

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 11997

BRIDGE SAFETY INSPECTION REPORT

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition	
GIBRALTAR ROAD	42.0947 / -83.2028	824263600007B01	Poor Condition(4)	
Feature	Length / Width / Spans	Owner		
FRANK & POET DRAIN	27.2 / 55.8 / 1	City: GIBRALTAR(2636)		
Location	Built / Recon. / Paint / Ovly.	TSC	Operational Status	
GIBRALTAR E/JEFFERSON	1932 / / /	Taylor(25)	A Open, no restriction(A)	
Region / County	Material / Design	Last NBI Inspection	Scour Evaluation	
Metro(7) / Wayne(82)	1 Concrete / 04 Tee Beam	08/02/2023 / 6MB5	3 SC - Unstable	

NBI INSPECTION

6MB5

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

GENERAL NOTES

Recommend 24 month UW inspection

DECK

	08/21	08/22	08/23	
1. Surface (SIA-58A)	4	4	4	HMA surface. Rutting, open and sealed cracks, HMA patches, and alligator cracks. Several bit filled spalls in south lane. Vegetation growth at sidewalk. Impact loading due to surface deterioration and settled approaches. Estimate 40% of surface patched/cracked. WB has extensive bit spalls in the right wheel path. Alligator cracks along centerline and east half. (08/23) Bit surface. Rutting, open and sealed cracks, HMA patches, and alligator cracks. Several open spalls in south lane. Vegetation growth at sidewalk. Impact loading due to surface deterioration and settled approaches. Estimate 40% of surface patched/cracked. WB has extensive bit spalls in the right wheel path. Alligator cracks along centerline. (08/22) Bit surface. Rutting, open and sealed cracks, HMA patches, and alligator cracks. Several open spalls in south lane. Vegetation growth at sidewalk. Impact loading due to surface deterioration. Estimate 40% of surface patched/cracked. (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	6	6	6	Concrete parapet with aluminum ped tube. Hairline vertical cracks with some rusting/leaching every 12". Several small spalls. (08/23) Concrete parapet with aluminum ped tube. Hairline vertical cracks with some rusting every 12". Several small spalls. (08/22) Concrete parapet with aluminum ped tube. Hairline vertical cracks every 12".. Several small spalls. (08/21)
5. Sidewalks or Curbs	6	6	6	5.5' wide raised concrete sidewalks. 2 spalls in north sidewalk adjacent to traffic. Transverse cracks at approximately 4' spacing. Shallow scale in north and south sidewalk near rail. Gravel on outside 2' of both sidewalks. (08/23) 5.5' wide raised concrete sidewalks. Spalls at north edge adjacent to traffic. Transverse cracks at approximately 4' spacing. Shallow scale in south sidewalk near rail. Gravel on outside 2' of both sidewalks. (08/22) Raised concrete sidewalks. Spalls at edge adjacent to traffic. Transverse cracks at approximately 4' spacing. Shallow scale in south sidewalk. Gravel on outside 2' of both sidewalks. (08/21)
6. Deck Bottom Surface (SIA-58B)	4	4	4	Concrete deck. Scale and spalls on both fascias and all bays. Transverse and leaching map cracks throughout. Areas of honey combing. (08/23) Concrete deck. Scale and spalls on both fascias and all bays. Transverse and leaching map cracks throughout. Areas of honey combing. (08/22) Previous comments: Concrete deck. Scale and spalls on both fascias and all bays. Transverse leaching cracks throughout. 18" of freeboard, could not go under bridge in 2022. (08/21)

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7. Deck (SIA-58) 4 4 4 Deck surface: HMA surface. Rutting, open and sealed cracks, HMA patches, and alligator cracks. Several bit filled spalls in south lane. Vegetation growth at sidewalk. Impact loading due to surface deterioration and settled approaches. Estimate 40% of surface patched/cracked. WB has extensive bit spalls in the right wheel path. Alligator cracks along centerline and east half.
 Deck bottom: Concrete deck. Scale and spalls on both fascias and all bays. Transverse and leaching map cracks throughout. Areas of honey combing. (08/23)
 Deck surface: Bit surface. Rutting, open and sealed cracks, HMA patches, and alligator cracks. Several open spalls in south lane. Vegetation growth at sidewalk. Impact loading due to surface deterioration and settled approaches. Estimate 40% of surface patched/cracked. WB has extensive bit spalls in the right wheel path. Alligator cracks along centerline. Deck bottom: Concrete deck. Scale and spalls on both fascias and all bays. Transverse and leaching map cracks throughout. Areas of honey combing. (08/22)
 Surface: Bit surface. Rutting, open and sealed cracks, HMA patches, and alligator cracks. Several open spalls in south lane. Vegetation growth at sidewalk. Impact loading due to surface deterioration. Estimate 40% of surface patched/cracked.
 Soffit: Concrete deck. Scale and spalls on both fascias and all bays. Transverse leaching cracks throughout.
 18" of freeboard, could not go under bridge in 2022.
 Fascias: South fascia is 100% spalled. North fascia has heavy cracking and is 25% spalled. (08/21)

8. Drainage Off in approaches. (08/23)
 Off in approaches. (08/22)
 (08/21)

SUPERSTRUCTURE

08/21 08/22 08/23

9. Stringer (SIA-59) 4 4 4 CIP T Beams. All T beams have longitudinal cracks. Many have open spalls with exposed rebar. Many areas of honeycomb. Most spalls are at 1/4 points. None of the exposed reinforcement completely debonded from the concrete. Deterioration as follows:
 BM1s - 4' spall with no exposed steel.
 BM4s - 6' STS with 5 Ea exposed longitudinal bars.
 BM5s - 2' shallow spall and delam.
 BM6s - 3' STS with 5 Ea exposed longitudinal bars at east 1/4.
 BM7s - 6' STS with 5 Ea exposed longitudinal bars at east 1/4.
 BM8s - 4' STS with 5 Ea exposed longitudinal bars.
 BM9s - 1' STS with 5 Ea exposed longitudinal bars.
 BM10s - 2' STS with 3 Ea exposed longitudinal bars at midspan. (08/23)
 CIP T Beams. All T beams have longitudinal cracks. Many have open spalls with exposed rebar. Many areas of honeycomb. Most spalls are at 1/4 points. None of the exposed reinforcement completely debonded from the concrete. Deterioration as follows:
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 BM8s - 4' STS with 5 Ea exposed longitudinal bars.
 BM9s - 1' STS with 5 Ea exposed longitudinal bars.
 BM10s - 2' STS with 3 Ea exposed longitudinal bars at midspan. (08/22)
 Previous comments: CIP T Beams. All T beams have longitudinal cracks. Many have open spalls with exposed rebar. Many areas of honeycomb. Most spalls are at 1/4 points. T beams at construction joints are worse than others.
 18" of freeboard, could not go under bridge in 2022. (08/21)


10. Paint (SIA-59A) N N N (08/23)
 (08/22)
 (08/21)

11. Section Loss 2 1 1 Cracks and spalls at beam ends. Exposed reinforcement has rust and scale. (08/23)
 Cracks and spalls at beam ends. Exposed reinforcement has rust and scale. (08/22)
 Cracks and spalls at beam ends. No shear cracks. (08/21)

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12. Bearings	N	N	N	(08/23) (08/22) (08/21)
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SUBSTRUCTURE

08/21 08/22 08/23

13. Abutments (SIA-60)	4	4	4	Concrete abutments mostly submerged at time of inspection. Open cracks in caps and walls were worse near normal water line, but no offsets noted. Corners are scalled/spalled where exposed with rusty rebar exposed. Leakage and wetness along length of both abutments. 2021 Underwater inspection noted: Advanced scour with vertical footing exposure was noted along the west and east abutments during the underwater inspection. Footing exposure along the west abutment starts under beam 3s and runs out under beam 10s. Footing exposure ranges from 0" to 2" maximum. At the east abutment, footing exposure starts under beams 1n -2n and zeroes out under beams 6n-7n. Footing exposure at the east abutment ranged from 0" to 1'-6" maximum. No undermining was noted along the abutments. (08/23) Concrete abutments mostly submerged at time of inspection. Open cracks in caps and walls were worse near normal water line, but no offsets noted. Corners are scalled/spalled where exposed with rusty rebar exposed. Leakage and wetness along length of both abutments. 2021 Underwater inspection noted: Advanced scour with vertical footing exposure was noted along the west and east abutments during the underwater inspection. Footing exposure along the west abutment starts under beam 3s and runs out under beam 10s. Footing exposure ranges from 0" to 2" maximum. At the east abutment, footing exposure starts under beams 1n -2n and zeroes out under beams 6n-7n. Footing exposure at the east abutment ranged from 0" to 1'-6" maximum. No undermining was noted along the abutments. (08/22) Previous comments: Concrete abutments mostly submerged at time of inspection. Open cracks in caps and walls were worse near normal water line, but no offsets noted. Corners are scalled/spalled where exposed with rusty rebar exposed. Leakage and wetness along length of both abutments. 18" of freeboard, could not go under bridge in 2022. (08/21)
14. Piers (SIA-60)	N	N	N	(08/23) (08/22) (08/21)
15. Slope Protection	N	N	N	(08/23) (08/22) (08/21)
16. Channel (SIA-61)	7	7	7	Slow flow south to north. Waterway is open. Heavy vegetation on banks. Bridge too small for channel. (08/23) Waterway is open. Heavy vegetation on banks. Bridge too small for channel. (08/22) Waterway is open. Heavy vegetation on banks. Bridge too small for channel. (08/21)
17. Scour Inspection	8	4	4	2021 underwater inspection noted: No scour countermeasures are currently in place along the submerged portions of the abutments. The abutments are founded on shallow 2'-6" thick spread footings and rest on unknown embedment. Advanced scour with vertical footing exposure was noted along the west and east abutments during the underwater inspection. Footing exposure along the west abutment starts under beam 3s and runs out under beam 10s. Footing exposure ranges from 0" to 2" maximum. At the east abutment, footing exposure starts under beams 1n-2n and zeroes out under beams 6n-7n. Footing exposure at the east abutment ranged from 0" to 1'-6" maximum. No undermining was noted along the abutments. (08/23) 2021 underwater inspection noted: No scour countermeasures are currently in place along the submerged portions of the abutments. The abutments are founded on shallow 2'-6" thick spread footings and rest on unknown embedment. Advanced scour with vertical footing exposure was noted along the west and east abutments during the underwater inspection. Footing exposure along the west abutment starts under beam 3s and runs out under beam 10s. Footing exposure ranges from 0" to 2" maximum. At the east abutment, footing exposure starts under beams 1n-2n and zeroes out under beams 6n-7n. Footing exposure at the east abutment ranged from 0" to 1'-6" maximum. No undermining was noted along the abutments. (08/22) See 2022 underwater inspection. (08/21)

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APPROACH

	08/21	08/22	08/23	
18. Approach Pavement	4	4	4	HMA approaches. Heavy cracking, some sealed with rutting and bit filled spalls. Estimate 2"-4" settlement at reference lines is causing impact loading. (08/23) Bit approaches. Heavy cracking, some sealed with rutting and potholes. Estimate 2"-4" settlement at reference lines is causing impact loading. (08/22) Bit approaches. Heavy cracking, rutting and potholes. Estimate 2"-4" settlement at reference lines is causing impact loading. (08/21)
19. Approach Shoulders Sidewalks	4	4	4	Approx 2"-4" of settlement in all quadrants. Bit shoulders are settled and heavily cracked, worse along south shoulder. East: large dip at reference line along both lanes. West: bit patches at reference line. (08/23) Approx 2"-4" of settlement in all quadrants. Bit shoulders are settled and heavily cracked. East: large dip at reference line along both lanes. West: bit patches at reference line. (08/22) Approx 2"-4" of settlement in all but southwest quadrant at sidewalks. Bit shoulders are settled and heavily cracked. (08/21)
20. Approach Slopes				Well vegetated. Approach guardrail: thrie beam with w panel guardrail. (08/23) Well vegetated. Approach guardrail: thrie beam with w panel guardrail. (08/22) Well vegetated. (08/21)
21. Utilities				Overhead all sides of bridge. (08/23) Overhead all sides of bridge. (08/22) Overhead all sides of bridge. (08/21)
22. Drainage Culverts				(08/23) (08/22) (08/21)

MISCELLANEOUS

Guard Rail		Other Items	
Item	Rating	Item	Rating
36A. Bridge Railings	1	71. Water Adequacy	6
36B. Transitions	1	72. Approach Alignment	8
36C. Approach Guardrail	1	Temporary Support	0 No Temporary Supports
36D. Approach Guardrail Ends	0	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	08/18/2021
92C. Other Special		
92D. Fatigue Sensitive		

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SUPPORTING IMAGES

6MB5 08/02/2023



Document Name: IMG_4503.JPG
 Category: Elevation
 Span Number:
 Comments: North elevation



Document Name: IMG_4509.JPG
 Category: Elevation
 Span Number:
 Comments: South elevation



Document Name: IMG_4492.JPG
 Category: Approach
 Span Number:
 Comments: Looking west through structure



Document Name: IMG_4493.JPG
 Category: Approach
 Span Number:
 Comments: West approach

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Document Name: IMG_4495.JPG
 Category: Approach
 Span Number:
 Comments: East approach



Document Name: IMG_4499.JPG
 Category: Approach
 Span Number:
 Comments: Settlement at approaches



Document Name: IMG_4497.JPG
 Category: Railing
 Span Number:
 Comments: South rail



Document Name: IMG_4501.JPG
 Category: Railing
 Span Number:
 Comments: North rail

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Document Name: IMG_4494.JPG
 Category: Deck
 Span Number:
 Comments: HMA surface



Document Name: IMG_4496.JPG
 Category: Deck
 Span Number:
 Comments: South sidewalk



Document Name: IMG_4500.JPG
 Category: Deck
 Span Number:
 Comments: North sidewalk



Document Name: IMG_4507.JPG
 Category: Deck
 Span Number:
 Comments: Deck bottom

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Document Name: IMG_4506.JPG

Category: Superstructure

Span Number:

Comments: Beams



Document Name: IMG_4508.JPG

Category: Superstructure

Span Number:

Comments: Spall to steel in beams, typical



Document Name: IMG_4504.JPG

Category: Substructure

Span Number:

Comments: West abutment



Document Name: IMG_4505.JPG

Category: Substructure

Span Number:

Comments: East abutment

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Document Name: IMG_4498.JPG
 Category: Channel
 Span Number:
 Comments: South channel



Document Name: IMG_4502.JPG
 Category: Channel
 Span Number:
 Comments: North channel