

**2018 ROUTINE
BRIDGE INSPECTION REPORT**



**BRIDGE # 7680
CSAH 22 over STONY BROOK**

DISTRICT: District 1

COUNTY: St. Louis

CITY/TOWNSHIP: MORCOM

STATE: Minnesota

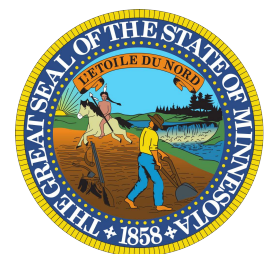
Date of Inspection: 05/09/2018

Equipment Used:

Owner: County Highway Agency

Inspected By: Grahek, Chris

Report Written By: Chris Grahek
Report Reviewed By: Rachel Litfin
Final Report Date: 09/18/2018



Minnesota Structure Inventory Report

Bridge ID: 7680

CSAH 22 over STONY BROOK

Date: 05/09/2018

+ GENERAL +			+ ROADWAY ON BRIDGE +			+ INSPECTION +		
Agency Br. No.	649	Crew	Bridge Match ID (TIS))		Userkey	109	
District	01	Maint. Area	Roadway O/U Key	Route On Structure		Structurally Deficient	Y	
County	069 - St. Louis		Route Sys	04 - CSAH	Number 22	Functionally Obsolete	N	
City			Roadway Name or Description			Sufficiency Rating	56.7	
Township	69047 - MORCOM		CSAH 22			Routine Inspection Date	05/09/2018	
Desc. Loc.	2.7 MI W OF JCT CSAH5		Level of Service	1 - MAINLINE		Routine Inspection Frequency	12	
Sect., Twp., Range	8 - 061N - 21W		Roadway Type	2 - 2-way traffic		Inspector Name	Grahek, Chris	
Latitude	47 ° 46 ' 39.32 "		Control Section (TH Only)			Status	A - Open	
Longitude	-93 ° 04 ' 36.00 "		Reference Point			+ NBI CONDITION RATINGS +		
Custodian	02 - County Highway Agency		Detour Length	7	mi.	Deck	N	
Owner	02 - County Highway Agency		Lanes	ON 2	UNDER 0	Superstructure	N	
			ADT	430	YEAR 2008	Substructure	N	
Year Built	1945		HCA DT	ADTT %		Channel	5	
MN Year Reconstructed			Functional Class	07 - Rural - Major Collector		Culvert	4	
FHWA Year Reconstructed						+ NBI APPRAISAL RATINGS +		
MN Temporary Status			+ RDWY DIMENSIONS ON BRIDGE +					
Bridge Plan Location) - NO PLAN		If Divided	NB-EB	SB-WB	Structure Evaluation	4	
Date Opened to Traffic			Roadway Width	24.00 ft.	ft.	Deck Geometry	N	
On - Off System	1 - ON		Vertical Clearance	ft.	ft.	Underclearances	N	
Legislative District	05A		Max. Vert. Clear.	ft.	ft.	Waterway Adequacy	9	
Potential ABC	2 - N/A		Horizontal Clear.	ft.	ft.	Approach Alignment	8	
+ STRUCTURE +			Lateral Clearance	ft.	ft.	+ SAFETY FEATURES +		
Service On	1 - Highway		Appr. Surface Width	30.0	ft.	Bridge Railing	N - NOT REQUIRED	
Service Under	5 - Waterway		Bridge Roadway Width	0.0	ft.	GR Transition	N - NOT REQUIRED	
Main Span Type	1 - Concrete		Median Width On Bridge	ft.		Appr. Guardrail	0 - SUBSTANDARD	
Main Span Design	13 - Box Culvert		+ MISC. BRIDGE DATA +			GR Termini	0 - SUBSTANDARD	
Main Span Detail			Structure Flared	0 - No flare		+ SPECIAL INSPECTIONS +		
Appr. Span Type			Parallel Structure	N - No parallel structure		Y/N	Freq	Date
Appr. Span Design			Field Conn. ID			Frac. Critical		
Appr. Span Detail			Abutment	N - N/A		Underwater		
Skew	0		Foundation (Material/Type)	N - N/A		Pinned Asbly.		
Culvert Type	W108D		Pier Foundation (Material/Type)	N - N/A		+ WATERWAY +		
Barrel Length	70		Historic Status	5 - Not eligible				
Cantilever ID			+ PAINT +					
			Year Painted			Drainage Area (sq. mi.)		
			Painted Area	sq. ft.		Waterway Opening (sf.)	120	
			Primer Type			Navigation Control	0 - No nav. control on	
			Finish Type			Pier Protection		
			+ BRIDGE SIGNS +			Nav. Clr. (ft.)	Vert.	0.0 Horiz. 0.0
			Posted Load	0 - Not Required		Nav. Vert. Lift Bridge Clear. (ft.)		
			Traffic	0 - Not Required		MN Scour Code	E - CULVERT Year	
			Horizontal	0 - Not Required		+ CAPACITY RATINGS +		
			Vertical	N - Not Applicable		Design Load	4 - H 20	
						Operating Rating	1 - H TRUCK 16.0	
						Inventory Rating	1 - H TRUCK 12.0	
						Posting VEH:	SEMI:	DBL:
						Rating Date	2/1/1991	
						Overweight Permit Codes		
						A N - N/A	B N - N/A	C N - N/A

09/18/2018

County:	St. Louis	Location:	2.7 MI W OF JCT CSAH5	Length:	22.0 ft.				
City:		Route:	04 - CSAH 22	Ref. Pt.:	000+00.290	Deck Width:	0.0 ft.		
Township:	69047 - MORCOM	Control Section:		Rdwy. Area/ Pct. Unsnd:	sq. ft. / %				
Section: 18	Township: 061N	Range: 21W	Maint. Area:	Paint Area/ Pct. Unsnd:	sq. ft. / %				
Span Type: 1 - Concrete	19 - Culvert (includes	Local Agency Bridge Nbr.:	649	Culvert:	W108D				
List:	frame culverts)			Postings:					
NBI Deck:	N	Super:	N	Sub:	N	Chan:	5	Culv:	4
								Open, Posted, Closed:	A - Open
								MN Scour Code:	E - CULVERT
Appraisal Ratings - Approach:	8	Waterway:	9					Unofficial Structurally Deficient	Y
Required Bridge Signs - Load Posting:	0 - Not Required			Traffic:	0 - Not Required			Unofficial Functionally Obsolete	N
	Horizntal: 0 - Not Required			Vertical:	N - Not Applicable			Unofficial Sufficiency Rating	56.7

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
241	Reinforced Concrete Culvert	Routine	05/09/2018	140 LF	0	80	60	0
		Routine	05/15/2017	140 LF	0	80	60	0
	Notes: [2018] Vertical cracks at middle of culverts widening to 0.25" near bottom of wall. Few cracks spaced 2' at middle of barrels. Minor rust staining present in leaching on vertical cracks barrel 2 east wall. Some form tie holes are leaching, mostly at ends of barrels.							
	[2017] Few cracks on east wall of barrel 2 have leaching.							
[2016] Vertical cracks are 0.02" to 0.125" (most 0.125") with a 4' to 8' spacing. Some cracks widen to 0.5" at base of wall. Light scale on wetted perimeter with no loss of aggregate.								
[2015-2013] Water leaching through wall on north end of barrel 2 3' from end. Vertical cracks throughout, open 1/8".								
800	Critical Deficiencies or Safety Hazards	Routine	05/09/2018	1 EA	1	0	0	0
		Routine	05/15/2017	1 EA	1	0	0	0
	Notes: [2018-2013] No critical deficiencies or safety hazards found during this inspection.							
870	Culvert End Treatment	Routine	05/09/2018	2 EA	0	1	1	0
		Routine	05/15/2017	2 EA	0	1	1	0
	Notes: [2018-2017] Rebar along joint with wing and barrel on SE failed (Able to see backfill through joint). SE wing has rebar that no longer attached due to delamination and tie wire rusting away. Rebar has up to 50% section loss.							
	[2016] SE wing has pushed in 3" to 4". 1 0.125" diagonal crack on SW and NE wings. Spalling along top of south center wing with no exposed rebar.							
[2015-2013] The surface of SE wing has delaminated and spalled exposed rebar which is corroding and no longer encased in concrete in some locations.								
S curb spalled.								
Minor cracking in wingwalls. NE & SE leaching. Spall SE wing with extensive rebar exposure. Cracks in NE, SE & SW wings.								
871	Roadway Over Culvert	Routine	05/09/2018	1 EA	0	1	0	0
		Routine	05/15/2017	1 EA	0	0	1	0
	Notes: [2018] Bituminous placed in east bound lane to correct dip.							
	[2017] Dips in south lane on east and west side of culvert have increased in severity.							
[2016-2015] Slight dip in south lane over culvert.								
[2014-2013] Bituminous has moderate cracking.								
2 Lane Bituminous Roadway.								
891	Other Bridge Signing	Routine	05/09/2018	1 EA	0	0	1	0
		Routine	05/15/2017	1 EA	0	0	1	0
	Notes: [2018-2013] No culvert markers.							
892	Slopes & Slope Protection	Routine	05/09/2018	1 EA	0	0	1	0
		Routine	05/15/2017	1 EA	0	0	1	0
	Notes: [2018-2016] SE wing has pushed in 3" to 4" indicating significant slope settlement.							
	[2015] Erosion around south apron could be due to slope settlement (dip in roadway). Material over north apron has slid down slope.							
[2014-2013] Some erosion on slopes behind wings.								
Slopes protected by vegetation.								

BRIDGE 7680 CSAH 22 OVER STONY BROOK

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
894	Deck & Approach Drainage	Routine	05/09/2018	1 EA	0	1	0	0
		Routine	05/15/2017	1 EA	0	1	0	0
	Notes: [2018-2015] Drainage from roadway is adding to slope erosion. [2014-2013] Some erosion behind wings.							
900	Protected Species	Routine	05/09/2018	1 EA	0	1	0	0
		Routine	05/15/2017	1 EA	1	0	0	0
	Notes: [2018] No evidence of protected species present during this inspection. [2017] Nests are no longer present in culverts. [2016] Nests in barrel 2 indicates possibility of barn swallows nesting in culvert.							

General Notes: SLC District 3
Inspected by: [2018] CG : [2017] CG, ES : [2016] CG : [2015] CG, RN : [2014] JDO, JRS [2013] BH, CG
No Guardrail.
Barrels numbered from west to east.
[2015] Unable to walk culverts in May due to high water.
TREES AND BRUSH IN CHANNEL AT S. END. W. BARREL ALMOST COMPLETELY OVERGROWN AT BOTH ENDS. VERY
LITTLE FLOW, APPROX. 1' SILT IN BOXES. "Slide Area"

58. Deck NBI:

36A. Brdg Railings NBI: No bridge rail present.

36B. Transitions NBI: No bridge rail present.

36C. Appr Guardrail NBI: Roadway slopes do not meet minimum requirements of Minnesota rule 8820.9920 for ADT 150 - 749.

36D. Appr Guardrail
Terminal NBI: Roadway slopes do not meet minimum requirements of Minnesota rule 8820.9920 for ADT 150 - 749.

59. Superstructure NBI:

60. Substructure NBI:

61. Channel NBI: [2018-2016] Bank slump north end of barrel 1 blocking 50% of outlet. Sediment buildup of 2' in some areas.
[2015-2013] Banks at inlet and outlet of barrel 1 have slumped in blocking some of the flow of barrel 1.

62. Culvert NBI: [2018] Vertical cracks at middle of culverts widening to 0.25" near bottom of wall. Few cracks spaced 2' at middle of barrels.
Minor rust staining present in leaching on vertical cracks barrel 2 east wall. Some form tie holes are leaching, mostly at ends of barrels.
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[2015-2013] Water leaching through wall on north end of barrel 2 3' from end. Vertical cracks throughout, open 1/8".

71. Waterway Adeq NBI: [2018-2015] 15ft of fill over culvert. Remote chance of overtopping. Channel is an unnavigable waterway.

72. Appr Roadway
Alignment NBI: [2018-2013] No sight distance issues or speed reduction required.

Chris Grahek
Inspector's Signature

Rachel Litfin
Reviewer's Signature

Pictures



Photo 1 - South Profile



Photo 2 - North Profile

Pictures



Photo 3 - Barrel 1 Looking North



Photo 4 - Barrel 1 Looking South

Pictures



Photo 5 - Barrel 1 Top



Photo 6 - Barrel 1 Wall

Pictures



Photo 7 - Barrel 2 Looking North



Photo 8 - Barrel 2 Looking South

Pictures



Photo 9 - Barrel 2 Top



Photo 10 - Barrel 2 Wall

Pictures



Photo 11 - Barrel 2 East Wall Crack Leaching With Rust Staining



Photo 12 - Barrel Vertical Crack

Pictures



Photo 13 - Barrel Vertical Crack Width 0.02in



Photo 14 - Barrel Vertical Crack 0.05in

Pictures



Photo 15 - Barrel Vertical Crack 0.25in at Bottom of Wall



Photo 16 - Barrel Wall Form Tie Hole Leaching

Pictures



Photo 17 - SW Wing



Photo 18 - South Middle Wing

Pictures



Photo 19 - SE Wing



Photo 20 - SE Wing and Barrel Connection Failure

Pictures



Photo 21 - South Headwall



Photo 22 - NW Wing

Pictures



Photo 23 - North Middle Wing



Photo 24 - NE Wing

Pictures



Photo 25 - Approach Looking East



Photo 26 - Approach Looking West

Pictures



Photo 27 - Barrel 1 Inlet Blockage



Photo 28 - Channel Looking South

Pictures



Photo 29 - Channel Looking North