

| Bridge Culvert Inspection |   |  |                     |                |
|---------------------------|---|--|---------------------|----------------|
| Bridge File Number        | 09499 -1 Bridge Culvert                                   |  | Form Type           | CULM           |
| Year Built                | 1955  |  | Lot No.             | 1              |
| Bridge or Town Name       | Rocky Mountain House                                      |  | Inspector Name      | Owen Salava    |
| Located Over              | TRIBUTARY TO NORTH SASKATCHEWAN RIVER, 6.157, WATERCRS-ST |  | Inspector Class     | BR CLS A       |
| Located On                | 11:10 L1 5.139;11:10 R1 5.139                             |  | Assistant Name      |                |
| Water Body Cl./Year       |   |  | Assistant Class     |                |
| Navigabil. Cl./Year       |   |  | Inspection Date     | 02-Feb-2012    |
| Legal Land Location       | SE SEC 4 TWP 40 RGE 7 W5M                                 |  | Data Entry By       | Marcia Chavez  |
| Longitude, Latitude       | -114:56:16, 52:24:29                                      |  | Data Entry Date     | 01-Mar-2012    |
| Road Authority            | Alberta Transportation (AIT)                              |  | Reviewer Name       | John O'Brien   |
| Contract Main. Area       | CMA18   |  | Review Date         | 22-Feb-2012    |
| Clear Roadway/Skew        | 18.9 / 10 deg. (RHF)                                      |  | Dept. Reviewer Name | Andrew Smikles |
| AADT/Year                 | 3,140 / 2010 (A)  |  | Dept. Review Date   | 21-Mar-2012    |
| Road Classification       | RAU-213.4-120   |  | 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   | 132.9  |               |                    | ROUND |
| 2                          | MAIN   | -    | 900            | MP   | 132.9  |               |                    | ROUND |
| Special Features           |        |      |                |      |        |               |                    |       |
| Special Features Comment   |        |      |                |      |        |               |                    |       |

| Utilities (Located at) |  |               |    |
|------------------------|--|---------------|----|
| Utility Attachments    |  |               |    |
| Telephone              | West r/w.  | Gas           |    |
| Power                  | 3 wire South across M11. 1 wire East r/w on M22. | Municipal     |    |
| Others                 | Street lights.                                   | Problem (Y/N) | No |
| Remarks                |  |               |    |

| Approach Road / Embankment                       |        |          |          |  |
|--|--------|----------|----------|--|
|  |        | Last     | Now      | Explanation of Condition   |
| Horizontal Alignment                             |        | 6        | 6        | Built West of Jct 22 and M11, vertical crest and horizontal curve.                 |
| Vertical Alignment                               |        | 6        | 6        |  |
| Roadway Width (m)                                | 18.900 |          |          |  |
| Embankment                                       |        | 7        | 7        | Gabions & riprap installed.<br>2:1 at inlet.<br>5.6m coverage on East side of M22. |
| Sideslope (___:1)                                | 3.0    |          |          |  |
| (Height of Cover(m) : 5.6)                       |        |          |          |  |
| Guardrail (Y/N)                                  | No     |          |          |  |
| <b>Approach Road / Embankment General Rating</b> |        | <b>6</b> | <b>6</b> |  |

| Upstream End                                  |      |      |     |                          |
|---|------|------|-----|--------------------------|
| Culvert Component                             |      | Last | Now | Explanation of Condition |
| <b>(Pipe # : 1, Span Type: Primary Span)</b>  |      |      |     |                          |
| Direction                                     |      | E    |     |                          |
| End Treatment (Concrete, Steel, Others, None) | NONE |      |     |                          |
| Headwall                                      |      | X    | X   |                          |
| Collar  |      | X    | X   |                          |
| Wingwalls                                     |      | X    | X   |                          |
| (Shape : )                                    |      |      |     |                          |

| Upstream End   |             |          |          |   |
|--|-------------|----------|----------|---|
| Culvert Component  |             | Last     | Now      | Explanation of Condition                  |
| <b>(Pipe # : 1, Span Type: Primary Span)</b>   |             |          |          |   |
| Cutoff Wall  |             | X        | X        |   |
| Bevel End  |             | X        | X        |   |
| Heaving (mm)   | 0           |          |          |   |
| Invert Above/Below Stream Bed  | BELOW       |          |          |   |
| Above/Below (mm)   | 100         |          |          |   |
| Scour Protection   |             | 5        | 5        |   |
| (Type : <b>NATURAL</b> )   |             |          |          |   |
| (Avg. Rock Size(mm) : )  |             |          |          |   |
| Scour/Erosion  |             | 5        | 5        |   |
| Beavers (Y/N)  | No          |          |          |   |
| <b>Upstream End General Rating</b>   |             | <b>5</b> | <b>5</b> |   |
| Bridge Culvert Barrel  |             |          |          |   |
| Culvert Component  |             | Last     | Now      | Explanation of Condition                  |
| <b>(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1200, Type: MP)</b> |             |          |          |   |
| Barrel Last Accessible Date  | 02-Feb-2012 |          |          | 1/2 accessible, bottom 1/2 full of water. |
| <b>Special Features</b>  |             |          |          |   |
| Special Feature  |             |          |          |   |
| (Type : )  |             |          |          |   |
| Special Feature  |             |          |          |   |
| (Type : )  |             |          |          |   |
| Roof   |             | 3        | 3        | Unable to measure due to ice.             |
| Measured Rise (mm)   | 1045        |          |          |   |
| Measured At Ring No.   | 8           |          |          |   |
| Sag (mm)   | 155         |          |          | (05May2010)                               |
| Percent Sag  | 12          |          |          |   |
| Sidewall   |             | 4        | 4        |   |
| Measured Span (mm)   | 1300        |          |          |   |
| Measured At Ring No.   | 8           |          |          |   |
| Deflection (mm)  | 100         |          |          |   |
| Percent Deflection   | 8           |          |          |   |
| Floor  |             | 5        | N        | Ice covered.                              |
| Bulge (mm)   | 0           |          |          |   |
| Measured At Ring No.   |             |          |          |   |
| Abrasion (Y/N)   | No          |          |          |   |
| Circumferential Seams  |             | 5        | 5        | Measured approx 40m from U/S end.         |
| Separation (mm)  | 40          |          |          |   |
| 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        | Superficial rust along floor.             |
| 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   | NEG  |          |          |  |  |
| Ponding (Y/N)   | No   |          |          |  |  |
| Fish Passage Adequacy   |      | 4        | 4        | Perched inlet.                           |  |
| Baffle  |      | X        | X        |  |  |
| (Type : )   |      |          |          |  |  |
| Waterway Adequacy   |      | 5        | 5        |  |  |
| Icing (Y/N)   | No   |          |          | At U/S end.                              |  |
| Silting (Y/N)   | No   |          |          |  |  |
| Drift (Y/N)   | Yes  |          |          |  |  |
| <b>Barrel General Rating</b>  |      | <b>3</b> | <b>3</b> |  |  |
| Downstream End  |      |          |          |  |  |
| Culvert Component   |      | Last     | Now      | Explanation of Condition                 |  |
| (Pipe # : 1, Span Type: Primary Span)   |      |          |          |  |  |
| Direction   |      | W        |          | D/S end of pipe #1 is joined to pipe #2. |  |
| End Treatment (Concrete, Steel, Others, None)   | NONE |          |          |  |  |
| Headwall  |      | X        | X        |  |  |
| Collar  |      | X        | X        |  |  |
| Wingwalls   |      | X        | X        |  |  |
| (Shape : )  |      |          |          |  |  |
| Cutoff Wall   |      | X        | X        |  |  |
| Bevel End   |      | X        | X        |  |  |
| Heaving (mm)  |      |          |          |  |  |
| Invert Above/Below Stream Bed   |      |          |          |  |  |
| Above/Below (mm)  |      |          |          |  |  |
| Scour Protection  |      | X        | X        |  |  |
| (Type : <b>NONE, GABION</b> )   |      |          |          |  |  |
| (Avg. Rock Size(mm) : )   |      |          |          |  |  |
| Scour/Erosion   |      | X        | X        |  |  |
| Beavers (Y/N)   | No   |          |          |  |  |
| <b>Downstream End General Rating</b>  |      | <b>N</b> | <b>N</b> |  |  |
| Upstream End  |      |          |          |  |  |
| Culvert Component   |      | Last     | Now      | Explanation of Condition                 |  |
| (Pipe # : 2, Span Type: Secondary Span)   |      |          |          |  |  |
| Direction   |      | E        |          | U/S end of pipe #2 is joined to pipe #1. |  |
| End Treatment (Concrete, Steel, Others, None)   | NONE |          |          |  |  |
| Headwall  |      | X        | X        |  |  |
| Collar  |      | X        | X        |  |  |
| Wingwalls   |      | X        | X        |  |  |
| (Shape : )  |      |          |          |  |  |
| Cutoff Wall   |      | X        | X        |  |  |

| Upstream End  |             |          |          |  |
|---|-------------|----------|----------|--|
| Culvert Component   |             | Last     | Now      | Explanation of Condition                 |
| <b>(Pipe # : 2, Span Type: Secondary Span)</b>  |             |          |          |  |
| Bevel End   |             | X        | X        |  |
| Heaving (mm)  |             |          |          |  |
| Invert Above/Below Stream Bed   |             |          |          |  |
| Above/Below (mm)  |             |          |          |  |
| Scour Protection  |             | X        | X        |  |
| (Type : <b>NATURAL</b> )  |             |          |          |  |
| (Avg. Rock Size(mm) : )   |             |          |          |  |
| Scour/Erosion   |             | X        | X        |  |
| Beavers (Y/N)   |             |          |          |  |
| <b>Upstream End General Rating</b>  |             | <b>N</b> | <b>N</b> |  |
| Bridge Culvert Barrel   |             |          |          |  |
| Culvert Component   |             | Last     | Now      | Explanation of Condition                 |
| <b>(Pipe # : 2, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 900, Type: MP)</b> |             |          |          |  |
| Barrel Last Accessible Date   | 24-Apr-2002 |          |          | Viewed from both ends, limited access.   |
| <b>Special Features</b>   |             |          |          |  |
| Special Feature   |             |          |          |  |
| (Type : )   |             |          |          |  |
| Special Feature   |             |          |          |  |
| (Type : )   |             |          |          |  |
| Roof  |             | N        | N        |  |
| Measured Rise (mm)  |             |          |          |  |
| Measured At Ring No.  |             |          |          |  |
| Sag (mm)  |             |          |          |  |
| Percent Sag   |             |          |          |  |
| Sidewall  |             | N        | N        |  |
| Measured Span (mm)  |             |          |          |  |
| Measured At Ring No.  |             |          |          |  |
| Deflection (mm)   |             |          |          |  |
| Percent Deflection  |             |          |          |  |
| Floor   |             | N        | N        |  |
| Bulge (mm)  |             |          |          |  |
| Measured At Ring No.  |             |          |          |  |
| Abrasion (Y/N)  |             |          |          |  |
| Circumferential Seams   |             | N        | N        |  |
| Separation (mm)   |             |          |          |  |
| 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        | (Superficial rust along floor. 02/04/24) |
| Corrosion By Soil (Y/N)   |             |          |          |  |
| Corrosion By Water (Y/N)  | Yes         |          |          |  |
| Camber POS/ZERO/NEG   | NEG         |          |          |  |

| Bridge Culvert Barrel  |           |          |          |  |
|--|-----------|----------|----------|--|
| Culvert Component  |           | Last     | Now      | Explanation of Condition   |
| (Pipe # : 2, Secondary Span, Location Code: MAIN, Span (mm): , Rise (mm): 900, Type: MP) |           |          |          |  |
| Ponding (Y/N)  | No        |          |          |  |
| Fish Passage Adequacy  |           | 5        | 5        |  |
| Baffle   |           | X        | X        |  |
| (Type : )  |           |          |          |  |
| Waterway Adequacy  |           | 6        | 6        |  |
| Icing (Y/N)  | No        |          |          |  |
| Silting (Y/N)  | No        |          |          |  |
| Drift (Y/N)  | No        |          |          |  |
| <b>Barrel General Rating</b>   |           | <b>3</b> | <b>3</b> | G.R. carried forward since 24/April/2002.  |
| Downstream End   |           |          |          |  |
| Culvert Component  |           | Last     | Now      | Explanation of Condition   |
| (Pipe # : 2, Span Type: Secondary Span)  |           |          |          |  |
| 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  |           | 5        | 5        |  |
| Heaving (mm)   | 0         |          |          |  |
| Invert Above/Below Stream Bed  | ABOVE     |          |          |  |
| Above/Below (mm)   | 2200      |          |          |  |
| Scour Protection   |           | 3        | N        | (Scour protection West of outlet inadequate - photo. 05May2010). Snow covered; gabions appear in good condition. |
| (Type : <b>NONE, GABION</b> )  |           |          |          |  |
| (Avg. Rock Size(mm) : )  |           |          |          |  |
| Scour/Erosion  |           | 3        | N        | (Channel forming on interior eroding slope protection - photo. 05May2010).                                       |
| Beavers (Y/N)  | No        |          |          |  |
| <b>Downstream End General Rating</b>   |           | <b>3</b> | <b>3</b> | GR carried forward from 05May2010.   |
| Structure Usage  |           |          |          |  |
|  |           | Last     | Now      | Explanation of Condition   |
| <b>Channel (U/S and D/S)</b>   |           |          |          |  |
| Alignment  |           | 5        | 5        | Perpendicular to pipe. Outlet west.  |
| Bank Stability   |           | 3        | N        | (Erosion @ D/S end West - photo. Gabions & riprap installed. 05May2010).   |
| HWM (m below Top of Culvert)   | 0.0       |          |          | HWM @ crown of D/S end.  |
| Drift (Y/N)  | Yes       |          |          | Small amount of drift @ D/S.   |
| Channel Bottom Degrading/Aggrading   | DEGRADING |          |          |  |
| Beavers (Y/N)  | No        |          |          |  |
| (Fish Compensation Measure 1 : <b>NONE</b> )   |           |          |          |  |
| (Fish Compensation Measure 2 : <b>NONE</b> )   |           |          |          |  |

| Structure Usage               |  |          |          |                                    |
|-------------------------------|--|----------|----------|------------------------------------|
|                               |  | Last     | Now      | Explanation of Condition           |
| <b>Channel General Rating</b> |  | <b>3</b> | <b>3</b> | GR carried forward from 05May2010. |

| 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                                      | 2012  | Lvl 2 inspection; small barrel not accessed in 10yrs. |                     | 2020                 |             |                          |           |  |  |  |
| OTHER ACTION                                      |   |   |                     |                      |             |                          |           |  |  |  |
| OTHER ACTION                                      |   |   |                     |                      |             |                          |           |  |  |  |
| OTHER ACTION                                      |   |   |                     |                      |             |                          |           |  |  |  |
| <b>Structural Condition Rating (Last/Now) (%)</b> | <b>33.3/33.3</b>  | <b>Sufficiency Rating (Last/Now) (%)</b>              | <b>33.3/33.2</b>    | <b>Est. Repl. Yr</b> | <b>2020</b> | <b>Maint. Req. (Y/N)</b> | <b>No</b> |  |  |  |
| Special Comments for Next Inspection              | Can't see enough to inspect thoroughly for 900mm pipe. No action for 1-3 roof rating. |   | 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                         | Owen Salava   | Previous Assistant's Name                             |                     |                      |             |                          |           |  |  |  |
| Next Inspection Date                              | 02-Nov-2013   | Previous Inspection Date                              | 05-May-2010         |                      |             |                          |           |  |  |  |
| Inspection Cycle (Default) (months)               | 21  |   |                     |                      |             |                          |           |  |  |  |
| Comment   |   |   |                     |                      |             |                          |           |  |  |  |

**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                   | 2012 | Lvl 2 inspection; small barrel not accessed in 10yrs. | Defer               |             |           |       |
| OTHER ACTION                   |      |   |                     |             |           |       |
| OTHER ACTION                   |      |   |                     |             |           |       |
| OTHER ACTION                   |      |   |                     |             |           |       |
| OTHER ACTION                   |      |   |                     |             |           |       |

|   |                  |  |                  |               |      |                   |    |
|---|------------------|--|------------------|---------------|------|-------------------|----|
| <b>Structural Condition Rating (Last/Now) (%)</b> | <b>33.3/33.3</b> | <b>Sufficiency Rating (Last/Now) (%)</b> | <b>33.3/33.2</b> | Est. Repl. Yr | 2020 | Maint. Req. (Y/N) | No |
|---|------------------|--|------------------|---------------|------|-------------------|----|

|                                      |   |                     |   |
|--------------------------------------|---|---------------------|---|
| Special Comments for Next Inspection | Can't see enough to inspect thoroughly for 900mm pipe. No action for r=3 roof rating. | Department Comments | Currently programmed to be replaced in 2018 |
|--------------------------------------|---|---------------------|---|

|                                     |                |                           |             |                 |   |
|-------------------------------------|----------------|---------------------------|-------------|-----------------|---|
| Maintenance Reviewed By             | Andrew Smikles | Date                      | 30-Oct-2012 | Estimated Total | 0 |
| Proposed Long-Term Strategy         |                |                           |             |                 |   |
| On 3-Year Program (Y/N)             |                |                           |             |                 |   |
| Proposed Action                     |                |                           |             |                 |   |
| Previous Inspector's Name           | Owen Salava    | Previous Assistant's Name |             |                 |   |
| Next Inspection Date                | 02-Nov-2013    | Previous Inspection Date  | 05-May-2010 |                 |   |
| Inspection Cycle (Default) (months) | 21             |                           |             |                 |   |
| Comment                             |                |                           |             |                 |   |