Bridge Culvert Inspection

Bridge File Number	08958 -1 Bridge Culvert	Form Type	CUL1
Year Built	1980	Lot No.	1
Bridge or Town Name	DEVON	Inspector Name	Wade Nanninga
Located Over	TRIBUTARY TO NORTH SASKATCHEWAN RIVER, 6.104, WATERCRS-ST	Inspector Class	BR CLS A
		Assistant Name	
Located On	19:10 C1 3.445	Assistant Class	
Water Body Cl./Year		Inspection Date	10-Jan-2013
Navigabil. Cl./Year		Data Entry By	Theresa Lacusta
Legal Land Location	SW SEC 25 TWP 50 RGE 26 W4M	Data Entry Date	05-Feb-2013
Longitude, Latitude	-113:40:52, 53:20:18	Reviewer Name	Eric Carcoux
Road Authority	Alberta Transportation (AIT)	Review Date	17-Jan-2013
Contract Main. Area	CMA11	Dept. Reviewer Name	Brent Herrick
Clear Roadway/Skew	10.2 / -6 deg. (LHF)	Dept. Review Date	14-Feb-2013
AADT/Year	10,930 / 2011 (A)	Follow-Up By	
Road Classification	RAU-210-110		
Detour Length (km)	3		

Bridge Culvert Information

Number of Culverts		1						
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	Pl./Slab Thickness	Shape
1	MAIN	2314	2552	SPE	312.4	152X51	2.8,3.5	ELLIPSE
Special Features		BARREL ELBOW						
Special Features Comment		No tag						

Utilities (Located at)

Utility Attachments			
Telephone		Gas	
Power	3 wires 100m West	Municipal	
Others		Problem (Y/N)	No
Remarks			

Approach Road / Embankment

		Last	Now	Explanation of Condition
Horizontal Alignment		6	6	Limited sight distance due to horizontal and vertical crest & curve, no passing.
Vertical Alignment		6	6	
Roadway Width (m)	10.200			
Embankment		N	N	Erosion near inlet and outlet from ditch drainage. The SW ditch drain pipe is detached at the last circumferential seam - photos. -07-May-2004
Sideslope (__:1)	2.0			
(Height of Cover(m) : **34**)				
Guardrail (Y/N)	Yes			
Approach Road / Embankment General Rating		**6**	**6**	

Upstream End

Culvert Component		Last	Now	Explanation of Condition
Direction		S		
End Treatment (Concrete, Steel, Others, None)	CONCRETE			
Headwall		X	X	
Collar		5	5	Cracked/ broken concrete.
Wingwalls		X	X	
(Shape :)				
Cutoff Wall		N	N	

Upstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
Bevel End		7	7	
Heaving (mm)	100			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection		N	N	Rock in barrel.
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **300**)				
Scour/Erosion		N	N	
Beavers (Y/N)	No			
Upstream End General Rating		**6**	**5**	

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): 2314, Rise (mm): 2552, Type: SPE**)				
Barrel Last Accessible Date	10-Jan-2013			2314 x 2552 for first 71 rings, 2430 dia thereafter.
Special Features				
Special Feature		4	6	Elbows at rings 15, 58, 64 & 8.6m. Elbow 58 has cracks on one seam.
(Type : **BARREL ELBOW**)				
Special Feature				
(Type :)				
Roof		2	2	Unable to measure rise due to ice on floor in R 58-87. R79 & R83 dented.
Measured Rise (mm)	2440			
Measured At Ring No.	58			Estimated sag of 17% @ R79.
Sag (mm)	112			
Percent Sag	4			
Sidewall		2	2	R7 with 38m. steel remaining in crack. R70 with sidewall damage.
Measured Span (mm)	2870			
Measured At Ring No.	79			
Deflection (mm)	440			
Percent Deflection	18			
Floor		N	6	Floor rating due to deformation. 2002/05/03) 300mm ice on floor in R58-87.
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	Yes			
Circumferential Seams		4	4	Rings 77 & 79 have bolts pulled through plates at roof.
Separation (mm)	0			
Longitudinal Seams		2	2	Rings 53, 54, 58, 69, 71 cracked on one side in a longitudinal seam - photos. R71 with 38mm steel remaining. R79 with single crack one side and 55mm on other side.-26-Jun-2011 R58, 69 with 50-100mm steel. R53,54 with more than 100mm steel.
Total No. of Cracked Rings	6			
Total No. of Rings with Two Cracked Seams	0			
Min. Remaining Steel Between Cracks (mm)	38			
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	No			
Coating		4	4	Pitting rust at lower spring area at 4/5 line. Rust bleeding in starting @ 42-45.
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	NEG			Neg camber in last 15 rings.

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): 2314, Rise (mm): 2552, Type: SPE**)				
Ponding (Y/N)	Yes			Ponding from D/S uplift, last 20 rings.
Fish Passage Adequacy		4	4	Hanging outlet, 600mm.
Baffle		X	X	
(Type :)				
Waterway Adequacy		5	5	Last 12 rings silted up to 1m.-Oct 3, 2007
Icing (Y/N)	Yes			
Silting (Y/N)	Yes			
Drift (Y/N)	No			
Barrel General Rating		**2**	**2**	

Downstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
Direction		N		
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape :)				
Cutoff Wall		X	X	
Bevel End		6	6	Minor dents from fallen trees.
Heaving (mm)	200			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	600			
Scour Protection		N	4	Gabions placed above culvert.
(Type : **RIP RAP**)				
(Avg. Rock Size(mm) : **200**)				
Scour/Erosion		N	4	5m x 5m scour hold and bevel unsupported for 2m.
Beavers (Y/N)	No			
Downstream End General Rating		**4**	**4**	

Structure Usage				
		Last	**Now**	**Explanation of Condition**
Channel (U/S and D/S)				
Alignment		6	6	
Bank Stability		4	4	Unstable banks near U/S and D/S ends.
HWM (m below Top of Culvert)				HWM not visible. Deadfall in both channels.
Drift (Y/N)	Yes			
Channel Bottom Degrading/Aggrading	DEGRADING			Downstream only.
Beavers (Y/N)	No			
(Fish Compensation Measure 1 : **NONE**)				
(Fish Compensation Measure 2 : **NONE**)				
Channel General Rating		**4**	**4**	

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	2013	From R 67-83.				
INSTALL CONCRETE COLLAR/CUTOFF						
REPAIR SEAMS						
OTHER ACTION	2013	Assessment if not done.				
OTHER ACTION	2013	Inspect every 18 months.				
OTHER ACTION						
OTHER ACTION						

Structural Condition Rating (Last/Now) (%)	**22.2/22.2**	**Sufficiency Rating (Last/Now) (%)**	**26.6/25.2**	Est. Repl. Yr	2015	Maint. Reqd. (Y/N)	Yes

Special Comments for Next Inspection	1999 functional plan for Hwy 19 recommended replacement. It is recommended to determine if future work is to occur on Hwy 19 and schedule work accordingly. Monitor SW ditch drain pipe scour and erosion, circ, seams, lingit seams. Low Rating Advisory sent to Rizwan Hussain 11-Jan-2013.	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	Wade Nanninga	Previous Assistant's Name			
Next Inspection Date	10-Oct-2014	Previous Inspection Date	26-Jan-2011		
Inspection Cycle (Default) (months)	21				
Comment					