
ATTACHMENT 1

OSIM INSPECTION REPORTS & BCI FORMS

BRIDGES

Structure Condition Summary Form

Structure Name Adams Rd Bridge
Structure Number BR1
Date of Inspection August 04, 2020
Project No. 20032
Consultant HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	30.00	0.00	25.00	5.00	0.00	180	125	69	00	18
	Railing Systems	m	200.00	48.00	0.00	48.00	0.00	0.00	9600	7200	75	08	00
Barriers	Railing Systems	m	200.00	24.40	0.00	24.00	0.00	0.00	4880	3600	74	00	00
	Posts (Steel/Concrete)	Each	200.00	12.00	0.00	12.00	0.00	0.00	2400	1800	75	00	00
Sidewalks/ Curbs	Sidewalks and Medians	Sq.m	150.00	14.52	0.00	13.52	1.00	0.00	2178	1581	73	00	00
	Curbs	Sq.m	40.00	8.96	0.00	8.96	0.00	0.00	358	269	75	00	00
Decks	Wearing Surface	Sq.m	25.00	32.20	0.00	22.20	5.00	5.00	805	466	58	09	18
	Deck Top - Thick Slab	Sq.m	350.00	32.20	0.00	32.20	0.00	0.00	11270	8453	75	00	02
	Soffit - Thick Slab	Sq.m	350.00	27.44	0.00	27.44	0.00	0.00	9604	7203	75	00	00
Abutment	Wingwalls	Sq.m	350.00	8.31	0.00	8.31	0.00	0.00	2909	2181	75	00	00
	Abutment Walls	Sq.m	900.00	9.00	0.00	9.00	0.00	0.00	8100	6075	75	00	00

52284

38952

Bridge Condition Index (BCI)

75

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR1

FIELD INSPECTION INFORMATION	
Date of Inspection:	August 4, 2020 Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering
Others in Party:	Sagar Chhayani, HP Engineering
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer
Weather:	Sunny
Temperature:	18°C

ADDITIONAL INVESTIGATION REQUIRED	Priority			Estimated Cost
	None	Normal	Urgent	
Rehabilitation/Replacement Study:				\$
Material Condition Survey				
Detailed Deck Condition Survey:				\$ -
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$ -
Concrete Substructure Condition Survey:				\$ -
Detailed Coating Condition Survey:				\$ -
Detailed Timber Investigation:				\$ -
Underwater Investigation:				\$ -
Fatigue Investigation:				\$ -
Seismic Investigation:				\$ -
Structure Evaluation:				\$ -
Monitoring				
Monitoring of Deformations, Settlement and Movements:				\$ -
Monitoring Crack Widths:				\$ -
Load Posting – Estimated Load Limit				Total Cost \$
Investigation Notes:				

OVERALL STRUCTURAL NOTES:	
Recommended Work on Structure:	<input type="checkbox"/> None <input checked="" type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace
Timing of Recommended Work:	<input checked="" type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years
Overall structure is generally in good condition. Collision damage and abrasion noted on railing system and potholes observed on deck wearing surface.	
Date of Next Inspection:	August 2022

Suspected Performance Deficiencies

- | | | |
|--|--|--|
| 00 None | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 01 Load carrying capacity | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 02 Excessive deformations (deflections & rotation) | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 03 Continuing settlement | 09 Rough riding surface | 15 Unstable embankments |
| 04 Continuing movements | 10 Surface ponding | 16 Other |
| 05 Seized bearings | 11 Deck drainage | |
| Maintenance Needs | | |
| 01 Lift and swing bridge maintenance | 07 Repair of structural steel | 13 Erosion control at bridges |
| 02 Bridge cleaning | 08 Repair of bridge concrete | 14 Concrete sealing |
| 03 Bridge handrail maintenance | 09 Repair of bridge timber | 15 Rout and seal |
| 04 Painting steel bridge structures | 10 Bailey bridges maintenance | 16 Bridge deck drainage |
| 05 Bridge deck joint repair | 11 Animal/pest control | 17 Scaling (loose Concrete or ACR Steel) |
| 06 Bridge bearing maintenance | 12 Bridge surface repair | 18 Other |

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR1

ELEMENT DATA					
Element Group:	Approaches		Length:		
Element Name:	Barrier		Width:		
Location:	NE, NW, SE & SW Corners of Structure		Height:		
Material:	Steel		Count:		
Element Type:	Steel Flex Beam on steel post		Total Quantity:	48 m	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	48	-	-
Comments: Generally in good condition. Southwest end treatment is substandard and should be replaced with code compliant end treatment.					
Performance Deficiencies: 08			Maintenance Needs: 00		
Recommended Work: <input checked="" type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input checked="" type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Approaches		Length:	3 m	
Element Name:	Wearing Surface		Width:	5 m	
Location:	North and South of Structure		Height:	0.08 m	
Material:	Sand		Count:	2	
Element Type:			Total Quantity:	30 m ²	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²		25	5	
Comments: Loose sand and vegetation on each approach. Localized potholes noted on both approaches.					
Performance Deficiencies: 09			Maintenance Needs: 18 – Fix Potholes / Regrade		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR1

ELEMENT DATA					
Element Group:	Accessories		Length:		
Element Name:	Signs		Width:		
Location:	North and South of Structure		Height:		
Material:	Steel		Count:	6	
Element Type:	Checkerboard Traffic Symbol		Total Quantity:	6	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	6	-	-
Comments: Hazard signs are generally in good condition. 5 Hazard signs. 1 Stop sign.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Barriers		Length:		
Element Name:	Railing System		Width:		
Location:	North and South of Structure		Height:		
Material:	Steel		Count:	2	
Element Type:	Steel Flex Beam on steel post		Total Quantity:	24 m	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	24	-	-
Comments: Collision damage and abrasions noted on each side of structure.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR1

ELEMENT DATA					
Element Group:	Sidewalks / Curbs	Length:	13.2 m		
Element Name:	Curbs	Width:	0.6 m		
Location:	North and South of Structure	Height:	0.25 m		
Material:	Concrete	Count:	1		
Element Type:	Curb	Total Quantity:	14.52 m ²		
Environment:	Severe	Limited Inspection:	<input type="checkbox"/>		
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	13.52	1	
Comments: Light scaling, abrasions, small spalls, and narrow cracks noted throughout.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Decks	Length:	7 m		
Element Name:	Wearing Surface	Width:	4.6 m		
Location:	Top of Deck	Height:			
Material:	Sand	Count:	1		
Element Type:	Sand wearing surface	Total Quantity:	32.2 m ²		
Environment:	Severe	Limited Inspection:	<input type="checkbox"/>		
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	39.2	-	-
Comments: Loose sand and gravel noted throughout deck top. Localized pothole was observed at the center of the bridge.					
Performance Deficiencies: 00			Maintenance Needs: 18 – Fix Potholes / Regrade		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR1

ELEMENT DATA					
Element Group:	Decks		Length:	7 m	
Element Name:	Deck Top (Covered)		Width:	4.6 m	
Location:	Top of Deck		Height:		
Material:	Cast in Place Concrete		Count:	1	
Element Type:	Deck top		Total Quantity:	32.2 m ²	
Environment:	Moderate		Limited Inspection:	<input checked="" type="checkbox"/>	
Protection System	Sand				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	32.2	-	-
Comments: Limited inspection due to wearing surface. Anticipated to be in good condition based on condition of soffit.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

ELEMENT DATA					
Element Group:	Decks		Length:	6.1 m	
Element Name:	Soffit – Thick Slab (Interior)		Width:	4.5 m	
Location:	Underside of Structure		Height:	-	
Material:	Concrete		Count:	1	
Element Type:	Soffit		Total Quantity:	27.44 m ²	
Environment:	Moderate		Limited Inspection:	<input checked="" type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	27.44	-	-
Comments: Limited inspection due to high water level. Appeared to be in generally good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR1

ELEMENT DATA					
Element Group:	Abutments		Length:	2.6 m	
Element Name:	Wingwalls		Width:	-	
Location:	NE, NW, SE & SW of Structure		Height:	0.8 m	
Material:	Concrete		Count:	4	
Element Type:	Cast-in-place concrete		Total Quantity:	8.31 m ²	
Environment:	Cast-in-place concrete wall		Limited Inspection:	<input checked="" type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	%	-	8.31	-	-
Comments: Limited inspection due to high water level.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Abutments		Length:	-	
Element Name:	Abutment Walls		Width:	4.5 m	
Location:	East and west underside of structure		Height:	1 m	
Material:	Cast-in-place concrete		Count:	2	
Element Type:	Cast-in-place concrete wall		Total Quantity:	9 m ²	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	9	-	-
Comments: Limited inspection due to high water level.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR1

ELEMENT DATA					
Element Group:	Foundation		Length:		
Element Name:	Foundation (Below Ground Level)		Width:		
Location:	Below Structure		Height:		
Material:	Cast-in-place concrete		Count:	All	
Element Type:	Spread		Total Quantity:	All	
Environment:	Benign		Limited Inspection:	<input checked="" type="checkbox"/>	
Protection System	Unknown				
Condition Data:	Units	Excellent	Good	Fair	Poor
	All		All	-	-
Comments: No signs of foundation settlement or instability at the time of the inspection.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Embankments and Streams		Length:		
Element Name:	Embankments		Width:		
Location:	NE, NW, SE & SW of Structure		Height:		
Material:	Native Soil		Count:	4	
Element Type:	Embankments		Total Quantity:	4	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	4	-	-
Comments: Embankments are moderately sloped and well vegetated with no signs of instability noted at the time of inspection					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR1

ELEMENT DATA					
Element Group:	Embankments and Streams		Length:		
Element Name:	Streams and Waterways		Width:		
Location:	Below Structure		Height:		
Material:	Native		Count:	1	
Element Type:	Streams and waterways		Total Quantity:	1	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	All		All	-	-
Comments: High volume, no flow with water level noted above the soffit.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR1

REPAIR AND REHABILITATION REQUIRED		Priority			Estimated Cost
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	< 1 year	
Approach- Barrier	Replace / upgrade SW end treatment		X		\$ 6,000.00
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
Total Cost					\$ 6,000.00

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$ -
Detours		\$ -
Traffic Control		\$ -
Utilities		\$ -
Right of Way		\$ -
Environmental Study		\$ -
Other		\$ -
Contingencies		\$ -
Total Cost		\$ -

JUSTIFICATION

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR1



Photo 1 Structure from east approach



Photo 2 Structure from west approach

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR1



Photo 3 East approach from centre of structure



Photo 4 West approach from centre of structure



Photo 5 North elevation



Photo 6 South elevation



Photo 7 Potholes and loose gravel noted on deck wearing surface



Photo 8 Substandard end treatment noted on southwest corner



Photo 9 Collision damage noted on north deck barrier



Photo 10 Snowplow damage with narrow cracks noted on curb



Photo 11 Gravel accumulation noted at the edge of wearing surface

Structure Condition Summary Form

Structure Name Brookside Road Bridge
Structure Number BR3
Date of Inspection August 04, 2020
Project No. 20032
Consultant HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	61.19	0.00	57.19	2.00	2.00	367	262	71	00	18
Barriers	Railing Systems	m	200.00	25.00	0.00	21.00	2.00	2.00	5000	3310	66	00	18
	Posts - Timber	Each	50.00	14.00	0.00	12.00	1.00	1.00	700	470	67	00	18
Decks	Deck Top - Thin Slab	Sq.m	120.00	57.80	0.00	57.80	0.00	0.00	6936	5202	75	00	02
	Soffit - Thin Slab	Sq.m	120.00	43.70	0.00	43.70	0.00	0.00	5244	3933	75	00	00
Beams/ Main Longitudinal	Girders -Steel	Sq.m	420.00	146.61	0.00	136.61	10.00	0.00	61576	44712	73	00	00
Abutment	Abutment Walls	Sq.m	900.00	9.00	0.00	9.00	0.00	0.00	8100	6075	75	00	00

87923

63964

Bridge Condition Index (BCI)

73

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR3

INVENTORY DATA:			
Structure Name	Brookside Road Bridge		
Main Hwy/Road #	Navigable Water <input type="checkbox"/> Non- Navigable Water <input checked="" type="checkbox"/>		
	Under Structure: Rail <input type="checkbox"/> Road <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>		
Road Name:	Brookside Road		
	On Structure: Rail <input type="checkbox"/> Road <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>		
Structure Location	Brookside Road, 650 east of Rodeo Road		
Latitude	45°43'24.7"N	Longitude	79°27'10.6"W
Owner(s)	Township of Strong		
	Heritage Designation Not Cons. <input checked="" type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. <input type="checkbox"/> Desig./not List <input type="checkbox"/> Desig. & List <input type="checkbox"/>		
MTO Region	Northern	Road Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>
MTO District	Huntsville	Posted Speed	80 No. of Lanes <u>1</u>
Old County	Parry Sound	AADT	0 % Trucks <u>0</u>
Geographic Twp.	Township of Strong	Special Routes	Transit <input checked="" type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle <input type="checkbox"/>
Structure Type	Frame, Inclined Legs		
	Detour Length Around Structure _____ (km)		
Total Deck Length	12.3 (m)	Fill on Structure	0 (m)
Overall Str. Width	4.7 (m)	Skew Angle	0 (Degrees)
Total Deck Area	57.81 (m ²)	Direction of Structure	East/West
Roadway Width	5.1 (m)	No. of Spans	1
Span Lengths	9.3 (m)		

HISTORICAL DATA			
Year Built	_____	Last OSIM Inspection	June 26, 2020
Year of Last Major Rehab.	-	Last Enhanced OSIM Inspection	-
Current Load Limit	20 (tonnes)	Last Bridge Master Inspection	-
Load Limit By-Law #	-	Last Evaluation	-
By-Law Expiry Date	-	Last Underwater Inspection	-
Min. Vertical Clearance	- (m)	Last Condition Survey	-
Rehabilitation History: (Date / Description) 			

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR3

FIELD INSPECTION INFORMATION	
Date of Inspection:	August 4, 2020 Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering
Others in Party:	Sagar Chhayani, HP Engineering
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer
Weather:	Sunny
Temperature:	17°C

ADDITIONAL INVESTIGATION REQUIRED	Priority			Estimated Cost
	None	Normal	Urgent	
Rehabilitation/Replacement Study: Approach Barrier				\$ 5,000.00
Material Condition Survey				
Detailed Deck Condition Survey:				\$ -
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$ -
Concrete Substructure Condition Survey:				\$ -
Detailed Coating Condition Survey:				\$ -
Detailed Timber Investigation:				\$ -
Underwater Investigation:				\$ -
Fatigue Investigation:				\$ -
Seismic Investigation:				\$ -
Structure Evaluation:				\$ -
Monitoring				
Monitoring of Deformations, Settlement and Movements:				\$ -
Monitoring Crack Widths:				\$ -
Load Posting – Estimated Load Limit	Total Cost			\$ 5,000.00
Investigation Notes:				

OVERALL STRUCTURAL NOTES:	
Recommended Work on Structure:	<input type="checkbox"/> None <input checked="" type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace
Timing of Recommended Work:	<input checked="" type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years
Overall structure appears generally in good condition. Conforming approach barrier / end treatments should be installed. Potholes noted on approach wearing surface. Collision damage with abrasion noted on hand railing systems.	
Date of Next Inspection:	August 2022

Suspected Performance Deficiencies

- | | | |
|--|--|--|
| 00 None | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 01 Load carrying capacity | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 02 Excessive deformations (deflections & rotation) | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 03 Continuing settlement | 09 Rough riding surface | 15 Unstable embankments |
| 04 Continuing movements | 10 Surface ponding | 16 Other |
| 05 Seized bearings | 11 Deck drainage | |
| Maintenance Needs | | |
| 01 Lift and swing bridge maintenance | 07 Repair of structural steel | 13 Erosion control at bridges |
| 02 Bridge cleaning | 08 Repair of bridge concrete | 14 Concrete sealing |
| 03 Bridge handrail maintenance | 09 Repair of bridge timber | 15 Rout and seal |
| 04 Painting steel bridge structures | 10 Bailey bridges maintenance | 16 Bridge deck drainage |
| 05 Bridge deck joint repair | 11 Animal/pest control | 17 Scaling (loose Concrete or ACR Steel) |
| 06 Bridge bearing maintenance | 12 Bridge surface repair | 18 Other |

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR3

ELEMENT DATA					
Element Group:	Approaches		Length:	2.0	
Element Name:	Barrier		Width:		
Location:	NE, NW, SE & SW Corners of Structure		Height:		
Material:	Steel		Count:	4	
Element Type:	Steel Flex Beam on steel post		Total Quantity:	24.0	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	-	-	-
Comments: Approach barriers are substandard and should be replaced with a code compliant approach barrier system and end treatments.					
Performance Deficiencies: 08			Maintenance Needs: 00		
Recommended Work: <input checked="" type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input checked="" type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Approaches		Length:	6	
Element Name:	Wearing Surface		Width:	5.1	
Location:	North and South of Structure		Height:	-	
Material:	Gravel		Count:	2	
Element Type:			Total Quantity:	61.19	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²		57.19	2	2
Comments: Numerous small potholes noted.					
Performance Deficiencies: 00			Maintenance Needs: 18 – Regrade		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR3

ELEMENT DATA					
Element Group:	Accessories		Length:		
Element Name:	Signs		Width:		
Location:	North and South of Structure		Height:		
Material:	Steel		Count:	7	
Element Type:	Checkerboard Traffic Symbol		Total Quantity:	7	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	-	-	-
Comments: 2 Hazard signs were damaged and leaning outward.					
Performance Deficiencies: 00			Maintenance Needs: 18 – Replace / Reinstatement Hazard Signs		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Barriers		Length:	0.2	
Element Name:	Railing Systems		Width:	0.2	
Location:	North and South of Structure		Height:	-	
Material:	Steel Flex Beam on Wood Post		Count:	14	
Element Type:	Parapet Wall without railing		Total Quantity:	14	
Environment:	Moderate		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	12	1	1
Comments: Collision damage noted on the north barrier, northwest end treatment and northwest corner of railing system. Abrasion noted on both side of barrier. Splitting noted on the post. Damage post noted on the south side. 1 post observed leaning on the north side.					
Performance Deficiencies: 00			Maintenance Needs: 18 – Repair / Reinstatement Damage Railing		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR3

ELEMENT DATA					
Element Group:	Decks	Length:	12.3		
Element Name:	Deck Top	Width:	4.7		
Location:	NA	Height:	0.01		
Material:	Steel	Count:	1		
Element Type:	Steel Plate - composite	Total Quantity:	57.8		
Environment:	Benin	Limited Inspection:	<input type="checkbox"/>		
Protection System	Hot dip galvanizing				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	57.8	-	-
Comments: Debris build up on the deck top.					
Performance Deficiencies: 00			Maintenance Needs: 2 Bridge Cleaning		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Decks	Length:	9.3		
Element Name:	Soffit - Thin Slab	Width:	4.7		
Location:	NA	Height:	-		
Material:	Steel	Count:	1		
Element Type:	NA	Total Quantity:	43.7		
Environment:	Benign	Limited Inspection:	<input checked="" type="checkbox"/>		
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	43.7	-	-
Comments: Soffit not visible (old structure below is blocking access). Condition based on condition of wearing surface.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR3

ELEMENT DATA					
Element Group:	Beams	Length:	12.3		
Element Name:	Girders	Width:	0.19		
Location:	NA	Height:	0.46		
Material:	Steel	Count:	8		
Element Type:	I-type	Total Quantity:	146.61		
Environment:	Benign	Limited Inspection:	<input checked="" type="checkbox"/>		
Protection System	Epoxy zinc/acrylic/acrylic				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	136.61	10	-
Comments: Medium corrosion noted on bottom flanges of exterior beams. Limited inspection due to the existence of old bridge below new bridge.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

ELEMENT DATA					
Element Group:	Main Longitudinal Elements (MLE's)	Length:	4.7		
Element Name:	Stringers	Width:	0.05		
Location:	NA	Height:	0.1		
Material:	Steel	Count:	50		
Element Type:	Channel	Total Quantity:	50		
Environment:	Benign	Limited Inspection:	<input checked="" type="checkbox"/>		
Protection System	Epoxy zinc/acrylic/acrylic				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	50	-	-
Comments: Limited inspection due to previous bridge structure being present.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR3

ELEMENT DATA					
Element Group:	Coatings Structural		Length:		
Element Name:	Steel		Width:		
Location:	NA		Height:		
Material:	NA		Count:	1	
Element Type:	Epoxy zinc/acrylic/acrylic		Total Quantity:	1	
Environment:	Benign		Limited Inspection:	<input checked="" type="checkbox"/>	
Protection System	Unknown				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	1	-	-
<p>Comments: Limited inspection due to previous bridge structure being present. Corrosion and pitting of coating at abutments.</p>					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Abutments		Length:		
Element Name:	Abutment Walls		Width:	5	
Location:	Each End		Height:	0.9	
Material:	Wood		Count:	2	
Element Type:	Crib or gabion		Total Quantity:	9	
Environment:	Benign		Limited Inspection:	<input checked="" type="checkbox"/>	
Protection System	Penetrant applied				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	9		
<p>Comments: Generally in good condition. Only abutment wall ends inspected due to limited visibility.</p>					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR3

ELEMENT DATA					
Element Group:	Embankments & Streams		Length:		
Element Name:	Embankments		Width:		
Location:	Each Quadrant		Height:		
Material:	NA		Count:	4	
Element Type:	NA		Total Quantity:	4	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	-	-	4
Comments: All quadrants have heavy erosion of granular material.					
Performance Deficiencies: 00			Maintenance Needs: 13 Erosion Control at Bridges		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Embankments & Streams		Length:		
Element Name:	Streams and Waterways		Width:		
Location:	Under Bridge		Height:		
Material:	NA		Count:	1	
Element Type:	NA		Total Quantity:	1	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	1	-	-
Comments: Moderate volume, Low flow with no sign of obstruction in the stream at the time of inspection.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR3

REPAIR AND REHABILITATION REQUIRED		Priority			Estimated Cost
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	< 1 year	
Approach- Barrier	Install code complaint approach barrier			X	\$ 48,000.00
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
Total Cost					\$ 48,000.00

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$ -
Detours		\$ -
Traffic Control		\$ -
Utilities		\$ -
Right of Way		\$ -
Environmental Study		\$ -
Other		\$ -
Contingencies		\$ -
Total Cost		\$ -

JUSTIFICATION

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR3



Photo 1 Structure from east approach



Photo 2 Structure from west approach



Photo 3 East approach from centre of structure



Photo 4 West approach from centre of structure



Photo 5 North elevation



Photo 6 South elevation



Photo 7 Loose gravel and potholes noted on wearing surface



Photo 8 Collision damage noted on northeast end treatment



Photo 9 Collision damage on substandard end treatment on southwest corner



Photo 10 Corrosion and perforation noted on deck barrier



Photo 11 Gravel accumulation noted at center and edge of deck wearing surface



Photo 12 Previous structure still present at the time of inspection



Photo 13 Cracks noted on wooden crib at northeast corner



Photo 14 Moderate corrosion with pitting of coating noted on exterior beams at southeast corner

Structure Condition Summary Form

Structure Name Robins Road Bridge
Structure Number BR4
Date of Inspection August 04, 2020
Project No. 20032
Consultant HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Curb and Gutters	m	25.00	24.00	0.00	24.00	0.00	0.00	600	450	75	00	18
	Wearing Surface	Sq.m	6.00	120.00	0.00	120.00	0.00	0.00	720	540	75	00	18
	Approach Slabs	Sq.m	140.00	120.00	0.00	120.00	0.00	0.00	16800	12600	75	00	00
Barriers	Railing Systems	m	200.00	67.31	0.00	67.31	0.00	0.00	13462	10097	75	00	00
	Posts (Steel/Concrete)	Each	200.00	38.00	0.00	38.00	0.00	0.00	7600	5700	75	00	00
Sidewalks/ Curbs	Curbs	Sq.m	40.00	35.10	0.00	35.10	0.00	0.00	1404	1053	75	00	18
	Wearing Surface	Sq.m	25.00	218.00	0.00	218.00	0.00	0.00	5450	4088	75	00	02
Decks	Deck Top - Thin Slab	Sq.m	120.00	250.69	0.00	250.69	0.00	0.00	30083	22562	75	00	00
	Soffit - Thin Slab	Sq.m	120.00	178.53	0.00	178.53	0.00	0.00	21424	16068	75	00	00
Beams/ Main Longitudinal	Girders	Sq.m	200.00	282.33	0.00	282.33	0.00	0.00	56466	42350	75	00	00
Abutment	Wingwalls	Sq.m	350.00	21.83	0.00	21.83	0.00	0.00	7641	5730	75	00	00
	Abutment Walls	Sq.m	900.00	45.59	0.00	45.59	0.00	0.00	41031	30773	75	00	00
Piers	Bearings	Each	1000.00	8.00	0.00	8.00	0.00	0.00	8000	6000	75	00	00
									210680	158010			

Bridge Condition Index (BCI)

75

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

INVENTORY DATA:

Structure Name	<u>Robins Rd. Bridge</u>		
Main Hwy/Road #	Under Structure:		Navigable Water <input type="checkbox"/> Non- Navigable Water <input checked="" type="checkbox"/>
	Rail <input type="checkbox"/>	Road <input type="checkbox"/>	Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>
Road Name:	<u>Robins Road</u>	On Structure:	Rail <input type="checkbox"/> Road <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>
Structure Location	<u>Robins Road, East of Highway 11</u>		
Latitude	<u>45°43'24.7"N</u>	Longitude	<u>79°27'10.6"W</u>
Owner(s)	<u>Township of Strong</u>	Heritage Designation	Not Cons. <input checked="" type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. <input type="checkbox"/>
			Desig./not List <input type="checkbox"/> Desig. & List <input type="checkbox"/>
MTO Region	<u>Northern</u>	Road Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>
MTO District	<u>Huntsville</u>	Posted Speed	<u>80</u> No. of Lanes <u>1</u>
Old County	<u>Parry Sound</u>	AADT	<u>0</u> % Trucks <u>0</u>
Geographic Twp.	<u>Township of Strong</u>	Special Routes	Transit <input checked="" type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle <input type="checkbox"/>
Structure Type	<u>I-beam or Girders</u>	Detour Length Around Structure	<u>-</u> (km)
Total Deck Length	<u>21.8</u> (m)	Fill on Structure	<u>0</u> (m)
Overall Str. Width	<u>11.5</u> (m)	Skew Angle	<u>0</u> (Degrees)
Total Deck Area	<u>250.7</u> (m ²)	Direction of Structure	<u>East/West</u>
Roadway Width	<u>10</u> (m)	No. of Spans	<u>1</u>
Span Lengths	<u>20</u> (m)		

HISTORICAL DATA

Year Built	<u>-</u>	Last OSIM Inspection	<u>June 26, 2020</u>
Year of Last Major Rehab.	<u>-</u>	Last Enhanced OSIM Inspection	<u>-</u>
Current Load Limit	<u>-</u> (tonnes)	Last Bridge Master Inspection	<u>-</u>
Load Limit By-Law #	<u>-</u>	Last Evaluation	<u>-</u>
By-Law Expiry Date	<u>-</u>	Last Underwater Inspection	<u>-</u>
Min. Vertical Clearance	<u>-</u> (m)	Last Condition Survey	<u>-</u>

Rehabilitation History: (Date / Description)

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

FIELD INSPECTION INFORMATION	
Date of Inspection:	August 4, 2020 Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering
Others in Party:	Sagar Chhayani, HP Engineering
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer
Weather:	Sunny
Temperature:	18°C

ADDITIONAL INVESTIGATION REQUIRED	Priority			Estimated Cost
	None	Normal	Urgent	
Rehabilitation/Replacement Study: Approach Barrier				\$ -
Material Condition Survey				
Detailed Deck Condition Survey:				\$ -
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$ -
Concrete Substructure Condition Survey:				\$ -
Detailed Coating Condition Survey:				\$ -
Detailed Timber Investigation:				\$ -
Underwater Investigation:				\$ -
Fatigue Investigation:				\$ -
Seismic Investigation:				\$ -
Structure Evaluation:				\$ -
Monitoring				
Monitoring of Deformations, Settlement and Movements:				\$ -
Monitoring Crack Widths:				\$ -
Load Posting – Estimated Load Limit			Total Cost	\$ -
Investigation Notes:				

OVERALL STRUCTURAL NOTES:	
Recommended Work on Structure:	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace
Timing of Recommended Work:	<input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years
Overall structure appears generally in good condition.	
Date of Next Inspection:	August 2022

Suspected Performance Deficiencies

- | | | |
|--|--|--|
| 00 None | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 01 Load carrying capacity | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 02 Excessive deformations (deflections & rotation) | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 03 Continuing settlement | 09 Rough riding surface | 15 Unstable embankments |
| 04 Continuing movements | 10 Surface ponding | 16 Other |
| 05 Seized bearings | 11 Deck drainage | |
| Maintenance Needs | | |
| 01 Lift and swing bridge maintenance | 07 Repair of structural steel | 13 Erosion control at bridges |
| 02 Bridge cleaning | 08 Repair of bridge concrete | 14 Concrete sealing |
| 03 Bridge handrail maintenance | 09 Repair of bridge timber | 15 Rout and seal |
| 04 Painting steel bridge structures | 10 Bailey bridges maintenance | 16 Bridge deck drainage |
| 05 Bridge deck joint repair | 11 Animal/pest control | 17 Scaling (loose Concrete or ACR Steel) |
| 06 Bridge bearing maintenance | 12 Bridge surface repair | 18 Other |

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

ELEMENT DATA					
Element Group:	Approaches		Length:	121	
Element Name:	Barrier		Width:		
Location:	NE, NW, SE & SW Corners of Structure		Height:		
Material:	Steel		Count:	2	
Element Type:	Steel Flex Beam on steel post		Total Quantity:	242	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	242	-	-
<p>Comments: Approach barrier appears generally in good condition with collision damage observed at SW end. NE- Connection + 19 Posts, NW- Connections + 26 Posts, SE- Connections + 28 Posts, SW- Connections + 46 Posts</p>					
Performance Deficiencies: 00			Maintenance Needs: 18 – Reinststate Damage Guiderail		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Approaches		Length:	6	
Element Name:	Wearing Surface		Width:	10	
Location:	North and South of Structure		Height:	0.08	
Material:	Asphalt		Count:	2	
Element Type:	NA		Total Quantity:	120	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	120	-	-
<p>Comments: Generally in good condition with minor raveling noted on the both approaches. Sand and gravel accumulated along edges of roadway.</p>					
Performance Deficiencies: 00			Maintenance Needs: 18 – Clean Sand and Gravel		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

ELEMENT DATA					
Element Group:	Approaches		Length:	6	
Element Name:	Curb and Gutters		Width:	-	
Location:	NA		Height:	0.18	
Material:	Cast-in-place concrete		Count:	4	
Element Type:	NA		Total Quantity:	24	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	24	-	-
Comments: Generally in the good condition. Sand observed along the northeast and northwest sides.					
Performance Deficiencies: 00			Maintenance Needs: 18 – Clean Sand and Gravel		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Approaches Approach		Length:	6	
Element Name:	Slabs		Width:	10	
Location:	Each End		Height:	0.25	
Material:	Cast-in-place concrete		Count:	2	
Element Type:	NA		Total Quantity:	120	
Environment:	Moderate		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	120	-	-
Comments: Overall, generally in good condition. Rating based on wearing surface condition.					
Performance Deficiencies: 03			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

ELEMENT DATA					
Element Group:	Accessories		Length:		
Element Name:	Signs		Width:		
Location:	North and South of Structure		Height:		
Material:	Steel		Count:	7	
Element Type:	Checkerboard Traffic Symbol		Total Quantity:	7	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	-	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Barriers		Length:	1.87	
Element Name:	Railing Systems		Width:	-	
Location:	North and South of Structure		Height:	0.62	
Material:	Steel		Count:	36	
Element Type:	Steel Post > 108 mm & 1 red. & 1 sq. tube		Total Quantity:	67.31	
Environment:	Moderate		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	67.31	-	-
Comments: Generally in good condition with light corrosion noted at bridge barrier to approach railing connection.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

ELEMENT DATA					
Element Group:	Sidewalks/Curbs	Length:	21.8		
Element Name:	Curbs	Width:	0.625		
Location:	NA	Height:	0.18		
Material:	Cast-in-place concrete	Count:	2		
Element Type:	NA	Total Quantity:	35.1		
Environment:	Severe	Limited Inspection:	<input type="checkbox"/>		
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	35.1	-	-
Comments: Generally in good condition. Sand noted along the north curb.					
Performance Deficiencies: 00			Maintenance Needs: 18 – Clean Sand and Gravel		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Decks	Length:	21.8		
Element Name:	Wearing Surface	Width:	10		
Location:	NA	Height:	0.09		
Material:	Asphalt	Count:	1		
Element Type:	NA	Total Quantity:	218		
Environment:	Severe	Limited Inspection:	<input type="checkbox"/>		
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	218	1	1
Comments: Generally in good condition. Sand and gravel was noted on both sides of the bridge deck for the full length and should be cleaned. Small, localized abrasions observed during the inspection.					
Performance Deficiencies: 00			Maintenance Needs: 02 – Bridge Cleaning		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

ELEMENT DATA					
Element Group:	Decks	Length:	19.3		
Element Name:	Soffit - Thin Slab (Exterior)	Width:	1.85		
Location:	NA	Height:	-		
Material:	Cast-in-place concrete	Count:	2		
Element Type:	NA	Total Quantity:	71.41		
Environment:	Benin	Limited Inspection:	<input type="checkbox"/>		
Protection System	Hot dip galvanizing				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	71.41	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Decks	Length:	19.3		
Element Name:	Soffit - Thin Slab (Interior)	Width:	1.85		
Location:	NA	Height:	-		
Material:	Cast-in-place concrete	Count:	3		
Element Type:	NA	Total Quantity:	107.12		
Environment:	Benign	Limited Inspection:	<input checked="" type="checkbox"/>		
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	107.12	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

ELEMENT DATA					
Element Group:	Beams	Length:	17.3		
Element Name:	Girders	Width:	0.56		
Location:	NA	Height:	1.2		
Material:	Steel	Count:	4		
Element Type:	I-type	Total Quantity:	282.33		
Environment:	Benign	Limited Inspection:	<input checked="" type="checkbox"/>		
Protection System	Epoxy zinc/acrylic/acrylic				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	282.33	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

ELEMENT DATA					
Element Group:	Abutments	Length:	4.2		
Element Name:	Wingwalls	Width:	-		
Location:	NA	Height:	1.3		
Material:	Cast-in-place concrete	Count:	4		
Element Type:	Reinforced Concrete Wall	Total Quantity:	21.83		
Environment:	Benign	Limited Inspection:	<input checked="" type="checkbox"/>		
Protection System	N/A				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	21.83	-	-
Comments: Generally in good condition. Some isolated small pop-outs noted. Damp stained map cracks observed on wingwall.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

ELEMENT DATA					
Element Group:	Abutments	Length:	0.35		
Element Name:	Bearings	Width:	0.45		
Location:	NA	Height:	0.04		
Material:	NA	Count:	8		
Element Type:	Elastomeric pad	Total Quantity:	8		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	8	-	-
Comments: Minor loss of contact at northeast, southeast, northwest and Southwest bearings.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

ELEMENT DATA					
Element Group:	Abutments	Length:	-		
Element Name:	Abutment Walls	Width:	11.4		
Location:	Each End	Height:	2		
Material:	Cat-in-place concrete	Count:	2		
Element Type:	Conventional closed	Total Quantity:	45.59		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	N/A				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	45.59	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

ELEMENT DATA					
Element Group:	Foundations	Length:			
Element Name:	Foundation (below ground level)	Width:			
Location:	NA	Height:			
Material:	Cast-in-place concrete	Count:			
Element Type:	Spread	Total Quantity:			
Environment:	Benign	Limited Inspection:		<input checked="" type="checkbox"/>	
Protection System	Unknown				
Condition Data:	Units	Excellent	Good	Fair	Poor
	%	-	-	-	-
Comments: No visible evidence of instability of foundation at the time if inspection.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Embankments & Streams	Length:			
Element Name:	Embankments	Width:			
Location:	Each Quadrant	Height:			
Material:	NA	Count:		4	
Element Type:	NA	Total Quantity:		4	
Environment:	Benign	Limited Inspection:		<input type="checkbox"/>	
Protection System	Penetrant applied				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	4		Each
Comments: Steep sloped and appears in stable condition at the time of inspection.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

ELEMENT DATA					
Element Group:	Embankments & Streams		Length:		
Element Name:	Slope Protection		Width:		
Location:	Each End of Bridge		Height:		
Material:	NA		Count:	2	
Element Type:	Rock protection		Total Quantity:	2	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	2	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Embankments & Streams		Length:		
Element Name:	Streams and Waterways		Width:		
Location:	Under Bridge		Height:		
Material:	NA		Count:	1	
Element Type:	NA		Total Quantity:	1	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	1		
Comments: Moderate volume, fast flow from north to south with branches in waterway observed at the time of inspection.					
Performance Deficiencies: 00			Maintenance Needs: 18- Remove debris		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR4

REPAIR AND REHABILITATION REQUIRED		Priority			Estimated Cost
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	< 1 year	
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
Total Cost					\$ -

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$ -
Detours		\$ -
Traffic Control		\$ -
Utilities		\$ -
Right of Way		\$ -
Environmental Study		\$ -
Other		\$ -
Contingencies		\$ -
Total Cost		\$ -

JUSTIFICATION

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR4



Photo 1 Structure from east approach



Photo 2 Structure from west approach



Photo 3 East approach from centre of structure



Photo 4 West approach from centre of structure

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR4



Photo 5 North elevation



Photo 6 South elevation



Photo 7 Vertical cracks noted along centerline and edges of approach wearing surface



Photo 8 Corrosion noted at connection between approach barrier and traffic barrier



Photo 9 Debris accumulation noted at the edge and over the traffic barrier



Photo 10 Bearing pad at west abutment wall



Photo 11 East underside of structure



Photo 12 Northwest wingwall



Photo 13 East abutment wall



Photo 14 West abutment wall

Structure Condition Summary Form

Structure Name Muskoka Road Bridge
Structure Number BR5
Date of Inspection August 04, 2020
Project No. 20032
Consultant HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	84.00	0.00	83.50	0.50	0.00	504	377	75	00	00
Barriers	Railing Systems	m	200.00	44.00	0.00	44.00	0.00	0.00	8800	6600	75	00	00
	Posts (Steel/Concrete)	Each	200.00	24.00	0.00	24.00	0.00	0.00	4800	3600	75	00	00
Sidewalks/ Curbs	Curbs	Sq.m	40.00	30.22	0.00	30.22	0.00	0.00	1209	907	75	00	18
	Wearing Surface	Sq.m	25.00	112.00	0.00	112.00	0.00	0.00	2800	2100	75	00	18
Decks	Deck Top - Thin Slab	Sq.m	120.00	112.00	0.00	112.00	0.00	0.00	13440	10080	75	00	00
	Soffit - Thin Slab	Sq.m	120.00	108.64	0.00	108.64	0.00	0.00	13037	9778	75	00	00
Beams/ Main Longitudinal	Girders -Steel	Sq.m	420.00	148.02	0.00	148.02	0.00	0.00	62168	46626	75	00	00
Abutment	Wingwalls	Sq.m	350.00	11.20	0.00	11.20	0.00	0.00	3920	2940	75	00	00
	Abutment Walls	Sq.m	900.00	16.00	0.00	16.00	0.00	0.00	14400	10800	75	00	00

125078 93807

Bridge Condition Index (BCI)

75

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

INVENTORY DATA:			
Structure Name	<u>Muskoka Rd. Bridge</u>		
Main Hwy/Road #	_____	Under Structure:	Navigable Water <input type="checkbox"/> Non- Navigable Water <input checked="" type="checkbox"/>
		Rail <input type="checkbox"/> Road <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>	
Road Name:	<u>Muskoka Road</u>	On Structure:	Rail <input type="checkbox"/> Road <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>
Structure Location	<u>0.2 km North of Robins Rd.</u>		
Latitude	<u>45°42'38.3"N</u>	Longitude	<u>79°25'36.1"W</u>
Owner(s)	<u>Township of Strong</u>	Heritage Designation	Not Cons. <input checked="" type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. <input type="checkbox"/> Desig./not List <input type="checkbox"/> Desig. & List <input type="checkbox"/>
MTO Region	<u>Northern</u>	Road Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>
MTO District	<u>Huntsville</u>	Posted Speed	<u>80</u> No. of Lanes <u>2</u>
Old County	<u>Parry Sound</u>	AADT	<u>0</u> % Trucks <u>0</u>
Geographic Twp.	<u>Township of Strong</u>	Special Routes	Transit <input checked="" type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle <input type="checkbox"/>
Structure Type	<u>I-beam or Girders</u>	Detour Length Around Structure	_____ (km)
Total Deck Length	<u>16</u> (m)	Fill on Structure	<u>0</u> (m)
Overall Str. Width	<u>8.1</u> (m)	Skew Angle	<u>0</u> (Degrees)
Total Deck Area	<u>129.6</u> (m ²)	Direction of Structure	<u>North - South</u>
Roadway Width	<u>7</u> (m)	No. of Spans	<u>1</u>
Span Lengths	<u>14.0</u> (m)		

HISTORICAL DATA			
Year Built	<u>2014</u>	Last OSIM Inspection	<u>June 26, 2020</u>
Year of Last Major Rehab.	<u>-</u>	Last Enhanced OSIM Inspection	<u>-</u>
Current Load Limit	_____ (tonnes)	Last Bridge Master Inspection	<u>-</u>
Load Limit By-Law #	<u>-</u>	Last Evaluation	<u>-</u>
By-Law Expiry Date	<u>-</u>	Last Underwater Inspection	<u>-</u>
Min. Vertical Clearance	<u>-</u> (m)	Last Condition Survey	<u>-</u>
Rehabilitation History: (Date / Description)			

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

FIELD INSPECTION INFORMATION	
Date of Inspection:	August 4, 2020 Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering
Others in Party:	Sagar Chhayani, HP Engineering
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer
Weather:	Sunny
Temperature:	18°C

ADDITIONAL INVESTIGATION REQUIRED	Priority			Estimated Cost
	None	Normal	Urgent	
Rehabilitation/Replacement Study: Approach Barrier				\$ -
Material Condition Survey				
Detailed Deck Condition Survey:				\$ -
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$ -
Concrete Substructure Condition Survey:				\$ -
Detailed Coating Condition Survey:				\$ -
Detailed Timber Investigation:				\$ -
Underwater Investigation:				\$ -
Fatigue Investigation:				\$ -
Seismic Investigation:				\$ -
Structure Evaluation:				\$ -
Monitoring				
Monitoring of Deformations, Settlement and Movements:				\$ -
Monitoring Crack Widths:				\$ -
Load Posting – Estimated Load Limit	Total Cost			\$ -
Investigation Notes:				

OVERALL STRUCTURAL NOTES:	
Recommended Work on Structure:	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace
Timing of Recommended Work:	<input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years
Overall structure is generally in good condition.	
Date of Next Inspection:	August 2022

Suspected Performance Deficiencies

- | | | |
|--|--|--|
| 00 None | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 01 Load carrying capacity | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 02 Excessive deformations (deflections & rotation) | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 03 Continuing settlement | 09 Rough riding surface | 15 Unstable embankments |
| 04 Continuing movements | 10 Surface ponding | 16 Other |
| 05 Seized bearings | 11 Deck drainage | |
| Maintenance Needs | | |
| 01 Lift and swing bridge maintenance | 07 Repair of structural steel | 13 Erosion control at bridges |
| 02 Bridge cleaning | 08 Repair of bridge concrete | 14 Concrete sealing |
| 03 Bridge handrail maintenance | 09 Repair of bridge timber | 15 Rout and seal |
| 04 Painting steel bridge structures | 10 Bailey bridges maintenance | 16 Bridge deck drainage |
| 05 Bridge deck joint repair | 11 Animal/pest control | 17 Scaling (loose Concrete or ACR Steel) |
| 06 Bridge bearing maintenance | 12 Bridge surface repair | 18 Other |

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

ELEMENT DATA					
Element Group:	Approaches		Length:	22	
Element Name:	Barrier		Width:		
Location:	NE, NW, SE & SW Corners of Structure		Height:		
Material:	Steel		Count:	4	
Element Type:	Steel Flex Beam on steel post		Total Quantity:	88	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	88	-	-
Comments: Generally in good condition with minor collision damage noted at southwest and northeast corners.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Approaches		Length:	6	
Element Name:	Wearing Surface		Width:	7	
Location:	East and West of Structure		Height:	0.08	
Material:	Asphalt		Count:	2	
Element Type:	NA		Total Quantity:	84	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	83.5	0.5	-
Comments: Generally in good condition with narrow to medium transverse cracks observed at end of decks.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

ELEMENT DATA					
Element Group:	Accessories		Length:		
Element Name:	Signs		Width:		
Location:	North and South of Structure		Height:		
Material:	Steel		Count:	4	
Element Type:	Checkerboard Traffic Symbol		Total Quantity:	4	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	4	-	-
Comments: 4- Hazard signs noted at the time of the inspection. Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Barriers		Length:	22	
Element Name:	Railing Systems		Width:	0.5	
Location:	NA		Height:	-	
Material:	Steel		Count:	2	
Element Type:	Thrie Beam on steel post		Total Quantity:	44	
Environment:	Moderate		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	44	-	-
Comments: Generally in good condition with minor collision damage noted at southwest and northeast corners.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

ELEMENT DATA					
Element Group:	Sidewalks/Curbs		Length:	22	
Element Name:	Curbs		Width:	0.5	
Location:	NA		Height:	0.18	
Material:	Cast-in-place concrete		Count:	2	
Element Type:	NA		Total Quantity:	30.22	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	30.22	-	-
Comments: Generally in good condition. Some sand / gravel build up on the sides.					
Performance Deficiencies: 00			Maintenance Needs: 18 - Clean Sand and Gravel		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input checked="" type="checkbox"/> 2 Years		

Element Group:	Decks		Length:	-	
Element Name:	Drainage System		Width:	-	
Location:	NA		Height:	-	
Material:	Steel		Count:	4	
Element Type:	Metal drain pipes		Total Quantity:	4	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	2	2	-
Comments: 2 drain blocked. Clear as maintenance.					
Performance Deficiencies: 00			Maintenance Needs: 16 – Bridge Deck Drainage		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

ELEMENT DATA					
Element Group:	Decks		Length:	14	
Element Name:	Wearing Surface		Width:	2.26	
Location:	NA		Height:	-	
Material:	Asphalt		Count:	1	
Element Type:	NA		Total Quantity:	31.92	
Environment:	Benin		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	112	-	-
Comments: Generally in good condition. Sand / gravel accumulate noted along the edges.					
Performance Deficiencies: 00			Maintenance Needs: 18 - Clean Sand and Gravel		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input checked="" type="checkbox"/> 2 Years		

Element Group:	Decks		Length:	16	
Element Name:	Deck Top		Width:	7	
Location:	NA		Height:	0.225	
Material:	Cast-in-place concrete		Count:	1	
Element Type:	Cast-in-place concrete on supports		Total Quantity:	112	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	112	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

ELEMENT DATA					
Element Group:	Decks		Length:	14	
Element Name:	Soffit - Thin Slab (Exterior)		Width:	2.26	
Location:	NA		Height:	-	
Material:	Cast-in-place concrete		Count:	1	
Element Type:	Cast-in-place concrete on supports		Total Quantity:	31.92	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Epoxy zinc/acrylic/acrylic				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	31.92	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

ELEMENT DATA					
Element Group:	Decks		Length:	14	
Element Name:	Soffit - Thin Slab (Interior)		Width:	5.48	
Location:	NA		Height:	0.225	
Material:	Cast-in-place concrete		Count:	1	
Element Type:	Cast-in-place concrete on supports		Total Quantity:	76.72	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	N/A				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	76.72	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

ELEMENT DATA					
Element Group:	Beams		Length:	15.5	
Element Name:	Girders		Width:	0.23	
Location:	NA		Height:	0.61	
Material:	Steel		Count:	5	
Element Type:	I-type		Total Quantity:	148.02	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	148.02	-	-
Comments: Generally in good condition. Some light corrosion noted.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

ELEMENT DATA					
Element Group:	Main Longitudinal Elements (MLE's)		Length:	1.6	
Element Name:	Diaphragms		Width:	0.065	
Location:	NA		Height:	0.25	
Material:	Steel		Count:	10	
Element Type:	Channel		Total Quantity:	10	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	N/A				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	10	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

ELEMENT DATA					
Element Group:	Abutments	Length:	3.5		
Element Name:	Wingwalls	Width:	0.45		
Location:	NA	Height:	1.6		
Material:	Cast-in-place concrete	Count:	4		
Element Type:	Reinforced concrete	Total Quantity:	11.2		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	Unknown				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	11.2	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Abutments	Length:			
Element Name:	Abutment Walls	Width:	8		
Location:	Each End	Height:	1		
Material:	Cast-in-place concrete	Count:	2		
Element Type:	Conventional closed	Total Quantity:	16		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	Penetrant applied				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	16		Each
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

ELEMENT DATA					
Element Group:	Foundations		Length:		
Element Name:	Foundation (below ground level)		Width:		
Location:	NA		Height:		
Material:	Steel		Count:	All	
Element Type:	Piles		Total Quantity:	All	
Environment:	Foundations		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	All	-	-
Comments: No visible signs of instability observed at the time of inspection.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Embankments & Streams		Length:		
Element Name:	Embankments		Width:		
Location:	Each Quadrant		Height:		
Material:	NA		Count:	4	
Element Type:	NA		Total Quantity:	4	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	4		Each
Comments: Generally in good condition with stable, sloped, high vegetation noted.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

ELEMENT DATA					
Element Group:	Embankments & Streams		Length:		
Element Name:	Streams and Waterways		Width:		
Location:	Under Bridge		Height:		
Material:	NA		Count:	1	
Element Type:	NA		Total Quantity:	1	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	%	-	1	-	-
Comments: No visible signs of instability observed at the time of inspection. Moderate volume, no flow obstructions noted at the time of inspection.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR5

REPAIR AND REHABILITATION REQUIRED		Priority			Estimated Cost
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	< 1 year	
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
Total Cost					\$ -

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$ -
Detours		\$ -
Traffic Control		\$ -
Utilities		\$ -
Right of Way		\$ -
Environmental Study		\$ -
Other		\$ -
Contingencies		\$ -
Total Cost		\$ -

JUSTIFICATION

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR5



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Potholes and loose gravel noted on approach wearing surface



Photo 8 Small dents and abrasion noted on southeast hazard sign



Photo 9 North underside of structure



Photo 10 Narrow cracks and scaling noted on east fascia



Photo 11 Longitudinal narrow racks with damp stains noted on west fascia



Photo 12 Southeast wingwall



Photo 13 Concrete disintegration and scaling noted on abutment wall

Structure Condition Summary Form

Structure Name Stirling Creek Bridge
Structure Number BR6
Date of Inspection August 04, 2020
Project No. 20032
Consultant HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	72.60	0.00	68.60	2.00	2.00	436	314	72	00	12
Barriers	Railing Systems	m	200.00	26.00	0.00	24.00	1.00	1.00	5200	3680	71	00	18
	Top Chords	Sq.m	300.00	14.64	0.00	14.64	0.00	0.00	4392	3294	75	00	00
	Verticals	Sq.m	300.00	48.00	0.00	48.00	0.00	0.00	14400	10800	75	00	00
Trusses/ Arches	Diagonals	Sq.m	300.00	128.00	0.00	128.00	0.00	0.00	38400	28800	75	00	00
	Bottom Chords	Sq.m	300.00	9.76	0.00	9.76	0.00	0.00	2928	2196	75	00	00
	Connections	Each	0.00	208.00	0.00	208.00	0.00	0.00	0	0		00	00
Sidewalks/ Curbs	Curbs	Sq.m	40.00	24.00	0.00	22.00	1.00	1.00	960	676	70	00	02
	Wearing Surface	Sq.m	25.00	60.60	0.00	0.00	56.60	4.00	1515	566	37	00	00
Decks	Deck - Timber	Sq.m	50.00	60.60	0.00	0.00	59.10	1.50	3030	1182	39	00	00
	Soffit - Thin Slab	Sq.m	120.00	60.60	0.00	0.00	59.10	1.50	7272	2837	39	00	00
Beams/ Main Longitudinal Elements	Stringers	Each	0.00	11.00	0.00	11.00	0.00	0.00	0	0		00	00
	Floor Beams - Steel	Sq.m	420.00	60.43	0.00	60.43	0.00	0.00	25381	19035	75	00	00
Bracing	Bracing - Steel	Each	500.00	8.00	0.00	8.00	0.00	0.00	4000	3000	75	00	00
Coatings	Structural steel	Sq.m	80.00	1.00	0.00	1.00	0.00	0.00	80	60	75	00	00
	Ballast Walls	Sq.m	350.00	18.92	0.00	17.92	0.00	1.00	6622	4704	71	00	08
Abutment	Bearings	Each	1000.00	8.00	0.00	8.00	0.00	0.00	8000	6000	75	00	02
	Abutment Walls	Sq.m	900.00	61.06	0.00	61.06	0.00	0.00	54954	41216	75	00	02

177569

128359

Bridge Condition Index (BCI)

72

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

INVENTORY DATA:			
Structure Name	<u>Stirling Creek Bridge</u>		
Main Hwy/Road #	Under Structure:	Navigable Water <input type="checkbox"/>	Non- Navigable Water <input checked="" type="checkbox"/>
		Rail <input type="checkbox"/>	Road <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>
Road Name:	On Structure:	Rail <input type="checkbox"/>	Road <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>
Structure Location	<u>North Horn Lake Road</u>		
Latitude	<u>45°40'58.8"N</u>	Longitude	<u>79°25'54.7"W</u>
Owner(s)	<u>Township of Strong</u>	Heritage Designation	Not Cons. <input checked="" type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. <input type="checkbox"/>
MTO Region	<u>Northern</u>	Road Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>
MTO District	<u>Huntsville</u>	Posted Speed	<u>50</u> No. of Lanes <u>1</u>
Old County	<u>Parry Sound</u>	AADT	<u>0</u> % Trucks <u>0</u>
Geographic Twp.	<u>Township of Strong</u>	Special Routes	Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle <input type="checkbox"/>
Structure Type	<u>Bailey Panel</u>	Detour Length Around Structure	<u> -</u> (km)
Total Deck Length	<u>12.2</u> (m)	Fill on Structure	<u> 0</u> (m)
Overall Str. Width	<u>6.37</u> (m)	Skew Angle	<u> 0</u> (Degrees)
Total Deck Area	<u>77.714</u> (m ²)	Direction of Structure	<u> East/West</u>
Roadway Width	<u>5.05</u> (m)	No. of Spans	<u> 1</u>
Span Lengths	<u> 12.2</u> (m)		

HISTORICAL DATA			
Year Built	<u> -</u>	Last OSIM Inspection	<u> June 26, 2018</u>
Year of Last Major Rehab.	<u> -</u>	Last Enhanced OSIM Inspection	<u> -</u>
Current Load Limit	<u> -</u> (tonnes)	Last Bridge Master Inspection	<u> -</u>
Load Limit By-Law #	<u> -</u>	Last Evaluation	<u> -</u>
By-Law Expiry Date	<u> -</u>	Last Underwater Inspection	<u> -</u>
Min. Vertical Clearance	<u> -</u> (m)	Last Condition Survey	<u> -</u>
Rehabilitation History: (Date / Description)			

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

FIELD INSPECTION INFORMATION	
Date of Inspection:	August 4, 2020 Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering
Others in Party:	Sagar Chhayani, HP Engineering
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer
Weather:	Sunny
Temperature:	18°C

ADDITIONAL INVESTIGATION REQUIRED	Priority			Estimated Cost
	None	Normal	Urgent	
Rehabilitation/Replacement Study: Approach Barrier				\$ -
Material Condition Survey				
Detailed Deck Condition Survey:				\$ -
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$ -
Concrete Substructure Condition Survey:				\$ -
Detailed Coating Condition Survey:				\$ -
Detailed Timber Investigation:				\$ -
Underwater Investigation:				\$ -
Fatigue Investigation:				\$ -
Seismic Investigation:				\$ -
Structure Evaluation:				\$ -
Monitoring				
Monitoring of Deformations, Settlement and Movements:				\$ -
Monitoring Crack Widths:				\$ -
Load Posting – Estimated Load Limit			Total Cost	\$ -
Investigation Notes:				

OVERALL STRUCTURAL NOTES:	
Recommended Work on Structure:	<input type="checkbox"/> None <input checked="" type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace
Timing of Recommended Work:	<input checked="" type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years
Overall, structure is generally in good condition with damaged noted on railing system. Replace of timber deck surface (and underlying deck timbers as required) is recommended. Replacement of approach railing end treatments with code compliant end treatments recommended.	
Date of Next Inspection:	August 2022

Suspected Performance Deficiencies

- | | | |
|--|--|--|
| 00 None | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 01 Load carrying capacity | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 02 Excessive deformations (deflections & rotation) | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 03 Continuing settlement | 09 Rough riding surface | 15 Unstable embankments |
| 04 Continuing movements | 10 Surface ponding | 16 Other |
| 05 Seized bearings | 11 Deck drainage | |
| Maintenance Needs | | |
| 01 Lift and swing bridge maintenance | 07 Repair of structural steel | 13 Erosion control at bridges |
| 02 Bridge cleaning | 08 Repair of bridge concrete | 14 Concrete sealing |
| 03 Bridge handrail maintenance | 09 Repair of bridge timber | 15 Rout and seal |
| 04 Painting steel bridge structures | 10 Bailey bridges maintenance | 16 Bridge deck drainage |
| 05 Bridge deck joint repair | 11 Animal/pest control | 17 Scaling (loose Concrete or ACR Steel) |
| 06 Bridge bearing maintenance | 12 Bridge surface repair | 18 Other |

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA					
Element Group:	Approaches		Length:		
Element Name:	Barrier		Width:		
Location:	NE, NW, SE & SW Corners of Structure		Height:		
Material:	Steel		Count:		
Element Type:	Steel Flex Beam on wood post		Total Quantity:		
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot Dip Galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	-	-	-
Comments: Barrier is generally in good condition with some minor collision damage and light corrosion noted at end. Checks and splits noted on wood posts. End treatments are substandard and should be replaced with code compliant end treatments.					
Performance Deficiencies: 08			Maintenance Needs: 18 – Replace Damaged Posts / Rails		
Recommended Work: <input type="checkbox"/> Rehab. <input checked="" type="checkbox"/> Replace <input checked="" type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Approaches		Length:	6	
Element Name:	Wearing Surface		Width:	6.05	
Location:	North and South of Structure		Height:	-	
Material:	Gravel		Count:	2	
Element Type:	NA		Total Quantity:	72.6	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	68.6	2	2
Comments: Pothole noted at north and south ends of deck wearing surface at the time of the inspection.					
Performance Deficiencies: 00			Maintenance Needs: 12		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input checked="" type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA					
Element Group:	Accessories		Length:		
Element Name:	Signs		Width:		
Location:	North and South of Structure		Height:		
Material:	Steel		Count:	2	
Element Type:	Hazard Signs		Total Quantity:	2	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	1	-	1
Comments: 2 Hazard signs. Northeast hazard sign damaged. Install 3 hazard signs and 2 narrow bridge signs as maintenance.					
Performance Deficiencies: 00			Maintenance Needs: 18 - Install Hazard / Narrow Bridge Signs		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input checked="" type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Barriers		Length:	13	
Element Name:	Railing Systems		Width:	-	
Location:	Bridge		Height:	-	
Material:	Steel		Count:	2	
Element Type:	Steel Flex Beam on Steel Post		Total Quantity:	26	
Environment:	Moderate		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot Dip Galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m		24	1	1
Comments: Collision damaged observed on Northeast and Southwest barriers.					
Performance Deficiencies: 00			Maintenance Needs: 18 – Repair / Replace Damage Railing		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input checked="" type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA					
Element Group:	Trusses/Arches		Length:	12.2	
Element Name:	Top Chords		Width:	0.05	
Location:	NA		Height:	0.1	
Material:	Steel		Count:	4	
Element Type:	Channel		Total Quantity:	14.64	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	14.64	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Trusses/Arches		Length:	0.04	
Element Name:	Verticals / Diagonals		Width:	0.08	
Location:	Verticals		Height:	1.2	
Material:	Steel		Count:	48	
Element Type:	Channel		Total Quantity:	48	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	48	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA					
Element Group:	Trusses/Arches		Length:	1.34	
Element Name:	Verticals / Diagonals		Width:	0.05	
Location:	Diagonals		Height:	0.08	
Material:	Steel		Count:	128	
Element Type:	Channel		Total Quantity:	128	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	128	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work:			Maintenance Needs:		
<input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			<input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Trusses/Arches		Length:	12.2	
Element Name:	Bottom Chords		Width:	0.05	
Location:	NA		Height:	0.1	
Material:	Steel		Count:	4	
Element Type:	Channel		Total Quantity:	9.76	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot Dip Galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	9.76	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work:			Maintenance Needs:		
<input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			<input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA					
Element Group:	Trusses/Arches		Length:		
Element Name:	Connections		Width:		
Location:	NA		Height:	-	
Material:	Steel		Count:	208	
Element Type:	Bolted		Total Quantity:	208	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot Dip Galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	208	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

ELEMENT DATA					
Element Group:	Sidewalks/Curbs		Length:	12	
Element Name:	Curbs		Width:	0.2	
Location:	Each side		Height:	0.2	
Material:	Wood		Count:	2	
Element Type:	NA		Total Quantity:	24	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	22	1	1
Comments: Curb covered in debris. Clean debris off curb as maintenance. Some minor section loss / abrasion observed on the south curb.					
Performance Deficiencies: 00			Maintenance Needs: 02 Bridge Cleaning		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input checked="" type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA					
Element Group:	Decks		Length:	12	
Element Name:	Wearing Surface		Width:	5.05	
Location:	NA		Height:	0.045	
Material:	Wood		Count:	1	
Element Type:	NA		Total Quantity:	60.6	
Environment:	Severe		Limited Inspection:	<input checked="" type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	-	56.6	4
<p>Comments: Rotting and moisture damage throughout wearing surface. Replacement of deck planks is recommended</p>					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input checked="" type="checkbox"/> Replace <input checked="" type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

ELEMENT DATA					
Element Group:	Decks		Length:	12	
Element Name:	Deck Top		Width:	5.05	
Location:	NA		Height:	0.06	
Material:	Wood		Count:	1	
Element Type:	Wood Planks		Total Quantity:	60.6	
Environment:	Benign		Limited Inspection:	<input checked="" type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	-	59.1	1.5
<p>Comments: Top of deck not visible (covered in wearing surface deck planks). Likely some rot and deterioration (based on observed condition of wearing surface). Should be further inspected and reinstated as required after removal of wearing surface planks.</p>					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input checked="" type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input checked="" type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA					
Element Group:	Decks		Length:	12	
Element Name:	Soffit		Width:	5.05	
Location:	NA		Height:	0.06	
Material:	Wood		Count:	1	
Element Type:	NA		Total Quantity:	60.6	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	-	59.1	1.5
Comments: Localized split timbers and evidence of localized rotting of timbers noted. Should be further inspected and reinstated as required after removal of wearing surface planks.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input checked="" type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input checked="" type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Main Longitudinal Elements (MLE's)		Length:	12.2	
Element Name:	Stringers		Width:	0.04	
Location:	NA		Height:	0.1	
Material:	Steel		Count:	11	
Element Type:	(Steel I) Beam		Total Quantity:	11	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	11	-	-
Comments: Generally in good condition. Some damp and stains noted on stringers. Light corrosion observed on flanges.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA					
Element Group:	Main Longitudinal Elements (MLE's)	Length:	7.9		
Element Name:	Floor Beams	Width:	0.2		
Location:	NA	Height:	0.465		
Material:	Steel	Count:	5		
Element Type:	(Steel I) Beam	Total Quantity:	60.43		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	60.43	-	-
Comments: Generally in good condition. Light corrosion noted on flanges.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Bracing	Length:	4.3		
Element Name:	Bracing	Width:	0.1		
Location:	Horizontal Bracing	Height:	0.05		
Material:	Steel	Count:	8		
Element Type:	Channel	Total Quantity:	8		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	8	-	-
Comments: Light corrosion noted on flanges.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA					
Element Group:	Coatings		Length:		
Element Name:	Structural Steel		Width:		
Location:	NA		Height:		
Material:	NA		Count:	1	
Element Type:	Hot dip galvanized		Total Quantity:	1	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	N/A				
Condition Data:	Units	Excellent	Good	Fair	Poor
	%	-	1	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Abutments		Length:	0.35	
Element Name:	Ballast Walls		Width:	8.6	
Location:	Each End		Height:	1.1	
Material:	Cast-in-place concrete		Count:	2	
Element Type:	Reinforced concrete		Total Quantity:	18.92	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	17.92	-	1
Comments: Rust stains and large spall noted on the top of southeast ballast wall.					
Performance Deficiencies: 00			Maintenance Needs: 08		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input checked="" type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA					
Element Group:	Abutments	Length:	0.46		
Element Name:	Bearings	Width:	0.38		
Location:	NA	Height:	-		
Material:	Steel	Count:	8		
Element Type:	Hinge	Total Quantity:	8		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	Hot Dip Galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	8	-	-
Comments: Bearings covered in debris. Visible portion generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 02 – Bridge Cleaning		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Abutments	Length:	-		
Element Name:	Abutment Walls	Width:	8.6		
Location:	Each End	Height:	3.55		
Material:	Cast-in-place concrete	Count:	2		
Element Type:	Conventional closed	Total Quantity:	61.06		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	61.06	-	-
Comments: Abutment bearing seat covered in debris and should be cleared. Minor bug holes noted.					
Performance Deficiencies: 00			Maintenance Needs: 02 – Bridge Cleaning		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA					
Element Group:	Embankments & Streams		Length:	-	
Element Name:	Embankments		Width:	-	
Location:	All		Height:	-	
Material:	NA		Count:	6	
Element Type:	NA		Total Quantity:	6	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	6	-	-
Comments: Generally in good condition. Stable, steep with rock slope protection noted at all embankments. Rock slope protection appears generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 06		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Embankments & Streams		Length:	-	
Element Name:	Streams and Waterways		Width:	-	
Location:	Under Structure		Height:	-	
Material:	NA		Count:	1	
Element Type:	NA		Total Quantity:	1	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	1	-	-
Comments: High volume, low flow from west to south with no obstructions in the stream at the time of inspection.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR6

REPAIR AND REHABILITATION REQUIRED		Priority			Estimated Cost
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	< 1 year	
Approach Barrier	Replace non-conforming End Treatments		X		\$ 24,000.00
Deck Wearing Surface / Deck Timbers	Replace Timber Deck Planks (and deck timbers as required)		X		\$ 40,000.00
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
Total Cost					\$ 64,000.00

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$ -
Detours		\$ -
Traffic Control		\$ -
Utilities		\$ -
Right of Way		\$ -
Environmental Study		\$ -
Other		\$ -
Contingencies		\$ -
Total Cost		\$ -

JUSTIFICATION

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR6



Photo 1 Structure from east approach



Photo 2 Structure from west approach



Photo 3 East approach from centre of structure



Photo 4 West approach from centre of structure



Photo 5 North elevation



Photo 6 South elevation



Photo 7 Tire rutting and small potholes noted on approach wearing surface



Photo 8 Collision damage observed on southeast approach barrier



Photo 9 Substandard end treatment with damaged approach barrier at northeast corner



Photo 10 Damage with corrosion noted on thrie steel beam on northeast approach barrier



Photo 11 Southwest end treatment was buried into ground



Photo 12 Corrosion noted on diagonal member of bailey panel on bridge barrier



Photo 13 East underside of structure



Photo 14 Debris accumulation observed around bearing pad



Photo 15 Southeast wingwall



Photo 16 East abutment wall



Photo 17 West abutment wall

Structure Condition Summary Form

Structure Name Pevency Road Bridge
Structure Number BR7
Date of Inspection August 04, 2020
Project No. 20032
Consultant HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	65.39	0.00	60.39	5.00	0.00	392	284	72	00	18
Barriers	Barrier/ Parapet Walls	Sq.m	100.00	87.78	0.00	85.28	1.50	1.00	8778	6456	74	00	03,08
Decks	Deck Top - Thin Slab	Sq.m	120.00	91.05	0.00	89.05	2.00	0.00	10926	8111	74	00	02
	Soffit - Thin Slab	Sq.m	120.00	84.75	0.00	84.75	0.00	0.00	10170	7628	75	00	00
Beams/ Main Longitudinal	Girders -Steel	Sq.m	420.00	86.40	0.00	86.40	0.00	0.00	36288	27216	75	00	00
	Wingwalls	Sq.m	350.00	16.37	0.00	16.37	0.00	0.00	5730	4297	75	00	00
Abutment	Bearings	Each	1000.00	6.00	0.00	6.00	0.00	0.00	6000	4500	75	00	00
	Abutment Walls	Sq.m	900.00	29.04	0.00	26.04	3.00	0.00	26136	18657	71	00	00
									104420	77148			

Bridge Condition Index (BCI)

74

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR7

INVENTORY DATA:			
Structure Name	<u>Peveny Road Bridge</u>		
Main Hwy/Road #	_____	Under Structure:	Navigable Water <input type="checkbox"/> Non- Navigable Water <input checked="" type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>
		On Structure:	Rail <input type="checkbox"/> Road <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>
Road Name:	<u>Peveny Road</u>		
Structure Location	<u>South of Farm View Road</u>		
Latitude	<u>45°42'57.1"N</u>	Longitude	<u>79°19'03.4"W</u>
Owner(s)	<u>Township of Strong</u>	Heritage Designation	Not Cons. <input checked="" type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. <input type="checkbox"/>
			Desig./not List <input type="checkbox"/> Desig. & List <input type="checkbox"/>
MTO Region	<u>Northern</u>	Road Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>
MTO District	<u>Huntsville</u>	Posted Speed	<u>80</u> No. of Lanes <u>1</u>
Old County	<u>Parry Sound</u>	AADT	<u>0</u> % Trucks <u>0</u>
Geographic Twp.	<u>Township of Strong</u>	Special Routes	Transit <input checked="" type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle <input type="checkbox"/>
Structure Type	<u>I-Beam or Girders</u>	Detour Length Around Structure _____ (km)	
		Total Deck Length	<u>15.05</u> (m)
Overall Str. Width	<u>6.05</u> (m)	Fill on Structure	<u>0</u> (m)
Total Deck Area	<u>91.05</u> (m ²)	Skew Angle	<u>0</u> (Degrees)
Roadway Width	<u>5.45</u> (m)	Direction of Structure	<u>North - South</u>
Span Lengths	<u>13.65</u> (m)	No. of Spans	<u>1</u>

HISTORICAL DATA			
Year Built	_____	Last OSIM Inspection	<u>June 26, 2020</u>
Year of Last Major Rehab.	<u>-</u>	Last Enhanced OSIM Inspection	<u>-</u>
Current Load Limit	_____ (tonnes)	Last Bridge Master Inspection	<u>-</u>
Load Limit By-Law #	<u>-</u>	Last Evaluation	<u>-</u>
By-Law Expiry Date	<u>-</u>	Last Underwater Inspection	<u>-</u>
Min. Vertical Clearance	<u>-</u> (m)	Last Condition Survey	<u>-</u>
Rehabilitation History: (Date / Description)			

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR7

FIELD INSPECTION INFORMATION	
Date of Inspection:	August 4, 2020 Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering
Others in Party:	Sagar Chhayani, HP Engineering
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer
Weather:	Sunny
Temperature:	18°C

ADDITIONAL INVESTIGATION REQUIRED	Priority			Estimated Cost
	None	Normal	Urgent	
Rehabilitation/Replacement Study: Approach Barrier				\$ -
Material Condition Survey				
Detailed Deck Condition Survey:				\$ -
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$ -
Concrete Substructure Condition Survey:				\$ -
Detailed Coating Condition Survey:				\$ -
Detailed Timber Investigation:				\$ -
Underwater Investigation:				\$ -
Fatigue Investigation:				\$ -
Seismic Investigation:				\$ -
Structure Evaluation:				\$ -
Monitoring				
Monitoring of Deformations, Settlement and Movements:				\$ -
Monitoring Crack Widths:				\$ -
Load Posting – Estimated Load Limit	Total Cost			\$ -
Investigation Notes:				

OVERALL STRUCTURAL NOTES:	
Recommended Work on Structure:	<input type="checkbox"/> None <input checked="" type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace
Timing of Recommended Work:	<input checked="" type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years
Overall, structure is generally in good condition with spalls and abrasion noted on barrier parapet wall. It is recommended to perform a bridge cleaning. Leaving end treatments are non-compliant and should be replaced with code compliant end treatments	
Date of Next Inspection:	August 2022

Suspected Performance Deficiencies

- | | | |
|--|--|--|
| 00 None | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 01 Load carrying capacity | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 02 Excessive deformations (deflections & rotation) | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 03 Continuing settlement | 09 Rough riding surface | 15 Unstable embankments |
| 04 Continuing movements | 10 Surface ponding | 16 Other |
| 05 Seized bearings | 11 Deck drainage | |
| Maintenance Needs | | |
| 01 Lift and swing bridge maintenance | 07 Repair of structural steel | 13 Erosion control at bridges |
| 02 Bridge cleaning | 08 Repair of bridge concrete | 14 Concrete sealing |
| 03 Bridge handrail maintenance | 09 Repair of bridge timber | 15 Rout and seal |
| 04 Painting steel bridge structures | 10 Bailey bridges maintenance | 16 Bridge deck drainage |
| 05 Bridge deck joint repair | 11 Animal/pest control | 17 Scaling (loose Concrete or ACR Steel) |
| 06 Bridge bearing maintenance | 12 Bridge surface repair | 18 Other |

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA					
Element Group:	Approaches		Length:		
Element Name:	Barrier		Width:		
Location:	NE, NW, SE & SW Corners of Structure		Height:		
Material:	Steel		Count:		
Element Type:	Steel Flex Beam on wood post		Total Quantity:		
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	-	-	-
Comments: Barrier is generally in good condition with some minor collision damage and light corrosion noted at end. Leaving end treatments are substandard and should be replaced with code compliant end treatments.					
Performance Deficiencies: 08			Maintenance Needs: 03 & 18 – Replace Damaged Posts		
Recommended Work: <input type="checkbox"/> Rehab. <input checked="" type="checkbox"/> Replace <input checked="" type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Approaches		Length:	6	
Element Name:	Wearing Surface		Width:	5.45	
Location:	North and South of Structure		Height:	0.25	
Material:	Gravel		Count:	2	
Element Type:	NA		Total Quantity:	65.39	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	60.39	5	-
Comments: Potholes noted at north and south ends of deck wearing surface at the time of the inspection. Uneven gravel coverage.					
Performance Deficiencies: 00			Maintenance Needs: 18 – Regrade Approaches		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA					
Element Group:	Accessories		Length:		
Element Name:	Signs		Width:		
Location:	North and South of Structure		Height:		
Material:	Steel		Count:	5	
Element Type:	Hazard Signs		Total Quantity:	5	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	4	1	-
Comments: 4 Hazard signs. 1 One lane bridge sign at north leaning.					
Performance Deficiencies: 00			Maintenance Needs: 18 – Reinststate leaning sign		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Barriers		Length:	20.8	
Element Name:	Barrier/Parapet Walls		Width:	0.25	
Location:	NA		Height:	0.93	
Material:	Cast-in-place concrete		Count:	2	
Element Type:	Parapet Wall with single railing		Total Quantity:	87.78	
Environment:	Moderate		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	85.28	1.5	1
Comments: Collision damaged observed on Northeast and Southwest barriers. Spalls on all four corners and abrasions on the wall observed. Missing end cap at southwest and northeast ends of the hand railings.					
Performance Deficiencies: 00			Maintenance Needs: 03 and 08		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input checked="" type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA					
Element Group:	Decks		Length:	15.05	
Element Name:	Deck Top		Width:	6.05	
Location:	NA		Height:	-	
Material:	Cast-in-place concrete		Count:	1	
Element Type:	Cast-in-place concrete on supports, composite		Total Quantity:	91.05	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	89.05	2	-
Comments: Build up of debris on the deck top with snowplow abrasions and high scaling noted.					
Performance Deficiencies: 00			Maintenance Needs: 02		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input checked="" type="checkbox"/> 2 Years		

Element Group:	Decks		Length:	12.5	
Element Name:	Soffit - Thin Slab		Width:	1.5	
Location:	Exterior		Height:	-	
Material:	Cast-in-place concrete		Count:	2	
Element Type:	NA		Total Quantity:	37.5	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	37.5	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs:		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA					
Element Group:	Decks		Length:	12.5	
Element Name:	Soffit - Thin Slab		Width:	1.89	
Location:	Interior		Height:	-	
Material:	Cast-in-place concrete		Count:	2	
Element Type:	NA		Total Quantity:	47.25	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot dip galvanizing				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	47.25	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work:			Maintenance Needs:		
<input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			<input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Beams		Length:	15	
Element Name:	Girders		Width:	0.24	
Location:	NA		Height:	0.6	
Material:	Weathering steel		Count:	3	
Element Type:	I-type		Total Quantity:	86.4	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	86.4	-	-
Comments: Generally in good condition. Some light corrosion observed.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work:			Maintenance Needs:		
<input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			<input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA					
Element Group:	Main Longitudinal Elements (MLE's)	Length:	2		
Element Name:	Diaphragms	Width:	0.05		
Location:	NA	Height:	0.25		
Material:	Weathering steel	Count:	4		
Element Type:	I-type	Total Quantity:	4		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	Epoxy zinc/acrylic/acrylic				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	4	-	-
Comments: Generally in good condition with some light corrosion observed.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

ELEMENT DATA					
Element Group:	Abutments	Length:	3.15		
Element Name:	Wingwalls	Width:	-		
Location:	East and West side of Structure	Height:	1.3		
Material:	Cast-in-place concrete	Count:	4		
Element Type:	Reinforced concrete	Total Quantity:	16.37		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	N/A				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	16.37	-	-
Comments: All wingwalls are generally in good condition with minor honeycombing.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA					
Element Group:	Abutments	Length:	0.6		
Element Name:	Bearings	Width:	0.6		
Location:	NA	Height:	0.1		
Material:	NA	Count:	6		
Element Type:	Elastometric pad	Total Quantity:	6		
Environment:	Severe	Limited Inspection:	<input type="checkbox"/>		
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	6	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

ELEMENT DATA					
Element Group:	Abutments	Length:	-		
Element Name:	Abutment Walls	Width:	6.05		
Location:	Each End	Height:	2.4		
Material:	Cast-ip-place concrete	Count:	2		
Element Type:	Conventional closed	Total Quantity:	29.04		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	N/A				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	26.04	3	-
Comments: Light scaling on north abutment, medium scaling on south abutment. Minor honeycombing at north side. Could not confirm the undermining at south abutment, mentioned in previous inspection report.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA					
Element Group:	Foundations	Length:	-		
Element Name:	Foundation (below ground level)	Width:	-		
Location:	NA	Height:	-		
Material:	Cast-in-place concrete	Count:	1		
Element Type:	Spread	Total Quantity:	1		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	Unknown				
Condition Data:	Units	Excellent	Good	Fair	Poor
	All	-	-	1	1
Comments: Undermining at south abutment could not be confirmed during current inspection. Should be further reviewed in subsequent inspections. No evidence of instability noted.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Embankments & Streams	Length:	-		
Element Name:	Embankments	Width:	-		
Location:	Each Quadrant	Height:	-		
Material:	NA	Count:	1		
Element Type:	NA	Total Quantity:	1		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	4	-	-
Comments: All embankments appear steep, well vegetated and in stable condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA					
Element Group:	Embankments & Streams		Length:	-	
Element Name:	Streams and Waterways		Width:	-	
Location:	Under Bridge		Height:	-	
Material:	NA		Count:	1	
Element Type:	NA		Total Quantity:	1	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	All	-	1	-	-
Comments: Moderate volume, moderate flow from east to west with no obstructions observed at the time of inspection.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR7

REPAIR AND REHABILITATION REQUIRED		Priority			Estimated Cost
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	< 1 year	
Approach Railing	Replace Leaving End Treatments				\$ 12,000.00
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
Total Cost					\$ 12,000.00

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$ -
Detours		\$ -
Traffic Control		\$ -
Utilities		\$ -
Right of Way		\$ -
Environmental Study		\$ -
Other		\$ -
Contingencies		\$ -
Total Cost		\$ -

JUSTIFICATION

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR7



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Northeast end treatment buried into ground



Photo 8 Large potholes and tire rutting noted on approach wearing surface



Photo 9 Spacer connected with approach barrier at northeast completely weathered



Photo 10 Collision damage noted at connection between approach and deck barrier

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR7



Photo 11 Narrow cracks with damp stains noted on parapet wall



Photo 12 West underside of structure



Photo 13 Northeast wingwall



Photo 14 North abutment wall



Photo 15 Moderate scaling, honeycombing and spall noted on south abutment wall

Structure Condition Summary Form

Structure Name Rodeo Road Bridge
Structure Number BR12
Date of Inspection August 04, 2020
Project No. 20032
Consultant HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	306.00	0.00	300.00	3.00	3.00	1836	1357	74	00	18
Decks	Deck Top - Thick Slab	Sq.m	350.00	28.79	0.00	28.79	0.00	0.00	10077	7557	75	00	00
Abutment	Wingwalls	Sq.m	350.00	24.00	0.00	20.00	4.00	0.00	8400	5810	69	00	00
	Abutment Walls	Sq.m	900.00	64.00	0.00	54.00	10.00	0.00	57600	40050	70	00	00
									77913	54775			

Bridge Condition Index (BCI)

70

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR12

INVENTORY DATA:			
Structure Name	Rodeo Road Culvert		
Main Hwy/Road #	_____	Under Structure:	Navigable Water <input type="checkbox"/> Non- Navigable Water <input checked="" type="checkbox"/>
		Rail <input type="checkbox"/> Road <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>	
Road Name:	Rodeo Road	On Structure:	Rail <input type="checkbox"/> Road <input type="checkbox"/> Pedestrian <input type="checkbox"/> Other <input type="checkbox"/>
Structure Location	1 km south of Black Creek Road		
Latitude	45°41'33.7"N	Longitude	79°26'59.4"W
Owner(s)	Township of Strong	Heritage Designation	Not Cons. <input checked="" type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. <input type="checkbox"/>
			Desig./not List <input type="checkbox"/> Desig. & List <input type="checkbox"/>
MTO Region	Northern	Road Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>
MTO District	Huntsville	Posted Speed	80 No. of Lanes 2
Old County	Parry Sound	AADT	0 % Trucks 0
Geographic Twp.	Township of Strong	Special Routes	Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle <input type="checkbox"/>
Structure Type	Rigid Frame, Vertical legs	Detour Length Around Structure	_____ (km)
Total Deck Length	16 (m)	Fill on Structure	2.7 (m)
Overall Str. Width	_____ (m)	Skew Angle	0 (Degrees)
Total Deck Area	_____ (m ²)	Direction of Structure	East - West
Roadway Width	6 (m)	No. of Spans	1
Span Lengths	1.8 (m)		

HISTORICAL DATA			
Year Built	_____	Last OSIM Inspection	June 26, 2020
Year of Last Major Rehab.	-	Last Enhanced OSIM Inspection	-
Current Load Limit	_____ (tonnes)	Last Bridge Master Inspection	-
Load Limit By-Law #	-	Last Evaluation	-
By-Law Expiry Date	-	Last Underwater Inspection	-
Min. Vertical Clearance	- (m)	Last Condition Survey	-
Rehabilitation History: (Date / Description)			
2020; Structure rehabilitated (after completion of OSIM inspection). Rehabilitation included repair of undermined footings, reinstatement of missing stones on retaining walls; work completed by Derrick Johnstone Construction and repair designed by HP Engineering Inc.			

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR12

FIELD INSPECTION INFORMATION	
Date of Inspection:	August 4, 2020 Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering
Others in Party:	Sagar Chhayani, HP Engineering
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer
Weather:	Sunny
Temperature:	18°C

ADDITIONAL INVESTIGATION REQUIRED	Priority			Estimated Cost
	None	Normal	Urgent	
Rehabilitation/Replacement Study: Approach Barrier				\$ 5,000.00
Material Condition Survey				
Detailed Deck Condition Survey:				\$ -
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$ -
Concrete Substructure Condition Survey:				\$ -
Detailed Coating Condition Survey:				\$ -
Detailed Timber Investigation:				\$ -
Underwater Investigation:				\$ -
Fatigue Investigation:				\$ -
Seismic Investigation:				\$ -
Structure Evaluation:				\$ -
Monitoring				
Monitoring of Deformations, Settlement and Movements:				\$ -
Monitoring Crack Widths:				\$ -
Load Posting – Estimated Load Limit	Total Cost			\$ 5,000.00
Investigation Notes:				

OVERALL STRUCTURAL NOTES:	
Recommended Work on Structure:	<input type="checkbox"/> None <input checked="" type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace
Timing of Recommended Work:	<input checked="" type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years
Structure repaired in summer / fall of 2020 (after OSIM inspection). Repair intended to extend useful service life of structure by approximately 20 years. Approach barriers / end treatments not present and should be installed.	
Date of Next Inspection:	August 2022

Suspected Performance Deficiencies

- | | | |
|--|--|--|
| 00 None | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 01 Load carrying capacity | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 02 Excessive deformations (deflections & rotation) | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 03 Continuing settlement | 09 Rough riding surface | 15 Unstable embankments |
| 04 Continuing movements | 10 Surface ponding | 16 Other |
| 05 Seized bearings | 11 Deck drainage | |
| Maintenance Needs | | |
| 01 Lift and swing bridge maintenance | 07 Repair of structural steel | 13 Erosion control at bridges |
| 02 Bridge cleaning | 08 Repair of bridge concrete | 14 Concrete sealing |
| 03 Bridge handrail maintenance | 09 Repair of bridge timber | 15 Rout and seal |
| 04 Painting steel bridge structures | 10 Bailey bridges maintenance | 16 Bridge deck drainage |
| 05 Bridge deck joint repair | 11 Animal/pest control | 17 Scaling (loose Concrete or ACR Steel) |
| 06 Bridge bearing maintenance | 12 Bridge surface repair | 18 Other |

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR12

ELEMENT DATA					
Element Group:	Approaches		Length:		
Element Name:	Barrier		Width:		
Location:	NE, NW, SE & SW Corners of Structure		Height:		
Material:			Count:		
Element Type:			Total Quantity:		
Environment:			Limited Inspection:	<input type="checkbox"/>	
Protection System					
Condition Data:	Units	Excellent	Good	Fair	Poor
	m	-	-	-	-
Comments: No approach barriers observed at the time of the inspection. It is recommended that code compliant barriers and end treatments be installed.					
Performance Deficiencies: 08			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input checked="" type="checkbox"/> Replace <input checked="" type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Approaches		Length:	15.3	
Element Name:	Wearing Surface		Width:	10	
Location:	North and South of Structure		Height:	-	
Material:	Gravel		Count:	2	
Element Type:	NA		Total Quantity:	306	
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	300	3	3
Comments: Potholes observed over the structure. No hazard sign or barrier present at the time of inspection. A roadside safety evaluation should be completed to determine the warrant for guiderail / barriers and signage.					
Performance Deficiencies: 00			Maintenance Needs: 18 – Regrade Approaches		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR12

ELEMENT DATA					
Element Group:	Accessories		Length:		
Element Name:	Signs		Width:		
Location:	North and South of Structure		Height:		
Material:	Steel		Count:		
Element Type:	Hazard Signs		Total Quantity:		
Environment:	Severe		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	-	-	-
Comments: Hazard signs are missing and should be installed.					
Performance Deficiencies: 00			Maintenance Needs: 18 - Install Hazard signs		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input checked="" type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Decks		Length:	16	
Element Name:	Soffit - Thick Slab		Width:	1.8	
Location:	NA		Height:	-	
Material:	Concrete		Count:	1	
Element Type:	NA		Total Quantity:	28.79	
Environment:	Decks		Limited Inspection:	<input type="checkbox"/>	
Protection System	None				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	28.79	-	-
Comments: Generally in good condition.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR12

ELEMENT DATA					
Element Group:	Abutments	Length:	3		
Element Name:	Wingwalls	Width:	-		
Location:	NA	Height:	2		
Material:	Masonry	Count:	4		
Element Type:	NA	Total Quantity:	24		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	20	4	-
Comments: Previous undermining repaired in 2020. Stone sections previously disconnected from wall at northeast and northwest repaired in 2020. Minor loss of mortar noted in joints.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work:			Maintenance Needs:		
<input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			<input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Abutments	Length:	-		
Element Name:	Abutment Walls	Width:	16		
Location:	Each End	Height:	2		
Material:	Masonry	Count:	2		
Element Type:	NA	Total Quantity:	64		
Environment:	Benign	Limited Inspection:	<input type="checkbox"/>		
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	m ²	-	54	10	-
Comments: Previous undermining repaired in 2020. Minor loss of mortar noted in joints.					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work:			Maintenance Needs:		
<input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			<input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR12

ELEMENT DATA					
Element Group:	Foundations		Length:	-	
Element Name:	Foundation (below ground level)		Width:	-	
Location:	NA		Height:	-	
Material:	NA		Count:	1	
Element Type:	Foundations		Total Quantity:	1	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	All	-	-	1	-
Comments: Undermining repaired in 2020. No visual evidence of foundation related issues					
Performance Deficiencies: 00			Maintenance Needs: 00		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

Element Group:	Embankments & Streams		Length:	-	
Element Name:	Streams and Waterways		Width:	-	
Location:	Under Structure		Height:	-	
Material:	NA		Count:	1	
Element Type:	NA		Total Quantity:	1	
Environment:	Benign		Limited Inspection:	<input type="checkbox"/>	
Protection System	Hot dip galvanized				
Condition Data:	Units	Excellent	Good	Fair	Poor
	Each	-	-	1	-
Comments: Moderate volume, High flow from west to east direction. Obstacles (including trees) present in waterway downstream.					
Performance Deficiencies: 00			Maintenance Needs: 18 – Clear Channel Debris		
Recommended Work: <input type="checkbox"/> Rehab. <input type="checkbox"/> Replace <input type="checkbox"/> 1 – 5 Years <input type="checkbox"/> 6 – 10 Years			Maintenance Needs: <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 Year <input type="checkbox"/> 2 Years		

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

STRUCTURE NUMBER.: BR12

REPAIR AND REHABILITATION REQUIRED		Priority			Estimated Cost
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	< 1 year	
Approach Barrier	Install Code Compliant Approach Barrier and End Treatments		X		\$ 48,000.00
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
					\$ -
Total Cost					\$ 48,000.00

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$ -
Detours		\$ -
Traffic Control		\$ -
Utilities		\$ -
Right of Way		\$ -
Environmental Study		\$ -
Other		\$ -
Contingencies		\$ -
Total Cost		\$ -

JUSTIFICATION

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR12



Photo 1 Structure from north approach



Photo 2 Structure from south approach

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR12



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR12



Photo 5 East elevation (prior to 2020 rehabilitation)



Photo 6 West elevation (prior to 2020 rehabilitation)

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR12



Photo 7 Potholes and loose gravel noted on wearing surface



Photo 8 Large spall with disconnected portion noted at interface of north abutment wall and wingwall (prior to 2020 rehabilitation)

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR12



Photo 9 West underside of structure



Photo 10 Moderate honey combing noted at base of abutment wall along waterline (prior to 2020 rehabilitation)

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR12



Photo 11 Spalls with exposed corroded reinforcement noted on soffit

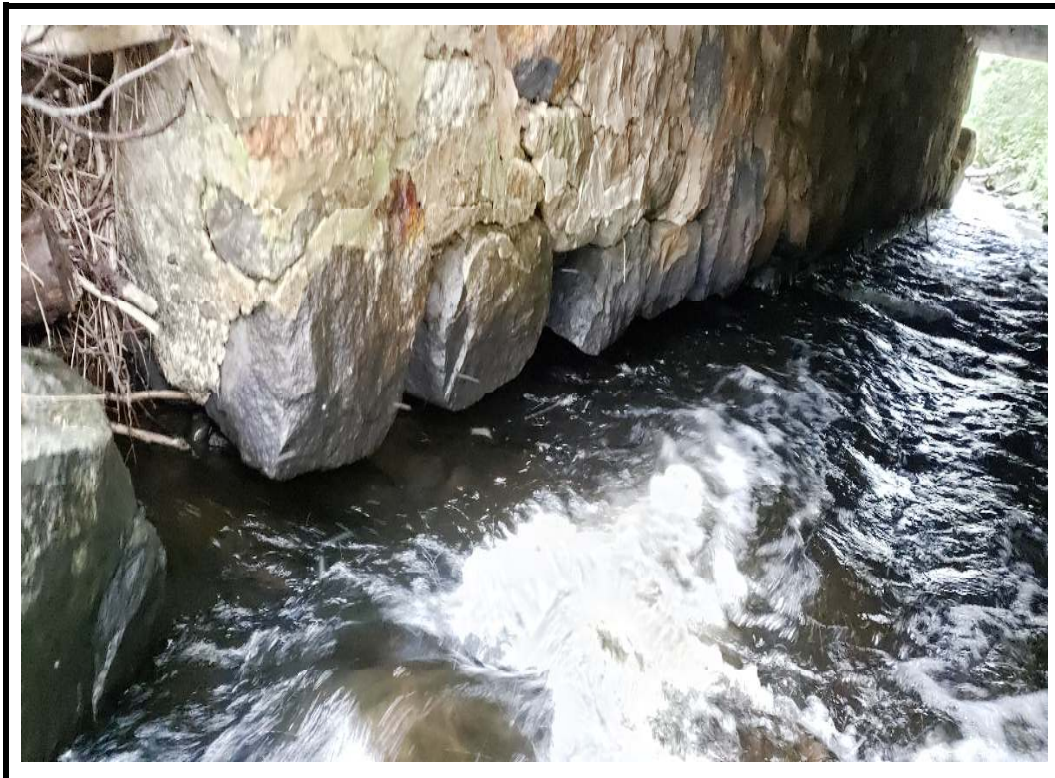


Photo 12 Undermining noted on south abutment wall at west end (prior to 2020 rehabilitation)

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR12



Photo 13 Southwest wingwall



Photo 14 East Elevation (after 2020 rehabilitation)

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR12



Photo 15 East Elevation (after 2020 rehabilitation)



Photo 16 Northeast wingwall (after 2020 rehabilitation)

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR12



Photo 17 Northwest wingwall (after 2020 rehabilitation)

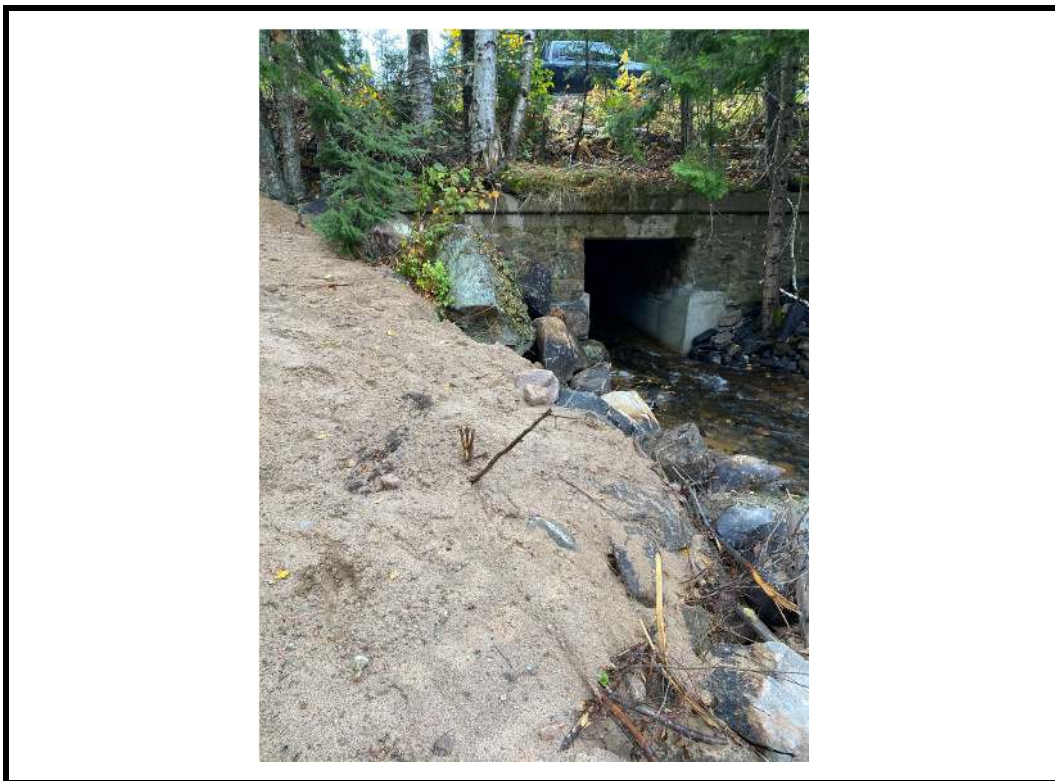


Photo 18 West Elevation (after 2020 rehabilitation)

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR12



Photo 19 Southwest wingwall (after 2020 rehabilitation)



Photo 20 Barrel from east (after 2020 rehabilitation)

MUNICIPAL STRUCTURE INSPECTION FORM

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR12



Photo 21 Southeast wingwall (after 2020 rehabilitation)