



BC Ministry of Forests, Lands, and Natural Resource Operations

Permanent Bridge Inspection Report

Page: 1 of 3
Date Printed: 2023/04/13
User Id: IDIRITYSMILLE
Database: PROD
Report Id: CBR001A

Site #:	CK-2111	Structure Name:	CK-2111	Road Name:	HARRISON EAST	Inspection Date:	2022/08/31
KM:	48.90	User km:	47.20	Crossing Name:	Big Silver River	Next Inspection Date:	2023/05/15
Project File ID #:	5748	Br.	01	Forest District:	Chilliwack Natural Resource District		
Deck Type:	Concrete Composite			Running Surface:	Concrete		
Curb Type:				Abutments (looking downstream)	Left	Steel Pipe and Precast Pad	
Superstructure:	Steel I-beam				Right	Concrete Cast in Place	
Total Length (metres):	47.5	# Spans:	1	Span Width:	Span Length(s) (metres):		44.3
UTM Zone:	10	UTM Easting:	582543	UTM Northing:	5506300		
Inspector Name:	M. Hanson		Year Superstructure Installed:	2000			
Access:	Drive north on road north of Harrison Hot Springs this road connects with harrison East FSR						

ABUTMENTS

Bearings	Fair	broken anchor bolts at left bank indicating inadequate allowance for expansion, bearing pads buldging
Bracing	Fair	left bank only
Ballast Wall	Fair	right bank has moderate spalling at the sill, no rebar exposed
Corrosion Protection	Fair	
Caps or Sills	Fair	CIP right bank
Fill	Fair	
Piles or Posts	Fair	left bank only
Riprap	Not Applicable	Bedrock canyon
Wing Wall	Fair	downstream right is leaning towards stream but appears stable

APPROACHES

Alignment	Fair	sharp HC at both approaches limiting sight distance
Bridge Ahead Signs Missing	0	vandalized limiting functionality
Brushing Required	Yes	
Delineator Missing Left (approaching structure)	0	
Delineator Missing Right (approaching structure)	1	
Fender Condition	Fair	Missing upstream left approach
Posted Load Rating (Enter 0 if sign missing)	109	
Road Surface	Fair	

Corporate Bridge Register (CBR)

- Disclaimer:
- 1) Structure and site information is current at the time of report creation and may have changed since the inspection was submitted and/or accepted.
 - 2) Historic Load Rating data not available, contact FLNRO Regional Office for detailed information.



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DECK

Span 1

Concrete Deck	Fair	aggregate exposed on wheel path
Curb Rail/Blocks/Posts	Fair	minor impact damage at flared corner
Deck Joints	Fair	
Grout Pockets	Fair	
Hardware	Fair	
Overall Deck Condition	Fair	
Running Surface	Fair	

SUPERSTRUCTURE

Span 1

Bracing	Fair	missing plan bracing near mid-span
Diaphragms	Good	
Girders	Good	
Hardware	Fair	
Under Trussing	Fair	dywidag post-tensioning rod hangers on right half of bridge are leaning towards left approach and rubber pads are bulging

CHANNEL	Estimated Present Water Level Depth:	2.0	Estimated Present Water Level Width:	15.0
	Estimated High Water Level Clearance:	10.0		

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

REPAIRS	#	Status	Priority	Estimate	Description
	15	Suggested	High		Replace load rating signs
	16	Suggested	Medium		Replace left upstream delineator
	17	Suggested	Medium		Brush approaches
	18	Suggested	Medium		Regrade left approach to reduce further deck damage
	19	Suggested	Medium		Install left upstream approach barrier
	20	Suggested	Medium	\$ 0.00	Retorque the dywidag thread bar post-tensioning nuts to design specification

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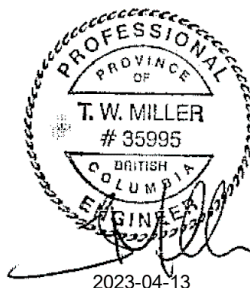
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Site #:	CK-2111	Structure Name:	CK-2111	Road Name:	HARRISON EAST	Inspection Date:	2022/08/31	
MONITORS	#	Description						
	8	Monitor broken anchor bolts at left abutment						
	9	Monitor dywidag post-tensioning rod hangers on right half of bridge for additional movement						
GENERAL	Inspector's Comment:							
GENERAL	PEng's Comment:	Replace the load rating sign with one that is legible. Note that the load rating only accounts for a single design vehicle on the deck at any time. Replace the upstream left bank delineator. Brush approaches. Regrade the left approach. Add a minimum 6m long x 600mm diameter log fender (or concrete no post barriers) to the upstream left bank approach. There are no file notes to indicate the dywidag thread bar post-tensioning system has had any maintenance completed to it. Recommend retorquer the thread bar nuts on the post-tensioning system to design specification, contact the Ministry for further information. The current load rating of L120 or 109 tonnes to continue. Monitor the failed bearing bolts at the left bank location and the dywidag post-tensioning rod hanger condition on right half of bridge.						
GENERAL	Estimated Load Restriction (year):		2045		Estimated Replacement (year):		2045	
	Current Inspection Load Rating:		See footnote	Design Load GVW (tonnes):		109	Design Vehicle Config.:	L120
	Professional Inspection Required?		No	Report Status:		In Progress By IDIR\TYSMILLE on 2023/04/13 14:15:07		

See attached Close Proximity Inspection completed by Onsite Engineering Ltd. for further information.



Permit to Practice: 1003022

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BRIDGE INFORMATION:

Bridge No./Name CK-2111: Harrison East
(47.2 km)

Inspection Date August 31, 2022

Inspected By Mike Hanson, P.Eng.
Dylon Montgomery, EIT

Temperature (°C) 24

Access Method Snooper Truck

Year Built 2000

Camp/Town River Left

Number of Spans 1 **Span Lengths (m)** 47.5

Superstructure Primary girders are two steel I-beams spaced 3 m c/c with dywidag rod post tensioning system. 1900 mm overall height, 392 mm overall width, 39 mm flange thickness, and 22 mm web thickness.

Flared section of left approach has one steel I-beam. 1224 mm overall height, 342 mm overall width, 16 mm flange thickness, and 13 mm web thickness.

Deck Composite precast concrete deck panels, 4880 mm wide with a flare at downstream left end.

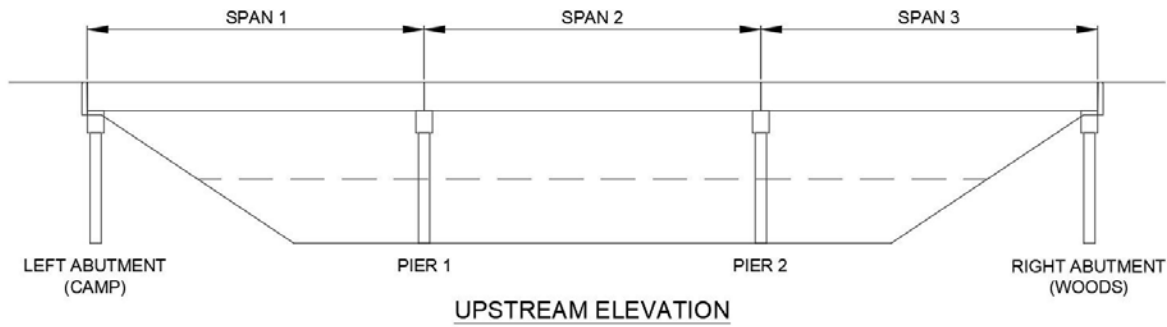
Curb Untreated 250 mm x 250 mm timber curbs and risers.

Abutments Left: Steel pipe piles on cast in place concrete footings with concrete ballast wall and lock block wing walls.

Right: Cast in place concrete sill with precast concrete ballast wall and lock block wing walls.



STANDARD NAMING CONVENTION:



- NOTE:
- ABUTMENTS, SPANS, AND PIERS NUMBERED FROM LEFT TO RIGHT WHEN LOOKING DOWNSTREAM
 - PILES AND GIRDERS NUMBERED UPSTREAM TO DOWNSTREAM

GENERAL BRIDGE CONDITION:

Bridge Element	<u>Previous</u>	<u>Current</u>
Superstructure	Good	Fair
Substructure	Good to Fair	Fair
Deck	Fair	Fair
Load Posting	109 000 kg	109 000 kg
Date for Next Close Proximity Inspection	2022	2025

BRIDGE INSPECTION SUMMARY:

The bridge is generally in fair condition with no significant issues noted.

Both approaches require minor brushing to increase visibility. Both approach load rating signs and left upstream delineator have been vandalized with reduced functionality. There is minor mechanical damage to the left most deck panel causing a pothole at the approach. All bearing pads are bulging but appear to be functioning as intended, however the left abutment has multiple broken anchor bolts indicating there is not adequate capacity for expansion. The superstructure is in fair condition with minor surface corrosion on the girders, missing plan bracing near mid-span, and bent bracing at the right abutment. The dywidag post-tensioning road hangars are leaning on the right half of the bridge and all rubber pads are bulging.

The estimated replacement of this bridge is 2060 based on a 60 year life span of steel bridges.

INSPECTION NOTES:

Approaches:

- The approaches are in fair condition.
- Sharp horizontal curves at both approaches limiting sight distance.
- Vegetation is overgrown, restricting visibility of delineators and load posting signs.
- Road signs are vandalized with graffiti, limiting functionality.
- No fenders or barriers at left upstream approach, log barriers at the other corners.
- Left approach has potholes and rutting causing mechanical damage to deck panel.

Deck:

- The deck is in fair condition.
- Deck panels and grout pockets are in fair condition with minor wear throughout.
- Aggregate exposed in the wheel paths.
- Debris accumulation along the ends and edges of the deck.
- Curbs are in fair condition, no significant decay noted. Minor impact damage at the flared corner.

Abutments:

- The abutments are in fair condition.
- No issues noted in the cast-in-place concrete footings.
- Right ballast wall has moderate spalling at the sill, no rebar exposed.
- Bearing pads are bulging.
- Broken anchor bolts at left abutment indicating inadequate allowance for expansion.
- Right downstream wing wall is leaning towards stream but appears stable.

Girders:

- The girders are in good condition with no issues noted.
- The bracing and dywidag post-tensioning rods are in fair condition.
- Dywidag post-tensioning rod hangers on right half of bridge are leaning towards the left approach and rubber pads are bulging, indicating there is inadequate allowance for expansion.
- Missing plan bracing near mid-span.
- Bent plan bracing at right abutment.

Channel:

- Incised bedrock channel well aligned with the bridge.
- 15 m estimated present water width.
- 2 m estimated present water depth.
- 10 m estimated high water clearance.
- No erosion concerns noted.

LIST OF MAINTENANCE/ REPAIR ITEMS:

Item No.	Description	Priority
1	Replace load rating signage	High
2	Replace left upstream delineator	Medium
3	Brush approaches	Medium
4	Regrade left approach to reduce further deck damage	Medium
5	Install left upstream approach barrier	Medium

LIST OF MONITORING ITEMS:

1. Monitor broken anchor bolts at left abutment.
2. Monitor dywidag post-tensioning rod hangers on right half of bridge for additional movement

Prepared by:



Mike Hanson, P.Eng.
Bridge Engineer

Reviewed by:

A handwritten signature in black ink, appearing to read "Michael Foster".

Michael Foster, P.Eng.
Supervising Engineer

Attached: Photo Plates



Photo 1
Bridge elevation from downstream



Photo 2
Bridge elevation from upstream



Photo 3
Looking downstream



Photo 4
Looking upstream



Photo 5
Left approach looking towards bridge



Photo 6
Left approach looking away from bridge



Photo 7
Right approach looking towards bridge



Photo 8
Right approach looking away from bridge



Photo 9
General deck condition



Photo 10
General railing condition



Photo 11
Underside of deck condition

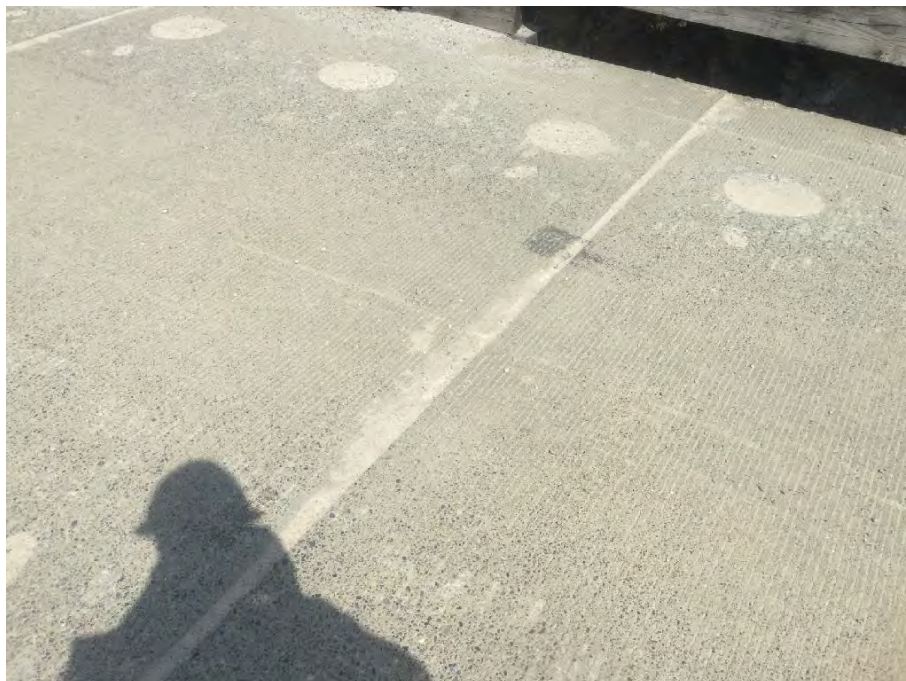


Photo 12
Typical joint and grout condition



Photo 13
Left abutment



Photo 14
Right abutment



Photo 15
Left upstream wing wall



Photo 16
Left downstream wing wall



Photo 17
Right upstream wing wall



Photo 18
Right downstream wing wall



Photo 19
Typical girder condition



Photo 20
Typical splice condition



Photo 21
Typical hangar and rod condition



Photo 22
Typical bearing condition



Photo 23

Left upstream approach barrier missing and load posting vandalized



Photo 24

Left approach deck mechanical damage and rutting



Photo 25
Downstream railing damage at flare corner



Photo 26
Missing plan bracing near mid-span



Photo 27
Downstream hangers angled



Photo 28
Typical top flange corrosion



Photo 29
Failed anchor bolt