

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 66548
C.S.A.H. 29
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. 66548, 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 moderate accumulation of 1-foot-diameter and smaller timber debris (primarily one tree trunk) was observed at the upstream column of Pier 1 that extended towards the west embankment.
- (B) A moderate accumulation of 2-foot-diameter and smaller timber debris was observed at the center column of Pier 2 that extended from the channel bottom up to 5 feet above the waterline.
- (C) The concrete of the piers was typically in smooth and sound condition.

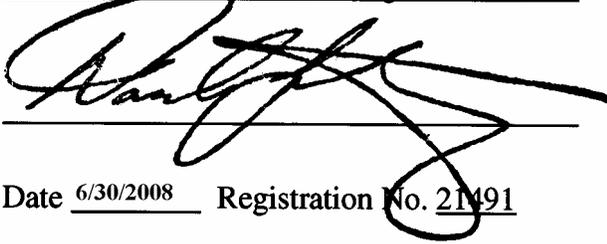
RECOMMENDATIONS:

- (A) Monitor the extent of the timber debris accumulation at both piers, and if shown to be increasing, removal during routine maintenance may become necessary.

- (B) 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

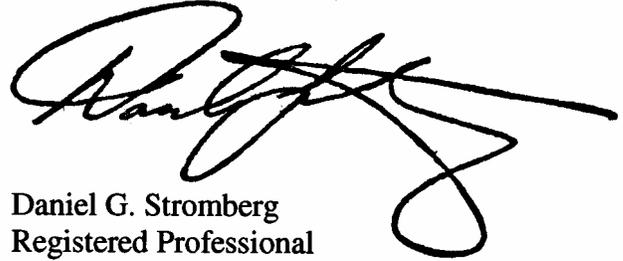


A large, stylized handwritten signature in black ink, appearing to read 'Daniel G. Stromberg', is written over a horizontal line.

Date 6/30/2008 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



A large, stylized handwritten signature in black ink, appearing to read 'Daniel G. Stromberg', is written over a horizontal line.

Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 66548

Feature Crossed: Cannon River

Feature Carried: C.S.A.H. 29

Location: District 6 – Rice County

Bridge Description: The superstructure consists of three spans of multiple prestressed concrete beams 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: 0.5 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 an oblong pile cap supported by three concrete columns that are founded on individual 8-foot-high by 4.5-foot-diameter concrete caissons that are embedded into bedrock.

Maximum Water Depth at Substructure Inspected: Approximately 7.1 feet.

4. WATERLINE DATUM

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

Water Surface: The waterline was approximately 9.1 feet below reference.
Waterline Elevation = 941.1.

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



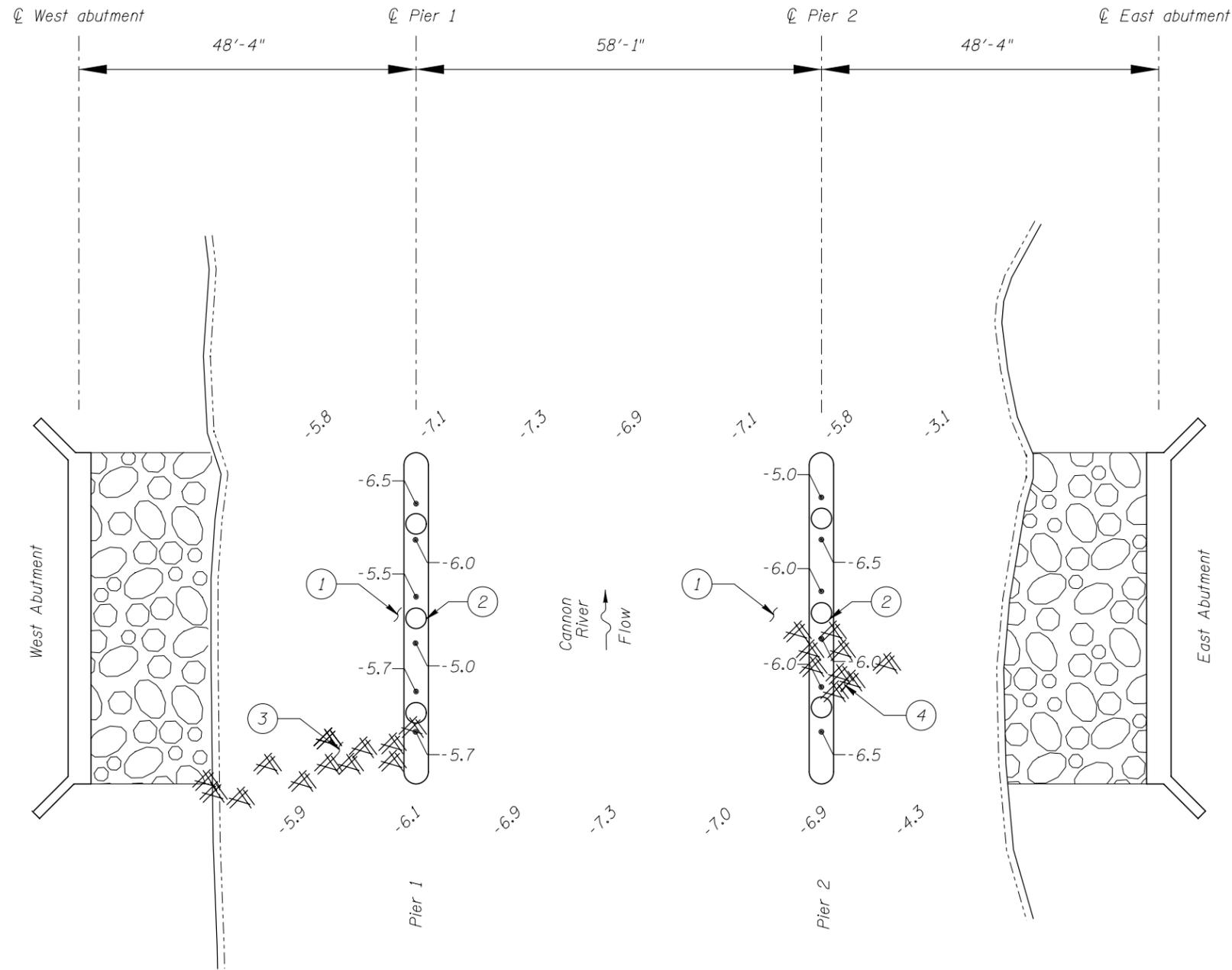
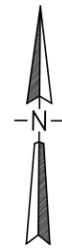
Photograph 1. Overall View of Bridge, Looking Northeast.



Photograph 2. View of Pier 1, Looking Northeast.



Photograph 3. View of Pier 2, Looking Northeast.



INSPECTION NOTES:

- ① The channel bottom consisted of rock and gravel with soft silt infilling with minimal probe rod penetration.
- ② Concrete of the columns was in smooth and sound condition.
- ③ A moderate accumulation of 1-foot-diameter and smaller timber debris (primarily one tree trunk) was observed at the upstream column of Pier 1 and extended towards the west embankment.
- ④ A moderate accumulation of 2-foot-diameter and smaller timber debris was observed at the center column of Pier 2 and extended from the channel bottom up to 5 feet above the waterline.

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 9.1 feet below the top of Pier 1 on the downstream end. This corresponds to a waterline elevation of 941.1 based on design plans.
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.

SOUNDING PLAN



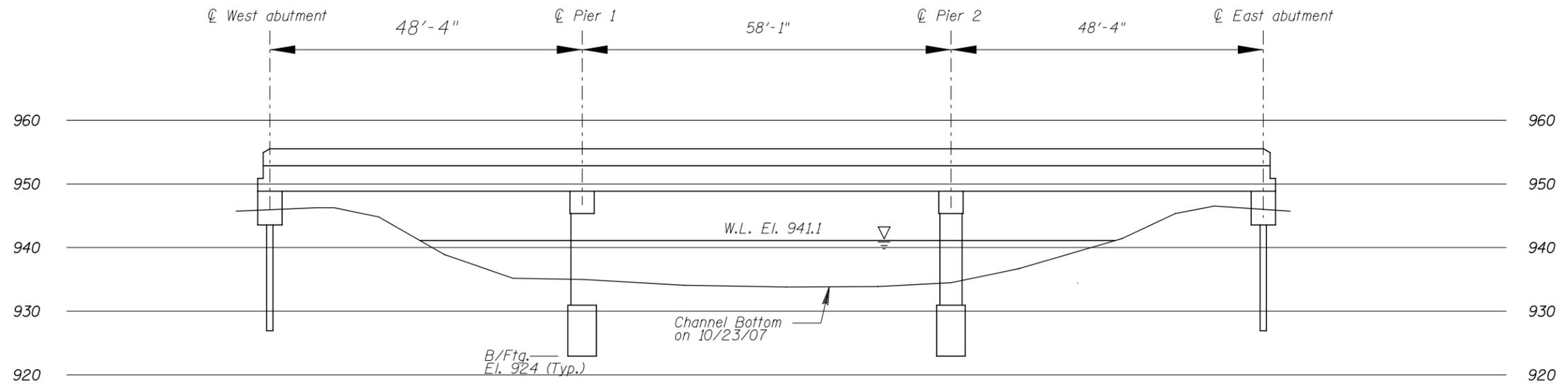
TYPICAL END VIEW OF PIERS

**MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION**

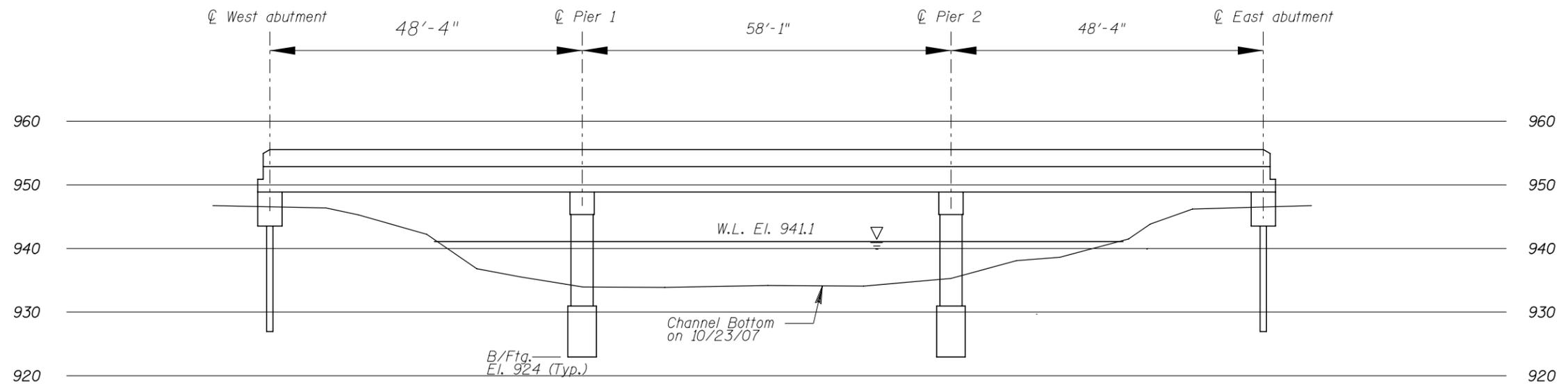
STRUCTURE NO. 66548
OVER THE CANNON RIVER
DISTRICT 6, RICE COUNTY

INSPECTION AND SOUNDING PLAN

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: NTS
Code: 52216548		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. 66548 OVER THE CANNON RIVER DISTRICT 6, RICE COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: RR	COLLINS ENGINEERS <small>123 North Wacker Drive Suite 500 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: OCT. 2007
Checked By: MDK		Scale: 1"=20'
Code: 52210088		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: 66548 WEATHER: Sunny, 60° F

WATERWAY CROSSED: Cannon River

DIVING OPERATION: SCUBA SURFACE SUPPLIED AIR
 OTHER

PERSONNEL: Clayton G. Brookins, Valerie Roustan

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

TIME IN WATER: 1:20 P.M.

TIME OUT OF WATER: 1:50 P.M.

WATERWAY DATA: VELOCITY 1.5 f.ps.

VISIBILITY 0.5 feet

DEPTH 7.1 feet maximum at Pier 1.

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: The concrete was typically in smooth and sound condition. A moderate accumulation of 2-foot-diameter and smaller timber debris (primarily one tree trunk) was observed at the upstream column of Pier 1 that extended towards the west embankment and at the center column of Pier 2 that extended from the channel bottom up to 5 feet above the waterline.

FURTHER ACTION NEEDED: YES NO

Monitor the extent of the timber debris accumulation at both piers, and if shown to be increasing, removal during routine maintenance may become necessary.

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. 66548
 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	7.1'	N	7	N	9	N	7	8	8	8	7	7	7	N	N	N	N	N
	Pier 2	6.5'	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 moderate accumulation of 2-foot-diameter and smaller timber debris (primarily one tree trunk) was observed at the upstream column of Pier 1 that extended towards the west embankment and at the center column of Pier 2 that extended from the channel bottom up to 5 feet above the waterline.

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.