BRIDGE INSPECTION

BRIDGE NO./NAME	**N4-005: Akolkolex – Crawford FSR (19.0 km)**
Inspection Date:	September 22nd, 2012
Inspected By:	M. Hanson, R. Veitch
Year Built:	1982
Number of Spans:	1

Span Lengths:	18,300 mm
Superstructure Type:	Four simply supported steel plate girders (appear to be an old railcar).
Deck:	Untreated timber planks.
Deck Structural:	Creosote treated sub deck and ties.
Curb:	Risers and curb rails are untreated timber. Steel parapet attached directly to curb rails.
Substructure:	Cast-in-place concrete abutments with reinforced soil ballast walls and wing walls.

BRIDGE INSPECTION

GENERAL BRIDGE CONDITION:

Superstructure Condition:	Fair
Substructure Condition:	Fair
Deck Condition:	Good (steel parapets on top of the timber curbs are in poor condition)
Load Posting:	No sign noted.
Date for the Next Close Proximity Inspection:	2015
Projected Replacement Date:	2022

BRIDGE INSPECTION SUMMARY/ RECOMMENDATIONS:

The bridge is generally in fair condition. Minor surface rot was noted on the timber sills, this should be monitored for further deterioration including signs of crushing during future inspections. It is unclear if the extent of fractured rock has increased since previous inspection. The steel parapets on top of the timber curbs are in poor condition; however, it is likely adequate if its intended function is to delineate the deck edge for pedestrians.

The steel plate girders appear to be an old railcar. The girder coating is failing and minor corrosion was observed. Since the actual age of the steel girders is unknown, we estimate that the steel girders have remaining service life of 10-15 years.

INSPECTION NOTES:

Approaches:

- The approaches are generally in good condition.
- Horizontal curve on both approaches limits visibility.
- Delineator missing on one corner, two other delineators point in the wrong direction.
- New concrete lock block barriers placed on all four corners.

Deck:

- The deck is generally in good condition.
- No rot noted on curb rails and risers.
- Steel parapets attached to the top of the timber curb rails, likely intended to function as pedestrian railings. Numerous sections of impact damage noted on the steel parapets.
- Steel parapets are poorly installed (directly on top of timber curb rail); missing rail splices noted.

Abutments:

- The left end abutment is generally in fair condition.
- Minor surface rot on timber sill under girders 1 and 4, no crushing noted.
- Old timber ballast wall and wing walls replaced by reinforced soil wall.
- Brushing required around abutment.

- The right end abutment is generally in fair condition.
- Minor surface rot on timber sill under girder 4, no crushing noted.
- Debris accumulating on top of timber sill.
- Upstream portion of formwork has not been removed.
- Older timber ballast wall and wing walls replaced by reinforced soil wall.
- Large fracture noted on bed rock in front of abutment, failure would affect the abutment stability.
- Brushing required around abutment.

Girders:

- All girders in fair condition.
- Bottom flanges are covered in debris.
- Coating failing, minor corrosion observed.

LIST OF MAINTENANCE ITEMS TO BE COMPLETED:

Items	Description	Priority
1.	Install missing delineator and correctly align remaining delineators.	High
2.	Repair steel parapets (pedestrian containment) as required.	Medium
3.	Brush around abutments	Low
4.	Remove debris from bottom flange of girders	Low
5.	Remove debris from right end abutment timber sill.	Low

MONITOR DURING FUTURE INSPECTIONS:

1. Monitor bed rock stability at right end abutment.
2. Monitor condition of timber sills for further deterioration.

Prepared by:

Mike Hanson, EIT.
Project Engineer

Reviewed by:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. W. CHEN
36079

David Chen, P.Eng.
Project Manager

APR 2 4 2013

Attached:

1. CBR Report
2. Annotated Photo Sheets

BRIDGE INSPECTION

NOTES:

Directional & Numbering Conventions Used:
Girders and piles are numbered from upstream to downstream. Left end or right end is determined facing downstream (except for delineators). Spans and piers are numbered from the left end when facing downstream.

Projected Replacement Date:
The projected date for the bridge replacement is based on the remaining service life of the bridge. We estimate the remaining service life as the greater of:

For Glulam Girder Bridges:
1. Original design life, typically 50 years.
2. If a bridge is nearing the end of its estimated service life but is still in fair condition, we recommend that the Ministry assume a remaining service life of five years.

For Steel and Concrete Bridges:
1. Original design life, typically 60 years.
2. If a bridge is nearing the end of its estimated service life but is still in fair condition, we recommend that the Ministry assume a remaining service life of ten years.

Condition Ratings:

Excellent:	New or almost new condition and properly installed
Good:	Structurally sound, in good repair with minimal wear
Fair:	Structurally functional, shows moderate wear or preliminary indications of deterioration
Poor:	Structurally unsound, items typically in need of repair or replacement

Maintenance Priority (Typical Usage):

High:	Critical items that need to be addressed to protect safety of users (curbs, structural decks, delineators, major structural repairs, etc.); schedule work immediately.
Medium:	Items that maintain the service life of the bridge (wearing planks, deck joints, etc.)
Low:	Items that will extend the service life of the structure or general maintenance.

Cost Estimate:
The cost estimate for individual maintenance items, shown in the CBR report, reflects the cost of materials and labour for completing a task; it does not include any costs associated with mobilization, demobilization, engineering or contract administration.

Date Printed: 2013/03/25
User Id: BCEID\WRILEY1
Database: PROD
Report Id: CBR001B

BC Ministry of Forests and Range

Log Stringer Bridge Inspection Report

Structure #:	N4-005	**Site #:**	N4-005	**Road Name:**	AKOLKOLEX - CRAWFORD	**Inspection Date:**	2012/09/22
KM:	5.62	**User km:**	19.00	**Crossing Name:**	AKOLKOLEX R	**Next Inspection Date:**	2014/10/17
Project File ID #:	5384	**Br.**	02	**Forest District:**	Columbia Forest District		

Deck Type:	Timber - Untreated	**Running Surface:**	Timber Planks
Superstructure	Steel I-beam	**Abutments (Left/Right):**	Sill -Temporary Materials

Total Length *(metres)*:	18.3	**# Spans:**	1	**Span Length(s)** *(metres)*:	18.3
UTM Zone:	11	**UTM Easting:**	427416	**UTM Northing:**	5631308

Inspector Name:	R. Veitch, M. Hanson	**Year Built:**	1982
Access:			

ABUTMENTS

Bearings	Not Applicable	
Bracing	Not Applicable	
Ballast Wall	Good	Old timber ballast wall replaced by reinforced soil wall.
Corrosion Protection	Not Applicable	
Caps or Sills	Fair	Minor surface rot on the left end abutment timber sill under girders 1 and 4, and on the right end abutment timber sills under girder 4, no crushing noted. Debris accumulating on top of right end abutment timber sill.
Fill	Fair	Large fracture noted on bed rock in front of abutment, failure would affect the abutment stability.
Hardware	Not Applicable	
Piles or Posts	Not Applicable	
Riprap	Not Applicable	
Wing Wall	Good	Old timber wing walls replaced by reinforced soil wall.

APPROACHES

Alignment	Fair	Horizontal curve on both approaches limits visibility.
Bridge Ahead Signs Missing	0	
Brushing Required	Yes	Brushing required around abutments.
Delineator Missing Left	1	One sign missing, one points in the wrong direction.
Delineator Missing Right	0	One sign points in the wrong direction.
Fender Condition	Good	New concrete lock block barriers placed on all four corners.
Road Surface	Good	

DECK

Span 1

Curb Rail/Blocks/Posts	Good	No rot noted on curb rails and risers.
Deck to Girder Bolts	Good	

BC Ministry of Forests and Range

Log Stringer Bridge Inspection Report

Structure #:	N4-005	Site #:	N4-005	Road Name:	AKOLKOLEX - CRAWFORD	Inspection Date:	2012/09/22

Hardware	Good	
Hand Rails/Walkouts	Poor	Steel parapets attached to the top of the timber curb rails, likely intended to function as pedestrian railings. Numerous sections of impact damage noted on the steel parapets. Steel parapets are poorly installed (directly on top of timber curb rail); missing rail splices noted.
Nails	Good	
Overall Deck Condition	Good	Appears to have been recently replaced.
Running Planks	Good	
Sub Deck	Good	
Ties	Good	

SUPERSTRUCTURE

Span 1

Bracing	Fair	
Diaphrams	Fair	
Girders	Fair	Bottom flanges are covered in debris. Coating failing, minor corrosion observed.
Hardware	Not Applicable	
Under Trussing	Not Applicable	

CHANNEL

Estimated Present Water Level Depth:		**Estimated Present Water Level Width:**	
Estimated High Water Level Clearance:			

HAZARDS

High Water:	No	**Scour:**	No	**Ice:**	No	**Debris:**	No	**Aggradation:**	No
Comment:									

REPAIRS

#	Status	Priority	Estimate	Description
1	Recommended	High	$350.00	Install missing delineator and correctly align remaining delineators.
2	Recommended	Medium	$2,500.00	Repair steel parapets as required.
3	Recommended	Low	$600.00	Brush around abutments
4	Recommended	Low	$1,000.00	Remove debris from bottom flange of girders
5	Recommended	Low	$150.00	Remove debris from right end abutment timber sill.
6	Recommended	Low	$0.00	N/A

MONITORS

#	Description
1	Monitor bed rock stability at camp end embankment.
2	Monitor condition of timber sills for further deterioration.

Date Printed: 2013/03/25
User Id: BCEID\WRILEY1
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BC Ministry of Forests and Range

Log Stringer Bridge Inspection Report

Structure #:	N4-005	Site #:	N4-005	Road Name:	AKOLKOLEX - CRAWFORD	Inspection Date:	2012/09/22

GENERAL

Professional Inspection Required?	No	**Regional Review Date:**		**P. Eng Reviewer Name:**	
Replacement Date for full log haul traffic *(year)*:	2022	**Replacement Date for light vehicle traffic** *(year)*:	2022		
Current Load Rating GVW *(tonnes)*:	63	**Design Load GVW** *(tonnes)*:	63	**Design Vehicle Config.:**	
Inspector's Estimated Full Log Haul Replacement *(year)*:	2022				

Inspector's Comment:	The bridge is generally in fair condition. Minor surface rot was noted on the timber sills, this should be monitored for further deterioration including signs of crushing during future inspections. It is unclear if the extent of fractured rock has increased since previous inspection. The steel parapets on top of the timber curbs are in poor condition; however, it is likely adequate if its intended function is to delineate the deck edge for pedestrians. The steel plate girders appear to be an old railcar. The girder coating is failing and minor corrosion was observed. Since the actual age of the steel girders is unknown, we estimate that the steel girders have remaining service life of 10-15 years.
PEng Reviewer's Comment:	
District Staff Comment:	

BRIDGE INSPECTION REPORT

BRIDGE INSPECTION PHOTOS

Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

BRITISH COLUMBIA | Ministry of Forests, Lands and Natural Resource Operations

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
N4-005	Akolkolex River	Akolkolex-Crawford	19.0	5.6		

Figure 1-1: Upstream elevation.

Figure 1-2: Downstream elevation.

Figure 1-3: Looking towards camp end.

Figure 1-4: Looking towards woods end.

Figure 1-5: Camp end downstream road flare.

Figure 1-6: Old bridge deck material at woods end.

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
N4-005	Akolkolex River	Akolkolex-Crawford	19.0	5.6		

Figure 1-7: Incorrect delineator, woods end downstream corner.

Figure 1-8: Damaged end, post woods end downstream corner.

Figure 1-9: Damaged post, woods end upstream corner.

Figure 1-10: Missing railing splice near woods end upstream side.

Figure 1-11: Damaged post near camp end upstream corner.

Figure 1-12: Typical curb rail and railing configuration.

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
N4-005	Akolkolex River	Akolkolex-Crawford	19.0	5.6		

Figure 1-13: Typical deck tie to girder connection.

Figure 1-14: Camp end abutment.

Figure 1-15: Fractured rock below camp end abutment.

Figure 1-16: Camp end downstream timber sill (note pocket of rot).

Figure 1-17: Woods end abutment.

Figure 1-18: Typical sill (woods end upstream shown).

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
N4-005	Akolkolex River	Akolkolex-Crawford	19.0	5.6		

Figure 1-19: Woods end upstream bearing (note sap rot on exposed portion of timber).

Figure 1-20: Typical ballast wall (woods end shown).

Figure 1-21: Typical wingwall (woods end upstream shown).

Figure 1-22: Debris accumulation on bottom flange.

Figure 1-23: Typical bottom flange (angles stitch welded onto i-beam).

Figure 1-24: Typical end of exterior girders (woods end upstream shown).