90 Inspection Date - 5/27/15
Inspector - AGREINER (154)

006B00053L - **8 Bridge ID**
Standard -**Primary Inspection Type**

Inspection Report with SI&A Data

Structure Description: 339.9 Foot - 3 Span Steel continuous Stringer/Multi-beam or Girder
2 District: 09 **3 County:** Bath **16 Latitude:** 38º07′05.00″ **7 Longitude:** 83º47′57.00″
7 Facility Carried I-64-10 NC **Milepoint:** 118.380
6A Feature Intersected: SLATE CREEK
9 Location: WBL 2.8MI E-MONTGOMERY CL

NBI	X
Element	X
Fracture Critical	
Underwater	
Special	

NBI CONDITION RATINGS

58 Deck:	7	**61 Channel:**	7
59 Superstructure:	4	**62 Culvert:**	N
60 Substructure:	6	**Sufficiency Rating:**	91

DESIGN

Substandard:	No
Fracture Critical:	No
43A Main Span Material:	(4) Steel Continuous
43B Main Span Design:	(02) Stringer / Girder
45 Number of Spans Main:	3
44A Approach Span Material:	Not Applicable
44B Approach Span Design:	Not Applicable
46 Number of Approach Spans:	0
107 Deck Type:	(1) Concrete-Cast-in-Place
108A Wearing Surface:	(2) Integral Concrete
108B Membrane:	(0) None
108C Deck Protection:	(0) None
Overlay Y/N:	No
Overlay Type:	None
Overlay Thickness:	0.000 in
Overlay Date:	

APPRAISAL

36A Bridge Railings:	(1) Meets Standards
36B Transitions	(1) Meets Standards
36C Approach Guardrail:	(1) Meets Standards
36D Approach Guardrail Ends:	(1) Meets Standards
71 Waterway Adequacy:	(8) Equal Desirable
72 Approach Alignment:	(8) Equal Desirable Crit
113 Scour Critical:	(8) Stable above footing
Recommended Scour Critical:	(8) Stable above footing

LOAD RATINGS

63 Operating Type:	(1) Load Factor (LF)
64 Operating Rating:	63.1 tons
65 Inventory Type:	(1) Load Factor (LF)
66 Inventory Rating:	38.0 tons
Truck Capacity Type I:	53 tons
Truck Capacity Type II:	54 tons
Truck Capacity Type III:	57 tons
Truck Capacity Type IV:	65 tons

GEOMETRIC DATA

48 Max Length Span:	140.092 ft
49 Structure Length:	339.895 ft
32 Approach Roadway:	37.073 ft
33 Median:	(0) No Median
34 Skew:	20°
35 Flare:	No Flare
50A Curb/Sidewalk Width L:	0.000 ft
50B Curb/Sidewalk Width R:	0.000 ft
47 Horiz. Clearance:	32.999 ft
51 Width Curb to Curb:	32.999 ft
52 Width Out to Out:	36.001 ft

ADMINISTRATIVE

27 Year Built:	1967
106 Year Reconstructed:	-4
42A Type of Service On:	(1) Highway
42B Type of Service Under:	(5) Waterway
37 Historical Significance:	(5) Not Eligible
21 Custodian:	(01) State Hwy Agency
22 Owner:	(01) State Hwy Agency
101 Parallel Structure:	(L) Left Of II Structure

CLEARANCES

10 Vert. Clearance:	99.999 ft
53 Min. Vert. Clearance Over:	99.999 ft
54A Vert. Under Reference:	(N) Feature not hwy or RR
54B Min. Vert. Underclearance:	0.000 ft
55A Lateral Under Reference:	(N) Feature not hwy or RR
55B Min. Lat. Underclearance R:	0.000 ft
56 Min. Lat. Underclearance L:	0.000 ft

POSTINGS

41 Posting Status:	(A) Open, No Restriction
Signs Posted Cardinal:	No
Signs Posted Non-Cardinal:	No
Field Postings Gross:	tons
Field Postings Type I:	tons
Field Postings Type II:	tons
Field Postings Type III:	tons
Field Postings Type IV:	tons

Inspection Report with SI&A Data

12: Re Concrete Deck

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
SQ.FT	12,236.44	11,786.44	96%	450	4%	0	0%	0	0%

The wearing surface has minor sized transverse and longitudinal cracks throughout. A few of these cracks in span 2 are beginning to open up. See photos.

107: Steel Opn Girder/Beam

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	1,360	1,017	75%	341	25%	0	0%	2	0%

Girder 3 from south has a crack (approximately 6.5 in. in length) at the end of the web at abutment 1. This crack was first noted during a routine inspection on 5-12-11. The web thickness at this location is thin. One end of this crack is at the very end of the web behind the rocker bearing approximately 1.5 in. off the bottom flange. The crack extends inward (toward the bearing) and then turns downward and appears to stop at the bottom of the vertical stiffener weld and bottom flange. When the bridge is loaded the crack opens up and partially closes. A NEW CRACK was discovered during this inspection in this same girder just in front the rocker bearing. This crack extends across the full width and depth of the bottom flange. The crack is almost 1/8 in wide at the southern edge of the bottom flange. This crack becomes hairline in width at the web/bottom flange weld and runs back toward the web crack that was discovered in 2011. These two cracks are very close to each other and more than likely they initiated from the same location along the web/bottom flange/ vertical stiffener weld. The bearing below this girder is froze and the end of the bottom flange noticeably bends downward behind the bearing. The bottom flange of girder 2 from the south also bends down slightly behind the bearing. The north girder at abutment 1 has moderate pitting in the bottom of the web behind the bearing. Several of the girders ends at the abutments have rusting with light to moderate corrosion. See photos.

515: Steel Protective Coating

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	8,839.2	7,741.92	88%	91.44	1%	91.44	1%	914.4	10%

The paint area for these girders was supplied by Tom Mathews from Central Office. The protective coatings have large widespread failures where the paint has just "popped" off exposing the steel throughout these girders. Loose paint is peeling/flaking around these locations. The exterior girders have bubbling paint along their exterior bottom flanges. The ends of the beams at the abutments also have some flaking/ peeling paint with minor to moderate rust/corrosion. The girders need a new protective coating. See photos.

Inspection Report with SI&A Data

1000: Corrosion									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
FT	1	1	100%	0	0%	0	0%	0	0%

See element 107 for details.

1010: Cracking									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
FT	1	1	100%	0	0%	0	0%	0	0%

See element 107 for details.

205: Re Conc Column									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
EACH	4	4	100%	0	0%	0	0%	0	0%

The bridge consists of two piers with two square columns in each. These concrete columns are in good condition at this time. See photos.

215: Re Conc Abutment									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
FT	132	92	70%	40	30%	0	0%	0	0%

Abutment 1 has some light to minot cracks in the backwall. A moderate sized spall with shallow exposed steel is present in abutment 1s backwall between beams 3 and 4 from the south. The breast wall of abutment 4 has minor sized horizontal cracking for ~ 75% of its length. Abutment 4s backwall has some areas of minor cracking. See photos.

Inspection Report with SI&A Data

234: Re Conc Pier Cap									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
FT	76	76	100%	0	0%	0	0%	0	0%

Both concrete pier caps are in good condition.

300: Strip Seal Exp Joint									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
FT	36	0	0%	36	100%	0	0%	0	0%

This bridge has a strip seal expansion joint at abutment 1. It is partially full of dirt and debris. 1.5 in. was measured at the roadway centerline between the interior faces of the steel edges. The temperature was approximately 70 degrees. See photos.

302: Compressn Joint Seal									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
FT	36	34	94%	2	6%	0	0%	0	0%

This bridge has a compression seal joint at abutment 4. It is partially full of dirt and debris. The gland has a few small tears, some local adhesion failures, and is allowing seepage. See photos.

Inspection Report with SI&A Data

311: Moveable Bearing

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	12	0	0%	8	67%	0	0%	4	33%

Moveable bearings are present at both abutments and pier 2. The bearings at abutment 1 typically have flaking paint with moderate corrosion in the lower portions of the rockers. Their masonry plates are rusted with moderate to heavy corrosion. Bearing 3 from the south is frozen and is missing the north anchor bolt. The exterior bearings at abutment 1 are tilted back toward the backwall more than the interior bearings. Plumb measurements were taken during this inspection. These measurements were taken on the tapered faces of the rockers so the actual degree of tilt is less. The measurements at abutment 1 are as follows: Bearing 1 from the south is tilted back toward the backwall ~ 18 degrees, bearing 2 ~ 10 degrees, bearing 3 ~15 degrees, and the north bearing ~ 21 degrees. The measurements at abutment 4 are: Bearing 1 from the south is tilted back toward the backwall ~ 10 degrees, bearing 2 ~ 3 degrees, bearing 3 ~12 degrees, and the north bearing ~ 10 degrees.The moveable bearings over the pier appear to be in good condition. The bearings at abutment 4 typically have flaking paint with moderate to heavy corrosion in the lower portions of the rockers and masonry plates. The lower rockers of bearings 1, 3, and 4 from the south extend out beyond the front edge of the masonry plates approximately 1 inch. The front edge of the masonry plate of bearing 2 from the south is slightly out in front of its rocker. This bearing is almost vertical while bearings 1, 3, and 4 are tilted to the rear. This bearing appears to be froze. Both anchor bolts are missing from bearing 2. Under live load this bearing appears to hover or float back and forth slightly, instead of rocking back and forth. The bearings should be cleaned and coated. See photos.

515: Steel Protective Coating

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	6.69	6.69	100%	0	0%	0	0%	0	0%

313: Fixed Bearing

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	4	4	100%	0	0%	0	0%	0	0%

The fixed bearings over pier 3 appear to be in good condition. See photos.

515: Steel Protective Coating

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	2.23	2.23	100%	0	0%	0	0%	0	0%

The protective coatings on the fixed bearings over pier 3 appear to be in good condition.

Inspection Report with SI&A Data

331: Re Conc Bridge Railing									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
FT	738	718	97%	20	3%	0	0%	0	0%

This bridge has concrete barriers along both sides. They have the typical light to minor sized vertical cracks scattered throughout. See photos.

850: 2nd Elem									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
(EA)	1	0	0%	0	0%	1	100%	0	0%

Minor rusting and corrosion is present within some of the steel diaphragm cross bracings. More moderate rusting and corrosion are present within some of the diaphragms at the abutments. See photos.

857: Embankment Erosion									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
(EA)	1	0	0%	1	100%	0	0%	0	0%

Some moderate erosion is present in the embankment in front of abutment 4.

859: Vegetation									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
(EA)	1	0	0%	0	0%	0	0%	1	100%

Vegetation growing on and around the bridge needs to be cut and sprayed. See photos.

STRUCTURE NOTES

-186.6

INSPECTION NOTES

This is a routine 24 month walk over inspection. The notes and NBI ratings reflect what can only be reasonably observed during this type of inspection. Binoculars were utilized for a better visual observation. A new crack was discovered during this inspection in girder 3 from the south at abutment 1 just in front the rocker bearing. This crack extends across the full width and depth of the bottom flange. This structure is being placed on a 3 month inspection cycle to monitor this location. Inspected by A.Greiner.

Inspection Report with SI&A Data

WORK	
Action:	1011 - Bearings-Rehabiliatation
Some of the bearings at the abutments need repairs and they all need to cleaned and coated. Generated by user "agreiner" on 5/29/2015	

Action:	1079 - Superstructure-Repair Steel
Girder 3 from the south at abutment 1 needs to be repaired. Generated by user "agreiner" on 5/29/2015	

Action:	7 - Paint Bridge
The Girders need to be painted. Generated by user "agreiner" on 5/29/2015	

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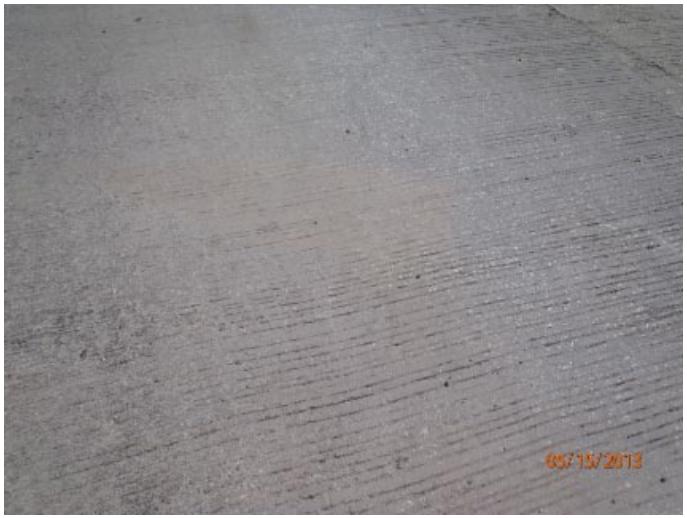
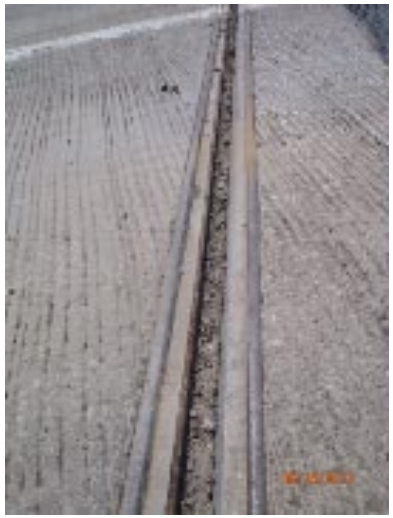
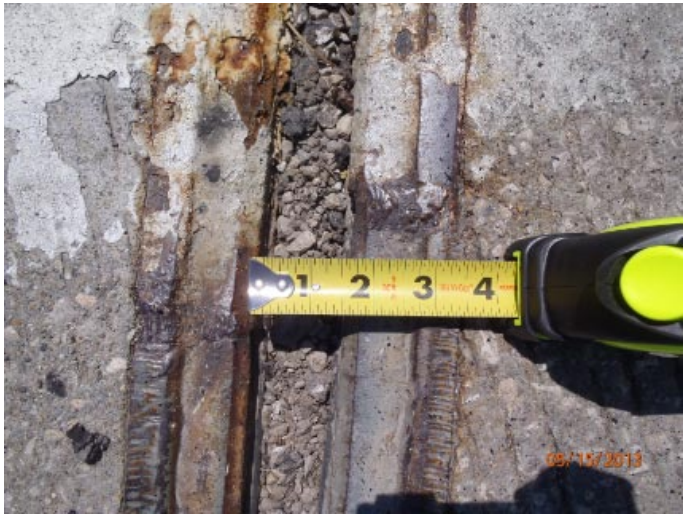


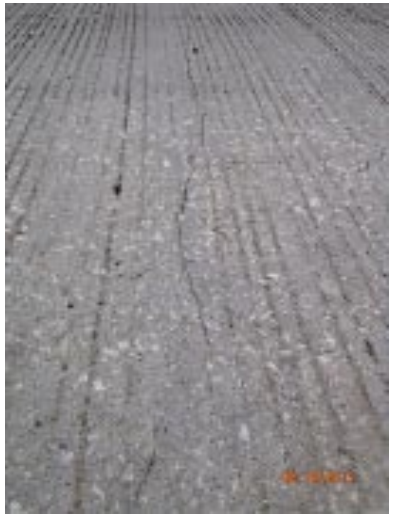
Typical view of the wearing surface.



View of the expansion joint at abutment 1. It is partially full of dirt and debris.



View of a 1.5" measurement taken at the expansion joint at abutment 1 at the roadway centerline.



View of light transverse cracking in the right lane in span 2.

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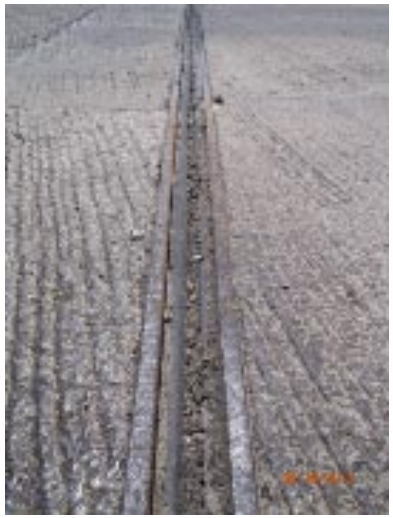
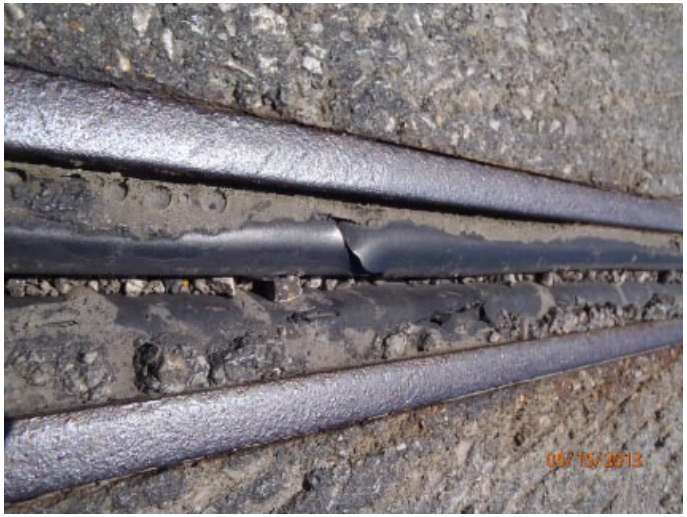
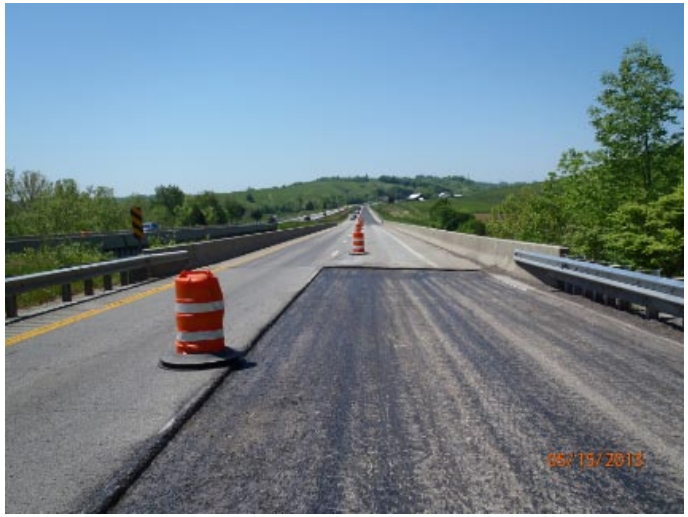
View of transverse cracking that is beginning to open up in the right lane near midspan in span 2.



View of the transverse joint at abutment 4. It is partially full of dirt and debris.



View of a small tare in the seal at the center of the left lane at abutment 4.



View from the approach to abutment 4. This section of the interstate was being paved during this inspection.

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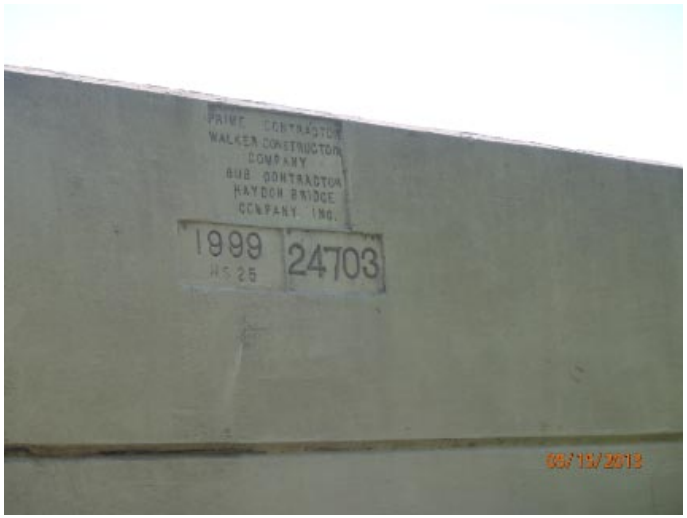

View of the stamps on the north barrier at abutment 4.

View of the north bearing at abutment 4. It has flaking paint and moderate corrosion of the masonry plate.

View of light cracking in abutment 4's breast wall below bearing 3 from the south.

View of moderate rusting and corrosion at the end of the bottom flange of the north beam at abutment 4.

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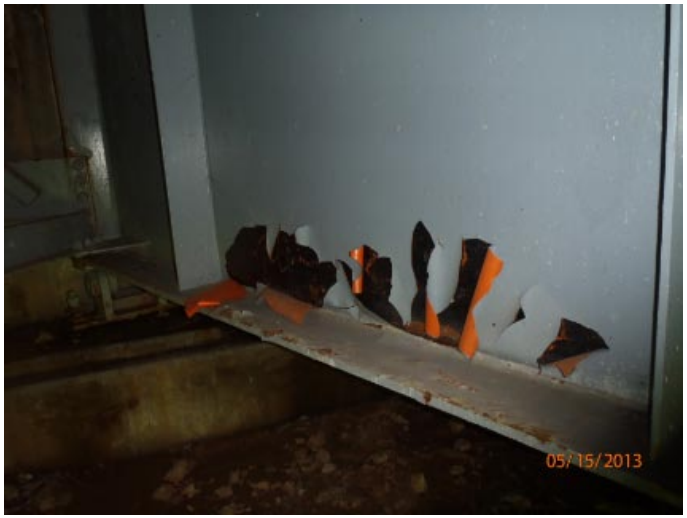
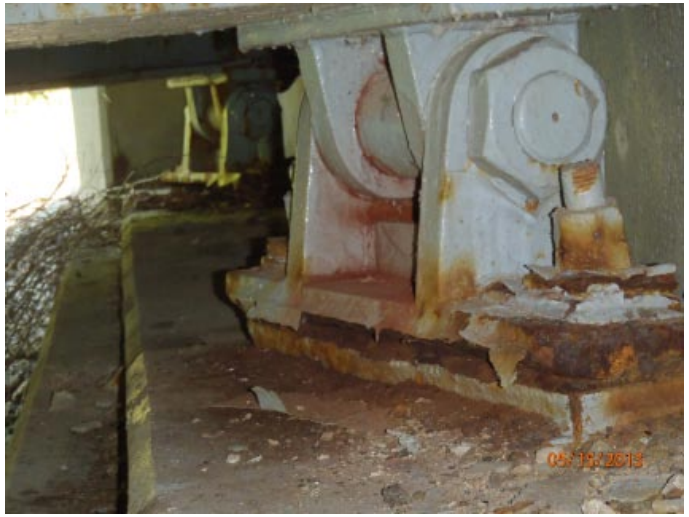


View of flaking paint along the north face of beam 3's web.

View of the rocker of bearing 3 extending approximately 1" beyond the front edge of the masonry plate.

View of bearings 1 and 2 from the south at abutment 4. Bearing 1 is rocked back toward the backwall and bearing 2 is almost straight.



View of bearings 3 and 4 from the south. They are rocked back toward the backwall.

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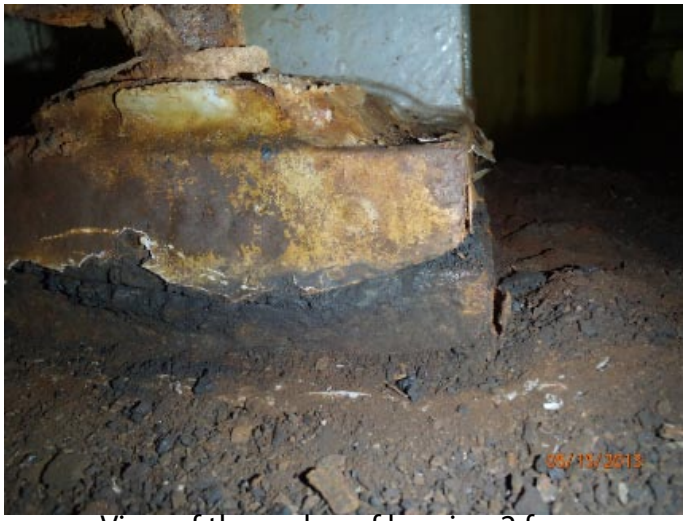
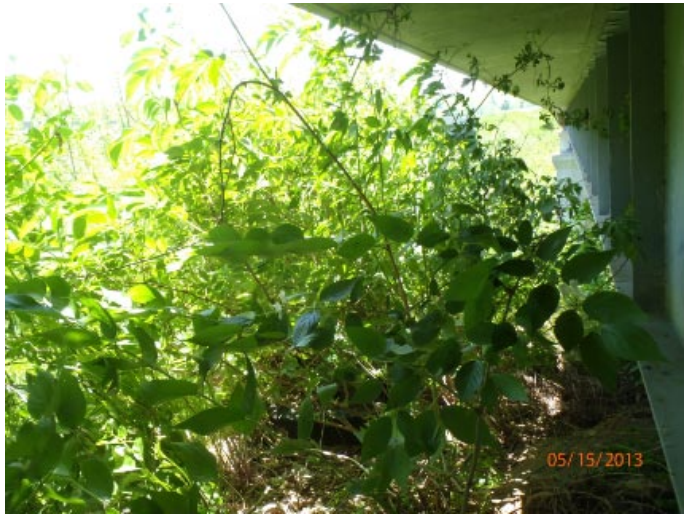


View of the rocker of bearing 2 from the south. The rocker is slightly behind the front edge of the masonry plate.

View of moderate rusting and corrosion at the end of beam 2 from the south at abutment 4.

View of some moderate rusting and corrosion of the steel diaphragm between beams 1 and 2 from the south at abutment 4.



View of vegetation growth at the south end of span 3.

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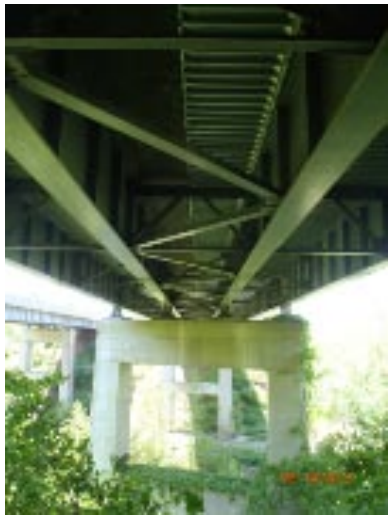
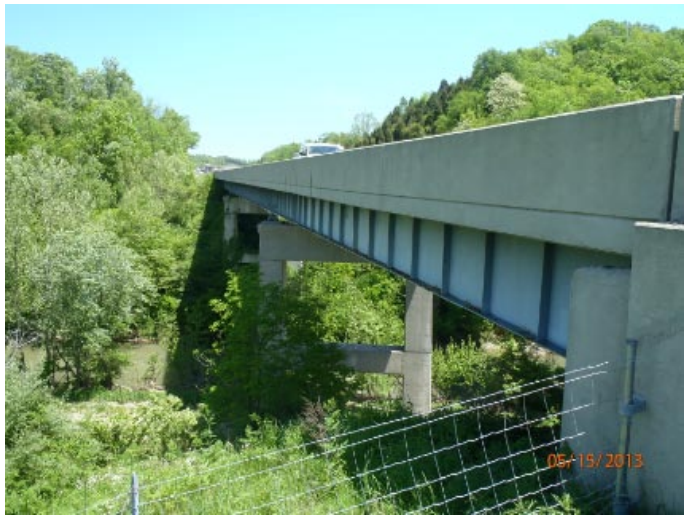
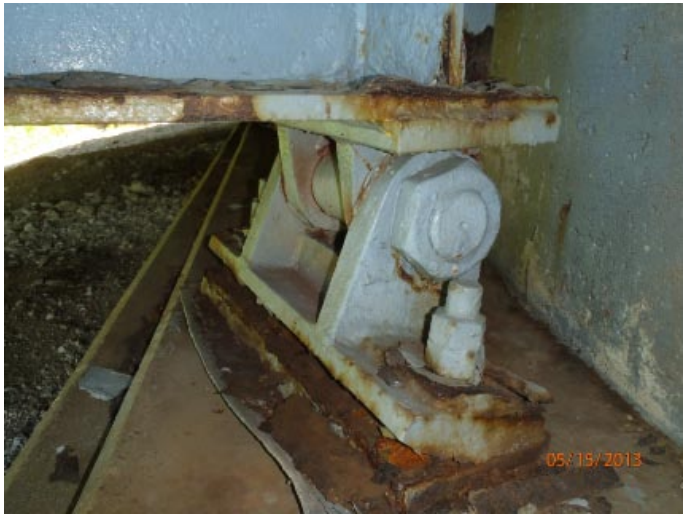


View of span 3 and pier 3.



View from the north near abutment 1.



View of the north bearing at abutment 1.

View of moderate pitting in the lower web of the north beam behind the bearing at abutment 1.

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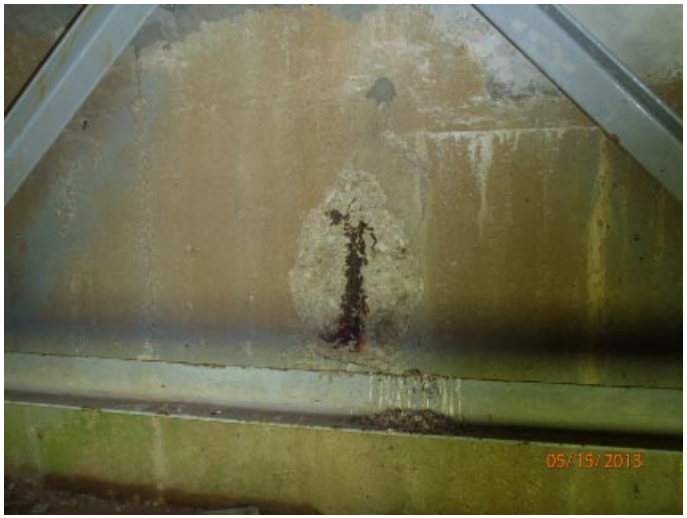
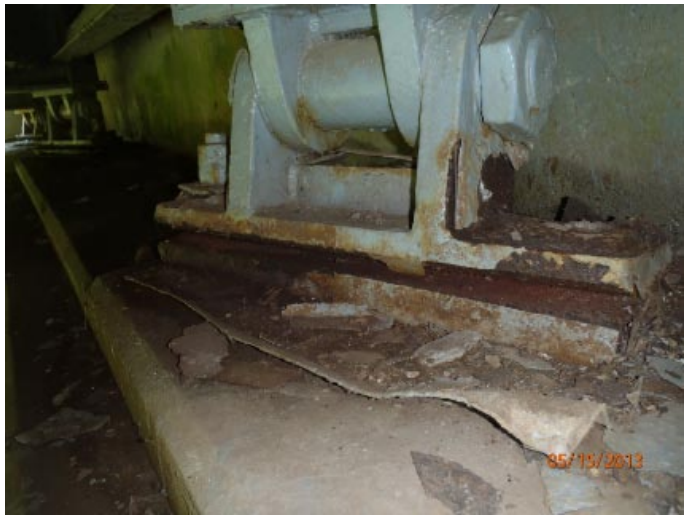
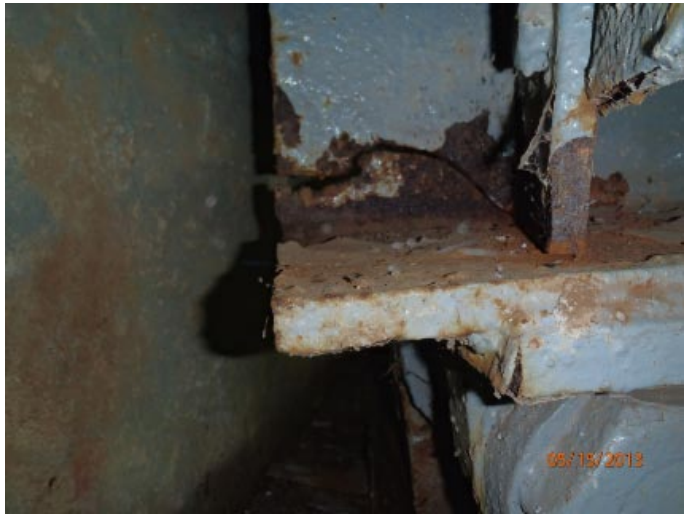


View of a moderate sized shallow spall with exposed steel in the backwall of abutment 1 between beams 3 and 4 from the south.



View of bearing 3 at abutment 1. Notice the north anchor bolt is missing.

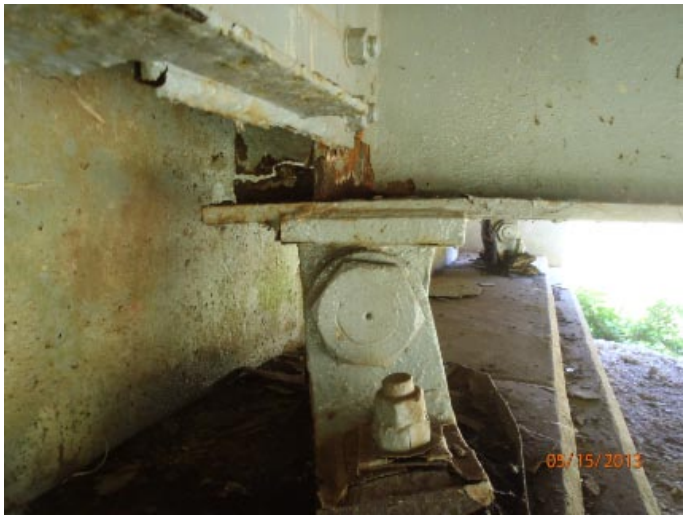
View of the previously noted crack in the web of beam 3 from the south at abutment 1. This crack is at the end of the web and stops at the bottom of the vertical stiffener.



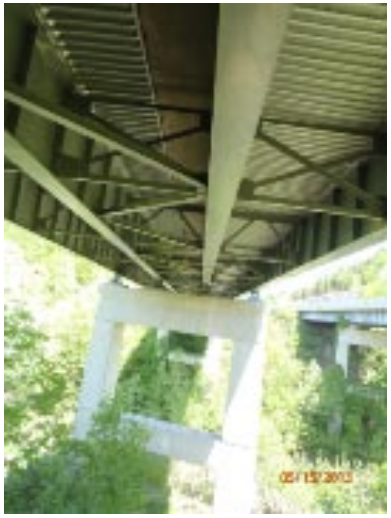
View of the previously noted crack in the web of beam 3 from the south at abutment 1. This crack is at the end of the web and stops at the bottom of the vertical stiffener.

006B00053L

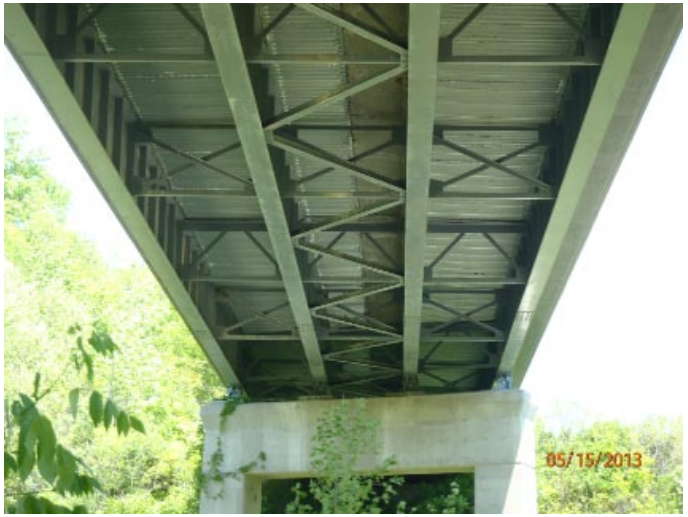
View of the previously noted crack in the web of beam 3 from the south at abutment 1. This crack is at the end of the web and stops at the bottom of the vertical stiffener.



View of beam 3 from the south at abutment 1. Notice the bottom flange bending downward toward the backwall.

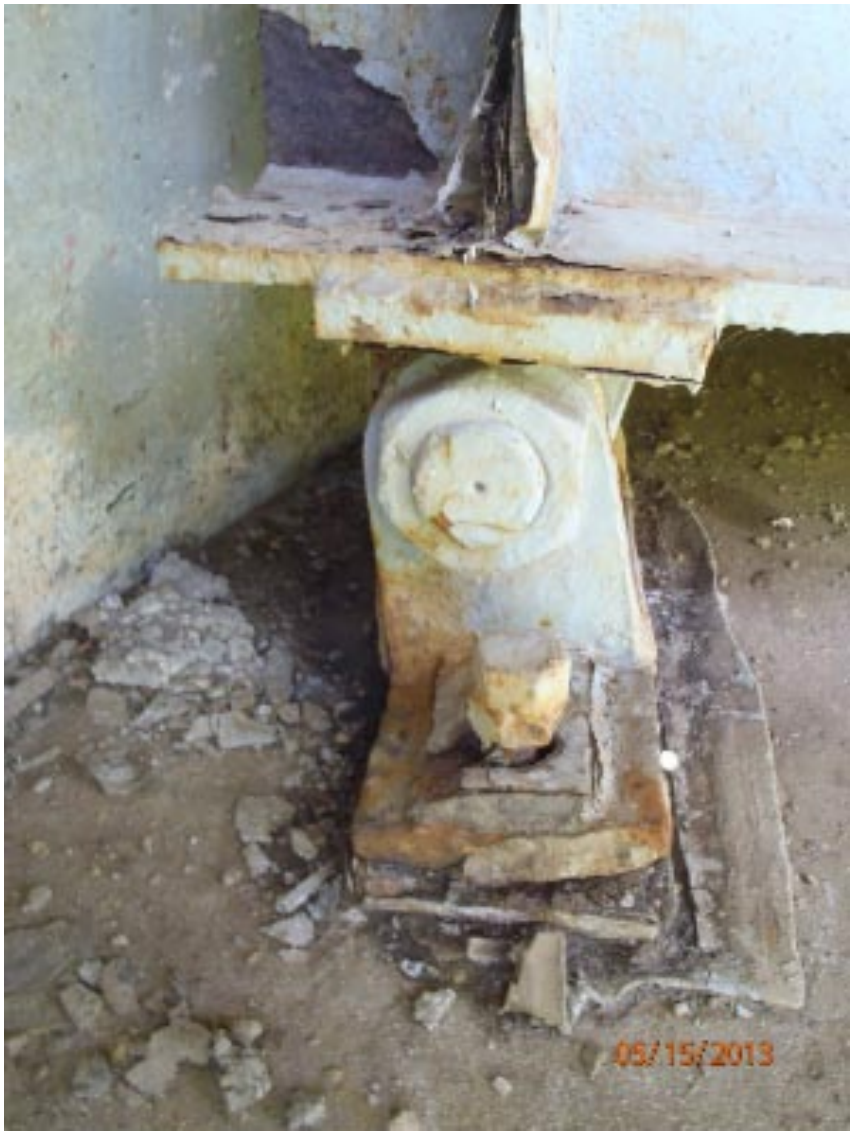


View of span 1 and pier 2.



View of span 2.

006B00053L



View of the south bearing at abutment
1. Notice the pack rust at the bottom
of the vertical stiffener.