

# Bridge Report

**Structure No. SA300000000116**

**SEC 26 T 7S R 8W B**

**059-JACKSON**

**53520 - Ocean Springs**

Report Date: 04/23/2024

Last Routine  
Inspection: 12/04/2023

Inspection Type: Administrative Update

Inspection Project:

Work Order:



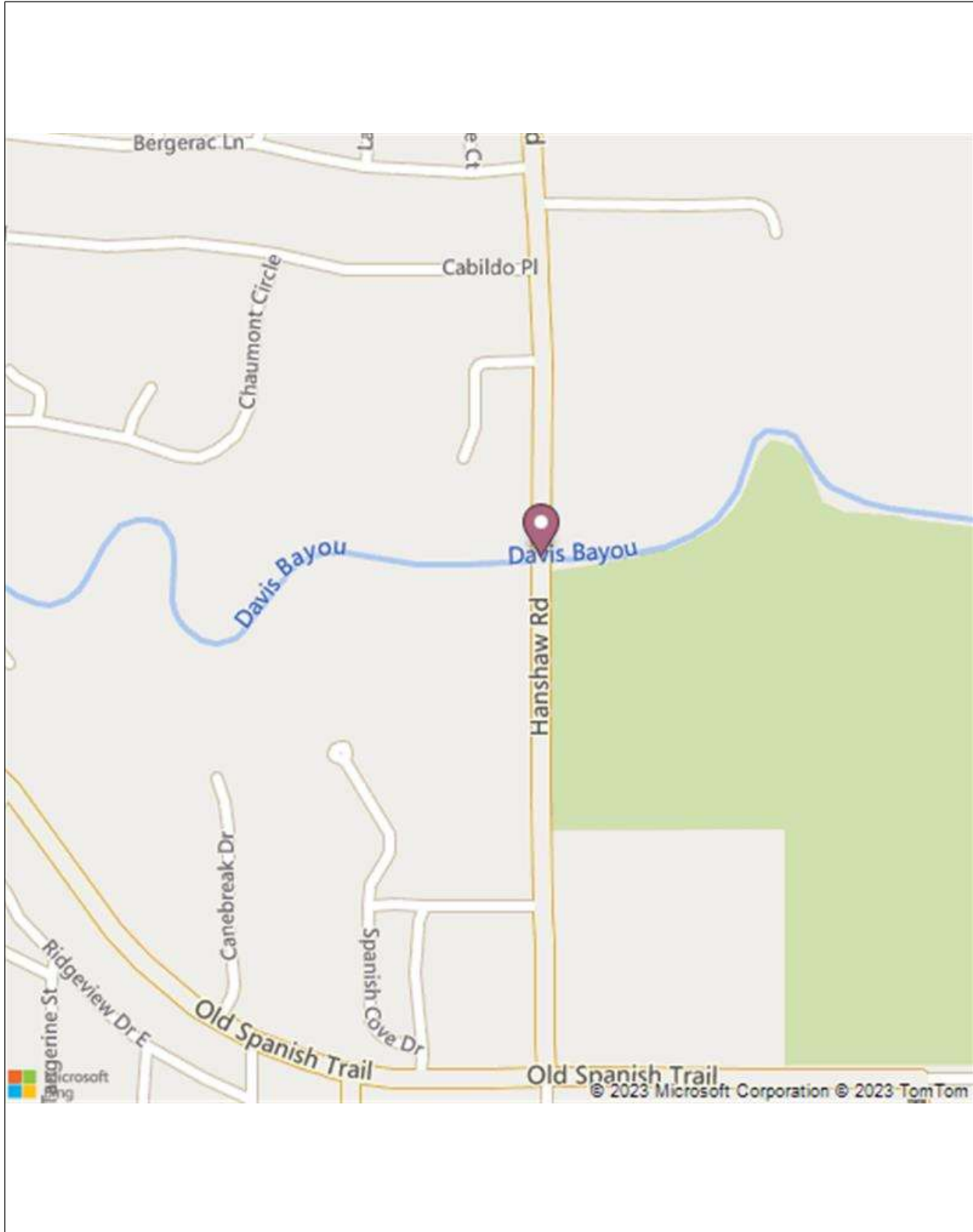
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# LOCATION MAP

Bridge Number SA300000000116

Report Date 04/23/2024



## Bridge Inspection Plan

**Structure Number** SA3000000000116

**Plan Date** 12/04/2023

**Structure Description** Six (6) span concrete channel beam bridge supported by timber piles and concrete caps.

**Special Equipment** Boat

### Inspection Plan (Upload additional documentation PDFs as needed)

The field inspection consists of an arm's length visual examination of all structural components above ground. The limits of this inspection include Abutment 1 to Abutment 7 and form the basis of the report.

Inspection requires a minimum of two (2) inspectors including the Team Leader.

Traffic Control Requirements include Men Working signs and traffic cones.

Estimated inspection time is between 3 and 4 hours.

Inspection shall be performed with the latest revisions of the following specifications and manuals:

- National Bridge Inspection Standards (NBIS)
- AASHTO Manual for Bridge Evaluation (MBE)
- Bridge Inspector's Reference Manual (Publication No. FHWA NH 12-049)
- Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges (Report No. FHWA PD 96-001)
- OSARC National Bridge Inspection Program, Local System Manual (LSM)

## INSPECTION SUMMARY

Bridge Number SA300000000116

Report Date 04/23/2024

Inspection Type: Routine

12/2023 Inspection Team: Volkert, Inc.

Team Leader: Todd Powell

Assistant Inspectors: Robbie Chambless, Kameron Flowers

The six (6) span concrete channel beam bridge located on Hanshaw Road (South to North Route) over Davis Bayou is in poor condition overall.

The following item was noted that requires urgent maintenance:

- The timber piles in Bents 2, 3, 4, 5, and 6 have advanced section loss in the normal water zone due to marine borer damage and/or decay.

The bridge was posted for 8 TONS TANDEM AXLE and 7 TONS SINGLE AXLE at the time of this inspection. Based on the load rating analysis dated 4/2/2018 and the results of this inspection, it is recommended to perform a new load rating due to the additional marine borer damage to the piles. The routine inspection frequency will remain at 12 months.

An underwater inspection of the piles in Bents 3, 4, and 5 is recommended due to water depth. The most recent underwater inspection was performed in February of 2022.

The deficiencies and recommended corrective actions can be found in the appropriate sections of this report.

# STRUCTURE INVENTORY AND APPRAISAL

Bridge Number SA300000000116

Report Date 04/23/2024

IDENTIFICATION				AGE AND SERVICE			
1. State Code	284			27. Year Built	1991		
8. Structure Number	SA300000000116			106. Year Reconstructed	0000		
5. Inventory Route	1 5 1 09 0			42. Type of Service	1 On	5 Under	
2. MDOT District	06			28. Lanes	02 On	00 Under	
3. County Code	059			29. ADT	009600		
4. Place Code	53520 - Ocean Springs			30. Year of ADT	2023		
6. Features Intersected	DAVIS BAYOU			109. Truck ADT	20		
7. Facility Carried	HANSHAW ROAD			19. Detour Length	008		
9. Location	SEC 26 T 7S R 8W	B					
11. Kilometer Point	0000.482						
12. Base Highway Network	0						
13A. LRS Inventory Route							
13B. Subroute Number							
16. Latitude	30	24	1.95				
17. Longitude	-88	45	26.83				
98A. Border Bridge Code							
98B. Percent							
99. Border Bridge Structure No.							
CLASSIFICATION				PROPOSED IMPROVEMENTS			
20. Toll Facility	3			75. Type of Work			
21. Custodian	04			Proposed	31 - Replacement -		
22. Owner	04			Work Done By	1 - Work to be		
26. Functional Class	17			76. Length of Improvements	00030.5		
37. Historical Significance	5			94. Bridge Cost	000010	\$ In Thousands	
100. Defense Highway	0			95. Roadway Cost	000030	\$ In Thousands	
101. Parallel Structure	N			96. Total Cost	000075	\$ In Thousands	
102. Direction of Traffic	2			97. Year of Cost Estimate	2010		
103. Temp Structure				114. Future ADT	014400		
104. Highway System	0			115. Year of Future	2043		
105. Federal Lands Highways	0						
110. Designated National Network	0						
112. NBIS Length	Y						
STRUCTURE TYPE AND MATERIAL				INSPECTIONS			
Main Span Unit				90. Inspection Date	12/04/2023		
43A. Material Type	1			91. Designated Inspection Frequency	12		
43B. Design Type	22			92. Critical Feature Inspection			
45. No of Main Spans	006			A. Fracture Critical Details			
Approach Span Unit				B. Underwater Inspection	60		
44A. Material Type	0			C. Other Special Inspection			
44B. Design Type	00			93. Inspection Interval, Months			
46. No of Appr Spans	0000			A. Fracture Critical Details			
107. Deck Structure Type	2			B. Underwater Inspection	02/02/2022		
108. Wearing Surface/ Protective System				C. Other Special Inspection			
108A. Wearing Surface	0			Sufficiency Rating	6.0		
108B. Type of Membrane	0			Unknown Foundation Risk	62.9		
108C. Deck Protection	0			Unknown Foundation Risk Category	Moderate		
				Structure LSBP Eligible	No		
				Stru. Deficient/Func. Obsolete			
STRUCTURE TYPE AND MATERIAL				GEOMETRIC DATA			
				48. Max Span Length		0005.8m	
				49. Structure Length		00034.7m	
				50. Curb/ Sidewalk Width	Left	00.2m	
					Right	00.2m	
				51. Deck Roadway Width		009.2m	
				52. Deck Width (out-to-out)		009.7m	
				32. Approach Roadway Width		010.1m	
				33. Bridge Median		0	
				34. Skew		00	
				35. Structure Flared		0	
				10. Min Vertical Clearance		99.99m	
				47. Inv. Route, Total Horizontal Clearance		09.2m	

# STRUCTURE INVENTORY AND APPRAISAL

Bridge Number SA3000000000116

Report Date 04/23/2024

### NAVIGATION DATA

38. Navigation Control	0
111. Pier Protection	
39. Nav Vert Clearance	000.0m
40. Navigation Horiz Clear	0000.0m

### CONDITION

58. Deck	5
59. Superstructure	5
60. Substructure	4
61. Channel/Channel	7
62. Culvert	N

### LOAD RATING AND POSTING

31. Design Load	2		
64. Operating	035	63. Rating	6
66. Inventory	021	65. Rating	6
70. Posting	0		
41. Posting Status	P		

53. Min Vert Clear Over Bridge Rdwy	99.99m
54. Minimum Vertical Underclearance	N
	00.00m
55. Minimum Lateral Underclearance on Right	N
	00.0m
56. Minimum Lateral UnderClearance on Left	00.0m
68. Deck Geometry	3
69. Underclearance Rating	N

### APPRAISAL

67. Struc Eval	2
71. Waterway Adequacy	8
72. Approach Alignment	8
36A. Bridge Railings	0
36B. Transitions	0
36C. Approach Guardrail	0
36D. Approach GuardRail	0
113. Scour Critical Bridges	U

# WATERWAY

Bridge Number SA300000000116

SIA Item 61 Channel and Channel Protection: 7

Report Date 04/23/2024

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(71) Waterway Adequacy	8	Sediment and/or Gravel Accumulation	No
(113) Scour Critical Bridge	U	Obstructions in the Waterway	Backwalls and piles from previous structure, Bents 2, 3, 4, & 5.
Overall Channel Condition	Good	Has Channel Shifted?	No
Bank Protection	Yes	Bank Erosion <input type="checkbox"/> Upstream <input type="checkbox"/> Site <input type="checkbox"/> Downstream <input checked="" type="checkbox"/> None	
Realignment of Channel	No	Streambed Aggradation	No
Indications of Scour	No	Streambed Degradation	No
If Yes, Location and Description		Abutment(s) Encroach in Channel	No
Structure in Tidal Zone	Yes	Scour Countermeasures in Place	Yes
Streambed Material	Silty sand	If Yes, Condition	Fair
Bank Vegetation	Brush/Grass/Weeds	Stream Velocity	Low
Indications that High Waters Overtop Structure and/or Approach Roadway	Yes	Debris/Drift <input type="checkbox"/> Upstream <input type="checkbox"/> Site <input type="checkbox"/> Downstream <input checked="" type="checkbox"/> None	
Underwater Inspection Required?	Yes	Unknown Foundation Risk Category	MODERATE

## LOAD RATING AND POSTING SUMMARY

Bridge Number	SA300000000116	Report Date	04/23/2024
(31) Design Load:	2 - M 13.5 or H 15	(65) Method used to Determine Inventory Rating:	6 – Load Factor (LF) Rating reported as Rating Factor (RF) method using MS 18 loading.
(41) Open/Posted/Closed:	P - Posted for Load	(66) Inventory Rating:	021
(63) Method used to Determine Operating Rating:	6 – Load Factor (LF) Rating reported as Rating Factor (RF) method using MS 18 loading.	(67) Structural Evaluation:	2 - Intolerable - high priority of replacement
(64) Operating Rating:	035	(70) Bridge Posting:	0 - More than 39.9% below legal loads
Load Rating Date	04/02/2018	EV2 Single Axle Rating Factor	0.39
		EV3 Tandem Axle Rating Factor	0.25

### Recommended Posting Limits

H Truck (Tons)	Tandem Axle (Tons)	8
HS Short (Tons)	Single Axle (Tons)	7
HS Long (Tons)	Gross (Tons)	

### Rec. Emergency Vech. Posting Limits

EV Single Axle (Tons)	6
EV Tandem Axle (Tons)	7
EV Gross (Tons)	10

### Posting Summary

	<u>Bridge Begin</u>		<u>Bridge End</u>		<b>Bridge is Closed:</b>	
H Truck	Tons		H Truck	Tons		
HS Short	Tons		HS Short	Tons		
HS Long	Tons		HS Long	Tons		
Tandem Axle	8	Tons	Tandem Axle	8	Tons	
Single Axle	7	Tons	Single Axle	7	Tons	
Gross	Tons		Gross	Tons		
EV Tandem Axle	Tons		EV Tandem Axle	Tons		
EV Single Axle	Tons		EV Single Axle	Tons		
EV Gross	Tons		EV Gross	Tons		

### General Comments:

Posting is recommended based on the load rating analysis dated 4/2/2018. However, it is recommended a new load rating be performed due to the additional marine borer damage to the piles.

### Urgent Maintenance Noted:

### Routine Maintenance Noted:

## PICTURES

Bridge Number SA300000000116

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## SKETCHES

Bridge Number SA300000000116

Report Date 04/23/2024



## BRIDGE ENDS

Bridge Number SA300000000116

Report Date 04/23/2024

Bridge is Closed N

Bridge Closed  
Comments

<u>Posting Signs In Place</u>		<u>Bridge Begin</u>	<u>Bridge End</u>
In Tons or LBS	Tons	H Truck	H Truck
		HS Short	HS Short
		HS Long	HS Long
		Tandem Axle 8	Tandem Axle 8
		Single Axle 7	Single Axle 7
		Single Axle	Single Axle

<u>TRAFFIC SAFETY FEATURES</u>	CODE	CONDITION	COMMENT
(36a) Bridge Rail	0	3	Bridge rails do not meet current State standards.
(36b) Rail Transitions	0		
(36c) Approach Guard Rail	0		Approach guardrails are not provided.
(36d) Guard Rail Ends	0		

# DECK

Bridge Number SA300000000116

SIA Item 58 Deck Condition Rating: 5

Report Date 04/23/2024

CONDITION	COMPONENT	COMMENT
3	Joints	See Deck General Comments
4	Drains	
3	Rail	See Deck General Comments
	Sidewalks	N/A
	Vibration	None
Light	Debris Accumulation	See Deck General Comments
3	Overall Structure	See Deck General Comments
Average	Surface Roughness Rating	

## SUPERSTRUCTURE

Bridge Number SA300000000116

SIA Item 59 Superstructure Condition Rating: 5

Report Date 04/23/2024

CONDITION	COMPONENT	COMMENT
3	Girders	See Superstructure General Comments
3	Diaphragms	See Superstructure General Comments
	Stingers	N/A
	Floor Beams	N/A
	Sway Bracing	N/A
	Hinge Pins/Hangers	N/A
	Paint	N/A
	Cap/Girder Debris	None
No	Collision Damage	

## SUBSTRUCTURE

Bridge Number SA300000000116

SI&A Item 60 Substructure Condition Rating: 4

Report Date 04/23/2024

### ABUTMENTS

CONDITION	COMPONENT	COMMENT
	Bearings	N/A
4	Cap	
	Piling/Foundation	See Substructure General Comments
	Back Wall	N/A
4	Wing Wall	See Substructure General Comments
4	Embank	
3	Slope Protection	See Substructure General Comments
	Scour	None
	Pile Type(s)	Timber

## SUBSTRUCTURE

Bridge Number SA300000000116

SI&A Item 60 Substructure Condition Rating: 4

Report Date 04/23/2024

### INTERMEDIATE BENTS

CONDITION	COMPONENT	COMMENT
	Bearings	N/A
3	Cap	See Substructure General Comments
2	Columns/Piles	See Substructure General Comments
	Footing	N/A
	Web Wall	N/A
	Bracing	N/A
	Scour	None
	Pile Type(s)	Timber

**STREAM PROFILE REPORT**

Bridge Number SA300000000116

Report Date 04/23/2024

## GENERAL COMMENTS

Bridge Number SA300000000116

Report Date 04/23/2024

### Deck

#### JOINTS

Transverse joints over the bents are unsealed and have debris impaction (See Photo 13).

#### RAIL

Several posts have minor cracking and spalling.

Several posts have areas with exposed rebar due to insufficient concrete cover (See Photo 14).

Several spacer blocks have minor cracking (See Photo 15).

Several sections of bridge rail have incorrect directional lap (See Photo 16).

1st post for the west bridge rail in Span 3 is missing rail to rail connection hardware (See Photo 16).

1st spacer block for the west bridge rail in Span 6 has moderate spalling with exposed connection hardware (See Photo 17).

#### DEBRIS ACCUMULATION

Curblines have minor debris accumulation (See Photo 7).

#### OVERALL STRUCTURE

Utility pipes are attached to both sides of the bridge; utilities along the west side are attached to the deck; utilities along the east side are attached to the deck and caps; previously noted debris on the west utility has been removed (See Photo 3 and 4).

Roadway striping on the bridge has deteriorated (See Photo 7).

Channel beams have minor abrasion and cracking, up to 0.03" wide.

Channel beams have minor spalling along the ends and edges (See Photo 13).

Both sides of Spans 5 and 6 have heavy vegetation growth and flood debris (See Photo 18).

North end of the west curb in Span 6 has minor spalling (See Photo 19).

### Superstructure

#### GIRDERS

Leakage, staining, and efflorescence are present along the longitudinal joints between channel beam stems (See Photo 8).

Channel beams have randomly located sound patches.

Channel beam stems have randomly located hairline flexural cracking.

Channel beam stems have randomly located minor spalling with exposed rebar on the bottom face (See Photo 20).

Longitudinal channel beam connection hardware is loose in several locations (See Photo 21).

Stems for Channel Beam 4-7 have full length cracking, up to 1/8" wide, with delamination (See Photo 22).

Stems for Channel Beam 5-5 have cracking up to 0.08" wide, 8' long near midspan (See Photo 23).

Left stem for Channel Beam 6-3 has an area with delamination and spalling, up to 10' L x 6" W x 4" H, with exposed primary rebar with 1/16" section loss (See Photo 24).

#### DIAPHRAGMS

Numerous diaphragms have hairline cracking.

Several end diaphragms have exposed rebar due to spalling or insufficient concrete cover (See Photo 25).

### Substructure

#### ABUTMENTS PILING/FOUNDATION

Abutment piles are inaccessible for inspection (See Photo 9).

#### ABUTMENTS WING WALLS

Wing walls have randomly located minor spalling (See Photo 26).

Southwest and southeast wing walls are covered with fill.

#### ABUTMENTS SLOPE PROTECTION

Abutment slopes have sporadic concrete rubble protection (See Photo 9).

## GENERAL COMMENTS

Bridge Number SA300000000116

Report Date 04/23/2024

### INTERMEDIATE BENTS CAPS

Bent caps have randomly located spalling with exposed rebar on the bottom face (See Photo 27).

### INTERMEDIATE BENTS COLUMNS/PILES

Piles in Bents 2 and 6 have up to 1" of section loss due to marine borer damage in the normal water zone (See Sketches and Photo 28).

Piles in Bents 3, 4, and 5 have advanced section loss due to marine borer damage in the normal water zone (See Sketches and Photo 29).

Marine borer damage to the piles beneath the waterline is evident; see underwater inspection report for the extent of marine borer damage.

Pile 5-4 has decay (See Sketch and Photo 30).

### Notes from the 2022 Underwater Inspection Report

(UWI) All embankments were stable at the time of the inspection, with all embankments being well vegetated and armored with up to 3-foot-diameter concrete rubble around the abutment (See Photos 10 and 11 from UWI Report).

(UWI) Marine growth consisted of 1/8"-thick silt and algae and 1/2"-thick barnacles covering 100 percent of the submerged timber piles from the waterline to the channel bottom (See Photos 12, 13, and 18 from UWI Report).

(UWI) Outer shell decay up to 1/4"-thick was observed from the high-water mark to the channel bottom on all of the inspected piles (Condition State 2) (See Photos 12, 13, and 18 from UWI Report).

(UWI) Bent 3, Pile D: Void, measuring 12 inches wide by 8 inches vertical with up to 2 inches of penetration was observed 6 inches below the waterline on the north quadrant (Condition State 3).

(UWI) Bent 4, Pile F: Void, measuring 12 inches wide by 8 inches vertical with up to 2 inches of penetration was observed 6 inches below the waterline on the north quadrant (Condition State 3).

(UWI) Marine borer activity in the form of 1/4-inch diameter holes was observed from 2 inches above the water line to 8 inches below the waterline on Bent 4 Piles E and F and Bent 5 Piles C, D, and E (Condition State 3).

## Bridge Ends

Northwest and northeast object markers are misaligned and insufficient in height (See Photos 2 and 31).

"WEIGHT LIMIT 8 TONS TANDEM AXLE AND 7 TONS SINGLE AXLE" signs are in place at both approaches; both signs are insufficient in height (See Photos 11 and 12).

## Waterway Appraisal

Piles from a previous structure are in the channel (See Photo 10).

Timber piles and backwalls from a previous structure are in the channel beneath Spans 1 and 5 (See Photo 32).

### Notes from the 2022 Underwater Inspection Report

(UWI) No significant signs of channel migration were evident.

(UWI) The channel bottom predominantly consisted of organics with up to 8-inches of penetration.

## URGENT MAINTENANCE NOTED

Bridge Number SA300000000116

Report Date 04/23/2024

### Deck

### Superstructure

### Substructure

Replace or repair all piles in Bents 2, 3, 4, 5, and 6.

### Bridge Ends

### Waterway Appraisal

## ROUTINE MAINTENANCE NOTED

Bridge Number SA300000000116

Report Date 04/23/2024

### Deck

Clean and seal transverse deck joints.  
Clean and seal exposed rebar on bridge rail posts.  
Correct directional lap of bridge rail sections.  
Replace missing rail to rail connection hardware at 1st post for west bridge rail in Span 3.  
Replace 1st spacer block for west bridge rail in Span 6.  
Reapply roadway striping on bridge.  
Remove vegetation and flood debris from along sides of Spans 5 and 6.

### Superstructure

Clean and seal exposed rebar on channel beam stems and diaphragms.  
Tighten loose longitudinal channel beam connection hardware as needed.  
Seal cracks in stems for Channel Beams 4-7 and 5-5.  
Remove loose concrete, clean and seal exposed rebar, and repair left stem for Channel Beam 6-3 to original dimensions.

### Substructure

Place suitable rubble or riprap in areas without slope protection.  
Clean and seal exposed rebar on bent caps.

### Bridge Ends

Reposition northwest and northeast object markers to meet current State standards.  
Reposition posting signs to meet current State standards.

### Waterway Appraisal

Remove piles and backwalls from previous structure from channel.

## INSPECTION TEAM SUMMARY

Bridge Number SA300000000116

Report Date 04/23/2024

Team Leader: Maher, Jim

Team Members: Maher, Jim

Jim Maher

Name: \_\_\_\_\_

\_\_\_\_\_  
Signed:

04/23/2024

Date: \_\_\_\_\_