

Auckland Harbour Bridge Alliance

Principal Structural Inspection Box Girder Internal

2020/2021



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Principal Structural Inspection

Box Girder Internal – 2020/2021

Inspection Details	
Inspector	Date of Inspection
s 9(2)(a)	26/08/20 – 09/06/21
	26/08/20 – 09/06/21
	26/08/20 – 09/06/21
	26/08/20 – 09/06/21

Quality Assurance Statement	
Report Prepared by:	s 9(2)(a)
Report Reviewed by:	
Approved for issue by:	
Issued to:	

Revision Schedule					
Rev. No	Date	Description	Prepared by	Reviewed by	Approved by



Table of Contents

1 Scope 1

2 Condition Rating..... 1

3 Defects 2

 3.1 East Box..... 2

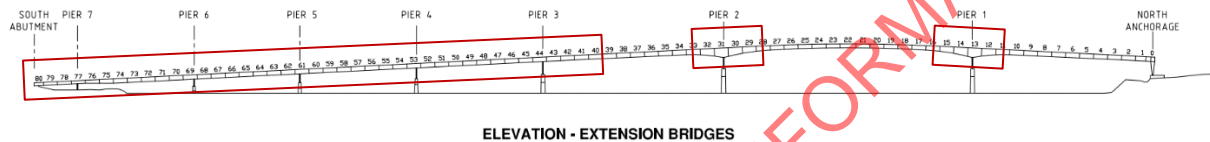
Appendix A – Marking Code and Prioritisation of the Works 15

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1 Scope

A Box Girder Internal Principal Inspection was carried in August 2020 through to June 2021 as part of the 2020-2021 inspection programme. The East box inspection included all of the shallow boxes from 40-80. Deep box areas 12-15 and 29-32 were also included in this inspection. The inspection excluded some areas in box 66-68 due to obstructions.

Inspection items included deck panels, trough stiffeners, upper crossbeams, bottom flange panels, bottom flange stiffeners, diaphragms, diaphragm stiffeners, walkways and trolley rails. Specific inspection items are listed in the AHB Structural Inspection Manual under 5.1 inspection items.



2 Condition Rating


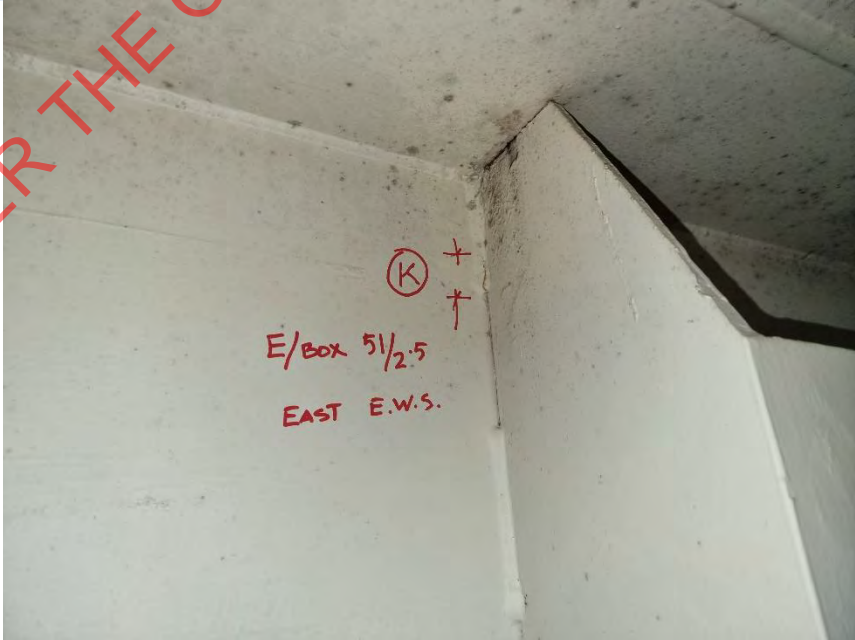
In general, the areas of the east box that were included in this inspection can be described as good. Two trough splice cracks were identified during this inspection. Box 80 has some severe corrosion resulting in section loss to some areas.

Mark	Priority	No. Defects
2	-	1
R	H	3
R	M	1
R	L	-
S	H	2
S	M	1
S	L	6
Total		14



3 Defects

3.1 East Box

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-1.	S			
		East box. Box join 30/31. Trough 5. Trough splice weld crack.	Weld crack repair.	H 1 Year
BGI-2.	S			
		East box 51. Crossbeam 2-3. Outer web. Web stiffener weld crack.	Weld crack repair.	L 2+ Years

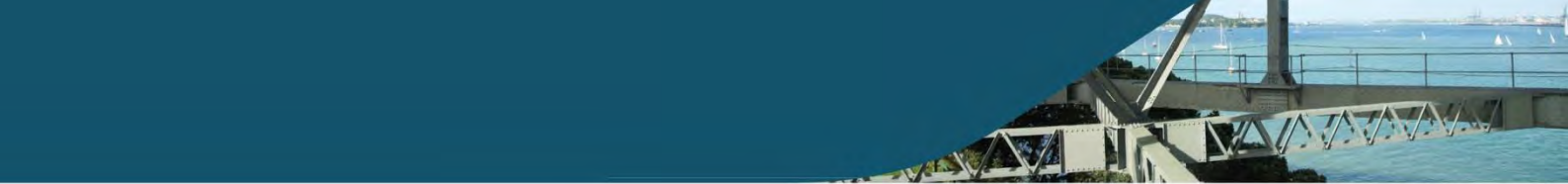



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-3.	S		Weld crack repair.	L 2+ Years





Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-4.	S			
		 <p>East box 55. Crossbeam 2-3. Outer web. Web stiffener weld crack.</p>	Weld crack repair.	L 2+ Years





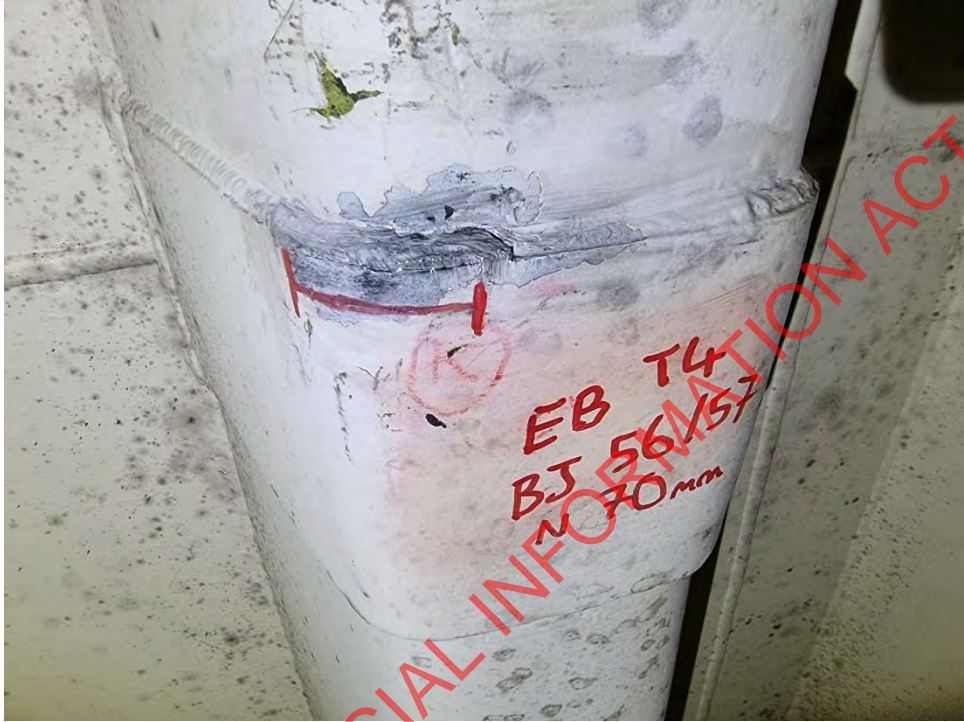

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-5.	S			
		 <p>East box. Box join 56/57. Trough splice north weld. Weld crack 70mm in length.</p>	Weld crack repair.	H 1 Year





Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-6.	S			
		 <p>East box 59. Crossbeam 2-3. Outer web. Web stiffener weld crack.</p>	Weld crack repair.	L 2+ Years



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-7.	S	 <p>East box 64. Crossbeam 2-3. Inner web. Web stiffener weld crack.</p>	Weld crack repair.	L 2+ Years
BGI-8.	S	 <p>East box. Crossbeam 3. Missing weld at crossbeam to deck.</p>	Weld location.	M 1-2 Years






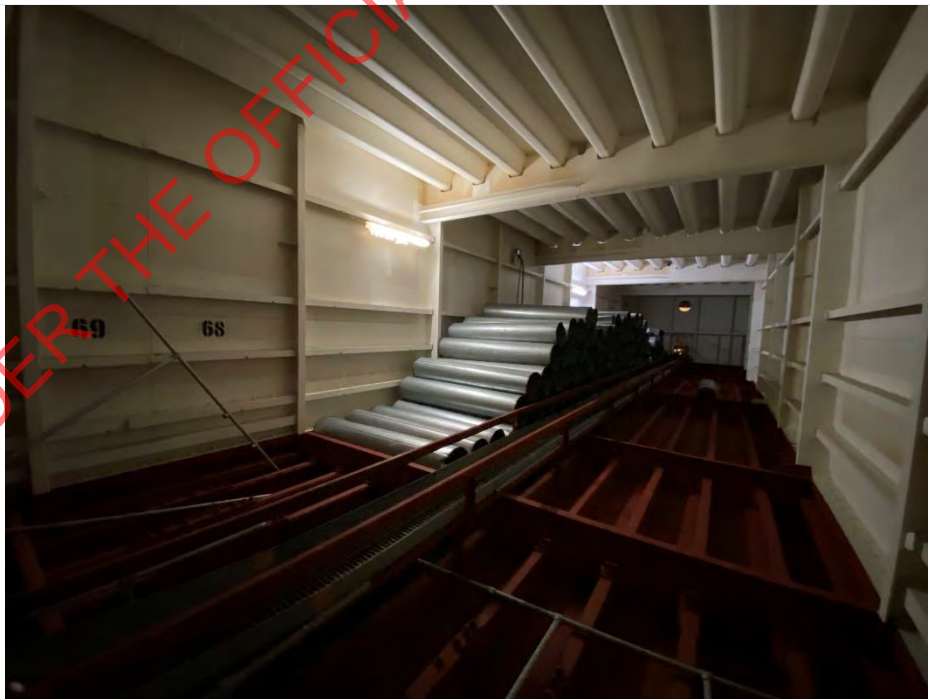
Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
				
BGI-9.	R		Move ducting pipes to other side of train track to allow for inspection.	M 1-2 Years





Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-10.	S			
		  <p>East box 78. Between crossbeam 2 and 3. Web stiffener weld crack.</p> <p>Crack repair.</p> <p>L 2+ Years</p>		



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-11.	N	 <p>East box 80. General view.</p>	N/A	N/A
BGI-12.	R	 <p>East box 80. End diaphragm. East side of walkway. Major section loss (up to 5.3mm).</p>	Clean and paint	H 1 Year




Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-13.	R	 <p>East box 80. End diaphragm. East side of walkway. Major section loss (up to 3mm).</p>	Clean and paint	H 1 Year





Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-14.	R			
		 <p>East box 80. End diaphragm. West side of walkway. Major section loss (right through plate).</p>	Clean and paint	H 1 Year








Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-15.	2	 <p>East box 80. End diaphragm. Moderate section loss.</p>	Monitor at next inspection	At next inspection





Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
BGI-16.	R			
		 <p>East box 80. End diaphragm. Moderate section loss (2mm).</p>	Clean and paint	H 1 Year

Appendix A – Marking Code and Prioritisation of the Works

Defects are categorised by marking code, as used in NZTA S6 *Bridges and other significant highway structures inspection policy*:

- 0** = Not inspected
- 1** = Satisfactory
- 2** = Monitor next inspection
- R** = Routine maintenance
- S** = Structural maintenance
- N** = Not applicable

The following timeframes are used for prioritising maintenance works:

- **High** – must be done as soon as possible, within 12 months
- **Medium** – preferable to do as soon as possible, within 1-2 years
- **Low** - no work required within the next 2 years

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