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WSCAM Inspection and Asset Maintenance Plan

Dampier Cargo Wharf

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Prepared for Pilbara Ports Authority

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Executive Summary

The Dampier Cargo Wharf (DCW) is located in the Port of Dampier and comprises four main forms of structure:

- Causeway (not included in the scope of works)
- Approach Bridge
- Original DCW Wharf
- DCW Extension Wharf, which includes an embedded dolphin.

The Pilbara Ports Authority (PPA) is responsible for maintaining and operating these structures, which has been completed on a cyclical basis, with asset components refurbished or repaired on an as required basis.

PPA assets enable the port to deliver its business objectives, which comprise trade facilitation, sustainability and business excellence. It is understood that PPA aims to achieve a remaining service life of 25 years.

The scope of services for the project comprised:

- Document review and stakeholder consultation
- Condition Assessment in accordance with the WSCAM guidelines for a Basic Visual Assessment, comprising a walkover, on-water and underwater inspections and NDT
- Development of maintenance works solutions and a costed 10-Year Asset Maintenance Plan

The condition assessment results presented in the following tables indicate that there is a higher proportion of sub-components on the Original Wharf, Extension Wharf, Small Vessel Landing and General locations with a condition rating of 5 or less (Poor, Very Poor or Failed / Unserviceable). In addition, the Services show a higher percentage of the individual sub-component surface area with a condition rating of 5 or less (Poor, Very Poor or Failed / Unserviceable). Full details of the WSCAM findings are presented in Section 5, Appendix B and Appendix C.

Average Percentage of Individual Visually Inspected Sub-Component Surface Area for each Condition Rating Value, by Element Location

Element Location	Condition Rating 1	Condition Rating 2	Condition Rating 3	Condition Rating 4	Condition Rating 5	Condition Rating 6	Condition Rating 7
Approach Bridge	2.7%	77.2%	15.0%	4.0%	1.1%	0.1%	0.0%
Original Wharf	1.2%	85.6%	8.6%	3.1%	0.8%	0.7%	0.0%
Extension Wharf	1.9%	81.1%	12.6%	1.9%	1.1%	1.4%	0.2%
Southern Mooring Dolphin	0.0%	84.6%	6.4%	9.0%	0.0%	0.0%	0.0%
Embedded Dolphin	1.6%	88.5%	6.0%	3.9%	0.0%	0.0%	0.0%
Small Vessel Landing	0.0%	85.6%	10.0%	1.7%	0.0%	2.8%	0.0%
General	0.0%	81.3%	6.3%	0.0%	12.5%	0.0%	0.0%

Average Percentage of Individual Visually Inspected Sub-Component Surface Area for each Condition Rating Value, by Element

Element	Condition Rating 1	Condition Rating 2	Condition Rating 3	Condition Rating 4	Condition Rating 5	Condition Rating 6	Condition Rating 7
Approach Bridge	0.0%	51.9%	38.1%	6.6%	3.4%	0.0%	0.0%
Deck	0.2%	56.9%	27.2%	15.2%	0.2%	0.2%	0.0%
Dolphin	8.3%	71.7%	16.7%	3.3%	0.0%	0.0%	0.0%
Furniture	3.3%	68.6%	19.5%	1.4%	3.1%	3.8%	0.3%
Landing	0.0%	66.7%	13.3%	3.3%	0.0%	16.7%	0.0%
Piles	1.2%	89.9%	6.3%	2.5%	0.1%	0.0%	0.0%
Services	0.0%	81.3%	6.3%	0.0%	12.5%	0.0%	0.0%

The key areas of risk on the Dampier Cargo Wharf relate to the unknown extent of chloride induced corrosion on the deck soffit on the Approach Bridge and Extension Wharf, due to the presence of pre-stressed concrete members. This issue could accelerate very quickly as corrosion of stressing strands occurs on all faces of the

strand, which has a much greater surface area than a traditional reinforcing bar. This behaviour dictates that the corrosion is both likely and carries potential failure making it a high-risk issue. The extent of corrosion on the deck soffit of the Original Wharf is also a key risk. Consequently, the 10-Year Maintenance Plan recommends a series of targeted physical investigations to enable a cost-effective and technically appropriate solution to be defined.

A risk assessment has been completed to assist the Port in understanding the relationship between the existing and anticipated future condition of each asset key component, the risks associated the observed defects, the adequacy of the existing controls measures and quantification of the residual risk to assist the Port in prioritisation of its maintenance activities. The risk assessment methodology is presented in Section 6 and Appendix D.

The objective of the 10-year asset maintenance plan provides PPA with the basis for prioritisation and budget setting for future maintenance works. The 10-year asset maintenance plan has been developed based on the observed defects and the proposed remedial maintenance works that are presented in Section 5, to which cost rates have been applied and the works prioritised in accordance with the risk register. The 10-year maintenance plan is presented in Appendix E for which the costs for the recommended maintenance works and provisional maintenance options sums are presented in the following tables (**values are rounded to the nearest in thousand dollars and excluding GST**):

Element Location	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	TOTAL
Approach Bridge	\$0	\$714	\$0	\$4	\$61	\$455	\$197	\$2	\$0	\$23	\$1,456
Original Wharf	\$81	\$118	\$0	\$986	\$201	\$11	\$836	\$11	\$4	\$63	\$2,310
Extension Wharf	\$16	\$12	\$1,263	\$13	\$318	\$12	\$0	\$1,099	\$1	\$63	\$2,798
Embedded Dolphin	\$0	\$11	\$55	\$1	\$17	\$1	\$0	\$1	\$55	\$8	\$149
Southern Mooring Dolphin	\$0	\$11	\$0	\$2	\$7	\$87	\$0	\$1	\$29	\$8	\$146
Small Vessel Landing	\$28	\$1	\$1	\$1	\$9	\$1	\$5	\$1	\$1	\$5	\$54
Services	\$0	\$0	\$80	\$0	\$19	\$0	\$0	\$0	\$0	\$19	\$118
Miscellaneous	\$129	\$313	\$473	\$356	\$243	\$224	\$365	\$388	\$81	\$110	\$2,682
Inspection and Investigation	\$121	\$51	\$51	\$51	\$51	\$51	\$51	\$51	\$51	\$51	\$576
TOTAL	\$375	\$1,230	\$1,923	\$1,415	\$925	\$842	\$1,454	\$1,555	\$222	\$349	\$10,289

Element Location	Option	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	TOTAL
Approach Bridge	1	\$0	\$920	\$0	\$0	\$0	\$0	\$11	\$0	\$0	\$0	\$931
	2	\$0	\$3,810	\$11	\$11	\$11	\$11	\$11	\$11	\$11	\$11	\$3,898
Original Wharf	1	\$0	\$0	\$0	\$1,657	\$0	\$0	\$0	\$0	\$11	\$0	\$1,668
	2	\$0	\$0	\$0	\$5,573	\$11	\$11	\$11	\$11	\$11	\$11	\$5,639
Extension Wharf	1	\$0	\$0	\$3,437	\$0	\$0	\$0	\$0	\$20	\$0	\$0	\$3,457
	2	\$0	\$0	\$11,507	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$11,647
	3	\$0	\$0	\$573	\$0	\$573	\$0	\$573	\$0	\$573	\$0	\$2,291
Embedded Dolphin	1	\$0	\$0	\$394	\$0	\$0	\$0	\$0	\$11	\$0	\$0	\$405
	2	\$0	\$0	\$444	\$11	\$11	\$11	\$11	\$11	\$11	\$11	\$521
Southern Mooring Dolphin	1	\$0	\$0	\$0	\$0	\$0	\$201	\$0	\$0	\$0	\$0	\$201
	2	\$0	\$0	\$0	\$0	\$0	\$251	\$11	\$11	\$11	\$11	\$295

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1 Introduction

1.1 Background

The Port of Dampier is located on the West Pilbara coastline on the Burrup Peninsula. PPA owns and operates a diverse range of multi-user commodity terminals within the port to facilitate the efficient handling of products and cargo, including iron ore, salt, condensate, LNG, LPG, ammonia and general cargo.

The Dampier Cargo Wharf (DCW) is located in Port of Dampier and was originally constructed as a material offloading facility. The DCW comprises up to seven berths and services vessels that operate in the marine and offshore oil and gas industries as well as a general bulk cargo facility. The wharf is continuously operational, 24 hours a day and seven days per week.

The wharves are used by a range of vessels from small 50 metre vessels up to 170 metre general cargo vessels / 35,000 tonnes displacement.

The DCW comprises four forms of structure:

- Causeway (not included in the scope of works)
- Approach Bridge (98m by 9.4m)
- Original DCW Wharf, constructed in 1982 (112.5m by 31m)
- DCW Wharf Extension, pre-stressed concrete slabs constructed in 1994 (97.2m by 31m), including the original dolphin embedded in the deck.

The Pilbara Ports Authority (PPA) is responsible for maintaining and operating these structures, which has been completed on a cyclical basis, with asset components refurbished or repaired on an as required basis.

PPA assets enable the port to deliver its business objectives, which comprise trade facilitation, sustainability and business excellence. It is understood that PPA aims to achieve a remaining service life of 25 years.

PPA aims to achieve these business objectives and maximise the value from its assets by:

- Meeting the requirements for asset management outlined in Western Australian Department of Treasury Strategic Asset Management Framework, Government Trading Entities
- Giving consideration to the requirements of International Standard Organisations ISO 55001: Asset Management
- Providing asset management plans for all high value assets owned and/or operated by PPA.

In order to support its asset management planning requirements, PPA intends to establish 10-year asset maintenance plans, for its critical assets, which will be developed based on the outputs of regular condition inspections in accordance with the Ports Australia Wharf Structures Condition Assessment Manual (WSCAM) methodology. The asset maintenance plans will support PPA in developing annual maintenance and capital budgets, which will feed into the PPA's overarching annual Strategic Asset Plan.

The project objective for the Dampier Cargo Wharf - WSCAM Inspection & Asset Maintenance Plan is undertake a full asset condition inspection the wharf, Approach Bridge and mooring dolphin to determine the current condition of the assets and provide a list of recommendations with cost-estimates over a ten-year period. This overarching objective includes the following sub-objectives:

- Assess the condition of the Dampier Cargo Wharf marine assets, to support PPA's asset maintenance planning
- Undertake an underwater, on-water and walkover condition assessment in accordance with the Ports Australia Wharf Structures Condition Assessment Manual (WSCAM) – Basic Visual Assessment only
- Undertake ultrasonic thickness testing, voltage potential measurements and drumminess testing in accordance with the relevant standards
- Deliver a detailed condition assessment report and associated photographs that provides PPA with a clear understanding of the overall condition, specific defects and associated risk associated with the marine infrastructure defined in the Scope of Works (Section 1.2)
- Deliver the services in accordance with PPA's health and safety policies, procedures and induction guidelines.

1.2 Scope of Works

The overall Scope of Works for the Dampier Cargo Wharf (DCW) WSCAM Inspections & Asset Maintenance Plan are:

- Ramp at the southern end of DCW and its support piles
- Approach Bridge
- Original Wharf
- Wharf Extension
- Mooring Dolphin No. 1 and walkway
- Small boat Landing and stairway
- Navy stairs
- Cathodic protection (visual assessment only)
- Wharf deck furniture comprising bollards, kerbs and handrails
- Utilities, comprising pipes, brackets, fuel and water points (excluding function)
- Lighting tower footings and interactions with the DCW deck

The following scope of works is excluded:

- DCW Causeway
- Rockwalls
- Lighting towers
- Functional aspects of utilities
- Dolphins to the north of the DCW (4 No.) and to the east of the DCW (2 No.)
- Safety equipment
- Navigation aids
- Asset components that are below ground level
- Asset components that cannot be visually and safely inspected
- Assets adjacent to the DCW

1.3 Scope of Services

The scope of services for the DCW WSCAM Inspection & Asset Maintenance Plan can be summarised as:

- Document Review and Consultation
 - A desk top review of previous design and inspection reports, the PPA operational requirements handbook, the PPA risk assessment framework and the service level requirements
 - Consultation with PPA maintenance and operations staff to understand the historic and current risks, issues and trends
 - Undertake a data gap analysis
 - Prepare a concise report that comprises:
 - Data and maintenance gap analysis
 - Key target areas and issues for the condition assessment
 - The proposed scope of services for the inspection
 - Prepare a preliminary condition assessment test plan, comprising:
 - Proposed asset hierarchy and referencing system
 - Proposed format of output data
 - Condition assessment execution program and schedule
 - Test locations and access requirements
 - Complete a SWMS for each inspection
- Condition Assessment
 - Undertake a walkover WSCAM compliant basic visual assessment of the wharf deck, Approach Bridge deck, Mooring Dolphin 1, deck furniture, small boat landing and navy stairs
 - Undertake an on-water WSCAM compliant basic visual assessment of the deck soffit, deck substructure and piles, fenders, Approach Bridge soffit, Mooring Dolphin 1, small boat landing and navy stairs.

- Undertake an under-water WSCAM compliant basic visual assessment of the wharf, Approach Bridge and dolphin piles
- Remove the pile sleeves, undertake a WSCAM compliant basic visual assessment of 10 piles and reinstate the pile sleeves
- Undertake voltage potential measurements
- Undertake representative ultrasonic thickness testing on piles and other steel elements
- Undertake drumminess testing on concrete deck, soffit and footings
- 10 Year Asset Maintenance Plan
 - Develop a remedial scope of work document for all high priority defects (i.e. those requiring remediation within 1 year) to a sufficient level of detail to be suitable for issue to a contractor
 - Prepare preliminary quantities (such as area of concrete, reinforcement, etc.) required to undertake the maintenance works
 - Where common maintenance requirements occur, provide a generic maintenance / remedial scope of work
 - Prepare cost estimates for execution of the maintenance works
 - Prepare a 10-year asset maintenance plan including referenced high-quality photographs
- Issue the project deliverables

1.4 Reference Data

The reference data presented in Table 1 was supplied by PPA during the delivery of the 2020 Dampier Cargo Wharf WSCAM Inspection and Asset Maintenance Plan.

Table 1: Reference Data

Document Title	Author Company	Date
As Constructed Drawings - 20170331 - DCW As-Constructed Drawings	Various, provided by PPA	Various
Cargo Wharf Handbook – Port of Dampier	Pilbara Ports Authority	Jun-17
Dampier Cargo Wharf - Approach Bridge headstocks - Structural report	Worley Astron	Mar-06
Dampier Cargo Wharf (DCW) - Condition Assessment and 10 Year Maintenance Plan	GHD	Feb-15
Dampier cargo wharf Concrete condition survey 2015	RKF Engineering Services	Jul-16
Dampier Port Authority - Bulk Liquids Berth Project - Operation & Maintenance Manual - DCW	Barclay Mowlem Candac	Jul-05
Inspection of Piles at the Dampier Cargo Wharf (DCW)	Indianic group	Mar-18
Memorandum - DCW dropped load	Advisian	Dec-19
Project Completion Report - Dampier Cargo Wharf – Western Fender Replacement	Duratec Australia	Feb-18
Project Risk Assessment Template (A625535)	Pilbara Ports Authority	Aug-18

1.5 Asset Hierarchy

The DCW structure asset hierarchy was provided by PPA and has been applied to the project. To develop the asset hierarchy for appropriate use in the WSCAM inspection a hierarchy level for the 'element location' has been added for ease of reference and also additional missing elements, components and material types that were missing.

The PPA asset hierarchy for the Dampier Cargo Wharf comprises the Site (Port of Dampier), Location (Dampier) and Facility (DCW). The DCW asset hierarchy below the Facility level is shown in Table 2. The new additional asset hierarchy items are highlighted in italic text in Table 2.

Table 2: PPA Asset Hierarchy and Additional Hierarchy Items

<i>Element Location</i>	<i>Element</i>	<i>Component</i>	<i>Component ID</i>	<i>Sub-Component</i>	<i>Material</i>	<i>Material Code</i>
<i>Approach Bridge</i>	Approach Bridge	Bollards	B	Access Hatch	Aluminium	AI
<i>Embedded Dolphin</i>	Deck	Crane Rail	CR	Access Hatch Ladder	Asphalt	A
<i>Southern Mooring Dolphin</i>	Furniture	Deck Overlay	DO	Anode	Concrete	C
<i>Small Boat Landing</i>	Piles	Deck Soffit	DS	Attachment Plate	Prestressed Concrete	PC
<i>Navy Landing</i>	Structural Beams	Deck Top	DT	Base Plate	Rubber	R
<i>Original Wharf</i>	<i>Dolphin</i>	Fender	F	Beam	Steel	ST
<i>Extension Wharf</i>	<i>Landing</i>	Fender Beam	FB	Bearing	Steel Encased Concrete	SEC
<i>General</i>	<i>Services</i>	Longitudinal Beam	LB	Bearing Assembly	Timber	T
-	-	Pile	P	Bollard	Rock	RO
-	-	Sheet Pile Wall	SPW	Breakwater Base	Denso	D
-	-	Transverse Beam	TB	Cable Ladder	UHMWPE	PE
-	-	Walkway	W	Capping Beam	-	-
-	-	Boat landing	BL	Catwalk Bearing Assembly	-	-
-	-	Lights	L	Catwalk Joint	-	-
-	-	<i>Abutment</i>	A	Catwalk Tube	-	-
-	-	<i>Headstock</i>	H	Chain	-	-
-	-	<i>Below Deck</i>	BD	Chain Cleat	-	-
-	-	<i>Above Deck</i>	AD	Concrete Ballast Deck	-	-
-	-	<i>Deck Joints</i>	DJ	Concrete Foundation	-	-
-	-	-	-	Concrete Slab	-	-
-	-	-	-	Corbels	-	-
-	-	-	-	Cover Plate	-	-
-	-	-	-	Cross Beams	-	-
-	-	-	-	Cross Braces	-	-
-	-	-	-	Cross Heads	-	-
-	-	-	-	Donut Fender	-	-
-	-	-	-	Elastomeric Arch Fender	-	-
-	-	-	-	Fender Block	-	-
-	-	-	-	Fender Cone	-	-
-	-	-	-	Fender Face	-	-
-	-	-	-	Fender Pad	-	-
-	-	-	-	Frame	-	-
-	-	-	-	Frontal Panel	-	-

<i>Element Location</i>	<i>Element</i>	<i>Component</i>	<i>Component ID</i>	<i>Sub-Component</i>	<i>Material</i>	<i>Material Code</i>
-	-	-	-	Gangway Bearing	-	-
-	-	-	-	Gangway Support	-	-
-	-	-	-	Gangway Tube	-	-
-	-	-	-	Grating	-	-
-	-	-	-	Guardrail	-	-
-	-	-	-	Handrail	-	-
-	-	-	-	Kerb	-	-
-	-	-	-	Ladder	-	-
-	-	-	-	Ladder Support	-	-
-	-	-	-	Lifting Trunnion	-	-
-	-	-	-	Pile Cap	-	-
-	-	-	-	Pile Exposure	-	-
-	-	-	-	Pile Sleeve	-	-
-	-	-	-	Post	-	-
-	-	-	-	Rope Rail	-	-
-	-	-	-	Rubbing Strip	-	-
-	-	-	-	Safety Gate	-	-
-	-	-	-	Sleeve Bracing	-	-
-	-	-	-	Sliding Shaft	-	-
-	-	-	-	Stair Frame	-	-
-	-	-	-	Stair Treads	-	-
-	-	-	-	Steel CHS Edge	-	-
-	-	-	-	Steel Plate Exposure	-	-
-	-	-	-	Steel RHS	-	-
-	-	-	-	Stringer	-	-
-	-	-	-	Structural Steel	-	-
-	-	-	-	Transverse Frame	-	-
-	-	-	-	Ventilation Pipe	-	-
-	-	-	-	Walers	-	-
-	-	-	-	Walkway Support	-	-
-	-	-	-	Expansion Joint	-	-
-	-	-	-	Contraction Joint	-	-
-	-	-	-	Wall	-	-
-	-	-	-	Rock Armour	-	-
-	-	-	-	Fender Cell	-	-
-	-	-	-	Steel Strut	-	-
-	-	-	-	Fender Support Frame	-	-
-	-	-	-	Pipe Support	-	-
-	-	-	-	Water Point	-	-
-	-	-	-	Water Cut Off Valve	-	-

Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code
-	-	-	-	Fuel Point	-	-
-	-	-	-	Service Station	-	-
-	-	-	-	Fire Hydrants	-	-
-	-	-	-	Life Ring	-	-

The nomenclature used in the report are presented in Figure 1 and will be referred to as part of the asset hierarchy.

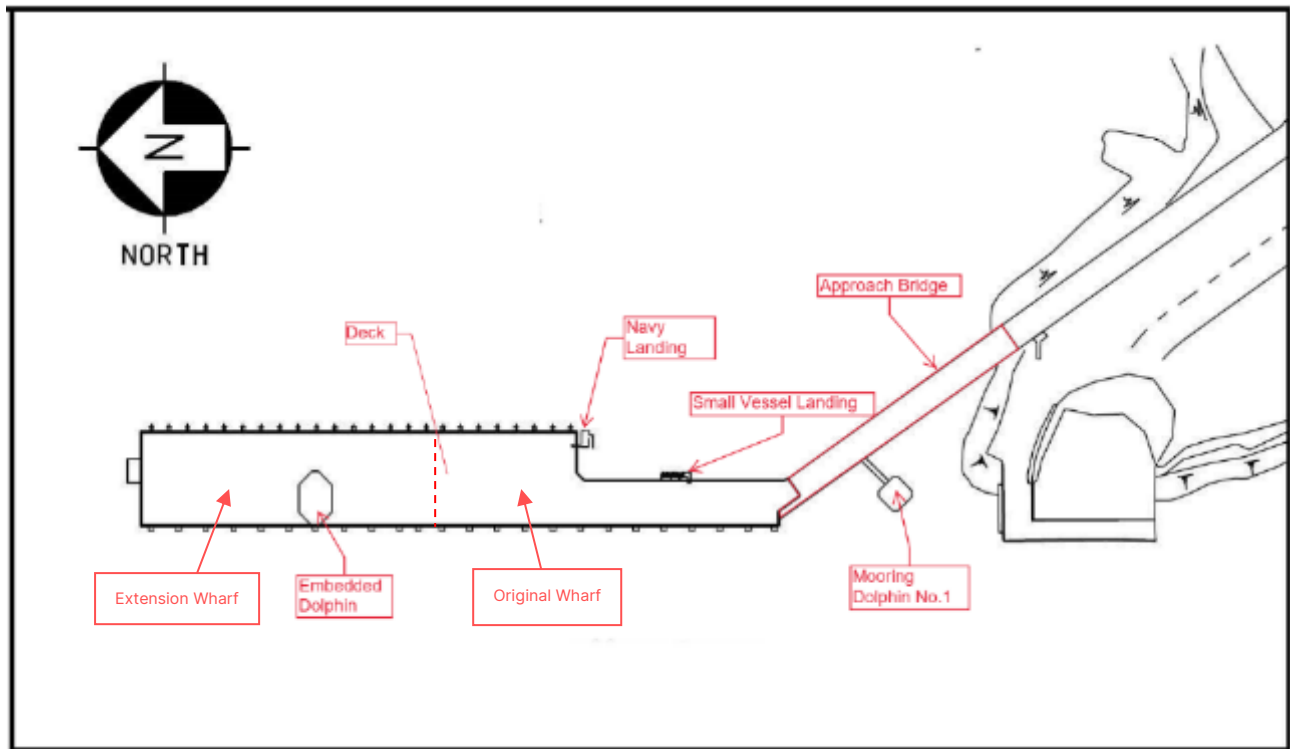


Figure 1: Dampier Cargo Wharf Element Names

The nomenclature for individual component naming will be as per the PPA provided example image shown in Figure 2

There are some special cases not shown above that will be named differently. The piles at the Embedded Dolphin will be named P_EMD"X" where "X" will be the pile number, similarly for the Southern Mooring Dolphin will be represented as P_SMD"X".

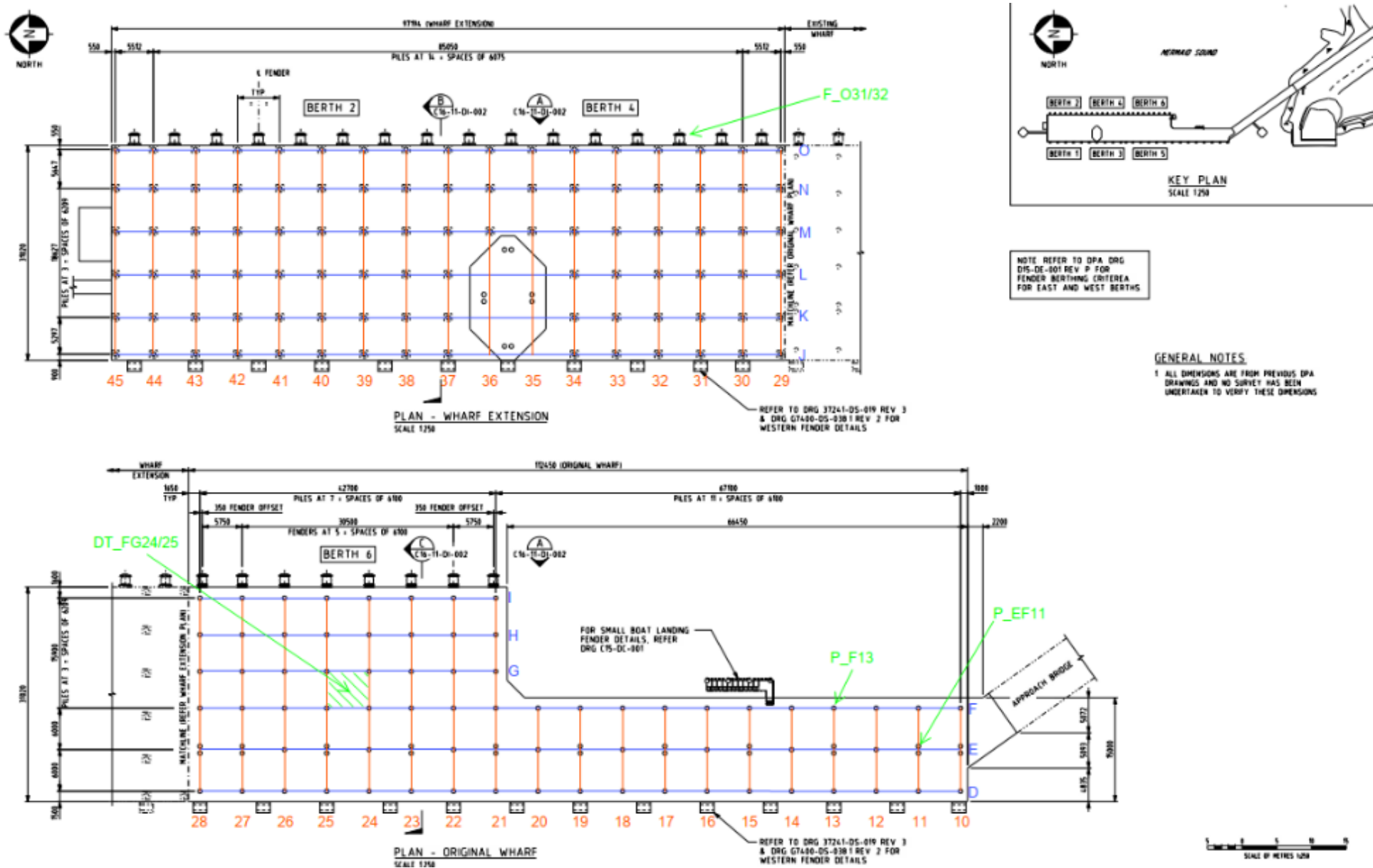


Figure 2: Example component naming

2 Review of Historical Information

2.1 Overview

All information made available to SMEC (prior to completing the inspections) was reviewed in order to gain an appreciation of the asset history and operations, which has been used as a basis for the gap analysis; and consequently, the inspection test plan and maintenance plans. The summary has been divided into the major sections of the Dampier Cargo Wharf and only the key information has been represented as part of the summary.

2.2 Piles

Pile sleeves were installed between 2008 and 2012 with Denso Seashield series 200FD from +1.0 mCD to the deck soffit. The piles were inspected in representative areas by GHD for the 2015 DCW Condition Assessment and 10 Year Maintenance Plan and for all piles by Indianic in 2018. Both pile inspections indicated significant marine growth and UT measurements of above 90% of the original wall thickness, with the pile sleeves generally in good condition.

The 2015 condition assessment report summarised cathodic protection (CP) potential measurements as being protected. The measurements shown, indicate a reading more negative than -800mV vs Ag/AgCl for most of the piles, indicating protection. There were two exceptions noted, which showed potential values that were less negative than -300mV vs Ag/AgCl. It is noted that if the anodes were depleted, the readings would be more likely in the range of -500mV and therefore it is likely that these readings were potentially false readings from incorrect testing rather than failing anodes.

The 2018 condition assessment report showed a range of condition assessment ratings and maintenance ratings; however, the report indicates in the conclusion that "Overall, all piles were in good condition. The majority of this report detailed information on the jackets / sleeve condition". While a valid result for the pile sleeve, this is not in line with WSCAM procedure as the pile and wrapping is a part of the condition rating system in WSCAM, which means the ratings produced were potentially more severe than necessary relative to the condition of the piles. In addition, the 2018 condition assessment report noted that 18 piles had orange marine growth. It is possible that this observation is consistent with the presence of Accelerated Low Water Corrosion (ALWC); however, the ALWC phenomenon usually produces extreme corrosion rates on piles and large orange "fluffy" deposits of rust on the piles rather than thin orange deposit shown in the photos. Furthermore, the piles showed cathodic protection was active and the piles were fully protected in the results, ALWC is not known to attack steel that is fully cathodically protected.

The piles at Dampier Cargo wharf appear to be identified as being in good condition from the supplied previous reports with some damage to the pile sleeves. The piles also have a sacrificial CP system, which is depleting.

2.3 Approach Bridge

The Approach Bridge structure in the DCW asset hierarchy refers to all elements above the piles. The Approach Bridge structure was inspected by Worley Astron in 2006, GHD in 2015 and finally RKF in 2016. Each report was reviewed, and the key findings are summarised as follows.

In 2006, only the headstocks were inspected and the inspection identified heavy corrosion damage and concrete spalling. Subsequent to that report, the headstocks were applied with Impressed Current Cathodic Protection (ICCP) by Savcor Finn in SP1 of its design and construct program. In SP6 in 2011, Savcor Finn applied a protective coating to the abutment bearing plate and conducted concrete repairs to the east edge beam.

The 2015 condition assessment report is more comprehensive in its assessment and includes visual inspection of the entire structure and chloride and carbonation testing. The 2015 condition assessment report concluded that:

- The prestressed beams from the original construction were likely experiencing reinforcement corrosion or were likely to commence corrosion soon. Some concrete spalls were found.
- The prestressed beams from the widening were not likely corroding and were predicted to have corrosion initiate around 2050.
- Localised spalls and delamination were found on the Approach Bridge top surfaces and kerbs, likely due to chloride induced corrosion of reinforcing steel. The spalls included new spalls and failed previous repairs.

Chloride contents showed that corrosion initiation was likely to occur in a range between 2007 to 2043, indicating that localised corrosion is likely to have increased since the 2015 inspection and is likely to continue growing over the next 20 years.

The 2015 condition assessment report concluded that concrete repair was required in financial year 2015 in order to allow for a CP repair to the Approach Bridge prestressed beam soffits.

The 2016 condition assessment report was limited to a visual inspection of the Approach Bridge, but it also concluded that repairs are required to the soffit of the deck planks of the Approach Bridge.

In 2018, Duratec performed patch repairs to the Approach Bridge prestressed beams. The As-Built drawing shows the locations of repairs but does not itemise the size of repairs and shows only one location where strand damage was found.

2.4 Original Wharf

The Original Wharf structure was constructed in 1981 and is a cast in-situ reinforced concrete deck supported by steel piles. The Original Wharf deck was repaired by Barclay Mowlem Candac (BWM) in 2005. The wharf was subsequently surveyed for the 2015 condition assessment report and by RKF for the 2016 condition assessment report. Significant maintenance was conducted between 2007 and 2010 to the deck Soffit by Savcor Finn. A significant fender replacement and concrete repair was also undertaken by Duratec in 2018. Repairs to the top of deck were completed by Central Systems.

The repairs conducted by BWM in 2005 consisted of a simple patch repair (removing delaminated concrete, applying a zinc rich primer and reinstating the concrete). The area of repair was half the width of the slab between pier 13 and pier 15.

The scope of repairs undertaken by Savcor Finn is not detailed in the documents provided. The only information is presented in the 2015 condition assessment report, which itemises the repairs completed as 400m² of concrete repair, 1,590m² of silane application and 230 linear metres of crack injection. The concrete repair equated to 16% of the total deck soffit and the area applied with silane was 66% of the deck soffit. The concrete repairs are assumed to be patch repairs with no additional cathodic protection or anodes were installed.

Between 2009 and 2012, Central Systems conducted 298m² of concrete repair on the top of the deck. The project also included 145m of kerb repair which is in an unspecified location. The repair was intended to suit a 10-year design life and appears to be a patch repair with no electrochemical component to suppress the corrosion of these elements.

The 2015 and 2016 condition assessment reports both tested for chloride contamination of the Original Wharf and found variable results for both the top of deck and the soffit of the deck. Some samples showed minimal risk of chloride induced corrosion and others showed a high risk of corrosion occurring now or in the near future. The variable chloride contamination aligns with the site observation of localised spalls and delamination on the kerbs, deck soffit and top of deck.

As part of the 2018 Duratec project, the western side of the deck soffit was subject to concrete repair and crack injection to provide secure attachment for the replacement fenders. The drawings indicate large scale concrete repair was undertaken with a similar method to the BWM and Savcor with concrete repair and replacement, but no anodes or cathodic protection was installed.

2.5 Extension Wharf

The Extension Wharf was constructed in 1993 and consists of prestressed precast concrete panels on the soffit, which were used as formwork to cast the reinforced deck. The Extension Wharf had repairs to the top of deck joints performed by Central Systems between 2009 and 2012. The Extension Wharf was inspected for the 2015 and 2016 condition assessment reports. Some repairs were carried out by Duratec in 2018 as part of the fender replacement project.

The Central Systems repairs to the top of deck between 2009 and 2012 are only described in text in the 2015 condition assessment report. The report shows repair of the joints, which was described as being required due to "high local stresses from heavy vehicles."

The 2015 condition assessment report indicated the deck was generally in good condition apart from:

- Corrosion damage on one deck soffit panel
- Corrosion at an impact site adjacent the Embedded Dolphin
- Cracking at repaired joint edges.

The 2015 condition assessment report indicated that:

- General shrinkage cracking was noted “in all areas of the top of deck”
- Cast in-situ concrete over infilled pile caps was “in generally poor condition”
- The cast in-situ concrete around the original dolphin was extensively damaged.

The repairs conducted by Duratec in 2018 included repair to the in-situ concrete which surrounds the Embedded Dolphin. The repairs appear to be due to corrosion issues, but only comprised patch repair.

2.6 Southern Mooring Dolphin

The Southern Mooring Dolphin was inspected for the 2015 condition assessment report but a detailed inspection was not completed due to access issues. The visual assessment noted that the deck soffit had “apparent delamination in a few areas with a visually estimated maximum size of 1m x 1m”. The chloride testing was only conducted on the top of the dolphin and indicated corrosion had initiated in 2015. No testing of the soffit of the dolphin deck was conducted.

The 2016 condition assessment report concluded “The Southern dolphin was in general acceptable condition.” but it did not include any testing of the dolphin.

2.7 Embedded Dolphin

The Embedded Dolphin refers to a dolphin that was constructed prior to the Wharf Extension and has now been cast into the deck of the Extension Wharf. The Embedded Dolphin concrete soffit was repaired as part of the 2005 Barclay Mowlem Candac repair works. Chloride content testing and inspection was conducted as part of the 2015 condition assessment report. In the 2016 condition assessment report spalling and drummy concrete was indicated but it was not part of the detailed scope of works. Duratec conducted extensive concrete patch repair to the deck soffit of the Embedded Dolphin in 2018.

The 2016 condition assessment report showed chloride testing results, which indicates that corrosion has initiated on the deck soffit. That report preceded the repair conducted by Duratec in 2018, which was a patch repair. It is likely that the Duratec repair was in the same areas as the repair conducted by BMC in 2005.

2.8 Small Vessel Landing

The Small Vessel Landing appears only 2015 condition assessment report in the summary where the structure is shown to be in good condition apart from one cracked handrail post.

2.9 Navy Landing

The Navy Landing was not part of the scope of works of any of the inspection reports reviewed. The 2015 condition assessment report did have a photograph of the Navy Landing that showed two floor panels missing along with significant marine growth on the structure.

3 Data and Maintenance Gap Analysis

3.1 Piles

The pile inspections carried out for the 2015 and 2016 condition assessment reports focussed on areas below the pile sleeve level and the conditions of the pile sleeves, but analysis of remaining steel thickness above the pile sleeve level does not appear to have been conducted. In general corrosion of piles occurs most severely at two locations, just below lowest astronomical tide and just above high tide. The inspections have shown that the cathodic protection is still active and is likely protecting the piles below tide but does not show the condition of the piles above high tide.

Pile sleeve repairs were recommended in the 2015 and 2016 condition assessment reports but it is unclear if these repairs were carried out. Sleeved piles tend to be very durable and there is generally a low risk that piles are deteriorating below sleeves if they have been installed correctly, but some simple checks would show:

- If there was significant steel loss prior to the installation of the pile sleeve
- Effectiveness of the pile sleeve application.

The cathodic protection was tested for the 2015 and 2016 condition assessments. The 2015 inspection took measurements of the remaining anode size. As the anodes decay and reduce in size, their current output will reduce and eventually lead to under protection of the piles. The 2015 condition assessment report applied an allowance for anode replacement within 5-7 years for the Original Wharf and within 7-10 years for the Extension Wharf.

The key information gaps that were identified prior to the 2020 WSCAM Inspection were:

- Anode dimensions and steel cathodic protection
- Steel pile thickness above high tide
- Whether recommended repair of damaged pile sleeves was carried out.

Key maintenance gaps that were identified prior to the 2020 WSCAM Inspection were:

- Information on whether damaged pile sleeves were repaired.

3.2 Approach Bridge

The key risk item on the Approach Bridge is the prestressed beams, as corrosion and failure of the stressing strands can lead to catastrophic failure with insufficient warning. Both the 2015 and 2016 condition assessment reports indicate CP or repair of the prestressed beams is required, but no records of this repair have been reviewed. It was shown in the 2015 condition assessment report that concrete repairs were conducted on the east edge beam in 2011 with no mention of cathodic protection repair. The 2018 Duratec project involved concrete repair to spalled areas of the prestressed beams but no galvanic anodes or cathodic protection was applied. With this kind of repair, it is common to find spalling immediately adjacent within 5 years of the localised concrete repair. This is due to the incipient anode effect, where adjacent unrepaired areas are at a different electrochemical potential to surrounding areas and consequently corrode more quickly than if repairs had not occurred.

The headstocks were applied with ribbon anode cathodic protection in 2006 and it appears only visual assessment has been completed since the installation. The 2015 condition assessment report made no mention of the visual condition of the headstocks and the 2016 condition assessment report only mentioned that "the piles and headstocks were in acceptable condition. The headstocks were applied with ICCP with ribbon anodes in slots. This type of repair is susceptible to acid generation around the anodes and weakening of the concrete. The headstocks do not appear to have been inspected or were minimally inspected with no comments on whether or not acid attack was found.

The key information gaps that were identified prior to the 2020 WSCAM Inspection were:

- Headstock CP maintenance and CP component condition
- Condition of concrete surrounding 2018 repairs on prestressed beams.

Key maintenance gaps that were identified prior to the 2020 WSCAM Inspection were:

- Repair of deck top and kerbing after 2015 condition assessment reports
- Cathodic protection of the prestressed beams following original construction.

3.3 Original Wharf

The Original Wharf was subject to maintenance repair works by Barclay Mowlem Candac (2005), Savcor Finn (2007 – 2010) and Duratec (2018). The scope of the repair areas for these three maintenance repairs are very large and overlap, meaning previous repairs could have failed and been repaired again. As an example of this, the breakout maps in Figure 3 and Figure 4 from BMC and Duratec respectively both show repair areas in Berth 7.

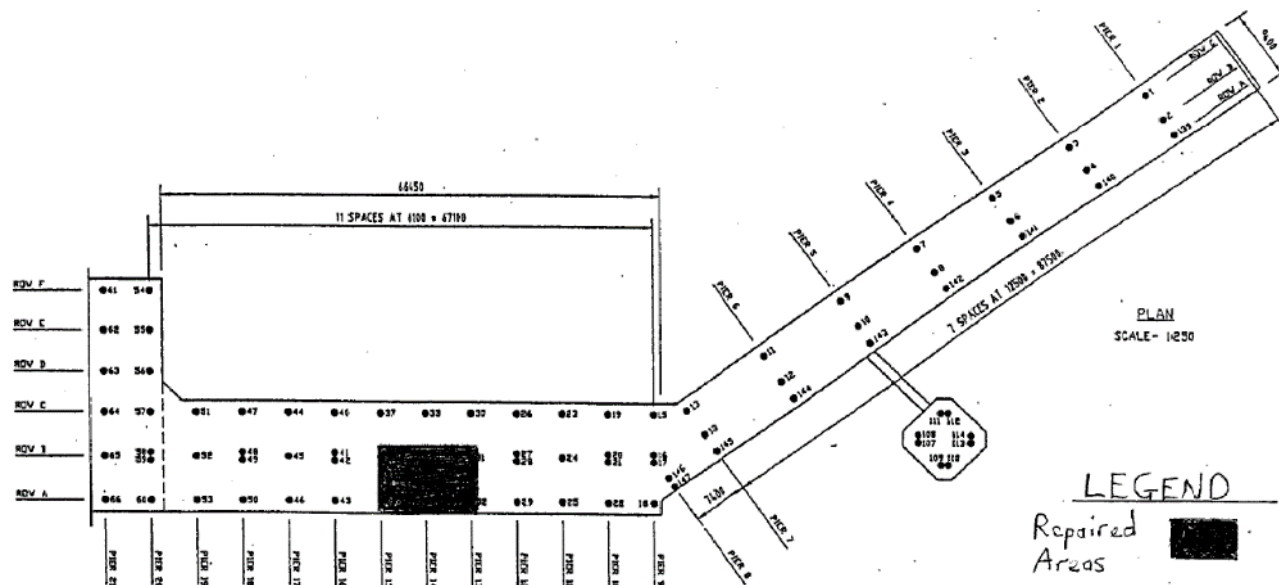


Figure 3: BMC repair area map (2005) showing repairs in Berth 7

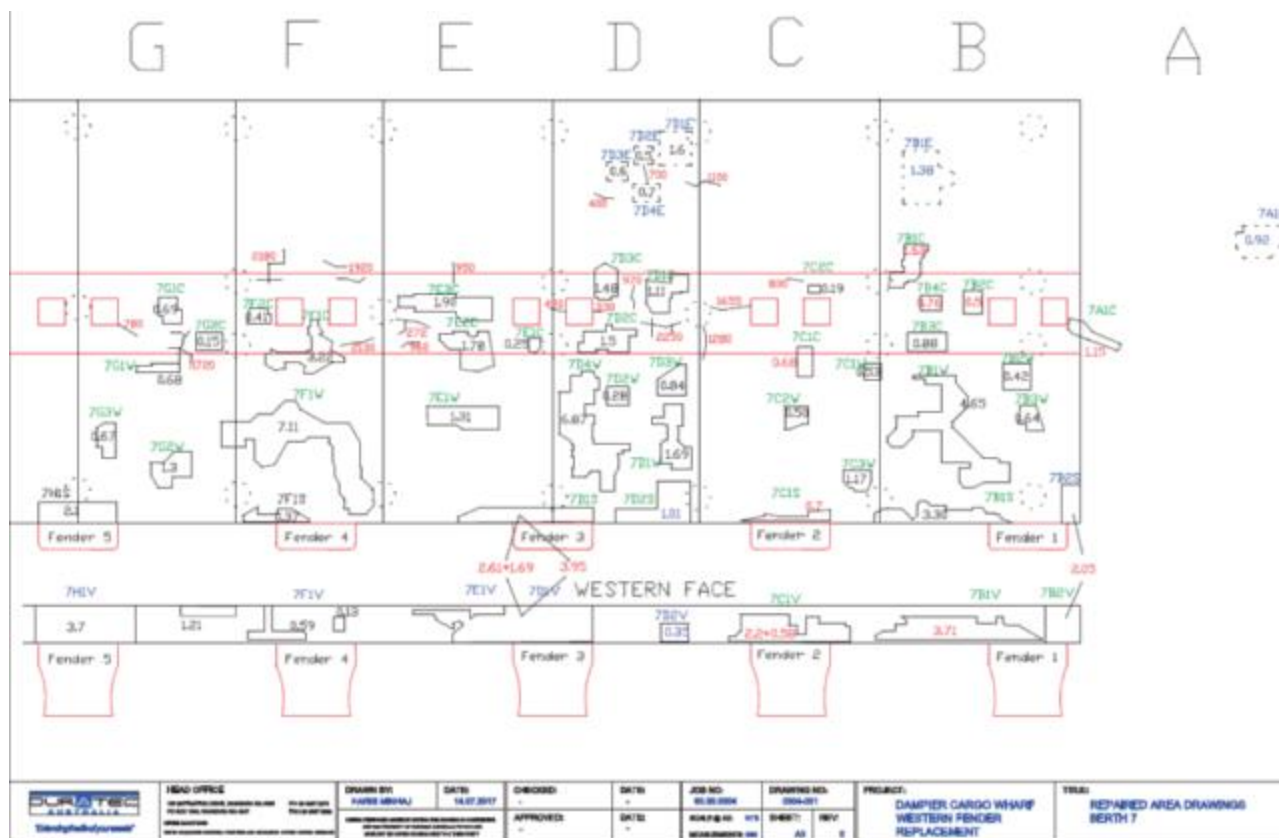


Figure 4: Duratec repair area map (2018) showing repair areas in Berth 7

In addition, Savcor indicated it had repaired 66% of the soffit of the original deck in the time, between the above repairs. This indicates that corrosion is occurring on the reinforcing steel between repair instances and that the previous repair methods are not dealing with the underlying corrosion problem.

Patch repairs with silane treatments are potentially not appropriate for this location as the areas surrounding the patch repaired area will have critical chloride concentrations at the steel and corrosion mechanisms remain ongoing. Applying a silane treatment will reduce the rate of chloride ingress into the concrete but will have no effect on the actively corroding areas. Once corrosion has initiated on reinforcing steel, cathodic protection is required if further corrosion of reinforcing steel is to be avoided or prevented.

The 2015 and 2016 condition assessment reports both indicated that chloride concentration was significant in some areas but not in others. Neither report conclusively showed the area that was affected by chloride contamination and as such the scope of corrosion on the wharf deck and deck soffit is not known. The area of active corrosion could be found through a half cell potential survey on the deck soffit.

The key information gaps that were identified prior to the 2020 WSCAM Inspection were:

- Current condition of top of wharf deck and kerbs and the deterioration since the 2015 and 2016 inspections
- Total area of active reinforcement corrosion is unknown
- Current condition of western side of deck soffit.

Key maintenance gaps that were identified prior to the 2020 WSCAM Inspection were:

- Top of deck and kerb have not been repaired since 2012 and reports indicate spalling may have occurred since that date.
- The deck soffit has been repeatedly repaired but the corrosion issue has not been fully mitigated. Corrosion of steel in the repairs and adjacent the repairs may be ongoing and has not been fully addressed by maintenance.
- Deck soffit repairs were conducted on the west side adjacent the new fenders, but the east side was neglected. The corrosion damage will likely be severe and should be addressed to mitigate further structural damage.

3.4 Extension Wharf

The Extension Wharf was built after the Original Wharf and has been subject to fewer repairs and issues than the Original Wharf. The Extension Wharf construction comprises prestressed precast concrete panels on the soffit of the structure and precast infills between. The deck soffit panels were indicated in the 2015 condition assessment report to be at risk of corrosion by chloride ingress, with 14 years remaining until corrosion initiation on the rebar sections and 5 years remaining on the prestressed strand sections. In addition, one prestressed panel was found to have corrosion to the prestressed section, which indicates some panels may have more advanced chloride concentration than that of the tested panel. As with the prestressed beams, when corrosion of prestressing steel occurs, it occurs rapidly and often the strand can be irreparably damaged with very little visual indication.

The repair that was conducted by Duratec to the cast in situ section near the Embedded Dolphin was conducted using simple patch repair techniques for the corrosion related damage.

The key information gaps that were identified prior to the 2020 WSCAM Inspection were:

- The condition of prestressed panels since the 2015 condition assessment report was completed, which predicted, using a corrosion model, that corrosion would occur on the prestressing strands. The widespread corrosion of these prestressed panels may be occurring.
- The 2015 condition assessment report indicated that two prestressed planks were showing spalling, but no repair was documented by Duratec. The prestressed plank is likely damaged, and the severity is unknown.
- Top of deck joints and condition of area surrounding repairs.

Key maintenance gaps that were identified prior to the 2020 WSCAM Inspection were:

- The prestressed plank showing spalling likely requires some maintenance, but the type of maintenance will depend on the remaining strand and severity of damage.

3.5 Southern Mooring Dolphin

The condition of the Southern Mooring Dolphin does not appear to have been reported extensively in the previous inspections and the concrete structure. The single chloride test that was conducted was on the top of the deck of the dolphin, which would be the lowest risk area. The results indicated active corrosion in this location, which would imply that there is corrosion in other locations on the concrete structure of the Southern Mooring Dolphin.

Corrosion of the walkway was noted in the 2016 condition assessment report, but the extent of the corrosion is unclear.

The key information gaps that were identified prior to the 2020 WSCAM Inspection were:

- Current condition of the Southern Mooring Dolphin including delamination survey of deck soffit. The 2015 condition assessment report did not conduct delamination testing of Southern Mooring Dolphin deck soffit.
- Condition of the steel walkway to the dolphin is unclear. The comments in the 2016 condition assessment report are ambiguous and the condition is likely worse than reported.

Key maintenance gaps that were identified prior to the 2020 WSCAM Inspection were:

- Coating works to the steel walkway
- Potential for major concrete repair required, based on condition survey.

3.6 Embedded Dolphin

The Embedded Dolphin was repaired by BMC in 2005 and was tested for the 2015 condition assessment report, which showed that there was active corrosion on the deck soffit, which was subsequently repaired again by Duratec in 2018. It is likely that the repair conducted by the two companies overlapped and the same area was repaired twice.

The key information gaps that were identified prior to the 2020 WSCAM Inspection were:

- Current condition of areas surrounding repairs conducted in 2018 and requirement for repeat repairs.

3.7 Small Vessel Landing

The Small Vessel Landing is not well documented in the inspection reports to date and as such the information gap in this location relates to the entire landing structure.

3.8 Navy Landing

The Navy Landing has very little condition information present in the information reviewed to date and as such the information gap in this location relates to the entire landing structure.

3.9 Additional Remedial Works (2015-2020)

During completion of the 2020 WSCAM condition assessment, the following maintenance works were identified as additional works that were not identified from the data review:

- Replacement of the cylindrical fenders with a new fender system on the western side of the DCW
- Arch fenders on the western side of the DCW
- Concrete repairs to the deck soffit and Embedded Dolphin
- Concrete repairs on Extension Wharf deck top
- Repaired kerb on the western side of the DCW (post cyclone)
- Repaired guardrail on the western side of the Approach Bridge (post cyclone)
- Damage and repairs to the under-deck services including connections to the soffit
- Small Boat Landing replacement handrails and FRP

4 WSCAM Inspection Methodology

4.1 Introduction

The 2020 WSCAM Basic Visual Assessment (BVA) inspection comprised three different types of inspection:

- Walkover inspection
- Diving inspection
- On-water inspection

The methodology for each type of inspection followed the WSCAM BVA guidelines and an overview of each methodology is presented in Sections 4.2, 4.3 and 4.4. In addition, the 2020 WSCAM inspection included non-destructive testing (NDT) as described in Section 4.5.

For each inspection, SMEC's tablet-based condition assessment data collection tool was used in conjunction with defect maps to record all condition rating data, observations and photographic evidence in accordance with WSCAM's BVA methodology, to achieve the project objectives.

4.2 Walkover Inspection

The walkover inspection was conducted on the deck of the Approach Bridge, Original Wharf, Extension Wharf, Southern Mooring Dolphin, Embedded Dolphin and Small Vessel Landing. A walkover inspection was not conducted on the Navy Landing since it was tagged out for safety reasons and could therefore not be accessed. It is SMEC's understanding that the navy landing is the navy's responsibility and therefore it was not included in the condition assessment.

The inspection team followed a systematic approach of recording the condition of the assets defined in the Scope of Works working from one end of the wharf on a grid system. In order to comply with the guidelines for the WSCAM for Basic Visual Assessments, the inspector was located within an arm's length of the asset. Where it was not possible to gain access on foot, photographic evidence was used.

SMEC used a delamination tool to test for drumminess in the deck concrete, which focussed in areas exhibiting cracking. Further information on this methodology is presented in Section 4.5.3.

During the inspection, the inspector considered the following when identifying potential remediation measures on site:

- the form of construction (e.g. the Wharf Extension panels were constructed using pre-tensioned panels)
- the presence of the Embedded Dolphin,
- loading restrictions
- previous condition assessment reports
- operations and maintenance team feedback regarding historical and current operational / maintenance issues

4.3 Diving Inspection

The diving inspection was conducted on the steel piles to assess the condition of the piles, pile sleeves (jackets) and anodes on the Approach Bridge, Original Wharf, Extension Wharf, Southern Mooring Dolphin and the Embedded Dolphin.

The WSCAM BVA was conducted on 40 piles, which had been pre-selected by PPA and SMEC, following an assessment of previous inspection reports and damage noted on the Denso jacketing system. The 40 representative steel piles comprised:

- 10 piles were nominated for inspection under the pile sleeves (Denso 2000FD jackets) and therefore the pile sleeves were removed prior to the inspection and then correctly reinstated following completion of the WSCAM BVA and NDT.
- 15 piles nominated by PPA based on the findings of the 2018 condition assessment report
- 15 additional piles were nominated by SMEC to ensure a representative distribution across all element locations.

The WSCAM diving inspection of each pile comprised:

- Recording the general condition, with a video recording and photographic evidence from the water surface to the seabed.
- Recording the location and extent of each WSCAM condition rating and specific defects, along with information regarding whether this damage is physical (e.g. due to an impact) or corrosion related.
- Measurement of the percentage surface area and depth of corrosion (if found).
- Any scouring or movement to the seabed at the base of the pile.
- Pile steel thickness measurements at four locations with measurements taken on the north, east, south and west sides of the pile. Thickness readings were taken using a Cygnus Underwater Ultrasonic Thickness (UT) reader.
- Cathodic protection (CP) potential measurements to confirm cathodic protection status. Measurements using an underwater corrosion voltmeter were taken utilising a Buckleys Bathycorrometer.
- Percentage depletion of each anode (if any).

Both the UT and CP meters were frequently verified against test pieces throughout each day to check whether calibration adjustments were required.

The diving inspection represents approximately 18% of the total number of piles in the DCW. For the remaining 82% of piles, visual inspections above the water level were conducted from a small utility craft (see Section 4.4).

With reference to the legend (see Figure 5), Figure 6, Figure 7 and Figure 8 identifies the inspection methodology undertaken for each pile. For all piles identified as being subject to an underwater inspection, an above water inspection was also undertaken.

LEGEND

- Underwater Inspection with Jacket Replacement. (10 Piles)**
- Underwater Inspection. (30 Piles)**
- Above Water Inspection. (191 Piles)**

Figure 5: Legend for Figure 6, Figure 7 and Figure 8

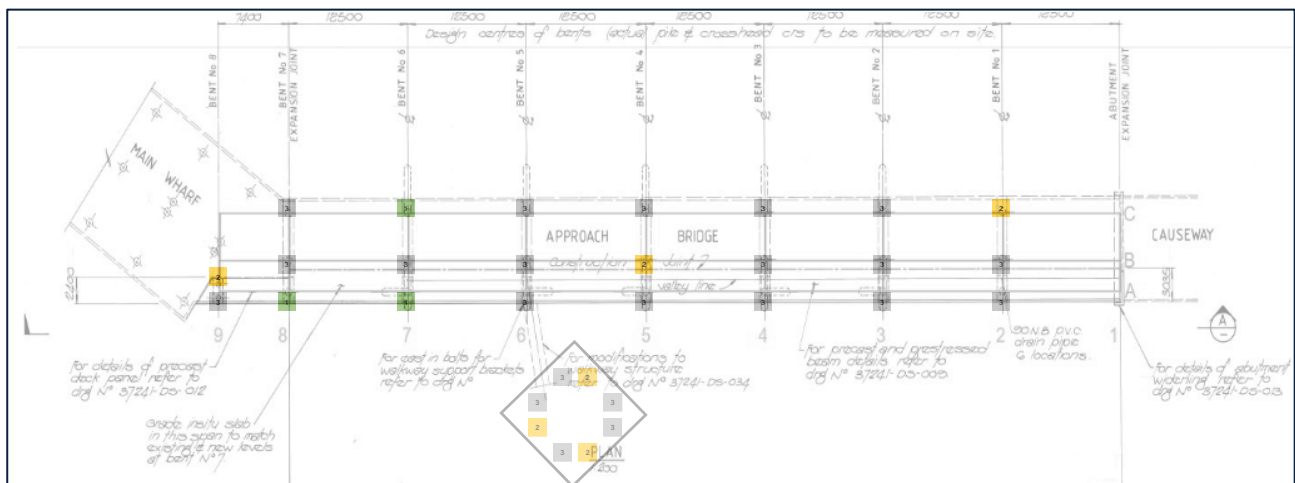


Figure 6: Approach Bridge Pile Inspection Summary

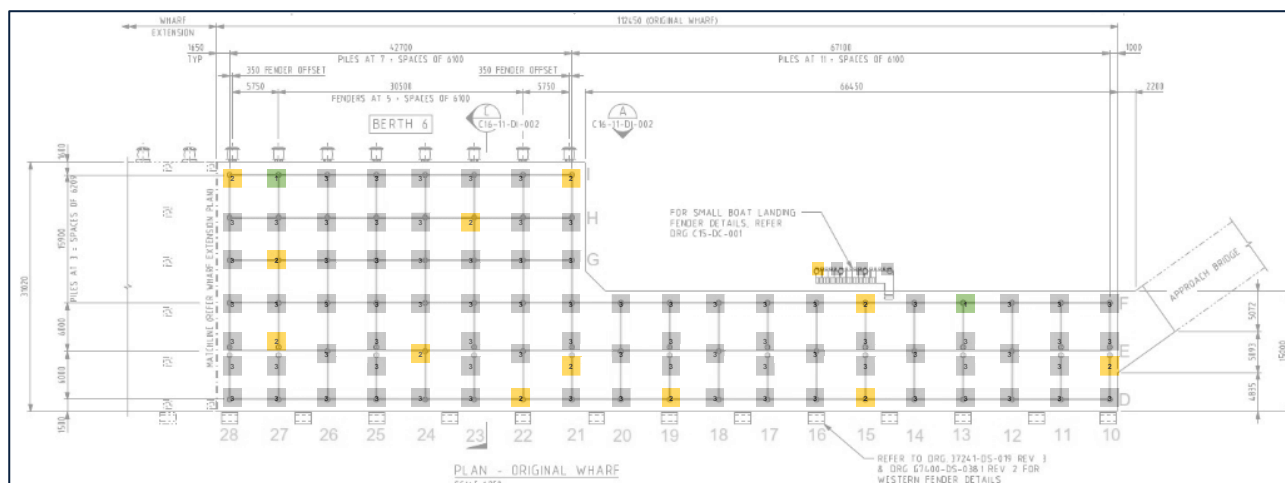


Figure 7: Original Wharf Pile Inspection Summary

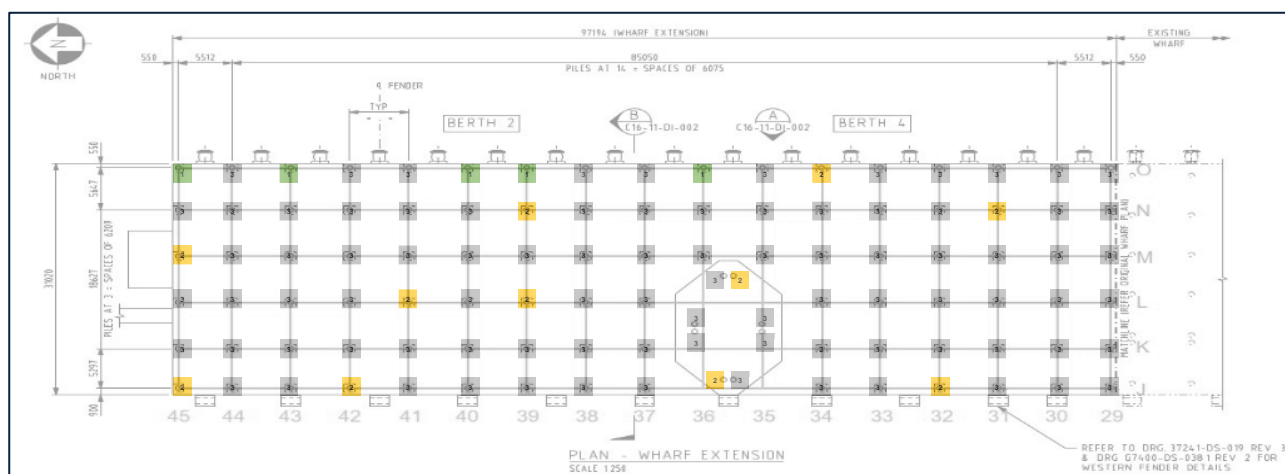


Figure 8: Extension Wharf Pile Inspection Summary

4.4 On-water Inspection

The on-water inspection was conducted to assess the condition of the piles, pile sleeves (jackets), fenders, headstocks, deck soffit, substructure and services, on the Approach Bridge, Original Wharf, Extension Wharf, Southern Mooring Dolphin, Embedded Dolphin and Small Vessel Landing.

For the on-water inspection, a separate vessel was used to independently operate on alternative work fronts. The on-water inspections of the piles were undertaken at low tide to maximise the overlap in the inspection area with the dive inspections, since the intertidal zone is typically the area in which most defects are observed. The inspection of the deck soffit and substructure was undertaken at high tide to realise the opportunities for the inspector to be closer to the assets that were being inspected.

The inspection team followed a systematic approach of recording the condition of the assets defined in the Scope of Works working from one end of the wharf on a grid system. In order to comply with the guidelines for the WSCAM for Basic Visual Assessments, the inspector was located within an arm's length of the asset where possible, however, for safety reasons, the majority of the inspection was undertaken from a greater distance and supported by photographic evidence.

SMEC used a delamination tool to test for drumminess in the deck soffit concrete, which focussed in areas exhibiting cracking or spalling. Further information on this methodology is presented in Section 4.5.3.

4.5 NDT

The inspection team undertook cathodic protection and ultrasonic thickness testing at representative locations.

4.5.1 UT Testing

The methodology for undertaking thickness testing on structural steel comprised:

- The UT testing adopted a systematic approach to testing, generally comprising measurements taken on the northern, eastern, southern and western sides of each inspected pile at the following elevations:
 - 1m above the sea floor
 - 2m below Lowest Astronomical Tide (LAT)
 - LAT
 - Mean Sea Level (MSL)
- UT test readings were not taken where a pile sleeve was present, with the exception of the 10 piles on which the pile sleeves were temporarily removed during the inspection.
- UT testing was undertaken in accordance with AS 1710 (Non-destructive testing – Ultrasonic testing of carbon and low alloy steel plate and universal sections – Test methods and quality classification).

4.5.2 Potential Survey

The methodology for undertaking potential survey on structural steel was as follows:

- Steel pile potential testing was undertaken using a silver/silver chloride/seawater reference electrode and a high impedance multimeter. The purpose of the testing was to verify if cathodic protection is being provided to the piles in accordance with AS2832.3. Potentials more negative than -800mV generally indicate that adequate protection is provided.
- The potential testing adopted a systematic approach to testing, generally comprising measurements taken on the northern, eastern, southern and western sides of each inspected pile at the following elevations:
 - 1m above the sea floor
 - 2m below Lowest Astronomical Tide (LAT)
 - LAT
 - Mean Sea Level (MSL)
- Potential readings were not taken where a pile sleeve was present, with the exception of the 10 piles on which the pile sleeves were temporarily removed during the inspection.

4.5.3 Drumminess Testing

SMEC used a delamination tool to test for drumminess in the concrete on the deck and soffit, including any concrete footings. SMEC's delamination tool is located on the end of a 2m pole, which minimises the requirement to bend down and also provides opportunities for the inspection team to easily reach the deck soffit. The drummy locations were recorded in SMEC's tablet-based condition data capture tool with associated georeferenced photographs and defect mapping.

5 WSCAM Inspection Findings and Proposed Maintenance Works

5.1 Overview

The Original Wharf structure was constructed in 1981 and the Extension Wharf was constructed in 1993 and therefore these structures were built 39 years and 27 years ago respectively. Whilst the original design life for these structures is not available, it is anticipated that the design life of the Extension Wharf would have been approximately 40 to 60 years (if designed to AS3600-1988). Consequently, a residual life of up to 25 years is considered to be achievable on the basis that the PPA adopts proactive maintenance and repair works to the structure.

While on average approximately 90 – 95 % of the individual visually inspected sub-component surface area on the Dampier Cargo Wharf was identified as having a Condition Rating 1 (New), Condition Rating 2 (Excellent) or Condition Rating 3 (Good), over 190 individual sub-components were identified as having a Condition Rating between 4 (Fair) and 7 (Failed / Unserviceable).

A graphical representation of condition rating to service life is presented in Figure 9.

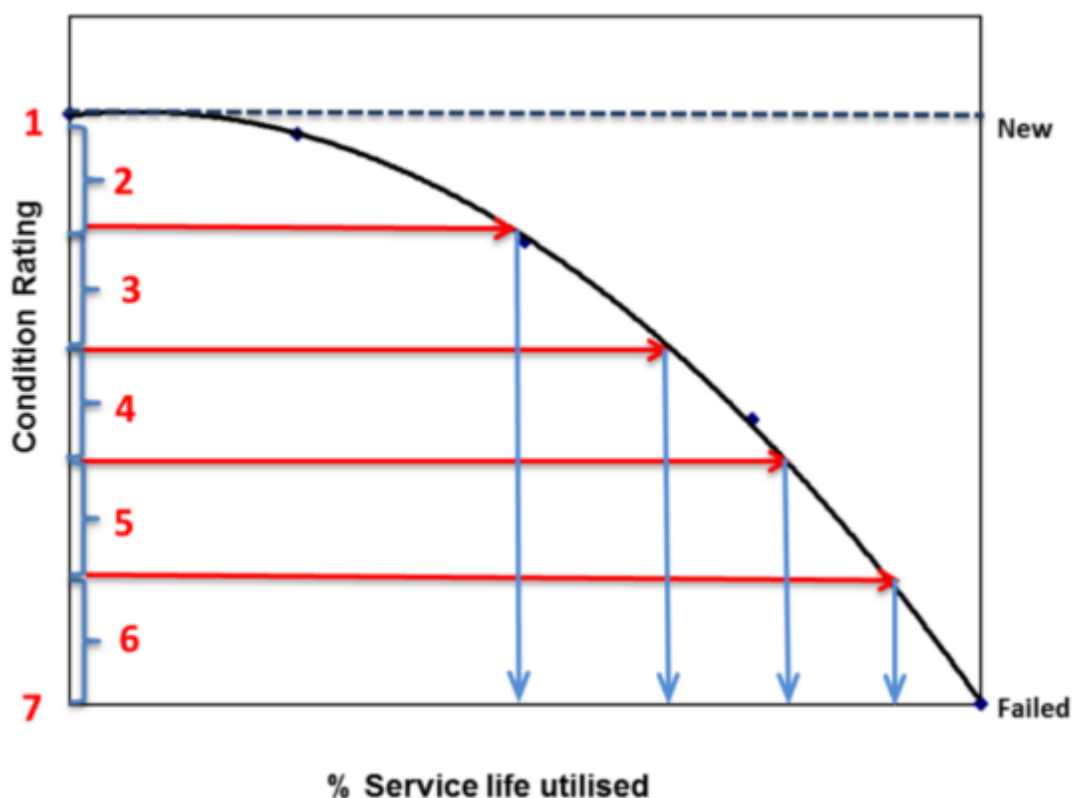


Figure 9: Condition rating compared to service life – deterioration curve (WSCAM)

A summary of the average percentage of individual visually inspected sub-component surface area for each condition rating value on the Dampier Cargo Wharf is shown by Element Location in Table 3 and by Element in Table 4. For the purposes of clarity, the total surface area of each sub-component does not influence the scores in these tables, since the percentages are based on average percentages for each individual sub-component.

Table 3: Average Percentage of Individual Visually Inspected Sub-Component Surface Area for each Condition Rating Value, by Element Location

Element Location	Condition Rating 1	Condition Rating 2	Condition Rating 3	Condition Rating 4	Condition Rating 5	Condition Rating 6	Condition Rating 7
Approach Bridge	2.7%	77.2%	15.0%	4.0%	1.1%	0.1%	0.0%
Original Wharf	1.2%	85.6%	8.6%	3.1%	0.8%	0.7%	0.0%
Extension Wharf	1.9%	81.1%	12.6%	1.9%	1.1%	1.4%	0.2%
Southern Mooring Dolphin	0.0%	84.6%	6.4%	9.0%	0.0%	0.0%	0.0%
Embedded Dolphin	1.6%	88.5%	6.0%	3.9%	0.0%	0.0%	0.0%
Small Vessel Landing	0.0%	85.6%	10.0%	1.7%	0.0%	2.8%	0.0%
General	0.0%	81.3%	6.3%	0.0%	12.5%	0.0%	0.0%

Table 4: Average Percentage of Individual Visually Inspected Sub-Component Surface Area for each Condition Rating Value, by Element

Element	Condition Rating 1	Condition Rating 2	Condition Rating 3	Condition Rating 4	Condition Rating 5	Condition Rating 6	Condition Rating 7
Approach Bridge	0.0%	51.9%	38.1%	6.6%	3.4%	0.0%	0.0%
Deck	0.2%	56.9%	27.2%	15.2%	0.2%	0.2%	0.0%
Dolphin	8.3%	71.7%	16.7%	3.3%	0.0%	0.0%	0.0%
Furniture	3.3%	68.6%	19.5%	1.4%	3.1%	3.8%	0.3%
Landing	0.0%	66.7%	13.3%	3.3%	0.0%	16.7%	0.0%
Piles	1.2%	89.9%	6.3%	2.5%	0.1%	0.0%	0.0%
Services	0.0%	81.3%	6.3%	0.0%	12.5%	0.0%	0.0%

The results presented in Table 3 indicate that whilst there is a smaller proportion of the individual sub-component surface area in 'As New' (Condition Rating 1) or 'Excellent' (Condition Rating 2) condition compared to the other element locations, there is a higher proportion of sub-components on the Original Wharf, Extension Wharf, Small Vessel Landing and General locations with a condition rating of 5 or less (Poor, Very Poor or Failed / Unserviceable).

As shown in Table 4, the majority of the elements have a similar percentage of the individual sub-component surface area in 'As New' (Condition Rating 1) or 'Excellent' (Condition Rating 2) with the Approach Bridge and Services at the lower bound of the range. The Services also show a higher percentage of the individual sub-component surface area with a condition rating of 5 or less (Poor, Very Poor or Failed / Unserviceable).



The summary site investigation findings, NDT results and recommended repair solutions are presented in Sections 5.2, 5.3, 5.4, 5.5, 5.6 and 5.7 for the reinforced / pre-stressed concrete, steel piles, fenders, landings, bollards, services and other components respectively. The descriptions provided in these sections are representative only. Full descriptions of the condition of each asset and their associated components and sub-components are presented in Appendix B.

5.2 Reinforced Concrete



5.2.1 Site Investigation Findings



The key site investigation findings are presented in Table 5 and are grouped by each element location.


Table 5: Reinforced Concrete Site Investigation Observations



Site Observation	Image
Approach Bridge	
<p>The Approach Bridge concrete top surface had several localised spalls and delamination. Some concrete spalls appeared to have been repaired in the past, however, they have subsequently failed. Spalls are typically located on the deck joint edges.</p>	
<p>The Approach Bridge prestressed beam soffit had several localised minor spalls. These areas were not accessible for close inspection from the boat.</p> <p>Visual estimation and drumminess testing indicated concrete delamination and spalls to be 200mm x 200mm. One location of spalling with exposed corroded reinforcement recorded in section DS_AC6/7. Two locations of spalling with exposed corroded reinforcement was recorded in section DS_AC7/8.</p> <p>Areas of previous repair were identified and indicate that corrosion has been significant in the past.</p> <p>One beam in section DS_AC5/6 and three beams in section DS_AC7/8 appears to be at a different elevation to other beams. This could potentially be sag or just dimensional variation between beams during construction.</p>	

Site Observation	Image
	
<p>The Approach Bridge prestressed beam eastern edge has had extension crack repairs by crack injection. The western edge has cracking and will require a similar repair.</p>	
<p>The Approach Bridge Pier Headstocks had signs of cracking, honeycombing and reinforcement corrosion to most of the headstocks.</p> <p>Honeycombing was most apparent on the lower edges of the headstocks.</p> <p>Cracking is typically apparent at the headstock centre, at the joint.</p> <p>Impressed current cable and conduit on northern side is damaged on the south side of the headstock and damage and sagging on the north side of the headstock (attached to span DS_AC8/9). The impressed current cathodic protection (CP) to the headstocks of the Approach Bridge shows significant acid attack with characteristic brown staining near anodes and anodes being exposed in some locations.</p>	

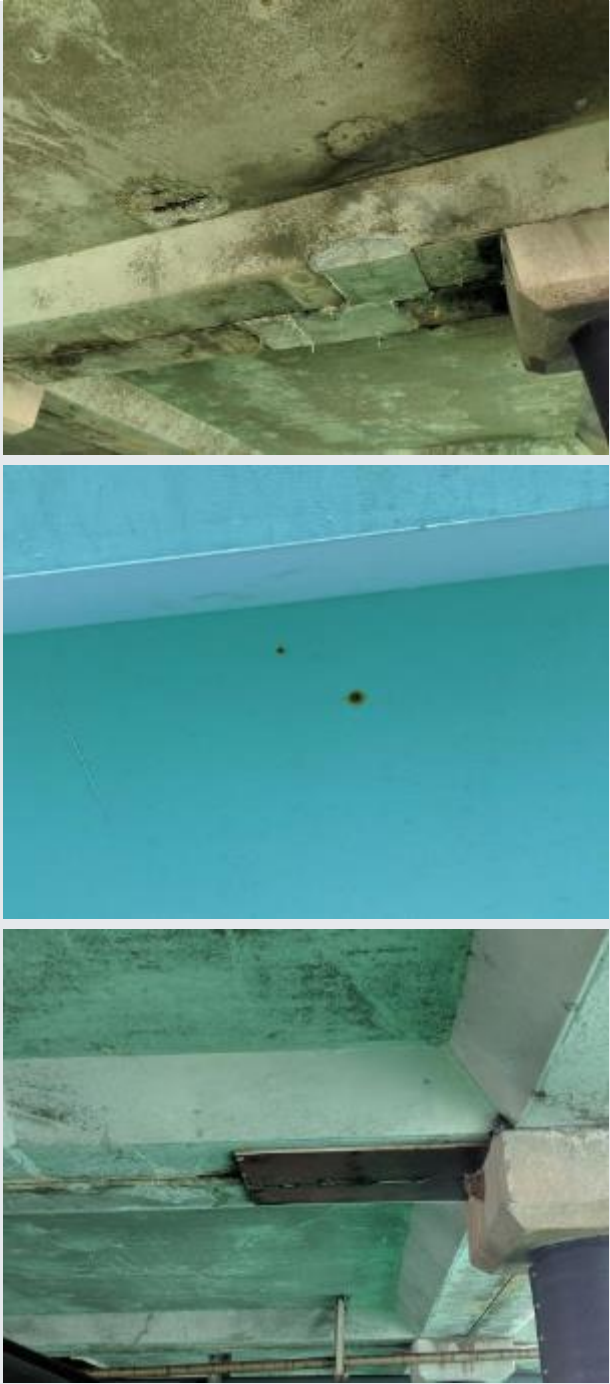
Site Observation	Image
	
Southern Mooring Dolphin	
<p>The majority of the Southern Mooring Dolphin deck top surface was covered by bird droppings. No significant visual defects were observed.</p>	


Site Observation	Image
<p>The Southern Mooring Dolphin had apparent signs of edge spalling around the south west corner. No signs of reinforcement or corrosion.</p>	
Original Wharf Structure	
<p>The Original Wharf in-situ deck top surface had localised concrete spalls, mostly near construction joints and past repairs.</p> <p>These defects are likely due to heavy vehicle impact at the uneven surface, or repair failure.</p>	

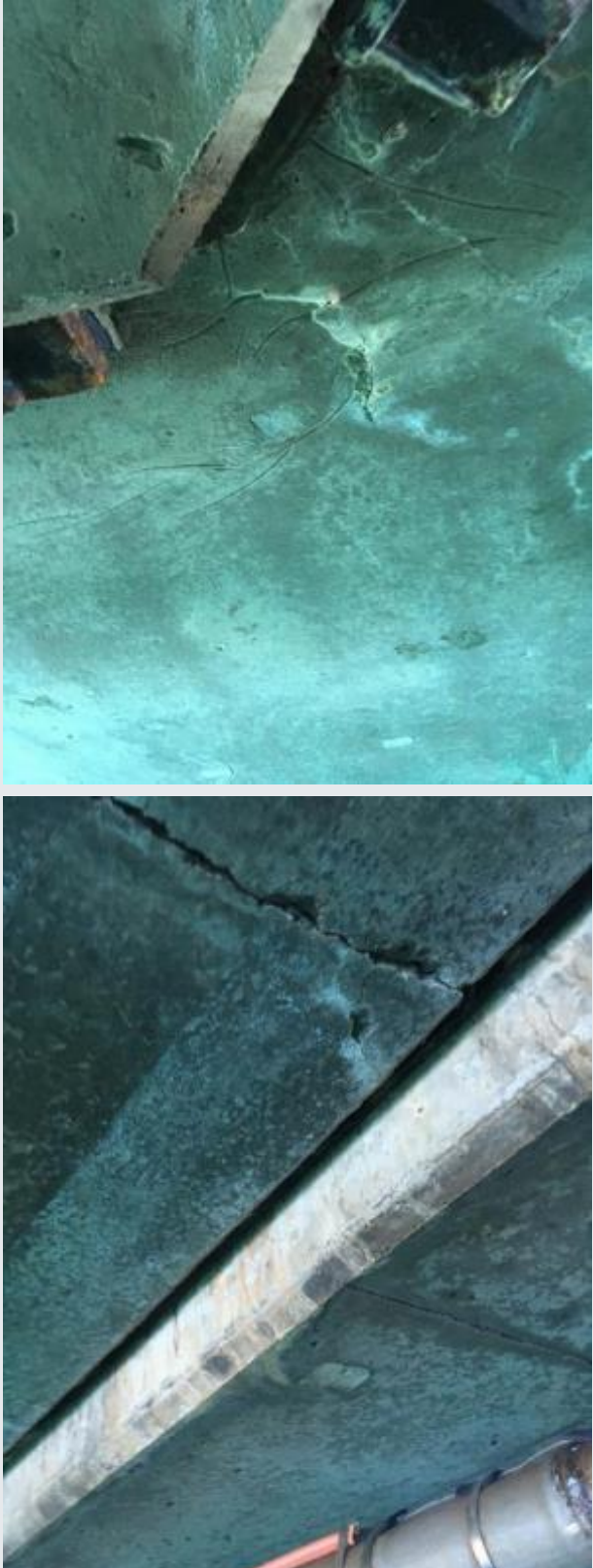
Site Observation	Image
<p>The Original Wharf deck soffit had visible localised delamination and spalling at multiple locations.</p> <p>The majority of defects were observed on the eastern edge or along the central grid E to F and several delamination spots have been marked out.</p> <p>Multiple localised spots of spalling with exposed corroded reinforcement was visible in sections DS_DF23/16, DS_DF24/28 and DS_FI21/24.</p> <p>There is severe concrete edge cracking (5mm in width), between Fenders F_I24 and F_I25.</p>	

Site Observation	Image
	 A close-up photograph showing a hand pointing to a crack in a concrete structure. The crack is dark and runs diagonally across the frame. The concrete surface is rough and weathered.
Extension Wharf Structure	
<p>The top surface of the Extension Wharf precast deck panel was generally in good condition, noting that the precast panel joint repairs were completed between 2009 and 2012. Cracking at the repaired panel edge was observed in most areas.</p> <p>It is understood that an epoxy-based grout material (BASD Masterflow 648) was used for the panel edge repair works conducted between 2009 and 2012 with the intention to resist high impact loads from vehicles. However, deformation of the epoxy repair under high applied wheel loads might have resulted in overstressing of the peripheral bond lines, causing visible peripheral cracks.</p> <p>Cracking at the repaired panel edge was observed in most areas. Multiple areas of localised spalls and delamination were observed.</p>	 A photograph of the Extension Wharf precast deck panel. The panel is made of concrete and shows significant cracking and spalling. The cracks are visible along the edges and across the surface. The spalls are areas where the concrete has broken away, revealing the underlying structure.

Site Observation	Image
	
<p>The Extension Wharf deck soffit had multiple locations of localised delamination and spalling.</p> <p>There were many localised spalls with exposed corroded reinforcement occurring in most sections.</p> <p>Efflorescence has caused stalactite formation between piles P_J43 & P_K43 at repaired locations, with exposed corroded reinforcement on both sides.</p> <p>The new prestressed slab LM42/43 is showing signs of corrosion to reinforcement without signs of cracking to the deck soffit.</p> <p>Typically, there was spalling with exposed corroded reinforcement between the fender support frames on the eastern side. This defect has likely been initiated by ship impact onto the fender and then further deteriorated by chloride induced reinforcement corrosion.</p> <p>Repair has been noted near Pile P_K40, where the timber formwork has been left attached.</p>	 

Site Observation	Image
	 <p>The image block contains three photographs. The top photo shows a close-up of a concrete structure with significant surface deterioration, including pitting and exposed aggregate. The middle photo shows a blue-painted surface with two distinct brown rust spots. The bottom photo shows a concrete beam with a large, dark, rectangular opening or void, possibly a result of structural damage or a missing component.</p>

Site Observation	Image
<p data-bbox="164 208 336 230">Embedded Dolphin</p> <p data-bbox="164 253 746 320">Surface concrete spalling was observed around the edge of the Embedded Dolphin deck top. The deck top repair in 2009-2012 reinstated the precast panels adjacent to the embedded dolphin.</p> <p data-bbox="164 331 746 398">At some positions, crack widths of up to 0.6mm were measured which would allow water and chloride ingress to the surrounding concrete.</p> <p data-bbox="164 409 746 454">It is apparent that steel cover plates have been recently installed over the embedded dolphin edges.</p>	 <p>The top photograph is a close-up of a concrete surface showing significant spalling and a deep, irregular crack. A dark, textured material, likely a repair or cover plate, is visible at the bottom right corner. The bottom photograph shows a wider view of a concrete deck with several large, rectangular precast panels separated by expansion joints. In the foreground, there is a dark, textured strip, possibly a repair or a cover plate, with some white residue or debris on it.</p>

Site Observation	Image
<p>The Embedded Dolphin deck soffit had medium cracking and localised delamination on the eastern side.</p> <p>Minor corrosion was observed on the steel edges.</p>	 <p>The top photograph shows a close-up of a concrete surface with several thin, dark, irregular cracks. A steel beam is visible at the top left, showing some surface corrosion. The bottom photograph shows a similar concrete surface with a more prominent, jagged crack. A steel beam is visible at the bottom right, showing significant rust and corrosion along its edge.</p>

5.2.2 Delamination Survey

SMEC undertook a delamination survey to test for drumminess in the concrete deck and deck soffit.

The deck was divided up into sections and a percentage surface area of delamination and spalling was recorded. Figure 10, Figure 11 and Figure 12 identifies the estimated percentage surface area of delamination and spalling recorded in each deck soffit section. Even though a delamination tool was used to test for drumminess in the concrete deck soffit, it is likely significantly more delamination and corrosion is present than that found in the survey. A full set of defect maps are presented in Appendix C

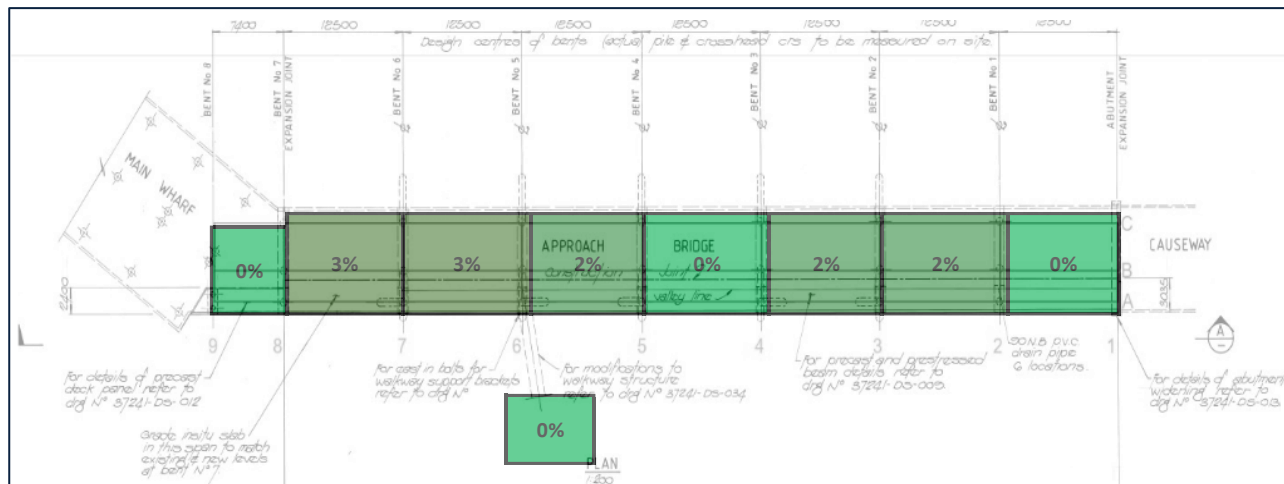


Figure 10: Delamination Survey of the Approach Bridge Deck Soffit

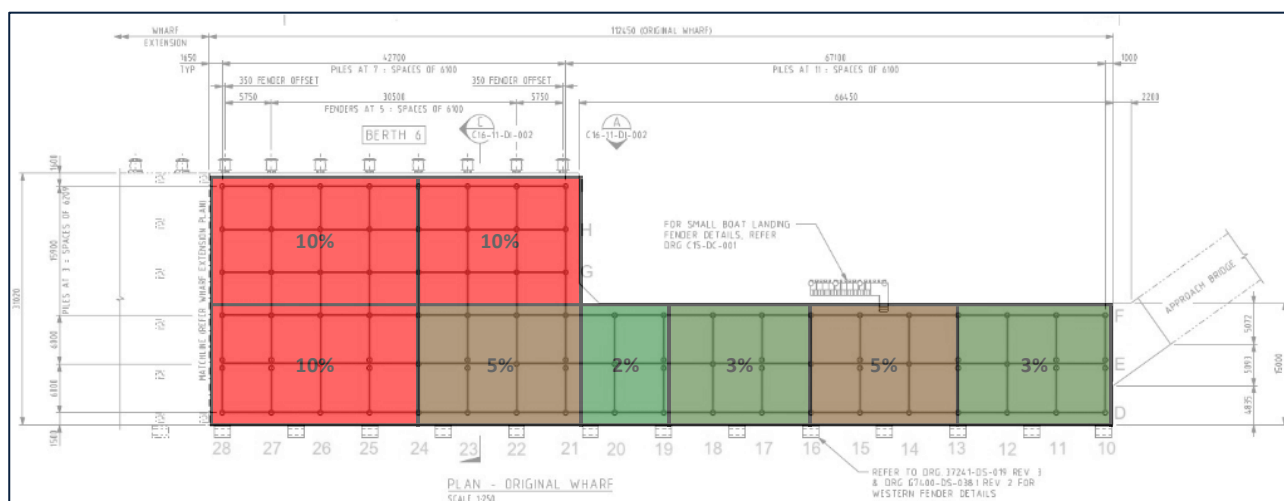


Figure 11: Delamination Survey of the Original Wharf Deck Soffit

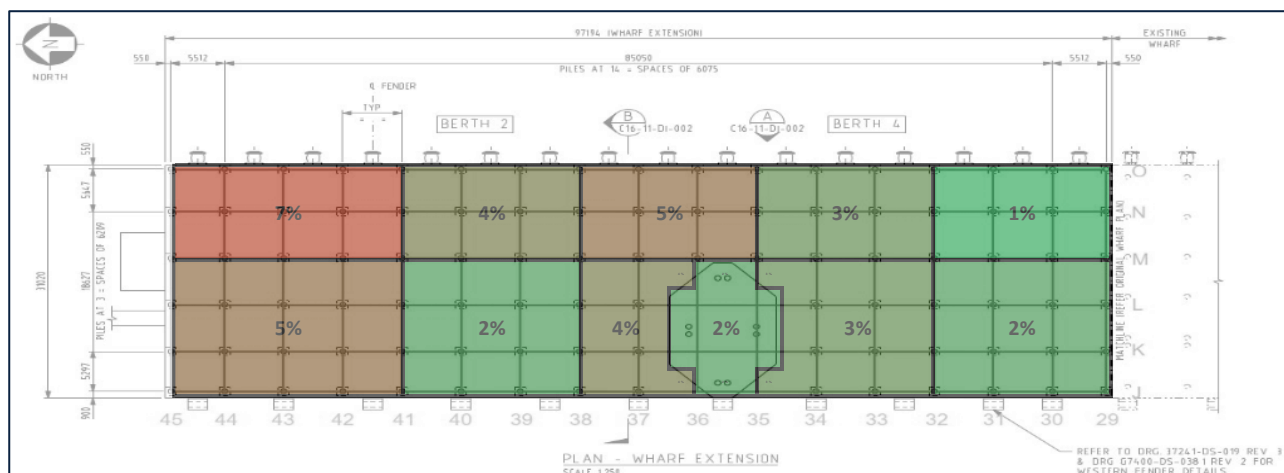


Figure 12: Delamination Survey of the Extension Wharf Deck Soffit

5.2.3 Recommended Reinforced Concrete Repair Solutions

The purpose of this section is to describe the potential concrete repair solutions that have either been included in the 10-Year Asset Maintenance Plan (Section 7) or may be recommended following further physical testing and analysis. This section also provides a summary of the basis for recommending each of the concrete repair solutions.

5.2.3.1 Monitor

When chlorides are sufficiently far from steel that chlorides will not reach the steel before the life of the structure elapses.

5.2.3.2 Full Replacement

Do nothing at this stage and complete full replacement if justified by damage levels in future. This is generally applied to elements where the repair cost is comparable to full replacement and/or the replacement does not unacceptably impact operational use.

5.2.3.3 Conventional Concrete Repair by Breakout

Conventional concrete repair by concrete breakout behind and along the reinforcement. Clean, check/install additional if required and prime reinforcement, then install sacrificial galvanic anodes and reinstate concrete with cementitious materials.

5.2.3.4 Silane Treatment

Application of a silane impregnation to the concrete surface which repels water, and reapplication in the future, to minimise future sea salt chloride ingress will reduce the risk of reinforcement corrosion damage. The silane impregnation treatment will be applied to both conventional concrete repair and non-repaired areas.

This can be used when chloride is found to not have reached the steel but will have no effect if corrosion is already occurring. This will assist in extending asset life as chloride ingress is likely the key deterioration mechanism that dictates the end of structure life and upkeep costs.

Silane application can be performed via a spray application, it is relatively inexpensive and is a good preventative maintenance action.

5.2.3.5 Concrete Crack Injection

Concrete crack injection should only be applied to non-moving cracks which are not caused by reinforcement corrosion. Crack injection will only fill the crack, it will not stop ongoing corrosion or prevent movement of a crack.

5.2.3.6 Cathodic Protection (CP)

Cathodic protection (CP) repair where justified by general high chloride content at the reinforcement depth, or where it is expected to develop, and there is a general widespread corrosion damage risk.

The following cathodic protection systems are to be considered:

Galvanic Anodes

Galvanic anodes can be used where small spalls exist, which are too small to warrant a more in-depth concrete repair technique. This system should only be used if all the chloride contaminated concrete can be removed and the anodes are to reduce the risk of corrosion to areas which have little chloride concentration at the steel adjacent a concrete repair. This system cannot control active corrosion when chloride concentrations are active and should not be used for large scale repairs. As the concrete behind the reinforcing steel and any contaminated concrete requires removal, the cost per square meter is quite significant.

To estimate the cost of galvanic repair, as a general rule of thumb, the cost is approximately \$3,000 per m² of concrete repair, however this could vary depending on access, location and other factors. As a general rule, this repair technique requires concrete removal of around 3-4 times the area of delaminated concrete.

For one square meter of delamination, it could be assumed that approximately 4m² of concrete repair would be required at \$3,000 per m², totalling \$12,000 not including access arrangements during construction.

It should be noted in comparisons that concrete repairs of this nature are generally repeated on a 2-5 year basis and any planning around this technique should include costs for re-work once corrosion re-initiates. This type of repair is unsuitable for widespread repair of prestressed elements as the prestressed strands will lose capacity at every subsequent repair.

Hybrid Corrosion Protection – Temporarily powered galvanic anodes

Hybrid Corrosion Protection uses galvanic anodes installed into the concrete and temporarily powered by an external power supply for 1-2 weeks at 12 volts then connected as a galvanic anode. This technique can passivate active corrosion which means contaminated concrete is not required to be removed and concrete repair is limited only to the delaminated, spalled or otherwise defective concrete.

This technique is used when chloride contamination of the concrete is critical at the steel depth and the concrete is likely to remain moist or small patches are required. This technique can be installed in small patches since it can be applied by performing testing to find regions of chloride contamination and installing as little as 1m² patches. Additionally, this technique does not form acid as part of the corrosion protection reaction and therefore does not succumb to acid attack similar to that shown on the DCW headstocks. Acid attack is most likely to occur on periodically wetted structures where risk of acid generation is highest. The system has a fixed life of ~30 years based on the anode mass which is used to apply the protection.

This technique can be applied to prestressed concrete; however, the CP costs will be much higher as voltages are required to be more tightly controlled.

Hybrid corrosion protection costs approximately \$2,500 per m² excluding concrete repair and access for plain reinforced concrete and approximately \$4,000 per m² for pre-stressed concrete. Long-term monitoring of this system should be conducted at 3-year intervals to confirm protection.

Impressed Current Cathodic Protection (ICCP)

ICCP uses an inert anode to apply protection to reinforcing steel powered by a permanent source of DC power like a Transformer Rectifier Unit (TRU). In cases such as the DCW, with many complex shapes to apply protection, multiple TRUs will be combined into a single control unit, which will enable control and testing functionality for the system.

This technique requires cabling and electrical infrastructure, meaning it is not viable for a small area and installing isolated small sections is not viable. Acid generation is a risk to the system if a ribbon system is installed as per the DCW headstocks but this can be mitigated via designing discrete rod anodes which are installed deeper into the concrete to avoid the moist surface.

This technique is used for the most severe cases of chloride contamination with widespread corrosion and deterioration to provide a long-term corrosion solution. The anodes are inert and do not have a fixed life, however the cabling and electronic elements generally have a life of around 30 years.

ICCP systems generally cost, excluding access and concrete repair costs, around \$2,500 per m² for plain reinforced concrete and around \$4,000 per m² of concrete for prestressed concrete. Additionally, \$50,000 should be allowed for the installation of a CP control unit. Long term monitoring of ICCP systems is required at least annually for plain reinforced concrete and is required on at least a 6-monthly basis for prestressed concrete. The monitoring of ICCP systems is crucial to ensure the system continues to function and is extremely important for prestressed concrete as potentials shift over time and over protection can lead to hydrogen embrittlement of the prestressing strands.

5.2.4 Recommended Repairs

Based on the present condition of the DCW, environment exposure risk and the future chloride damage prediction, the following repair recommendations have been made for the reinforcement concrete elements.

5.2.4.1 Deck Soffit – Prestressed Beams

The prestressed beams on the Approach Bridge show evidence of previous repair as well as corrosion to reinforcing steel and potential corrosion to the stressing strands. This issue could accelerate very quickly as corrosion of stressing strands occurs on all faces of the strand which has a much greater surface area than a traditional reinforcing bar. This behaviour dictates that the corrosion is both likely and carries potential failure making it a high-risk issue.

The exact extent of the current corrosion behaviour is unknown and as such it is recommended that a detailed investigation be carried out within the next 2 years to determine the extent of corrosion and carry out cathodic protection repairs based on those results. The investigation would comprise chloride testing of key areas and half-cell testing significant areas.

Once the exact areas of corrosion are understood, the CP repair can be fully scoped and designed. It is likely that large areas are corroding but not showing any outward signs of deterioration. The most appropriate method of repair is Hybrid Corrosion Protection as impressed current can cause hydrogen embrittlement to prestressing strands and as such close monitoring is required whenever impressed current is applied to a prestressed concrete element. If a Hybrid CP system is used, the Impressed phase of application is only for the initial weeks of application and not for the lifetime of the system, where an impressed current CP system requires 6 monthly monitoring and adjustment for the remainder of the system life. Once installed Hybrid CP would consist of only galvanic anodes installed into the concrete and monitoring being conducted at 5-yearly intervals to verify anode capacity.

These works are considered high priority and should be conducted within 2 years. Since the requirement and extent of these works is subject to the outcomes of the detailed investigation, the costs for these works have been included in Section 7 as a provisional item.

5.2.4.2 Deck Top – Original Wharf and Extension

The concrete deck of both the Original Wharf and Wharf Extension appeared to be generally in good condition with no corrosion related damage shown and only physical damage found. This indicates that conventional concrete repairs are appropriate to be conducted along with a silane impregnation and crack injection.

These works are a low structural priority and can be conducted within 5 years based on operational need.

5.2.4.3 Deck Soffit – Original Wharf

The deck soffit of the Original Wharf comprises areas that are exhibiting between 2 and 10 percent spalling or deterioration. Drumminess testing suggests that it is possible that the area of defective concrete requiring replacement could be up to three times larger and further locations are showing signs of corrosion, but with no visible defects. Reinforced concrete showing this type of corrosion damage requires cathodic protection to the corroding areas and as such an investigation should be conducted with widespread half-cell testing and a small sample of cores taken to test for chloride concentrations. This testing will determine the areas where corrosion is taking place and where to apply cathodic protection.

In this case the cathodic protection method of either impressed current or hybrid would be appropriate depending on the areas found to be corroding. If large areas are found to be corroding it may be beneficial to have an impressed current cathodic protection system which matches the existing headstock CP system to tie in annual monitoring and maintenance across the systems. However, if the corrosion is found to be only in isolated locations, the CP system could be a Hybrid system eliminating the need for widespread cabling and a control system.

These works are not considered critical and can be delayed, however delaying the works will increase the spalling, corrosion and hence increase the overall repair budget required. It is recommended to perform these works within 5 years but will be advantageous to conduct earlier.

Since the requirement and extent of these works is subject to the outcomes of the detailed investigation, the costs for these works have been included in Section 7 as a provisional item.

5.2.4.4 Deck Soffit – Wharf Extension

The deck soffit of the Wharf Extension comprises prestressed concrete planks which are beginning to show signs of spalling and corroding strands. Once the prestressed strands have corroded enough to cause a spall, it is likely that the strand is fully corroded and no longer functional. It is not clear whether the pre-stressed plank is fulfilling a structural function, as some similar structures used prestressed planks as formwork for the deck and are redundant after construction.

Based on these unknowns it would be prudent to determine whether PPA holds a design report for the Wharf Extension or whether a structural assessment has been undertaken in the past to understand the function of the prestressed planks. If the planks are not required for the structural function of the deck, they can be made safe on a two-yearly basis by removing delaminated concrete. However, if the planks are required for the function of the deck, repairing with cathodic protection will not be a simple task as each strand will need to be

exposed to make a connection for cathodic protection. Furthermore, allowing strands to fail will mean strengthening works will be required which is not desired.

Reviewing the content of the Wharf Extension design report or previous structural analysis assessments is considered to be critical to understand the magnitude of the risks and to explore all options relating to the ongoing management of the Wharf Extension soffit in the most effective solution. If these previous analyses are not available, SMEC has included a provisional sum for undertaking a structural assessment.

Since the requirement and extent of these works is subject to the outcomes of a structural analysis review, the costs for these works have been included in Section 7 as a provisional item.

5.2.4.5 Headstocks

The key deterioration mechanism found on the headstocks is acid attack of the cathodic protection anodes. To repair this defect, a contractor will have to assess the headstock for damage by scratching the concrete surface with a hard item such as a nail to find soft concrete which embeds anodes. Where soft concrete is found it is to be removed and replaced.

It is recommended that an experienced CP contractor conducts this work. Even though it is a simple task, a contractor without concrete CP experience could very easily cause damage to the CP system that will require a large budget to remediate.

The headstocks are not likely to be currently corroding due to the previous CP current application and as such this work is a lower priority and could be conducted within 5 years. If the work is not conducted in the next 2 years, it is recommended that the CP current is reduced to increase the longevity of the remaining anodes.

5.3 Steel piles

5.3.1 Site Investigation Findings

Key investigation findings for the underwater pile visual inspection, ultrasonic thickness testing and cathodic protection measurement include:

- Pile thickness readings for the Approach Bridge original structure ranged from 15.8 to 16.9mm, with an average of 16.1mm. Compared to a design thickness of 16.0mm.
- Pile thickness readings for the Approach Bridge widening ranged from 9.0 to 9.4mm, with an average of 9.2mm. Compared to a design thickness of 9.0mm.
- Pile thickness readings for the Original Wharf range from 15.4 to 16.4mm, with an average of 16.1mm. Compared to a design thickness of 16.0mm.
- Pile thickness readings for the Extension Wharf ranged from 9.0 to 9.5mm, with an average of 9.2mm. Compared to a design thickness of 9.0mm.
- Pile thickness readings for the Small Boat Landing and Southern Mooring Dolphin ranged from 15.8 to 16.6mm, with an average of 16.1mm. Compared to a design thickness of 16.0mm.
- The original manufactured pile thickness is typically larger than the design thickness, thus allowing for an acceptable tolerance. All pile thickness readings were above 96% of the specified design thickness.
- The lowest pile thickness reading was 15.4mm on the south side of Original Wharf Pile P_15, 1m above sea floor.
- No visible evidence of deterioration was reported such as scouring at the base of the piles (i.e. at the seabed) or orange patches of accelerated low water corrosion. Minor signs of pitting were apparent throughout most piles, however there were no signs of corrosion or rust.
- Test results of the inspected piles indicate an acceptable condition.
- Cathodic protection anodes attached to the piles provide corrosion protection to the piles below water and the CP potential readings indicate the protection level. All CP potential readings were less than -800mV, with respect to Ag/Ag Cl reference electrode (CP protection criteria). This indicates that the piles are adequately protected.
- A visual estimation of CP anode dimensional loss by the dive team indicated an average depletion of 34% for anodes on the Approach Bridge piles, 44% for anodes on the Original Wharf piles, 45% for anodes on the Embedded Dolphin piles, 15% for anodes on the Extension Wharf piles, 40% for anodes on the Small Boat Landing piles and 52% for anodes on the Southern Mooring Dolphin.

Table 6 provides a summary of the underwater pile test results.

Table 6: Pile Underwater Inspection Test Summary

Element Location	Component ID	Location	Steel Thickness Measurement (mm)				Design Thickness (mm)	% of Remaining Steel	Cathodic Protection Potential (mV Ag/Ag Cl)				Anode Depletion (%)		
			North	East	South	West			North	East	South	West	Anode 1	Anode 2	Estimated Replacement Date
Approach Bridge	P_A7	1m above sea floor	9.3	9.2	9.2	9.2	9.0	103%	-937	-937	-936	-937	30%	50%	2025
		2m below LAT	9.3	9.4	9.1	9.1	9.0	103%	-986	-943	-941	-949			
		LAT	9.1	9.3	9.1	9.2	9.0	102%	-924	-921	-928	-927			
		MSL	9.0	9.0	9.0	9.0	9.0	100%	-910	-911	-911	-906			
Approach Bridge	P_A8	1m above sea floor	9.1	9.1	9.1	9.1	9.0	101%	-943	-943	-943	-943	30%	-	2025
		2m below LAT	9.3	9.3	9.4	9.3	9.0	104%	-982	-953	-950	-955			
		LAT	9.3	9.3	9.4	9.3	9.0	104%	-933	-943	-943	-938			
		MSL	9.3	9.4	9.3	9.3	9.0	104%	-980	-	-	-			
Approach Bridge	P_AB9	1m above sea floor	12.7	12.5	12.6	12.5	12.0	105%	-1011	-1012	-1011	-1010	20%	80%	2026
		2m below LAT	12.4	12.5	12.4	12.5	12.0	104%	-1023	-1022	-1025	-1026			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Approach Bridge	P_B5	1m above sea floor	16.4	16.4	16.5	16.4	16.0	103%	-990	-989	-989	-989	30%	80%	2025
		2m below LAT	16.1	16.9	16.1	16.1	16.0	102%	-1000	-995	-994	-996			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Approach Bridge	P_C2	1m above sea floor	Pile Sleeve										-	-	-
		2m below LAT	Pile Sleeve												
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Approach Bridge	P_C7	1m above sea floor	16.2	16.3	16.1	16.1	16.0	101%	-939	-940	-940	-940	60%	100%	2023
		2m below LAT	16.0	15.9	15.9	16.0	16.0	100%	-944	-945	-948	-946			
		LAT	15.9	15.9	15.8	15.9	16.0	99%	-936	-936	-936	-936			

Element Location	Component ID	Location	Steel Thickness Measurement (mm)				Design Thickness (mm)	% of Remaining Steel	Cathodic Protection Potential (mV Ag/Ag Cl)				Anode Depletion (%)		
			North	East	South	West			North	East	South	West	Anode 1	Anode 2	Estimated Replacement Date
		MSL	16.0	16.1	16.1	16.1	16.0	100%	-929	-927	-916	-922			
Original Wharf	P_D15	1m above sea floor	16.1	16.1	16.0	16.2	16.0	101%	-970	-970	-969	-965	50%	90%	2023
		2m below LAT	16.2	16.2	16.1	16.2	16.0	101%	-976	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Original Wharf	P_D19	1m above sea floor	16.1	16.0	16.2	15.9	16.0	100%	-964	-972	-973	-973	40%	95%	2024
		2m below LAT	15.7	15.8	15.6	15.7	16.0	98%	-981	-981	-980	-979			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Original Wharf	P_D22	1m above sea floor	16.1	16.0	16.1	16.1	16.0	100%	-972	-	-	-	30%	90%	2025
		2m below LAT	16.1	16.1	15.9	16.0	16.0	100%	-981	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Original Wharf	P_E24	1m above sea floor	16.1	16.3	16.4	16.3	16.0	102%	-978	-	-	-	40%	80%	2024
		2m below LAT	16.0	16.0	16.1	16.1	16.0	100%	-980	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Original Wharf	P_ED10	1m above sea floor	16.2	16.3	16.3	16.3	16.0	102%	-964	-965	-965	-965	30%	90%	2025
		2m below LAT	16.0	16.0	15.8	16.0	16.0	100%	-984	-981	-979	-979			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Original Wharf	P_ED21	1m above sea floor	15.8	16.0	16.1	15.7	16.0	99%	-959	-959	-958	-959	50%	80%	2023
		2m below LAT	16.0	16.0	16.1	16.0	16.0	100%	-967	-967	-969	-971			
		LAT	Pile Sleeve												

Element Location	Component ID	Location	Steel Thickness Measurement (mm)				Design Thickness (mm)	% of Remaining Steel	Cathodic Protection Potential (mV Ag/Ag Cl)				Anode Depletion (%)		
			North	East	South	West			North	East	South	West	Anode 1	Anode 2	Estimated Replacement Date
		MSL	Pile Sleeve												
Original Wharf	P_EF27	1m above sea floor	16.2	16.1	16.2	16.2	16.0	101%	-988	-	-	-	40%	90%	2024
		2m below LAT	16.1	16.1	16.0	15.9	16.0	100%	-985	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Embedded Dolphin	P_EMD1	1m above sea floor	16.2	16.2	16.2	16.2	16.0	101%	-991	-	-	-	40%	-	2024
		2m below LAT	15.9	16.0	16.0	15.9	16.0	100%	-998	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Embedded Dolphin	P_EMD5	1m above sea floor	16.4	16.1	16.2	16.4	16.0	102%	-982	-	-	-	50%	-	2023
		2m below LAT	16.2	16.1	16.2	16.2	16.0	101%	-986	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Original Wharf	P_F13	1m above sea floor	16.4	16.3	16.4	16.3	16.0	102%	-925	-925	-924	-923	-	-	-
		2m below LAT	15.8	15.7	15.5	15.8	16.0	98%	-928	-927	-927	-927			
		LAT	16.0	16.0	15.9	15.9	16.0	100%	-922	-923	-911	-914			
		MSL	16.2	16.3	16.2	15.9	16.0	101%	-909	-912	-913	-912			
Original Wharf	P_F15	1m above sea floor	15.7	16.1	15.4	16.2	16.0	99%	-977	-977	-978	-978	75%	90%	2021
		2m below LAT	16.1	16.1	16.1	16.1	16.0	101%	-986	-986	-988	-990			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Original Wharf	P_G27	1m above sea floor	16.2	16.1	16.2	16.1	16.0	101%	-984	-	-	-	40%	90%	2024
		2m below LAT	16.1	16.1	16.2	16.2	16.0	101%	-991	-	-	-			
		LAT	Pile Sleeve												

Element Location	Component ID	Location	Steel Thickness Measurement (mm)				Design Thickness (mm)	% of Remaining Steel	Cathodic Protection Potential (mV Ag/Ag Cl)				Anode Depletion (%)		
			North	East	South	West			North	East	South	West	Anode 1	Anode 2	Estimated Replacement Date
		MSL	Pile Sleeve												
Original Wharf	P_H23	1m above sea floor	16.0	16.0	16.0	16.0	16.0	100%	-992	-	-	-	50%	90%	2023
		2m below LAT	15.9	16.0	16.0	15.8	16.0	100%	-988	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Original Wharf	P_I21	1m above sea floor	20.2	20.1	20.2	20.3	20.0	101%	-968	-	-	-	50%	80%	2023
		2m below LAT	20.1	20.2	20.2	20.3	20.0	101%	-972	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Original Wharf	P_I27	1m above sea floor	16.2	16.1	16.2	16.2	16.0	101%	-984	-984	-983	-820	40%	90%	2024
		2m below LAT	16.1	16.0	16.0	15.9	16.0	100%	-987	-981	-987	-912			
		LAT	16.1	16.1	15.9	15.8	16.0	100%	-956	-843	-983	-984			
		MSL	-	-	-	-		-	-	-	-				
Original Wharf	P_I28	1m above sea floor	16.3	16.4	16.3	16.1	16.0	102%	-982	-972	-981	-982	40%	90%	2024
		2m below LAT	15.8	15.7	15.8	15.8	16.0	99%	-988	-972	-988	-988			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Extension Wharf	P_J32	1m above sea floor	9.0	9.2	9.2	9.0	9.0	101%	-977	-	-	-	15%	-	2026
		2m below LAT	9.4	9.3	9.3	9.3	9.0	104%	-983	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Extension Wharf	P_J42	1m above sea floor	9.3	9.2	9.3	9.3	9.0	103%	-992	-	-	-	15%	100%	2026
		2m below LAT	9.3	9.3	9.3	9.2	9.0	103%	-995	-	-	-			
		LAT	Pile Sleeve												

Element Location	Component ID	Location	Steel Thickness Measurement (mm)				Design Thickness (mm)	% of Remaining Steel	Cathodic Protection Potential (mV Ag/Ag Cl)				Anode Depletion (%)		
			North	East	South	West			North	East	South	West	Anode 1	Anode 2	Estimated Replacement Date
		MSL	Pile Sleeve												
Extension Wharf	P_J45	1m above sea floor	12.4	12.3	12.4	12.4	12.0	103%	-987	-	-	-	10%	50%	2027
		2m below LAT	9.2	9.2	9.1	9.2	9.0	102%	-987	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Extension Wharf	P_L39	1m above sea floor	9.3	9.3	9.3	9.1	9.0	103%	-979	-	-	-	15%	90%	2026
		2m below LAT	9.3	9.3	9.3	9.2	9.0	103%	-977	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Extension Wharf	P_L41	1m above sea floor	9.4	9.4	9.3	9.3	9.0	104%	-974	-	-	-	5%	100%	2027
		2m below LAT	9.4	9.3	9.2	9.3	9.0	103%	-981	-	-	-			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Extension Wharf	P_M45	1m above sea floor	9.5	9.5	9.4	9.3	9.0	105%	-1024	-1024	-1024	-1023	15%	95%	2026
		2m below LAT	9.3	9.4	9.4	9.3	9.0	104%	-1033	-1028	-1036	-1031			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Extension Wharf	P_N31	1m above sea floor	9.1	9.1	9.2	9.1	9.0	101%	-988	-991	-993	-994	10%	100%	2027
		2m below LAT	9.3	9.3	9.3	9.1	9.0	103%	-999	-1007	-1010	-997			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Extension Wharf	P_N39	1m above sea floor	9.3	9.3	9.2	9.2	9.0	103%	-1021	-1022	-1021	-1020	20%	90%	2026
		2m below LAT	9.4	9.4	9.4	9.4	9.0	104%	-1031	-1030	-1017	-1027			
		LAT	Pile Sleeve												

Element Location	Component ID	Location	Steel Thickness Measurement (mm)				Design Thickness (mm)	% of Remaining Steel	Cathodic Protection Potential (mV Ag/Ag Cl)				Anode Depletion (%)		
			North	East	South	West			North	East	South	West	Anode 1	Anode 2	Estimated Replacement Date
		MSL	Pile Sleeve												
Extension Wharf	P_O34	1m above sea floor	9.2	9.3	9.2	9.2	9.0	103%	-1011	-1010	-1011	-1012	15%	100%	2026
		2m below LAT	9.2	9.3	9.3	9.3	9.0	103%	-1016	-1014	-1010	-1014			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Extension Wharf	P_O36	1m above sea floor	9.4	9.5	9.5	9.3	9.0	105%	-900	-902	-901	-902	20%	95%	2026
		2m below LAT	9.4	9.4	9.3	9.4	9.0	104%	-904	-903	-914	-919			
		LAT	9.2	9.2	9.2	9.2	9.0	102%	-889	-888	-891	-889			
		MSL	9.1	9.3	9.2	9.2	9.0	102%	-866	-867	-852	-871			
Extension Wharf	P_O39	1m above sea floor	9.3	9.2	9.2	9.3	9.0	103%	-916	-915	-915	-916	20%	100%	2026
		2m below LAT	9.3	9.4	9.3	9.3	9.0	104%	-929	-931	-951	-945			
		LAT	9.3	9.3	9.3	9.3	9.0	103%	-916	-919	-915	-917			
		MSL	9.1	9.2	9.2	9.2	9.0	102%	-908	-894	-904	-893			
Extension Wharf	P_O40	1m above sea floor	9.4	9.4	9.4	9.4	9.0	104%	-929	-929	-929	-930	20%	100%	2026
		2m below LAT	9.5	9.4	9.5	9.4	9.0	105%	-936	-937	-956	-987			
		LAT	9.3	9.3	9.4	9.2	9.0	103%	-913	-914	-917	-925			
		MSL	9.1	9.1	9.2	9.0	9.0	101%	-914	-916	-914	-908			
Extension Wharf	P_O43	1m above sea floor	9.4	9.4	9.4	9.4	9.0	104%	-984	-984	-985	-985	20%	100%	2026
		2m below LAT	9.3	9.2	9.3	9.3	9.0	103%	-985	-999	-1028	-997			
		LAT	9.2	9.3	9.3	9.3	9.0	103%	-984	-983	-986	-984			
		MSL	9.3	9.3	9.2	9.2	9.0	103%	-975	-975	-972	-968			
Extension Wharf	P_O45	1m above sea floor	9.3	9.2	9.3	9.3	9.0	103%	-1044	-1045	-1045	-1044	5%	95%	2027
		2m below LAT	9.3	9.3	9.1	9.3	9.0	103%	-1052	-1047	-1050	-1060			
		LAT	9.3	9.2	9.2	9.3	9.0	103%	-1039	-1043	-1044	-1046			

Element Location	Component ID	Location	Steel Thickness Measurement (mm)				Design Thickness (mm)	% of Remaining Steel	Cathodic Protection Potential (mV Ag/Ag Cl)				Anode Depletion (%)		
			North	East	South	West			North	East	South	West	Anode 1	Anode 2	Estimated Replacement Date
		MSL	-	-	-	-			-	-	-	-			
Small Boat Landing	P_SBL4	1m above sea floor	16.2	16.1	16.2	16.3	16.0	101%	-978	-977	-979	-979	40%	100%	2024
		2m below LAT	15.9	16.1	16.1	16.1	16.0	100%	-982	-983	-983	-984			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Southern Mooring Dolphin	P_SMD2	1m above sea floor	16.6	16.1	16.2	16.1	16.0	102%	-980	-984	-980	-979	50%	90%	2023
		2m below LAT	16.0	15.9	15.9	15.9	16.0	100%	-975	-986	-980	-988			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Southern Mooring Dolphin	P_SMD5	1m above sea floor	16.4	16.4	16.5	16.5	16.0	103%	-980	-981	-981	-981	55%	80%	2023
		2m below LAT	16.0	15.8	16.0	16.1	16.0	100%	-991	-989	-988	-989			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												
Southern Mooring Dolphin	P_SMD8	1m above sea floor	16.4	16.2	16.2	16.3	16.0	102%	-980	-980	-979	-980	50%	80%	2023
		2m below LAT	15.8	15.9	15.9	15.8	16.0	99%	-990	-987	-987	-991			
		LAT	Pile Sleeve												
		MSL	Pile Sleeve												

5.3.2 Recommended Steel Pile Repair Solutions

The purpose of this section is to describe the potential steel pile repair solutions that have been included in the 10-Year Asset Maintenance Plan (Section 7). This section also provides a summary of the basis for recommending each of the concrete repair solutions.

5.3.2.1 Anodes

In the absence of anode replacement data, anode depletion rates have been estimated by comparing the 2015 condition assessment report, 2018 condition assessment report and the 2020 inspection results. This comparison suggests that the average anode depletion rate is approximately 13% per year on the DCW. All anodes are recommended to be replaced within the next 10 years.

Based on the 2020 condition assessment observed anode depletion values presented in Table 6, the estimated range of replacement dates for each element location are presented in Table 7.

Table 7: Estimated replacement dates of anodes.

Element Location	No. Piles Inspected	Minimum	Maximum	Average
Approach Bridge	6	2023	2026	2025
Embedded Dolphin	2	2023	2024	2023
Extension Wharf	14	2026	2027	2026
Original Wharf	14	2021	2025	2024
Small Boat Landing	1	2024	2024	2024
Southern Mooring Dolphin	3	2023	2023	2023

5.3.2.2 Steel Piles

The majority of the steel pile defects were observed on the Original Wharf fender piles or at the top of the piles where they connect to the wave screen, which in both cases no pile sleeves were present.

For these locations, the recommended repair solution is to continue undertaking dive inspections every 5 years and also investigate protection solutions for missing jacket sections above the wave screen connection and around the fender support frame connections. The corroded sections of the piles are to be blasted and a protective coating applies to the exposed pile sections.

5.3.2.3 Pile Sleeve

The majority of the pile sleeves were in excellent condition and many of those that included defects were replaced during the 2020 condition assessment.

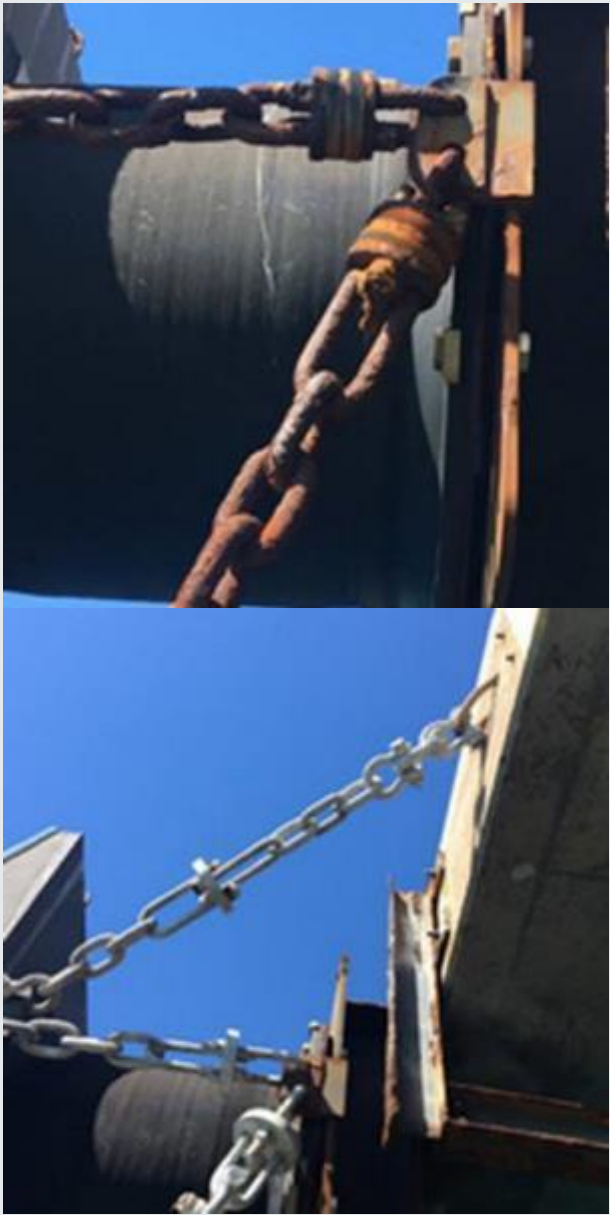
For the remaining locations where the pile sleeve is physical damaged (e.g. punctures, cuts) or bulging / blistering is observed, the recommended repair solution is to remove the damaged section of the pile sleeve, inspect the steel pile condition, remediate any defects (if present) and then install and seal a new pile sleeve or section. It has been assumed that these works will be undertaken every 2 years, with the quantities based on the number of torn, damaged or punctured pile sleeves in the 2020 condition assessment.

5.4 Fenders

5.4.1 Site Investigation Findings

The key site investigation findings are presented in Table 5Table 8.

Table 8: Fender Site Investigation Observations

Site Observation	Image
<p>On chains that have not been replaced, heavy corrosion is present along with loss of section in chains.</p> <p>Wear to fender panels varies, all bolts and UHWPE panels are present (with the exception of one fender that is missing the whole panel).</p> <p>On Fender I25, new chains and a fender panel are present, but on the right-hand side the chain tensioner has insufficient thread protrusion. Multiple shackles have been used instead of correct length of chain.</p>	

5.4.2 Recommended Fender Repair Solutions

The recommended repair solutions for the fenders comprise:

- Fender chains
 - Monitor corrosion and replace as corrosion justifies.
- Elastomeric arch fenders
 - Monitor and replace as damage justifies
- Fender cones
 - Monitor and replace as damage justifies
- Fender pads
 - Replace missing fender pads
 - Monitor and repair fender pads as damage justifies.
 - Replacement of corroded fasteners

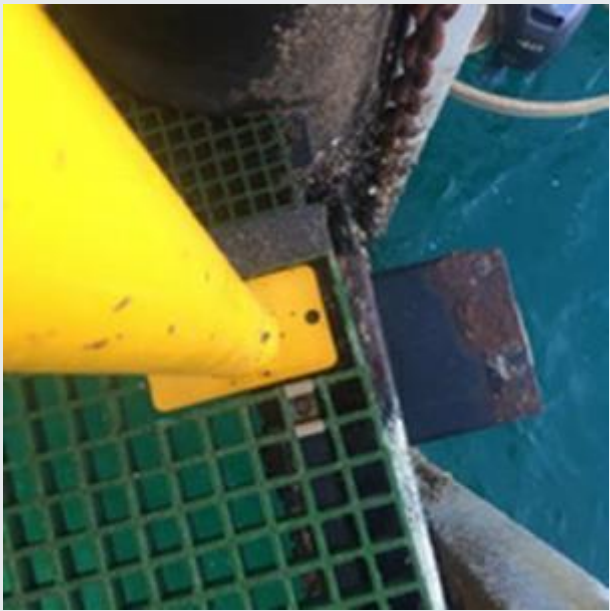

- Undertake coating repairs
- Fender support framework
 - Monitor and coating touch-up coating repair as required.
- Steel struts
 - Monitor and repair damaged pile sleeves


5.5 Landings

5.5.1 Site Investigation Findings

The key site investigation findings are presented in Table 9.

Table 9: Landing Site Investigation Observations

Site Observation	Image
<p>FRP and clips are in good condition and relatively new. Anti-slip tread is in good condition.</p> <p>Handrails on the eastern side are free of corrosion and recently replaced. Hold down bolts are dissimilar metal to the landing and rails and therefore, corrosion will potentially increase. Two bolts are already identified as not present. A review of the handrail connection detail is recommended.</p> <p>Handrails on the western side is made of scaffolding and is not tagged. Landing handrails are not compliant with AS 1657.</p> <p>Plastic handrails at the top of landing are damaged from UV exposure and susceptible to brittle failure. Replacement should be considered.</p> <p>One section of handrail is unpainted.</p> <p>No toe boards are present at the top of the landing as per AS 1657.</p> <p>Top of one fender panel is cracked with holding bolts corroded</p>	 

Site Observation	Image
	

5.5.2 Recommended Landing Repair Solutions

The recommended repair solutions for the landings comprise:


- Grating
 - Replace as required. Monitoring condition of grip tape.
- Handrail
 - Replacement of bolts and isolation of dissimilar metals.
 - Review of the handrail connection detail, replacement of plastic handrails and installation of toe boards.
- Structural steel
 - Patch repair or replace localised areas. Re-coating as damage justifies.

5.6 Bollards

5.6.1 Site Investigation Findings

The key site investigation findings are presented in Table 10Table 9.

Table 10: Bollard Site Investigation Observations

Site Observation	Image
<p>Corrosion is present on a large number of bollards.</p> <p>Repainting of corroded surfaces is recommended to prolong durability. On B7A, the paint has cracked and failed in large areas resulting in bare steel being visible. Surface corrosion with more advanced corrosion is visible.</p>	

5.6.2 Recommended Bollard Repair Solutions

The recommended repair solutions for the fenders comprise:


- Blast and recoat bollards where coating is defective
- Apply protective wrapping to bollard fixings below deck.


5.7 Services

5.7.1 Site Investigations and Findings

The key site investigation findings are presented in Table 11.

Table 11: Services Site Investigation Observations

Site Observation	Image
<p>Water line:</p> <p>Stainless steel rods grouted/epoxied into soffit have deformed along length of water line</p> <p>Near abutment bracket is heavily corroded with protective paint covering less than 50% of the bracket. There is one missing bolt in a bracket on the approach bridge and stainless-steel ties are breaking due to corrosion. Duct tape used to secure some sections of pipe.</p> <p>Fuel line:</p> <p>Pipe supports on Berth 6 are heavily corroded and two pipe breaks are present in the line preventing supply to Berth 2 and the western side of the DCW.</p>	

Site Observation	Image
	

5.7.2 Recommended Services Repairs

The recommended repair solutions for the fenders comprise:

- Water line
 - Re-instatement of water services (including replacement of existing connections)
- Fuel line brackets
 - Re-instatement and corrosion protection of corroded brackets
- Other
 - Monitor and repair/replace fire hydrants and damages justify
 - Protective coating repair to the fuel point or replacement as required.

6 Risk Assessment and Prioritisation

6.1 Methodology

A risk assessment has been completed to assist the Port in understanding the relationship between the existing and anticipated future condition of each asset key component, the risks associated the observed defects, the adequacy of the existing controls measures and quantification of the residual risk to assist the Port in prioritisation of its maintenance activities.

The basis of the prioritisation of the works will be based on a combination of the condition rating, the criticality of the asset component. Assets that are of very poor condition but have a low operational, health, safety, environment or reputational impact may present a lower priority than those with a fair condition but present a high operational, health, safety, environment or reputational risk. Consideration should therefore also be given to the urgency and the potential rate of deterioration of the asset based on the physical environment and loading conditions.

The risk assessment has been developed in accordance with the PPA project risk assessment template and comprises an assessment of the following assets:

- Original Wharf
- Wharf Extension
- Approach Bridge
- Small boat landing
- Dolphin Southwest of DCW and its walkway
- Cathodic protection (visual assessment only)
- Utilities (Visual assessment of pipes, brackets etc. excluding function)
- Lamp-post footings and interactions with the DCW deck.

The risk assessment also builds on the Port's 2015 Dampier Cargo Wharf Condition Assessment and 10 Year Maintenance Plan risk assessment to provide consistency and comparison with the previous risk assessment table.

The risk assessment has been based on a Basic Visual Assessment in accordance with WSCAM and therefore only visual indicators of the condition of the surface of the inspected assets has been considered. The Basic Visual Assessment did not include any physical, intrusive testing or analysis although NDT was completed in the form of ultrasonic thickness testing, a potential survey and drumminess testing (see Sections 4.5).

The basis of the risk assessment comprised the following steps, which are described in further detail in Sections 6.1.1 to 6.1.6:

- Condition assessment summary
- Risk identification
- Consequence analysis
- Likelihood analysis
- Risk evaluation
- Risk treatment

6.1.1 Condition Assessment Summary

The condition assessment summary has been included to provide a clear link between the WSCAM Condition Assessment assets and components, their condition and the identified risks. The titles for the assets and key components presented in the Basis Visual Assessment field data (Appendix B) and the Risk Assessment Table (Appendix D) are consistent for ease of cross-reference.

This section of the risk assessment table comprises:

- Asset (e.g. Approach Bridge)
- Key component (e.g. deck top)

- Existing condition
- Future predicted condition based on the assumption that maintenance works are not undertaken over the next 10 years.
- The perceived cause of the observed existing and future predicted condition
- The estimated timeframe for a significant increase in risk or failure of the asset. For the existing condition, this value has been set as not applicable (N/A) to reflect that the current risks are not anticipated to lead to imminent significant increase in risk or failure of the asset. For the future predicted condition, this value reflects the estimated timeframe for a significant increase in risk or failure of the asset.

6.1.2 Risk Identification

Risk identification comprises:

- setting out the key risk(s) associated with the identified existing and future predicted condition over the next 10 years
- summarising the primary cause of the risk in terms of physical or durability related sources e.g. corrosion, delamination, spalling, physical damage
- a description of the impact of the risks in terms of safety, environment, operations / business interruption, financial loss
- a summary of the existing controls, which has been taken to be the same as documented in the 2015 risk assessment table
- a review of the effectiveness of the controls based on the observed condition and the deterioration in the condition over the last 5 years.

6.1.3 Consequence Analysis

The consequence analysis has been reviewed in the context of the 2015 risk assessment table, the type of failure and the PPA Consequence Severity Criteria presented in the Project Risk Assessment Template. For the purposes of this report, the Threat Criteria were reviewed in relation to defect risks.

6.1.4 Likelihood Analysis

The likelihood analysis has been reviewed in the context of the 2015 risk assessment table and the PPA Likelihood Criteria presented in the Project Risk Assessment Template. For the purposes of this report, only the Possible (5-10 years), Likely (1-2 years) and Almost Certain (< 1 year) have been applied.

6.1.5 Risk Evaluation

The risk evaluation is automatically calculated in the Project Risk Assessment Template, based on the Consequence Severity Criteria, the Likelihood Criteria and the Risk Matrix categories.

6.1.6 Risk Treatment

The risk treatment will comprise a combination of proactive monitoring and maintenance activities. The aim of risk treatment is to reduce the residual risk to be as low as is reasonably practicable (ALARP). The Risk Assessment also includes a recommended date for review of the proposed risk treatment, either as an ongoing review or by a specific year.

6.2 Risk Assessment Register

The risk assessment register is presented in this report in Appendix D.

7 10-Year Asset Maintenance Plan

7.1 Introduction

The objective of the 10-year asset maintenance plan provides PPA with the basis for prioritisation and budget setting for future maintenance works.

The 10-year asset maintenance plan has been developed based on the observed defects and the proposed remedial maintenance works that are presented in Section 5, to which cost rates have been applied and the works prioritised in accordance with the risk register.

7.2 Methodology and Cost Basis

The maintenance plan has been developed based on the following methodology:

- The 2020 Dampier Cargo Wharf WSCAM Basic Visual Inspection has been completed in accordance with the methodology presented in Section 4 and the results have been presented in accordance with the PPA condition assessment data template, which is presented in Appendix B. The results include the visual condition rating, a maintenance rating and actions (remedial works) required.
- The actions to remediate defects prior to significant deterioration taking place (Section 5), have been determined based on several indicators including:
 - a visual inspection of the surface condition of the assets and components that could be inspected
 - non-destructive testing outputs
 - component installation dates and knowledge of previous maintenance works
 - high level evaluation of material deterioration rates for some assets (e.g. anodes)
 - Industry experience.
- The risk assessment (Section 6 and Appendix D) has been used to prioritise the maintenance actions, using the PPA's risk framework
- It has been assumed that the maintenance cost allocation will apply to the PPA financial year from 1st July to 30th June each year. The base date for the prioritisation of works is the financial year from 1st July 2021 to 30th June 2022 (Year 1), on the basis that remedial works have already been allocated to the 2020 / 2021 works program.
- The cost rates for the actions presented in Section 5 have been developed on the following basis and are summarised in Table 12:
 - The rates for marine works are inherently variable due to a wide variety of factors including access risks, supplier rates, site location, downtime risks, defect quantification and the limitations of visual inspections with no physical testing. It is therefore recommended that PPA allows a contingency to account for this risk.
 - The reinforced and pre-stressed concrete inspections have identified the approximate area of the surface defect, however, without defect specific physical testing and until the defective concrete has been broken out, it is not possible to determine the full extent of the defect. SMEC has applied its industry experience of delivering similar services, to apply a standard factor to all of the observed surface defect quantities and determine a more representative of the actual defect quantities. However, there is a residual risk that the actual defect quantities determined during the maintenance works will differ from SMEC's estimates and therefore the quantities stated in this report should be considered indicative only.
 - SMEC has included rates for further inspections, monitoring, investigations and testing works separately.
 - SMEC has provided indicative provisional maintenance works costs, which may be added to the 10- year maintenance plan, following the completion of further investigations. These costs have not been included in the 10-year maintenance plan since the most cost effective and technically suitable solution cannot be determined based only on a visual inspection.
 - Actions of a similar type or location have been grouped to reduce preliminaries and provide the Port with a more cost-effective delivery method e.g. underwater diving inspections would be undertaken at the same time as galvanic anode replacement and pile sleeve replacement by the same diving contractor, or works on the deck soffit would be undertaken at the same time to minimise scaffolding costs.

10-Year Asset Maintenance Plan

Table 12: 10-Year Maintenance Plan Cost Rates

Component	Sub-Component	Repair Type	Rate	Unit
Above Deck	Fire Hydrants	Monitor and repair as damage justifies.	\$6,415	LS
Above Deck	Fuel Point	Protective coating repair or replacement as required.	\$6,415	LS
Above Deck	Guardrail	Monitor and replace guardrail as damage justifies.	\$267	m
Above Deck	Kerb	Monitor and replace kerbs as damage justifies.	\$1,500	m
Above Deck	Ladder	Monitor and repair/replace and damage justifies.	\$535	No.
Above Deck	Pipe Support	Fuel Line: Replacement of severely corroded brackets and corrosion protection to the remainder.	\$30,000	LS
Above Deck	Steel Plate Exposure	Monitor and patch repair localised areas of corrosion. Re-coating as damage justifies.	\$10,000	LS
Above Deck	Water Point	Protective coating repair or replacement as required.	\$6,415	LS
Abutment	Wall	Monitor and conventional concrete repair as damage justifies.	\$3,000	m ²
Abutment, Below Deck	Bearing	Approach bridge bearing plates protective coating repair	\$5,346	No.
Abutment, Below Deck	Bearing	Further inspection for close inspection of Abutment bearing units.	\$10,000	LS
Abutment, Below Deck	Bearing	Replace bearing plates with significant loss of section.	\$100,000	LS
Abutment, Deck Joints	Expansion Joint	Joint sealant replacement	\$107	m
Below Deck	Pipe Support	Water Line: Replacement of water services and supports (replacement same for same).	\$50,000	LS
Boat landing	Grating	Replace as required. Monitoring condition of grip tape.	\$5,346	LS
Boat landing	Handrail	Replacement of bolts and isolation of dissimilar metals.	\$1,000	LS
Boat landing	Handrail	Review of the handrail connection detail, replacement of scaffolding/plastic handrails and installation of toe boards.	\$20,000	LS
Boat landing	Structural Steel	Patch repair or replace localised areas. Re-coating as damage justifies.	\$4,277	LS
Bollards	Bollard	Protective wrapping to bollard fixings below deck.	\$3,119	No.
Deck Soffit and Edge	Beam	Approach Bridge - Scaffolding and Access	\$85,535	LS
Deck Soffit and Edge	Beam	Cathodic protection - hybrid option for prestressed.	\$4,000	m ²
Deck Soffit and Edge	Beam, Concrete Slab	Concrete crack injection	\$100	m
Deck Soffit and Edge	Beam, Concrete Slab	Concrete repair with galvanic anodes.	\$3,000	m ²
Deck Soffit and Edge	Beam, Concrete Slab	CP Control Unit	\$50,000	LS
Deck Soffit and Edge	Beam, Concrete Slab	Impressed current cathodic protection Application for non-prestressed	\$2,500	m ²
Deck Soffit and Edge	Beam, Concrete Slab	Impressed current cathodic protection Application for prestressed	\$4,000	m ²

Component	Sub-Component	Repair Type	Rate	Unit
Deck Soffit and Edge	Beam/Concrete Slab	Detailed Investigation.	\$15,000	LS
Deck Soffit and Edge	Beam/Concrete Slab	Structural Assessment	\$30,000	LS
Deck Soffit and Edge	Concrete Slab	Cathodic protection - hybrid option for non-prestressed	\$2,500	m²
Deck Soffit and Edge	Concrete Slab	Extension Wharf - Scaffolding and Access	\$160,378	LS
Deck Soffit and Edge	Concrete Slab	Original Wharf - Scaffolding and Access	\$160,378	LS
Deck Soffit and Edge	Concrete Slab	Removal Delaminated Concrete.	\$572,849	LS
Deck Soffit and Edge	Concrete Slab	Repair edge cracking between Fenders F_I24 and F_I25, causing a spalling risk.	\$61,000	LS
Deck Soffit and Edge	Concrete Slab	Southern Mooring Dolphin - Scaffolding and Access	\$32,076	LS
Deck Top / Deck Soffit	Concrete Slab	Monitor and conventional concrete repair as damage justifies.	\$3,000	m²
Deck Top / Deck Soffit / Deck Edge	Concrete Slab	Silane protective treatment	\$100	m²
Fender	Chain	Monitor corrosion and replace as corrosion justifies.	\$625	Per fender
Fender	Cone	Monitor and replace fender cones as damage justifies.	\$53,460	LS
Fender	Elastomeric Arch Fender	Monitor and replace as damage justifies.	\$500	No.
Fender	Fender Pad	Monitor and repair fender pads as damage justifies. Including replacement of corroded fasteners, blasting and recoating	\$2,833	No.
Fender	Fender Pad	Monitor and replace SBL fender pads as damage justifies. Including replacement of corroded fasteners.	\$1,333	No.
Fender	Fender Pad / Chain	Replacement of damaged or missing fender pads and chains.	\$5,433	No.
Fender	Fender Support Frame	Monitor and coating touch-up coating repair as required.	\$53,460	LS
Headstock	Cross Heads	CP Repair and conventional concrete repair as damage justifies	\$750	m²
Lights	Post	Coating touch-up. Remove Denso wrap for fixing bolt inspection during Denso wrap replacement.	\$1,283	No.
Pile	Anode	Anode Installation.	\$1,166	No.
Pile	Pile Cap	Monitor and repair damaged pile capes as damage justifies. Repair by conventional concrete repair and silane as required.	\$3,000	m²
Pile	Pile Exposure 01	Pile Underwater Inspection of 40 piles and Jacket Replacement of 10 piles. Every 5 years.	\$3,435	per pile.
Pile	Pile Sleeve	Jacket solution and installation to missing sections above wave screen and at fender support connections along the eastern side.	\$1,200	per pile.
Pile	Pile Sleeve	Monitor and repair damaged pile sleeve.	\$1,200	per Jacket.
Walkway	Walkway Support	Patch repair or replace localised areas. Re-coating as damage justifies. Replacement of bolts as required.	\$7,484	LS
Walkway	Walkway Support	Protective wrapping to fixings.	\$1,500	LS
Walkway	Walkway Support	Replace grating as damage justifies.	\$10,692	LS

- The cost rates (Table 12) for the actions presented in Section 5 have been developed using the following sources:
 - Pile sleeve supply rates – PPA 2020
 - Diving, on-water and underwater inspections, pile sleeve replacement, anode replacement rates – TAMS 2020
 - Concrete repair rates (including access platforms and equipment) – Duratec 2017
 - Fender chain and fender cone supply rates – Trellaborg 2020
 - Cathodic protection and minor concrete repair rates – Industry experience of similar works
 - Other miscellaneous items – 2015 DCW Condition Assessment and Maintenance Plan with allowance for inflation.
- The maintenance cost estimates presented in Table 12 do not include:
 - Goods and Services Tax
 - PPA contingency
 - Escalation beyond December 2020.

7.3 10-year Maintenance Plan

The 10-year maintenance plan is presented in Appendix E, which includes the following information

- Element location, element, component and subcomponent.
- The total number of subcomponents per component and the quantification of the subcomponent e.g. total area, total length or total number. This data is based on the WSCAM Basic Visual Assessment (Appendix B) to enable the relationship between the specific component, defect, the proposed action (repair / treatment type) and associated cost to be tracked.
- The risk assessment register timeframe for the condition of the asset to deteriorate to failure or significantly increase the risk (based on the WSCAM Basic Visual Assessment -Appendix B).
- Project Risk Assessment maximum component risk ratings based on the existing component condition and the predicted future condition (based on the Project Risk Assessment -Appendix D)
- The repair or treatment type description summarises the proposed action presented in Section 5.
- Where there limited defects (typically primarily condition rating 2 and 3) and the defects are considered to be a lower risk, the recommended repair / treatment type will generally be condition monitoring. For some components, the repair / treatment type will comprise a combination of monitoring and repair works, as required, for which costs have been included.
- The base rates and total costs have been calculated using the rates described in Section 7.2
- The costs have been applied in the proposed year of implementation of the repair / treatment type, which has been selected based on the timeframe for the condition leading to failure or significant increase in the risk, the risk ratings and professional knowledge of undertaking similar works. It should be noted that if PPA decides to postpone any of the proposed repair / treatment works, there is an increased risk that a delay to the works will result in an increase in the quantity and associated cost of the repair / treatment works as a result of further deterioration of the asset condition (e.g. further corrosion or wear).
- Where possible, large maintenance works packages have been assigned to separate years, to provide a more even distribution of expenditure over the 10-year period.
- The 10-year maintenance plan included miscellaneous items, consultancy services and provisional sums.
 - Miscellaneous items include repainting safety markers, maintenance work preliminaries (20% of total annual costs) maintenance works design (10% of total annual costs).
 - Consultancy services relate to:
 - Annual audit inspection based on Ports Australia WSCAM.
 - CP repair system annual audit.
 - Annual maintenance plan update and review with PPA.
 - Further close inspection of Approach Bridge bearing units.
 - Detailed Investigation of Approach Bridge concrete
 - Detailed Investigation of Original Wharf and Southern Mooring Dolphin concrete.
 - Confirmation of Wharf Extension basis of design and if required, structural assessment and detailed investigation (Including Embedded Dolphin).

- Provisional items have been included for potential maintenance works, which will be dependent on the outcomes of the detailed investigations listed under the consultancy services. The provisional maintenance works comprise:
 - Approach Bridge
 - » Option (1) Cathodic protection - hybrid option
 - » Option (1) CP Annual Audit
 - » Option (2) Impressed current cathodic protection Application
 - » Option (2) CP Control Unit
 - » Option (2) CP Annual Audit
 - Original Wharf
 - » Option (1) Cathodic protection - hybrid option
 - » Option (1) CP Annual Audit
 - » Option (2) Impressed current cathodic protection Application
 - » Option (2) CP Control Unit
 - » Option (2) CP Annual Audit
 - Extension Wharf
 - » Option (1) Cathodic protection - hybrid option for prestressed.
 - » Option (1) CP Annual Audit
 - » Option (2) Impressed current cathodic protection Application
 - » Option (2) CP Control Unit
 - » Option (2) CP Annual Audit
 - » Option (3) Removal Delaminated Concrete.
 - Embedded Dolphin
 - » Option (1) Cathodic protection - hybrid option
 - » Option (1) CP Annual Audit
 - » Option (2) Impressed current cathodic protection Application
 - » Option (2) CP Control Unit
 - » Option (2) CP Annual Audit
 - Southern Mooring Dolphin
 - » Option (1) Cathodic protection - hybrid option
 - » Option (1) CP Annual Audit
 - » Option (2) Impressed current cathodic protection Application
 - » Option (2) CP Control Unit
 - » Option (2) CP Annual Audit

7.3.1 10-Year Maintenance Plan Summary

A summary of the 10-year maintenance plan costs is presented in Table 13.

Provisional repair works sums have been excluded from Table 13, since the total value of the options would not accurately represent the potential expenditure in each financial year. The provisional costs for the repair options listed in Section 7.3 are summarised in Table 14.

A more detailed breakdown on the 10-Year Maintenance Plan is presented in Appendix E.

10-Year Asset Maintenance Plan

Table 13: 10-Year Maintenance Plan Summary (excluding provisional items)

Element Location	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	TOTAL
Approach Bridge	\$0	\$713,945	\$0	\$4,412	\$60,559	\$455,101	\$197,010	\$2,400	\$0	\$23,010	\$1,456,437
Original Wharf	\$80,833	\$118,061	\$0	\$985,682	\$200,856	\$10,800	\$836,143	\$10,800	\$3,849	\$62,861	\$2,309,884
Extension Wharf	\$16,300	\$12,000	\$1,262,992	\$13,283	\$318,027	\$12,000	\$0	\$1,099,058	\$1,283	\$62,766	\$2,797,708
Embedded Dolphin	\$0	\$10,527	\$55,125	\$1,200	\$16,870	\$1,200	\$0	\$1,200	\$55,125	\$8,070	\$149,317
Southern Mooring Dolphin	\$0	\$10,527	\$0	\$2,483	\$6,870	\$87,365	\$0	\$1,200	\$29,458	\$8,070	\$145,973
Small Vessel Landing	\$27,944	\$1,200	\$1,000	\$1,200	\$9,099	\$1,200	\$5,277	\$1,200	\$1,000	\$4,635	\$53,754
Services	\$0	\$0	\$80,000	\$0	\$19,245	\$0	\$0	\$0	\$0	\$19,245	\$118,490
Miscellaneous	\$128,982	\$313,337	\$473,194	\$355,937	\$242,917	\$223,759	\$364,988	\$388,216	\$80,674	\$110,056	\$2,682,059
Consultancy Inspection and Investigation	\$120,576	\$50,576	\$50,576	\$50,576	\$50,576	\$50,576	\$50,576	\$50,576	\$50,576	\$50,576	\$575,760
TOTAL	\$374,635	\$1,230,173	\$1,922,887	\$1,414,773	\$925,018	\$842,001	\$1,453,994	\$1,554,650	\$221,965	\$349,289	\$10,289,383

Table 14: 10-Year Maintenance Plan Provisional Items

Element Location	Option	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	TOTAL
Approach Bridge	Option 1	\$0	\$920,000	\$0	\$0	\$0	\$0	\$11,000	\$0	\$0	\$0	\$931,000
	Option 2	\$0	\$3,810,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$3,898,000
Original Wharf	Option 1	\$0	\$0	\$0	\$1,656,915	\$0	\$0	\$0	\$0	\$11,000	\$0	\$1,667,915
	Option 2	\$0	\$0	\$0	\$5,573,051	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$5,639,051
Extension Wharf	Option 1	\$0	\$0	\$3,437,094	\$0	\$0	\$0	\$0	\$20,000	\$0	\$0	\$3,457,094
	Option 2	\$0	\$0	\$11,506,981	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$11,646,981
	Option 3	\$0	\$0	\$572,849	\$0	\$572,849	\$0	\$572,849	\$0	\$572,849	\$0	\$2,291,396
Embedded Dolphin	Option 1	\$0	\$0	\$393,750	\$0	\$0	\$0	\$0	\$11,000	\$0	\$0	\$404,750
	Option 2	\$0	\$0	\$443,750	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$520,750
Southern Mooring Dolphin	Option 1	\$0	\$0	\$0	\$0	\$0	\$201,250	\$0	\$0	\$0	\$0	\$201,250
	Option 2	\$0	\$0	\$0	\$0	\$0	\$251,250	\$11,000	\$11,000	\$11,000	\$11,000	\$295,250

7.4 Repair / Treatment Scope of Work for Year 1 (2021 / 2022)

The condition assessment and risk assessment have been used to identify priority works for the first year of the Asset Maintenance Plan (1st July 2021 to 30th June 2022). These works comprise:

7.4.1 Original Wharf

The priority works on the Original Wharf comprise:

- Repair edge cracking between Fenders F_I24 and F_I25, which presents a significant spalling and health and safety risk on the edge of the deck.
- Replacement of damaged or missing fender pads and chains to mitigate berthing risks.
- Installation of a pile sleeve solution for the unprotected locations above the wave screen and at the fender support connections along the eastern side of the original wharf.

7.4.2 Extension Wharf

The priority works on the Extension Wharf comprise:

- Replacement of damaged or missing fender pads and chains.

7.4.3 Small Boat Landing

The priority works on the Small Boat Landing comprise:

- Replacement of bolts and isolation of dissimilar metals to reduce the corrosion risk.
- Review of the handrail connection detail, replacement of plastic handrails and installation of toe boards in accordance with Australian Standards.
- Patch repair or replace localised areas of corrosion. Re-coating as damage justifies.
- Monitor and replace damage to the exiting fenders as required.

7.4.4 Other

Other works that are to be completed in Year 1 are:

- Miscellaneous
 - Repainting of safety marking on the deck and bollards within next 10 years and repeat every 10 years.
 - Miscellaneous repairs for unexpected damage as identified by annual audit.
 - Maintenance work design, specification and ad-hoc office based technical support during the works.
 - Maintenance work, contractor preliminaries including mobilisation/de-mobilisation, project management, QA/QC testing, traffic management.
- Consultancy Inspection and Investigation
 - Annual audit inspection based on Ports Australia WSCAM.
 - CP repair system annual audit.
 - Annual maintenance plan update and review with PPA.
 - Approach Bridge - Further inspection for close inspection of bearing units.
 - Approach Bridge - Detailed condition investigation to deck soffit to determine the extent of corrosion. Confirm the appropriate provisional works option with PPA and define the remedial works.
 - Original Wharf and Southern Mooring Dolphin - Detailed condition investigation to deck soffit to determine the extent of corrosion. Confirm the appropriate provisional works option with PPA and define the remedial works.
 - Extension Wharf and Embedded Dolphin - Detailed condition investigation to deck soffit to determine the extent of corrosion. Confirm the appropriate provisional works option with PPA and define the remedial works.

Appendix A **Condition Assessment SWMS**

Safe Work Method Statement (SWMS)

Location /Site Address: Client Contact details:		Dampier Cargo Wharf, Mof Rd, Dampier WA 6713 Anup Paudel Asset Engineer Pilbara Ports Authority T +61 8 9159 6534 M +61 457 908 299				SWMS No.	001
		Work activity:		Inspection of the Dampier Cargo Wharf		SMEC Project Number 3006387	Next WHS Revision Date: Within 2 years
Prepared by:	Luke Thompson/Robert Keegan	Date:	31/08/20	Signature:		Principal Contractor (if applicable):	
Controls approved by:	Colin Hedderwick	Date:	31/08/20	Signature:		Date SWMS provided to Principal Contractor:	

Summary of Control Measures (to be completed after the project team has identified the risks and the control measures)

Type of Permit / Licence / Approval / Information required (if any)

Environmental/Waste <input type="checkbox"/>	Local Council Permits <input type="checkbox"/>	Confined Space Permit <input type="checkbox"/>	Hot Works Permit <input type="checkbox"/>	Working at Heights Permit <input type="checkbox"/>	Other (list):
Underground Services Information (e.g. DBYD plans, locator plans) <input type="checkbox"/>	Excavation Permit <input type="checkbox"/>	Traffic Management Permit <input type="checkbox"/>	Land Owner <input type="checkbox"/>	Asbestos Removal <input type="checkbox"/>	

Personal Protective Equipment (PPE) required (select or list other below)

Ensure all PPE meets relevant Australian Standards. Inspect, maintain and replace PPE as needed.

 Head Protection AS/NZS 1801	 Eye Protection AS/NZS 1337.1	 Face Protection AS/NZS 1337.1	 Hearing Protection AS/NZS 1270	 High Visibility AS/NZS 4602.1	 Protective Clothing AS/NZS 4501.1	 Long sleeve shirt and long pants must be worn	 Hand Protection AS/NZS 2161.1	 Hand Protection Chemical Resistant	 Protective Footwear AS/NZS 2210.3
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
 Disposable Mask	 Half Face Mask	 Full Face Mask	 Full Face Mask and Respirator	 Lifejacket AS 4758.1	 Safety Harness AS/NZS 1891.4	 Hair Containment	 Sun Protection	 Snake Gaiters	Other:
Breathing Protection AS/NZS 1716									

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Plant, Equipment, Tools	Administrative Tasks / Requirements		
e.g. ladders, boat, communications, etc. (please list as applicable)	Training/Qualifications e.g. first aid, confined space, etc. (select or list others as applicable.)	Other relevant operational documentation e.g. SWMSs, Project HSE Plan, Work Procedures, SOPs, etc. (list as applicable)	Hazardous Chemical Products Current Safety Data Sheet (SDS) must be readily accessible to workers (list hazardous chemicals)
<ul style="list-style-type: none"> • Phone/Camera w/ Fulcrum installed • Charger • Notepad • Pens • Wire Brush • Engineering Chalk • Tapping hammer • Tape Measure • UT Gage • DFT guage • Half Cell and multimeter 	<input checked="" type="checkbox"/> General construction induction card <input type="checkbox"/> First aid <input checked="" type="checkbox"/> Site Induction <input type="checkbox"/> Principal Contractor Induction <input checked="" type="checkbox"/> Other: (list) <ul style="list-style-type: none"> • MSIC • Working at Height • PPA Induction Requirements 	<ul style="list-style-type: none"> • Condition Assessment Test Plan • TAMS SWMS • TAMS Emergency Response Plan 	<ul style="list-style-type: none"> • N/A
Incident / Emergency Response			
Nearest Emergency Medical Facility Address and Phone No.: Karratha Health Campus 62 Balmoral Rd, Karratha WA 6714 (08) 9144 7777			
Emergency Services Phone: <ul style="list-style-type: none"> • Landline phone: +61 8 9159 6584 • Mobile phone: +61 (0)407 904 226 (after hours) 		Triple Zero '000' or (112 as a secondary emergency number for mobile phones only)	
Site address/location for Emergency Services (e.g. street address, GPS coordinates etc.)		Mof Rd, Dampier WA 6713, 20°36'47.7"S 116°44'56.1"E	
SMEC Emergency Contact No		Paul Turney (0427 158786)	InjuryCARE Hotline (for SMEC employees) 1800 026 4368
First aid equipment and supplies		TBC	

- Follow the Emergency Response Plan (or Site Emergency Procedure - where one is in place)
- Locate and discuss with all workers first aid kit location, fire extinguishers location and muster/evacuation assembly point

What measures are in place to ensure controls are implemented, monitored and reviewed?

General and workplace induction training; pre-start meetings; SWMS provided to and discussed with worker(s) and signed-off; ongoing workplace supervision.

Project Team to Identify and Control the Risks

High Risk Construction Work as defined in the Code of Practice for Construction Work (Safe Work Australia) (Only pick relevant work)

Will you perform construction work that involves the below or will the project require someone to work on or near the following?

Risk of a person falling more than 2 metres	<input checked="" type="checkbox"/>	Work on a telecommunication tower	<input type="checkbox"/>	Demolition of load-bearing structure	<input type="checkbox"/>
Likely to involve disturbing asbestos	<input type="checkbox"/>	Temporary load-bearing support for structural alterations or repairs	<input type="checkbox"/>	Work in or near a confined space	<input type="checkbox"/>
Work in or near a shaft or trench deeper than 1.5m or a tunnel	<input type="checkbox"/>	Use of explosives	<input type="checkbox"/>	Work on or near pressurised gas mains or piping	<input type="checkbox"/>
Work on or near chemical, fuel or refrigerant lines	<input type="checkbox"/>	Work on or near energised electrical installations or services	<input type="checkbox"/>	Work in an area that may have a contaminated or flammable atmosphere	<input type="checkbox"/>
Tilt-up or precast concrete elements	<input type="checkbox"/>	Work on, in or adjacent to a road, railway, shipping lane or other traffic corridor in use by traffic other than pedestrians	<input type="checkbox"/>	Work in an area with movement of powered mobile plant	<input type="checkbox"/>
Work in areas with artificial extremes of temperature	<input type="checkbox"/>	Work in or near water or other liquid that involves a risk of drowning	<input checked="" type="checkbox"/>	Diving Work	<input checked="" type="checkbox"/>

Step by Step Process

ACTIVITY STEP	WHAT ARE THE HAZARDS AND RISK?			WHAT ARE THE CONTROL MEASURES (must indicates a legal requirement, should indicates a recommended course of action)					IMPLEMENT CONTROLS
List the tasks in logical order	For each task describe what may happen that causes harm	Initial Risk Score			Describe what will be done to make the task as safe as possible by eliminating or minimising the risk	Residual Risk Score			Who will ensure the controls are in place?
		L	C	R		L	C	R	
Travel and Site Work	Risk of Covid-19 Transmission	3	4	12	<ul style="list-style-type: none">Request and Review a copy of TAMS/SMEC/PPA COVID-19 protocol, policy, response plan and/or equivalent for review/adherence toEnsure contact information is up to date for all field site personnel.Practice social distancing onsite by:<ul style="list-style-type: none">Limiting physical contact, for example no handshakes; andMaintaining a distance of 1.5m between each other where possible.All site personnel are to maintain health precautions and good hygiene, with specific emphasis on:<ul style="list-style-type: none">Washing your hands frequently with soap and water or hand sanitiser.Covering your mouth and nose if you cough or sneeze and disposing of used tissues immediately;Avoid touching your eyes, nose or mouth until you have washed your hands; andAdhering to good food handling practices on site.	1	4	4	Field Staff, Project Director, PPA

Travel and Site Work	Risk of Covid-19 Transmission	3	4	12	<ul style="list-style-type: none"> The following principles apply to all personnel: <ul style="list-style-type: none"> All personnel are to be kept up to date on the latest SMEC advice regarding COVID-19. SMEC travel restrictions and isolation requirements must be adhered to in all cases. If any staff member is feeling unwell, they should not work on site or in a project office. They should return to their home base or in-field accommodation e.g. site cabin/hotel/motel and make an appointment to see a doctor. For suspected and confirmed cases their isolation and return to work requirements will be guided by SMEC's existing COVID-19 Incident Response Plan. COVID-19 must be included in the agenda for all team meetings and field/site pre-start meetings. Any changes to this protocol or SMEC's advice is to be communicated through project wide emails and reinforced at daily pre-start meetings/team briefings. Vehicle air flow should be switched to 'fresh' rather than internal recirculation. Hygiene – ensure all high touch/common touch surfaces in the vehicle (including steering wheel, gear stick, handbrake and internal and external door handles) are wiped down before and after use with disinfectant or alcohol wipes. Social distancing – no more than 2 persons should travel in the same vehicle and, where the make/model of vehicle allows, one-person is recommended to locate diagonally opposite to the driver in the back seat. Where field equipment is being used, carried, loaded/unloaded, ensure good hygiene is practiced, including wiping down common touch surfaces with disinfectant or alcohol wipes where possible. 	1	4	4	Field Staff, Project Director, PPA
Works outside of office	Lone works/ remote works. SMEC not being able to contact/ locate worker. Isolation from the assistance of other people (including rescue, medical assistance, emergency treatment) because of location, time or the nature of the work	2	3	6	<ul style="list-style-type: none"> SMEC will be supervised by PPA staff Field staff must inform direct supervisor/ manager of their movements via a call in plan - staff should call on arrival to site, half way during day and at completion of days' work. Hotel/ flight details to be left with direct supervisor/ manager. Field staff to check their phone carriers coverage - this can be done online at https://www.telcoantennas.com.au/site/coverage-checker-all-australian-networks or Optus at https://opensignal.com/networks/australia/optus-coverage. 	1	3	3	Field staff

Driving to and from site	Driving which may lead to vehicle accident	4	5	20	<ul style="list-style-type: none"> The vehicle / hire vehicle must be fit for purpose, in good working order and operated in a safe manner. Vehicles must not be used above the manufacturer defined maximum load limit. Driver must have a valid and current drivers licence for the type of vehicle being operated. Be vigilant around other road users. Wear a seatbelt at all times when operating a vehicle. In the event that your driving time will exceed 2 hours or your driving time will exceed 8 hours in a 24 hour period, a Journey Management Plan is recommended. Drivers shall stop and get out of the vehicle for at least 15 minutes at a minimum of every 2 hours. Drivers who feel tired must pull over and rest or book into a hotel after discussions with the Project Manager. Drive defensively and reduce speed if adverse road conditions are encountered. Do not drive if impaired by alcohol, drugs or fatigue. Observe Site Driving rules (the speed limit is 20kms on the roads and 10kms on the DCW.) 	2	5	10	Vehicle operator
Driving on site	Vehicle accident due to inadequate vehicle for site work and/ or inadequate knowledge of vehicle	4	5	20	<ul style="list-style-type: none"> Driver to obey all site driving rules (the speed limit is 20kms on the roads and 10kms on the DCW). Vehicle pre-starts shall be conducted as per project requirements. Driver to remain aware of overhead hazards such as tree branches and low buildings/ awnings etc. and ground hazards such as pot holes and tree stumps – Use a spotter where required or walk the travel path first. All vehicle occupants to keep all body parts within vehicle. Keep all windows and mirrors clean and have any damage repaired as necessary. Ensure all loads are adequately secured. 	2	5	10	Vehicle operator
Parking vehicle on site	Vehicle rolling away/ vehicle not seen by earthwork machinery operators/ vehicle causing fire/ vehicle causing distraction to other road users	2	4	8	<ul style="list-style-type: none"> Park vehicle on flat safe surface where possible. Ensure handbrake is applied. Observe any no go zones that may be in place on site. Do not park within 20m of earthworks machinery. Do not park vehicle over long dry grass unless the underneath of the vehicle has had time to cool down (exhaust system). If parking by a road way, park as far from the travel lane as practicable, desirably outside the clear zone (i.e. 9m (min) from the edge line) to reduce obstructing the sight distance of other drivers. 	1	4	4	Vehicle operator

Undertaking on-foot inspections of deck top	Personnel being struck by plant and equipment	3	5	15	<ul style="list-style-type: none"> Have hard barriers placed to separate all from on-foot workers and have reduced speed limit signs in place; or Do not conduct on-foot inspections by walking on the wharf deck unless the site has been closed to plant or plant has been isolated from workers. Workers to remain at least 3m from edge of wharf. Wear high-visibility clothing at all times. All site personnel working in low light conditions are to ensure high visibility clothing are fitted with silver retroreflective material. All clothing including warm and or wet weather clothing are to be high-visibility and fitted with silver retroreflective material. 	2	5	10	Project manager & Field staff
Walk over on site	Slips, trips and falls due to working on, wet or slippery surfaces or spalled deck.	4	3	12	<ul style="list-style-type: none"> Be aware of surroundings when working. Investigate site area for any hazards that exist in and around the specified site (e.g. condition of ground under foot, slipping and tripping over items located in the area). Maintain good housekeeping practices. Wear well maintained safety boots. 	3	3	9	Field staff
General site work	Snakes and being bitten by them	2	5	10	<ul style="list-style-type: none"> Avoid long grass and vegetated/rocky water courses. Never place hands into dark holes or crevices. Attempt to identify any snake that bites you, however do not try to capture or kill the snake. Wear long pants. Wear boots with ankle protection. Wear leather riggers gloves if you need to move an item that is lying on the ground that could be concealing a snake. Snake gaiters are recommended for staff working in long grass in snake prone areas. 	1	5	5	Field staff
General site work	Spiders, scorpions & insects and being bitten by them	2	5	10	<ul style="list-style-type: none"> Check open food or drink containers when working outdoors before using them as flying insects are attracted to food and sugary drinks. Wear long pants and boots with ankle protection. Avoid long grass and vegetated/rocky water courses. Wear leather riggers gloves if you need to move an item that is lying on the ground that could be concealing insects likely to cause harm. 	1	5	5	Field staff
General site work	Inclement weather – cold weather and rain and staff becoming ill due to working in the wet weather	4	2	8	<ul style="list-style-type: none"> Consider stopping work till rain has passed over. If lightning is observed, follow the 30-30 rule - if it takes less than 30 seconds to hear thunder after seeing the flash, lightning is near enough to pose a threat and works must cease and workers are to take shelter, after the storm ends, wait 30 minutes before resuming works. Wear high visibility wet weather gear - dress to the climate conditions; which may require dressing in layers. 	3	2	6	Field staff

General site work	Hot weather – sun and heat and staff becoming ill due to working in the hot weather	4	4	16	<ul style="list-style-type: none"> Where practical, plan works for the cooler parts of the day. Drink plenty of water and hydrating liquids and eliminate or reduce intake of caffeine/ high sugar content drinks. Eat during the work shift to maintain energy and salt levels and take regular rest breaks in the shade if required. Be aware of others and look for early warning signs of dehydration/ heat exhaustion, such as increased thirst, dry mouth, tired or sleepy, decreased urine output, headache, dry skin, dizziness, lack of sweating despite the heat, red, hot and dry skin, muscle weakness or cramps, nausea and vomiting, rapid heartbeat, which may be either strong or weak, rapid, shallow breathing. Wear a broad brimmed hat/brim on hard hat. Wear long sleeves and long pants. Wear sunscreen on exposed skin. Wear UV protection glasses. 	2	4	8	Project manager & Field staff
General site work	Personnel under the influence of alcohol or drugs causing harm to themselves or others	2	4	8	<ul style="list-style-type: none"> All workers must present to work in a fit for work state (i.e. not impaired by medication, drugs or alcohol). PPA is a zero alcohol and drug tolerance workplace. If one thinks they may be over the limit, there is a self-test located at the Gatehouse. Any personnel found to be intoxicated or under influence will be removed from site. 	1	4	4	Field staff
Hazards associated with mooring lines	Mooring line parting. Anyone standing within the snap-back zone at either end of the line risks serious injury or death.	3	5	15	<ul style="list-style-type: none"> Communicate with PPA staff to find acceptable access locations on deck prior to accessing deck Avoid snap-back zones where possible 	2	3	6	Field staff
General site work	Workers and visitors unaware of site hazards and emergency instructions and becoming injured	2	4	8	<ul style="list-style-type: none"> Ensure a site induction is attended by all site workers prior to site works. Ensure each shift starts with a project pre-start and that all workers sign onto the pre-start prior to starting works. Visitor site induction to be delivered to all site visitors. Where a visitor site induction does not exist, then all visitors are to be escorted at all times by a fully inducted personnel. All visitors must be recorded and identifiable. Site visitors must not undertake any works while on site and shall only operate in observation role. All SMEC operations must have an established emergency response plan that is documented, communicated to all relevant people and routinely tested for effectiveness. Visitors must wear PPE as noted for the site. 	1	4	4	Project manager & Field staff

General site work	Work on or near chemical, fuel or refrigerant lines. Anhydrous ammonia is a highly toxic chemical and is exported from the adjacent bulk liquids berth terminal west of the DCW.	2	4	8	<ul style="list-style-type: none"> Viva's diesel line goes alongside the DCW No physical works to be carried out on line Refer to PPA's Emergency Response plan with respect to Dangerous goods Follow PPA procedures with respect to ammonia (warnings and evacuation) 	1	4	4	Field Staff
General site work	Working near mobile plant – DCW Deck	2	4	8	<p>The risks to workers must be minimised by adopting work methods that maintain physical separation from mobile plant by:</p> <ul style="list-style-type: none"> Complying with site traffic rules Avoiding conflict with site mobile plant traffic Restricting entry into mobile plant operating zones (use of exclusion zones); and Maintaining visibility of workers to mobile plant operators. 	1	4	4	Field Staff
General site work	Inadequate opportunity for rest leading to fatigue issues	2	5	10	<ul style="list-style-type: none"> For any 5.5 hour period, a maximum of 5 hours shall be worked, For any 24 hour period, a maximum of 12 hours worked including breaks and travel to and from home/ accommodation for field/ site works For any 24 hour period a maximum of 14 hours worked including breaks and travel to and from home/ accommodation for office based work. Work duties shall allow workers the opportunity for at least 8 hours of continuous sleep in any 24 hour period. Where workers are required to work 7 days a week, work hours should be risk assessed based on the project. More controls are noted within G-OHS10801 Fatigue Risk Assessment Guide. 	1	5	5	Project manager & Field staff
General site work	Poor lighting leading to injuries to personnel and/ or damage to plant	3	4	12	<ul style="list-style-type: none"> It is not intended that any working under additional lighting will be required, however, this risk has been included for completeness. Extra lighting may need to be arranged before works can continue. If night works are planned, allow for lighting towers to be used. Lighting towers to be set up so that lighting faces away from road and does not reflect off reflective surfaces. The preference is to use glare-free lighting where available. Review lighting once set up to ensure lighting isn't distracting to motorists - a site drive-by should be conducted to confirm this. A pre-start check must be conducted on all lighting towers prior to shift. All site personnel working when it is dark must ensure shirts/ jackets are fitted with silver retroreflective material. Warm and or wet weather clothing should not obscure the high-visibility garment. Smaller tasks or those that cannot accommodate lighting towers may require staff to be kitted out with lights fitted to hard hats. 	1	4	4	Project manager & Field staff

General site work	Mobile plant / tugs that may come into contact with site personnel	2	5	10	<ul style="list-style-type: none"> Field staff must remain vigilant around the plant / tugs Field staff are to maintain positive communications with mobile plant / tug operators. Effective measures in accordance with any site requirements must be in place for the recovery of mobile plant immobilised. At minimum, PPE to be worn should consist of long sleeve high visibility shirt or vest over a long sleeve shirt and well maintained safety boots. 	1	5	5	Project manager & Field staff
Site Inspection close to water's edge	Wind and wave conditions with potential to lead to injury/drowning	2	5	10	<ul style="list-style-type: none"> Assess general site conditions once on site (e.g. weather and coastal conditions, other workers or plant in the area) – cancel work if necessary. All workers working within 2m of water's edge where there is a possibility of drowning (water depth, water flow rate, slip and trip hazards) must wear a securely fastened Life Jacket or Buoyant Work Vest (PFD) at all times – automatic inflatable units are to have a minimum buoyance of Level 150 and be fitted with an emergency light. Wind direction, gusts and wash should all be considered when working near the water. 	1	5	5	SMEC Employee(s) & Contractor

- Follow directions of contractor & skipper

Access & Egress to and from the vessel	<p>Falling into the water which could lead to:</p> <ul style="list-style-type: none"> Hypothermia Drowning Shock <p>Crush injury caused by support vessel or boat</p>	3	5	15	<ul style="list-style-type: none"> All workers that are required to work on a vessel must be competent swimmers, if they do not feel they are competent then they must notify their supervisor, who should allocate other suitable duties for them. if a worker is not a competent swimmer instead of notifying their Supervisor. PPA also has a 'working on, near and over All staff are to be fully inducted on the proper procedure for boarding the transfer vessel as per the overwater contractor requirements and working procedures. The overwater contractor will provide clear briefings before any transfer of personnel or materials, based on the local conditions at the time of transfer. All workers accessing a vessel must wear a securely fastened Life Jacket or Buoyant Work Vest (PFD) – automatic inflatable units are to have a minimum buoyancy of Level 150 and be fitted with an emergency light. All workers to use three points of contact while accessing the vessel. All employees to access via the designated access point. The vessel must be safely secured before the transfer of any personnel. Obstructions must not be laid across the gangway. The means of access must be adequately illuminated for its full length. Only those that have been project inducted through SMEC are permitted to access vessels. Workers are to have a dry change of clothing with them in the event they become wet while working on site. 	1	5	5	SMEC Employee(s) & Contractor
Vessel transit	<p>Physical & Environmental conditions.</p> <p>Damage to equipment, crush injuries to personnel.</p> <p>Severe water state, man overboard, collision, medical emergency.</p>	3	5	15	<ul style="list-style-type: none"> All workers on board a vessel must wear a securely fastened Life Jacket or Buoyant Work Vest (PFD) – automatic inflatable units are to have a minimum buoyancy of Level 150 and be fitted with an emergency light. Ensure all equipment is securely stowed prior to departure. Man overboard shall be handled in accordance with the overwater contractors procedures. Emergency services shall be contacted in the event of a medical emergency on the water. At no time should a worker perform an in water rescue. They are to deploy the throw ring in an attempt to self-rescue, if the self-rescue is not successful, then the emergency services must be contacted. 	1	5	5	SMEC Employee(s) & Contractor

Movement around on the vessel	Falling into the water which could lead to: <ul style="list-style-type: none"> Hypothermia Drowning Shock 	3	5	15	<ul style="list-style-type: none"> Decks and other working surfaces to be maintained in a safe, non-slippery condition by the overwater contractor. All workers working on a vessel must wear a securely fastened Life Jacket or Buoyant Work Vest (PFD) at all times – automatic inflatable units are to have a minimum buoyance of Level 150 and be fitted with an emergency light. Consideration must be given to the layout and sequencing of materials aboard the vessel so as to not influence foot traffic around the edges of the vessel. SMEC staff are to discuss with the overwater contractor on a suitable work area. At no time should a worker perform an in water rescue. They are to deploy the throw ring in an attempt to self-rescue, if the self-rescue is not successful, then the emergency services must be contacted. 	1	5	5	Field staff & Contractors
Visual Inspections from a boat	Injury as a result of interaction with other vessels / structures	3	5	15	<ul style="list-style-type: none"> Boats are to be driven by commercially licensed contractors. Boats are to be checked for seaworthiness by the vessel master prior to commencement of the works. Workers should be made aware of any potential pinch points Whilst on board all personnel are under the supervision of the vessel master and must obey their instructions at ALL times. 	2	5	10	SMEC Employee(s) & Contractor
Visual Inspections from a Boat	Drowning	3	5	15	<ul style="list-style-type: none"> All workers working on a vessel must wear a securely fastened Life Jacket or Buoyant Work Vest (PFD) prior to boarding the vessel and keep wearing it until they have disembarked – automatic inflatable units are to have a minimum buoyance of Level 150 and be fitted with an emergency light. Whilst on board all personnel are under the supervision of the vessel master and must obey their instructions at ALL times. 	1	5	5	SMEC Employee(s) & Contractor
Visual Inspections from a Boat	Structural failure of vessel Damage, loss of containment	2	4	8	<ul style="list-style-type: none"> Boats are to be checked for seaworthiness by the vessel master prior to commencement of the works. Maintenance and operation of watercraft is the responsibility of the vessel master. All staff have the authority to stop work if they feel the work practices or equipment are unsafe. 	1	4	4	Contractor & SMEC Employee(s)

Visual Inspections from boat	Crush injury because of vessel coming into contact with a structure	3	5	15	Overhead structures <ul style="list-style-type: none"> Allow a minimum overhead clearance of at least one (1) metre in addition to the height of the boat and its movement from the tide and waves (including wash from passing boats). There must also be safe clearance for personnel conducting overhead inspection tasks such that they cannot be caught between the vessel and the structure. In tidal waters schedule inspections underneath bridges and piers during the outgoing tide where possible. Spotters <ul style="list-style-type: none"> Designate an adequate number of spotters to see all sides and the top of the vessel (if there is a roof or upper deck) when the vessel is underway near structures and objects. This may require more than one spotter depending on vessel configuration. Where conditions may cause significant unexpected movement (e.g. wave surges, wash from passing boats) designate a spotter to warn vessel occupants. Anyone acting as a spotter is not to have concurrent inspection duties. 	2	5	10	SMEC Employee(s) & Contractor
Visual Inspections from boat	Falling debris or staff bumping their head from boat movement	3	3	9	<ul style="list-style-type: none"> Wear a hard hat when conducting inspection tasks – a chin strap may be required when working over water. 	2	3	6	SMEC Employee(s) & Contractor
Diving and pile inspection	Injury	-	-		<ul style="list-style-type: none"> Risks management process documented on TAMS SWMS 				TAMS




Site-Specific Hazards

Once on site, have other hazards been identified that haven't been included within this SWMS? ☐ Yes ☐ No. If yes, complete this page.

Step by Step Process									
ACTIVITY STEP	WHAT ARE THE HAZARDS AND RISK?				WHAT ARE THE CONTROL MEASURES (must indicates a legal requirement, should indicates a recommended course of action)				IMPLEMENT CONTROLS
List the tasks in logical order	For each task describe what may happen that causes harm	Initial Risk Score			Describe what will be done to make the task as safe as possible by eliminating or minimising the risk	Residual Risk Score			Who will ensure the controls are in place?
		L	C	R		L	C	R	
HIGH PRESSURE HOSE	LOUD NOISE CAUSING HEARING DAMAGE	4	4	16	HEARING PROTECTION	4	2	8	ALL

I confirm by my signature below that:

- I have had read, understood and been given the opportunity to comment on the content of the SWMS;
- I agree to implement the controls within this SWMS and will check in with my supervisor if I am unable to follow the SWMS.

NAME	SIGNATURE	COMPANY	DATE
ROBERT KEEGAN		SMEC	6/09/20
Colin Hedderwick		SMEC	6/9/20
ROBERT KEEGAN		SMEC	7/9/20
Colin Hedderwick		SMEC	7/9/20
ROBERT KEEGAN		SMEC	8/09/20
Colin Hedderwick		SMEC	8/9/20

Appendix B **Basic Visual Assessment**

Asset Manager / Owner: Greg Smith, E&I Planning

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)				
															1	2	3	4	5	6	7												
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Small Boat Landing	Landing	Boat landing	BL_SBL	Handrail	Steel	ST	DCW-Landing-Boat landing-BL_SBL-Handrail-ST	1	Item			50						50			A	e4392494-b2			Handrails on eastern side free of corrosion, newly replaced. Hold down bolts are dissimilar metal to landing and rails, corrosion will potentially increase. Two bolts are already identified as not present. A review of the handrail connection detail is recommended. Handrail on western side is made of scaffolding and is not tagged. Landing handrails are not compliant with AS 1657. Plastic handrails at top of landing are damaged from UV exposure and susceptible to brittle failure. Replacement should be considered. No toe boards are present at the top of the landing as per AS 1657.	L	Isolate dissimilar metals between hold down bolts to landing and rails. Replace missing bolts. Review of the handrail connection detail is recommended. Replace scaffolding and plastic handrails, ensuring it is compliant with AS1657. Install toe boards at the top of the landing as per AS1657. Paint all section of steel handrails to minimise potential for corrosion.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Small Boat Landing	Landing	Boat landing	BL_SBL	Structural Steel	Steel	ST	DCW-Landing-Boat landing-BL_SBL-Structural Steel-ST	1	Item			50	40	10							A	e4392494-b2			Steel corroded.	H	Blast and re-paint corroded steel. Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Approach Bridge	Deck Joints	DJ_AC7	Expansion Joint	Steel	ST	DCW-Approach Bridge-Deck Joints-DJ_AC7-Expansion Joint	9.4	m			80	20								C	0d3c7481-12	0a3f0ed2-66		Cracking at repaired joint edges. Minor concrete spall due to impact damage. Cracking repaired at joint edges.	M	Monitor.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Deck	Deck Joints	DJ_I029/45	Expansion Joint	Concrete	C	DCW-Deck-Deck Joints-DJ_I029/45-Expansion Joint-C	31.02	m			90	10								A				Gap in Deck Expansion joint above pile cap at P_DSQ29.	L	Re-seal gap in expansion joint. Monitor and consider replacement connection detail if worsens.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Approach Bridge	Deck Soffit	DS_AC1/2	Beam	Prestressed Concrete	PC	DCW-Approach Bridge-Deck Soffit-DS_AC1/2-Beam-PC	117.5	m2				100								D	45fd7a81-c2			Efflorescence noted <1% surface area.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine extent of corrosion by core sampling and half cell testing. Based on investigation repair damaged concrete by either CP hybrid option of ICCP application.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Approach Bridge	Deck Soffit	DS_AC2/3	Beam	Prestressed Concrete	PC	DCW-Approach Bridge-Deck Soffit-DS_AC2/3-Beam-PC	117.5	m2				95	5							D	c819c477-e6			Medium cracks present. Repairs failing. Delamination noted near east edge near Pile P_C2.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine extent of corrosion by core sampling and half cell testing. Based on investigation repair damaged concrete by either CP hybrid option of ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Approach Bridge	Deck Soffit	DS_AC3/4	Beam	Prestressed Concrete	PC	DCW-Approach Bridge-Deck Soffit-DS_AC3/4-Beam-PC	117.5	m2			90	5	5							D		15697a93-92		10 * 15cm of delamination. Pattern cracking on eastern side	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine extent of corrosion by core sampling and half cell testing. Based on investigation repair damaged concrete by either CP hybrid option of ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Approach Bridge	Deck Soffit	DS_AC4/5	Beam	Prestressed Concrete	PC	DCW-Approach Bridge-Deck Soffit-DS_AC4/5-Beam-PC	117.5	m2			95	5								D		c048101c-5c		Two repairs, one repair cracking	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine extent of corrosion by core sampling and half cell testing. Based on investigation repair damaged concrete by either CP hybrid option of ICCP application.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Approach Bridge	Deck Soffit	DS_AC5/6	Beam	Prestressed Concrete	PC	DCW-Approach Bridge-Deck Soffit-DS_AC5/6-Beam-PC	117.5	m2			80	10	10							D		af95905-06		Eastern side beam has sagged, extensive crack repairs present. Western side will require similar repairs	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine extent of corrosion by core sampling and half cell testing. Based on investigation repair damaged concrete by either CP hybrid option of ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Approach Bridge	Deck Soffit	DS_AC6/7	Beam	Prestressed Concrete	PC	DCW-Approach Bridge-Deck Soffit-DS_AC6/7-Beam-PC	117.5	m2			70	10	20							D		4aea6a2f-b1		Western side of soffit requires repair, eastern side has had concrete crack treatment and repairs. One small spalled patch 15x15cm with exposed corroded reinforcement.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine extent of corrosion by core sampling and half cell testing. Based on investigation repair damaged concrete by either CP hybrid option of ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Approach Bridge	Deck Soffit	DS_AC7/8	Beam	Prestressed Concrete	PC	DCW-Approach Bridge-Deck Soffit-DS_AC7/8-Beam-PC	117.5	m2			60	15	25							D		2c7fd32c-b8		Three beams showing signs of sagging. Two small section of spalling with reinforcement corrosion. Minor cracking. Western edge requires repairs.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine extent of corrosion by core sampling and half cell testing. Based on investigation repair damaged concrete by either CP hybrid option of ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Approach Bridge	Deck Soffit	DS_AC8/9	Beam	Prestressed Concrete	PC	DCW-Approach Bridge-Deck Soffit-DS_AC8/9-Beam-PC	117.5	m2			95	5								D				Minor cracking.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine extent of corrosion by core sampling and half cell testing. Based on investigation repair damaged concrete by either CP hybrid option of ICCP application.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Deck	Deck Soffit	DS_DF10/13	Concrete Slab	Concrete	C	DCW-Deck-Deck Soffit-DS_DF10/13-Concrete Slab-C	232.5494952	m2			50	35	15							D		30a1778e-62		Two localised areas of delamination (mostly near the east side). Medium cracks present. Areas of crack injection repairs noted. Medium cracks noted around pipe support on eastern edge.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine the extent of corrosion by core sample and half cell testing. Based on investigation repair concrete by either CP Hybrid or ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Deck	Deck Soffit	DS_DF13/16	Concrete Slab	Concrete	C	DCW-Deck-Deck Soffit-DS_DF13/16-Concrete Slab-C	232.5494952	m2			50	10	40							D		f6c3325-10c		Multiple areas of localised delamination and spalling (mostly near the east side). Exposed reinforcement at spalled areas. Medium cracks present. Areas of crack injection repairs noted.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine the extent of corrosion by core sample and half cell testing. Based on investigation repair concrete by either CP Hybrid or ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Deck	Deck Soffit	DS_DF16/19	Concrete Slab	Concrete	C	DCW-Deck-Deck Soffit-DS_DF16/19-Concrete Slab-C	232.5494952	m2			50	30	20							D		2348a1e2-9c		Multiple areas of localised delamination (mostly near the east side). Medium cracks present. Areas of crack injection repairs noted.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine the extent of corrosion by core sample and half cell testing. Based on investigation repair concrete by either CP Hybrid or ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Deck	Deck Soffit	DS_DF19/21	Concrete Slab	Concrete	C	DCW-Deck-Deck Soffit-DS_DF19/21-Concrete Slab-C	155.0329968	m2			50	45	5							D		16f86804-be		Areas of localised delamination (mostly near the east side). Medium cracks present. Areas of crack injection repairs noted.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine the extent of corrosion by core sample and half cell testing. Based on investigation repair concrete by either CP Hybrid or ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Deck	Deck Soffit	DS_DF21/24	Concrete Slab	Concrete	C	DCW-Deck-Deck Soffit-DS_DF21/24-Concrete Slab-C	232.5494952	m2			50	10	40							D		63b87671-4c		Multiple areas of localised delamination and spalling (mostly near the centre of the wharf). Medium cracks present. Areas of crack injection repairs noted.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine the extent of corrosion by core sample and half cell testing. Based on investigation repair concrete by either CP Hybrid or ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Deck	Deck Soffit	DS_DF24/28	Concrete Slab	Concrete	C	DCW-Deck-Deck Soffit-DS_DF24/28-Concrete Slab-C	310.0659936	m2			40	20	40							D		ae9cc6a-c8e		Multiple areas of localised delamination and spalling (mostly near the centre). Exposed reinforcement at spalled areas. Medium cracks present. Areas of crack injection and convention concrete repairs noted.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine the extent of corrosion by core sample and half cell testing. Based on investigation repair concrete by either CP Hybrid or ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Dolphin	Deck Soffit	DS_FMD	Concrete Slab	Concrete	C	DCW-Dolphin-Deck Soffit-DS_FMD-Concrete Slab-C	157.5	m2			60	25	15							D		9835a002-9c		Minor corrosion on steel s-plate edge. Medium cracks and delamination on eastern side	H	• Clean and paint corroded 2-Plate sections. • Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • CP hybrid option.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Deck	Deck Soffit	DS_F121/24	Concrete Slab	Concrete	C	DCW-Deck-Deck Soffit-DS_F121/24-Concrete Slab-C	348.8242428	m2			40	20	40							D		9b05c80c-dc		Multiple areas of localised delamination and spalling (mostly near the east side). Exposed reinforcement at spalled areas. Medium cracks present. Areas of crack injection repairs noted.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine the extent of corrosion by core sample and half cell testing. Based on investigation repair concrete by either CP Hybrid or ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Deck	Deck Soffit	DS_F124/28	Concrete Slab	Concrete	C	DCW-Deck-Deck Soffit-DS_F124/28-Concrete Slab-C	465.0989904	m2			40	20	30		10					E		a6b66427-8c		Multiple areas of localised delamination. Large concrete edge cracking (5mm in width), between Fenders F_124 and F_125, causing a spalling risk. Efflorescence noted. Medium cracks present. Areas of crack injection repairs noted. Corroded fasteners.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Detailed investigation to determine the extent of corrosion by core sample and half cell testing. Based on investigation repair concrete by either CP Hybrid or ICCP application.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Deck	Deck Soffit	DS_IM29/32	Concrete Slab	Concrete	C	DCW-Deck-Deck Soffit-DS_IM29/32-Concrete Slab-C	339.1869492	m2			60	20	20							D		d7c5d575-62		Multiple areas of localised delamination and spalling. Exposed reinforcement at spalled areas. Section of timber formwork left connected to soffit. Medium cracks present. Areas of delamination and spalling repairs noted. Corroded fasteners.	H	• Monitor and conventional concrete repair as damage justifies. • Silane protective treatment. • Structural Assessment to determine the function of the prestressed planks. Dependent on structural assessment determine whether	

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)	
															1	2	3	4	5	6	7									
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D19	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_D19-Fender Cone-R	2	No.			100						A	5d0c2ee7-77	b1e1e72-5d			H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D19	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_D19-Fender Pad-ST	1	No.			95	5					B	5d0c2ee7-77	b1e1e72-5d		Corrosion. Weathering to pad.	H	Clean corroded areas. Re-apply protective coating. Monitor weathering to pad. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D19	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_D19-Fender Support Frame-ST	1	Item			100						A	5d0c2ee7-77	b1e1e72-5d		No repairs required. Inspection at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D19	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_D19-Steel Strut-ST	1	No.			95	5					A	5d0c2ee7-77	b1e1e72-5d	ba59698-8	Minor coating damaged.	H	Repair damaged coating. Monitor at five-yearly intervals.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D20/21	Chain	Steel	ST	DCW-Furniture-Fender-F_D20/21-Chain-ST	1	Item			80	20					A	5d0c2ee7-77	1232c66b-5c		20. Minor corrosion.	H	Clean corroded sections. Increase monitoring frequency to 2 yearly.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D20/21	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_D20/21-Fender Cone-R	2	No.			100						A	5d0c2ee7-77	1232c66b-5c		No repairs required. Inspection at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D20/21	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_D20/21-Fender Pad-ST	1	No.			95	5					B	5d0c2ee7-77	1232c66b-5c		Corrosion. Weathering to pad.	H	Clean corroded areas. Re-apply protective coating. Monitor weathering to pad. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D20/21	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_D20/21-Fender Support Fram	1	Item			100						A	5d0c2ee7-77	1232c66b-5c		No repairs required. Inspection at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D20/21	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_D20/21-Steel Strut-ST	1	No.			95	5					A	5d0c2ee7-77	1232c66b-5c	a03d8f2e-27	Minor coating damaged.	H	Repair damaged coating. Monitor at five-yearly intervals.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D22	Chain	Steel	ST	DCW-Furniture-Fender-F_D22-Chain-ST	1	Item			80	20					A	5d0c2ee7-77	203d4251-0c		20. Minor corrosion.	H	Clean corroded sections. Increase monitoring frequency to 2 yearly.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D22	Elastomeric Arch Fender	Rubber	R	DCW-Furniture-Fender-F_D22-Elastomeric Arch Fender-	2	No.			100						A	5d0c2ee7-77	203d4251-0c	eef4532-88f0	Two arch fenders between Fenders F_D22 and F_D23/24	L	No repairs required. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D22	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_D22-Fender Cone-R	2	No.			100						A	5d0c2ee7-77	203d4251-0c		No repairs required. Inspection at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D22	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_D22-Fender Pad-ST	1	No.			95	5					B	5d0c2ee7-77	203d4251-0c		Corrosion. Weathering to pad.	H	Clean corroded areas. Re-apply protective coating. Monitor weathering to pad. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D22	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_D22-Fender Support Frame-ST	1	Item			100						A	5d0c2ee7-77	203d4251-0c		No repairs required. Inspection at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D22	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_D22-Steel Strut-ST	1	No.			100						A	5d0c2ee7-77	203d4251-0c	2aa8f88b-2c9a-4374-92c9-a228241d6a27,Ab171b8d-40fc-4247-8397-5f77225f4a2f	H	None required. Monitor at five-yearly intervals.	Y	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D23/24	Chain	Steel	ST	DCW-Furniture-Fender-F_D23/24-Chain-ST	1	Item			80	20					A	5d0c2ee7-77	4c619f45-68		20. Minor corrosion.	H	Clean corroded sections. Increase monitoring frequency to 2 yearly.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D23/24	Elastomeric Arch Fender	Rubber	R	DCW-Furniture-Fender-F_D23/24-Elastomeric Arch Fenc	2	No.			100						A	5d0c2ee7-77	4c619f45-68	4019f45-6840-4194-ab8c	Two arch fenders between Fenders F_D23/24 and F_D25	L	No repairs required. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D23/24	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_D23/24-Fender Cone-R	2	No.			100						A	5d0c2ee7-77	4c619f45-68		No repairs required. Inspection at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D23/24	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_D23/24-Fender Pad-ST	1	No.			100						B	5d0c2ee7-77	4c619f45-68		No repairs required. Inspection at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D23/24	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_D23/24-Fender Support Fram	1	Item			100						A	5d0c2ee7-77	4c619f45-68		No repairs required. Inspection at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D23/24	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_D23/24-Steel Strut-ST	1	No.			100						A	5d0c2ee7-77	4c619f45-68	134adeba-bb28-4785-83cc-6ce7daa4841a,feccd5e-5b9d-4ef1-914a-1606d727aae1	H	None required. Monitor at five-yearly intervals.	Y	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D25	Chain	Steel	ST	DCW-Furniture-Fender-F_D25-Chain-ST	1	Item			80	20					A	5d0c2ee7-77	7742bb40-4c		20. Minor corrosion.	H	Clean corroded sections. Increase monitoring frequency to 2 yearly.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D25	Elastomeric Arch Fender	Rubber	R	DCW-Furniture-Fender-F_D25-Elastomeric Arch Fender-	2	No.			100						A	5d0c2ee7-77	7742bb40-4c	498c-4970-456f	Two arch fenders between Fenders F_D25 and F_D26/27	L	No repairs required. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D25	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_D25-Fender Cone-R	2	No.			100						A	5d0c2ee7-77	7742bb40-4c		No repairs required. Inspection at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D25	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_D25-Fender Pad-ST	1	No.			95	5					B	5d0c2ee7-77	7742bb40-4c		Corrosion. Weathering to pad.	H	Clean corroded areas. Re-apply protective coating. Monitor weathering to pad. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D25	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_D25-Fender Support Frame-ST	1	Item			100						A	5d0c2ee7-77	7742bb40-4c		No repairs required. Inspection at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_D25	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_D25-Steel Strut-ST	1	No.			100						A	5d0c2ee7-77	7742bb40-4c	5f2ea218-d1a7-43fe-ab59-e3ae6ba8d771,1410064e-4f10-4414-866f-b796b298ff6	H	None required. Monitor at five-yearly intervals.	Y	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender</																							

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)
															1	2	3	4	5	6	7								
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_128	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_128-Steel Strut-ST	2	No.		100						A	5d0c2ee7-77	d682d595-8	8aed2c9-492a-4059-af6c-cd69b14c3e89,11034e91-f967-46ee-a84a-85982c793315,2c0721f7-6d9b-4	H	None required. Monitor at five-yearly intervals.	Y	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_130	Chain	Steel	ST	DCW-Furniture-Fender-F_130-Chain-ST	1	Item		80	20					A	8e415100-97	731a88a9-c7		20. Minor corrosion.	H	Clean corroded sections. Increase monitoring frequency to 2 yearly.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_130	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_130-Fender Cone-R	2	No.		100						A	8e415100-97	731a88a9-c7		No repairs required. Inspection at next scheduled inspection.	Y		Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_130	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_130-Fender Pad-ST	1	No.		95	5					B	8e415100-97	731a88a9-c7		Corrosion. Weathering to pad.	H	Clean corroded areas. Re-apply protective coating. Monitor weathering to pad. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_130	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_130-Fender Support Frame-ST	1	Item		100						A	8e415100-97	731a88a9-c7		No repairs required. Inspection at next scheduled inspection.	Y		Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_130	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_130-Steel Strut-ST	1	No.		90	10					A	8e415100-97	731a88a9-c7	042f82cd-82	Coating damaged, minor corrosion present	H	Blast and paint corroded areas. Repair damaged coating. Monitor at five-yearly intervals.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_131	Chain-ST	Steel	ST	DCW-Furniture-Fender-F_131-Chain-ST	1	Item		80	20					A	8e415100-97	51c421f3-6b		20. Minor corrosion.	H	Clean corroded sections. Increase monitoring frequency to 2 yearly.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_131	Elastomeric Arch Fender	Rubber	R	DCW-Furniture-Fender-F_131-Elastomeric Arch Fender-F	2	No.		100						A	8e415100-97	51c421f3-6b27-46ab-3ce8		Two arch fenders between Fenders F_131 and F_132/33	L	No repairs required. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_131	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_131-Fender Cone-R	2	No.		100						A	8e415100-97	51c421f3-6b			H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_131	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_131-Fender Pad-ST	1	No.		95	5					B	8e415100-97	51c421f3-6b		Corrosion. Weathering to pad.	H	Clean corroded areas. Re-apply protective coating. Monitor weathering to pad. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_131	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_131-Fender Support Frame-ST	1	Item		90	10					A	8e415100-97	51c421f3-6b		Minor corrosion.	H	Clean corroded area. Re-apply protective coating. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_131	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_131-Steel Strut-ST	1	No.		90	10					A	8e415100-97	51c421f3-6b	588da6e-2f	Coating damaged, minor corrosion present. Tape used to cover damaged coating.	H	Blast and paint corroded areas. Repair damaged coating. Monitor at five-yearly intervals.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_132/33	Chain	Steel	ST	DCW-Furniture-Fender-F_132/33-Chain-ST	1	Item		80	20					A	8e415100-97	f4c596df-85		20. Minor corrosion.	H	Clean corroded sections. Increase monitoring frequency to 2 yearly.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_132/33	Elastomeric Arch Fender	Rubber	R	DCW-Furniture-Fender-F_132/33-Elastomeric Arch Fend	1	No.		100						A	8e415100-97	f4c596df-8523-4432-86d8		One arch fender between Fenders F_132/33 and F_134	L	No repairs required. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_132/33	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_132/33-Fender Cone-R	2	No.		100						A	8e415100-97	f4c596df-85			H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_132/33	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_132/33-Fender Pad-ST	1	No.		100						B	8e415100-97	f4c596df-85			H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_132/33	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_132/33-Fender Support Frame	1	Item		100						A	8e415100-97	f4c596df-85			H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_132/33	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_132/33-Steel Strut-ST	1	No.		100						A	8e415100-97	f4c596df-85	c18c5b0b-04c2-4c50-b3ac-d011b9f5064e,bae23a1e-cfac-4da8-8336-8d32dfc3c114		H	None required. Monitor at five-yearly intervals.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_134	Chain	Steel	ST	DCW-Furniture-Fender-F_134-Chain-ST	1	Item		80	20					A	8e415100-97	50288382-54			H	Clean corroded sections. Increase monitoring frequency to 2 yearly.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_134	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_134-Fender Cone-R	2	No.		100						A	8e415100-97	50288382-54			H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_134	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_134-Fender Pad-ST	1	No.		95	5					B	8e415100-97	50288382-54		Corrosion. Weathering to pad.	H	Clean corroded areas. Re-apply protective coating. Monitor weathering to pad. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_134	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_134-Fender Support Frame-ST	1	Item		100						A	8e415100-97	50288382-54			H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_134	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_134-Steel Strut-ST	1	No.		90	10					A	8e415100-97	50288382-54	20c47ad7-5b	Coating damaged, 25cm strip of corrosion present.	H	Blast and paint corroded areas. Repair damaged coating. Monitor at five-yearly intervals.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_135/36	Chain	Steel	ST	DCW-Furniture-Fender-F_135/36-Chain-ST	1	Item		80	20					A	8e415100-97	c92b6660-b3		20. Minor corrosion.	H	Clean corroded sections. Increase monitoring frequency to 2 yearly.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Fender	F_135/36	Elastomeric Arch Fender	Rubber	R	DCW-Furniture-Fender-F_135/36-Elastomeric Arch Fend	2	No.		100						A	8e415100-97	c92b6660-b306-4516-80dc		Two arch fenders between Fenders F_135/36 and F_137	L	No repairs required. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_135/36	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_135/36-Fender Cone-R	2	No.		100						A	8e415100-97	c92b6660-b3			H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_135/36	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_135/36-Fender Pad-ST	1	No.		100						B	8e415100-97	c92b6660-b3			H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick																												

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)
															1	2	3	4	5	6	7								
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_031/32	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_031/32-Steel Strut-ST	1	No.			80	20				A	8e415100-9	096acc4-8e	982da95e-8c	Torn jacket at connection to fender supports. No signs of rust.	H	Repair/Seal torn jacket. Repair damaged coating. Monitor at five-yearly intervals.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_032/33	Chain	Steel	ST	DCW-Furniture-Fender-F_032/33-Chain-ST	1	Item			25			25	50	C	8e415100-9	7b0f638a-89		25(2)25(5)50(6). Weight chain lower section has been replaced. Upper section and tension chain are heavily corroded and worn and require replacement	H	Replace upper section and tension chains. Clean corrosion of the other chains. Ensure new chains have sufficient thread protrusion.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_032/33	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_032/33-Fender Cone-R	2	No.			100					A	8e415100-9	7b0f638a-89		Corrosion and protective coating peeling.	H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_032/33	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_032/33-Fender Pad-ST	1	No.			30	70				B	8e415100-9	7b0f638a-89		Corrosion with loss of protective coating to fender pad backing. Weathering to pad.	H	Clean corroded areas. Re-apply protective coating. Monitor weathering to pad.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_032/33	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_032/33-Fender Support Frame-ST	1	Item			50	50				A	8e415100-9	7b0f638a-89		Corrosion and protective coating peeling.	H	Clean corroded area. Re-apply protective coating. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_032/33	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_032/33-Steel Strut-ST	1	No.			80	20				A	8e415100-9	7b0f638a-89	94cf1884-6a	Tear of jackets at bottom connection to fender support frames (typical to most east side). Jacket torn on North strut midway. No signs of rust.	H	Repair/Seal torn jacket. Repair damaged coating. Monitor at five-yearly intervals.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_033/34	Chain	Steel	ST	DCW-Furniture-Fender-F_033/34-Chain-ST	1	Item						50	50	C	8e415100-9	094e3340-bc		50(5)50(6). Heavily corroded. Tensioner has insufficient thread protrusion and is heavily corroded. Replacement is required	H	Replace chains. Ensure new chains have sufficient thread protrusion.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_033/34	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_033/34-Fender Cone-R	2	No.			100					A	8e415100-9	094e3340-bc		Corrosion with loss of protective coating to fender pad backing. Weathering to pad.	H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_033/34	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_033/34-Fender Pad-ST	1	No.			70	30				B	8e415100-9	094e3340-bc		Corrosion. Weathering to pad.	H	Clean corroded areas. Re-apply protective coating. Monitor weathering to pad. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_033/34	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_033/34-Fender Support Frame-ST	1	Item			40	50		10		C	8e415100-9	094e3340-bc		Bolts connecting support frame to wharf are not tight. Corrosion and protective coating peeling.	H	Tighten loose bolts connecting support frame to wharf. Clean corroded areas. Re-apply protective coating. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_033/34	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_033/34-Steel Strut-ST	1	No.			100					A	8e415100-9	094e3340-bc	dc7d4813e-c9d4-401e-9de4-79b041a12a2d,e783ec2-980f-43be-9f5f-7b49928e47b	dc7d4813e-c9d4-401e-9de4-79b041a12a2d,e783ec2-980f-43be-9f5f-7b49928e47b	H	None required. Monitor at five-yearly intervals.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_034/35	Chain	Steel	ST	DCW-Furniture-Fender-F_034/35-Chain-ST	1	Item						50	50	C	8e415100-9	2ed67b65-9c		50(5)50(6). Heavily corroded.	H	Replace chains. Ensure new chains have sufficient thread protrusion.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_034/35	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_034/35-Fender Cone-R	2	No.			100					A	8e415100-9	2ed67b65-9c		Corrosion and protective coating peeling.	H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_034/35	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_034/35-Fender Pad-ST	1	No.			70	30				B	8e415100-9	2ed67b65-9c		Corrosion. Weathering to pad.	H	Clean corroded areas. Re-apply protective coating. Monitor weathering to pad. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_034/35	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_034/35-Fender Support Frame-ST	1	Item			40	50		10		C	8e415100-9	2ed67b65-9c		Bolts connecting support frame to wharf are not tight. Corrosion and protective coating peeling.	H	Tighten loose bolts connecting support frame to wharf. Clean corroded areas. Re-apply protective coating. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_034/35	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_034/35-Steel Strut-ST	1	No.			100					A	8e415100-9	2ed67b65-9c	4abef610-5bce-4648-877e-da10f4105f1b,7030d3d8-519e-4f29-888b-adff0099d5dc,020e891f-7554-d	4abef610-5bce-4648-877e-da10f4105f1b,7030d3d8-519e-4f29-888b-adff0099d5dc,020e891f-7554-d	H	None required. Monitor at five-yearly intervals.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_036/37	Chain	Steel	ST	DCW-Furniture-Fender-F_036/37-Chain-ST	1	Item						50	50	C	8e415100-9	7e7a670b-c4		50(5)50(6). Heavily corroded. Weight chain has been replaced.	H	Replace chains. Clean corrosion of weight chain. Ensure new chains have sufficient thread protrusion.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_036/37	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_036/37-Fender Cone-R	2	No.			90	10				A	8e415100-9	7e7a670b-c4		Slit in top fender flange	H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_036/37	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_036/37-Fender Pad-ST	1	No.			30	70				B	8e415100-9	7e7a670b-c4		Corrosion with loss of protective coating. Weathering to pad. Slit in top fender flange.	H	Clean corroded areas. Re-apply protective coating. Consider replacement of fender pads and bolts.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_036/37	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_036/37-Fender Support Frame-ST	1	Item			50	50				A	8e415100-9	7e7a670b-c4		Corrosion and protective coating peeling.	H	Clean corroded area. Re-apply protective coating. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_036/37	Steel Strut	Steel	ST	DCW-Furniture-Fender-F_036/37-Steel Strut-ST	1	No.			100					A	8e415100-9	7e7a670b-c4	5f7614fd-be78-401e-9485-95c2d3237c57,113b16c7-914c-4451-8b6b-982685fde93a,49c642f-5b6f-4	5f7614fd-be78-401e-9485-95c2d3237c57,113b16c7-914c-4451-8b6b-982685fde93a,49c642f-5b6f-4	H	None required. Monitor at five-yearly intervals.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_037/38	Chain	Steel	ST	DCW-Furniture-Fender-F_037/38-Chain-ST	1	Item						50	50	C	8e415100-9	c2178c09-6b		50(5)50(6). Heavily corroded. Tension chain close to failure	H	Replace chains. Ensure new chains have sufficient thread protrusion.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_037/38	Fender Cone	Rubber	R	DCW-Furniture-Fender-F_037/38-Fender Cone-R	2	No.			100					A	8e415100-9	c2178c09-6b		Corrosion with loss of protective coating to fender pad backing. Weathering to pad.	H	No repairs required. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_037/38	Fender Pad	Steel	ST	DCW-Furniture-Fender-F_037/38-Fender Pad-ST	1	No.			30	70				B	8e415100-9	c2178c09-6b		Corrosion with loss of protective coating to fender pad backing. Weathering to pad.	H	Clean corroded areas. Re-apply protective coating. Monitor weathering to pad.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Fender	F_037/38	Fender Support Frame	Steel	ST	DCW-Furniture-Fender-F_037/38-Fender Support Frame-ST	1	Item															

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)
															1	2	3	4	5	6	7								
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Furniture	Lights	L_D10/28	Post	Steel	ST	DCW-Furniture-Lights-L_D10/28-Post-ST		3 No.								C			6C2b850-15	Three lights present on the original wharf. Anchor bolts are covered in Denso and in good condition with no signs of corrosion. Light towers are weathered with some mild surface corrosion.	L	Blast and paint corroded sections. Monitor at five-yearly intervals.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Furniture	Lights	L_J029/45	Post	Steel	ST	DCW-Furniture-Lights-L_J029/45-Post-ST		1 No.			100					C				One light present, north side of extension wharf. Mild surface corrosion.	L	Blast and paint corroded sections. Monitor at five-yearly intervals.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Furniture	Lights	L_SMD	Post	Steel	ST	DCW-Furniture-Lights-L_SMD-Post-ST		1 No.			100					C			54e57d05-a	Paint is weathered. Minor corrosion staining at pole hinge. Anchor bolts are wrapped in denso	L	Blast and paint corroded sections. Monitor at five-yearly intervals.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A2	Anode	Aluminium	AI	DCW-Piles-Pile-P_A2-Anode-AI		1 No.								A				Dive inspection not completed on this pile.	H	Anode replacement by 2025	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A2	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_A2-Pile Exposure 01-ST		1 Item								A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A2	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_A2-Pile Exposure 02-ST		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A2	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_A2-Pile Exposure 03-ST		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A2	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_A2-Pile Sleeve-D		1 Item			95		5			C			64c2bdae-df	Minor cut in jacket. No signs of staining of steel.	H	Cut away damaged sections of jacket and seal jacket.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A3	Anode	Aluminium	AI	DCW-Piles-Pile-P_A3-Anode-AI		1 No.								A				Dive inspection not completed on this pile.	H	Anode replacement by 2025	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A3	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_A3-Pile Exposure 01-ST		1 Item								A			11523589-01	Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A3	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_A3-Pile Exposure 02-ST		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A3	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_A3-Pile Exposure 03-ST		1 Item			95		5			B			11523589-01	Possible corrosion at top of pile (staining likely to be due to denso grease). Unable to tell from water level.	H	Inspect at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A3	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_A3-Pile Sleeve-D		1 Item			90		10			C			11523589-01	Minor cut in jacket (5cm long, 0.5mm wide). Jacket overlaps to be sealed.	H	Cut away damaged sections of jacket and seal jacket.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A4	Anode	Aluminium	AI	DCW-Piles-Pile-P_A4-Anode-AI		1 No.								A				Dive inspection not completed on this pile.	H	Anode replacement by 2025	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A4	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_A4-Pile Exposure 01-ST		1 Item								A			08f2cd11-47	Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A4	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_A4-Pile Exposure 02-ST		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A4	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_A4-Pile Exposure 03-ST		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A4	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_A4-Pile Sleeve-D		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A5	Anode	Aluminium	AI	DCW-Piles-Pile-P_A5-Anode-AI		1 No.								A				Dive inspection not completed on this pile.	H	Anode replacement by 2025	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A5	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_A5-Pile Exposure 01-ST		1 Item								A			2e65da7b-01	Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A5	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_A5-Pile Exposure 02-ST		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A5	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_A5-Pile Exposure 03-ST		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A5	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_A5-Pile Sleeve-D		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A6	Anode	Aluminium	AI	DCW-Piles-Pile-P_A6-Anode-AI		1 No.								A				Dive inspection not completed on this pile.	H	Anode replacement by 2025	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A6	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_A6-Pile Exposure 01-ST		1 Item								A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A6	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_A6-Pile Exposure 02-ST		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A6	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_A6-Pile Exposure 03-ST		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A6	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_A6-Pile Sleeve-D		1 Item			95		5			C			3ac4ef84-3d	Minor cut in jacket (5cm long, 0.5mm wide). Jacket overlaps to be sealed.	H	Cut away damaged sections of jacket and seal jacket.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A7	Anode	Aluminium	AI	DCW-Piles-Pile-P_A7-Anode-AI		2 No.			100					A				Two anodes present. Both secured to pile. Anode 1 (West Face): • Depth: 3.0m below LAT • Depletion: 30% • Original Dimension: 750x150x100mm. Anode 2 (West Face): • Depth: 3.0m below LAT • Depletion: 50% • Original Dimension: 750x150x100mm	H	Anode replacement by 2025	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A7	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_A7-Pile Exposure 01-ST		1 Item			75		25			C			56c62db7-f3	Depth: Bottom • No movement in sea bed. 30% of de-bondment to coating. No signs of pitting. No signs of corrosion. • Depth: 10.6m at MSL • CP: -1.044(V) -0.937(N), -0.937(E), -0.936(S), -0.937(W) • UT: 9.3(N), 9.2(E), 9.2(S), 9.2(W) Depth: 2m below LAT • 20% coating de-bondment. No signs of corrosion. No signs of pitting. • Depth: 6.0m • CP: -0.986(N), -0.943(E), -0.941(S), -0.949(W) • UT: 9.3(N), 9.4(E), 9.1(S), 9.1(W) Depth: LAT • 50% de-bondment of coating. Slight Discolouration (rust) to 15% of surface area. No visible pitting. • Depth: 4.0m • CP: -0.924(N), -0.921(E), -0.928(S), -0.927(W) • UT: 9.1(N), 9.3(E), 9.1(S), 9.2(W)	H	No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A7	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_A7-Pile Exposure 02-ST		1 Item			50		50			C			3bba8599-e	Depth: MSL De-bondment to 80% of surface area. Surface rust to 15% of surface area. No signs of pitting. • Depth: 1.2m • CP: -0.910(N), -0.911(E), -0.911(S), -0.906(W) • UT: 9.0(N), 9.0(E), 9.0(S), 9.0(W) Above water level pile appears in good condition. Coating bonded and intact to 90% of area. 10% de-bonding near bolt seam. Blistering visible. Minor discolouration (rust). No visible signs of pitting.	H	No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A7	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_A7-Pile Exposure 03-ST		1 Item			75		25			A				Above water level pile appears in good condition. Coating bonded and intact to 90% of area. 10% de-bonding near bolt seam. Blistering visible. Minor discolouration (rust). No visible signs of pitting.	H	No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A7	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_A7-Pile Sleeve-D		1 Item			100					A				Pile jackets replaced in 2020.	H	No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A8	Anode	Aluminium	AI	DCW-Piles-Pile-P_A8-Anode-AI		1 No.				100				A			7177d7a6-21	One anode present. Secured to pile. Anode 1: • Depth: 5.0m depth • Depletion: 30% • Original Dimension: 750x150x100mm • CP: 0.994	H	Anode replacement by 2025	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A8	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_A8-Pile Exposure 01-ST		1 Item			100					A			7177d7a6-21	Depth 1 - Bottom 11.9m depth No corrosion signs. Full contact of paint coating. 0% pitting. • CP: 0.943(N), 0.943(E), 0.943, 0.943(W) • UT: 9.1(N), 9.1(E), 9.1(S), 9.1(W) Depth 2 - 4.6m Depth 3 - No signs of corrosion/rust. Coating intact. • CP: 0.982(N), 0.953(E), 0.950(S), 0.955(W) • UT: None taken	H	No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A8	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_A8-Pile Exposure 02-ST		1 Item			75		25			A			7177d7a6-21	Depth • Blistering/corrosion under the protective coating. 50% blistering of coating (coating is 50% gone). No signs of corrosion to the steel. • CP: 0.933(N), 0.945(E), 0.945(S), 0.938(W) • UT: 9.3(N), 9.3(E), 9.4(S), 9.3(W) Depth 600mm below water level • Coating blistering 20% coverage (N80 missing). No signs of corrosion. No visible pitting. • CP: TBC • UT: 9.3(N), 9.4(E), 9.3(S), 9.3(W) Depth at water level • CP: TBC • UT: 9.4(N)	H	No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A8	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_A8-Pile Exposure 03-ST		1 Item			75		25			A			7177d7a6-21	70% covering of paint coating (lifts away easily). No signs of corrosion or putting.	H	No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A8	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_A8-Pile Sleeve-D		1 Item			100					A			7177d7a6-21	Pile jackets replaced in 2020.	H	No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A9	Anode	Aluminium	AI	DCW-Piles-Pile-P_A9-Anode-AI		1 No.								A				Dive inspection not completed on this pile.	H	Anode replacement by 2025	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A9	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_A9-Pile Exposure 01-ST		1 Item								A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A9	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_A9-Pile Exposure 02-ST		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A9	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_A9-Pile Exposure 03-ST		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_A9	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_A9-Pile Sleeve-D		1 Item			100					A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)			
															1	2	3	4	5	6	7											
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_AB9	Anode	Aluminium	Al	DCW-Piles-Pile-P_AB9-Anode-Al		2	No.			100										Two anodes present. Both secured to pile. Anode 1: • Depth: 3.0m below LAT • Depletion: 80% • Original Dimension: 800x150x130mm. Anode 2 (West Face): • Depth: 3.0m below LAT • Depletion: 20% • Original Dimension: 800x150x130mm.	H	Anode replacement by 2026	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_AB9	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_AB9-Pile Exposure 01-ST		1	Item			100								c180035e-3c	Depth: Bottom No movement in sea bed. 100% of coating. No signs of corrosion. • Depth: 12.2m • CP: -1.047(V): -1.011(N), -1.012(E), -1.011(S), -1.010(W) • UT: 12.7(N), 12.5(E), 12.6(S), 12.5(W) Depth: 2m below LAT 15% coating de-bondment. No signs of corrosion. • Depth: 6.0m • CP: -1.023(N), -1.022(E), -1.025(S), -1.026(W) • UT: 12.4(N), 12.5(E), 12.4(S), 12.5(W) Depth: LAT Jacket present and in good condition with no signs of any defects	H	Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_AB9	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_AB9-Pile Exposure 02-ST		1	Item			100								1a3bf8e-f88c-472e-82b3-6a3f58c176d5		Inspect at next scheduled inspection.	N			
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_AB9	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_AB9-Pile Exposure 03-ST		1	Item			100										Inspect at next scheduled inspection.	N			
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_AB9	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_AB9-Pile Sleeve-D		1	Item			100										Jacket inspected by diver no defects present. Seal intact	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B2	Anode	Aluminium	Al	DCW-Piles-Pile-P_B2-Anode-Al		1	No.													Dive inspection not completed on this pile.	H	Anode replacement by 2025	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B2	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_B2-Pile Exposure 01-ST		1	Item											9ba0f8ca0-44	Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B2	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_B2-Pile Exposure 02-ST		1	Item			100											Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B2	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_B2-Pile Exposure 03-ST		1	Item			95	5									Possible corrosion at top of pile (staining likely to be due to denso grease). Unable to tell from water level.	H	Inspect at next scheduled inspection.	Y	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B2	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_B2-Pile Sleeve-D		1	Item			100											Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B3	Anode	Aluminium	Al	DCW-Piles-Pile-P_B3-Anode-Al		1	No.											db93d62e-ac	Dive inspection not completed on this pile.	H	Anode replacement by 2025	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B3	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_B3-Pile Exposure 01-ST		1	Item														Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B3	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_B3-Pile Exposure 02-ST		1	Item			75	25							db93d62e-ac		Inspect at next scheduled inspection.	N			
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B3	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_B3-Pile Exposure 03-ST		1	Item			95	5							db93d62e-ac	Possible corrosion at top of pile (staining likely to be due to denso grease). Unable to tell from water level.	H	Inspect at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B3	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_B3-Pile Sleeve-D		1	Item			100								db93d62e-ac		Inspect at next scheduled inspection.	N			
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B4	Anode	Aluminium	Al	DCW-Piles-Pile-P_B4-Anode-Al		1	No.											6a622fe8-07	Dive inspection not completed on this pile.	H	Anode replacement by 2025	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B4	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_B4-Pile Exposure 01-ST		1	Item											6a622fe8-0790-46ee-b8a4	Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B4	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_B4-Pile Exposure 02-ST		1	Item			100								6a622fe8-07		Inspect at next scheduled inspection.	N			
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B4	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_B4-Pile Exposure 03-ST		1	Item			100								6a622fe8-0790-46ee-b8a4-04d88fb15c15,8d17a310-6315-46a7-80e4-f9f9fb3d85		Inspect at next scheduled inspection.	N			
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B4	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_B4-Pile Sleeve-D		1	Item			95		5						6a622fe8-0790-46ee-b8a4	Minor puncture to jacket	H	Cut away damaged sections of jacket and seal jacket.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B5	Anode	Aluminium	Al	DCW-Piles-Pile-P_B5-Anode-Al		2	No.			100										Two anodes present. Both secured to pile. Anode 1: • Depth: 2.5m below LAT • Depletion: 30% • Original Dimension: 800x150x100mm Anode 2: • Depth: 2.5m below LAT • Depletion: 80% • Original Dimension: 800x150x100mm	H	Anode replacement by 2025	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B5	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_B5-Pile Exposure 01-ST		1	Item			70	25	5								Depth: Bottom No movement in sea bed. 95% of de-bondment to coating. Some blistering of paint present with pitting beneath depth approximately 2mm. No signs of corrosion. • Depth: 10.5m at high tide • CP: -1.048(V) -0.990(N), -0.989(E), -0.989(S), -0.989(W) • UT: 16.4(N), 16.4(E), 16.5(S), 16.4(W) Depth: 2m below LAT 60% coating intact. No signs of corrosion. Pitting present 1-5mm over 5%. • Depth: 8.6m • CP: -1.000(N), -0.995(E), -0.994(S), -0.996(W) • UT: 16.1(N), 16.9(E), 16.1(S), 16.1(W) Depth: LAT Jacket present, one bolt missing from jacket seal. Remaining jacket in good condition	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B5	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_B5-Pile Exposure 02-ST		1	Item													Inspected by diver no visible signs of damage, few areas where small bulges are present (less than a 50c piece). No breaks in the jacket	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B5	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_B5-Pile Exposure 03-ST		1	Item														Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B5	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_B5-Pile Sleeve-D		1	Item			75	25							7501674f-09	Jacket present. No visible signs of damage/cuts in jacket. Few areas where small bulges are present (less than a 50c piece). One bolt missing from jacket seal. Remaining jacket in good condition.	H	Reinstate missing bolt. Inspect at next scheduled inspection.	Y		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B6	Anode	Aluminium	Al	DCW-Piles-Pile-P_B6-Anode-Al		1	No.													Dive inspection not completed on this pile.	H	Anode replacement by 2025	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_B6	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_B6-Pile Exposure 01-ST		1	Item													Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick &																															

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)		
															1	2	3	4	5	6	7										
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C4	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_C4-Pile Sleeve-D	1	Item			95			5						27f36995-1f	Small tears and cuts on jacket	H	Cut away damaged sections of jacket and seal jacket.	Y	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C5	Anode	Aluminium	Al	DCW-Piles-Pile-P_C5-Anode-Al	1	No.								A					Dive inspection not completed on this pile.	H	Anode replacement by 2025	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C5	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_C5-Pile Exposure 01-ST	1	Item								A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C5	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_C5-Pile Exposure 02-ST	1	Item			100					A						Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C5	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_C5-Pile Exposure 03-ST	1	Item			100					A						Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C5	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_C5-Pile Sleeve-D	1	Item			100					A						Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C6	Anode	Aluminium	Al	DCW-Piles-Pile-P_C6-Anode-Al	1	No.								A					Dive inspection not completed on this pile.	H	Anode replacement by 2025	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C6	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_C6-Pile Exposure 01-ST	1	Item								A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C6	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_C6-Pile Exposure 02-ST	1	Item			100					A						Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C6	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_C6-Pile Exposure 03-ST	1	Item			100					A						Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C6	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_C6-Pile Sleeve-D	1	Item			100					A				b65a1216-df		Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C7	Anode	Aluminium	Al	DCW-Piles-Pile-P_C7-Anode-Al	2	No.					100			B					Two anodes present. Both secured to pile. Anode 1: • Depth: 3.0m below LAT • Depletion: 100% • Original Dimension: 800x150x75mm Anode 2: • Depth: 3.0m below LAT • Depletion: 50% • Original Dimension: 800x150x75mm	H	Anode replacement by 2023	Y	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C7	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_C7-Pile Exposure 01-ST	1	Item			75	25				C				0a4fd866-7f	Depth: Bottom No movement in sea bed. 10% of de-bondment to coating. Minor pitting present on 10% of surface area. Depth up to 3mm. No signs of corrosion. • Depth: 11.3m • CP: -1.042(T) -0.939(N), -0.940(E), -0.940(S), -0.940(W) • UT: 16.2(N), 16.3(E), 16.1(S), 16.1(W) Depth: 2m below LAT 50% coating de-bondment. No signs of corrosion. 5% of pile covered in minor pits. • Depth: 6.0m • CP: -0.944(N), -0.945(E), -0.948(S), -0.946(W) • UT: 16.0(N), 15.9(E), 15.9(S), 16.0(W) Depth: LAT 50% de-bondment of coating. Slight Discolouration (rust) to 5% of surface area. Minor pitting up to 2mm depth over 5% of area. • Depth: 4.0m • CP: -0.936(N), -0.936(E), -0.936(S), -0.936(W) • UT: 15.9(N), 15.9(E), 15.8(S), 15.9(W)	H	No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	Y	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C7	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_C7-Pile Exposure 02-ST	1	Item			75	25				C					Depth: MSL De-bondment to 80% of surface area. Surface rust to 15% of surface area. 5% surface area of minor pitting. • Depth: 1.3m • CP: -0.929(N), -0.927(E), -0.916(S), -0.922(W) • UT: 16.0(N), 16.1(E), 16.1(S), 16.1(W) Above water level pile appears in good condition. Coating bonded and intact to 50% of area. Blistering visible. Minor discolouration (rust) 30% signs of pitting.	H	No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	Y	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C7	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_C7-Pile Exposure 03-ST	1	Item			100					A						No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C7	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_C7-Pile Sleeve-D	1	Item			100					A						Pile jackets replaced in 2020.	H	No repairs required. Jacket replaced 2020. Inspection at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C8	Anode	Aluminium	Al	DCW-Piles-Pile-P_C8-Anode-Al	1	No.								A						Dive inspection not completed on this pile.	H	Anode replacement by 2025	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C8	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_C8-Pile Exposure 01-ST	1	Item								A				039a7ad0-0c	Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C8	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_C8-Pile Exposure 02-ST	1	Item			100					A						Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C8	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_C8-Pile Exposure 03-ST	1	Item			100					A						Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Approach Bridge	Piles	Pile	P_C8	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_C8-Pile Sleeve-D	1	Item			100					A						Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D10	Anode	Aluminium	Al	DCW-Piles-Pile-P_D10-Anode-Al	1	No.								A						Dive inspection not completed on this pile.	H	Anode replacement by 2024.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D10	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_D10-Pile Exposure 01-ST	1	Item								A				d76c613c-0a	Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D10	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_D10-Pile Exposure 02-ST	1	Item			100					A						Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D10	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_D10-Pile Exposure 03-ST	1	Item			100					A						Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D10	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_D10-Pile Sleeve-D	1	Item			100					A						Inspect at next scheduled inspection.	H		N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D11	Anode	Aluminium	Al	DCW-Piles-Pile-P_D11-Anode-Al	1	No.								A						Dive inspection not completed on this pile.	H	Anode replacement by 2024.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D11	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_D11-Pile Exposure 01-ST	1	Item								A						Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd</																														

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)		
															1	2	3	4	5	6	7										
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D15	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_D15-Pile Sleeve-D		1	Item			100									No signs of blisters, tearing, bulging of the jackets. No signs of corrosion to bolts at seam.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D16	Anode	Aluminium	Al	DCW-Piles-Pile-P_D16-Anode-Al		1	No.											4f498ad-1e	Dive inspection not completed on this pile.	H	Anode replacement by 2024.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D16	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_D16-Pile Exposure 01-ST		1	Item											4f498ad-1e	Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D16	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_D16-Pile Exposure 02-ST		1	Item			100								4f498ad-1e	Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D16	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_D16-Pile Exposure 03-ST		1	Item			100								4f498ad-1e	Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D16	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_D16-Pile Sleeve-D		1	Item			100								4f498ad-1e	Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D17	Anode	Aluminium	Al	DCW-Piles-Pile-P_D17-Anode-Al		1	No.											a5ce3000-6c	Dive inspection not completed on this pile.	H	Anode replacement by 2024.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D17	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_D17-Pile Exposure 01-ST		1	Item											a5ce3000-6c	Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D17	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_D17-Pile Exposure 02-ST		1	Item			100								a5ce3000-6c	Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D17	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_D17-Pile Exposure 03-ST		1	Item			100								a5ce3000-6c	Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D17	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_D17-Pile Sleeve-D		1	Item			100								a5ce3000-6c	Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D18	Anode	Aluminium	Al	DCW-Piles-Pile-P_D18-Anode-Al		1	No.													Dive inspection not completed on this pile.	H	Anode replacement by 2024.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D18	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_D18-Pile Exposure 01-ST		1	Item													Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D18	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_D18-Pile Exposure 02-ST		1	Item			100										Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D18	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_D18-Pile Exposure 03-ST		1	Item			100								4192500b-8c	Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D18	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_D18-Pile Sleeve-D		1	Item			100									4192500b-8c	Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D19	Anode	Aluminium	Al	DCW-Piles-Pile-P_D19-Anode-Al		2	No.				100								9ad5f44e-68	Two anodes present. Both secured to pile. Anode 1 (N face): • Depth: 2.0m below LAT • Depletion: 40% • Original Dimension: 750x150x120mm Anode 2 (N face): • Depth: 2.0m below LAT • Depletion: 95% • Original Dimension: 750x150x120mm	H	Anode replacement by 2024.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D19	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_D19-Pile Exposure 01-ST		1	Item			90		10						9ad5f44e-68	Depth: Bottom No movement in sea bed. 5% of de-bondment to coating. Signs of pitting to 5% surface area approximately 2mm deep. No signs of corrosion. • Depth: 11.3m • CP: -1.044(T) -0.964(N), -0.972(E), -0.973(S), -0.973(W) • UT: 16.1(N), 16.0(E), 16.2(S), 15.9(W) Depth: 2m below LAT 60% coating de-bondment. Coating is bubbling. No signs of corrosion. 15% of surface area affected by pitting. • Depth: 8.0m • CP: -0.983(N), -0.981(E), -0.980(S), -0.979(W) • UT: 15.7(N), 15.8(E), 15.6(S), 15.7(W) Depth: LAT Jacket present. No damage to jacket.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D19	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_D19-Pile Exposure 02-ST		1	Item			90		10						9ad5f44e-68	Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D19	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_D19-Pile Exposure 03-ST		1	Item			90		10						9ad5f44e-68	Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D19	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_D19-Pile Sleeve-D		1	Item			100								9ad5f44e-68	Jacket present. No defects identified	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D20	Anode	Aluminium	Al	DCW-Piles-Pile-P_D20-Anode-Al		1	No.													Dive inspection not completed on this pile.	H	Anode replacement by 2024.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D20	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_D20-Pile Exposure 01-ST		1	Item													Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D20	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_D20-Pile Exposure 02-ST		1	Item			100										Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D20	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_D20-Pile Exposure 03-ST		1	Item			100								326e0389-4c	Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D20	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_D20-Pile Sleeve-D		1	Item			100										Inspect at next scheduled inspection.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D21	Anode	Aluminium	Al	DCW-Piles-Pile-P_D21-Anode-Al		1	No.											03cb6292-4a	Dive inspection not completed on this pile.	H	Anode replacement by 2024.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D21	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_D21-Pile Exposure 01-ST		1	Item											03cb6292-4a	Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_D21	Pile Exposure 02	Steel	ST	DC																			

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)	
															1	2	3	4	5	6	7									
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD5	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_EMD5-Pile Exposure 01-ST		1 Item			90	10								Depth: Bottom No signs of movement. Protective coating bonded and intact. No signs of corrosion. Small pit, 10mm diameter, on East side (no signs of corrosion). • Depth: 11.7m • CP: TBC • UT: 16.4(N), 15.9(E1), 16.1(E2), 16.2(S), 16.4(W) Depth: 2m below LAT Protective coating de-bonded to scattered areas (10% coating de-bonded for 350mm below jacket). Below 350mm returns to good condition. No signs of corrosion/pitting. • Depth: 5.2m • CP: TBC • UT: 16.2(N), 16.1(E), 16.2(S), 16.2(W)	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD5	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_EMD5-Pile Exposure 02-ST		1 Item			100									No signs of blisters, tearing, bulging of the jackets. No signs of corrosion to bolts at seam.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD5	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_EMD5-Pile Exposure 03-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD5	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_EMD5-Pile Sleeve-D		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD6	Anode	Aluminium	AI	DCW-Piles-Pile-P_EMD6-Anode-AI		1 No.												Dive inspection not completed on this pile.	H	Anode replacement by 2023.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD6	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_EMD6-Pile Exposure 01-ST		1 Item												Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD6	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_EMD6-Pile Exposure 02-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD6	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_EMD6-Pile Exposure 03-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD6	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_EMD6-Pile Sleeve-D		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD7	Anode	Aluminium	AI	DCW-Piles-Pile-P_EMD7-Anode-AI		1 No.												Dive inspection not completed on this pile.	H	Anode replacement by 2023.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD7	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_EMD7-Pile Exposure 01-ST		1 Item												Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD7	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_EMD7-Pile Exposure 02-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD7	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_EMD7-Pile Exposure 03-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD7	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_EMD7-Pile Sleeve-D		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD8	Anode	Aluminium	AI	DCW-Piles-Pile-P_EMD8-Anode-AI		1 No.												Dive inspection not completed on this pile.	H	Anode replacement by 2023.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD8	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_EMD8-Pile Exposure 01-ST		1 Item												Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD8	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_EMD8-Pile Exposure 02-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD8	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_EMD8-Pile Exposure 03-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Embedded Dolphin	Piles	Pile	P_EMD8	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_EMD8-Pile Sleeve-D		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F10	Anode	Aluminium	AI	DCW-Piles-Pile-P_F10-Anode-AI		1 No.												Dive inspection not completed on this pile.	H	Anode replacement by 2024.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F10	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_F10-Pile Exposure 01-ST		1 Item												Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F10	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_F10-Pile Exposure 02-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F10	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_F10-Pile Exposure 03-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F10	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_F10-Pile Sleeve-D		1 Item			75	25								13661564-af	Damage at top of jacket, requires reseal	H	Monitor and repair as damage justifies.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F11	Anode	Aluminium	AI	DCW-Piles-Pile-P_F11-Anode-AI		1 No.												Dive inspection not completed on this pile.	H	Anode replacement by 2024.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F11	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_F11-Pile Exposure 01-ST		1 Item												Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F11	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_F11-Pile Exposure 02-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F11	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_F11-Pile Exposure 03-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F11	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_F11-Pile Sleeve-D		1 Item			100									dbc25107-4f		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F12	Anode	Aluminium	AI	DCW-Piles-Pile-P_F12-Anode-AI		1 No.												Dive inspection not completed on this pile.	H	Anode replacement by 2024.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F12	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_F12-Pile Exposure 01-ST		1 Item												Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F12	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_F12-Pile Exposure 02-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F12	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_F12-Pile Exposure 03-ST		1 Item			100											H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_F12	Pile																					

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)		
															1	2	3	4	5	6	7										
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_127	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_127-Pile Exposure 01-ST		1	Item			90	10								Depth: 0.5m Bottom No movement in sea bed. Protective coating bonded and intact. No signs of corrosion/pitting. Northern face has small individual pit (10mmx10mm). • Depth: 8.0m • CP: 984(N), 984(E), 983(S), 820(W) • UT: 16.2(N), 16.1(E), 16.2(S), 16.2(W) Depth: 2m below LAT Protective coating bonded and intact. No signs of corrosion/pitting. • Depth: 2.9m • CP: refer to video (029-15) lost data. • UT: refer to video. Depth: LAT De-bonding of coating system (70% de-bonded). No signs of corrosion/pitting. • Depth: 0.9m • CP: 956(N), 843(E), 0.983(S), 0.984(W) • UT: 16.1(N), 16.1(E), 15.9(S), 15.8(W)	H	Jacket replaced 2020. Inspection at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_127	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_127-Pile Exposure 02-ST		1	Item			90	10				A				De-bonding of coating system (70% de-bonded). No signs of corrosion/pitting. Light staining visible (3%).	H	Jacket replaced 2020. Inspection at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_127	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_127-Pile Exposure 03-ST		1	Item			90		10		C				d2360be-df	Corrosion at fender connection. No jacket is present due to fender connection.	H	Jacket replaced 2020. Inspection at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_127	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_127-Pile Sleeve-D		1	Item	100						A				d2360be-df	Pile jackets replaced in 2020.	H	Investigate protection solutions for missing jacket sections above wave screen connects and around fender support frame connections. Clean corroded sections and apply protection to exposed pile sections.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_128	Anode	Aluminium	Al	DCW-Piles-Pile-P_128-Anode-Al		2	No.				100			A			9fa32fec-845	Two anodes present. Both secured to pile. Anode 1 (South face): • Depth: 4.4m • Depletion: 40% • Original Dimension: 1000x180x130mm Anode 2 (South face): • Depth: 4.4m • Depletion: 90% • Original Dimension: 1000x180x130mm	H	Anode replacement by 2024.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_128	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_128-Pile Exposure 01-ST		1	Item			90	10			A			9fa32fec-8499-4ca6-b0f0	Depth: Bottom (0.5m above) No movement to sea bed. Coating bonded and intact. No signs of corrosion/pitting. • Depth: 8.0m sea bed • CP: 982(N), 972(E), 981(S), 982(W) • UT: 16.3(N), 16.4(E), 16.3(S), 16.1(W) Depth: 2m below LAT 300mm below jacket system. De-bonding of the coating (30% for 1m below jacket). No signs of corrosion/pitting. • Depth: 2.9m • CP: 988(N), 972(E), 988(S), 988(W) • UT: 15.8(N), 15.7(E), 15.8(S), 15.8(W)	H	Underwater dive inspection and jacket removal recommended on this pile to check for signs of corrosion beneath the jacket.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_128	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_128-Pile Exposure 02-ST		1	Item			100				A			9fa32fec-845	No signs of blisters, tearing, bulging of the jackets. No signs of corrosion to bolts at seam.	H	Underwater dive inspection and jacket removal recommended on this pile to check for signs of corrosion beneath the jacket.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_128	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_128-Pile Exposure 03-ST		1	Item			70		30		C			9fa32fec-84f	d31140a7-1	Corrosion at fender connection. No jacket is present due to fender connection.	H	Underwater dive inspection and jacket removal recommended on this pile to check for signs of corrosion beneath the jacket.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Original Wharf	Piles	Pile	P_128	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_128-Pile Sleeve-D		1	Item			90			10	C			9fa32fec-84f	d31140a7-1	Missing jacket section due to fender connection. Corrosion to the pile because of insufficient protection.	H	Investigate protection solutions for missing jacket sections above wave screen connects and around fender support frame connections. Clean corroded sections and apply protection to exposed pile sections.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_129	Anode	Aluminium	Al	DCW-Piles-Pile-P_129-Anode-Al		1	No.							A					Dive inspection not completed on this pile.	H	Anode replacement by 2026.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_129	Pile Cap	Concrete	C	DCW-Piles-Pile-P_129-Pile Cap-C	4.18	m2				50	50			A			97b93b3-a6	Fine cracking. Minor staining from weathering.	H	Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_129	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_129-Pile Exposure 01-ST		1	Item							A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_129	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_129-Pile Exposure 02-ST		1	Item				100			A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_129	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_129-Pile Exposure 03-ST		1	Item				100			A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_129	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_129-Pile Sleeve-D		1	Item				100			A				9817d5ea-c5		Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_130	Anode	Aluminium	Al	DCW-Piles-Pile-P_130-Anode-Al		1	No.							A					Dive inspection not completed on this pile.	H	Anode replacement by 2026.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_130	Pile Cap	Concrete	C	DCW-Piles-Pile-P_130-Pile Cap-C	4.18	m2				50	50			A				61079ac0-b2	Vertical crack 0.4mm full height of pile cap.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_130	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_130-Pile Exposure 01-ST		1	Item							A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_130	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_130-Pile Exposure 02-ST		1	Item				100			A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_130	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_130-Pile Exposure 03-ST		1	Item				100			A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_130	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_130-Pile Sleeve-D		1	Item				100			A				d685cd9a-8c		Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_131	Anode	Aluminium	Al	DCW-Piles-Pile-P_131-Anode-Al		1	No.							A					Dive inspection not completed on this pile.	H	Anode replacement by 2026.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_131	Pile Cap	Concrete	C	DCW-Piles-Pile-P_131-Pile Cap-C	4.18	m2				50	40		10	C				6e84359c-c5	Vertical crack >0.5mm.	H	Conventional concrete repair by concrete breakout behind and along the reinforcement. Clean, check/install additional if required and prime reinforcement, then install sacrificial galvanic anodes and restate concrete with cementitious materials. Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_131	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_131-Pile Exposure 01-ST		1	Item							A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_131	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_131-Pile Exposure 02-ST		1	Item				100			A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_131	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_131-Pile Exposure 03-ST		1	Item				100			A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_131	Pile Sleeve	Denso	D	DCW-Piles-Pile-Piles																			

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)
															1	2	3	4	5	6	7								
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K30	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_K30-Pile Exposure 03-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K30	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_K30-Pile Sleeve-D	1	Item	100							A			5f034b69-ce		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K31	Anode	Aluminium	AI	DCW-Piles-Pile-P_K31-Anode-AI	1	No.								A					H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K31	Pile Cap	Concrete	C	DCW-Piles-Pile-P_K31-Pile Cap-C	4.18	m2	90	10						A			f61d4f98-c1		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K31	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_K31-Pile Exposure 01-ST	1	Item								A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K31	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_K31-Pile Exposure 02-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K31	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_K31-Pile Exposure 03-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K31	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_K31-Pile Sleeve-D	1	Item	100							A			75a8eb41-52		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K32	Anode	Aluminium	AI	DCW-Piles-Pile-P_K32-Anode-AI	1	No.								A					H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K32	Pile Cap	Concrete	C	DCW-Piles-Pile-P_K32-Pile Cap-C	4.18	m2		50	50					A			3d6ea2c1-6f		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K32	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_K32-Pile Exposure 01-ST	1	Item								A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K32	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_K32-Pile Exposure 02-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K32	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_K32-Pile Exposure 03-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K32	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_K32-Pile Sleeve-D	1	Item	100							A			a20f21f2-42		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K33	Anode	Aluminium	AI	DCW-Piles-Pile-P_K33-Anode-AI	1	No.								A					H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K33	Pile Cap	Concrete	C	DCW-Piles-Pile-P_K33-Pile Cap-C	4.18	m2		50	50					A			10ec0368-fe		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K33	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_K33-Pile Exposure 01-ST	1	Item								A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K33	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_K33-Pile Exposure 02-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K33	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_K33-Pile Exposure 03-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K33	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_K33-Pile Sleeve-D	1	Item	90		10					C			f421c4c2-3a	Minor punctures and bulging of jacket.	H	Cut away damaged sections of jacket and seal jacket.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K34	Anode	Aluminium	AI	DCW-Piles-Pile-P_K34-Anode-AI	1	No.								A					H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K34	Pile Cap	Concrete	C	DCW-Piles-Pile-P_K34-Pile Cap-C	4.18	m2	70	30						A			c5d63906-a2		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K34	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_K34-Pile Exposure 01-ST	1	Item								A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K34	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_K34-Pile Exposure 02-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K34	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_K34-Pile Exposure 03-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K34	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_K34-Pile Sleeve-D	1	Item	100							A			ce53a76f-0c		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K37	Anode	Aluminium	AI	DCW-Piles-Pile-P_K37-Anode-AI	1	No.								A					H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K37	Pile Cap	Concrete	C	DCW-Piles-Pile-P_K37-Pile Cap-C	4.18	m2	70	30						A			f4e01379-71		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K37	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_K37-Pile Exposure 01-ST	1	Item								A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K37	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_K37-Pile Exposure 02-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K37	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_K37-Pile Exposure 03-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K37	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_K37-Pile Sleeve-D	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K38	Anode	Aluminium	AI	DCW-Piles-Pile-P_K38-Anode-AI	1	No.								A			6216e79e-9e		H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K38	Pile Cap	Concrete	C	DCW-Piles-Pile-P_K38-Pile Cap-C	4.18	m2		70	30					A			0a8261c4-b5		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K38	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_K38-Pile Exposure 01-ST	1	Item								A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K38	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_K38-Pile Exposure 02-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K38	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_K38-Pile Exposure 03-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K38	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_K38-Pile Sleeve-D	1	Item	90		10					C			a4c793c-48	Minor bulge midway.	H	Inspect at next scheduled inspection.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K39	Anode	Aluminium	AI	DCW-Piles-Pile-P_K39-Anode-AI	1	No.								A					H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K39	Pile Cap	Concrete	C	DCW-Piles-Pile-P_K39-Pile Cap-C	4.18	m2	70	30						A			d855be31-4c		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K39	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_K39-Pile Exposure 01-ST	1	Item								A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K39	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_K39-Pile Exposure 02-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K39	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_K39-Pile Exposure 03-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K39	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_K39-Pile Sleeve-D	1	Item	90		10					C			9243de5b-6f	Minor puncture to jacket	H	Cut away damaged sections of jacket and seal jacket.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K40	Anode	Aluminium	AI	DCW-Piles-Pile-P_K40-Anode-AI	1	No.								A					H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K40	Pile Cap	Concrete	C	DCW-Piles-Pile-P_K40-Pile Cap-C	4.18	m2		50	50					A			83c7a273-5f	Efforescence visible.	H	Concrete cracks and efforescence to be monitored. Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K40	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_K40-Pile Exposure 01-ST	1	Item								A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K40	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_K40-Pile Exposure 02-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K40	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_K40-Pile Exposure 03-ST	1	Item	100							A					H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K40	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_K40-Pile Sleeve-D	1	Item	100							A			89b6498b-df		H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K41	Anode	Aluminium	AI	DCW-Piles-Pile-P_K41-Anode-AI	1	No.								A					H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_K41	Pile Cap	Concrete	C	DCW-Piles-Pile-P_K41-Pile Cap-C</																	

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)		
															1	2	3	4	5	6	7										
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N30	Anode	Aluminium	AI	DCW-Piles-Pile-P_N30-Anode-AI	1	No.									A				Dive inspection not completed on this pile.	H	Anode replacement by 2026.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N30	Pile Cap	Concrete	C	DCW-Piles-Pile-P_N30-Pile Cap-C	4.18	m2			70	30					A			489884d5-fc		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N30	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_N30-Pile Exposure 01-ST	1	Item									A				Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N30	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_N30-Pile Exposure 02-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N30	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_N30-Pile Exposure 03-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N30	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_N30-Pile Sleeve-D	1	Item			100						A			357be7a1-a7		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N31	Anode	Aluminium	AI	DCW-Piles-Pile-P_N31-Anode-AI	2	No.			100						A			f9f8933a-54	Two anodes present. Both secured to pile. Anode 1 (South face): • Depth: 3.7m • Depletion: 10% • Original Dimension: 1000x180x130mm Anode 2 (South face): • Depth: 3.7m • Depletion: 100% • Original Dimension: 1000x180x130mm	H	Anode replacement by 2027.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N31	Pile Cap	Concrete	C	DCW-Piles-Pile-P_N31-Pile Cap-C	4.18	m2			70	30					A			f9f8933a-547620cd97-11		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N31	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_N31-Pile Exposure 01-ST	1	Item			90	10					A			f9f8933a-5464-4c2c-88b7a-	Depth: Bottom (0.5m from sea bed) No movement to sea bed. Coating bonded and intact. No signs of corrosion/pitting. • Depth: 8.8m sea bed • CP: -1.05(V)est, 0.988(N), 0.991(E), 0.993(S), 0.994(W) • UT: 9.1(N), 9.1(E), 9.2(S), 9.1(W) Depth: 2m below LAT (LAT = 1.7m) Isolated patches of de-bonding/blistering. 5% de-bonding of coating for 1m below jacket. No signs of corrosion/pitting. • Depth: 3.7m • CP: -1.045(T), 0.999(N), 1.007(E), -1.010(S), 0.997(W) • UT: 9.3(N), 9.3(E), 9.3(S), 9.1(W)	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N31	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_N31-Pile Exposure 02-ST	1	Item			95	5					A			f9f8933a-544	No signs of blisters, tearing, bulging of the jackets. No signs of corrosion to bolts at seams.	H	Inspect at next scheduled inspection.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N31	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_N31-Pile Exposure 03-ST	1	Item			95	5					A			f9f8933a-544		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N31	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_N31-Pile Sleeve-D	1	Item			100						A			f9f8933a-540428ba429-11		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N32	Anode	Aluminium	AI	DCW-Piles-Pile-P_N32-Anode-AI	1	No.									A					Dive inspection not completed on this pile.	H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N32	Pile Cap	Concrete	C	DCW-Piles-Pile-P_N32-Pile Cap-C	4.18	m2			50	30			20		C			da65357f-4f	Exposed corroded reinforcement on East face with delamination to concrete around. East vertical face exhibits delamination. Delamination to approx. 20% of East face concrete.	H	Conventional concrete repair by concrete breakout behind and along the reinforcement. Clean, check/install additional if required and prime reinforcement, then install sacrificial galvanic anodes and restate concrete with cementitious materials.	N	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N32	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_N32-Pile Exposure 01-ST	1	Item									A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N32	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_N32-Pile Exposure 02-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N32	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_N32-Pile Exposure 03-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N32	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_N32-Pile Sleeve-D	1	Item			100						A			119c3ab6-bc		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N33	Anode	Aluminium	AI	DCW-Piles-Pile-P_N33-Anode-AI	1	No.									A					Dive inspection not completed on this pile.	H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N33	Pile Cap	Concrete	C	DCW-Piles-Pile-P_N33-Pile Cap-C	4.18	m2			70	30					A			caab5d6a-b8		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N33	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_N33-Pile Exposure 01-ST	1	Item									A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N33	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_N33-Pile Exposure 02-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N33	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_N33-Pile Exposure 03-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N33	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_N33-Pile Sleeve-D	1	Item			100						A			7680876b-b1		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N34	Anode	Aluminium	AI	DCW-Piles-Pile-P_N34-Anode-AI	1	No.									A					Dive inspection not completed on this pile.	H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N34	Pile Cap	Concrete	C	DCW-Piles-Pile-P_N34-Pile Cap-C	4.18	m2			70	30					A			5a9be992-b5		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N34	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_N34-Pile Exposure 01-ST	1	Item									A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N34	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_N34-Pile Exposure 02-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N34	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_N34-Pile Exposure 03-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N34	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_N34-Pile Sleeve-D	1	Item			100						A			e4fb077f-52		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N35	Anode	Aluminium	AI	DCW-Piles-Pile-P_N35-Anode-AI	1	No.									A					Dive inspection not completed on this pile.	H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N35	Pile Cap	Concrete	C	DCW-Piles-Pile-P_N35-Pile Cap-C	4.18	m2			70	30					A			6aada1d1-ec		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N35	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_N35-Pile Exposure 01-ST	1	Item									A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N35	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_N35-Pile Exposure 02-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N35	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_N35-Pile Exposure 03-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N35	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_N35-Pile Sleeve-D	1	Item			100						A			0a9fb6495-3e		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N36	Anode	Aluminium	AI	DCW-Piles-Pile-P_N36-Anode-AI	1	No.									A					Dive inspection not completed on this pile.	H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N36	Pile Cap	Concrete	C	DCW-Piles-Pile-P_N36-Pile Cap-C	4.18	m2			70	30					A			a98068fb-28		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N36	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_N36-Pile Exposure 01-ST	1	Item									A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N36	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_N36-Pile Exposure 02-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N36	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_N36-Pile Exposure 03-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N36	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_N36-Pile Sleeve-D	1	Item			100						A			4a65fb7c-5d		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N37	Anode	Aluminium	AI	DCW-Piles-Pile-P_N37-Anode-AI	1	No.									A					Dive inspection not completed on this pile.	H	Anode replacement by 2026.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N37	Pile Cap	Concrete	C	DCW-Piles-Pile-P_N37-Pile Cap-C	4.18	m2			70	30					A			54843962-5d		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N37	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_N37-Pile Exposure 01-ST	1	Item									A					Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N37	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_N37-Pile Exposure 02-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N37	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_N37-Pile Exposure 03-ST	1	Item			100						A					Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N37	Pile Sleeve	Densio	D	DCW-Piles-Pile-P_N37-Pile Sleeve-D	1	Item			100						A			b25f1d7e-3b		Inspect at next scheduled inspection.	N		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Damper	DCW	Extension Wharf	Piles	Pile	P_N38	Anode	Aluminium	AI																				

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)							
															1	2	3	4	5	6	7															
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_034	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_034-Pile Exposure 01-ST		1	Item			70	30									Depth: Bottom (0.5m from bottom) No movement in sea bed. Coating bonded and intact. No signs of corrosion/pitting. • Depth: 9.8m • CP: -1.044(T), -1.011(N), -1.010(E), -1.011(S), -1.012(W) • UT: 9.2(N), 9.3(E), 9.2(S), 9.2(W) Depth: 2m below LAT (LAT = 2.5m) Isolated spots of de-bonding, and blistering (5% of de-bonded coating for 400mm). Below 400mm coating appears in good condition. No signs of corrosion/pitting. • Depth: 4.5m • CP: -1.016(N), -1.014 (E), -1.010(S), -1.014(W) • UT: 9.2(N), 9.3(E), 9.3(S), 9.3(W) CP at surface:	H	Inspect at next scheduled inspection.	N					
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_034	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_034-Pile Exposure 02-ST		1	Item		100											No signs of blisters, tearing, bulging of the jackets. No signs of corrosion to bolts at seam.	H	Inspect at next scheduled inspection.	N					
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_034	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_034-Pile Exposure 03-ST		1	Item		100																			
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_034	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_034-Pile Sleeve-D		1	Item			90	10						ba0461d8-f4											
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_035	Anode	Aluminium	Al	DCW-Piles-Pile-P_035-Anode-Al		1	No.																					
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_035	Pile Cap	Concrete	C	DCW-Piles-Pile-P_035-Pile Cap-C	4.18	m2			70	30								858d3b52-6e										
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_035	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_035-Pile Exposure 01-ST		1	Item																					
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_035	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_035-Pile Exposure 02-ST		1	Item		100																			
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_035	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_035-Pile Exposure 03-ST		1	Item		100																			
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_035	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_035-Pile Sleeve-D		1	Item			90		10							d8163453-cf	Bulging in jacket midway. Minor puncture in jacket.	H	Cut away damaged sections of jacket and seal jacket.	Y					
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_036	Anode	Aluminium	Al	DCW-Piles-Pile-P_036-Anode-Al		2	No.			100																		
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_036	Pile Cap	Concrete	C	DCW-Piles-Pile-P_036-Pile Cap-C		4.18	m2			70	30																	
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_036	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_036-Pile Exposure 01-ST		1	Item			80	20																	

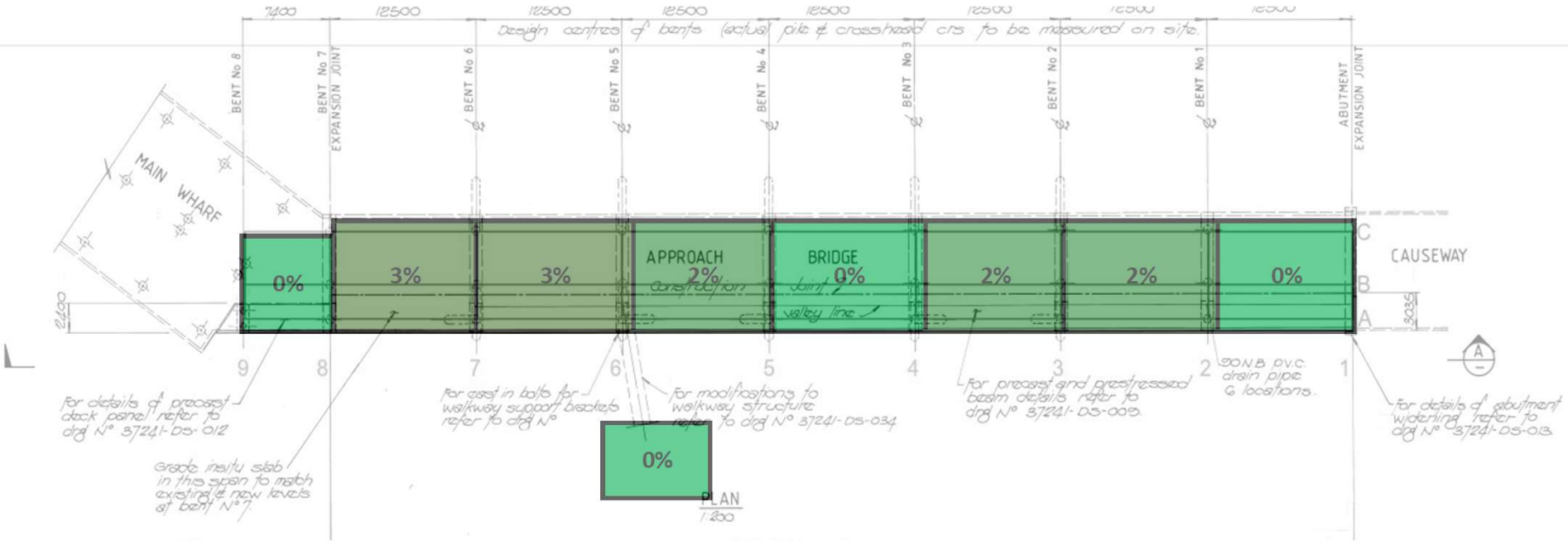
Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_039	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_039-Pile Exposure 03-ST		1	Item																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											</

Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Extension Wharf	Piles	Pile	P_045	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_045-Pile Exposure 01-ST		1	Item				70	30																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

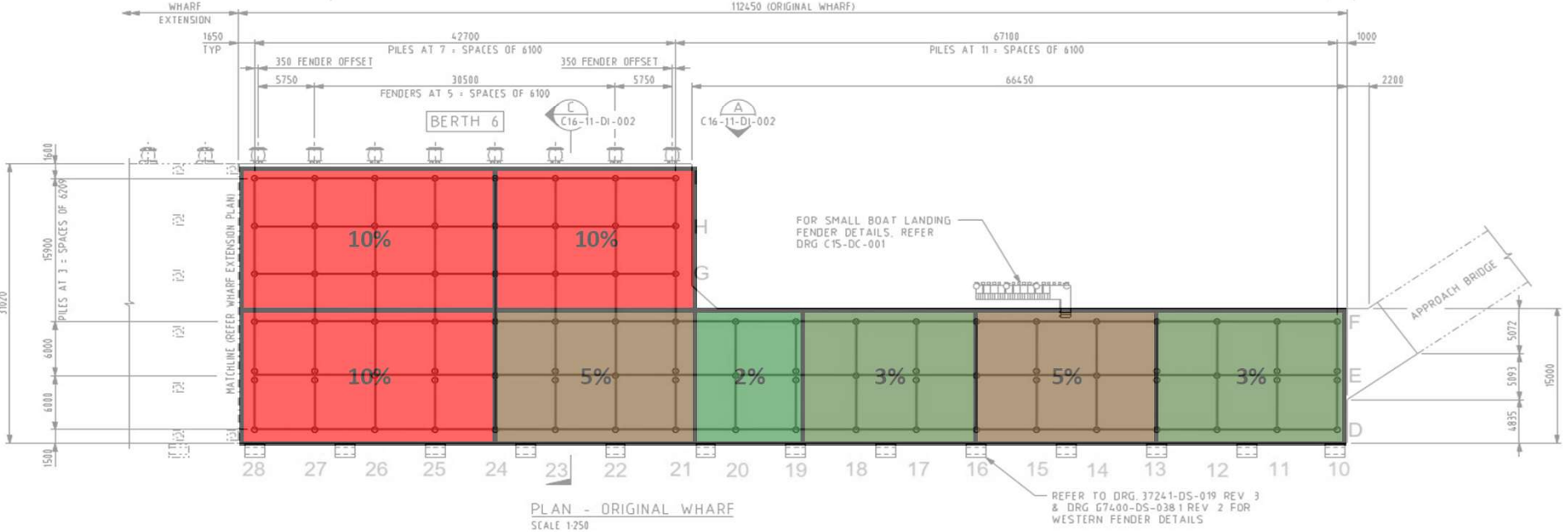
Inspection Date	Inspectors	Site	Location	Facility	Element Location	Element	Component	Component ID	Sub-Component	Material	Material Code	Asset Name	Total Quantity	Unit	Visual Condition Rating (% Affected)							Maintenance Rating	Photos 1	Photos 2	Photos 3	Comments	Criticality (directed by asset owner)	Actions	Safety Issue (Y / N)		
															1	2	3	4	5	6	7										
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD4	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_SMD4-Pile Exposure 01-ST		1	Item									A	3741a799-f1	330b65f3-07		Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD4	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_SMD4-Pile Exposure 02-ST		1	Item			100						A	3741a799-f1	330b65f3-07			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD4	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_SMD4-Pile Exposure 03-ST		1	Item			100						A	3741a799-f1	330b65f3-07			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD4	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_SMD4-Pile Sleeve-D		1	Item			90		10				C	3741a799-f1	330b65f3-07		Minor tears in jacket with corrosion present	H	Cut away damaged sections of jacket and seal jacket.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD5	Anode	Aluminium	Al	DCW-Piles-Pile-P_SMD5-Anode-Al		2	No.					100				B	3741a799-f1	ab4d1898-40		Two anodes present. Both secured to pile. Anode 1 (north side): • Depth: 3.0m below LAT • Depletion: 55% • Original Dimension: 750x150x100mm Anode 2 (north side): • Depth: 3.0m below LAT • Depletion: 80% • Original Dimension: 750x150x100mm	H	Anode replacement date 2023.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD5	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_SMD5-Pile Exposure 01-ST		1	Item			90		10				A	3741a799-f1	ab4d1898-40		Depth: Bottom No movement in sea bed, soft sediments. 100% of coating intact. Signs of pitting to less than 1% of surface area. No signs of corrosion. • Depth: 9.8m tide rising from low water • CP: -1.055(T) -0.980(N), -0.981(E), -0.981(S), -0.981(W) • UT: 16.4(N), 16.4(E), 16.5(S), 16.5(W) Depth: 2m below LAT Coating has disbonded over 5%. No signs of corrosion. Small signs of pitting on less than 1% of surface area. • Depth: 2.8m • CP: -0.991(N), -0.989(E), -0.988(S), -0.989(W) • UT: 16.0(N), 15.8(E), 16.0(S), 16.1(W) Depth: LAT Jacket present at approximately 2mLAT. No signs of defects or corrosion. Seals intact	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD5	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_SMD5-Pile Exposure 02-ST		1	Item			100						A	3741a799-f1	ab4d1898-40	08B8cf9a-67	Inspected by diver, no defects identified	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD5	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_SMD5-Pile Exposure 03-ST		1	Item			100						A	3741a799-f1	ab4d1898-40			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD5	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_SMD5-Pile Sleeve-D		1	Item			100						A	3741a799-f1	ab4d1898-40			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD6	Anode	Aluminium	Al	DCW-Piles-Pile-P_SMD6-Anode-Al		1	No.									A	3741a799-f1	a45cd0f0-03		Dive inspection not completed on this pile.	H	Anode replacement date 2023.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD6	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_SMD6-Pile Exposure 01-ST		1	Item									A	3741a799-f1	a45cd0f0-03		Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD6	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_SMD6-Pile Exposure 02-ST		1	Item			100						A	3741a799-f1	a45cd0f0-03			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD6	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_SMD6-Pile Exposure 03-ST		1	Item			100						A	3741a799-f1	a45cd0f0-03			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD6	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_SMD6-Pile Sleeve-D		1	Item			100						A	3741a799-f1	a45cd0f0-03			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD7	Anode	Aluminium	Al	DCW-Piles-Pile-P_SMD7-Anode-Al		1	No.									A	3741a799-f1	7e86d0d1-62		Dive inspection not completed on this pile.	H	Anode replacement date 2023.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD7	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_SMD7-Pile Exposure 01-ST		1	Item									A	3741a799-f1	7e86d0d1-62		Dive inspection not completed on this pile.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD7	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_SMD7-Pile Exposure 02-ST		1	Item			100						A	3741a799-f1	7e86d0d1-62			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD7	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_SMD7-Pile Exposure 03-ST		1	Item			100						A	3741a799-f1	7e86d0d1-62			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD7	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_SMD7-Pile Sleeve-D		1	Item			100						A	3741a799-f1	7e86d0d1-62			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD8	Anode	Aluminium	Al	DCW-Piles-Pile-P_SMD8-Anode-Al		2	No.					100				B	3741a799-f1	9b2dc2b7-d6		Two anodes present. Both secured to pile. Anode 1 (NE side): • Depth: 3.0m below LAT • Depletion: 50% • Original Dimension: 750x150x100mm Anode 2 (NE side): • Depth: 3.0m below LAT • Depletion: 80% • Original Dimension: 750x150x100mm	H	Anode replacement date 2023.	Y
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD8	Pile Exposure 01	Steel	ST	DCW-Piles-Pile-P_SMD8-Pile Exposure 01-ST		1	Item			90		10				A	3741a799-f1	9b2dc2b7-d6		Depth: Bottom No movement in sea bed, soft sediments. Less than 5% de-bondment to coating well bonded. Signs of pitting to 5% surface area. No signs of corrosion. • Depth: 11.1m at low tide rising • CP: -1.048(T) -0.980(N), -0.980(E), -0.979(S), -0.980(W) • UT: 16.4(N), 16.2(E), 16.2(S), 16.3(W) Depth: 2m below LAT 15% coating de-bondment. No signs of corrosion. Minor pitting on less than 5% of surface area. • Depth: 5.0m • CP: -0.990(N), -0.987(E), -0.987(S), -0.991(W) • UT: 15.8(N), 15.9(E), 15.9(S), 15.8(W) Depth: LAT Jacket present. No defects present seal is secure.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD8	Pile Exposure 02	Steel	ST	DCW-Piles-Pile-P_SMD8-Pile Exposure 02-ST		1	Item			100						A	3741a799-f1	9b2dc2b7-d6	170469a1-1	Inspected by diver, no defects present. Jacket is secure.	H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD8	Pile Exposure 03	Steel	ST	DCW-Piles-Pile-P_SMD8-Pile Exposure 03-ST		1	Item			100						A	3741a799-f1	9b2dc2b7-d6			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Piles	Pile	P_SMD8	Pile Sleeve	Denso	D	DCW-Piles-Pile-P_SMD8-Pile Sleeve-D		1	Item			100						A	3741a799-f1	9b2dc2b7-d6			H	Inspect at next scheduled inspection.	N
5/09/2020 to 11/09/2020	C. Hedderwick & R. Keegan, SMEC Australia Pty Ltd	Port of Dampier	Dampier	DCW	Southern Mooring Dolphin	Dolphin	Walkway	W_SMD	Walkway Support	Steel	ST	DCW-Dolphin-Walkway-W_SMD-Walkway Support-ST		1	Item			100						A			20738e38-84	Generally in good condition. No defects noted.	L	Inspect at next scheduled inspection. Continue planned and preventative maintenance.	N

Appendix C Defect Mapping

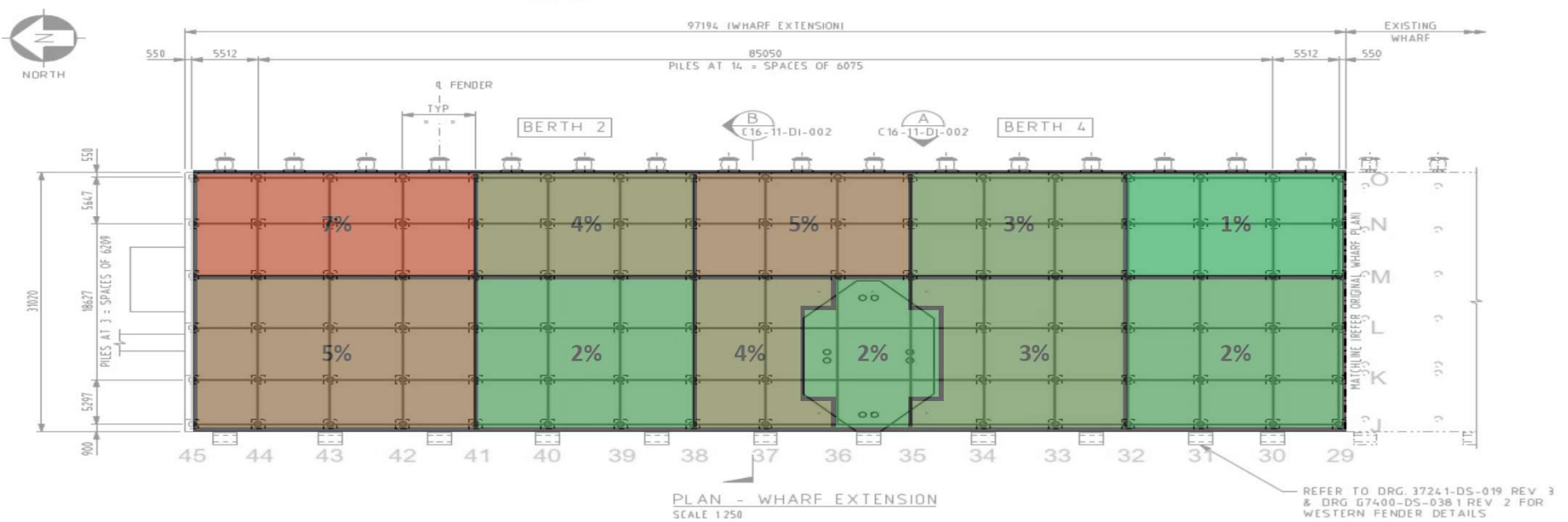
APPROACH BRIDGE



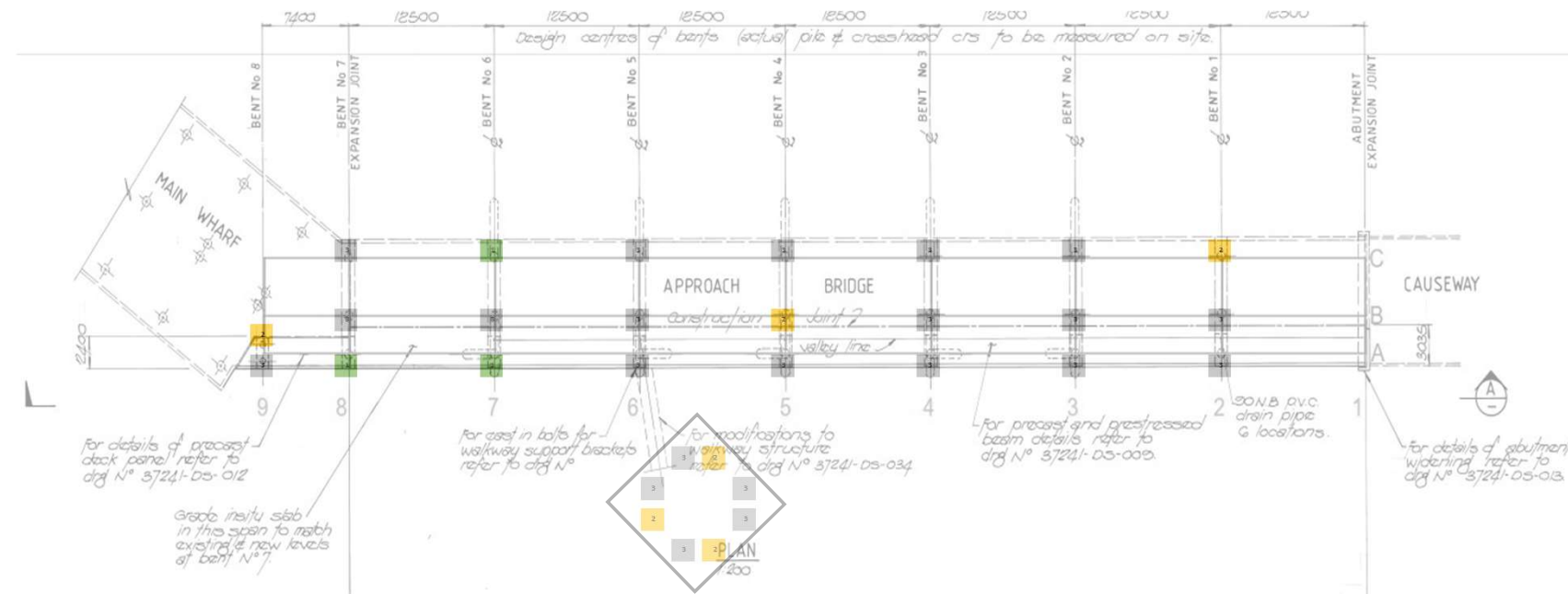
ORIGINAL WHARF



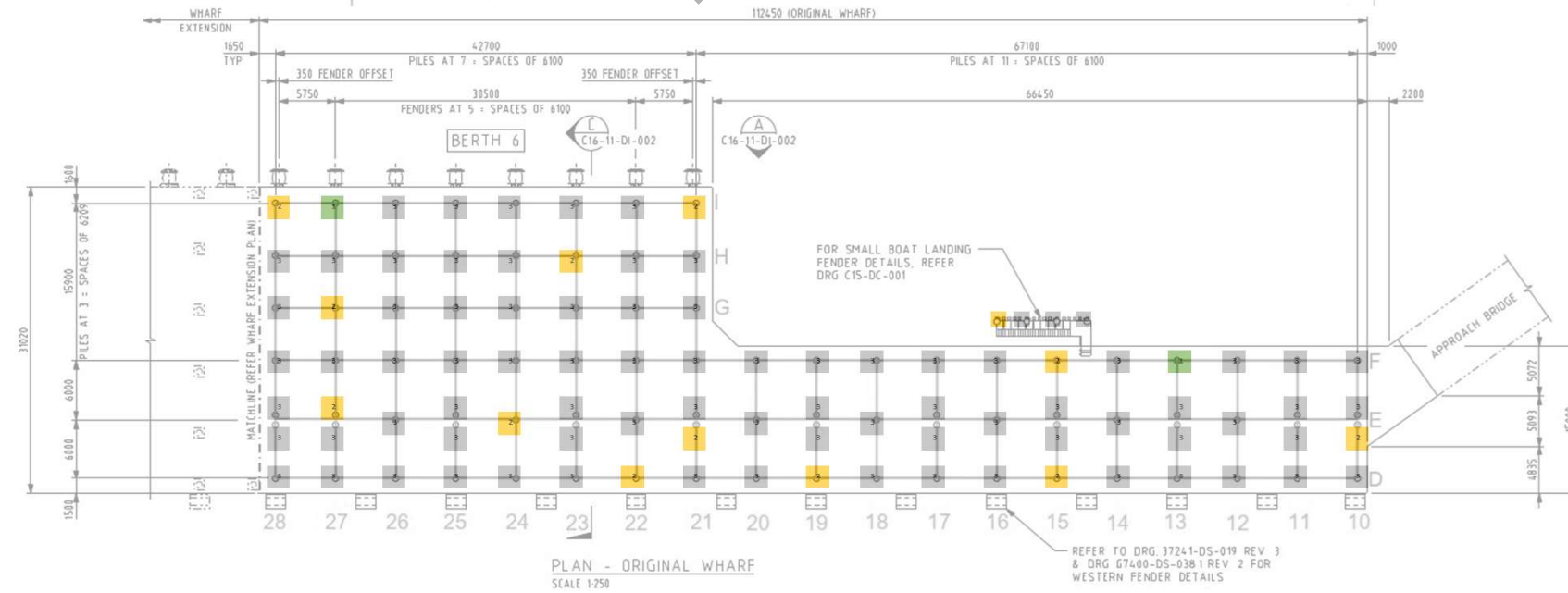
EXTENSION WHARF



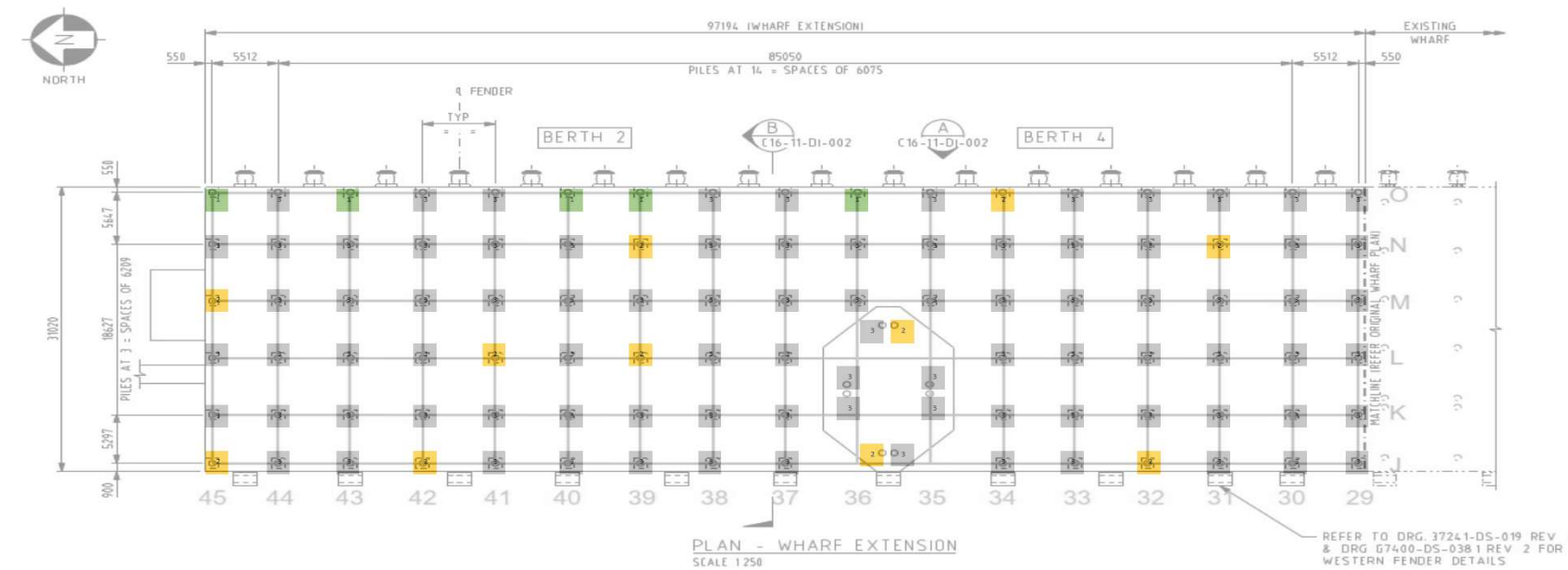
APPROACH BRIDGE



ORIGINAL WHARF



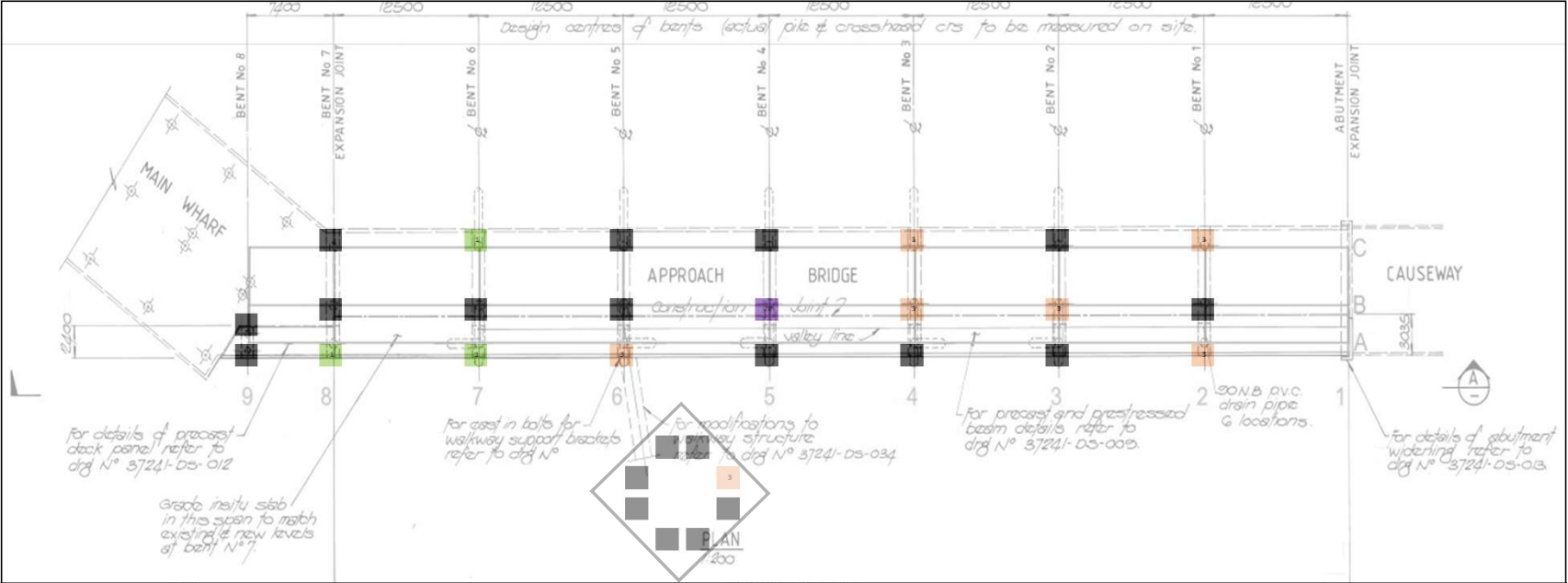
EXTENSION WHARF



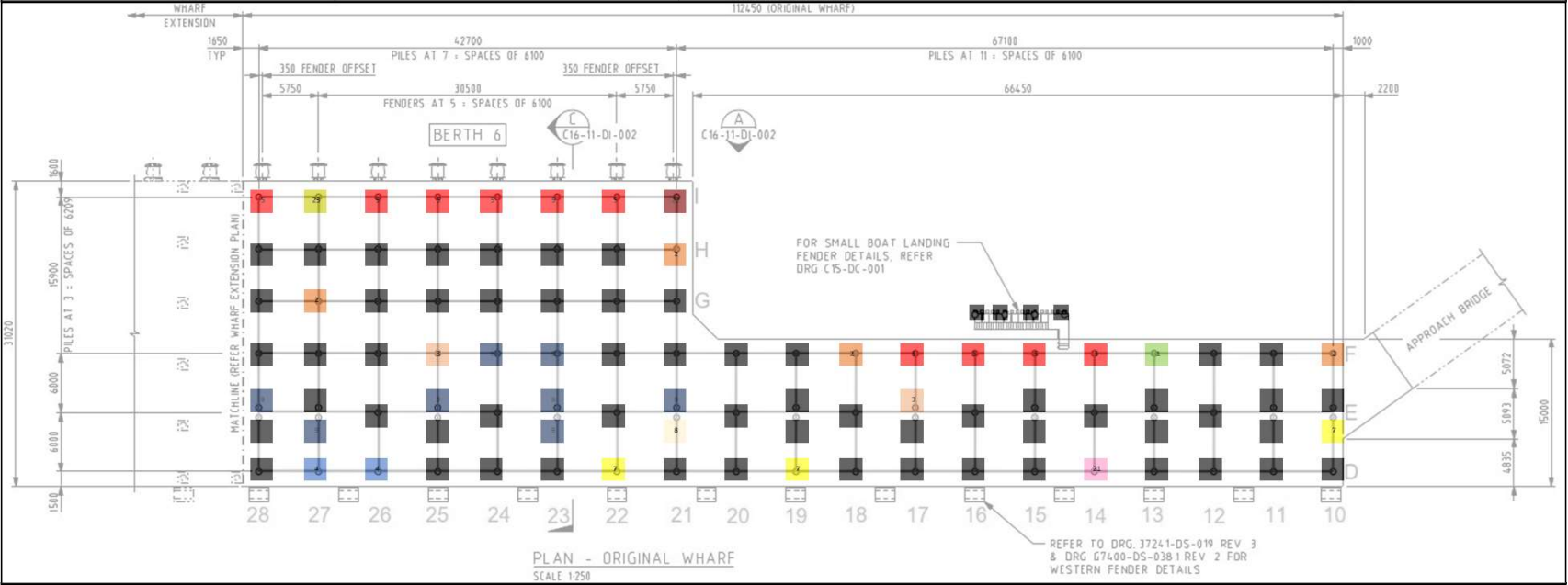
LEGEND

- | |
|---|
| Underwater Inspection with Jacket Replacement. (10 Piles) |
| Underwater Inspection. (30 Piles) |
| Above Water Inspection. (191 Piles) |

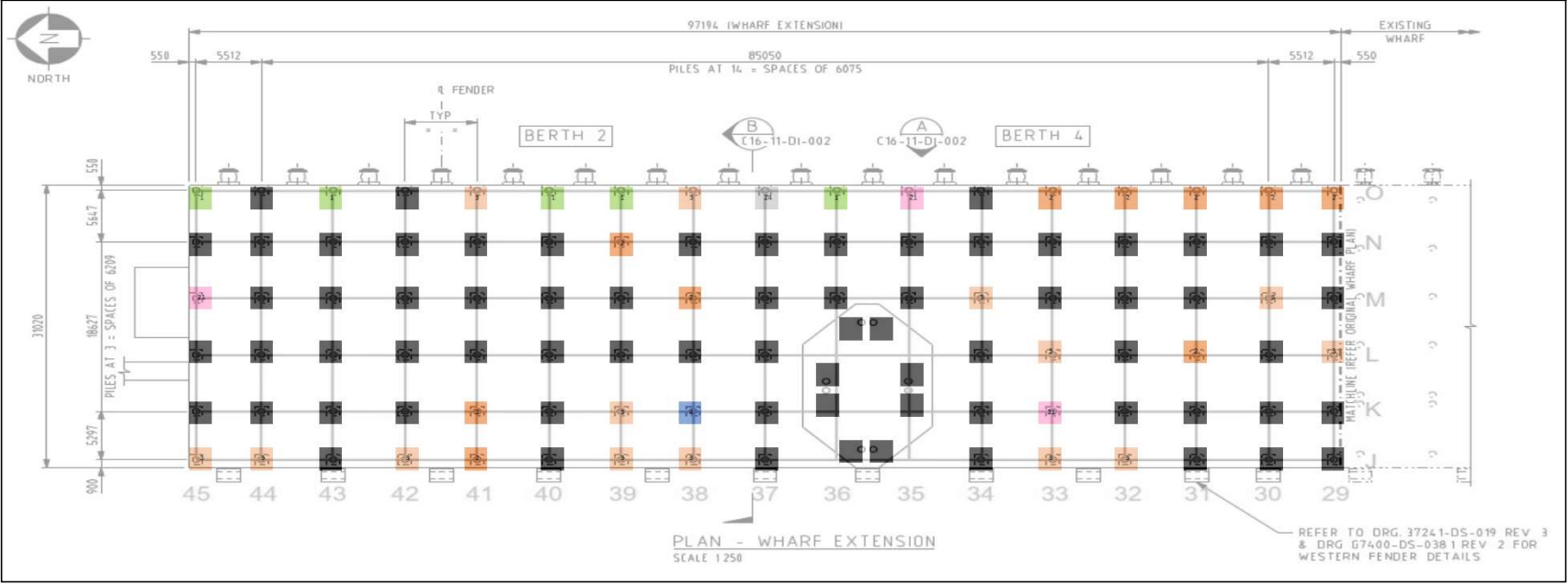
APPROACH BRIDGE



ORIGINAL WHARF



EXTENSION WHARF



LEGEND

■	No defects observed
■	1. Jacket replaced
■	2. Jacket damaged or torn
■	3. Small punctures in jacket
■	4. Bulging in jacket
■	5. Corrosion due to missing jacket sections
■	6. Missing bolt in jacket
■	7. Pitting in pile. No signs of corrosion
■	8. Minor corrosion to pile noted during dive inspection
■	9. Jacket is weathered
■	20. Items 4, 6 and 7
■	21. Items 3 and 4
■	22. Items 4 and 5
■	23. Items 1 and 5
■	24. Items 2 and 3

Appendix D

Risk Assessment Table

DCW 10 Year Maintenance Plan Risk Assessment

•Original Wharf-Wharf Extension•Approach bridge•Small boat landing•Dolphin Southwest of DCW and its walkway•Ramp at end of DCW and its support piles •Cathodic protection (visual assessment only) •Utilities (Visual assessment of pipes, brackets etc. excluding function)•Lamp-post footings and interactions with the DCW deck.



Condition Aesement and Rating							Risk Title / Issue	Describe the Risk	Causes	Impact	Existing Control Measures	Control Effectiveness	Rating Basis	Consequence	Likelihood	Risk Rating	Maximum Probable Loss	Risk Owner	Treatment	Review
Risk ID	Asset	Key Component	Easting Condition or Future Predicted Condition	Condition Summary	Condition Cause	Timeframe for Condition leading to failure or significant increase in risk	Identify the risk concisely	Describe the risk in further detail to ensure the risk is clearly understood	List the primary causes for the risk	List the key potential impacts of this risk	What controls (documented/communicated) are currently in place to manage / mitigate the risk	How effective do you believe the existing controls are in managing the Risk? Rate as per Control Effectiveness Criteria	Select from the Consequence Severity Criteria (note - you may list several areas - always rate on the highest consequence)	Rate as per Consequence Severity Criteria	Rate as per Likelihood Rating Criteria	Residual Risk automatically populates (based on Consequence and Likelihood)	Detail the likely maximum probable loss that could eventuate (note this may cover several areas)	Who within the organisation should manage this risk?	What additional treatments / actions / controls are required to manage / mitigate this risk?	Date for Review Refer to Tolerability Criteria
1	Approach Bridge	Deck Top	Existing	Localised concrete spalling and minor cracking	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	N/A	Uneven surface causing injury	Surface condition is a hazard to personnel walking and vehicle travelling on the road surface	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	Trip hazard to personnel or damage to vehicle	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Rare	Moderate	Lost time injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
2	Approach Bridge	Deck Top	Before	Loss of top surface	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	N/A	Uneven surface causing injury	Surface condition is a hazard to personnel walking and vehicle travelling on the road surface	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	Trip hazard to personnel or damage to vehicle	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Possible	High	Lost time injury	Maintenance	Conventional concrete repair and silane protective treatment to repaired area	Before 2030
3	Approach Bridge	Deck Top	Existing	Localised concrete spalling and minor cracking	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	N/A	Reinforcement corrosion leading to loss of structural integrity	Continue reinforcement corrosion will lead to enlarged concrete deterioration and loss of structural integrity. Load bearing capacity will be reduced and failure can occur if overloaded, with extensive repair/replacement required	Localised concrete spalling and minor cracking	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Moderate	Possible	High	2 days to 1 week interruption to the business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
4	Approach Bridge	Deck Top	Future Predicted	Loss of top surface	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	5 - 10 years	Reinforcement corrosion leading to loss of structural integrity	Continue reinforcement corrosion will lead to enlarged concrete deterioration and loss of structural integrity. Load bearing capacity will be reduced and failure can occur if overloaded, with extensive repair/replacement required	Loss of top surface	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Moderate	Possible	High	2 days to 1 week interruption to the business	Maintenance	Conventional concrete repair and silane protective treatment to repaired area	Before 2030
5	Approach Bridge	Kerb	Existing	Exposed reinforcement (1m), spalled concrete and lateral cracking	Chloride induced reinforcement corrosion leading to concrete damage	N/A	Kerbs fail to resist vehicle impact	The kerb acts as a barrier and provides support to guardrail to prevent vehicle fall over the bridge.	Exposed reinforcement (1m), spalled concrete and lateral cracking	Vehicle falling on impact	Inspections/ Add-hoc repair of the surface/ Speed Restriction	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Continue to impliment PPA personnel inspection and Engineer audit inspection and impliment repair options	Annual
6	Approach Bridge	Kerb	Future Predicted	Complete loss of kerbs in extensive areas	Chloride induced reinforcement corrosion leading to concrete damage	10 years	Kerbs fail to resist vehicle impact	The kerb acts as a barrier and provides support to guardrail to prevent vehicle fall over the bridge	Complete loss of kerbs in extensive areas	Vehicle falling on impact	Inspections/ Add-hoc repair of the surface/ Speed Restriction	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Implement Repair Options	Before 2025
7	Approach Bridge	Guardrail	Existing	Multiple corroded baseplates, some deformation and damage to the rail. Northern end has been recently replaced. Southern end (on causeway) is extensively corroded.	Metal corrosion and impact damage	N/A	Guardrails fail to resist vehicle impact	The kerb acts as a barrier to prevent vehicle fall over the bridge	Localised penetration holes	Vehicle falling on impact	Inspections/ Add-hoc repair of the surface/ Speed Restriction	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
8	Approach Bridge	Guardrail	Future Predicted	Extensive corrosion of the support elements	Continued metal corrosion	10 years	Guardrails fail to resist vehicle impact	The kerb acts as a barrier to prevent vehicle fall over the bridge	Extensive corrosion of the support elements	Vehicle falling on impact	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Monitor and replace as damage justifies. Ensure repair measures are implimented in timely manner	Before 2030
9	Approach Bridge	Guardrail	Future Predicted	Extensive corrosion of the support elements	Continued metal corrosion	10 - 20 years	Loss of guardrails	The poor support condition lead to loss of the guardrails requiring complete replacement of the asset	Extensive corrosion of the support elements	Loss of guardrail	Inspections/ Add-hoc repair of the surface	Poor	Financial Loss	Low	Possible	Moderate	Significant but temporary damage. Repairable	Maintenance	Monitor and replace as damage justifies.	Before 2030
10	Approach Bridge	Expansion Joints (north and south)	Existing	Localised concrete spalling and minor cracking	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	N/A	Trip hazard or vehicle damage	Uneven surface creates a trip hazard or leads to vehicle damage	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	Personnel injury	Speed restriction for vehicles	Poor	Life/Health	Low	Possible	Moderate	Lost time injury	Maintenance	Monitor and replace as damage justifies.	Before 2030
11	Approach Bridge	Expansion Joints (north and south)	Future Predicted	Enlarged uneven surface and major metal bent	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	10 - 20 years	Trip hazard or vehicle damage	Uneven surface creates a trip hazard or leads to vehicle damage	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	Personnel injury	None	Poor	Life/Health	Moderate	Possible	High	Lost time injury	Maintenance	Monitor and replace as damage justifies.	Annual
12	Approach Bridge	Bearings and associated accessories	Existing	Base plates are heavily corroded. Cracks noted within the grout.	Metal corrosion	N/A	Loss of bearing function	Loss of base plate section due to corrosion can lead to settlement of bearing and bridge is unable to allow vehicle traffic	Base plates are heavily corroded. Cracks noted within the grout.	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Physical Assets	Insignificant	Likely	Moderate	Loss of bearing plate	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection. Replace bearing plates with significant loss of section. Reinstlate protective coating to the bearing plates. Repair cracked grout.	Before 2025
13	Approach Bridge	Bearings and associated accessories	Future Predicted	Corrosion of the metal plates	Metal corrosion	1 - 5 years	Loss of bearing function	Loss of base plate section due to corrosion can lead to settlement of bearing and bridge is unable to allow vehicle traffic	Corrosion of the metal plates	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Repair Coating	Before 2025
14	Approach Bridge	Prestressed beam	Existing	Concrete spall/delamination with exposed reinforcement. Tendons at risk of chloride induced corrosion and failure	Chloride induced corrosion	N/A	Reduction of load bearing capacity that restricts vehicle travel	Loss of tendons will reduce load capacity of the beam leading to de-rating of the bridge and restrictions on vehicle travel	Concrete spall/delamination with exposed reinforcement. Tendons at risk of chloride induced corrosion and failure	Restricted vehicle traffic	None	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Concrete repair to damaged area immediately. Detailed investigation to determine suitable repair system, e.g. cathodic protection	Immediately
15	Approach Bridge	Prestressed beam	Future Predicted	Extensive concrete delamination and spalling, and tendons breakage	Chloride induced corrosion	1 - 5 years	Reduction of load bearing capacity that restricts vehicle travel	Loss of tendons will reduce load capacity of the beam leading to de-rating of the bridge and restrictions on vehicle travel	Extensive concrete delamination and spalling, and tendons breakage	Restricted vehicle traffic	None	Poor	Business Interruption	Catastrophic	Possible	High	1 month or more interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection with localised repair as required	Before 2025
16	Approach Bridge	Headstock	Existing	Minor surface honeycombing, cracking and surface defects. CP protected. Some damage to CP system and due to installation	Honey combing assumed to occur during construction. Damage to CP may be due to poor installation.	N/A	Localised concrete damages that require maintenance repair	If CP is unable to protect the reinforcement due to malfunction, chloride induced corrosion will occur leading to concrete damage	Minor surface honeycombing. CP protected	Increase in maintenance cost	Annual audit and checking of CP system	Poor	Physical Assets	Low	Possible	Moderate	Minor damage, easily repaired, localised	Maintenance	Improve Control Effectiveness by ensuring CP monitoring audits are completed every 6 months by CP Engineer	Before 2025
17	Approach Bridge	Headstock	Future Predicted	CP system fails and concrete deterioration occur	Damage and loss of anodes due to poor installation	5 - 10 years	Extensive concrete damages that require maintenance repair	If CP is unable to protect the reinforcement due to malfunction, chloride induced corrosion will occur leading to concrete damage	CP system fails and concrete deterioration occur	Increase in maintenance cost	Annual audit and checking of CP system	Poor	Physical Assets	Moderate	Possible	High	Significant but temporary damage. Repairable	Maintenance	Improve Control Effectiveness by ensuring CP monitoring audits are completed every 6 months by CP Engineer	Every 6 months CP Engineer audit monitoring
18	Southern Mooring Dolphin	Walkway	Existing	Generally in good condition with no defects noted	Weathering and corrosion	N/A	Personnel falling from walkway due to inadequate support	Localised corrosion can weaken member capacity leading to collapse when personnel walking along	Generally in good condition with no defects noted	Personnel injury	Inspections/ Add-hoc repair of the surface. Personnel must wear PFD when entering the access walkway.	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
19	Southern Mooring Dolphin	Walkway	Future Predicted	Extensive coating deterioration and corrosion	End of coating life/metal corrosion	5 - 10 years	Personnel falling from walkway due to inadequate support	Localised corrosion can weaken member capacity leading to collapse when personnel walking along	Extensive coating deterioration and corrosion	Personnel injury	Inspections/ Add-hoc repair of the surface. Personnel must wear PFD when entering the access walkway.	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection with localised repair as required	Before 2030
20	Southern Mooring Dolphin	Bollards	Existing	Minor surface coating deterioration and corrosion to the bollard and the fasteners on the deck soffit	Weathering and corrosion	N/A	De-grading of bollard capacity due to metal section loss or fixings corrosion	Bollards are rated to withstand berthing/mooring load. Loss of structural capacity due to corrosion will limit their function	Surface coating deterioration and corrosion	Restricted berthing	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
21	Southern Mooring Dolphin	Bollards	Future Predicted	Extensive coating deterioration and corrosion	End of coating life/metal corrosion	10 - 20 years	De-grading of bollard capacity due to metal section loss or fixings corrosion	Bollards are rated to withstand berthing/mooring load. Loss of structural capacity due to corrosion will limit their function	Extensive coating deterioration and corrosion. Fixing at soffit have loss structural capacity	Restricted berthing	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection with localised repair as required	Before 2030
22	Southern Mooring Dolphin	Deck Top	Existing	No significant visible damage but corrosion activated	Chloride induced corrosion	N/A	Minor localised concrete repair in short term	Reinforcement corrosion has activated and can lead to concrete damage	Reinforcement corrosion	Increase in maintenance cost	Inspections/ Add-hoc repair of the surface	Poor	Physical Assets	Low	Possible	Moderate	Minor damage, easily repaired	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
23	Southern Mooring Dolphin	Deck Top	Future Predicted	Extensive concrete delamination and spalling	Chloride induced corrosion	10 - 20 years	Extensive concrete repair	Reinforcement corrosion has activated and can need to concrete damage	Reinforcement corrosion	Increase in maintenance cost	Inspections/ Add-hoc repair of the surface	Poor	Physical Assets	Moderate	Possible	High	Significant but temporary damage. Repairable	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection with localised repair as required	Before 2030
24	Southern Mooring Dolphin	Deck edge and soffit	Existing	Edge spalling in one area but no signs of corrosion	Chloride induced reinforcement corrosion leading to concrete damage	N/A	Falling concrete cause personnel injury	Concrete delamination may fall off as reinforcement corrosion progress and may cause injury to personnel (e.g. divers)	Spalling in one location	Personnel injury	Inspections/ Add-hoc repair of the surface / Inform Contractors	Poor	Life/Health	Low	Possible	Moderate	Medical Treatment Requirement	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection. Advise and inform risk to Contractors on a regular basis	Annual

25	Southern Mooring Dolphin	Deck edge and soffit	Future Predicted	Edge spalling in one area but no signs of corrosion	Chloride induced reinforcement corrosion leading to concrete damage	5 - 10 years	Falling concrete cause personnel injury	Concrete delamination may fall off as reinforcement corrosion progress and may cause injury to personnel (e.g. divers)	Spalling in one location	Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Implement Repair Options	Before 2025
26	Small Boat Landing	FRP grating	Existing	FRP and clips in good condition. Anti-slip tread is in good condition.	Installed in 2012	N/A	Trip hazard for personnel walking on FRP grating if damaged	FRP grating will degrade and weaken with time as approaching the end of life. FRP may be broken when personnel walking on top and cause injury.	Localised degradation of FRP grating	Personnel injury	Inspections	Poor	Life/Health	Low	Possible	Moderate	Medical Treatment Requirement	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
27	Small Boat Landing	FRP grating	Future Predicted	Significant damage to FRP grating	UV degradation and end of FRP life	10 Years	Trip hazard for personnel walking on FRP grating due to damage	FRP grating will degrade and weaken with time as approaching the end of life. FRP may be broken when personnel walking on top and cause injury.	UV degradation and end of FRP life	Personnel injury	Inspections	Poor	Life/Health	Moderate	Possible	High	Lost time injury	Maintenance	Implement Repair Options	Before 2030
28	Small Boat Landing	GRP handrail	Existing	Eastern handrail hold down bolts corroded or absent. Western handrail is formed from scaffolding and is not tagged. Plastic handrails at top of landing are damaged from UV exposure and susceptible to brittle failure. No toe boards are present at the top of the landing as per AS 1657.	Hold down bolts are dissimilar metal to landing and rails. UV exposure of handrails	N/A	Failure of handrail due to corrosion or UV damage	Handrail is unable to support personnel load due to corroded hold down bolts or CV damaged handrail. Personnel may fall off or injure with the unexpected failure.	Dissimilar metals and UV damage	Personnel injury	Inspections	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Implement Repair Options	Next 12 months
29	Small Boat Landing	GRP handrail	Future Predicted	Extensive corrosion of hold down bolts and failed hand rails	Overstress or pre-existing defect	< 1 year	Failure of handrail due to corrosion or UV damage	Handrail is unable to support personnel load due to corroded hold down bolts or CV damaged handrail. Personnel may fall off or injure with the unexpected failure.	Dissimilar metals and UV damage	Personnel injury	Inspections	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Repair as needed	Before 2025
30	Small Boat Landing	Support steel structure	Existing	Significant corrosion and marine growth	Metal corrosion	N/A	Corrosion damage leading to structural failure and personnel injury	Corrosion/defect damage on steel structures particularly at connections, leading to structure failure and personnel injury	Significant corrosion damage	Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Possible	High	Lost time injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
31	Small Boat Landing	Support steel structure	Future Predicted	Extensive corrosion damage	Metal corrosion	10 - 20 years	Corrosion damage leading to structural failure and personnel injury	Corrosion/defect damage on steel structures particularly at connections, leading to structure failure and personnel injury.	Extensive corrosion damage	Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Possible	High	Lost time injury	Maintenance	Blast, coat and Repair as needed	Before 2025
32	Small Boat Landing	Plank fender and fender piles above water	Existing	Top of one fender panel is cracked with holding bolts corroded. All fenders are weathered but in a serviceable condition. Bolts are corroded	Weathering and physical damage	N/A	Ship/other physical assets damage due to non-functional fender system	Loss of fender functionality can lead to excessive berthing load transfer to the structure or damage to the vessel	Materials degradation	Financial loss / damage to vessel or structure	Inspections/ Add-hoc repair of the fender panel or corroded items	Poor	Financial Loss	Insignificant	Possible	Low	<\$200,000	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
33	Small Boat Landing	Plank fender and fender piles above water	Future Predicted	Extensive fender damage	Weathering and physical damage	10 - 20 years	Ship/other physical assets damage due to non-functional fender system	Loss of fender functionality can lead to excessive berthing load transfer to the structure or damage to the vessel	Materials degradation	Financial loss / damage to vessel or structure	Inspections/ Add-hoc repair of the fender panel or corroded items	Poor	Financial Loss	Low	Possible	Moderate	\$200k <\$2M	Maintenance	Paint and Repair as needed	Before 2025
34	Original Wharf	Deck top	Existing	Localised concrete spall/delamination, cracking and weathering	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	N/A	Uneven surface causing injury	Surface condition is a hazard to personnel walking and vehicle travelling on the road surface	Localised concrete spall/delamination, cracking and weathering	Trip hazard to personnel or damage to vehicle	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Low	Possible	Moderate	Medical Treatment Requirement	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
35	Original Wharf	Deck top	Future Predicted	Extensive concrete spall/delamination, cracking and weathering	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	5 - 10 years	Uneven surface causing injury	Surface condition is a hazard to personnel walking and vehicle travelling on the road surface	Extensive concrete spall/delamination, cracking and weathering	Trip hazard to personnel or damage to vehicle	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Possible	High	Lost time injury	Maintenance	Implement Repair Options	Before 2030
36	Original Wharf	Deck top	Existing	Localised concrete spall/delamination, cracking and weathering	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	N/A	Reduction of load bearing capacity that restricts vehicle travel	Continued reinforcement corrosion will lead to enlarged concrete deterioration and loss of structural integrity. Load bearing capacity will be reduced and failure can occur if overloaded, with extensive repair/replacement required	Localised concrete spall/delamination, cracking and weathering	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Moderate	Possible	High	2 days to 1 week interruption to the business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
37	Original Wharf	Deck top	Future Predicted	Extensive concrete spall/delamination, cracking and weathering	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	5 - 10 years	Reduction of load bearing capacity that restricts vehicle travel	Continued reinforcement corrosion will lead to enlarged concrete deterioration and loss of structural integrity. Load bearing capacity will be reduced and failure can occur if overloaded, with extensive repair/replacement required	Extensive concrete spall/delamination, cracking and weathering	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Moderate	Possible	High	2 days to 1 week interruption to the business	Maintenance	Implement Repair Options	Before 2030
38	Original Wharf	Deck edge and soffit	Existing	Visual delamination in multiple areas, medium to large cracking and exposed reinforcement	Chloride induced reinforcement corrosion leading to concrete damage	N/A	Concrete falling on personnel working under the deck or falling on ship causing damage	Existing localised damage cause concrete falling that can hurt personnel working under deck (e.g. divers) or damage to berthed ship	Visual delamination in multiple areas, medium to large cracking and exposed reinforcement	Personnel injury Ship damage	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Low	Possible	Moderate	Medical Treatment Requirement	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection. Advise and inform risk to Contractors on a regular basis	Annual
39	Original Wharf	Deck edge and soffit	Future Predicted	Extensive delamination, concrete spalling and cracking	Chloride induced reinforcement corrosion leading to concrete damage		Concrete falling on personnel working under the deck or falling on ship causing damage	Enlarged damage cause concrete falling that can hurt personnel working under deck (e.g. divers) or damage to berthed ship	Extensive delamination, concrete spalling and cracking	Personnel injury Ship damage	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Implement Repair Options	Before 2025
40	Original Wharf	Deck edge and soffit	Existing	Visual delamination in multiple areas, medium to large cracking and exposed reinforcement	Chloride induced reinforcement corrosion leading to concrete damage	N/A	Unable to withstand existing pipe structures	Possible implications for PPA's ability to provide an important service (e.g. provide diesel / water) to port stakeholders due to deck soffit defects.	Visual delamination in multiple areas, medium to large cracking and exposed reinforcement	Business Interruption	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Moderate	Possible	High	2 days to 1 week interruption to the business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection.	Annual
41	Original Wharf	Deck edge and soffit	Future Predicted	Extensive delamination, concrete spalling and cracking	Chloride induced reinforcement corrosion leading to concrete damage	1 - 5 years	Unable to withstand future pipe structures	There may be future commercial implications under the terms of the Port's agreement if the deck soffit is unable to withstand services loading.	Extensive delamination, concrete spalling and cracking	Business Interruption	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Moderate	Possible	High	2 days to 1 week interruption to the business	Maintenance	Implement Repair Options and investigate loading capacity prior to adding future pipework	Before 2025
42	Original Wharf	Deck edge and soffit	Existing	Visual delamination in multiple areas, medium to large cracking and exposed reinforcement	Chloride induced reinforcement corrosion leading to concrete damage	N/A	Reduction of load bearing capacity that restricts vehicle travel	Continue reinforcement corrosion will lead to enlarged concrete deterioration and loss of structural integrity. Load bearing capacity will be reduced and failure can occur if overloaded	Visual delamination in multiple areas, medium to large cracking and exposed reinforcement	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Moderate	Possible	High	2 days to 1 week interruption to business.	Maintenance	Implement Repair Options	Next 12 months
43	Original Wharf	Deck edge and soffit	Future Predicted	Extensive delamination, concrete spalling and cracking	Chloride induced reinforcement corrosion leading to concrete damage	1 - 5 years	Reduction of load bearing capacity that restricts vehicle travel	Continue reinforcement corrosion will lead to enlarged concrete deterioration and loss of structural integrity. Load bearing capacity will be reduced and failure can occur if overloaded, with extensive repair/replacement required	Extensive delamination, concrete spalling and cracking	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Moderate	Possible	High	2 days to 1 week interruption to the business	Maintenance	Implement Repair Options	Next 12 months
44	Original Wharf	Kerb	Existing	Minor localised concrete spalls/damage to the kerb edges. Major cracking in some locations.	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	N/A	Kerbs fail to resist vehicle impact	The kerb acts as a barrier to prevent vehicle falling over the wharf	Minor localised concrete spalls/damage to the kerb edges. Major cracking in some locations.	Vehicle falling on impact	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
45	Original Wharf	Kerb	Future Predicted	Extensive concrete spall	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	5 - 10 years	Kerbs fail to resist vehicle impact	The kerb acts as a barrier to prevent vehicle falling over the wharf	Extensive concrete spall	Vehicle falling on impact	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Implement Repair Options	Before 2030
46	Original Wharf	Guardrail	Existing	Some cracking in the kerb as a result of guardrail anchor bolts. One base plate showing signs of damage from deflection. One dent in rail from physical damage. Minor surface corrosion on anchor bolts and rail.	Metal corrosion and impact damage	N/A	Guardrails fail to resist vehicle impact	The kerb acts as a barrier to prevent vehicle fall over the bridge	Corrosion and physical impact damage	Vehicle falling on impact	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
47	Original Wharf	Guardrail	Future Predicted	Extensive corrosion damage	Continued metal corrosion	10 years	Guardrails fail to resist vehicle impact	The kerb acts as a barrier to prevent vehicle fall over the bridge	Extensive corrosion damage	Vehicle falling on impact	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Implement Repair Options	Before 2030
48	Original Wharf	Ladders	Existing	Corrosion and paint damage to connections and rungs.	Metal corrosion / design does not allow water to drain	N/A	Personnel injury when using ladder	Ladders cannot withstand personnel loading due to inadequate support. Collapse or partial failure can lead to personnel injury	Minor corrosion	Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Low	Possible	Moderate	1 to 2 days interruption to the business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
49	Original Wharf	Ladders	Future Predicted	Extensive corrosion damage	Metal corrosion / design does not allow water to drain	5 - 10 years	Personnel injury when using ladder	Ladders cannot withstand personnel loading due to inadequate support. Collapse or partial failure can lead to personnel injury	Extensive corrosion	Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Low	Possible	Moderate	1 to 2 days interruption to the business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer inspection with localised Repair and Replacement	Every 2 to 5 years

50	Original Wharf	Light poles	Existing	Minor coating deterioration and corrosion on pole	Metal corrosion	N/A	Personnel injury/operation interruption due to light pole failure	Light poles falling due to inadequate support causing personnel injury/operation interruption	Minor coating deterioration and corrosion on pole	Personnel injury Operation restriction	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Low	Possible	Moderate	1 to 2 days interruption to the business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
51	Original Wharf	Light poles	Future Predicted	Extensive grout loss at base plate and coating deterioration / corrosion on pole.	Metal corrosion	10 Years	Personnel injury/operation interruption due to light pole failure	Light poles falling due to inadequate support causing personnel injury/operation interruption	Extensive grout loss at base plate and coating deterioration / corrosion on pole.	Personnel injury Operational restriction	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Low	Possible	Moderate	1 to 2 days interruption to the business	Maintenance	Implement Repair Options	Before 2025
52	Extension Wharf	Prestressed panel deck top	Existing	Abrasion and weathering to the surface and multiple cracks. Multiple areas of localised spalling and delamination	Vehicle impact damage and past repair failure	N/A	Uneven surface causing injury	Surface condition is a hazard to personnel walking and vehicle travelling on the road surface	Cracking and spalling at repaired panel edge and surrounding concrete	Restricted vehicle traffic Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Low	Possible	Moderate	Medical Treatment Requirement	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
53	Extension Wharf	Prestressed panel deck top	Future Predicted	Extensive cracking and spalling at panel edge	Vehicle impact damage and past repair failure	5 - 10 years	Uneven surface causing injury	Surface condition is a hazard to personnel walking and vehicle travelling on the road surface	Extensive cracking and spalling at repaired panel edge	Restricted vehicle traffic Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Possible	High	Lost time injury	Maintenance	Implement Repair Options	Before 2030
54	Extension Wharf	Prestressed panel deck soffit and edges	Existing	Multiple areas of localised delamination and spalling. Exposed reinforcement at spalled areas. Cracking at Embedded Dolphin corners with efflorescence. Medium cracks present.	Chloride induced reinforcement corrosion leading to concrete damage	N/A	Concrete falling on personnel working under the deck or falling on ship causing damage	Existing localised damage cause concrete falling that can hurt personnel working under deck (e.g. divers) or damage to berthed ship	Visual delamination in multiple areas, medium to large cracking and exposed reinforcement	Personnel injury Ship damage	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Low	Possible	Moderate	Medical Treatment Requirement	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection. Advise and inform risk to Contractors on a regular basis	Annual
55	Extension Wharf	Prestressed panel deck soffit and edges	Future Predicted	Extensive concrete delamination and spalling, and tendons breakage	Chloride induced reinforcement corrosion leading to concrete damage	1 - 5 years	Concrete falling on personnel working under the deck or falling on ship causing damage	Enlarged damage cause concrete falling that can hurt personnel working under deck (e.g. divers) or damage to berthed ship	Extensive delamination, concrete spalling and cracking	Personnel injury Ship damage	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Implement Repair Options	Before 2025
56	Extension Wharf	Prestressed panel deck soffit and edges	Existing	Multiple areas of localised delamination and spalling. Exposed reinforcement at spalled areas. Cracking at Embedded Dolphin corners with efflorescence. Medium cracks present.	Chloride induced reinforcement corrosion leading to concrete damage	N/A	Reduction of load bearing capacity that restricts vehicle travel	Continue reinforcement corrosion will lead to enlarged concrete deterioration and loss of structural integrity. Load bearing capacity will be reduced and failure can occur if overloaded	Visual delamination in multiple areas, medium to large cracking and exposed reinforcement	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Implement Repair Options	Next 12 months
57	Extension Wharf	Prestressed panel deck soffit and edges	Future Predicted	Extensive concrete delamination and spalling, and tendons breakage	Chloride induced reinforcement corrosion leading to concrete damage	1 - 5 years	Reduction of load bearing capacity that restricts vehicle travel	Continue reinforcement corrosion will lead to enlarged concrete deterioration and loss of structural integrity. Load bearing capacity will be reduced and failure can occur if overloaded, with extensive repair/replacement required	Extensive delamination, concrete spalling and cracking	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Implement Repair Options	Before 2025
58	Extension Wharf	Z-plate top surface around embedded dolphin	Existing	No significant defects noted, although raised plate could present a trip hazard	General weathering	N/A	Uneven surface causing injury	Surface condition is a hazard to personnel walking and vehicle travelling on the road surface	Surface wearing	Trip hazard to personnel or damage to vehicle	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Possible	High	Lost time injury	Maintenance	Implement Repair Options	Before
59	Extension Wharf	Z-plate top surface around embedded dolphin	Future Predicted	Surface wearing	Vehicle impact damage	5 - 10 years	Uneven surface causing injury	Surface condition is a hazard to personnel walking and vehicle travelling on the road surface	Surface wearing	Trip hazard to personnel or damage to vehicle	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Possible	High	Lost time injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection with localised repair as required	Before 2019
60	Extension Wharf	Embedded dolphin top surface	Existing	Abrasion weathering to the surface. Multiple cracks and areas of localised spalls and delamination.	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	N/A	Uneven surface causing injury or unsuitable vehicle traffic	Surface condition is a hazard to personnel walking and vehicle travelling on the road surface	Abrasion weathering to the surface. Multiple cracks and areas of localised spalls and delamination.	Trip hazard to personnel or damage to vehicle	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Possible	High	Lost time injury	Maintenance	Implement Repair Options	Next 12 months
61	Extension Wharf	Embedded dolphin top surface	Future Predicted	Abrasion weathering to the surface. Multiple cracks and areas of localised spalls and delamination.	Vehicle impact damage and chloride induced reinforcement corrosion leading to concrete damage	5 - 10 years	Uneven surface causing injury or unsuitable vehicle traffic	Surface condition is a hazard to personnel walking and vehicle travelling on the road surface	Delamination and cracking, leading to further corrosion.	Trip hazard to personnel or damage to vehicle	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Possible	High	Lost time injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection with localised repair as required	Before 2030
62	Extension Wharf	Embedded dolphin soffit	Existing	Minor corrosion on steel z-plate edge. Medium cracks and delamination on eastern side	Chloride induced corrosion	N/A	Reduction of load bearing capacity that restricts vehicle travel	Loss of tendons will reduce load capacity of the beam leading to de-rating of the bridge and restrictions on vehicle travel	Delamination and cracking, leading to further corrosion.	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection. Advise and inform risk to Contractors on a regular basis	Annual
63	Extension Wharf	Embedded dolphin soffit	Future Predicted	Extensive delamination and loss of structural capacity	Chloride induced corrosion	1 - 5 years	Reduction of load bearing capacity that restricts vehicle travel	Loss of tendons will reduce load capacity of the beam leading to de-rating of the bridge and restrictions on vehicle travel	Extensive delamination, concrete spalling and cracking	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection with localised repair as required	Before 2025
64	Extension Wharf	Deck kerbs	Existing	Two areas of exposed corroded reinforcement. Minor cracks in concrete and localised minor spalls.	Vehicle/cargo impact damage and chloride induced reinforcement corrosion leading to concrete damage	N/A	Kerbs fail to resist vehicle impact	The kerb acts as a barrier to prevent vehicle falling over the wharf	Exposed corroded reinforcement, minor cracks and localised minor spalls.	Vehicle falling on impact	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
65	Extension Wharf	Deck kerbs	Future Predicted	Extensive concrete kerb damage, spalling and cracking	Vehicle/cargo impact damage and chloride induced reinforcement corrosion leading to concrete damage	5 - 10 years	Kerbs fail to resist vehicle impact	The kerb acts as a barrier to prevent vehicle falling over the wharf	Extensive concrete kerb damage, spalling and cracking	Vehicle falling on impact	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Implement Repair Options	Before 2030
66	Extension Wharf	Pile Cap	Existing	Minor cracking, efflorescence, some delamination and exposed corroded reinforcement in three locations	Chloride induced corrosion	N/A	Reduction of load bearing capacity that restricts vehicle travel	Continue reinforcement corrosion will lead to enlarged concrete deterioration and loss of structural integrity. Load bearing capacity will be reduced and failure can occur if overloaded, with extensive repair/replacement required	Delamination and exposed corroded reinforcement in three locations	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
67	Extension Wharf	Pile Cap	Existing	Extensive concrete damage, delamination and spalling	Chloride induced corrosion	N/A	Reduction of load bearing capacity that restricts vehicle travel	Continue reinforcement corrosion will lead to enlarged concrete deterioration and loss of structural integrity. Load bearing capacity will be reduced and failure can occur if overloaded, with extensive repair/replacement required	Extensive concrete damage	Restricted vehicle traffic	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Before 2025
68	Original and Extension Wharves	East Fenders	Existing	Surface wearing and physical damage to fender pads, heavy corrosion to some fixings, chains and pad missing on one fender.	Operational impact and metal corrosion	N/A	Fender failure will restrict berthing activities	Fender breakage/loss in storm condition will restrict berthing activities or cause ship/wharf damage	Surface wearing and physical damage to fender pads, heavy corrosion to some fixings, chains and pad missing on one fender.	Restricted berthing Ship/wharf structure damage	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
69	Original and Extension Wharves	East Fenders	Future Predicted	Extensive loss of fender pad surface and heavy corrosion to fixings	Operational impact and metal corrosion	10 - 20 years	Fender failure will restrict berthing activities	Fender breakage/loss in storm condition will restrict berthing activities or cause ship/wharf damage	Extensive loss of fender pad surface and heavy corrosion to fixings	Restricted berthing Ship/wharf structure damage	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection with localised repair as required	Annual
70	Original and Extension Wharves	West Fenders	Existing	Minor corrosion and coating damage. Majority of fenders are in excellent condition.	Operational impact and metal corrosion	N/A	Fender failure will restrict berthing activities	Fender breakage/loss in storm condition will restrict berthing activities or cause ship/wharf damage	Moderate to major wearing to rubber cells. General corrosion to fender support elements	Restricted berthing Ship/wharf structure damage	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
71	Original and Extension Wharves	West Fenders	Future Predicted	Extensive loss of fender pad surface and heavy corrosion to fixings	Operational impact and metal corrosion	10 - 20 years	Fender failure will restrict berthing activities	Fender breakage/loss in storm condition will restrict berthing activities or cause ship/wharf damage	Extensive loss of fender pad surface and heavy corrosion to fixings	Restricted berthing Ship/wharf structure damage	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection with localised repair as required	Annual
72	Original and Extension Wharves	Bollards	Existing	Minor corrosion present on head and around anchor bolts. Surface corrosion to the fasteners on the Deck Soffit. Unprotected steel visible on one bollard.	Operational impact and metal corrosion	N/A	De-grading of bollard capacity due to metal section loss or fixings corrosion	Bollards are rated to withstand berthing/mooring load. Loss of structural capacity due to corrosion will limit their function	Surface coating deterioration and corrosion	Restricted berthing	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
73	Original and Extension Wharves	Bollards	Future Predicted	Extensive coating deterioration and corrosion. Fixing at soffit have loss structural capacity	Operational impact and metal corrosion	10 - 20 years	De-grading of bollard capacity due to metal section loss or fixings corrosion	Bollards are rated to withstand berthing/mooring load. Loss of structural capacity due to corrosion will limit their function	Extensive coating deterioration and corrosion. Fixing at soffit have loss structural capacity	Restricted berthing	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer audit inspection with localised repair as required	Before 2030

74	Original and Extension Wharves	Safety ladders fixed to wharf edges	Existing	Ladders showing signs of corrosion and paint damage. Corrosion on ladder connection and top rung on original wharf. Design does not allow water to drain	End of coating life / metal corrosion	N/A	Ladder falling during personnel use	Loss of ladder fixings due to corrosion leading to personnel falling to the water	Localised corrosion due to poor drainage design and environment	Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual engineer inspection	Annual
75	Original and Extension Wharves	Safety ladders fixed to wharf edges	Future Predicted	Extensive coating deterioration and corrosion to fixing	End of coating life / metal corrosion	10 Years	Ladder falling during personnel use	Loss of ladder fixings due to corrosion leading to personnel falling to the water	Extensive corrosion due to poor drainage design, environment and loss of coating	Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer inspection with localised Repair and Replacement	Before 2030
76	Services	Fire hydrants	Existing	Minor paint deterioration. Surface corrosion. Corrosion to the bolts.	Metal corrosion	N/A	Unable to use fire hydrant in emergency	Corrosion to the cabinet/fixing support may lead to the inoperable fire hydrant during emergency	Minor corrosion	Delay in fire fighting and injury to personnel	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
77	Services	Fire hydrants	Future Predicted	Extensive corrosion	Metal corrosion	10 Years	Unable to use fire hydrant in emergency	Corrosion to the cabinet/fixing support may lead to the inoperable fire hydrant during emergency	Extensive corrosion	Delay in fire fighting and injury to personnel	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	High	Possible	High	Fatality or disabling injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer inspection with localised Repair and Replacement	Annual
78	Services	Water outlet	Existing	Minor paint deterioration. Surface corrosion. Corrosion to the bolts.	Metal corrosion	N/A	Water leakage and restricted usage	Corrosion to outlet may lead to water leakage that require immediate repair and restrict usage	Surface corrosion and coating deterioration	Operational restriction	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Low	Possible	Moderate	1 to 2 days interruption to the business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
79	Services	Water outlet	Future Predicted	Major corrosion and coating deterioration	Metal corrosion	10 Years	Water leakage and restricted usage	Corrosion to outlet may lead to water leakage that require immediate repair and restrict usage	Major corrosion and coating deterioration	Operational restriction	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Low	Possible	Moderate	1 to 2 days interruption to the business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
80	Services	Steel pipe support fixed to east side deck edge	Existing	Fuel pipe supports on Berth 6 heavily corroded, two pipe breaks are present in the line preventing supply to berth 2 and western side.	Metal corrosion	N/A	Failure of pipe due to inadequate support causing personnel injury or loss of asset	Pipe support elements are damaged to the extent that they cannot anymore take the load from pipes. Falling of pipe may harm personnel working under deck.	Corrosion of the pipe brackets and pipe breaks.	Damage to pipes Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Moderate	Possible	High	2 days to 1 week interruption to the business	Maintenance	Implement Repair Options	Immediately
81	Services	Steel pipe support fixed to east side deck edge	Future Predicted	Severe corrosion lead to the loss of pipe support	Metal corrosion	1 - 5 years	Failure of pipe due to inadequate support causing personnel injury or loss of asset	Pipe support elements are damaged to the extent that they cannot anymore take the load from pipes. Falling of pipe may harm personnel working under deck.	Extensive corrosion of the pipe brackets and pipe breaks.	Damage to pipes Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Moderate	Possible	High	2 days to 1 week interruption to the business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and annual Engineer inspection with localised Repair and Replacement	Annual
82	Services	Steel pipe support fixed to deck soffit	Existing	Stainless steel rods have deformed along length of redundant water line. Near abutment bracket is heavily corroded with protective paint covering less than 50% of the bracket. One missing bolt in a bracket on the approach bridge and stainless steel ties are breaking due to corrosion.	Metal corrosion	N/A	Failure of pipe due to inadequate support causing personnel injury or loss of asset	Pipe support elements are damaged to the extent that they cannot anymore take the load from pipes. Falling of pipe may harm personnel working under deck.	Corrosion of the pipe brackets.	Damage to pipes Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Possible	High	Lost time injury or occupational injury (recoverable). Restricted Work Injury	Maintenance	Implement Repair Options	Immediately
83	Services	Steel pipe support fixed to deck soffit	Future Predicted	Extensive corrosion and potential failure of some pipe supports for redundant pipes	Metal corrosion	1 - 5 years	Failure of pipe due to inadequate support causing personnel injury or loss of asset	Pipe support elements are damaged to the extent that they cannot anymore take the load from pipes. Falling of pipe may harm personnel working under deck.	Extensive corrosion of the pipe brackets.	Damage to pipes Personnel injury	Inspections/ Add-hoc repair of the surface	Poor	Life/Health	Moderate	Possible	High	Lost time injury or occupational injury (recoverable). Restricted Work Injury	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
84	All	Piles (above water protected by Denso jacket)	Existing	Some loss of coating and corrosion where jackets not present, minor damage to some jackets including minor bulging, damage and blistering	Jacket protection, where present, but due to loss of coating where jackets not present.	N/A	Reduction of load bearing capacity that restricts vehicle travel/ship berthing	In some locations there has been physical damage to the pile jackets. In other locations, where jackets are not present on the substructure, there has been a loss of the protective coating and subsequent corrosion.	Physical damage and loss of coating.	Business interruption	Inspections/ Add-hoc repair of the surface	Satisfactory	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Regular boat inspection to identify Denso jacket damage and repair as required	Every 1 to 2 years
85	All	Piles (above water protected by Denso jacket)	Future Predicted	Unacceptable metal thickness loss due to corrosion after loss of Denso jacket protection	Loss of jacket protection	5 years	Reduction of load bearing capacity that restricts vehicle travel/ship berthing	Loss of pile metal thickness will reduce load capacity for vehicle travel and ship berthing leading to de-rating and restrictions on wharf usage	Unacceptable metal thickness loss due to corrosion after loss of Denso jacket protection	Business interruption	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Regular boat inspection to identify Denso jacket damage and repair as required	Every 1 to 2 years
86	All	Piles (below water protected by anodes)	Existing	Acceptable remaining thickness with CP anodes protection. Average 60% CP anode loss.	CP anode protection	N/A	Reduction of load bearing capacity that restricts vehicle travel/ship berthing	Loss of pile metal thickness will reduce load capacity for vehicle travel and ship berthing leading to de-rating and restrictions on wharf usage	Acceptable remaining thickness with CP anodes protection. Average 60% CP anode loss.	Business interruption	Inspections/ Add-hoc repair of the surface	Satisfactory	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Regular underwater diving inspection to measure remaining thickness and CP anode loss	Every 5 years
87	All	Piles (below water protected by anodes)	Future Predicted	Unacceptable remaining thickness without CP anodes protection.	Loss of CP anode protection	5 years	Reduction of load bearing capacity that restricts vehicle travel/ship berthing	Loss of pile metal thickness will reduce load capacity for vehicle travel and ship berthing leading to de-rating and restrictions on wharf usage	Unacceptable remaining thickness without CP anodes protection.	Business interruption	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	High	Possible	High	1 week to 1 month interruption to business	Maintenance	Regular underwater diving inspection to measure remaining thickness and CP anode loss	Every 5 years
88	Approach Bridge	Rock Armour	Existing	No significant visible damage	Rock armour has suitable size and quality	< 1 year	Rocks cannot support the slab and abutment of the approach bridge	In a major event, it is possible that rocks move and reduce the protection provided to the abutment of the bridge	Major storm events	Settlement or cracking of the slab etc	Adhoc inspections	Poor	Physical Assets	Low	Rare	Low	Significant but temporary damage. Repairable	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Every 1 to 2 years
89	Approach Bridge	Rock Armour	Future Predicted	Minor loss or dislocation of the armour units	Major storm events	10-20 years	Rocks cannot support the slab and abutment of the approach bridge	In a major event, it is possible that rocks move and reduce the protection provided to the abutment of the bridge	Major storm events	Settlement or cracking of the slab etc	Adhoc inspections	Poor	Physical Assets	Low	Unlikely	Low	Significant but temporary damage. Repairable	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Every 1 to 2 years
90	Services	Fuel Point	Existing	Minor paint deterioration. Surface corrosion. Corrosion to the bolts.	Metal corrosion	< 1 year	Fuel leakage and restricted usage	Corrosion to outlet may lead to fuel leakage that require immediate repair and restrict usage	Surface corrosion and coating deterioration	Operational restriction	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Low	Possible	Moderate	1 to 2 days interruption to the business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual
91	Services	Fuel Point	Future Predicted	Major corrosion and coating deterioration	Metal corrosion	10 Years	Fuel leakage and restricted usage	Corrosion to outlet may lead to fuel leakage that require immediate repair and restrict usage	Major corrosion and coating deterioration	Operational restriction	Inspections/ Add-hoc repair of the surface	Poor	Business Interruption	Low	Possible	Moderate	1 to 2 days interruption to the business	Maintenance	Improve Control Effectiveness by regular PPA personnel inspection and Engineer audit inspection	Annual

Appendix E 10-Year Maintenance Plan

10 Year Maintenance Plan of DCW Cargo Wharf

Asset Manager / Owner: Greg Smith, E&I Planning

Section	Element Location	Element	Component	Sub-Component	No. of Sub-Components	Quantity	Unit	Risk ID Ref.	Maximum Component Risk Rating (Existing)	Existing Control Effectiveness	Maximum Component Risk Rating (Predicted Future)	Timeframe for the condition leading to failure or significant increase in the risk	Repair/Treatment Type	SMEC Repair Quantity	Unit	Base Rate	Total Cost (GST excl)	SMEC Comments	2020 / 2021	2021 / 2022	2022 / 2023	2023 / 2024	2024 / 2025	2025 / 2026	2026 / 2027	2027 / 2028	2028 / 2029	2029 / 2030	2030 / 2031	Out Years (to 2040)		
Approach Bridge	Approach Bridge	Furniture	Above Deck	Guardrail	2	182.4	m	7-9	High	Poor	High	10 years	Monitor and replace guardrail as damage justifies.	182.4	m	\$267	\$48,701	Cost allowed for repair subject to annual inspection. Repeat every 10 years.							\$48,701					\$48,701		
Approach Bridge	Approach Bridge	Furniture	Above Deck	Kerb	2	182.4	m	5-6	High	Poor	High	5-10 years	Monitor and replace kerbs as damage justifies.	50.0	m	\$1,500	\$75,000	Cost allowed for repair subject to annual inspection.							\$75,000						\$75,000	
Approach Bridge	Approach Bridge	Approach Bridge	Abutment	Bearing	1	16.0	No.	12-15	Moderate	Poor	High	< 10 years	Reinstate protective coating to bearing plates.	16.0	No.	\$5,346	\$85,536	Cost allowed for protective coating reinstatement beyond 10 years given the present day condition.													\$85,536	
Approach Bridge	Approach Bridge	Approach Bridge	Abutment	Bearing	1	16.0	No.	12-15	Moderate	Poor	High	< 10 years	Monitor the deterioration of elastomeric bearings and cracking in grout.	-	No.	-	-	Cost allowed for repair subject to inspection, beyond 10 years given the present day condition. No major work expected within the 25yr remaining service life. Subject to inspections.														
Approach Bridge	Approach Bridge	Approach Bridge	Abutment	Expansion Joint	1	9.4	m	10-11	Moderate	Poor	High	10-20 years	Joint replacement.	9.4	m	\$107	\$1,006	Joint sealant replacement same time as deck top work. Repeat every 10 years.					\$1,006									
Approach Bridge	Approach Bridge	Approach Bridge	Abutment	Rock Armour	1	1.0	Item	88-89	Low	Poor	Low	10-20 years	Monitor.	-	Item	-	-	No major works expected.														
Approach Bridge	Approach Bridge	Approach Bridge	Abutment	Wall	1	43.8	m2	16-17	Moderate	Poor	High	10-20 years	Monitor and conventional concrete repair as damage justifies.	4.4	m2	\$3,000	\$13,134	Cost allowed for conventional concrete repair as required. Within 5 years and repeat every 10 years.					\$13,134									
Approach Bridge	Approach Bridge	Approach Bridge	Below Deck	Bearing	1	16.0	No.	12-15	Moderate	Poor	High	< 10 years	Reinstate protective coating to bearing plates.	16.0	No.	\$5,346	\$85,536	Cost allowed for protective coating reinstatement beyond 10 years given the present day condition.													\$85,536	
Approach Bridge	Approach Bridge	Approach Bridge	Below Deck	Bearing	1	16.0	No.	12-15	Moderate	Poor	High	< 10 years	Monitor the deterioration of elastomeric bearings and cracking in grout.	-	No.	-	-	Cost allowed for repair subject to inspection, beyond 10 years given the present day condition. No major work expected within the 25yr remaining service life. Subject to inspections.														
Approach Bridge	Approach Bridge	Approach Bridge	Below Deck	Bearing	1	16.0	No.	12-15	Moderate	Poor	High	< 5 years	Replace bearing plates with significant loss of section.	2.0	IS	\$100,000	\$100,000	Cost allowed for replacement of severely corroded bearing plates.					\$100,000									
Approach Bridge	Approach Bridge	Approach Bridge	Deck Joints	Expansion Joint	1	9.4	m	10-11	Moderate	Poor	High	10-20 years	Joint replacement.	9.4	m	\$107	\$1,006	Joint sealant replacement same time as deck top work. Repeat every 10 years.						\$1,006								
Approach Bridge	Approach Bridge	Approach Bridge	Deck Soffit	Beam	8	940.0	m2	14-15	High	Poor	High	1-5 years	Monitor and conventional concrete repair as damage justifies.	94.0	m2	\$3,000	\$282,000	Cost allowed for conventional concrete repair as required. Within 2 years and repeat every 10 years.													\$282,000	
Approach Bridge	Approach Bridge	Approach Bridge	Deck Soffit	Beam	8	940.0	m2	14-15	High	Poor	High	1-5 years	Silane protective treatment	470.0	m2	\$100	\$47,000	Cost allowed for silane impregnation to the concrete surface. Works to be conducted same time as repairs and re-treatment after 15-20 years.						\$47,000								
Approach Bridge	Approach Bridge	Approach Bridge	Deck Soffit	Beam	8	940.0	m2	14-15	High	Poor	High	1-5 years	Scaffolding and Access	-	IS	\$85,535	\$85,535	Cost allowed for scaffolding and access to undertake repairs on the deck soffit, headstocks and deck edge.						\$85,535								
Approach Bridge	Approach Bridge	Approach Bridge	Deck Top	Concrete Slab	8	940.0	m2	1-4	High	Poor	High	5-10 years	Monitor and conventional concrete repair as damage justifies.	94.0	m2	\$3,000	\$282,000	Cost allowed for conventional concrete repair as required. Within 5 years and repeat every 10 years.						\$282,000							\$282,000	
Approach Bridge	Approach Bridge	Approach Bridge	Deck Top	Concrete Slab	8	940.0	m2	1-4	High	Poor	High	5-10 years	Silane protective treatment	470.0	m2	\$100	\$47,000	Cost allowed for silane impregnation to the concrete surface. Works to be conducted same time as repairs and re-treatment after 15-20 years.						\$47,000								
Approach Bridge	Approach Bridge	Approach Bridge	Headstock	Cross Heads	8	350.2	m2	16-17	Moderate	Poor	High	5-10 years	CP Repair and conventional concrete repair as damage justifies	262.7	m2	\$750	\$197,010	Cost allowed for repair of the CP repair and conventional concrete repair within 5 years and repeat every 10 years.								\$197,010					\$197,010	
Approach Bridge	Approach Bridge	Piles	Anode	Pile	23	26.0	No.	86-87	High	Poor	High	5 years	Anode Installation.	23.0	No.	\$1,166	\$26,815	Cost allowed for CP anode replacement after dimension check and repeat in 10 years.							\$26,815						\$26,815	
Approach Bridge	Approach Bridge	Piles	Pile	Pile Exposure 01	23	23.0	Item	84-87	High	Poor	High	5 years	Dive Inspection.	6.0	No.	\$3,435	\$20,610	Pile Underwater Inspection of 40 piles and Jacket Replacement of 10 piles. Every 5 years.							\$20,610						\$20,610	
Approach Bridge	Approach Bridge	Piles	Pile	Pile Sleeve	23	23.0	Item	84-87	High	Poor	High	5 years	Monitor and repair damaged denso jacket.	2.0	Item	\$1,200	\$2,400	Allow for minor impact damage repair every 2 years. Quantities are based off the current number of torn/damage/punctured jackets.					\$2,400			\$2,400		\$2,400		\$2,400	\$12,000	
Original Wharf	Original Wharf	Furniture	Above Deck	Guardrail	1	67.1	m	46-47	High	Poor	High	10 years	Monitor and replace guardrail as damage justifies.	67.1	m	\$267	\$17,916	Cost allowed for repair subject to annual inspection. Repeat every 10 years.													\$17,916	
Original Wharf	Original Wharf	Furniture	Above Deck	Kerb	2	240.8	m	44-45	High	Poor	High	5-10 years	Monitor and replace kerbs as damage justifies.	30.0	m	\$1,500	\$45,000	Cost allowed for repair subject to annual inspection.													\$45,000	
Original Wharf	Original Wharf	Furniture	Above Deck	Ladder	1	1.0	No.	74-75	High	Poor	High	10 years	Monitor and repair/replace as damage justifies.	1.0	No.	\$535	\$535	Cost allowed for minor repair (e.g. missing bolt replacement/coating touch up) every 5 years.								\$535					\$535	
Original Wharf	Original Wharf	Furniture	Bollards	Bollard	12	12.0	No.	72-73	High	Poor	High	10-20 years	Protective wrapping to bollard fixings below deck.	12.0	No.	\$3,119	\$37,428	Cost allowed for protective wrapping to bollard fixings below deck within 10 years and re-wrap every 10-15 years.								\$37,428						\$37,428
Original Wharf	Original Wharf	Deck	Deck Soffit	Concrete Slab	8	2209.2	m2	38-43	High	Poor	High	1 year	Repair edge cracking, between Fenders F 124 and F 125, causing a spalling risk.	-	IS	\$61,000	\$61,000	Cost allowed for edge cracking repair by conventional concrete repair and UBUU access.					\$61,000									
Original Wharf	Original Wharf	Deck	Deck Soffit	Concrete Slab	8	2209.2	m2	38-43	High	Poor	High	5 years	Monitor and conventional concrete repair as damage justifies.	220.9	m2	\$3,000	\$662,766	Cost allowed for conventional concrete repair as required. Within 5 years and repeat every 10 years.													\$662,766	
Original Wharf	Original Wharf	Deck	Deck Soffit	Concrete Slab	8	2209.2	m2	38-43	High	Poor	High	5 years	Scaffolding and Access	-	IS	\$160,378	\$160,378	Cost allowed for scaffolding and access to undertake repairs on the deck soffit and deck edge.													\$160,378	
Original Wharf	Original Wharf	Deck	Deck Soffit	Concrete Slab	8	2209.2	m2	38-43	High	Poor	High	5 years	Silane protective treatment	1104.6	m2	\$100	\$110,461	Cost allowed for silane impregnation to the concrete surface. Works to be conducted same time as repairs and re-treatment after 15-20 years.							\$110,461							
Original Wharf	Original Wharf	Deck	Deck Top	Concrete Slab	8	2209.2	m2	34-37	High	Poor	High	5-10 years	Monitor and conventional concrete repair as damage justifies.	220.9	m2	\$3,000	\$662,766	Cost allowed for conventional concrete repair as required. Within 5 years and repeat every 10 years.													\$662,766	
Original Wharf	Original Wharf	Deck	Deck Top	Concrete Slab	8	2209.2	m2	34-37	High	Poor	High	5-10 years	Silane protective treatment	1104.6	m2	\$100	\$110,461	Cost allowed for silane impregnation to the concrete surface. Works to be conducted same time as repairs and re-treatment after 15-20 years.								\$110,461						
Original Wharf	Original Wharf	Furniture	Fender	Chain	21	21.0	Item	68-71	High	Poor	High	10-20 years	Monitor corrosion and replace as corrosion justifies.	11.0	Item	\$625	\$6,875	Cost allowed for chain approx. 50% of chains to be replaced every 10 years, subject to annual inspection. Cost to be conducted at same time as render pad replacement.													\$6,875	
Original Wharf	Original Wharf	Furniture	Fender	Elastomeric Arch Fender	16	30.0	No.	68-71	High	Poor	High	10-20 years	Monitor and replace as damage justifies.	2.0	No.	\$500	\$1,000	Cost allowed for arch fender replacement every 10 years, subject to annual inspection. Quantities are based off the current number of (minor) damaged arch fenders.													\$1,000	
Original Wharf	Original Wharf	Furniture	Fender	Fender Cone	21	42.0	No.	68-71	High	Poor	High	10-20 years	Monitor and replace as damage justifies.	-	IS	\$53,460	\$53,460	Cost allowed for fender cone replacement every 15 years from first installation (2009 for east side fenders, 2018 for west side fenders). Same time as fender support structure re-coating.													\$53,460	
Original Wharf	Original Wharf	Furniture	Fender	Fender Pad	21	21.0	No.	68-71	High	Poor	High	10-20 years	Replacement of damaged or missing fender pads and chains.	1.0	No.	\$5,433	\$5,433	One off cost allowed for the replacement of damaged/missing/corroded fender pads and chains. Includes installation costs. Includes the replacement of corroded chains.													\$5,433	
Original Wharf	Original Wharf	Furniture	Fender	Fender Pad	21	21.0	No.	68-71	High	Poor	High	10-20 years	Monitor and repair fender pads as damage justifies. Including replacement of corroded fasteners and cleaning corrosion and re-application of protective coating.	12.0	IS	\$2,833	\$34,000	Cost allowed for some panel replacement every 10 years from installation (2009 for east side fenders, 2018 for west side fenders). Quantities are based off the current number of (minor) damaged fender pads. Includes installation costs.													\$34,000	
Original Wharf	Original Wharf	Furniture	Fender	Fender Support Frame	21	21.0	Item	68-71	High	Poor	High	10-20 years	Monitor and coating touch-up coating repair as required.	-	IS	\$53,460	\$53,460	Cost allowed coating touch-up repair every 10 years from installation (2009 for east side fenders, 2018 for west side fenders). Includes installation costs.													\$53,460	
Original Wharf	Original Wharf	Furniture	Fender	Steel Strut	21	23.0	No.	68-71	High	Poor	High	10-20 years	Monitor and repair damaged denso jacket.	-	IS	-	-	Cost included in pile sleeve repair costs.														
Original Wharf	Original Wharf	Furniture	Lights	Post	1	3.0	No.	50-51	Moderate	Poor	Moderate	10 years	Coating touch-up. Remove Denso wrap for fixing bolt inspection during Denso wrap replacement.	3.0	No.	\$1,283	\$3,849	Cost allowed for minor repair (e.g. missing bolt replacement/coating touch up) every 5 years. Inspect any internal corrosion from the light pole access hatch.													\$3,849	
Original Wharf	Original Wharf	Piles	Pile	Anode	92	104.0	No.	86-87	High	Poor	High	5 years	Anode Installation.	92.0	No.	\$1,166	\$107,261	Cost allowed for CP anode replacement after dimension check and repeat in 10 years.													\$107,261	
Original Wharf	Original Wharf	Piles	Pile	Pile Exposure 01	92	92.0	Item	84-87	High	Poor	High	5 years	Dive Inspection.	15.0	No.	\$3,435	\$51,526	Pile Underwater Inspection of 40 piles and Jacket Replacement of 10 piles. Every 5 years.													\$51,526	
Original Wharf	Original Wharf	Piles	Pile	Pile Sleeve	92	92.0	Item	84-87	High	Poor	High	5 years	Monitor and repair damaged denso jacket.	9.0	Item	\$1,200	\$10,800	Allow for minor impact damage repair every 2 years. Quantities are based off the current number of torn/damage/punctured jackets.								\$10,800					\$10,800	
Original Wharf	Original Wharf	Piles	Pile	Pile Sleeve	92	92.0	Item	84-87	High	Poor	High	5 years	Jacket solution and installation to missing sections above wave screen and at fender support connections along the eastern side of the original wharf.	12.0	Item	\$1,200	\$14,400	Cost allowed for missing jacket sections above wave screen and at fender support frame connections along the east side of the Original Wharf. Prior to jacket installation, pile is recommended to be cleaned and protective coating re-applied.													\$14,400	
Extension Wharf	Extension Wharf	Deck	Above Deck	Kerb	3	225.4	m	64-65	High	Poor	High	5-10 years	Monitor and replace kerbs as damage justifies.	30.0	m	\$1,500	\$45,000	Cost allowed for repair subject to annual inspection.													\$45,000	
Extension Wharf	Extension Wharf	Deck	Above Deck	Ladder	1	1.0	No.	74-75	High	Poor	High	10 years	Monitor and repair/replace as damage justifies.	1.0	No.	\$535	\$535	Cost allowed for minor repair (e.g. missing bolt replacement/coating touch up) every 5 years.													\$535	
Extension Wharf	Extension Wharf	Furniture	Bollards	Bollard	12	12.0	No.	72-73	High	Poor	High	10-20 years	Protective wrapping to bollard fixings below deck.	12.0	No.	\$3,119	\$37,428	Cost allowed for protective wrapping to bollard fixings below deck within 10 years and re-wrap every 10-15 years.													\$37,428	
Extension Wharf	Extension Wharf	Deck	Deck Soffit	Concrete Slab	10	2864.2	m2	54-57	High	Poor	High	5 years	Monitor and conventional concrete repair as damage justifies.	286.4	m2	\$3,000	\$859,274	Cost allowed for conventional concrete repair as required. Within 2 years and repeat every 10 years.													\$859,274	
Extension Wharf	Extension Wharf	Deck	Deck Soffit	Concrete Slab	10	2864.2	m2	54-57	High	Poor	High	5 years	Scaffolding and Access	-	IS	\$160,378	\$160,378	Cost allowed for scaffolding and access to undertake repairs on the deck soffit and deck edge.													\$160,378	
Extension Wharf	Extension Wharf	Deck	Deck Soffit	Concrete Slab	10	2864.2	m2	54-57	High	Poor	High	5 years	Silane protective treatment	1432.1	m2	\$100	\$143,212	Cost allowed for silane impregnation to the concrete surface. Works to be conducted same time as repairs and re-treatment after 15-20 years.													\$143,212	
Extension Wharf	Extension Wharf	Deck	Deck Top	Concrete Slab	10	2977.3	m2	52-53	Moderate	Poor	High	5-10 years	Monitor and conventional concrete repair as damage justifies.	297.7	m2	\$3,000	\$893,192	Cost allowed for conventional concrete repair as required. Within 2 years and repeat every 10 years.													\$893,192	
Extension Wharf	Extension Wharf	Deck	Deck Top	Concrete Slab	10	2977.3	m2	52-53	Moderate	Poor	High	5-10 years	Silane protective treatment	1488.7	m2	\$100	\$148,865	Cost allowed for silane impregnation to the concrete surface. Works to be conducted same time as repairs and re-treatment after 15-20 years.													\$148,865	
Extension Wharf	Extension Wharf	Furniture	Fender	Chain	27	27.0	Item	68-71	High	Poor	High	10-2																				

Section	Element Location	Element	Component	Sub-Component	No. of Sub-Components	Quantity	Unit	Risk ID Ref.	Maximum Component Risk Rating (Existing)	Existing Control Effectiveness	Maximum Component Risk Rating (Predicted Future)	Timeframe for the condition leading to failure or significant increase in the risk	Repair/Treatment Type	SMEC Repair Quantity	Unit	Base Rate	Total Cost (GST excl)	SMEC Comments	2020 / 2021	2021 / 2022	2022 / 2023	2023 / 2024	2024 / 2025	2025 / 2026	2026 / 2027	2027 / 2028	2028 / 2029	2029 / 2030	2030 / 2031	Out Years (to 2040)	
Southern Mooring Dolphin	Southern Mooring Dolphin	Dolphin	Walkway	Walkway Support	1	1.0	Item	18-19	High	Poor	High	5-10 years	Protective wrapping to fixings.	-	LS	\$1,500	\$1,500	Cost allowed for protective wrapping to fixings at approach bridge connection. Within 10 years and re-wrap every 10-15 years.							\$1,500					\$1,500	
Small Boat Landing	Small Boat Landing	Landing	Boat landing	Grating	1	1.0	Item	26-27	Moderate	Poor	High	10 years	Replace as required. Monitoring condition of grip tape.	-	LS	\$5,346	\$5,346	Cost allowed for grating replacement as damage justifies. Including the condition of anti-slip grip. No major works expected within 10 years.													\$5,346
Small Boat Landing	Small Boat Landing	Landing	Boat landing	Handrail	1	1.0	Item	28-29	High	Poor	High	10 years	Replacement of bolts and isolation of dissimilar metals.	-	LS	\$1,000	\$1,000	Cost allowed for dissimilar metal isolation between hold down bolts to landing/rails and bolt replacement/installation.		\$1,000		\$1,000		\$1,000		\$1,000		\$1,000		\$5,000	
Small Boat Landing	Small Boat Landing	Landing	Boat landing	Handrail	1	1.0	Item	28-29	High	Poor	High	< 1 year	Review of the handrail connection detail, replacement of plastic handrails and installation of toeboards.	-	LS	\$20,000	\$20,000	Cost allowed to ensure it is compliant with AS1657. Install toe boards at the top of the landing as per AS1657.			\$20,000										
Small Boat Landing	Small Boat Landing	Landing	Boat landing	Structural Steel	1	1.0	Item	30-31	High	Poor	High	10-20 years	Patch repair or replace localised areas. Re-coating as damage justifies.	-	LS	\$4,277	\$4,277	Cost allowed to ensure it is compliant with AS1657. Install toe boards at the top of the landing as per AS1657.					\$4,277			\$4,277					\$8,554
Small Boat Landing	Small Boat Landing	Furniture	Fender	Fender Pad	1	12.0	No.	32-33	Low	Poor	Moderate	10-20 years	Monitor and replace as damage justifies.	2.0	No.	\$1,333	\$2,667	Cost allowed for some pad replacement every 10 years (first instance in 2021 and then second rotation at the same time as repairs to chain/pads, i.e. 2034). Includes installation costs.			\$2,667									\$2,667	
Small Boat Landing	Small Boat Landing	Piles	Pile	Anode	4	5.0	No.	86-87	High	Poor	High	5 years	Anode Installation.	4.0	No.	\$1,166	\$4,664	Cost allowed for CP anode replacement after dimension check and repeat in 10 years.						\$4,664						\$4,664	
Small Boat Landing	Small Boat Landing	Piles	Pile	Pile Exposure 01	4	4.0	Item	84-87	High	Poor	High	5 years	Dive Inspection.	1.0	No.	\$3,435	\$3,435	Pile Underwater Inspection of 40 piles and Jacket Replacement of 10 piles. Every 5 years.						\$3,435						\$3,435	
Small Boat Landing	Small Boat Landing	Piles	Pile	Pile Sleeve	4	4.0	Item	84-87	High	Poor	High	5 years	Monitor and repair damaged denso jacket.	1.0	Item	\$1,200	\$1,200	Allow for minor impact damage repair every 2 years. Quantities are based off the current number of torn/damage/punctured jackets.			\$1,200		\$1,200		\$1,200		\$1,200		\$1,200		\$6,000
Services	General	Services	Above Deck	Fire Hydrants	1	3.0	No.	76-77	High	Poor	High	10 years	Monitor and repair/replace fire hydrants and damage justifies.	-	LS	\$6,415	\$6,415	Cost allowed for minor repair every 5 years, assuming PPA will conduct regular functional check.						\$6,415						\$6,415	
Services	General	Services	Above Deck	Fuel Point	1	8.0	No.	90-91	Moderate	Poor	Moderate	10 years	Protective coating repair or replacement as required.	-	LS	\$6,415	\$6,415	Cost allowed for minor repair every 5 years, assuming PPA will conduct regular functional check.						\$6,415						\$6,415	
Services	General	Services	Below Deck	Pipe Support	1	1.0	Item	80-81	High	Poor	High	3 years	Fuel Line: Re-instatement and corrosion protection of corroded brackets.	-	LS	\$30,000	\$30,000	Cost allowed for pipe support replacement, particularly to corroded brackets at Berth 6.					\$30,000								
Services	General	Services	Above Deck	Water Point	1	7.0	No.	78-79	Moderate	Poor	Moderate	10 years	Protective coating repair or replacement as required.	-	LS	\$6,415	\$6,415	Cost allowed for minor repair every 5 years, assuming PPA will conduct regular functional check.						\$6,415						\$6,415	
Services	General	Services	Below Deck	Pipe Support	1	1.0	Item	82-83	High	Poor	High	3 years	Water Line: Re-instatement of water services (replacement same for same).	-	LS	\$50,000	\$50,000	Cost allowed for removal and replacement of water services and supports (same for same replacement).					\$50,000								
Miscellaneous													Repainting of safety marking on deck and bollards within next 10 years and repeat every 10 years.	-	LS	\$38,000	\$38,000	Keep to the same program to GHD's maintenance plan.		\$38,000										\$38,000	
Miscellaneous													Miscellaneous repairs for unexpected damage as identified by annual audit.	-	LS	\$53,459	\$53,459			\$53,459		\$53,459		\$53,459		\$53,459		\$53,459		\$53,459	
Miscellaneous													Maintenance work design, specification and ad hoc office based technical support during the works.	-	LS	n/a	n/a	10% of annual work items.		\$12,508		\$96,626		\$139,912		\$100,843		\$111,586		\$9,072	
Miscellaneous													Maintenance work, contractor preliminaries including mobilisation/de-mobilisation, project management, QA/QC testing, traffic management.	-	LS	n/a	n/a	20% of annual work items.		\$25,015		\$173,252		\$279,823		\$201,652		\$126,305		\$113,533	
Consultancy Inspection and Investigation													Annual audit inspection based on Ports Australia WSCAM.	-	LS	\$32,076	\$32,076	3 days site inspection including travel for Materials Engineer land and boat inspection, to Ports Australia WSCAM requirements			\$32,076		\$32,076		\$32,076		\$32,076		\$32,076		\$32,076
Consultancy Inspection and Investigation													CP repair system annual audit.	-	LS	\$11,000	\$11,000	Cost allow \$10,000 for approach bridge headstock.			\$11,000		\$11,000		\$11,000		\$11,000		\$11,000		\$11,000
Consultancy Inspection and Investigation													Annual maintenance plan update and review with PPA.	-	LS	\$7,500	\$7,500	Update maintenance plan after annual audit and review with PPA in telecom meeting.			\$7,500		\$7,500		\$7,500		\$7,500		\$7,500		\$7,500
Consultancy Inspection and Investigation	Approach Bridge	Approach Bridge	Abutment	Bearing	1	16.0	No.						Further inspection for close inspection of bearing units.	-	LS	\$10,000	\$10,000	Cost allowed for further inspection of bearing units including a Safe Access Plan.			\$10,000										
Consultancy Inspection and Investigation	Approach Bridge	Approach Bridge	Deck Soffit	Beam	8	940.0	m2						Detailed investigation on Approach Bridge	-	LS	\$15,000	\$15,000	Detailed investigation to determine the extent of corrosion on the Approach Bridge Deck Soffit. Investigation to comprise of chloride testing of key areas and half-cell testing significant areas.			\$15,000										
Consultancy Inspection and Investigation	Original Wharf	Deck	Deck Soffit	Concrete Slab	8	2209.2	m2						Detailed investigation on Original Wharf and Southern Mooring Dolphin.	-	LS	\$15,000	\$15,000	Detailed investigation to determine the extent of corrosion on the Original Wharf Deck Soffit. Including widespread half-cell testing and small sample of cores taken to test for chloride concentrations.			\$15,000										
Consultancy Inspection and Investigation	Extension Wharf	Deck	Deck Soffit	Concrete Slab	10	2864.2	m2						Structural Assessment and Detailed Investigation (Including Embedded Dolphin).	-	LS	\$30,000	\$30,000	Structural assessment and detailed investigation on the Extension Wharf Deck Soffit. Structural assessment to understand function of the prestressed planks. Detailed investigation to determine the extent of corrosion.			\$30,000										
Provisional Sum	Approach Bridge	Approach Bridge	Deck Soffit	Beam	8	940.0	m2						Option (1) Cathodic protection - hybrid option		m2	\$4,000	\$920,000	Based on Detailed Investigation. Cost allowed for hybrid CP application. Applied to the corroding reinforcing area.					\$920,000								
Provisional Sum	Approach Bridge	Approach Bridge	Deck Soffit	Beam	8	940.0	m2						Option (1) CP Annual Audit		LS	\$11,000	\$11,000	CP repair system annual audit.									\$11,000			\$22,000	
Provisional Sum	Approach Bridge	Approach Bridge	Deck Soffit	Beam	8	940.0	m2						Option (2) Impressed current cathodic protection Application		m2	\$4,000	\$3,760,000	Based on Detailed Investigation. Cost allowed for ICCP application. Applied to the corroding reinforcement area.					\$3,760,000								
Provisional Sum	Approach Bridge	Approach Bridge	Deck Soffit	Beam	8	940.0	m2						Option (2) CP Control Unit		LS	\$50,000	\$50,000	Based on Detailed Investigation. Lump Sum cost of the CP control unit.					\$50,000								
Provisional Sum	Approach Bridge	Approach Bridge	Deck Soffit	Beam	8	940.0	m2						Option (2) CP Annual Audit		LS	\$11,000	\$11,000	CP repair system annual audit.													
Provisional Sum	Original Wharf	Deck	Deck Soffit	Concrete Slab	8	2209.2	m2						Option (1) Cathodic protection - hybrid option		m2	\$2,500	\$1,656,915	Based on Detailed Investigation. Cost allowed for hybrid CP application. Applied to the corroding reinforcing area.					\$11,000		\$11,000		\$11,000		\$11,000		\$11,000
Provisional Sum	Original Wharf	Deck	Deck Soffit	Concrete Slab	8	2209.2	m2						Option (1) CP Annual Audit		LS	\$11,000	\$11,000	CP repair system annual audit.													
Provisional Sum	Original Wharf	Deck	Deck Soffit	Concrete Slab	8	2209.2	m2						Option (2) Impressed current cathodic protection Application		m2	\$2,500	\$5,523,051	Based on Detailed Investigation. Cost allowed for ICCP application. Applied to the corroding reinforcing area.											\$11,000	\$22,000	
Provisional Sum	Original Wharf	Deck	Deck Soffit	Concrete Slab	8	2209.2	m2						Option (2) CP Control Unit		LS	\$50,000	\$50,000	Based on Detailed Investigation. Lump Sum cost of the CP control unit.					\$50,000								
Provisional Sum	Original Wharf	Deck	Deck Soffit	Concrete Slab	8	2209.2	m2						Option (2) CP Annual Audit		LS	\$11,000	\$11,000	CP repair system annual audit.													
Provisional Sum	Extension Wharf	Deck	Deck Soffit	Concrete Slab	10	2864.2	m2						Option (1) Cathodic protection - hybrid option for prestressed.		m2	\$4,000	\$3,437,094	Based on Structural Assessment. Cost allowed for hybrid CP application. Applied to the corroding reinforcing area.					\$3,437,094								
Provisional Sum	Extension Wharf	Deck	Deck Soffit	Concrete Slab	10	2864.2	m2						Option (1) CP Annual Audit		LS	\$20,000	\$20,000	CP repair system annual audit.													
Provisional Sum	Extension Wharf	Deck	Deck Soffit	Concrete Slab	10	2864.2	m2						Option (2) Impressed current cathodic protection Application		m2	\$4,000	\$11,456,981	Based on Structural Assessment. Cost allowed for ICCP application. Applied to the corroding reinforcement area.					\$11,456,981					\$20,000		\$40,000	
Provisional Sum	Extension Wharf	Deck	Deck Soffit	Concrete Slab	10	2864.2	m2						Option (2) CP Control Unit		LS	\$50,000	\$50,000	Based on Structural Assessment. Lump Sum cost of the CP control unit.					\$50,000								
Provisional Sum	Extension Wharf	Deck	Deck Soffit	Concrete Slab	10	2864.2	m2						Option (2) CP Annual Audit		LS	\$20,000	\$20,000	CP repair system annual audit.							\$20,000		\$20,000		\$20,000		\$20,000
Provisional Sum	Extension Wharf	Deck	Deck Soffit	Concrete Slab	10	2864.2	m2						Option (3) Removal Delaminated Concrete.		LS	\$572,849	\$572,849	Based on Structural Assessment. If the planks do not provide a structure function of the deck, cost allowed for removal of delaminated concrete on a two-yearly basis. Assume 20% every 2 years over 8 years.					\$572,849		\$20,000		\$572,849		\$20,000		\$20,000
Provisional Sum	Embedded Dolphin	Dolphin	Deck Soffit	Concrete Slab	1	157.5	m2						Option (1) Cathodic protection - hybrid option		m2	\$2,500	\$393,750	Based on Detailed Investigation. Cost allowed for hybrid CP application. Applied to the corroding reinforcing area.													
Provisional Sum	Embedded Dolphin	Dolphin	Deck Soffit	Concrete Slab	1	157.5	m2																								

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