Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

BRIDGE INSPECTION REPORT

GLULAM BRIDGE INSPECTION SUMMARY

Ministry of Forests and Range Forest Service

Business Area	Location	Road Name	Project #	Sta. (km)	Easting	437237
Nadina		Morice-Tahtsa FSR	9947.02	24.00	Northing	5973097
Bridge Name	Site ID	Stream Name	Class.	Inspected By		Inspection Date
	R5-032	Nadina River		D. Chen		30-Sep-08

Superstructure Type	Deck Type	Substructure Type	Live Load Rating			
Glulam	Timber	Timber Piles/ Concrete	Present	41 tonnes	New	41 tonnes

Bridge Length	# Spans	Span Length(s)	Deck Width	Bridge Use	Installation Date
23.3 m	1	22.8 m	4.2 m	Permanent	1963

Reference Drawings

NOTES: Excellent : New or almost new condition and properly installed
Good : Structurally sound, in good repair and have minimal wear
Fair : Structurally sound, but show moderate wear or preliminary indications of rot or corrosion
Poor : Structurally unsound, major items in need of repair or replacement, or bridge load rating should be reduced

Abutment, spans, piers numbered from left bank, facing downstream.

BRIDGE ELEMENT		CONDITION	REMARKS
APPROACH	Approach Road	Fair	Potholes at woods end approach.
	Alignment	Fair	Horizontal curve at camp end approach.
	Visibility	Fair	
	Signage	N/A	
	Delineators	Poor	No delineators at both approaches.
	Barriers	N/A	No guide rails at both approaches.
	Overall	Poor	
DECK	Timber Deck	Fair	5 - 200x100 untreated wearing planks along each wheel line; pockets of rot noted in 4 planks, 1 plank at camp end is rotten. Drilled, moist near underside. Woods debris and gravel accumulation on deck.
	Ties & Subdeck	Fair	180mm thick creosote treated transvesely laminated structural deck. Drilled at 3 locations, moist, initial stages of rot noted.
	Nails	Good	
	Deck to Girder Bolts	Good	
	Curbs & Blocks	Fair	Typical checking and rub damage along both curb rails. Curb rails do not conform to the current MoF standards.
	Hand Rails	Poor	Minor damage noted on downstream hand rails, 1 rail near woods end broken.
	Hardware	Fair	
	Overall	Fair	
SUPER STRUCTURE	Glulam Girder Dimensions (mm)		

Span #	No.Girders	Species	b	h	h_{block}	x_{inset}	Additional Information
1	3		285	1380			Girders at 1830mm c/c.

Cracks/Checks in Glulam Girders (mm) *Girders numbered from upstream side*

Span #	Girder #	Tag Start	Tag End	Cr. Length	Cr.Growth	Depth	Width	Additional Information
1	3, d/s face	c/e abut.	AE-824	2000	0	75 in place		850mm from bottom of girder.

	Girders	Good	Two timber planks attached to the bottom of girder #3 at mid-span, together about 11m long. Upstream external face - Creosote leaching out and covering girder face. No weathering. Downstream external face - Creosote leaching out, 25-50% of girder face exposed. Minor weathering, few checks noted. Internal face - Creosote leaching out and covering girder face. No weathering.
	Diaphragms	Good	
	Hardware	Good	
	Overall	Good	

Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

BRIDGE INSPECTION REPORT

GLULAM BRIDGE INSPECTION SUMMARY

Ministry of Forests and Range Forest Service

Business Area	Location	Road Name	Project #	Sta. (km)	Easting	437237
Nadina		Morice-Tahtsa FSR	9947.02	24.00	Northing	5973097
Bridge Name	Site ID	Stream Name	Class.	Inspected By		Inspection Date
	R5-032	Nadina River		D. Chen		30-Sep-08

ABUTMENT CAMP END	Sill	Good	Creosote treated timber sill, minor end split noted on the downstream edge.
	Concrete	Good	Minor edge spall noted.
	Piles / Posts	Good	3 creosote treated soldier piles (1 u/s, 2 d/s). Piles are sound, drilled 1. Concrete base of downstream edge pile exposed, condition has not changed since last inspection.
	Bulkhead/Wingwalls	Good	Creosote treated timber ballast wall.
	Fill	Fair	Ballast wall edge pile tieback exposed at approach embankments.
	Riprap	Good	
	Overall	Good	
ABUTMENT WOODS END	Caps	Good	Creosote treated timber cap beam.
	Piles / Posts	Good	6 supporting, 8 soldier creosote treated piles (4 per wingwall) come with flashing. All piles are sound, drilled 1 supporting pile and 1 soldier pile.
	Bracing	Good	
	Bulkhead/Wingwalls	Fair	Creosote treated timber ballast wall and wingwalls. Minor undermining of ballast wall.
	Fill	Fair	Wingwall edge pile tieback exposed at approach embankments.
	Riprap	Good	
	Overall	Good	

REPAIR DESCRIPTION AND COST ESTIMATE:

No.	Description	Priority	Cost Estimate
1	Install missing load posting signs (2).	High	
2	Install missing delineators (4).	High	
3	Replace 1 rotten wearing plank.	High	
4	Repair broken downstream camp end hand rail.	High	
5	Regrade approaches.	Low	
		Total	

NOTES:
High : Immediate, non-recurring repair to assure public safety
Medium : Ongoing, regular maintenance items to protect capital investment
Low : Minor maintenance items or improvements to extend service live

LIVE LOAD ASSESSMENT: *(In accordance with MoFR Requirements)*

Vehicle	Vehicle			Comment
Off-Road	41 tonnes			Based on the inspection, there is no reason to reduce the current load rating.
Highway	CL-1	CL-2	CL-3	

COMMENTS:

Monitor undermining of woods end ballast wall. Monitor condition of exposed wingwall edge pile tieback at both approach embankments. Monitor condition of exposed concrete base of camp end ballast wall downstream edge pile. Consider installing guide rails at approaches. Consider upgrading curb rails to conform with the current MoF standards.

SEAL:

Business Area	Location	Road Name	Project #	Sta. (km)	Easting	437237
Nadina		Morice-Tahtsa FSR	9947.02	24.00	Northing	5973097

Figure 1-1: Upstream elevation.

Figure 1-2: Downstream elevation.

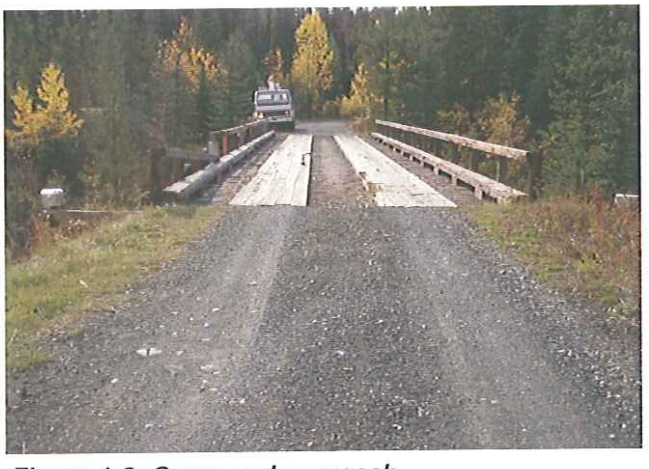

Figure 1-3: Camp end approach.

Figure 1-4: Woods end approach.

Figure 1-5: Looking upstream.

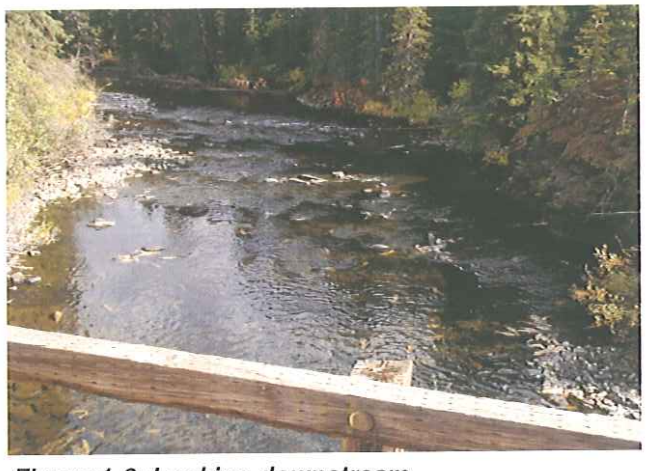

Figure 1-6: Looking downstream.

Business Area	Location	Road Name	Project #	Sta. (km)	Easting	437237
Nadina		Morice-Tahtsa FSR	9947.02	24.00	Northing	5973097

Figure 1-7: General deck condition.

Figure 1-8: Rotten wearing deck plank.

Figure 1-9: Typical condition underside of the transversely laminated structural deck.

Figure 1-10: Typical edge condition of the transversely laminated structural deck.

Figure 1-11: Typical rub damage on curb rail, rot initiated.

Figure 1-12: Broken rail at camp end downstream corner.

Business Area	Location	Road Name	Project #	Sta. (km)	Easting	437237
Nadina		Morice-Tahtsa FSR	9947.02	24.00	Northing	5973097

Figure 1-13: Damaged rail at woods end downstream corner.

Figure 1-14: Upstream exterior girder.

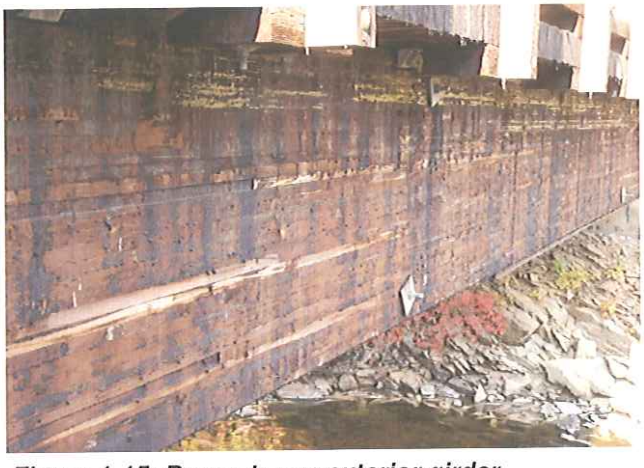

Figure 1-15: Downstream exterior girder.

Figure 1-16: Typical unweathered face of girder.

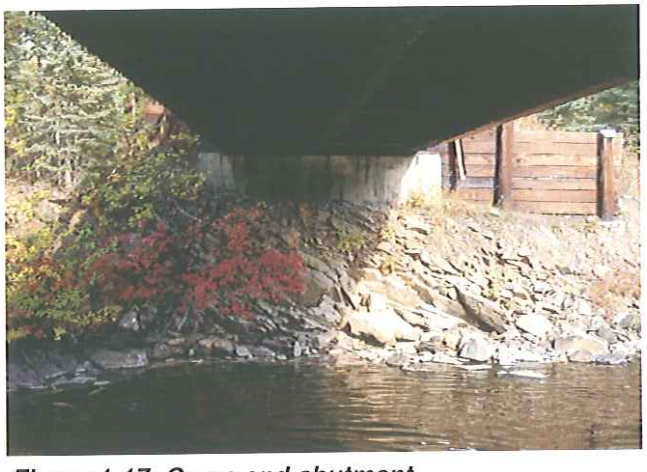

Figure 1-17: Camp end abutment.

Figure 1-18: Woods end abutment.

Business Area	Location	Road Name	Project #	Sta. (km)	Easting	437237
Nadina		Morice-Tahtsa FSR	9947.02	24.00	Northing	5973097

Figure 1-19: Typical exposed pile tieback at abutments.

Figure 1-20: Camp end abutment timber sill.

Figure 1-21: Exposed concrete base, camp end abutment downstream ballast wall pile.

Figure 1-22: Minor undermining of the woods end abutment ballast wall.