

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 12495

BRIDGE SAFETY INSPECTION REPORT

Facility HORSE ISLAND DRIVE	Latitude / Longitude 42.0867 / -83.1861	MDOT Structure ID 825263600015B01	Structure Condition Poor Condition(4)
Feature HORSE ISL & ADAMS DR BYU	Length / Width / Spans 45.9 / 23 / 1	Owner City: GIBRALTAR(2636)	
Location EAST OF ADAMS	Built / Recon. / Paint / Ovly. 1925 / / / 1999	TSC Taylor(25)	Operational Status P Posted for load(081216)
Region / County Metro(7) / Wayne(82)	Material / Design 1 Concrete / 11 Arch- Deck, Filled Sp	Last NBI Inspection 08/02/2023 / IDAM	Scour Evaluation 7 Countermeasures



NBI INSPECTION

IDAM

Inspector Name	Agency / Company Name	Insp. Freq.	Insp. Date
Joel Thorne	Great Lakes Engineering Group	12	08/02/2023

GENERAL NOTES

No advanced posting sign needed southeast of bridge due to dead end roadway.
Use east-west alignment for bridge.

Weight limit signs in place on both ends of bridge	YES
Weight limit shown on signs at bridge	_81216
Required advance warning weight limit signs in place	YES
Weight limit shown on advance warning signs	_81216

DECK

08/21 08/22 08/23


	08/21	08/22	08/23	
1. Surface (SIA-58A)	7	7	7	HMA surface. There are two transverse and two longitudinal cracks along east 1/2. Random cracking at midspan. (08/23) HMA surface. There are two transverse and two longitudinal cracks along east 1/2. Random cracking , midspan. (08/22) HMA surface. There are two transverse and two longitudinal cracks. (08/21)
2. Expansion Joints	N	N	N	(08/23) (08/22) (08/21)
3. Other Joints	N	N	N	(08/23) (08/22) (08/21)
4. Railings	5	5	5	Solid concrete parapets with brushblocks and concrete surface coating. Spalls at the bottom of the parapets on inside of railing. West and east end of south railing is spalled with approach guardrail no longer connected. North: offset at midspan 1/2" ; spall in NW. (08/23) Solid concrete parapets with brushblocks and concrete surface coating. Spalls at the bottom of the parapets on inside of railing. West and east end of south railing is spalled with approach guardrail no longer connected. North: offset at midspan; spall in NW. (08/22) Solid concrete parapets with brushblocks and concrete surface coating. Spalls at the bottom of the parapets on inside of railing. West end of south railing is spalled with approach guardrail no longer connected. (08/21)
5. Sidewalks or Curbs	N	N	N	(08/23) (08/22) (08/21)
6. Deck Bottom Surface (SIA-58B)	N	N	N	Earth filled arch. (08/23) Earth filled arch. (08/22) Earth filled arch. (08/21)
7. Deck (SIA-58)	N	N	N	Earth filled arch. (08/23) Earth filled arch. (08/22) Earth filled arch. (08/21)
8. Drainage				(08/23) (08/22) (08/21)

SUPERSTRUCTURE

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08/21 08/22 08/23

9. Stringer (SIA-59)	4	4	4	<p>Earth filled arch. The bottom edge of south fascia is spalled from the east 1/4-pt to the east abutment measuring up to 6" wide with up to 2" penetration. Spall along bottom edge of north fascia for full length (2.5 ft. wide, 6 in. pen, 2 debonded bars). Concrete on underside of arch has longitudinal hairline to 1/8" cracks extending the entire span with efflorescence and rust staining as well as isolated areas of delamination and spalling with exposed reinforcing steel. Cracks at the segment joints along the entire length of the span measuring 1/8" - 1/4" wide with associated spalling up to 1' wide with up to 2" penetration and exposed corroded reinforcing steel. Estimate 25-35% of bottom cracked/delaminated/spalled. Soffit: incipient spall at mispan, along joint 1s. (08/23)</p> <p>Earth filled arch. There are two spalls on bottom edge of south fascia from the east 1/4-pt to the east abutment measuring up to 6" wide with up to 2" penetration. Spall along bottom edge of north fascia from the east 1/4-pt. to the west abutment (2.5 ft. wide, 6 in. pen, 2 debonded bars). Concrete on underside of arch has longitudinal hairline to 1/8" cracks extending the entire span with efflorescence and rust staining as well as isolated areas of delamination and spalling with exposed reinforcing steel. Cracks at the segment joints along the entire length of the span measuring 1/8" - 1/4" wide with associated spalling up to 1' wide with up to 2" penetration and exposed corroded reinforcing steel. Estimate 25-35% of bottom cracked/delaminated/spalled. Soffit: incipient spall at mispan, along joint 1s. (08/22)</p> <p>Earth filled arch. There are two spalls on bottom edge of south fascia from the east 1/4-pt to the east abutment measuring up to 6" wide with up to 2 in. pen. Spall along bottom edge of north fascia from the east 1/4-pt. to the west abutment (2.5 ft. wide, 6 in. pen, 2 debonded bars). Concrete on underside of arch has longitudinal hairline to 1/8 in. cracks extending the entire span with efflorescence and rust staining as well as random areas of delamination and spalling with exposed reinforcing steel. Cracks at the segment joints along the entire length of the span measuring 1/8 - 1/4 in. wide with associated spalling up to 1 ft. wide with up to 2 in. pen. and exposed corroded reinforcing steel. Estimate 25-35% of bottom cracked/delaminated/spalled. (08/21)</p>
10. Paint (SIA-59A)		N	N	(08/23) (08/22) (08/21)
11. Section Loss	N	N	N	(08/23) (08/22) (08/21)
12. Bearings	N	N	N	(08/23) (08/22) (08/21)

SUBSTRUCTURE


08/21 08/22 08/23

13. Abutments (SIA-60)	4	4	4	<p>Concrete abutments. Cracks and spalls at the construction joints (worse above water). Abutments have been repaired with grout bags and additional riprap. Undermining noted at 4' wide section of east and 2' wide section of west abutments under grout bags. There is scale and abrasion on surface of abutments and open cracks are visible. (08/23)</p> <p>Concrete abutments. Cracks and spalls at the construction joints (worse above water). Abutments have been repaired with grout bags and additional riprap. Undermining noted at 4' wide section of east and 2' wide section of west abutments under grout bags. There is scale and abrasion on surface of abutments and open cracks are visible. (08/22)</p> <p>Concrete abutments. Cracks and spalls at the construction joints (worse above water). Abutments have been repaired with grout bags and additional riprap. Undermining noted at 4' wide section of east and 2' wide section of west abutments under grout bags. There is scale and abrasion on surface of abutments and open cracks are visible. (08/21)</p>
14. Piers (SIA-60)	N	N	N	(08/23) (08/22) (08/21)

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Feature	Length / Width / Spans	Owner		
HORSE ISL & ADAMS DR BYU	45.9 / 23 / 1	City: GIBRALTAR(2636)		
Location	Built / Recon. / Paint / Ovly.	TSC	Operational Status	
EAST OF ADAMS	1925 / / / 1999	Taylor(25)	P Posted for load(081216)	
Region / County	Material / Design	Last NBI Inspection	Scour Evaluation	
Metro(7) / Wayne(82)	1 Concrete / 11 Arch- Deck, Filled Sp	08/02/2023 / IDAM	7 Countermeasures	

15. Slope Protection	N	N	N	(08/23) (08/22) (08/21)
16. Channel (SIA-61)	6	6	6	Flow north to south. Channel is open. Retaining walls are in good condition. Undermining along grout bags at both abutments. (08/23) Channel is open. Retaining walls are in good condition. Undermining along grout bags at both abutments. (08/22) Channel is open. Retaining walls are in good condition. Undermining along grout bags at both abutments. (08/21)
17. Scour Inspection	4	4	4	Previous scour issues were addressed with installation of grout bags at the west and east abutments. However, undermining of the grout bags was observed during the underwater inspection at both abutments. The undermining was more severe at the east abutment. West abutment: Grout bags present from previous scour repairs. 2 LFT area of undermining of the gout bags, 1 inch of vertical undermining,3 feet of horizontal penetration under grout bags. Void between steel sheeting and abutment at interface of the NW corner of abutment. East abutment: Grout bags present from previous scour repairs. Area of undermining of the grout bags, near the upstream corner. 2 feet of vertical undermining below the grout bags. Open joint between the footing and the arch, with up to 12 inches of horizontal penetration into the joint. Void between steel sheeting and abutment at interface of the NE corner of abutment. (08/23) Previous scour issues were addressed with installation of grout bags at the west and east abutments. However, undermining of the grout bags was observed during the underwater inspection at both abutments. The undermining was more severe at the east abutment. West abutment: Grout bags present from previous scour repairs. 2 LFT area of undermining of the gout bags, 1 inch of vertical undermining,3 feet of horizontal penetration under grout bags. Void between steel sheeting and abutment at interface of the NW corner of abutment. East abutment: Grout bags present from previous scour repairs. Area of undermining of the grout bags, near the upstream corner. 2 feet of vertical undermining below the grout bags. Open joint between the footing and the arch, with up to 12 inches of horizontal penetration into the joint. Void between steel sheeting and abutment at interface of the NE corner of abutment. (08/22) Previous scour issues were addressed with installation of grout bags at the west and east abutments. However, undermining of the grout bags was observed during the underwater inspection at both abutments. The undermining was more severe at the east abutment. (08/21)

APPROACH

	08/21	08/22	08/23	
18. Approach Pavement	6	6	6	Bit approaches have several sealed cracks, sealant starting to fail with vegetation growth. Alligator cracks in center of west approach. (08/23) Bit approaches have several sealed cracks, sealant starting to fail with vegetation growth. Alligator cracks in center of west approach. (08/22) Bit approaches have several sealed cracks, sealant starting to fail. Alligator cracks in center of west approach. (08/21)
19. Approach Shoulders Sidewalks	5	5	5	East shoulders have HMA and gravel. West have curb and gutter. NW curb has undermining penetrating up to 18" and is starting to settle. (08/23) East shoulders have HMA and gravel. West have curb and gutter. NW curb has undermining penetrating up to 18". (08/22) East shoulders have HMA and gravel. West have curb and gutter. NW curb has undermining penetrating up to 18". (08/21)
20. Approach Slopes				Well vegetated. Riprap in place in all quadrants. (08/23) Well vegetated. Riprap in place in all quadrants. (08/22) Well vegetated. Riprap in place in all quadrants. (08/21)
21. Utilities				Overhead south. (08/23) Overhead south. (08/22) Overhead south. (08/21)

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22. Drainage Culverts (08/23)
(08/22)
(08/21)

MISCELLANEOUS

Guard Rail

Item	Rating
36A. Bridge Railings	0
36B. Transitions	0
36C. Approach Guardrail	0
36D. Approach Guardrail Ends	0

Other Items

Item	Rating
71. Water Adequacy	6
72. Approach Alignment	4
Temporary Support	0 No Temporary Supports
High Load Hit (M)	No
Special Insp. Equipment	1
Underwater Insp. Method	3

False Decking (Timber) Removed to Complete Inspection

N/A - No False Decking


Critical Feature Inspections (SIA-92)

	Freq	Date
92A. Fracture Critical		
92B. Underwater	60	08/24/2020
92C. Other Special		
92D. Fatigue Sensitive		

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SUPPORTING IMAGES

IDAM 08/02/2023



Document Name: IMG_4583.JPG
 Category: Elevation
 Span Number:
 Comments: South elevation

Document Name: IMG_4585.JPG
 Category: Elevation
 Span Number:
 Comments: North elevation




Document Name: IMG_4571.JPG
 Category: Posting
 Span Number:
 Comments: EB advanced load posting

Document Name: IMG_4572.JPG
 Category: Posting
 Span Number:
 Comments: EB load posting

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Document Name: IMG_4573.JPG
 Category: Posting
 Span Number:
 Comments: WB load posting



Document Name: IMG_4574.JPG
 Category: Approach
 Span Number:
 Comments: Looking west through structure



Document Name: IMG_4575.JPG
 Category: Approach
 Span Number:
 Comments: West approach




Document Name: IMG_4577.JPG
 Category: Approach
 Span Number:
 Comments: East approach

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Document Name: IMG_4578.JPG
 Category: Railing
 Span Number:
 Comments: South rail



Document Name: IMG_4580.JPG
 Category: Railing
 Span Number:
 Comments: North rail



Document Name: IMG_4582.JPG
 Category: Railing
 Span Number:
 Comments: Spalling in rails




Document Name: IMG_4576.JPG
 Category: Deck
 Span Number:
 Comments: HMA surface

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Document Name: IMG_4584.JPG
 Category: Superstructure
 Span Number:
 Comments: Spall to steel with 2 debonded bars along north fascia.



Document Name: IMG_4586.JPG
 Category: Superstructure
 Span Number:
 Comments: West half of arch



Document Name: IMG_4587.JPG
 Category: Superstructure
 Span Number:
 Comments: Top of arch




Document Name: IMG_4588.JPG
 Category: Superstructure
 Span Number:
 Comments: East half of arch

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Document Name: IMG_4589.JPG
 Category: Superstructure
 Span Number:
 Comments: Incipient spall along construction joint



Document Name: IMG_4579.JPG
 Category: Channel
 Span Number:
 Comments: South channel



Document Name: IMG_4581.JPG
 Category: Channel
 Span Number:
 Comments: North channel