

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 66505
5th STREET
OVER THE
CANNON RIVER
DISTRICT 6 - RICE COUNTY



PREPARED FOR THE
MINNESOTA DEPARTMENT OF TRANSPORTATION
BY
COLLINS ENGINEERS, INC.
JOB NO.5221

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected below water at Bridge No. 66505, Piers 1 and 2, were found to be in good condition with no defects of structural significance observed. The channel bottom appeared to be stable with no significant deficiencies or conditions.

INSPECTION FINDINGS:

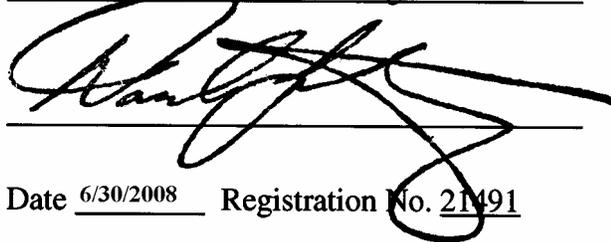
- (A) A light accumulation of 4-inch-diameter and smaller timber debris was observed on the channel bottom along the center column of Pier 1 and at the upstream column of Pier 2.
- (B) The concrete of the piers was typically in smooth and sound condition.

RECOMMENDATIONS:

- (A) 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.

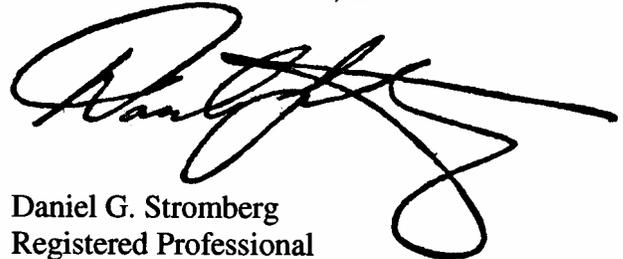
Daniel G. Stromberg



Date 6/30/2008 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: 66505

Feature Crossed: Cannon River

Feature Carried: 5th Street

Location: District 6 – Rice County

Bridge Description: The superstructure consists of three spans of multiple steel stringers supporting a reinforced concrete deck. The bridge is supported by two reinforced concrete abutments and two reinforced concrete piers. The piers are numbered 1 and 2 from the west to east.

2. INSPECTION DATA

Professional Engineer Diver: Daniel G. Stromberg, P.E., S.E.

Dive Team: Clayton G. Brookins, Valerie Roustan

Date: October 23, 2007

Weather Conditions: Sunny, 60° F

Underwater Visibility: 2.0 feet

Waterway Velocity: 1.5 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2.

General Shape: The piers each consist of a rectangular pile cap supported by three hexagon-shaped concrete columns that are founded on a rectangular spread footing.

Maximum Water Depth at Substructure Inspected: Approximately 10.0 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the south end of Pier 1.

Water Surface: The waterline was approximately 5.0 feet below reference.
Waterline Elevation = 95.0.

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 7

Item 92B: Underwater Inspection: Code B/10/07

Item 113: Scour Critical Bridges: Code F/07

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

 Yes X No



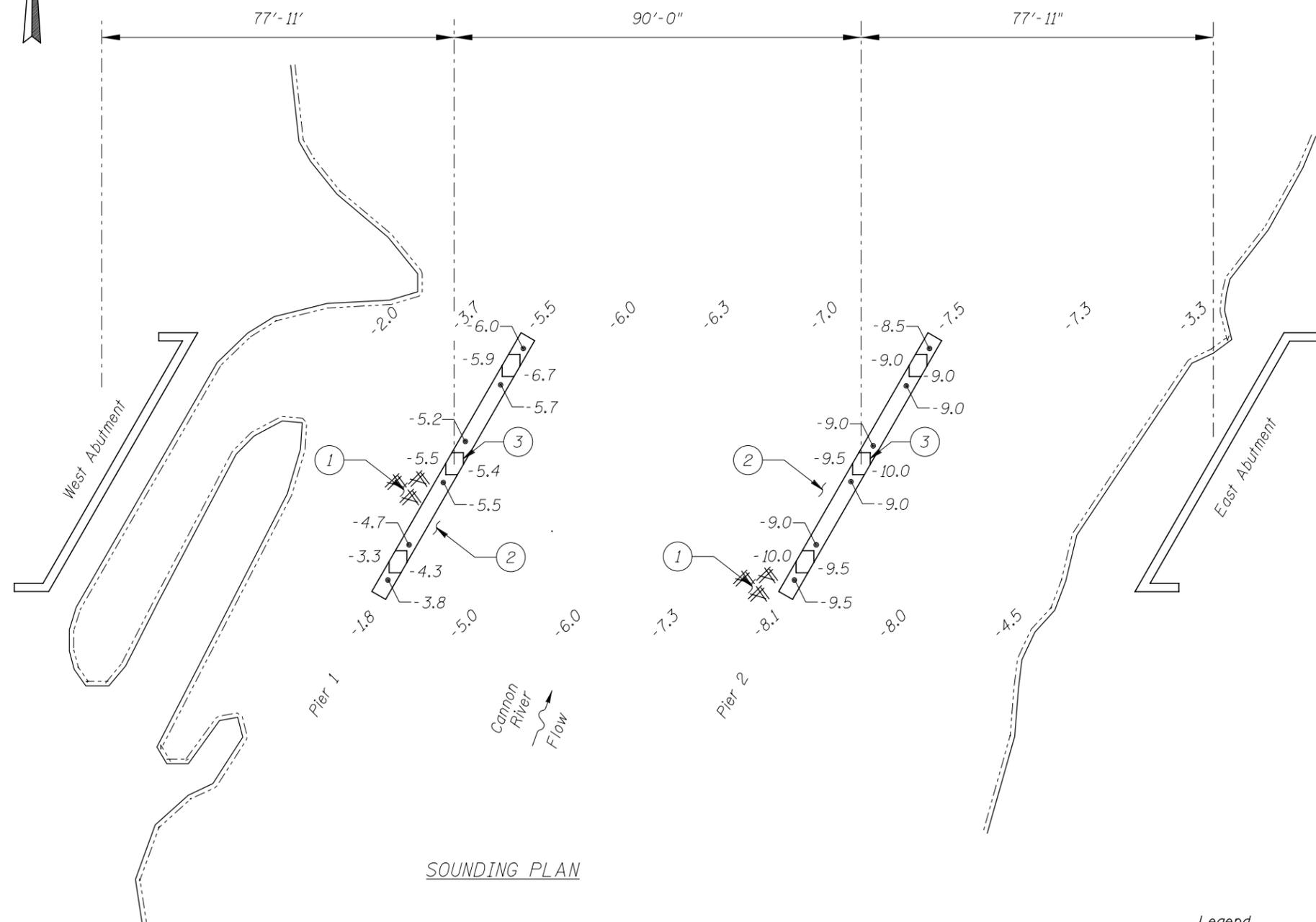
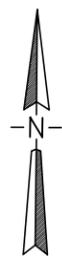
Photograph 1. Overall View of Bridge, Looking Northwest.



Photograph 2. View of Pier 1, Looking East.



Photograph 3. View of Pier 2, Looking West.



SOUNDING PLAN

INSPECTION NOTES:

- ① A light accumulation of 4-inch-diameter and smaller timber debris was observed on the channel bottom along the center column at Pier 1 and at the upstream column at Pier 2.
- ② The channel bottom consisted of silty clay and sand with up to 8 inches of probe rod penetration.
- ③ The concrete of the columns was typically in smooth and sound condition.

GENERAL NOTES:

- 1 Piers 1 and 2 were inspected underwater.
- 2. At the time of inspection, on October 23, 2007, the waterline was located approximately 5.0 feet below the top of Pier 1 on the upstream end. Since insufficient bridge elevation information was available, a reference elevation of 100.0 was assumed. Based on the assumed reference, the waterline elevation was 95.0.
- 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 as well as around the pier structures.

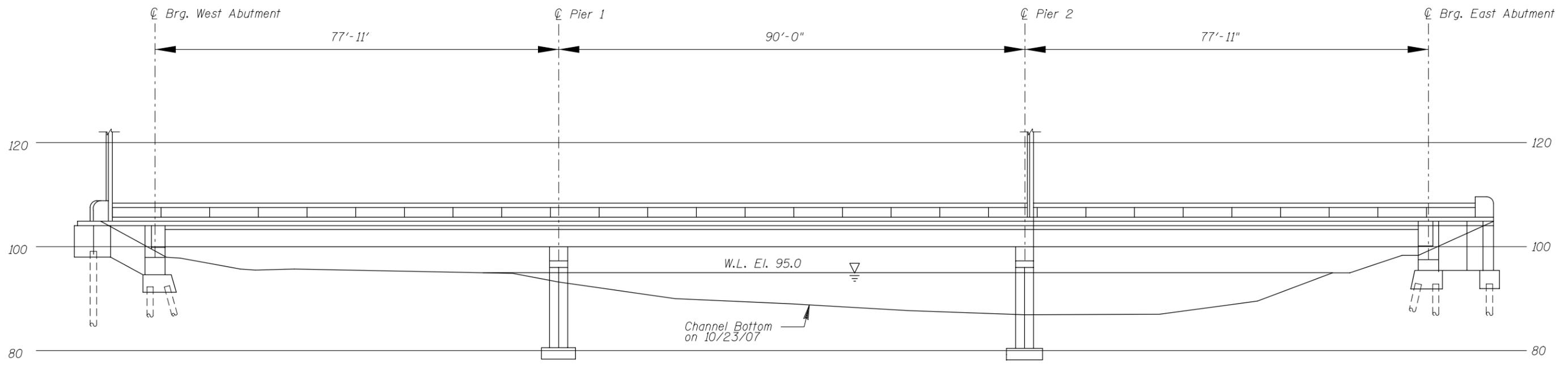
Legend

- 0.4 Sounding Depth (10/23/07)
- Timber Debris

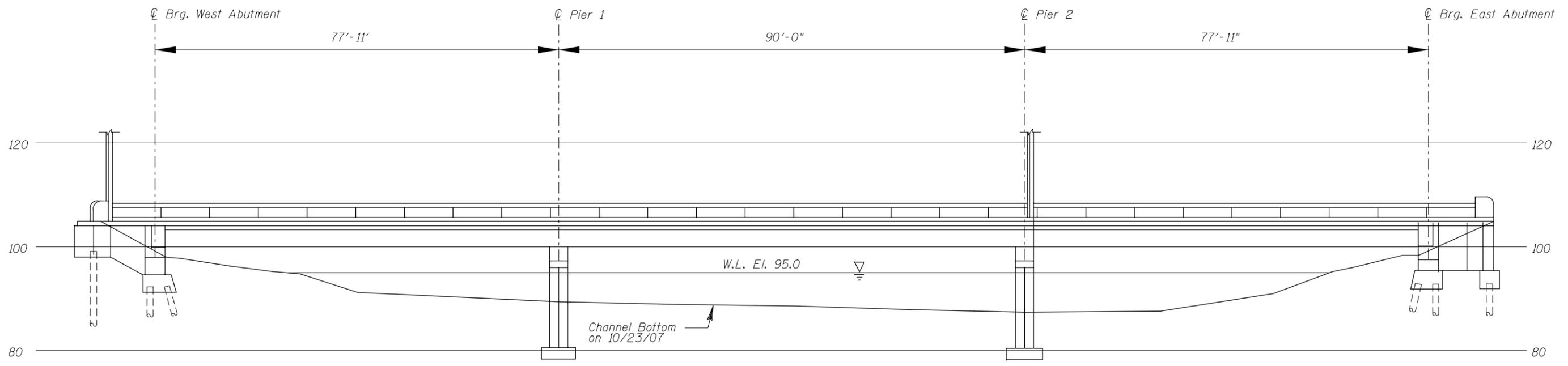
Note:

All soundings based on 2007 waterline location.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 66505 OVER THE CANNON RIVER DISTRICT 6, RICE COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: RR	COLLINS ENGINEERS <small>123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: OCT. 2007
Checked By: MDK		Scale: NTS
Code: 52216505		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. 66505 OVER THE CANNON RIVER DISTRICT 6, RICE COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: RR	COLLINS ENGINEERS <small>133 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: OCT. 2007
Checked By: MDK		Scale: 1"=20'
Code: 52216505		Figure No.: 2

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

INSPECTORS: Collins Engineers, Inc. DATE: October 23, 2007

ON-SITE TEAM LEADER: Daniel G. Stromberg, P.E., S.E.

BRIDGE NO: 66505 WEATHER: Sunny, 60° F

WATERWAY CROSSED: Cannon River

DIVING OPERATION: SCUBA SURFACE SUPPLIED AIR
 OTHER

PERSONNEL: Clayton G. Brookins, Valerie Roustan

EQUIPMENT: Scuba, U/W Light, Scraper, Lead Line, Sounding Pole, Probe Rod,
Camera

TIME IN WATER: 4:20 P.M.

TIME OUT OF WATER: 4:50 P.M.

WATERWAY DATA: VELOCITY 1.5 f.ps.

VISIBILITY 2.0 feet

DEPTH 10.1 feet maximum at Pier 2.

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: The concrete was typically in smooth and sound condition. A light
accumulation of 4-inch-diameter and smaller timber debris was observed on the channel
bottom near the center column of Pier 1 and near the upstream column of Pier 2.

FURTHER ACTION NEEDED: YES NO

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

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 66505
 INSPECTORS Collins Engineers, Inc.
 ON-SITE TEAM LEADER Daniel G. Stromberg, P.E. 21491
 WATERWAY CROSSED Cannon River

INSPECTION DATE October 23, 2007
 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					
			PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	6.7'	N	7	N	9	N	7	8	8	8	7	7	7	N	N	N	N	N
	Pier 2	10.0'	N	7	N	9	N	7	8	8	8	7	7	7	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: The concrete was typically in smooth and sound condition. A light accumulation of 4-inch-diameter and smaller timber debris was observed on the channel bottom near the center column of Pier 1 and near the upstream column 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.