UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 7821

CR 615

OVER

SPRING RIDGE CREEK

ST. LOUIS COUNTY

JUNE 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 units inspected at structure No. 7821, two parallel pre-cast round concrete culverts, were very recently installed/constructed and in very good condition. The culverts were well aligned and well constructed. All the joints were in good condition and are offset within normal tolerances. At both ends of both culverts, the channel was well armored with 2 foot diameter and smaller riprap.

INSPECTION FINDINGS:

(A) The concrete surfaces of both pre-cast round concrete culverts were in excellent condition. It appears that the culverts were recently installed/constructed.

(B) A 2 to 3 inch accumulation of silt was observed along the bottom of both pre-cast round concrete culverts.

(C) The channel bottom material at the upstream and downstream ends of the culverts consisted of 2 foot diameter and smaller riprap with 3 to 4 inches of soft silt. Channel appeared to be well armored.

RECOMMENDATIONS:

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

Inspection Team Leader:
Daniel G. Stromberg, 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: 7821

Feature Crossed: Spring Ridge Creek

Feature Carried: CR 615

Location: St. Louis County

Bridge Description: The structure consists of two parallel pre-cast round concrete culverts.

2. INSPECTION DATA

Professional Engineer Diver: Daniel G. Stromberg, P.E.

Dive Team: Clayton Brookins, Breanne Stromberg

Date: June 19, 2012

Weather Conditions: Rain, 70^{o} F

Underwater Visibility: 3 feet

Waterway Velocity: None / Negligible

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Two parallel pre-cast round concrete culverts.

General Shape: 8 foot diameter round concrete culverts

Maximum Water Depth at Substructure Inspected: Approximately 4.5 feet.

4. WATERLINE DATUM

Water Level Reference: Top of the outside of the concrete pipe.

Water Surface: The waterline was approximately 5.0 feet below the reference.
Assumed Waterline Elevation 95.0.

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

Item 62: Culvert: Code 9

Item 61: Channel and Channel Protection: Code 9

Item 92B: Underwater Inspection: Code B/06/12

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	Reinforce Concrete Culvert	180	LF	180				

Photograph 1. View of Upstream Opening, Looking East.

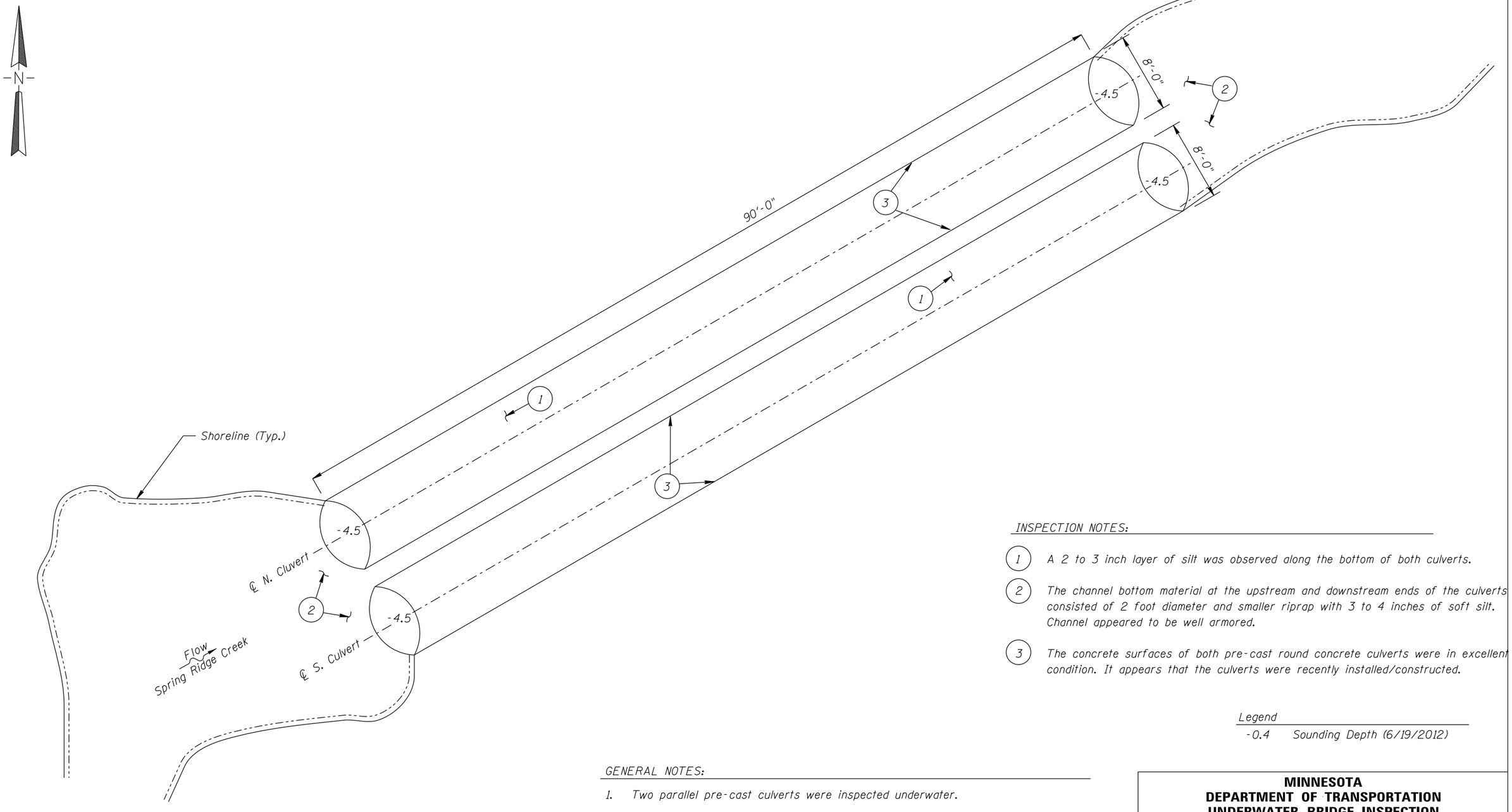
Photograph 2. View of Downstream Opening, Looking Southeast.

Photograph 3. Overall View of North Culvert, Looking Northeast.

Photograph 4. Overall View of South Culvert, Looking Northeast.

Photograph 5. View of Typical Concrete Condition in Culvert.

Photograph 6. View of Typical Joint in Culvert.



INSPECTION NOTES:

1. A 2 to 3 inch layer of silt was observed along the bottom of both culverts.
2. The channel bottom material at the upstream and downstream ends of the culverts consisted of 2 foot diameter and smaller riprap with 3 to 4 inches of soft silt. Channel appeared to be well armored.
3. The concrete surfaces of both pre-cast round concrete culverts were in excellent condition. It appears that the culverts were recently installed/constructed.

Legend

-0.4 Sounding Depth (6/19/2012)

GENERAL NOTES:

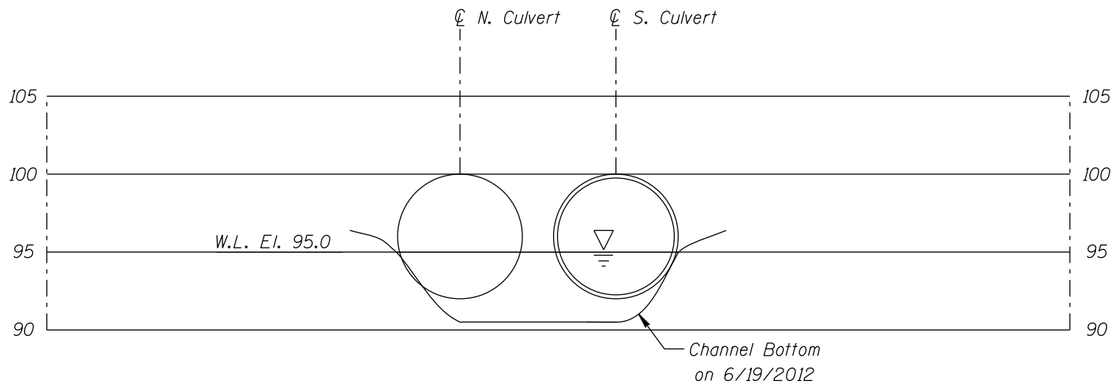
1. Two parallel pre-cast culverts were inspected underwater.
2. At the time of inspection, on June 19, 2012, the waterline was located approximately 5.0 feet below the top of the outside of the culvert pipe. Since insufficient elevation information was available, an elevation of 100.0 was assumed. This corresponds to a waterline elevation of 95.0.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

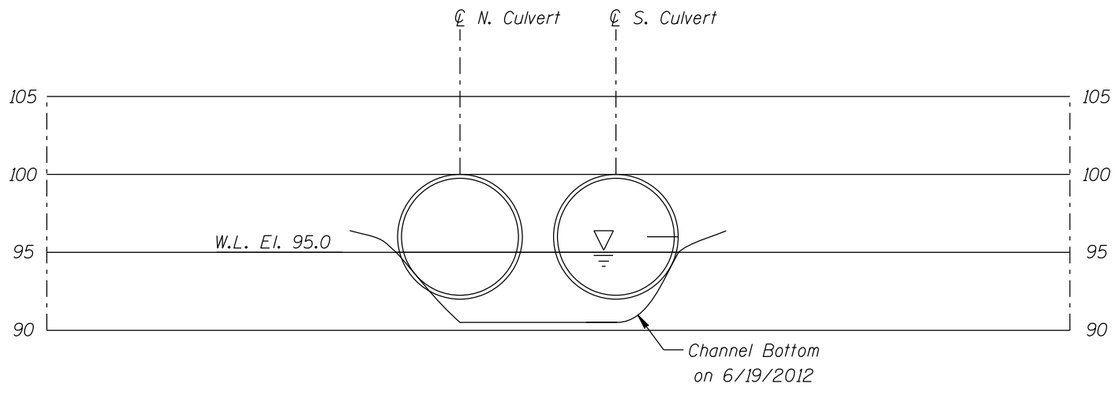
STRUCTURE NO. 7821
CR 615 OVER SPRING RIDGE CREEK
ST. LOUIS COUNTY COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: BLV	COLLINS ENGINEERS 123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com	Date: JUNE 2012
Checked By: LJ		Scale: NTS
Code: 74237821		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
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UPSTREAM AND DOWNSTREAM
FASCIA PROFILES

Drawn By: BLV	COLLINS ENGINEERS 123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com	Date: JUNE 2012
Checked By: LJ		Scale: NTS
Code: 74237821		Figure No.: 2

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

DAILY DIVING REPORT

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

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

BRIDGE NO: 7821 WEATHER: Rain, 70° F

WATERWAY CROSSED: Spring Ridge Creek

DIVING OPERATION: X SCUBA _____ SURFACE SUPPLIED AIR

_____ OTHER_____

PERSONNEL: Clayton Brookins, Breanne Stomberg

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

TIME IN WATER: 3:30 P.M.

TIME OUT OF WATER: 4:30 P.M.

WATERWAY DATA: VELOCITY None / Negligible

VISIBILITY 3 feet

DEPTH 4.5 feet maximum

ELEMENTS INSPECTED: Two Parallel Round Pre-Cast Concrete Culverts

REMARKS: The two parallel pre-cast round concrete culverts, were very recently installed/constructed and in overall very good condition. The culverts were well aligned and well constructed. All the joints were in good condition and are offset within normal tolerances. At both ends of both culverts, the channel was well armored with 2 foot diameter and smaller riprap.

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. 7821
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Daniel G. Stromberg, P.E.
WATERWAY CROSSED Spring Ridge Creek

INSPECTION DATE June 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

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	CULVERT SURFACES	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
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	North Culvert	4.5’	N	9	N	9	N	9	N	9	9	N	9	9	N	N	N	N	N
2	South Culvert	4.5’	N	9	N	9	N	9	N	9	9	N	9	9	N	N	N	N	N

REMARKS: The two parallel pre-cast round concrete culverts, were very recently installed/constructed and in overall very good condition. The culverts were well aligned and well constructed. All the joints were in good condition and are offset within normal tolerances. At both ends of both culverts, the channel was well armored with 2 foot diameter and smaller riprap.

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.