Pier 3 Wharf

Structural Condition Assessment

Client	Northgate Port Authority (Fictional)
Asset	Pier 3 - 180 m open pile wharf, built 1978
Inspection dates	2026-09-08 to 2026-09-12
Inspector	J. Doe, P.Eng. (demo)
Reviewer	A. Smith, P.Eng. (demo)
Report status	Issued for client review

1. Executive Summary

Meridian Inspection Services completed a visual and tactile inspection of the Pier 3 deck, pile caps, piles and fender system. Overall the structure is in FAIR condition. The deck soffit shows localized spalling with exposed reinforcement in bays 7 to 11, and 14 of 96 steel piles show section loss greater than 25 % in the splash zone. No condition was found that requires immediate load restriction, however repairs to Priority 1 items should be completed within 12 months.

The estimated cost of recommended repairs is $2.91 M (Class C, +/- 30 %). A follow-up underwater inspection of piles P-41 to P-56 is recommended within 6 months to confirm section loss below the low water line.

2. Condition Rating Summary

ELEMENT	CONDITION	PRIORITY	COMMENT
Deck slab (top)	Good	3	Minor map cracking
Deck soffit	Poor	1	Spalls, exposed rebar bays 7-11
Pile caps	Fair	2	Cracking at PC-12, PC-18
Steel piles (splash zone)	Poor	1	Section loss > 25 % on 14 piles
Fender system	Fair	2	3 damaged fender units
Bollards / cleats	Good	3	Coatings only
Utilities / lighting	Fair	2	Corroded conduit supports

3. Scope and Method

Inspection was performed from the deck and from a work boat at low tide. Hammer sounding was used on all accessible concrete surfaces. Ultrasonic thickness readings were taken on 32 piles at three elevations. Photographs are referenced as Photo 1 to Photo 8.

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4. Key Observations

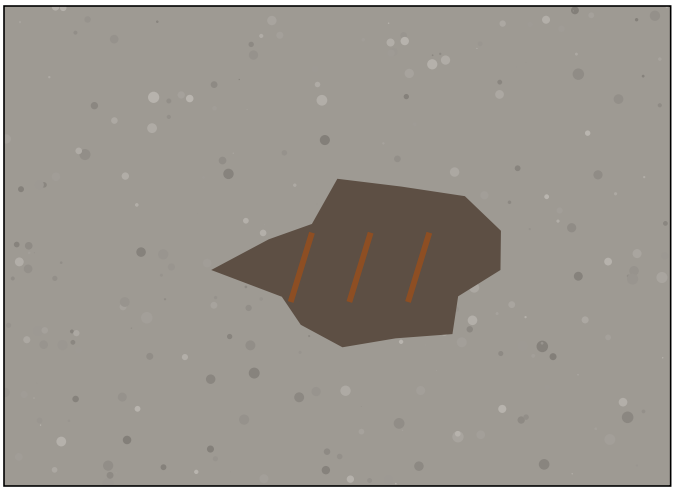


Photo 1 - Deck soffit spall with exposed rebar, Bay 9

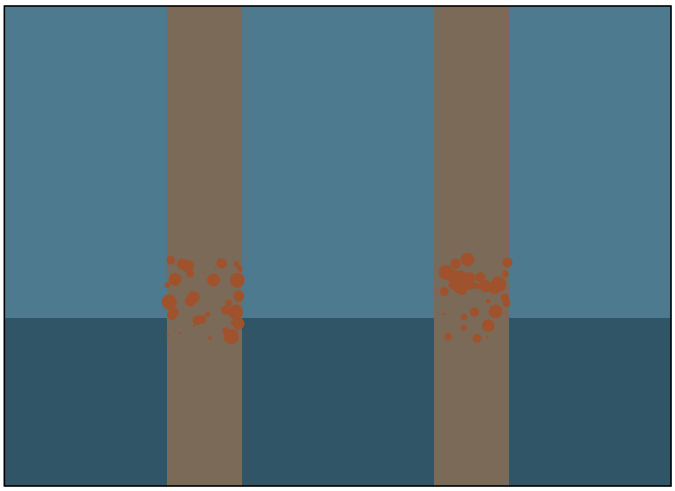


Photo 2 - Pile section loss, splash zone, P-44 / P-45

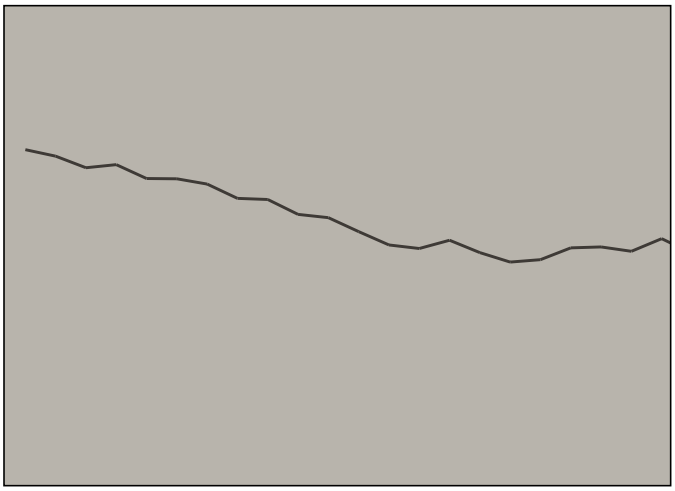


Photo 3 - Diagonal crack in pile cap PC-12

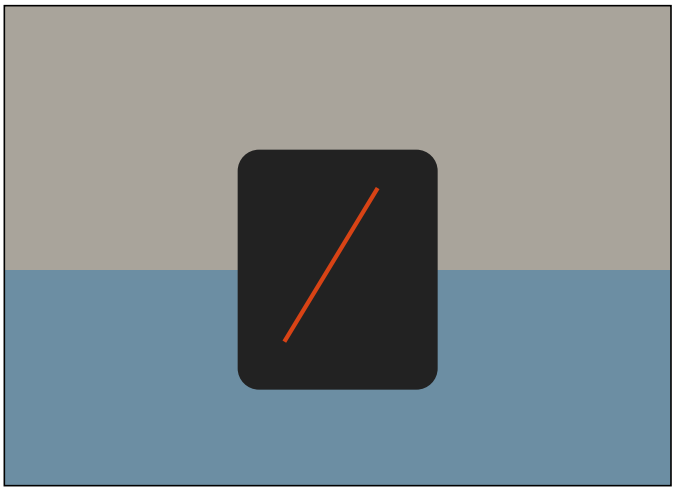


Photo 4 - Torn fender unit F-07

4.1 Deck soffit. Spalling totals approximately 46 m² across bays 7 to 11. Exposed bottom mat reinforcement shows up to 30 % section loss. Delaminated areas were marked with paint for repair quantity takeoff (see Figure 1).

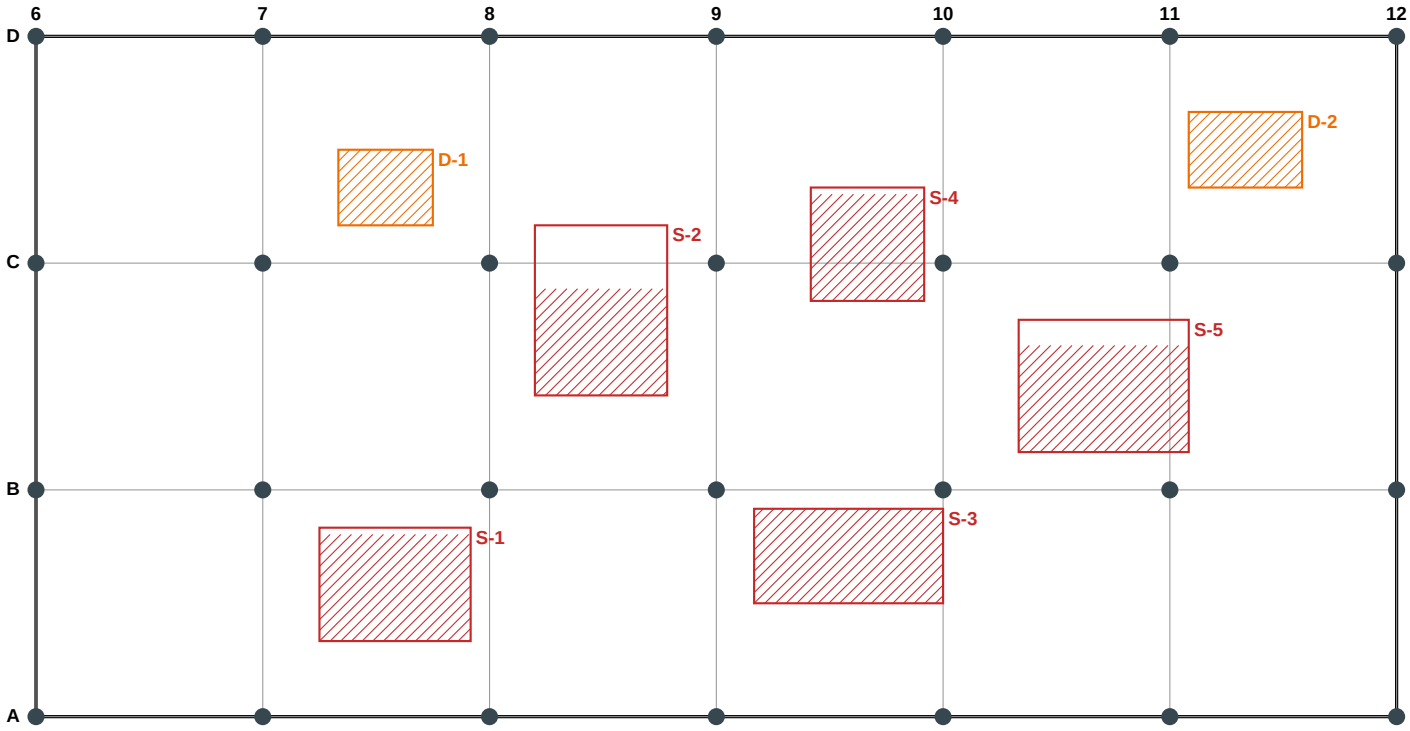
4.2 Steel piles. Ultrasonic readings show a remaining wall of 6.1 to 9.4 mm against an original 12.7 mm. Piles P-41, P-42, P-44, P-45, P-47 and P-52 are the worst affected and should be jacketed as Priority 1.

4.3 Fenders. Units F-03, F-07 and F-11 are torn or detached and should be replaced before the winter berthing season.

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Figure 1 - Deck Soffit Defect Plan (Bays 6-12)

Scale 1:200 at letter size. Grid at 6.0 m bay spacing. Areas hatched are spalled / delaminated.



S-x = spall with exposed reinforcement D-x = delamination (hammer sounding)

5. Defect Register

ID	LOCATION	DEFECT	AREA m²	PRIORITY
S-1	Bay 7 / A-B	Spall, rebar exposed	12.0	P1
S-2	Bay 8 / B-C	Spall, rebar exposed	15.8	P1
S-3	Bay 9 / A	Spall	12.5	P1
S-4	Bay 9 / B-C	Spall	9.0	P2
S-5	Bay 10 / B	Spall, rebar exposed	15.8	P1
D-1	Bay 7 / C	Delamination	5.0	P2
D-2	Bay 11 / C	Delamination	6.0	P3

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6. Recommendations and Opinion of Probable Cost

REF	DESCRIPTION	PRIORITY	QTY	COST
R-1	Deck soffit patch repair, bays 7-11	P1	46 m²	$ 420 000
R-2	Pile jackets, P-41 to P-52 (6 no.)	P1	6 ea	$ 690 000
R-3	Pile cap crack injection PC-12, PC-18	P2	2 ea	$ 85 000
R-4	Replace fender units F-03, F-07, F-11	P1	3 ea	$ 360 000
R-5	Cathodic protection retrofit (all piles)	P2	96 ea	$ 940 000
R-6	Underwater inspection P-41 to P-56	P1	1 LS	$ 45 000
R-7	Conduit support replacement	P3	1 LS	$ 60 000
	Engineering & contingency (12 %)			$ 312 000
	TOTAL (Class C)			$ 2 912 000

7. Limitations

This assessment is based on visual and limited non-destructive testing. Concealed conditions may differ. Quantities are approximate and should be confirmed by a detailed survey prior to tendering. This report is for the exclusive use of the client.

8. Sign-off

Prepared by
J. Doe, P.Eng. (demo)

Reviewed by
A. Smith, P.Eng. (demo)

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