



OPERATION SILENT ANZAC
REPORT TO THE AUSTRALIAN GOVERNMENT ON
THE ASSESSMENT PHASE
HMAS AE2

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Issue:	Final
Date:	10 June 2008
Number of Pages:	26 [Includes Cover]

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PHASE**
HMAS AE2

Executive Summary

Australia's Gallipoli submarine, HMAS AE2 survives as an international site of significant heritage value to Australia and Turkey and a reminder of naval events surrounding 25 April 1915.

The Submarine Institute of Australia Inc (SIA) was accorded a leading role in the management of the Assessment Phase to determine future management options for AE2 by the Australian Government in 2006. The SIA formed the AE2 Commemorative Foundation Ltd (AE2CF), a registered not for profit charity, to conduct all activities associated with its role and assembled a project team comprising Australian volunteers providing an appropriate array of specialist expertise. Activities were jointly undertaken with our project partner, the Turkish Institute of Nautical Archaeology (TINA) under the terms of a Memorandum of Understanding agreed in 2006. An Inter Departmental Working Group chaired by the RAN, provided oversight and ongoing Government visibility of the activities.

A number of public education activities were undertaken in Turkey and Australia in association with the project, including media releases, TV news items and TV documentaries in both countries; the most recent was the screening of "Gallipoli Submarine" on ABC1 TV on 24 April 2008.

Significant goodwill was established by the project team as modern-day ambassadors of friendship and joint cooperation that has been recognised in Australia and Turkey.

The pivotal AE2 *Options Workshop* was jointly convened by the SIA and TINA and held at Bahçeşehir University in Istanbul, Turkey on 26th and 27th April 2008. This workshop which was opened by the Australian Minister for Defence, the Hon. Joel Fitzgibbon MP, marks the completion of the Assessment Phase.

The program of activities conducted during the Assessment Phase included:

- A Feasibility Study (May 2006).
- Establishment of the AE2 Commemorative Foundation Ltd (AE2CF) operating a trust of the same name and its recognition as a tax exempt charity with deductible gift recipient (DGR) status (September 2006).

- A rehearsal of field activities, including diving (February 2007).
- The Maritime Archaeological Assessment (MAA) on AE2 (September 2007).
- Analysis of data collected during the MAA and production of a Report (published on the AE2CF's page of the SIA website in December 2007).
- A Scoping Paper considering the range of options for future management of AE2 (published on the AE2CF website in February 2008).
- A joint Turkish-Australian workshop in Istanbul to agree a recommendation to both Governments for the future management of AE2 (April 2008).
- A Report on the outcomes and recommendations of the Workshop (published on the AE2CF page of the SIA website in May 2008).

The public education initiatives undertaken by the AE2CF during this phase included:

- Media and TV news coverage of the rehearsal, MAA and workshop.
- A number of promotional activities to attract sponsorship and raise general public awareness of the project and the story of AE2.
- An internationally-released 52 minute drama/documentary production, 'Gallipoli Submarine' by the Western Australian production company, Electric Pictures.
- A short documentary on the MAA and AE2 story shown on CNN Turkey.
- A project to place commemorative heritage plaques in Australia (5 sites) and Turkey (6 sites).
- Scoping an education programme to provide teaching and learning material for all Australia primary and secondary schools in concert with a commercial education organisation as a possible contractor.

The MAA provided critical data on the condition of AE2 (externally and a small portion internally), threats and observed changes to the structure since 1998 and insights into long term conservation priorities. The submarine was in remarkably good condition despite 93 years on the bottom, due to the relatively benign environment it rests in.

The 2008 Workshop unanimously recommended joint Turkish-Australian activities to safeguard AE2 and tell the AE2 story. The recommended way ahead is to:

- Protect and preserve in situ.
- Complete an internal archaeological assessment using remotely operated vehicles (ROV) fitted with suitable cameras and instrumentation.
- Undertake education programmes in Turkey and Australia to ensure the AE2 and Sultanhisar¹ roles in the Gallipoli campaign are better

¹ Sultanhisar critically damaged AE2 by gunfire which led to the scuttling of the submarine on 30 April 1915

understood in both countries as a basis for ongoing friendship and cooperation.

- Defer any consideration of artefact recovery until the internal assessment results have been analysed.

The Workshop Recommendations Paper is attached (this has also been delivered to the Government of the Republic of Turkey); it is intended to provide the basis for future deliberation by both Governments.

Based on the demonstrated leadership and delivery of AE2 activities achieved during the preceding Phases, the AE2CF welcomes continued discussions with Australian Government on these matters and seeks a leadership role in managing and conducting an Implementation Phase to accomplish the future activities agreed by both Governments.



OPERATION SILENT ANZAC

REPORT TO THE AUSTRALIAN GOVERNMENT ON THE ASSESSMENT PHASE

HMAS AE2

1. Introduction

1.1 Discovery

The wreck of the submarine HMAS AE2 was located in 1998 by Turkish diver and [then] Director of the Rahmi Koç Industrial Museum (Istanbul), Mr Selçuk Kolay OAM. An initial Australian archaeological team headed by Dr Mark Spencer with Maritime Archaeologist Mr Tim Smith, positively identified the wreck to be AE2 in September 1998, when a preliminary recording and assessment of the wreck site was made. This expedition, Project AE2, provided initial information on the state and complexity of the significant new Gallipoli war relic, established its historical and archaeological values and preferred management options [Smith 1999 and 2000].

1.2 Post Discovery Discussion

Post discovery discussion had focused on how best to protect the site in its current contextual setting and what other options might be available. To answer these questions, the original 1999 Conservation Management Plan [Smith 1999] identified the need to derive additional quantitative data on the state and condition of the hull, associated relics and the environment in which AE2 sits.

1.3 Location

The AE2 submarine lies in the inland Sea of Marmara within Turkish internal waters and subject to the heritage controls of the Government of the Republic of Turkey. The site has been identified to be of national heritage significance to Australia and similarly an important site in the focus of Turkish interests in their ultimate defence against the Allied invasion of the Gallipoli Peninsula during the early stages of World War One (Battle of Çanakkale). As such, both governments have taken an increasing interest in safeguarding the site with the Turkish Government specially declaring diving prohibitions at the site².

² Turkish cultural heritage legislation. 2863 sayılı Kültür ve Tabiat Varlıkları Koruma Kanunu (1983)

1.4 Management Framework

The Submarine Institute of Australia (SIA) took carriage of the project from 2004, incorporated the original team membership and established a framework for the delivery of identified future activities. An initial objective was the development of a broad based expert team of Australian volunteers. A funding model was developed to support future activities, with the establishment of the not-for-profit AE2 Commemorative Foundation Ltd (AE2CF) to implement an agreed plan of works. The formal Australian Government endorsement and support of the organization as a tax exempt charity with deductible gift recipient (DGR) status and its intended activities was gained, with formal links to the Government's AE2 Interdepartmental Working Group.

1.5 AE2 Significance

AE2 played an influential role in the Allied Dardanelles offensive by making the first successful penetration of the Dardanelles Strait to create a diversion, during the landings at ANZAC Cove [25 April 1915]. Although subsequently caught on the surface by Turkish gunboats [notably the Sultanhisar], critically damaged and forced to scuttle [30th April], AE2 led Australian forces into battle, opened up the ensuing successful Allied submarine campaign, and compelled the movement of Turkish supplies and troops via a circuitous land route.

AE2's wireless message reporting her success to the Commander in Chief considering evacuation on the evening of the awful landing at Anzac Cove [Ari Burnu], may have had a seminal role in the decision to keep the troops ashore. That decision perhaps led to the name "Digger" being eventually adopted for the Australian and New Zealand ground forces, compelled to "dig, dig, dig" and hold their initial positions. AE2 was the first RAN warship to torpedo an enemy vessel and was the first to be lost in battle.

1.6 Rarity and Opportunities

The submarine survives as one of the few E-class submarines located internationally and one of the most intact and undisturbed. AE2 is one of 57 completed E-type British submarines that served as the backbone of the Royal Navy Submarine Force during the Great War. Technologically, AE2 and her E-class sisters were at the pinnacle of submarine technology, similar to Collins (diesel/electric) class today. Its archaeological potential is therefore significant, with potential to generate new insights into the design, construction and operation of this class of submarine. No other E-class submarine wreck site has been the focus of controlled archaeological survey and rigorous scientific analysis. Because of its contextual setting, integrity and prime historical associations, AE2 is best placed to form the focus of innovative educational and display programs that showcase the vessel's

heritage values and best-practice management approaches. The vessel does not constitute a 'war grave' as all the crew, after abandoning the submarine, were recovered by Sultanhisar and became Prisoners of War.

1.7 Constraints

Lying in 73 metres of water, the AE2 archaeological site provides challenges to proper archaeological survey and recording, necessitating a specialist dive team trained in advanced deep wreck diving techniques and surface support requirements. While the depth limits human interaction, it provides a level of security and protection. The partially open upper conning tower hatch severely limits access to the interior of the submarine.

1.8 Political Endorsement

The Australian Government supported the AE2CF activities through provision of grants to support the development of a Feasibility Plan and partially funding the conduct of the Maritime Archaeological Assessment (MAA) operations. The balance of funding was raised from sponsors. The Minister for Defence, The Hon Joel Fitzgibbon MP, formally opened the 26 -27 April 2008 Joint AE2 Options Workshop in Istanbul, confirming Government's support for the carriage of site-based and educational activities undertaken to date by the AE2CF.

The Turkish government has similarly supported the AE2CF archaeological activities by granting work permits to conduct the necessary site investigations in 2007 under Turkish cultural heritage law. Turkish naval liaison officers were assigned to the MAA expedition team and provided invaluable support, while the Turkish Ministry of Culture monitored activities.

1.9 Funding and Expenditure

The Funds have been expended on the purpose for which they were sought and subsequently allocated; refer to paragraph 2.4 and Annex B for details. All Commonwealth funding has been used and a small balance of sponsors funds remain which will be used in accordance with the AE2CF trust deed.

2.0 Silent Anzac Operational Structure

2.1 AE2 Commemorative Foundation

Under the auspices of the AE2 Commemorative Foundation [AE2CF] and in collaboration with the Turkish Institute of Nautical Archaeology [TINA], a multi-disciplinary team of volunteers came together to conduct the MAA of the site.

The SIA formed the AE2CF in order to preserve and protect the wreck of HMAS AE2 and to promote the telling of the story of the heroic crew and their epic feat. The AE2CF objectives are published on its website and reflected in its constitution and its associated trust fund deed of the same name.

2.2 TINA Role

The Turkish Institute of Nautical Archaeology (TINA) includes many of the key Turkish individuals involved in the discovery of AE2. This organisation has provided an appropriate counterpart of the AE2CF and assisted in the planning and conduct of the MAA. A Memorandum of Understanding and Non Disclosure Agreements were negotiated by the SIA to govern the conduct of combined activities. The TINA aims and activities are published on its website.

2.3 SIA/TINA Memorandum of Understanding & Non Disclosure Agreement

These Agreements commit both organisations to the following objectives:

- To promote an understanding in Australia and Turkey of the submarine HMAS AE2 role (1913-1915) in the Gallipoli campaign, as a basis for ongoing friendship and respect between the two nations.
- To achieve an outcome acceptable to both Parties as to how the wreck should be preserved and presented to the international public for the foreseeable future.

These Objectives are supported by activities to:

- Preserve, protect and promote the fragile archaeological AE2 wreck structure, with a view to engaging public knowledge of, and learning from, the role of AE2, the Dardanelles Campaign generally and the importance of the submarine to both nations' involvement in the campaign.

2.3 SIATINA Memorandum of Understanding & Non Disclosure Agreement continued.....

- This work is to be undertaken in a professional manner, within the controls of the Turkish legal system and meet the highest international professional maritime archaeological standards, giving regard to the rules annexed to the UNESCO Convention on the Protection of the Underwater Cultural Heritage 2001. The project and its objectives have received the support of the Australasian Institute for Maritime Archaeology (AIMA) Inc.

- **Preserve the AE 2 wreck as far as practicable so that future generations can use it as a means of achieving the Objectives.**
 - This includes surveys to ascertain the materiel state of the wreck and obtain comprehensive images of the wreck.
 - The results of the archaeological investigations and surveys should be presented with absolute transparency and with no underlying agendas.

- **Establish public education opportunities, including developing interpretation centres in Turkey and Australia to tell the story of the engagement of AE2 with Turkish defence forces and the conservation status of the wreck.**
 - The intention is to have these centres available for celebration of the centennial of the landing in 2015.

- **Provide protection to the wreck by:**
 - Exploring opportunities to provide greater Turkish legislative protection to the wreck
 - Preventing inadvertent damage by fishing activities.
 - Possibly initiating anodic protection of the site to further physical retention.
 - Obtaining a comprehensive assessment of the site's conservation status through targeted studies, including an archaeological corrosion survey.”

2.4 Funding – Government & Foundation

The Australian Government provided the following funding:

- \$25K for the conduct of a Feasibility Phase. This funding was administered by the Department of Environment, Water, Heritage and the Arts. (DEWHA).
- \$388.5K for the conduct of an Assessment Phase in accordance with the plan set out in the Feasibility Phase Report. This funding was administered by the Department of Defence.

The AE2CF raised a comparable amount (\$432K) from sponsors during the Assessment Phase. ASC Pty Ltd was foremost amongst these generous sponsors; the list includes the following:

- Australian Geographic
- Thales Australia
- Zimmer Inc.
- Weston Insurance Services
- ThyssenKrupp Marine Systems
- L3-Nautronix
- North Shore Private Hospital

The following generously provided in-kind sponsorship at an estimated value of \$251K:

- Sinclair Knight Metz
- DSTO.
- Australian Marine Technologies
- Colkan International
- Graphic Art Mart P/L
- Hellmann Worldwide Logistics
- MARBA
- Mrs Cecily Belbin
- Mussared Communications
- Heritage Branch, NSW Department of Planning
- OMD Technology Ltd
- Patrick Defence Logistics
- Paul Wetherill & Associates
- Pro Diving Services
- SeaBotix
- The Alfred Hospital
- The Phillips Group P/L
- TressCox Lawyers
- WA Maritime Museum
- Ms Becca Saunders & Dr Mark Spencer

2.5 Educational Activities

The AE2CF and TINA have agreed to initiate a series of educational and public information programs to tell the story of the AE2 and Sultanhisar, the role played by the Royal Australian Navy in the Gallipoli Campaign, and to further Turkish and Australian interest in the protection and management of this mutually significant site.

2.5.1 Education Resource Kit

The AE2CF is seeking a suitable commercial education organisation to develop a carefully targeted programme to provide an Education and Teaching Resource Kit for all primary and secondary schools in Australia, to facilitate telling the story of AE2 and an understanding of the Turkish perspective by all Australian school children.

2.5.2 Web Based Resources

The SIA has established an AE2 page on the Institute's web site, including the publication of all archaeological survey activities and 'grey' literature relative to the project. The AE2 web site is under development and will be available by the end of June 2008. A detailed interactive 3D computer model of the hull and interior of AE2 is being produced by the Defence Science and Technology Organisation (DSTO) under the direction of Dr Roger Neill to assist interpretation and understanding of the submarine.

2.5.3 Heritage Plaques Project

The AE2CF has entered into an agreement with Dr Ross Bastiaan AM to support the implementation of an Education and Plaques Project, to deliver a series of permanent interpretative markers through Australia and Turkey to tell key elements of the vessel and crew stories at primary historical sites.

2.5.4 Media Program

The field-based operations and technical workshops have been reported widely through Australian, Turkish and international media and continue to provide a vehicle for informing the general public of the activities of the AE2CF and TINA. The release of the MAA findings attracted significant exposure and AE2 is increasingly commented on during media presentation around Anzac Day commemorations.

2.5.5 Lecture Program

The AE2CF has instituted a significant public and professional lecture program throughout Australia to aid telling the AE2 story. A range of scholarly research articles are also being delivered for publication in professional journals, while general interest articles are targeted for appropriate dissemination.

2.5.6 International Release Television Documentary

The AE2CF entered into an agreement with Electric Pictures [who in turn collaborated with Mallinson, Sadler Productions] to produce a documentary on the MAA and to tell the AE2 wartime exploits through re-enactment. The resulting production, *Gallipoli Submarine*, aired nationally on ABC1 TV [24 April 2008] with a northern hemisphere version being completed for distribution by networks including National Geographic Channel.

3.0 Operation Silent ANZAC - MAA Outcomes

3.1 Feasibility Study

A plan setting out the methods and approach to obtain the necessary data on the archaeological site was developed. The emphasis on safety included a comprehensive Risk Management Plan.

The purpose of the MAA was to gather sufficient data to assess the structural integrity of the submarine and to properly interpret and record its archaeological significance in context; its geography, hydrography and environment. This information is fundamental to any future discussions on the management of the historic site.

Unless the site's significance values are fully appreciated, the state of the hull and associated fittings evaluated and the impact of the environmental setting assessed, no sound policy to preserve and protect the site can be formulated. An important component of this analysis is an assessment of factors affecting the integrity of the structure, both in terms of natural deterioration processes and those man-assisted.

The operation was based in the small port of Karabiga at the western end of the Sea of Marmara, adjacent to the site where the submarine lies. Karabiga lies in the provincial area administered from Çanakkale. [Çanakkale Governorship]

The archaeological survey methodology to obtain the required data was identified through a series of workshops held in Australia prior to the team's deployment. The team members had extensive professional backgrounds in iron and steel shipwreck assessment work, and in the study of submarine sites as discreet archaeological site types. The planning involved two members of the original 1998 Project AE2 team with extensive knowledge of the site in the Sea of Marmara.

The survey tasks were standard archaeological assessment tools regularly undertaken by archaeological heritage management professionals and followed standards employed internationally. All work was governed by the approval processes of the Turkish Government and coordinated by a professional Maritime Archaeologist. The survey approach was consistent with the objectives of the UNESCO Convention of the Protection of the Underwater Cultural Heritage 2001,

3.2 Damage Sustained Since 1998

The major finding of the 2007 expedition is the significant amount of damage sustained to the exposed casing and fin of AE2 since its discovery in 1998. At that time the casing that extends the length of the vessel, was largely intact

except for some isolated damage from contact with fishing nets, observed as a 'sprung' bow plate on the port side, net entrapments on the after portion of the conning tower and at the underside of the stern. There was some limited loss of fabric from natural corrosion processes, perhaps exacerbated by earlier net contact, evidenced with the loss of the hatch cover over the forward winch and the hatch concealing the aft torpedo loading hatch. By contrast in September 2007, the bow section of the casing had been almost completely destroyed by an anchor, net trawling gear, or other similar device and is now lying as a debris field adjacent to the submarine's port side. Additional portions of the casing have been removed and/or disintegrated; the after structure of the fin has also continued to deteriorate and significant damage is now evident.

3.3 Internal Examination of the Hull

The non-disturbance camera insertion into the hull of AE2 was a significant MAA achievement. The survey was planned in detail to create no impact to the slightly open conning tower upper hatch or surrounding heritage structure. The Defence, Science & Technology Organisation (DSTO) team members specially designed a flexible umbilical hose and support frame to enable the selected camera to be carefully introduced into the hull and lowered by divers. The camera provided the first images of the interior condition of the AE2 submarine in the 92 years since its loss.

3.4 Integrity of Interior Spaces and Associated Relics

The findings have been critical in identifying the state of the interior metal surfaces and fittings. A significant finding was that the interior of the hull appears largely devoid of introduced marine sediments (sand or silt). The water inside the submarine has been found to be very clear and still and the potential for retention of archaeological relics is considered high. Of equal interest was the limited presence of significant corrosion products or marine growth coverings on the internal fixtures and features indicating a favourable state of preservation. No visible relics were documented within the immediate environs of the control room floor. It is suggested that a substantive relic collection will be found towards the bow compartment, a result of the boat's sinking process.

3.5 Risk of Remaining Torpedo

The AE2CF has confirmed the presence, through historical analysis, of an unexpended torpedo inside the AE2 hull [probably a British Mark VII]. The state of the explosive in the warhead of the weapon can not be determined, but instances of instability have been noted in gun cotton used in other weapons of this era. Its existence is therefore a potential risk and limits activities that even inadvertently, may cause enough impact to jolt the weapon sufficiently to cause an explosion.

The AE2CF considers the detection and assessment of the likely condition of this weapon and its potentially unstable gun-cotton warhead charge as an ongoing issue. A risk analysis suggests a 15% likelihood of a second order detonation if the torpedo is subjected to shock or vibration. A future comprehensive ROV internal survey of the AE2 hull may assist in resolving this matter.

3.6 Environmental Survey

The MAA included a comprehensive analysis of the ambient water environment surrounding AE2. This included the analysis of water temperature, salinity, dissolved Oxygen, pH levels through the water column and into the surrounding sediments. This data is crucial to understanding the effects of the localised environment on site preservation and corrosion activity, in conjunction with quantitative data of hull thickness and corrosion rates. The most stunning outcome was the determination of a strong halocline (change in salinity) between 14-22 metres depth, and a marked thermocline (change in temperature). This confirms to the interface between the lower more saline Aegean waters and the upper more fresh Black Sea waters exiting through the Dardanelles Strait. This salinity interface had a marked effect on AE2's final loss of buoyancy and diving control.

3.7 Battle Damage Survey

The MAA included a visual battle damage survey conducted by the dive team and through deployment of an ROV. Historical research confirmed that up to three 37 millimetre shell holes punctured the pressure hull aft in the engine room. The submarine's groundings on its passage through the Dardanelles were thought to have also damaged the twin propellers which may have been visible as deformations of the blade edges. No direct evidence of gunfire damage was revealed perhaps due to the level of marine growth and corrosion products covering the outer hull. Only one tip of the starboard three-bladed propeller protruded from the sediment, limiting the examination of damage at those features. The visible blade appears undamaged.

3.8 Hull Corrosion Survey

A core task of the MAA was the gaining of detailed corrosion profile data through the deployment of an underwater corrosion meter. Data acquisition required the dive team exposing a small section of bare original metal surface and the application of probes. A difficult operation at depth, the results were limited to two indicative measurements on the main pressure hull due to the robust nature of the overlying marine concretions, and the resulting poor visibility caused by the air driven scouring tool. The measurements however confirmed the predicted rate of corrosion of the hull plating validating the modelled condition of AE2's hull.

3.9 Hull Ultrasonic Survey

A further core task was the gaining of residual hull plate thickness measurements via deployment of underwater sonic measuring instruments. The nature of the marine concretions made the taking of ultrasonic hull thickness measurements impossible, without extensive intervention with the surface layers above the plating, outside of the permitted operations. However, due to the unintentional localised scouring of the aft port ballast tank by the divers shot line weight, a series of twelve ultrasonic measurements were successfully achieved in the closing stages of the expedition. This included measurements obtained by the DSTO remote operated vehicle. The data, while suggesting varying hull plate thicknesses compared to the original hull specifications, provided critical confirmation that the metal plate has survived immersion over 93 years well.

3.10 Marine Sediment Survey

As an aid to the interpretation of the structural integrity of the submarine hull, an analysis of the surrounding sediment environment was also completed. This included the remote probe deployment into the sediment (above 3.6) and also the recovery of a sediment core sample for laboratory analysis. Two cores were extracted from the immediate vicinity of the submarine either side of the central fin. Upon recovery the sample was analysed for pH, salinity and a range of other measures to determine reactive qualities with the degradation of the steel hull plating

A sediment sample was retained and, with the approval of the Ministry of Culture representative attached to the expedition, forwarded to a local Turkish materials laboratory for determination of particulate size, composition, Carbon content and microbial activity. At time of writing, the results have not been obtained for integration into other field study data. Initial pH, dissolved oxygen and temperature obtained immediately upon recovery confirmed the sediment to be extremely anaerobic (and therefore protective) in nature.

A critical test aimed at identifying the structural composition of the sediment to depth. This was a prime MAA activity to assist evaluation of why AE2 presents as it does today, approximately half buried in marine sediments. A Sting Penetrometer Mk II was deployed by the DSTO team around the immediate vicinity of the AE2 hull to determine the compactness or holding qualities of the sediment. The results determined that the AE2 sits in a uniform sediment profile with no underlying hard substrate such as reef, shell deposits or other bodies.

The results confirm that the nature of the sediment is such that it naturally compacts with depth sufficient to support the archaeological hull. The findings also suggest that any disturbance to the underlying sediment layers might have an effect on the natural hull burial process.

3.11 Artefact Analysis

An inadvertent benefit from the accidental impact with the submarine by the divers shot line weight was the collection of two hull plate samples. One comprised a small fragment of ballast tank steel plate, the other plate and a small ring bolt bracket. Later sectioned, photographed and subjected to optical microscopic imaging, the samples have provided important data on the nature of marine corrosion processes and the nature of corrosion products (concretion). The analysis has suggested that AE2 has been subject to differing burial levels (perhaps up to four significant phases) over its 92 year burial life.

A sample of an unidentified liquid product was also collected after its discovery trapped under the domed crew access hatch, at the top of the fin. The sample was subjected to a chromatogram analysis revealing it to be a combination of diesel fuel and lube oil.

3.12 Joint Workshop

A joint workshop was convened in Istanbul 26/27 April 2008 to consider the findings of the MAA and make a recommendation to both Governments on the future management of AE2 as discussed in Section 4.

4.0 Workshop Scoping Paper

The Workshop jointly convened by the SIA and TINA was held at Bahçeşehir University in Istanbul, Turkey on 26th and 27th April 2008. The workshop was opened by the Australian Minister for Defence, the Hon Joel Fitzgibbon MP; 81 delegates and 40 members of the media and students were in attendance.

To provide discussion points for the debate an Options Paper [The HMAS AE2 Options 2008 Workshop Scoping Paper] was developed and agreed to by both parties. It was circulated to all Delegates attending the Workshop, which included experts from Australia and Turkey.

Five major Options were identified for development which may be summarised as follows:

- Option 1 - Do nothing
- Option 2 - Preserve in situ
- Option 3 - Relocate to a shallow water site
- Option 4 - Relocate to a shore side site keeping the submarine wet
- Option 5 - Relocate to a shore side site keeping the submarine dry

These options are described in detail in the attachment Report of the AE2 Options Workshop – Outcomes and Recommendations.

There are numerous variations possible but the workshop considered the options under those five main headings measuring their advantages broadly against the following criteria.

- Risks before mitigation
- Risk mitigation measures to be applied
- Remaining risk after mitigation measures
- Security of AE2
- Preservation of AE2
- Legislative approvals
- Environmental factors
- Ethical considerations
- Tells the AE2 story
- Tells the Turkish side of the story
- Significant progress by 2015 – the Anzac and AE2 centenary
- Political risks.
- Self-funding potential
- Establishment (Capital) costs
- Running (Operating) costs

The recommendations made by the Workshop were made with the intention of defining:

- Near term Actions
- Medium Term Actions, and
- Longer Term Actions

5.0 The Way Ahead

5.1 In situ Preservation

After 2 days of discussions the workshop resolved unanimously to recommend to both Turkish and Australian governments that the submarine should be protected and preserved where she rests [in situ] and the stories of both the AE2 and Sultanhisar that sank her should be told to the people of Turkey and Australia.

This was considered the most appropriate way to ensure the sites survival, noting the risk of an unexpended torpedo onboard, the extensive costs and resources required for moving or recovering AE2 and the risks inherent in embarking on such a project. In situ preservation is also the basis of the Turkish Ministry of Culture's management philosophy for historic wreck sites and is in keeping with the UNESCO Convention for the Protection of the Underwater Cultural Heritage 2001 and Australian underwater cultural heritage management approaches.

The submarine should be protected by application of all available Turkish cultural and other legislation, the possibility of declaring the site a National Park is recommended for consideration. The Workshop identified the potential to provide additional protection through the deployment of surveillance measures, possibly similarly to those used to monitor access to the Imperial Japanese Navy midget submarine M24 (1942) off Sydney. An underwater barrier system should be placed around the site to reduce the ongoing accidental impacts by fishing nets, trawl gear and anchors. To prolong the life of the historic site, and to address the accidental damage to the aft casing caused by the impact with the divers shot line weight in 2007, a cathodic protection system should be installed. An archaeological assessment of the interior of the submarine should also be conducted.

These measures would protect and preserve one of the last remaining significant relics of the Gallipoli Campaign and an important national heritage of both countries. The centenary of the loss of AE2 on 30 April, 2015 should be used as a focus for completing agreed activities and to commemorate the naval actions associated with the Gallipoli campaign, in particular the engagement between AE2 and the Sultanhisar.

Near Term – actioned within 12-18 months

Step 1: Protection (buoys, barrier defences, legislative controls, National Park Declaration)

The Workshop highlighted the need to seek clarity on the current Turkish cultural heritage legislative protection that applies to the site, or opportunities to advance heritage protection through legislation and enforcement.

Current restrictions on local fishing operations have not been effective in reducing the ongoing damage to the superstructure of AE2 caused by accidental contact with fishing nets. The workshop determined that an effective site security system should be implemented.

The AE2CF considers that two options exist:

- Place a defensive barrier of bottom mounted obstructions similar to that used to protect underwater pipelines around AE2.
- Installation of wreck buoys at the bow and stern of AE2. This will serve to prominently mark the site, assisting shipping to keep clear. The buoy moorings will act as an effective obstacle against fishing or anchoring and would provide a site for mounting solar panels which may provide enough power for a surveillance and radio relay system.

The buoy option is favoured as it would also facilitate installation of an intruder monitoring system and to provide a secure mooring for vessels legitimately involved in working on AE2. This also avoids the concern that the bottom mounted obstructions would sink into the soft silt at the site and become ineffective.

The final solution should involve discussion with relevant Turkish agencies and include an information program for local Sea of Marmara fishing communities.

Step 2: Preservation

To prolong the archaeological site and to mitigate the damage accidentally caused during the 2007 survey, a cathodic protection system should be placed at the site. Due to the potential for accelerated corrosion arising from the accidental damage this installation is a matter of urgency.

The simplest system involves sacrificial zinc anodes being positioned on the hull at predetermined positions, an ongoing corrosion monitoring survey should be conducted pre and post deployment, including regular (annual or bi-annual) monitoring and replacement (after 5 years) of the anodes. The approval of the Government of Turkey should be sought for this activity, through application of Archaeological Work Permits. The activity could involve the logistical support of Turkish Navy dive teams or a commercial dive contractor.

Step 3: Internal Archaeological Assessment and Report

This assessment will generate high quality photographic and video imagery of the internal state of AE2, to support interpretation programs; archaeological investigation and identification of relic scatters, possible torpedo location and condition inspection. The Workshop determined that this was a high priority and should be undertaken as soon as possible to avoid loss of this data should the site be damaged or lost (eg by earthquake damage from a nearby fault line). Note that this activity would involve the forced opening of the partially open upper conning tower hatch to permit the entry of a ROV. The hatch will almost certainly be damaged and the hinges may be destroyed in the process. A method of securing the interior of the submarine from unauthorised entry would also need to be provided. Specific approval for this activity would be required from the Turkish Government.

The 2007 MAA has confirmed the value of obtaining solid archaeological and environmental data on the AE2 site to inform management options.

Such data is essential to understanding the current state and complexities of the archaeological site, to monitor change and to inform future management discussions and determinations. The information is of importance even if actions at the site are limited to monitoring change through time.

Medium Term – by 2015 Centenary Commemorations

Step 4: Interpretive Displays – Australia/Turkey

The concept envisages provision of a scale model of AE2 and possibly, Sultanhisar. The model(s) would provide the centre piece for displays in suitable museums in Australia and Turkey and would include computer generated imagery of the internal layout and dynamic shots of the crew at work to enable interactive responses to viewers and displays to support telling the story. This project would be developed and costed for further approval as part of the Implementation Phase.

Step 5: Artefact Recovery, Conservation and Display

The Workshop spent some time discussing the ethics of artefact collection and decided that until the internal archaeological assessment was completed there was insufficient information on which to make a decision on the relative merits of artefact collection versus the costs of site disturbance. Consideration of this topic should therefore be deferred until this information was available.

Step 6: Education Programs

The Workshop unanimously endorsed education programs in Turkey and Australia to tell the story of AE2 and Sultanhisar and their role in the Gallipoli campaign. It was hoped that such programs would facilitate a wider understanding of the maritime part of the campaign.

Step 7: Commemorations to Mark the Role of Naval Forces in “The Gallipoli Campaign”

The Workshop has identified the need to establish regular joint Turkish-Australian Government and professional Workshops to promote an understanding of the contribution of naval forces from all participants to the Gallipoli campaign. A key element of these activities includes the Sultanhisar role in the defence of the Dardanelles Strait and sinking of AE2. The anniversary of the loss of AE2, 30 April could be used to promote recognition of this aspect.

Longer Term – Beyond 2015

The Workshop considered that the Education Program should be continued into the future and that the commemorations should be an annual event.

ANNEXES

ANNEX A EXPENDITURE REPORT

ANNEX B REFERENCES

ANNEX A EXPENDITURE SHEET

ACTIVITY PHASE	ITEM	COSTS (\$'000)	GOVT Funds	SPONSORS Funds
FEASIBILITY	MOU SIA/TINA	10.05		
	Feasibility Report	4.00		
	Expectation Planning	10.95		
	Sub total	25.00	25.00	
ASSESSMENT	Mission Rehearsal	20.66		
	Equipment Trials	15.00		
	Dive Equipment Hire	71.47		
	Support Vessels	252.49		
	Freight of Dive Gear	37.56		
	Team Travel & Accommodation	142.94		
	Lab Analysis & Reports	31.00		
	Sub total	571.12	388.50	374.00
AE2CF Ltd	Company Registration	2.00		
	Insurance	21.00		
	Administration	28.00		
	Sub total	51.00		
PROMOTION	Media Consultants	29.00		
	Newsletters	8.00		
	DVD's	10.00		
	Plaques Project Prep	17.00		
	Documentary Screening	39.00		
	Sub total	103.00		58.00
	TOTAL	760.12	413.50	432.00

Notes:

1. All Commonwealth funds have been expended on the intended purpose.
2. Balance of Sponsors funds held in AE2CF Ltd Trust Account

ANNEX B REFERENCES

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