

| Bridge Culvert Inspection | | | | |
|---------------------------|--|--|---------------------|---------------|
| Bridge File Number | 73672 -1 Bridge Culvert | | Form Type | CULM |
| Year Built | 1949 | | Lot No. | 1 |
| Bridge or Town Name | TWIN BUTTE | | Inspector Name | Jason Rusu |
| Located Over | TRIBUTARY TO FOOTHILL CREEK, 2.12.21.5.7.5, WATERCRS-ST | | Inspector Class | BR CLS A |
| Located On | 6:04 C1 27.162 | | Assistant Name | |
| Water Body Cl./Year | | | Assistant Class | |
| Navigabil. Cl./Year | | | Inspection Date | 30-Oct-2011 |
| Legal Land Location | NW SEC 31 TWP 4 RGE 29 W4M | | Data Entry By | Erin Roberts |
| Longitude, Latitude | -113:53:55, 49:20:44 | | Data Entry Date | 29-Nov-2011 |
| Road Authority | Alberta Transportation (AIT) | | Reviewer Name | Garry Roberts |
| Contract Main. Area | CMA26 | | Review Date | 12-Nov-2011 |
| Clear Roadway/Skew | 10.4 / | | Dept. Reviewer Name | Tim Davies |
| AADT/Year | 1,170 / 2010 (A) | | Dept. Review Date | 01-Dec-2011 |
| Road Classification | RAU-211.8-110 | | Follow-Up By | |
| Detour Length (km) | 10 | | | |

Bridge Culvert Information

| Number of Culverts | | 2 | | | | | | |
|--------------------------|--------|------|----------------|------|--------|---------------|--------------------|-------|
| Pipe # | Barrel | Span | Rise (or Dia.) | Type | Length | Corr. Profile | Pl./Slab Thickness | Shape |
| 1 | MAIN | - | 1200 | MP | 20.7 | | | ROUND |
| 2 | MAIN | - | 1200 | MP | 20.7 | | | ROUND |
| Special Features | | | | | | | | |
| Special Features Comment | | | | | | | | |

Utilities (Located at)

| | | | | | |
|---------------------|---|--|---------------|----|--|
| Utility Attachments | | | | | |
| Telephone | East and West | | Gas | | |
| Power | | | Municipal | | |
| Others | | | Problem (Y/N) | No | |
| Remarks | Bridge file 73672 loc. 85m of TWP Rd 4-5A | | | | |

Approach Road / Embankment

| | Last | Now | Explanation of Condition |
|--|----------|----------|--|
| Horizontal Alignment | 6 | 6 | TWP Rd 4-5 A 85m North Hill to North and South |
| Vertical Alignment | 6 | 6 | |
| Roadway Width (m) | 10.000 | | |
| Embankment | 6 | 6 | |
| Sideslope (__:1) | 3.0 | | |
| (Height of Cover(m) : 2.3) | | | |
| Guardrail (Y/N) | No | | |
| Approach Road / Embankment General Rating | 6 | 6 | |

Upstream End

| Culvert Component | Last | Now | Explanation of Condition |
|---|-------|-----|--------------------------|
| (Pipe # : 1, Span Type: Primary Span) | | | |
| Direction | W | | West end, South 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 |
| (Pipe # : 1, Span Type: Primary Span) | | | | |
| Cutoff Wall | | X | X | |
| Bevel End | | 5 | 5 | |
| Heaving (mm) | 100 | | | |
| Invert Above/Below Stream Bed | ABOVE | | | |
| Above/Below (mm) | 200 | | | |
| Scour Protection | | 6 | 6 | |
| (Type : RIP RAP) | | | | |
| (Avg. Rock Size(mm) : 300) | | | | |
| Scour/Erosion | | 6 | 6 | |
| Beavers (Y/N) | No | | | |
| Upstream End General Rating | | 5 | 5 | |
| Bridge Culvert Barrel | | | | |
| Culvert Component | | Last | Now | Explanation of Condition |
| (Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1200, Type: MP) | | | | |
| Barrel Last Accessible Date | 30-Oct-2011 | | | South pipe |
| Special Features | | | | |
| Special Feature | | | | |
| (Type :) | | | | |
| Special Feature | | | | |
| (Type :) | | | | |
| Roof | | 2 | 2 | Due to deformation |
| Measured Rise (mm) | 1000 | | | |
| Measured At Ring No. | 6 | | | |
| Sag (mm) | 200 | | | |
| Percent Sag | 17 | | | |
| Sidewall | | 3 | 3 | Due to deformation No change |
| Measured Span (mm) | 1345 | | | |
| Measured At Ring No. | 6 | | | |
| Deflection (mm) | 145 | | | |
| Percent Deflection | 12 | | | |
| Floor | | N | 5 | 300mm deep water |
| Bulge (mm) | | | | |
| Measured At Ring No. | | | | |
| Abrasion (Y/N) | No | | | |
| Circumferential Seams | | 5 | 4 | R5 Soil infiltration at ring 5 |
| Separation (mm) | 70 | | | |
| Longitudinal Seams | | X | X | Riveted pipe |
| 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 | Ring 3 at sidewall |
| Corrosion By Soil (Y/N) | No | | | |
| 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): 1200, Type: MP) | | | | |
| Camber POS/ZERO/NEG | ZERO | | | |
| Ponding (Y/N) | No | | | |
| 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 | | 2 | 2 | |

| Downstream End | | | | |
|---|-------|----------|----------|--------------------------|
| Culvert Component | | Last | Now | Explanation of Condition |
| (Pipe # : 1, Span Type: Primary Span) | | | | |
| Direction | | E | | East, South pipe |
| 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 | | 5 | 5 | |
| (Type : RIP RAP) | | | | |
| (Avg. Rock Size(mm) : 300) | | | | |
| Scour/Erosion | | 5 | 5 | |
| Beavers (Y/N) | No | | | |
| Downstream End General Rating | | 5 | 5 | |

| Upstream End | | | | |
|--|-------|------|-----|--------------------------|
| Culvert Component | | Last | Now | Explanation of Condition |
| (Pipe # : 2, Span Type: Secondary Span) | | | | |
| Direction | | W | | West, North 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 |
| (Pipe # : 2, Span Type: Secondary Span) | | | | |
| Bevel End | | 5 | 5 | |
| Heaving (mm) | 100 | | | |
| Invert Above/Below Stream Bed | ABOVE | | | |
| Above/Below (mm) | 200 | | | |
| Scour Protection | | 6 | 6 | |
| (Type : RIP RAP) | | | | |
| (Avg. Rock Size(mm) : 300) | | | | |
| Scour/Erosion | | 6 | 6 | |
| Beavers (Y/N) | No | | | |
| Upstream End General Rating | | 5 | 5 | |
| Bridge Culvert Barrel | | | | |
| Culvert Component | | Last | Now | Explanation of Condition |
| (Pipe # : 2, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1200, Type: MP) | | | | |
| Barrel Last Accessible Date | 30-Oct-2011 | | | North Barrel |
| Special Features | | | | |
| Special Feature | | | | |
| (Type :) | | | | |
| Special Feature | | | | |
| (Type :) | | | | |
| Roof | | 4 | 4 | East end rise 1110 |
| Measured Rise (mm) | 1110 | | | |
| Measured At Ring No. | 4 | | | |
| Sag (mm) | 90 | | | |
| Percent Sag | 8 | | | |
| Sidewall | | 3 | 3 | Construction damage ring 2 upper South sidewall with 250mm deep x 150mm diameter void loss of fill |
| Measured Span (mm) | 1330 | | | |
| Measured At Ring No. | 5 | | | |
| Deflection (mm) | 130 | | | |
| Percent Deflection | 11 | | | |
| Floor | | N | 5 | |
| Bulge (mm) | | | | |
| Measured At Ring No. | | | | |
| Abrasion (Y/N) | No | | | |
| Circumferential Seams | | 4 | 4 | Loss of fill with 150mm void behind barrel R3 |
| Separation (mm) | 55 | | | |
| 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 | |
| Corrosion By Soil (Y/N) | No | | | |
| 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): 1200, Type: MP) | | | | |
| Ponding (Y/N) | No | | | |
| Fish Passage Adequacy | | 4 | 5 | |
| 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 | |
| Downstream End | | | | |
| Culvert Component | | Last | Now | Explanation of Condition |
| (Pipe # : 2, Span Type: Secondary Span) | | | | |
| Direction | | E | | East end, North 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 | | 6 | 6 | |
| (Type : RIP RAP) | | | | |
| (Avg. Rock Size(mm) : 300) | | | | |
| Scour/Erosion | | 6 | 6 | |
| Beavers (Y/N) | No | | | |
| Downstream End General Rating | | 5 | 5 | |
| Structure Usage | | | | |
| | | Last | Now | Explanation of Condition |
| Channel (U/S and D/S) | | | | |
| Alignment | | 7 | 7 | |
| Bank Stability | | 7 | 7 | |
| HWM (m below Top of Culvert) | | | | none visible |
| Drift (Y/N) | No | | | |
| Channel Bottom Degrading/Aggrading | 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 | 2012 | Install struts in South pipe- or consider replacing pipes instead of repairs | | | | | |
| INSTALL CONCRETE COLLAR/CUTOFF | | | | | | | |
| REPAIR SEAMS | | | | | | | |
| OTHER ACTION | | | | | | | |
| OTHER ACTION | | | | | | | |
| OTHER ACTION | | | | | | | |
| OTHER ACTION | | | | | | | |
| Structural Condition Rating (Last/Now) (%) | 22.2/22.2 | Sufficiency Rating (Last/Now) (%) | 36.6/42.8 | Est. Repl. Yr | 2015 | 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 | 30-Jul-2013 | | Previous Inspection Date | 29-Nov-2009 | | | |
| Inspection Cycle (Default) (months) | 21 | | | | | | |
| Comment | | | | | | | |