



## Technical Report

Report No. SYD/2022/07

At the request of the NSW Department of Planning, Industry & Environment – Crown Lands, the undersigned prepared this report from information gained from a review of a report prepared on the 12<sup>th</sup> June 2022 by McLennan's Diving Service. This is following their underwater inspection and remedial work carried out in compliance of the Long-Term Monitoring and Management Plan. The work was carried out, in stages from 2<sup>nd</sup> April 2022 until the 10<sup>th</sup> June 2022 to the vessel Ex-HMAS Adelaide where she rests following the vessel's scuttling.

The vessel's details are:

<b>Ship name:</b>	Ex-HMAS Adelaide
<b>Displacement Tonnage:</b>	2954.90 tonnes
<b>LBP:</b>	407ft
<b>Breadth Moulded:</b>	47ft

### 1. Introduction

Ex-HMAS Adelaide is a former guided missile armed frigate (FFG) decommissioned from the Royal Australian Navy. The vessel was scuttled at a position off Avoca, New South Wales on 13<sup>th</sup> April 2011 to create an artificial reef for scuba diving.

An underwater inspection of the wreck is carried out annually as a requirement of the Long-Term Monitoring and Management Plan. The latest inspection was carried out as mentioned above, from April to June 2022, by McLennan's Diving Service.

Ex HMAS Adelaide has a steel hull which rises to the main deck. The accommodation decks 01, 02 and 03 levels are constructed of aluminium.

### 2. Report

From the diver's report, the underwater inspection of the vessel found that the steel hull structure was substantially unchanged since the previous underwater inspection which was carried out April 2021.

No corrosion, cracking or displacement of fittings was observed on the outside or inside of the steel hull. All entrance ways inspected were found clear. Ultrasonic thickness measurements taken at the designated monitoring positions indicated no change in the steel plate thickness since the vessel was scuttled.

**PO Box 722, Gordon, NSW, 2072, Australia.**

**Ph: +61 2 94408472 Fax: +61 2 94025212 e-mail: [info@shearforce.com.au](mailto:info@shearforce.com.au)**

**Web: [www.shearforce.com.au](http://www.shearforce.com.au)**

All the long-term monitoring points were again inspected, and it was reported that no deterioration was found since the last inspection. These points are in way of:

- the Missile launcher opening,
- the Forward screen,
- the Hangar frames, and
- the stern

The diver's report indicates that the hull is still fully supported by the sand. The report states the sand level was very similar to previous years with the sand being very close to the vessel's design waterline. This is similar to that reported in previous years.

Whilst settling in 2012 the vessel developed a 4-degree list to port. The divers confirmed that this list remains unchanged.

The diver's report states that the aluminium superstructure continues to suffer from deterioration. The divers did report that the port hanger inboard bulkhead had broken away along the connection to the steel hull. It was held in place by its connections to the upper structure. The detached bulkhead dimensions were 14 metres long by 2.5 metres high. The port hanger deckhead had washed away previously, in March 2021.

The diver's report indicated that the starboard hanger deckhead is still intact, but 90 percent of the starboard outboard bulkhead and its supporting structure are missing. This bulkhead is the outboard support for the deckhead. Even though the starboard deckhead (which is the deck for 02 deck) is intact it is heavily corroded. There is a significant amount of weight still supported by the deckhead. This includes the deck panels, beams, stiffeners, and an overhead lifting beam together with various ventilators and fittings on 02 deck.

It is noted in the diver's report that the aluminium superstructure has reached a state of deterioration where additional panels would be expected to be broken out with every sever swell event.

This hanger structure is aluminium and does not contribute to the structural strength of the vessel.

From the diver's report the CIC situated on 01 deck and the Radar room situated on the main deck, had both accumulated a large amount of silt and sediment from run off during the recent heavy rains. These compartments have only aft facing entrances. They are large spaces with the second

**PO Box 722, Gordon, NSW, 2072, Australia.**  
**Ph: +61 2 94408472 Fax: +61 2 94025212 e-mail: [info@shearforce.com.au](mailto:info@shearforce.com.au)**  
**Web: [www.shearforce.com.au](http://www.shearforce.com.au)**

entrance not visible from the first entrance. It was found that the rooms rapidly “silted out” if a diver entering the spaces and moved carelessly. In a “silt out” the exits were no longer visible. Because of this the divers cut openings in the compartments to allow the silt to exit the compartment.

The divers took still photographs of the damaged areas of the superstructure. As with previous reports and as mentioned above, the aluminium structure is continuing deteriorate, but the main support structure is still largely intact.

### **3. Conclusion**

As mentioned in my previous reports It is my opinion that, the vessel is still structurally sound, and the vessel is stable. However, as with my previous reports, the light aluminium structure in way of the accommodation and hanger decks is continuing to deteriorate. It is my opinion that this deterioration will continue as the plating continues to break away from its supports thus allowing it to move with the currents and the weather. It is also my opinion that the corrosion of the aluminium structure will continue as the light structure continues to work in the seaway. This area is also in the upper region of the vessel so in the area where the seawater becomes aeriated in adverse weather.

With the exception of the helicopter hangars located at the after end of the superstructure, which are of quite light construction, the main structural components supporting the accommodation structure are considered structurally sound.

It is recommended that the damaged areas of the starboard hanger deckhead should be cut away, together with any panels that are starting to detach, to make the area safe for recreational divers. Though as mentioned previously the Dive Masters should take precautions when taking divers near the damaged accommodation structure.

### **4. Disclaimer**

The undersigned shall not be liable in any way to any person or company in respect to any claim for any kind, including claims for negligence, for loss occasioned to any person or company in consequence of any person or company acting or refraining from action as a result of material in this report.

Signed,



L. H. Michaels  
CEng. CMarEng, FIMarEST. MEngSc. Extra First Class Eng.  
for Shearforce Maritime Services Pty. Ltd.  
30<sup>th</sup> June 2022

**PO Box 722, Gordon, NSW, 2072, Australia.**  
**Ph: +61 2 94408472 Fax: +61 2 94025212 e-mail: [info@shearforce.com.au](mailto:info@shearforce.com.au)**  
**Web: [www.shearforce.com.au](http://www.shearforce.com.au)**