

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 36517
CSAH NO. 75
OVER THE
LITTLE FORK RIVER
DISTRICT 1 - KOOCHICHING COUNTY



PREPARED FOR THE
MINNESOTA DEPARTMENT OF TRANSPORTATION
BY
COLLINS ENGINEERS, INC.
JOB NO. 3512 (CEI 26)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure unit inspected at Bridge No. 36517, Pier 2, was found to be in good condition below water with no defects of structural significance. The channel bottom around Pier 2 was presently firm and appeared stable with minor scour and no significant changes since the last inspection. The footing was exposed at both the upstream and downstream noses of the pier.

INSPECTION FINDINGS:

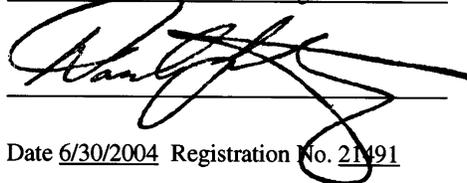
- (A) There was minor footing exposure around upstream and downstream noses, with primarily the top of footing exposed at the upstream end and up to 3 inches of vertical height exposed at the downstream north face of the pier. The footing exposure was due to minor scour depressions up to 1 foot deep and 3 feet in radius at those locations.

RECOMMENDATIONS:

- (A) Footing exposures should be monitored during future inspections.
- (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.

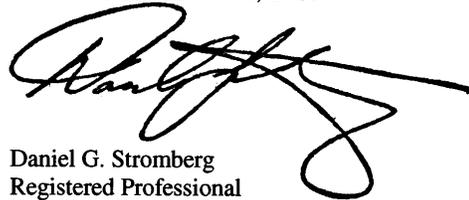
Daniel G. Stromberg



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: 36517

Feature Crossed: The Little Fork River

Feature Carried: CSAH No. 75

Location: District 3 - Koochiching County

Bridge Description: The superstructure is four spans of multiple steel stringers supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and three reinforced concrete piers. The pier and abutment footings are supported by steel H-piles. The piers are numbered 1 through 3 starting from the south end of the bridge.

2. INSPECTION DATA

Professional Engineer Diver: Daniel G. Stromberg
State of Minnesota, P.E., No. 21491

Dive Team: Michelle D. Koerbel, Matt J. Lengyel

Date: August 28, 2002

Weather Conditions: Cloudy, 70E F

Underwater Visibility: " 2 feet

Waterway Velocity: " 1.5 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Pier 2

General Shape: A rectangular pier cap with rounded ends supported by two circular shafts connected with a slender diaphragm wall. The pier shaft is supported on a continuous rectangular footing founded on piles.

Maximum Water Depth at Substructure Inspected: Approximately 4.7 feet.

4. WATERLINE DATUM

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

Water Surface: The waterline was approximately 23.8 feet below reference.
Water Elevation = 1193.0.

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

Item 60: Substructure: Code 8

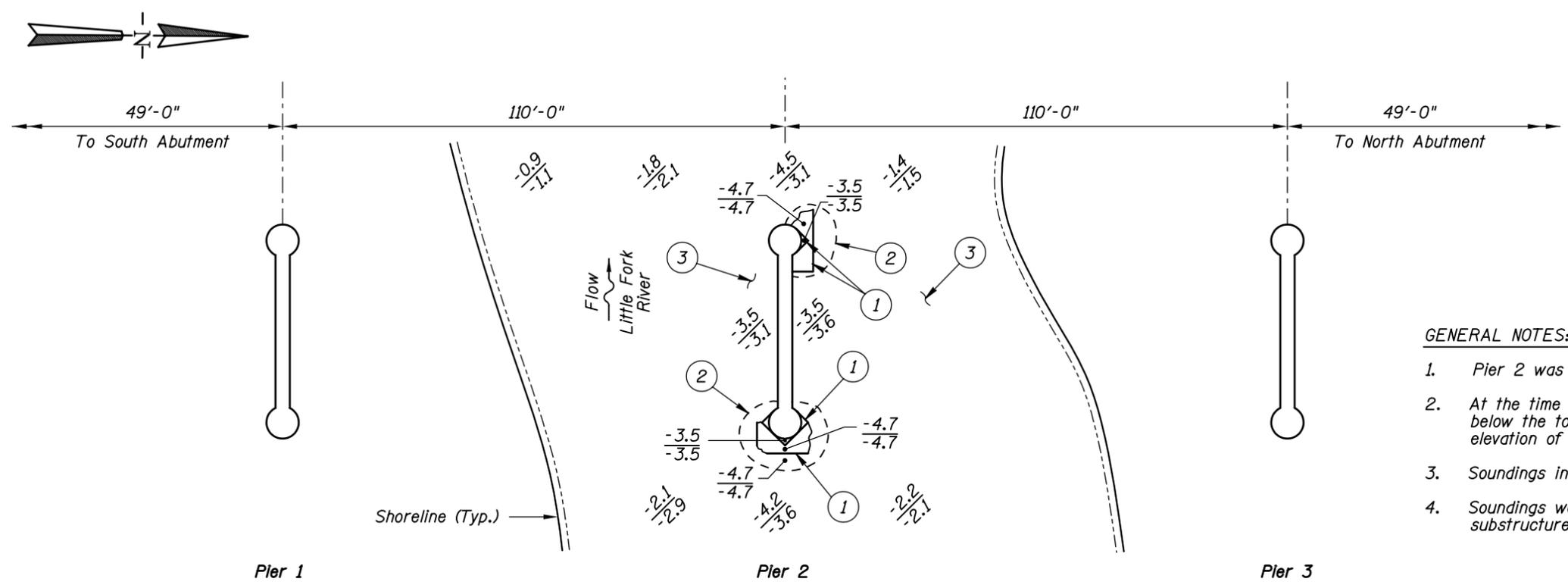
Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/08/02

Item 113: Scour Critical Bridges: Code I/92

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

Yes No



SOUNDING PLAN

GENERAL NOTES:

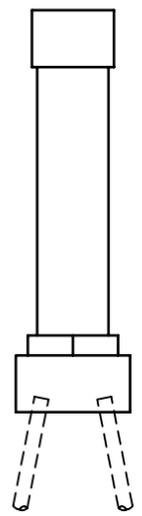
1. Pier 2 was inspected at this bridge.
2. At the time of inspection on August 28, 2002, the waterline was located 23.8 feet below the top of cap on the upstream end of Pier 2. This corresponds to a waterline elevation of 1193.0 feet based on based on previous report on August 22, 1997.
3. Soundings 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 footing was exposed at both noses of the pier. The exposure was primarily only the top of the footing and up to 3 inches of vertical exposure (at downstream site).
- ② Minor scour depressions, 3 feet in radius and 0.5 to 1 foot deep, were observed at the upstream end and downstream north face of the pier.
- ③ The channel bottom material consisted of a firm, sandy gravel and scattered riprap with up to approximately 1 inch probe rod penetration.

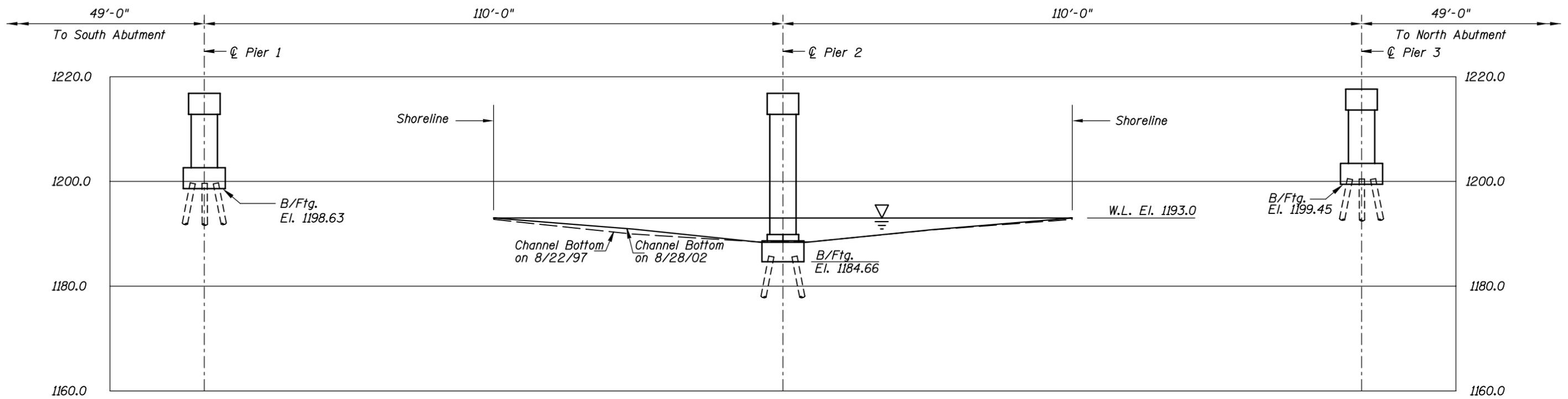
Legend

- 2.0 Sounding Depth from Waterline (8/28/02)
- 5.2 Sounding Depth from Waterline (8/22/97)

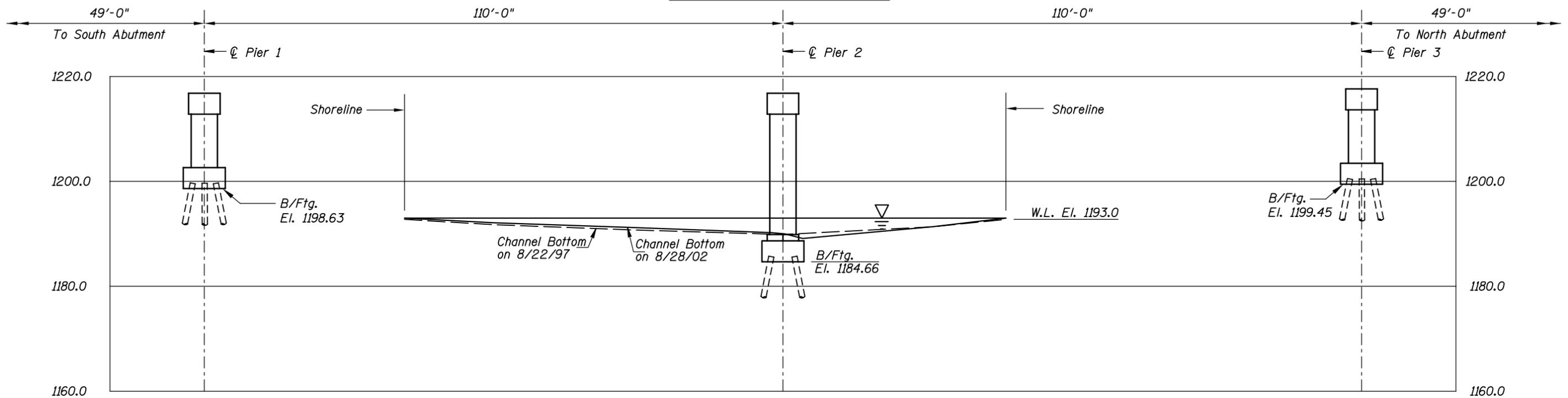


TYPICAL END VIEW OF PIERS

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 36517 OVER THE LITTLE FORK RIVER DISTRICT 1, KOOCHICHING COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: AUG. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35I20026		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. 36517 OVER THE LITTLE FORK RIVER DISTRICT 1, KOOSHICING COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: PRH	 COLLINS ENGINEERS, INC. 300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Date: AUG. 2002
Checked By: MDK		Scale: 1"=20'
Code: 35120026		Figure No.: 2



Photograph 1. Overall View, Looking Southeast.



Photograph 2. Pier 2, Looking Southeast.

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

INSPECTORS: Collins Engineers, Inc.

DATE: August 28, 2002

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

BRIDGE NO: 36517

WEATHER: Cloudy, " 70E F

WATERWAY CROSSED: The Little Fork River

DIVING OPERATION: X

SCUBA

SURFACE SUPPLIED AIR

OTHER

PERSONNEL: Michelle D. Koerbel, Matt J. Lengyel

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

TIME IN WATER: 3:10 p.m.

TIME OUT OF WATER: 3:30 p.m.

WATERWAY DATA: VELOCITY " 1.5 f.p.s

VISIBILITY" 2 feet

DEPTH 4.7 feet maximum at Pier 2

ELEMENTS INSPECTED: Pier 2

REMARKS: Overall, the concrete below water was in good, sound condition with no significant deficiencies. Minor footing exposure was detected around the upstream nose and on the downstream north side of the pier with primarily the top of the footing (upstream) and up to 3 inches vertical height (downstream) exposed. The footing exposure was due to minor scour depressions at those locations.

FURTHER ACTION NEEDED: _____ YES ___X___ NO

Footing exposures should be monitored during future inspections.

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. 36517
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Daniel G. Stromberg, P.E. 21491
WATERWAY CROSSED The Little Fork River

INSPECTION DATE August 28, 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						
			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 2	4.7'	N	8	8	9	N	8	6	N	N	7	7	8	N	N	9	N	

*UNDERWATER PORTION ONLY

REMARKS: Overall, the concrete below water was in good, sound condition with no significant deficiencies. Minor footing exposure was detected around the upstream nose and on the downstream north side of the pier with primarily the top of the footing (upstream) and up to 3 inches vertical height (downstream) exposed. The footing exposure was due to minor scour depressions at those locations.

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.