

Bridge Culvert Inspection			
Bridge File Number	00801 -1 Bridge Culvert	Form Type	CULM
Year Built	1910	Lot No.	1
Bridge or Town Name	CARDSTON	Inspector Name	Jason Rusu
Located Over	2ND ORDER TRIBUTARY TO ST MARY RIVER, 2.12.20.5.1, WATERCRS-ST	Inspector Class	BR CLS A
Located On	5:04 C1 9.000	Assistant Name	
Water Body Cl./Year		Assistant Class	
Navigabil. Cl./Year		Inspection Date	16-Oct-2011
Legal Land Location	NW SEC 32 TWP 3 RGE 24 W4M	Data Entry By	Alyssa Boynton
Longitude, Latitude	-113:12:14, 49:15:35	Data Entry Date	21-Nov-2011
Road Authority	Alberta Transportation (AIT)	Reviewer Name	Garry Roberts
Contract Main. Area	CMA25	Review Date	09-Nov-2011
Clear Roadway/Skew	13.5 / 0 deg.	Dept. Reviewer Name	Tim Davies
AADT/Year	2,090 / 2010 (A)	Dept. Review Date	25-Nov-2011
Road Classification	RAU-213-130	Follow-Up By	
Detour Length (km)	3		

**Bridge Culvert Information**

Number of Culverts	2							
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	Pl./Slab Thickness	Shape
1	MAIN	-	1400	MP	50			ROUND
2	MAIN	-	1400	MP	50			ROUND
Special Features								
Special Features Comment								

**Utilities (Located at)**

Utility Attachments			
Telephone	North Row	Gas	North Row
Power	1 Line X-ing 300m East and 400m west	Municipal	
Others		Problem (Y/N)	No
Remarks			

**Approach Road / Embankment**

	Last	Now	Explanation of Condition
Horizontal Alignment	7	7	Local Road INT. 150m west
Vertical Alignment	7	7	Slight grade to east
Roadway Width (m)	13.400		
Embankment	7	7	
Sideslope (__:1)	3.0		
(Height of Cover(m) : 4.6)			
Guardrail (Y/N)	No		
<b>Approach Road / Embankment General Rating</b>	<b>7</b>	<b>7</b>	

**Upstream End**

Culvert Component	Last	Now	Explanation of Condition
<b>(Pipe # : 1, Span Type: Primary Span)</b>			
Direction	S		South End West Pipe
End Treatment (Concrete, Steel, Others, None)	STEEL		
Headwall	X	X	
Collar	X	X	
Wingwalls	X	X	
(Shape : )			

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Span Type: Primary Span)</b>				
Cutoff Wall		X	X	
Bevel End		6	6	
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	100			
Scour Protection		5	5	
(Type : <b>RIP RAP</b> )				Ingrown
(Avg. Rock Size(mm) : <b>300</b> )				
Scour/Erosion		5	5	
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>		<b>5</b>	<b>5</b>	
Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1400, Type: MP)</b>				
Barrel Last Accessible Date	16-Oct-2011			West Barrel
<b>Special Features</b>				
Special Feature				
(Type : )				
Special Feature				
(Type : )				
Roof		2	2	Reverse curvature @ roof in Ring 9 26% sag. No change from last inspection.
Measured Rise (mm)	1035			
Measured At Ring No.	9			
Sag (mm)	365			
Percent Sag	26			
Sidewall		2	2	Measured span 1630mm @ Ring 9. 16% deflection, no change form last inspection.
Measured Span (mm)	1630			
Measured At Ring No.	9			
Deflection (mm)	230			
Percent Deflection	16			
Floor		5	N	Unable to view floor - barrel. (has 300-500mm of water) EST
Bulge (mm)	100			
Measured At Ring No.	10			
Abrasion (Y/N)	No			
Circumferential Seams		5	5	Ring 9
Separation (mm)	58			
Longitudinal Seams		X	X	
Total No. of Cracked Rings				
Total No. of Rings with Two Cracked Seams				
Min. Remaining Steel Between Cracks (mm)				
Proper Lap (Y/N)				
Longitudinal Stagger (Y/N)				
Coating		5	5	Staining due to soil corrosion observed. Loss of Galvanizing below water line.
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	Yes			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1400, Type: MP)				
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			
Fish Passage Adequacy		6	6	
Baffle		X	X	
(Type : )				
Waterway Adequacy		7	7	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel General Rating</b>		<b>2</b>	<b>2</b>	Greater than 15% deformation
Downstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 1, Span Type: Primary Span)				
Direction		N		North end of west pipe.
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		6	5	
Heaving (mm)	0			
Invert Above/Below Stream Bed				
Above/Below (mm)	0			
Scour Protection		5	4	
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 300)				
Scour/Erosion		5	4	Scour hole - 4 x 5 x 1m
Beavers (Y/N)	No			
<b>Downstream End General Rating</b>		<b>5</b>	<b>4</b>	
Upstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Span Type: Secondary Span)				
Direction		S		Southend of east pipe
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 2, Span Type: Secondary Span)</b>				
Bevel End		6	6	
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	100			
Scour Protection		5	5	
(Type : <b>RIP RAP</b> )				
(Avg. Rock Size(mm) : <b>300</b> )				
Scour/Erosion		5	5	
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>		<b>5</b>	<b>5</b>	
Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 2, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1400, Type: MP)</b>				
Barrel Last Accessible Date	16-Oct-2011			East Barrel
<b>Special Features</b>				
Special Feature				
(Type : )				
Special Feature				
(Type : )				
Roof		2	2	Reverse curvature and 28% sag @ Ring 6. No change from last inspection.
Measured Rise (mm)	1010			
Measured At Ring No.	6			
Sag (mm)	390			
Percent Sag	28			
Sidewall		2	2	1650mm measured span @ Ring 6- 18% deflection. No change from last inspection.
Measured Span (mm)	1650			
Measured At Ring No.	6			
Deflection (mm)	250			
Percent Deflection	18			
Floor		5	5	
Bulge (mm)	50			
Measured At Ring No.	6			
Abrasion (Y/N)	No			
Circumferential Seams		4	4	100mm separation @ Ring 4
Separation (mm)	100			
Longitudinal Seams		X	X	
Total No. of Cracked Rings				
Total No. of Rings with Two Cracked Seams				
Min. Remaining Steel Between Cracks (mm)				
Proper Lap (Y/N)				
Longitudinal Stagger (Y/N)				
Coating		3	3	30mm x 15mm perf in roof @ RWG 3 Corrosion due to water at haunches.
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	ZERO			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1400, Type: MP)				
Ponding (Y/N)	No			
Fish Passage Adequacy		6	6	
Baffle		X	X	
(Type : )				
Waterway Adequacy		7	7	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel General Rating</b>		<b>2</b>	<b>2</b>	Deformations greater than 15%
Downstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Span Type: Secondary Span)				
Direction		N		North end of east barrel
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		5	5	
Heaving (mm)	0			
Invert Above/Below Stream Bed				
Above/Below (mm)	0			
Scour Protection		4	4	Scour hole 6m(l)x5m(w)x1m(d)
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 300)				
Scour/Erosion		4	4	
Beavers (Y/N)	No			
<b>Downstream End General Rating</b>		<b>4</b>	<b>4</b>	
Structure Usage				
		Last	Now	Explanation of Condition
<b>Channel (U/S and D/S)</b>				
Alignment		7	7	
Bank Stability		7	7	
HWM (m below Top of Culvert)				None visible
Drift (Y/N)	No			
Channel Bottom Degrading/Aggrading	DEGRADING			
Beavers (Y/N)	No			
(Fish Compensation Measure 1 : NONE)				
(Fish Compensation Measure 2 : NONE)				
<b>Channel General Rating</b>		<b>7</b>	<b>7</b>	

Maintenance Recommendations							
Inspector Recommendations	Year	Inspector Comments	Department Comments	Target Year	Est. Cost	Cat #	
SHOTCRETE REPAIRS							
PLACE ADDITIONAL RIP RAP							
REMOVE DRIFT ACCUMULATION							
INSTALL CONCRETE/STEEL LINING							
INSTALL STRUTS	2012	Both pipes require struts or liner lengths of pipe. With deformations greater than 10%. Or replace bridge.					
INSTALL CONCRETE COLLAR/CUTOFF							
REPAIR SEAMS							
OTHER ACTION							
OTHER ACTION							
OTHER ACTION							
OTHER ACTION							
<b>Structural Condition Rating (Last/Now) (%)</b>	<b>22.2/22.2</b>	<b>Sufficiency Rating (Last/Now) (%)</b>	<b>45.5/45.4</b>	Est. Repl. Yr	2016	Maint. Req. (Y/N)	Yes
Special Comments for Next Inspection			Department Comments				
Maintenance Reviewed By			Date			Estimated Total	0
Proposed Long-Term Strategy							
On 3-Year Program (Y/N)							
Proposed Action							
Previous Inspector's Name	Jason Rusu		Previous Assistant's Name				
Next Inspection Date	16-Jul-2013		Previous Inspection Date	28-Nov-2009			
Inspection Cycle (Default) (months)	21						
Comment							