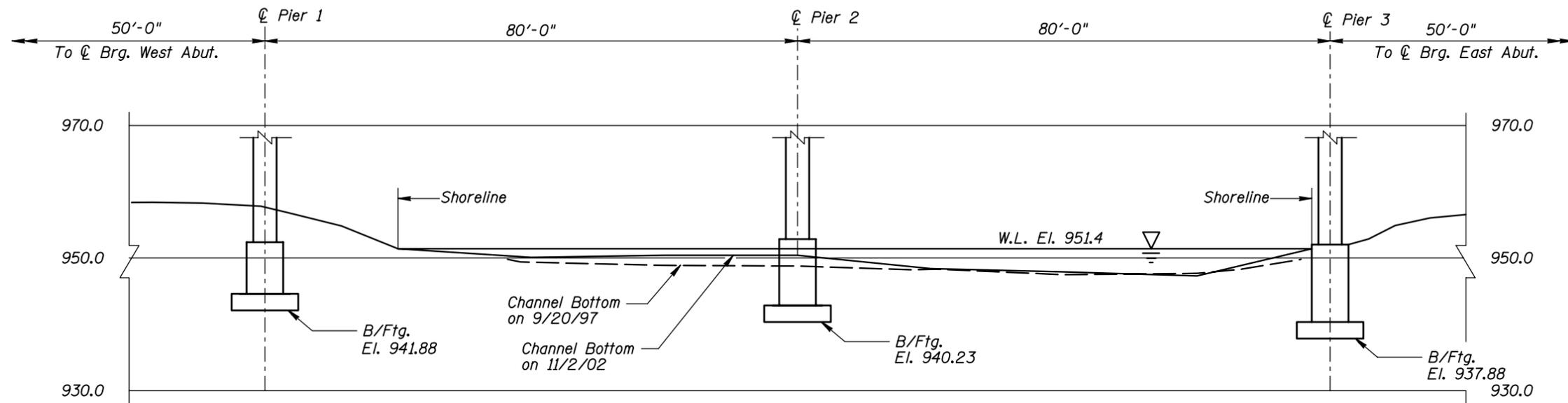
Legend

-2.0	Sounding Depth from Waterline (11/2/02)
-5.2	Sounding Depth from Waterline (9/20/97)

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 7208 OVER THE BLUE EARTH RIVER DISTRICT 7, BLUE EARTH COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: NOV. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35I20I37		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:
Refer to Figure 1 for General Notes.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 7208 OVER THE BLUE EARTH RIVER DISTRICT 7, BLUE EARTH COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: PRH	 COLLINS ENGINEERS, INC. 300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Date: NOV. 2002
Checked By: MDK		Scale: 1"=20'
Code: 35I20I37		Figure No.: 2



Photograph 1. Overall View of the Structure, Looking Southeast.



Photograph 2. View of Pier 2, Looking East.



Photograph 3. View of Pier 3, Looking East.



Photograph 4. View of Pier 3, Looking West.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: November 2, 2002
ON-SITE TEAM LEADER: Shirley M. Walker, P.E.
BRIDGE NO: 7208 WEATHER: Sunny, " 35EF
WATERWAY CROSSED: The Blue Earth River
DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
X OTHER Low water permitted inspection by wading
PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins
EQUIPMENT: Scuba, Scraper, Sounding Pole, Probe Rod, Lead Line, Camera
TIME IN WATER: 11:40 a.m.
TIME OUT OF WATER: 12:00 p.m.
WATERWAY DATA: VELOCITY " 1 f.p.s.
VISIBILITY " 3 feet
DEPTH 4 feet maximum at Pier 2

ELEMENTS INSPECTED: Piers 2 and 3

REMARKS: The concrete of Piers 2 and 3 was generally in good condition with no structurally significant defects observed. The top of the webwall exhibited areas of section loss at both piers with exposed reinforcing at Pier 2. A 30-foot-long log was observed at the upstream end of Pier 2. A scour depression, 2 feet deep and 7 feet in radius, was also observed at the upstream end of Pier 2.

FURTHER ACTION NEEDED: X YES _____ NO

The corner spall in the top of the web wall at Pier 2, which has exposed reinforcing steel, should be monitored at the minimum. If found to be progressing in size, the area should then be repaired by removing all unsound concrete, cleaning the exposed reinforcing steel, and patching with a concrete mix designed to promote high durability with low permeability.

Monitor the timber debris, and if found to be increasing in the future, removal operations may become warranted.

Reinspect the submerged substructure units at the normal maximum recommended interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 7208
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Blue Earth River

INSPECTION DATE November 2, 2002
NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

UNIT REFERENCE NO.	UNIT DESCRIPTION	MAXIMUM DEPTH OF WATER	SUBSTRUCTURE						CHANNEL					GENERAL					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Pier 2	4.0'	N	7	N	9	N	7	6	N	N	7	6	7	N	N	7	N	N
	Pier 3	1.5'	N	7	N	9	N	7	7	6	7	8	6	7	N	N	8	N	N

*UNDERWATER PORTION ONLY

REMARKS: The concrete of Piers 2 and 3 was generally in good condition with no structurally significant defects observed. The top of the webwall exhibited areas of section loss at both piers with exposed reinforcing at Pier 2. A 30-foot-long log was observed at the upstream end of Pier 2. A scour depression, 2 feet deep and 7 feet in radius, was also observed at the upstream end of Pier 2.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO. USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.