

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 96271
PEDESTRIAN WALKWAY
OVER THE
CANNON RIVER
CITY OF NORTFIELD



MAY 23, 2012
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 unit inspected at Bridge No. 96271, the Center Pier, was found to be in good condition with no defects of structural significance observed. Footing exposure with minimal vertical face exposed was observed around the entire perimeter of the pier. A water control dam structure was located approximately 500 feet upstream of the bridge.

INSPECTION FINDINGS:

- (A) Concrete of the pier was smooth and sound with no notable defects.
- (B) Footing exposure, at approximately 2.1 feet below water, was observed around the entire pier with a maximum vertical exposure of 0.4 feet.
- (C) The channel bottom consisted of rock with no appreciable probe rod penetration possible.

RECOMMENDATIONS:

- (A) Monitor the footing exposure around the pier during future inspections.
- (B) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of sixty (60) months.

Inspection Team Leader:



Ryan P. Breen, P.E.

Respectfully submitted,

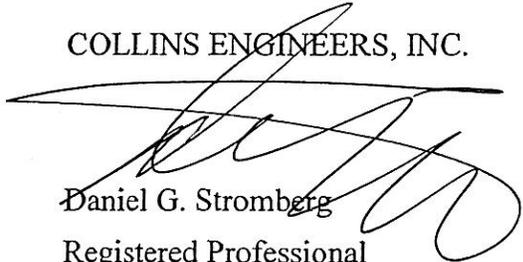
PROFESSIONAL ENGINEER

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: 96271

Feature Crossed: Cannon River

Feature Carried: Pedestrian Walkway

Location: District 6 - Rice County, City of Northfield

Bridge Description: The superstructure consists of a two span steel girder bridge supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and one reinforced concrete pier. No foundation information or design plans were available.

2. INSPECTION DATA

Professional Engineer/Team Leader: Ryan P. Breen, P.E.

Dive Team: Marc B. Parker, Michael J. Banasiak

Date: May 23, 2012

Weather Conditions: Sunny, 75°F

Underwater Visibility: 0.5 feet

Waterway Velocity: 1.0 f.p.s

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Center Pier

General Shape: The pier consists of a reinforced concrete shaft (overall rectangular).
Foundation information was not available.

Maximum Water Depth at Substructure Inspected: Approximately 3.2 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the bridge seat on the downstream end of the Center Pier.

Water Surface: The waterline was approximately 12.2 feet below reference.
Assumed Waterline Elevation = 87.8.

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/05/12

Item 113: Scour Critical Bridges: Code F/12

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

 Yes X No

6. STRUCTURAL ELEMENT CONDITION RATING:

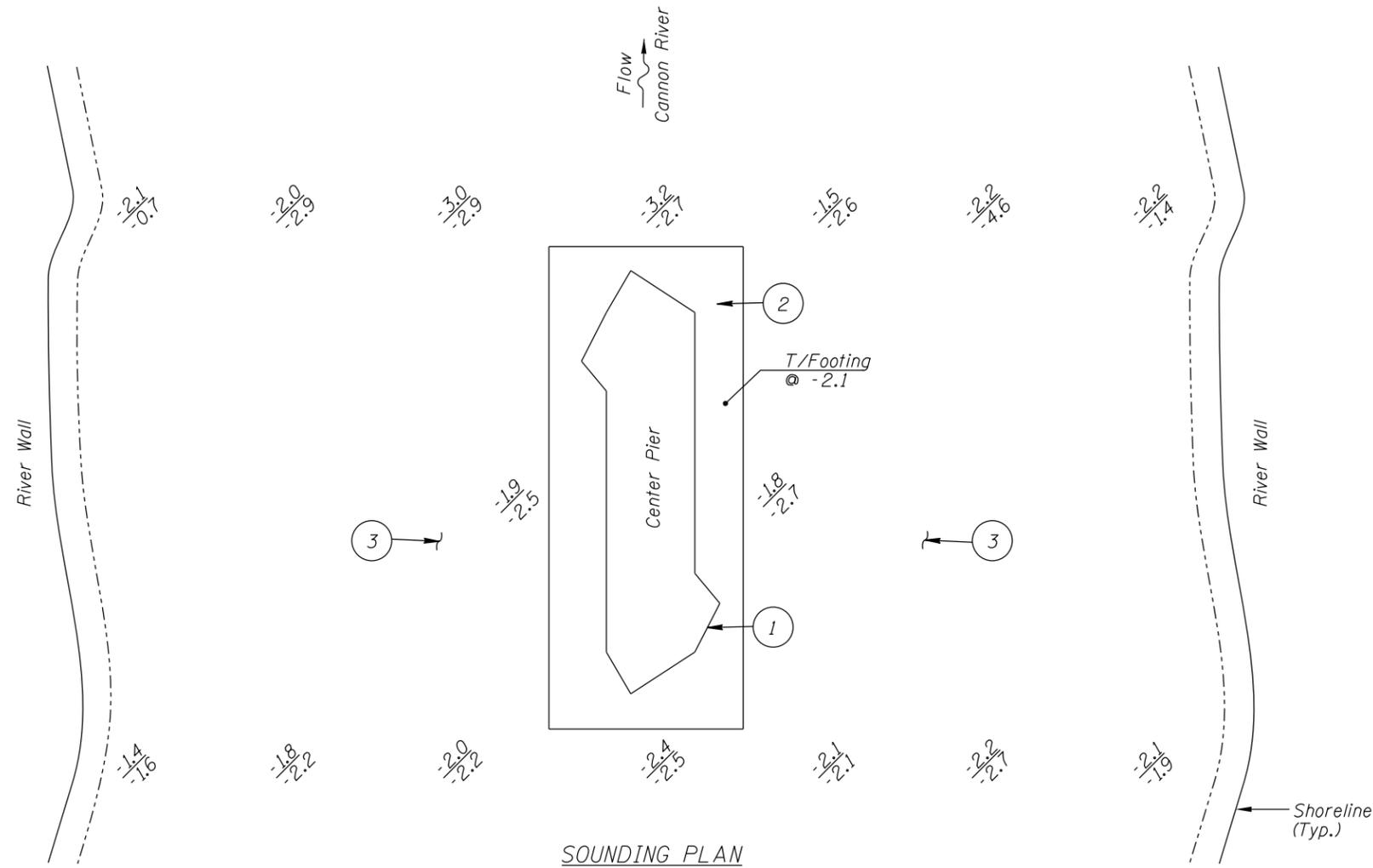
Item #	Element Description	Quantity	Unit	Conditions				
				1	2	3	4	5
205	Reinforced Concrete Pier Column	13	LF	13				
220	Reinforced Concrete Footing	1	EA	1				



Photograph 1. Overall View of the Structure, Looking North.



Photograph 2. View of the Center Pier, Looking Northwest.



SOUNDING PLAN

INSPECTION NOTES:

- 1 Concrete was smooth and sound with no notable defects.
- 2 Footing exposure was observed at 2.1 feet below waterline around the entire pier with a maximum vertical exposure of 0.4 feet.
- 3 Channel bottom consisted of rock with no probe rod penetration.

GENERAL NOTES:

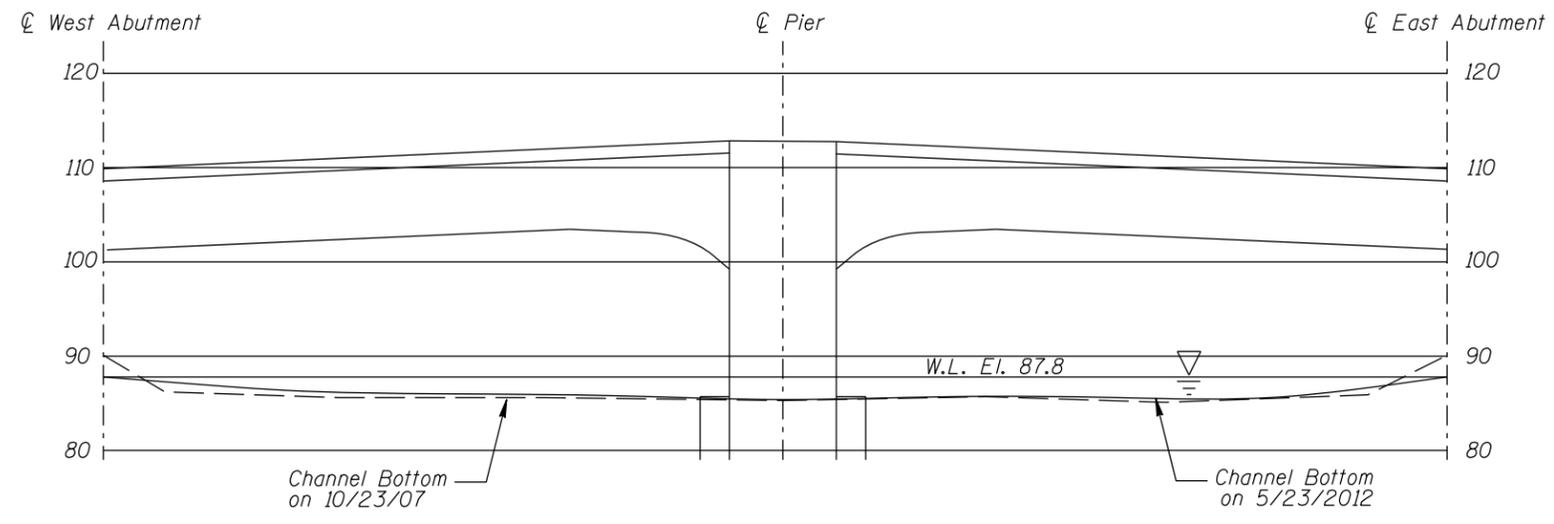
1. The Center Pier of the bridge was inspected underwater.
2. At the time of inspection, on May 23, 2012, the waterline was located approximately 12.2 feet below the top of bridge seat on the downstream end of the pier. Due to lack of design plan information the reference elevation was assumed to be 100.0 feet. This corresponds to a waterline elevation of 87.8.
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 as well as around the pier structures.

Legend

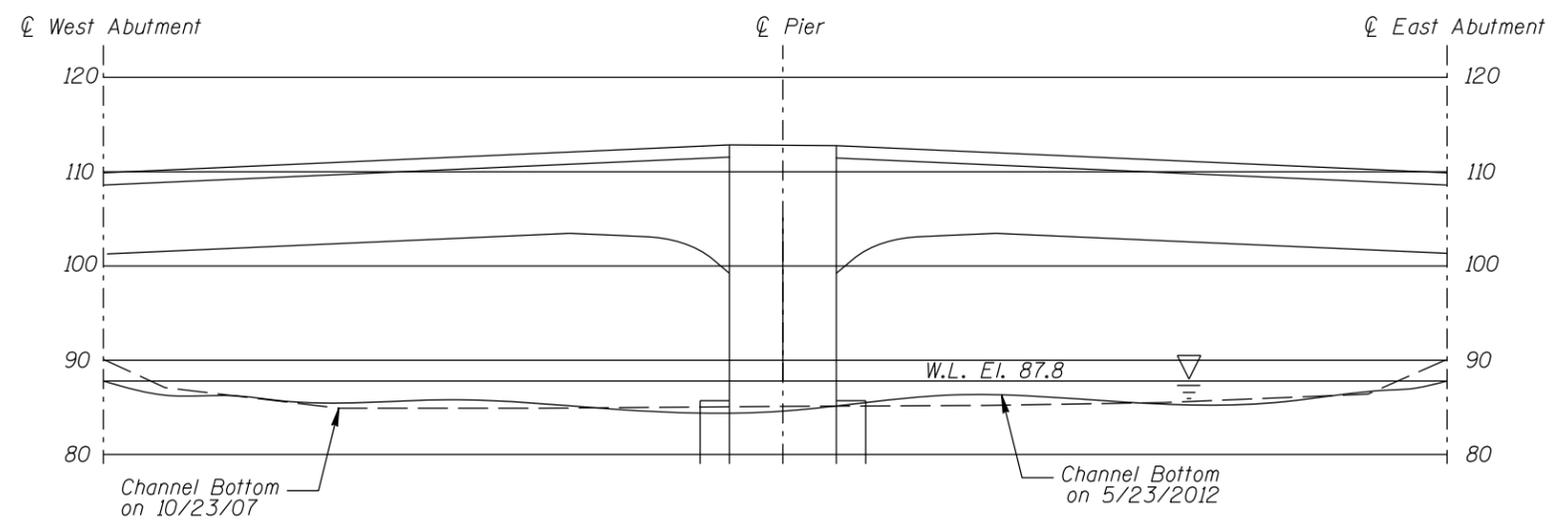
- 0.4 Sounding Depth (5/23/12)
- 0.4 Sounding Depth (10/23/07)

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 96271 PEDESTRIAN WALKWAY OVER THE CANNON RIVER CITY OF NORTHFIELD		
INSPECTION AND SOUNDING PLAN		
Drawn By: BMS	COLLINS ENGINEERS	Date: MAY 2012
Checked By: RPB		Scale: NTS
Code: 742396271		Figure No.: I

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UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:
 Refer to Figure 1 for General Notes.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 96271 PEDESTRIAN WALKWAY OVER THE CANNON RIVER CITY OF NORTHFIELD		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: BMS Checked By: RPB Code: 74239627I	COLLINS ENGINEERS	123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com
		Date: MAY 2012 Scale: 1"=20' Figure No.: 2

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

INSPECTORS: Collins Engineers, Inc. DATE: May 23, 2012

ON-SITE TEAM LEADER: Ryan P. Breen, P.E.

BRIDGE NO: 96271 WEATHER: Sunny, 75° F

WATERWAY CROSSED: Cannon River

DIVING OPERATION: _____ SCUBA _____ SURFACE SUPPLIED AIR
 OTHER Inspection by Wading

PERSONNEL: Marc B. Parker, Michael J. Banasiak

EQUIPMENT: Drysuit, U/W Light, Scraper, Lead Line, Probe Rod, Camera, Hand Tools

TIME IN WATER: 12:30 p.m.

TIME OUT OF WATER: 13:15 p.m.

WATERWAY DATA: VELOCITY 1.0 f.p.s

VISIBILITY 0.5 feet

DEPTH 3.2 feet maximum at the Center Pier

ELEMENTS INSPECTED: Center Pier

REMARKS: Overall the concrete of the Center Pier was smooth and sound. Footing exposure, at approximately 2.1 feet below water, was observed around the entire pier with a maximum vertical exposure of 0.4 feet. The channel bottom consisted of rock with no probe rod penetration possible.

FURTHER ACTION NEEDED: _____ YES NO

Monitor the footing exposure around the entire pier during future inspections.

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. 96271
 INSPECTORS Collins Engineers, Inc.
 ON-SITE TEAM LEADER Ryan P. Breen, P.E.
 WATERWAY CROSSED Cannon River

INSPECTION DATE May 23, 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 (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
	Center Pier	3.2'	N	7	7	8	N	7	N	N	N	N	7	7	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall the concrete of the Center Pier was smooth and sound. Footing exposure, at approximately 2.1 feet below water, was observed around the entire pier with a maximum vertical exposure of 0.4 feet. The channel bottom consisted of rock with no probe rod penetration possible.

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.