Bridge Culvert Inspection

Bridge File Number	13028 -1 Bridge Culvert	Form Type	CUL1
Year Built/Lined	1963/1991	Lot No.	1
Bridge or Town Name	BOWDEN	Inspector Name	Owen Salava
Located Over	TRIBUTARY TO KNEEHILLS CREEK, 3.46.29, WATERCRS-ST	Inspector Class	BR CLS A
		Assistant Name	
Located On	587:04 C1 5.657	Assistant Class	
Water Body Cl./Year		Inspection Date	25-Oct-2011
Navigabil. Cl./Year		Data Entry By	Marcia Chavez
Legal Land Location	SW SEC 14 TWP 34 RGE 27 W4M	Data Entry Date	25-Nov-2011
Longitude, Latitude	-113:43:33, 51:54:41	Reviewer Name	John O'Brien
Road Authority	Alberta Transportation (AIT)	Review Date	13-Nov-2011
Contract Main. Area	CMA19	Dept. Reviewer Name	Andrew Smikles
Clear Roadway/Skew	6.8 / 15 deg. (RHF)	Dept. Review Date	28-Nov-2011
AADT/Year	90 / 2010 (A)	Follow-Up By	
Road Classification	RLU-208G-90		
Detour Length (km)	5		

Bridge Culvert Information

Number of Culverts		1						
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	Pl./Slab Thickness	Shape
1	MAIN FULL LINER	-	2000	MP	65.4	68X13	2.8	ROUND
Special Features								
Special Features Comment		Steel line installed (2000mm dia.) 2.8mm plate thickness 1991.						

Utilities (Located at)

Utility Attachments			
Telephone	South r/w.	Gas	
Power		Municipal	
Others		Problem (Y/N)	No
Remarks			

Approach Road / Embankment

		Last	Now	Explanation of Condition
Horizontal Alignment		4	4	In a curve - unable to travel at design speed if oncoming traffic - too narrow. 700m East of intersection. Winding road signs.
Vertical Alignment		6	6	
Roadway Width (m)	7.900			Roadway over pipe narrows to 6.8m - substandard.
Embankment		N	4	Erosion problem South side - photo. Steep sideslopes / narrow roadway.
Sideslope (__:1)	2.0			
(Height of Cover(m) : **9.3**)				
Guardrail (Y/N)	No			
Approach Road / Embankment General Rating		**4**	**4**	

Upstream 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	

Upstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
Bevel End		5	5	
Heaving (mm)	80			
Invert Above/Below Stream Bed	ABOVE			
Above/Below (mm)	200			
Scour Protection		N	3	No scour protection.
(Type : **NATURAL**)				
(Avg. Rock Size(mm) :)				
Scour/Erosion		N	3	Extensive erosion @ bevel flanks - photo.
Beavers (Y/N)	Yes			
Upstream End General Rating		**3**	**3**	

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 2000, Type: MP**)				
Barrel Last Accessible Date	25-Oct-2011			Liner installed (2000mm) in 1992 - grouted.
Special Features				
Special Feature				
(Type :)				
Special Feature				
(Type :)				
Roof		3	3	R22 from U/S end. Installation damage. Stable dimensions.
Measured Rise (mm)	1700			
Measured At Ring No.	2			(13Feb2002).
Sag (mm)	300			
Percent Sag	15			
Sidewall		3	3	2200 x 1700 21m from U/S end, 300mm bulge @ East side approx 12m from D/S end. Stable dimensions.
Measured Span (mm)	2300			
Measured At Ring No.	2			
Deflection (mm)	300			
Percent Deflection	15			
Floor		N	5	Floor uneven from grout on floor. R14 from u/s end.
Bulge (mm)	100			
Measured At Ring No.				
Abrasion (Y/N)	Yes			
Circumferential Seams		4	4	1 seam damaged @ roof during installation.
Separation (mm)	0			
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		4	4	Corroding @ drain holes.
Corrosion By Soil (Y/N)	No			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			Minor

Bridge Culvert Barrel				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
(Pipe # : **1, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 2000, Type: MP**)				
Fish Passage Adequacy		X	X	
Baffle		X	X	
(Type :)				
Waterway Adequacy		6	6	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
Barrel General Rating		**3**	**3**	Stable dimensions.

Downstream End				
Culvert Component		**Last**	**Now**	**Explanation of Condition**
Direction		S		
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	Protrudes from fill 0.7m.
Heaving (mm)	0			
Invert Above/Below Stream Bed				
Above/Below (mm)	0			
Scour Protection		N	5	
(Type : **NATURAL**)				
(Avg. Rock Size(mm) :)				
Scour/Erosion		N	5	
Beavers (Y/N)	No			
Downstream End General Rating		**5**	**5**	

Structure Usage				
		Last	**Now**	**Explanation of Condition**
Channel (U/S and D/S)				
Alignment		5	5	Blocked by old beaver dam u/s.
Bank Stability		4	4	Vertical banks u/s.
HWM (m below Top of Culvert)				HWM not visible. Large drift.
Drift (Y/N)	Yes			
Channel Bottom Degrading/Aggrading				Old beaver dam u/s.
Beavers (Y/N)	Yes			
(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	2012	Class I, 25 cu m at inlet.				
REMOVE DRIFT ACCUMULATION						
INSTALL CONCRETE/STEEL LINING						
INSTALL STRUTS						
INSTALL CONCRETE COLLAR/CUTOFF						
REPAIR SEAMS						
OTHER ACTION	2012	Repair scour @ U/S end & add rip-rap.				
OTHER ACTION	2050	Upgrade road to meet std design width at replacement.				
OTHER ACTION	2012	Erect max 60km/h signs, both directions.				
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						

Structural Condition Rating (Last/Now) (%)	**33.3/33.3**	**Sufficiency Rating (Last/Now) (%)**	**38.0/38.0**	Est. Repl. Yr	2050	Maint. Reqd. (Y/N)	Yes

Special Comments for Next Inspection	N.B. Check for hollows btwn original pipe & liner & fill with grout. Measure bulge sidewall at E side, d/s end. Measure sag, deflections & bulge. No action for barrell rating of 3 at this time. This is an MPL so shape likley reflect as-built condition.	Department Comments	

Maintenance Reviewed By		Date		Estimated Total	0
Proposed Long-Term Strategy	2004.05.30 Liner should be good until 2052.				
On 3-Year Program (Y/N)					
Proposed Action					
Previous Inspector's Name	Owen Salava	Previous Assistant's Name			
Next Inspection Date	25-Jan-2015	Previous Inspection Date	07-Dec-2010		
Inspection Cycle (Default) (months)	39				
Comment					

Maintenance Recommendations

Inspector Recommendations	Year	Inspector Comments	Department Comments	Target Year	Est. Cost	Cat #
SHOTCRETE REPAIRS						
PLACE ADDITIONAL RIP RAP	2012	Class I, 25 cu m at inlet.	Programmed	2013		
REMOVE DRIFT ACCUMULATION						
INSTALL CONCRETE/STEEL LINING						
INSTALL STRUTS						
INSTALL CONCRETE COLLAR/CUTOFF						
REPAIR SEAMS						
OTHER ACTION	2012	Repair scour @ U/S end & add rip-rap.	Programmed	2013		
OTHER ACTION	2050	Upgrade road to meet std design width at replacement.	Defer until replacement	2017		
OTHER ACTION	2012	Erect max 60km/h signs, both directions.	Operations			
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						

Structural Condition Rating (Last/Now) (%)	**33.3/33.3**	**Sufficiency Rating (Last/Now) (%)**	**38.0/38.0**	Est. Repl. Yr	2050	Maint. Reqd. (Y/N)	Yes

Special Comments for Next Inspection	N.B. Check for hollows btwn original pipe & liner & fill with grout. Measure bulge sidewall at E side, d/s end. Measure sag, deflections & bulge. No action for barrell rating of 3 at this time. This is an MPL so shape likley reflect as-built condition.	Department Comments	Curently programmed in PMA for replacement in 2017. DA

Maintenance Reviewed By	Darron Ahlstedt	Date	29-Oct-2012	Estimated Total	0
Proposed Long-Term Strategy	2004.05.30 Liner should be good until 2052.				
On 3-Year Program (Y/N)					
Proposed Action					

Previous Inspector's Name	Owen Salava	Previous Assistant's Name	
Next Inspection Date	25-Jan-2015	Previous Inspection Date	07-Dec-2010
Inspection Cycle (Default) (months)	39		

Comment	