

**LOT 2 CONCESSION 5 ROAD**

Site Number 010101

**CONCESSION 5 ROAD, TOWNSEND**

E of Highway 24

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:**

Inventory Data:			
Structure Name	<input type="text" value="Lot 2 Concession 5 Road"/>		
Main Hwy/Road #	<input type="text" value="CON 5 TOWNSEND"/>	<input checked="" type="checkbox"/> On <input type="checkbox"/> Under	Crossing Type: <input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Navig. Water <input type="checkbox"/> Ped. <input type="checkbox"/> Other <input checked="" type="checkbox"/> Non-Navig. Water
Hwy/Road Name	<input type="text" value="CONCESSION 5, TOWNSEND"/>		
Structure Location	<input type="text" value="E of Highway 24"/>		
Latitude	<input n"="" type="text" value="42d 58' 01.4"/>	Longitude	<input type="text" value="80d 20' 36.7" w"=""/>
Owner(s)	<input type="text" value="Norfolk County"/>	Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./not App. <input type="checkbox"/> List/not Design. <input type="checkbox"/> Design./not List <input type="checkbox"/> Desig. & List
MTO Region	<input type="text" value="30"/> Southwestern	Road Class:	<input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input checked="" type="checkbox"/> Local
MTO District	<input type="text" value="31"/> London / Stratford	Posted Speed	<input type="text" value="80"/> No. of Lanes <input type="text" value="2"/>
Old County	<input type="text" value="20"/> Norfolk	AADT	<input type="text" value="500"/> % Trucks <input type="text"/>
Geographic Twp.	<input type="text" value="125"/> Townsend	Inspection Route Sequence	<input type="text"/>
Structure Type	<input type="text" value="15"/> Rigid Frame, Vertical Legs	Interchange Number	<input type="text"/>
Total Deck Length	<input type="text" value="6"/> (m)	Interchange Structure Number	<input type="text"/>
Overall Str. Width	<input type="text" value="19.8"/> (m)	Min. Vertical Clearance	<input type="text" value="2.4"/> (m)
Total Deck Area	<input type="text" value="118.8"/> (m <sup>2</sup> )	Special Route	<input type="checkbox"/> Truck <input type="checkbox"/> Emergency <input checked="" type="checkbox"/> School <input type="checkbox"/> Bicycle
Roadway Width	<input type="text" value="9"/> (m)	Detour Length Around Bridge	<input type="text" value="10"/> (km)
Skew Angle	<input type="text" value="10"/> (Degrees)	Direction of Structure	<input type="text" value="North / South"/>
No. of Spans	<input type="text" value="1"/>	Fill on Structure	<input type="text" value="0.5"/> (m)
Span Length	<input type="text" value="5.2"/> (m)		

Historical Data:			
Year Built	<input type="text" value="1960"/>	Year of Last Major Rehab.	<input type="text"/>
Last OSIM Inspection	<input type="text" value="May 29, 2014"/>	Last Evaluation	<input type="text"/>
Last Enhanced OSIM Inspection	<input type="text"/>	Current Load Limit	<input type="text" value="/ /"/> (tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)	<input type="text"/>	Load Limit By-Law #	<input type="text"/>
Last Underwater Inspection	<input type="text"/>	By-Law Expiry Date	<input type="text"/>
Last Condition Survey	<input type="text"/>		
Rehab History:	(Date/description)		

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:**

Field Inspection Information:		
Date of Inspection:	July 11, 2016	Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Ben Buchwald M.Eng., EIT, G. Douglas Vallee Ltd.	
Others in Party:	N/A	
Access Equipment Used:	Hammer, Binoculars, Measuring Tape, Camera, etc.	
Weather:	Sunny	
Temperature:	27 °C	

Additional Investigation Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
<input checked="" type="checkbox"/> Detailed Deck Condition Survey:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Non-destructive Delamination Survey of Asphalt-Covered Deck:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Concrete Substructure Condition Survey:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Detailed Coating Condition Survey:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Detailed Timber Investigation	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Post-Tensioned Strand Investigation	<input checked="" type="checkbox"/>		
Underwater Investigation:	<input checked="" type="checkbox"/>		
Fatigue Investigation:	<input checked="" type="checkbox"/>		
Seismic Investigation:	<input checked="" type="checkbox"/>		
Structure Evaluation:	<input checked="" type="checkbox"/>		
Monitoring			
<input checked="" type="checkbox"/> Monitoring of Deformations, Settlements and Movements:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Monitoring Crack Widths:	<input checked="" type="checkbox"/>		
Investigation Notes:	No signs or barriers. Utility line attached to North fascia.		

Overall Structure Notes:	
Recommended Work on Structure:	<input type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Replace <input checked="" type="checkbox"/> Maintenance <input type="checkbox"/> Major Rehab.
Timing of Recommended Work:	<input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years
Overall Comments:	Repairs to be made in 1-5 years.
Date of next Inspection:	July 11, 2018

**Suspected Performance Deficiencies**

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

**Maintenance Needs**

- |   |  |   |
|---|--|---|
| <b>01</b> Lift and swing bridge maintenance | <b>07</b> Repair to structural steel   | <b>13</b> Erosion control at bridges            |
| <b>02</b> Bridge cleaning                   | <b>08</b> Repair of bridge concrete    | <b>14</b> Concrete sealing                      |
| <b>03</b> Bridge handrail maintenance       | <b>09</b> Repair of bridge timber      | <b>15</b> Rout and seal                         |
| <b>04</b> Painting steel bridge structures  | <b>10</b> Bailey bridges - maintenance | <b>16</b> Bridge deck drainage                  |
| <b>05</b> Bridge deck joint repair          | <b>11</b> Animal/pest control          | <b>17</b> Scaling (Loose concrete or ACR steel) |
| <b>06</b> Bridge bearing maintenance        | <b>12</b> Bridge surface repair        | <b>18</b> Other                                 |

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:** 010101

Rehabilitation Required:		Element	Priority				Estimated Construction Cost
Rehab	Replace		Urgent	Within 1 yr	1-5 yrs	6-10 yrs	
		Wearing Surface (Approaches)					
		Barrels					
		Inlet Components					
		Outlet Components					
		Deck Top					
		Embankments					
		Foundation (below ground level)					
<b>Total Cost</b>						<b>\$0</b>	

Associated Work:	Comments	Estimated Construction Cost
Additional Investigations		
Traffic Management		
Utilities		
Road Allowance		
Environmental Assessment		
Engineering		
Other		
Contingencies		
<b>Total Cost</b>		<b>\$0</b>

Justification:	
Notes:	Construction Cost: \$0 Associated Work Cost: \$0 <hr style="width: 100px; margin-left: auto; margin-right: 0;"/> TOTAL Estimated Cost: \$0

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:** 010101

**Element Data**

Element Group:		1600 Approaches				Length:		
Element Name:		1601 Wearing Surface (Approaches)				Width:		
Location:		Top of Road				Height:		
Material:		2 Asphalt				Count:		1
Element Type:						Total Quantity:		1 Each
Environment:						Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor			
Data:	Each	0	0	1	0			
Comments:								
Includes: Roadway slopes (grass), (no signs, no barriers). Asphalt is polished. Settlement at structure edges.								
Recommended Work:				Rehab <input type="checkbox"/>		Replace <input type="checkbox"/>		
Timing:				Urgent <input type="checkbox"/>		< 1yr <input type="checkbox"/>		
				1 - 5 yr <input type="checkbox"/>		6 - 10 yr <input type="checkbox"/>		
Maintenance Needs:				Bridge Surface Repair				
				Urgent <input type="checkbox"/>		1 year <input checked="" type="checkbox"/>		
				2 year <input type="checkbox"/>				

Element Group:		1200 Culverts				Length:		19.8
Element Name:		1203 Barrels				Width:		10
Location:		Inside				Height:		
Material:		4 Cast-in-place Concrete				Count:		1
Element Type:						Total Quantity:		198 sq.m
Environment:		Moderate				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor			
Data:	sq.m	0	198	0	0			
Comments:								
Narrow cracks near center. Showing leakage. (minor)								
Recommended Work:				Rehab <input type="checkbox"/>		Replace <input type="checkbox"/>		
Timing:				Urgent <input type="checkbox"/>		< 1yr <input type="checkbox"/>		
				1 - 5 yr <input type="checkbox"/>		6 - 10 yr <input type="checkbox"/>		
Maintenance Needs:				Concrete Sealing				
				Urgent <input type="checkbox"/>		1 year <input type="checkbox"/>		
				2 year <input checked="" type="checkbox"/>				

Element Group:		1200 Culverts				Length:		6
Element Name:		1201 Inlet Components				Width:		0.4
Location:		North				Height:		2.4
Material:						Count:		1
Element Type:						Total Quantity:		4.3 sq.m
Environment:		Moderate				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor			
Data:	sq.m	0	4.3	0	0			
Comments:								
Utility attached to North side.								
Recommended Work:				Rehab <input type="checkbox"/>		Replace <input type="checkbox"/>		
Timing:				Urgent <input type="checkbox"/>		< 1yr <input type="checkbox"/>		
				1 - 5 yr <input type="checkbox"/>		6 - 10 yr <input type="checkbox"/>		
Maintenance Needs:								
				Urgent <input type="checkbox"/>		1 year <input type="checkbox"/>		
				2 year <input type="checkbox"/>				

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:** 010101

**Element Data**

Element Group:		1200 Culverts				Length:	6
Element Name:		1202 Outlet Components				Width:	0.4
Location:		South				Height:	2.4
Material:						Count:	1
Element Type:						Total Quantity:	4.3 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	sq.m	0	4.3	0	0		
Comments:							
Recommended Work:						Maintenance Needs:	
Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>						<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year	

Element Group:		100 Decks				Length:	
Element Name:		102 Deck Top				Width:	
Location:		North and South Ends				Height:	
Material:		4 Cast-in-place Concrete				Count:	1
Element Type:						Total Quantity:	1 Each
Environment:		Severe				Limited Inspection:	
Protection System:		None				Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	Each	0	1	0	0		
Comments:							
Deck top visible 2.0 m at N and S ends.							
Recommended Work:						Maintenance Needs:	
Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>						<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year	

Element Group:		1400 Embankments & Streams				Length:	
Element Name:		1402 Embankments				Width:	
Location:						Height:	
Material:						Count:	1
Element Type:						Total Quantity:	1 Each
Environment:						Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	Each	0	1	0	0		
Comments:							
Stable banks.							
Recommended Work:						Maintenance Needs:	
Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>						<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year	

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:**

**Element Data**

Element Group:	1300 Foundations					Length:	
Element Name:	1301 Foundation (below ground level)					Width:	
Location:						Height:	
Material:						Count:	1
Element Type:						Total Quantity:	1 Each
Environment:						Limited Inspection:	
Protection System:	Unknown					Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	Each						
Comments: Not visible.							
Recommended Work:      Rehab <input type="checkbox"/> Replace <input type="checkbox"/>						Maintenance Needs:	
Timing:      Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>						<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year	



Figure 1 East Approach



Figure 2 West Approach





Figure 3 North Profile, Inlet



Figure 4 South Profile, Outlet





Figure 5 Upstream



Figure 6 Downstream





Figure 7 East Wall



Figure 8 West Wall



Figure 9      Soffit



Figure 10      Barrel





Figure 11 Polishing and Settlement of Wearing Surface at Culvert