## Bridge Culvert Inspection

| | | | |
|---|---|---|---|
| Bridge File Number | 79444 -1 Bridge Culvert | Form Type | CUL1 |
| Year Built | 1988 | Lot No. | 4 |
| Bridge or Town Name | FORT MACKAY | Inspector Name | Wade Nanninga |
| Located Over | TRIBUTARY TO ATHABASCA RIVER, 8.11.24, WATERCRS-ST | Inspector Class | BR CLS A |
| | | Assistant Name | |
| Located On | 63:14 C1 13.366 | Assistant Class | |
| Water Body Cl./Year | | Inspection Date | 15-Nov-2011 |
| Navigabil. Cl./Year | | Data Entry By | Theresa Lacusta |
| Legal Land Location | NW SEC 17 TWP 95 RGE 10 W4M | Data Entry Date | 23-Nov-2011 |
| Longitude, Latitude | -111:35:54, 57:14:40 | Reviewer Name | Eric Carcoux |
| Road Authority | Alberta Transportation (AIT) | Review Date | 23-Nov-2011 |
| Contract Main. Area | CMA07 | Dept. Reviewer Name | Brent Herrick |
| Clear Roadway/Skew | 18.2 / 29 deg. (RHF) | Dept. Review Date | 15-Dec-2011 |
| AADT/Year | 6,370 / 2010 (A) | Follow-Up By | |
| Road Classification | RAU-211.8-110 | | |
| Detour Length (km) | 999 | | |

### Bridge Culvert Information

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Number of Culverts | | 1 | | | | | | |
| Pipe # | Barrel | Span | Rise (or Dia.) | Type | Length | Corr. Profile | Pl./Slab Thickness | Shape |
| 1 | MAIN | - | 2120 | SP | 54.9 | 152X51 | 3.0 | ROUND |
| 1 | D/S | - | 2120 | SP | 18.9 | 152X51 | 3.0 | ROUND |
| Special Features | | | | | | | | |
| Special Features Comment | | | | | | | | |

## Utilities (Located at)

| | | | |
|---|---|---|---|
| Utility Attachments | | | |
| Telephone | West r/w. | Gas | East r/w |
| Power | 3 wires OH East r/w. | Municipal | |
| Others | | Problem (Y/N) | No |
| Remarks | | | |

## Approach Road / Embankment

| | | Last | Now | Explanation of Condition |
|---|---|---|---|---|
| Horizontal Alignment | | 7 | 7 | Curve to east & crest to west limiting sight distances. |
| Vertical Alignment | | 7 | 7 | |
| Roadway Width (m) | 13.200 | | | |
| Embankment | | 7 | 7 | |
| Sideslope (__:1) | 3.0 | | | |
| (Height of Cover(m) : **2.8**) | | | | |
| Guardrail (Y/N) | No | | | |
| **Approach Road / Embankment General Rating** | | **7** | **7** | |

## Upstream End

| Culvert Component | | Last | Now | Explanation of Condition |
|---|---|---|---|---|
| Direction | | E | | |
| 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** |
| Cutoff Wall | | X | X | |
| Bevel End | | 7 | 7 | Steel control gate 16m u/s. |
| Heaving (mm) | 300 | | | |
| Invert Above/Below Stream Bed | ABOVE | | | |
| Above/Below (mm) | 100 | | | |
| Scour Protection | | 7 | 4 | Possible piping under bevel-not much rock visible. |
| (Type : **RIP RAP, GEOTEXTILE**) | | | | |
| (Avg. Rock Size(mm) : **250**) | | | | |
| Scour/Erosion | | 7 | 4 | |
| Beavers (Y/N) | No | | | |
| **Upstream End General Rating** | | **7** | **4** | |

| Bridge Culvert Barrel | | | | |
|---|---|---|---|---|
| **Culvert Component** | | **Last** | **Now** | **Explanation of Condition** |
| (Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 2120, Type: SP**) | | | | |
| Barrel Last Accessible Date | 08-Mar-2010 | | | Only accessible to R8 due to depth of water. |
| **Special Features** | | | | |
| Special Feature | | | | |
| (Type : ) | | | | |
| Special Feature | | | | |
| (Type : ) | | | | |
| Roof | | 5 | 4 | 2 holes (100 x 100, 100 x 300) .<br>From construction damage near U/S end. No sign of loss of backfill. |
| Measured Rise (mm) | 1940 | | | |
| Measured At Ring No. | 2 | | | |
| Sag (mm) | 180 | | | |
| Percent Sag | 9 | | | |
| Sidewall | | 7 | 6 | Extensive staining and leakage through bolt holes in first 7 rings. |
| Measured Span (mm) | 2220 | | | |
| Measured At Ring No. | 2 | | | |
| Deflection (mm) | 100 | | | |
| Percent Deflection | 5 | | | |
| Floor | | N | N | 1.0m drop in first 2 rings.<br>Gravel and dirt on floor. |
| Bulge (mm) | 0 | | | |
| Measured At Ring No. | | | | |
| Abrasion (Y/N) | Yes | | | |
| Circumferential Seams | | 7 | 7 | |
| Separation (mm) | 0 | | | |
| Longitudinal Seams | | 7 | 7 | 1N stagger |
| Total No. of Cracked Rings | 0 | | | |
| Total No. of Rings with Two Cracked Seams | | | | |
| Min. Remaining Steel Between Cracks (mm) | | | | |
| Proper Lap (Y/N) | Yes | | | |
| Longitudinal Stagger (Y/N) | Yes | | | |
| Coating | | 5 | 5 | Extensive rust along lower sidewall.<br>No pitting noticed. |
| Corrosion By Soil (Y/N) | Yes | | | |
| Corrosion By Water (Y/N) | Yes | | | |
| Camber POS/ZERO/NEG | NEG | | | |

| Bridge Culvert Barrel | | | | |
|---|---|---|---|---|
| **Culvert Component** | | **Last** | **Now** | **Explanation of Condition** |
| (Pipe # : **1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 2120, Type: SP**) | | | | |
| Ponding (Y/N) | No | | | |
| Fish Passage Adequacy | | 4 | 4 | D/S end above streambed. |
| Baffle | | X | X | |
| (Type : ) | | | | |
| Waterway Adequacy | | 6 | 6 | |
| Icing (Y/N) | No | | | |
| Silting (Y/N) | No | | | |
| Drift (Y/N) | No | | | |
| **Barrel General Rating** | | **5** | **4** | |

| Downstream End | | | | |
|---|---|---|---|---|
| **Culvert Component** | | **Last** | **Now** | **Explanation of Condition** |
| Direction | | W | | |
| End Treatment (Concrete, Steel, Others, None) | STEEL | | | |
| Headwall | | X | X | |
| Collar | | X | X | |
| Wingwalls | | X | X | |
| (Shape : ) | | | | |
| Cutoff Wall | | X | X | |
| Bevel End | | 7 | 7 | |
| Heaving (mm) | 0 | | | |
| Invert Above/Below Stream Bed | ABOVE | | | |
| Above/Below (mm) | 750 | | | |
| Scour Protection | | 6 | 6 | |
| (Type : **RIP RAP, GEOTEXTILE**) | | | | |
| (Avg. Rock Size(mm) : **450**) | | | | |
| Scour/Erosion | | 6 | 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 | | 7 | 7 | |
| HWM (m below Top of Culvert) | | | | HWM not visible. |
| Drift (Y/N) | No | | | |
| Channel Bottom Degrading/Aggrading | NONE | | | |
| 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 | | | | | | |
| OTHER ACTION | | | | | | |
| OTHER ACTION | | | | | | |
| OTHER ACTION | | | | | | |
| OTHER ACTION | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Structural Condition Rating (Last/Now) (%)** | **55.6/44.4** | **Sufficiency Rating (Last/Now) (%)** | **52.4/43.3** | Est. Repl. Yr | 2035 | Maint. Reqd. (Y/N) | No |

| | | | |
|---|---|---|---|
| Special Comments for Next Inspection | Monitor heaving at R1,2 and u/s , scour under bevel. | 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 | 15-Aug-2013 | Previous Inspection Date | 08-Mar-2010 | | |
| Inspection Cycle (Default) (months) | 21 | | | | |
| Comment | | | | | |