



Latitude:35.29548, Longitude:-94.05942

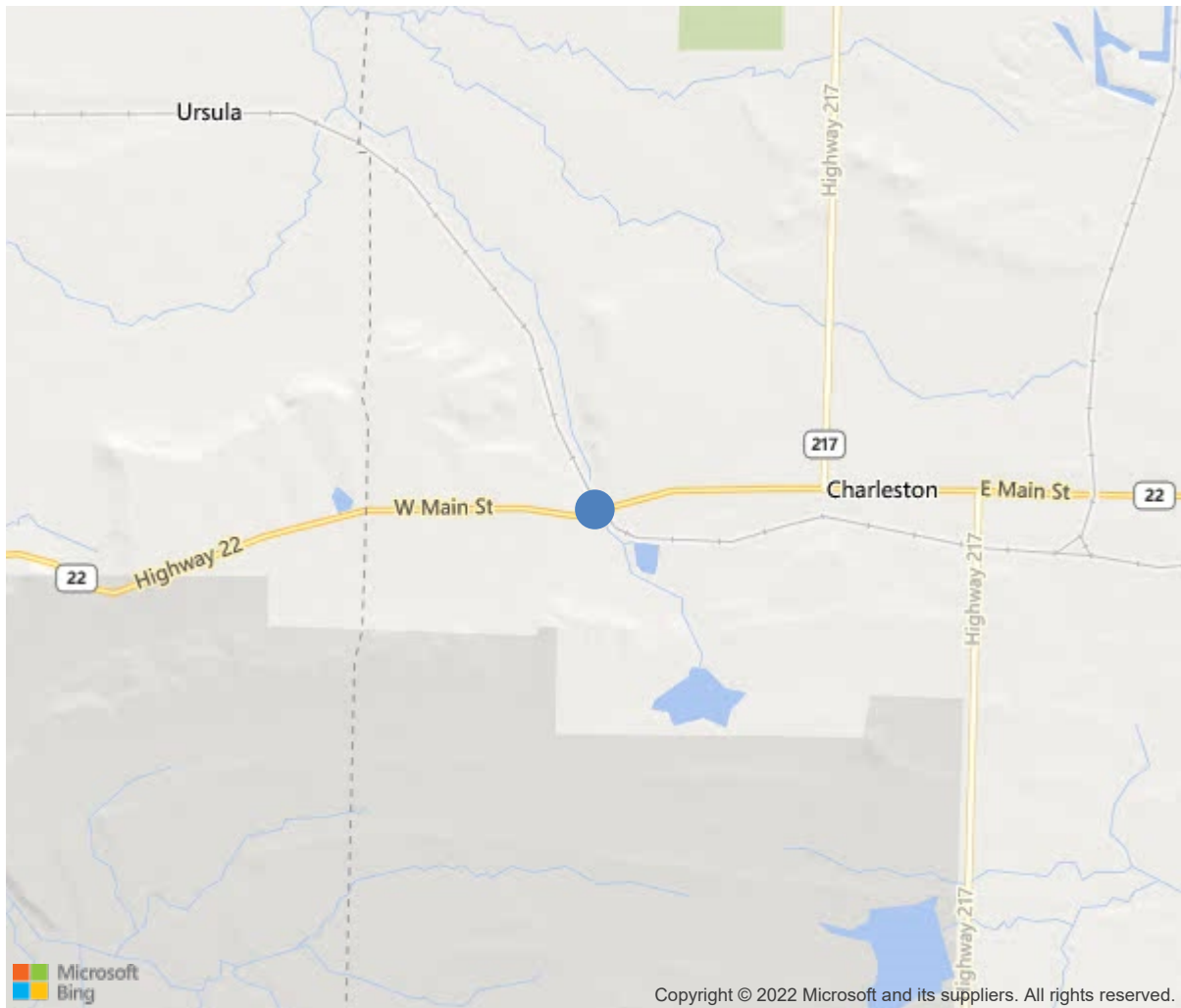
Route:22 Section:02 Log:1.14

Arnold Road ID:24x22x2xA, Arnold Log mile:1.146

District 04, Franklin County

Owner: 1-State Highway Agency

8.5 E OF JCT SH 96 & 22



35.29548, -94.05942

Inspection Direction : W to E



Bridge #02012(Routine, Underwater type 2)
State Highway 22 over Dry Fork Branch-Franklin
Location: 8.5 E OF JCT SH 96 & 22

Team Lead: Bob McEntyre Inspection Date: May 13, 2020

IDENTIFICATION	
(1) State Names	Arkansas
(8) Structure Number	02012
(5) Inventory Route	22
(2) Highway Agency District	04
(3) County Code	47-Franklin County, Arkansas
(4) Place Code	0
(6) Features Intersected	Dry Fork Branch-Franklin
(7) Facility Carried	State Highway 22
(9) Location	8.5 E OF JCT SH 96 & 22
(11) Mile Point	1.14 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte & Subrte	0000022020
(16) Latitude	35.29548
(17) Longitude	-94.05942
(98) Border Bridge State Code	
(99) Border Bridge Structure No.	
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	42
Material	4-Steel continuous
Type	2-Stringer/Multi-beam or girder
(44) Approach Structure Type	00
Material	0-Other
Type	0-Other
(45) No. of Spans in Main Unit	6
(46) No. of Approach Spans	0
(107) Deck Structure Type	1-Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	6-Bituminous
Type of Membrane	0-None
Type of Deck Protection	0-None
AGE AND SERVICE	
(27) Year Built	1937
(106) Year Reconstructed	1957
(42) Type of Service	15
On	1-Highway
Under	5-Waterway
(28) Lane	
On	2
Under	0
(29) Average Daily Traffic	7600
(30) Year of ADT	2018
(109) Truck ADT	5 %
(19) Bypass, Detour Length	5 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	50 ft
(49) Structure Length	262 ft
(50) Curb or Sidewalk Width	
Left	1.5 ft
Right	1.5 ft
(51) Bridge Roadway Width Curb to Curb	27.9 ft
(52) Deck Width Out to Out	31.2 ft
(32) Approach Roadway Width (W/Shoulders)	38.1 ft
(33) Bridge Median	0-No median
(34) Skew	0 Deg
(35) Structure Flared	No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	31.2 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	0 ft
Ref:	
(55) Min Lat Underclear RT	99.9 ft
Ref:	
(56) Min Lat Underclear LT	0 ft
NAVIGATION DATA	
(38) Navigation Control	0-No navigation control on water
(111) Pier Protection	1-Navigation protection not requ
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clear	0 ft
(40) Navigation Horizontal Clearance	0 ft

CLASSIFICATION	
(112) NBIS Bridge Length	Y
(104) Highway System	0
(26) Functional Class	6-Rural Minor Arterial
(100) Defense Highway	0-The inventory route is not a S
(101) Parallel Structure	N-No parallel structure exists.
(102) Direction of Traffic	2 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0-N/A
(110) Designated National Network	0-The inventory route is not part of
(20) Toll	3-On free road. The structure is toll-
(21) Maintain	1-State Highway Agency
(22) Owner	1-State Highway Agency
(37) Historical Significance	5-Bridge is not eligible for the NRHP
CONDITION	
(58) Deck	6
(59) Superstructure	5
(60) Substructure	5
(61) Channel & Channel Protection	8
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	4-M 18 / H 20
(63) Operating Rating Method	1
(64) Operating Rating	
Type	1-Load Factor(LF)
Rating	48
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	
Type	6
Rating	29
(70) Bridge Posting	5-Equal to or above legal loads
(41) Structure Open/Posted/Closed	A-Open, no restriction
APPRAISAL	
(67) Structural Evaluation	5
(68) Deck Geometry	4
(69) Clearances, Vertical/Horizontal	N
(71) Waterway Adequacy	8
(72) Approach Roadway Alignment	8
(36A) Bridge Railings	0-Inspected feature does not meet cur
(36B) Transitions	0-Inspected feature does not meet cur
(36C) Approach Guardrail	0-Inspected feature does not meet cur
(36D) Approach Guardrail Ends	1-Inspected feature meets currently a
(113) Scour Critical Bridges	8-Bridge foundations determined to be
PROPOSED IMPROVEMENTS	
(75) Type of Work	
(76) Length of Structure Improvement	0 ft
(94) Bridge Improvement Cost	\$ 0
(95) Roadway Improvement Cost	\$ 0
(96) Total Project Cost	\$ 0
(97) Year of Improvement Cost Estimate	
(114) Future ADT	8400
(115) Year of Future ADT	2038

INSPECTIONS *			
(90) Inspection Date			05/2020
(91) Frequency			24 Months
(92) Critical Feature Inspection	Done	Freq. (Mon)	Date
A: Fracture Critical Detail	No		
B: Underwater Inspection	No		
C: Other Special Inspection	No		
* The inspection date and frequency information in this box contains the current NBI date and frequency information. Please refer to the report header for the date this inspection was conducted.			

Bridge #02012(Routine, Underwater type 2)
State Highway 22 over Dry Fork Branch-Franklin

Location: 8.5 E OF JCT SH 96 & 22

Team Lead: Bob McEntyre, **Inspection Date:** May 13, 2020

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	8060	7406	610	44	0
1080	Delamination/Spall/Patched Area	SF	99	0	79	20	0
1090	Exposed Rebar	SF	12	0	0	12	0
1120	Efflorescence/Rust Staining	SF	256	0	244	12	0
1130	Cracking (RC and Other)	SF	287	0	287	0	0
510	Wearing Surfaces	SF	7336	5489	23	1824	0
3210	Delam/Spall/Patched Area/Pothole	SF	25	0	23	2	0
3220	Crack (Wearing Surface)	SF	1822	0	0	1822	0
(12)							
Asphalt measures 5" below the top of the curb.							
Driving surface of the deck: ACHM overlay has mapcracking in the wheel paths and deterioration of asphalt over the expansion joints. -The right lane of span # 2 has an 8" spall in the asphalt driving surface.							
Deck undersurface: -Spalling and delaminated areas in the expansion joint dams visible from the undersurface of the deck. -Span # 2, bay # 4 has a 4" spall with exposed steel near mid-span adjacent to beam # 5. -Transverse cracks with efflorescence and rust staining at variable spacing are typical in all spans. -The undersurface of the deck in span # 3, bay # 4 has a hairline full length longitudinal crack. -Span # 3 has a transverse crack that is spalled with an area of exposed reinforcing steel approximately 8" long. -Concrete spalls with no exposed reinforcing steel over Bent # 1. -The expansion dams have delaminated and spalled areas with wide cracking adjacent to the beams. -The left deck overhang in span # 5 over bent # 5 has a 24" spall with exposed reinforcing steel. The exposed steel has measurable section loss.							
107	Steel Open Girder/Beam	LF	1300	1061	0	234	5
1000	Corrosion	LF	239	0	0	234	5
515	Steel Protective Coating	SF	9622	617	5950	2814	241
3440	Effectiveness (Steel Protective Coatings)	SF	241	0	0	0	241
3420	Peeling/Bubbling/Cracking	SF	8764	0	5950	2814	0
(107)							
-All beams have areas of heavy pitting and active corrosion with section loss. -Exterior beams have active corrosion with flaking rust at all deck drain outlets. -Span # 1 at abutment # 1, Beam # 4 has active corrosion with 3/8" section loss in the top of the web located at the expansion joint dam juncture. -Span # 3, Beam # 1 over Bent # 4 has active corrosion with approx. 1/16" section loss of the web at the bottom flange. -The steel plate attached to the bottom of beams in span # 5 to deflect locomotive exhaust has heavy dirt and debris that has accumulated against the Superstructure causing significant corrosion and section loss to the base of web and bottom flange of beam. The bottom flange and base of web have heavy flaking rust. Partial dirt removal indicated that the bottom flange has significant section loss. -Span # 6 Beam # 1 over abutment # 2 has a 1/2" hole rusted through the web at the expansion joint dam juncture. The bottom flange has 1/8" section loss and the base of web has up to 3/16" section loss in the same location. No apparent out of plane bending.							

Bridge #02012(Routine, Underwater type 2)
State Highway 22 over Dry Fork Branch-Franklin

Location: 8.5 E OF JCT SH 96 & 22

Team Lead: Bob McEntyre, **Inspection Date:** May 13, 2020

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Bridge #02012(Routine, Underwater type 2)
State Highway 22 over Dry Fork Branch-Franklin

Location: 8.5 E OF JCT SH 96 & 22

Team Lead: Bob McEntyre, **Inspection Date:** May 13, 2020

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
305	Assembly Joint without Seal	LF	72	0	0	72	0
2350	Debris Impaction	LF	72	0	0	72	0
(305)							
-Asphalt is still breaking apart over the expansion joints with asphalt patches at both abutments and over Bent # 4. There is spalling and delaminated areas in the expansion joint dams adjacent to the beams visible from the undersurface of the deck.							
311	Movable Bearing	EA	30	0	6	15	9
1000	Corrosion	EA	17	0	6	11	0
1020	Connection	EA	1	0	0	1	0
2210	Movement	EA	12	0	0	3	9
515	Steel Protective Coating	SF	150	0	0	36	114
3440	Effectiveness (Steel Protective Coatings)	SF	150	0	0	36	114
(311)							
-Active corrosion and pack rust mainly on exterior bearings of Bents # 1, 4 and 7 that correspond with the expansion joints that leak water on to the bent caps. -All bearings have a failed paint system with rust ranging from speckled to heavy pack rust. -All rocker bearings appear to be non-functional. -Bearing # 1 of span # 3 over bent # 4 is missing the bearing pin retaining nut. Maintenance forces have painted over the active corrosion and the pack rust in the bearings as a type of repair at both abutments in the past. Active corrosion still exists.							
313	Fixed Bearing	EA	10	0	4	6	0
1000	Corrosion	EA	10	0	4	6	0
515	Steel Protective Coating	SF	50	0	17	11	22
3440	Effectiveness (Steel Protective Coatings)	SF	50	0	17	11	22
(313)							
-All bearings have a failed paint system with rust ranging from speckled to heavy pack rust. Maintenance forces have painted over the active corrosion and the pack rust in the bearings as a type of repair at both abutments. Active corrosion still exists.							
330	Metal Bridge Railing	LF	520	248	272	0	0
1000	Corrosion	LF	260	0	260	0	0
7000	Damage	LF	12	0	12	0	0
515	Steel Protective Coating	SF	2772	498	498	558	1218
3440	Effectiveness (Steel Protective Coatings)	SF	2274	0	498	558	1218
(330)							
-The South bridge railing in Span # 6 has minor out of plane bending due to apparent traffic impact. -There is corrosion beginning to form at the base of the bridge railing connections. -The paint system is deteriorating in areas exposing the primer coat with areas that have a superficial rust coating.							



Inventory 1 looking East.



Footings have cover.



Footings have cover.



Abutment # 1, left side-Diagonal cracking with efflorescence.



Abutment 1, bearing # 4-Heavy corrosion.



Abutment # 2-Spall with exposed reinforcing steel.



Post # 3 of the Southwest approach railing is broken at the base.



Northwest approach railing.



Southeast end post has been displaced.



Asphalt breaking apart over intermediate bents.



Right bridge railing-Minor collision damage to railing.



Spans 3 and 4.



The right lane of span # 2 has an 8" spall in the asphalt driving surface.



Collision damage to Southeast approach railing.



Paint system peeling.



Span # 6, beam 1 over abutment 2-3/16" section loss to base of web.



Span # 6, beam # 1 over abutment # 2-Hole rusted through web at expansion dam.



Abutment 2, right side-Minor earth settlement.



Abutment 2 bearing area.



Abutment 1.



Span # 6, beam # 5-Corroaion.



Beam 5 over bent 6-Corrosion.



Span 5 undersurface.



Span 5, beam 3-Corrosion.



Bent 6 bearing area.



Span 5, beam 1-Corrosion to bottom flange where steel plate is attached.



Span 5, beam 1-Corrosion to bottom flange where steel plate is attached.



Span 5, beam 1-Heavy corrosion where steel plate is attached To bottom of beams.



Span 5 splice connection 1.



Beam 5 over bent 5-Corrosion.



Span 4 undersurface.



Left deck overhang, span 5 over bent 5-Spalling with exposed reinforcing steel.



Span 4-Transverse cracking with light efflorescence.



Bent 5.



Span 3, beam 5 at bent 4-Corrosion.



The upper portion of column # 3 of bent # 4 has mapcracking with efflorescence.



Bent # 4 cap-Concrete deterioration / spalling.



Typical of movable bearings over bent 4.



Bearing area over bent # 4.



Bent 4 bearing area.



Bearing # 1 of span # 3 over bent # 4 is missing the bearing pin retaining nut.



Span 3, bearing 1 over bent 4-Corrosion.



Span # 3, bay # 1-Spalling with exposed reinforcing steel.



Bent # 3, column # 3 has two 4" spalls with exposed reinforcing steel near cap juncture.



Bent 4.



Span 2 undersurface.



Bent 3 bearing area.



Bentt 3.



Span 2, left side-Spalling with exposed reinforcing steel in deck overhang.



Span 2-General view of splice plate connections.



Bent 2 cap.



Bent 2, column 2-Hairline horizontal cracks.



The expansion dams have delaminated areas with wide cracking adjacent to the beams.



The left end of bent # 2 cap has a 20" x 8" spall that has caused approximately 3" of bearing area loss under the exterior bearing. The bearing anchor bolt is exposed and has approximately 60% section loss.



The left end of bent # 2 cap has a 20" x 8" spall that has caused approximately 3" of bearing area loss under the exterior bearing. The bearing anchor bolt is exposed and has approximately 60% section loss.



Span 1, bay 1 at bent 2-Corrosion to diaphragm.



Bent 2, bearing 2-Corrosion.



Bent 2 bearing area.



Span 1, beam 5-Corrosion section loss where deck drain discharges water.



Span 1, beam 5-Corrosion where deck drain discharges water on beam.



Right side.



Abutment 1, bearing 5-Corrosion.



Bridge railing has rust coating.



Driving surface.

Maintenance Needs

Date Reported: 06/18/2012
Priority: D- Routine
Type of Work: Repair
Status: Monitor
Component: Miscellaneous

Deficiency Description

Northwest and Southeast approach guard railing -
The Northwest and Southeast approach guard railing have areas of collision damage.

Remarks



Collision damage to Southeast approach railing.



Collision damage to the Northwest approach railing.

Date Reported: 06/18/2012
Priority: C - Important
Type of Work: Repair
Status: Monitor
Component: 107 - Steel Open Girder/Beam

Deficiency Description

Superstructure -

All beams have areas of heavy pitting and active corrosion with section loss.

Exterior beams have active corrosion with flaking rust at all deck drain outlets.

Span # 1 at abutment # 1, Beam # 4 has active corrosion with 3/8" section loss in the top of the web located at the expansion joint dam juncture.

Span # 3, Beam # 1 at Bent # 4 has active corrosion with approx. 1/16" section loss of the web at the bottom flange.

The steel plate attached to the bottom of beams in span # 5 to deflect locomotive exhaust has heavy dirt and debris accumulation on the left exterior side that has accumulated against the Superstructure. Partial dirt / debris removal revealed significant corrosion with an undetermined amount of section loss to the base of web and bottom flange of beam. Heavy flaking rust is visible along the bottom flange and base of web.

Span # 6, beam # 1 over abutment # 2 has a 1/2" hole rusted through the web at the expansion joint dam juncture. The beam has 1/8" section loss to the bottom flange and up to 3/16" section loss to base of web in the same location.

The diaphragms at the expansion joints have active corrosion with flaking rust with section loss up to holes rusted in the diaphragm in Bay # 1, abutment # 2.

Paint system is failing with numerous areas of active corrosion.

Remarks



Span 5, beam 1-Heavy corrosion where steel plate is attached To bottom of beams.



Span 5, beam 1-Corrosion to bottom flange where steel plate is attached.



Span 5, beam 1-Corrosion to bottom flange where steel plate is attached.



Span 5, beam 3-Corrosion.



Beam 5 over bent 6-Corrosion.



Span # 6, beam 1 over abutment 2-3/16" section loss to base of web.

Date Reported: 06/18/2012
Priority: C - Important
Type of Work: Repair
Status: Monitor
Component: 12 - Reinforced Concrete Deck

Deficiency Description

Deck -

The asphalt driving surface is breaking apart over the expansion joints with asphalt patches at both abutments and over Bent # 4. The right lane of span # 2 has an 8" spall in the asphalt driving surface. Full width transverse cracks at random spacing and apparent rust staining are visible from the undersurface of the deck. Concrete spalls with exposed reinforcing steel is visible from the undersurface of the deck in the haunches over the intermediate bents and in the overhangs.

Remarks



The expansion dams have delaminated and spalled areas with wide cracking adjacent to the beams.



Left deck overhang, span 5 over bent 5-Spalling with exposed reinforcing steel.



The right lane of span # 2 has an 8" spall in the asphalt driving surface.



Asphalt breaking apart at expansion joints.

Date Reported: 06/18/2012
Priority: C - Important
Type of Work: Repair
Status: Monitor
Component: Superstructure

Deficiency Description

Bearings -

The bearings have active corrosion with flaking rust.

Bearing # 1 of span # 3 over bent # 4 is missing the bearing pin retaining nut.

Remarks



Span 3, bearing 1 over bent 4-Corrosion.



Bearing # 1 of span # 3 over bent # 4 is missing the bearing pin retaining nut.



Typical of movable bearings over bent 4.

Date Reported: 06/18/2012
Priority: C - Important
Type of Work: Repair
Status: Monitor
Component: 234 - Reinforced Concrete Pier Cap

Deficiency Description

Substructure Caps -

Bent # 4, the Right end of cap has soft deteriorated concrete with approximately 4" of concrete section loss with exposed reinforcing steel. Exposed reinforcing steel has up to initial section loss at this inspection.
The left end of bent # 2 cap has a 20" x 8" spall that has caused a loss of bearing area approximately 2" wide that extends approximately 3" under the exterior side of the masonry plate exposing the bearing anchor bolt. The exposed anchor bolt has an estimated 40% section loss.

Remarks



The left end of bent # 2 cap has a 20" x 8" spall that has caused approximately 3" of bearing area loss under the exterior bearing. The bearing anchor bolt is exposed and has approximately 60% section loss.



The left end of bent # 2 cap has a 20" x 8" spall that has caused approximately 3" of bearing area loss under the exterior bearing. The bearing anchor bolt is exposed and has approximately 60% section loss.



Bent # 4 cap-Concrete deterioration / spalling.

Date Reported: 06/07/2018
Priority: C - Important
Type of Work: Clean
Status: Monitor
Component: Substructure

Deficiency Description

Substructure -
Portions of the substructure are covered with heavy vegetation (poison ivy) inhibiting inspection efforts.

Remarks



Portions of the substructure are covered with heavy vegetation (poison ivy) and not visible during this inspection.

Date Reported: 06/11/2018
Priority: D- Routine
Type of Work: Repair
Status: Monitor
Component: 330 - Metal Bridge Railing

Deficiency Description

Bridge Railing -

The bridge railing posts have active corrosion in the lower connections to the deck.

There are areas with exposed primer and a superficial rust coating.

The right bridge railing in Span # 6 has minor collision damage.

Collision damage has displaced the Southeast end post. The end post is lying on the embankment.

Remarks



The bridge railing posts have active corrosion in the lower connections to the deck.



Collision damage has displaced the Southeast end post. The end post is lying on the embankment.



Right bridge railing-Minor collision damage to railing.



Bridge #02012(Routine, Underwater type 2)
State Highway 22 over Dry Fork Branch-Franklin
Location: 8.5 E OF JCT SH 96 & 22

Team Lead: Bob McEntyre **Inspection Date:** May 13, 2020

Inspection Comments

05/13/2020 - RSM & SPC: Routine and Underwater Type II inspections conducted this date. See element notes for documentation. Snooper Utilized for inspection access.

06/07/2018 - TJL - Elements were plan verified on this date. Bridge plans are filed as A2012.05/23/2016

EJW & RWF - Underwater Type 2 inspection conducted this date. Wading and probing indicate no apparent noteworthy deficiencies or scour problems at this inspection. Portions of the substructure are covered with heavy vegetation (poison ivy) and not visible during this inspection.

Substructure Notes

05/13/2020 - RSM & SPC: Underwater Type II inspection: Visual observation in low water conditions revealed all footings have cover with no apparent scour problems at this inspection.