

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 83001

CSAH 9

OVER THE

WATONWAN RIVER

DISTRICT 7 – WATONWAN COUNTY



SEPTEMBER 11, 2012

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

AND

WSB & ASSOCIATES, INC.

JOB NO. 2107

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 83001, Piers 1 and 2, were generally in good condition. The concrete of the inspected substructure units was smooth and sound with no appreciable deterioration noted. The channel bottom appeared to be firm and well established with no evidence of significant scour.

INSPECTION FINDINGS:

- (A) The channel bottom material consisted of silty sand with cobbles and random riprap allowing up to 2 inches of probe rod penetration.
- (B) Concrete surfaces of Piers 1 and 2 were smooth and sound with no appreciable defects noted.

RECOMMENDATIONS:

- (A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of sixty (60) months.

Inspection Team Leader:

WSB and Associates



Barritt Lovelace
Registered Professional Engineer
Bridge Safety Inspection Team Leader

Respectfully submitted,

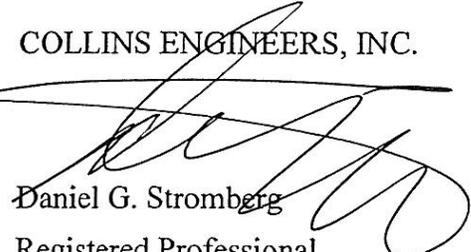
PROFESSIONAL ENGINEER

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 6/30/14 License # 21491

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 83001

Feature Crossed: Watonwan River

Feature Carried: CSAH 9

Location: District 7- Watonwan County

Bridge Description: The superstructure consists of a concrete deck resting on three prestressed multi-beam spans supported by two reinforced concrete abutments and two intermediate reinforced concrete piers. The substructure units are designated as South Abutment, Piers 1 and 2, and North Abutment.

2. INSPECTION DATA

Professional Engineer/Team Leader: Barritt Lovelace, P.E (WSB)

Dive Team: Kasey Yoder (WSB), Jukas Janulis (Collins)

Date: September 11, 2012

Weather Conditions: Sunny, 75° F

Underwater Visibility: 1.5 feet

Waterway Velocity: 0.5 ft/sec

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2.

General Shape: Each pier consists of a tapered (hammerhead) reinforced concrete pier cap supported on a rectangular reinforced concrete shaft with round noses founded on a rectangular, pile supported concrete footing.

Maximum Water Depth at Substructure Inspected: Approximately 3.4 feet.

4. WATERLINE DATUM

Water Level Reference: The bottom of the pier cap on the upstream end of Pier 1.

Water Surface: The waterline was approximately 10.8 feet below reference.

Waterline Elevation = 975.9

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 A/09/12

Item 113: Scour Critical Bridges: Code R

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

Yes No

6. STRUCTURAL ELEMENT CONDITION RATING

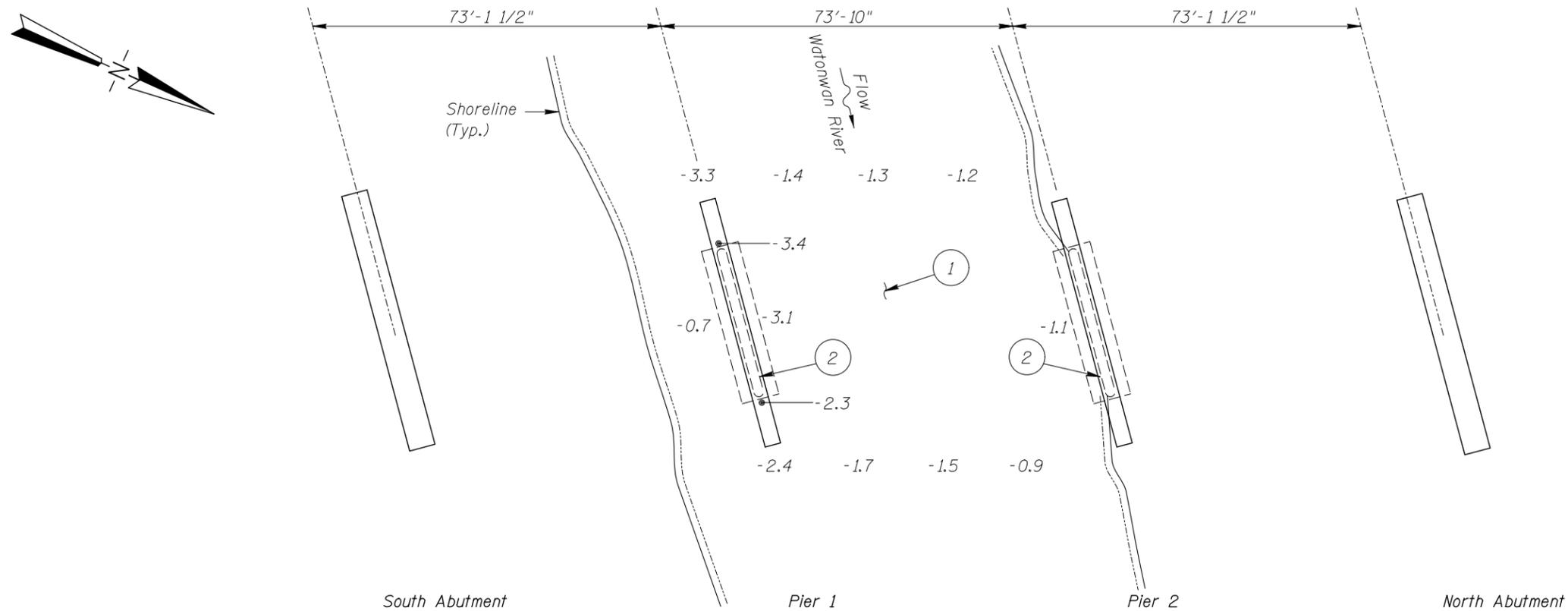
Item #	Element Description	Quantity	Unit	Conditions				
				1	2	3	4	5
210	Concrete Pier Wall	66	LF	66				
361	Scour	1	EA	1				
985	Slopes and Slope Protection	1	EA		1			



Photograph 1. View of Pier 2, Looking North.



Photograph 2. View of Pier 1, Looking South.



SOUNDING PLAN

Legend

-5.5 Sounding Depth from Waterline (9/11/12)

GENERAL NOTES:

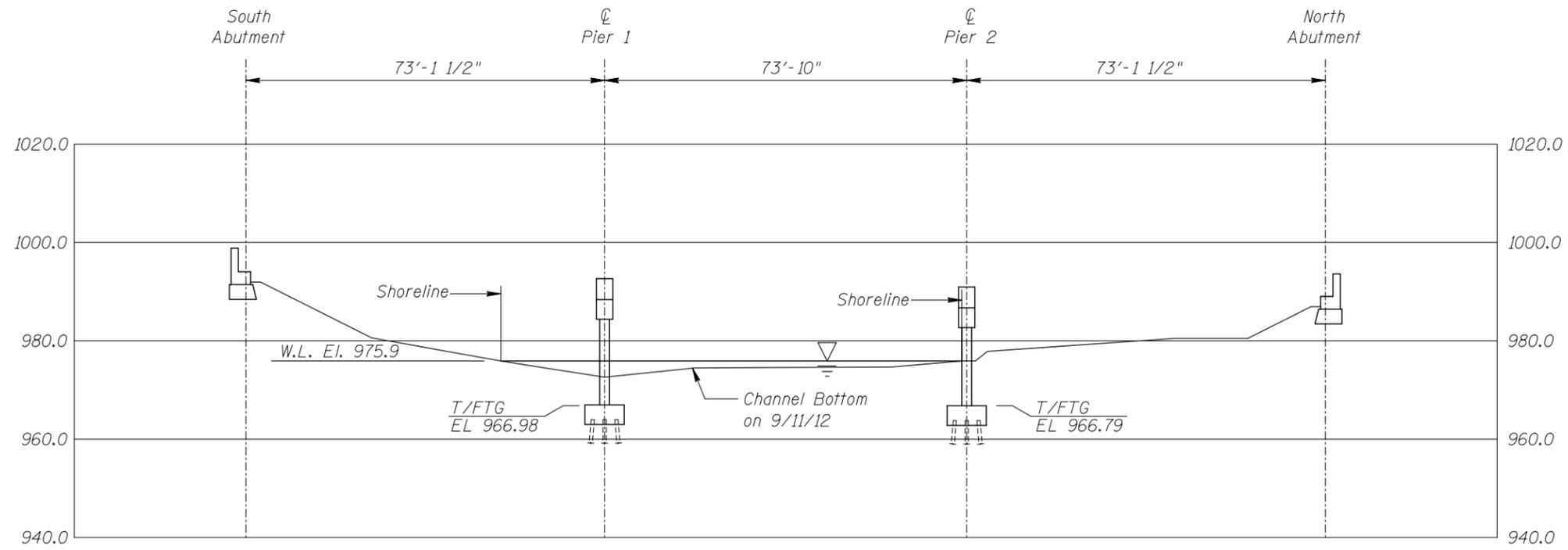
1. Piers 1 and 2 were inspected underwater.
2. At the time of inspection on September 11, 2012, the waterline was located approximately 10.8 feet below the bottom of pier cap at the upstream end of Pier 2. This corresponds to a waterline elevation of 975.9 according to design drawings dated December 10, 1973.
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:

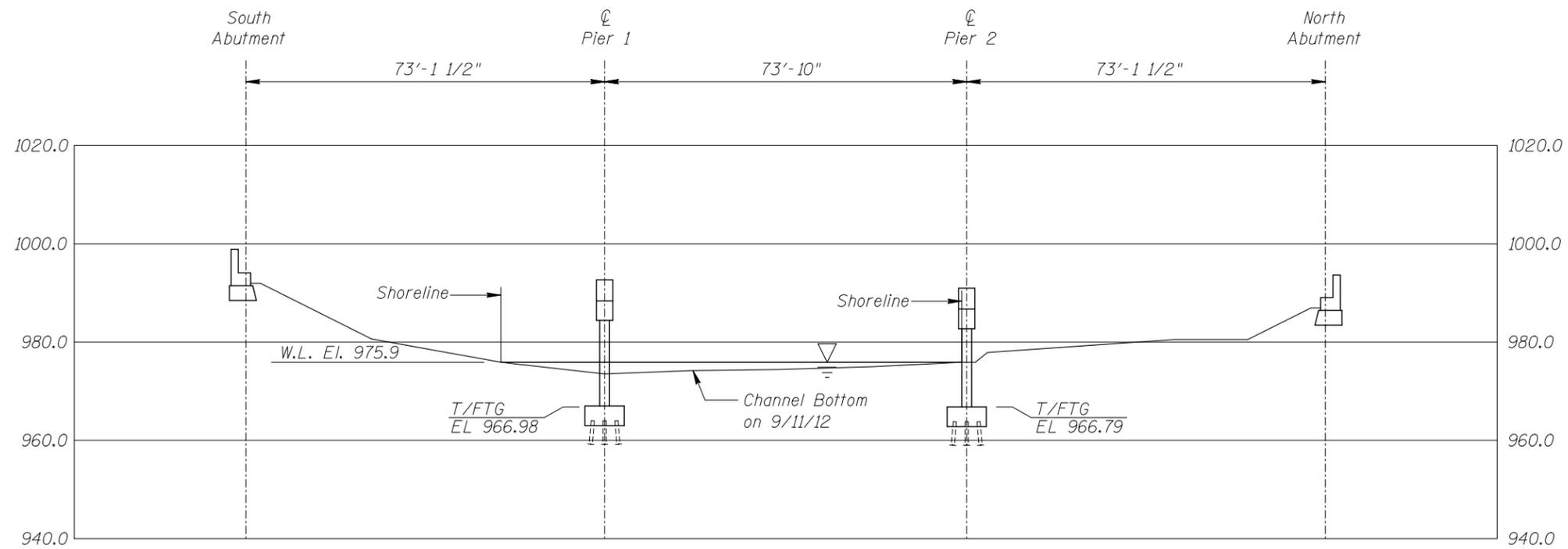
- ① The channel bottom material consisted of firm silty sand with cobbles and random riprap allowing up to 2 inches of probe rod penetration.
- ② The concrete of both piers was typically smooth and sound with no appreciable defects.



MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 83001 OVER THE WATONWAN RIVER DISTRICT 7, WATONWAN COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: BJR	COLLINS ENGINEERS	Date: SEP. 2012
Checked By: BRL	<small>123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Scale: NTS
Code: ---		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. 83001 OVER THE WATONWAN RIVER DISTRICT 7, WATONWAN COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: BJR	COLLINS ENGINEERS	Date: SEP. 2012
Checked By: BRL		Scale: 1"=30'
Code: ---		Figure No.: 2

123 North Wacker Drive
Suite 300
Chicago, IL 60606
(312) 704-9300
www.collinsengr.com

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

INSPECTORS: WSB & Associates and Collins DATE: September 11, 2012

ON-SITE TEAM LEADER: Barritt Lovelace, P.E.

BRIDGE NO: 83001 WEATHER: Sunny, 75°F

WATERWAY CROSSED: Watonwan River

DIVING OPERATION: _____ SCUBA _____ SURFACE SUPPLIED AIR
 OTHER Wading

PERSONNEL: Kasey Yoder (WSB), Lukas Janulis (Collins)

EQUIPMENT: Wet Suit, Sounding Rod, Camera, Hand Tools

TIME IN WATER: 9:10 a.m.

TIME OUT OF WATER: 9:25 a.m.

WATERWAY DATA: VELOCITY 0.5 ft/sec

VISIBILITY 1.5 feet

DEPTH 3.4 feet maximum at Pier 2.

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: Overall, the concrete of Piers 1 and 2 was in good condition with no notable defects. The streambed bottom was fairly firm and appeared to be well established with no evidence of scour.

FURTHER ACTION NEEDED: _____ YES NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of sixty (60) months.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 83001
 INSPECTORS WSB & Associates and Collins Engineers, Inc.
 ON-SITE TEAM LEADER. Barritt Lovelace P.E.
 WATERWAY CROSSED Watowan River

INSPECTION DATE September 11, 2012

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 (SEAL)	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/SEDIMENT)	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	1.1'	N	7	N	8	N	7	8	7	7	N	7	7	N	N	8	N	N
	Pier 2	3.4'	N	7	N	8	N	7	8	7	7	N	7	7	N	N	8	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the concrete of Piers 1 and 2 was in good condition with no notable defects. The streambed bottom was fairly firm and appeared to be well established with no evidence of scour.

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.