

| Bridge Culvert Inspection |                                 |  |                     |               |
|---------------------------|---------------------------------|--|---------------------|---------------|
| Bridge File Number        | 79889 -1 Bridge Culvert         |  | Form Type           | CUL1          |
| Year Built                | 1910                            |  | Lot No.             | 4             |
| Bridge or Town Name       | ROLLING HILL                    |  | Inspector Name      | Jon Davies    |
| Located Over              | EID - IRRIGATION C, WATERCRS-IC |  | Inspector Class     | BR CLS B      |
| Located On                | 525:02 C1 1.701                 |  | Assistant Name      |               |
| Water Body Cl./Year       |                                 |  | Assistant Class     |               |
| Navigabil. Cl./Year       |                                 |  | Inspection Date     | 07-Mar-2012   |
| Legal Land Location       | SW SEC 4 TWP 15 RGE 13 W4M      |  | Data Entry By       | Anne Roberts  |
| Longitude, Latitude       | -111:44:41, 50:13:22            |  | Data Entry Date     | 08-Apr-2012   |
| Road Authority            | Alberta Transportation (AIT)    |  | Reviewer Name       | Garry Roberts |
| Contract Main. Area       | CMA23                           |  | Review Date         | 24-Mar-2012   |
| Clear Roadway/Skew        | 11 /                            |  | Dept. Reviewer Name | Tim Davies    |
| AADT/Year                 | 190 / 2011 (A)                  |  | Dept. Review Date   | 17-Apr-2012   |
| Road Classification       | RCU-209-110                     |  | Follow-Up By        |               |
| Detour Length (km)        | 9                               |  |                     |               |

| Bridge Culvert Information |        |      |                |      |        |               |                    |         |
|----------------------------|--------|------|----------------|------|--------|---------------|--------------------|---------|
| Number of Culverts         |        | 1    |                |      |        |               |                    |         |
| Pipe #                     | Barrel | Span | Rise (or Dia.) | Type | Length | Corr. Profile | PI./Slab Thickness | Shape   |
| 1                          | MAIN   | 3658 | 2286           | RPE  | 17.1   | 152X51        | 4.0                | ELLIPSE |
| Special Features           |        |      |                |      |        |               |                    |         |
| Special Features Comment   |        |      |                |      |        |               |                    |         |

| Utilities (Located at) |                 |  |                  |
|------------------------|-----------------|--|------------------|
| Utility Attachments    |                 |  |                  |
| Telephone              | Buried N. side. |  | Gas              |
| Power                  | 2 wire S. side. |  | Municipal        |
| Others                 |                 |  | Problem (Y/N) No |
| Remarks                |                 |  |                  |

| Approach Road / Embankment                       |        |          |          |  |
|--|--------|----------|----------|--|
|  |        | Last     | Now      | Explanation of Condition   |
| Horizontal Alignment                             |        | 8        | 7        | Road peaks at the pipe, intersection to West<br>2 sided hazard markers installed @ all corners |
| Vertical Alignment                               |        | 5        | 5        |  |
| Roadway Width (m)                                | 10.800 |          |          |  |
| Embankment                                       |        | N        | 5        | 1:1 at sides of pipe   |
| Sideslope ( _ :1)                                | 3.0    |          |          |  |
| (Height of Cover(m) : 0.6)                       |        |          |          |  |
| 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 |
| Direction                                     |  |      |     | South end                |
| 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   |
| Bevel End  |             | X        | X        |  |
| Heaving (mm)   | 0           |          |          |  |
| Invert Above/Below Stream Bed  | BELOW       |          |          |  |
| Above/Below (mm)   | 250         |          |          |  |
| Scour Protection   |             | N        | 6        |  |
| (Type : <b>GRAVEL</b> )  |             |          |          |  |
| (Avg. Rock Size(mm) : <b>100</b> )   |             |          |          |  |
| Scour/Erosion  |             | N        | 6        |  |
| Beavers (Y/N)  | No          |          |          |  |
| <b>Upstream End General Rating</b>   |             | <b>6</b> | <b>6</b> |  |
| Bridge Culvert Barrel  |             |          |          |  |
| Culvert Component  |             | Last     | Now      | Explanation of Condition   |
| (Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): 3658, Rise (mm): 2286, Type: RPE) |             |          |          |  |
| Barrel Last Accessible Date  | 07-Mar-2012 |          |          |  |
| <b>Special Features</b>  |             |          |          |  |
| Special Feature  |             |          |          |  |
| (Type : )  |             |          |          |  |
| Special Feature  |             |          |          |  |
| (Type : )  |             |          |          |  |
| Roof   |             | 4        | 4        | Roof damage. 2 Hyhoe teeth holes. No loss of material. Minor tears at roof at U/S and D/S opening. Estimate for general roof shape is good. Estimate sag rings 4 and 5 at longit. seam problem up to 50% |
| Measured Rise (mm)   | 2256        |          |          |  |
| Measured At Ring No.   | 3           |          |          |  |
| Sag (mm)   | 30          |          |          |  |
| Percent Sag  | 1           |          |          |  |
| Sidewall   |             | 6        | 6        |  |
| Measured Span (mm)   | 3750        |          |          |  |
| Measured At Ring No.   | 3           |          |          |  |
| Deflection (mm)  | 92          |          |          |  |
| Percent Deflection   | 3           |          |          |  |
| Floor  |             | 7        | N        | Ice & water covered  |
| Bulge (mm)   | 0           |          |          |  |
| Measured At Ring No.   |             |          |          |  |
| Abrasion (Y/N)   | No          |          |          |  |
| Circumferential Seams  |             | 7        | 7        |  |
| Separation (mm)  | 20          |          |          |  |
| Longitudinal Seams   |             | 5        | N        | (Roof seam missing 11 bolts some, improperly seated) 03 Mar 2009<br>PR 5 Not able to complete due to ice conditions. Center line roof seam is cusping at end of ring 4 into ring 5                       |
| Total No. of Cracked Rings   | 0           |          |          |  |
| Total No. of Rings with Two Cracked Seams  | 0           |          |          |  |
| Min. Remaining Steel Between Cracks (mm)   | 0           |          |          |  |
| Proper Lap (Y/N)   | No          |          |          |  |
| Longitudinal Stagger (Y/N)   | No          |          |          |  |
| Coating  |             | 4        | 4        | CORROSION WITH MINOR PITTING - throughout lower 1/2 of the pipe  |
| Corrosion By Soil (Y/N)  | No          |          |          |  |
| Corrosion By Water (Y/N)   | Yes         |          |          |  |
| Camber POS/ZERO/NEG  | ZERO        |          |          |  |
| Ponding (Y/N)  | No          |          |          |  |

| Bridge Culvert Barrel  |           |          |          |                          |
|--|-----------|----------|----------|--------------------------|
| Culvert Component  |           | Last     | Now      | Explanation of Condition |
| (Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): 3658, Rise (mm): 2286, Type: RPE) |           |          |          |                          |
| Fish Passage Adequacy  |           | X        | 7        |                          |
| 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>5</b> | <b>4</b> |                          |
| Downstream End   |           |          |          |                          |
| Culvert Component  |           | Last     | Now      | Explanation of Condition |
| Direction  |           |          |          | NORTH                    |
| 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)   | 0         |          |          |                          |
| Invert Above/Below Stream Bed  | BELOW     |          |          |                          |
| Above/Below (mm)   | 200       |          |          |                          |
| Scour Protection   |           | N        | 6        |                          |
| (Type : RIP RAP)   |           |          |          |                          |
| (Avg. Rock Size(mm) : 300)   |           |          |          |                          |
| Scour/Erosion  |           | N        | 6        |                          |
| Beavers (Y/N)  | No        |          |          |                          |
| <b>Downstream End General Rating</b>   |           | <b>7</b> | <b>6</b> |                          |
| Structure Usage  |           |          |          |                          |
|  |           | Last     | Now      | Explanation of Condition |
| <b>Channel (U/S and D/S)</b>   |           |          |          |                          |
| Alignment  |           | 9        | 9        |                          |
| Bank Stability   |           | 5        | 5        |                          |
| HWM (m below Top of Culvert)   | 1.3       |          |          | No HWM visible           |
| Drift (Y/N)  | No        |          |          |                          |
| Channel Bottom Degrading/Aggrading   | AGGRADING |          |          |                          |
| Beavers (Y/N)  | No        |          |          |                          |
| (Fish Compensation Measure 1 : NONE)   |           |          |          |                          |
| (Fish Compensation Measure 2 : NONE)   |           |          |          |                          |
| <b>Channel General Rating</b>  |           | <b>9</b> | <b>9</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                     |                  |  |                           |               |                 |                   |    |
| INSTALL STRUTS                                    |                  |  |                           |               |                 |                   |    |
| INSTALL CONCRETE COLLAR/CUTOFF                    |                  |  |                           |               |                 |                   |    |
| REPAIR SEAMS                                      |                  |  |                           |               |                 |                   |    |
| OTHER ACTION                                      |                  |  |                           |               |                 |                   |    |
| OTHER ACTION                                      |                  |  |                           |               |                 |                   |    |
| OTHER ACTION                                      |                  |  |                           |               |                 |                   |    |
| OTHER ACTION                                      |                  |  |                           |               |                 |                   |    |
| <b>Structural Condition Rating (Last/Now) (%)</b> | <b>55.6/44.4</b> | <b>Sufficiency Rating (Last/Now) (%)</b> | <b>67.5/61.8</b>          | Est. Repl. Yr | 2015            | Maint. Req. (Y/N) | No |
| 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                         | Tim Davies       |  | Previous Assistant's Name |               |                 |                   |    |
| Next Inspection Date                              | 07-Jun-2015      |  | Previous Inspection Date  | 03-Mar-2009   |                 |                   |    |
| Inspection Cycle (Default) (months)               | 39               |  |                           |               |                 |                   |    |
| Comment   |                  |  |                           |               |                 |                   |    |