

HMAS Moreton, Brisbane

Heritage Impact Assessment

Report prepared for the Department of Defence

July 2017



Report Register

The following report register documents the development and issue of the report entitled HMAS *Moreton* Preliminary Historical Heritage Assessment and Heritage Impact Assessment, undertaken by GML Heritage Pty Ltd in accordance with its quality management system.

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1.0 Introduction

The Department of Defence engaged GML Heritage Pty Ltd (GML) to prepare a Heritage Impact Assessment (HIA) of the proposed infrastructure works for HMAS *Moreton*, which is located adjacent to Bulimba Barracks in Brisbane, Queensland (referred to as 'the site' in this report). The scope of this report is to provide:

- a heritage assessment of historic heritage values of HMAS Moreton against the criteria for the Commonwealth Heritage List (CHL);
- HIA for the proposed works for HMAS Moreton; and
- recommendations for next steps in the heritage management of HMAS Moreton.

The preparation of this report has been informed by:

- targeted research of records held by Defence, the National Archives of Australia, the National Library of Australia, the State Library of Queensland, the Bulimba District Historical Society and other readily available sources;
- a site inspection on 30 June 2017;
- review of the 2015 Initial Environmental Review (IER) for the proposed works prepared by Aurecon;
- the proposed infrastructure project briefings from Defence and Aurecon; and
- a meeting with the Bulimba District Historical Society on 30 June 2017.

HMAS *Moreton* was established on the eastern end of the Bulimba Barracks site in Brisbane in May 2016. The scope of this HIA excluded consideration of the heritage values of Bulimba Barracks, consultation with traditional owners regarding the potential intangible Aboriginal heritage values of the site, and extensive consultation with external stakeholders. These tasks will be undertaken by Defence at a later stage.

1.1 HMAS *Moreton* Site Description

1.1.1 Site Location

HMAS *Moreton* is used as the base for the Navy Headquarters – South Queensland (NHQ-SQ). Bulimba Barracks and HMAS *Moreton* are co-located on the Brisbane River between Taylor and Apollo Roads in the suburb of Bulimba, approximately five kilometres to the east of the Brisbane CBD, Queensland. Refer to Figures 1 and 2 for location details.

1.1.2 Study Area

The HMAS *Moreton* study area for this HIA is shown on Figure 3. The HMAS *Moreton* site lay out is shown on Figure 4.

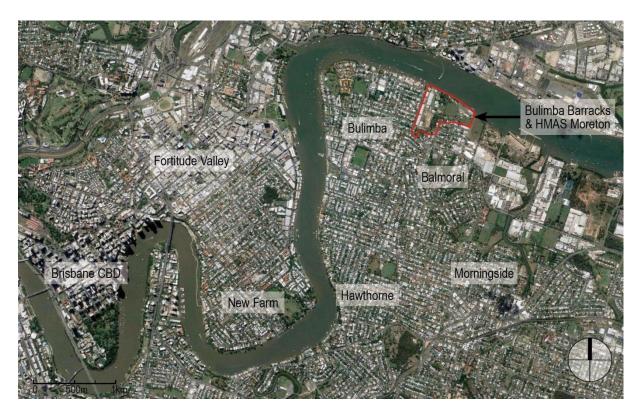


Figure 1: Site Location. (Source: Google Earth with GML overlay)



Figure 2: Bulimba Barracks is shaded red and HMAS Moreton is shaded white. (Source: Google Earth with GML overlay)



Figure 3: The HMAS Moreton study area. (Source: Google Earth with GML overlay)



Figure 4: HMAS Moreton current site layout. (Source: Google Earth with GML overlay)

1.1.3 Current Heritage Status

Bulimba Barracks and HMAS *Moreton* are included on the Brisbane City Council Heritage Register as a place of local heritage significance. The listed area boundary is shown on Figure 5.

The site is not currently included on any other statutory heritage list or register.

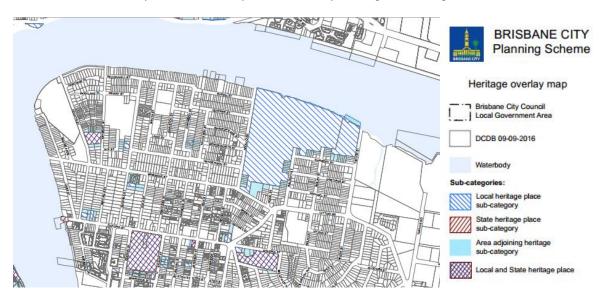


Figure 5: Bulimba Barracks and HMAS *Moreton* are included as one listed area on the Brisbane City Council Heritage Register as a place of local heritage significance. (Source: Brisbane City Planning Scheme)

2.0 Site Overview

2.1 HMAS Moreton Site Inspection Photographs

A site inspection was undertaken on 30 June 2017. The inspection focused on the areas proposed for development under the current infrastructure works proposal for HMAS *Moreton*. As no works are proposed for Assets A002, A008 and A006, the interiors of these buildings were not inspected in detail. Photographs taken during the site inspection that assist with understanding the current site and its condition are provided below.



Figure 6: View of A002 from the jetty. (GML 2017)



Figure 7: Jetty and view across Brisbane River, looking northwest. (GML 2017)



Figure 8: View along sea wall to A002 and the jetty. (GML 2017)



Figure 9: A002 viewed from the south-east. (GML 2017)



Figure 10: Current break in the sea wall, viewed from the pontoon. (GML 2017)



Figure 11: View of the current break, viewed from the landside. (GML 2017)



Figure 12: A008 viewed from the north-west. (GML 2017)



Figure 13: A006 viewed from the north. (GML 2017)



Figure 14: Hard stand and grassed area to the west of A002. (GML 2017)



Figure 15: A002 and parking area viewed from the south-west. (GML 2017)



Figure 16: The current drainage swale on the southern side of A008 and A006, looking south-east. (GML 2017)



Figure 17: View across open area at the southern portion of HMAS *Moreton*, looking north-east. (GML 2017)



Figure 18: View of the end of Taylor Street, adjacent to the south-eastern corner of HMAS *Moreton*. (GML 2017)



Figure 19: View along Taylor Street looking south. (GML 2017)



Figure 20: Interior view of A002. (GML 2017)



Figure 21: Timber support post detail, interior A002. (GML 2017)



Figure 22: Central corridor in A008. (GML 2017)

2.2 Site Chronology

A chronology has been compiled for the study area, drawing upon readily available sources. As the study area formed part of Bulimba Barracks from 1943 to 2016, the wider context of the study area has been included in the chronology. A summary history for the Bulimba Barracks site is included at Appendix A, which provides the Brisbane City Council 2009 citation for the Bulimba Army Barracks. Selected historical photographs, maps and plans are provided at Appendix B.

Table 1: Site Chronology

Date	Event
Pre colonisation	Bulimba area was occupied by the Coorparoo and Chepara Aboriginal clans.
	Bulimba was a flat, swampy peninsula.
1842	Moreton Bay region was opened for free settlement. David McConnel (a station owner at Cressbrook) bought large parcels of land in Bulimba. Farming became the main activity of the district.
1850	The McConnel family built Bulimba House, the first substantial residence in the area, and one of the first of the Moreton Bay colony.
circa 1856	The first bridge over Norman Creek was opened, improving overland access between the Bulimba area and the central area of the colony.
1850s	A large tin smelting works was established near the ferry crossing point between Bulimba and what would later become Hamilton.
1866	Gold was reported to have been discovered on the banks of the Brisbane River in the area opposite Breakfast Creek. Despite further investigations revealing some alluvial deposits, a mine was not established.

Date	Event
1880	The Apollo Candle Factory was built near the location of the present Apollo Road and Apollo Road Ferry Terminal. The factory's yard covered approximately 25 acres and produced candles, soap and oil. It is possible that the loose stone wall seen in the 1943 images of the site (refer to Appendix B) began to be established during this period to assist with stabilising the river bank in this area.
1880s	Urban and industrial development of the area began.
1885	The Apollo Candle Factory amalgamated with J. Kitchen & Sons of South Brisbane and continued operations until WWII.
1893	Major flood of the Brisbane River that impacted the study area.
1909	Floods impacted the area.
	A fire caused damage at the J. Kitchen & Sons soap and candle works factory.
1914-1918	WWI
1922	The Bulimba Ferry House at the Apollo Ferry site was constructed.
1925	The tramlines were extended into the district along Hawthorne Road.
1930	Chimney stack at the J. Kitchen & Sons soap and candle works factory was demolished.
1939	Outbreak of WWII
February 1942	The first Japanese bombing raid of Darwin.
	Rapid acceleration of Allied Forces presence across Brisbane, including the establishment of sites for use by the US forces.
	Northern Australia became a major Allied Forces staging point for the Pacific Theatre of the war.
July 1942	US General Douglas MacArthur moved to Brisbane.
Early 1943	Bulimba surveyed by the US forces to identify suitable sites for construction and camps.
March 1943	US took over the former J. Kitchen & Sons factory site on Apollo Road along with a large area of land along the Brisbane River for a Barge Assembly Depot.
	The land was cleared of around 10 houses on the site, many of which were relocated to nearby housing lots.
	Rapid construction of six large warehouses, which included the main assembly workshop on what is now Bulimba Barracks, was undertaken by the US forces assisted by a large Chinese workforce of between 750 and 1000 men. The Chinese workforce was essential to addressing the labour shortage in Australia at this time. The steel components were shipped in via the Brisbane River and delivered by barge to the assembly depot.
	Two accommodation camps were established at the new Apollo Barge Assembly Depot; one for the Chinese labour force and one for the US servicemen.
	The initial cost estimate for the new facility was £481,400, however this was revised down by the US to £229,000 to assist with managing costs in late 1943.

Date	Event
1943	A wide wharf was constructed for the Assembly Depot to streamline distribution from the workshop onto the River.
	The major parts of the barges, if not all materials, were factory cut to size and shipped from the US. These barges were crucial to the logistics of supply in the island campaigns of the Southwest Pacific. ¹
	Once assembled, the barges were shipped out as deck cargo to the conflict in the Pacific. Each barge, measuring approximately eighteen metres by eight metres and with two refrigeration units, was designed as a supply vessel that would be deployed into secured territory in the Pacific region of the war.
	Several other Defence/Allied Forces facilities were established in the Bulimba area in support of the war effort.
1943-1944	The Cairncross Dry Dock was constructed east of the Apollo Barge Assembly Depot over a 22 month period with a labour force of 1000 men working 24 hours a day, six days a week. The Dry Dock became the largest in Brisbane, critical to servicing Navy vessels, along with the South Brisbane Dry Dock, until the end of the war. The labour force was camped on two main locations – on land adjacent to the Assembly Depot site and further west on Bulimba Point.
March 1945	Gazette notice published for the Commonwealth's acquisition of the Bulimba site occupied by the US Apollo Barge Assembly Depot.
1945	The US forces departed the Apollo Barge Assembly Depot and the site was taken over by the Australian Army to house the Royal Australian Electrical and Mechanical Engineers (RAEME). RAEME undertook some modifications to the buildings to provide suitable workshop facilities for
	vehicle manufacture and maintenance. RAEME also moved several buildings to the site from their former facility at Kangaroo Point.
October 1946	RAEME established a training school on the Bulimba Barracks site, including a training workshop that utilised asset A002.
1957-1959	Works to the water mains to the Bulimba Barracks site were undertaken following a number of breakages. Soil tests results indicted '5 inches of ashes, 5 – 7 inches of clay fill and the remained brown clay on the site. The ground level was recorded as 2 foot 6 inches above maximum anticipated flood level.
1960-1961	RAEME constructed a new Armoury Building and a New Blacksmith's Shop at the Bulimba Barracks site.
1959-1964	Sections of the loose stone sea wall along the banks of the Brisbane River at the Bulimba Barracks site were progressively replaced/reinforced with additional stone material and cement. The works introduced an entirely new, higher and more substantial type of wall along this section of the river bank on top of the previous loose stone wall.
Late 1960s, early 1970s	The old fibro sheeting roof of A002 was replaced.
1970s	Aerial images indicate several new buildings added to Bulimba barracks during this decade.
1973	Storm damage impacted the site, including the loss of the roof of Asset A002.
January 1974	Major Brisbane flood event, Bulimba Barracks site partly flooded.

¹ Marks & Dunn, undated, *Brisbane WW2 v Now*, No 7, copy held in the National Library of Australia

Date	Event
December 1977	The site was officially named Bulimba Barracks by the General Officer Commanding Logistic Command major general JD Stevenson, CBE
1982-83	The first jetty was constructed on the water front area leased from the State government adjacent to Asset A002.
Mid 1980s	A008 added to the south of A002.
Late 1980s	The jetty adjacent to Asset A002 was expanded.
	Three new brick accommodation blocks were constructed to the south west of A002.
Late 1990s	Long building constructed in 1943/44 adjacent to A002 along the river front was removed from the site.
1994	HMAS <i>Moreton</i> at the New Farm site was decommissioned and many services were relocated to Bulimba Barracks under the authority of the Naval Headquarters Southern Queensland.
2007	Bulimba Army Barracks added to the Brisbane City Council Heritage Register.
2011	Major Brisbane River flood event, Bulimba Barracks site partly flooded.
2012	Defence Logistics Transformation Program undertaken across the Defence Estate. This resulted in the decision to relocate Army from the Bulimba Barracks site.
2014	Decision to dispose of part of the Bulimba Barracks site as surplus to Defence requirements.
November 2014	Asset A002 was damaged in a storm, including extensive hail damage to the roof.
2015	Repair works were undertaken to A002 in 2015, including the replacement of the roof.
2016	Asset A008 was refurbished and the parking area pavement between A002 an A008 was resurfaced.
	Refurbishment and expansion of the wharf and jetty facilities.
14 May 2016	HMAS <i>Moreton</i> , formerly Navy Headquarters - South Queensland, was commissioned at the Bulimba Barracks site.
Sources:	Brisbane City Council (BCC) 2009, Brisbane City Council Heritage Citation – Bulimba Army Base, Brisbane City Council Heritage Unit, Brisbane
	Oz@War website – Bulimba at War pages
	State Library of Queensland (SLQ)
	National Archives of Australia
	Aerial photography available via QImagery
	Bulimba District Historical Society records
	Marks & Dunn, undated, <i>Brisbane WW2 v Now</i> , Nos 6 and 7, copy held in the National Library of Australia
	Navy online information for HMAS <i>Moreton</i> : http://www.navy.gov.au/establishments/hmas-moreton
	Advice provided by HMAS <i>Moreton</i> Executive Officer on 30 June 2017

3.0 Assessment Against the CHL Criteria

The site inspection and historical research has been evaluated against the criteria for the Commonwealth Heritage List (CHL) which is established under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the identification and protection of heritage values identified on properties owned or controlled by the Commonwealth. The Australian Heritage Council guideline for Commonwealth agencies prepared in 2010, *Identifying Commonwealth Heritage Values and Establishing a Heritage Register*, states that the threshold for the CHL is **local** heritage significance.²

The analysis of HMAS *Moreton* against the CHL criteria is presented in Table 2. This analysis has been prepared using the information obtained from the site inspection (refer to Section 2.1), the archival research as presented in the site chronology (refer to Section 2.2), and the historical photographs and plans for the site (refer to Appendix B)

Table 2: CHL Criteria Assessment

Criteria	Analysis
(a) the place's importance in the course, or pattern of Australia's natural or cultural history	The Apollo Barge Assembly Depot was an important US military support facility established at Bulimba in 1943. The Depot supported the Allied Forces in the Pacific theatre of WWII. These barges were crucial to the logistics of supply to the Allies in the island campaigns of the Southwest Pacific. Several assets from the Depot survive and are located across the Bulimba Barracks and HMAS <i>Moreton</i> sites. Asset A002 located at HMAS <i>Moreton</i> is a warehouse that supported the WWII operations of the Depot. Asset A002 is the single remaining asset from the Depot at HMAS <i>Moreton</i> .
	At the end of WWII the site was formally gazetted as Commonwealth land and became a permanent Australian Defence facility for use by the Army. The Royal Australian Electrical Mechanical Engineers (RAEME) occupied the site for many decades from 1945, establishing a training workshop that included use of the former WWII warehouse at what is now known as HMAS <i>Moreton</i> .
	Attributes: A002, which dates to 1943-44.
	HMAS Moreton meets the threshold for this criterion.
(b) the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history	Asset A002 at HMAS <i>Moreton</i> provides evidence of the WWII Apollo Barge Assembly Depot, a US operated facility in Bulimba between 1943 and 1945. There are limited examples of US operated facilities from the WWII era in Brisbane, or in Australia. Asset A002 at HMAS <i>Moreton</i> provides some insight into a rare example of this type WWII heritage place in Australia. Attributes: A002, which dates to 1943-44.
	HMAS Moreton meets the threshold for this criterion.
(c) the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural	HMAS <i>Moreton</i> has limited archaeological potential to yield information that will contribute to an understanding of Australia's cultural history. Review of historical aerial photographs (refer to Appendix B) indicates a high degree of disturbance of much of the study area due to building and vehicle movement activities over several decades.
history	Attributes: None.
	HMAS Moreton does not meet the threshold for this criterion.

² Australian Heritage Council, 2010, Identifying Commonwealth Heritage Values and Establishing a Heritage Register, p7

Criteria	Analysis
(d) the place has significant heritage value because of the place's importance in demonstrating the principal characteristics of a class of Australia's natural or cultural places or environments	HMAS <i>Moreton</i> contains Asset A002, which is a largely intact WWII timber framed warehouse that formed part of the Apollo Barge Assembly Depot at Bulimba. Asset A002 continues to display key characteristics of this type of building. Including the timber frame, large interior spaces and wide openings with sliding metal framed doors to allow vehicle and large equipment movement and storage. Attributes: A002, which dates to 1943-44.
	HMAS Moreton meets the threshold for this criterion.
(e) the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group	The scope of this report has excluded the examination of community-held aesthetic characteristics valued by a community or cultural group, or consultation. Analysis of the site and research material indicates that HMAS <i>Moreton</i> is unlikely to meet this criterion. Attributes: None HMAS <i>Moreton</i> does not meet the threshold for this criterion (based on current evidence).
(f) the place has significant heritage value because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period	HMAS <i>Moreton</i> retains evidence through Asset A002 of the Apollo Barge Assembly Depot, which was an important WWII industrial facility that undertook intensive manufacturing of barges that contributed to success in the Pacific theatre of war between 1943 and 1945. The high tempo assembly activities and large scale production of sizable military barges were a notable technical achievement at a critical period in the Allied Forces' efforts to defeat the Japanese and German forces during WWII. Asset A002 at HMAS <i>Moreton</i> does not contain equipment from the WWII period. As an ancillary building supporting the operation of the Apollo Barge Assembly Depot, Asset A002 at HMAS <i>Moreton</i> has limited heritage significance against this criterion. Attributes: None HMAS <i>Moreton</i> does not meet the threshold for this criterion.
(g) the place has significant heritage value because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	HMAS <i>Moreton</i> contains Asset A002, which has been used by RAEME for a mix of uses including a workshop for several decades from 1945. It is possible that current and former members of RAEME value Asset A002 for its long connection with RAEME, particularly the role it has played in technical and trades training of large numbers of RAEME personnel. However, community consultation to be undertaken at a later date will be required to verify whether the site meets this criterion. The Bulimba District Historical Society has stated in submissions to Defence and the Public Works Committee that HMAS <i>Moreton</i> is an important place for its cultural heritage significance to the local Bulimba community. Consultation regarding potential community values for the site is proposed to be undertaken at a later date by Defence, to determine whether HMAS <i>Moreton</i> meets this criterion.
(h) the place has significant heritage value because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history	HMAS <i>Moreton</i> does not have a notable association with the life or works of a person or group of persons of important in Australian history. Attributes: None HMAS <i>Moreton</i> does not meet the threshold for this criterion.

Criteria	Analysis
(i) the place has significant heritage value because of the place's importance as part of Indigenous tradition.	An initial search of database records and a site walkover to identify was undertaken as part of the preparation of the IER for the site in 2015. Due to the level of historical site disturbance, the IER considers that the likelihood for Aboriginal archaeological sites to occur is low. Consultation with traditional owners regarding potential intangible heritage values for the site is proposed to be undertaken at a later date by Defence, to determine whether HMAS <i>Moreton</i> meets this criterion.

3.1.1 Summary Statement of Heritage Values

HMAS *Moreton* has historic heritage significance a part of the former WWII Apollo Barge Assembly Depot that was operated by the US between 1943 and 1945. Asset A002 is a rare and largely intact former WWII timber framed warehouse that provides an insight into this important period of the history of the site.

3.1.2 Identification of Potential Heritage Assets and Areas

HMAS *Moreton* has **Commonwealth Heritage values.** Asset A002 at HMAS *Moreton* is a WWII period warehouse that is currently used as a workshop, vehicle store, gym and band practice area. This asset has local heritage significance.

The sea wall is of some historic interest but does not have significant heritage values, as it does not provide an insight into an important period of the development of the site, and is not associated with an important event, person or groups of persons. The sea wall has limited heritage value, and does not meet the local heritage significance threshold against the Commonwealth Heritage criteria.

The items with **no** identified heritage significance are:

- Assets A006 and A008 (constructed in the mid-1980s, extensively refurbished in 2016.
- Assets A005, A007, A014 and A015, which are late additions to the site and are standard functional structures.
- The jetty and wharf, which were constructed in the 1980s and have since been extensively modified and enlarged/replaced.
- The boundary plantings along the southern fencing, which appear to have been planted in the late 1960s as screening plantings.

4.0 Description of the Proposed Works

4.1 Introduction

The proposed works at HMAS *Moreton* are the construction of a new entry from Taylor Street including a gatehouse, construction of two new buildings and a new boat ramp, replacement of supporting storage facilities, and upgrade of services and hardstand surfaces. The proposed works have reached the 30% Concept Design stage, and this HIA has been prepared on the basis of the 30% Concept Design Report dated 12 October 2016 and the Defence presentation for the Public Works Committee dated May 2017.

The current NHQ-SQ site supports lodger units and attached elements, which include:

- Australia Navy Reserve Diving Team 8 (ANRDT8);
- Royal Australian Navy (RAN) Band Detachment Queensland;
- Personnel Support Unit South Queensland (PSU-SQ);
- Navy People Career Management Agency (NPCMA) Reserve Management SQ;
- Naval Reserve Maritime Trade Operations (NRMTO);
- Navy Community Engagement (NCE) coordination cell;
- Australian Navy Cadet (ANC) Flotilla Headquarters Brisbane and Gold Coast;
- 1 Commando Regiment Detachment; and
- ANC Training Ship (TS) Gayundah.

Naval functions performed by NHQ-SQ and its lodger units include operational, logistic and accommodation support for visiting Minor War Vessels (MWVs) and STS Young Endeavour when berthed alongside NHQ-SQ or in the Port of Brisbane. The major functions of the user requirements include:

- Individual and shared working accommodation;
- Storage and Resource space;
- Multipurpose classroom space for up to 60 personnel;
- Transit accommodation for up to 60 personnel (Level 2);
- Kitchen / galley;
- Toilets, showers, washing amenities;
- All weather outdoor training shelters;
- Boat and equipment storage;
- Parade ground / flag pole;
- New Navy boat ramp within a secure site perimeter;
- Hardstand for loading and unloading associated with boat ramp;

- Site entry and secure site perimeter;
- Gatehouse at the site entry;
- All services and utilities;
- EO storage cabinets; and
- IT infrastructure and connectivity.

The proposed infrastructure works to address these user requirements are:

- A new two storey Multi User Facility (MUF);
- A new three storey Transit Accommodation building;
- A new single storey Gatehouse;
- New Storage Shelters;
- New Covered Training Areas;
- A Boat Ramp constructed at the existing gravelled break in the sea wall;
- Supporting infrastructure;
- Refurbished Pavements and Grassed Training Areas; and
- A memorial garden.

4.2 Detailed Description of the Proposed Works

The following description of the proposed work has been prepared on the basis of the 30% Concept Design Report, the Defence PWC presentation and the onsite briefing provided on 30 June 2017.

4.2.1 Multi User Facility and Transit Accommodation

The construction of the new MUF and Transit Accommodation would involve the introduction of clean fill to raise the ground level by approximately 1m to ensure the new buildings are above the flood level for the site. The proposed ground level for the two new buildings would be approximately 1m above the ground floor level of Asset A008. The new buildings will require the installation of timber piles to prevent settlement post construction.

4.2.2 Site Drainage Works

The drainage of the site will also need to undergo improvement works, which will involve the expansion of the existing drainage swale to a width of 5m. The new entry road (see notes below) will require a culvert over the swale on the eastern side of the site.

4.2.3 New Entry and Gatehouse

The proposed Gatehouse would be constructed adjacent to the Taylor Street entry to the site. Road works to Taylor Street would be undertaken in consultation with Brisbane City Council, and would be within the existing road reserve footprint, with no extension in the length of the current end of the road reserve area. A new entry road would be constructed to provide vehicle access from Taylor Street through to the existing hard stand areas between Assets A008 and A002, and around A002. A small

number of shrubs will need to be removed for the installation of the entry road, and some trees will need to be trimmed.

4.2.4 Storage Shelter and Training Shelters

The proposed new single storey storage shelter will be located in the area that currently contains a simple storage structure on the eastern side of the site. The existing storage structure, Asset A007 would be removed. New training shelters are proposed to be located near the eastern end of the new Transit Accommodation building.

4.2.5 Service Upgrades

Existing services will be upgraded and extended to allow HMAS *Moreton* to independently access water, sewer and power services separate to the Bulimba Barracks site. Where in-ground services are to be upgraded or new services such as a new water main are to be installed, excavation is likely to be using a small excavator for trenching works. New storm water lines are also proposed on the western side of the site, exiting through the sea wall into the River, requiring some trenching up to a depth of 3m, and minor works to the sea wall to install the outlets. The existing perimeter fences will be replaced with new fences along all boundaries.

4.2.6 Boat Ramp

The new boat ramp would be constructed at the existing gravelled break in the sea wall, where there is a break in the sea wall. Regrowth mangroves will need to be removed, along with some regrading and new surfacing to install the ramp. Minor works will be needed to integrate the ramp into the surrounding sea wall. The current gravelled area is subject to erosion from the tidal movements along the River bank, and the construction of the ramp will assist with stabilising this section of the water front that currently does not have a sea wall in place. The works for the boat ramp are within the jurisdiction of the State Government, and these works would be subject to a separate Development Application under the State planning and approvals process.

4.2.7 Hardstand Areas

The existing pavements around Asset A002 will be resurfaced, along with a new hardstand area to be added on the western side of A002, adjacent to the proposed boat ramp. The existing grassed area in the southern portion of the site will largely be retained as an open space area. A section of the grassed area to the south of the proposed Transit Accommodation building would be reinforced for some vehicle movement.

4.2.8 Memorial Garden

A new memorial garden is proposed for an existing stand of trees to the north of Asset A006, which will contain one or more items commemorating the Navy's contribution to the Defence of Brisbane, along with other themes relating to the history of the site and the role of the Reserve Diver Team 8, which has played an integral role in capability and community support. The detailed design is yet to be developed, and the current concept of the Base Commander is for a simple, contemporary approach to the design and layout of the garden.

4.2.9 Landscape Elements

The landscape design may also include the re-use of gangways from the site as part of walkways between the existing level and the proposed new level for the MUF and Transit Accommodation Buildings. The re-use of gangways in this manner is a common approach for Navy sites, reflecting the role of this type of facility as a land based ship, supporting Navy capability.

4.2.10 Concept Design Drawings and Photographs

The plans showing the proposed 30% concept are provided at Figures 23 and 24. Additional explanatory photographs are provided at Figures 25 to 38.

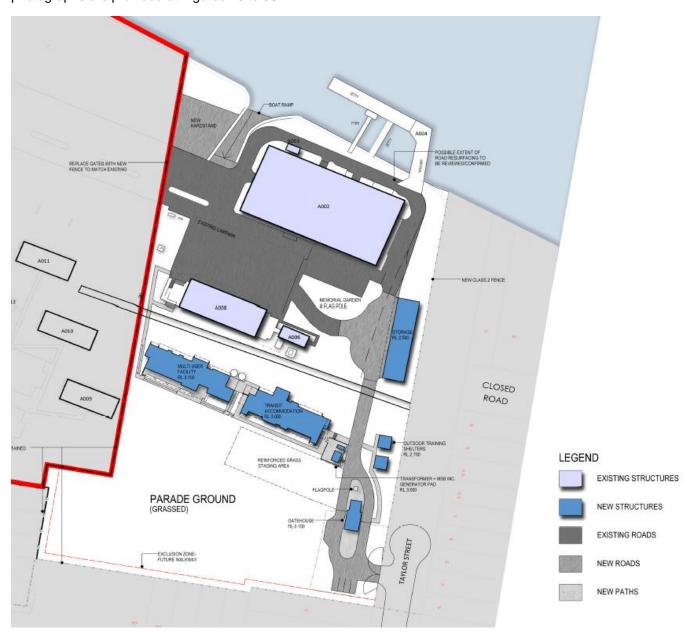


Figure 23: Proposed Facilities and Infrastructure Scope. (Source: Defence PWC Statement of Evidence, March 2017)



Figure 24: Concept design showing proposed site layout post development. (Source: Defence PWC Statement of Evidence, March 2017)



Figure 25: The proposed MUF and Transit Accommodation buildings will be located in the grassed area behind A008 and A006. (GML 2017)



Figure 26: Concept drawings showing the proposed MUF and Transit Accommodation buildings. (Source: Defence PWC Statement of Evidence, March 2017)



Figure 27: View from the south-western corner of the site. (GML 2017)



Figure 28: Left: existing view from the southern end of the site. Right: post construction view from the southern end of the site. (Source: Department of Defence 2017)



Figure 29: The existing swale to be expanded. (GML 2017)



Figure 30: Assets A005 (right), A007 (rear) and A014 (foreground) to be removed. The location of A014 is proposed for the new memorial garden. The location of A007 will be used for a new storage structure. (GML 2017)



Figure 31: Proposed new storage sheds (left) in the location of A007, and proposed training shelters to be located adjacent to the eastern end of the new Transit Accommodation Building. (Source: Defence PWC Statement of Evidence, March 2017)



Figure 32: The general location of the proposed new Gatehouse. The large shrub will need to be removed during the works, along with the construction of a new entry road from Taylor Street into the site. (GML 2017)



Figure 33: Concept design for the proposed new Gatehouse, looking north-west. (Source: Defence PWC Statement of Evidence, March 2017)



Figure 34: Grassed area to the west of Asset A002 proposed for a new hardstand area. The entry to the proposed boat ramp can be seen to the right side of this image. (GML 2017)



Figure 35: Section of sea wall that will have 2 water pipes inserted to assist storm water drainage from the site. (GML 2017)



Figure 36: Current break in the sea wall where the proposed boat ramp will be constructed. (GML 2017)



Figure 37: Detail of sea wall and gravelled break in the sea wall interface on the western side of the break. Minor works will be required to the sea wall to integrate the proposed boat ramp. (GML 2017)



Figure 38: Concept drawing of the proposed boat ramp and the existing sea wall. (Source: Department of Defence 2017)

5.0 Heritage Impact Assessment

5.1 Impact Assessment Methodology

The following discussion against the EPBC Act Significant Impact Guidelines 1.2- considers historic heritage impacts for the proposed works at HMAS Moreton.

5.1.1 Significant Impact Guidelines

The Significance Impact Guidelines 1.2 provides guidance on determining the extent of heritage impacts for Commonwealth agencies. They state:

A key question to consider is whether an action will affect the significance or value that the place holds for people, as well as simply the physical impacts on its fabric or condition. ...

In order to determine whether or not an action is likely to have a significant impact on the environment it is necessary to consider the total adverse impact of the action in the context of the environment which will be impacted, particularly those elements which are sensitive or valuable. ...

If you answer 'yes' to one or more of the questions below, then it would be expected that your action is likely to have a significant impact on the environment. ...

Impacts on Heritage

Is there a real chance or possibility that the action will:

- permanently destroy, remove or substantially alter the fabric (physical material including structural elements and other components, fixtures, contents and objects) of a heritage place;
- involve extension, renovation, or substantial alteration of a heritage place in a manner which is inconsistent with the heritage values of the place;
- involve erection of buildings or structures adjacent to, or within important sight lines of, a heritage place which are inconsistent with the heritage values of the place;
- substantially alter the setting or a heritage place in a manner which is inconsistent with the heritage values of the place; or
- substantially restrict or inhibit the existing use of a heritage place as a cultural or ceremonial site?³

The Significance Impact Guidelines 1.2 have been used to assist with the analysis of potential heritage impacts of the proposed infrastructure works and associated demolitions at HMAS *Moreton* and identify whether mitigation measures are required. The Guidelines allow consideration of both potential adverse and significant heritage impacts.

³ Department of the Environment (formerly SEWPAC), 2013, EPBC Act Policy Statement 1.2 Significant Impact Guidelines—Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies, pp 9, 14–16.

A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. The factors to be taken into account to determine whether or not an action is likely to have a significant impact depend upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration and magnitude of the impacts.⁴

The following graded scale of impact has been adopted and applied for this impact assessment. To assist in distinguishing between different relative levels of severity of potential heritage impacts, the Significance Impact Guidelines 1.2 provide a scale to refer to, which is as follows:

- Severe: Severe impacts generally have two or more of the following characteristics: permanent/irreversible; medium–large scale; moderate–high intensity. Note: A severe impact would be considered 'significant' as defined by the Significance Impact Guidelines 1.2 and an EPBC Act referral to the Minister for the Environment would be required.
- Moderate: Moderate impacts generally have two or more of the following characteristics: medium-long term; small-medium scale; moderate intensity.
- Minor: Minor impacts generally have two or more of the following characteristics: short term/ reversible; small-scale/localised; low intensity.⁵

General note: The severity of impacts alone does not necessarily indicate an adverse (or significant) impact on the overall heritage values of a place. The potential impacts of the action must be considered in the context of the environment or the place in which the action will take place.

5.2 Assessment of Heritage Impacts at HMAS *Moreton*

In order to assess heritage impacts, questions from page 16 of the Significance Impact Guidelines 1.2 are included here, along with GML analysis in response to them.

Is there a real chance or possibility that the action will permanently destroy, remove or substantially alter the fabric (physical material including structural elements and other components, fixtures, contents and objects) of a heritage place?

The proposed works at HMAS *Moreton* will not involve changes to Asset A002, which has identified Commonwealth Heritage values (refer to Section 3.0). The proposed boat ramp and installation of storm water pipes will require minor modifications to the 1963 sea wall in the sections adjacent to the slip way. The modifications will retain the existing alignment of the sea wall, and would seek to match the existing materials and form as part of the boat ramp installation works.

The proposed removal of Assets A005, A007 and A014 will not have a heritage impact as these assets do not have heritage significance and do not contribute to the values of HMAS *Moreton*.

Analysis of the historic aerials of the site indicates a high degree of disturbance of the site. This, along with the flooding that has occurred on several occasions over the past 160 years on the record, mean that the historical archaeological potential of the site is limited. Proposed subsurface excavation is

⁴ Department of the Environment (formerly SEWPAC), 2013, *EPBC Act Policy Statement 1.2 Significant Impact Guidelines— Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies*, p 3.

Department of the Environment (formerly SEWPAC), 2013, EPBC Act Policy Statement 1.2 Significant Impact Guidelines—Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies, p 13.

limited to small areas of excavation to be undertaken using a small excavator to open narrow trenches to install new services and replace some existing services.

Is there a real chance or possibility that the action will involve extension, renovation, or substantial alteration of a heritage place in a manner which is inconsistent with the heritage values of the place?

The proposed works do not involve an extension, renovation or substantial alternation to the heritage place. The proposed works will not directly affect Asset A002, and, as noted above, minor modifications are proposed to the sea wall, which has low heritage significance. The proposed removal of Assets A005, A007 and A014 will not have a heritage impact as these assets do not have heritage significance and do not contribute to the values of HMAS *Moreton*.

The proposed construction of the two new buildings, the MUF and Transit Accommodation, will result in a change to the overall setting of the site. The proposed location for these buildings is consistent with the changes that have occurred at the site over time, repeating the building alignment and layout pattern established with the 1980s additions of Assets A006 and A008. The proposed form of the new buildings is consistent with the existing infrastructure at HMAS *Moreton*. The proposed new buildings would be located at some distance from Asset A002, and would not result in changes to the setting and historical context of this asset.

The proposed Gatehouse and associated new road infrastructure would not result in changes that are inconsistent with the identified heritage values of the site, which are focussed on Asset A002.

Is there a real chance or possibility that the action will involve erection of buildings or structures adjacent to, or within important sight lines of, a heritage place which are inconsistent with the heritage values of the place?

The proposed new buildings at HMAS *Moreton* are proposed to be sited in locations at suitable distances from Asset A002, and will not impact views of this asset from the Brisbane River. Current views of Asset A002 from the south are largely impeded by the location and height of Assets A008 and A006. The proposed new buildings will further reduce views of Asset A002 from the south, however views from this direction are not part of the heritage significance of this item. No important sight lines will be adversely impacted by the proposed new buildings. The proposed works will also retain a large area of green open space in the southern portion of the site.

Is there a real chance or possibility that the action will substantially alter the setting of a heritage place in a manner which is inconsistent with the heritage values of the place?

As noted above, the proposed works will not involve adverse impacts to the setting of Asset A002. The form, alignment and mass of the proposed new buildings is consistent with the existing layout and character of the site. The construction of the boat ramp will prevent further erosion of the gravelled area at the break in the sea wall. The demolition of Assets A005, A007 and A014 will remove structures that are unsympathetic to the character of the site. The installation of a new memorial garden that includes information about the Navy's role in the defence of Brisbane and the history of the site will have a positive impact on the setting of the site.

Is there a real chance or possibility that the action will substantially restrict or inhibit the existing use of a heritage place as a cultural or ceremonial site?

HMAS *Moreton* will continue in Defence use for Navy capability support functions following the proposed infrastructure works.

5.3 Statement of Heritage Impact

The proposed works to HMAS *Moreton* exclude changes to Asset A002, and facilitate the ongoing use of this building for Navy purposes. The proposed works will result is some modifications to the overall site, however the proposed new buildings would be located and designed in a manner that is consistent with the character of the site.

The proposed works to the sea wall to install the storm water pipes and boat ramp would involve minor modifications. Defence proposes to minimise impacts to the sea wall through matching existing materials and the sea wall alignment.

The installation of new services has a low likelihood of disturbing historical archaeological resources.

The overall impact of the proposed works is assessed as being minor under the Significant Impact Guidelines 1.2, and would not result in a significant heritage impact on the identified Commonwealth heritage values.

Mitigation actions are available to further reduce the negligible heritage impact of the proposed works, and are recommended as best heritage practice to support consistency with Defence policy and legislative requirements.

Several heritage management opportunities have also been identified to assist Defence with considering and recognising the heritage values of the site as part of the proposed works, as well as the longer-term management of the site.

5.4 Mitigation Measures

The following heritage impact mitigation measures are recommended to assist with further reducing the heritage risks for the proposed works:

- Consultation with Traditional Owners regarding the site has been excluded from the scope of this HIA. Consultation regarding the possibility of tangible and intangible Aboriginal heritage values for the site is required to inform the detailed planning of the proposed works, noting that the level of site disturbance is such that the potential for Aboriginal archaeological sites is low. The Cultural Heritage Unit of the Queensland Government Department of Aboriginal and Torres Strait Islander Partnerships should be contacted to confirm the cultural heritage bodies to consult with regarding HMAS Moreton.
- Prepare a photographic recording in accordance with the Queensland guidelines of the site before
 and after works. Provide copies of the recording to HMAS *Moreton*, the Defence Regional
 Environment and Sustainability Officer and the Bulimba District Historical Society.
- Develop a stop works procedure in the event of an unexpected archaeological find. The procedure needs to be prepared in consultation with the identified cultural heritage bodies for the site.
- Develop a short heritage induction for all site works personnel contractors that includes guidance
 on the stop work procedure and the heritage values of the site. Ensure that all personnel
 undertaking the proposed works project complete the heritage induction.
- Ensure that works to the sea wall seek to minimise disturbance to the wall, and match the existing alignment, height, width and materials.

- Detailed design of the proposed new buildings should seek to use materials, colours and forms
 that are consistent with the character of the historic buildings on the base. Seek review and input
 from the Defence Environment and Heritage Policy Development team during the 50-90% design
 documentation process.
- Explore opportunities to include interpretive information about the heritage values of the base, as
 part of the proposed works. This could include information in the Memorial Garden developed in
 consultation with the Base Commander and other stakeholders identified by Defence. Other
 interpretative opportunities include use of historic images (such as those provided in Appendix B)
 in rooms and areas in the new buildings.

5.5 Heritage Management Recommendation

The following recommendation is made to assist Defence with the longer-term heritage management of the site:

• Complete the consultation with the local community and cultural heritage bodies for the site and prepare a Heritage Management Plan for HMAS *Moreton*.

5.6 Conclusion

The preliminary historic heritage values assessment included in this HIA identifies that HMAS *Moreton* has Commonwealth Heritage values for its association with the WWII period of the history of the site and the role it played in the defence of Australia during this time.

The assessment of impacts on the historic heritage values, by the proposed works to HMAS *Moreton* has established that the proposed works have been designed to avoid and minimise heritage impacts as best as possible.

The proposed works will not have a significant heritage impact on the heritage values of HMAS *Moreton*. Aspects of the proposed works, particularly the stabilisation effect of the boat ramp to prevent further erosion of the river bank and the memorial garden, will contribute positively to the heritage values of the base.

Implementation of the mitigation measures and longer term heritage management recommendation will assist Defence to protect the heritage values of the site.

Appendix A—BCC Citation for Bulimba Army Base, 2009





Elevation from: Hamilton Portside Wharf

Address: 167 Apollo Road, Bulimba

Real Property Description: L24 (part) RP813319

Former Names: Apollo Barge Assembly Depot

Date of Construction: 1943

Architect: United States Military

SUMMARY

The Bulimba Army Base is an important remnant of the United States Military presence in Brisbane during the Second World War. Initially established in 1943 for the assemblage of military barges, the Apollo Barge Assembly Depot, as it was first known, was one of a number of war-time industrial sites along this stretch of the Brisbane River. At the end of the war and the departure of the American forces the base was occupied by the Australian Electrical and Mechanical Engineers unit of the Australian Army. The Bulimba Army Base plays a very important role in Brisbane's military history.

HISTORY

The first inhabitants of the Bulimba area were members of the Aboriginal community, mainly from the Coorparoo and Chepara clans whose lands ranged south of the river. Because the land had an ample water supply, fauna and flora were plentiful making the area an excellent food gathering ground for Aboriginal people and later for Europeans.

After the Moreton Bay region was opened for free settlement in 1842, David McConnel, having established a station at Cressbrook, bought much of the first land offered for sale in Bulimba and soon after built a home for himself and new wife Mary McLeod. The McConnel's home, Bulimba House, was built by Andrew Petrie in 1850 becoming one of the first substantial residences in the colony. The home was built from grey freestone obtained from a quarry lower down the river and the land was cleared for agriculture.

The river was the main avenue of transport for the early European occupants. The overland route passed through Galloways Hill and on to the track linking Cleveland to Brisbane following it through Woolloongabba and South Brisbane. Rowing across the river to Newstead and travelling through Fortitude Valley to the city was an easier journey than the land route which skirted Norman Creek. Sam Buckley may have run an unofficial ferry across the river from about 1850. Bulimba residents and farmers applied for the construction of a bridge across Norman Creek to improve overland access and in about 1856 the first bridge over Norman Creek was opened.

While farming was the main activity in the district, a large tin smelting works was also established near the ferry giving employment to a considerable number of people. During the latter part of 1866, Messrs Smith, Price and Harvey were reported as having discovered nuggets and particles of gold along the banks of the Brisbane River opposite the Breakfast Creek. While some alluvial deposits were found and a shaft sunk into the main quartz reef, the mine did not become a major industry in the area.

The 1880s saw the beginnings of more urban and industrial development in the area. Many of the large land holdings were subdivided and sold as housing estates and with the concomitant rise in the population, commercial services were established. The proximity to the river and adjoining creeks also provided ideal conditions for industry to develop.

The Apollo candle factory was built in 1880 near the present Apollo Road. The yard covered about 25 acres and the factory produced candles, soap and oil. It amalgamated with J. Kitchen & Sons of South Brisbane in 1885 and continued production well into the twentieth century, despite being inundated by floods and suffering a fire in 1909. On the northern side of the river at Newstead, industrial developments in the form of the Colonial Sugar Refining Company and the gas works as well as the wharves provided employment opportunities for residents of the Bulimba area as transport across the river by ferry was an established service.

In 1925 the tramlines were extended into the district along Hawthorne Road as far as Barton Road increasing the accessibility of the south eastern parts of the district. Services were extended to Oxford Street in 1935. The cross river ferries, both passenger and vehicular, continued to be a major form of transport with their importance to the district being emphasised by the construction of a shop and dwelling at Hawthorne ferry in 1921 and the Addison-designed Bulimba ferry house in 1922. Buses also serviced the district often connecting with the ferries.

Although Australia had been at war with Germany since 1939, the impact of war increased dramatically after the Japanese entered it in 1941. The Japanese forces swept south through Malaya, the Netherlands East Indies and had reached New Guinea by January, 1942. Northern Australia became a major staging point. General Headquarters South West Pacific Area, under the command of US General Douglas MacArthur, was also moved to Brisbane in July 1942. An unprecedented military build-up followed. The concentration of US troops alone was heaviest in south-east Queensland, reaching a peak of 75 500 in December 1943. Camps, airfields, construction and recreational facilities specifically for the US Army were erected in Brisbane during the war.

As with the rest of Brisbane, the coming of the Second World War brought enormous changes to the Bulimba district. The river became an important defence site and industries associated with the war effort were located nearby. As numerous local men and women enlisted in the war effort the area became the base of a variety of Australian and overseas war activities. Australian soldiers were stationed in bunkers and gun emplacements on Bulimba Point protecting the American submarine base at New Farm, the wharves and the city of Brisbane. Anti-aircraft batteries were also located at the rear of Balmoral Cemetery and staffed by WAAAF personnel.

The Apollo Barge Assembly Depot was swiftly built by the United States Forces on land that had been acquired by the Commonwealth of Australia in March 1943. The American military built six large warehouses, one of which was the workshop. Several peripheral buildings, such as accommodation and latrines, were also built on the site but were not retained after the war. As is suggested by the name, the U.S barges were assembled at the Bulimba base. The steel components were shipped in via the Brisbane River and delivered by barge to the assembly depot. In a Memo dated 11 August 1943 from the U.S Army the requirements needed for the establishment of the Assembly Depot were outlined. The cost of the facility, which was termed a priority, was to be £481 400. Facilities to be included were:

- (i) Ship and gun crew training station in conjunction with approved camp site for 1,800 men.
- (ii) Installation and outfitting of 100 refrigeration barges, oil barges and ships repair facilities.
- (iii) Construction of four or more, floating dry docks, 250' to 350' long by 50' to 60' wide, and 12 or more floating work-shops 150' x 30' x 3'
- (iv) Construction of 400 wooden barges, 80x32x8'

The position of the Apollo Barge Assembly Depot was tantamount to its importance as a military vessel supply base. During the Second World War a wide wharf was constructed for the Assembly Depot that allowed an efficient means of distribution. Once assembled, the barges were shipped out as deck cargo to the conflict in the Pacific. Each barge, measuring approximately eighteen metres by eight metres and with two refrigeration units, was designed as a supply vessel that would be deployed into secured

territory in the Pacific region of the war. The workers within the assembly depot were mainly Chinese. Approximately one thousand Chinese workers were housed in the barracks.

With the end of the Second World War in 1945 and the departure of the American Military Forces from Brisbane the Apollo Barge Assembly Depot became the base for the Royal Australian Electrical and Mechanical Engineers. The RAEME, was a division of the Australian Regular Army that were responsible for the maintenance of all land electrical and mechanical equipment. In April 1945 the Quarter-Master General of the Australian Army outlined the agreement with the United States Military relating to the hand over of the Bulimba site. It stated:

At Conference today with Commanding General Base Section USASOS and Brig-Gen Johnson, GPA, an undertaking was given that the US Authorities would release the Bulimba site to the Australian Army as soon as practicable and possibly not later than the beginning of May. The US Authorities will proceed forthwith to clear stores and equipment now held on the site to the open storage area adjacent or in the vicinity of the Chinese Camp.

As well as re-using the already existing military workshops and warehouses on the site, the RAEME moved several buildings from their previous Kangaroo Point site. In October 1946 a training school was established in the army buildings. Later workshops and administration buildings were added as the site grew to be a major base for carpentry, metal fabrication and machining, and electronics manufacturing and repairs for Telecom and some outside businesses.

The most historically significant buildings on the site are those built by the United States Forces on the base during the Second World War.

STATEMENTS OF SIGNIFICANCE

This is a place of local heritage significance and meets one or more of the local heritage criteria under the Heritage Register Planning Scheme Policy of the Brisbane City Plan 2000.

- As a surviving Second World War industrial base established by the United States Military in 1943
 and reflecting the unprecedented military activity along the Brisbane River in this period it is
 important in demonstrating the evolution and pattern of the City's and local area's history;
 and
- 2. as a rare example of a Second World War barge building facility built for the United States Military built at a time of intensive military activity in Brisbane by the United States Military it demonstrates rare, uncommon or endangered aspects of the City's or local area's cultural heritage; and
- 3. as an important surviving United States Military industrial facility for the intensive manufacture of barges it is important in demonstrating a high degree of creative or technological achievement at a particular period.

References:

E. Daniel Potts and Annette Potts, *Yanks Downunder 1941-1945: The American Impact on Australia*, Oxford University Press, Melbourne, 1985.

OZ@War, "Bulimba- Apollo Barge Assembly Depot", P. Dunn

Map, "Army Installations Apollo Road, Bulimba 1945", National Archives

Bulimba Army Barracks, Archival Material, National Archives, Brisbane

Date of Citation: 2009

Author of Citation: Brisbane City Council Heritage Unit

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Note:

This citation has been prepared on the basis of evidence available at the time including an external examination of the building. The statement of significance is a summary of the most culturally important aspects of the property based on the available evidence, and may be re-assessed if further information becomes available. The purpose of this citation is to provide an informed evaluation for heritage registration and information. This does not negate the necessity for a thorough conservation study by a qualified practitioner, before any action is taken which may affect its heritage significance.

Appendix B—Selected Pictorial History



Figure B.1: View of the Candle Works Factory, ca, 1890. (Source: Bulimba District Historical Society records)



Figure B.2: 1893 Flood of the Brisbane River; the partially submerged Candle Works can be seen on the left side of the image. (Source: Bulimba District Historical Society records)



Figure B.3: View from Brisbane Street Bulimba towards the Brisbane River, ca. 1887. This image shows the typical land use of the study area and surrounds during the late nineteenth century. (Source: SLQ Record No 235045)



Figure B.4: View of Bulimba Point, looking south-west down the Brisbane River, c1898. (Source: SLQ Record No 173771)

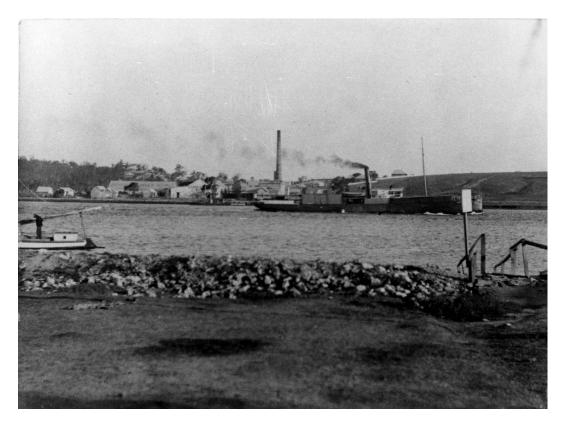


Figure B.5: View towards the J. Kitchen Sons Soap and Candle Works at Bulimba in 1906, viewed from across the Brisbane River at Bretts Wharf Ferry Terminal. (Source: SLQ Record No 157577)



Figure B.6: The J. Kitchen Sons Soap and Candle Works at Bulimba can be seen in the background of this image taken in the 1910s. (Source: BDHA records).

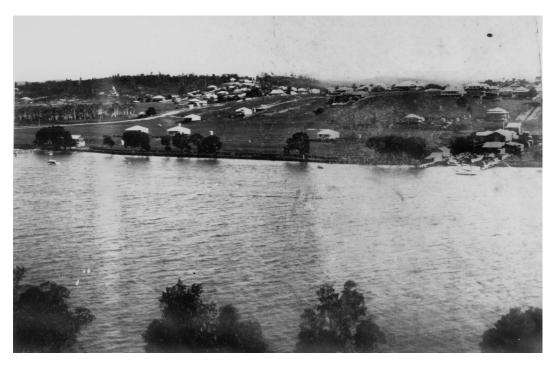


Figure B.7: Looking across the Hamilton Reach of the Brisbane River to Bulimba, c1906. (Source: SLQ Record No 186035)



Figure B.8: Regatta on the Brisbane River at Bulimba c1935. The current site for HMAS *Moreton* can be seen in the mid-right of this image. (Source: SLQ Record No 47888)



Figure B.9: View of Bulimba from Hamilton c1935; the site of the current HMAS *Moreton* is on the right side of this image. (Source: Bulimba District Historical Society records)



Figure B.10: Aerial view 1936. (Source: Qlmagery Film ADA5 Frame 5790 Run 8, 20 April 1936)



Figure B.11: 1942 aerial view of the site. (Source: Oz@War website, Bulimba at War page)



Figure B.12: 1942 image showing the study area on the left side of the image. (Source: Marks & Dunn, undated, Brisbane WW2 v Now, No 6, copy held in the NLA)

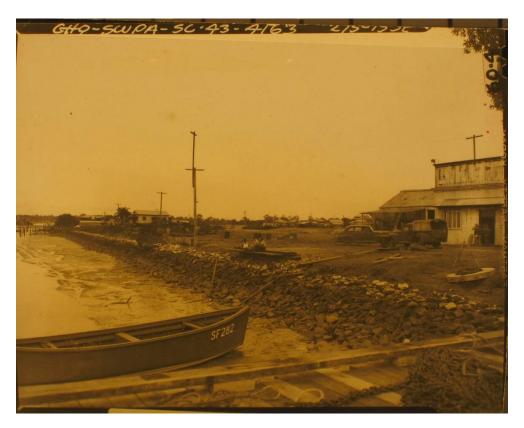


Figure B.13: US 1943 image along the Bulimba shore of the Brisbane River, prior to building removal works. The former J. Kitchen & Sons factory buildings are visible on the right side of the photograph. The rough stone sea wall can be clearly seen. (Source: Bulimba District Historical Society records)



Figure B.14: US 1943 aerial image of Bulimba. Apollo Road with the former J. Kitchen & Sons factory buildings to the left can be seen in the middle of the image. Bulldozing of a small hill and fill of swamp is visible in the middle of the image. (Source: Bulimba District Historical Society records)



Figure B.15: U.S. Army Base at Bulimba Brisbane c1943. (Source: SLQ Record No 182187)



Figure B.16: Shed construction in progress in 1943. (Source: Oz@War website, Bulimba at war page)



Figure B.17: US Army Base at Bulimba during World War II. (Source: SLQ Record No 184491)



Figure B.18: Chinese labour force accommodation under construction. (Source: Oz@War website, Bulimba at War page)



Figure B.19: Chinese labour force accommodation barracks at Bulimba during WWII. (Source: SLQ Record No 78647)



Figure B.20: Chinese workmen employed by the US Army lay the bottom plates of a kit form riveted barge at the Bulimba Ship Yards, Brisbane, 16 June 1944. The major parts of the barges, if not all materials, were factory cut to size and shipped from the US. These barges were crucial to the logistics of supply in the island campaigns of the Southwest Pacific. (Source: Marks & Dunn, undated, Brisbane WW2 v Now, No 7, copy held in the NLA)



Figure B.21: Chinese workmen employed by the US Army prefabricate the sides for a kit form riveted barge 102 foot 4 inches at the Bulimba Ship Yards, Brisbane, 16 June 1944. Some work was indoors, but outside night lighting was used for shift work. (Source: Marks & Dunn, undated, Brisbane WW2 v Now, No 7, copy held in the NLA)



Figure B.22: Newly constructed barge, kit form riveted type, 102 feet 4 inches, slides off the ways at Bulimba Ship Yards, Brisbane, 16 June 1944. (Source: Marks & Dunn, undated, Brisbane WW2 v Now, No 7, copy held in the NLA)

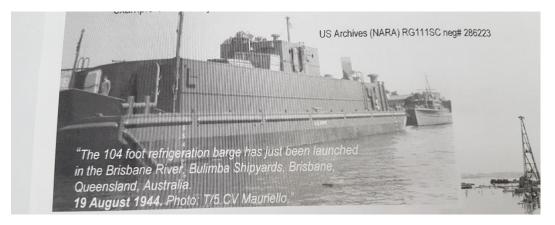


Figure B.23: A recently launched barge at Bulimba. (Source: Marks & Dunn, undated, Brisbane WW2 v Now, No 7, copy held in the NLA)



Figure B.24: Launching of US Army combat unloading barge at the small shipyards, Bulimba Point, Brisbane, 28 January 1944. This barge, the first to be launched, was built by US Army Engineers, it was to be used in combat areas to unload cargo where dock facilities were not available and shallow waters needed to be negotiated. (Source: Marks & Dunn, undated, Brisbane WW2 v Now, No 7, copy held in the NLA)

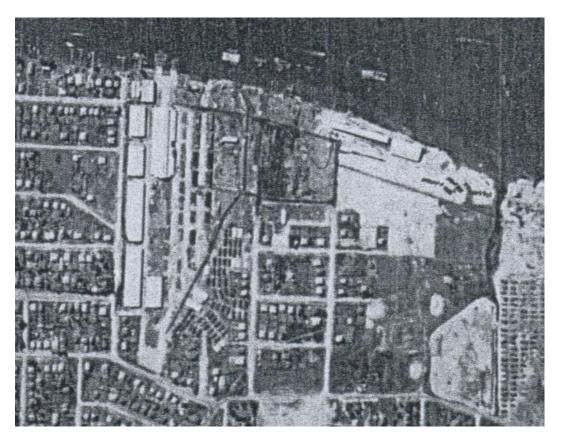


Figure B.25: Aerial view of the Depot site in May 1944. Asset A002 has been constructed by this stage. (Source: Qld Department of Natural Resources and Mines, Film RAAFO, Run 6, Frame 16, 9542 Brisbane Area 44 Project, 1 May 1944)



Figure B.26: U.S. Army Base at Bulimba, Brisbane 1943- 1945. (Source: SLQ Record No 185555)

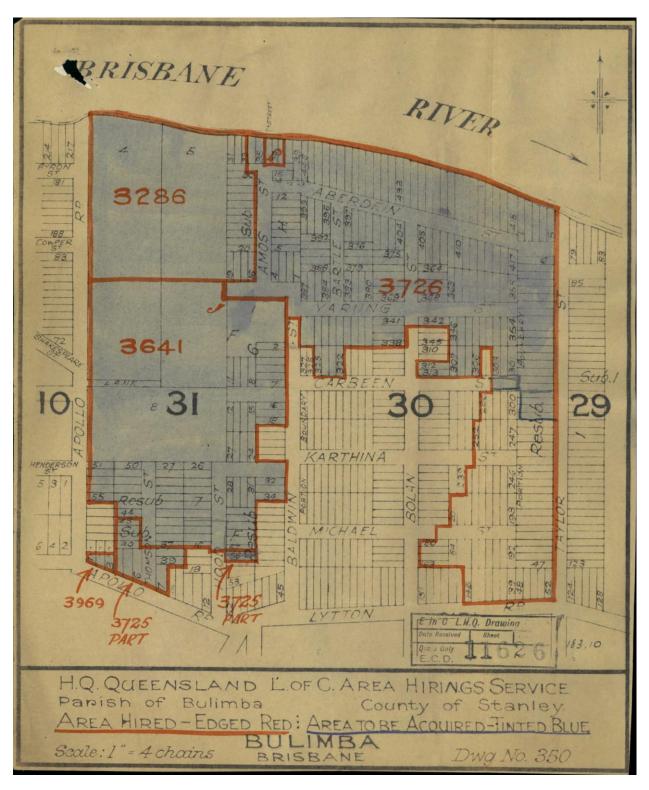


Figure B.27: Preliminary acquisition and hired area plan for Bulimba, c1943-45. (Source: NAA Series J56 Control Symbol QL631, Part 1A, page 251)

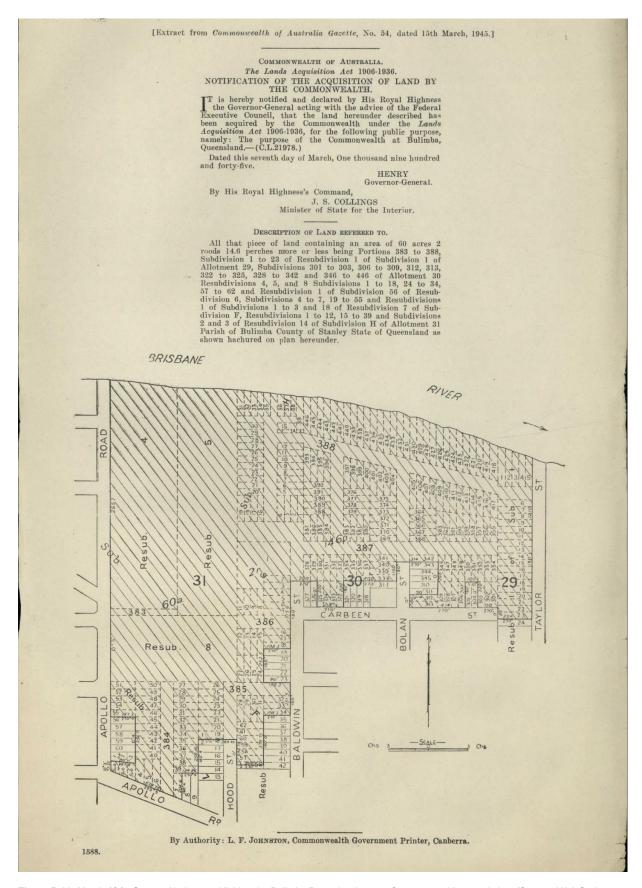


Figure B.28: March 1945 Gazette Notice establishing the Bulimba Barracks site as a Commonwealth owned site. (Source: NAA Series J56 Control Symbol QL631, Part 1A, page 60)



Figure B.29: Aerial view of the site in 1946. Asset A002 can be seen to the top right of this image. (Source: QImagery Film BCC2 Frame 34735 Run 9B 31 May 1946)

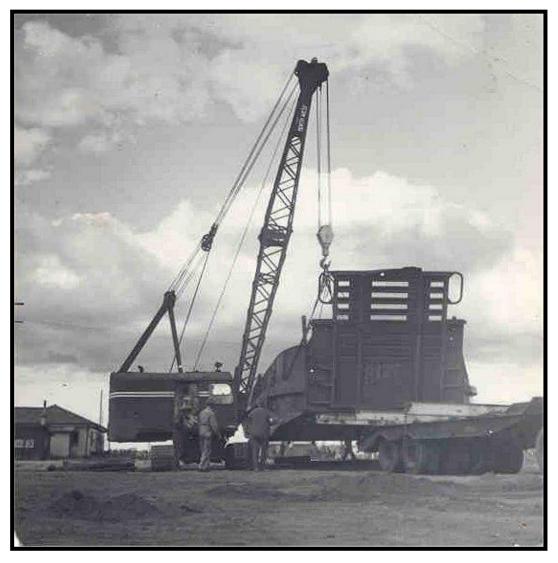


Figure B.30: Dry storage of landing barges at Bulimba in 1946. The RAEME were refurbishing and rebuilding equipment returned after the war during this time. (Source: Oz@War website, Bulimba at War page and the Bulimba District Historical Society records)



Figure B.31: Aerial view 1951. (Source: Qlmagery Film BCC4 Frame 39337 Run 8, 23 August 1951)

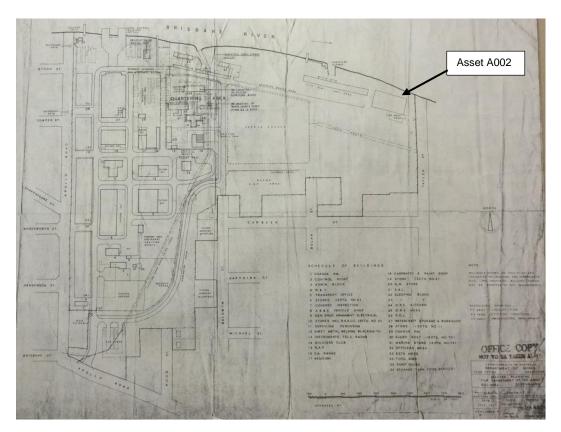


Figure B.32: 1957 Site Plan. (Source: Bulimba District Historical Society records)

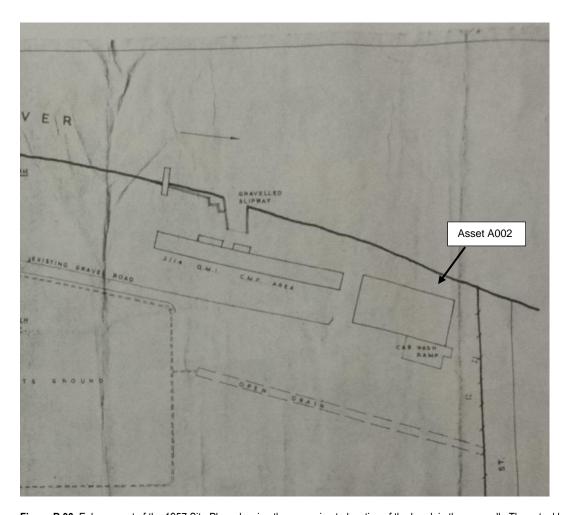


Figure B.33: Enlargement of the 1957 Site Plan, showing the approximate location of the break in the sea wall. The actual location is further to the east, between Asset A002 and the building that has since been removed. (Source: Bulimba District Historical Society records)



Figure B.34: 1958 aerial view of the site. Work on the sea wall on the western end of Bulimba Barracks can be seen. (Source: Qlmagery Film QAP768 Frame 90 Run 6, 1 May 1958)



Figure B.35: 1964 aerial view of the site. The sea wall is recently completed. (Source: QImagery Film QAP1592 Frame 6776 Run 17, 1 August 1964)



Figure B.36: 1971 aerial view of the site. (Note: this image has been rotated to align with north point, consistent with other imagery) (Source: Qlmagery Film QAP2379 Frame 7 Run 1, 18 September 1971)



Figure B.37: Storm damage to A002 in 1973. Warehouse 5 adjacent to A002 can be seen in this image. (Source: Bulimba District Historical Society records)



Figure B.38: Interior view of A002 1970s. (Source: Bulimba District Historical Society records)



Figure B.39: Interior view of A002 1970s. (Source: Bulimba District Historical Society records)



Figure B.40: January 1974 Floods. (Source: Qlmagery Film QAP2758 Frame 291 Run 9, 29 January 1974)



Figure B.41: 1980 aerial view of the site. (Source: Qlmagery Film QAP3717 Frame 2191 Run18A, 15 May 1980)



Figure B.42: 1986 aerial view of the site. The initial jetty can be seen on the river front adjacent to Asset A002. (Source: Qlmagery Film QAP4535 Frame 146 Run 3, 27 May 1986)



Figure B.43: 1991 aerial view of the site. The jetty has been expanded by this time. Three new accommodation buildings have been constructed to the south-west of Asset A002. (Source: Qlmagery Film QAP4951 Frame 76 Run 13, 1 June 1991)



Figure B.44: 2000 aerial view of the site. The asset that was located on the western side of A002 has been removed by this time. (Source: Qlmagery Film QAP5738 Frame 142 Run 1, 20 April 2000)



Figure B.45: 2004 aerial view of the site. (Source: Qlmagery Film QAP6078 Frame 16 Run 101, 13 June 2004)



Figure B.46: 2008 aerial view of the site. (Source: Aurecon)



Figure B.47: 2015 aerial view of the site. The storm damage to the roof of A002 is evident in this image. (Source: Google Earth)