

BRIDGE INSPECTION

BRIDGE NO./NAME 61 – 010: Cunningham Pass FSR (38.0 KM)

Inspection Date: September 10th 2012

Inspected By: D. Chen, J. Rupar Gilliatt

Year Built: 1980

Number of Spans: 2



Span Lengths: Span 1 – 19,700 mm
Span 2 – 31,950 mm

Superstructure Type: Span 1: Four glulam slab girders, 310 mm x 1675 mm, 2115 mm clear distance between groups.
Span 2: Four glulam slab girders, 310 mm x 1675 mm, 2115 mm clear distance between groups.

Span 2 consists of a cantilever section from span 1, as well as the span 2 girders which are supported by steel hangers and the Wells end abutment.

Deck: Untreated timber wearing planks, 105 mm x 300 mm.
Structural planks, 90 mm thick creosote treated timber planks placed longitudinally. Deck width 4265 mm.

Deck Structural: Creosote treated timber ties 200 mm x 290 mm spaced at 400 mm c/c.

Curb: Timber curbs and risers.

Substructure: Wells End Abutment:
Concrete breast wall and wing walls with creosote treated timber sill and ballast wall.

Likely End Abutment:
Concrete cap with creosote treated timber sill and ballast wall, supported by 4 steel H-piles. Creosote treated wing wall planks supported by steel H-piles and galvanized whalers.

Piers:
Concrete pier cap with creosote treated timber sill, supported on 4 steel pipe piles with steel plate diaphragms.

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GENERAL BRIDGE CONDITION:

Superstructure Condition:	Fair
Substructure Condition:	Good
Deck Condition:	Fair
Load Posting:	No sign noted.
Date for the Next Close Proximity Inspection:	2015
Projected Replacement Date:	2030

BRIDGE INSPECTION SUMMARY/ RECOMMENDATIONS:

The bridge is generally in fair condition. The previous inspection report, dated June 2012, identified water levels reach the toe of the Likely end breast wall, which has no rip rap slope protection. We recommend the Ministry monitors the scour at the Likely abutment and considers installing riprap.

INSPECTION NOTES:

Approaches:

- The approaches are generally in fair condition.
- The road surface at the Likely end is in good condition with a minor erosion channel on the downstream side.
- The road surface at the Wells end is in poor condition with large potholes, water ponding and a minor erosion channel on downstream side.
- The bull noses of the concrete barriers are misaligned at the Likely end. The no post barriers at the Wells end are slightly misaligned.
- Debris accumulation is typically against the concrete barriers.
- Delineators are present at all 4 corners.

Deck:

- The deck is generally in fair condition.
- Typical longitudinal checks in the curb rail.
- The 4th & 5th upstream sections of curb rail from the Likely end are loose.
- Coring the wearing planks identified no rot.
- Structural planks were cored and found to be saturated with initial signs of rot at the interface with the ties.
- Ties were cored and found to be saturated with initial signs of rot at the interface with the structural planks.
- Debris is accumulating on bridge deck at Wells end.
- Water ponding noted at numerous locations on the wearing planks.

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Abutments:

- The abutments are generally in good condition.
- The timber sills are sound at both abutments; debris accumulating at the ends of the sills.
- Minor concrete spall at downstream corner of Wells end abutment and hairline vertical crack full height of the breast wall.
- Minor scour noted at the toe of Likely end ballast wall.
- Limited riprap at the Likely end abutment.
- Wells end abutment is founded on bed rock.

Pier:

- The Pier is generally in fair condition.
- There is a concrete spall & localized deterioration at the ends of the cap with water staining & moss growth noted.
- The timber sill is in good condition.

Girders:

Typical Condition:

Span 1 - Girder 1 upstream face:

- Creosote leaching noted, 25-50% of face exposed.
- Moderate checking, a few checks noted 30 mm deep in places.

Span 1 - Girder 2 downstream face & Girder 3 upstream face:

- Creosote leaching through laminated joints.

Span 1 - Girder 4 downstream face:

- Creosote leaching noted, 50-75% of face exposed.
- Heavy checking, numerous checks noted up to 50 mm deep in places.
- We do not believe the checks affect the capacity of the girder.

Span 2 - Girder 1 upstream face:

- Creosote leaching noted, 50-75% of face exposed.
- Moderate checking.

Span 2 - Girder 2 downstream face & Girder 3 upstream face:

- Creosote leaching through laminated joints.
- Minor checking, a few checks noted up to 25 mm deep in places.

Span 2 - Girder 4 downstream face:

- Creosote leaching noted, 25-50% of face exposed.
- Moderate checking, a few checks noted generally up to 20 mm deep in places; some are 50 mm deep in places.
- We do not believe the checks affect the capacity of the girder.

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Checks on Girders:

Span 1 – Girder 1 upstream face:

Tag Type	Check Start	Check End	Length (mm)	Max. Depth (mm)	Max. Width (mm)	Location (mm)	Condition
New	AE1263	AE1264	1230	50	-	800 from top	-

Span 1 – Girder 4 downstream face:

Tag Type	Check Start	Check End	Length (mm)	Max. Depth (mm)	Max. Width (mm)	Location (mm)	Condition
Existing	AE153	AE1261	7200	75	2	140 from top	AE1261 added to mark end, not propagated.
Existing	AE154	AE1253	-	150	-	840 from top	AE1253 added to mark end, not propagated.
New	AE1260	AE1262	7600	100	-	730 from top	Appears to be previously marked by AE201.
Existing	AE155	AE1251	-	140	-	955 from top	AE1251 added to mark end, not propagated.
New	AE1254	AE1255	2400	130	1	1120 from top	-
Existing	AE157	Likely Abutment	-	-	-	-	Not propagated.
New	AE1257	AE1256	3600	140	-	890 from top	Appears to be previously marked by AE156.
New	AE1259	AE1258	1560	140	3	910 from top	-

Span 2 – Girder 1 upstream face:

Tag Type	Check Start	Check End	Length (mm)	Max. Depth (mm)	Max. Width (mm)	Location (mm)	Condition
Existing	AE152	-	-	-	-	-	Not propagated.

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Span 2 – Girder 2 downstream face:

Tag Type	Check Start	Check End	Length (mm)	Max. Depth (mm)	Max. Width (mm)	Location (mm)	Condition
Existing	AE151	-	-	-	-	-	Not propagated.

Span 2 – Girder 3 upstream face:

Tag Type	Check Start	Check End	Length (mm)	Max. Depth (mm)	Max. Width (mm)	Location (mm)	Condition
New	AE1310	Diaphragm 3 from Wells end	-	50	1	380 from bottom	-

Span 2 – Girder 4 downstream face:

Tag Type	Check Start	Check End	Length (mm)	Max. Depth (mm)	Max. Width (mm)	Location (mm)	Condition
New	Hanger	AE1251	6800	-	4	910 from top	Extends 1650 mm past pier into span 1. Drilled, no rot was found.
New	AE48	AE1252	3200	75	3	450 from top	-
Existing	AE18	-	-	-	-	Wells End	Not propagated.
New	AE1750	AE426	1200	90	<1	720 from top	-
New	AE1303	AE1743	6400	100	1.5	800 from top	-
Existing	AE14?	AE1307	-	-	-	870 from top	Extended towards Likely end to AE1307 from AE150.
New	AE882	AE1744	2800	100	1	560 from top	-

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LIST OF MAINTENANCE ITEMS TO BE COMPLETED:

Items	Description	Priority
1.	Brush approaches.	Low
2.	Regrade Wells end approach	Low
3.	Consider installing riprap at the base of the Likely abutment.	Low

MONITOR DURING FUTURE INSPECTIONS:

1. Continue monitoring checks in girders.
2. Monitor the scour at the base of the Likely abutment.

Prepared by:



Jamie Rugar Gilliatt M.Eng., EIT.
Project Engineer

Reviewed by:



David Chen, P.Eng.
Project Manager

Attached:

1. CBR Report
2. Annotated Photo Sheets

BRIDGE INSPECTION

NOTES:

Girder Numbering:

Girders and piles are numbered from the upstream face and spans and piers are numbered from the left bank when looking Downstream.

Projected Replacement Date:

The projected date for the bridge replacement is based on our estimated the remaining service life of the bridge. We estimate the remaining service life of a forestry bridge as the larger 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 and have minimal wear
Fair:	Structurally functional, show moderate wear or preliminary indications of deterioration
Poor:	Structurally unsound, major items in need of repair or replacement; bridge load rating should be reduced

Maintenance Priority:

High:	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 to that will extend the service life of the structure (clean, brushing, etc.)

Cost Estimate:

The cost estimate for individual maintenance items, shown in the CBR report, only 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.



BC Ministry of Forests and Range

Permanent Bridge Inspection Report

Page 1 of 4
Date Printed: 2013/03/28
User Id: BCEID\WRILEY1
Database: PROD
Report Id: CBR001A

Structure #:	61-010	Site #:	61-010	Road Name:	CUNNINGHAM PASS	Inspection Date:	2012/09/10
KM:	38.73	User km:	38.00	Crossing Name:	Cariboo R	Next Inspection Date:	2015/06/11
Project File ID #:	7678	Br.	01	Forest District:	Quesnel Forest District		
Deck Type:	Timber - Untreated			Running Surface:	Timber Planks		
Superstructure	Glulam Girder			Abutments (Left/Right):	Pile -Permanent Materials		
Total Length (metres):	52.0	# Spans:	2	Span Length(s) (metres):	31.9, 19.7		
UTM Zone:	10	UTM Easting:	622731	UTM Northing:	5867843		
Inspector Name:	D. Chen, J. Rupar			Year Built:	1980		
Access:							

ABUTMENTS

Bearings	Not Applicable	
Bracing	Not Applicable	
Ballast Wall	Good	Minor concrete spall at downstream corner of Wells end abutment and hairline vertical crack full height of the breast wall. Minor scour noted at the toe of Likely end ballast wall.
Corrosion Protection	Not Applicable	
Caps or Sills	Good	The timber sills are sound at both abutments; debris accumulating at the ends of the sills.
Fill	Good	
Hardware	Good	
Piles or Posts	Good	Likely end abutment has H-piles.
Riprap	Fair	Limited riprap at the Likely end abutment. Wells end abutment is founded on bed rock.
Wing Wall	Good	

APPROACHES

Alignment	Good	
Bridge Ahead Signs Missing	0	
Brushing Required	Yes	Brushing adjacent to approaches.
Delineator Missing Left	0	Likely end: wide delineator. Wells end: wide delineator.
Delineator Missing Right	0	Likely end: wide delineator. Wells end: wide delineator.
Fender Condition	Good	The bull noses of the concrete barriers are misaligned at the Likely end. The concrete barriers at the Wells end are slightly misaligned. Debris is accumulating against the concrete barriers.
Road Surface	Fair	The road surface at the Likely end is in good condition with a minor erosion channel on the downstream side. The road surface at the Wells end is in poor condition with large potholes, water ponding and a minor erosion channel on downstream side.



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Date Printed: 2013/03/28
User Id: BCEID\WRILEY1
Database: PROD
Report Id: CBR001A

Structure #:	61-010	Site #:	61-010	Road Name:	CUNNINGHAM PASS	Inspection Date:	2012/09/10
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DECK

Span 1

Curb Rail/Blocks/Posts	Good	Typical longitudinal checks in the curb rail.
Deck to Girder Bolts	Good	
Hardware	Good	
Hand Rails/Walkouts	Not Applicable	
Nails	Good	
Overall Deck Condition	Fair	Debris is accumulating on bridge deck at Wells end. Water ponding noted at numerous locations on the wearing planks.
Running Planks	Good	Wearing planks cored, no rot noted.
Sub Deck	Fair	Structural planks were cored and found to be saturated with initial signs of rot at the interface with the ties.
Ties	Fair	Ties were cored and found to be saturated with initial signs of rot at the interface with the structural planks.

Span 2

Curb Rail/Blocks/Posts	Good	Typical longitudinal checks in the curb rail. The 4th & 5th upstream sections of curb rail from the Likely end are loose.
Deck to Girder Bolts	Good	
Hardware	Good	
Hand Rails/Walkouts	Not Applicable	
Nails	Good	
Overall Deck Condition	Good	Debris is accumulating on bridge deck at Wells end. Water ponding noted at numerous locations on the wearing planks.
Running Planks	Good	Wearing planks cored, no rot noted.
Sub Deck	Fair	Structural planks were cored and found to be saturated with initial signs of rot at the interface with the ties.
Ties	Fair	Ties were cored and found to be saturated with initial signs of rot at the interface with the structural planks.

PIERS

Pier 1

Bearings	Not Applicable	
Bracing or Sheathing	Not Applicable	
Caps	Fair	Concrete spall & localized deterioration at the ends of the cap with water staining & moss growth noted. The timber sill is in good condition.
Cribs	Not Applicable	
Dolphins	Not Applicable	
Hardware	Good	
Overall	Fair	



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Structure #:	61-010	Site #:	61-010	Road Name:	CUNNINGHAM PASS	Inspection Date:	2012/09/10			
Piles or Posts	Good									
Riprap	Not Applicable									
Wall	Good	Steel plate diaphragm.								
SUPERSTRUCTURE										
Span 1										
Bracing	Good	Steel pipe plan bracing.								
Diaphragms	Good									
Girders	Fair	Exterior faces: fair. Interior faces: good. See AE Inspection Summary for details.								
Hardware	Good									
Under Trussing	Not Applicable									
Span 2										
Bracing	Good	Steel pipe plan bracing.								
Diaphragms	Good									
Girders	Fair	Exterior faces: fair. Interior faces: good. See additional notes for further details.								
Hardware	Good									
Under Trussing	Not Applicable									
CHANNEL	Estimated Present Water Level Depth:	2.2	Estimated Present Water Level Width:		48.0					
	Estimated High Water Level Clearance:	2.2								
HAZARDS	High Water:	No	Scour:	Yes	Ice:	No	Debris:	No	Aggradation:	No
	Comment:	Minor scour noted at Likely end abutment.								
REPAIRS	#	Status	Priority	Estimate	Description					
	1	Recommended	Low	\$600.00	Brush approaches.					
	2	Recommended	Low	\$0.00	Regrade Wells end approach. Cost will be incurred as part of road maintenance.					
	3	Recommended	Low	\$6,000.00	Consider installing rip rap at the base of the Likely abutment.					
MONITORS	#	Description								
	1	Continue monitoring checks in girders.								
	2	Monitor the scour at the base of the Likely abutment.								
GENERAL	Professional Inspection Required?	No	Regional Review Date:		P. Eng Reviewer Name:					
	Replacement Date for full log haul traffic (year):			2030	Replacement Date for light vehicle traffic (year):			2030		
	Current Load Rating GVW (tonnes):		68	Design Load GVW (tonnes):		68	Design Vehicle Config.:		Other	
	Inspector's Estimated Full Log Haul Replacement (year):				2030					
Corporate Bridge Register (CBR)										



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Permanent Bridge Inspection Report

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Date Printed: 2013/03/28
User Id: BCEID\WRILEY1
Database: PROD
Report Id: CBR001A

Structure #:	61-010	Site #:	61-010	Road Name:	CUNNINGHAM PASS	Inspection Date:	2012/09/10
	Inspector's Comment:	The bridge is generally in fair condition. The previous inspection report, dated June 2012, identified water levels reach the toe of the Likely end breast wall, which has no rip rap slope protection. We recommend the Ministry monitors the scour at the Likely abutment and considers installing rip rap.					
	PEng Reviewer's Comment:						
	District Staff Comment:						

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
61-010	Cariboo River	Cunningham Pass	38.00	38.7		



Figure 1-1: Upstream elevation.



Figure 1-2: Downstream elevation.



Figure 1-3: Looking towards likely end, not ponding water.



Figure 1-4: Looking towards wells end.

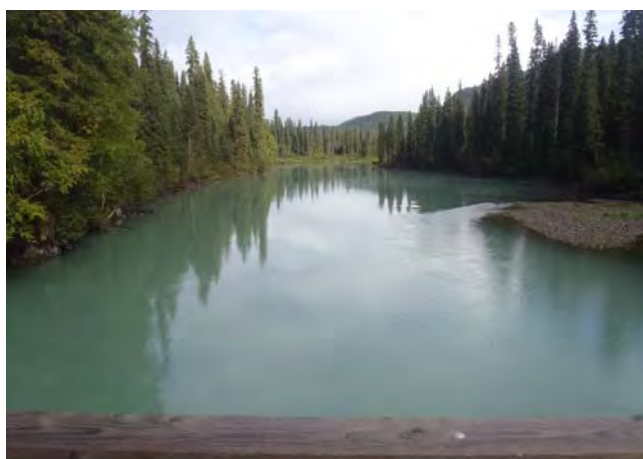


Figure 1-5: Looking upstream.

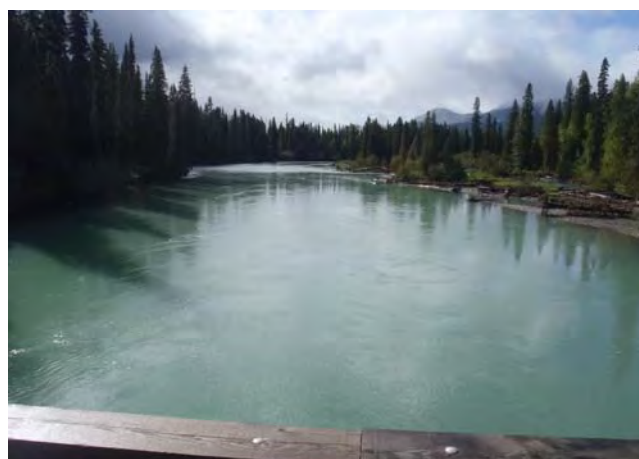


Figure 1-6: Looking downstream.

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
61-010	Cariboo River	Cunningham Pass	38.00	38.7		



Figure 1-7: Likely end abutment deck end.



Figure 1-8: Wells end abutment deck end.



Figure 1-9: Typical misaligned barrier, wells end downstream shown.



Figure 1-10: Typical curb rail condition, note ponding water.



Figure 1-11: Typical deck condition.



Figure 1-12: Typical sub deck condition, span 2 shown.

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
61-010	Cariboo River	Cunningham Pass	38.00	38.7		



Figure 1-13: Span 2 girder 1 upstream face condition.



Figure 1-14: Span 2 girder 4 downstream face condition.



Figure 1-15: Typical hanger condition, span 2 downstream shown.



Figure 1-16: Typical interior girder condition, span 2 girder 2 downstream face shown.



Figure 1-17: Likely end abutment.



Figure 1-18: Likely end abutment, minor scour at toe of breast wall.

Structure #	Crossing Name	Forest Service Road	User km	CBR km		
61-010	Cariboo River	Cunningham Pass	38.00	38.7		



Figure 1-19: Typical likely end wing wall condition, upstream shown.



Figure 1-20: Wells end abutment.



Figure 1-21: Wells end abutment, breast wall crack.



Figure 1-22: Pier, wells face shown.



Figure 1-23: Pier sill, minor damage and moisture noted.



Figure 1-24: Pier cap downstream corner, minor spall and moss growth.