

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 27595

103 (CARTWAY ROAD)

OVER

ELM CREEK

CITY OF CHAMPLIN



MAY 19, 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 inspected at structure No. 27595, corrugated steel pipe culvert, was found to be in good condition with no defects of structural significance.

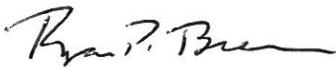
INSPECTION FINDINGS:

- (A) The corrugated steel pipe exhibited light corrosion from the waterline to the bottom of the pipe with no significant loss of section.
- (B) At both ends of the culvert and the downstream two thirds of the culvert the channel bottom material consisted of silty sand, stones and riprap up to 16 inches in diameter. At the upstream one third of the culvert the corrugated steel pipe was completely exposed.

RECOMMENDATIONS:

- (A) 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,

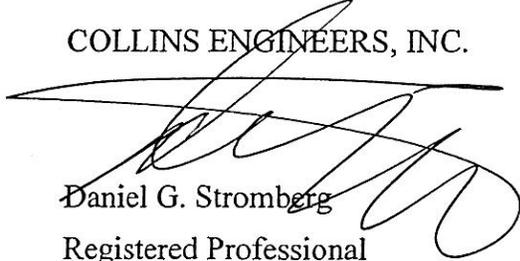
PROFESSIONAL ENGINEER

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: 27595

Feature Crossed: Elm Creek

Feature Carried: 103 (Cartway Road)

Location: Hennepin County, City of Champlin

Bridge Description: The structure consists of a corrugated steel pipe culvert.

2. INSPECTION DATA

Professional Engineer Diver: Ryan P. Breen, P.E.

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

Date: May 19, 2012

Weather Conditions: Sunny, 80° F

Underwater Visibility: 3 feet

Waterway Velocity: 2 ft/s

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Corrugated Steel Pipe Culvert.

General Shape: Oval Corrugated Steel Pipe.

Maximum Water Depth at Substructure Inspected: Approximately 8.0 feet.

4. WATERLINE DATUM

Water Level Reference: Top of the Culvert pipe at the center of the downstream opening.

Water Surface: The waterline was approximately 8.3 feet below the reference.

Assumed Waterline Elevation 91.7.

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

Item 62: Culvert: Code 7

Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/05/12

Item 113: Scour Critical Bridges: Code E/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:

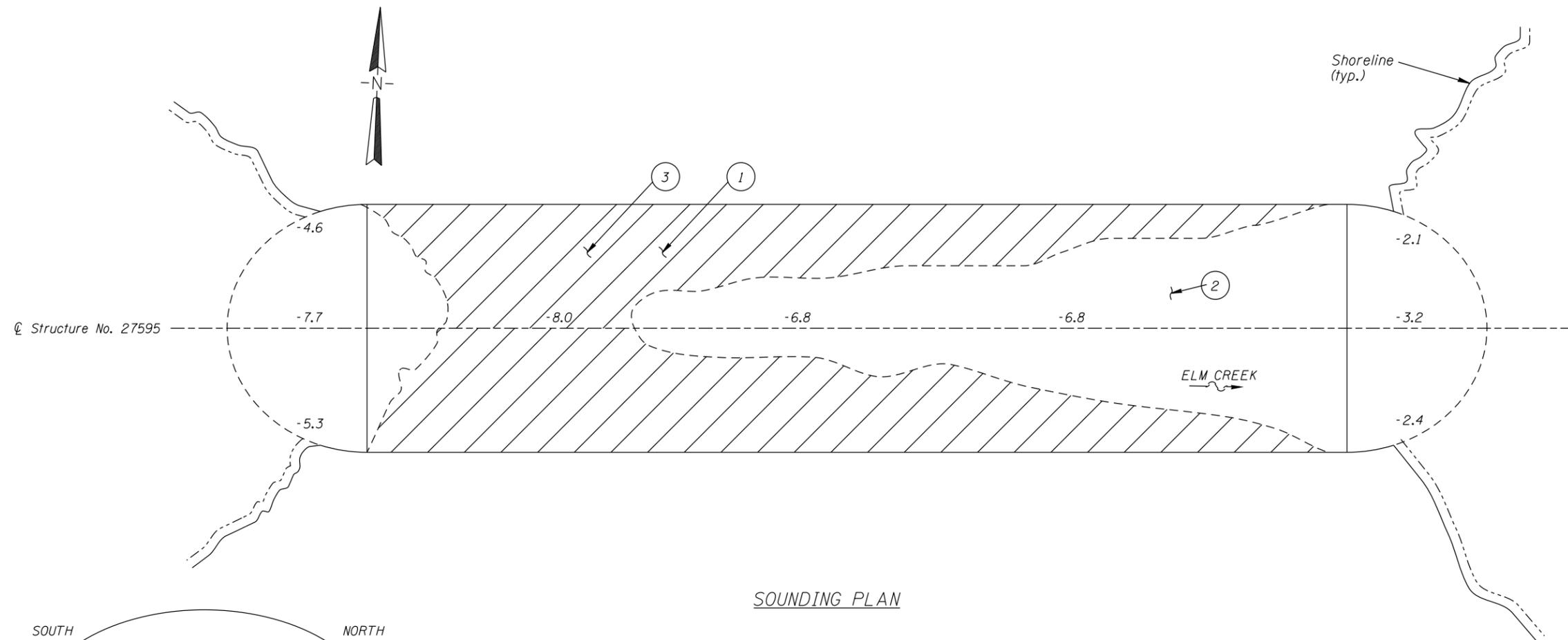
Item #	Element Description	Quantity	Unit	Conditions				
				1	2	3	4	5
240	Corrugated Metal Pipe Culvert	135	LF	135				



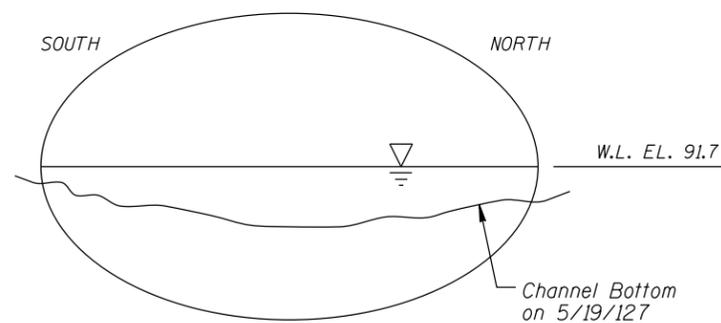
Photograph 1. View of Downstream Opening, Looking Southwest.



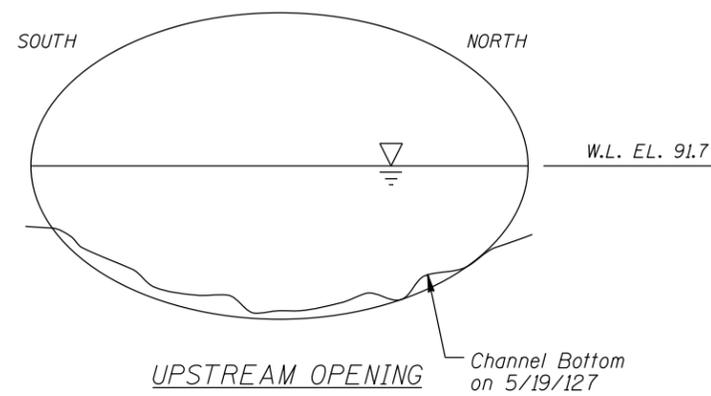
Photograph 2. View of Upstream Opening, Looking Southeast.



SOUNDING PLAN



DOWNSTREAM OPENING



UPSTREAM OPENING

INSPECTION NOTES:

- ① Corrugated steel pipe exhibited light corrosion from the waterline to the bottom of the pipe.
- ② The culvert floor was covered by a layer of silty sand, stones, and riprap up to 16 inches in diameter.
- ③ The corrugated steel pipe floor was clean of any debris and/or infill.

GENERAL NOTES:

- 1. The entire length of the corrugated steep pipe culvert was inspected underwater.
- 2. At the time of inspection, on May 19, 2012, the waterline was located approximately 8.3 feet below the top of the corrugated steel pipe culvert at the center of the downstream opening. Since insufficient elevation information was available, a waterline reference of 100.0 was assumed. This corresponds to a waterline elevation of 91.7.
- 3. Soundings indicate the water depth at the time of inspection and are measured in feet.
- 4. Soundings were taken at approximately midpoints on the upstream and downstream openings and at quarter points along the pipe centerline.

Legend

- 0.4 Sounding Depth (05/19/12)
- Exposed Corrugated Steel Pipe

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 27595 CARTWAY ROAD OVER ELM CREEK DAKOTA COUNTY, CITY OF CHAMPLIN		
INSPECTION AND SOUNDING PLAN		
Drawn By: MBP	COLLINS ENGINEERS	Date: May, 2012
Checked By: DGS	<small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Scale: NTS
Code: 742327595		Figure No.: I

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 27595
 INSPECTORS Collins Engineers, Inc.
 ON-SITE TEAM LEADER Ryan P. Breen, P.E.
 WATERWAY CROSSED ELM CREEK

INSPECTION DATE May 19, 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	CULVERT	FOOTINGS	DISPLACEMENT	OTHER (HEADWALLS)	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
	Culvert	8.0'	N	N	N	7	7	7	N	N	7	7	7	7	7	N	N	N	N

REMARKS: Overall, the corrugated steel pipe culvert was found to be in good condition with no defects of structural significance. The steel exhibited light surface corrosion extending from the waterline to the channel bottom. The channel bottom appeared to be stable.

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.

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

INSPECTORS: Collins Engineers, Inc. DATE: May 19, 2012

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

BRIDGE NO: 27595 WEATHER: Sunny, 80° F

WATERWAY CROSSED: Elm Creek

DIVING OPERATION: SCUBA SURFACE SUPPLIED AIR
 OTHER

PERSONNEL: Marc B. Parker, Michael J. Banasiak

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

TIME IN WATER: 3:00 p.m.

TIME OUT OF WATER: 3:22 p.m.

WATERWAY DATA: VELOCITY 2 ft/s

VISIBILITY 3 feet

DEPTH 8.0 feet maximum

ELEMENTS INSPECTED: Culvert

REMARKS: Overall, the corrugated steel pipe culvert was found to be in good condition with no defects of structural significance. The steel exhibited light surface corrosion extending from the waterline to the channel bottom. The channel bottom appeared to be stable.

FURTHER ACTION NEEDED: YES NO

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