





Latitude:46.92144, Longitude:-103.50919

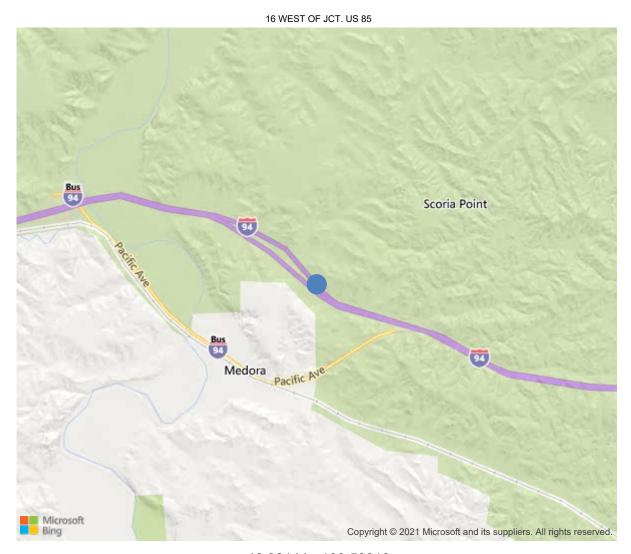
Route:00094 Log:26.416

District 65, Billings County

Owner: 1-State Highway Agency

Team Leader: Jake Mertz

Approved By: Travis McCloud



46.92144, -103.50919



Inspection Date: May 18, 2021

IDENTIFICA	TION
(1) State Names	North Dakota
(8) Structure Number	0094-026.422 L
(5) Inventory Route	00094
(2) Highway Agency District	65
(3) County Code	Billings, North Dakota
(4) Place Code	0
(6) Features Intersected	SHEEP CREEK
(7) Facility Carried	INTERSTATE 94
(9) Location	16 WEST OF JCT. US 85
(11) Mile Point	26.416 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte	000000000
(16) Latitude	46.92144
(17) Longitude	-103.50919
GPS X	156707.6
GPS Y	5206311.5
(98) Border Bridge State Code	-1
(99) Border Bridge Struct. No.	
<u> </u>	
STRUCTURE TYPE AN	
(43) Main Structure Type	119
Material	1-Concrete
Туре	19-Culvert
(44) Approach Structure Type	00
Material	0-Other
Туре	0-Other
(45) No. of Spans in Main Unit	3
(46) No. of Approach Spans	0
Culvert	TRIPLE, 9 X 11 X 164' RCB
(107) Deck Structure Type	N-Not applicable
(108) Wearing Surface/Protective System	
Type of Wearing Surface N-Not a	applicable (applies only to structur
Type of Membrane N-Not a	applicable (applies only to structur
Type of Deck Protection N-Not a	applicable (applies only to structur
Deck overburden	N
AGE AND SEI	RVICE
(27) Year Built	1964
(106) Year Reconstructed	
(42) Type of Service	15
On	1-Highway
Under	5-Waterway
(28) Lane	•
On	2
Under	0
(29) Average Daily Traffic	1300
(30) Year of ADT	2019
(109) Truck ADT	28 %
(19) Bypass, Detour Length	8 mi
(114) Future ADT	1300
(115) Year of Future ADT	2039
GEOMETRIC	
(48) Length of Maximum Span	8.9 ft 40 ft
(49) Structure Length	40 π
(50) Curb or Sidewalk Width	Loft 0.4
	Left 0 ft
(E4) Deides Doodway Middle Out to C	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/Should	
(33) Bridge Median	0-No median
(34) Skew	45 Deg
(35) Structure Flared	No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	36.7 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
(00) 241 01.40.0.04. 2.	

A-7) Agency Admin Area	CLASSIF	TICATION
1112 NBIS Bridge Length	(A-7) Agency Admin Area	1
(26) Functional Class (1-Rural Principal Arterial - Int (100) Defense Highway (1-The inventory route is on a In (A16) TE Route (101) Parallel Structure (102) Direction of Traffic (103) Temporary Structure (105) Federal Lands Highways (105) Federal Lands Highways (105) Federal Lands Highways (20) Toll (20) Owner (21) Maintain (22) Owner (37) Historical Significance (38) Deck (59) Superstructure (61) Channel & Channel Protection (62) Culverts (63) Operating Rating Method (64) Operating Rating (64) Operating Rating (64) Operating Rating (64) Operating Rating (65) Inventory Rating (66) Inventory Rating (67) Structural Evaluation (68) Deck Geometry (69) Elearances, Vertical/Horizontal (71) Materway Adequacy (72) Approach Roadway Alignment (83) Traffic Safety Features (84) Approach Guardrail (85) Transitions (86) Prequency (87) Approach Guardrail (87) Service Inspection (87) Service Inspection (88) Deck Geometry (89) Clearances, Vertical/Horizontal (89) Deproach Roadway Alignment (89) Clearances (Prical/Horizontal (80) Deproach Guardrail (80) Deproach Guardrail (81) Prequency (82) English Service Inspection (83) Traffic Safety Features (84) Preparation (85) Councertic Inspection (86) Councertic Inspection (87) Structural Evaluation (88) Deck Geometry (89) Clearance (Prical/Horizontal (80) Deproach Guardrail Ends (81) Fransitions (82) Proproach Guardrail (83) Traffic Safety Features (84) Proveo Inspection Service Inspection (85) Councertical Evaluation (86) Deck Geometry (87) Approach Guardrail Ends (88) Friege Railings (89) Non applicable or a safety feature (89) Clearance (90) Inspection Date (90) Inspection Date (91) Frequency (92) Critical Evaluation (93) Navigation Control (94) Navigation Control (95) Councertic Inspection (96) Councertic Inspection (97) Chaining Date (98) Capting Railing Councertic Information Control on water (99) Inspection Date (90) Inspection Date (90) Inspection Date (91) Frequency (91) Frequency (92) Critical Detail (93) Navigation Control (94) Navigation Porizontal Clearance (95) Capting		Ÿ
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101) Parallel Structure		1-The liveritory route is on a in
1- way traffic		N-No parallel structure exists
(103) Temporary Structure (105) Federal Lands Highways (107) Designated National Network (20) Toll (21) Maintain (22) Owner (37) Historical Significance (38) Deck (59) Superstructure (60) Substructure (61) Channel & Channel Protection (62) Culverts CONDITION (31) Design Load (63) Operating Rating Method (63) Operating Rating Method (64) Operating Rating Method (65) Inventory Rating Method (66) Inventory Rating Method (67) Structure Open/Posted/Closed APPRAISAL (67) Structural Evaluation (68) Deck Geometry (69) Clearances, Vertical/Horizontal (71) Waterway Adequacy (89) Clearances, Vertical/Horizontal (71) Waterway Adequacy (72) Approach Guardrail (73) Praffic Safety Features (74) Approach Guardrail (75) Prequency (76) Inspection Date (77) Operating Protection (78) Protection (79) Protection (79) Protection (70) Protection (70) Protection (71) Waterway Adequacy (72) Approach Guardrail (73) Praffic Safety Features (74) Protection (75) Protection (76) Protection (77) Protection (78) Protection (79) Protection (79) Protection (70) Protection (70) Protection (71) Waterway Adency (72) Approach Guardrail (73) Protection (74) Waterway Adequacy (75) Protection (76) Protection (77) Protection (78) Protection (79) Protection (79) Protection (79) Protection (79) Protection (70) Protection (70) Protection (71) Protection (71) Protection (72) Protection (73) Navigation Vertical Clearance (74) Protection (75) Protection (76) Protection (77) Protection (78) Protection (79) Pro		
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3-Bridge is possibly eligible for the CONDITION Support		
Season Superstructure		
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Inspection Team Lead: Jake Mertz



Team Lead: Jake Mertz, Inspection Date: May 18, 2021

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
241	Reinforced Concrete Culvert	LF	492	362	50	60	20
1080	Delamination/Spall/Patched Area	LF	25	0	10	0	15
1090	Exposed Rebar	LF	5	0	0	0	5
1130	Cracking (RC and Other)	LF	100	0	40	60	0
(241)							

const joint open 1/4-1/2". - 11/21/2019

(241-1080)

spalling on construction joints and on floor exposing rebar - 11/21/2019

There is a spall on the Southwest wing/parapet joint with exposed rebar approximately 1 foot in length. The inside walls on the South end at the bottom of the walls are spalled with exposed rebar.

No change to this defect. 18May2021

(241-1090)

inner wall has exposed rebar s end, exposed rebar on sw wing/ parapet on top - 11/21/2019

No change to this defect. 18May2021

(241-1130)

parapet cracked, drop inlet and walls have major cracking, vertical cracking on walls and horizontal crack running through structure - 11/21/2019

No change to this defect. 18May2021

8401	Wings	EA	4	0	2	0	2
1130	Cracking (RC and Other)	EA	3	0	2	0	1
1900	Distortion	EA	1	0	0	0	1
(8401)							

The top of the Northwest, Northeast wings and drop inlet wall are heavily deteriorated. 18May2021

(8401-1130)

sw wing and parapet cracking, ne-nw wing walls have full length longitudinal cracking. nw wing wall is bowed inward from outside pressure, has large split along top extruding down through mid point of wall inside face crumbling - 11/21/2019

The Northeast wing wall has approximately 6 foot in length split on the top and has spalling and cracking. This wing is also beginning to bow inward.

No change to this defect. 18May2021

(8401-1900)

nw wing - 11/21/2019

The Northwest wing is bowed inward due to cracking and pressure. 18May2021

8402	Headwalls	EA	68	64	2	2	0



Team Lead: Jake Mertz, Inspection Date: May 18, 2021

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
1080	Delamination/Spall/Patched Area	EA	2	0	0	2	0
1130	Cracking (RC and Other)	EA	2	0	2	0	0
(8402-1080)							
The South h	neadwall has a 2 foot by 1 foot spall in the Southwest co	orner next to	the wing. 1	8May2021			
(8402-1130))						
There are 2 18May2021	cracks in the North headwall. 1 is in the Northeast corn	ner next to t	the wing. The	e other is ov	ver the cen	ter barrel.	
8403	Drop Inlet	EA	1	0	0	0	1
1130	Cracking (RC and Other)	EA	1	0	0	0	1
(8403-1130)							
drop inlet and walls on the north end have major cracking - 11/21/2019							
	the drop inlet has heavy cracking and deterioration. to this defect. 18May2021						



Inspection Date: May 18, 2021

Inspection Comments

NBI Remarks: Vertical walls adjacent to the drop inlet are pushing in towards stream 3" and have .10" cracks and staining. SW wing and parapet cracked and spalled exposing re-bar.

Construction joints open 1/4" to 1/2" and have minor spalls and staining.

Concrete is deteriorating at the water line at the middle barrel south end.

Horizontal cracks measuring 1.00" on the east wall north end.

NE & NW wingwall have full length longitudinal cracking.

11/20/2013 - East and west barrel have 1-2 ft. of silt in them. - 11/21/2019

The East barrel has approximately 2 feet of silt material throughout the entire length of the barrel. The Center barrel has approximately 1 - 1.5 feet of silt material throughout the entire length of the barrel. The West barrel has approximately 1 foot of silt material throughout the entire length of the barrel.

Alert code 2 - 11/22/2011 - Drop Inlet and walls on the north end have major cracking. Water seepage on west wall. Also staining and delamination.

11/22/2011 - Inner wall has exposed rebar, spalling and delamination at the south end.

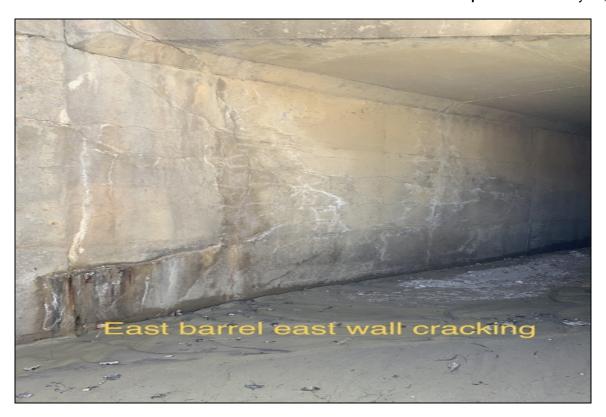
11-21-19 - exposed rebar on sw wing/ parapet on the top - 11/21/2019

Significant Findings

12/16/2015 - NW wing wall is bowed inward from outside pressure. Has large split along top. Extruding down through mid point of wall. Inside face crumbling. - 11/21/2019

Drop Inlet and walls on the north end have major cracking. This note has been moved from alert code 2 to alert code 3. 1June2020





East barrel east wall crack

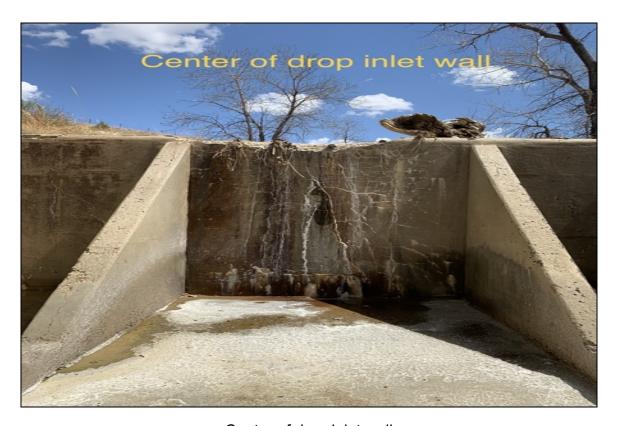


North end center barrel east wall spall 1'x8"





North end center barrel east wall spall 1'x8"

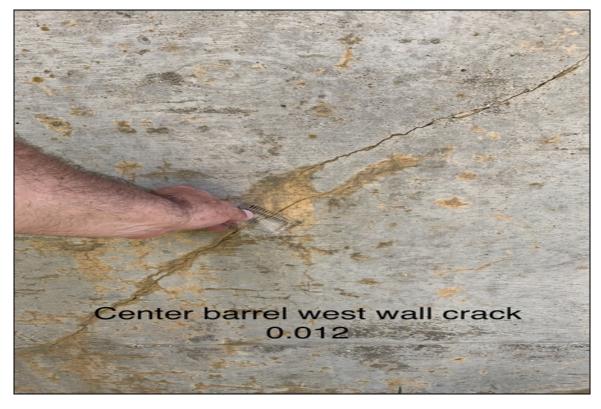


Center of drop inlet wall



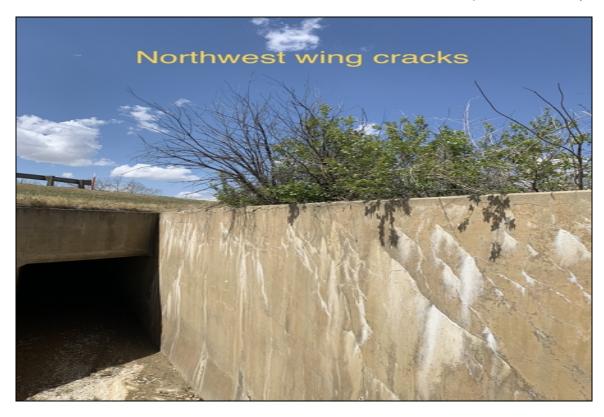


Center barrel west wall crack .020

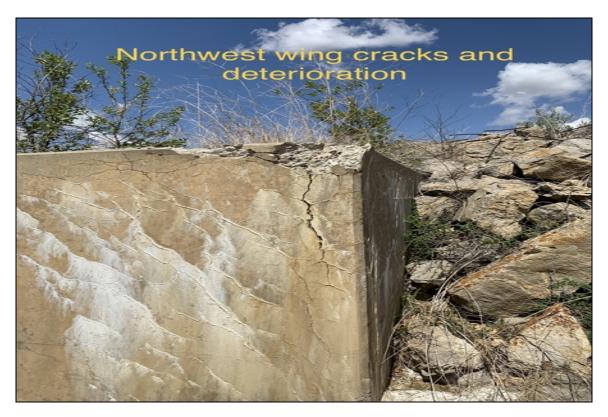


Center barrel west wall crack .012





NW wing crack

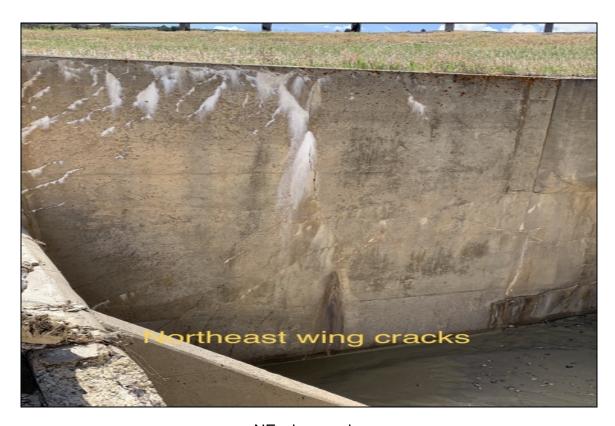


NW wing cracks and deterioration



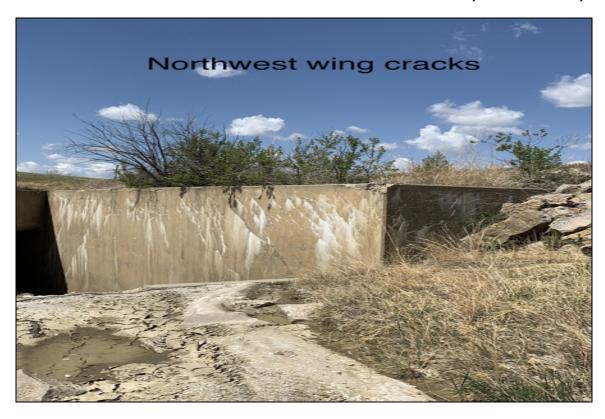


North headwall crakcs

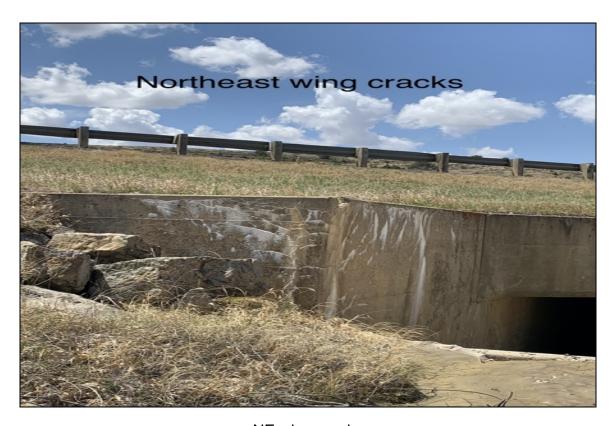


NE wing cracks



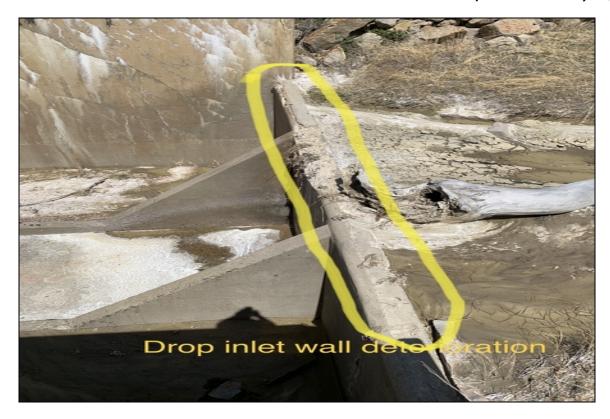


Nw wing cracks



NE wing cracks





Drop inlet wall deterioration



NE wing cracks





NE wing cracks



Looking east





Looking south



SWwing cracksnot NW





Looking west



Looking north





South end barrel ends spalled exposed rebar ..not west



South end barrel ends spalled exposed rebar ...not west





.025 Sw wing crack ..not NW



South headwall spall exposed rebar 2'x1'





West barrel north wall horizontal crack .012 Not north barrel



West barrel north wall cracks Not north barrel





West barrel north wall crack .100 Not north



NW wing distortion at top Not NE





NWwing distortion at top Not NW



.025 west barrel south wall crack Not north





West barrel mud on floor Not west



East barrel south wall crack horizontal.100 Not south





Drop inlet north end Not east



NW wing cracks





NW wing bow



NW wing bow





NW wing bowing inward



Drop inlet





NW wing spall

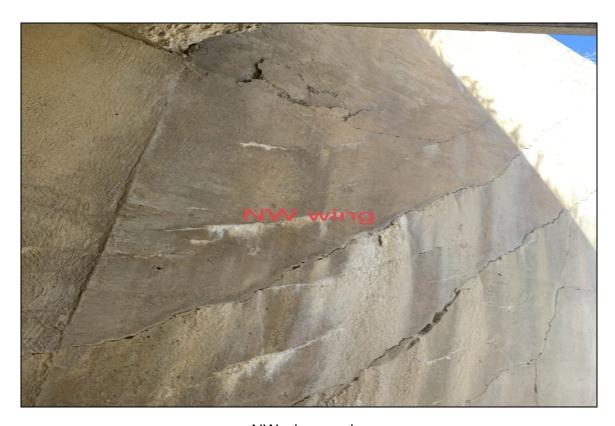


Drop inlet lip spalling





Drop inlet cracking



NW wing cracks





.125 NW wing crack



.125 east barrel outside wall crack north end





Upstream



Looking east





Looking west



Downstream





North headwall crack



East barrel inner wall honeycomb



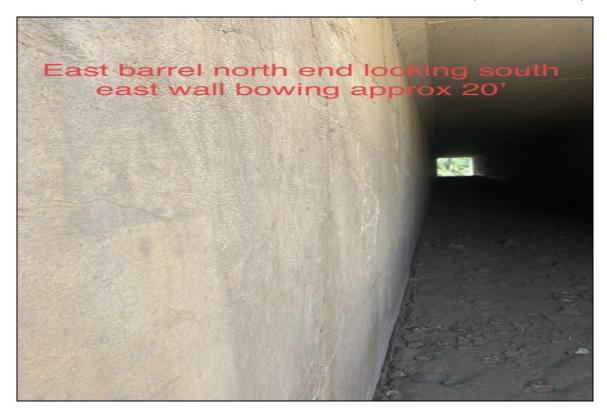


East barrel joint seepage roof

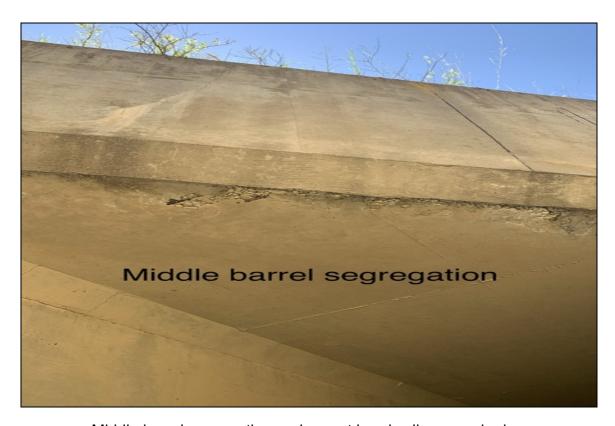


East barrel outside wall seepage





East barrel north end looking south wall bowing approx 20"



Middle barrel segregation under east headwall exposed rebar





North barrel south joint seepage



Bagel wall end south spall exposed rebar





North end east barrel inner wall spall and exposed rebar



West barrel south end outside wall cracks





West barrel south end outside wall cracks 1/4"



.125 east barrel outside wall crack north end





East barrel inner wall crack



.031 inner wall crack east barrel north end





Middle barrel crack



Horizontal cracks west outside wall south end





.018 horizontal crack west barrel outside wall



West barrel inner wall crack



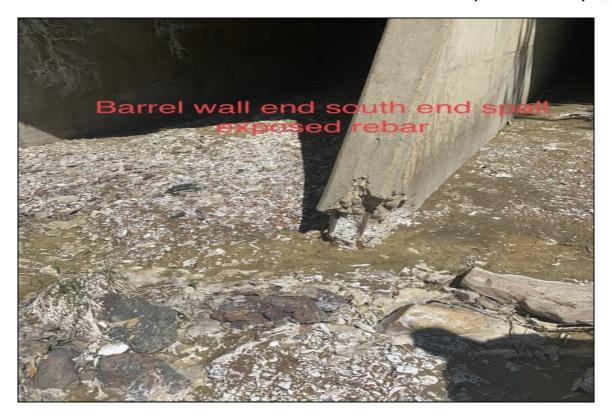


Barrel end south end spall exposed rebar



North end east barrel inner wall spall and exposed rebar





Bagel wall end south spall exposed rebar



NW wing cracks





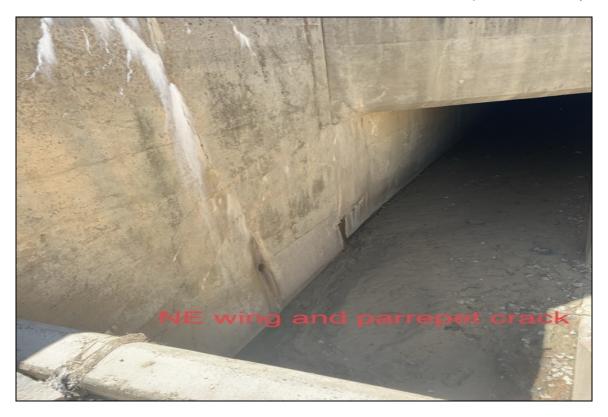
NW wing spall



NE wing cracks



Location: 16 WEST OF JCT. US 85
Inspection Date: May 18, 2021



NE wing and parapet cracks

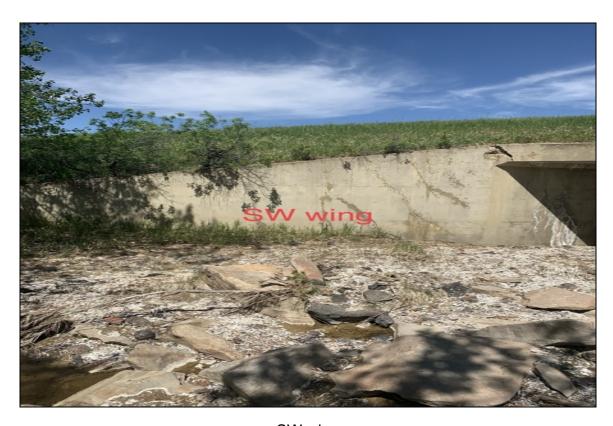


SW wing and parapet spall exposed rebar





SW wing cracks



SW wing



Location: 16 WEST OF JCT. US 85 Inspection Date: May 18, 2021



SE wing cracks



SW wing crack .025





NW wing cracks



.125 NW wing crack



Location: 16 WEST OF JCT. US 85 Inspection Date: May 18, 2021



NW wing bowing inward



NW wing bow



Drop inlet

Drop inlet



Drop inlet lip spalling





Drop inlet cracking



Inspection Date: May 18, 2021

Maintenance Needs

Date Reported: 07/07/2020

Priority: Normal

Type of Work: ------ Other ------

Status: Unknown
Component: Culverts

Deficiency Description

The East barrel has approximately 2 feet of silt material throughout the entire length of the barrel. The Center barrel has approximately 1 - 1.5 feet of silt material throughout the entire length of the barrel. The West barrel has approximately 1 foot of silt material throughout the entire length of the barrel.

Remarks





Middle barrel mud

West barrel miud





West barrel mud on floor Not north



East barrel 1' sediment



Inspection Date: May 18, 2021

Date Reported: 05/18/2021

Priority: Normal

Type of Work: Remove Sediment

Status: Unknown

Component: 241 - Reinforced Concrete Culvert

Deficiency Description

All 3 barrels have between 6 inches to 1.5 feet of sediment.

Remarks

Recommend removing the sediment from the barrels with a skid steer. 18May2021



East barrel 1' sediment



West barrel mud on floor Not west