

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. R0156
PEDESTRIAN WALKWAY
OVER THE
PELICAN RIVER (MILL POND)
DISTRICT 4 - OTTER TAIL COUNTY



PREPARED FOR THE
MINNESOTA DEPARTMENT OF TRANSPORTATION
BY
COLLINS ENGINEERS, INC.
JOB NO. 5221 (CEI 14A)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. R0156, Piers 1 and 2, were found to be in good condition with no defects of structural significance observed. The channel bottom around the substructure units appeared stable with no evidence of significant scour or appreciable changes since the previous inspection. A water control dam structure was located approximately 500 feet downstream of the bridge.

INSPECTION FINDINGS:

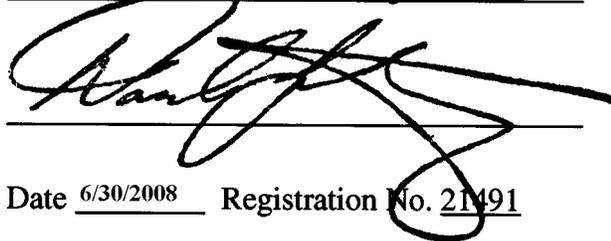
- (A) The concrete of the piers was in good and sound condition below water with only minor areas of poor consolidation, 1 inch maximum diameter, observed in random locations along all faces.

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.

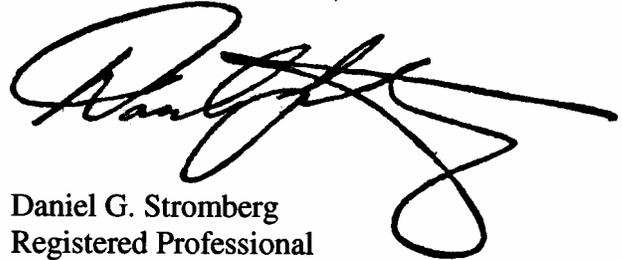
Daniel G. Stromberg



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: R0156

Feature Crossed: Pelican River (Mill Pond)

Feature Carried: Pedestrian Walkway

Location: District 4 - Otter Tail County

Bridge Description: The superstructure consists of a three span, cable suspension bridge supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and two reinforced concrete piers. The piers are numbered 1 and 2 starting from the west. No foundation information was made available.

2. INSPECTION DATA

Professional Engineer/Team Leader: Daniel G. Stromberg, P.E., S.E.

Dive Team: Dennis Redzic, Valerie Roustan

Date: September 17, 2007

Weather Conditions: Cloudy-Rain, 62°F

Underwater Visibility: 10.0 feet

Waterway Velocity: Negligible/None

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2

General Shape: The piers each consist of a rectangular reinforced concrete shaft with V-shaped noses. Foundation information was not made available.

Maximum Water Depth at Substructure Inspected: Approximately 6.6 feet.

4. WATERLINE DATUM

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

Water Surface: The waterline was approximately 3.4 feet below reference.
Assumed Waterline Elevation = 96.6.

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 8

Item 92B: Underwater Inspection: Code B/09/07

Item 113: Scour Critical Bridges: Code I/95

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

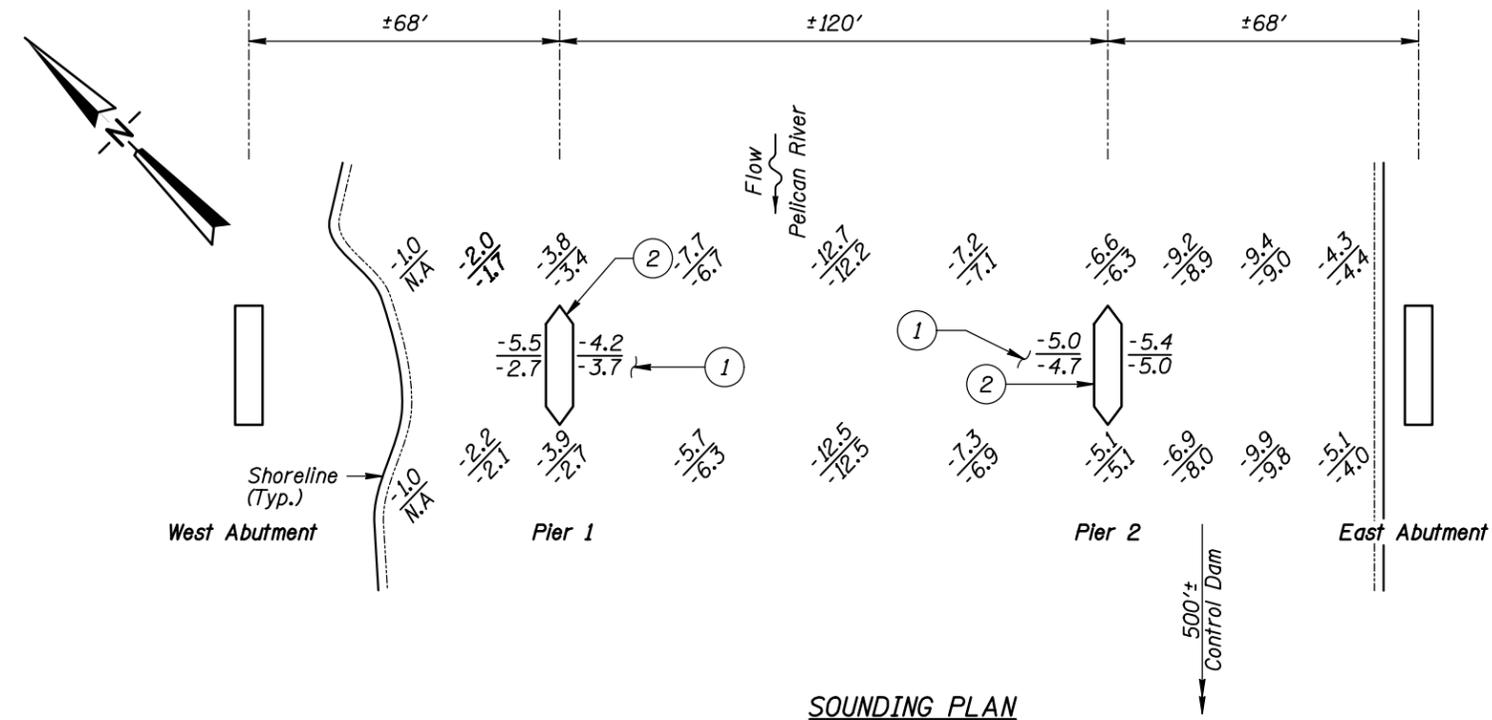
 Yes X No



Photograph 1. View of Pier 1, Looking Northeast.



Photograph 2. View of Pier 2, Looking North.



GENERAL NOTES:

1. Piers 1 and 2 were inspected underwater.
2. At the time of inspection on September 17, 2007 the waterline was located approximately 3.4 feet below the top of the pier cap at the downstream end of Pier 1. Since insufficient bridge elevation information was available a reference elevation of 100.0 was assumed. Based on the assumed reference the waterline elevation was 96.6.
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 consisted of firm sandy gravel with silt and scattered rocks with up to 2 inches of probe rod penetration.
- ② The concrete of both piers was in good and sound condition and exhibited only random concrete popouts / poor consolidation, up to 1 inch in diameter, on all surfaces.

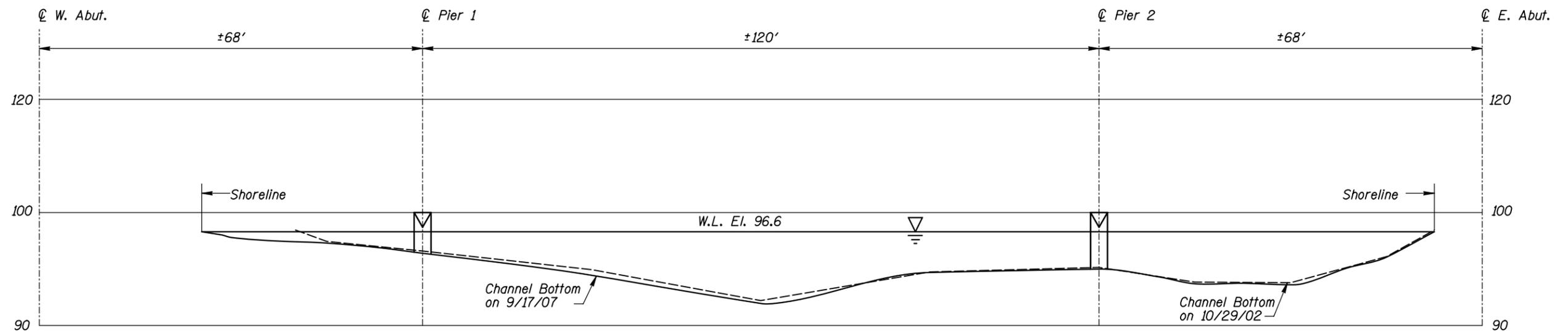
Legend

- 2.0 Sounding Depth (9/17/07)
- 5.2 Sounding Depth (10/29/02)

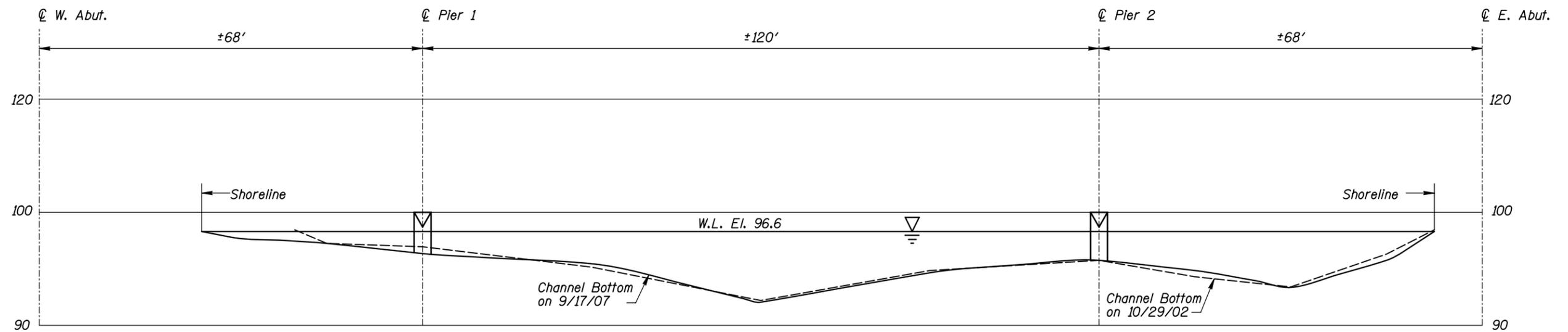
Note:

All soundings based on 2007 waterline location.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. R0156 OVER THE PELICAN RIVER DISTRICT 4, OTTERTAIL COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: PRH	COLLINS ENGINEERS	Date: SEPT. 2007
Checked By: MDK	<small>123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Scale: NTS
Code: 5221014A		Figure No.: 1



UPSTREAM FASCIA PROFILE
Vertical Scale: 1"=20'-0"



DOWNSTREAM FASCIA PROFILE
Vertical Scale: 1"=20'-0"

Note:
Refer to Figure 1 for General Notes.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. R0156 OVER THE PELICAN RIVER DISTRICT 4, OTTERTAIL COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: PRH	COLLINS ENGINEERS <small>123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: SEPT. 2007
Checked By: MDK		Scale: NTS (U.O.N.)
Code: 5221014A		Figure No.: 2

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

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

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

BRIDGE NO: R0156 WEATHER: Cloudy-Rain, 62°F

WATERWAY CROSSED: Pelican River (Mill Pond)

DIVING OPERATION: SCUBA SURFACE SUPPLIED AIR
 OTHER

PERSONNEL: Denis Redzic, Valerie Roustan

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

TIME IN WATER: 4:45 p.m.

TIME OUT OF WATER: 5:10 p.m.

WATERWAY DATA: VELOCITY Negligible/None

VISIBILITY 10.0 feet

DEPTH 6.6 feet maximum at Pier 2

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: The concrete of Piers 1 and 2 was in good condition with no defects of structural significance observed. Minor areas of poor consolidation, up to 1 inch in diameter, were observed on all faces of both piers. The channel bottom around the substructure units appeared stable with no evidence of significant scour or appreciable changes since the previous inspection. A water control dam structure was located approximately 500 feet downstream of the bridge.

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. R0156
 INSPECTORS Collins Engineers, Inc.
 ON-SITE TEAM LEADER Daniel G. Stromberg, P.E., S.E.
 WATERWAY CROSSED Pelican River (Mills Pond)

INSPECTION DATE September 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	4.2'	N	7	N	9	N	7	8	N	N	N	8	7	N	N	N	N	N
	Pier 2	6.6'	N	7	N	9	N	7	8	N	N	N	8	7	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: The concrete of Piers 1 and 2 was in good condition with no defects of structural significance observed. Minor areas of poor consolidation, up to 1 inch in diameter, were observed on all faces of both piers. The channel bottom around the substructure units appeared stable with no evidence of significant scour or appreciable changes since the previous inspection. A water control dam structure was located approximately 500 feet downstream of the bridge.

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.