



Latitude:33.87794, Longitude:-93.30596

Route:67 Section:04 Log:0.01

Arnold Road ID:50x67x3xA, Arnold Log mile:14.989

District 07, 19 - Clark County

Owner: 1 - State Highway Agency

Inspection Direction: 4 - W to E

Bridge Posting Information

41 - Structure Open/Posted/Closed: A - Open, no restriction

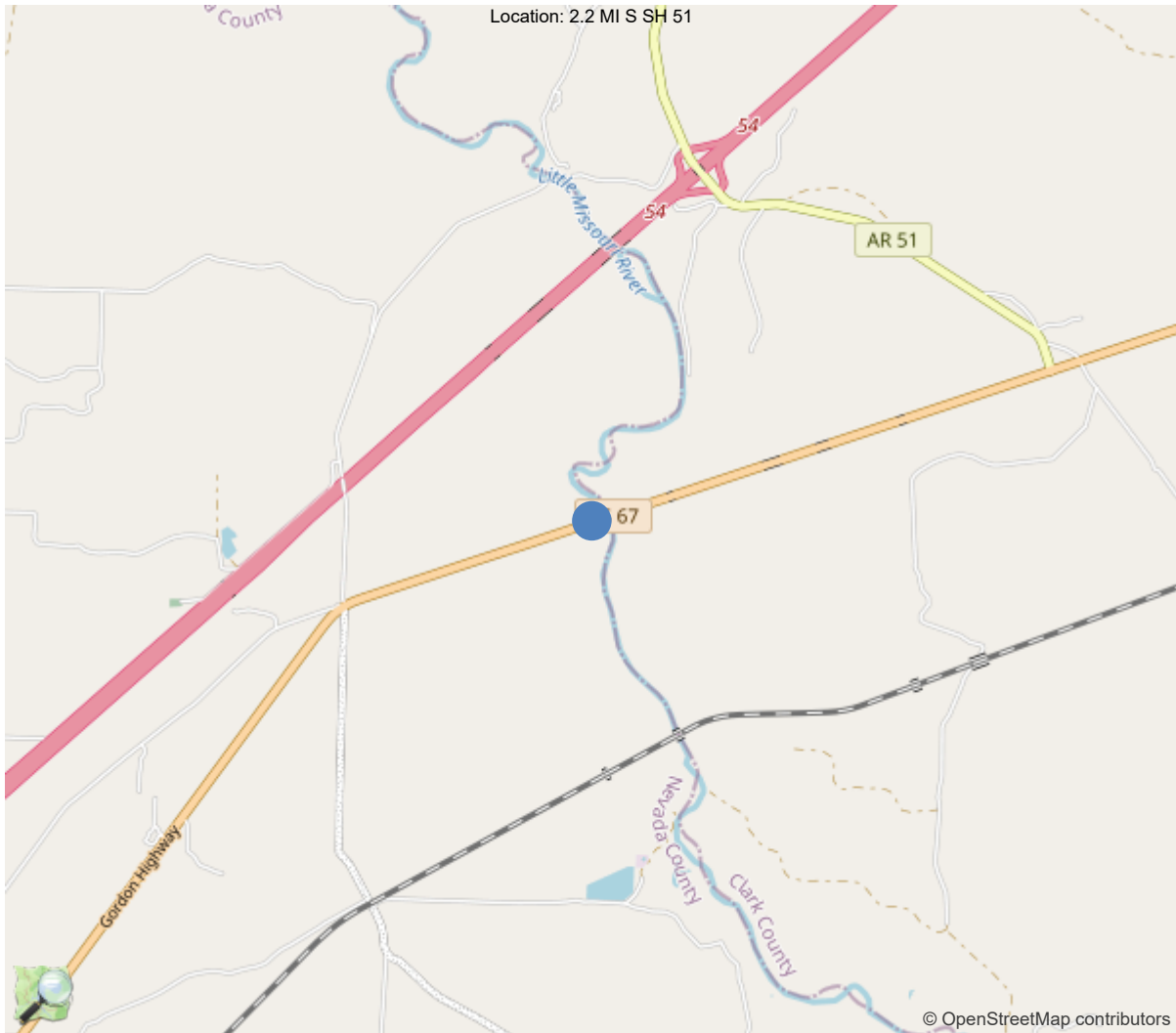
70 - Bridge Posting: 5 - Equal to or above legal loads

Legal Load	Calculated Capacity	Beginning of Bridge Sign Current Value	End of Bridge Sign Current Value
Code 4 (22 Tons)	34		
Code 9 (31 Tons)	40		
Code 5 (40 Tons)	42		

If calculated Capacity is less than the Legal Load Listed, the Bridge Legally Requires Posting Signs to be installed by the Bridge Owner



30"x36" AR



33.87794, -93.30596



Asset #01381(Underwater)
US67 Sec4 Lm 0.01 over LITTLE MISSOURI RIVER
Location: 2.2 MI S SH 51
Team Lead: Victoria Elliott **Inspection Date:** 03/14/2024

UWI Substructure Cond.: 6 UWI Channel/Protection: 5 UWI Scour Condition: 5
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Inspection Comments

Team Leader: Victoria Elliott
Team Members: Nate Brown
Note Taker: David Greenwood
Total Substructure Units: 28
Substructure Units in Water: Piers 2-3
Inventory Direction: W to E
Direction of Flow: N to S
Deepest Water Depth: 11.8 ft
Water Velocity: 1.6 FPS
Attachments: Channel Profile/Contour Map, Soundings Table, Inspection Procedures, Final Report

Substructure Notes

03/18/2024- VLE, NLB, DWG
Overall the substructure is in satisfactory condition with debris, abrasion, cracking.

Channel/Channel Protection Notes

03/18/2024- VLE, NLB, DWG
Overall the channel is in fair condition with cut banks, minor channel migration, and pier scour.

Scour Notes

03/18/2024- VLE, NLB
According to plans, Piers 2 & 3 have a bottom of footing elevation of 171.30'. The approximate cover at time of construction was 9' at Pier 2 and Pier 3. The amount of cover left is approximately 6' at Pier 2 and 5' Pier 3. The footings are keyed into rock according to boring logs on plans. Pier scour due to channel migration has caused a widening of the channel directly under the bridge behind Piers 2 & 3. Pile Bents have local scour holes up to 2' deep at various locations.



ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
205	Reinforced Concrete Column	EA	8	0	4	4	0
1080	Delamination/Spall/Patched Area	EA	1	0	0	1	0
1190	Abrasion/Wear (PSC/RC)	EA	7	0	4	3	0
(205) 2024 Underwater Inspection Initials of Team members NOTES AND LOCATIONS ARE NOTED BY PLANS. There may be more than one defect for each location but a (X EA) or (X SF) will be listed with the location that quantifies. If top side defects overrule, none will be quantified. Inspection Limit is construction joint approximately 5' above waterline at an elevation of 185.2'.							
Pier 2, Column 1: Abrasion. Column corners have heavy abrasion with pop-outs. (CS3) (1 EA) Pier 2, Column 1: Debris. Located on the left side of column is moderate timber debris. Pier 2, Column 2: Abrasion. Column corners have heavy abrasion with pop-outs. (CS3) Pier 2, Column 2: Spall. Located at the back right corner is a 6" diameter spall 1" deep 6" below the waterline. (CS3) (1 EA)							
Pier 3, Column 1: Debris. Located on the left side of column is heavy timber debris hindering full inspection to the ground line. Pier 3, Column 1: Abrasion. The left corners of column have CS3 abrasion while the rest of the column has CS2. (CS3) (1 EA) Pier 3, Column 2: Abrasion. The right corners of column have CS3 abrasion while the rest of the column has CS2. (CS3) (1 EA)							
210	Reinforced Concrete Pier Wall	LF	72	28	36	8	0
1080	Delamination/Spall/Patched Area	LF	8	0	0	8	0
1130	Cracking (RC and Other)	LF	1	0	1	0	0
1190	Abrasion/Wear (PSC/RC)	LF	35	0	35	0	0
(210) 2024 Underwater Inspection Initials of Team members NOTES AND LOCATIONS ARE NOTED BY PLANS. There may be more than one defect for each location but a (X EA) or (X SF) will be listed with the location that quantifies. If top side defects overrule, none will be quantified. Inspection Limit is 5' above the waterline at an elevation of 185.2'.							
Pier 2, Ahead: Spall. Located 5' to the right of Column 1 there is a 2' diameter spall up to 5" deep starting 6" above the ground line. (CS3) (2 LF) Pier 2, Ahead: Spall. Located 5' to the left of Column 2 there is a 2' diameter spall up to 6" deep starting 6" above the ground line. (CS3) (2 LF) Spalls appear to be in locations of concrete form supports during construction. Pier 2: Abrasion. CS2 abrasion throughout.							
Pier 3, Back: Spall. Located 5' to the right of Column 1 there is a 2' diameter spall up to 5" deep starting 5' above the ground line. (CS3) (2 LF) Pier 3, Back: Spall. Located 5' to the left of Column 2 there is a 2' diameter spall up to 6" deep starting 5' above the ground line. (CS3) (2 LF) Spalls appear to be in locations of concrete form supports during construction. Pier 3, Back: Cracking. Located 8.5' to the right of Column 1 there is a CS2 vertical crack starting at the waterline extending to the inspection limit line. (CS2) (1 LF) Pier 3: Abrasion. CS2 abrasion throughout.							



Elevation



Aerial 2024



Channel Overview



Channel Overview



Left Channel



Right Channel



Cut banks right of Pier 3



Left Channel cut bank



Pier 2 Back Scour



Scour Between Pier 3 and 4



Pier 4 Back Scour



Bent 1 Overview



Bent 2 Ahead Overview



Bent 3 Ahead Overview



Bent 4 Ahead Overview



Bent 5 Ahead Overview



Bent 6 Ahead Overview



Bent 7 Ahead Overview



Bent 8 Ahead Overview



Bent 9 Ahead Overview



Bent 10 Ahead Overview



Pier 1 Back Overview



Pier 1 Ahead Overview



Pier 2 Back Overview



Pier 2 Ahead Overview



Pier 3 Back Overview



Pier 3 Ahead Overview



Bent 20 Back Overview



Bent 21 Back Overview



Bent 22 Back Overview



Bent 23 Back Overview



Bent 24 Overview



Pier 4 Ahead Overview



Bent 19 Back Overview



Bent 18 Back Overview



Bent 17 Back Overview



Bent 16 Back Overview



Bent 15 Back Overview



Bent 14 Back Overview



Bent 13 Back Overview

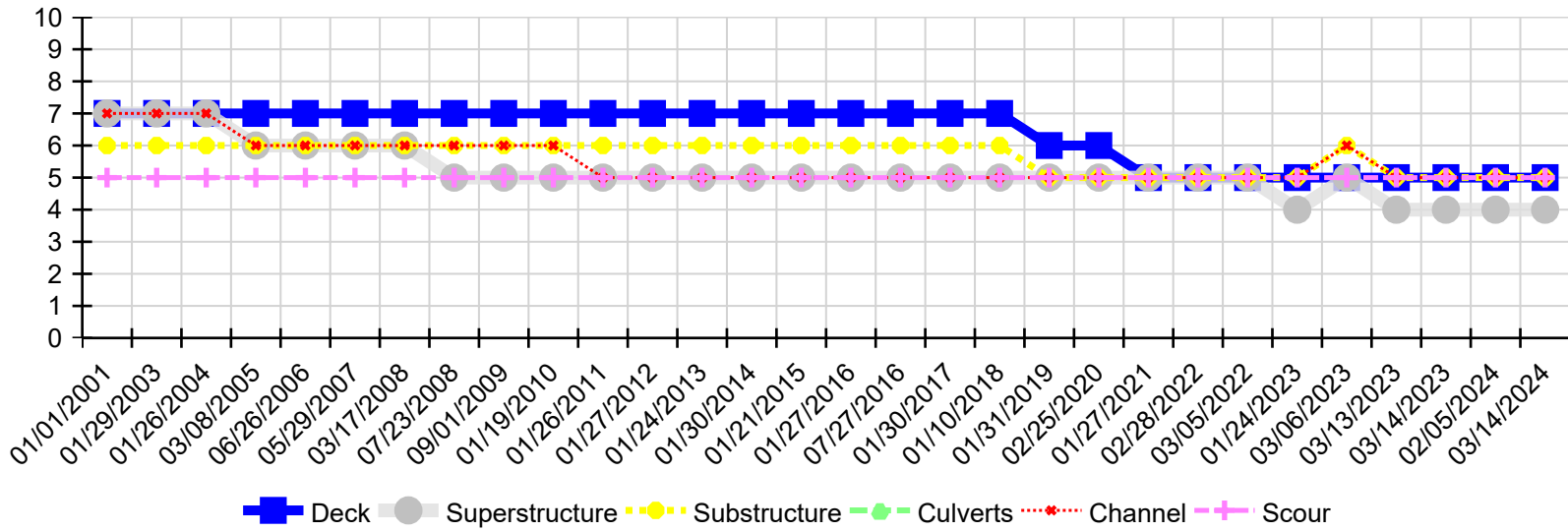


Bent 12 Back Overview



Bent 11 Back Overview

Condition History



Inspection Date	Deck	Superstructure	Substructure	Culverts	Channel	Scour
03/14/2024	5	4	5	N	5	5
02/05/2024	5	4	5	N	5	5
03/14/2023	5	4	5	N	5	5
03/13/2023	5	4	5	N	5	5
03/06/2023	5	5	6	N	6	5
01/24/2023	5	4	5	N	5	5
03/05/2022	5	5	5	N	5	5
02/28/2022	5	5	5	N	5	5
01/27/2021	5	5	5	N	5	5
02/25/2020	6	5	5	N	5	5
01/31/2019	6	5	5	N	5	5
01/10/2018	7	5	6	N	5	5
01/30/2017	7	5	6	N	5	5
07/27/2016	7	5	6	N	5	5
01/27/2016	7	5	6	N	5	5
01/21/2015	7	5	6	N	5	5
01/30/2014	7	5	6	N	5	5
01/24/2013	7	5	6	N	5	5
01/27/2012	7	5	6	N	5	5
01/26/2011	7	5	6	N	5	5
01/19/2010	7	5	6	N	6	5
09/01/2009	7	5	6	N	6	5
07/23/2008	7	5	6	N	6	5
03/17/2008	7	6	6	N	6	5
05/29/2007	7	6	6	N	6	5
06/26/2006	7	6	6	N	6	5
03/08/2005	7	6	6	N	6	5



Asset #01381(Underwater)

US67 Sec4 Lm 0.01 over LITTLE MISSOURI RIVER

Location: 2.2 MI S SH 51

Team Lead: Victoria Elliott **Inspection Date:** 03/14/2024

Inspection Date	Deck	Superstructure	Substructure	Culverts	Channel	Scour
01/26/2004	7	7	6	N	7	5
01/29/2003	7	7	6	N	7	5
01/01/2001	7	7	6	N	7	5



Inspection Date: 3/19/2024

ARDOT Structure # 01381

Route: 67

Waterway: Little Missouri River

Underwater Inspection Procedures

23 CFR 650.313 (e) & (e1)

Engineering Operations performs all NBIS underwater inspections in accordance with Metric 17, 23 CFR 650.313 (e)(2) – “Bridges requiring underwater inspections”

Planning

Each bridge location will be assessed prior to inspection and have a safety/dive plan completed prior to all diving operations.

- Considerations will be given for optimum inspection and schedule to include higher than normal water level/flow rate, heavy debris, and/or moving debris.
- Considerations will be given for diving mode and address possible hazards (waterway, depth, elevations, timber, current etc.)
- Dive platform will be considered
- Dive team selection based on conditions and ability

Note:

All dive operations will be in conformance with ADCI. Dive inspectors will have the following current certification. Current certifications for all lead inspectors have been submitted and is on file.

- First Aid & CPR
- Emergency Oxygen
- Annual Approved Dive Physical
- Current PADI diver certification
- Current FHWA underwater or two-week refresher class (FHWA/NHI Class 130055, 130091 or 130053A)
- Lead Inspectors will have a minimum 2yrs underwater inspection experience

Overview of General Procedures:

- Underwater Inspection includes inspection of all bridge elements in the water at the time of inspection. Dive Inspectors will perform a visual and tactile inspection on all bridge elements from the high waterline to the channel bottom. Maximum depth of water was recorded around each substructure unit and any relevant deterioration will be documented and recorded.
- Scour will be assessed in comparison with conditions noted in previous inspection reports, if available. Divers recorded sounding measurements both upstream and downstream of the bridge and noted any significant deficiency to the channel within the recorded area. Scour POA's will be reviewed and any relevant HEC18 data will be recorded.
- Channel meandering or any significant embankment deficiency within line of sight upstream and downstream of the bridge will be noted.



Inspection Date: 3/19/2024

ARDOT Structure # 01381

Route: 67

Waterway: Little Missouri River

On Site Procedure Checklist (Inspection)

Once the underwater inspection team arrives on site the following procedures are reviewed and addressed prior to leaving inspection site.

Inspection:

Type of Inspection: NBIS *Underwater* **Level:** ☒ I ☐ II ☐ III

Elements Inspected: ☐ 202 Steel Column ☒ 205 Re Conc Column ☒ 210 Re Conc Pier Wall
 ☐ 220 Re Conc Footing ☐ 225 Steel Pile ☐ 226 PS Conc Pile
 ☐ 227 Re Conc Pile ☐ 228 Timber Pile ☐ 144 Re Conc Arch

Scour Monitors Present: ☒ No ☐ Yes _____

Scour Plan of Action: ☒ No ☐ Yes _____

Critical Findings: ☒ No ☐ Yes _____

Point of Access: ☒ Bridge Site _____
☐ Other

Confined Space: ☒ No ☐ Yes _____

Maintenance of Traffic Required: ☒ No ☐ Yes _____

Underwater Field Book: ☒ Field book input

Diving Mode: ☒ Commercial Scuba ☐ Surface Supplied Air

Dive Brief: ☒ Dive plan review/brief ☒ Dive Check List ☒ Dive Log

Emergency Contact: 911, Kevin Weston 501-249-6616

Water Surface Condition: ☒ Calm ☐ Choppy ☐ Rough

Current: ☒ Slow (< 1.5 FPS) ☐ Moderate (1.5-2.0 FPS) ☐ Fast (> 2.0 FPS)

Visibility: ☐ < 1ft ☒ 1-3 ft ☐ > 3 ft

Channel: ☐ Straight ☒ Meandering ☐ Braided

Bottom Material: ☐ River Rock ☐ Rip-Rap ☐ Sand ☐ Gravel ☒ Mud / Silt

Debris: ☐ None ☐ Minor ☒ Moderate ☐ Heavy

Channel Restriction: ☒ None ☐ Minor ☐ Moderate ☐ Heavy

Weather: ☒ Sunny ☐ Cloudy ☐ Pt Cloudy ☐ Rain/Snow



Inspection Date: 3/18/2024

ARDOT Structure # 01381

Route: 67

Waterway: Little Missouri River

Dive Brief notes or special conditions:

None

Equipment: ☒ Probe rod ☒ U/W camera ☐ Clear water box ☒ Scale ☐ U/W UT ☐ Cleaning tool
☒ Dive flag ☐ Sea life camera ☐ Fast water rigging equipment

☐ UT ☐ Boat – Type: _____

Commercial SCUBA Equipment: ☒ OTS Buddy Comms ☒ Standard set up ☐ High flow pack

Surface Supplied Equipment: ☐ KM 27 ☐ KM 97 ☐ LT WT package ☐ Standard package
☐ HP ☐ LP Compressor ☐ AMCOM I ☐ AMCOM II

Inspection Findings Assessed and Documented Upon Leaving Inspection Site:

☒ Pier Soundings ☒ Channel Soundings ☒ All Underwater Elements Inspected/Rated
☒ Scour Assessed/Rated ☐ Scour POA reviewed ☒ Photo Log completed