

Oklahoma Dept. of Transportation - Bridge Inspection Report

NBI No.: 16167	Structure No.: 3704 0543WX	Local ID: 024A	Suff. Rating: 68.40	ND																														
Bridge Description: 32ft.,49ft.,2-57ft.,49ft.,39ft. I-BM. SPANS WITH 2-1.5ft. SAFETY CURBS SKEW VARIES		INSPECTION																																
		<table border="1" style="width:100%; border-collapse: collapse;"><thead><tr><th>Type</th><th>Insp. Req.</th><th>Insp. Done</th><th>Freq.</th><th>Insp. Date</th><th>Next Insp.</th></tr></thead><tbody><tr><td>NBI:</td><td></td><td>1</td><td>24 months</td><td>7/24/2024</td><td>07/24/2026</td></tr><tr><td>FC:</td><td>Y</td><td>1</td><td>24 months</td><td>7/24/2024</td><td>7/24/2026</td></tr><tr><td>UW:</td><td>N</td><td>0</td><td></td><td>NA</td><td>NA</td></tr><tr><td>OS:</td><td>N</td><td>0</td><td></td><td>NA</td><td>NA</td></tr></tbody></table>			Type	Insp. Req.	Insp. Done	Freq.	Insp. Date	Next Insp.	NBI:		1	24 months	7/24/2024	07/24/2026	FC:	Y	1	24 months	7/24/2024	7/24/2026	UW:	N	0		NA	NA	OS:	N	0		NA	NA
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NBI:		1	24 months	7/24/2024	07/24/2026																													
FC:	Y	1	24 months	7/24/2024	7/24/2026																													
UW:	N	0		NA	NA																													
OS:	N	0		NA	NA																													
IDENTIFICATION		CLASSIFICATION																																
1. State: Oklahoma 2. Division: Division 4 3. County: KINGFISHER 4. City: Unknown Admin Area: Unknown 5a. On/Under: Route On Structure 5b. Kind of Hwy: U.S. Hwy 5c. Lvl of Srvc: Mainline 5d. Route No.: 00081 5e. Dir. Suffix: N/A (NBI)		12. Base Hwy Net.: On Base Network 20. Toll Facility: On free road 21. Custodian: State 22. Owner: State 26. Function Class: 02 Rural Other Princ 37. Historical Sig.: Not eligible for NRHP 100. Def. Hwy: On STRAHNET																																
7. Facility Carried U.S. 81 6. Feat. UP R.R. UNDER 9. 5.3 MI N JCT SH 33 11. Mile Post: 5.140 mi 13. LRS / Sub Rte: 3700004HV / 03 16. Latitude: 35° 55' 54.00" 17. Longitude: 097° 54' 59.00" 98. Border Unknown (P) % Responsible: 0.00 99. Border Brdg #: Unknown		101. Parallel Str.: Left of bridge 102. Traffic Dir.: 1-way traffic 103. Temp. Str.: Not Applicable (P) 104. Hwy System: On the NHS 105. Fed Land Hwy: N/A (NBI) 110. Defense Hwy: On STRAHNET 112. NBIS Length: Long Enough																																
STRUCTURE TYPE AND MATERIALS		CONDITION																																
43a/b. Main Span: Steel / Stringer/Girder 44a/b. Appr. Span: Unknown / Unknown (P) 45. # of Main Spans: 6 46. # of Appr. Spans: 0 107. Deck Type: Concrete-Cast-in-Place 108a. Wearing Surface: Bituminous 108b. Membrane: Unknown 108c. Deck protection: Unknown		58. Deck: 5 Fair 62. Culvert: N/A (NBI) 59. Sup.: 6 Satisfactory 61. Chan./Chan. Prot.: N/A (NBI) 60. Sub: 5 Fair																																
		Flowline Notes: N/A																																
AGE AND SERVICE		LOAD RATING AND POSTING																																
19. Detour Length: 0.1 mi 27. Year Built: 1964 28a/b. Lanes on/und: 2 / 0 29. ADT: 2,500 30. Year of ADT: 2022 42a/b. Type of Svc on/und: Highway / Railroad		31. Design Load MS 18 (HS 20) 41. Post. Status: A Open, no restriction 70. Posting: 5 At/Above Legal Loads 63. Op / 65. Inv. Rating Meth.: 1 LF Load Factor / 1 LF Load Factor 64. Operating Rating (tons): <table border="1" style="display: inline-table;"><tr><td>40.00</td><td>50.00</td><td>86.00</td><td>45.00</td><td>50.00</td></tr><tr><td>24.00</td><td>30.00</td><td>51.00</td><td>27.00</td><td></td></tr></table> 66. Inventory Rating (tons): <table border="1" style="display: inline-table;"><tr><td>40.00</td><td>50.00</td><td>86.00</td><td>45.00</td><td>50.00</td></tr><tr><td>24.00</td><td>30.00</td><td>51.00</td><td>27.00</td><td></td></tr></table>			40.00	50.00	86.00	45.00	50.00	24.00	30.00	51.00	27.00		40.00	50.00	86.00	45.00	50.00	24.00	30.00	51.00	27.00											
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GEOMETRIC DATA		APPRAISAL																																
10. Vert. Clearance: 99.99 ft 32. Appr Rwy Width: 38.00 ft 33. Median: No median 34. Skew: 60.00° 35. Struct. Flared: No flare 47. Horizontal Clr: 30.00 ft 48. Length Max Span: 57.09 ft 49. Struct. Length: 284.12 ft 50a. Curb/Sdwk Width L: 1.50 ft 50b. Curb/Sdwk Width R: 1.50 ft 51. Width Curb to Curb: 30.00 ft 52. Width Out to Out: 33.00 ft Deck Area: 9,375.37 sq. ft 53. Min. Vert. Cl. Ovr Brg: 99.99 ft 54a. Min. Vt. Undclr. Ref: R Railroad beneath 54b. Min. Vert. Undclr.: 23.25 ft 55a. Min. Lat. Undclr. Ref: R Railroad beneath 55. Min. Lat. Underclr. R: 18.91 ft 56. Min. Lat. Underclr. L: 0.00 ft		68. Deck Geom.: 4 Tolerable 69. Vert./Horiz. Undclr: 7 Above Minimum 71. Waterway Adeq: N Not applicable 72. Appr. Alignment: 8 Equal Desirable Crit 67. Str Evaluation: 5 Above Min Tolera 113. Scour Critical: N Not Over Waterway																																
OKLAHOMA ITEMS		PROPOSED IMPROVEMENT																																
200c. Temperature: 94 200d. Weather: Clear 201. Struc. Stl. ASTM Desig.: A36 / 20 202. Waterprf. Membrane: -1 Date Installed: 01/01/1901 203. Type Exp. Device: Pourable 204. Type of Railing: Metal Railing (other) 205. Material Quantity: 1,123.00 208a. Type of Abutment: Skeleton b. Type of Found.: Concrete Piling 209. Type of Pier/Found.: 2 / No Spread Footing 210. Foundation Elev.: <table border="1" style="display: inline-table;"><tr><td>-1.00</td><td>-1.00</td></tr><tr><td>-1.00</td><td>-1.00</td></tr></table> 211. Wear. Surf. Prot. Sys: None Date Installed: 11/08/2011 211c. Silane Reapplied 211d. Date: 213. Utilities Attached:		-1.00	-1.00	-1.00	-1.00	94. Bridge Cost: \$868,618 95. Roadway Cost: \$1,433,220 96. Total Cost: \$2,432,131 97. Yr. of Cost Est.: 2015 75. Type of Work: 31 Repl-Load Capacity 76. Lngth of Improvement: 360.9 ft 114. Future ADT: 4,000 115. Yr. of Future ADT: 2042																												
-1.00	-1.00																																	
-1.00	-1.00																																	
214a. Posted Weight Limit: NR b. Posted Speed Limit: N c. Narrow/1way Brdg Sign: No d. Vertical Clr. Sign: No Adv. Warning Sign: No e. Navigation Lights?: No Working/Not Working: No 215. Overpass: U.S. HIGHWAY 218. Functionally Obsolete: - 220. Bridge Redecked: - 221. Substr. Cond. (U/W): 222. Fill Over RCB: 223. Appr. Slab/Rwy Cond.: 3 225. Paint Type/Ovrct: Inorganic Zinc 3Coat Sys N/A 226. Date Painted: 2004 227. Paint Color: Gray 233. Deck Forming: Conventional Forming 238. School Bus Rte.: Current & Desired route 240. Appr. Rwy Type.: Asphalt/Bituminous 243. Grdr Spacing/No.: / 5		NAVIGATION DATA 38. Nav. Control: NA-no waterway 39. Vert. Clearance: 0.0 ft 40. Horiz. Clearance: 0.0 ft 111. Pier Protect.: Not Applicable (P) 116. Lift Bridge Vert. Clr.: 0.0 ft 244. Span Lengths: <table border="1" style="display: inline-table;"><tr><td>32</td><td>49</td><td>57</td></tr><tr><td>57</td><td>49</td><td>39</td></tr></table> 245. Girder Depth: 2.75 246a. Type of Overlay: AC Overlay b. Overlay Thickness: 4.00 c. Overlay Date: 03/04/2008 d. Only Depth Changed >1": - 247. Protective Systems: 248. # Field Splices w/ Corrosion: 249. Scour Crit. POA Exists?: - 250. Headwall: 258. Plans w/Found. in ODOT File: - 259. Scour Eval. in ODOT File: - 263. Interchange at Intersection: No 264. Interstate Milepoint: -1.00			32	49	57	57	49	39																								
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Inspection Date: 7/24/24

Drew Appler

Invoice No.:

Inspected With:

BRIDGE NOTES:

The bridge is a 6-span structure numbered from south-to-north:

Span 1 - 32 ft steel multi beam

span 2 - 49 ft steel mutli beam

spans 3 & 4 - 57 ft steel multi beam

span 5 - 49 ft steel multi beam

span 6 - 39 ft steel multi beam

The bridge crosses the Union Pacific Railroad at railroad milepost 373.72 with crossing ID: 595413M.

INSPECTION NOTES: 7/24/24

PX

- Upgrade bridge and approach rail, transitions, and terminations to meet current standards.
- Repair damaged areas and abrasively clean and paint steel bridge rail. (disregard if bridge railing is upgraded)
- Patch spalls in curb and soffit where bridge railing posts are exposed .
- Patch wearing surface on bridge as necessary to provide a smooth riding surface.
- Repair spill in soffit between beams 1 and 2 above pier 1 with a full depth patch.
- Reseal fixed and expansion joints.
- Place crushed aggregate slope protection in eroded areas around SW wingwall.
- Remove deteriorated concrete in abutments and piers, patch, and install RFP over patches at pier caps and columns .
- Install CIM 1000 on bearing seats at abutments and piers.
- Install shim plates where beams are lifted from canister bearing at:
 - o Beam 3, span 4 at pier 4
 - o Beam 2, span 5 at pier 4
 - o Beam 4, span 6 at pier 5.
- Remove lead plugs and portion of anchor studs extending above masonry plate of canister bearings to allow expansion of bearings.
- Seal cracks in approach roadway.

FX

- Monitor spalling in curb and soffit at joints for conditions which would compromise strength of bridge railing connection .
- Monitor paint cracks in beam connection angles to pier beam at pier 3 at:
 - o Beam 4, span 3 – 5 3/4 inches in SW connection angle.
 - o Beam 5, span 3 – 4 1/8 inches in SW connection angle.
 - o Beam 3, span 4 – Fine cracks in NW connection angle.
 - o Beam 5, span 4 – 2 1/2 inches in NW connection angle.
- Monitor corrosion and section loss to top flange of pier beam at pier 3.

ELEMENT CONDITION STATE DATA

Elem. / Env	Description	Unit	Total Qty	% 1	Qty. 1	% 2	Qty. 2	% 3	Qty. 3	% 4	Qty. 4
12 / 4	Re Concrete Deck	sq.ft	8,523.00	0%	0.00	0%	0.00	100%	8,523.00	0%	0.00
PX – Asphalt patches exist in spans 2 and 3 near roadway centerline and along fixed and deck control joints. Multiple patches suggest deterioration is ongoing and may be due to deterioration of concrete deck. Full depth concrete patches exist at piers 1 and 3. Less than 2% of the overlay/deck surface has been patched. - No deck drains exist on the bridge.											
510 / 4	Wearing Surfaces	sq.ft	8,523.00	0%	0.00	89%	7,573.00	11%	950.00	0%	0.00
- Asphalt overlay has 1/16 inch wide cracks most prominent in spans 3 and 5. - Minor rutting in wheel lines and weathering of asphalt overlay exist throughout bridge.											
107 / 4	Steel Opn Girder/Beam	ft	1,120.00	75%	840.00	25%	280.00	0%	0.00	0%	0.00
- Rust staining and minor painted over pitting typically occurs along the bottoms of beam webs and bottom flanges. - Shop-welded partial-length cover plates on beams 4 and 5 in span 1, all beams in spans 2 through 5 and beams 1 and 2 in span 6 in the positive moment region.											
515 / 4	Steel Protective Coating	sq.ft	137,778.00	0%	0.00	100%	137,778.00	0%	0.00	0%	0.00
The superstructure was painted in April 2004 using an IZEU system. Protective coating on the beams top flange near the joints are failing with active surface corrosion and pack rust present.											
205 / 4	Re Conc Column	each	8.00	0%	0.00	75%	6.00	25%	2.00	0%	0.00
At piers 2 and 4 PX – Poured seal expansion joints are retrofitted finger joints, now poured seal expansion joints. • Pier 2 – Seal missing in W lane with adhesion failure along length of joint (railing closed over joint). • Pier 4 – Seal missing in both lanes with isolated adhesion failure along length of joint (railing closed over joint). - Elastomeric concrete header at piers 2 and 4 shows rust stains.											
215 / 4	Re Conc Abutment	ft	150.00	27%	40.00	53%	80.00	20%	30.00	0%	0.00

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PX – Breastwall of both abutments exhibits horizontal cracking along the top and bottom reinforcing steel with areas of delamination with deterioration more prominent in S abutment. Spalls exposing reinforcing steel along bottom of S abutment breastwall. Several cracks in both breastwalls sealed with epoxy with cracks showing through at a few locations. - 1 1/2-inch deep spall with exposed reinforcing steel exists in SW corner of beam 2 bearing pedestal at N abutment, encroaching on masonry plate. - Cracks and scaling in beams 3 and 4 bearing pedestals at S abutment. - Embankment and slope wall at S embankment has settled exposing the underside of the S abutment breastwall exposing one concrete pile for 7 inches. Settlement at E end is 14 inches deep with 21 inches of penetration under the breastwall, undermining slope paving. - Spall in beam 5 pedestal at N abutment due to insufficient cover. - Beam 4 pedestal at S abutment has 1/32 inch wide cracking. - Slope wall near pier 1 has 1/8-inch-wide cracks with vegetation growing.											
234 / 4	Re Conc Pier Cap	ft	131.00	0%	0.00	60%	79.00	40%	52.00	0%	0.00
PX – Horizontal and vertical cracks with rust stains along reinforcing steel in vertical face and underside of caps. Discolored concrete exists most prevalent near W end, most prevalent in piers 2 and 4 between column 2 and W end. PX – Cracks in most bearing pedestals. Significant deterioration at beam 1 at pier 2, beam 4 at pier 4, beam 4 at pier 5, and beam 5 at pier 5.											
301 / 4	Pourable Joint Seal	ft	60.00	0%	0.00	0%	0.00	0%	0.00	100%	60.00
At piers 2 and 4 PX – Poured seal expansion joints are retrofitted finger joints, now poured seal expansion joints. <ul style="list-style-type: none">• Pier 2 – Seal missing in W lane with adhesion failure along length of joint (railing closed over joint).• Pier 4 – Seal missing in both lanes with isolated adhesion failure along length of joint (railing closed over joint). - Elastomeric concrete header at piers 2 and 4 shows rust stains.											
311 / 4	Moveable Bearing	each	40.00	0%	0.00	20%	8.00	80%	32.00	0%	0.00
At piers 1, 2, 4 and 5 PX – Beams lifting off canister at: <ul style="list-style-type: none">• Beam 3, span 4 at pier 4• Beam 2, span 5 at pier 4, beam is floating, bearing vibrates under load.• Beam 4, span 6 at pier 5, beam is floating. (photo 46). PX – Lead plugs at anchor studs raised, inhibit expansion. PX – Bearing seat scaled at beam 1 pedestal, pier 5 undermining corner 1 inch and exposing reinforcing steel. - Pack rust (3/4 inch) under masonry plate is common. - Canister expansion bearings exhibit longitudinal offsets of 1/2 inch average and rotated up to 9 degrees at 94° F (no significant change). - Wear of canisters at points of contact with the masonry and sole plates is common.											
313 / 4	Fixed Bearing	each	12.00	0%	0.00	75%	9.00	25%	3.00	0%	0.00
At abutments and under pier beam - Cracked or broken tapered washers at bearings for beams 1, 2 and 4 at S abutment and at bearings for beams 2, 3 and 4 at N abutment. - Lead bearing pads typically are extruding at abutments.											
321 / 4	Re Conc Approach Slab	sq.ft	2.00	0%	0.00	100%	2.00	0%	0.00	0%	0.00
PX – Asphalt approach pavement has unsealed longitudinal and transverse cracking. PX – Undermining of the paved flume was NW corner of N approach slab. PX – The slope protection behind the northwest wingwall is undermined including 3 feet of penetration. - S approach slab has asphalt patches in the right lane wheel line and spalling of the wearing surface along W curb. - N approach slab asphalt wearing surface exhibits wear at edge lines.											
330 / 4	Metal Bridge Railing	ft	568.00	0%	0.00	89%	508.00	11%	60.00	0%	0.00
PX – Traffic safety features do not meet standards for NHS roadway PX – Railing has missing bolts at isolated locations. PX – Spall exposing the embedded U-bolt anchorage railing posts in top of curb and soffit - Bridge railing is in contact over the expansion joints at piers 2 and 4, inhibiting the free movement of joint. - W bridge railing has minor impact damage near pier 3 and n abutment causing minor bends in the rail and posts. - Approach railing exhibits several locations of impact damage.											
919 / 4	St.(Rail) Prot. Coat	sq.ft	17,222.00	0%	0.00	0%	0.00	100%	17,222.00	0%	0.00
PX – Bridge railing is corroded with section loss forming at isolated locations.											
859 / 4	Soffit	each	1.00	0%	0.00	0%	0.00	100%	1.00	0%	0.00
PX – Spalling and cracking typical along end diaphragms. Spall between beams 1 and 2, span 2 at pier 1 extends above bottom reinforcing steel with asphalt patch driving surface above. FX – Spalls with exposed corroding reinforcing steel exist in both overhangs over piers and abutments exposing the railing connection anchorage. - 3-foot long spall with exposed corroding reinforcing steel in the deck at E end over S abutment. - Medium density of shrinkage cracks throughout. Spalling and cracking is typical in the deck soffit above the diaphragms at the piers. A 3-foot long spall with exposed corroding reinforcing steel occurs in the deck at the east end over the south abutment. Generally; the underside of the deck exhibits a medium density of shrinkage cracks throughout.											
863 / 4	Steel Pier Beam	ft	49.00	27%	13.00	0%	0.00	73%	36.00	0%	0.00
FX – Laminating corrosion top flange with 1/8-inch-deep section loss at the edges of the deck. - Pack rust (1/2 inch) between pier beam and deck with laminating corrosion along top flange especially at beams. - Debris on bottom flange from birds.											
865 / 4	St.Open Gird End(5Ft	ft	300.00	0%	0.00	67%	200.00	33%	100.00	0%	0.00

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FX – Paint cracks in of beam connection angles at pier beam: <ul style="list-style-type: none">• Beam 4, span 3, SW angle – 5 3/4 inches.• Beam 5, span 3, SW angle – 4 1/8 inches.• Beam 3, span 4, NW angle – fine cracks.• Beam 5, span 4, NW angle – 2 1/2 inches. - Cracks in horizontal welds for end diaphragm connection angles at pier 4 due to pack rust. - Beam ends have minor section loss with active corrosion in top flange at joints and painted over pitting in bottom flange and adjacent web. - End diaphragms and beam ends have laminating corrosion of top flange.												
870 / 4	Concrete Wingwall	each	4.00	100%	4.00	0%	0.00	0%	0.00	0%	0.00	
PX – Erosion has exposed back face and top of pile cap of SW wingwall. - Isolated areas of hairline map cracking with minor efflorescence in NW wingwall . - Retaining wall in median leaning away from embankment (S - 3 1/2 inches, N - 1 1/4 inches).												
909 / 4	Pourable Fix Jt.Seal	ft	270.00	0%	0.00	0%	0.00	0%	0.00	100%	270.00	
At both abutments (skewed 60 degrees) and piers 1, 3 (pier beam), and 5. PX – Poured seal fixed joints paved over with asphalt and asphalt patches <ul style="list-style-type: none">• S abutment – Spalls in asphalt. No obvious signs of seal damage.• Pier 1 – Full-depth concrete patch between beams 2 and 3. A deep spall in underside adjacent to joint between beams 1 and 2, spalls forming between remaining beams. Asphalt patches with adjacent cracks exist over joint.• Pier 3 (over pier beam) – Full-depth concrete patch between beams 2 and 3 with multiple failing asphalt patches.• Pier 5 – Multiple asphalt patches and adjacent cracks exist over the joint in W lane. Seal debonded and depressed within joint.• N abutment – Few asphalt patches over joint. - Deck control joints (spans 3 and 4) have numerous asphalt patches over and adjacent to the joint.												
957 / 4	Pack Rust Smart Flag	each	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00	
- Cracks in horizontal welds for end diaphragm connection angles at pier 4 due to pack rust. - Pack rust (1/2 inch) between pier beam and deck with laminating corrosion along top flange especially at beams.												
963 / 4	Steel Section Loss SF	each	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00	
FX – Laminating corrosion pier beam top flange with 1/8-inch-deep section loss at the edges of the deck. - Beam ends have minor section loss with active corrosion in top flange at joints and painted over pitting in bottom flange and adjacent web.												
968 / 4	Erosion SF	each	1.00	100%	1.00	0%	0.00	0%	0.00	0%	0.00	
PX – Erosion has exposed back face and top of pile cap of SW wingwall. - Embankment and slope wall at S embankment has settled exposing the underside of the S abutment breastwall exposing one concrete pile for 7 inches. Settlement at E end is 14 inches deep with 21 inches of penetration under the breastwall, undermining slope paving.												
972 / 4	Loss of Bearing SF	each	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00	
PX – Bearing seat scaled at beam 1 pedestal, pier 5 undermining corner 1 inch and exposing reinforcing steel.												
974 / 4	Straight Gird.Diaphr	each	1.00	0%	0.00	0%	0.00	100%	1.00	0%	0.00	
- Cracks in horizontal welds for end diaphragm connection angles at pier 4 due to pack rust. - End diaphragms have laminating corrosion of top flange and pack rust (1/2 inch) between top flange and deck with minor distortion of top flange and web over piers 4 and 5.												

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Photograph 1 - Looking south at the bridge elevation

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Photograph 2 - Looking south at the bridge end view.

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Photograph 3 - Looking west at the west bridge railing in span 4. Note: the railing is obsolete. Cracks with corrosion stains exists in the face of the curb and impact damage exists to the rail.

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Photograph 4 - Looking north along the northwest approach railing. Note: approach railing is low and blockouts were not used.

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Photograph 5 - Looking northeast at the northeast approach railing and east bridge railing in spans 5 and 6. Note: approach railing transition is insufficient with flared end approach rail termination at the bridge. Curb is spalled with exposed reinforcing steel due to insufficient cover.

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Photograph 6 - Looking east at the east bridge railing at the 5th post in span 3. Note: typical surface corrosion to the rail and post, and missing connection bolts

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Photograph 7 - Looking east at the east curb in span 1 at pier 1. Note: spall in the top face of the curb exposing the U-bolt anchorage for the bridge railing post.

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Photograph 8 - Looking northeast at the west overhang at pier 2. Note: spall in soffit exposing the U-bolt anchorage for the bridge railing post.

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Photograph 9 - Looking northwest at the driving surface in span 3. Note: 3-foot-diameter asphalt patch at the roadway centerline. Cracks exist in the asphalt along the roadway centerline and the west lane.

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Photograph 10 - Looking west along the north deck control joint in span 3. Note: asphalt patches along the control joint.

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Photograph 11 - Looking south at the underside of span 2 at pier 1 between beams 1 and 4. Note: spalling with exposed reinforcing steel along the end diaphragm. Full-depth patch exists between beams 3 and 4.

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Photograph 12 - Looking south at the underside of span 2 at pier 1 between beams 1 and 2. Note: spall extending above the bottom reinforcing steel.

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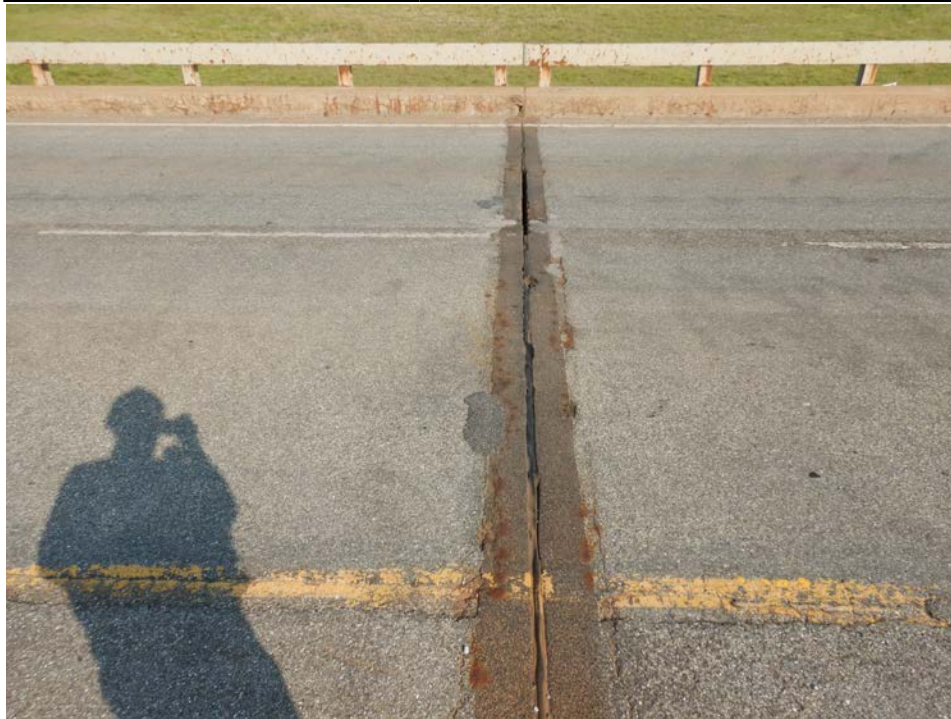
Photograph 13 - Looking north along the expansion joint over pier 1. Note: asphalt and concrete patches exist along the joint.

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16167	3704 0543WX	Kingfisher	U.S. 81	UP R.R. UNDER	7/24/2024



Photograph 14 - Looking east at Underside of deck overhang at Pier 4. Note: spalling and cracking at u bolts for bridge railing.

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Photograph 15 - Looking west along the poured seal expansion joint over pier 2. Note: seal is missing in the west lane. Joint is closed at the west bridge railing. Rust stains exist along the edges of the elastomeric concrete header.

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Photograph 16 - Looking west along the poured seal expansion joint over pier 4. Note: seal is missing in both lanes. Joint is closed at the west bridge railing. Rust stains exist along the edges of the elastomeric concrete header.

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Photograph 17 - Looking northwest along the poured seal fixed joint over the south abutment. Note: minor spalling and patching of the asphalt exists along the joint.

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Photograph 18 - Looking west along the poured seal fixed joint over pier 3. Note: asphalt and concrete patches exist along the joint.

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Photograph 19 - Looking west along the poured seal fixed joint over pier 5. Note: asphalt patches exist along the joint in the west lane.

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16167	3704 0543WX	Kingfisher	U.S. 81	UP R.R. UNDER	7/24/2024



Photograph 20 - Looking northwest along the poured seal fixed joint over the south abutment. Note: few asphalt patches along the joint.

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16167	3704 0543WX	Kingfisher	U.S. 81	UP R.R. UNDER	7/24/2024



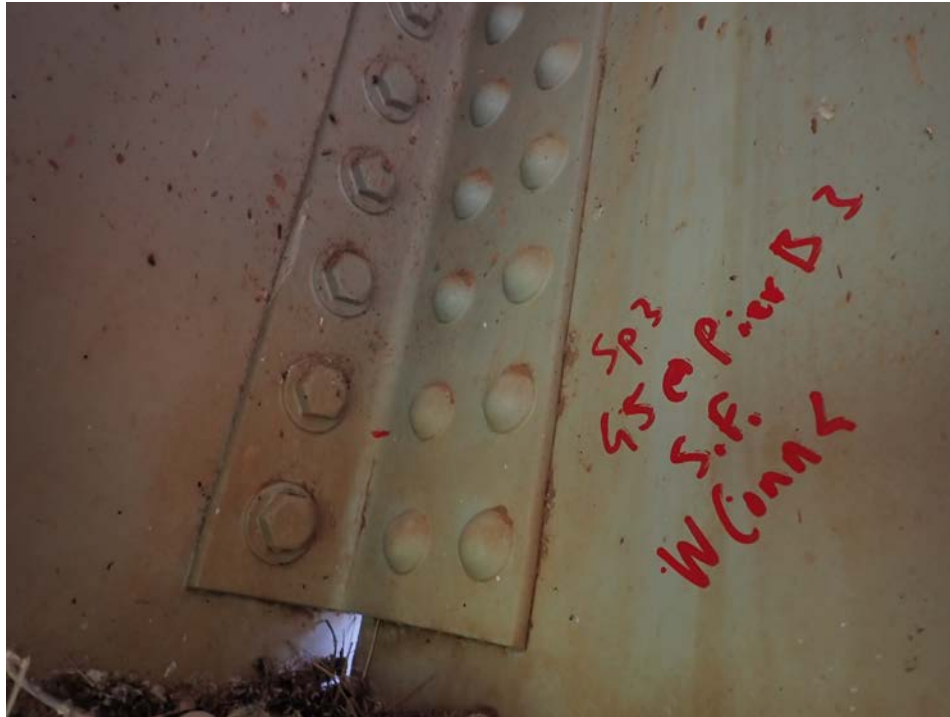
Photograph 21 - Looking west along the north deck control joint in span 4. Note: asphalt patches along the control joint.

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Photograph 22 - Looking northeast at the beam 4, span 3 southwest connection angle to the pier beam at pier 3. Note: 5 3/4-inch-long vertical paint crack at the bottom of the connection angle.

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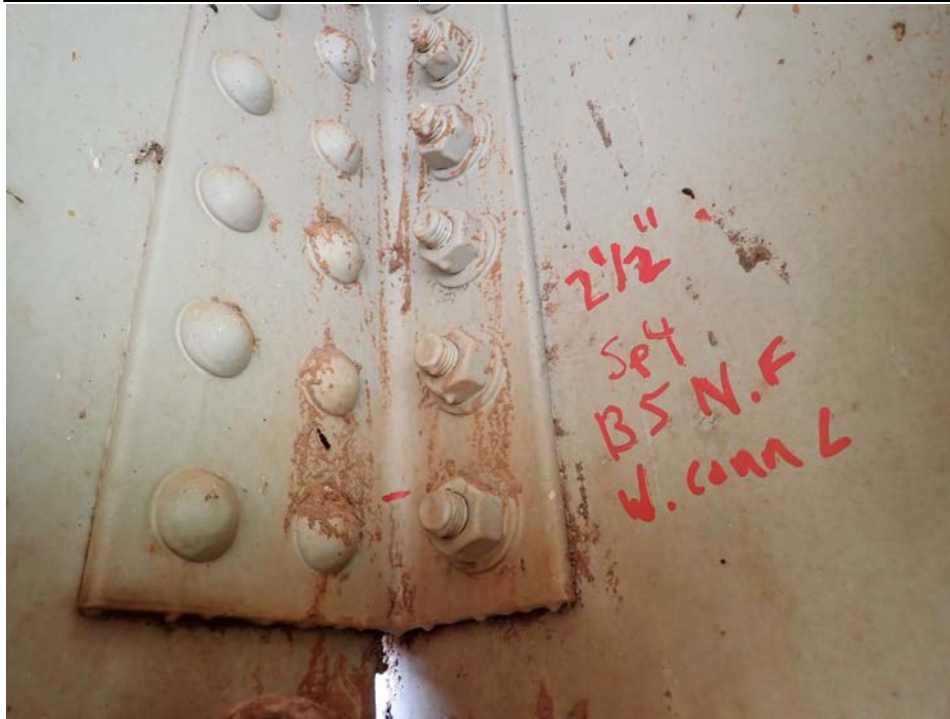
Photograph 23 - Looking northeast at the beam 5, span 3 southwest connection angle to the pier beam at pier 3. Note: 4 1/8-inch-long vertical paint crack at the bottom of the connection angle.

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Photograph 24 - Looking southeast at the beam 3, span 4 northwest connection angle to the pier beam at pier 3. Note: fine paint cracks in the bottom typical paint cracks at the bottom of the connection angle.

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Photograph 25 - Looking southeast at the beam 5, span 4 northwest connection angle to the pier beam at pier 3. Note: 2 1/2-inch-long vertical paint crack in the bottom of the connection angle.

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Photograph 26 - Looking northwest beam 2, span 4 at pier 4. Note: 5-inch-long horizontal crack in the bottom weld between the end diaphragm connection angle and the beam web.

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Photograph 27 - Looking southeast at the beam 1, span 4 top flange at the pier beam at pier 3. Note: laminating corrosion and 1/8-inch-deep section loss in the top flange of the beam. 16-inch-deep section loss to the top flange of the pier beam. Deck is lifted off the pier beam top flange.

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Photograph 28 - Looking northwest at the underside of span 2. Note: partial-length welded cover plates exist on the bottom flange of the beams.

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Photograph 29 - Looking northeast at the southwest wingwall. Note: back face of wingwall exposed due to erosion.

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16167	3704 0543WX	Kingfisher	U.S. 81	UP R.R. UNDER	7/24/2024



Photograph 30 - Looking south at the south abutment. Note: horizontal cracks in the breastwall with areas of delaminations and spalls forming.

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16167	3704 0543WX	Kingfisher	U.S. 81	UP R.R. UNDER	7/24/2024



Photograph 31 - Looking southwest at east end of the south abutment. Note: cracks in the breastwall have been seal. Breastwall and slope wall undermined due to settlement of the embankment.

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16167	3704 0543WX	Kingfisher	U.S. 81	UP R.R. UNDER	7/24/2024



Photograph 32 - Looking east at the beam 2, span 6 bearing pedestal at the north abutment. Note: spall encroaching on the bearing. Lead bearing pad extruded along the south and west edges.

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16167	3704 0543WX	Kingfisher	U.S. 81	UP R.R. UNDER	7/24/2024



Photograph 33 - Looking south beneath the south abutment breastwall near the west end. Note: settlement of the embankment has exposed one concrete pile.

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Photograph 34 - Looking southeast along the south retaining wall in the median. Note: wall is leaning 3 1/2 inches away from the embankment relative to the wingwall.

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Photograph 35 - Looking southeast at the south slope wall. Note: vegetation growing in joints.

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Photograph 36 - Looking south at pier 2. Note: cracking and spalling in column 1 and pier cap.

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Photograph 37 - Looking north at pier 4, column 1. Note: cracks and spalls with exposed reinforcing steel.

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Photograph 38 - Looking up at the west end of the pier 4 cap. Note: cracking and spalling.

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16167	3704 0543WX	Kingfisher	U.S. 81	UP R.R. UNDER	7/24/2024



Photograph 39 - Looking south at pier 4. Note: cracking and spalling with exposed reinforcing steel in the beam 2 pedestal.

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Photograph 40 - Looking south at the west end of the pier 5 cap. Note: vertical cracking up to 1/8 inch wide in column 1 in the west and north faces of the column.

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Photograph 41 - Looking up at the west end of the pier 5 cap. Note: spall in the west end of the cap adjacent to the beam 1 bearing.

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Photograph 42 - Looking northeast at pier 5 . Note: horizontal crack along bottom steel of cap with adjacent 2-foot by 5-foot delamination near column 1.

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Photograph 43 - Looking south at the west end of the pier 4 cap. Note: cracks with corrosion stains and delaminations exist in the vertical face and underside of the cap.

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Photograph 44 - Looking northwest at the beam 1 bearing pedestal on pier 2. Note: spall encroaching on the masonry plate with exposed reinforcing steel. Discolored concrete exists in the cap.

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Photograph 45 - Looking south at the west face of the beam 4 bearing pedestal on pier 4. Note: spall with exposed reinforcing steel.

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Photograph 46 - Looking west at the beam 4 canister bearings at pier 5. Note: scaling concrete in the bearing seat adjacent to the masonry plates. Beam 4, span 6 bearing is lifted from the canister.

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Photograph 47 - Looking north at the west end of pier 5. Note: scaling concrete has undermined the southwest corner of the beam 5, span 5 masonry plate 1 inch.

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Photograph 48 - Looking east at the beam 5 canister bearing at pier 5. Note: lead plugs are extruded and inhibit expansion of the canisters. Pack rust exists between the masonry plate and the bearing seat.

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Photograph 49 - Looking west at the beam 3, canister bearings at pier 4. Note: the span 4 bearing is offset from the bearing stiffener and rotated in expansion. The span 5 bearing is aligned with the vertical stiffener and rotated in contraction. Canister thickness is worn at the point of contact with the

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Photograph 50 - Looking northeast at north approach asphalt roadway. Note: longitudinal cracking in the wheel paths.

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Photograph 51 - Looking south at the northwest corner of the north approach slab. Note: paved drainage flume undermined with approximately 1 foot of penetration.