

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 27639

BRIDGE STREET

OVER THE

CROW RIVER

DISTRICT 5 - HENNEPIN COUNTY, CITY OF ROCKFORD



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 at Bridge No. 27639, Piers 1, 2 and 3, were sound and in good condition with no structurally significant defects observed. A scour depression was observed at the upstream end of Pier 2. A light accumulation of timber debris was observed scattered on the channel bottom around Pier 3. The channel bottom appeared stable with no conditions of concern at this time.

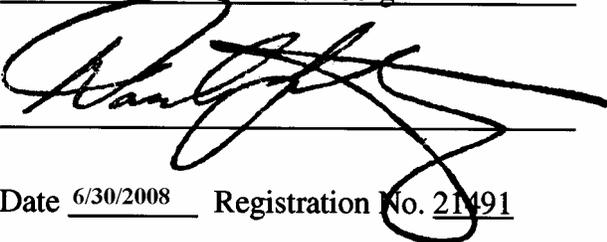
INSPECTION FINDINGS:

- (A) The concrete of the piers was smooth and sound with no significant deterioration.
- (B) A scour depression 2 feet in radius by 2 foot deep was observed at the upstream end of Pier 2.
- (C) A light accumulation of timber debris consisting of branches 1 inch in diameter and smaller was observed scattered about on the channel bottom around Pier 3.

RECOMMENDATIONS:

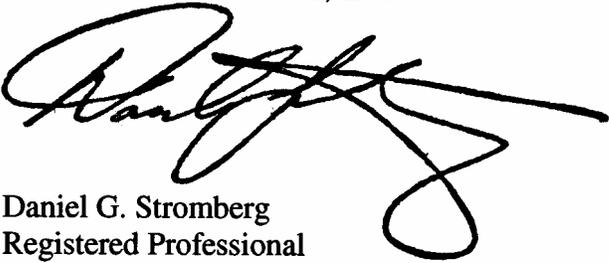
- (A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

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: 27639

Feature Crossed: Crow River

Feature Carried: Bridge Street

Location: District 5 - Hennepin County, City of Rockford

Bridge Description: The bridge consists of a continuous four span multiple steel girder superstructure supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and three reinforced concrete piers. The piers are numbered 1 through 3 starting from the northwest end of the bridge. The pier footings are founded on concrete piles.

2. INSPECTION DATA

Professional Engineer/Team Leader: Bradley A. Syler, P.E., S.E.

Dive Team: Clayton G. Brookins, Valerie Roustan.

Date: October 17, 2007

Weather Conditions: Partly Cloudy, 50° F

Underwater Visibility: 1.0 foot

Waterway Velocity: 4.0 f.p.s

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1, 2 and 3.

General Shape: The piers are single stem hammerheads with oblong shafts and rounded ends supported by a rectangular footing/seal combination founded on concrete piles.

Maximum Water Depth at Substructure Inspected: Approximately 3.4 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the downstream end of Pier 2.

Water Surface: The waterline was approximately 21.1 feet below reference.
Waterline Elevation = 894.8.

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 the Structure, Looking Southeast.



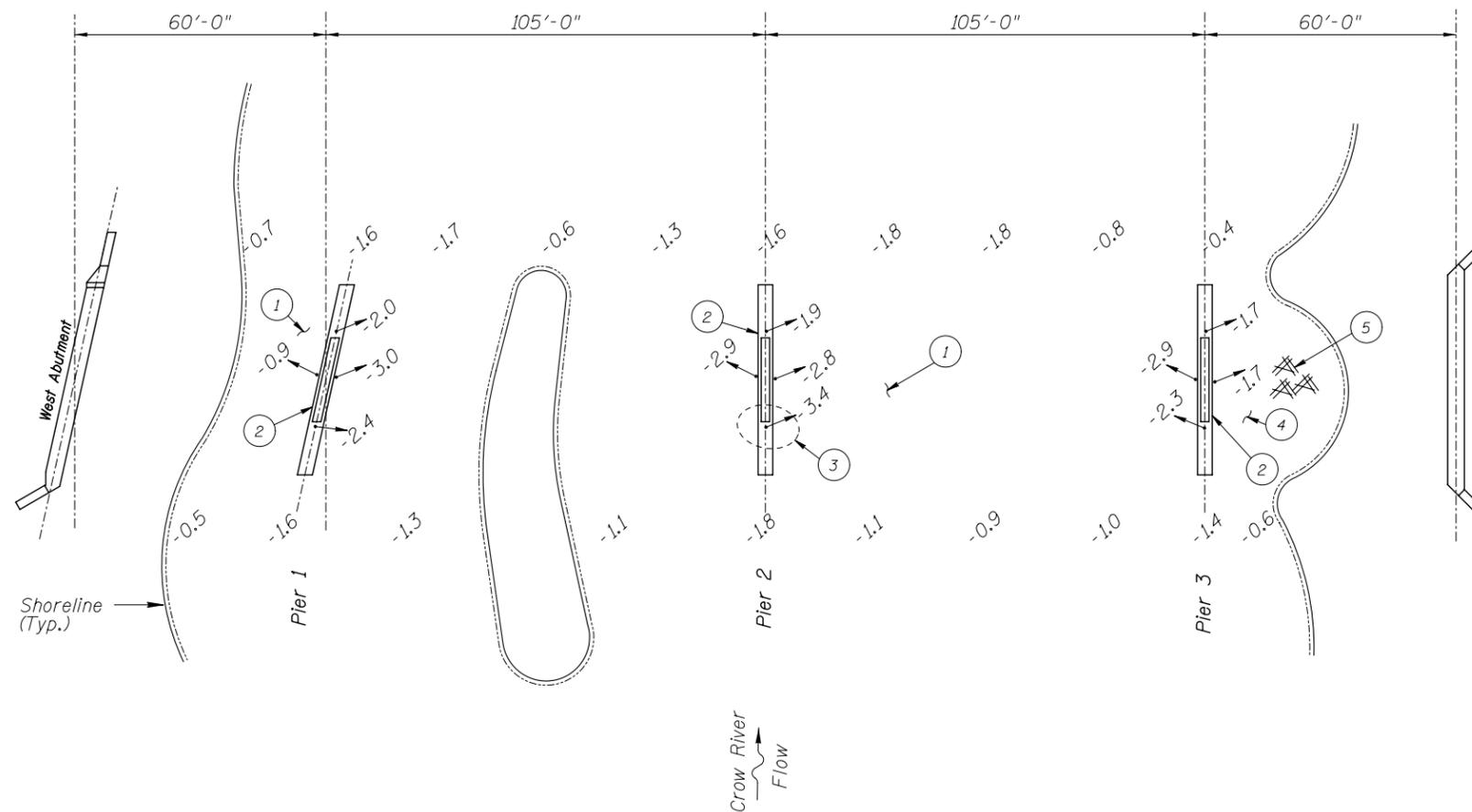
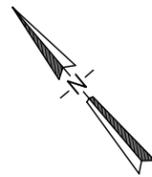
Photograph 2. View of Pier 1, Looking East.



Photograph 3. View of Pier 2, Looking West.



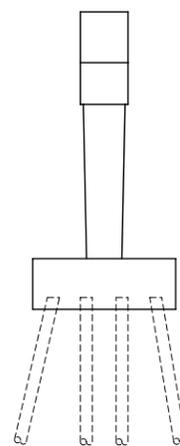
Photograph 4. View of Pier 3, Looking West.



INSPECTION NOTES:

- ① The channel bottom around Piers 1 and 2 consisted of 2 feet diameter and smaller rocks With no appreciable probe rod penetration possible.
- ② Overall, concrete was smooth and sound without notable deterioration.
- ③ A scour depression 2 feet radius by 1 foot deep was observed at the upstream end of Pier 2.
- ④ The channel bottom around Pier 3 consisted of gravel with 2 inches of silt on top and with up to 3 inches of probe rod penetration.
- ⑤ Light accumulation of timber debris consisting of 1 inch diameter and smaller limbs and branches was observed scattered on the channel bottom around Pier 3.

SOUNDING PLAN



TYPICAL END VIEW OF EACH PIER SECTION

GENERAL NOTES:

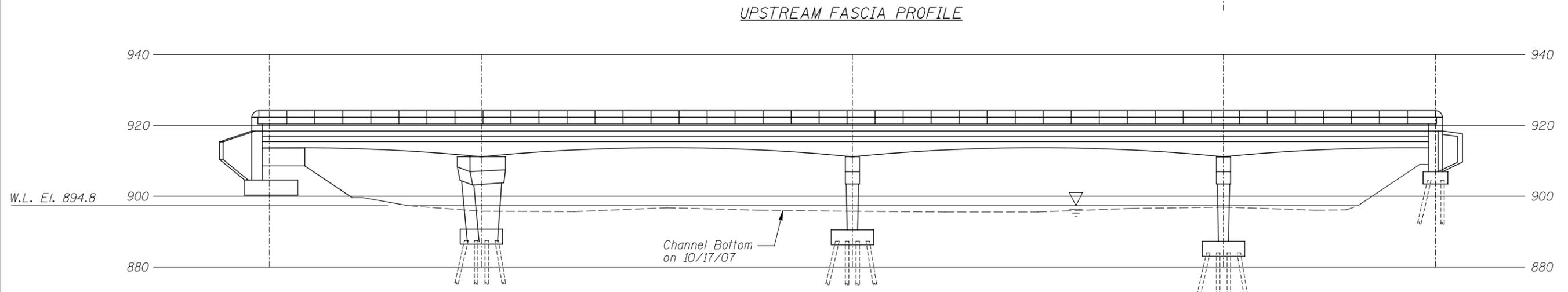
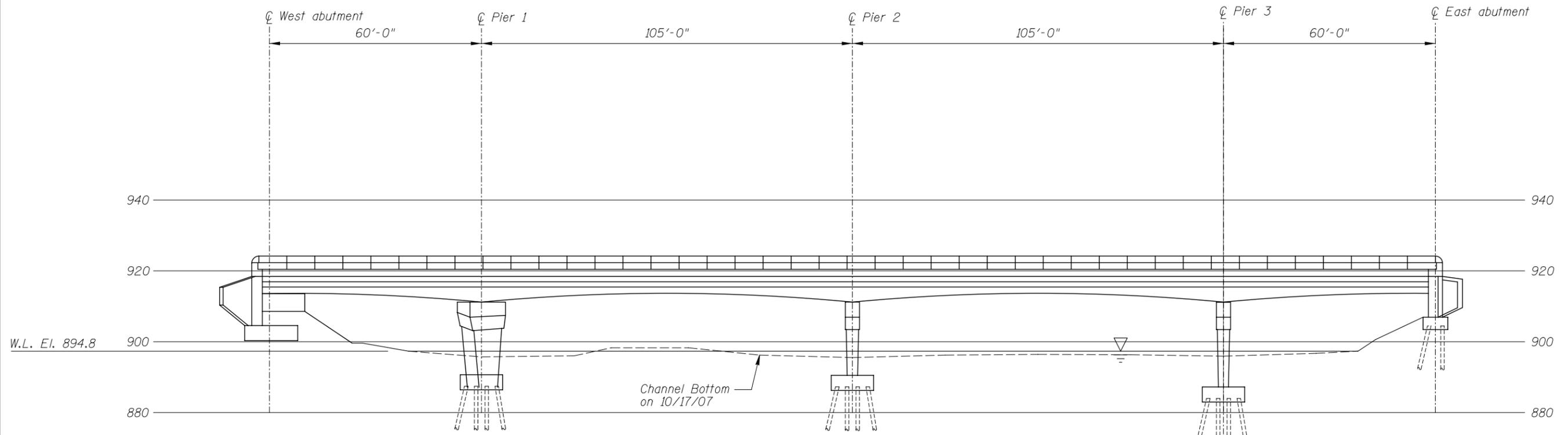
- 1. Piers 1, 2, and 3 were inspected underwater.
- 2. At the time of inspection on October 17, 2007, the waterline was located approximately 21.1 feet below the top of the pier cap at the downstream end of Pier 2. This corresponds to a waterline elevation of 894.8.
- 3. Soundings indicate the water 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.

Legend

- 0.4 Sounding Depth (10/17/07)
- Scour Depression
- ▨ Timber Debris

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 27639 OVER CROW RIVER DISTRICT 5, HENNEPIN COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: RR	COLLINS ENGINEERS	Date: Nov. 2007
Checked By: MDK		Scale: NTS
Code: 52210037		Figure No.: 1

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Note:
Refer to Figure 1 for General Notes.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 27639 OVER THE CROW RIVER DISTRICT 5, HENNEPIN COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: RR	COLLINS ENGINEERS <small>123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: Nov. 2007
Checked By: MDK		Scale: 1"=30'
Code: 52210037		Figure No.: 2

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

INSPECTORS: Collins Engineers, Inc. DATE: October 17, 2007

ON-SITE TEAM LEADER: Bradley A. Syler, P.E., S.E.

BRIDGE NO: 27639 WEATHER: Partly Cloudy, 50° F

WATERWAY CROSSED: Crow River

DIVING OPERATION: SCUBA SURFACE SUPPLIED AIR
 OTHER

PERSONNEL: Clayton G. Brookins, Valerie Roustan

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

TIME IN WATER: 11:20 a.m.

TIME OUT OF WATER: 11:50 a.m.

WATERWAY DATA: VELOCITY 4.0 f.p.s

VISIBILITY 1.0 foot

DEPTH 3.4 feet maximum at Pier 2

ELEMENTS INSPECTED: Piers 1, 2 and 3

REMARKS: Overall, the concrete of the piers was in smooth and sound condition with no notable defects. A scour depression 2 feet in radius and 1 foot deep was observed at the upstream end of Pier 2. A light accumulation of timber debris consisting of branches 1-inch-diameter and smaller was observed scattered on the channel bottom around Pier 3.

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. 27639
 INSPECTORS Collins Engineers, Inc.
 ON-SITE TEAM LEADER Bradley A. Syler, P.E., S.E.
 WATERWAY CROSSED Crow River

INSPECTION DATE October 17, 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 (BRACING)	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	3.0'	N	7	N	9	N	7	8	8	8	N	8	7	N	N	N	N	N
	Pier 2	3.4'	N	7	N	9	N	7	7	N	N	N	7	7	N	N	N	N	N
	Pier 3	2.9'	N	7	N	9	N	7	8	8	8	8	8	7	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the concrete of the piers was in smooth and sound condition. A scour depression 2 feet in radius and 1 foot deep was observed at the upstream end of Pier 2. A light accumulation of timber debris consisting of branches 1-inch-diameter and smaller was observed scattered on the channel bottom of Pier 3.

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.