



Latitude:46.42293, Longitude:-101.45571

Route:00021 Log:95.477

District 61, Grant County

Owner: 1-State Highway Agency

Team Leader: Jake Mertz

Approved By: Travis McCloud

## 5 EAST OF CARSON

46.42293, -101.45571

IDENTIFICATION	
(1) State Names	North Dakota
(8) Structure Number	0021-095.497
(5) Inventory Route	00021
(2) Highway Agency District	61
(3) County Code	Grant, North Dakota
(4) Place Code	0
(6) Features Intersected	CREEK
(7) Facility Carried	ND HIGHWAY 21
(9) Location	5 EAST OF CARSON
(11) Mile Point	95.477 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte	0000000000
(16) Latitude	46.42293
(17) Longitude	-101.45571
GPS X	311304.9
GPS Y	5143970
(98) Border Bridge State Code	-1
(99) Border Bridge Struct. No.	-2
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	2
(46) No. of Approach Spans	0
Culvert	DOUBLE, 9 X 10 X 107' RCB
(107) Deck Structure Type	N-Not applicable
(108) Wearing Surface/Protective System	
Type of Wearing Surface	N-Not applicable (applies only to structure)
Type of Membrane	N-Not applicable (applies only to structure)
Type of Deck Protection	N-Not applicable (applies only to structure)
Deck overburden	N
AGE AND SERVICE	
(27) Year Built	1954
(106) Year Reconstructed	1997
(42) Type of Service	15
On	1-Highway
Under	5-Waterway
(28) Lane	
On	2
Under	0
(29) Average Daily Traffic	590
(30) Year of ADT	2019
(109) Truck ADT	12 %
(19) Bypass, Detour Length	70 mi
(114) Future ADT	632
(115) Year of Future ADT	2039
GEOMETRIC DATA	
(48) Length of Maximum Span	8.9 ft
(49) Structure Length	19 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)	29.9 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	27.9 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	N
(104) Highway System	NHS
(26) Functional Class	2-Rural Principal Arterial - Oth
(100) Defense Highway	1-The inventory route is on a In
(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	6
(62) Culverts	3
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	7
(68) Deck Geometry	N
(69) Clearances, Vertical/Horizontal	N
(71) Waterway Adequacy	6
(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	05/2021
(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.	SS-1-021(011)069
(A-14) Chaining Date	
(A-15) Delamination Pct	
(A-2) Rating Date	1/1/1900 12:00:00 AM
Bridge Health Index	96.81

Inspection Team Lead: Jake Mertz



**Bridge #0021-095.497 (Routine)**

## ND HIGHWAY 21 over CREEK

**Location: 5 EAST OF CARSON**

**Team Lead:** Jake Mertz, **Inspection Date:** May 13, 2021

### **Inspection Comments**

All walls in barrel have some popouts & hairline vertical cracks. 2"-4" of mud on floor both barrels. - 4/29/2019  
West joint open 2 1/4" @ top 4" bottom but the bottom 1' of flashing is gone with about 2' of fill loss.  
5' of fill loss behind east wall. - 4/29/2019

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### **Significant Findings**

The joint in both barrels on all sides and ceilings has separated approximately 3.5 inches. The East wall in the East barrel has a board anchored over the joint to prevent material loss. 13May2021



East barrel center wall joint



East barrel east wall joint



East barrel east wall crack .012



East barrel center wall crack .040



NE wing crack.008



NW wing crack .006



North headwall crack



.020 west barrel center wall crack



Center wall joint open 3.75"



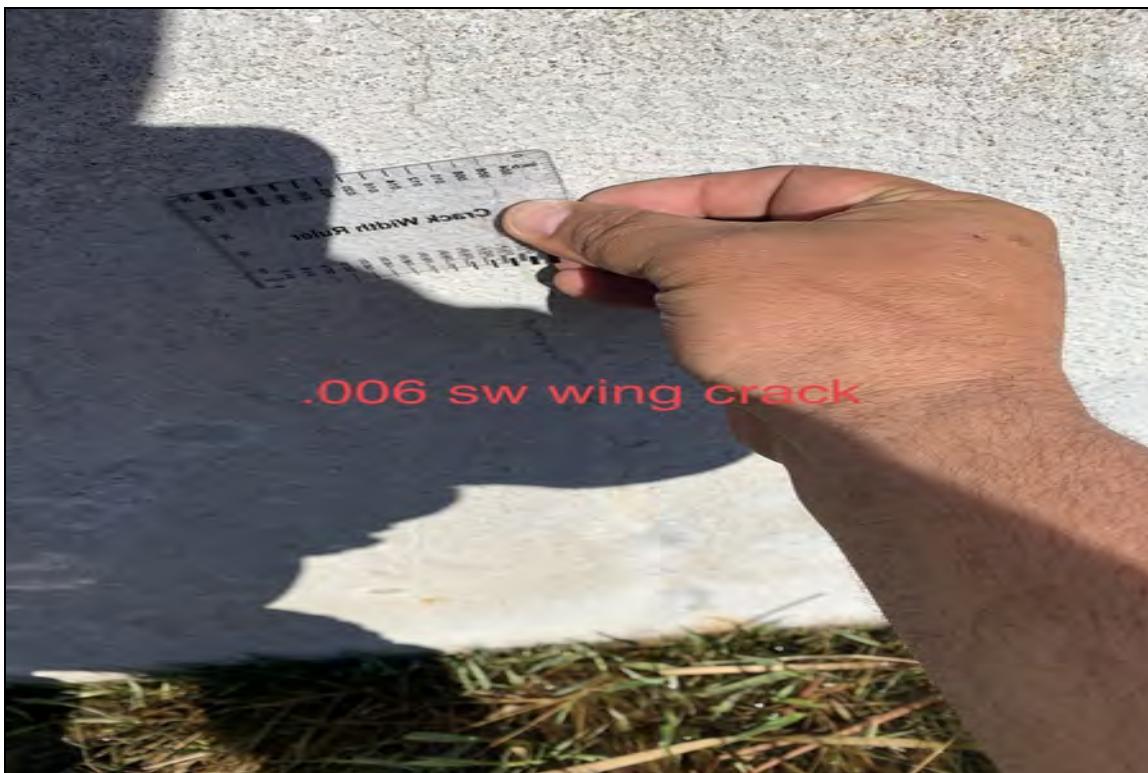
.016 west barrel west wall crack



West barrel west wall cracks and efflorescence



.025 west barrel west wall crack



.006 SW wing crack



Looking north



Looking south



Looking west