



VISUAL FRACTURE CRITICAL INSPECTION REPORT

Bridge Name: West Monitor
Bridge No: 306
Structure ID: 08119700
Owner: Chelan County
Milepost: 0.17

Features to be inspected: Truss Tension Members
Pins

Procedures:

Riveted Truss

1. As required, use mirrors or other equipment to check inside surfaces of FCMs.
2. Check for loose or unevenly loaded member sub-elements.
3. Check all rivets at connection plates, with emphasis on first row. The first row is the row closest to the edge of the connection or gusset plate.
4. Check for any welds, including plug, tack, or repair welds. Record location of welds, regardless of condition, and document weld type and category.
5. Check FC members and associated connection or gusset plates for areas of heavy or pitted corrosion, nicks, gouges, sharp bends, and collision damage. Record location of all these conditions and estimated section loss, if applicable.
6. Check all heat straightened or repaired areas. Record location of these areas, regardless of condition.

Pins and Anchor Bolts

1. As required, use mirrors or other equipment to check inside surfaces of FCM's.
2. Check for pitting, laminar rust, surface deformation, and pack rust. It is important to check the pin, pin nuts, and all members surrounding the pin for this kind of steel deterioration.
3. Check for mobility and noise of pin and surrounding members. If the pin is physically "frozen" it is important to note this because the added stress can affect other members in the structure.
4. Observe and record abnormalities like; alignment, pin wear, loose pin nuts, and amount of nut engagement. It's important to note that full nut engagement is when the nut is flush with the pin or the pin is extending past the nut.
5. Check for paint system failure on pin nuts, pin, and surrounding members.

FCM Location	FCM Type	FCM Per Girder or Truss Line	Rivet Server Plans		
			Sh. No.	Contract	Sh. Name
Span 3	Truss Eyebars	17			
	Eyebar Pins	14			
	U-bolt for Floorbeam	8			
Span 4	Truss Eyebars	17			
	Eyebar Pins	14			
	U-bolt for Floorbeam	8			

Note: FCM = Fracture Critical Member

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Bridge Name: West Monitor	Date: 7/26/2007
Bridge No: 306	Hours: 20.5
Structure ID: 08119700	Agency: Chelan County
Structure Type: ST	Inspector: JSW
	Co-Inspector: TJN
	Inspector ID #: G0303

Truss / Girder	Span	Location	Feature Inspected	Detail Description	Visual Inspection Remarks
East	3	L0	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	3	L1	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	3	L2	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	3	L3	Pin	2-3/8" Diameter pin.	Outside face concave and rough. No access to inside face.
East	3	L4	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	3	L5	Pin	2-3/8" Diameter pin.	Outside face rough. No access to inside face.
East	3	L6	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	3	L7	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	3	U1	Pin	2-3/8" Diameter pin.	No defects noted.
East	3	U2	Pin	2-3/8" Diameter pin.	No defects noted.
East	3	U3	Pin	2-3/8" Diameter pin.	No defects noted.
East	3	U4	Pin	2-3/8" Diameter pin.	No defects noted.
East	3	U5	Pin	2-3/8" Diameter pin.	No defects noted.
East	3	U6	Pin	2-3/8" Diameter pin.	No defects noted.
East	3	U1-L1	Other	Vertical, eyebars.	Inside eyebar is loose and has a 3" crack along the forging seam near L1.
East	3	U2-L2	Other	Vertical, built up member.	No defects noted.
East	3	U3-L3	Other	Vertical, built up member.	No defects noted.
East	3	U4-L4	Other	Vertical, built up member.	No defects noted.
East	3	U5-L5	Other	Vertical, built up member.	A lattice near the rail is bent 1/4" over 6".
East	3	U6-L6	Other	Vertical, eyebars.	Inside eyebar is loose and bent 1" to the north about 8' above the deck.
East	3	L0-L1	Other	Bottom chord, eyebars.	No defects noted. 1997 inspection: Eye @ L1 was magnetic particle tested with no defect found.
East	3	L1-L2	Other	Bottom chord, eyebars.	No defects noted. 1997 inspection: Eye @ L1 was magnetic particle tested with no defect found.
East	3	L2-L3	Other	Bottom chord, eyebars.	No defects noted.
East	3	L3-L4	Other	Bottom chord, eyebars.	No defects noted.
East	3	L4-L5	Other	Bottom chord, eyebars.	No defects noted.
East	3	L5-L6	Other	Bottom chord, eyebars.	No defects noted.
East	3	L6-L7	Other	Bottom chord, eyebars.	No defects noted.
East	3	U1-L2	Other	Diagonal, eyebars.	No defects noted.
East	3	U2-L3	Other	Diagonal, eyebars.	Outside bar has forge groove at U2 eye.

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	Co-Inspector: TJN
	Inspector ID #: G0303

Truss / Girder	Span	Location	Feature Inspected	Detail Description	Visual Inspection Remarks
East	3	U3-L2	Other	Diagonal, eyebars.	Repaired with welded splice.
East	3	U3-L4	Other	Diagonal, eyebars.	No defects noted.
East	3	U4-L3	Other	Diagonal, eyebars.	No defects noted.
East	3	U4-L5	Other	Diagonal, eyebars.	No defects noted.
East	3	U5-L4	Other	Diagonal, eyebars.	No defects noted.
East	3	U6-L5	Other	Diagonal, eyebars.	No defects noted.
East	4	L0	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	4	L1	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	4	L2	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	4	L3	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	4	L4	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	4	L5	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	4	L6	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	4	L7	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
East	4	U1	Pin	2-3/8" Diameter pin.	East face is recessed.
East	4	U2	Pin	2-3/8" Diameter pin.	No defects noted.
East	4	U3	Pin	2-3/8" Diameter pin.	No defects noted.
East	4	U4	Pin	2-3/8" Diameter pin.	No defects noted.
East	4	U5	Pin	2-3/8" Diameter pin.	No defects noted.
East	4	U6	Pin	2-3/8" Diameter pin.	No defects noted.
East	4	U1-L1	Other	Vertical, eyebars.	No defects noted.
East	4	U2-L2	Other	Vertical, built up member.	No defects noted.
East	4	U3-L3	Other	Vertical, built up member.	Lattice (6 ft. from top) bent 1/4" over 6".
East	4	U4-L4	Other	Vertical, built up member.	No defects noted.
East	4	U5-L5	Other	Vertical, built up member.	No defects noted.
East	4	U6-L6	Other	Vertical, eyebars.	No defects noted.
East	4	L0-L1	Other	Bottom chord, eyebars.	No defects noted.
East	4	L1-L2	Other	Bottom chord, eyebars.	No defects noted.
East	4	L2-L3	Other	Bottom chord, eyebars.	No defects noted.
East	4	L3-L4	Other	Bottom chord, eyebars.	Outside eyebar has a laminar defect at the start of the eye, on the outside face.
East	4	L4-L5	Other	Bottom chord, eyebars.	No defects noted.

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	Co-Inspector: TJN
	Inspector ID #: G0303

Truss / Girder	Span	Location	Feature Inspected	Detail Description	Visual Inspection Remarks
East	4	L5-L6	Other	Bottom chord, eyebars.	No defects noted.
East	4	L6-L7	Other	Bottom chord, eyebars.	No defects noted.
East	4	U1-L2	Other	Diagonal, eyebars.	No defects noted.
East	4	U2-L3	Other	Diagonal, eyebars.	Laminar forge void on the inside face, at U2 (see photo #52).
East	4	U3-L2	Other	Diagonal, eyebars.	No defects noted.
East	4	U3-L4	Other	Diagonal, eyebars.	5% section loss due to rubbing against adjacent member.
East	4	U4-L3	Other	Diagonal, eyebars.	5% section loss due to rubbing against adjacent member.
East	4	U4-L5	Other	Diagonal, eyebars.	Eyebar is loose.
East	4	U5-L4	Other	Diagonal, eyebars.	No defects noted.
East	4	U6-L5	Other	Diagonal, eyebars.	No defects noted.
West	3	L0	Pin	2-3/8" Diameter pin.	Outside (west) face is recessed. No access to inside face.
West	3	L1	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	3	L2	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	3	L3	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	3	L4	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	3	L5	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	3	L6	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	3	L7	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	3	U1	Pin	2-3/8" Diameter pin.	No defects noted.
West	3	U2	Pin	2-3/8" Diameter pin.	No defects noted.
West	3	U3	Pin	2-3/8" Diameter pin.	No defects noted.
West	3	U4	Pin	2-3/8" Diameter pin.	No defects noted.
West	3	U5	Pin	2-3/8" Diameter pin.	No defects noted.
West	3	U6	Pin	2-3/8" Diameter pin.	No defects noted.
West	3	U1-L1	Other	Vertical, eyebars.	Outside eyebar is bent out about 1" northwards at about 1ft. above the roadway deck. Eyebar has a 1-1/2" crack down the eyebar forging seam at L1. Inside eyebar has a 1-1/8" crack down the eyebar forging seam at L1.
West	3	U2-L2	Other	Vertical, built up member.	No defects noted.
West	3	U3-L3	Other	Vertical, built up member.	No defects noted.
West	3	U4-L4	Other	Vertical, built up member.	East channel, north leg, is bent 1" over 12" at deck level.

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Truss / Girder	Span	Location	Feature Inspected	Detail Description	Visual Inspection Remarks
West	3	U5-L5	Other	Vertical, built up member.	East channel is bent at deck level (1" over 2 ft.). Six bent lattices (up to 1" over 6").
West	3	U6-L6	Other	Vertical, eyebars.	Inside bar is bent 2" to the south near the deck.
West	3	L0-L1	Other	Bottom chord members are 2 rectangular sections with forged eyelets at the ends.	No defects noted.
West	3	L1-L2	Other	Bottom chord members are 2 rectangular sections with forged eyelets at the ends.	No defects noted.
West	3	L2-L3	Other	Bottom chord, eyebars.	No defects noted.
West	3	L3-L4	Other	Bottom chord, eyebars.	No defects noted.
West	3	L4-L5	Other	Bottom chord, eyebars.	No defects noted.
West	3	L5-L6	Other	Bottom chord, eyebars.	No defects noted.
West	3	L6-L7	Other	Bottom chord, eyebars.	No defects noted.
West	3	U1-L2	Other	Diagonal, eyebars.	No defects noted.
West	3	U2-L3	Other	Diagonal, eyebars.	No defects noted.
West	3	U3-L2	Other	Diagonal, eyebars.	No defects noted.
West	3	U3-L4	Other	Diagonal, eyebars.	No defects noted.
West	3	U4-L3	Other	Diagonal, eyebars.	No defects noted.
West	3	U4-L5	Other	Diagonal, eyebars.	Eyebar is loose, sags.
West	3	U5-L4	Other	Diagonal, eyebars.	No defects noted.
West	3	U6-L5	Other	Diagonal, eyebars.	Inside eyebar is bent 2-1/2" on the strong axis near the deck. Outside eyebar has a gouge across the base of the eye.
West	4	L0	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	4	L1	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	4	L2	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	4	L3	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	4	L4	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	4	L5	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	4	L6	Pin	2-3/8" Diameter pin.	Areas of rust and pitting. No access to inside face.
West	4	L7	Pin	2-3/8" Diameter pin.	Outside face rough. No access to inside face.

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Truss / Girder	Span	Location	Feature Inspected	Detail Description	Visual Inspection Remarks
West	4	U1	Pin	2-3/8" Diameter pin.	Right (east) end is recessed in nut.
West	4	U2	Pin	2-3/8" Diameter pin.	No defects noted.
West	4	U3	Pin	2-3/8" Diameter pin.	No defects noted.
West	4	U4	Pin	2-3/8" Diameter pin.	No defects noted.
West	4	U5	Pin	2-3/8" Diameter pin.	No defects noted.
West	4	U6	Pin	2-3/8" Diameter pin.	No defects noted.
West	4	U1-L1	Other	Vertical, eyebars.	Inside eyebar is loose and bent out of plane.
West	4	U2-L2	Other	Vertical, built up member.	North leg of east channel has a 1/2" crack at a rivet (near rail) and is bent 1/2" over 1 ft. in two locations.
West	4	U3-L3	Other	Vertical, built up member.	No defects noted.
West	4	U4-L4	Other	Vertical, built up member.	Bent 1/2" towards the west at deck level (see photo #51).
West	4	U5-L5	Other	Vertical, built up member.	No defects noted.
West	4	U6-L6	Other	Vertical, eyebars.	Inside eyebar is loose, and has a visible forge seam at U6. Outside eyebar has a welded repair at L6 (see photo #54).
West	4	L0-L1	Other	Bottom chord, eyebars.	Outside bar has 1/4" dent in the top face near midspan (see photo #50).
West	4	L1-L2	Other	Bottom chord, eyebars.	No defects noted.
West	4	L2-L3	Other	Bottom chord, eyebars.	No defects noted.
West	4	L3-L4	Other	Bottom chord, eyebars.	No defects noted.
West	4	L4-L5	Other	Bottom chord, eyebars.	No defects noted.
West	4	L5-L6	Other	Bottom chord, eyebars.	No defects noted.
West	4	L6-L7	Other	Bottom chord, eyebars.	No defects noted.
West	4	U1-L2	Other	Diagonal, eyebars.	No defects noted.
West	4	U2-L3	Other	Diagonal, eyebars.	Inside bar twisted about 1/8th turn.
West	4	U3-L2	Other	Diagonal, eyebars.	No defects noted.
West	4	U3-L4	Other	Diagonal, eyebars.	Eyebar cracked along forge line, ~5-1/2" total crack length (see photo #55).
West	4	U4-L3	Other	Diagonal, eyebars.	No defects noted.
West	4	U4-L5	Other	Diagonal, eyebars.	No defects noted.
West	4	U5-L4	Other	Diagonal, eyebars.	No defects noted.
West	4	U6-L5	Other	Diagonal, eyebars.	No defects noted.