

**CONCESSION 8 VILLA NOVA ROAD**

Site Number 010092

**VILLA NOVA ROAD, TOWNSEND**

0.5 km S of County Road 9

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:**

Inventory Data:			
Structure Name	<input type="text" value="Concession 8 Villa Nova Road"/>		
Main Hwy/Road #	<input type="text" value="VILLA NOVA RD"/>	<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="VILLA NOVA ROAD, TOWNSEND"/>		
Structure Location	<input type="text" value="0.5km S of County Road 9"/>		
Latitude	<input n"="" type="text" value="42d 55' 59"/>	Longitude	<input type="text" value="80d 12' 10" 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. & List <input type="checkbox"/> Design./not 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="494"/> % 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="6.1"/> (m)	Interchange Structure Number	<input type="text"/>
Overall Str. Width	<input type="text" value="7.4"/> (m)	Min. Vertical Clearance	<input type="text" value="1.9"/> (m)
Total Deck Area	<input type="text" value="45.1"/> (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="6.6"/> (m)	Detour Length Around Bridge	<input type="text" value="10"/> (km)
Skew Angle	<input type="text"/> (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"/> (m)
Span Length	<input type="text" value="5.5"/> (m)		

Historical Data:			
Year Built	<input type="text" value="1930"/>	Year of Last Major Rehab.	<input type="text"/>
Last OSIM Inspection	<input type="text" value="May 22, 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:	June 30, 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:	John McMorrow	
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:		X	
<input checked="" type="checkbox"/> Non-destructive Delamination Survey of Asphalt-Covered Deck:	X		
<input checked="" type="checkbox"/> Concrete Substructure Condition Survey:	X		
<input checked="" type="checkbox"/> Detailed Coating Condition Survey:	X		
<input checked="" type="checkbox"/> Detailed Timber Investigation	X		
<input checked="" type="checkbox"/> Post-Tensioned Strand Investigation	X		
Underwater Investigation:	X		
Fatigue Investigation:	X		
Seismic Investigation:	X		
Structure Evaluation:		X	
Monitoring			
<input checked="" type="checkbox"/> Monitoring of Deformations, Settlements and Movements:	X		
<input checked="" type="checkbox"/> Monitoring Crack Widths:		X	
Investigation Notes: Several wide cracks, closer inspection recommended. Due to age of structure, full replacement should be considered.			

Overall Structure Notes:			
Recommended Work on Structure:	<input type="checkbox"/> None <input type="checkbox"/> Maintenance	<input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab.	<input checked="" type="checkbox"/> Replace
Timing of Recommended Work:	<input checked="" type="checkbox"/> 1 to 5 years	<input type="checkbox"/> 6 to 10 years	
Overall Comments:	Scheduled to be replaced summer of 2016.		
Date of next Inspection:	June 30, 2018		

**Suspected Performance Deficiencies**

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

**Maintenance Needs**

- |                                      |                                 |  |
|--------------------------------------|---------------------------------|--|
| 01 Lift and swing bridge maintenance | 07 Repair to 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                                 |



**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:** 010092

**Element Data**

Element Group:		900 Abutments				Length:	7.4
Element Name:		901 Abutment Walls				Width:	
Location:						Height:	1.5
Material:		4 Cast-in-place Concrete				Count:	2
Element Type:		Conventional Closed				Total Quantity:	22.2 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:		None				Perform. Deficiencies	
Condition	Units	Exc.	Good	Fair	Poor		
Data:	sq.m	0	0	12	10.2		
Comments: South abutment cracks. Undermining between footing and abutment. Northwest corner has vertical crack with efflorescence. Separation at Southeast corner between wingwall and abutment.							
Recommended Work: Rehab <input checked="" type="checkbox"/> Replace <input type="checkbox"/>					Maintenance Needs:		
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input checked="" type="checkbox"/> 6 - 10 yr <input type="checkbox"/>					<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year		

Element Group:		900 Abutments				Length:	2
Element Name:		903 Wingwalls				Width:	
Location:		North and South of Creek				Height:	2
Material:		4 Cast-in-place Concrete				Count:	4
Element Type:						Total Quantity:	16 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:		None				Perform. Deficiencies	
Condition	Units	Exc.	Good	Fair	Poor	Load Carrying Capacity	
Data:	sq.m	0	0	8	8		
Comments: Minor Cracks. Delamination in southwest wingwall. Large separation and spalling with exposed rebar at southeast wingwall.							
Recommended Work: Rehab <input checked="" type="checkbox"/> Replace <input type="checkbox"/>					Maintenance Needs:		
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input checked="" type="checkbox"/> 6 - 10 yr <input type="checkbox"/>					<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year		

Element Group:		400 Barriers				Length:	11.5
Element Name:		402 Railing System				Width:	
Location:		Top of Curb				Height:	
Material:		4 Cast-in-place Concrete				Count:	2
Element Type:		Jersey Barrier				Total Quantity:	23 m
Environment:		Severe				Limited Inspection:	
Protection System:		None				Perform. Deficiencies	
Condition	Units	Exc.	Good	Fair	Poor		
Data:	m	0	23	0	0		
Comments: New jersey barriers (temporary).							
Recommended Work: Rehab <input type="checkbox"/> Replace <input checked="" type="checkbox"/>					Maintenance Needs:		
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input checked="" type="checkbox"/> 6 - 10 yr <input type="checkbox"/>					<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year		

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**Element Data**

Element Group:		1400 Embankments & Streams				Length:		
Element Name:		1401 Streams and Waterways				Width:		
Location:						Height:		
Material:						Count:		1
Element Type:						Total Quantity:		1 Each
Environment:		Moderate				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor			
	Each	0	1	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:		1300 Foundations				Length:		7.4
Element Name:		1301 Foundation (below ground level)				Width:		
Location:		Below Stream				Height:		
Material:		4		Cast-in-place Concrete		Count:		2
Element Type:		Spread				Total Quantity:		14.8 m
Environment:		Moderate				Limited Inspection:		
Protection System:		None				Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor			
	m	0	0	13.8	1			
Comments:								
Footings visible full length on both sides - footings need protection. Water erosion on footings. Wide crack on south footing. (2012) Limited inspection due to high level. (2014)								
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"/>						Erosion Control at Bridges <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 year <input type="checkbox"/> 2 year		

Element Group:		100 Decks				Length:		7.4
Element Name:		104 Soffit - Thick Slab				Width:		
Location:		West Side Fascia				Height:		0.4
Material:		4		Cast-in-place Concrete		Count:		2
Element Type:						Total Quantity:		5.9 sq.m
Environment:		Moderate				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor			
	sq.m	0	0	2	3.9			
Comments:								
One Bell overhead on east side. Hydro overhead on west. Delamination apparent on fascia.								
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"/>						Repair of Bridge Concrete <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 year <input type="checkbox"/> 2 year		

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**Element Data**

Element Group:		100 Decks				Length:		
Element Name:		104 Soffit - Thick Slab				Width:		6.6
Location:		Abutment to Abutment				Height:		6.1
Material:		4 Cast-in-place Concrete				Count:		1
Element Type:						Total Quantity:		40.3 sq.m
Environment:		Moderate				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor			
	sq.m	0	0	40.3	0			
Comments: Some evidence of minor efflorescent on southeast quarter of deck. Very wide crack above southeast abutment through curb.								
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:    Repair of Bridge Concrete <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 year <input type="checkbox"/> 2 year				

Element Group:		100 Decks				Length:		30
Element Name:		101 Wearing Surface				Width:		8
Location:		Top of Deck				Height:		
Material:		2 Asphalt				Count:		1
Element Type:						Total Quantity:		240 sq.m
Environment:		Severe				Limited Inspection:		
Protection System:		None				Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor			
	sq.m	0	240	0	0			
Comments: Deck not visible on top. Asphalt is patchy, polished and cracked at approach joints. Deck condition study sawn samples taken and patched.								
Recommended Work:    Rehab <input checked="" type="checkbox"/> Replace <input type="checkbox"/> Timing:    Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input checked="" type="checkbox"/> 6 - 10 yr <input type="checkbox"/>				Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year				



Figure 1 North Approach



Figure 2 South Approach





Figure 3 East Profile



Figure 4 West Profile





Figure 5 Upstream



Figure 6 Downstream