

Ontario Structure Inspection Manual – Inspection Form

MTO Site Number: N/A

Inventory Data:

Structure Name	Labrosse Road Culvert		
Main Highway #	N/A	On <input type="checkbox"/> Under <input type="checkbox"/>	Service on Structure: <input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water <input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other
Location description	Labrosse Road, 2.1 km East of Hwy 575 at Cache River	Service under <input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water <input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Municipality of West Nipissing	Latitude: 46.450413	Longitude: -80.095898
MTO Region	Northern	Heritage Designation: <input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./not App. <input type="checkbox"/> List/not Desig <input type="checkbox"/> Desig./notList <input type="checkbox"/> Desig. & List	
MTO District	Sudbury	Road Class: Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>	
Old County		Posted Speed	No. of Lanes 2
Township	Caldwell	AADT	% Truck
Structure Type	Arch Culvert	Traffic Directional Bound	N-S
Structure Material	Steel	Inspection Route Sequence	Bottom to Top
Total Deck Length	N/A (m)	Inspection Duration	0.5 (hrs)
Overall Str. Width	18.9 (m)	Interchange Number	
Total Deck Area	N/A (sq.m)	Interchange Structure Number	
Roadway Width	6.5 (m)	Min. Vertical Clearance	
Skew Angle	45 (Degree)	Detour Distance	(m)
No. of Spans	1	Fill on Structure	0.6 (m)
Span Lengths	2.7 m x 1.9 m Multi Plate Pipe Arch (m)		

Historical Data:

Year Built		Year of Last Minor Rehab	
Last Reg OSIM Inspection	October 2019	Year of Last Major Rehab.	
Last Enh. OSIM Inspection		Current Load Limit	(tonnes)

Work History (Date/Description)

Scheduled Improvements:

Regional Priority Number

Programmed Work Year

Nature of Program Work:

Appraisal Indices:		Comments
Fatigue		
Seismic		
Scour		
Flood		
Barrier		
Curb		
Load Capacity		

Field Inspection Information:			
Date of Inspection:	November 10, 2021	Type of Inspection	<input checked="" type="checkbox"/> Reg. OSIM <input type="checkbox"/> Enh. OSIM
Inspected By:	Michael Colton, McIntosh Perry Consulting Engineers Ltd.		
Others in Party:	Mahmoud Abou Niaj, EIT, McIntosh Perry Consulting Engineers Ltd.		
Enh. Access Equipment:	None		
Special Access Equipment:	None		
Weather:	Sunny	Temperature	7°C

Additional Investigations Required:	Priority		
	None	Normal	Urgent
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			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:			
Structure Evaluation:			
Monitoring			
Deformations, Settlements and Movements:			
Crack Widths:			
RSS Horizontal movements of face:			
RSS Vertical movements of overall structure:			
RSS Local movements or deterioration of facing elements:			
RSS Horizontal movements within overall structure:			
RSS Vertical movements within overall structure:			
RSS Lateral earth pressure at the back of facing elements:			
Investigation Notes:			

Overall Structure 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 Comments:	Medium corrosion in culvert walls at water line. Install additional guide rail and repair existing guide rail. Structure is generally in good condition.
Date of Next Inspection:	November 2023

Suspected Performance Deficiencies

- | | | |
|--|---|--|
| 01 Load carrying capacity | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 02 Excessive deformations (deflections & rotations) | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 03 Continuing settlement | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 04 Continuing movements | 09 Rough riding surface | 15 Unstable embankments |
| 05 Seized bearings | 10 Surface ponding | 16 Other performance deficiencies |
| | 11 Deck/Wall drainage | |

Maintenance Needs

- | | | |
|---|-------------------------------------|---|
| 01 Lift and Swing Bridge Maintenance | 07 Structural Steel Repair | 13 Erosion Control at Bridges |
| 02 Bridge Cleaning | 08 Concrete Repair | 14 Concrete Sealing |
| 03 Railing System Repair | 09 Timber Repair | 15 Rout and Seal |
| 04 Painting Steel Bridge Structures | 10 Works for Modular bridges | 16 Works for Drainage System |
| 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 Maintenance |

Element Data

Element Group:	Culverts	Length:	18.9 m			
Element Name:	Barrels	Width:	2.7 m			
Location:		Height:	1.9 m			
Material:	Corrugated Steel	Count:	1			
Element Type:	Multi Plate Pipe Arch	Total Quantity:	138 m ²			
Environment:	<input checked="" type="checkbox"/> Benign <input type="checkbox"/> Moderate <input type="checkbox"/> Severe		Inspected:			Yes <input type="checkbox"/> No <input type="checkbox"/> Limited <input checked="" type="checkbox"/>
Protection System:	Galvanized					Perform. Deficiencies
Condition	Units	Exc.	Good	Fair	Poor*	
Data:	<input checked="" type="checkbox"/> m ² <input type="checkbox"/> m <input type="checkbox"/> each <input type="checkbox"/> % <input type="checkbox"/> all		69	69		
Comments:						
Medium corrosion on East and West sides at water line Minor deformation at outlet						
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: 00		
Paint barrel at water line				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year		

Element Group:	Embankments and Streams	Length:	N/A			
Element Name:	Embankments	Width:	N/A			
Location:		Height:	N/A			
Material:	Gravel	Count:	1			
Element Type:		Total Quantity:	All			
Environment:	<input checked="" type="checkbox"/> Benign <input type="checkbox"/> Moderate <input type="checkbox"/> Severe		Inspected:			Yes <input type="checkbox"/> No <input type="checkbox"/> Limited <input type="checkbox"/>
Protection System:						Perform. Deficiencies
Condition	Units	Exc.	Good	Fair	Poor*	
Data:	<input type="checkbox"/> m ² <input type="checkbox"/> m <input type="checkbox"/> each <input type="checkbox"/> % <input checked="" type="checkbox"/> all			1		
Comments:						
Steep embankments.						
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: 00		
Slope protection to be provided				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year		

Element Group:	Embankments & streams	Length:	N/A			
Element Name:	Streams and waterways	Width:	N/A			
Location:	Under structure	Height:	N/A			
Material:	Native soil	Count:	1			
Element Type:	Stream	Total Quantity:	1			
Environment:	<input checked="" type="checkbox"/> Benign <input type="checkbox"/> Moderate <input type="checkbox"/> Severe		Inspected: Yes <input type="checkbox"/> No <input type="checkbox"/> Limited <input checked="" type="checkbox"/>			
Protection System:						Perform. Deficiencies
Condition	Units	Exc.	Good	Fair	Poor*	
Data:	<input type="checkbox"/> m ² <input type="checkbox"/> m <input checked="" type="checkbox"/> each <input type="checkbox"/> % <input type="checkbox"/> all		1			00
Comments: Water level at the time of inspection was 1.1 m.						
Recommended Work:		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years		Maintenance Needs: 00		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year		

Element Group:	Barriers	Length:	0.15 m			
Element Name:	Posts	Width:	0.15 m			
Location:	East Side	Height:	0.60 m			
Material:	Wood	Count:	12			
Element Type:	Post	Total Quantity:	12			
Environment:	<input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Severe		Inspected: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Limited <input type="checkbox"/>			
Protection System:	Pressure Treated					Perform. Deficiencies
Condition	Units	Exc.	Good	Fair	Poor*	
Data:	<input type="checkbox"/> m ² <input type="checkbox"/> m <input checked="" type="checkbox"/> each <input type="checkbox"/> % <input type="checkbox"/> all		12			00
Comments: Generally in good condition.						
Recommended Work:		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years		Maintenance Needs: 00		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year		

Element Group:	Barriers	Length:	0.15 m			
Element Name:	Posts	Width:	0.15 m			
Location:	West Side	Height:	0.60 m			
Material:	Wood	Count:	13			
Element Type:	Post	Total Quantity:	13			
Environment:	<input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Severe		Inspected:			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Limited <input type="checkbox"/>
Protection System:	Pressure Treated					Perform. Deficiencies
Condition	Units	Exc.	Good	Fair	Poor*	
Data:	<input type="checkbox"/> m ² <input type="checkbox"/> m <input checked="" type="checkbox"/> each <input type="checkbox"/> % <input type="checkbox"/> all		13			00
Comments:						
Generally in good condition.						
Recommended Work:		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years		Maintenance Needs: 00		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year		

Element Group:	Barriers	Length:	36 m West, 39.6 m East			
Element Name:	Railing System	Width:	N/A			
Location:	East and West Sides	Height:	N/A			
Material:	Steel	Count:	1			
Element Type:	Cable	Total Quantity:	75.6 m			
Environment:	<input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Severe		Inspected:			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Limited <input type="checkbox"/>
Protection System:	Galvanized					Perform. Deficiencies
Condition	Units	Exc.	Good	Fair	Poor*	
Data:	<input type="checkbox"/> m ² <input checked="" type="checkbox"/> m <input type="checkbox"/> each <input type="checkbox"/> % <input type="checkbox"/> all		75.6			08
Comments:						
Cable guide rail is two posts short at SW quadrant. Guide rail missing a section at SW quadrant creating a pedestrian/vehicular hazard.						
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: 18		
Install additional guide rail				<input checked="" type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year		
				Tension guide rails cables		



Photo 1: Structure Looking East



Photo 2: Structure Looking West



Photo 3: Inlet Top



Photo 4: Outlet Top



Photo 5: Outlet - South Elevation



Photo 6: Inlet - North Elevation



Photo 7: Barrel Looking North



Photo 8: Barrel Looking South

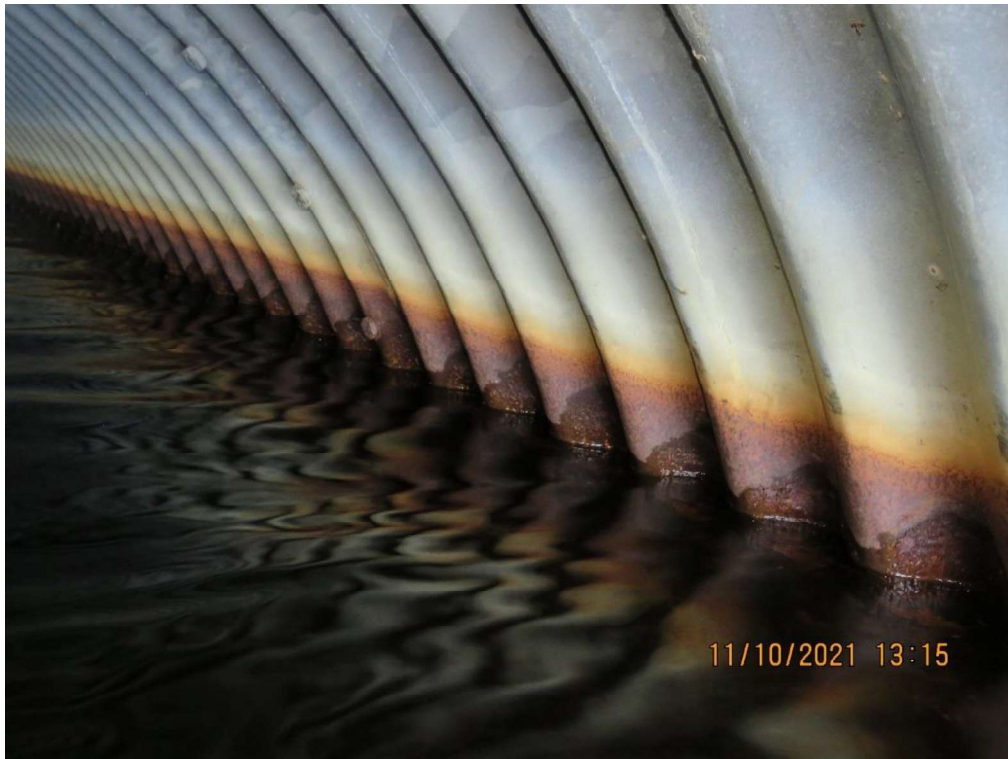


Photo 9: East Wall Corrosion at Waterline

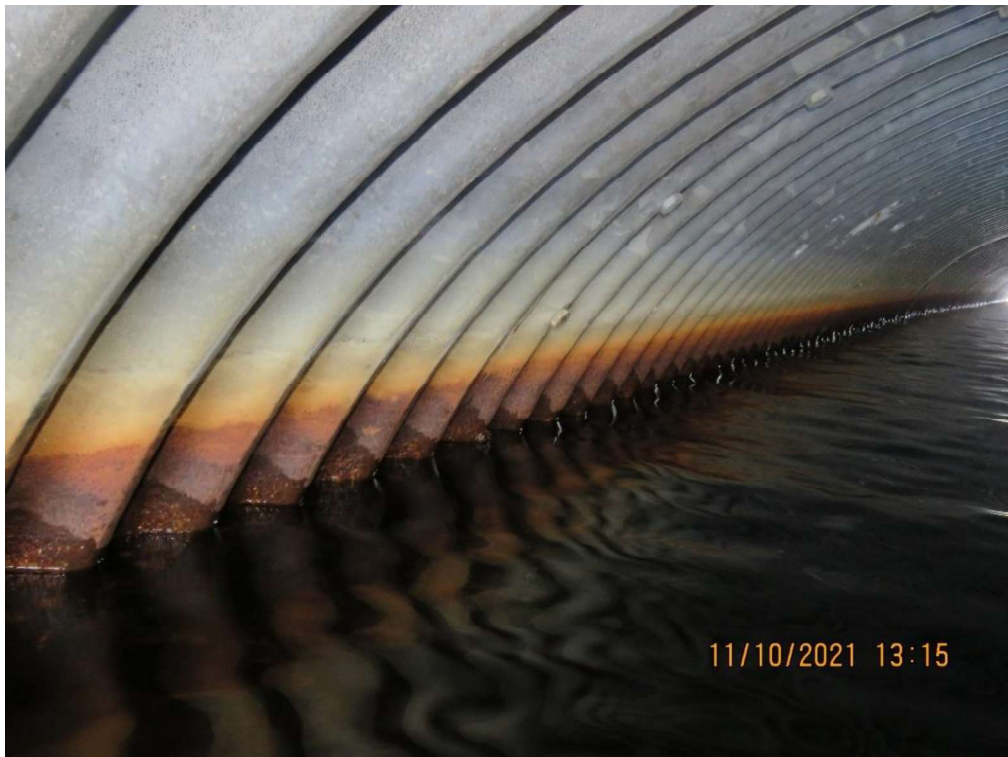


Photo 10: West Wall Corrosion at Waterline