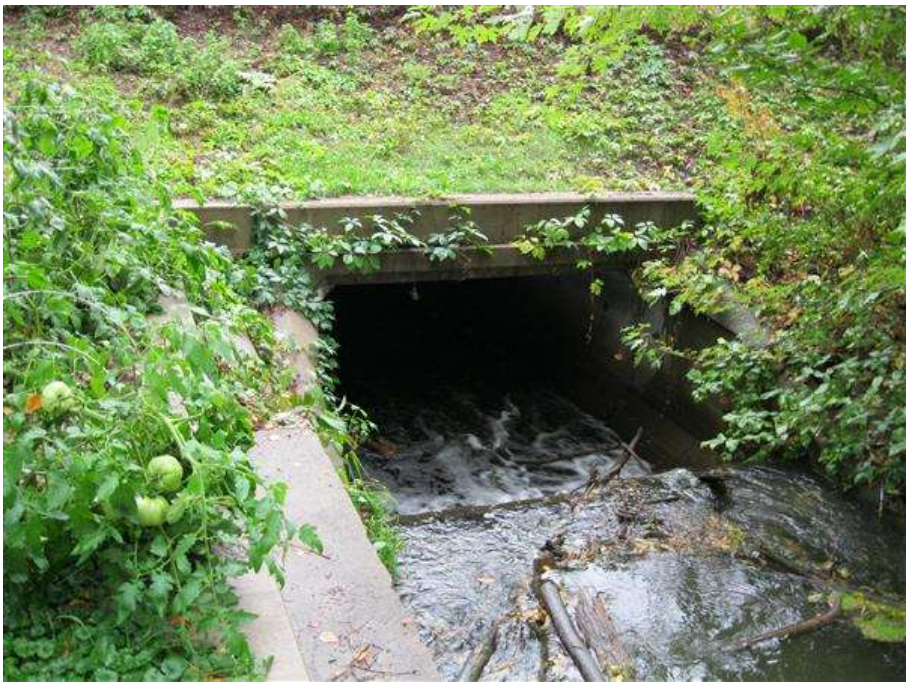
2015 ROUTINE
BRIDGE INSPECTION REPORT



BRIDGE # 62522
CSAH 45 over CO DITCH # 2

DISTRICT: Metro **COUNTY: Ramsey** **CITY/TOWNSHIP: New Brighton**

Date(s) of Inspection: 10/26/2015
Equipment Used:

Owner: County Highway Agency

Inspected By: Essler, Brian

Report Written By: Brian Essler
Report Reviewed By: Nicklaus Fischer
Final Report Date: 01/07/2016

MnDOT Bridge Office
3485 Hadley Avenue North
Oakdale, MN 55128

Table of Contents

MnDOT Structure Inventory Report

Bridge ID: 62522 CSAH 45 **over** CO DITCH # 2 **Date:** 01/07/2016

GENERAL

Agency Br. No.
District Metro
Maint. Area **Crew**
County 062 - Ramsey
City New Brighton
Township
Desc. Loc. 0.4 MI N OF JCT TH 694
Sect., Twp., Range 20 - 030N - 23W
Latitude **Deg** 45 **Min** 4 **Sec** 16.38
Longitude **Deg** 93 **Min** 12 **Sec** 19.54
Custodian 02 - County Highway Agency
Owner 02 - County Highway Agency
BMU Agreement
Year Built 1967
MN Year Reconstructed 1989
FHWA Year Reconstructed
MN Temporary Status
Bridge Plan Location 3 - COUNTY
Date Opened to Traffic
On-Off System 1 - ON
Legislative District 50B

STRUCTURE

Service On 1 - Highway
Service Under 5 - Waterway
Main Span Type
5 - Prestress or Precast 13 - Box Culvert
Main Span Detail
Appr. Span Type

Appr. Span Detail
Skew 12 R
Culvert Type W105D
Barrel Length 91 ft.
Cantilever ID

NUMBER OF SPANS

MAIN: 2 **APPR:** 0 **TOTAL:** 2
Main Span Length 10.2 ft.
Structure Length 22.5 ft.
Deck Width (Out-to-Out) 0.0 ft.
Deck Material N - Not Applicable
Wear Surf Type 6 - Bituminous
Wear Surf Install Year
Wear Course/Fill Depth 4.25 ft.
Deck Membrane 0 - None
Deck Rebars N - Not Applicable (no deck)
Deck Rebars Install Year
Structure Area (Out-to-Out) 0 sq. ft.
Roadway Area (Curb-to-Curb) sq. ft.
Sidewalk Width **Lt** 0.00 ft. **Rt** 0.00 ft.
Curb Height **Lt** 0.00 ft. **Rt** 0.00 ft.
Rail Type **Lt** NN **Rt** NN

ROADWAY

Bridge Match ID (TIS) 0
Roadway O/U Key Route On Structure
Route Sys 04 - CSAH **Number** 45
Roadway Name or Description
CSAH 45
Level of Service 1 - MAINLINE
Roadway Type 2 - 2-way traffic
Control Section (TH Only)
Reference Point 000+00.650
Detour Length 1.0 mi
Lanes **On** 2 **Under** 0
ADT 5179 **Year** 2008
HCADT 0 **ADTT** 0 **%**
Functional Class 16 - Urban - Minor Arterial

RDWY DIMENSIONS

If Divided	NB-EB	SB-WB
Roadway Width	50.00 ft.	ft.
Vertical Clearance	ft.	ft.
Max. Vert. Clear.	ft.	ft.
Horizontal Clear.	ft.	ft.
Lateral Clearance	ft.	ft.

Appr. Surface Width 50.0 ft.
Bridge Roadway Width 0.0 ft.
Median Width On Bridge ft.

MISC. BRIDGE DATA

Structure Flared 0 - No flare
Parallel Structure N - No parallel structure
Field Conn. ID
Abutment Foundation N - N/A
(Material/Type) N - N/A
Pier Foundation N - N/A
(Material/Type) N - N/A
Historic Status 5 - Not eligible

PAINT

Year Painted
Unsound Paint %
Painted Area sq. ft.
Primer Type
Finish Type

BRIDGE SIGNS

Posted Load 0 - Not Required
Traffic 0 - Not Required
Horizontal 0 - Not Required
Vertical N - Not Applicable

INSPECTION

Userkey 102
Unofficial Structurally Deficient N
Unofficial Functionally Obsolete N
Unofficial Sufficiency Rating 97.8
Routine Inspection Date 10/26/2015
Routine Inspection Frequency 24
Inspector Name County, Ramsey
Status A - Open

NBI CONDITION RATINGS

Deck N - Not Applicable
Unsound Deck %
Superstructure N - Not Applicable
Substructure N - Not Applicable
Channel 7 - Needs minor repairs
Culvert 6 - Deterioration or initial disinte

NBI APPRAISAL RATINGS

Structure Evaluation 6
Deck Geometry N
Underclearances N
Water Adequacy 8 - Bridge Above Approache
Approach Alignment 7 - Better than present minir

SAFETY FEATURES

Bridge Railing N - NOT REQUIRED
GR Transition N - NOT REQUIRED
Appr. Guardrail 0 - SUBSTANDARD
GR Termini N - NOT REQUIRED

IN DEPTH INSP.

	Y/N	Freq	Date
Frac. Critical			
Underwater			
Pinned Asbly.			
Spec. Feat.			

WATERWAY

Drainage Area (sq. mi.)
Waterway Opening 100 sq. ft.
Navigation Control 0 - No nav. control on waterw
Pier Protection
Nav. Clr. (ft.) **Vert.** ft. **Horiz.** ft.
Nav. Vert. Lift Bridge Clear. (ft.)
MN Scour Code E - CULVERT **Year**

CAPACITY RATINGS

Design Load 4 - H 20
Operating Rating 5 - NRAP 24.0
Inventory Rating 5 - NRAP 18.0
Posting VEH: **SEMI:** **DBL:**
Rating Date 01/23/1985

MnDOT Permit Codes
A: N - N/A
B: N - N/A
C: N - N/A

MnDOT Structure Inventory Report

Additional Roadways

Bridge ID: 62522 CSAH 45 over CO DITCH # 2 **Date:** 01/07/2016

MnDOT BRIDGE INSPECTION REPORT

01/07/2016

Inspector: County, Ramsey

BRIDGE 62522 CSAH 45 OVER CO DITCH # 2 **ROUTINE INSP. DATE: 10/26/2015**

County: Ramsey
City: New Brighton
Township:
Section: 20 Township: 030N Range: 23W
Span Type: 1 - Concrete 19 - Culvert (includes frame culverts)
List:
NBI Deck: N Super: N Sub: N Chan: 7 Culv: 6
Open, Posted, Closed: A - Open
MN Scour Code: E - CULVERT

Location: 0.4 MI N OF JCT TH 694
Route: 04 - CSAH 45 Ref. Pt.: 000+00.650
Control Section:
Maint. Area:
Local Agency Bridge Nbr.:

Length: 22.5 ft.
Deck Width: 0.0 ft.
Rdwy. Area/ Pct. Unsnd: sq. ft. / %
Paint Area/ Pct. Unsnd: sq. ft. / %
Culvert: W105D
Postings:

Appraisal Ratings - Approach: 7 Waterway: 8
Required Bridge Signs - Load Posting: 0 - Not Required Traffic: 0 - Not Required
Horizntal: 0 - Not Required Vertical: N - Not Applicable

Unofficial Structurally Deficient N
Unofficial Functionally Obsolete N
Unofficial Sufficiency Rating 97.8

Structure Unit:

ELEM NBR	ELEMENT NAME	ENV	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
241	Reinforced Concrete Culvert	2	Routine	10/26/2015	223 LF	0	218	5	0	N/A
			Routine	10/08/2013	223 LF	0	218	5	0	N/A

☐ Requires Monitoring ☐ Monitored

Notes: There is moderate scaling @ both culvert floors and water line 2015.
There is some deterioration of construction joints both culverts. Also major spalling where tie bars anchor to extend east & west 2009-2015.
Culvert #2 has deterioration & infiltration @ #3 & #5 joint 2009-2015. Culvert #2 has exposed re-bar with corrosion east of where RCP drains into culvert 2009-2015.
There is some minor amount of riprap in both culverts 2013-2015.
The tie bars are rusting 2007-2015.
Minor cracking and leaching are present. Some corrosion where structure was cut into top of culvert #1 on the east side of Long Lake Road 2001-2015.
There is evidence of corrosion and slight separation of joints. Lift holes need patching. There is spalling @ tie bars 2003-2015.
There is some scaling @ both culvert floors and water line 2009-2013.
North barrel was modified for local drainage system 1996 . Floor was inspected during widening 1989.

ELEM NBR	ELEMENT NAME	ENV	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
361	Scour Smart Flag	2	Routine	10/26/2015	1 EA	0	1	0	N/A	N/A
			Routine	10/08/2013	1 EA	0	1	0	N/A	N/A

☐ Requires Monitoring ☐ Monitored

Notes: Minor scour @ NE & SE corners of the bank. Also some erosion of riprap 2003-2015.

ELEM NBR	ELEMENT NAME	ENV	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
388	Culvert Headwall, Wingwall or Other End Treatment	2	Routine	10/26/2015	2 EA	0	2	0	0	N/A
			Routine	10/08/2013	2 EA	0	2	0	0	N/A

☐ Requires Monitoring ☐ Monitored

Notes: The north end of east headwall is offset 3" from south end. 2013-2015
There is a major crack at west end headwall. Also settlement of riprap @ north side of west end headwall 2009-2015.
Minor to moderate cracking is present 2001-2015. Minor spalling @ top of east end Headwall #2 2003-2015.
Replaced in 1989.

Structure Unit:

ELEM NBR	ELEMENT NAME	ENV	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5
964	Critical Finding Smart Flag	2	Routine	10/26/2015	1 EA	1	0	N/A	N/A	N/A
			Routine	10/08/2013	1 EA	1	0	N/A	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: DO NOT DELETE THIS CRITICAL FINDING SMART FLAG.

982	Approach Guardrail	2	Routine	10/26/2015	1 EA	1	0	0	N/A	N/A
			Routine	10/08/2013	1 EA	1	0	0	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: Guardrail system in place during inspection 2003-2015.
Guardrail system updated in 1990.
Cable system guardrail

984	Deck & Approach Drainage	2	Routine	10/26/2015	1 EA	0	1	0	N/A	N/A
			Routine	10/08/2013	1 EA	0	1	0	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: Debris in vain drains. Needs clean out 2005-2015. Drainage system is functioning properly 2003.

985	Slopes & Slope Protection	1	Routine	10/26/2015	1 EA	1	0	0	N/A	N/A
			Routine	10/08/2013						

☐Requires Monitoring ☐Monitored

Notes: Minor erosion on all corners 2015

986	Curb & Sidewalk	2	Routine	10/26/2015	1 EA	0	1	0	N/A	N/A
			Routine	10/08/2013	1 EA	0	1	0	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: Major spalls in curb on east side of Long Lake Rd. 2013-2015
Moderate settlement in curb on east side of Long Lake Rd. 2013-2015
Moderate cracking on both sides. There are major spalls on the west side curb 2007-2015.
Minor cracking 2005. Superficial deterioration 2003.

987	Roadway over Culvert	2	Routine	10/26/2015	1 EA	0	1	0	N/A	N/A
			Routine	10/08/2013	1 EA	0	1	0	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: Roadway has cracks with moderate settlement 2001-2015.
Roadway cracks sealed 2015

General Notes: 2015 Bridge safety inspection was completed on 10/26/2015 by Brian Essler & Dan Bodelson
2013 Bridge safety inspection was completed on 10/03/2013 by Dan Bodelson & Brian Essler
2011 Bridge safety inspection was conducted by B. Wieman on 10/5/2011.
2009 Bridge safety inspection was completed by B. Wieman 7/08/2009.
2007 Bridge safety inspection was completed by B. Wieman 7/25/2007.
BRIDGE WIDENED IN 1989. Culvert extensions are pre-cast sectional 5'H X 10'W X 6'L.
South culvert is 101 LF X 5'H X 10'W. North culvert is 121 LF X 5'H X 10'W.Total length is 222 LF.

Structure Unit:

ELEM NBR	ELEMENT NAME	ENV	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4	QTY CS 5

58. Deck NBI:	Culvert
36A. Brdg Railings NBI:	Guardrail is not attached to culvert
36B. Transitions NBI:	Guardrail is not attached to culvert
36C. Appr Guardrail NBI:	Single cable guardrail
36D. Appr Guardrail Terminal NBI:	
59. Superstructure NBI:	Culvert
60. Substructure NBI:	Culvert
61. Channel NBI:	Minor bank erosion, Minor debris in channel
62. Culvert NBI:	Moderate scaling and minor cracking with minor spalling
71. Waterway Adeq NBI:	Greater than 3' of freeboard
72. Appr Roadway Alignment NBI:	Minor sight problem due to horizontal curve
Inventory Notes:	

Brian Essler
Inspector's Signature

Nicklaus Fischer
Reviewer's Signature

Pictures

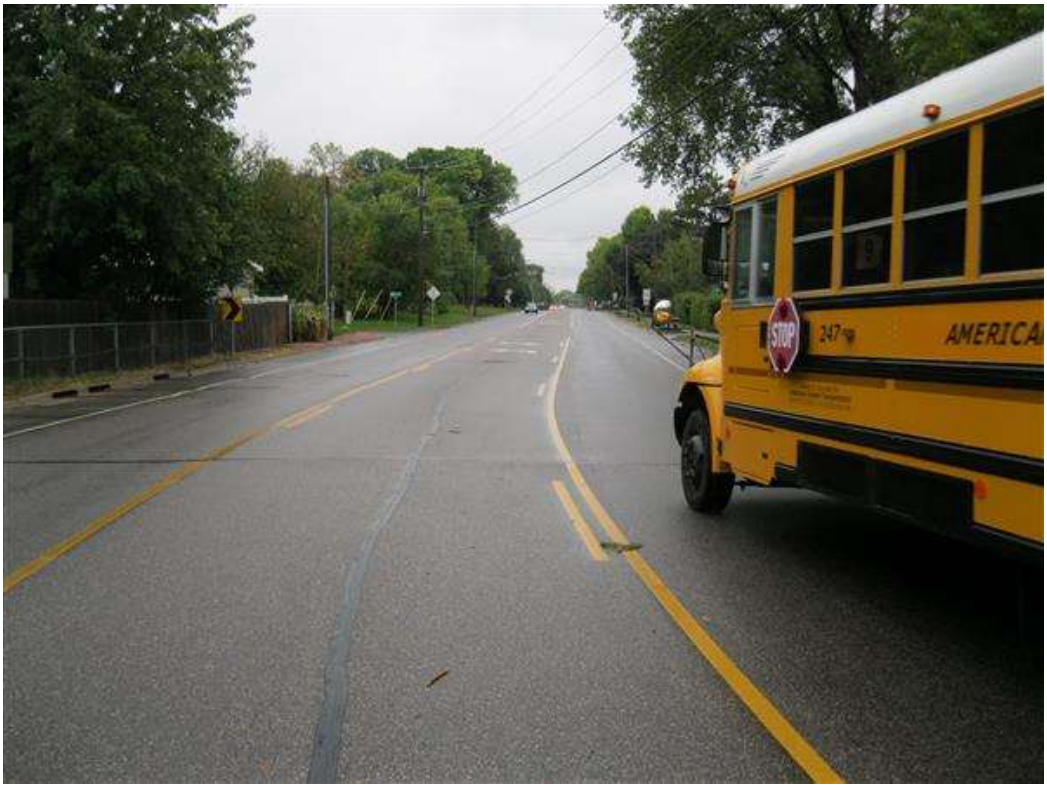


Photo 1 -

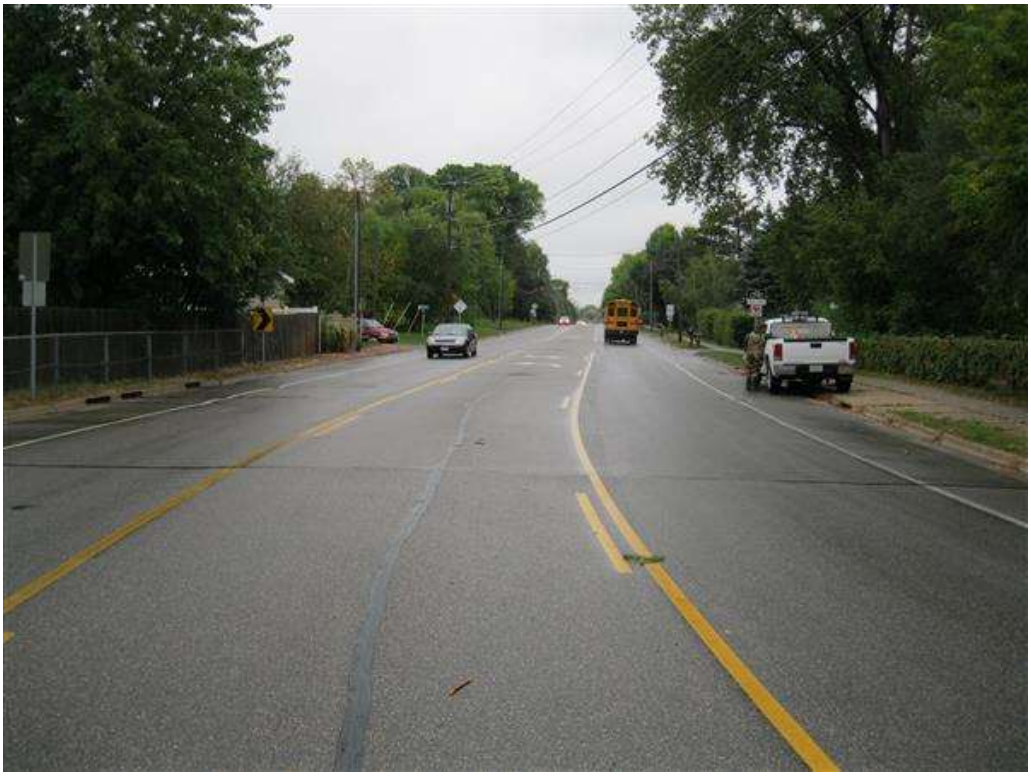


Photo 2 -

Pictures

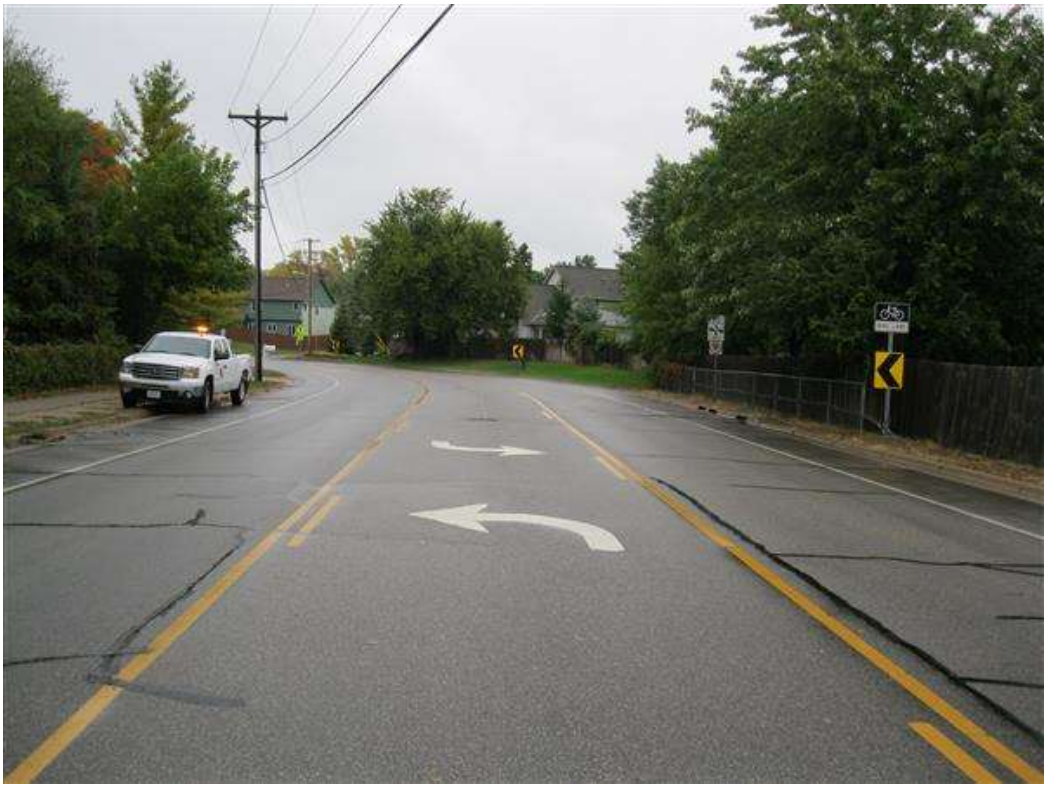


Photo 3 -

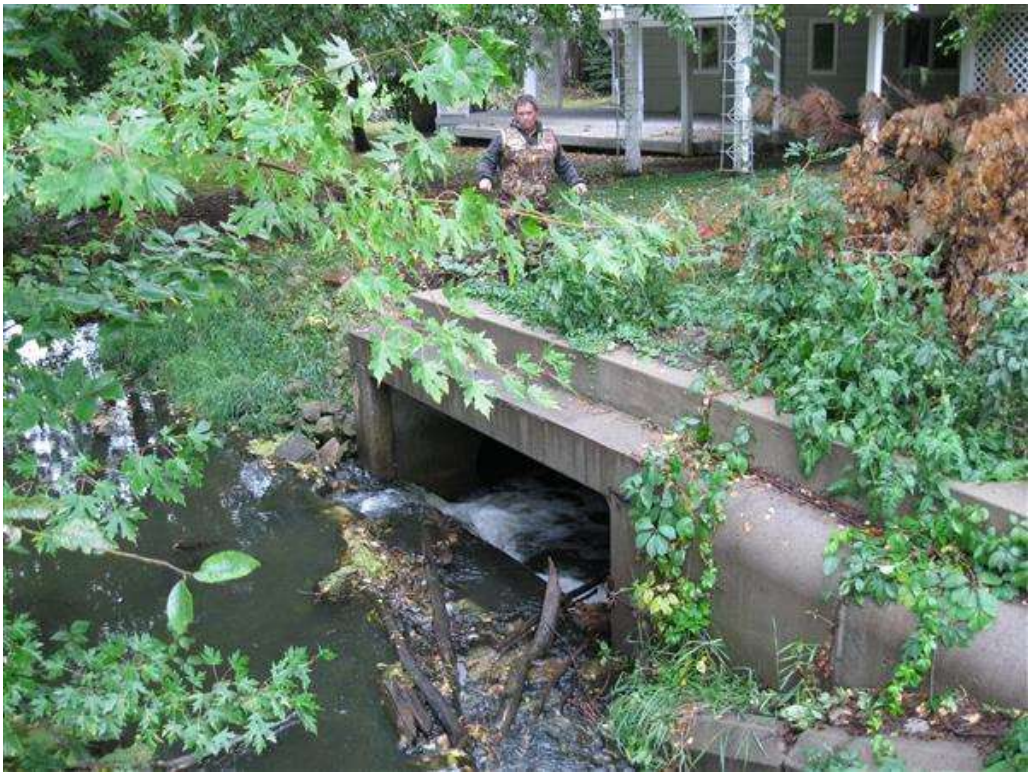


Photo 4 -

Pictures

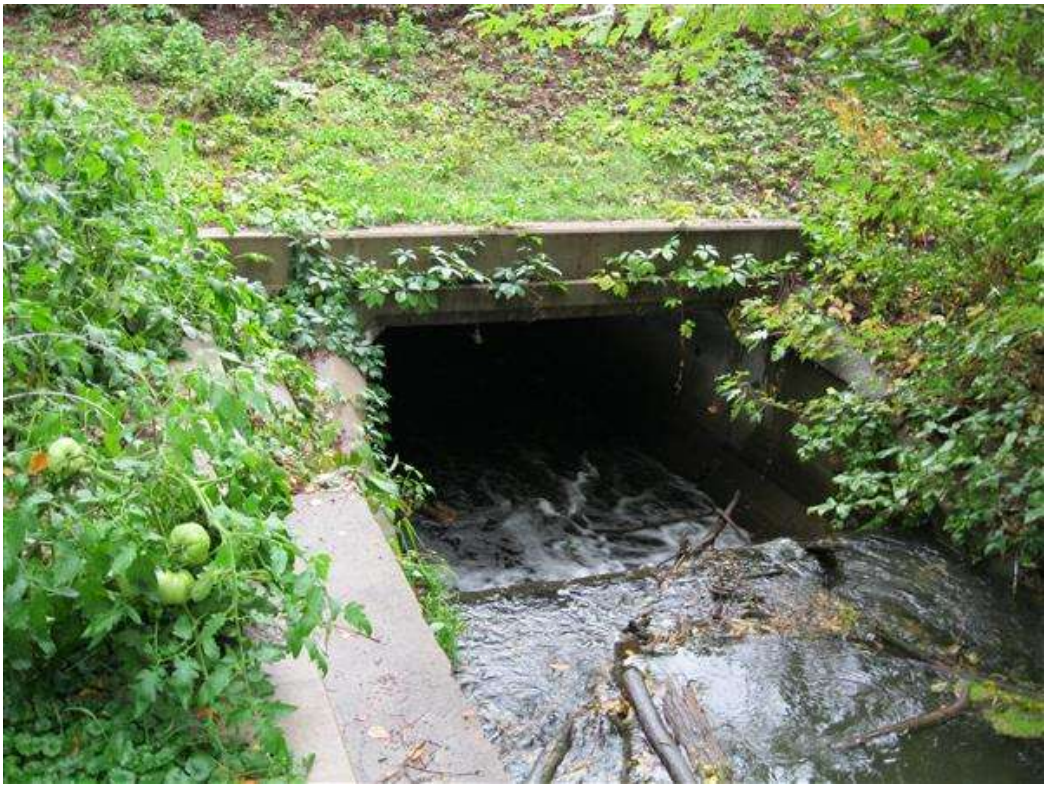


Photo 5 -

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4. IMG_0209.JPG

5. IMG_0208.JPG

Culvert

Bridge No.: 62522

Culvert

Item	*Description*	*Condition*	*Comments*
Culvert Overall:	**NBI Item 62**	6	Moderate scaling and minor cracking with minor spalling

MnDOT Scour Code: E - CULVERT

Waterway Inspection

Item No.	Yes, No, NA or Not Visible	Description
1.		Is there a significant build-up of debris?
2.		Is there erosion of the embankment around the headwalls?
3.		Is there any indication of cracking or settlement of the culvert barrel or headwalls?
4.		Is there shifting of the channel alignment or erosion of the stream banks? Also are there cracks in the soil of the banks parallel to the stream?
5.		Do scour measurements indicate that the streambed is below the bottom of the cutoff walls at the ends of the culvert?
6.		Is there evidence of distress in the roadway or approaches such as cracks in the pavement and sags in the guardrail or roadway? Also, is there cracking, erosion, or failure of the side slopes at or adjacent to the culvert?
7.		Is there an indication of "piping" of water along the outside of the culvert such as cavities adjacent to the barrel?
8.		Is the culvert without a bottom and scour measurements indicate that the streambed is below the plan streambed elevations?
9.		Has the riprap or other scour protection been damaged or otherwise made ineffective?
10.		If the culvert was designed to be buried (fill inside the culvert), is the material still in the barrel?

Notes:

- Streambed sounding data is to be documented.

- Soundings of the streambed should be done at each end of the culvert. If Items #5 or #8 are "Yes", then a streambed profile of the scoured area should be done.

- If "Yes" is the answer to any items on the checklist, notify the Program Administrator for further instructions.

Comments:

Completed On _____ By _____

Channel

Bridge No.: 62522

Channel

Item	*Description*	*Condition*	*Comments*
Channel Overall:	**NBI Item 61**	7	Minor bank erosion, Minor debris in channel

Bank Protection/Revetment

Item	*Description*	*Condition*	*Comments*
Upstream Bank Protection:			
Downstream Bank Protection:			
Bridge Revetment:			
MnDOT Scour Code:	E - CULVERT		

Underwater Inspection

Underwater Inspection By Divers:

No. of Piers To Be Inspected:

Waterway Characteristics

Reference Point:		**High Water Elev.:**		**Current Water Elev.:**	
Pile Tip Elev.:		**Low Water Elev.:**		**Current Streambed Elev.:**	
		Scour Hole Elev.:		**Current Scour Hole Elev.:**	

Waterway Inspection: (Not applicable for culverts)

Item No.	Yes, No, NA or Not Visible	Description
1.		Is there a significant build-up of debris?
2.		Is there a change in the horizontal alignment of the handrail or structure members such as beams?
3.		Is there any indication of vertical movement of the superstructure?
4.		Is there shifting of the channel alignment or erosion of the stream banks? Also are there cracks in the soil of the banks parallel to the stream?
5.		Is there a significant change in the alignment of hte exterior bearings?
6.		Are there cracks or other signs of distress in the approach pavement?
7.		Is the water currently on the superstructure?
8.		Are the slopes unstable?
9.		Do scour measurements indicate: (place a check by all that apply.)
		☐ A. that the streamed is two or more feet below the bottom of pier footings which are supported on piles?
		☐ B. scour below the bottom of spread footings?
		☐ C. scour below the bottom of high abutment footings?
		☐ D. that the streambed has scoured five feet or more below the original streambed elevation at pier bents?

10. _____ Have the scour countermeasures been damaged or otherwise made ineffective?

Notes:

- Streambed sounding data is to be documented.

- Per MnDOT Bridge Inspection Manual Section 2.2.5, at bridges that require x-sections, take channel x-sections, along the upstream and/or downstream face of the bridge.

- If "Yes" is the answer to any items on the checklist, notify the Program Administrator for further instructions.

Comments:

Completed On _____ By _____

Scour POA

Bridge No.: 62522

Scour POA

1. Is POA on File? _____
2. Date of most recent POA: _____
3. Here is a link to MnDOT's Bridge Scour website for other resources:
   - *http://www.dot.state.mn.us/bridge/hydraulics/scour.html*
   - The Scour POA should be kept in the bridge file and/or uploaded to SIMS using the "Inspection Files" tab.

Implementation

Scour POAs are required to be implemented by FHWA.

1. Is this POA being implemented? _____

Channel Section

Upstream

Custom Label	Location	Elevation

Downstream

Custom Label	Location	Elevation

Distance Measured From:

Elev. of Ref. Pt:

Depth to Water Surface:

WS Elev:

Vertical Datum:

Comments:

Distance Measured From:

Elev. of Ref. Pt:

Depth to Water Surface:

WS Elev:

Vertical Datum:

Maintenance

Element	Source Code	Work Code	Description	P/R	Priority	Work Order #	Year Due	Last Viewed	Entered	Start Date	Completed

BRIDGE STRUCTURAL ASSESSMENT REPORT

PURPOSE:

This report is a structural assessment of the structure and its ability to carry loads based on conditions identified in the attached bridge inspection report. The assessment is only a cursory review intended to provide guidance as to the relative hazards for structural conditions and deficiencies identified. This report is mandatory for all fracture critical bridges and is completed by the MnDOT Bridge Office upon receipt of the 7 Day FC Report; however, it is an OPTIONAL tool for agencies to utilize at their discretion for all other inspection types.

BRIDGE NO.: 62522

BRIDGE OWNER: County Highway Agency

DATE INSPECTED: 10/26/2015

STRUCTURE TYPE: Concrete Culvert (includes frame culverts)

FACILITY CARRIED: CSAH 45

FEATURES INTERSECTED: CO DITCH # 2

TYPE OF INSPECTION:
- ☑ ROUTINE
- ☐ FRACTURE CRITICAL
- ☐ PINNED ASSEMBLY:
- ☐ SPECIAL:
- ☐ DAMAGE:
- ☐ OTHER:

Check all that apply:

Redundancy:
- ☐ Load Path
- ☐ Structural
- ☐ Internal

Connection Type:
- ☐ Riveted
- ☐ Bolted
- ☐ Welded
- ☐ Other:

1. Was a critical finding identified during this inspection or upon structural review? ☐ Yes ☐ No

   a) If selected "**Yes**" above, state briefly the finding(s):

2. If a critical finding was identified, what is the current status?
   - ☐ Pending
   - ☐ Resolved
   - ☐ N/A

   a) Briefly state actions taken:

3. Does the condition of any bridge component indicate impaired function? Examples of bridge components with impaired function include elements that are: frozen or immoveable, out-of-plumb or misaligned, distorted or structurally deformed, excessively deteriorated, cracked, broken, eroded or scoured. ☐ Yes ☐ No

a) If selected "**Yes**" above, state briefly the component(s) and condition(s):

4. Does the overall condition of the bridge, or any of its components mentioned in Question 3, suggest the need for detailed structural analysis and/or a revised load rating? ☐ Yes ☐ No

   a) If selected "**Yes**", state the reason for this recommendation and indicate a proposed timeframe in accordance with State of Minnesota Rule 8810.9500 (Subpart 2):

5. Based on the structural assessment of these findings, recommendations include:

   ☐ Repair/Maintenance ☐ Monitoring Plan
   ☐ Other ☐ Increased Inspection Frequency

   Explain recommended actions:

6. Other comments:

Bridge Office Reviewer