

**2015 ROUTINE  
BRIDGE INSPECTION REPORT**



**BRIDGE # 62516  
CSAH 44(SILV LK) over RICE CREEK**

**DISTRICT:** Metro

**COUNTY:** Ramsey

**CITY/TOWNSHIP:** New Brighton

**Date(s) of Inspection:** 09/22/2015

**Equipment Used:**

**Owner:** County Highway Agency

**Inspected By:** Essler, Brian

**Report Written By:** Brian Essler

**Report Reviewed By:** Nicklaus Fischer

**Final Report Date:** 12/30/2015

MnDOT Bridge Office  
3485 Hadley Avenue North  
Oakdale, MN 55128



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# MnDOT Structure Inventory Report

Bridge ID: 62516

CSAH 44(SILV LK)

over RICE CREEK

Date: 12/30/2015

GENERAL			
Agency Br. No.			
District Metro			
Maint. Area		Crew	
County 062 - Ramsey			
City New Brighton			
Township			
Desc. Loc. 0.3 MI N OF JCT CSAH 11			
Sect., Twp., Range		18 - 030N - 23W	
Latitude	Deg 45	Min 5	Sec 18.32
Longitude	Deg 93	Min 13	Sec 8.16
Custodian 02 - County Highway Agency			
Owner 02 - County Highway Agency			
BMU Agreement			
Year Built		1965	
MN Year Reconstructed			
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	5 - Highway-pedestrian
Service Under	5 - Waterway
Main Span Type	
5 - Prestress or Precast 13 - Box Culvert	
Main Span Detail	
Appr. Span Type	
Appr. Span Detail	
Skew	0
Culvert Type	W106T
Barrel Length	64 ft.
Cantilever ID	

NUMBER OF SPANS		
MAIN: 3	APPR: 0	TOTAL: 3
Main Span Length	10.0	ft.
Structure Length	33.3	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	2.30	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 5.00	Rt 5.00
Curb Height	Lt 0.58	Rt 0.58
Rail Type	Lt 37	Rt 37

ROADWAY	
Bridge Match ID (TIS) 0	
Roadway O/U Key Route On Structure	
Route Sys	04 - CSAH Number 44
Roadway Name or Description	
CSAH 44	
Level of Service	1 - MAINLINE
Roadway Type	2 - 2-way traffic
Control Section (TH Only)	
Reference Point	003+00.660
Detour Length	3.0 mi
Lanes	On 4 Under 0
	ADT 8167 Year 2008
HCACT	0 ADTT 0 %
Functional Class 16 - Urban - Minor Arterial	

RDWY DIMENSIONS			
If Divided	NB-EB	SB-WB	
Roadway Width	44.00	ft.	ft.
Vertical Clearance		ft.	ft.
Max. Vert. Clear.		ft.	ft.
Horizontal Clear.		ft.	ft.
Lateral Clearance		ft.	ft.
Appr. Surface Width	56.0	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	78.9
Routine Inspection Date	09/22/2015
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	6 - Bank slump; minor damage
Culvert	6 - Deterioration or initial disint

NBI APPRAISAL RATINGS	
Structure Evaluation	6
Deck Geometry	N
Underclearances	N
Water Adequacy	8 - Bridge Above Approache
Approach Alignment	8 - Equal to present desirabl

SAFETY FEATURES	
Bridge Railing	0 - SUBSTANDARD
GR Transition	0 - SUBSTANDARD
Appr. Guardrail	1 - MEETS STANDARDS
GR Termini	0 - SUBSTANDARD

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

WATERWAY	
Drainage Area (sq. mi.)	138.0
Waterway Opening	180 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	0 - Other/Unknown
Operating Rating	5 - NRAP 24.0
Inventory Rating	5 - NRAP 18.0
Posting VEH:	SEMI: DBL:
Rating Date	01/08/1985

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

# MnDOT Structure Inventory Report

## Additional Roadways

Bridge ID: 62516

CSAH 44(SILV LK) over RICE CREEK

Date: 12/30/2015

# MnDOT BRIDGE INSPECTION REPORT

12/30/2015

Inspector: County, Ramsey

**BRIDGE 62516 CSAH 44(SILV LK) OVER RICE CREEK**

**ROUTINE INSP. DATE: 09/22/2015**

County: Ramsey	Location: 0.3 MI N OF JCT CSAH 11	Length: 33.3 ft.
City: New Brighton	Route: 04 - CSAH 44 Ref. Pt.: 003+00.660	Deck Width: 0.0 ft.
Township:	Control Section:	Rdwy. Area/ Pct. Unsnd: sq. ft. / %
Section: 18 Township: 030N Range: 23W Maint. Area:		Paint Area/ Pct. Unsnd: sq. ft. / %
Span Type: 1 - Concrete 19 - Culvert (includes frame culverts)	Local Agency Bridge Nbr.:	Culvert: W106T
List:		Postings:
NBI Deck: N Super: N Sub: N Chan: 6 Culv: 6	Open, Posted, Closed: A - Open	
	MN Scour Code: E - CULVERT	

Appraisal Ratings - Approach: 8	Waterway: 8	Unofficial Structurally Deficient	N
Required Bridge Signs - Load Posting: 0 - Not Required	Traffic: 0 - Not Required	Unofficial Functionally Obsolete	N
Horizontal: 0 - Not Required	Vertical: N - Not Applicable	Unofficial Sufficiency Rating	78.9

Structure Unit:

ELEM NBR	ELEMENT NAME	ENV	REPORT TYPE	INSP. DATE	QUANTITY	QTY	QTY	QTY	QTY	QTY
						CS 1	CS 2	CS 3	CS 4	CS 5
241	Reinforced Concrete Culvert	2	Routine	09/22/2015	194 LF	0	194	0	0	N/A
			Routine	09/18/2013	194 LF	0	194	0	0	N/A

Requires Monitoring                       Monitored

Notes: There is a 4' crack at top on east end culvert #3 2013-2015  
 There is delamination with exposed rebar and corrosion at top east end & moderate delamination & scaling at top on west end culvert #2 2013-2015.  
 There is moderate delamination & scaling at top on west end culvert #3 2013-2015  
 There is delamination with exposed rebar and corrosion at top & bottom west end culvert #1 2011-2015.  
 There is moderate scaling all culverts at flow line 2009-2015. There is a major spall #1 culvert at north side of east end at construction joint 2009-2015.  
 There is minor amount of debris in culvert #1 2009.  
 There is debris in culvert #1 2007.  
 Tree is blocking east end culvert #2 2011.  
 There is minor - moderate deterioration of construction joints east end of all culverts 2007-2011.  
 South barrel east end has some spalling @ construction joint 1990-2005.  
 There is moderate delamination at top inside west end of culvert #3 2011.  
 There is minor delamination at west end of culvert #3 2005-2009.  
 Spalling at east end culverts #1 & #2 2001-2009.  
 Culverts also contain minor scaling 2003-2007.

361	Scour Smart Flag	2	Routine	09/22/2015	1 EA	0	1	0	N/A	N/A
			Routine	09/18/2013	1 EA	0	1	0	N/A	N/A

Requires Monitoring                       Monitored

Notes: There is moderate erosion and slumping of bank west end north side 2007-2015.  
 Minor scour effecting channel alignment. Some slumping & undermining of banks on the west side 2003-2005.  
 Minor erosion of banks on the east side 2003-2013.

388	Culvert Headwall, Wingwall or Other End Treatment	2	Routine	09/22/2015	2 EA	0	2	0	0	N/A
			Routine	09/18/2013	2 EA	0	2	0	0	N/A

Requires Monitoring                       Monitored

Notes: Minor spalling west end NW wingwall 1997-2015.  
 Exposed rebar with minor corrosion west end of culvert #1 & #2 2001-2015.

## 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	09/22/2015	1 EA	1	0	N/A	N/A	N/A
			Routine	09/18/2013	1 EA	1	0	N/A	N/A	N/A

 Requires Monitoring Monitored

Notes: &lt; none &gt;

981	Signing	1	Routine	09/22/2015	1 EA	1	0	0	0	0
			Routine	09/18/2013	1 EA	1	0	0	0	0

 Requires Monitoring Monitored

Notes: Type 3 object markers in place 2013-2015

982	Approach Guardrail	1	Routine	09/22/2015	1 EA	1	0	0	N/A	N/A
			Routine	09/18/2013	1 EA	1	0	0	N/A	N/A

 Requires Monitoring Monitored

Notes: Twisted end treatment on 40 MPH roadway requires crash attenuators. 2013-2015  
 There are no crash attenuators at the end of guardrail - not required 2009-2012.  
 Minor damage to twisted end section at SE corner & the SW corner 2001-2015.

985	Slopes & Slope Protection	1	Routine	09/22/2015	1 EA	0	1	0	N/A	N/A
			Routine	09/18/2013	1 EA	0	1	0	N/A	N/A

 Requires Monitoring Monitored

Notes: There is moderate erosion of banks on the east side 2007-2015.  
 Some slumping & undermining of banks at the west side. Minor erosion of banks on the east side 2003-2005.  
 Need fill & turf establishment at NW corner of bridge. Erosion by wingwall at NW corner slope 1997-2015.  
 NE & NW corner surge basin in spillway has settled and cracked 1997-2015.

987	Roadway over Culvert	2	Routine	09/22/2015	1 EA	0	1	0	N/A	N/A
			Routine	09/18/2013	1 EA	0	1	0	N/A	N/A

 Requires Monitoring Monitored

Notes: There is moderate cracking 2007-2015. Minor cracking 2005.  
 Bituminous overlay 2004.

General Notes: 2015 Bridge safety inspection conducted by B. Essler and D. Bodelson on 9/22/2015  
 2013 Bridge safety inspection conducted by B. Essler and D. Bodelson on 9/18/2013.  
 2011 Bridge safety inspection conducted by B. Wieman and N. Fischer on 9/26/2011  
 2009 Safety inspection completed by B. Wieman on 6/26/2009.  
 Safety inspection completed by B. Wieman 7/23/2007. Bituminous overlay in 2004.

58. Deck NBI: culvert

36A. Brdg Railings NBI: No railing present

36B. Transitions NBI: No railing present

36C. Appr Guardrail NBI: Guardrail in place and meets standards

36D. Appr Guardrail Terminal NBI: Twisted end treatments on a 40 MPH roadway.

59. Superstructure NBI: culvert

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
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- 60. Substructure NBI: culvert
- 61. Channel NBI: moderate erosion of banks on the east side. Minor scour effecting channel alignment. moderate erosion and slumping of bank west end north side
- 62. Culvert NBI: Delamination with exposed rebar. Moderate scaling at flow line.
- 71. Waterway Adeq NBI: Greater than 3' of freeboard
- 72. Appr Roadway Alignment NBI: No speed reduction required
- Inventory Notes:

Brian Essler  
 \_\_\_\_\_  
 Inspector's Signature

Nicklaus Fischer  
 \_\_\_\_\_  
 Reviewer's Signature



# Pictures



Photo 1 - Delamination west end north culvert 2013



Photo 2 - east end culverts 2013



# Pictures



Photo 3 - East end spillway 2013



Photo 4 - roadway northbound 2013



# Pictures



Photo 5 - roadway southbound 2013



Photo 6 - west end culverts 2013

## Pictures



Photo 7 - west end north culvert 2013



1. Delamination west end north culvert .JPG



2. east end culverts.JPG



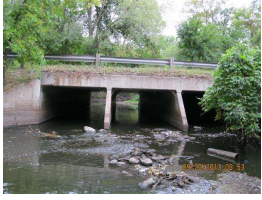
3. East end spillway.JPG



4. roadway northbound.JPG



5. roadway southbound.JPG



6. west end culverts.JPG



7. west end north culvert.JPG

## Culvert

Bridge No.: 62516

<b>Culvert</b>
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<i>Item</i>	<i>Description</i>	<i>Condition</i>	<i>Comments</i>
<b>Culvert Overall:</b>	<b>NBI Item 62</b>	<u>6</u>	Delamination with exposed rebar. Moderate scaling at flow line.

MnDOT Scour Code: E - CULVERT

<b>Waterway Inspection</b>
----------------------------

Item No.	Yes, No, NA or Not Visible	Description
1.	<u>No</u>	Is there a significant build-up of debris?
2.	<u>No</u>	Is there erosion of the embankment around the headwalls?
3.	<u>Yes</u>	Is there any indication of cracking or settlement of the culvert barrel or headwalls?
4.	<u>No</u>	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.	<u>No</u>	Do scour measurements indicate that the streambed is below the bottom of the cutoff walls at the ends of the culvert?
6.	<u>Yes</u>	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.	<u>No</u>	Is there an indication of "piping" of water along the outside of the culvert such as cavities adjacent to the barrel?
8.	<u>No</u>	Is the culvert without a bottom and scour measurements indicate that the streambed is below the plan streambed elevations?
9.	<u>No</u>	Has the riprap or other scour protection been damaged or otherwise made ineffective?
10.	<u>NA</u>	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: There is moderate erosion of banks on east side. Need fill and turf establishment at NW corner of bridge. 4' crack at top of east end culvert #3

Completed On 09/18/2013 By Brian Essler

### Channel

Bridge No.: 62516

#### Channel

<i>Item</i>	<i>Description</i>	<i>Condition</i>	<i>Comments</i>
<b>Channel Overall:</b>	<b>NBI Item 61</b>	<u>6</u>	moderate erosion of banks on the east side. Minor scour effecting channel alignment. moderate erosion and slumping of bank west end north side

#### Bank Protection/Revetment

<i>Item</i>	<i>Description</i>	<i>Condition</i>	<i>Comments</i>
<b>Upstream Bank Protection:</b>	_____	_____	_____
<b>Downstream Bank Protection:</b>	_____	_____	_____
<b>Bridge Revetment:</b>	_____	_____	_____
<b>MnDOT Scour Code:</b>	<u>E - CULVERT</u>		

#### Underwater Inspection

**Underwater Inspection By Divers:** \_\_\_\_\_

**No. of Piers To Be Inspected:** \_\_\_\_\_

#### Waterway Characteristics

<b>Reference Point:</b> _____	<b>High Water Elev.:</b> _____	<b>Current Water Elev.:</b> _____
<b>Pile Tip Elev.:</b> _____	<b>Low Water Elev.:</b> _____	<b>Current Streambed Elev.:</b> _____
	<b>Scour Hole Elev.:</b> _____	<b>Current Scour Hole Elev.:</b> _____

#### 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 the 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.)
	<input type="checkbox"/>	A. that the streambed is two or more feet below the bottom of pier footings which are supported on piles?
	<input type="checkbox"/>	B. scour below the bottom of spread footings?
	<input type="checkbox"/>	C. scour below the bottom of high abutment footings?
	<input type="checkbox"/>	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.: 62516

<b>Scour POA</b>
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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
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## 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
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# 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.: 62516

BRIDGE OWNER: County Highway Agency

DATE INSPECTED: 09/22/2015

STRUCTURE TYPE: Concrete

FACILITY CARRIED: CSAH 44(SILV LK)

Culvert (includes frame culverts)

FEATURES INTERSECTED: RICE CREEK

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

Check all that apply:

- |             |                                     |            |                                  |
|-------------|-------------------------------------|------------|----------------------------------|
| Redundancy: | <input type="checkbox"/> Load Path  | Connection | <input type="checkbox"/> Riveted |
|             | <input type="checkbox"/> Structural | Type:      | <input type="checkbox"/> Bolted  |
|             | <input type="checkbox"/> Internal   |            | <input type="checkbox"/> Welded  |
|             |                                     |            | <input type="checkbox"/> 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 immovable, 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:

- |   |   |
|---|---|
| <input type="checkbox"/> Repair/Maintenance | <input type="checkbox"/> Monitoring Plan                |
| <input type="checkbox"/> Other              | <input type="checkbox"/> Increased Inspection Frequency |

Explain recommended actions:

6. Other comments:

**Bridge Office Reviewer**