NORTH Dakota | Transportation
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Bridge #0013-192.154(Routine)
ND HIGHWAY 13 over SAND CREEK
Location: 7 WEST OF US 83
Inspection Date: September 15, 2020

Latitude:46.27500, Longitude:-100.38000

Route:00013 Log:192.113

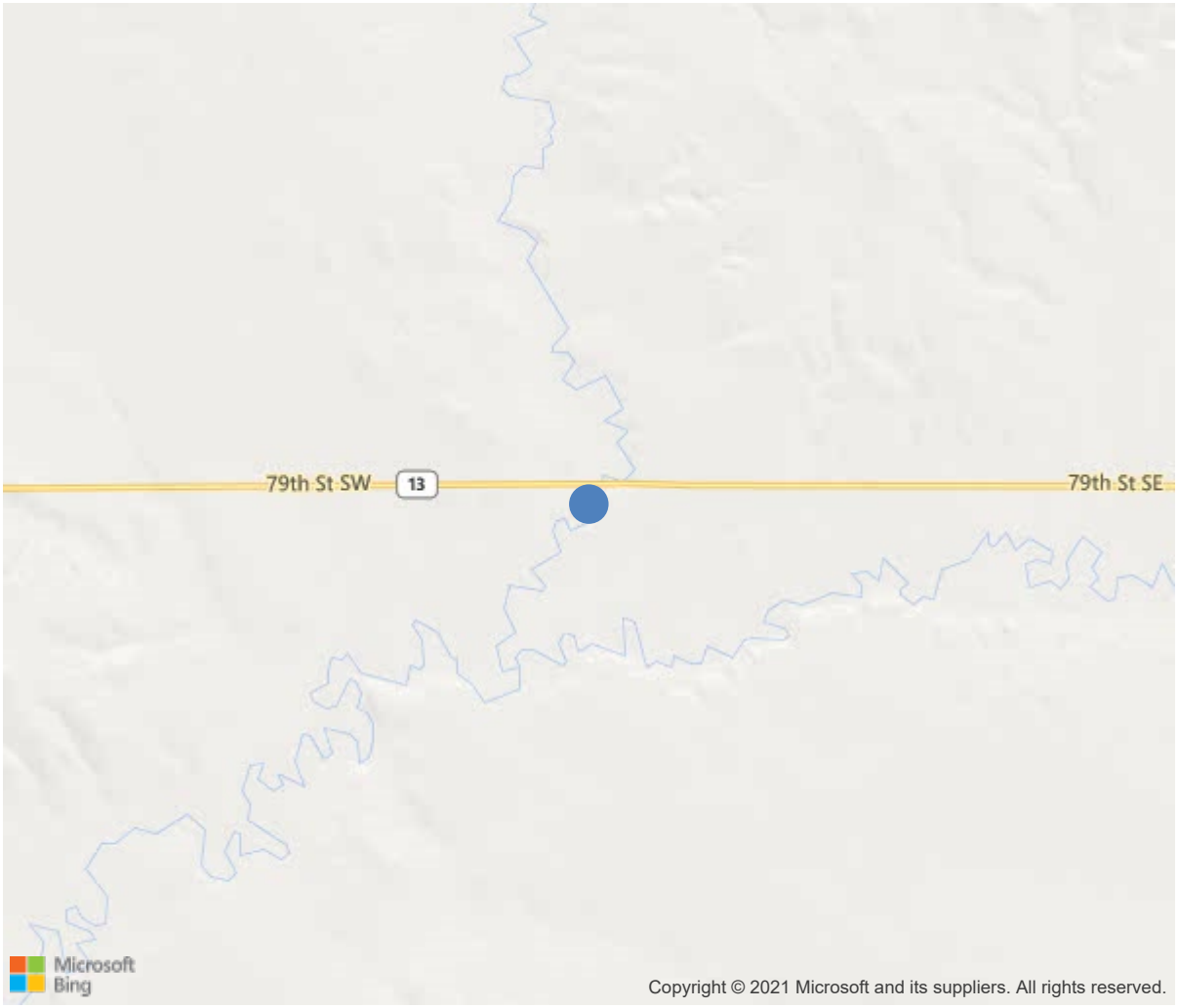
District 61, Emmons County

Owner: 1-State Highway Agency

Team Leader: Jake Mertz

Approved By: Travis McCloud

7 WEST OF US 83



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IDENTIFICATION	
(1) State Names	North Dakota
(8) Structure Number	0013-192.154
(5) Inventory Route	00013
(2) Highway Agency District	61
(3) County Code	Emmons, North Dakota
(4) Place Code	0
(6) Features Intersected	SAND CREEK
(7) Facility Carried	ND HIGHWAY 13
(9) Location	7 WEST OF US 83
(11) Mile Point	192.113 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte	0000000000
(16) Latitude	46.27500
(17) Longitude	-100.38000
GPS X	393721.5
GPS Y	5125666
(98) Border Bridge State Code	-1
(99) Border Bridge Struct. No.	_
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	119
Material	1-Concrete
Type	19-Culvert
(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
Culvert	TRIPLE, 12X14X84' RCB
(107) Deck Structure Type	N-Not applicable
(108) Wearing Surface/Protective System	
Type of Wearing Surface	N-Not applicable (applies only to structur
Type of Membrane	N-Not applicable (applies only to structur
Type of Deck Protection	N-Not applicable (applies only to structur
Deck overburden	N
AGE AND SERVICE	
(27) Year Built	1977
(106) Year Reconstructed	
(42) Type of Service	15
On	1-Highway
Under	5-Waterway
(28) Lane	
On	2
Under	0
(29) Average Daily Traffic	350
(30) Year of ADT	2017
(109) Truck ADT	9 %
(19) Bypass, Detour Length	76 mi
(114) Future ADT	421
(115) Year of Future ADT	2037
GEOMETRIC DATA	
(48) Length of Maximum Span	14.1 ft
(49) Structure Length	38.1 ft
(50) Curb or Sidewalk Width	
Left	0 ft
Right	0 ft
(51) Bridge Roadway Width Curb to Curb	0 ft
(52) Deck Width Out to Out	0 ft
(32) Approach Roadway Width (W/Shoulders)	44 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	44 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

CLASSIFICATION	
(A-7) Agency Admin Area	1
(112) NBIS Bridge Length	Y
(104) Highway System	NHS
(26) Functional Class	2-Rural Principal Arterial - Oth
(100) Defense Highway	0-The inventory route is not a S
(A16) TE Route	
(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	N
(59) Superstructure	N
(60) Substructure	N
(61) Channel & Channel Protection	7
(62) Culverts	4
LOAD RATING AND POSTING	
(31) Design Load	5-MS 18 / HS 20
(63) Operating Rating Method	1
(64) Operating Rating	59.5
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	35.7
(70) Bridge Posting	5-Equal to or above legal loads
(41) Structure Open/Posted/Closed	A-Open, no restriction
APPRAISAL	
(67) Structural Evaluation	6
(68) Deck Geometry	N
(69) Clearances, Vertical/Horizontal	N
(71) Waterway Adequacy	8
(72) Approach Roadway Alignment	8
(36) Traffic Safety Features	NN11
A) Bridge Railings	N-Not applicable or a safety feature
B) Transitions	N-Not applicable or a safety feature
C) Approach Guardrail	1-Inspected feature meets currently a
D) Approach Guardrail Ends	1-Inspected feature meets currently a
(113) Scour Critical Bridges	8-Bridge foundations determined to be

APPROVED INSPECTIONS			
(90) Inspection Date			09/2020
(91) Frequency			48 Months
(92) Critical Feature Inspection	Req	Freq. (Mon)	Date
A: Fracture Critical Detail	No		
B: Underwater Inspection	No		
C: Other Special Inspection	No		

NAVIGATION DATA	
(38) Navigation Control	0-No navigation control on water
(111) Pier Protection	-
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clr	ft
(40) Navigation Horizontal Clearance	0 ft
AGENCY ITEMS	
(A-21) Fedaid Project no.	S-1-013(02)186
(A-14) Chaining Date	
(A-15) Delamination Pct	
(A-2) Rating Date	1/1/1901 12:00:00 AM

Bridge Health Index	

Inspection Team Lead: Jake Mertz

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ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
241	Reinforced Concrete Culvert	LF	253	115	13	0	125
1130	Cracking (RC and Other)	LF	13	0	13	0	0
4000	Settlement	LF	125	0	0	0	125

(241-1130)

The West barrel has approximately 4 cracks that average approximately 0.025 in width. The Center barrel has approximately 5 cracks that range from approximately 0.025 to 0.031 in width. The East barrel has approximately 4 cracks that range from approximately 0.020 to 0.031 in width. 15September2020

(241-4000)

The North joint on all three barrels has separated approximately 3 inches on the walls and roof. The South joint has separated approximately 1 inch in all three and roof. 15September2020

8401	Wings	EA	4	0	3	0	1
1130	Cracking (RC and Other)	EA	4	0	3	0	1

(8401-1130)

The Northwest, Southwest and Southeast wings have cracks that range from approximately 0.008 to 0.012in width and are diagonally oriented. The Northeast wing has cracked and separated approximately 2 inches and has numerous cracks as it progresses upwards. The wing at the bottom has pushed out towards the channel approximately 3/8ths of an inch. 15September2020

8402	Headwalls	EA	2	0	1	1	0
1080	Delamination/Spall/Patched Area	EA	1	0	0	1	0
1130	Cracking (RC and Other)	EA	1	0	1	0	0

(8402-1080)

The South headwall has a spall approximately 1 foot by 6 inches in size with 6 inches of exposed rebar. This is located at the West end of the south headwall. 15September2020

(8402-1130)

The South headwall has cracks occurring. 15September2020

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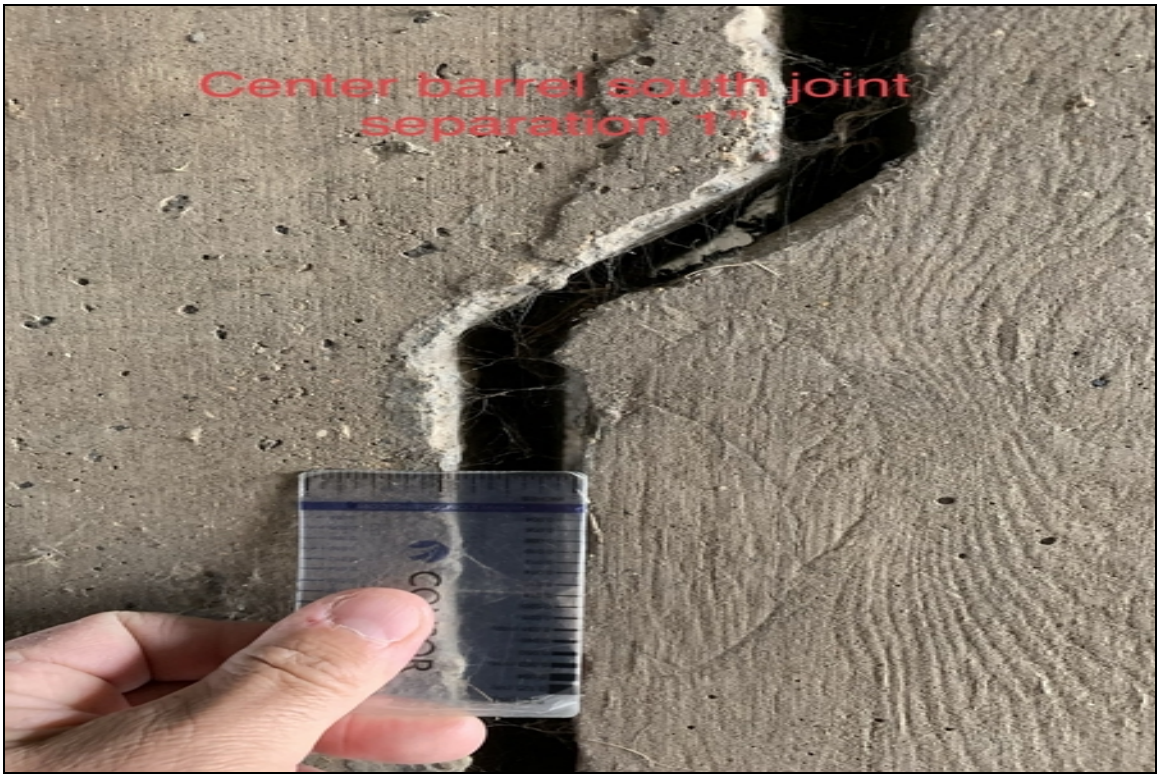
Inspection Comments

04/11/2017 NE wing has vertical crack in center of wing 3/4" to hairline on top. North construction is open 2 1/2" on top and tight on bottom. South construction joint is open 1 1/2" on top and tight on bottom. North construction joint has metal plate on outside and sounds hollow towards the top, possible fill loss.
North construction is now open 4" on top and tight on bottom. Fill loss is visible on ice.

The Northeast wing has some erosion occurring behind the wing. 15september2020

Center barrel east wall crack .031



Center barrel south joint open 1”

Center barrel north joint seperation 3”

Center barrel north joint seperation 3”

Center barrel north joint e3ast wall separation 3”

Center barrel north joint e3ast wall separation 3”

Center barrel west wall crack .025

NE wing crack

NE wing crack

NW wing cracks

Looking west

Looking east

Looking north

.008 SE wing crack vertical

Looking south

.031 east barrel east wall crack

South const joint open 1”

East barrel west wall north const joint open more at top then bottom

East barrel west wall north const joint open more at top then bottom

.020 east barrel east wall crack

NE wing crack

NE wing crack

South headwall east end cracks

South headwall west end spalled and exposed rebar

SW wing cracks

Erosion behind NE wing 5’x3’x1’