

Bridge Culvert Inspection			
Bridge File Number	70592 -1 Bridge Culvert	Form Type	CULE
Year Built/Lined	1970/1993	Lot No.	1
Bridge or Town Name	VULCAN	Inspector Name	Garry Roberts
Located Over	TRIBUTARY TO WEST ARROWWOOD CREEK, 2.13.18.5, WATERCRS-ST	Inspector Class	BR CLS A
Located On	534:02 C1 4.503	Assistant Name	
Water Body Cl./Year		Assistant Class	
Navigabil. Cl./Year		Inspection Date	22-May-2010
Legal Land Location	SE SEC 1 TWP 17 RGE 26 W4M	Data Entry By	Erin Roberts
Longitude, Latitude	-113:26:36, 50:23:50	Data Entry Date	23-Aug-2010
Road Authority	Alberta Transportation (AIT)	Reviewer Name	Joel Wozney
Contract Main. Area	CMA25	Review Date	03-Jun-2010
Clear Roadway/Skew	8.4 / 15 deg. (RHF)	Dept. Reviewer Name	Lorenz Bohnert
AADT/Year	690 / 2009 (A)	Dept. Review Date	07-Sep-2010
Road Classification	RCU-209-110	Follow-Up By	
Detour Length (km)	6		

**Bridge Culvert Information**

Number of Culverts	3							
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	Pl./Slab Thickness	Shape
2	U/S	-	2700	MP	11.5			ROUND
2	MAIN	-	1990	SP	24.8	152X51		ROUND
2	D/S	-	2700	MP	8.5			ROUND
3	U/S FULL LINER	-	1600	FP	10			ROUND
3	MAIN FULL LINER	-	1200	SSP	27.7			ROUND
3	D/S FULL LINER	-	1600	FP	10			ROUND
4	U/S FULL LINER	-	1600	FP	10			ROUND
4	MAIN FULL LINER	-	1200	SSP	27.7			ROUND
4	D/S FULL LINER	-	1600	FP	10			ROUND
Special Features								
Special Features Comment								

**Utilities (Located at)**

Utility Attachments			
Telephone	s.ditch	Gas	
Power	2 wire,north	Municipal	
Others		Problem (Y/N)	No
Remarks			

**Approach Road / Embankment**

	Last	Now	Explanation of Condition
Horizontal Alignment	9	9	Road rises to the west
Vertical Alignment	5	5	
Roadway Width (m)	8.400		
Embankment	7	7	
Sideslope (__:1)	2.0		
(Height of Cover(m) : 4.1)			
Guardrail (Y/N)	No		
<b>Approach Road / Embankment General Rating</b>	<b>5</b>	<b>5</b>	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 2, Span Type: Secondary Span)</b>				
Direction		S		South- 2700 x 11.5m long CSP extension
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls (Shape : )		X	X	
Cutoff Wall		X	X	
Bevel End		7	9	
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	100			
Scour Protection (Type : RIP RAP) (Avg. Rock Size(mm) : 300)		6	8	
Scour/Erosion		6	8	
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>		<b>7</b>	<b>8</b>	

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 2, Secondary Span, Location Code: U/S, Span (mm): , Rise (mm): 2700, Type: MP)</b>				
Barrel Last Accessible Date	22-May-2010			2700mm CSP extensions
<b>Special Features</b>				
Special Feature (Type : )				
Special Feature (Type : )				
Roof			9	Estimate
Measured Rise (mm)	2700			
Measured At Ring No.				
Sag (mm)	0			
Percent Sag				
Sidewall			9	Estimate
Measured Span (mm)	2700			
Measured At Ring No.				
Deflection (mm)	0			
Percent Deflection				
Floor			9	
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams			9	
Separation (mm)	30			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Secondary Span, Location Code: U/S, Span (mm): , Rise (mm): 2700, Type: MP)				
Longitudinal Seams			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			8	
Corrosion By Soil (Y/N)	No			
Corrosion By Water (Y/N)	No			
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			
Fish Passage Adequacy			7	
Baffle			X	
(Type : )				
Waterway Adequacy			7	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel Extension General Rating</b>			<b>9</b>	

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1990, Type: SP)				
Barrel Last Accessible Date	22-May-2010			1990 SPCSP
<b>Special Features</b>				
Special Feature				
(Type : )				
Special Feature				
(Type : )				
Roof		6	3	Isolated perforations in R3
Measured Rise (mm)	1932			
Measured At Ring No.	4			
Sag (mm)	58			
Percent Sag	2			
Sidewall		4	4	4th ring from d/s has crack in the sidewall - not @ the longitudinal seam - 20, 50, 104mm in length - 120mm remaining steel
Measured Span (mm)	2048			
Measured At Ring No.	4			
Deflection (mm)	58			
Percent Deflection	2			
Floor		N	6	
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams		7	7	
Separation (mm)	0			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1990, Type: SP)				
Longitudinal Seams		5	5	
Total No. of Cracked Rings	0			
Total No. of Rings with Two Cracked Seams	0			
Min. Remaining Steel Between Cracks (mm)				
Proper Lap (Y/N)	No			
Longitudinal Stagger (Y/N)	No			
Coating		5	3	minor corrosion in lower sections. roof perforations.
Corrosion By Soil (Y/N)	Yes			
Corrosion By Water (Y/N)	Yes			
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			
Fish Passage Adequacy		6	5	
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>4</b>	<b>3</b>	
Downstream End				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 2, Span Type: Secondary Span)				
Direction		N		2700mm CSP extension x 8.5m long
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape : )				
Cutoff Wall		X	X	
Bevel End		6	9	
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	200			
Scour Protection		6	8	
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 400)				
Scour/Erosion		6	8	
Beavers (Y/N)	No			
<b>Downstream End General Rating</b>		<b>6</b>	<b>8</b>	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 3, Span Type: Secondary Span)</b>				
Direction		S		1600mm CSp extension- West pipe
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall			X	
Collar			X	
Wingwalls (Shape : )			X	
Cutoff Wall			X	
Bevel End			9	
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection (Type : <b>RIP RAP</b> ) (Avg. Rock Size(mm) : <b>300</b> )			8	
Scour/Erosion			8	
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>			<b>8</b>	
Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 3, Secondary Span, Location Code: U/S, Span (mm): , Rise (mm): 1600, Type: FP)</b>				
Barrel Last Accessible Date	22-May-2010			1600mm CSP extensions- West pipe
<b>Special Features</b>				
Special Feature (Type : )				
Special Feature (Type : )				
Roof			9	Estimate
Measured Rise (mm)	1600			
Measured At Ring No.				
Sag (mm)	0			
Percent Sag				
Sidewall			9	Estimate
Measured Span (mm)	1600			
Measured At Ring No.				
Deflection (mm)	0			
Percent Deflection				
Floor			9	
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams			9	
Separation (mm)	30			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 3, Secondary Span, Location Code: U/S, Span (mm): , Rise (mm): 1600, Type: FP)</b>				
Longitudinal Seams			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			8	
Corrosion By Soil (Y/N)	No			
Corrosion By Water (Y/N)	No			
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			
Fish Passage Adequacy			7	
Baffle			X	
(Type : )				
Waterway Adequacy			7	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel Extension General Rating</b>			<b>9</b>	

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 3, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1200, Type: SSP)</b>				
Barrel Last Accessible Date	22-May-2010			1200mm smooth wall steel pipe-West barrel
<b>Special Features</b>				
Special Feature				
(Type : )				
Special Feature				
(Type : )				
Roof			9	
Measured Rise (mm)				
Measured At Ring No.				
Sag (mm)				
Percent Sag				
Sidewall			9	
Measured Span (mm)				
Measured At Ring No.				
Deflection (mm)				
Percent Deflection				
Floor			9	
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams			9	Welded seams
Separation (mm)	0			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 3, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1200, Type: SSP)</b>				
Longitudinal Seams			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			X	Weathering steel
Corrosion By Soil (Y/N)	No			
Corrosion By Water (Y/N)	No			
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			
Fish Passage Adequacy			5	
Baffle			X	
(Type : )				
Waterway Adequacy			7	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel General Rating</b>			<b>9</b>	

Downstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 3, Span Type: Secondary Span)</b>				
Direction		N		1600mm CSP extension- West pipe
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall			X	
Collar			X	
Wingwalls			X	
(Shape : )				
Cutoff Wall			X	
Bevel End			9	
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection			8	
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 400)				
Scour/Erosion			8	
Beavers (Y/N)	No			
<b>Downstream End General Rating</b>			<b>8</b>	

Upstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 4, Span Type: Secondary Span)</b>				
Direction		S		1600mm CSP extension- East pipe
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall			X	
Collar			X	
Wingwalls (Shape : )			X	
Cutoff Wall			X	
Bevel End			9	
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection (Type : RIP RAP) (Avg. Rock Size(mm) : 300)			8	
Scour/Erosion			8	
Beavers (Y/N)	No			
<b>Upstream End General Rating</b>			<b>8</b>	

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 4, Secondary Span, Location Code: U/S, Span (mm): , Rise (mm): 1600, Type: FP)</b>				
Barrel Last Accessible Date	22-May-2010			East pipe- 1600mm CSP extension
<b>Special Features</b>				
Special Feature (Type : )				
Special Feature (Type : )				
Special Feature (Type : )				
Roof			9	Estimate
Measured Rise (mm)	1600			
Measured At Ring No.				
Sag (mm)	0			
Percent Sag				
Sidewall			9	Estimate
Measured Span (mm)	1600			
Measured At Ring No.				
Deflection (mm)	0			
Percent Deflection				
Floor			9	
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams			9	
Separation (mm)	30			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 4, Secondary Span, Location Code: U/S, Span (mm): , Rise (mm): 1600, Type: FP)</b>				
Longitudinal Seams			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			8	
Corrosion By Soil (Y/N)	No			
Corrosion By Water (Y/N)	No			
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			
Fish Passage Adequacy			5	
Baffle			X	
(Type : )				
Waterway Adequacy			7	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel Extension General Rating</b>			<b>9</b>	

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 4, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1200, Type: SSP)</b>				
Barrel Last Accessible Date	22-May-2010			East pipe- 1200mm smooth wall steel pipe
<b>Special Features</b>				
Special Feature				
(Type : )				
Special Feature				
(Type : )				
Roof			9	
Measured Rise (mm)				
Measured At Ring No.				
Sag (mm)				
Percent Sag				
Sidewall			9	
Measured Span (mm)				
Measured At Ring No.				
Deflection (mm)				
Percent Deflection				
Floor			9	
Bulge (mm)	0			
Measured At Ring No.				
Abrasion (Y/N)	No			
Circumferential Seams			9	Welded seams
Separation (mm)	0			

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 4, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1200, Type: SSP)</b>				
Longitudinal Seams			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			X	Weathering steel
Corrosion By Soil (Y/N)	No			
Corrosion By Water (Y/N)	No			
Camber POS/ZERO/NEG	ZERO			
Ponding (Y/N)	No			
Fish Passage Adequacy			5	
Baffle			X	
(Type : )				
Waterway Adequacy			7	
Icing (Y/N)	No			
Silting (Y/N)	No			
Drift (Y/N)	No			
<b>Barrel General Rating</b>			<b>9</b>	

Downstream End				
Culvert Component		Last	Now	Explanation of Condition
<b>(Pipe # : 4, Span Type: Secondary Span)</b>				
Direction		N		East pipe- 1600mm CSP extension
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall			X	
Collar			X	
Wingwalls			X	
(Shape : )				
Cutoff Wall			X	
Bevel End			9	
Heaving (mm)	0			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	300			
Scour Protection			8	
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 400)				
Scour/Erosion			8	
Beavers (Y/N)	No			
<b>Downstream End General Rating</b>			<b>8</b>	

Structure Usage				
		Last	Now	Explanation of Condition
<b>Channel (U/S and D/S)</b>				
Alignment		8	7	Local drainage area Farmers dugout 15m south and 20m east
Bank Stability		8	8	
HWM (m below Top of Culvert)				HWM not visible
Drift (Y/N)	No			
Channel Bottom Degrading/Aggrading				
Beavers (Y/N)	No			
(Fish Compensation Measure 1 : <b>NONE</b> )				
(Fish Compensation Measure 2 : <b>NONE</b> )				
<b>Channel General Rating</b>		<b>8</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	2015	Line 1990- SPCSP					
INSTALL STRUTS							
INSTALL CONCRETE COLLAR/CUTOFF							
REPAIR SEAMS							
OTHER ACTION							
OTHER ACTION							
OTHER ACTION							
OTHER ACTION							
<b>Structural Condition Rating (Last/Now) (%)</b>	<b>22.2/33.3</b>	<b>Sufficiency Rating (Last/Now) (%)</b>	<b>50.0/58.2</b>	Est. Repl. Yr	2025	Maint. Req. (Y/N)	Yes
Special Comments for Next Inspection	Monitor roof perforations in SPCSP		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	22-Aug-2013		Previous Inspection Date	28-Feb-2007			
Inspection Cycle (Default) (months)	39						
Comment							