Bridge Culvert Inspection

Bridge File Number	76979 -1 Bridge Culvert	Form Type	CUL1
Year Built	1969	Lot No.	1
Bridge or Town Name	ELKWATER	Inspector Name	Tom Carey
Located Over	GROS VENTRE CREEK, 2.7.7, WATERCRS-ST	Inspector Class	BR CLS A
		Assistant Name	
Located On	514:02 C1 7.862	Assistant Class	
Water Body Cl./Year		Inspection Date	12-Mar-2012
Navigabil. Cl./Year		Data Entry By	Anne Roberts
Legal Land Location	NE SEC 21 TWP 8 RGE 3 W4M	Data Entry Date	08-Apr-2012
Longitude, Latitude	-110:20:58, 49:40:03	Reviewer Name	Garry Roberts
Road Authority	Alberta Transportation (AIT)	Review Date	24-Mar-2012
Contract Main. Area	CMA23	Dept. Reviewer Name	Tim Davies
Clear Roadway/Skew	12.4 /	Dept. Review Date	17-Apr-2012
AADT/Year	70 / 2011 (A)	Follow-Up By	
Road Classification	RCU-209-110		
Detour Length (km)	10		

Bridge Culvert Information

Number of Culverts		1						
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	Pl./Slab Thickness	Shape
1	MAIN	1830	1120	FP	24.3	68X13		ARCH
Special Features		VERT STEEL STRUTS						
Special Features Comment								

Utilities (Located at)

Utility Attachments			
Telephone		Gas	
Power		Municipal	
Others		Problem (Y/N)	No
Remarks			

Approach Road / Embankment

		Last	Now	Explanation of Condition
Horizontal Alignment		6	6	Curves to South.
Vertical Alignment		7	7	
Roadway Width (m)	11.000			
Embankment		N	7	Snow Covered
Sideslope (__:1)	3.0			
(Height of Cover(m) : **1**)				
Guardrail (Y/N)	No			
Approach Road / Embankment General Rating		**6**	**6**	

Upstream End

Culvert Component		Last	Now	Explanation of Condition
Direction		E		East
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**
Bevel End		N	5	(Some corrosion in the floor.)
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	200			
Scour Protection		N	N	Snow Covered
(Type :)				
(Avg. Rock Size(mm) :)				
Scour/Erosion		N	N	Snow Covered
Beavers (Y/N)	No			
Upstream End General Rating		**5**	**N**	

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): 1830, Rise (mm): 1120, Type: FP**)				
Barrel Last Accessible Date	12-Dec-1989			
Special Features				
Special Feature		N	5	(Shape appears the same as last inspection). Struts appear to be performing as intended. 600 mm deep ice and water, unable to enter - viewed from ends.
(Type : **VERT STEEL STRUTS**)				
Special Feature				
(Type :)				
Roof		N	N	(U/S 1020mm, mid 750mm @ 9m, mid 815mm @ 13.m, D/S 1080mm.) 3390 roof sag based on last measurements. Roof is flat but is held by struts adequately. 2 isolated areas of reverse curvature at U/S. Outside of roadway and struts - under slope.
Measured Rise (mm)	750			
Measured At Ring No.	2			
Sag (mm)	370			
Percent Sag	33			
Sidewall		N	N	(U/S 1860mm, Mid 1910mm @ 9m, mid 1925mm @ 13m, D/S 1850mm.)
Measured Span (mm)	1925			
Measured At Ring No.	2			
Deflection (mm)	95			
Percent Deflection	5			
Floor		N	N	
Bulge (mm)	80			
Measured At Ring No.				
Abrasion (Y/N)	Yes			
Circumferential Seams		N	3	(Has some dirt infiltration, some in the first seams from the D/S end. Tear at the middle seam on the South sidewall). Roof circ. seam or rivetted circ. seam is torn open with 50 mm gap at 3 m in from West end.
Separation (mm)	70			
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		N	N	(Some pitting on the floor.)
Corrosion By Soil (Y/N)				
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	ZERO			

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): 1830, Rise (mm): 1120, Type: FP**)				
Ponding (Y/N)	Yes			
Fish Passage Adequacy		X	X	
Baffle		X	X	
(Type :)				
Waterway Adequacy		N	4	Only .2m freeboard at point of worst sag (Some gravel at the upstream end).
Icing (Y/N)	No			
Silting (Y/N)	Yes			
Drift (Y/N)	No			
Barrel General Rating		**4**	**3**	Roof rating is "2" based on last measurements. Rated up to 3 due to struts and reverse curvature outside of roadway.

Downstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
Direction		W		West
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape :)				
Cutoff Wall		X	X	
Bevel End		N	6	
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection		N	6	
(Type : **NATURAL**)				
(Avg. Rock Size(mm) :)				
Scour/Erosion		N	6	
Beavers (Y/N)	No			
Downstream End General Rating		**6**	**6**	

Structure Usage				
		Last	**Now**	**Explanation of Condition**
Channel (U/S and D/S)				
Alignment		7	7	
Bank Stability		N	7	
HWM (m below Top of Culvert)				HWM not visible. Lots of brush in the U/S & D/S channel.
Drift (Y/N)	No			
Channel Bottom Degrading/Aggrading				
Beavers (Y/N)	No			
(Fish Compensation Measure 1 : **NONE**)				
(Fish Compensation Measure 2 : **NONE**)				
Channel General Rating		**7**	**7**	

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						
INSTALL CONCRETE COLLAR/CUTOFF						
REPAIR SEAMS						
REPLACE CULVERT	2016	Replace				
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						

Structural Condition Rating (Last/Now) (%)	**44.4/33.3**	**Sufficiency Rating (Last/Now) (%)**	**66.7/45.9**	Est. Repl. Yr	2015	Maint. Reqd. (Y/N)	Yes

Special Comments for Next Inspection	Plan for replacement in 3-5 years. Raised to 3 from 2 rating due to review of last several forms indicating struts are adequately performing although roof is in excess of 30% sag based on past measurements. T. Carey mar. 12/12	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	Tim Davies	Previous Assistant's Name			
Next Inspection Date	12-Jun-2015	Previous Inspection Date	12-Mar-2009		
Inspection Cycle (Default) (months)	39				
Comment					