



Latitude:46.84523, Longitude:-100.90742

Route:00094 Log:152.296

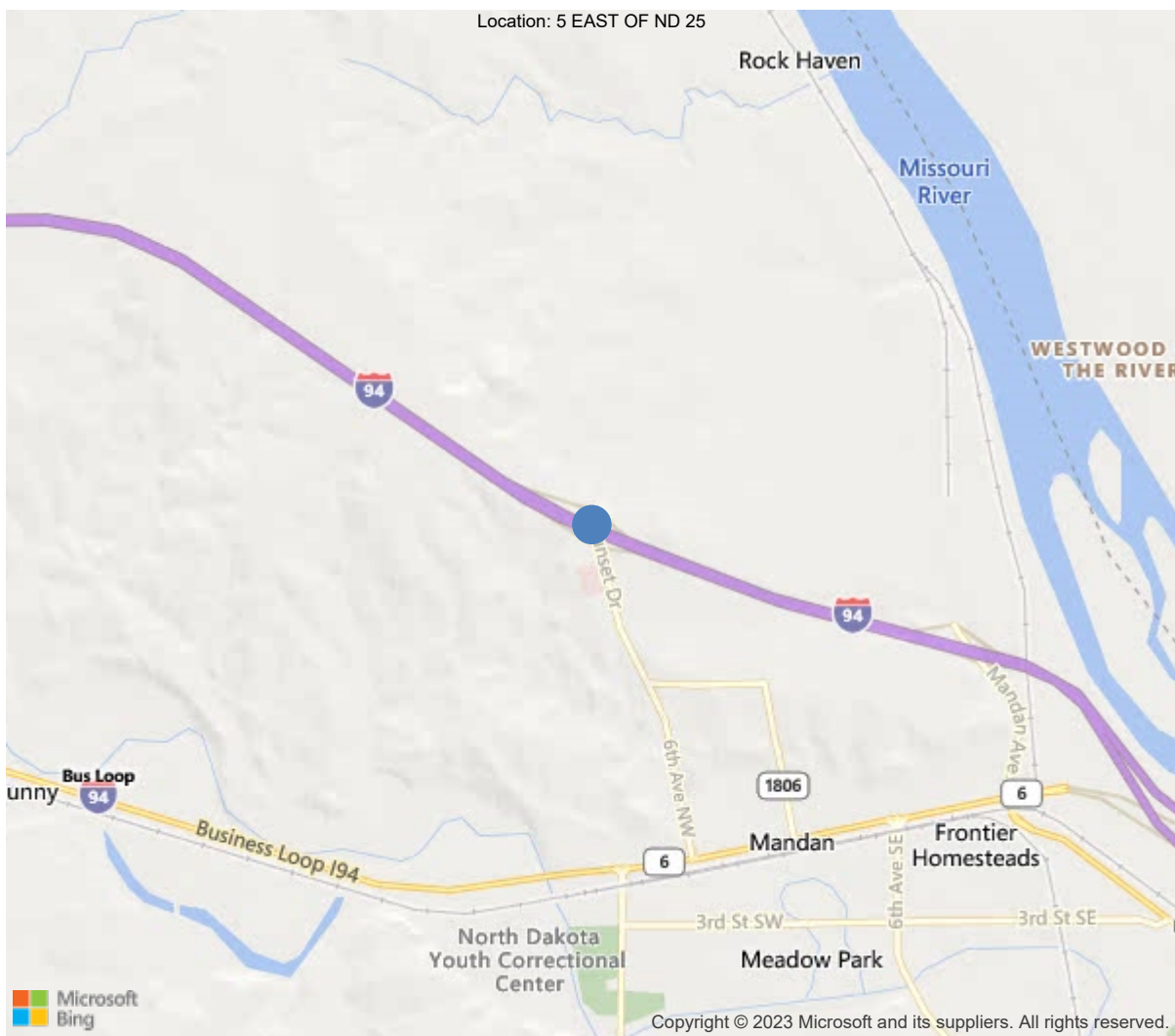
District 61, 30 - Morton

Owner: 1 - State Highway Agency

Place Code: 49900

Team Leader: Jake Mertz

Approved By: Travis McCloud



46.84523, -100.90742

INTERSTATE 94 over SUNSET DR/NW MANDAN INT.

Location: 5 EAST OF ND 25

Inspection Date: 04/26/2023

IDENTIFICATION	
(1) State Names	38 - North Dakota
(8) Structure Number	0094-152.329 L
(5) Inventory Route	1
(2) Highway Agency District	1 - Bismarck
(3) County Code	30 - Morton
(4) Place Code	49900
(6) Features Intersected	SUNSET DR/NW MANDAN INT.
(7) Facility Carried	INTERSTATE 94
(9) Location	5 EAST OF ND 25
(11) Mile Point	152.296 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte & Subrte	0000000000
(16) Latitude	46.845228312237
(17) Longitude	-100.907423049609
(98) Border Bridge State Code	-1
(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	3
(46) No. of Approach Spans	0
(107) Deck Structure Type	1 - Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	4 - Low slump Concrete
Type of Membrane	0 - None
Type of Deck Protection	0 - None
AGE AND SERVICE	
(27) Year Built	1964
(106) Year Reconstructed	1985
(42) Type of Service	61
On	6 - Overpass structure at an interchange or s
Under	1 - Highway, with or without pedestrian
(28) Lane	
On	2
Under	4
(29) Average Daily Traffic	6350
(30) Year of ADT	2019
(109) Truck ADT	10 %
(19) Bypass, Detour Length	66 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	60 ft
(49) Structure Length	166 ft
(50) Curb or Sidewalk Width	
Left	0 ft
Right	0 ft
(51) Bridge Roadway Width Curb to Curb	37.1 ft
(52) Deck Width Out to Out	43 ft
(32) Approach Roadway Width (W/Shoulders)	38.1 ft
(33) Bridge Median	0 - No median
(34) Skew	36 Deg
(35) Structure Flared	0 - No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	37.1 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	14.3 ft
Ref:	
(55) Min Lat Underclear RT	1.6 ft
Ref:	
(56) Min Lat Underclear LT	0 ft
NAVIGATION DATA	
(38) Navigation Control	N - Not applicable, no waterwa
(111) Pier Protection	
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clear	ft
(40) Navigation Horizontal Clearance	0 ft

CLASSIFICATION	
(112) NBIS Bridge Length	Y
(104) Highway System	1
(26) Functional Class	11 - Urban Principal Arterial
(100) Defense Highway	1 - Interstate STRAHNET route
(101) Parallel Structure	L - The left structure of para
(102) Direction of Traffic	1 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0 - N/A
(110) Designated National Network	1 - The inventory route is par
(20) Toll	3 - On toll free road
(21) Maintain	1 - State Highway Agency
(22) Owner	1 - State Highway Agency
(37) Historical Significance	5 - Bridge is not eligible for
CONDITION	
(58) Deck	7
(59) Superstructure	7
(60) Substructure	7
(61) Channel & Channel Protection	N
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	5 - MS 18 / HS 20
(63) Operating Rating Method	1
(64) Operating Rating	
Type	1 - Load Factor(LF)
Rating	64.2
(65) Inventory Rating Method	1 - Load Factor(LF)
(66) Inventory Rating	
Type	
Rating	38.4
(70) Bridge Posting	5 - Equal to or above legal loads
(41) Structure Open/Posted/Closed	A - Open, no restriction
APPRAISAL	
(67) Structural Evaluation	7
(68) Deck Geometry	5
(69) Clearances, Vertical/Horizontal	3
(71) Waterway Adequacy	N
(72) Approach Roadway Alignment	8
(36A) Bridge Railings	1 - Meets currently acceptable stan
(36B) Transitions	1 - Inspected feature meets current
(36C) Approach Guardrail	1 - Inspected feature meets current
(36D) Approach Guardrail Ends	1 - Inspected feature meets current
(113) Scour Critical Bridges	N - Bridge not over waterway.
PROPOSED IMPROVEMENTS	
(75) Type of Work	38 - Other structural work, in
(76) Length of Structure Improvement	166 ft
(94) Bridge Improvement Cost	\$ 86000
(95) Roadway Improvement Cost	\$ 9000
(96) Total Project Cost	\$ 129000
(97) Year of Improvement Cost Estimate	2010
(114) Future ADT	6350
(115) Year of Future ADT	2039

INSPECTIONS *			
(90) Inspection Date	04/26/2023		
(91) Frequency	24		
(92) Critical Feature Inspection	Done	Freq. (Mon)	Date
A: Fracture Critical Detail	No		
B: Underwater Inspection	No		
C: Other Special Inspection			
* 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.			

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	7138	7138	0	0	0
1130	Cracking (RC and Other)	SF	356	356	0	0	0
(1130-12) 26April2023 - There are cracks in the deck that have been sealed.							
107	Steel Open Girder/Beam	LF	830	785	2	43	0
1000	Corrosion	LF	43	0	0	43	0
7000	Damage	LF	2	0	2	0	0
515	Steel Protective Coating	SF	6291	0	0	6248	43
3410	Chalking (Steel Protective Coatings)	LF	6248	0	0	6248	0
3440	Effectiveness (Steel Protective Coatings)	LF	43	0	0	0	43
(1000-107) All girders are showing some minor signs of corrosion, mostly due to protective coating failing. - 4/1/2019							
There is corrosion on the N1 and S1 bottom flanges. 15April2021							
26April2023 - There is no change to this defect.							
(7000-107) 26April2023 - Beam 1 in Span 2 has impact damage which has caused scratches and dings.							
(515-107) Protective coating is failing or has failed in some areas - 4/1/2019							
(3410-515-107) All the steel beams have chalked. 15April2021							
26April2023 - There is no change to this defect.							
(3440-515-107) Effectiveness of the protective coating has become limited. - 4/1/2019							
The coating has failed on the bottom flanges of the N1 and S1 beams. 15April2021							
26April2023 - There is no change to this defect.							
205	Reinforced Concrete Column	EA	10	8	2	0	0
1080	Delamination/Spall/Patched Area	EA	1	0	1	0	0
1130	Cracking (RC and Other)	EA	1	0	1	0	0
(1080-205) Pier 2 N1 column has a 4 inch by 6 inch spall. 15April2021							
26April2023 - There is no change to this defect.							
(1130-205) 26April2023 - Column 2 at pier 3 has some cracks towards the bottom of the column.							
215	Reinforced Concrete Abutment	LF	95	59	25	11	0
1080	Delamination/Spall/Patched Area	LF	8	0	0	8	0
1090	Exposed Rebar	LF	3	0	0	3	0
1130	Cracking (RC and Other)	LF	25	0	25	0	0
(215) Hairline vertical cracking on abutment walls. Large 4'x2' spall on east abutment south end. - 4/1/2019							
(1080-215) 4'x2' spall on east abutment south end. 2 other large spalls on both sides of girder S, east abutment. - 4/1/2019							
There are 2 patched spall areas on abutment 4. A 3 foot by 4 foot and a 4 foot by 2 foot. 15April2021							
26April2023 - There is no change to this defect.							

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
<p>(1090-215) Abutment 4 has approximately 3 feet of exposed rebar that is located on the N1 pedestal and the Center pedestal. 15April2021 26April2023 - There is no change to this defect.</p> <p>(1130-215) Hairline vertical cracks on east abutment - 4/1/2019</p> <p>Abutment 1 has approximately 10 feet of cracks on and between the pedestals and where the abutment and wing meet. These cracks range from approximately 0.006 to 0.020 in width. Abutment 4 has approximately 15 feet of cracks on and between the pedestals. These cracks range from approximately 0.012 to 0.031 in width. 15April2021 26April2023 - There is no change to this defect.</p>							
234	Reinforced Concrete Pier Cap	LF	95	94	1	0	0
1130	Cracking (RC and Other)	LF	1	0	1	0	0
<p>(1130-234) The pier 2 pier cap has a crack above the S2 column. 15April2021 26April2023 - There is no change to this defect.</p>							
311	Movable Bearing	EA	15	0	5	10	0
1000	Corrosion	EA	15	0	5	10	0
515	Steel Protective Coating	SF	75	0	25	0	50
3440	Effectiveness (Steel Protective Coatings)	EA	75	0	25	0	50
<p>(1000-311) All the bearings at both abutments have measurable section loss. The pier 3 bearings have freckled rust initiated. 15April2021 26April2023 - There is no change to this defect.</p> <p>(515-311) Protective coating is very limited - 4/1/2019</p> <p>(3440-515-311) Protective coating has become very limited. - 4/1/2019</p> <p>The coating on the bearings at both abutments has failed. The pier 3 bearings coating is substantially effective. 15April2021 26April2023 - There is no change to this defect.</p>							
313	Fixed Bearing	EA	5	0	5	0	0
1000	Corrosion	EA	5	0	5	0	0
515	Steel Protective Coating	SF	25	0	25	0	0
3440	Effectiveness (Steel Protective Coatings)	EA	25	0	25	0	0
<p>(1000-313) Freckled rust has initiated on the pier 2 bearings. 26April2023 - There is no change to this defect.</p> <p>(515-313) Protective coating has become limited. - 4/1/2019</p> <p>(3440-515-313) Protective has become limited - 4/1/2019</p> <p>No change to this defect . 15April2021 26April2023 - There is little to no change to this defect.</p>							
321	Reinforced Concrete Approach Slab	SF	3040	3029	11	0	0
1130	Cracking (RC and Other)	SF	11	0	11	0	0
<p>(1130-321) Both approach slabs have cracks. 22April2021 26April2023 - There is little to no change to this defect.</p>							
330	Metal Bridge Railing	LF	331	331	0	0	0

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
331	Reinforced Concrete Bridge Railing	LF	331	327	0	4	0
1090	Exposed Rebar	LF	4	0	0	4	0
1130	Cracking (RC and Other)	LF	44	44	0	0	0
(1090-331) The North curb at the West end of the deck has exposed rebar and is cracked approximately 4 feet in length. 22April2021 26April2023 - There is no change to this defect. (1130-331) Hairline to 1/8" cracks throughout the bridge - 4/1/2019 There are approximately 20 cracks in each barrier that measure 0.008 in width. The North curb at the West end of the deck has exposed rebar and is cracked approximately 4 feet in length. 22April2021 26April2023 - The cracks have been sealed.							
815	Re Conc Backwall	LF	95	94	1	0	0
1130	Cracking (RC and Other)	LF	1	0	1	0	0
(1130-815) 26April2023 - The West abutment backwall has a crack.							
8399	Slope Protection, RC	EA	2	0	2	0	0
4000	Settlement	EA	2	0	2	0	0
(8399) Both slope protections have some movement and cracking. East slope protection is also buckling due to movement. - 4/1/2019 (4000-8399) Both slope protections show signs of movement. East side has some buckling due to movement. - 4/1/2019 No change to this defect. 15April2021 26April2023 - There is little to no change to this defect.							
8401	Wings	EA	4	2	2	0	0
1130	Cracking (RC and Other)	EA	2	0	2	0	0
(1130-8401) The Southeast wing has a crack that measures approximately 0.004 in width. 15April2021 26April2023 - In addition to the previous entry, the Northwest wing has a crack.							

General Observation

04/19/2017 -New retrofit and guardrail and overlay and approach slabs

NBI Remarks Hairline vert. Cracks on east abut.

- The 2 north pedestals on the east abutment are cracked. All east bearings have pack rust.
- 1' X 2' spall on east breastwall with rebar exposed and no section loss.

04/19/2017: On East abut 2nd from north pedestal corner is busted off with exposed rebar. Erosion on SE slope protection 12'L x 18'd x 1'w some buckling of slope protection. The spall on the east abutment is now 4'x2'.

04/01/2019: Two spalls on east end of deck approximately 8'x1' and 2'x1' - 4/1/2019

Alert code 1 - Two spalls on new overlay, 1'x1' each. - 4/1/2019

26April2023 - weather: 56 degrees F, cloudy/light rain, WSW 9. The piers are designated (from this date forward) from West to East and the beams are designated from North to South.

Significant Findings

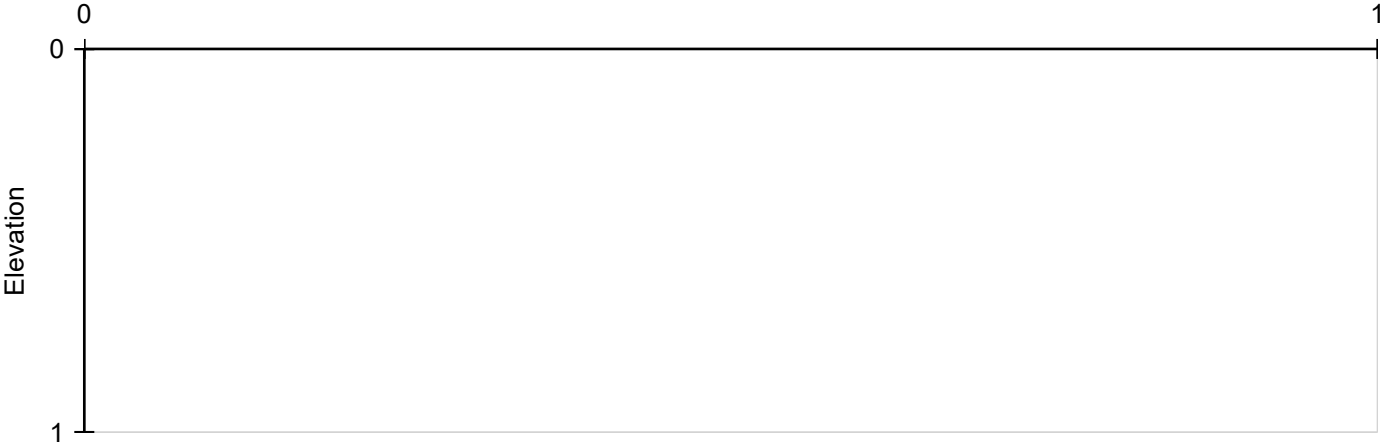
Critical Finding

Channel Profile

Station	Distance	Upstream	Downstream
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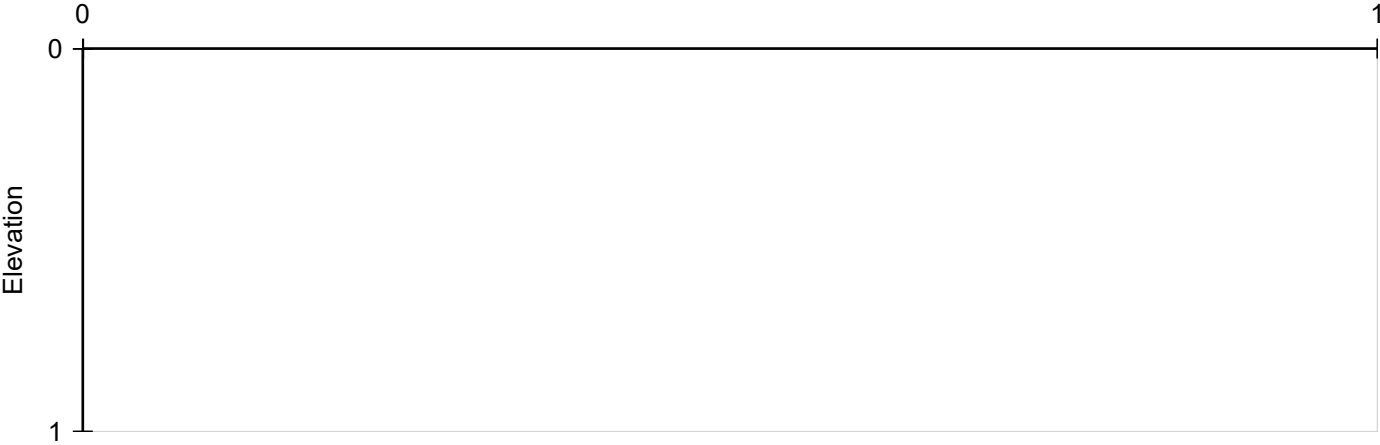
Upstream Elevation

Distance



Downstream Elevation

Distance





Deck view looking west



Deck view looking west



Beam5 west abutment 1 3/4"



Beam 4 west abutment 1 5/8"



Beam 3 west abutment 1 3/4"



Beam 2 west abutment 1 5/16"



Beam 1 west abutment 1 3/4"



North side looking south



Pier 3



Beam 5 flange corrosion



Beam 5 flange corrosion



SE corner slope protection settlement



SE wing cracks



SE corner east abutment cracks efflorescence



East abutment beam 5 1 1/4" from abutment

East abutment beam 5 , 1 1/4" for abutment



East abutment ped 5 beam 5

East abutment ped 5 beam 5



East abutment beam 4 , 1 1/2" from abutment



East abutment pier 4 crack



East abutment ped 4 bearing 4



East abutment ped 4 bearing 4



East abutment beam3 1 1/4" from
abutment

East abutment beam 4 , 1 1/4"from abutment



East abutment ped 3 bearing 3

East abutment ped 3 bearing 3



East abutment ped 3 bearing 3



East abutment crack .014



East abutment ped 2 bearing 2



East abutment beam 2 , 1 1/2" from abutment



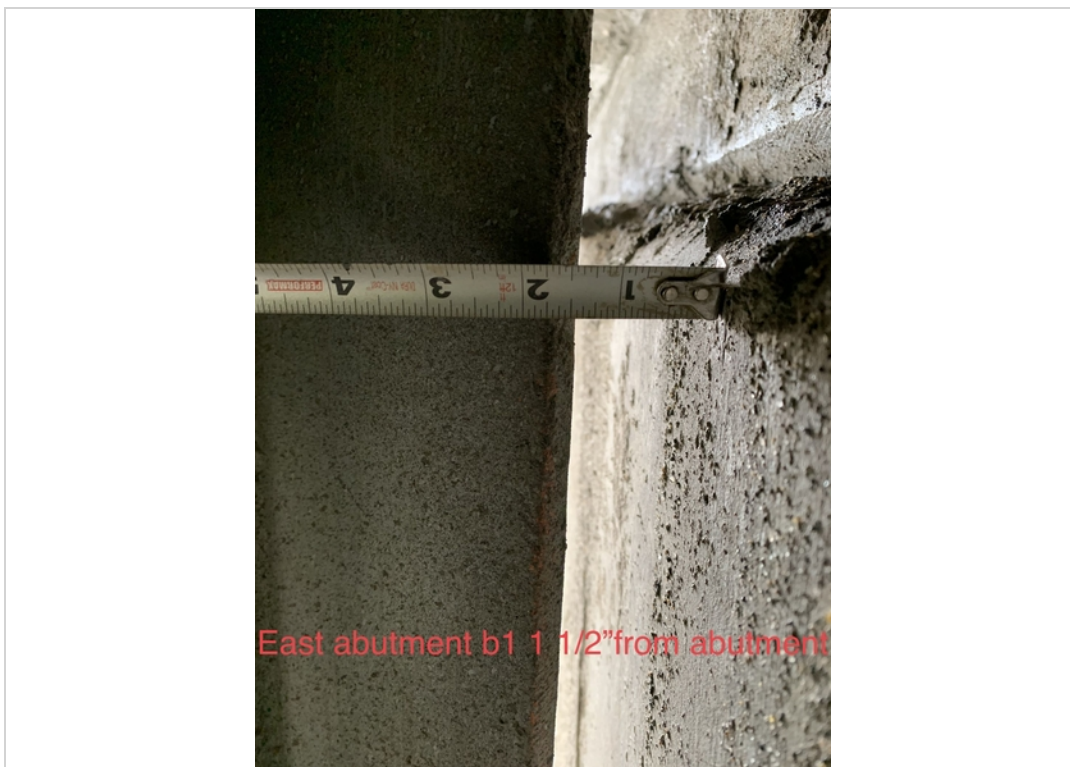
East abutment ped 2 exposed rebar and bearing 2



East abutment ped 2 exposed rebar and bearing 2



East abutment cracks



East abutment beam 1 , 1 1/2" from abutment



East abutment ped 1 bearing 1



Beam 1 span 3 flange corrosion



Beam 1 span 3 flange corrosion



NE corner east abutment



NE corner slope protection settlement



East abutment looking SE



Pier 3 column 2 cracks



Pier 3 column 5 delam



Span2 looking NW



east abutment looking NE



east abutment looking NE



West half looking NW



East half looking north



Ped 1 west abutment cracks



Looking east



Looking south



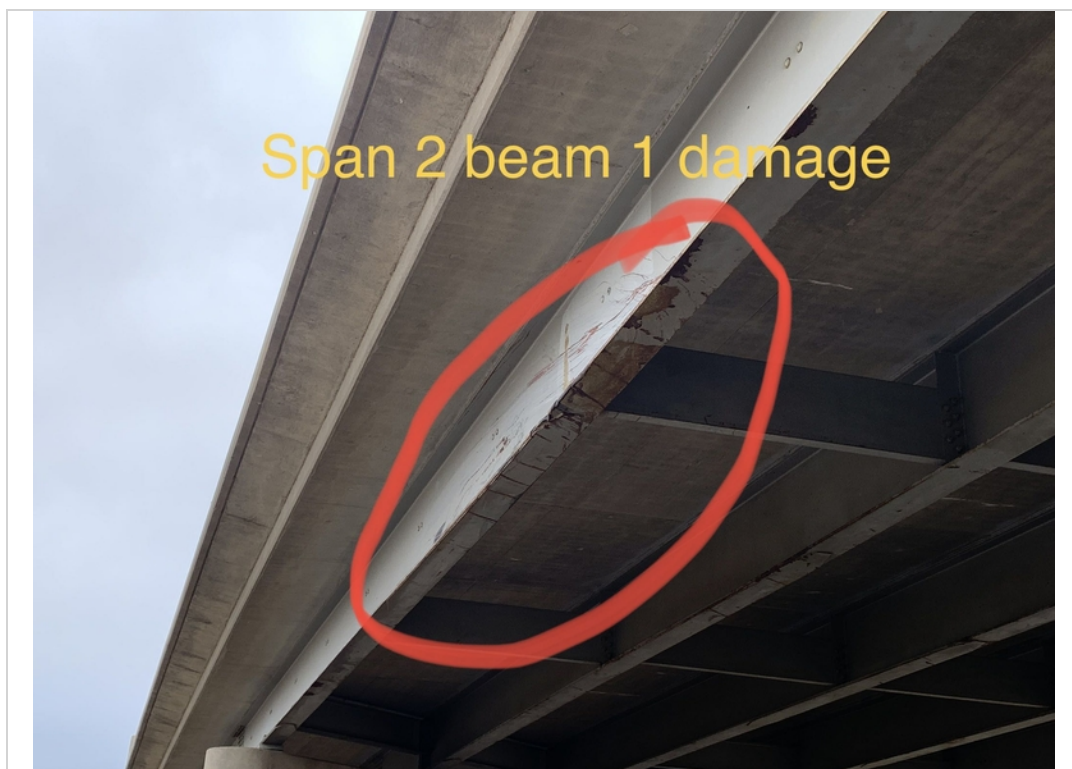
Looking west



Looking north



Pier 2 cap crack



Span 2 beam 1 damage



Pier 2 column 1 spall 4"x4"



NW wing crack



Ped 2 west abutment crack



Ped 3 crack west abutment



West abutment backwall crack



Ped 4 crack west abutment



Pedestal 5 West abutment

Ped 5 west abutment crack



West slope protection settlement

West slope protection settlement



West abutment view

Maintenance Needs

Date Reported: 04/15/2021

Priority: Medium

Type of Work: Seal Con. Slope Protectn Joints

Status: Unknown

Component: Element

Deficiency Description

The West needs to have some joints sealed. The East slope protection by the wings has pulled away.

Remarks

Recommend seal both slope protections and repairing the East slope protection. 15April2021, 26April2023



NE corner slope protection settlement



West slope protection settlement

Maintenance Needs

Date Reported: 04/26/2023

Priority: Low

Type of Work: Repair Erosion

Status: Unknown

Component: Miscellaneous

Deficiency Description

East slope south side of slope protection erosion taking place along edge of concrete protection

Remarks

Recommend repair erosion



East abutment looking SE



East slope south end erosion