

ELLIOTT CULVERT

Site Number 982403

COUNTY ROAD 24, TOWNSEND

0.1 km East of Cloet Road

Ontario Structure Inspection Manual - Inspection Form

Site Number:

Inventory Data:			
Structure Name <input type="text" value="Elliott Culvert"/>			
Main Hwy/Road # <input type="text" value="OLD HIGHWAY 24"/>	<input checked="" type="checkbox"/> On <input type="checkbox"/> Under	Crossing Type: <input type="checkbox"/> Rail <input type="checkbox"/> Ped. <input type="checkbox"/> Road <input type="checkbox"/> Other <input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	
Hwy/Road Name <input type="text" value="COUNTY ROAD 24, BLOOMSBURG, TOWNSEND"/>			
Structure Location <input type="text" value="0.1 km East of Cloet Road"/>			
Latitude <input n"="" type="text" value="42d 53' 03.5"/>	Longitude <input type="text" value="80d 18' 19.8" 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="2146"/>	% Trucks <input type="text"/>	
Geographic Twp. <input type="text" value="125"/> Townsend	Inspection Route Sequence <input type="text"/>		
Structure Type <input type="text" value="12"/> Rectangular Culvert	Interchange Number <input type="text"/>		
Total Deck Length <input type="text" value="6.6"/> (m)	Interchange Structure Number <input type="text"/>		
Overall Str. Width <input type="text" value="10.8"/> (m)	Min. Vertical Clearance <input type="text" value="1"/> (m)		
Total Deck Area <input type="text" value="71.3"/> (m ²)	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="10"/> (m)	Detour Length Around Bridge <input type="text" value="7"/> (km)		
Skew Angle <input type="text"/> (Degrees)	Direction of Structure <input type="text" value="East / West"/>		
No. of Spans <input type="text" value="1"/>	Fill on Structure <input type="text" value="0.6"/> (m)		
Span Length <input type="text" value="6"/> (m)			

Historical Data:			
Year Built <input type="text" value="2014"/>	Year of Last Major Rehab. <input type="text"/>		
Last OSIM Inspection <input type="text" value="September 1, 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)			
Construction by R.M. Simon Construction. OSIM done prior to construction.			

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Site Number: 982403

Field Inspection Information:		
Date of Inspection:	July 6, 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:	32 °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:			

Overall Structure Notes:	
Recommended Work on Structure:	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Replace <input 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:	Structure replaced in 2014.
Date of next Inspection:	July 1, 2018

Suspected Performance Deficiencies

- | | | |
|---|--|---|
| <ul style="list-style-type: none"> 01 Load carrying capacity 02 Excessive deformations (deflections & rotations) 03 Continuing settlement 04 Continuing movements 05 Seized bearings | <ul style="list-style-type: none"> 07 Bearing not uniformly loaded/unstable 08 Jammed expansion joint 09 Pedestrian/vehicular hazard 10 Rough riding surface 11 Deck drainage | <ul style="list-style-type: none"> 12 Slippery surfaces 13 Flooding/channel blockage 14 Undermining of foundation 15 Unstable embankments 16 Other |
|---|--|---|

Maintenance Needs

- | | | |
|---|--|---|
| <ul style="list-style-type: none"> 01 Lift and swing bridge maintenance 02 Bridge cleaning 03 Bridge handrail maintenance 04 Painting steel bridge structures 05 Bridge deck joint repair 06 Bridge bearing maintenance | <ul style="list-style-type: none"> 07 Repair to structural steel 08 Repair of bridge concrete 09 Repair of bridge timber 10 Bailey bridges - maintenance 11 Animal/pest control 12 Bridge surface repair | <ul style="list-style-type: none"> 13 Erosion control at bridges 14 Concrete sealing 15 Rout and seal 16 Bridge deck drainage 17 Scaling (Loose concrete or ACR steel) 18 Other |
|---|--|---|

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Rehabilitation Required:		Element	Priority				Estimated Construction Cost
Rehab	Replace		Urgent	Within 1 yr	1-5 yrs	6-10 yrs	
		Barrels					
		Wingwalls					
		Railing System					
		Inlet Components					
		Outlet Components					
		Wearing Surface					
		Embankments					
		Foundation (below ground level)					
Total Cost							\$0

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

Justification:	
Notes:	Construction Cost: \$0 Associated Work Cost: \$0 <hr/> TOTAL Estimated Cost: \$0

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Site Number: 982403

Element Data

Element Group:		1200 Culverts				Length:	10
Element Name:		1203 Barrels				Width:	6
Location:						Height:	1
Material:		12 Precast Concrete				Count:	1
Element Type:						Total Quantity:	60 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	sq.m	60	0	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:		900 Abutments				Length:	3.2
Element Name:		903 Wingwalls				Width:	
Location:						Height:	2
Material:		4 Cast-in-place Concrete				Count:	4
Element Type:						Total Quantity:	25.6 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	sq.m	25.6	0	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:		400 Barriers				Length:	8
Element Name:		402 Railing System				Width:	
Location:						Height:	1.1
Material:		14 Steel				Count:	2
Element Type:						Total Quantity:	17.6 m
Environment:		Severe				Limited Inspection:	
Protection System:		Galvanized				Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	m	16.6	1	0	0		
Comments: Moderate honeycombing in all north pedestal and minor impact damage at the top of both south endposts.							
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	

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Element Data

Element Group:		1200 Culverts				Length:	6.6
Element Name:		1201 Inlet Components				Width:	
Location:		North				Height:	2
Material:		12 Precast Concrete				Count:	1
Element Type:						Total Quantity:	13.2 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data:	Units sq.m	Exc. 13.2	Good 0	Fair 0	Poor 0		
Comments: Includes headwall							
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		

Element Group:		1200 Culverts				Length:	6.6
Element Name:		1201 Outlet Components				Width:	
Location:		South				Height:	2
Material:		12 Precast Concrete				Count:	1
Element Type:						Total Quantity:	13.2 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data:	Units sq.m	Exc. 13.2	Good 0	Fair 0	Poor 0		
Comments: Includes headwall							
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		

Element Group:		100 Decks				Length:	
Element Name:		101 Wearing Surface				Width:	
Location:						Height:	
Material:		2 Asphalt				Count:	1
Element Type:						Total Quantity:	1 Each
Environment:		Severe				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition Data:	Units Each	Exc. 1	Good 0	Fair 0	Poor 0		
Comments:							
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		

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Element Data

Element Group:		1400 Embankments & Streams				Length:		
Element Name:		1402 Embankments				Width:		
Location:						Height:		
Material:						Count:		2
Element Type:						Total Quantity:		2 Each
Environment:						Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition Data:	Units Each	Exc. 2	Good 0	Fair 0	Poor 0			
Comments: Rip-rap protected.								
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:				<input type="checkbox"/>		Urgent <input type="checkbox"/>		
				<input type="checkbox"/>		1 year <input type="checkbox"/>		
				<input type="checkbox"/>		2 year <input type="checkbox"/>		

Element Group:		1300 Foundations				Length:		10
Element Name:		1301 Foundation (below ground level)				Width:		
Location:		Below Ground Level				Height:		
Material:		4 Cast-in-place Concrete				Count:		2
Element Type:						Total Quantity:		20 m
Environment:		Benign				Limited Inspection:		X
Protection System:		Unknown				Perform. Deficiencies		
Condition Data:	Units m	Exc. 20	Good 0	Fair 0	Poor 0			
Comments: Buried strip footings.								
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:				<input type="checkbox"/>		Urgent <input type="checkbox"/>		
				<input type="checkbox"/>		1 year <input type="checkbox"/>		
				<input type="checkbox"/>		2 year <input type="checkbox"/>		



Figure 1 East Approach



Figure 2 West Approach



Figure 3 North Profile, Inlet



Figure 4 South Profile, Outlet



Figure 5 Upstream



Figure 6 Downstream

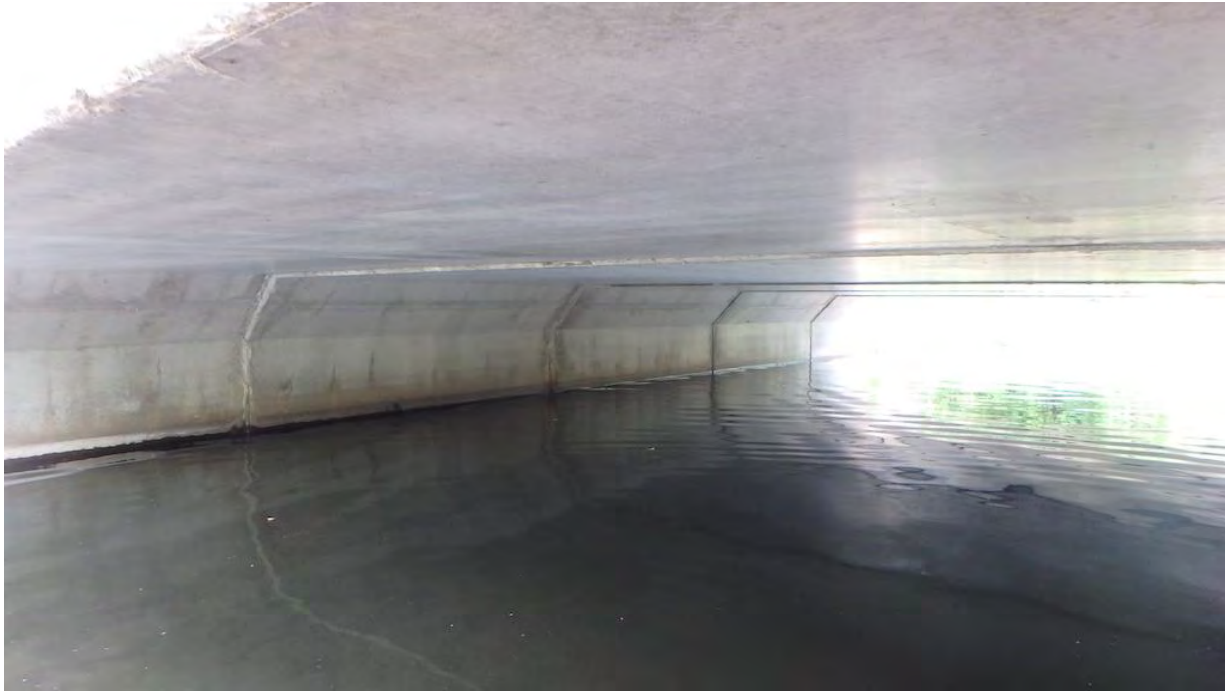


Figure 7 East Wall



Figure 8 West Wall



Figure 9 Barrel

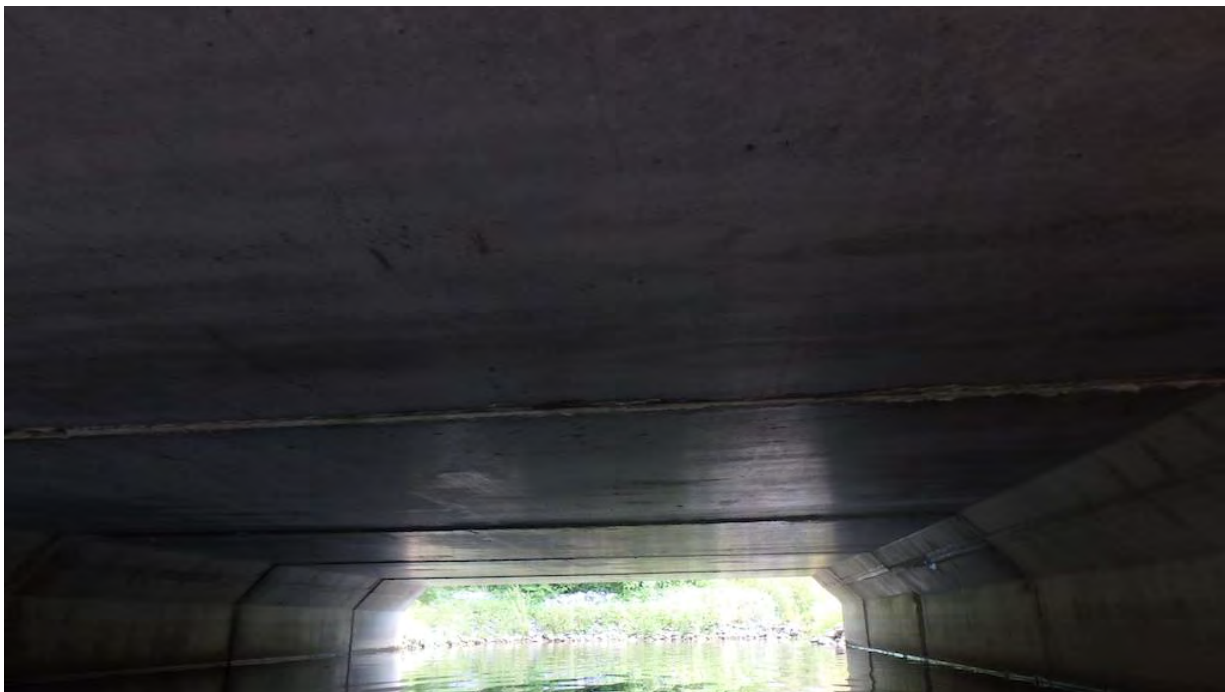


Figure 10 Soffit



Figure 11 Typical Abutment Drain



Figure 12 Typical Honeycombing on North Pedestals



Figure 13 Impact Damage on South Endposts



Figure 14 Structure Number and Date