



ASM – AHB STRUCTURAL INSPECTION

Concrete Pier 1 Principal Inspection

s 9(2)(a)
9 NOVEMBER 2021

DOCUMENT CONTROL

Report

This report has been prepared for the benefit of the NZ Transport Agency (NZTA). No liability is accepted by the Auckland System Management Alliance (ASM) or sub-consultant of the ASM, with respect to its use by any other person.

Disclaimer

The NZ Transport Agency has endeavoured to ensure material in this document is technically accurate and reflects legal requirements. However, the document does not override governing legislation. The NZ Transport Agency does not accept liability for any consequences arising from the use of this document. If the user of this document is unsure whether the material is correct, they should refer directly to the relevant legislation and contact the NZ Transport Agency.

Inspection Details	
Inspector	Date of Inspection
s 9(2)(a)	28/10/2021
	27/10/2021 to 29/10/2021
	27/10/2021 to 29/10/2021

Quality Assurance

Quality Assurance Statement	
Report Prepared by:	s 9(2)(a)
Report Reviewed by:	s 9(2)(a) 12/12/21
Approved for issue by:	s 9(2)(a) 25/01/22
Issued to:	s 9(2)(a) 10/02/22

Revision Control

Revision	Name	Date	Description

Contents

ASM – AHB STRUCTURAL INSPECTION	1
Document Control	2
Report	2
Disclaimer	2
Quality Assurance	2
Revision Control.....	2
Scope	4
Condition Rating.....	5
3 Defects.....	6
3.1 Pier 1 Exterior North Wall	6
3.2 Pier 1 Exterior South Wall.....	32
3.3 Pier 1 Inner.....	66
3.4 Pier 1 Edge Beam.....	90
Appendix A – Marking Code and Prioritisation of the Works	92

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

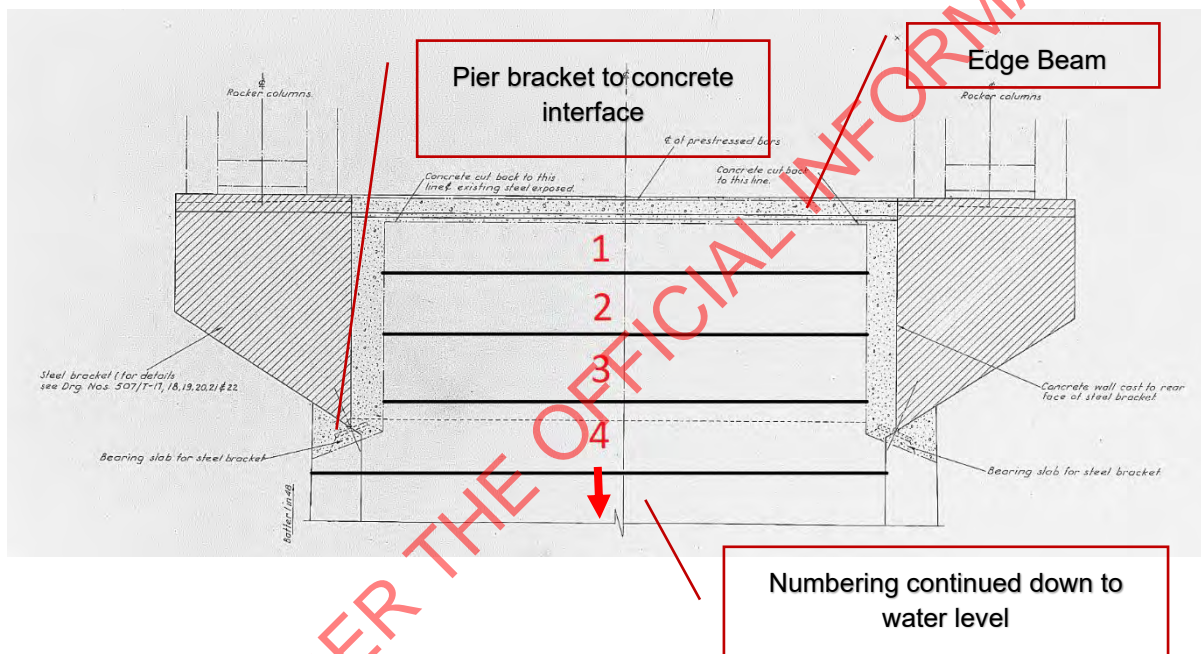
SCOPE

A Principal inspection was undertaken on concrete pier 1 as part of the 2021-22 structural inspection programme. The inspection covered the full extent of the concrete pier, including the external and internal faces, the pier bracket to concrete interface, edge beam and the additional concrete pilasters on the inside of the pier. Access was gained using rope access techniques. The concrete areas in the splash zone were not included in this inspection due to health and safety concerns regarding access. These areas are programmed for inspection via boat.

All old repairs were inspected, and any new cracks reported. The cracks that were found during this inspection appear to be new as compared to the principal inspection done in 2014 (see appendix A - *AHB_Pier 1_Details_SI_2014*).

Figure 1 shows the numbering system used when inspecting the original concrete pier. Each numbered section notes where the formwork was at 1.2m (4'0") intervals.

Figure 1



CONDITION RATING

The condition of the areas covered in this inspection as per the description above can be described as good. Concrete cracking was found on both south and north faces and on the inner side of the pier. As the inspection was made via abseiling, all the cracks have been measured and reported.

Any concrete crack smaller than 0.30mm width were noted as small, and will be monitored at next inspection. Cracks wider than 0.30mm were suggested to have Crack injection as the maintenance/ Repair Recommendation.

The Concrete cracks found bigger than 1.0mm are described on the list below:

- . North Face Wall: - (PN-14) Section 6. 5m to Eastern edge. Concrete Crack (0.6mm to 1.0mm).
- . South Face Wall: - (PS-42) Section 4. South-centre. Concrete crack (1.2mm)
- (PS-45) Section 6. South-west 6m to Western edge. Concrete crack (1.0mm)
- (PS-46) Section 6. South-west 4m to Western edge. Concrete crack (1.2mm)

The Pier Bracket to concrete interface has had recent remedial work and repairs are in good condition. Some areas with severe surface corrosion at the concrete pier/pier bracket interface were found, as listed below:

- . (PN-35) North-east Face to Edge beam interface.
- . (PN-36) North-east Face to Concrete pier interface.
- . (PS-3) South-east Face to Edge beam interface.

There were some minor areas of spalling found on both sides of the pier, however no exposed reinforcing or rust staining was visible.

Mark	Priority	No. Defects
I	-	-
2	-	30
R	H	-
R	M	-
R	L	3
S	H	-
S	M	-
S	L	134
Total		167

3 DEFECTS

3.1 Pier 1 Exterior North Wall


Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-1	N		N/A	N/A
		General View Exterior North Face Wall, showing approximate defect locations	N/A	N/A

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-2	S			
		Section 2. North-west 1m to Western Edge. Concrete Crack 0.5mm.	Crack injection	L 2+ years
PN-3	S			
		Section 7. North-west 1.5m to Western Edge. Concrete Crack 0.5mm.	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-4	S	 <p>Section 8. North-west 4m to Western Edge. Concrete Crack 0.5mm.</p>	Crack injection	L 2+ years
PN-5	S	 <p>Section 12. North-west 3m to Western Edge. Concrete Crack 0.5mm.</p>	Crack injection	L 2+ years


Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-6	S S			
		Section 15. North-west 3m to Western Edge. Concrete Crack 0.4mm.	Crack injection	L 2+ years
		Section 15. North-west 3.5m to Western Edge. Concrete Spalling.	Concrete Repair	L 2+Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-7	S			
		 <p>Section 3. North-west 7m to Western Edge. Concrete Crack 0.8mm at previous repair.</p>	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-8	S			
		 <p>Section 4. North centre. Concrete Crack 0.7mm at previous repair.</p>	Crack injection	L 2+ years


Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-9	2 S			
		Section 5. North-west 7m to Western Edge. Concrete Crack 0.2mm.	Monitor	At next inspection
		Concrete Crack 0.5mm.	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-10	S			
				
		Section 5. North Centre. Concrete Crack 0.3mm.	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-11	S			
			Crack injection	L 2+ years

Section 13. North Centre.
Concrete Crack 0.4mm.

Crack injection

L
2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-12	S	 <p>Section 12. North Centre. Concrete Crack 0.3mm.</p>	Crack injection	L 2+ years
PN-13	S	 <p>Section 5. North-east 5m to Eastern Edge. Concrete Crack 0.4mm.</p>	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-14	S			
		 <p>Section 6. North-east 5m to Eastern Edge. Concrete Crack 0.6mm to 1.0mm.</p>	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-15	S			
			Crack injection	L 2+ years

Section 6. North-east 6m to Eastern Edge.
Concrete Crack 0.1mm to 0.4mm.



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-16	S	 <p>Section 13. North-east 4m to Eastern Edge. Concrete Spalling.</p>	Concrete Repair	L 2+ Years
PN-17	2	 <p>Section 13. North-east 4m to Eastern Edge. Concrete Crack 0.2mm.</p>	Monitor at next inspection	At next inspection

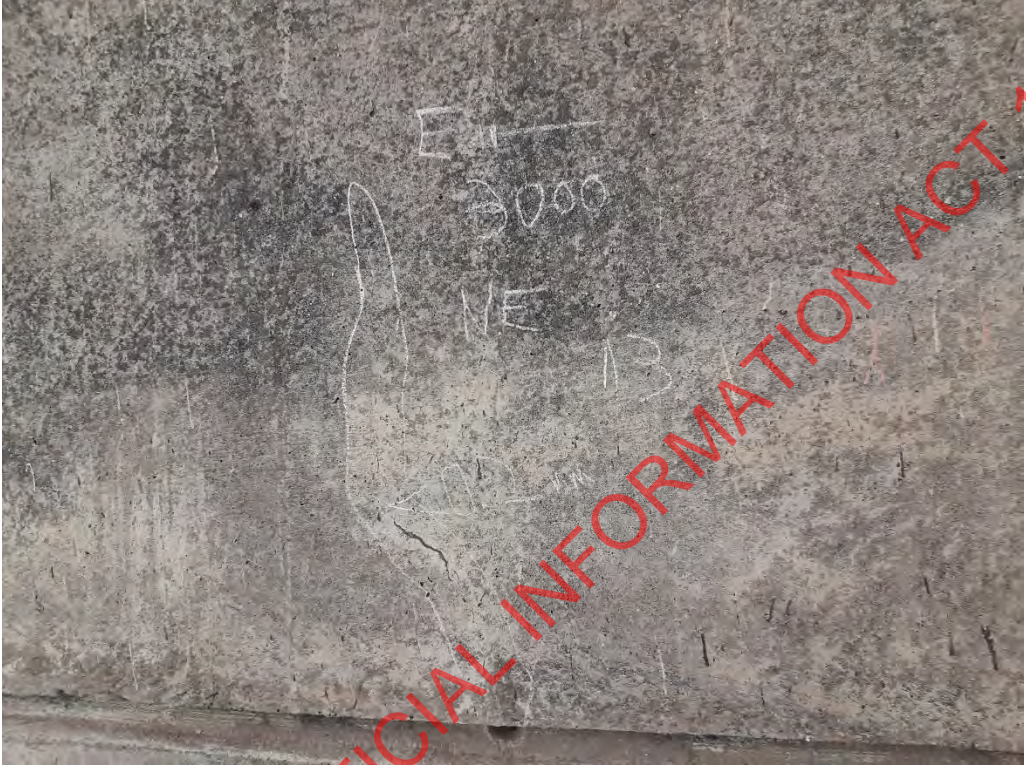

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-18	2	 <p>Section 13. North-east 3m to Eastern Edge. Concrete Crack 0.2mm.</p>	Monitor at next inspection	At next inspection
PN-19	S	 <p>Section 14. North-east 3m to Eastern Edge. Concrete Crack 0.3mm.</p>	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-20	S			
		Section 16. North-east 3m to Eastern Edge. Concrete Spalling.	Concrete Repair	L 2+ years
PN-21	S S S S			
		Section 1. North-east 1,6m to Eastern Edge. Concrete Crack A 0.4mm to 0.5mm.	Crack injection	L 2+ years
		Concrete Crack B 0.3mm to 0.5mm.	Crack injection	L 2+ years
		Concrete Crack C 0.3mm.	Crack injection	L 2+ years
		Concrete Crack D 0.3mm.	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-22	2	 <p>Section 2. North-east 1,2m to Eastern Edge. Concrete Crack 0.2mm.</p>	Monitor at next inspection	At next inspection
PN-23	S	 <p>Section 5. North-east 1.6m to Eastern Edge. Severe Surface corrosion to Old Fixing.</p>	Protective coating to steel and Concrete Repair.	L 2+Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-24	2	 <p>Section 8. North-east 1.2m to Eastern Edge. Concrete Crack 0.2mm.</p>	Monitor at next inspection	At next inspection
PN-25	S	 <p>Section 8. North-east 0.7m to Eastern Edge. Concrete Crack 0.2mm to 0.8mm.</p>	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-26	S	 <p>Section 8. North-east 2m to Eastern Edge. Concrete Crack 0.2mm to 0.4mm.</p>	Crack injection	L 2+ years
PN-27	S	 <p>Section 9. North-east 1.7m to Eastern Edge. Concrete Crack 0.1mm to 0.3mm.</p>	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-28	2			
		 Section 10. North-east 1.6m to Eastern Edge. Concrete Crack 0.2mm at old Repair.	Monitor at next inspection	At next inspection

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
				
PN-29	S			
		Section 13/14. North-east 50mm to Eastern Edge. Concrete Crack 0.3mm to 0.4mm.	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-30	S			
		 <p>Section14. North-east 0.5m to Eastern Edge. Severe surface corrosion to Rebar tie exposed.</p>	Monitor at next inspection	At next inspection

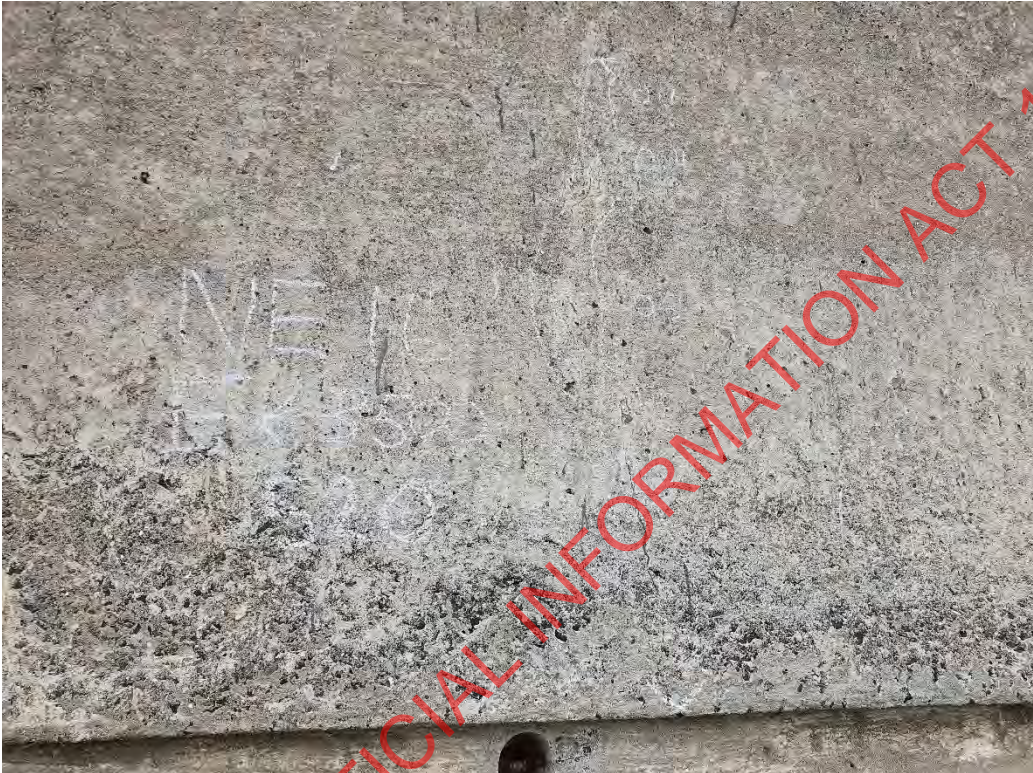
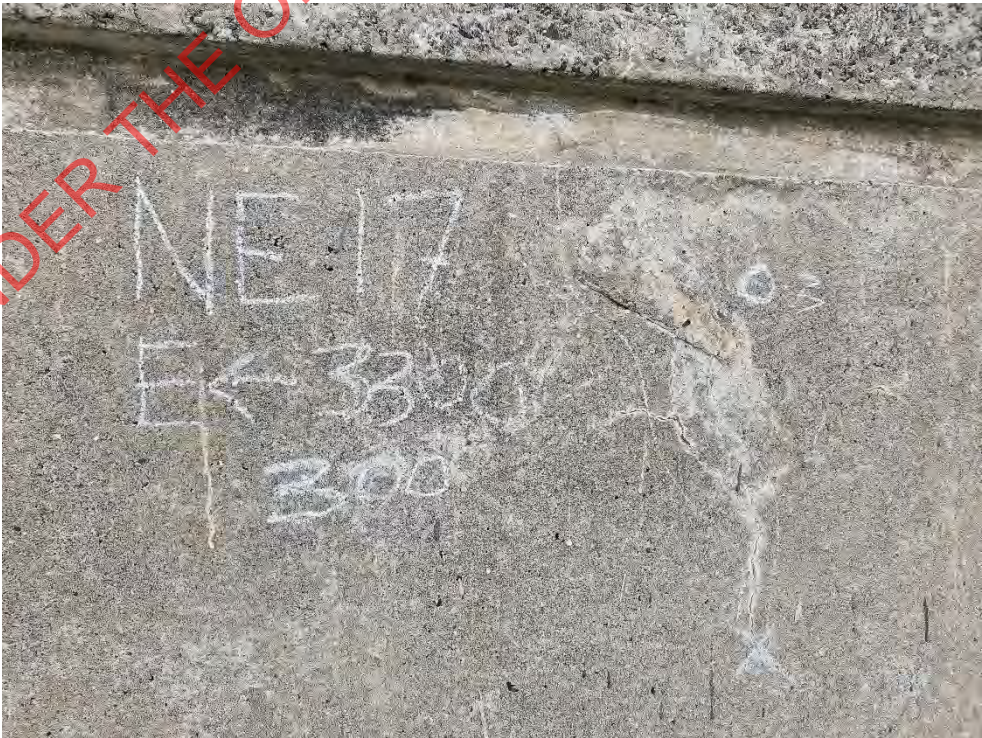

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-31	S	 <p>Section 16. North-east 3.5m to Eastern Edge. Concrete Crack 0.1mm to 0.4mm.</p>	Crack injection	L 2+ years
PN-32	S	 <p>Section 17. North-east 3.3m to Eastern Edge. Concrete Crack 0.3mm.</p>	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-33	2	 <p>Section 17. North-east 2m to Eastern Edge. Concrete Crack 0.2mm.</p>	Monitor at next inspection	At next inspection
PN-34	S	 <p>Section 18. North-east 3.5m to Eastern Edge. Concrete Crack 0.4mm.</p>	Crack injection	L 2+ years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-35	R			
		Pier Bracket North-east face to Edge Beam interface. Severe Surface corrosion.	Blast extent of corrosion. Paint and Seal.	L 2+Years
PN-36	R			
		Pier Bracket North-east concrete interface. Severe Surface Corrosion.	Blast extent of corrosion. Paint and Seal.	L 2+Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-37	S	 <p>Section 17. North-east. Concrete Spalling due to impact.</p>	Concrete Repair	L 2+Years
PN-38	S	 <p>Section 10. North-west 1.1m to Western Edge. Concrete Crack 0.3mm to 0.4mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PN-39	S	 <p>Section 9. North-west 1.1m to Western Edge. Concrete Crack 0.3mm.</p>	Crack injection	L 2+ Years

3.2 Pier 1 Exterior South Wall


Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-1	N		N/A	N/A
		General View Exterior South Face Wall, showing approximate defect locations	N/A	N/A



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-2	S 2 S			
			Section 1. South-east 0.2m to Eastern Edge. Concrete Crack A 0.4mm.	Crack injection L 2+ Years
			Concrete Crack B 0.2mm.	Monitor at next inspection At next inspection
			Concrete Crack C 0.4mm.	Crack injection L 2+ Years
PS-3	R			
			Pier Bracket South-east to Edge Beam interface. Severe Surface corrosion.	Blast extent of corrosion. Paint and Seal. L 2+ Years


Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-4	2 S			
			Section 2. South-east 1m to Eastern Edge. Concrete Crack A 0.1mm.	Monitor at next inspection At next inspection
			Concrete Crack B 0.3mm.	Crack injection L 2+Years
PS-5	S			
			Section 4 South-east 2m to Eastern Edge. Severe surface Corrosion to Old fixing.	Protective coating to steel and Concrete Repair. L 2+Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-6	S	 <p>Section 8 South-east 0.2m to Eastern Edge. Concrete Spalling with rebar tie exposed.</p>	Monitor at next inspection	At next inspection
PS-7	2	 <p>Section 10. South-east 2m to Eastern Edge. Concrete Crack 0.2mm.</p>	Monitor at next inspection	At next inspection

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-8	2 S	 <p>Section 10. South-east 1m to Eastern Edge. Concrete Crack A 0.2mm.</p> <p>Concrete Crack B 0.3mm.</p>	<p>Monitor at next inspection</p> <p>Crack injection</p>	<p>At next inspection</p> <p>L 2+Years</p>


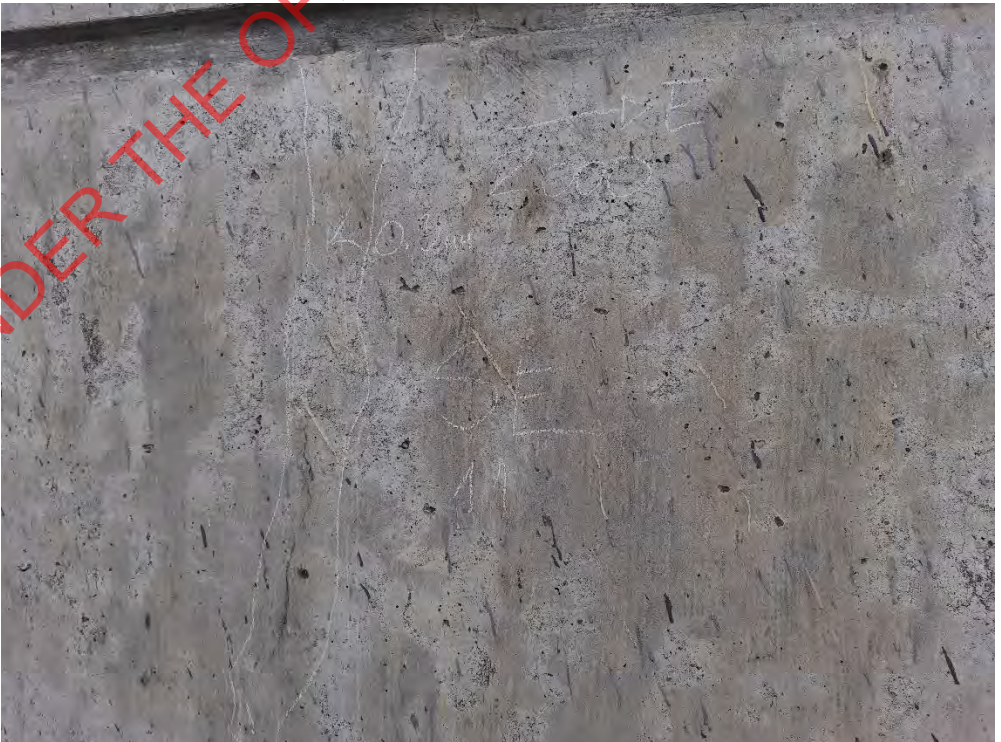
Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-9	S	 <p>Section 10. South-east 0.1m to Eastern Edge. Concrete Crack 0.4mm.</p>	Crack injection	L 2+Years
PS-10	S	 <p>Section 11. South-east 2m to Eastern Edge. Concrete Crack 0.3mm.</p>	Crack injection	L 2+Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-11	S	 <p>Section 11. South-east 1m to Eastern Edge. Concrete Crack 0.3mm.</p>	Crack injection	L 2+Years
PS-12	S	 <p>Section 11. South-east 1.8m to Eastern Edge. Concrete Crack 0.3mm.</p>	Crack injection	L 2+Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-13	2	 <p>Section 12. East-south 0.5m to Southern Edge. Concrete Crack 0.2mm.</p>	Monitor at next inspection	At next inspection
PS-14	S S	 <p>Section 13. East-south 0.5m to Southern Edge. Concrete Spalling.</p> <p>Severe surface corrosion to Old fixing.</p>	<p>Concrete Repair</p> <p>Protective coating to steel and Concrete Repair</p>	<p>L 2+ Years</p> <p>L 2+Years</p>



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-15	2 S			
			Section 13. East-south 0.5m to Southern Edge. Concrete Crack A 0.2mm.	Monitor at next inspection
			Concrete Crack B 0.3mm.	Crack injection
PS-16	S			
			Section 13. South-east 2m to Eastern Edge. Concrete Crack 0.4mm.	Crack injection

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-17	S	 <p>Section 14. East-south 0.5m to Southern Edge. Concrete Crack 0.6mm.</p>	Crack injection	L 2+ Years
PS-18	S	 <p>Section 1. South-east 4m to Eastern Edge. Concrete Crack 0.4mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-19	2			
		 <p>Section 1. South-east 5m to Eastern Edge. Rebar Tie Exposed.</p>	Monitor at next inspection	At next inspection


Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-20	S	 <p>Section 1. South-east 3.5m to Eastern Edge. Concrete Crack 0.4mm.</p>	Crack injection	L 2+ Years
PS-21	S	 <p>Section 1. South-east 3m to Eastern Edge. Concrete Crack 0.4mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-22	S			
		Section 2. South-east 3.5m to Eastern Edge. Concrete Spalling with rebar tie exposed.	Monitor at next inspection	At next inspection
PS-23	S			
		Section 3. South-east 6m to Eastern Edge. Concrete Crack 0.3mm to 0.7mm.	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-24	S	 <p>Section 4. South-east 5m to Eastern Edge. Concrete Crack 0.2mm to 0.6mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-25	S			
		 <p>Section 4. South-east 7m to Eastern Edge. Concrete Crack 0.4mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-26	S	 <p>Section 6 and 7. South-east 7m to Eastern Edge. Concrete Crack 0.2mm to 0.4mm at old Repair.</p>	Crack injection	L 2+ Years
PS-27	S	 <p>Section 5. South-east 3m to Eastern Edge. Concrete Crack 0.3mm at old Repair.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-28	S	 <p>Section 6. South-east 8m to Eastern Edge. Concrete Crack 0.2mm to 0.4mm.</p>	Crack injection	L 2+ Years
PS-29	S	 <p>Section 8. South-east 4m to Eastern Edge. Concrete Crack 0.2mm to 0.3mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-30	2	 <p>Section 8. South-east 7.5m to Eastern Edge. Concrete Crack 0.1mm to 0.2mm at old Repair.</p>	Monitor at next inspection	At next inspection
PS-31	S			

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
		Section 11. South-east 7m to Eastern Edge. Concrete Crack 0.3mm.	Crack injection	L 2+ Years
PS-32	S			
		Section 11. South-east 5m to Eastern Edge. Concrete Crack 0.1mm to 0.3mm.	Crack injection	L 2+ Years
PS-33	2			

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
		Section 12. South-east 5m to Eastern Edge. Concrete Crack 0.2mm.	Monitor at next inspection	At next inspection
PS-34	S			
		Section 13. South-east 2m to Eastern Edge. Concrete Crack 0.2mm to 0.3mm at old Repair.	Crack injection	L 2+ Years
PS-35	S			

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
		Section 14. South-east 5.5m to Eastern Edge. Concrete Crack 0.3mm to 0.4mm at old Repair.	Crack injection	L 2+ Years
PS-36	2			
		Section 15. South-east 8m to Eastern Edge. Concrete Crack 0.1mm.	Monitor at next inspection	At next inspection
PS-37	S			

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
		Section 15. South-east 5.5m to Eastern Edge. Concrete Crack 0.1mm to 0.3mm.	Crack injection	L 2+ Years
PS-38	2			
		Section 15. South-east 3m to Eastern Edge. Concrete Crack 0.2mm at old Repair.	Monitor at next inspection	At next inspection
PS-39	2			



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
		Section 16/17. South-east 8m to Eastern Edge. Concrete Crack 0.2mm.	Monitor at next inspection	At next inspection
PS-40	S			
		Section 18. South-east 3m to Eastern Edge. Concrete Crack 0.4mm.	Crack injection	L 2+ Years
PS-41	S			



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
		Section 2. South-west 4m to Western Edge. Concrete Crack 0.4mm.	Crack injection	L 2+ Years
PS-42	S S			
		Section 4. South Centre. Concrete Crack 1.2mm.	Crack injection	L 2+ Years
		Concrete Spalling.	Concrete Repair	L 2+ Years
PS-43	2			

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
		Section 2. South-west 6m to Western Edge. Concrete Crack 0.2mm.	Monitor at next inspection	At next inspection
PS-44	S			
		Section 5. South-west 6m to Western Edge. Concrete Crack 0.5mm at old Repair.	Crack injection	L 2+ Years
PS-45	S			

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
		Section 6. South-west 6m to Western Edge. Concrete Crack 1.0mm at old Repair.	Crack injection	L 2+ Years
PS-46	S			
		Section 6. South-west 4m to Western Edge. Concrete Crack 1.2mm at old Repair.	Crack injection	L 2+ Years
PS-47	S			

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
		Section 7. South-west 6m to Western Edge. Concrete Crack 0.3mm.	Crack injection	L 2+ Years
PS-48	S			
		Section 8. South-west 6m to Western Edge. Concrete Crack 0.3mm at old Repair.	Crack injection	L 2+ Years
PS-49	S			
		Section 9. South-west 4m to Western Edge. Concrete Crack 0.4mm.	Crack injection	L 2+ Years



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-50	S			
		Section 13. South Centre. Concrete Crack 0.4mm.	Crack injection	L 2+ Years
PS-51	S			
		Section 13. South Centre. Concrete Crack A 0.4mm to 0.8mm.	Crack injection	L 2+ Years
		Concrete Crack B 0.3mm.	Crack injection	L 2+ Years



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-52	S			
		Section 14. South-west 4m to Western Edge. Concrete Crack 0.4mm.	Crack injection	L 2+ Years
PS-53	S			
		Section 15. South Centre. Concrete Crack A 0.6mm.	Crack injection	L 2+ Years
		Concrete Crack B 0.3mm.	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-54	S			
		Section 15. South-west 4m to Western Edge. Concrete Crack 0.5mm at old Repair.	Crack injection	L 2+ Years
PS-55	2			
		Section 16. South-west 4m to Western Edge. Concrete Crack 0.2mm.	Monitor at next inspection	At next inspection

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-56	S			
		Section 16. South-west 3.5m to Western Edge. Concrete Crack 0.6mm.	Crack injection	L 2+ Years
PS-57	S			
		Section 16. South-west 4.5m to Western Edge. Concrete Crack 0.5mm.	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-58	S			
		Section 16. South Centre. Concrete Crack 0.6mm.	Crack injection	L 2+ Years
PS-59	S S			
		Section 1 and 2. South-west 0.5m to Western Edge. Concrete Crack A 0.3mm to 0.4mm.	Crack injection	L 2+ Years
		Concrete B 0.3mm.	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-60	S S			
			Section 3. South-west 0.3m to Western Edge. Concrete Crack A 0.3mm.	Crack injection L 2+ Years
			Concrete B 0.4mm.	Crack injection L 2+ Years
PS-61	S			
			Section 10. South-west 2m to Western Edge. Concrete Crack 0.3mm.	Crack injection L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
PS-62	S	 <p>Section 18. South-west 100mm to Western Edge. 40mm deep. Concrete Spalling due to impact.</p>	Concrete Repair	L 2+ Years

3.3 Pier 1 Inner

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-1	S	 <p>South-west Retrofit Pilaster 100mm to Edge Beam. Concrete Crack 0.5mm. Length is the full visible circumference.</p>	Crack injection	L 2+ Years
IN-2	S	 <p>South wall. 100mm below edge beam. 300mm to south-west pilaster. Concrete Crack 0.3mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-3	S			
		South wall. 100mm below edge beam. 800mm to south-west pilaster. Concrete Crack 0.3mm.	Crack injection	L 2+ Years
IN-4	2			
		South-west Retrofit Pilaster 500mm to Edge Beam. Concrete Crack 0.2mm.	Monitor at the next inspection	At next inspection

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-5	2			
		South-west Retrofit Pilaster 700mm to Edge Beam. Concrete Crack 0.2mm.	Monitor at the next inspection	At next inspection
IN-6	S			
		South-west Retrofit Pilaster 1.5m to Edge Beam. Concrete Crack 0.4mm.	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-7	S			
		South-west Retrofit Pilaster 2m to Edge Beam. Concrete Crack 0.4mm.	Crack injection	L 2+ Years
IN-8	S			
		South-west Retrofit Pilaster 2.5m to Edge Beam. Concrete Crack 0.5mm.	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-9	S			
		South-west Retrofit Pilaster 4m to Edge Beam. Concrete Crack 0.4mm.	Crack injection	L 2+ Years
IN-10	2			
		South-west Retrofit Pilaster 5m to Edge Beam. Concrete Crack 0.2mm.	Monitor at next inspection	At next inspection

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-11	S	 <p>South-west Retrofit Pilaster 5.5m to Edge Beam. Concrete Crack 0.6mm.</p>	Crack injection	L 2+ Years
IN-12	S	 <p>South-west Retrofit Pilaster 6m to Edge Beam. Concrete Crack 0.3mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-13	S	 <p>South-centre Retrofit Pilaster. Western side. Concrete Spall with Rebar exposed.</p>	Concrete Repair	L 2+ Years
IN-14	2	 <p>North-South Beam West. East Face. Typical. Shrinkage Cracking 0.1mm to 0.2mm.</p>	Monitor at next inspection	At next inspection

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-15	S	 <p>South Centre. Underside Edge Beam. Rebar Exposition.</p>	Concrete Repair	L 2+ Years
IN-16	S	 <p>South Wall Centre. 4m below Edge Beam. Concrete Crack 0.4mm.</p>	Crack injection	L 2+ Years

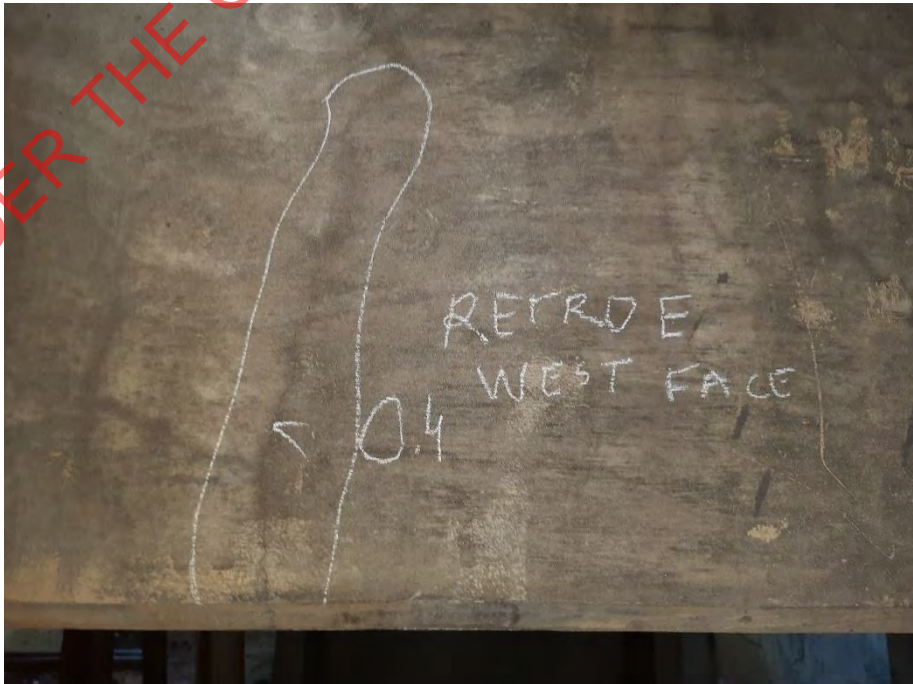
Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-17	S			
		South-centre Retrofit Pilaster. Eastern side. 1m below Edge Beam. Concrete Crack A 0.4mm.	Crack injection	L 2+ Years
		Concrete Crack B 0.1mm.	Monitor at next inspection	At next inspection
IN-18	S			
		North-South Beam East. West Face. Typical. Shrinkage Cracking 0.4mm.	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-19	S	 <p>North-South Beam East. West Face. Typical. Shrinkage Cracking 0.2mm to 0.5mm.</p>	Crack injection	L 2+ Years
IN-20	S	 <p>South-centre Retrofit Pilaster. Eastern side 2m below Edge Beam. Concrete Crack 0.4mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-21	S	 <p>South-centre Retrofit Pilaster. Eastern side 2m below Edge Beam. Concrete Crack 0.3mm.</p>	Crack injection	L 2+ Years
IN-22	S	 <p>South-centre Retrofit Pilaster. Eastern side 2m below Edge Beam. Concrete Crack 0.3mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-23	S	 <p>South-centre Retrofit Pilaster. Eastern side. Typical. Shrinkage Cracking 0.3mm to 0.5mm.</p>	Crack injection	L 2+ Years
IN-24	S	 <p>South-centre Retrofit Pilaster. Eastern side. Concrete Crack 0.6mm.</p>	Crack injection	L 2+ Years



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-25	S	 <p>South wall. 3.5m below edge beam. 6m to south-East pilaster. Concrete Crack 0.4mm.</p>	Crack injection	L 2+ Years
IN-26	S	 <p>South wall. 5m below edge beam. 6.5m to south-East pilaster. Concrete Crack 0.6mm to 0.8mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-27	S	 <p>South wall. 1m below edge beam. 2m to south-East pilaster. Concrete Crack 0.3mm.</p>	Crack injection	L 2+ Years
IN-28	S	 <p>South-centre Retrofit Pilaster. Eastern side. Concrete Spalling with rebar/tie exposed.</p>	Concrete Repair	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-29	S		Crack injection	L 2+ Years
IN-30	S		Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-31	S			
		South-East Retrofit Pilaster 4m to Edge Beam. Typical. Concrete Crack 0.3mm.	Crack injection	L 2+ Years
IN-32	S S			
		North-west Retrofit Pilaster 1m to Edge Beam. Concrete Crack A 0.5mm.	Crack injection	L 2+ Years
		Concrete Crack B 0.3mm.	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-33	S	 <p>North-west Retrofit Pilaster 2m to Edge Beam. Old fixings Exposed.</p>	Protective coating to steel and Concrete Repair	L 2+Years
IN-34	S	 <p>North wall. 2m below edge beam. 1.5m to North-west pilaster. Old fixings Exposed.</p>	Protective coating to steel and Concrete Repair	L 2+Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-35	S	 <p>North-west Retrofit Pilaster 4m to Edge Beam. Concrete Crack 0.5mm.</p>	Crack injection	L 2+ Years
IN-36	S	 <p>North wall Underneath Old Walkway. Typical. Concrete Spalling.</p>	Concrete Repair	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-37	S	 <p>North wall below old redundant walkway brackets. 15-20mm depth. Typical. Concrete Spalling.</p>	Monitor at next inspection	At next inspection
IN-38	S	 <p>North-South Beam East. East Face. Concrete Crack 0.3mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-39	S		Crack injection	L 2+ Years
IN-40	S		Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-41	S	 <p>North-South Beam East. Bottom Face. Typical. Cracking 0.2mm to 0.4mm. Likely ASR.</p>	Crack injection	L 2+ Years
IN-42	S	 <p>North-South Beam East. West Face. Typical. Cracking 0.2mm to 0.5mm. Likely ASR.</p>	Crack injection	L 2+ Years




Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-43	S	 <p>North-west Retrofit Pilaster Concrete crack 0.5mm.</p>	Crack injection	L 2+ Years
IN-44	S	 <p>North-South Beam West. Top Face. Concrete Crack 0.6mm.</p>	Crack injection	L 2+ Years

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-45	S S			
		North centre Retrofit Pilaster. Eastern side. Concrete Crack A 0.4mm.	Crack injection	L 2+ Years
		Concrete Crack B 0.3mm.	Crack injection	L 2+ Years
IN-46	S 2			
		North centre Retrofit Pilaster. Eastern side. Concrete Crack A 0.3mm.	Crack injection	L 2+ Years
		Concrete Crack B 0.2mm.	Monitor at next inspection	At next inspection

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
IN-47	S 2			
			North-east Retrofit Pilaster 2m to Bottom Concrete Crack A 0.3mm.	Crack injection L 2+ Years
			Concrete Crack B 0.2mm.	Monitor at next inspection At next inspection

3.4 Pier 1 Edge Beam



Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
EB-1	S	 <p>Edge Beam North-west. Access Stairs Support mortar bedding Concrete Crack.</p>	Concrete Repair	L 2+ Year
EB-2	2	 <p>Edge Beam South-west. Concrete injection.</p>	Monitor at next inspection	At next inspection

Photo ID	Marking Code	Description of Defects	Maintenance/ Repairs Recommendations	Maintenance/ Repairs Priority & Timeframe
EB-3	2		Monitor at next inspection	At next inspection
EB-4	2		Monitor at next inspection	At next inspection

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

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982