

Inspection Form Completion



Technical Standards Branch
Class B Bridge Inspection
Course



Verifying and Updating Inventory Data

- Inspector is responsible for obtaining, verifying and updating inventory data during inspection
- Check off each inventory item to indicate it was verified
- If item cannot be confirmed/verified do not check off – make comment why
- Not necessary to change data if measurement is only slightly different
- Inventory changes are made directly on the inspection form



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Verifying and Updating Inventory Data

Alberta Transportation Bridge Inspection & Maintenance System (Web 2005)

Bridge Culvert Inspection

Bridge File Number: 7753-2 Form Type: CULM
 Year Built: 2004 Lot No: 4
 Bridge or Town Name: Three Sisters Inspector Name: G. Mante
 Located Over: Pisona Creek (B) 2.13.54 Inspector Class: C1.A
 Located On: Local Road Assistant Name:
 Water Body CI/Year: Navigability CI/Year: Inspection Date: Jan 26/15
 Legal Land Location: SE Sec 13 Twp 24 Rge 10 W 54M Arrive Time: 8:30 AM
 Longitude, Latitude: -15° 15' 29" -102° 27' Depart Time: 4:50 PM
 Road Authority: RD of Simpson AB E Data Entry By:
 Contract Main Area: Clear Roadway/Slopes: 9.0 Reviewer Name:
 AADT/Year: 70/2015 Review Date:
 Road Classification: R.L.V. - 20B - 800 Dept. Reviewer Name:
 Detour Length (km): 1 Follow Up By:

File #	Span	Rise (or Dia.)	Type	Length	Corr. Profile	PI, slab Thickness	Shape	
1	MAIN	43.70	28.70	APP	28.9	152 x 91	4.0	APX4
2	MAIN	43.70	28.70	APP	28.9	152 x 91	4.0	APX4

Special Features:
Special Features Comment:

- Inventory changes or revisions are made directly on the inspection form



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Alberta Transportation Bridge Inspection & Maintenance System (Web 2005) 00501 - 1 Bridge

Substructure

Bridge Component: Last New Explanation of Condition:
 Abutments: (Extended Backwall Piles (Y/N) - Y)
 (Total Number of Caps/Corbels: 13) - 1500
 Bearing Seats/Caps/Corbels Detail Ratings:
 Last: 0 0 0 1
 New: 0 0 0 0
 (Type: TREATED TIMBER)
 (Depth (mm): 200 / 356
 (Width (mm): 300 / 356
 Backwall/Beams: 2.40 5 5
 Greatest Height (m): 2.40 5 5
 Wingwalls:
 (Total Number of Bearing Piles: 2 / 226) Piles coated 17 Aug 2011
 Piles Detail Ratings: All piles coated are good except APX4 with trace rot in 1 core only. Pile 4 is cracked but repaired with steel clamp.
 Last: 0 0 0 0
 New: 0 0 0 0
 Piles: 4 4

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Wearing Surface (Material Type)	None	X	X	Remnants of chipseal at W half of deck.
(Thickness)				No connection
Lateral Connection Problem (Y/N)	No			
Deck Top		5	5	
Deck Rideability		6	6	
Deck Joints (Bump (Y/N))	No	4	5	Butter angles with section removed at 5' with no problems
Deck Drainage		7	7	
Drains Clogged (Y/N)	No			
Curbs/Median (Curb Type - Standard)		4	5	Curbs damaged @ corner support on both sides
Spalling (Present Area)	No			Repair
Bridge Rail (Type - BRIDGE RAIL OR CONCRETE-TIMBER RAILS)	Grade Fixation	5	9	Concrete rail posts 40% of curb bolts
(Type - TREATED TIMBER OR TREATED TIMBER)	GA	3	7	All corner posts are loose & top post bolts are engaged
Bridge Rail/Posts Coating (Type - PAINT)	Galvanized	4	5	Spall
Sidewalk		X	X	
Grider Detail Ratings				
Last Complete Inspection Date	18-Aug-2011			Wide cracks in sound concrete of AZ at G3, and spill at G1
Cracking (Y/N)	Yes			1 point increase for type PG girders and 2 points for each
Spalling (Present Area)	5			
Lift or Connector Pocket (Stripped) (Y/N)	Yes			
Number of Girders	11			

- Inventory changes are made directly on the inspection form

Verifying and Updating Inventory Data

Culvert Component	Downstream End		Explanation of Condition
	Last	Now	
Direction			
End Treatment (Concrete, Steel, Others, None)		STEEL	
Headwall	X	X	
Collar	X	X	
Wingwalls (Shape)	X	X	
Cutoff Wall	X	X	
Bevel End		7	7
Heaving (mm)	0		Rocks in bevel
Invert Above/Below Stream Bed	BELOW		
Above/Below (mm)	300		
Scour Protection (Type - RIP RAP)	None	7	3
(Avg. Rock Size (mm))			All protection washed out
Scour/Erosion		7	3
Beavers (Y/N)	No		6 x 10 x 1 m deep scour hole off bank and scoured along both sides
Downstream End General Rating		7	3

- Inventory changes are made directly on the inspection form

Verifying and Updating Inventory Data

- Culvert design dimensions are shown on first page of culvert form
- SPCSP equivalent round should be changed to correct dimensions
- Used to determine sagging and deflecting measurements
- If culvert is not deformed, large sag and deflection values may indicate wrong design dimensions - then use measurements from both ends

Verifying and Updating Inventory Data

- Incorrect Inventory data is changed by crossing out recorded value and writing in new information
- Update and verify Inventory data directly on the form
- Record data only in values that box is asking for (mm, m, %, Y/N)
- Minor changes to things like roadway width are not required

Supporting Information

- Ratings of 4 or less must have an explanation of condition
- Ratings of 3 or less must have 3 things;
 1. Supporting comment
 2. Supporting photograph
 3. Recommendation for action
- Action may be in the form of:
 - Maintenance recommendations
 - Monitoring on regular inspection cycle
 - Monitoring on a shorter inspection cycle if warranted
 - Don't overuse monitoring
- Photographs, quantities, measurements and/or sketches are provided for ratings of 3 or less or any maintenance recommendation regardless of rating

BIM Y/N Inventory Questions

- Explanation of condition is required when answering YES for certain areas
- Exceptions for Class B inspector are
 - approach guardrail meeting standards
 - Longitudinal seams proper lap
 - Longitudinal seams staggered
- if NO, provide comments explaining why

Significant Changes From Previous Rating

- Ratings of most elements do not change significantly over an inspection cycle
- Provide an explanation of condition if rating has changed significantly
- Required even if rating is 5 or more
- For example:
 - treated timber piles rated 8 and 21 months later piles rated 5 - why the big change?

Significant Changes From Previous Rating

- Some elements are expected to change significantly over an inspection cycle
- For example:
 - Timber strip deck rated 8 and 57 months later, rating reduced to 4
 - Scour protection rated 7 and after flood reduced to 3

Measurement Based Ratings

- Record the actual measured values in space provided or if space not provided in Explanation of Condition
- Record the location of any measurements of defects in space provided or if space not provided in the Explanation of Condition
 - 250 x 400 spall in A1 abutment seat under G3
 - wide longitudinal crack in unsound concrete of Sp1-G3 AZ in 1 leg.



Previous Comments

- Comments from previous inspection which no longer apply must be deleted
- Carry over previous comments if information cannot be confirmed or denied
 - place brackets around comment or part thereof and add date the comment originated - if known. (deck ices in WBL)
- If element cannot be seen or is not accessible to confirm comments or data
 - Do not check mark data (don't confirm)
 - Explain why inaccessible or not visible
 - Retain comment in brackets. Add date comment originated - if known



Previous Comments

- Types of information retained:
 - measurements that cannot be verified
 - previous high water marks
 - information recorded during particular weather conditions
 - information recorded during particular season



Sample Completed Form

The image shows a sample completed bridge inspection form. The form is titled 'Bridge Inspection & Maintenance System (BIM 2008)' and '73003 - Bridge'. It contains various sections for recording inspection data, including 'Bridge Description', 'Special Features', 'General Notes', 'Measuring Instruments', 'Measuring Surface', 'Deck Type', 'Deck Structure', 'Deck Joints', 'Deck Drains', 'Curbs/Parapets', 'Bridge Deck', 'Bridge Deck Frame', 'State Agency Problems', and 'State Agency Rating'. The form is filled with handwritten entries and checkmarks, indicating a completed inspection.



Photographs and Sketches

- Excellent means of providing supporting information
- Required for all ratings of 3 or less
- Required for all maintenance recommendations regardless of rating
- Not acceptable to say “see photo” on form
- 4 standard photos normally required;
 - Road alignment looking increasing chainage
 - Profile – normally U/S
 - Channel alignment looking U/S
 - Channel alignment looking D/S

Photographs and Sketches

- Submit color photos with inspection form to AT data entry consultant
- Minimum 5 megapixels
 - One hard copy of all photographs if AT managed structure
 - Two hard copies if non AT structure
- Two photos per page (3 ½ x 5 or 4 x 6) with descriptive text, inspector and stream name, date, BF# , Page #.
- Submit electronic copies of photos with inspection reports in pdf file with min. 300 dpi and unlocked for copying in following format;

BF12345-01_LVL1_YYYYMMDD_P.pdf

Photographs and Sketches BF01310-01_LVL1_20130823_P



Photographs and Sketches BF01310-01_LVL1_20130823_P



Culvert Maintenance Recommendations

Work Type	Status	Due Date	Inspector Comments	Department Comments
PLACE ADDITIONAL RIP RAP		2017	25m ³ of rip rap	
REMOVE DEBRIS ACCUMULATIONS		2017	20' cut	
Install Signs		2017	10' signs in A1-A2	
Gravel Bar		2017	Full length	
Other Action		2017	Install dividers along left shoulder	

- Place recommendations in pre-prepared areas.
- Use "Other Action" only if maintenance item is not available on "pick list" (refer to Supplemental Binder)
- Record "Recommended Year" based on priority levels associated with ratings
- Provide material sizes and quantities in "Inspector Comments" area

Level II Inspections

- Detailed inspection requiring specialized equipment and/or expertise
- Gathers specific measurements or observations
- Recommended by Level I inspectors
- Reviewed by Bridge Manager and/or LRA
- Do not proceed until Bridge Manager an/or LRA has been contacted regarding:
 - technical need
 - funding

Timber Coring

- Recommended when there is suspicion of rot in structural timber
- Carried out by Class A inspector
- Focus normally on critical structural elements:
 - caps
 - piles
 - stringers

Level 2 - Culvert Barrel Measurement

- Recommended when critical barrel elements rated 3 or less and safety concerns identified
 - roof rating
 - sidewall rating
 - longitudinal seam rating
- Recommend when two inspections completed without access to barrel section

or

 schedule Level I inspection during low flow or winter conditions
- Some culverts barrels are inaccessible year round

Estimated Replacement Year Standard Bridges (Table 11.1)

TYPE	LIFE EXPECTANCY		
	LOW	AVE	HIGH
Untreated Timber	10	15	20
Treated Timber	35	40	45
Prestressed - Composite	55	60	70*
Prestressed **	40	45	60*
Precast (Except PA & PX)**	30	35	50
Precast (PA) & Other (PX)	25	30	45

*Use maximum of 50 years for timber substructure

**Add 5 years if overlaid with concrete

Considerations:

- Traffic - volume, amount of truck traffic, log haul
- Salt usage - road surfacing, traffic, climatic conditions
- Deck drainage, leakage
- Decay favourable conditions



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Estimated Replacement Year Culverts

TYPE	LIFE EXPECTANCY		
	LOW	AVE	HIGH
Concrete	40	60	80
Corrugated Steel	25	45	60
Timber and Other	20	35	60

Considerations:

- Deformation and cracking (quality of installation)
- Corrosive or chemically aggressive environment
- Abrasive bed load
- Decay favorable conditions, preservative treatment
- Refer to Table 13.4 – Life Expectancy Table for Culverts



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Special Comments

Special Comments for Next Inspection	Inspect struts yearly. 2 Notification sent to LRA and Bridge Manager June 6, 2015. Cracks stable since last inspection, but sidewall deflection appears to be worse. Currently scheduled for design in 2015 and replacement in 2016.
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- Special comments useful for next inspection
 - Notification to BM and/or LRA of low structural ratings (2 Notifications)
 - Measurements for monitoring purposes
 - Monitoring locations
 - Recommendation for reduced cycle
 - Data is not sortable



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Supporting Information

Structural Condition Rating (Last/Next)	SL/SL+1	Sufficiency Rating (Last/Next)	SL/SL+1	Est. Page Yr	2010	Start Rep. (Y/N)	Yes
Special Comments for Next Inspection	Abut seats require cleaning / rearing to allow full inspection of abuts and bearings.	Department Comments					
Previous Inspector's Name	Garry Roberts	Previous Assistant's Name	Jan Davis				
Next Inspection Date	26 Mar 2018	Previous Inspection Date	11 Sep 2014				
Inspection Cycle (default in months)	31						
Comment							

- Information provided by TIMS data base
- Inspection Cycle shown is normally default but may be reduced
- Reduction to inspection cycle cannot be done by inspector – only recommended by inspector
- Reduced Cycle set by Department



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Questions??



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