BIM INSPECTION FORMS

There are 2 Types of Bridge Inspectors – Class B and Class A.

- Class B inspectors can only inspect Standard Bridges and Culverts
- Class A Inspectors can inspect Major Bridges, Standard Bridges and Culverts

Definition of a Standard Bridge - Bridges that are built with a Standard Drawing

Definition of a Major Bridge – Bridges that are not built with Standard Drawings

For a listing of all current and archived drawings refer to:
http://www.transportation.alberta.ca/4738.htm

Inspection Form Types

- Each form has a unique form identification
- 10 different inspection report forms for bridges with a single span type
- 3 different inspection report forms for culverts
- Custom forms generated to suit bridges with multiple form types are unlimited.

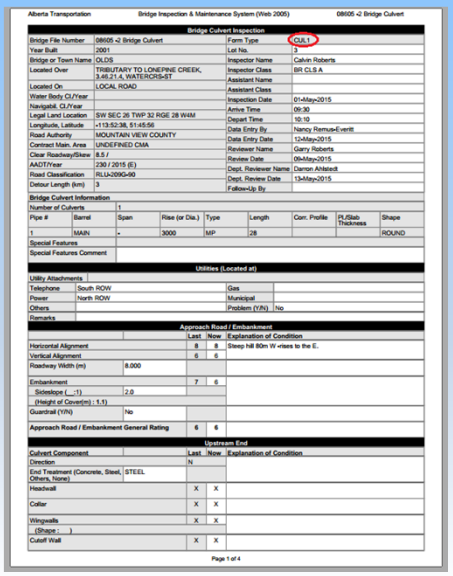
FORM TYPE	DESCRIPTION	SPAN TYPE
TH	Through Trusses	TH
PT	Pony Truss	PT
SG	Rolled Beams Riveted Plate Girders Welded Girders Steel Rigid Frames	RB RC RG WG FR
SS	Other Trusses & Arches	SS SSB SSA SSS SSF SSC
DT	Deck Trusses	DT
TT	All Timber Bridges	TT UT XT TP
PCS	Standard Precast Bridges	HH HC VH PG GR PE PA PS MM HCO PGO HHO PX PES PEF VS SM SMO SCO SCCO SMO VSO SCM SL SLC
PSR	Regular Prestress Bridge	RD FC VF PM VM PB DBT PQ PO PMO OM LF FM RM PJ NU CBT DBC CBC FCO PJO
CON	All Cast in Place Concrete Bridge Concrete Tee Girder Bridges Concrete Flat Slab Bridges	CA CB CF CV CX CC CXP CT CS
CUL1 CULM CULE	Single Culverts Multiple Culverts Culverts extended with different material and/or size	RP SP FP MP WP CP BP AP BPR RPB CPA CPE SPE PCB RPA RPE RPP MPB SCA SCR SSP CPP SPP SRA MPE
SIGN	Sign Structures	Z
THTT	Through Trusses with Timber Approaches	
THPCS	Through Trusses with Standard Precast Approaches	
THPSR	Through Trusses with Regular Prestress Approaches	
THSG	Through Trusses with Steel Girder Approaches	
THPT	Through Trusses with Pony Truss Approaches	
PTTT	Pony Trusses with Timber Approaches	
PTPCS	Pony Trusses with Standard Precast Approaches	
SGTT	Steel Beams with Timber Approaches	
SGPCS	Steel Beams with Standard Precast Approaches	
PSRPCS	Regular Prestress with Standard Precast Approaches	
SSSG	Special Steel with Steel Girder Approaches	
DTSG	Deck Truss with Steel Girder Approaches	

Table 1.1 - BIM Report Index Page 1-5

Form Verification

- How do you know what the form ID is?
  - Look on form itself.
- How do you know what span type it is?
  - Look on form itself.
- What if the form ID or span type do not make sense?
  - Look at resource material to match up the actual in field structure with drawings.
  - If still in doubt ask a senior inspector or AT representative.

Inspection Forms


Alberta Transportation — Bridge Inspection & Maintenance System (Web 2005) — 08605 -2 Bridge Culvert

Bridge Culvert Inspection

Bridge File Number	08605 -2 Bridge Culvert	Form Type	CULT
Year Built	2001	Lot No.	2
Bridge or Town Name	OLDS	Inspector Name	Calvin Roberts
Located Over	TRIBUTARY TO LONEPINE CREEK, 3.48.21.4, WATERCRS=ST	Inspector Class	BR CLS A
Located On	LOCAL ROAD	Assistant Name	
Water Body CI/Year		Assistant Class	
Navigabl. CI/Year		Inspection Date	01-May-2015
Legal Land Location	SW SEC 26 TWP 32 RGE 28 W4M	Arrive Time	09:30
Longitude, Latitude	+113:52:38, 51:45:56	Depart Time	10:10
Road Authority	MOUNTAIN VIEW COUNTY	Data Entry By	Nancy Remus-Everitt
Contract Main. Area	UNDEFINED CMA	Data Entry Date	12-May-2015
Clear Roadway/Skew	8.5 /	Reviewer Name	Garry Roberts
AADTYear	230 / 2015 (E)	Review Date	06-May-2015
Road Classification	RLU-2090-60	Dept. Reviewer Name	Darron Ahlstedt
Detour Length (km)	3	Dept. Review Date	13-May-2015
		Follow-Up By	

Bridge Culvert Information

Number of Culverts	1						
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	PL/Slab Thickness	Shape
1	MAIN	-	3000	MP	28			ROUND

Special Features	
Special Features Comment	

Utilities (Located at)

Utility Attachments			
Telephone	South ROW	Gas	
Power	North ROW	Municipal	
Others		Problem (Y/N)	No
Remarks			

Approach Road / Embankment

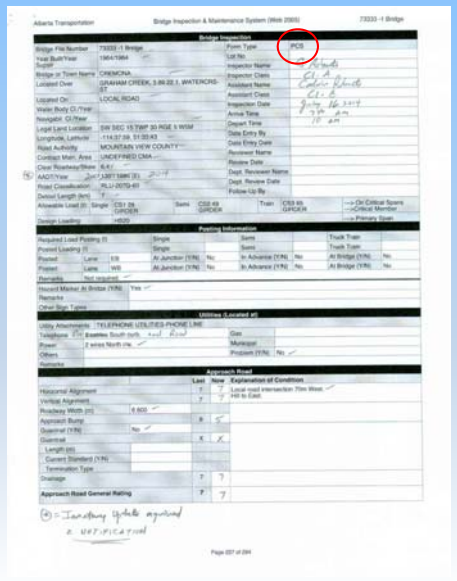
		Last	Now	Explanation of Condition
Horizontal Alignment		8	8	Steep hill 80m W +rises to the E.
Vertical Alignment		6	6	
Roadway Width (m)	8.000			
Embankment		7	6	
Sideslope (_ :1)	2.0			
(Height of Cover(m) : 1:1)				
Guardrail (Y/N)	No			
Approach Road / Embankment General Rating		6	6	

Upstream End

Culvert Component		Last	Now	Explanation of Condition
Direction		N		
End Treatment (Concrete, Steel, Others, None)	STEEL			
Headwall		X	X	
Collar		X	X	
Wingwalls		X	X	
(Shape :)				
Cutoff Wall		X	X	

Page 1 of 4

Inspection Forms


Alberta Transportation — Bridge Inspection & Maintenance System (Web 2005) — 73333 -1 Bridge

Bridge Inspection

Bridge File Number	73333 -1 Bridge	Form Type	PCS
Year Built/Year Built	1964/1964	Lot No.	
Bridge or Town Name	CREMONA	Inspector Name	
Located Over	GRAHAM CREEK, 3.89.22.1, WATERCRS-ST	Inspector Class	
Located On	LOCAL ROAD	Assistant Name	
Water Body CI/Year		Assistant Class	
Navigabl. CI/Year		Inspection Date	
Legal Land Location	SW SEC 15 TWP 30 RGE 5 W5M	Depart Time	
Longitude, Latitude	-114:37:09, 51:33:43	Data Entry By	
Road Authority	MOUNTAIN VIEW COUNTY	Data Entry Date	
Contract Main. Area	UNDEFINED CMA	Reviewer Name	
Clear Roadway/Skew	8.4 /	Review Date	
AADTYear	2017 / 1397 1995 (E)	Dept. Reviewer Name	
Road Classification	RLU-2070-60	Dept. Review Date	
Detour Length (km)	7	Follow-Up By	

Posting Information

Required Load Posting (t)		Single		Semi		Truck Train	
Posted Loading (t)		Single		Semi		Truck Train	
Posted	Lane	0.0	At Junction (Y/N)	No	In Advance (Y/N)	No	At Bridge (Y/N)	No
Posted	Lane	WB	At Junction (Y/N)	No	In Advance (Y/N)	No	At Bridge (Y/N)	No
Remarks	Not required							
Hazard Marker At Bridge (Y/N)	Yes							
Remarks								
Other Sign Types								

Utilities (Located at)

Utility Attachments	TELEPHONE UTILITIES-PHONE LINE		
Telephone	Eastlink South north	Gas	
Power	2 wires North row	Municipal	
Others		Problem (Y/N)	No
Remarks			

Approach Road

		Last	Now	Explanation of Condition
Horizontal Alignment		7	7	Local road intersection 70m West
Vertical Alignment		7	7	Hill to East
Roadway Width (m)	6.600			
Approach Surface		8	8	
Guardrail (Y/N)	No			
Guardrail		X	X	
Length (m)				
Current Standard (Y/N)				
Termination Type				
Drainage		7	7	
Approach Road General Rating		7	7	

(*) = Inventory Update required

2. VERIFICATION

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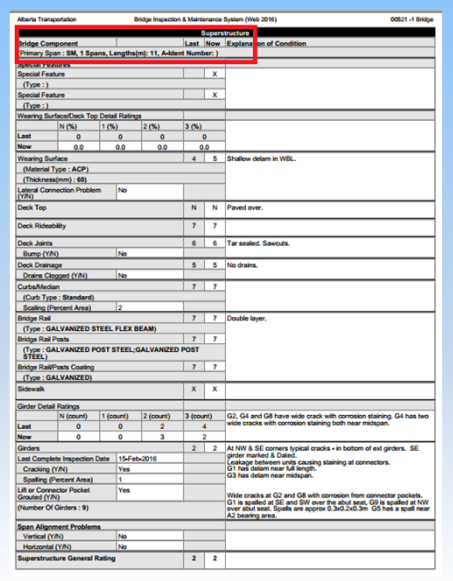
Inspection Forms


Alberta Transportation — Bridge Inspection & Maintenance System (Web 2016) — 00521 -1 Bridge

Superstructure

Bridge Component		Last	Now	Explanation of Condition
Primary Span : SM, 1 Spans, Lengths(m): 11, A-dden Number:)				
Special Features				
Special Feature			X	
(Type :)				
Special Feature			X	
(Type :)				

Wearing Surface/Deck Top Detail Ratings	N (%)	1 (%)	2 (%)	3 (%)
Last	0	0	0	0
Now	0.0	0.0	0.0	0.0

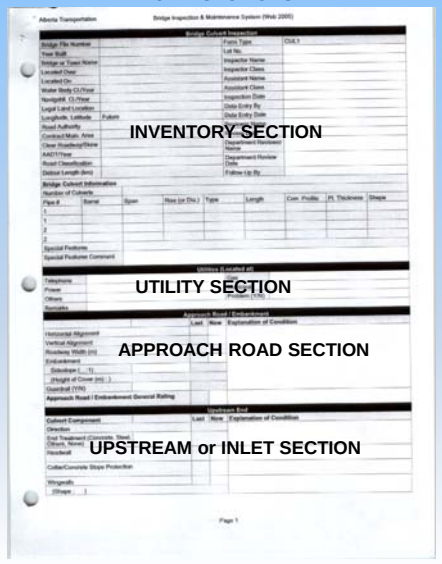
Wearing Surface			4	5	Shallow delam in WBL.
(Material Type : ACP)					
(Thickness(mm) : 60)					
Lateral Connection Problem (Y/N)	No				
Deck Top			N	N	Paved over.
Deck Rideability			7	7	
Deck Joints			6	6	Tar sealed. Sawcuts.
Bump (Y/N)	No				
Deck Drainage			5	5	No drains.
Drains Clogged (Y/N)	No				
Curbs/Median			7	7	
(Curb Type : Standard)					
Scaling (Percent Area)	2				
Bridge Rail			7	7	Double layer.
(Type : GALVANIZED STEEL FLEX BEAM)					
Bridge Rail Posts			7	7	
(Type : GALVANIZED POST STEEL;GALVANIZED POST STEEL)					
Bridge Rail/Posts Coating			7	7	
(Type : GALVANIZED)					
Sidewalk			X	X	

Girder Detail Ratings	N (count)	1 (count)	2 (count)	3 (count)
Last	0	0	2	4
Now	0	0	3	2

Girders			2	2	At NW & SE corners typical cracks - in bottom of ext girders. SE girder marked & Dated. Leakage between units causing staining at connectors. G1 has delam near full length. G3 has delam near midspan.
Last Complete Inspection Date	15-Feb-2016				
Cracking (Y/N)	Yes				
Spalling (Percent Area)	1				
Lit or Connector Pocket Grouted (Y/N)	Yes				Wide cracks at G2 and G8 with corrosion from connector pockets. G1 is spalled at SE and SW over the abut seat, G5 is spalled at NW over abut seat. Spalls are approx 0.3x0.2x0.3m G5 has a spall near A2 bearing area.
(Number Of Girders : 9)					
Span Alignment Problems					
Vertical (Y/N)	No				
Horizontal (Y/N)	No				
Superstructure General Rating			2	2	

G2, G4 and G8 have wide crack with corrosion staining. G4 has two wide cracks with corrosion staining both near midspan.

FORM SECTIONS

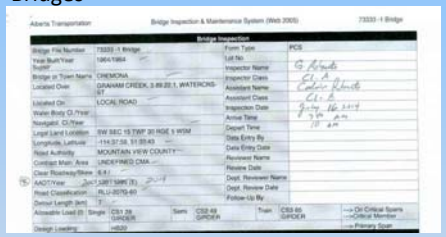


Sections of Standard Bridge & Culvert Forms

Form Section	Bridge	Culvert
Inventory	Similar	Similar
Signing	Bridges Only	N/A
Utility	Identical	Identical
Approach	Similar	Similar
Superstrucutre	Bridges Only	N/A
Inlet	N/A	Same as Outlet
Barrel	N/A	Culverts Only
Outlet	N/A	Same as Inlet
Substructure	Bridges Only	N/A
Channel or	Similar	Similar
Grade Separation	Identical	Identical
Maintenance	Similar	Similar
AT Management	Identical	Identical

Inventory (Similar)

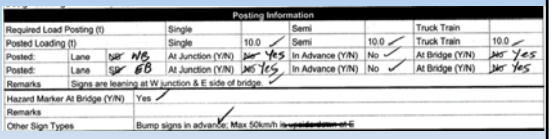
- Bridges



- Culverts

Signing (Bridges Only)

- Bridges Only



Utility Section (Identical)

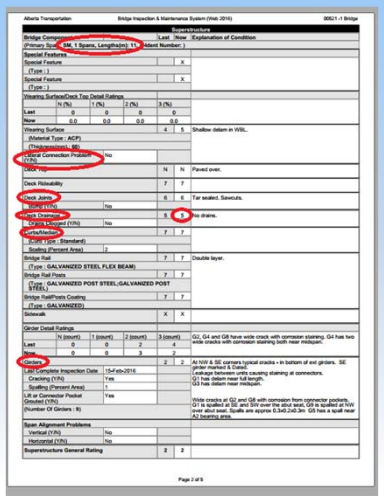
Utilities (Located at)			
Utility Attachments	TELEPHONE UTILITIES-PHONE LINE		
Telephone	South curb and ROW.	Gas	
Power	North ROW.	Municipal	
Others		Problem (Y/N)	No
Remarks			

Differences between Precast Girder and TT Stringer Superstructures

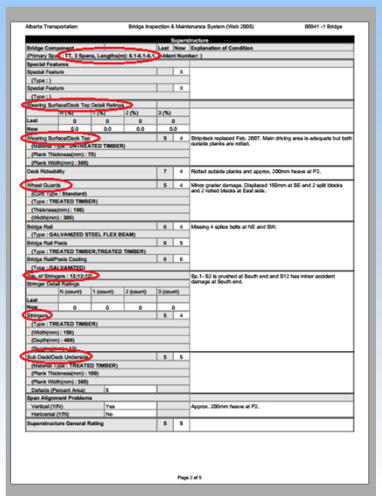
- PCS has separate rating boxes for both Deck Top and Wear Surface. Combined on TT form
- Adds “Plank Width” to TT Form
- Adds “Lateral Connection Problem Y/N” to PCS Form
- Joints added to PCS Form
- Deck Drainage rated on PCS form only (rated “X” for TT decks)
- Curb component PCS vs Wheelguard component TT Form
- Girders on PCS vs Timber Stringers on TT Form

The remainder of the form is the same.

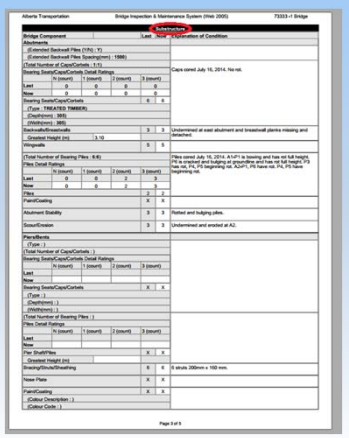
Superstructure (Bridges Only) Precast Girders



Superstructure (Bridges Only) Treated Timber Stringers



Substructure (Bridges Only)

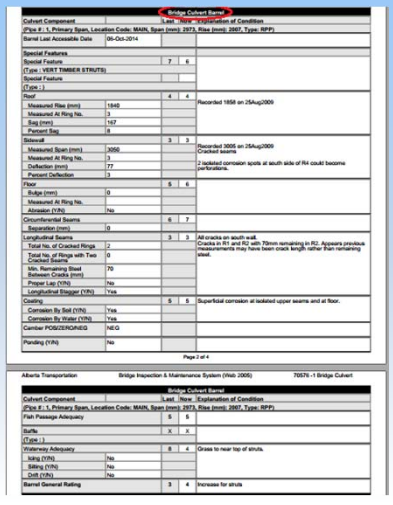


Culvert Inlet (U/S) and Outlet (D/S) (Identical)

Downstream 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 :)				
Cutoff Wall		X	X	
Bevel End		5	6	
Heaving (mm)	70			
Invert Above/Below Stream Bed	BELOW			
Above/Below (mm)	200			
Scour Protection		6	6	
(Type : RIP RAP)				
(Avg. Rock Size(mm) : 200)				
Scour/Erosion		6	6	Scour hole 10m D/S. not affecting pipe
Beavers (Y/N)	No			
Downstream End General Rating		5	6	

Culvert Barrel



Culvert Channel Section

Structure Usage

		Last	Now	Explanation of Condition
Channel (U/S and D/S)				
Alignment		5	5	
Bank Stability		5	5	
HWM (m below Top of Culvert)				(High water 1.2m above streambed @ outlet.) No visible HWM. Drift on floor of R1-R4
Drift (Y/N)	Yes			
Channel Bottom Degrading/Aggrading	DEGRADING			At D/S only
Beavers (Y/N)	Yes			Beavers at both U/S and D/S
(Fish Compensation Measure 1 : **NONE**)				
(Fish Compensation Measure 2 : **NONE**)				
Channel General Rating		5	5	

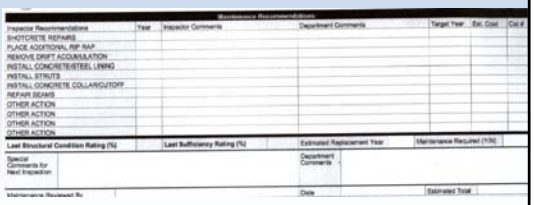
Bridge Channel Section

Structure Usage				
		Last	Now	Explanation of Condition
Channel				
(U/S Direction : **N**)				R x R crossing 50m D/S;
(D/S Direction : **S**)				
Alignment		7	7	
Bank Stability		5	4	Vertical slumping bank at SW
HWM (m below Top of Curb)	2.5			(April 12/09) No visible HWM;
Drift (Y/N)	Yes			Drift at west abutment
Slope Protection		5	5	
(Type : **NATURAL; NATURAL**)				
Guidebank/Spurs		X	X	
Adequacy of Opening		7	7	
(Fish Compensation Measure 1 : **NONE**)				
(Fish Compensation Measure 2 : **NONE**)				
Channel General Rating		**5**	**5**	

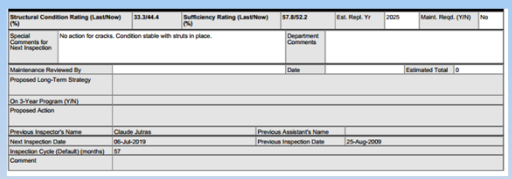
Maintenance (Similar)

- Bridges

- Culverts



AT Management Section (Identical)



Structural Condition Rating (Last/Now) (%)	33.3/44.4	Sufficiency Rating (Last/Now) (%)	57.8/52.2	Est. Repl. Yr	2025	Maint. Reqd. (Y/N)	No
Special Comments for Next Inspection	No action for cracks. Condition stable with struts in place.			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	Claude Jutras			Previous Assistant's Name			
Next Inspection Date	06-Jul-2019			Previous Inspection Date	25-Aug-2009		
Inspection Cycle (Default) (months)	57						
Comment							

Inspection Form Types

- Culvert form types:
  - CUL1 Form
    - single culverts of all types
    - single culvert extended with same size and material type
    - one barrel section
    - therefore - 1 inlet, 1 barrel and 1 outlet
  - CULM Form
    - multiple pipes or cells
    - two cell concrete box extended with steel
    - two or more barrel sections
    - therefore - multiple inlets, multiple barrels & multiple outlets
  - CULE Form
    - single culvert extended with different material or pipe size
    - two or more barrel sections
    - therefore – 1 inlet, multiple barrels and 1 outlet
  - Custom Forms to suit number & types of barrel sections.

Form Features

- Tailored to the span type or types of the particular structure.
- Contain full descriptions and full comments, no codes are required.
- Shows inventory data needed for a proper inspection.
- Provides the design and allowable loads and critical member.
- Allows for condition rating of elements and explanation.

Form Features

- Allows for general rating of each major category.
- Provides a list of typical maintenance items.
- Provides for special comments or instructions for the next inspection.
- Provides for programming, scheduling, cost estimation, authorization and tracking of maintenance.
- Repeats previous inspection data for inspector's information.
- Provides for 2 levels of inspection.

Form Features

- Provides sufficiency rating and structural condition ratings based on inspection data.
- Clearly indicates if a bridge element is not accessible or not applicable.
- A logical sequence to facilitate the inspection process.

Data Fields

- Shaded Fields
  - Element and data labels
  - Inventory Information (confirm, revise, or add if missing)
  - Element descriptions (type, size, etc.)
- Unshaded Fields
  - Element ratings
  - Inspection measurements
  - Explanations of condition

BIM System Fills In Shaded Area Inspector Confirms, Corrects, or Adds

Bridge Inspection	
Bridge File Number	
Year Built	
Bridge or Town Name	
Located Over	
Located On	
Water Body Cl./Year	
Navigabil. Cl./Year	
Legal Land Location	
Longitude, Latitude	Future
Road Authority	
Contract Main. Area	
Clear Roadway/Skew	
AADT/Year	
Road Classification	
Detour Length (km)	

Hi-Lited Section to be Filled in by Inspector

Alberta Transportation — Bridge Inspection & Maintenance System (Web 2005) — 81800 NW-1 Bridge

Bridge Inspection			
Bridge File Number	81800 NW-1 Bridge	Form Type	CON
Year Built/Year Supstr	1993/1993	Lot No.	2
Bridge or Town Name	CALGARY BEDD	Inspector Name	Garry Roberts
Located Over	2:15 R1 42.207;2:15 L1 42.314	Inspector Class	BR CLS A
Located On	772:01 R1 0.886	Assistant Name	Jon Davies
Water Body Cl./Year		Assistant Class	BR CLS B
Navigabil. Cl./Year		Inspection Date	11-Sep-2014
Legal Land Location	SE SEC 15 TWP 25 RGE 1 W5M	Arrive Time	11:20
Longitude, Latitude	-114:02:54, 51:07:34	Depart Time	13:15
Road Authority	Alberta Transportation (AIT)	Data Entry By	Nancy Remus-Everitt
Contract Main. Area	DEERFOOT/STONEY	Data Entry Date	29-Sep-2014
Clear Roadway/Skew	12.2 / 5 deg. (RHF)	Reviewer Name	Ash Morjaria
AADT/Year	22,309 / 2001 (E)	Review Date	18-Sep-2014
Road Classification	RLU-208-100	Dept. Reviewer Name	Tim Davies
Detour Length (km)	999	Dept. Review Date	03-Oct-2014
		Follow-Up By	

- Lot Number
  - 1 = Major maintenance, Assessments, Critical elements rated 3 or less, Level 2, or reduced cycle
  - 2 = Minor or routine maintenance
  - 3 = All structures not managed by AT
  - 4 = No action or Monitoring
- Lot number is assigned by Reviewer
- Certification status of inspector checked by system.

Example of Y/N Field

Floor		7	7
Bulge (mm)	0		
Measured At Ring No.			
Abrasion (Y/N)	No		
Circumferential Seams		8	8
Separation (mm)	60		
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		7	7
Corrosion By Soil (Y/N)	No		
Corrosion By Water (Y/N)	No		
Camber POS/ZERO/NEG	ZERO		
Ponding (Y/N)	No		

Page 2 of 4

Alberta Transportation — Bridge Inspection & Maintenance System (Web 2005) — 08605 -2 Bridge Culvert

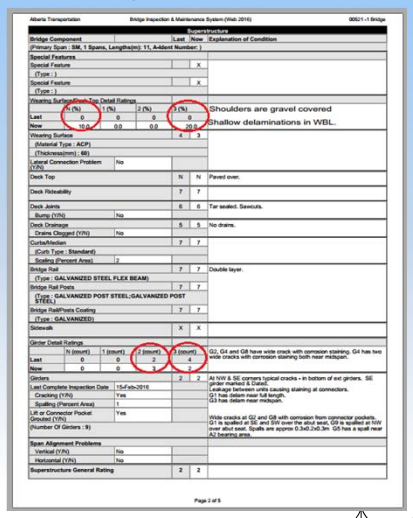
Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 3000, Type: MP)				
Fish Passage Adequacy		7	7	
Baffle		X	X	
(Type :)				
Waterway Adequacy		7	7	Approx. 1.1m deep silt at first 3m of pipe.
Icing (Y/N)	No			
Silting (Y/N)	Yes			
Drift (Y/N)	No			
Barrel General Rating		8	8	

Example of Y/N Supporting Comments Required

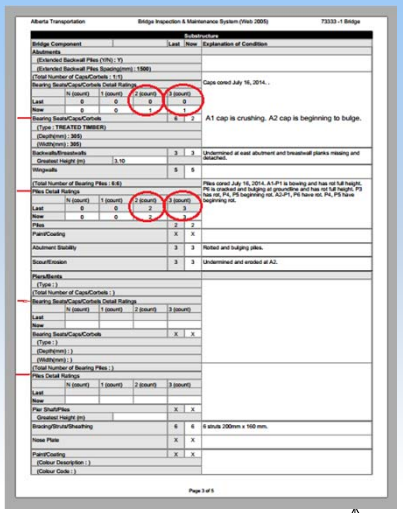
Structure Usage

		Last	Now	Explanation of Condition
Channel (U/S and D/S)				
Alignment		5	5	
Bank Stability		5	5	
HWM (m below Top of Culvert)				(High water 1.2m above streambed @ outlet.) No visible HWM.
Drift (Y/N)	Yes			Drift on floor of R1-R4
Channel Bottom Degrading/Aggrading	DEGRADING			At D/S only
Beavers (Y/N)	Yes			Beavers at both U/S and D/S
(Fish Compensation Measure 1 : **NONE**)				
(Fish Compensation Measure 2 : **NONE**)				
Channel General Rating		5	5	

Example of Filling in Data Fields and Detailed Rating Boxes – Superstructure



Example of Filling in Data Fields and Detailed Rating Boxes – Substructure



Detail Ratings

Superstructure:

- Wearing surface / deck top
- TT stringers and PCS girders

Substructure:

- Timber caps
- Timber piles

- ➢ Provided when ratings are 3, 2, 1, and N
- ➢ Record 0 in Detailed Rating boxes if element is rated 4 or more.
- ➢ Some Detailed Ratings boxes require % of total area (i.e. Wear Surface/Deck Top
- ➢ Some Detailed Ratings boxes require “Count” of total numbers (i.e. Caps, Piles)