



Carnarvon One Mile Jetty

DE-CONSTRUCTION METHODOLOGY

H+H ARCHITECTS
AUGUST 2021

Project Scope

H+H Architects have been engaged by Dept of Transport for the de-construction of the Carnarvon One Mile Jetty following catastrophic damage caused by Cyclone Seroja in April 2021.

De-construction

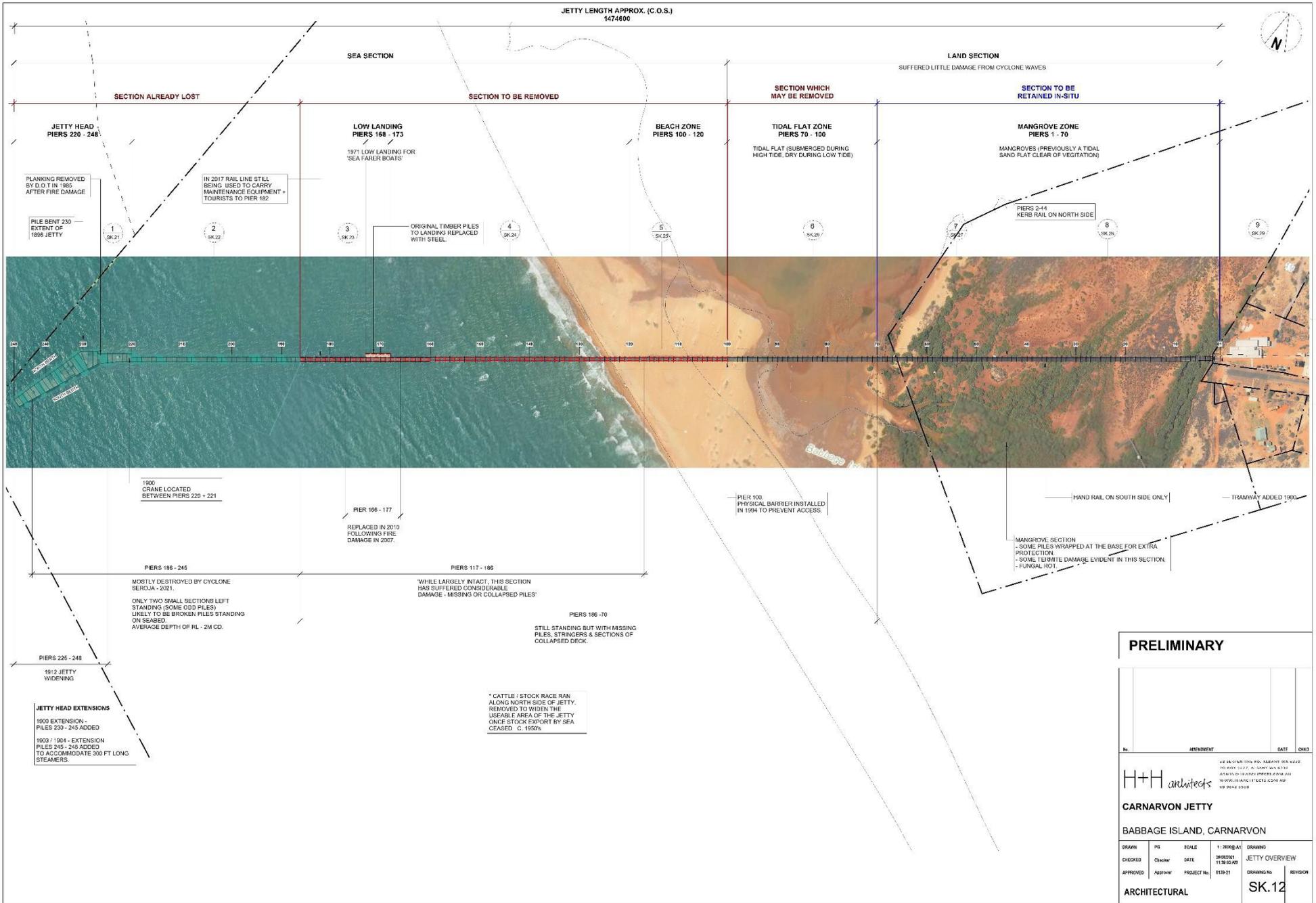
Key factors that will contribute to the success of the de-construction process:

- Agree on a methodology upfront, including contingencies to respond to changing conditions on-site (weather, safety, unexpected collapse)
- Prioritise salvage of early/original fabric over less significant fabric
- Prioritise retrieval of full-size members and original assemblies
- Take care of material at all phases of removal, sorting, stacking & storage
- Accept that material is unlikely to be suitable for new structural applications and consider future use and interpretation opportunities in advance





Carnarvon One Mile Jetty – just prior to Cyclone Seroja



PRELIMINARY

No.	APPENDIX
DATE	CHKD

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H+H architects

CARNARVON JETTY
BABBAGE ISLAND, CARNARVON

DRAWN	PG	SCALE	1:2000 @ A1	DRAWING	
CHECKED	Checker	DATE	20/02/21 11/02/21	JETTY OVERVIEW	
APPROVED	Approver	PROJECT No.	0139-21	DRAWING No.	REVISION

SK.12

Methodology

Land Section – Piers 70-120

Top down approach, attempting to remove material from the super-structure first, followed by the sub-structure below:

- Depends on the integrity of different jetty bents, with many having very poor pile strength which increases the chance of collapse
- Where the piles or bents are not self-supporting, the piles will be cut off at ground level and the excavator claw will attempt to lift the whole bent assembly
- Careful placement of the claw tines will reduce accidental damage, as well as applying vertical lifting pressure (rather than pulling sideways) to pull timber away from bolt fixings
- Finer timber elements and fixings will be removed first wherever possible
- Manual tools may be used for any walers and braces, and to cut off handrail stanchions, etc
- Timber decking may be lifted using underslung lifting beams





Split stringer beams
& corbels

Missing pile

Inadequate wrapping



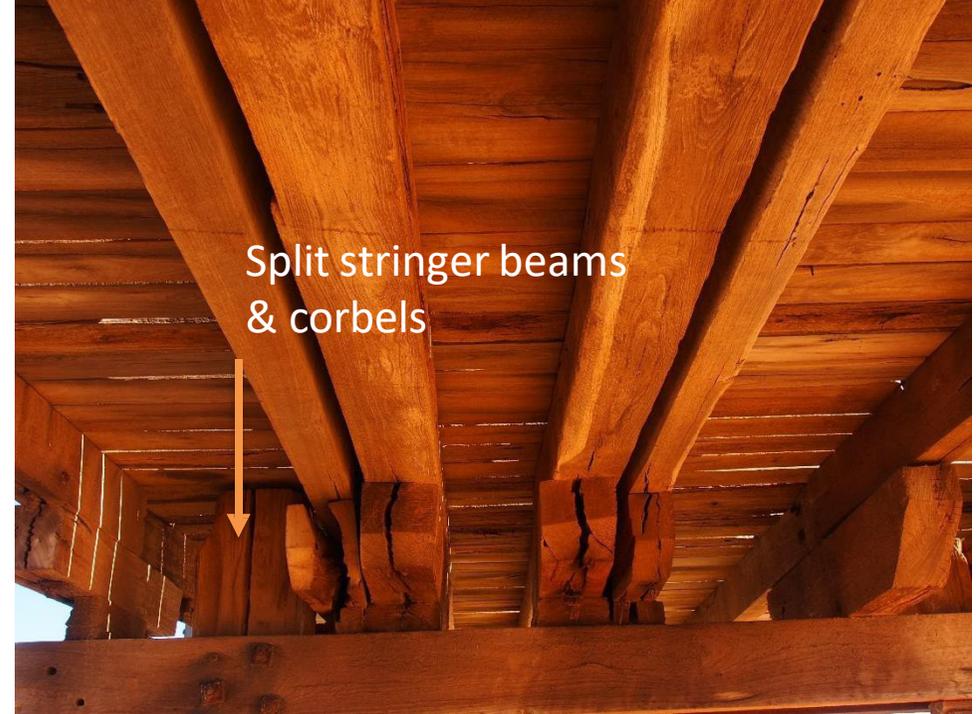
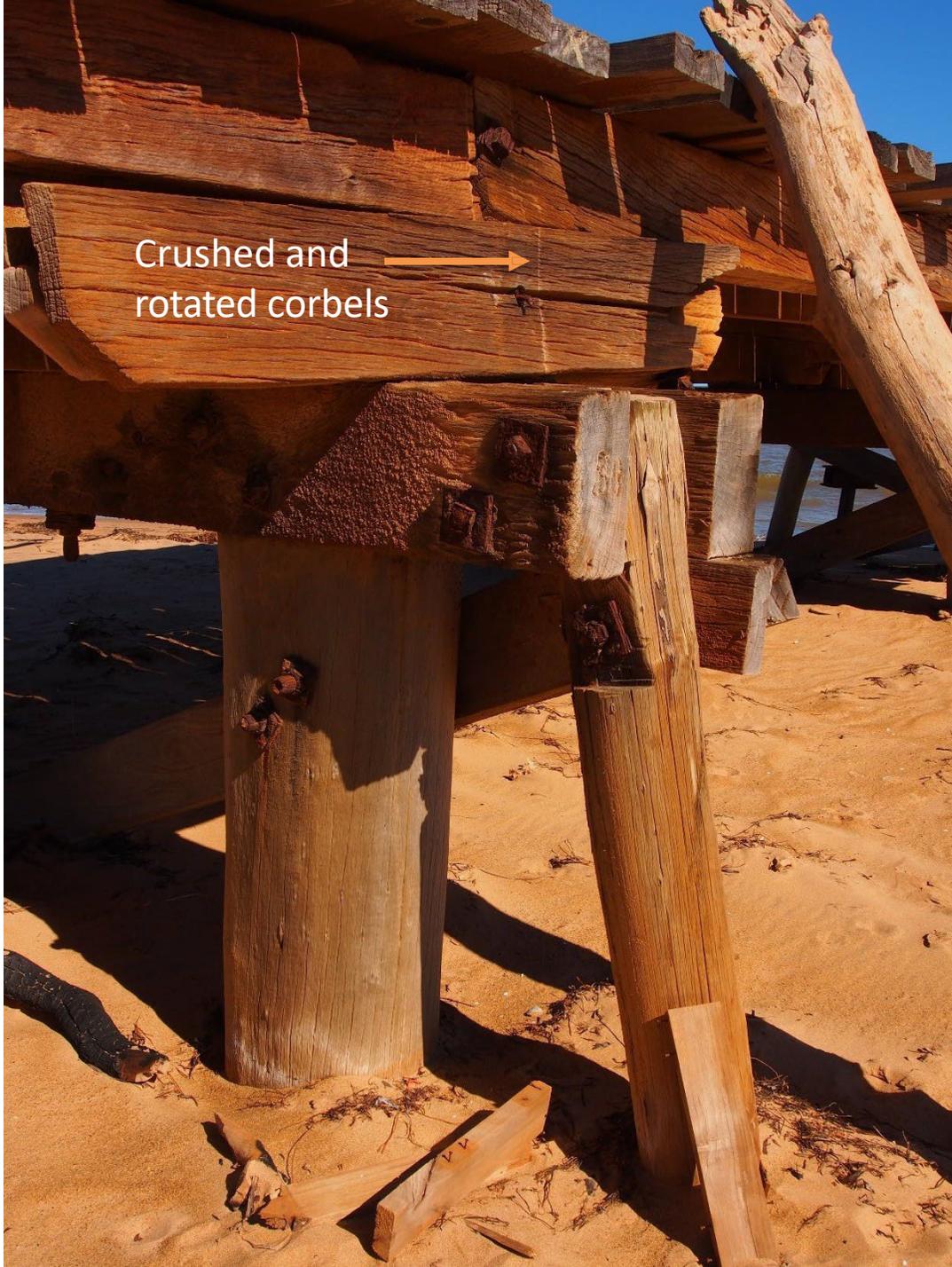
Split braces



Termite damage

Carnarvon One Mile Jetty

Land Section 'Mangrove Zone'



Carnarvon One Mile Jetty
Land Section 'Tidal Flat Zone' & 'Beach Zone'

Carnarvon One Mile Jetty

Land Section 'Tidal Flat Zone' & 'Beach Zone'



Carnarvon One Mile Jetty

Land Section 'Tidal Flat Zone' & 'Beach Zone'

Rotated stringers & corbels

Failed jetty bent

Hollow piles



Methodology

Sea Section – Piers 120-248

Controlled Collapse approach, attempting to maximise safe retrieval of material from the water:

- Extremely high risk of collapse due to unsupported members
- Piers 186-225 have already been completely or mostly lost in the Cyclone
- Piers 100-186 substantially damaged but retain some jetty bents and elements
- Hydraulic claw and crane used to lift heavy timber sections onto barge
- It may be difficult to determine in advance which pile is loadbearing. Priority to be placed on safe removal of the original piles.



Carnarvon One Mile Jetty

Sea Section



Carnarvon One Mile Jetty

Fixtures and fittings



Carnarvon One Mile Jetty

Contingencies & Other issues

Unplanned collapse

Fire

Disposal

Sorting, stacking and storage



Summary

Considerations

Proposed de-construction of approximately 60% of the One Mile Jetty represents substantial loss of heritage fabric, authenticity and integrity.

- The jetty fabric is typically 60-120 years old which is well outside the expected service life for a timber jetty
- Structure is showing accumulated impacts of long term exposure to salt water, weather, cyclones, fire, storms, teredo worms and termites
- No feasible repair options for the majority of the jetty after catastrophic damage wrought by Cyclone Seroja
- Substantial structural failures identified as early as 1996, confirming that the structure has been in a deteriorating condition for some time, and vulnerable to failure for a number of reasons including its hostile environment, extreme events (fire and cyclone) and ongoing maintenance liabilities
- The floating and submerged debris represents a significant boating hazard
- Overall de-construction methodology achieves the intent of Burra Charter with regards to following conservation processes that allow the cultural heritage significance of the place to be retained, albeit with the loss of landmark value

