UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 66510

CSAH NO. 19

OVER THE

STRAIGHT RIVER

DISTRICT 6 - RICE COUNTY

SEPTEMBER 12, 2012

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 7423

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 66510, Piers 1 and 2, were found to be in good condition with no defects of structural significance observed. The channel bottom appeared stable with no significant changes since the previous inspection. The heavy timber debris accumulation observed during the previous inspection was no longer present.

INSPECTION FINDINGS:

(A) The channel bottom material consisted of sandy gravel and scattered 6 inch diameter cobbles with 3 inches of probe rod penetration.

(B) Riprap serves as a protective barrier between the abutments and piers, 2 feet diameter and smaller in size.

(C) The concrete of both piers was smooth and sound with no defects of structural significance observed.

RECOMMENDATIONS:

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

Inspection Team Leader

Roy Forsyth

Roy A. Forsyth, PE
Date 6/30/2014 License# 49270

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: 66510

Feature Crossed: Straight River

Feature Carried: CSAH No. 19

Location: District 6 - Rice County

Bridge Description: The bridge consists of three spans of multiple steel stringers supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and two reinforced concrete piers. The piers and abutments are founded on spread footings keyed into bedrock. The piers are labeled Piers 1 and 2 starting from the west end of the bridge.

2. INSPECTION DATA

Professional Engineer/Team Leader: Roy A. Forsyth, P.E.

Dive Team: Brandon Corr, Charles Euwema

Date: September 12, 2012

Weather Conditions: Cloudy, 65°F

Underwater Visibility: 1.0 foot

Waterway Velocity: 1.0 ft/s

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2.

General Shape: The piers consist of oblong concrete shafts with rounded ends supporting a hammerhead pier cap and supported by rectangular spread footings.

Maximum Water Depth at Substructure Inspected: Approximately 1.3 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap on the south end of Pier 2.

Water Surface: The waterline was approximately 14.3 feet below reference.
Waterline Elevation = 1041.0

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/9/12

Item 113: Scour Critical Bridges: Code I/91

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.
_____Yes __X__ No

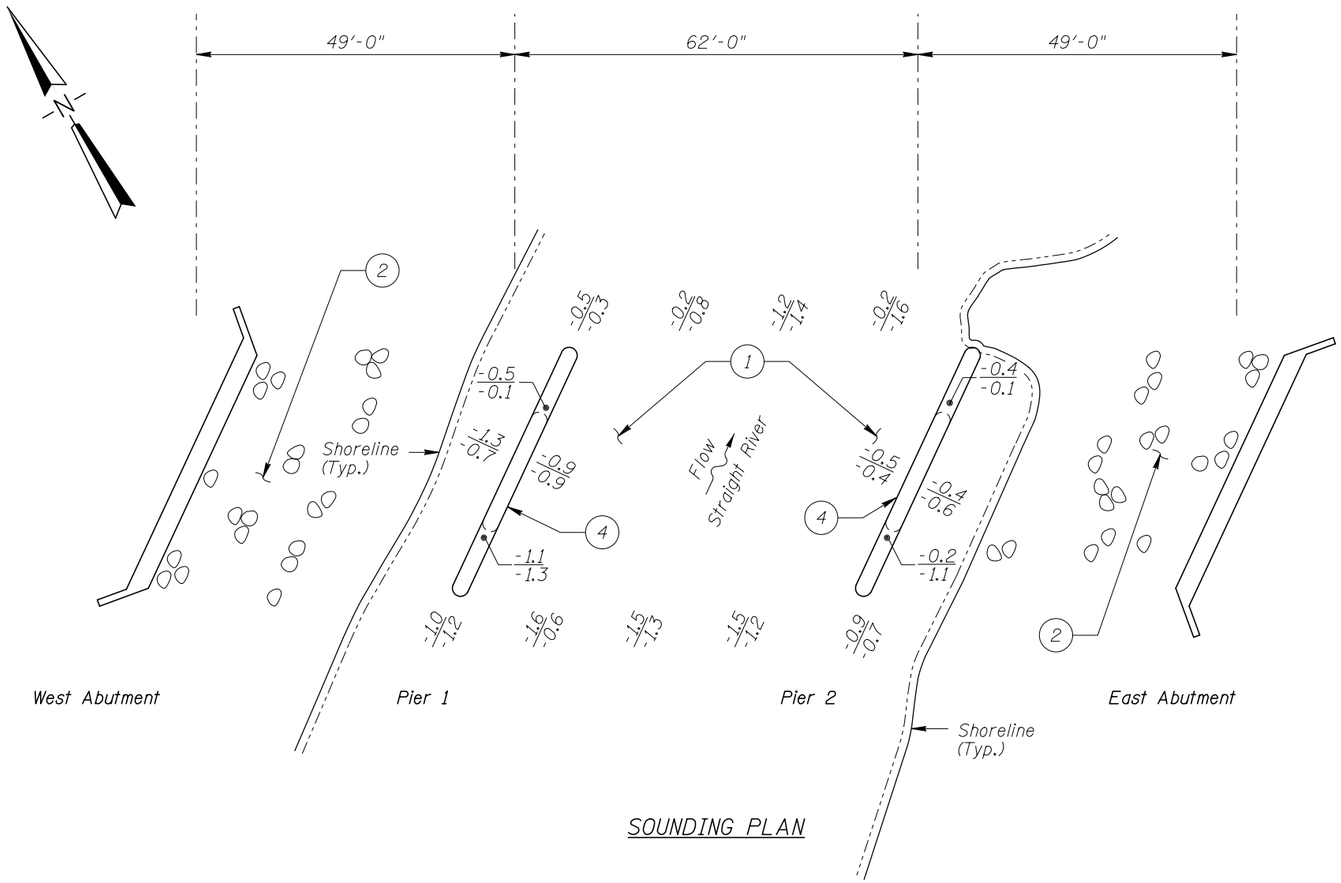
6. STRUCTURAL ELEMENT CONDITION RATING

Item #	Element Description	Quantity	Unit	Conditions				
				1	2	3	4	5
210	Concrete Pier Wall	40	LF	40				
985	Slope and Slope Protection	1	EA	1				

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

Photograph 2. View of Pier 1, Looking Southeast.

Photograph 3. View of Pier 2, Looking Southeast.



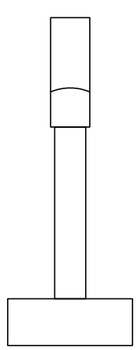
SOUNDING PLAN

GENERAL NOTES:

1. Piers 1 and 2 were inspected at this bridge.
2. At the time of inspection, on September 12, 2012, the waterline was located approximately 14.3 feet below the top of the cap at the South end of Pier 2. This corresponds to a waterline elevation of 1041.0 based on design drawings.
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 sandy gravel and scattered 6 inch diameter cobbles with 3 inches of probe rod penetration.
2. Riprap, 2 feet diameter and smaller in size, protected both abutments against scour/erosion.
3. The concrete of both piers was smooth and sound with no defects of structural significance observed.



TYPICAL END VIEW OF PIERS

N.T.S.

Note:

All soundings based on 2012 waterline location.

Legend

-4.5 Sounding Depth from Waterline (9/12/12)
-4.0 Sounding Depth from Waterline (10/23/07)

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

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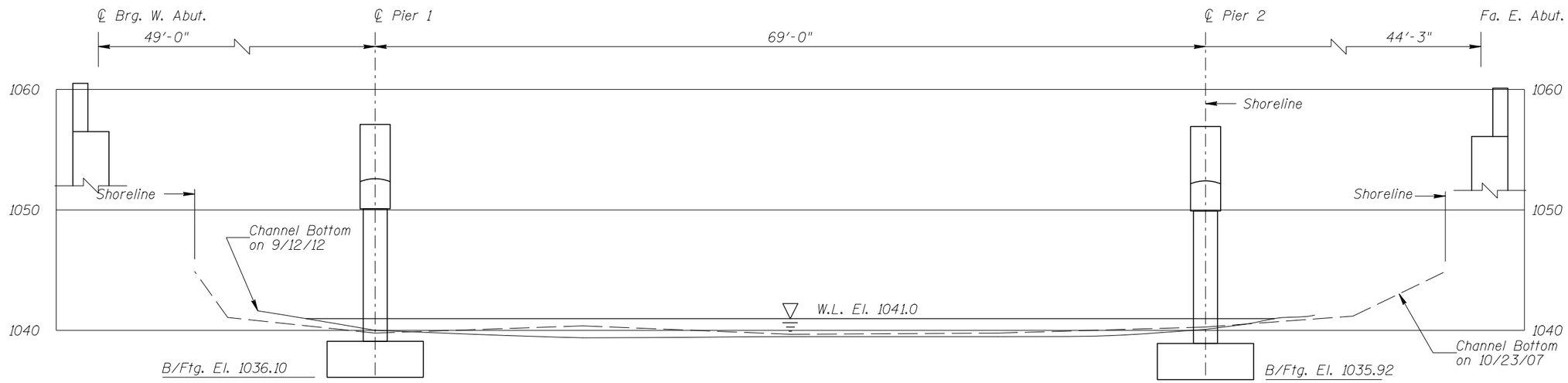
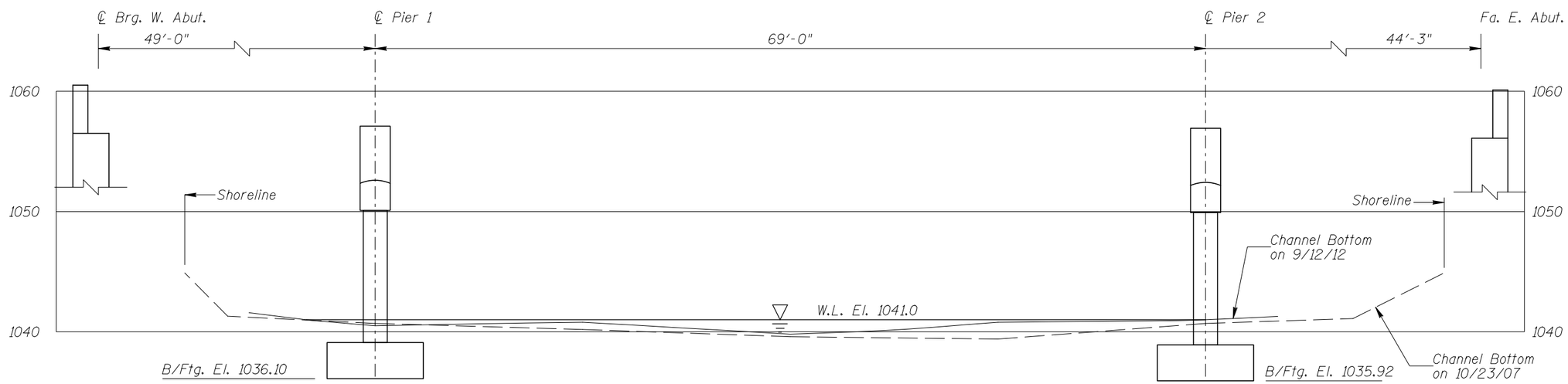
OVER THE STRAIGHT RIVER
DISTRICT 6, RICE COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: JTF	COLLINS ENGINEERS INC 123 North Wacker Drive Suite 900 Chicago, Il. 60606 (312) 704-9300 www.collinsengr.com	Date: Sept. 2012
Checked By: DGS		Scale: NTS
Code: 52210122		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
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UNDERWATER BRIDGE INSPECTION

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UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: JTF	COLLINS ENGINEERS INC. 123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com	Date: Sept. 2012
Checked By: DGS		Scale: 1"=10'
Code: 52210122		Figure No.: 2

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

INSPECTORS: Collins Engineers, Inc. DATE: September 12, 2012

ON-SITE TEAM LEADER: Roy A. Forsyth, P.E.

BRIDGE NO: 66510 WEATHER: Cloudy, 65°F

WATERWAY CROSSED: Straight River

DIVING OPERATION: _____ SCUBA _____ SURFACE SUPPLIED AIR

X OTHER Inspection by Wading

PERSONNEL: Brandon Corr, Charles Euwema

EQUIPMENT: Dry Suit, Sounding Pole, Lead Line, Probe Rod, Camera, Scraper

TIME IN WATER: 10:30 a.m.

TIME OUT OF WATER: 11:00 a.m.

WATERWAY DATA: VELOCITY 1.0 ft/s

VISIBILITY 1.0 foot

DEPTH 5.2 feet maximum at Pier 2

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: The concrete of Piers 1 and 2, was found to be in good condition with no defects of structural significance observed. The channel bottom appeared stable with no changes since the previous inspection.

FURTHER ACTION NEEDED: _____ YES X 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. 66510
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Roy A. Forsyth, P.E.
WATERWAY CROSSED Straight River

INSPECTION DATE September 12, 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

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.	UNIT DESCRIPTION	MAXIMUM DEPTH OF WATER	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 1	1.3’	N	7	N	9	N	7	8	8	8	7	7	7	N	N	N	N	N
	Pier 2	0.9’	N	7	N	9	N	7	8	8	8	N	8	7	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: The concrete of Piers 1 and 2, was found to be in good condition with no defects of structural significance observed. The channel bottom appeared stable with no changes since the previous inspection.

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.