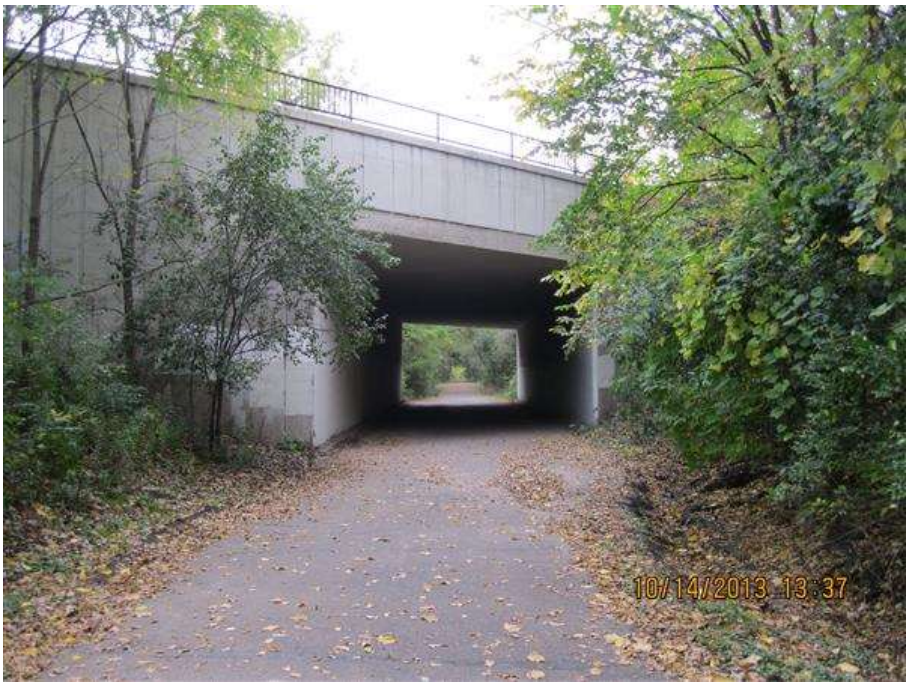
2015 ROUTINE
BRIDGE INSPECTION REPORT



BRIDGE # 62554
CSAH 30(LARPENT A) over DNR TRAIL

DISTRICT: Metro **COUNTY: Ramsey** **CITY/TOWNSHIP: Maplewood**

Date(s) of Inspection: 10/12/2015
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: 62554 CSAH 30(LARPENT A) **over** DNR TRAIL **Date:** 01/07/2016

GENERAL

Agency Br. No.
District Metro
Maint. Area **Crew**
County 062 - Ramsey
City Maplewood
Township
Desc. Loc. 0.4 MI E OF JCT TH 35E
Sect., Twp., Range 20 - 029N - 22W
Latitude **Deg** 44 **Min** 59 **Sec** 30.85
Longitude **Deg** 93 **Min** 4 **Sec** 49.65
Custodian 02 - County Highway Agency
Owner 02 - County Highway Agency
BMU Agreement
Year Built 1992
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 66A

STRUCTURE

Service On 1 - Highway
Service Under 3 - Pedestrian - bicycle
Main Span Type
1 - Concrete 08 - Rigid Frame
Main Span Detail
Appr. Span Type
Appr. Span Detail
Skew 44 R
Culvert Type
Barrel Length ft.
Cantilever ID

NUMBER OF SPANS

MAIN: 1 **APPR:** 0 **TOTAL:** 1
Main Span Length 33.3 ft.
Structure Length 38.4 ft.
Deck Width (Out-to-Out) 81.0 ft.
Deck Material 1 - Concrete Cast-in-Place
Wear Surf Type 6 - Bituminous
Wear Surf Install Year
Wear Course/Fill Depth 5.20 ft.
Deck Membrane 0 - None
Deck Rebars 1 - Epoxy Coated Reinforcing
Deck Rebars Install Year 1992
Structure Area (Out-to-Out) 3110 sq. ft.
Roadway Area (Curb-to-Curb) 2002 sq. ft.
Sidewalk Width **Lt** 0.00 ft. **Rt** 0.00 ft.
Curb Height **Lt** 0.50 ft. **Rt** 0.50 ft.
Rail Type **Lt** 28 **Rt** 28

ROADWAY

Bridge Match ID (TIS) 0
Roadway O/U Key Route On Structure
Route Sys 04 - CSAH **Number** 30
Roadway Name or Description
CSAH 30
Level of Service 1 - MAINLINE
Roadway Type 2 - 2-way traffic
Control Section (TH Only)
Reference Point 006+00.230
Detour Length 1.0 mi
Lanes **On** 2 **Under** 0
ADT 9960 **Year** 2008
HCADT 0 **ADTT** 0 **%**
Functional Class 16 - Urban - Minor Arterial

RDWY DIMENSIONS

If Divided	NB-EB	SB-WB
Roadway Width	52.00 ft.	ft.
Vertical Clearance	ft.	ft.
Max. Vert. Clear.	ft.	ft.
Horizontal Clear.	ft.	ft.
Lateral Clearance	ft.	ft.

Appr. Surface Width 52.0 ft.
Bridge Roadway Width 52.0 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 1 - CONC
(Material/Type) 1 - SPRD SOIL
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 97.1
Routine Inspection Date 10/12/2015
Routine Inspection Frequency 24
Inspector Name County, Ramsey
Status A - Open

NBI CONDITION RATINGS

Deck 6 - Satisfactory Condition
Unsound Deck %
Superstructure 7 - Good Condition
Substructure 7 - Good Condition
Channel N - Not Applicable
Culvert N - Not Applicable

NBI APPRAISAL RATINGS

Structure Evaluation 7
Deck Geometry 9
Underclearances N
Water Adequacy N - Not Applicable
Approach Alignment 7 - Better than present minir

SAFETY FEATURES

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

IN DEPTH INSP.

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

WATERWAY

Drainage Area (sq. mi.)
Waterway Opening sq. ft.
Navigation Control N - Not applicable, no waterw
Pier Protection
Nav. Clr. (ft.) **Vert.** ft. **Horiz.** ft.
Nav. Vert. Lift Bridge Clear. (ft.)
MN Scour Code A - NON WATER' **Year**

CAPACITY RATINGS

Design Load 9 - HS 25 (OR GREATER)
Operating Rating 5 - NRAP 74.9
Inventory Rating 5 - NRAP 25.0
Posting VEH: **SEMI:** **DBL:**
Rating Date 10/17/1991

MnDOT Permit Codes

A: N - N/A
B: N - N/A
C: N - N/A

MnDOT Structure Inventory Report

Additional Roadways

Bridge ID: 62554 CSAH 30(LARPENT A) over DNR TRAIL **Date:** 01/07/2016

MnDOT BRIDGE INSPECTION REPORT

01/07/2016

Inspector: County, Ramsey

BRIDGE 62554 CSAH 30(LARPENT A) OVER DNR TRAIL — ROUTINE INSP. DATE: 10/12/2015

County: Ramsey
City: Maplewood
Township:
Section: 20 Township: 029N Range: 22W
Span Type: 1 - Concrete 07 - Frame (except frame culverts)
List:
NBI Deck: 6 Super: 7 Sub: 7 Chan: N

Location: 0.4 MI E OF JCT TH 35E
Route: 04 - CSAH 30 Ref. Pt.: 006+00.230
Control Section:
Maint. Area:
Local Agency Bridge Nbr.:
Culv: N
Open, Posted, Closed: A - Open
MN Scour Code: A - NON WATERWAY

Length: 38.4 ft.
Deck Width: 81.0 ft.
Rdwy. Area/ Pct. Unsnd: 2002 sq. ft. / %
Paint Area/ Pct. Unsnd: sq. ft. / %
Culvert: N/A
Postings:

Appraisal Ratings - Approach: 7 Waterway: N
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 97.1

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
052	Top of Concrete Slab (No Overlay - Epoxy Rebar)	1	Routine	10/12/2015	3111 SF	0	3111	0	0	0
			Routine	10/15/2013	3111 SF	0	3111	0	0	0

☐ Requires Monitoring ☐ Monitored

Notes: Moderate cracking of the bituminous 2007-2015.
Select granular borrow with bituminous roadway was placed on top of bridge. Difficult to determine the condition of the deck 2005-2015.
Bituminous pavement was milled 1 1/2" in preparation for overlay at the time of inspection 2007.

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
145	Masonry, Other or Combination Material Arch	2	Routine	10/12/2015	112 LF	0	112	0	0	N/A
			Routine	10/15/2013	112 LF	0	112	0	0	N/A

☐ Requires Monitoring ☐ Monitored

Notes: Minor paint failure on east & west sides 2013-2015.
Minor spalls on east side 2013-2015.
Graffiti has been painted over 2013.
There are 7 minor vertical cracks east side & 7 minor vertical cracks west side 14 X 14' = 196 LF 2013-2015.
Minor deterioration - some vertical cracking and efflorescence present 2003-2011.
There are 6 minor vertical cracks east side & 7 minor vertical cracks west side 13 X 14' = 182 LF 2005-2011.

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
333	Masonry, Other or Combination Material Railing	2	Routine	10/12/2015	297 LF	0	297	0	N/A	N/A
			Routine	10/15/2013	297 LF	0	297	0	N/A	N/A

☐ Requires Monitoring ☐ Monitored

Notes: Railing on both sides have minor - moderate spalls cracks and spalls w/efflorescence 1997-2015.
Paint on metal railing is chalking and flaking off 2005-2015.
Minor deteriation of cork in joints 2013-2015.
Railing is combination conc. parapet and metal railing. 154 LF north side and 143 LF south side.

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
359	Underside of Concrete Deck Smart Flag	2	Routine	10/12/2015	1 EA	0	1	0	0	0
			Routine	10/15/2013	1 EA	0	1	0	0	0

☐Requires Monitoring ☐Monitored

Notes: There are 175 LF of unsealed minor to moderate size cracks. Distressed area <2%. 2015
Underside has minor - moderate cracks. (4 X 24') + (8 X 8') = 160 LF of cracks 2007-2013. Distressed area <2% 2007-2013.
Underside has 4 - 24' cracks w/efflorescence across span. Approximately 100 feet of cracks 2005.
Also rusting where shoe rested on forming 1995-2013.
There also is leaching of the south construction joint 2003-2015.

387	Reinforced Concrete Wingwall	2	Routine	10/12/2015	4 EA	0	4	0	0	N/A
			Routine	10/15/2013	4 EA	0	4	0	0	N/A

☐Requires Monitoring ☐Monitored

Notes: Some corrosion @ SE corner 2015
Abutment sidewalls south side caulked. 2015
Abutment wings have minor vertical & horizontal cracking & spalling w/efflorescence 2003-2015.
Spalling on exposed aggregate @ all 4 corners 2007-201.
Abutment sidewalls south side need caulking. Some corrosion @ SE corner 2003-2013.
Minor deteriation of cork in joints 2013.
Graffiti has been painted over 2013.

407	Bituminous Approach Roadway	1	Routine	10/12/2015	2 EA	0	2	0	0	N/A
			Routine	10/15/2013	2 EA	0	2	0	0	N/A

☐Requires Monitoring ☐Monitored

Notes: No settlement but bituminous approach has moderate cracking 2005-2015.
Bituminous mill & overlay operation in progress at the time of inspection 2007.

964	Critical Finding Smart Flag	2	Routine	10/12/2015	1 EA	1	0	N/A	N/A	N/A
			Routine	10/15/2013	1 EA	1	0	N/A	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: DO NOT DELETE THIS CRITICAL FINDING SMART FLAG.

981	Signing	2	Routine	10/12/2015	1 EA	1	0	0	0	0
			Routine	10/15/2013	1 EA	1	0	0	0	0

☐Requires Monitoring ☐Monitored

Notes: All appropriate signing in place 2003-2015.
New horizontal clearance signs in place 2005.

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
982	Approach Guardrail	2	Routine	10/12/2015	1 EA	1	0	0	N/A	N/A
			Routine	10/15/2013	1 EA	1	0	0	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: Twisted end treatment on all 4 corners. speed limit 35 MPH 2015
Guardrail system in place 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
984	Deck & Approach Drainage	2	Routine	10/12/2015	1 EA	1	0	0	N/A	N/A
			Routine	10/15/2013	1 EA	1	0	0	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: Drainage runs to the west and is functioning properly 2005-2015.

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
985	Slopes & Slope Protection	1	Routine	10/12/2015	1 EA	0	1	0	N/A	N/A
			Routine	10/15/2013	1 EA	0	1	0	N/A	N/A

☐Requires Monitoring ☐Monitored

Notes: There is some settlement of material at behind all wing walls 2011-2015.
There is some major erosion @ NW corner behind the wing wall 2009-2015. Material has been deposited on the DNR trail. Requires maintenance.
Moderate erosion @ NW corner 2007.
Minor erosion @ NW corner 2003-2005.

General Notes: 2013 Bridge safety inspection was conducted by Brian Essler & Dan Bodelson on 10/15/2015.
2013 Bridge safety inspection was conducted by Dan Bodelson & Brian Essler on 10/14/2013.
2011 Bridge safety inspection was conducted by B. Wieman on 10/14/2011.
2009 Bridge safety inspection was completed by B. Wieman on 8/14/2009.
2007 Bridge safety inspection was conducted by B. Wieman 8/3/2007.
Bridge safety inspection was conducted by Bret Wieman 9/9/2005.
1 1/2" bituminous mill & overlay by Ramsey County Maintenance Department 2007.
Graffiti is on both abutments and all wing walls 2005-2007.
Concrete rigid frame was built in 1992.

58. Deck NBI: Moderate cracking with leaching

36A. Brdg Railings NBI: Type F concrete railing

36B. Transitions NBI:

36C. Appr Guardrail NBI:

36D. Appr Guardrail Terminal NBI: design speed 40 MPH. Twisted end treatment

59. Superstructure NBI: Nonstructural cracking

60. Substructure NBI: Minor cracking and isolated spalls

61. Channel NBI: No waterway

62. Culvert NBI: Bridge

71. Waterway Adeq NBI: No waterway

72. Appr Roadway Alignment NBI: Minor sight distance problems with no speed reduction

Inventory Notes:

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

Brian Essler
Inspector's Signature

Nicklaus Fischer
Reviewer's Signature

Pictures

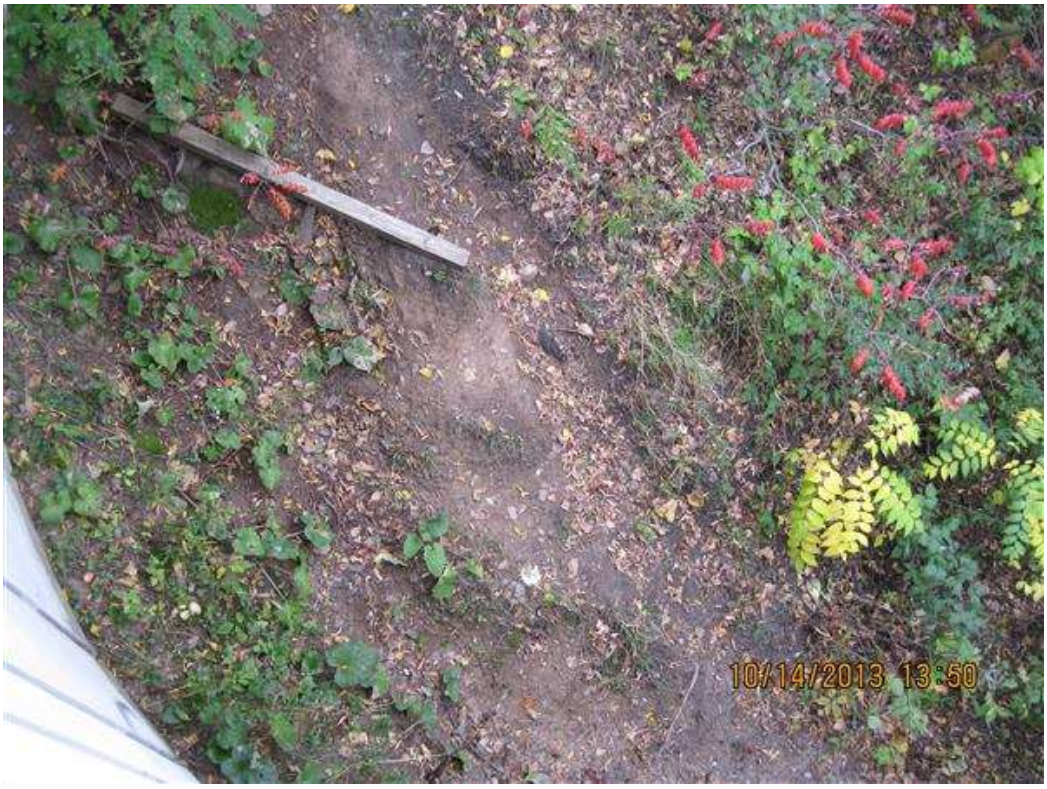


Photo 1 -

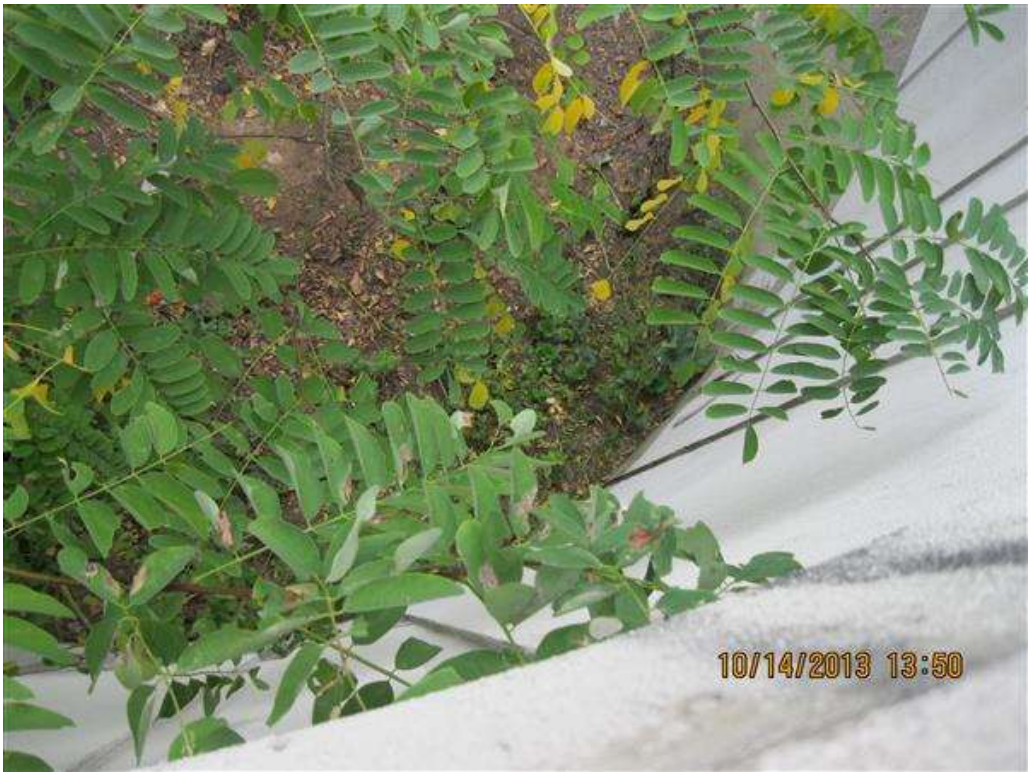
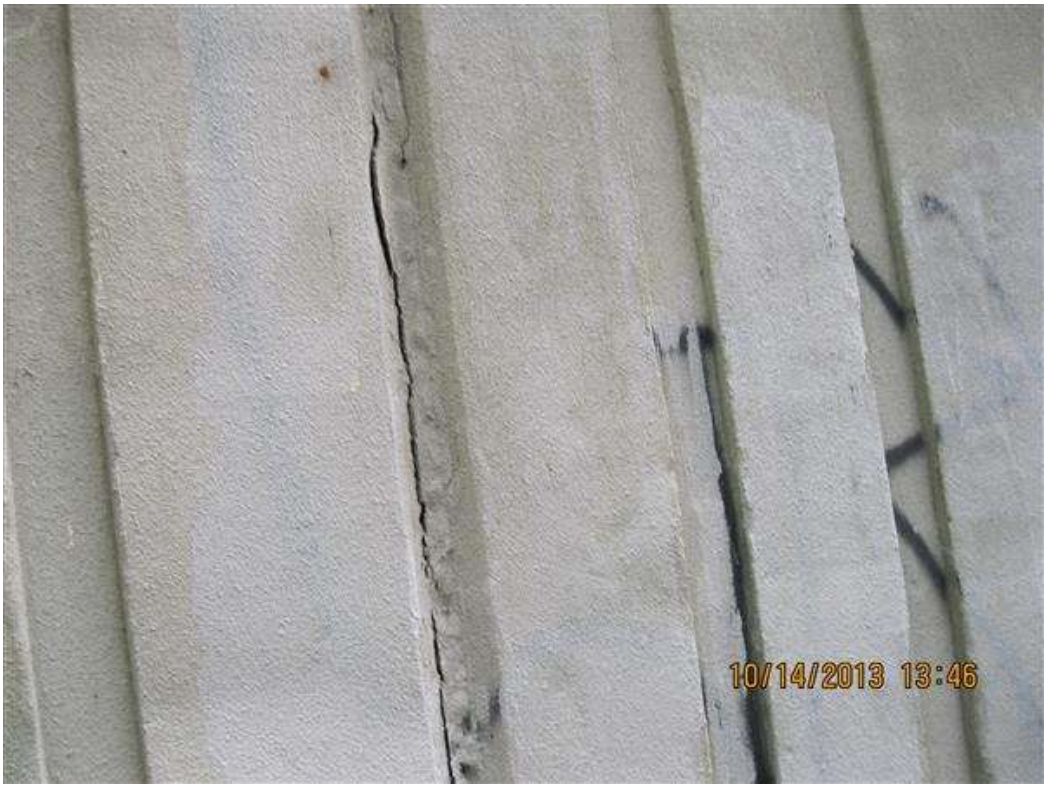


Photo 2 -

Pictures



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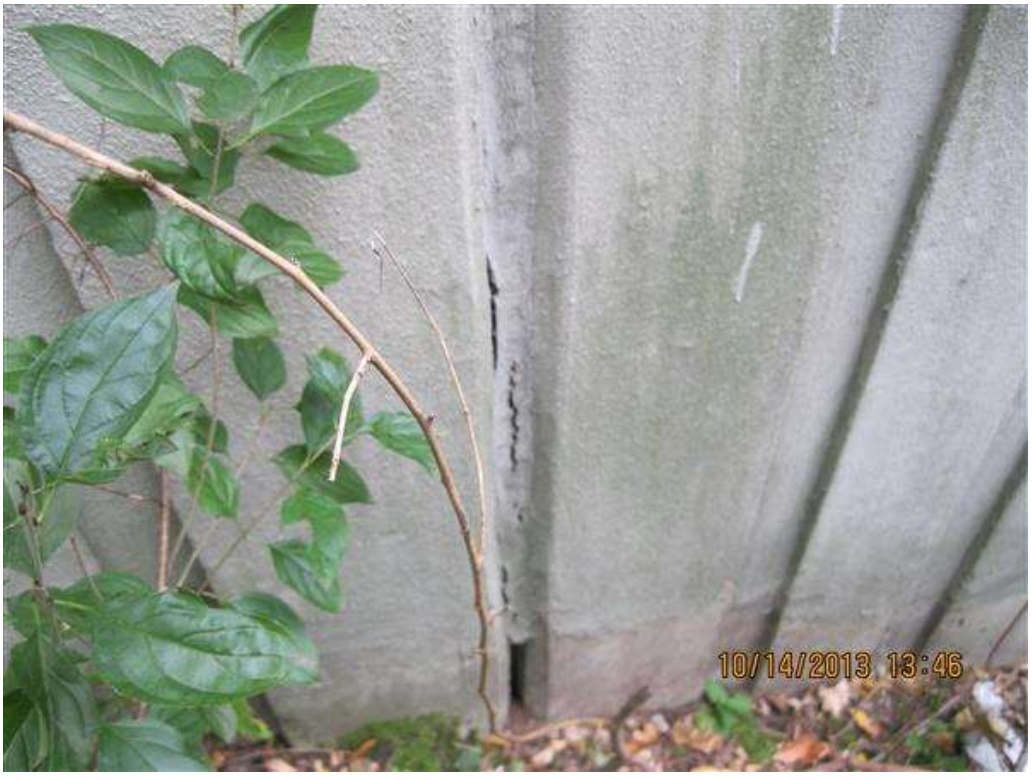
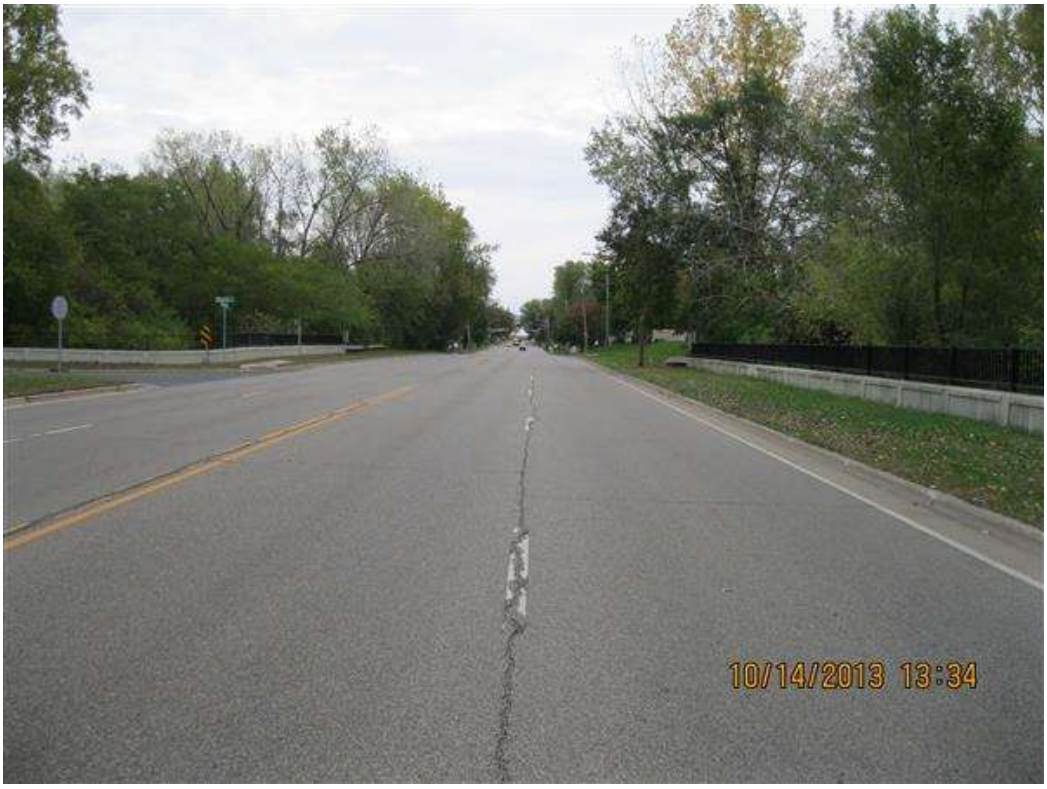


Photo 4 -

Pictures



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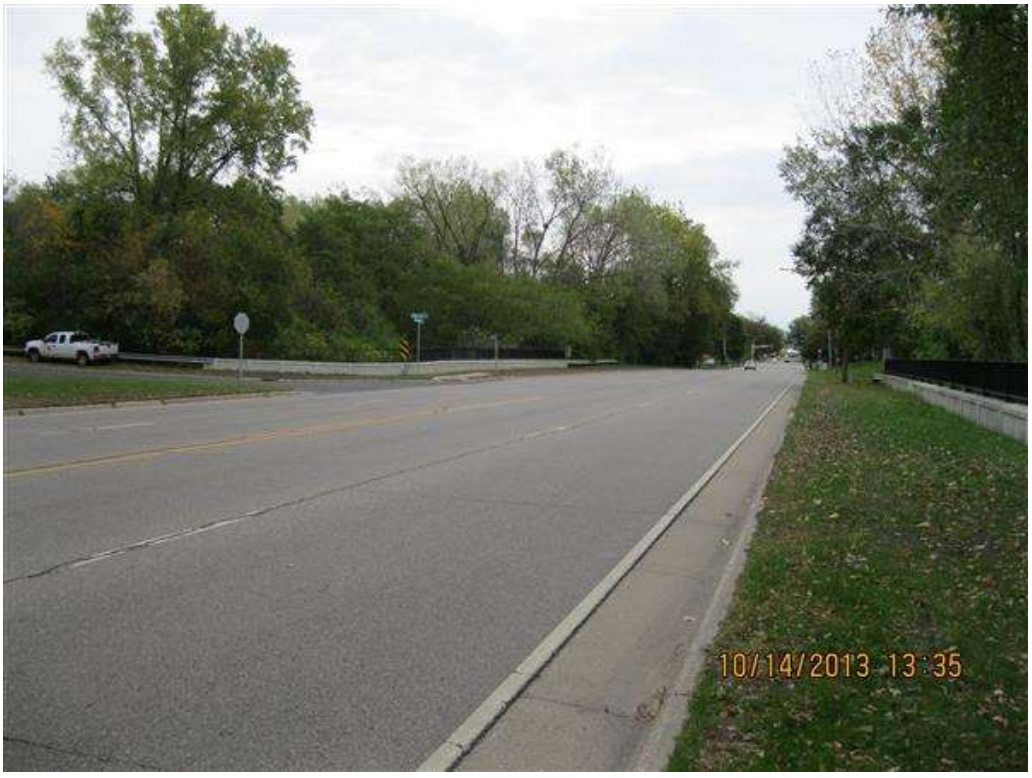

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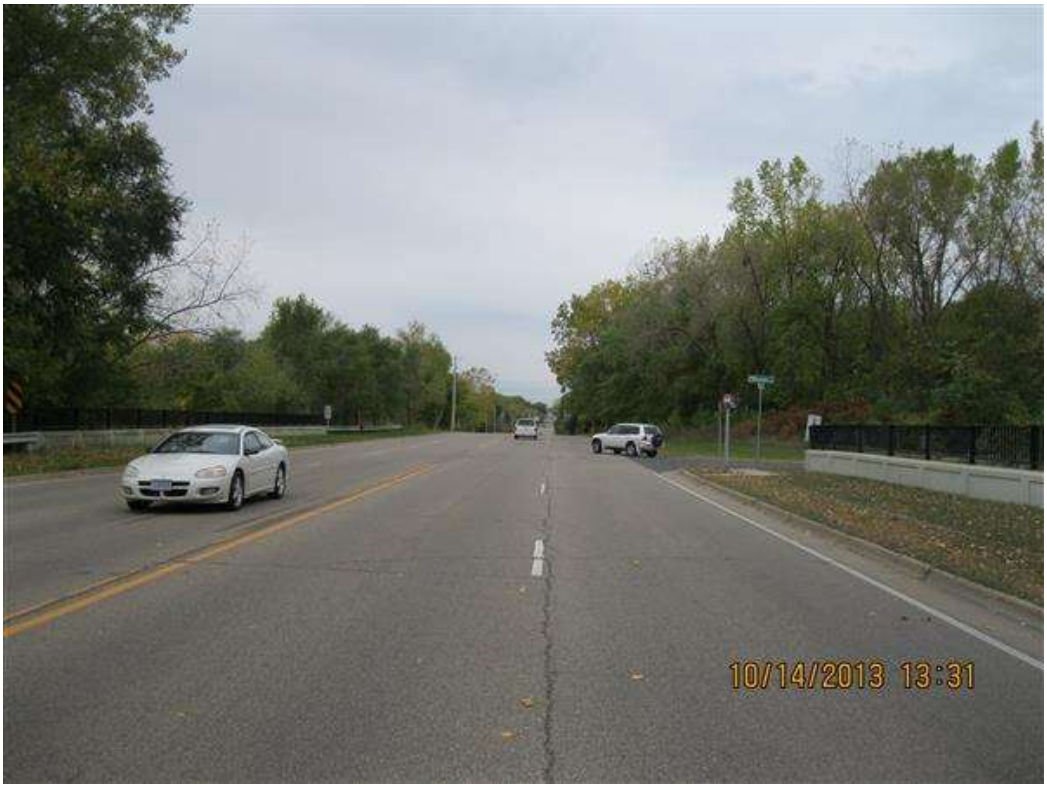
Pictures



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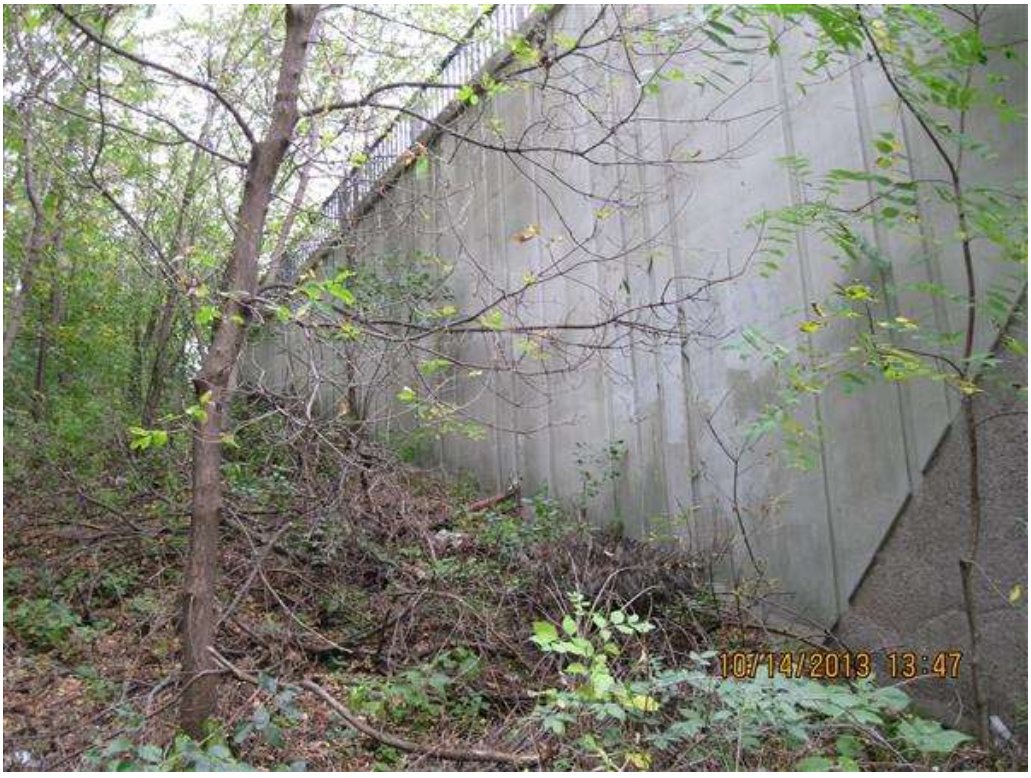

Photo 8 -

Pictures

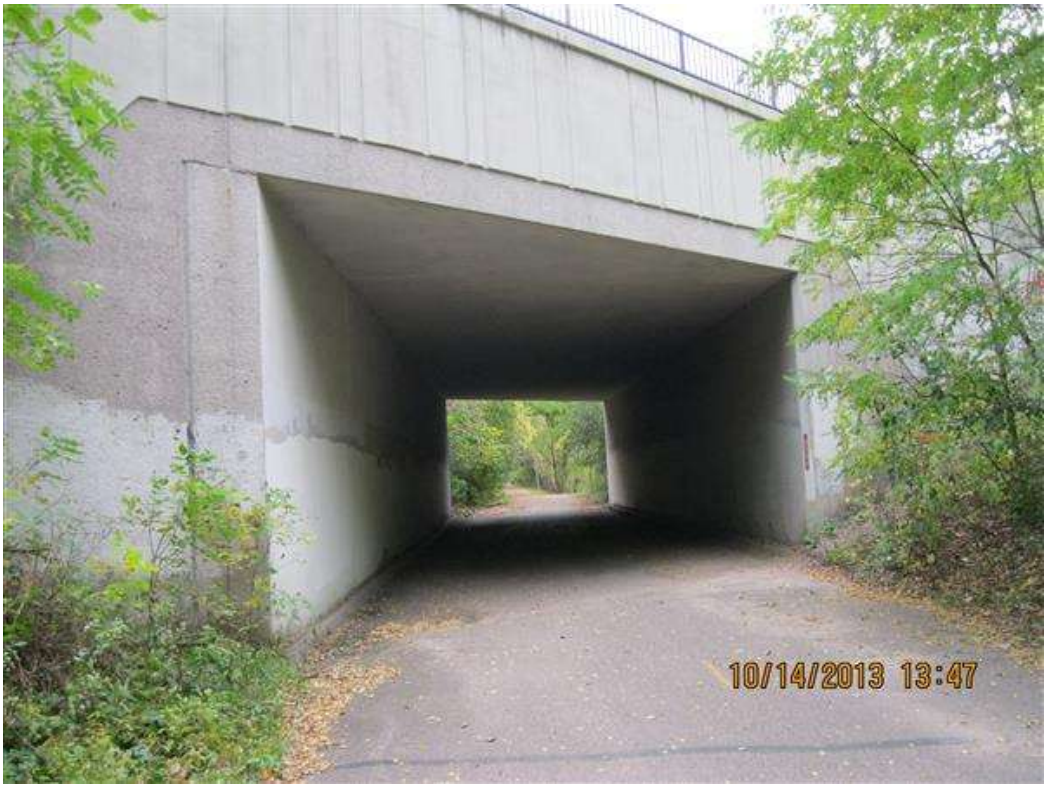

Photo 9 -

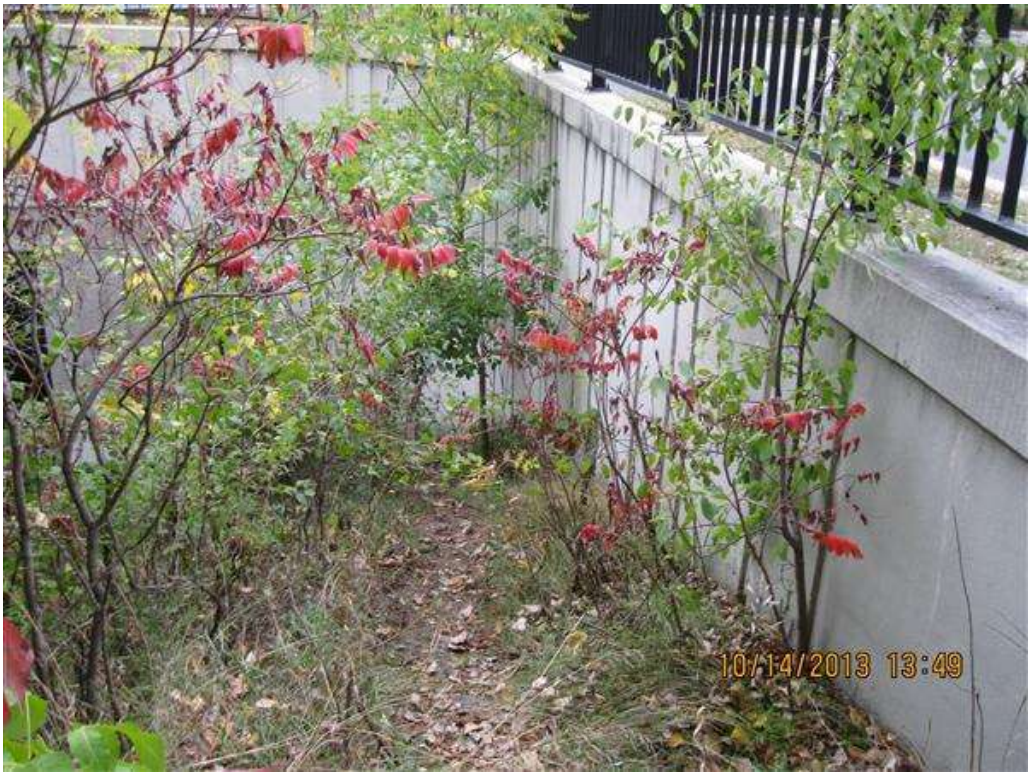

Photo 10 -

Pictures

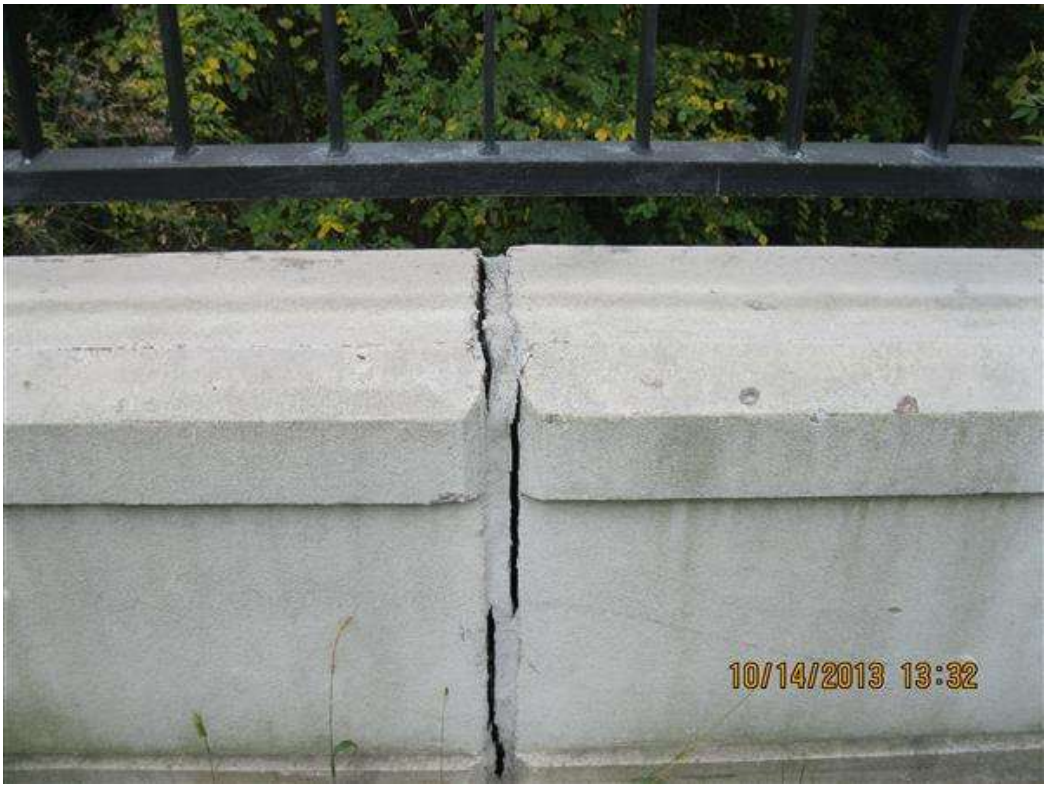

Photo 11 -

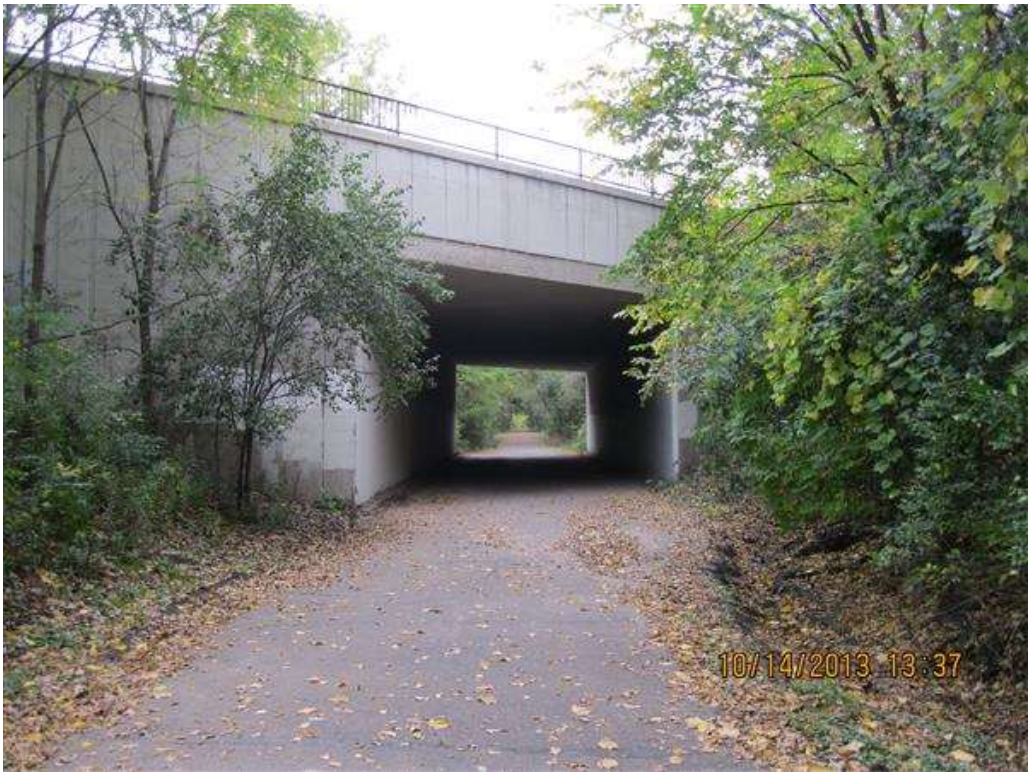

Photo 12 -

1. erosion @ NW wing wall.JPG

2. erosion @ NW wingwall-2.JPG

3. joint in SW wing wall.JPG

4. joint in SW wing wall-2.JPG

5. looking east.JPG

6. looking east-2.JPG

7. looking west.JPG

8. NE wing wall.JPG

9. north side.JPG

10. NW wing wall.JPG

11. railing south side.JPG

12. south side.JPG

Culvert

Bridge No.: 62554

Culvert

Item	*Description*	*Condition*	*Comments*
Culvert Overall:	**NBI Item 62**	N	Bridge

MnDOT Scour Code: A - NON WATERWAY

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.: 62554

Channel

Item	*Description*	*Condition*	*Comments*
Channel Overall:	**NBI Item 61**	N	No waterway

Bank Protection/Revetment

Item	*Description*	*Condition*	*Comments*
Upstream Bank Protection:			
Downstream Bank Protection:			
Bridge Revetment:			

MnDOT Scour Code: A - NON WATERWAY

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.: 62554

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.: 62554

BRIDGE OWNER: County Highway Agency

DATE INSPECTED: 10/12/2015

STRUCTURE TYPE: Concrete Frame (except frame culverts)

FACILITY CARRIED: CSAH 30(LARPENT A)

FEATURES INTERSECTED: DNR TRAIL

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