



Port Botany Quayline Equalisation Project: Maritime Archaeological Assessment

Report prepared for Port Botany Operations Pty Ltd as Trustee for
Port Botany Unit Trust (NSW Ports)
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Executive Summary

MTS Heritage Pty Ltd (MTS Heritage) has been engaged by Port Botany Operations Pty Limited as trustee for Port Botany Unit Trust (referred herein as NSW Ports) to prepare a maritime archaeological assessment (MAA) to assess the proposed expansion of the operational quayline length between the three container stevedore companies operating at Port Botany (the Project).

The Project would involve two principal components:

- Construction of an extended quayline (BD12) on the southern side of Brotherson Dock, including dredging of the Brotherson Dock channel and berths to provide material for reclamation of land. This would provide:
 - Extension of the southern side of the Brotherson Dock quayline by around 314 metres to provide a combined quayline length on the southern side of Brotherson Dock of around 1,250 metres to accommodate up to three longer container vessels, commensurate with the quayline length available to stevedore operators in other parts of the port.
 - An additional 5.3 hectares of wharf area (wharf hardstand)
- Consequential changes to the bulk liquids berths at the port, including demolition of the existing Bulk Liquids Berth 1 (BLB1), construction and operation of a new Bulk Liquids Berth (BLB3) in a more southerly location, and associated changes to pipework and bulk liquids handling infrastructure within the port. The types and volumes of bulk liquids would remain unchanged.

Historical research undertaken for the project has identified that the original shoreline in this section of Botany Bay was located approximately 400m to the north. Early market gardens and noxious industries were present on the foreshore of Botany Bay from the early half of the 19th century. It was not until the construction of the Australian Paper Mill site in 1901 that a maritime infrastructure site was located close to the Project area. The paper mill wharf extended into what is now the northeast corner of the Brotherson Dock, and the wharf was removed from the site by 1978 for the construction of the dock. There are not expected to be any maritime archaeological remains associated with this former wharf within the project area due to extensive dredging that has occurred.

The construction of the Port Botany site between 1976 and 1982 included extensive reclamation works, with the reclamation material coming from dredging within Brotherson Dock and the greater swing basin area. Design plans for the construction of the new dock show that it was dredged by approximately 3m.

A review of the MBES and SSS data collected for the Project and previously Port Authority surveys of the greater dock area did not identify any known maritime archaeological sites or relics within the proposed Brotherson Dock area. A review of the Port Authority MBES data along the southern part of the Project area between BLB1 and the current Tugboat jetty where the new BLB3 would be constructed did not identify any potential maritime archaeological or other underwater cultural heritage objects or sites.

An anomaly identified in the SSS and MBES data collected by WSP for the Project, known as Contact 0001, is located approximately 50m to the north from the proposed quayline extension area. A review of this data and survey data collected by Port Authority of the wider Project area indicates Contact 0001 is highly likely to be a seabed topographic feature and is highly unlikely to be a shipwreck or other maritime archaeological site.



Based on the historical research, review of geophysical data and an understanding of the proposed impacts from the development, the following conclusion and recommendations for the Project have been provided:

- The proposed expansion of Port Botany, including the removal of existing BLB1 and Tugboat jetty, construction of BLB3, dredging of Brotherson Dock and the reclamation and expansion of the quayline, is unlikely to impact on any known or potential maritime archaeological sites or deposits within or adjacent to the Project area.
- Whilst unlikely to be a shipwreck or other maritime archaeological site, as a precaution, a construction exclusion zone should be established around Contact 001. No anchoring or mooring of vessels should occur within a 5m radius around the site.
- In the event that an unexpected maritime archaeological find is discovered during construction works, the Maritime Archaeological Unexpected Finds Protocol included as Annexure C of this report should be followed.



1 Introduction

1.1 Project background

MTS Heritage Pty Ltd (MTS Heritage) has been engaged by Port Botany Operations Pty Limited as trustee for Port Botany Unit Trust (referred herein as NSW Ports) to prepare a maritime archaeological assessment (MAA) to assess a proposal to undertake works to provide comparable operational quayline length between the three container stevedore companies operating at Port Botany (the Project).

The Project would involve two principal components:

- Construction of an extended quayline (BD12) on the southern side of Brotherson Dock, including dredging of the Brotherson Dock channel and berths to provide material for reclamation of land. This would provide:
 - Extension of the southern side of the Brotherson Dock quayline by around 314 metres to provide a combined quayline length on the southern side of Brotherson Dock of around 1,250 metres to accommodate up to three longer container vessels, commensurate with the quayline length available to stevedore operators in other parts of the port.
 - An additional 5.3 hectares of wharf area (wharf hardstand)
- Consequential changes to the bulk liquids berths at the port, including demolition of the existing Bulk Liquids Berth 1 (BLB1), construction and operation of a new Bulk Liquids Berth (BLB3) in a more southerly location, and associated changes to pipework and bulk liquids handling infrastructure within the port. The types and volumes of bulk liquids would remain unchanged.

Further details of the Project are provided in Section 6 of this report.

A scoping report prepared by AECOM (AECOM 2025a) included a Chapter for Non-Aboriginal Heritage (Chapter 6.2.11) that outlined the key findings from Commonwealth and State heritage database searches, including the NSW Maritime Heritage Database. The chapter concluded that:

“it is not expected that works would directly impact on any recorded non-Aboriginal heritage items within the Port Botany Site boundary or broader vicinity” (AECOM 2025a: 51).

and

“As no impacts to non-Aboriginal heritage are anticipated during construction and operation of the Project, a desktop assessment would be completed in a chapter of the EIS.” (AECOM 2025a: 51).

The Project has been declared to be State Significant Infrastructure (SSI) (SSI- 79878464). As a result, the Project requires the approval of the NSW Minister for Planning under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). Planning Secretary’s Environmental Assessment Requirements (SEAR’s) were issued for the Project in March 2025 and included the requirements for Heritage. Desired Performance Outcome 13 of the issued SEARs recommended that an

“Environmental Heritage Assessment [EIS] as outlined in Section 6.2.11 of the Scoping Report”

An Environmental Impact Statement (EIS) was prepared by AECOM (2025b) that included a chapter specifically relating to Non-Aboriginal Heritage (Chapter 16.2). The EIS concluded that construction of



the Project is “...highly unlikely to have directly impact a heritage item, place or conservation area” and ‘Operation of the Project would not directly affect non-Aboriginal heritage’. The EIS recommended that an unexpected finds procedure should be prepared (AECOM 2025b: 16-9 to 16-11).

After the preparation and exhibition of the EIS, Heritage NSW’s Submission on the EIS (15 October 2025) responded with the following requirement:

“...a maritime archaeological assessment be undertaken to assess the potential for heritage items/UCH within the Project Area.”

The MAA should be prepared by a qualified maritime archaeologist and include:

- a) An investigation of the areas past use and potential maritime archaeological, including UCH such as historic shipwrecks, historic aircraft, historic maritime infrastructure and submerged Indigenous heritage items, and whether these sites may have been buried by landfill reclamation or progradation*
- b) Consultation and summary of relevant statutory databases, including Commonwealth and State maritime and UCH databases, local heritage databases, s170 registers and the AHIMS database*
- c) Consideration of results from visual inspections of the waterway bed to identify any previously unrecorded maritime archaeological sites, relics, or artefacts, using divers and/or remote sensing equipment such as sidescan sonar, magnetometer, or remotely operated vehicles. (Heritage NSW 2025)*

NSW Ports and AECOM prepared a response to the submission with additional information (AECOM 2025c). The response included a summary of previous heritage work, historical dredging of the area and summary results of the underwater survey undertaken for the Project. The AECOM responses concluded that

Based on all available information it is considered unlikely that UCH is present within the Project Area or that the Project would impact any item of UCH or maritime archaeological material. Accordingly, a formal maritime archaeological assessment is not considered warranted for the Project. (AECOM 2025c: 3-9).

A second response was received from Heritage NSW (23 January 2026) following the presentation of this additional information. This response noted that:

...the SEARs regarding Environmental Heritage, specifically maritime archaeology, has not been met. As per our letter of advice dated 19 September 2025 (HMS 11874), Heritage NSW recommend that a Maritime Archaeological Assessment (MAA) is prepared for the project by a suitably qualified and experienced maritime archaeologist. (Heritage NSW 2026).

As there are proposed impacts to the seabed from the Project, it has been recommended that a desktop Maritime Archaeological Assessment should be prepared for the Project to identify and assess any impacts to known and potential maritime archaeological remains that may be present.

The following MAA outlines known and potential maritime archaeological relics within and immediately around the Project area. The report follows the *Archaeological Assessment Guidelines* (Heritage Office, Department of Urban Affairs and Planning, 1996). It includes a significance assessment of potential maritime archaeological relics and presents conclusions and recommendations to avoid and/or mitigate impacts.



1.2 Project location

The Project is located in Port Botany, approximately 6.5 kilometres south of Sydney's Central Business District and around one kilometre south east of Sydney Kingsford Smith Airport. The Project Area lies within Port Botany's existing heavy industrial setting, at Brotherson Dock (Figure 1.1).

The Project would be located on land within the Port Botany Lease Area, Port Botany, more specifically within Lot 3 DP 1165618; Lot 50 and Lot 52 DP1182618; Lot 21 DP 1126332; and Lot 200 DP 1183399. The majority of the Project is located at Brotherson Dock at the following address, 36-42 Friendship Road Port Botany.

Dredging activities would be undertaken within Brotherson Dock.

The Project area for this MAA is the proposed dredging area in Brotherson Dock, the proposed extension area of Brotherson Dock, on the southern side of the existing dock, demolition and removal of the existing BLB 1, construction and operation of a new BLB3 in a more southerly location and the demolition and removal of the Tugboat jetty south of BLB3 (Figure 1.2).

1.3 Objective

This MAA concentrates on the maritime archaeological potential of the Project area of Botany Bay and Brotherson Dock and provides an assessment of the potential impacts of the Project, including dredging operations and the removal and construction of a BLB jetty, on any identified known and potential maritime archaeological remains.

There are 22 shipwrecks that have been wrecked either inside or on approach to Botany Bay. Detailed investigation of that data identified two possible wrecks that have been lost either in the general area of the Project area, or, lost within Botany Bay with no known general location information.

Both of these wrecks are discussed in further detail in Section 5.1 and in Section 6.3 of this report.

1.4 Scope

Preparation of this MAA involved the following tasks:

- A detailed review of relevant historical and maritime archaeological assessments undertaken in Botany Bay, specifically in the Project area, previous heritage studies, heritage listings and relevant management plans;
- Targeted historical research to better understand the known and potential maritime archaeological resource at the subject site, including former wharves, shipwrecks, the current port facilities, and the maritime archaeological potential;
- Review of current and historical geophysical data, including Multibeam Echosounder (MBES) and Side Scan Sonar (SSS) survey data for the Project area;
- Mapping of known and potential maritime archaeological sites based on the findings of the previous assessment from historical plans; and
- Preparation of a MAA report that provides:
 - A significance assessment of known and potential maritime archaeological relics within the subject site;
 - An impact assessment on the proposed Project, including dredging, reclamation works and the removal and construction of new maritime structures; and



- Mitigation measures to assist the project to avoid and/or mitigate impacts to known and potential maritime archaeological relics identified within, or near, the Project area.

1.5 Report outline

The following report includes:

- legislative background (Section 2)
- a detailed history of the Project area and its immediate surrounds (Section 3);
- a review of relevant environmental and other studies relevant to this assessment and relevant previous heritage assessments (Section 4);
- assessment of archaeological potential (Section 5);
- an assessment of the potential impact of proposed works on identified heritage items (Section 6); and
- conclusions and recommendations (Section 7).

1.6 Authorship and acknowledgements

This report has been prepared by Chris Lewczak (Principal Maritime Archaeologist, MTS Heritage), with historical research conducted by Emily Pickering (Archaeologist, MTS Heritage). Fiona Leslie (Principal Heritage Consultant, MTS Heritage) has reviewed the draft report.

We would like to acknowledge the assistance kindly provided by Chris Gorman (Planning Manager, Port Botany Quayline Equalisation Project) and the support from Port Authority of NSW.



Figure 1.1: General location of Port Botany, NSW



- Legend**
- Project Area
 - Port Botany

0 1 2 3 4 5 6 7 8 9 10 km

A graphical scale bar showing distances from 0 to 10 kilometers.

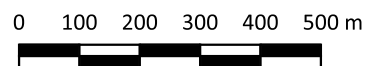
Map Source: Google Maps



Legend

- Project Area
- Construction Impact Area

Figure 1.2: Location of the Project area at Port Botany, Botany Bay, NSW





2 Legislative context

This section provides a summary of environmental and heritage legislation relevant to the Project.

2.1 State legislation

Environmental Planning & Assessment Act 1979 (EP&A Act)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) provides the framework for environmental planning and assessment in NSW. It includes a requirement for impacts, or likely impacts, on historical heritage to be assessed as part of a project's environmental approval, and for Local Government Areas (LGAs) to prepare Local Environment Plans (LEPs) and Development Control Plans (DCPs) to provide guidance on the level of environmental assessment required.

NSW Ports is seeking approval to carry out the Project under Division 5.2, Part 5 of the *EP&A Act*. Under Clause 5.15 and 5.16, the Project must:

- Prepare an EIS to satisfy the Secretary's Environment Assessment Requirements (SEARs).
- Publish the EIS and invitation for interested parties to make a submission on the Project (section 5.17).
- If required by the Secretary, prepare a response to issues raised in submissions, and if required, a preferred infrastructure report (section 5.17).
- Prepare an environmental assessment report on the Project by the Secretary, for consideration by the Minister in determining the Application (section 5.18).

The preparation of this MAA has been requested by Heritage NSW through the initial Submissions process during the EIS consultation period. The MAA will determine the potential impact of the extension, including dredging, removal of the existing wharves and construction of new wharves, on heritage items identified within the subject site in accordance with the provisions of the EP&A Act.

2.2 State Environmental Planning Policy (Transport and Infrastructure) 2021

The Project would be carried out entirely within the Port Botany Lease Area as regulated under Chapter 5 (Three ports – Port Botany, Port Kembla and Port of Newcastle) under *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP). The Transport and Infrastructure SEPP aims to facilitate the effective delivery of infrastructure across NSW by:

- (a) improving regulatory certainty and efficiency through a consistent planning regime for infrastructure and the provision of services, and*
- (b) providing greater flexibility in the location of infrastructure and service facilities, and*
- (c) allowing for the efficient development, redevelopment or disposal of surplus government owned land, and*
- (d) identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development), and*
- (e) identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and*
- (f) providing for consultation with relevant public authorities about certain development during the assessment process or prior to development commencing, and*



(g) providing opportunities for infrastructure to demonstrate good design outcomes.

(Transport and Infrastructure SEPP, Part 2.1)

The proposed works associated with the Project are considered development directly related to an existing port facility (i.e., Port Botany) being undertaken by or on behalf of a Port Authority and, as such, development permitted without consent.

Under Section 2.11 of the SEPP, consultation with councils is only required if the impact on local heritage is *'more than minor or inconsequential'*.

The subject site does not include any local heritage items.

2.3 Heritage Act of New South Wales (NSW) 1977

The *Heritage Act 1977* (Heritage Act) is a statutory tool designed to conserve environmental heritage in NSW. It is used to regulate development impacts on the State's historical heritage assets. The Act defines a heritage item as *'a place, building, work, relic, moveable object or precinct'*.

To assist management of the State's heritage assets, the Act distinguishes between items of Local and State heritage significance.

'Local heritage significance', in relation to a place, building, work, relic, moveable object or precinct means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item'

'State heritage significance', in relation to a place, building, work, relic, moveable object or precinct means significance to the State in relation to the historical scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item'.

As outlined in the following subsections, different parts of the Heritage Act are designed to protect and conserve heritage items.

State Heritage Register

Under Part 3A of the Heritage Act, the NSW Heritage Council is required to maintain a State Heritage Register (SHR). This register lists items of State heritage significance, as determined by the Heritage Council and/or the Minister. To list an item on the SHR, the Heritage Council must consider that the item satisfies more than one of the heritage assessment criteria in Section 4A of the Act.

Listing on the SHR controls activities such as alteration, damage, demolition and development. When a place is listed on the SHR, the approval of the Heritage Council of NSW is required for any major work. Part 4, Section 57(1) of the Heritage Act identifies works for which Heritage Council approval is required. These include:

- a) demolition of the building or work
- b) damaging or despoiling the place, precinct or land, or any part of the place, precinct or land.
- c) Moving, damaging or destroying the relic or moveable object.
- d) Excavating of any land for the purpose of exposing or moving the relic.
- e) Carrying out any development in relation to the land on which the building work or relic is situated, the land that comprises the place, or land within the precinct.
- f) Altering the building, work, relic or moveable object.
- g) Displaying any notice or advertisement on the place, building, work, relic, moveable object or land, or in the precinct.



- h) Damaging or destroying any tree or other vegetation on or removing any tree or other vegetation from the place, precinct or land.

The subject site is not listed on the NSW SHR.

Archaeological relics

Archaeological 'relics' are defined by the Heritage Act as:

'any deposit, artefact, object or material evidence that: (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and (b) is of State or local heritage significance'

Part 6 Division 9 of the Heritage Act protects archaeological relics from being 'exposed, moved, damaged or destroyed' by the disturbance or excavation of land. This protection extends to the situation where a person has 'reasonable cause to suspect' that archaeological remains may be affected by the disturbance or excavation of the land. It applies to all land in NSW that is not included in the SHR.

Section 139 of the Act requires any person who knows, or has reasonable cause to suspect, that their proposed works will expose or disturb a 'relic' to first obtain an Excavation Permit from the Heritage Council of NSW (pursuant to section 140), unless there is an applicable exception (pursuant to Section 139(4)).

Section 146 of the Act requires any person who is aware or believes that they have discovered or located a relic must notify the Heritage Council of NSW providing details of the location and other information required.

It is one of the objectives of this report to determine if the construction of the project could affect any potential maritime archaeological relics within the subject site.

Protection of historic shipwrecks

Part 3C of the Heritage Act relates to the protection of shipwrecks within State waters. The Act defines an historic shipwreck as the remains of any ship that have been situated in State waters for 75 years or more, or that are the subject of a historic shipwrecks' protection order. Historic shipwrecks are protected under the Heritage Act and a Register of Shipwrecks is kept by the Heritage Council. It is noted that items not listed on the Register may still be protected under the relics provisions of the Heritage Act (see 'Archaeological Relics').

The protection afforded under the Heritage Act also extends to articles associated with a shipwreck including articles that formed part of, or had been installed on, or carried in, the ship, or constructed or used by a person associated with the ship.

Part 3C of the Act applies to shipwrecks and associated articles within State waters that are not the subject of an IHO or included, or within an area included, on the SHR. Under the Act, it is an offence to "move, damage or destroy" a shipwreck in NSW unless in accordance with a permit.

The Heritage Council of NSW is required to maintain a Register of Shipwrecks. This register contains particulars of each historic shipwreck protected, or afforded protection by the Minister.

NSW Historic Shipwreck Register

The NSW Historic Shipwreck Register is a database maintained by Heritage NSW and contains upwards of 1,800 wrecks. This database has been built on historical accounts of the loss of vessels, mainly through the systematic examination of newspapers from the 1790s to the present day. The



database has been augmented by other sources such as archival information from the Australian Hydrographic Office.

The database has been searched to locate any known or potential shipwrecks that have occurred specifically in Botany Bay. These extended areas have been searched for registered shipwrecks that may have gone missing on route to or from these locations and have the potential to be located within Botany Bay.

Based on the results of the database searches, two recorded shipwrecks are listed as lost in Botany Bay that may be within the Project area. These are:

- *Prompt*, was washed ashore near Government Jetty in 1881.
- *Minnie Wamsley* was lost in 1903 in Botany Bay in a storm with no other location details.

These are described in further detail in the following subsection.

Section 170 Heritage and Conservation Registers

Government agencies have responsibilities to manage their heritage assets under Section 170 of the Heritage Act. Section 170 requires agencies to identify, conserve and manage heritage assets owned, occupied or managed by that agency. Section 170 requires government agencies to keep a Register of heritage items, which is called a Heritage and Conservation Register or more commonly, a s170 Register.

The Heritage Act obliges government agencies to maintain their assets with due diligence in accordance with State-Owned Heritage Management Principles approved by the Minister on the advice of the Heritage Council and notified by the Minister to government instrumentalities from time to time. Heritage asset management guidelines for the management of State-owned heritage assets have been published by the NSW Heritage Office under s170 of the Act (DCCEEW, 2025).

A search of the Heritage NSW State Heritage Inventory (SHI) and relevant agency S.170 Registers has been conducted for this Project and the results detailed in Section 2.2.2.

Randwick City Council Local Environmental Plan 2012

Part of the Project area is located within the Randwick City Council Local Government Area (LGA).

Part 5, Section 5.10 of the *Randwick City Council Local Environmental Plan (LEP) 2012* addresses heritage conservation within the area covered by the LEP. All heritage items listed on the LEP are included in Schedule 5. The results of a search of this schedule are listed in Section 2.2 below.

Bayside Local Environmental Plan 2021

Part of the Project area is located within the Bayside Local Government Area (LGA).

Part 5, Section 5.10 of the *Bayside Local Environmental Plan (LEP) 2021* addresses heritage conservation within the area covered by the LEP. All heritage items listed on the LEP are included in Schedule 5. The results of a search of this schedule is listed in Section 2.2 below.

2.4 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) includes 'national heritage' as a matter of National Environmental Significance (NES) and protects listed places to the fullest extent under the Constitution. Working with the states and territories, it enables the Australian Government to provide a national scheme of environment and heritage protection and biodiversity conservation. It also establishes the World Heritage List (WHL), National Heritage List (NHL) and the Commonwealth Heritage List (CHL).



In addition, the EPBC Act is the statutory instrument for Australia to fulfill its obligations under multilateral environmental agreements, including the World Heritage Convention. The act is triggered by development or actions that pose a significant threat on matters of NES, including world heritage areas and national heritage sites and nationally threatened species and ecological communities. The Act outlines a process of assessment for proposed action that have, or will have, a significant impact on matters of NES. If such an action is identified, it requires referral and approval from the Minister for Environment and Water.

A referral must be made for actions that are likely to have a significant impact on the following matters protected under Part 3 of the EPBC Act:

- World Heritage properties;
- National Heritage places;
- Wetlands of international importance; and
- Listed threatened species and communities.

An action that needs approval under the EPBC Act is known as a 'controlled action'.

A significant impact is regarded as being:

Important, notable or of consequence, having regard to its context or intensity and depends upon the sensitivity, value and quality of the environment which is impacted and upon the duration, magnitude and geographic extent of the impacts. A significant impact is likely when it is real and not a remote chance or possibility. (EPBC Policy Statement).

As outlined in the NES Significant Impact Guidelines:

An action is likely to have a significant impact on the World Heritage Values of a declared World Heritage property if there is a real chance or possibility that it will cause:

*One or more of the World Heritage values to be lost
One or more of the World Heritage values to be degraded or damaged, or
One or more of the World Heritage values to be notably altered, modified, obscured or diminished. (Department of the Environment, 2013: 16)*

The same applies for places of National Heritage value, listed on the National Heritage List.

The requirement for referral is subject to self-assessment with the onus on the Proponent to make the application and not the Council or other consent authorities. Subsequent penalties apply for taking such an action without approval.

2.5 Heritage database searches

Heritage items and places are recorded on statutory and non-statutory registers held at the Commonwealth, State and local level, depending on their level of significance. Commonwealth managed heritage includes the National Heritage List (NHL) and the Commonwealth Heritage List (CHL), both administered by the EPBC Act. Items on NHL and CHL, as well as World Heritage items in Australia, are recorded on the Australian Heritage Database, currently administered by the DCCEEW.

State heritage places and items are registered on the SHR. The SHR is a searchable online database that records all State heritage items and places and their curtilages. Associated with the SHR is the State Heritage Inventory (SHI), an online database that records some local heritage items and items owned by State statutory authorities. Section 170 of the *Heritage Act 1977* requires all statutory authorities to advise OEH of their heritage assets for recording on the SHI. Items of local heritage significance are recorded in Local Environmental Plans (LEP) for the relevant LGA.



Each SEPP area has its own designated legislation that includes known heritage items within the land which the specific SEPP relates to. These are included in heritage maps associated with *State Environmental Planning Policy (Transport and Infrastructure) 2021*.

The Maritime Heritage Database is also administered under the *Heritage Act 1977* and contains the information about shipwrecks, submerged aircraft, other maritime underwater cultural heritage sites and relics protected in NSW waters.

The following summarises the results of heritage register searches conducted on 1 March 2026.

Australian Heritage Database Search

A search of the Australian Heritage Database, which includes heritage places listed on the WHL, NHL and CHL. The Project area is not listed on the WHL, NHL or CHL. There are no listings located adjacent to the Project Site. As the Project would not have an impact on any national heritage listed places, no referral to the Minister for the Environment and Water under the EPBC Act is required.

NSW State Heritage Register

A search of the NSW Heritage Inventory, which includes items listed on the SHR and SHI, indicates there are no heritage items listed on the SHR or on either the Randwick City Council or Bayside Council LEPs.

The closest heritage item is the Gooriwal (Frenchmans Bay and Yarra Bay) Cultural Landscape, listed on the SHR for its historic, associative, social, research potential, and rarity values. It is the place of some of the earliest moments in the shared history of Aboriginal and European Australia. This site is located approximately 1km to the east of the Project area (Figure 2.1).

NSW Maritime Heritage Database

The NSW Historic Shipwreck Register is a database maintained by the NSW Heritage Division and contains upwards of 1,800 wrecks. This database has been developed from historical accounts of the loss of vessels, mainly through the systematic examination of newspapers from the 1790s to the present day. The database has been augmented by other sources such as archival information from the Australian Hydrographic Office.

The database has been searched to locate any known or potential shipwrecks that have occurred in Botany Bay. The database was searched using the terms “Botany Bay”, Frenchmans Beach, Yarra Bay and “Port Botany”. The search results returned a total of 32 sites from the database. A review of each of these shipwrecks on the database removed shipwrecks that are listed as “lost outside” or “off” Botany Bay as these were wrecked outside the bay. Other shipwrecks that have been located or lost elsewhere around the bay have also been removed from the list of possible shipwrecks lost in or immediately surrounding the Project area.

There are 9 shipwrecks listed lost or potentially lost in the north and northeast area of Botany Bay. Of these 9, 7 are listed as lost around known headlands and beach areas outside of the Project area and have been removed from this assessment. The remaining two are described below and the database records have been added to Annexure A and B to this report.

- *Prompt*, was washed ashore near Government Jetty in 1881. The exact location of the wreck site was not known, and in addition to this, it is not clear if the wreck may have been refloated or salvaged. If driven ashore near the former Government Wharf, the site would have been located greater than 500m away to the northeast of the Project area, now possibly under the reclamation fill associated with the 1970s Brotherson Dock construction or subsequent 2004 expansion of Port Botany.



- *Minnie Wamsley* (1903) was constructed at Balmain in 1884. The vessel was a 14m timber hulled single screwed schooner. The vessel was wrecked in a gale in Botany Bay. The exact location of this wreck is unknown.

Table 2.1: Summary of maritime heritage register searches for the Project area.

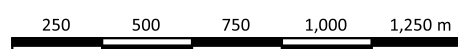
Heritage Listing	Listing Name	Listing No	Date Listed or Inscribed	Listed within / directly adjacent to the subject site
Statutory Listings				
UNESCO World Heritage List	Nil			
Commonwealth Heritage List	Nil			
NSW State Heritage Register	Gooriwal (Frenchmans Bay and Yarra Bay) Cultural Landscape	SHR#02090	28/06/2024	The curtilage is located approximately 1km to the east of the Project area.
Port Authority of NSW S170 Heritage and Conservation Register	Port Botany Old Government Wharf Remains	4560021	1/07/2004	Maritime archaeological site is located greater than 800m to the northwest of the Project Area.
	Port Botany Revetment Wall	4560022	1/07/2004	This site was removed from Port Authority's S170 in May 2023.
Randwick LEP Local Environmental Plan 2012	NIL			
Bayside Local Environmental Plan 2021	NIL			
NSW Maritime Heritage Database	Port Botany Maritime Heritage Site	ID#2075		Related to the seabed and original foreshore of Port Botany and is adjacent to the Project area
	<i>Minnie Wamsley</i>	ID#828		Lost in Botany Bay, potentially in the Project area
	<i>Prompt</i>	ID#646		Washed ashore near Government Jetty, probable location greater than 500m to the northeast of the Project area.



Legend

- Project Area
- ▨ Gooriwal (Frenchmans Bay and Yarra Bay)
Cultural Landscape (SHR Curtilage)
- Port Botany Old Government Wharf Remains

Figure 2.1: Listed Maritime Heritage items within, and in the vicinity of, the Project area





3 Site History

An understanding of the historical development of the Project area is needed to understand its maritime archaeological potential. This includes the potential for remains associated with wharves, shipping and shipwrecks; but also, the potential for relics and other material deposited on the seabed. Understanding the sequence of maritime infrastructure development and its use is crucial in assessing the maritime archaeological potential of a site.

3.1 Traditional Custodians

Botany's earliest residents were the Aboriginal people who have lived in the Botany area for over 9,000 years. It has been estimated that 1,000 to 1,200 Aboriginal people lived around the shores of Botany Bay (Butler, 2011). They called the Botany area 'Gwea'. The Gameygal people set up camps along the banks of the Cooks River and on the northern shores of Botany Bay with the Gweagal people mainly on the southern side around Kurnell, although each clan's boundaries varied according to their seasonal obligations (Butler, 2011). It is likely that local people spoke several languages, as Botany Bay marked the boundary between the Coastal Darug and Dharawal language groups. The Cadigal were also present but more to the western shores of the bay, in areas immediately west of the Cooks River.

Accounts by Cook (1770), Banks (1770), Bradley (1786-92), Collins (1798), Hunter (1968), Phillip (1789), Tench (1789, 1793, 1961) and White (1790) document some details of Aboriginal life at the time of invasion, though these were written through a colonial lens. Cook and Banks noted the presence of Aboriginal camps in a number of locations including two open sites with huts on both 'points' of Botany Bay and two shell middens with fires and shells, one of which was reported to be 'near the shore'. Cook also made the general observation that the locals did not live in large groups but were dispersed along the waterside (Conroy, 2017: 66-68). In 1788 Tench observed an Aboriginal village near the Cooks River mouth containing a dozen huts and at least several dozen people, with the camp almost certainly used for fishing (Irish, 2013).

Cook observed a relatively large number of people fishing in canoes and collecting shellfish, surmising that oysters, mussels and cockles formed the main component of the local Aboriginal diet. Fish was caught by spear or hook and line, but it appears that stingrays were not eaten (NOHC, 2003). The shellfish was picked out of the sand and mud from canoes, and sometimes cooked and eaten in the canoes, which were 12 or 14 feet long. The canoes were made of one piece of bark which was drawn or tied up at each end with the middle kept open by sticks used as thwarts (NOHC, 2003).

Other foods, particularly plant foods, were also eaten but not commented on by Europeans. Cook commented on the large number of trees, particularly palms, with toeholds for climbing, although it is not stated what type of food was obtained (NOHC, 2003). There was frequent movement between Botany Bay and Port Jackson, and well-worn 'native paths' were noted between these places from immediately after first settlement (Conroy, 2017: 72). These paths would have connected Botany Bay with the resource rich swamplands of Moore and Centennial Parklands for the hunting of birds and collection of plant foods. According to Professor Dennis Foley, Indigenous Cultural Leader, these areas were also used as a location for large activities such as dispute resolution. The area of modern-day Victoria Park was known to be a major sit-down area and trading area as well as a source of fresh water. Prince Alfred Park was an area with black soils and no sand that may have been used as a cremation area. Fresh drinking water was observed in rock holes along the northern shore of Botany Bay.



From Aboriginal peoples' viewpoint, the arrival of the First Fleet was an invasion of their land. Initially the invaders were tolerated, especially when they traded useful items such as fish and iron tools (Conroy, 2017: 73). However, when some of the invaders, particularly the convicts, began to take Aboriginal possessions, they were met with fierce resistance from Aboriginal people. Some writers noted that there was also a change in relations when the new arrivals started clearing the land and it became obvious they intended to stay. Commencing with the killing of two convicts at Darling Harbour on 30 May 1788, violent incidents proliferated around the harbour and soon spread to Botany Bay (Conroy, 2017: 74). A punitive expedition ordered by Phillip in 1790 demonstrates his hardening attitude towards the Indigenous population.

When the English arrived, they brought diseases, such as smallpox, which Aboriginal people had no natural immunity to, decimating their numbers (Butler, 2011). The dispossession of land through grants to European settlers deprived Aboriginal people of their traditional hunting and foraging grounds and forced Aboriginal people to the margins of white society. However, Aboriginal culture did not disappear. Although the name 'Botany' was adopted for the area by Europeans, the Aboriginal translation of 'Booralee' was still often used (Butler, 2011). The village was often officially referred to as 'Booralee' and subsequent maps saw Botany bearing this name, suggesting a continuing Aboriginal presence. The Aboriginal community at La Perouse continued to maintain strong connections to the area (NOHC, 2000: 10).

Recent work by Paul Irish has shown how Aboriginal people worked for European settlers on the Cooks River. His 2017 book *Hidden in Plain View* also describes how Sydney's Aboriginal population continued to rely on the harbour, the rivers and the land to sustain themselves as well as operating small family fishing businesses to trade with Europeans (Irish, 2013).

Aboriginal man, Mahroot and his wife, operated a fishing business from a hut on the shoreline of Botany Bay, using the profits to buy clothing, meat, flour and sugar. In 1832, Governor Richard Bourke granted Mahroot a 10 acre parcel of land "next to a creek near Bumborah Point" – on the foreshore between the 100 acre "Bunnerong" of John Brown in the north and John Crane's land to the east. Mahroot built five small slab huts on the land and leased these out – including to "*some white fellow tenants*" – for one shilling per week (Mahroots huts can be seen in Figure 3.2). Mahroot's huts were located on the later site of the Bunnerong Power Station. Mahroot – who was also known as Boatswain or Boatswain Mahroot – gave evidence to the 1845 Parliamentary Inquiry on Aboriginals and described how only he and three half-sisters survived of the once 400-person Botany Bay tribe. Mahroot also described the translocation of Aboriginal people during the mid-1800s when he told the Inquiry: "*... of [the] approximately fifty Indigenous people living at 'the Heads' in the mid-1840s ... except for himself and three women, these people 'not belong to Botany ... different people raised up here in former times come.'*" (Conroy, 2017: 79).

3.2 Early European industries (1788 – 1860s)

The heritage of the Botany area is closely linked to the landing of Captain James Cook on 29 April 1770 and the 'discovery' of the Australian continent. Together with Endeavour's botanist, Joseph Banks, and his assistant, Daniel Solander, the men spent several days ashore collecting and cataloguing vast numbers of previously unknown plants (Butler, 2011).

When Governor Phillip arrived in January 1788 to establish the British penal colony, he found the bay too shallow in many places and deemed it unsuitable as a harbour (Butler, 2011). The bay was fringed with tea tree swamp tidal mudflats, created by the Cooks River delta. As a result, the First Fleet sailed on to Port Jackson, finding a more suitable site for settlement at Sydney Cove.

From this point, Botany Bay's resources began being extracted by settlers in connection with the growing colony. European settlers and convicts collected oyster shells from Aboriginal shell



stockpiles, and these were burned to create lime for the manufacture of much-needed mortar for building across Sydney. Shells were transported to Sydney town by small boats. As early as 1802 a lime kiln was reported as having been established near Cook's River and *The Sydney Gazette* reported the arrival of a ship in Sydney Harbour, loaded with lime from Botany Bay (Cosmos Archaeology, 2002 citing Jervis, 1938: 54). A track leading from Sydney Cove to Botany was formed as early as 1809 (Butler, 2011). Saltpans, called the Bennelong Salt Pans, were located around the north shore of Botany Bay and each produced one ton of salt per week (Butler, 2011). Fishing became another strong early industry with plentiful supply, and fishing villages sprang up all around Botany Bay.

Merchant Simeon Lord was known to have opened the first Wool Mill in Botany Bay, after receiving 135 acre land grant near Cooks River in 1812 (Thorpe, 1990: 6). He dammed a stream running south into the Bay and also established a flour mill nearby. Other noxious trades such as slaughtering, tanning, boiling down and wool scouring works soon joined the mills. The pollution from these growing industries began to affect the quality of the water and air, generating pernicious odours, fumes and toxins (Butler, 2011).

In the 1830s, market gardeners arrived in the area attracted by the extremely fertile alluvial and swamp soil. After the gold rushes of the 1850s, Chinese farmers took over the leases on these gardens. They cut trenches in the soft soil to irrigate their crops, and sold fruit and vegetables to the nearby city and suburbs (Butler, 2011). Due to much of its land being held by either the Crown or the Lord family, by the 1860s Botany's relative isolation and still sparse settlement meant its roads, public transport and utilities were considered 'behind' those of Sydney suburbs, and land sales were slow (Conroy, 2017: 503).

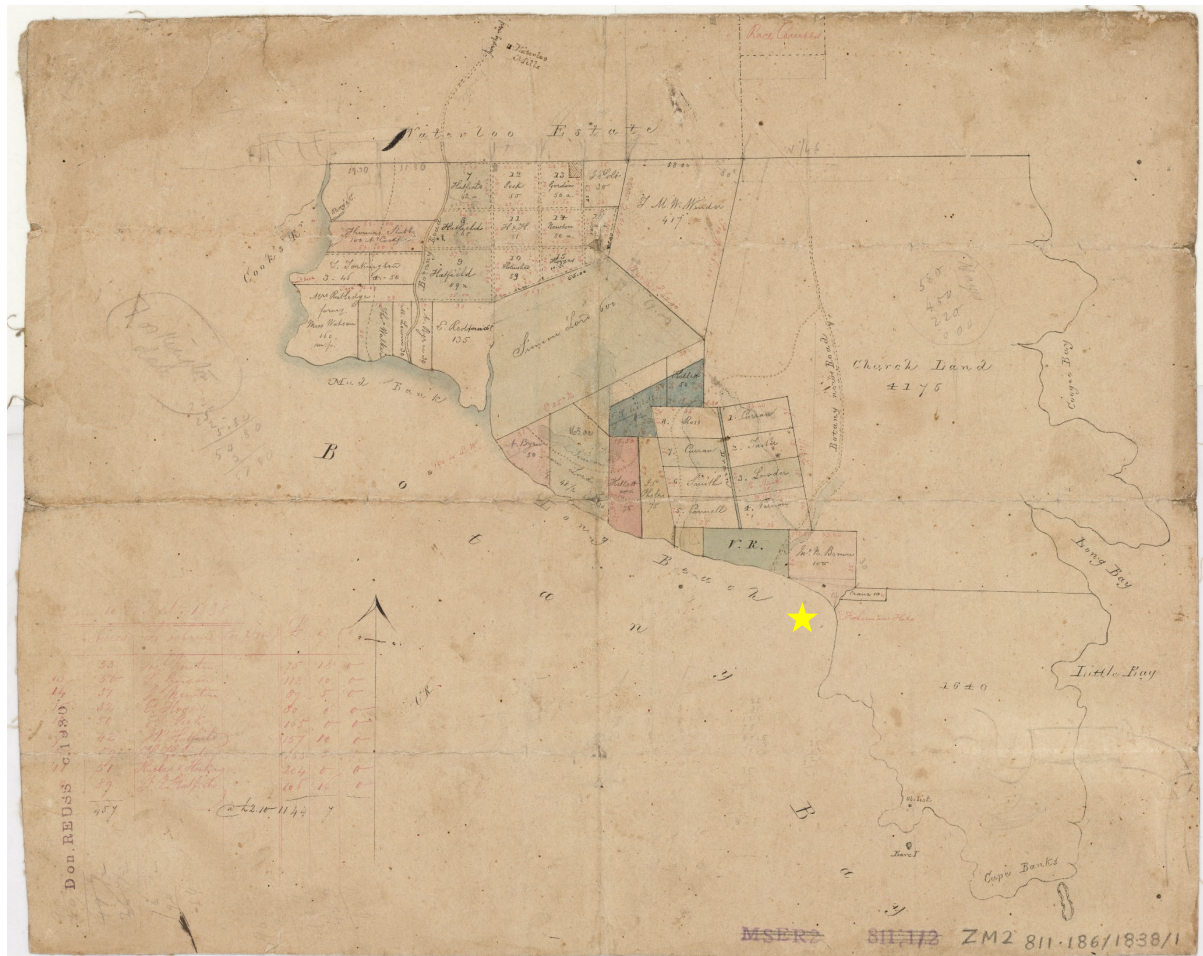




Figure 3.1: c.1838 plan of the Parish of Botany by P.L. Bemis. The subject site is located overwater off John Brown's Grant indicated with a yellow star (Source: SLNSW, M2 811.186/1838/1).

3.3 Bunnerong (1860s – 1901)

100 acres called 'Bunnerong' was granted to John Nethaway Brown in 1823 by Governor Brisbane north of the subject site. The grant was not officially confirmed until 1856, but Brown occupied the property, naming the estate Bunnerong and building upon it the first private dwelling in the Randwick area, 'Bunnerong House' (1825) – see Figure 3.3. The western part of the grant, north of the subject site, was used less intensively, being shown on early plans as market gardens, and was subject to later legal argument regarding its size and boundary (Conroy, 2017: 481).

Butcher John Walsh operated a meat preserving works and tallow operation nearby, and may have used part of Brown's grant to wash wool (Bell, 2018: 11). Large casks of tallow were rolled out onto the beach during low tide and floated away at high tide to be loaded onto ships (Bell, 2018: 11). Walsh's vast landholdings had been mortgaged to the City Bank of Sydney, but the 1890s economic crisis led to falling wool prices, and forced the foreclosure of Walsh's mortgage. In 1901, the City Bank sold the site to the Federal Paper Mills of Sydney. The history of the paper mills is covered in Section 3.4.

As the local population of mostly market gardeners and noxious industry workers in Botany rose, so did the demand for local government services. The three Botany municipalities of Botany, North Botany and West Botany came into existence after the *Municipalities Act* of 1867 (Butler, 2011). The opening of Sydney's first tramline connecting Botany to the CBD at 54 minutes travel time encouraged residential development. In 1888, the municipalities of Botany and North Botany were incorporated (Butler, 2011). Botany Council placed considerable priority on residential development and beautification of the local area, and undertook many public amenity construction schemes. One such scheme was the reclamation of the foreshore for the reserve. Between 1869 and 1905 the government dedicated 24 acres of foreshore in Banksmeadow as a public reserve (Jervis, 1938: 220). This reserve can be seen in Figure 3.4.

However, it was observed as early as 1891 that the Botany foreshore was eroding and by 1922 nearly all of the Banksmeadow Park, westward of the Government Pier had been eroded away (Cosmos Archaeology 2002 citing Jervis, 1938: 227). Therefore, in 1930, Mayor George Anderson proposed extensive dredging and land reclamation near Banksmeadow Reserve and Sir Joseph Banks Park (Jervis, 1938: 230-2). Council does not appear to have undertaken these works. Instead, a large quantity of surplus spoil from the construction of Bunnerong Powerhouse was deposited on the beach adjacent to the eastern end of Banksmeadow Reserve. The powerhouse was located 550m southeast of the subject site.

The mass of spoil added eight acres to the reserve, and moved the shoreline approximately 130 metres further into the Bay, according to Clark (1992: 11). The reclaimed land was levelled and grassed in 1929, and the rest of Sir Joseph Banks Park was levelled in 1931 (Jervis, 1932: 222-3). The reclaimed land was gazetted as an addition to the reserve in February 1932 (Jervis, 1938: 220). By 1936 Council had constructed a seawall along the foreshore of Sir Joseph Banks Park to prevent erosion (Jervis, 1938: 232).

By 1943, only 50 years after its establishment, little evidence of the village of Banksmeadow could be seen (Plate 3.6, Conroy, 2017: 273). The only buildings to have survived were the two hotels, the Botany Bay and the Pier.

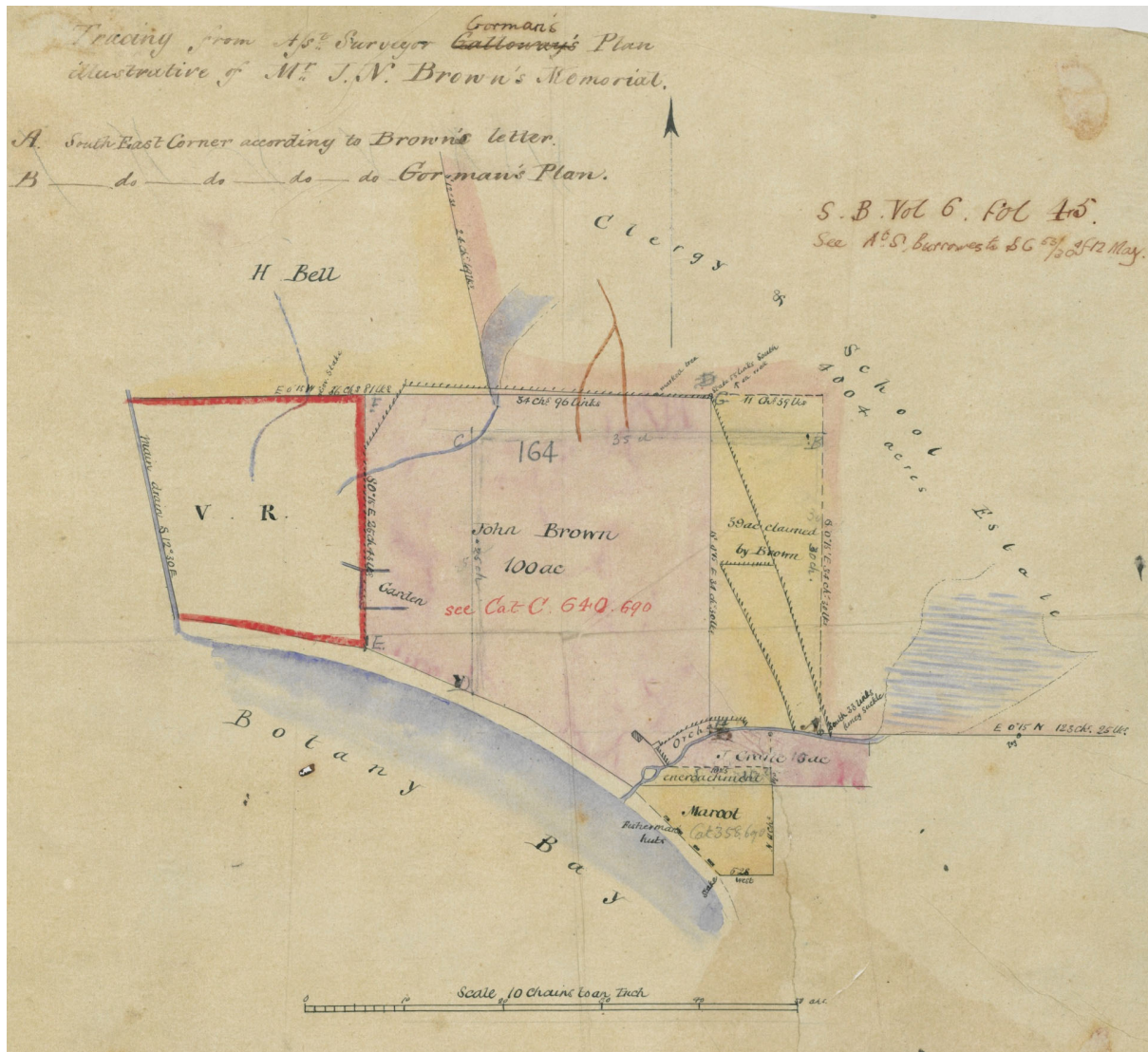


Figure 3.2: c.1853 plan of John Brown's land (subject to legal debate). (Source: SRNSW, NRS-13886-1-[X764]-Volume 6 Part 2-54).

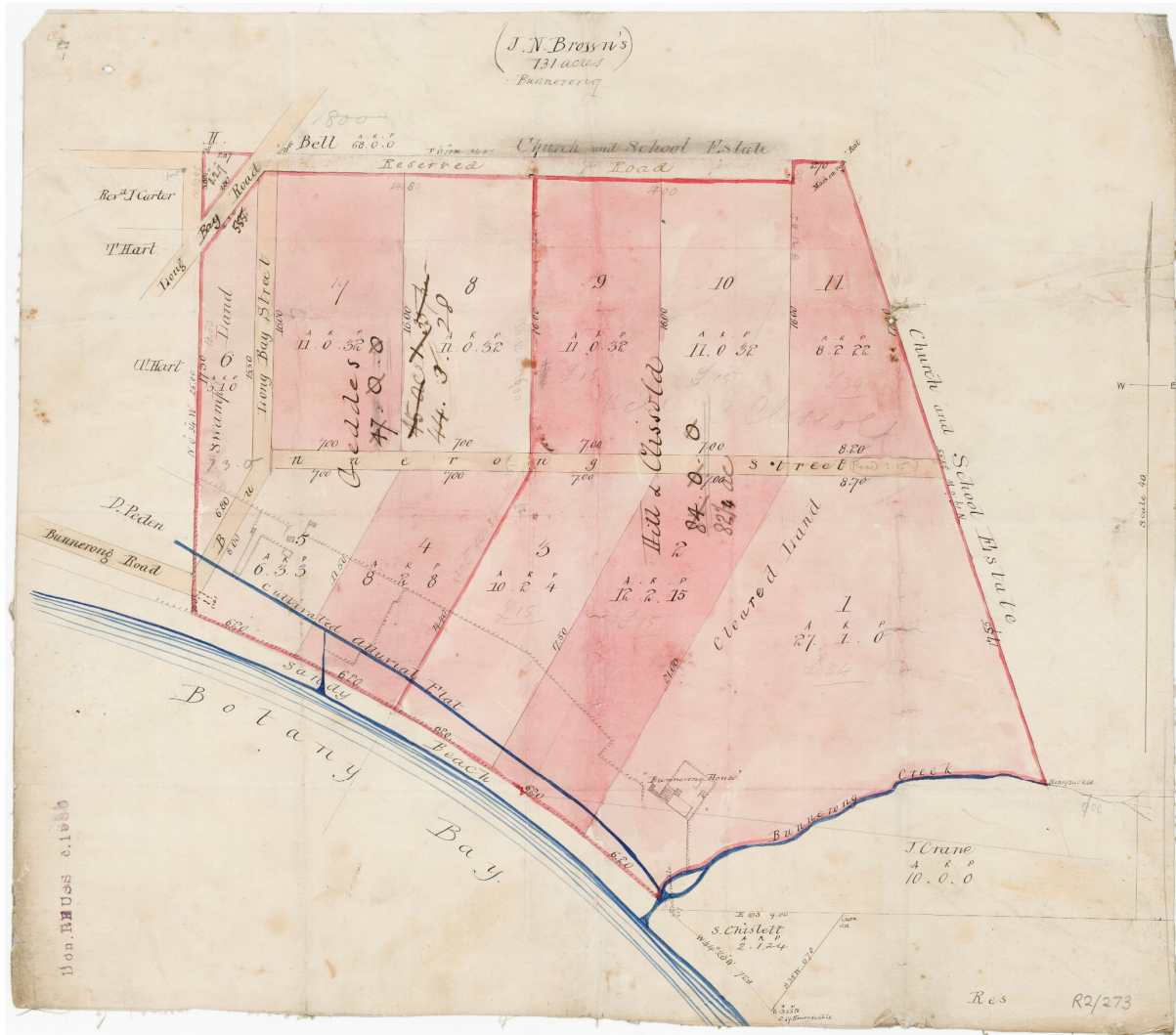


Figure 3.3: 1873 plan of J. N. Brown's 131 acres. The subject site is situated overseas south of Lot 3 (Source: SLNSW, Z/SP/R2/273).



Figure 3.4: 1885 survey of Botany parish showing slow development of Banksmeadow. The subject site is located overwater south of ‘Bunnerong Estate’ in the lower right corner. Note reserve east of Govt. Pier (Source: SLNSW, Z/M4 811.186/1885/1).

3.4 Australian Paper Manufacturers (1901 – present)

In 1901, Federal Paper Mills, owned by Samuel Ramsden, purchased part of Brown’s Estate at Botany, then under cultivation by Chinese gardeners (The Sydney Morning Herald, 10 Feb 1902: 4). The paper mill was built by Contractors Messrs Baxter and Boyne, to plans by architects Slayter and Cosh. It was situated on the shores of Banksmeadow, at the corner of Botany Road and McCauley Street today. Though this area is north of the subject site, its history directly relates to the history of the subject site (Conroy, 2017: 192). By October 1901 the foundations were complete, and the brickwork was well up above street level (The Daily Telegraph, 26 Oct 1901: 12).

By February 1902 the paper plant was completed and described: *“The property on which the plant has been erected comprises about 33 acres, with road frontages on three sides, while the building itself consists of a two-storied dusting house 60ft. by 30ft., a two-storied rag boiling house 87ft. by 30ft., a chemical house of three stories 30ft. by 15ft., and a rag engine house of two stories 87ft. by 57ft. In addition to these are large steam engine and machinery houses (the latter measuring 180ft. by 33ft), as well as a boiler and a finishing house. The most striking feature of the works, and one which serves as a land mark for the whole district, is a gigantic chimney stack 150ft. high. Several of the more intrepid ...spirits of the party ascended to the top of this structure, being hauled up by means of a box affixed to a wire rope. Their enterprise was amply rewarded by a beautiful panoramic view of the surrounding country. Altogether about £50,000 has been expended in the venture, and when the machinery is installed the plant will be one of the largest and most modern of its kind in any of the States.”* (The Daily Telegraph, 10 Feb 1902: 3). The Sydney Morning Herald commented that the structures were of brick on concrete foundations with iron roofs and concrete floors. Structures planned for a future phase of works included mechanics shops, storerooms, offices, lavatories and an extensive dept to carry 800 tons of coal. 630 yards of roads connecting the works were also planned.



A strip of land facing the shore was resumed by the government for the continuation of Botany Road (The Sydney Morning Herald, 10 Feb 1902: 4). The mill structures can be seen in Plate 3.1.

In the 1900s, Federal Paper Mills were running 6 machines at its Botany Plant (RAHS, 2014). The machines served a diverse range of purposes from the manufacture of toilet paper, to gift wrap, carton boards, crepe towelling and waxing cartridges for food containers (RAHS, 2014). The Botany plant's Number 5 Machine was its most modern, and one the largest in the world at the time. The machine produced board with a daily capacity of over 200 tons (RAHS, 2014). The APM was one of the first companies to collect paper for recycling, this achieved with the use of horse and cart (RAHS, 2014). In 1905 the mills were taken over by the Sydney Paper Mills Limited (Conroy, 2017: 192). In 1920 the firm amalgamated with a Melbourne firm to form the Australasian Paper and Pulp Company Limited. The Botany enterprise, Australian Paper Manufacturers was the result of a further amalgamation in 1926 with a Lane Cove firm, the Cumberland Paper Board Mills Limited (Conroy, 2017: 192).

APM Pier

The Australian Paper Manufacturer's Plant included a long pier measuring approximately 460 metres long which reached south over the shallow mudflats at the Botany Bay shoreline out into deep water. This enabled cargo ships carrying softwood pulp from the northern hemisphere to land and disembark cargo. The pier was likely constructed at the same time as the mill in 1901, and certainly present by 1935 (see Plate 3.2).

Donath (1957) described the importance of the paper mill's location close to deep water: *"The Australian paper industry is a good example of the influence a change in technology has on the location of an industry. The technological change from cereal straw, rags and other waste products to wood as the main raw material which took place in Europe and North America during the second half of the [19th] century shifted the location of the paper industry to areas with wood resources; [since] ...it takes about four tons of green wood to produce one ton of chemical pulp. This shift, however, did not take place in Australia because only the wood of conifers was used which are not indigenous to Australia; nearly all Australian trees are hardwoods, which were considered unsuitable for making paper. Thus, Australia's paper mills remained located in the mainland capital cities which had the additional advantage of tidewater location; since pulp had to be imported, the established mills in ...Botany (suburb of Sydney) were [already] in their best location..."* (Donath, 1957: 61).

In 1986, APM Ltd. became Amcor limited (RAHS, 2017). AMCOR was renamed Opal Pty Ltd by owner Nippon Paper in 2020 (Opal, 2026).



Plate 3.1: 1914 image of Horse drays leaving Sydney paper mills (Source: Randwick City Council Local Studies, H00031|H00042).



Plate 3.2: 1935 aerial photo of Australian Paper Manufacturers Ltd, pier visible at far right, with Bunnerong Power Station in the distance. (Source: RAHS, 2014).



Plate 3.3: 1940 aerial of Australian Paper Manufacturers, pier visible at far right. (Source: Nerida Walters-Welch Family Album, 2016).



Plate 3.4: c.1970 aerial of Australian Paper Manufacturers, pier visible at far right. (Source: OPAL ANZ, 2026).



3.5 Construction of Kingsford Smith Airport (1964)

Sydney airport had first begun as the tiny Mascot Aerodrome, on leased land formerly used for cow paddocks (Butler, 2011). After being taken over by the Commonwealth Government in 1921, it grew quickly, and following World War II the airport grew to nine times its original size, forcing the diversion of the mouth of the Cooks River. From 1947 onwards the airport grew again, swallowing the Ascot Racecourse, three cricket fields, a polo ground, two golf courses, the former Sydney Sewerage farm and some residences (Butler, 2011).

In 1964 the Department of Works began construction on the north-south runway (16R/34L) of Sydney airport into Botany Bay. 3.5 million cubic metres of sand reclamation fill was sourced by dredging the Bay near Lady Robinson's Beach (Cosmos Archaeology, 2002: 19-20). This runway was extended in length by nearly 4km in 1970, causing more reclamation to occur, through dredging approximately 8 million cubic metres of sand from the Bay. The volume of this was dredged to form entrance channels for the Port Botany development. The remainder was dredged from Lady Robinson's Beach (SPA - MSB, 1976: 40 and Figure 8).

3.6 Construction of Port Botany (1970 – 1979)

Botany Bay was considered a seaport as early as 1885 when the Government/Long Pier was used to unload coal transported from Newcastle to Sydney to fuel the nearby Bunnerong Power Station.

However as early as 1936, the Maritime Services Board (MSB) adopted a policy to develop the Bay for receiving *"bulk and special cargoes, particularly bulk oil and petroleum products, and in doing so hoped to divert some of the traffic from the busy waters of Port Jackson"* (Cosmos Archaeology 2002 citing MSB, 1976: 36). The next step in the development of Botany Bay as a port was in 1948 when B.O.R.A.L. (Bitumen and Oil Refineries Australia, Limited) established a refinery at Matraville. Moorings and a pipeline were established off Yarra Bay to carry oil direct from the ship to the refinery (MSB, 1976: 36). With the establishment of A.O.R. (Australian Oil Refining Pty. Ltd.) at Kurnell in 1955, extensive dredging was undertaken to provide an approach channel, and an 825 metre long concrete jetty was built for vessels associated with the refinery, now owned by Ampol (Cosmos Archaeology 2002 citing MSB, 1936:36; Clark 1992: 11). In 1960, further dredging was carried out to extend the A.O.R.'s marine facilities. A submarine terminal was constructed to the north end of the jetty, suitable for tankers of up to 11.6 m (MSB, 1976: 36).

The MSB began construction on the present port facilities at Botany Bay in 1970. A large area of sea was reclaimed to build the port. Deep channels and port basins were dredged, including up to 3m inside Brotherson Dock and in the channel (Clark, 1992: 12, Figure 3.6). The first stage of the Port development involved the dredging of 13 million cubic metres of sand, for the approach channel, part of the initial basin and initial reclamation for the port (MSB, 1976:67). The facility also depended on ready access to Sydney's road network, and the project included the construction of a new road known as Foreshore Road along the edge of Botany Bay (Conroy, 2017: 143). A 1976 report by the Maritime Services Board confirms that even before reclamation for the Port Botany Project began in 1971, very little of the northern foreshore between Bumborah Point and the airport followed the original shoreline; *"...Bunnerong Power Station, the Banksmeadow Oil Terminal, Banksmeadow Park, the mill Ponds area and Kingsford Smith Airport can all be associated with reclamation beyond the natural shoreline."* (SPA - MSB, 1976:37).

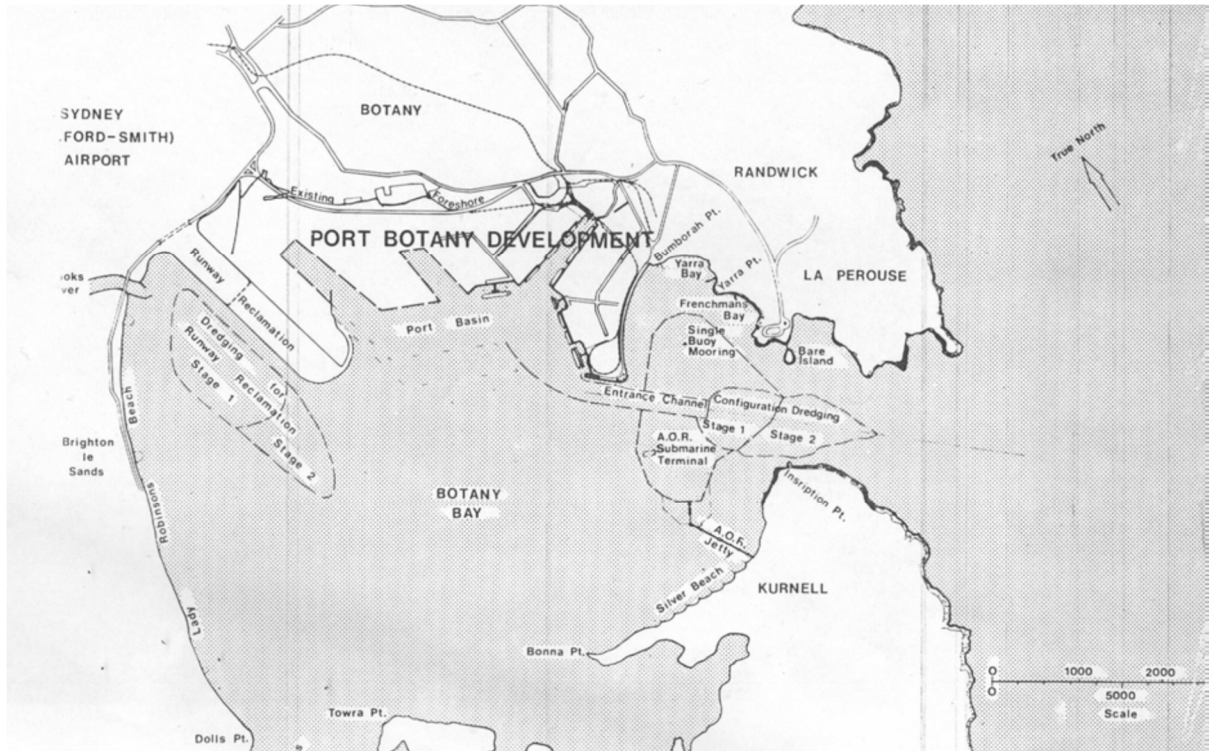


Figure 3.5: Dredging of Botany Bay up to 1970. Note dredging locations only, the port development as mapped in this figure is not accurate as it was not undertaken in its entirety. (Source: SPA - MSB, 1976)

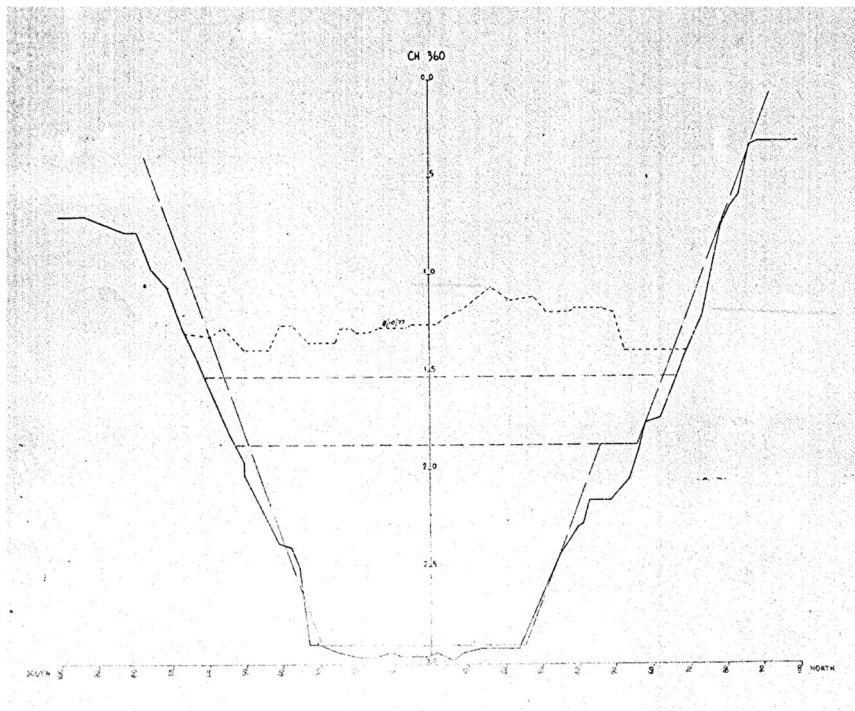


Figure 3.6: Proposed dredge channel inside the Brotherson Dock area (Source NSW Ports).

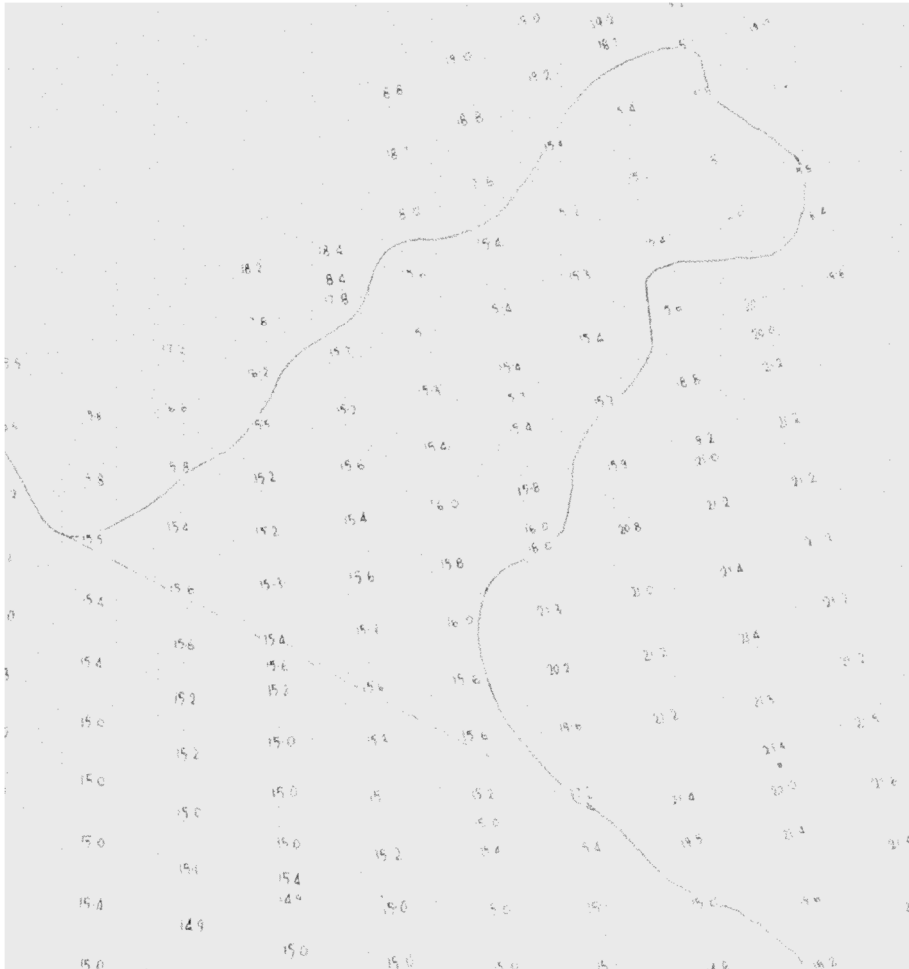


Figure 3.7: Section of map showing the post dredging depth of Botany Bay in the wider swing basin area in front of Brotherson Dock in 1979 (Source NSW Ports).

The northernmost container terminal was completed in 1979 and officially opened by Premier Neville Wran who christened it *Brotherson Dock* in memory of former Maritime Services Board chairman Bill Brotherson who had died in 1975. The terminal was initially leased to Australian shipping company ANL but was transferred to Patrick Corporation in the 1990s. In 2006 Patrick Corporation merged with Toll Holdings. The southern container terminal opened in 1982, christened *Brotherson Dock Two* and was leased to the newly formed stevedore company Container Terminals Australia (CTAL). The construction of the Brotherson Docks involved 7.5 million cubic metres of sand being dredged for reclamation. It was during this time that the construction of the Foreshore Rd and the reclamation of the foreshore to its present position took place.

Despite both terminals being of equal size and quay length, Brotherson Dock Two struggled to compete with its northern neighbour. In its first full year of operation, Brotherson Two handled just 91,000 containers with a berth occupancy rate of 40 percent (BTE, 1985: 32). In the 1990s CTAL ceased operations and the terminal lease was on sold to shipping company P&O. In 2006 P&O was purchased by Dubai Ports.

3.7 Historic aerial imagery

Note that due to the overwater nature of the subject site, historical aerial coverage is patchy. Historical aerial photography shows the approximately 460 metres long APM pier present in 1930 up until 1972 (Plate 3.5 to Plate 3.11). The pier contained a small waiting room or storage room on its



seaward end measuring approximately 10 metres wide east – west and 15 metres long north – south. Plate 3.11 could not be overlaid due to a lack of reference points, however, shows that Brotherson Dock Two was constructed while the APM pier was left intact. Plate 3.12, an oblique aerial from 1975, shows that the APM pier had been demolished by this date. The 1978 aerial (Plate 3.13 and Plate 3.14) shows the middle of the Port Botany construction, with no pier present. The 1988 aerial (Plate 3.16) shows the completed port, prior to the 2002 expansion.



Plate 3.5: 1930 historic aerial with subject site overlaid in red. The end of the APM pier is contained within the subject site (Source: Geoscience Australia).



Plate 3.6: 1943 historic aerial with subject site overlaid in red. Banksmeadow suburb indicated with yellow arrow, APM plant indicated with yellow star (Source: NSW Spatial Services).

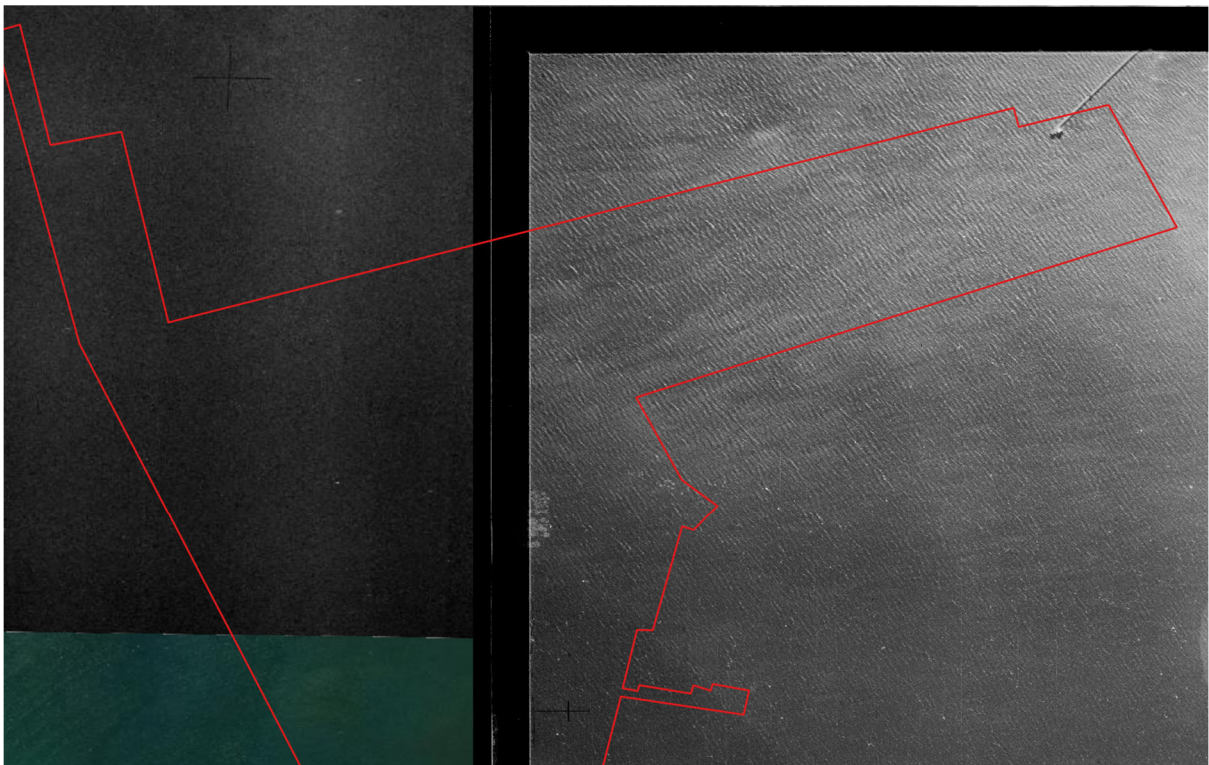


Plate 3.7: 1951 historic aerial with subject site overlaid in red (Source: NSW Historic Aerial Photography Viewer).

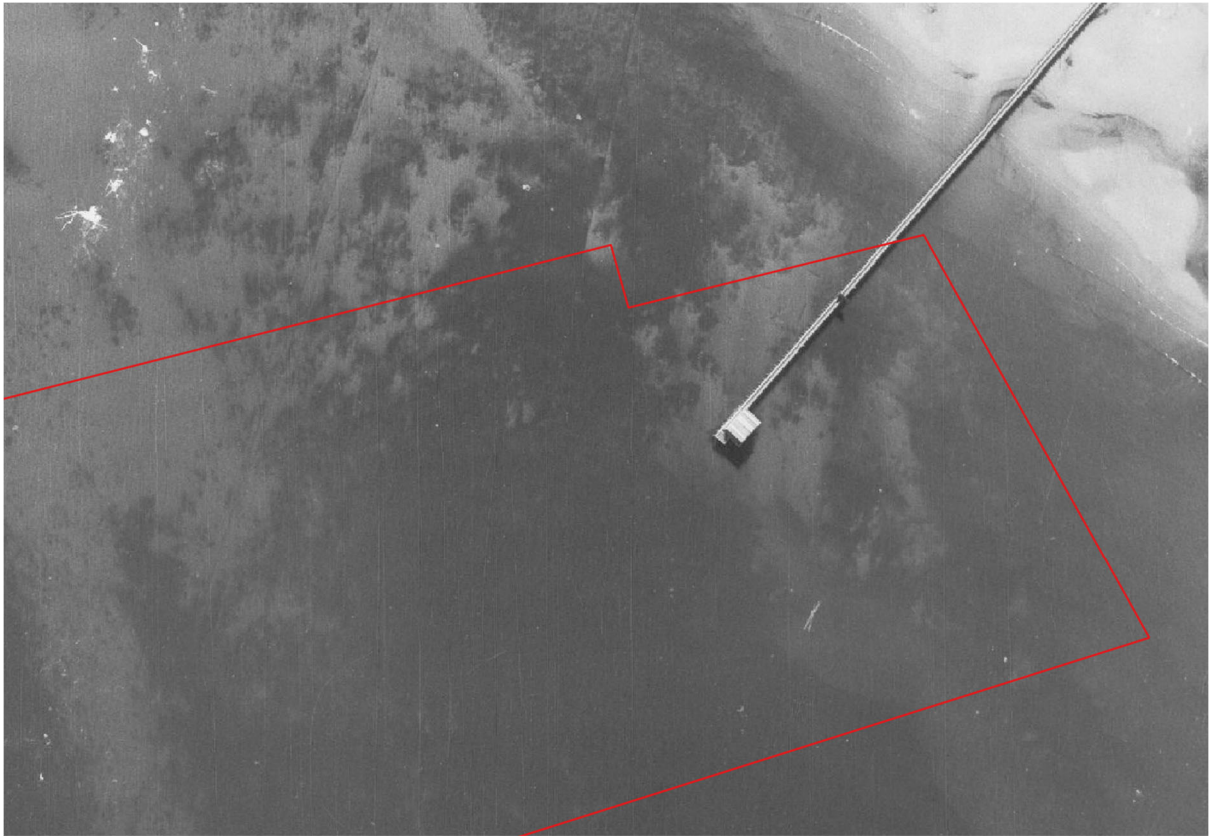


Plate 3.8: 1961 historic aerial with subject site overlaid in red (Source: NSW Historic Aerial Photography Viewer).



Plate 3.9: 1971 historic aerial with subject site overlaid in red. Construction of Port Botany beginning (Source: NSW Historic Aerial Photography Viewer).

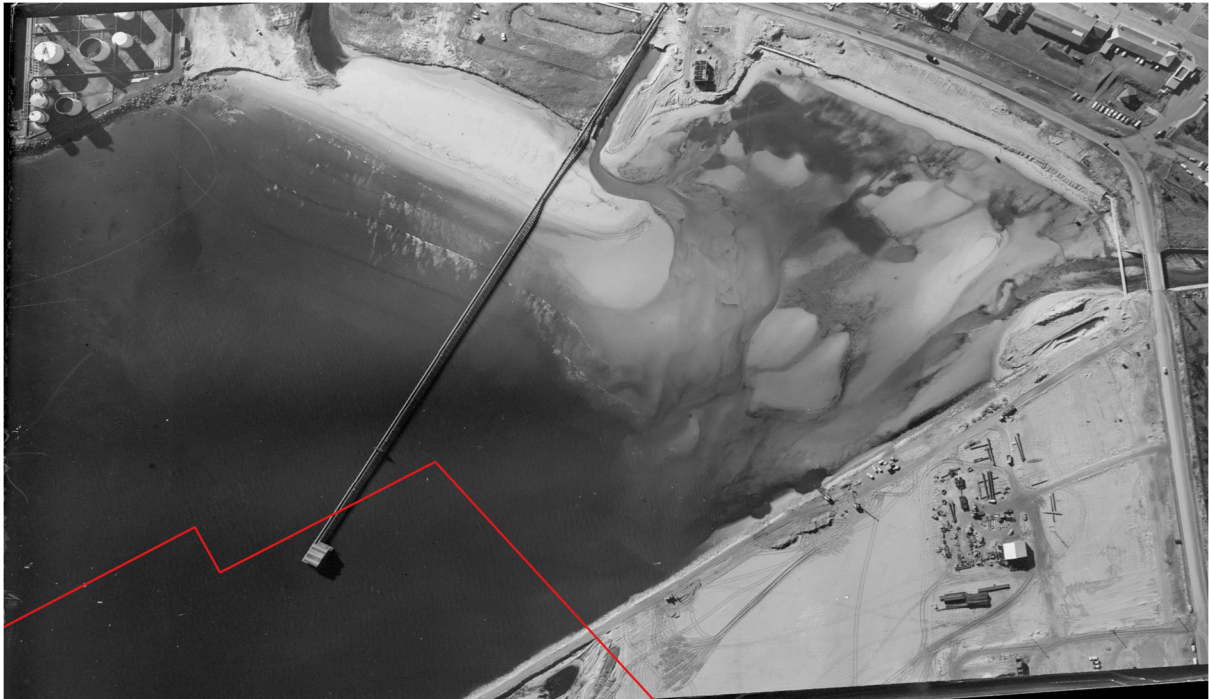


Plate 3.10: 1972 Milton Kent aerial showing construction of Brotherson Dock Two at bottom with APM pier in centre (Source: SLNSW, ON 447/Box 032).



Plate 3.11: 1972 Milton Kent aerial showing construction of Brotherson Dock Two, north up, with APM pier top middle (Source: SLNSW, ON 447/Box 032).

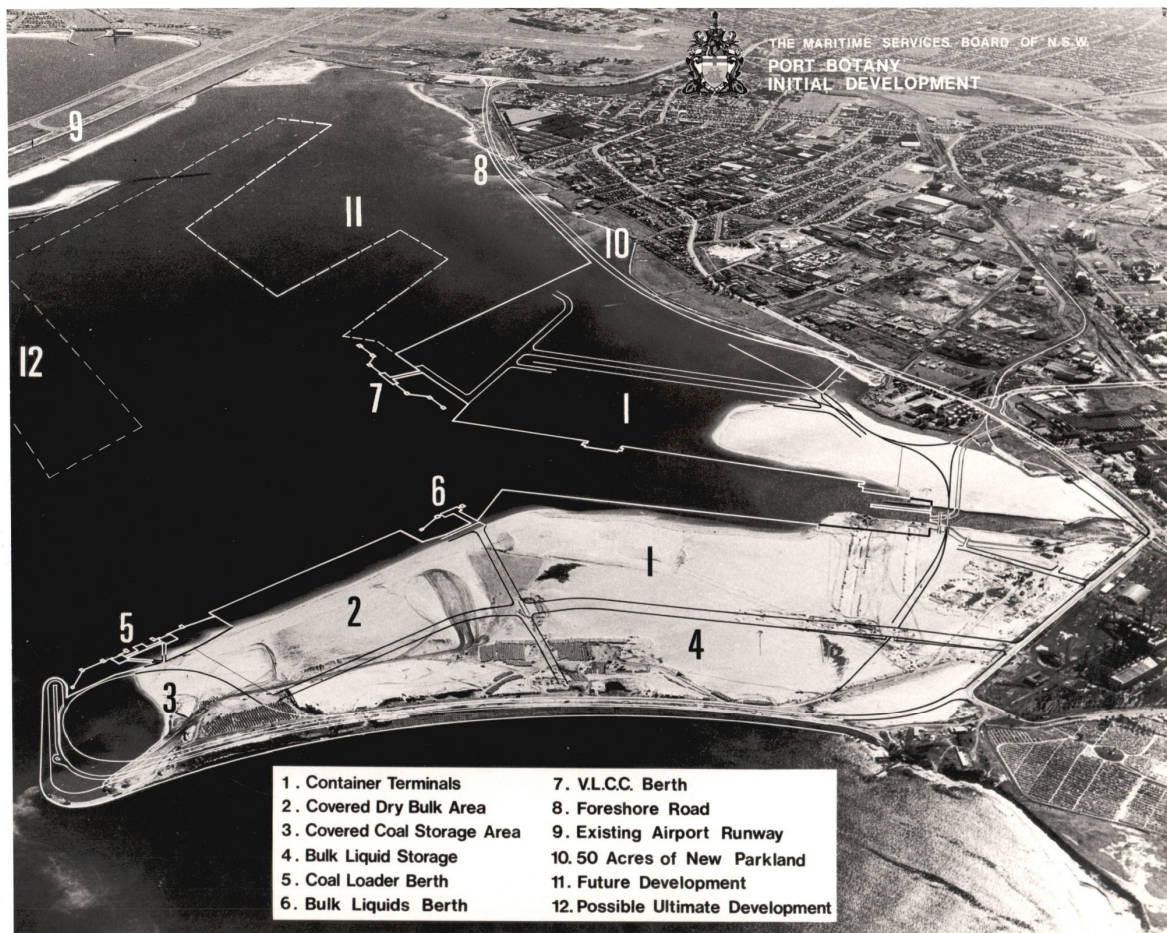


Plate 3.12: 1975 plan of Port Botany development, with Brotherson Dock two already partially reclaimed
(Source: Bayside Library,
<https://library.bayside.nsw.gov.au/montage/gallery.aspx?method=50&keyword=r0000116190>).



Plate 3.13: 1978 historic aerial photograph with subject site overlaid, during construction of Port Botany (Source: NSW Historic Aerial Photography Viewer).

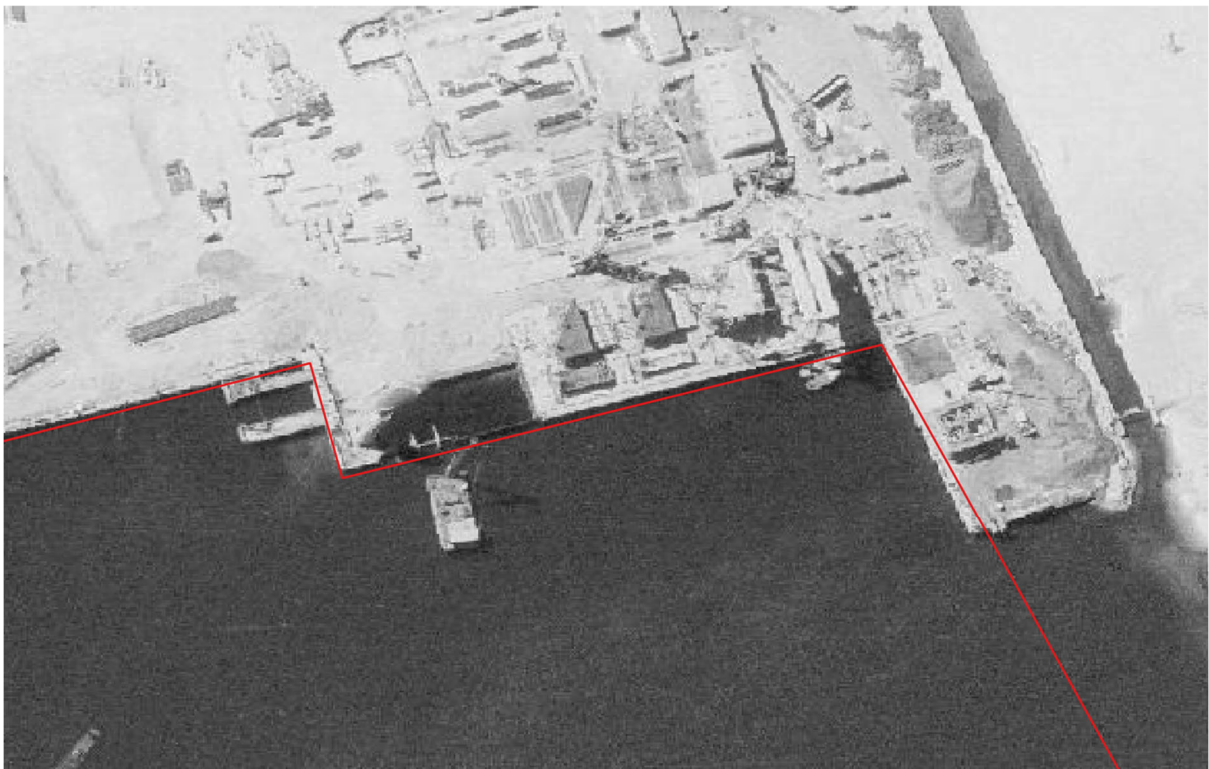


Plate 3.14: Detail of above 1978 historic aerial showing APM pier has been removed (Source: NSW Historic Aerial Photography Viewer).

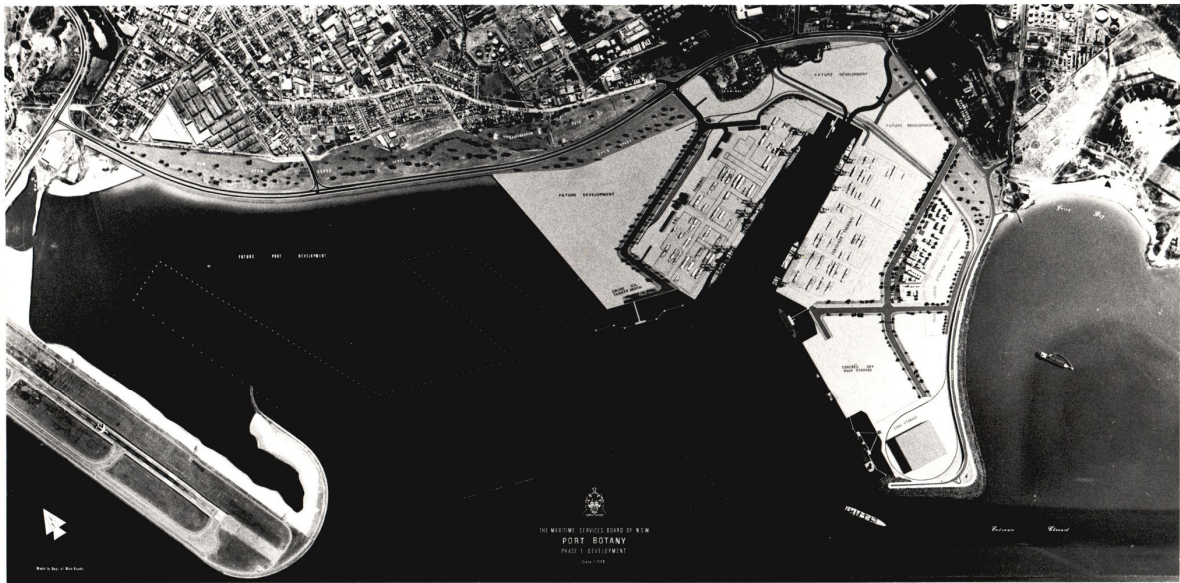


Plate 3.15: c.1980 enhanced aerial with plans for future Port Botany development (Source: Bayside Library, <https://library.bayside.nsw.gov.au/montage/gallery.aspx?method=50&keyword=r0000116191>).



Plate 3.16: 1988 aerial after completion of Port Botany (Source: NSW Historic Aerial Photography Viewer).



4 Data Analysis

The following section provides a summary of information from key studies and assessments that can better inform the potential for maritime archaeological sites in the Project area.

4.1 Review of previous assessments.

Maritime Archaeological Investigation of Potential Impacts of the Construction of the Third Sydney Runway.

Nicolas Clark was commissioned by the then Federal Airports Corporation to prepare a maritime archaeological assessment for the potential dredging and construction of the new third runway at Sydney Airport. The third runway would extend into Botany Bay and would have a direct impact on the seabed from both proposed dredging, reclamation and construction of the new runway (Clark 1992: 2). The subject area for Clark's assessment included the area to the north and immediately to the west of Port Botany and the Project area being assessed in this report (see Figure 4.1).

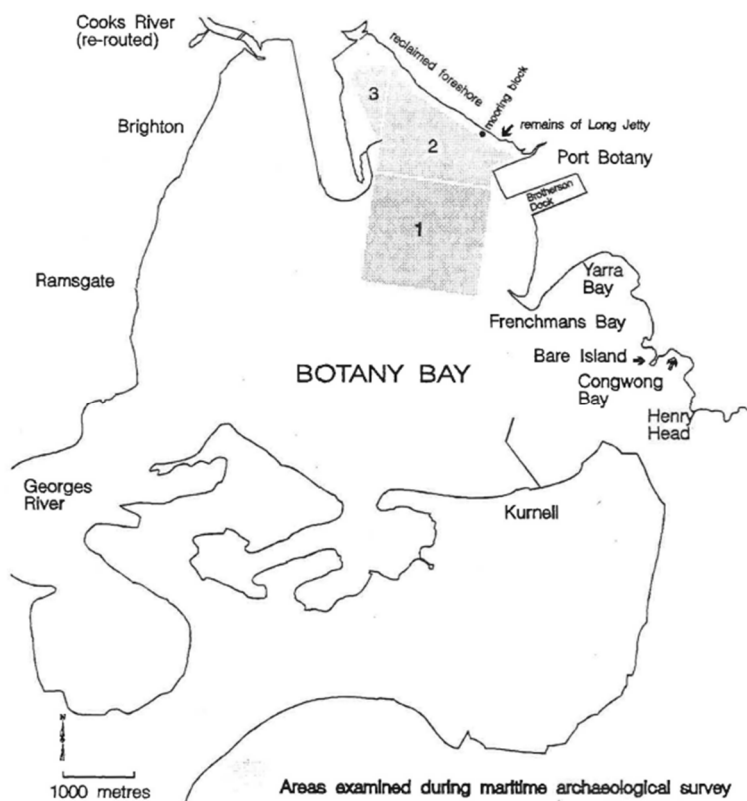


Figure 4.1: Project area assessed by Clark (Source: Clark 1992: 3).

Historical research by Clark had identified the early use of the foreshore area for lime burning, but also jetties for the loading and unloading of materials for the lime burning industry and general coastal recreational activities. This included a 'jetty and separate gentlemen and ladies bath' in front of Josephy Banks Hotel built in c.1880, Dent's jetty and boatyard between 1840 and 1890, and the Australian Paper Manufacturers Ltd. pier around 1901 (Clark 1992: 10). These sites are located outside and to the north of the Project area for this assessment.



Clark's assessment also included a side scan sonar (SSS) and magnetometer survey of Botany Bay to identify potential shipwreck timbers, jetty piles, moorings and anchors (Clark 1992: 17). The SSS survey located a number of unusual features on the seabed. Further interpretation of this data, and subsequent maritime archaeological survey of the seabed determined that many of the anomalies detected were modern material, including octopus nets, modern rubbish and concrete blocks attached to channel marking buoys (Clark 1992: 17-20).

A separate magnetometer survey also identified no unusual magnetic anomalies. Mooring chains and other weaker magnetic strikes were identified in more modern boat mooring area. Bolts and iron offcuts were detected around the then existing Sydney Airport runway. No shipwreck or other maritime archaeological deposits were identified in the larger seabed study area (Clark 1992: 22).

The assessment concluded that dredging and construction and operation of the third Sydney Airport runway would not have had an impact on maritime archaeological remains in the area. Archaeological remains associated with the former Government/Long Jetty (located outside and to the north of the Project area for this assessment) may be indirectly impacted by dredging. It was therefore recommended that limitations be placed on dredging and erosion control take place to mitigate indirect impacts on the identified archaeological remains (Clark 1992: 27).

Proposed Port Botany Expansion: Maritime Archaeological Assessment

Cosmos Archaeology was commissioned by Sydney Ports Corporation to prepare a maritime archaeological assessment for the proposed expansion of Port Botany. The assessment was to identify known and potential heritage submerged cultural heritage resources within the study area, identify potential impacts and, proposed mitigation of any impacts. The proposed development included the construction of approximately 2km of additional wharf face to create new berths for shipping. This would be created by the reclamation of approximately 1500m x 500m of seabed to the west of (the then) Patrick Container Terminal (Cosmos Archaeology 2002: 7). The development also included the dredging of a ship manoeuvring basin between the proposed expanded port facility and the third Sydney runway. Specific areas within the shipping channel would also be dredged (Cosmos Archaeology 2002: 7-8). There were two study areas assessed for this report; the primary being the proposed construction and dredge areas (see Figure 4.2) and the secondary study area was the whole of Botany Bay. The Primary area was located immediately adjacent to the Project area assessed in this report.

The assessment prepared by Cosmos Archaeology overlapped with Clark's 1992 assessment and survey of the seabed for the construction for the Sydney Airport third runway. This report also concentrated on the level of impact that had occurred historically within and immediately adjacent to the primary subject site. This included the dredging and reclamation for the construction of the Bunnerong Power House in 1927, dredging and reclamation of and subsequent expansion of Sydney Airport from 1947 and extensive dredging of Lady Robinson's Beach in 1964 for the airport's initial expansion, and similar works for the initial creation of Port Botany container terminal site from the early 1970s (Cosmos Archaeology 2002: 18-22).

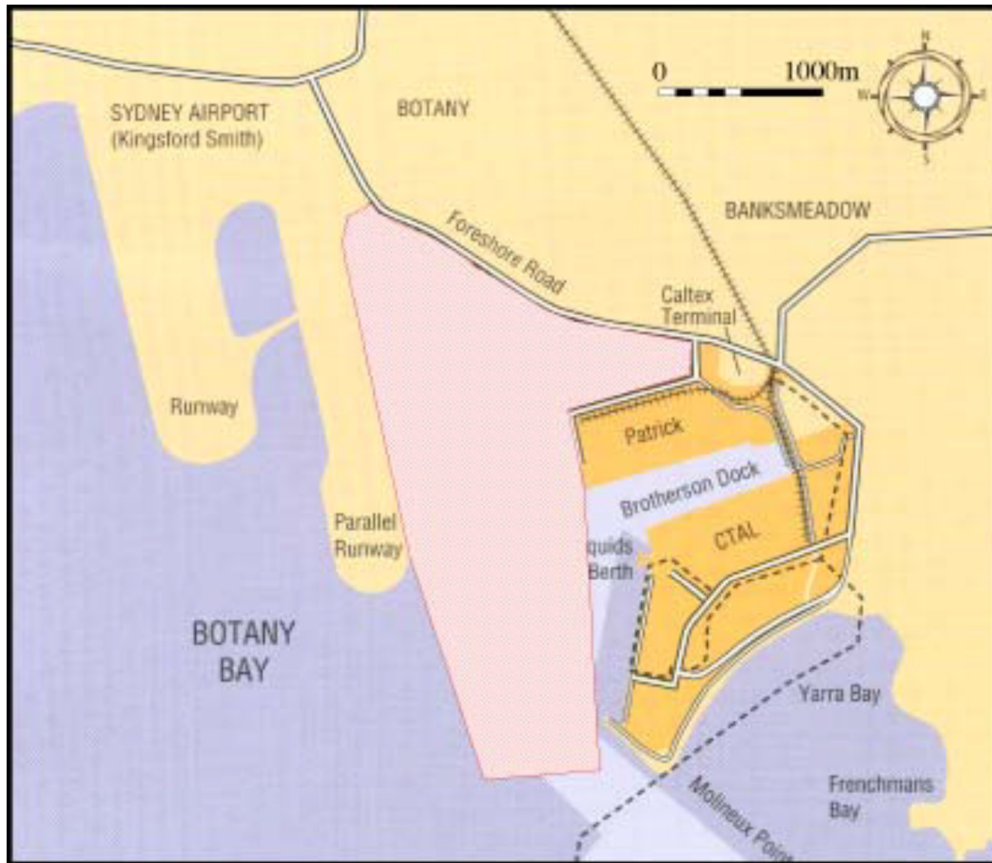


Figure 4.2: Study area (shaded pink) assessed by Cosmos Archaeology (Cosmos Archaeology 2002: 9)

The reassessment of the maritime archaeological potential within the proposed Port Botany expansion area identified there were no known, and unlikely to be any potential, shipwrecks within the expansion area. This is owing to the fact that the area had previously been surveyed by Clark, previous dredgings and reclamation operations had caused significant disturbance to the area. Remains of the former Government Wharf located in front of the Joseph Banks Hotel were also resurveyed.

Of note, in this maritime archaeological assessment was the inclusion of an assessment for potential submerged landscapes and associated potential for tangible cultural heritage remains. Cosmos Archaeology notes that,

During the latest rise in sea level the inhabitants of the study area would have gradually abandoned their camp sites and moved to higher grounds. In the process, it is inevitable that they left behind a certain amount of cultural remains. Such remaining artifacts would have been inundated by rising sea levels. The forces of wave action, tidal influences and currents would have washed away or at least re-deposited large amounts of artifacts. Organic materials in particular would have been exposed to both mechanical abrasion and biological attack and therefore would have stood little chance of surviving. Other more resilient materials such as stone tool technologies would have stood a higher chance of survival. Despite this, the chances of any material surviving, or staying recognisable, in such conditions are low and it has been estimated that only 1:100,000 to 1:1,000,000 of past materials have survived to the present (Price, 1998:423) (Cosmos Archaeology 2002: 34).



The report concludes that the flat open nature of the topography in the area would have resulted in scrambling [high impact] to any sites present in this area due to the effects of the inundation period (*Cosmos Archaeology 2002: 35*).

The report concluded that the archaeological remains associated with the former jetties present within the expansion areas should be protected and recorded prior to the archaeological remains being buried as part of the expansion works (*Cosmos Archaeology 2002:39-40*).

4.2 Review of Project specific data

WSP Geophysical Survey of Brotherson Dock

A geophysical survey of Brotherson Dock was completed by WSP and Marine Earth Sciences in October 2025 (Figure 4.3). This survey of Brotherson Dock was completed using the following equipment:

- Multibeam Echo Sounder (MBES): Edgetech 6205 system to achieve 100% seabed coverage and detect features ≥ 0.3 m in height
- Side Scan Sonar (SSS): Edgetech 6205 system to achieve 100% seabed coverage and detect features ≥ 0.3 m in height.
- Marine Magnetic (magnetometer): Seaspy magnetometer manufactured by Marine Magnetics.
- Targeted Hi resolution CHIRP Sub-bottom Profiler (SBP): Edgetech 216S CHIRP system to investigate sub-seabed anomalies within the upper ~ 1.5 metres (WSP 2025: 2-4).

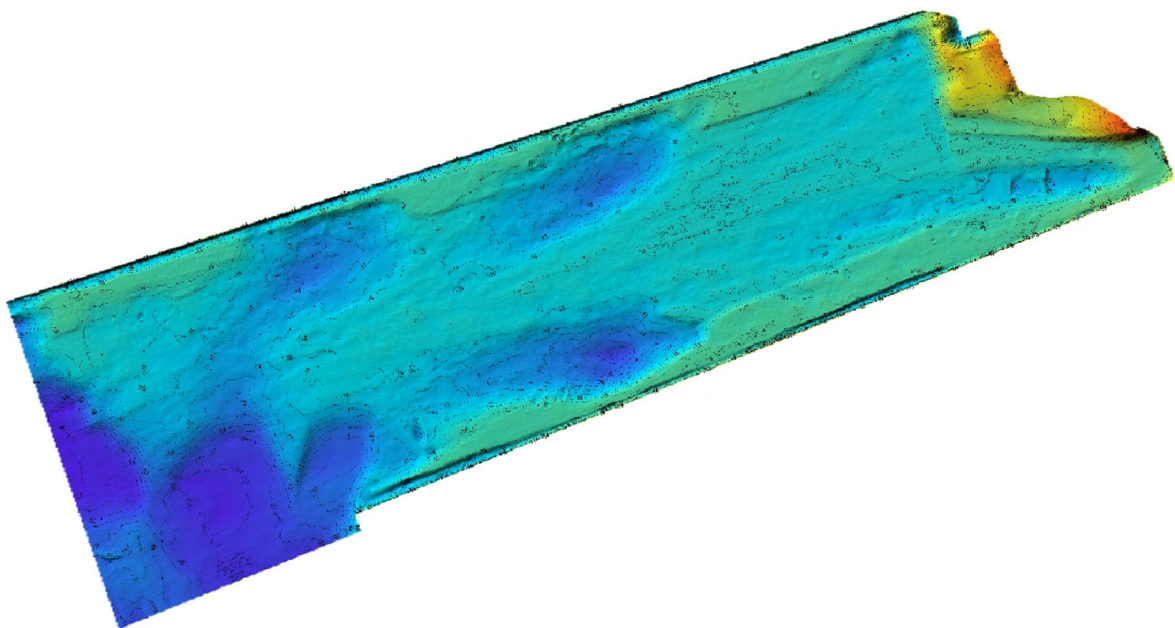


Figure 4.3: MBES survey data collected by WSP and Marine Earth Sciences (WSP 2025)

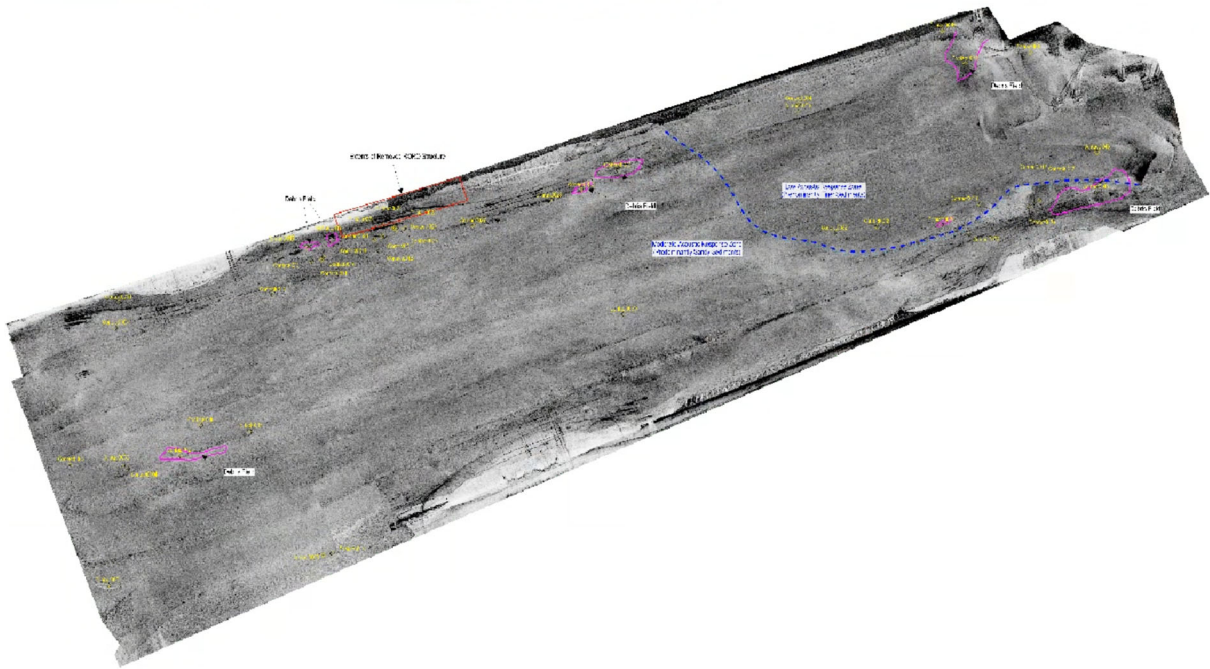


Figure 4.4: SSS survey data collected by WSP and Marine Earth Sciences (WSP 2025)

The scope was to:

- Acquire high-resolution sonar imagery across the full dredge and quayline footprint which will:
 - Assess potential obstructions (higher reflectivity material/potentially harder zones) that may interfere with dredging, piling, or reclamation works.
 - Assess sub-seabed anomalies and potential buried infrastructure.
 - Classify small-scale seabed obstructions (≥ 0.3 m in height above seabed).
 - Provide targets for verification by diver, ROV and probing.
 - Provide geophysical outputs suitable for integration into dredging, piling, and construction planning.
 - Deliver digital mosaics, anomaly charts, and interpretive reports in formats compatible with engineering workflows (WSP 2025: 2).

Bathymetric data were collected as close as safely navigable to the dock face and ships, extending beyond the defined survey boundary. The measured seabed elevations range from -7.1m current depth (CD) at the eastern end of Brotherson Dock to -21.5m CD at the western extent of the survey area. The central part of the dock generally shows consistent depths between -15 m CD and -16 m CD, with several deeper dredged berth pockets reaching depths of up to approximately -20 m CD (WSP 2025: 11).

The review of the data by WSP and Marine Earth Science identified 47 contacts from the SSS data. The majority of these anomalies were detected inside Brotherson Dock itself and are likely to relate to modern material that has been deposited during shipping activities, including rope and/or other mooring lines, seabed depressions that may relate to spud impacts from a jack up barge and/or other maintenance dredge activities (see Figure 4.6 for examples). Remains of the former Roll-On/Roll Off (RORO) facility were also targeted and associated anomalies mapped in the SSS, MBES and SBP survey data (see Figure 4.5 for examples).



Extents of Removed RORO Structure

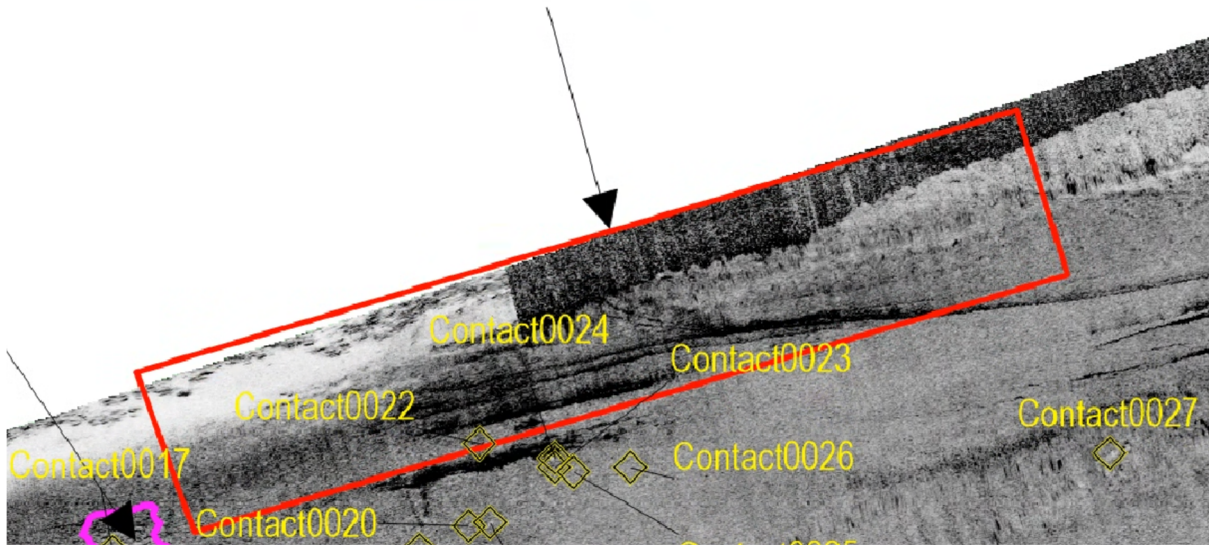
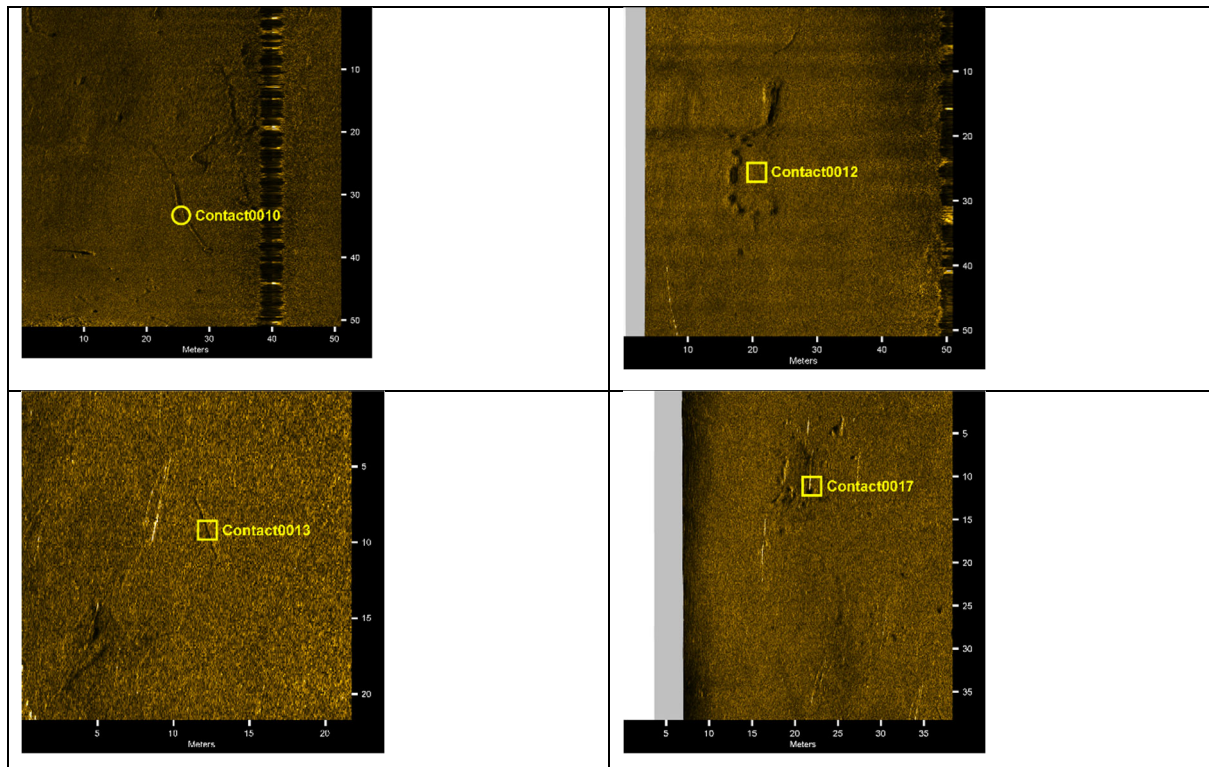


Figure 4.5: SSS data of the RORO structure within Brotherson Dock

One anomaly, Contact 0001, is located outside of Brotherson Dock, but close to the proposed southwest extension area, located at a depth of approximately 19m. The higher resolution SSS image shows an anomaly measuring 22.6m long, 5.8m wide and 1.1m in height above the seabed. The MBES undertaken for the Project shows the possible anomaly as a topographic relief (Figure 4.7).

This anomaly has a distinct shape, with a relatively straight-line edge on the northern side and a sharply curved southern edge with a scour present on its southern side. The anomaly appears to be contained, with only a single smaller feature present to the south (Figure 4.7).



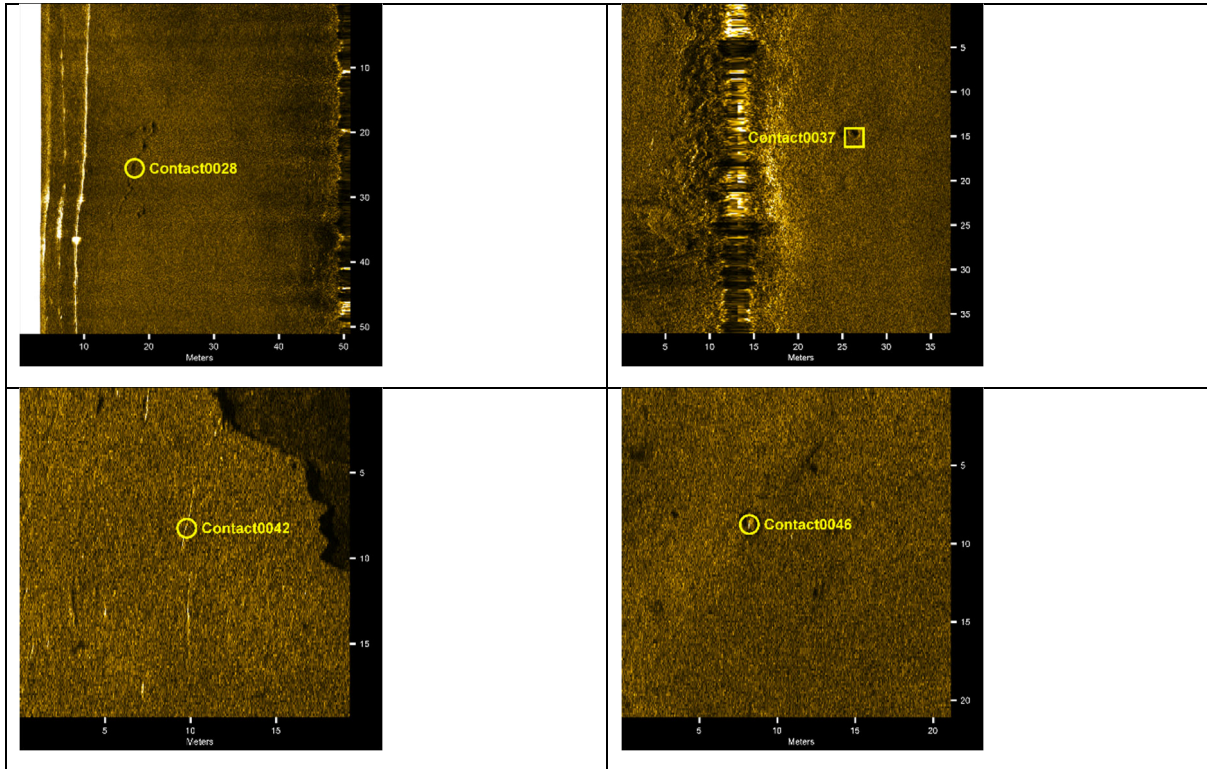


Figure 4.6: Example of Contacts identified within the WSP and Marine Earth Sciences survey report (WSP 2025).

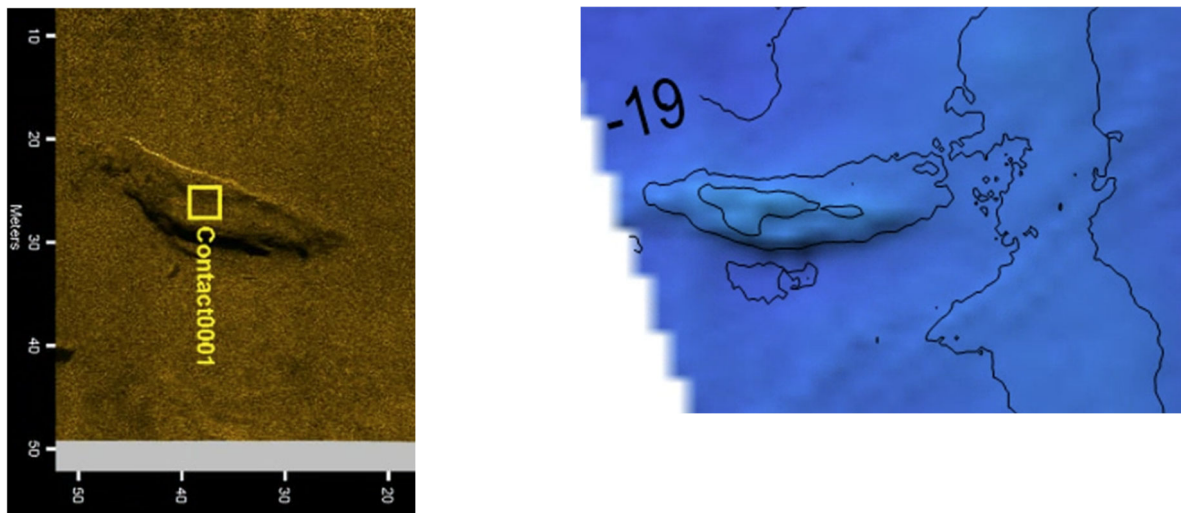


Figure 4.7: Geophysical imagery of Contact 0001. SSS image is on the left and MBES is on the right (Source WSP 2025).

Port Authority of NSW Geophysical Survey of the Project area

Port Authority of NSW Hydrographic Survey undertook a site specific seabed bathymetric survey that included the Project area between 2023 and 2026. These surveys are part of Port Authority's off berths and channel surveys, partly to identify objects/obstructions and possible removal surveys (Port Authority Hydrographic Survey Team, pers. comm 5 March 2026). The survey coverage includes the whole of the Project area, including Brotherson Dock and the area to the south where changes would be made to the BLBs. A Multibeam Echosounder survey was conducted, using a Reason T50-P with spacing allowing for 100% coverage of the seabed (Figure 4.8).



This MBES data extends further out than the survey data collected by WSP, which concentrated on Brotherson Dock. Within Brotherson Dock, similar anomalies identified from the WSP survey can be seen, including the scour protection mattresses in front of the existing counterfort walls, seabed depressions and scours from material deposited on the seabed and possible bow and stern thruster scours (Figure 4.9). The rock armour/scour protection and piles associated with the existing wharves at the eastern end of the dock are also visible (Figure 4.10).

Along the foreshore area south of Brotherson Dock where it is proposed to construct BLB3 and remove BLB1, the existing infrastructure of BLB 1 and 2 are clearly seen, including pipelines and mooring dolphins and other supporting lines (Figure 4.11). A review of this foreshore area in front of the existing rock armour did not locate any anomalies present in this area that could relate to possible underwater cultural heritage sites.

The anomaly identified in the WSP survey data, Contact 0001, is also clearly visible (Figure 4.12). In the Port Authority survey the anomaly appears to be part of a much larger formation on the seabed within the turning basin in front of Brotherson Dock. The other formations consist of both longer and wider features, all with irregular shapes. Also of note, are the shadows that are cast from these other features, predominately on the southern and southwestern sides of these features. The shadow can denote the height of an item above the seabed. As seen with Contact 0001 in the WSP survey data, the shadow on the southern side of the anomaly is also present on other features present further out from the dock entrance (Figure 4.13).

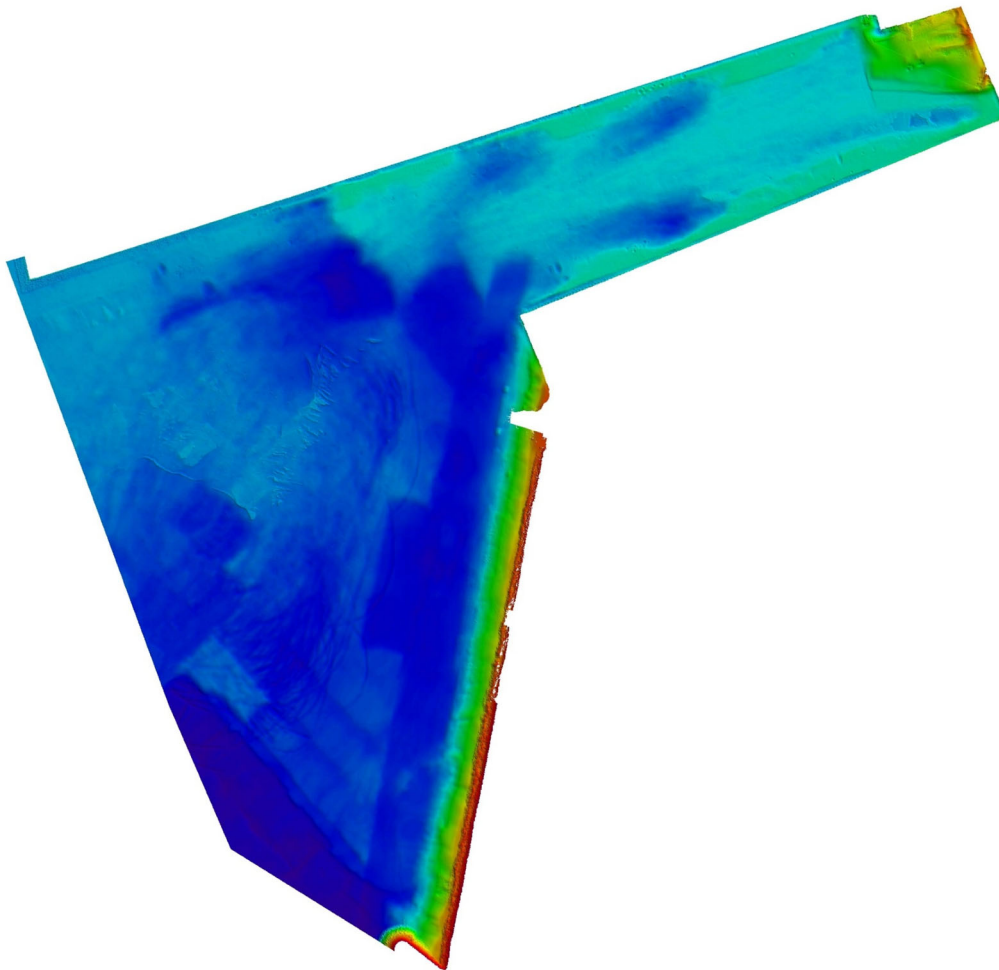


Figure 4.8: Overview of the MBES survey data collected by Port Authority Hydrographic Survey Team between 2023-2026 (Source: Port Authority of NSW).

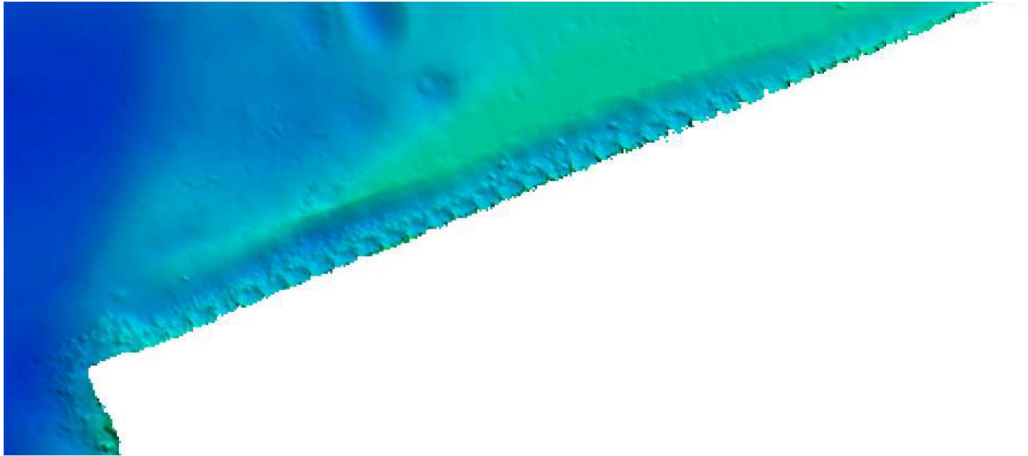


Figure 4.9: View of the counterfort wall and scour protection on the southern side of Brotherson Dock (Source: Port Authority of NSW).

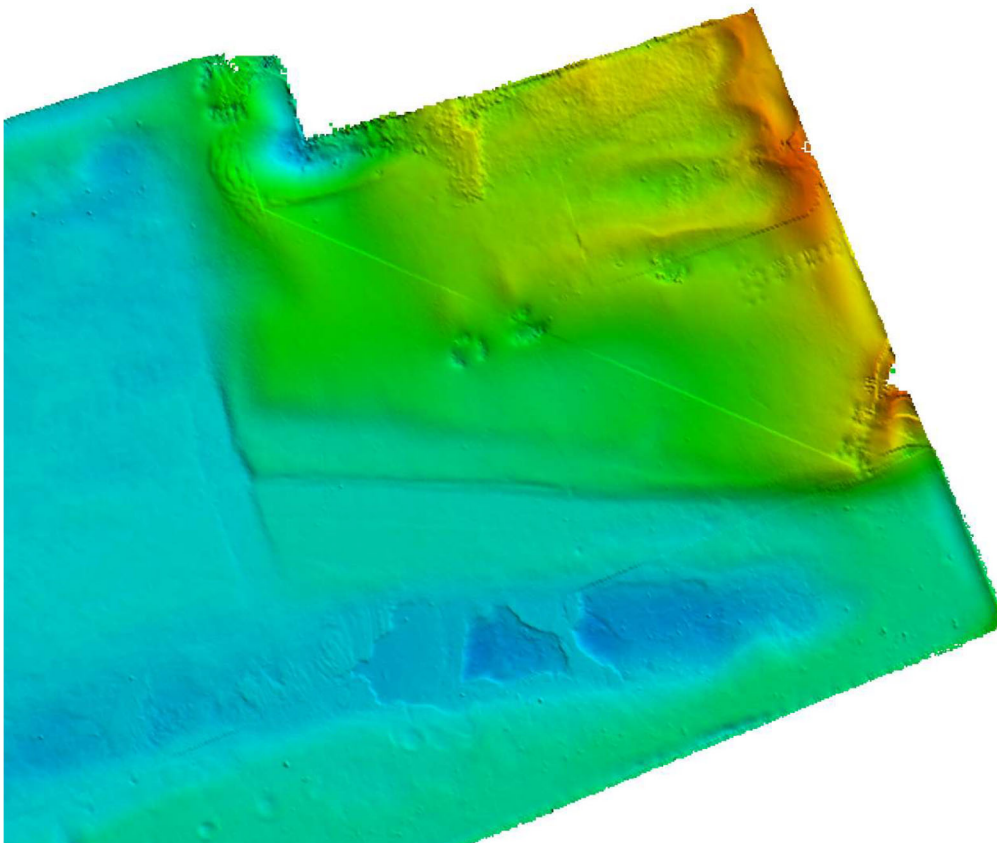


Figure 4.10: MBES survey of the eastern end of Brotherson Dock, showing the existing jetty and wharf structures (Source: Port Authority of NSW).

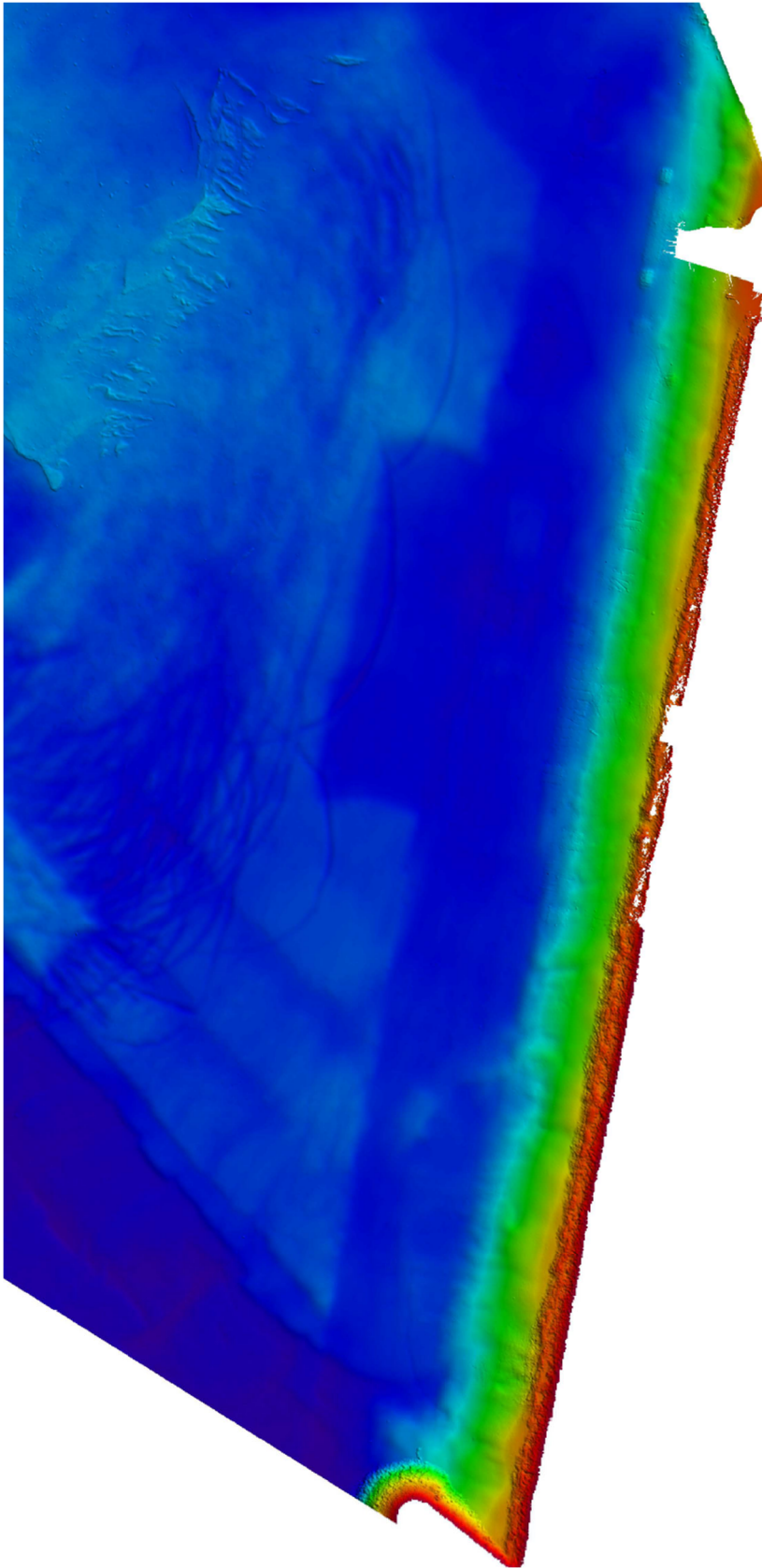


Figure 4.11: Southern end of the Project area in the location of existing BLB1, BLB2 and the current Tug Wharf (Source: Port Authority of NSW).



Figure 4.12: Contact 0001 as seen in the MBES survey data collected by Port Authority of NSW (Source: Port Authority of NSW).

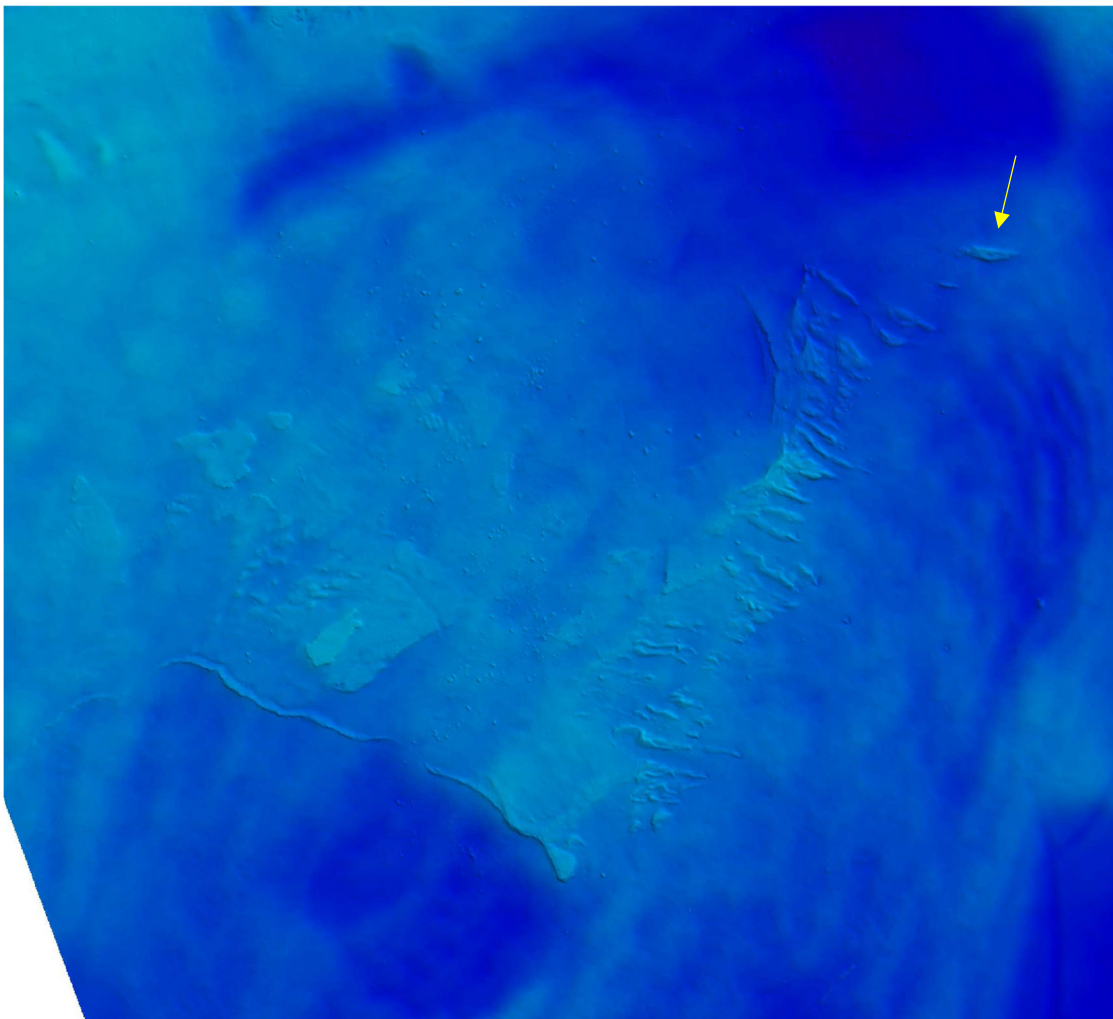


Figure 4.13: Location of Contact 0001 (yellow arrow) and the larger seabed topographic feature present in the Swing Basin (Source: Port Authority of NSW).



Coastal Formation Processes

DHI Seaport was commissioned by NSW Ports to prepare modelling in order to assess potential impacts of the completed Project, if any, to hydrodynamics, flushing, waves and coastal processes within the immediate Project area and greater Botany Bay (DHI Seaport 2025: 1). Changes that can affect sedimentation in the Project area, being primarily either depositional or erosional, have the potential to directly affect underwater cultural heritage sites. In addition to this, an increase in sediment movement, including increased amounts of sediment transported in the water column and/or its velocity, can have a physical impact on underwater cultural heritage sites.

The modelling for the hydrodynamic changes to identify potential impacts was based on the following construction stage of works:

- Stage 1 - Construction of the new Bulk Liquids Berth (BLB3) south of BLB2.
- Stage 2 - Decommissioning of the existing pipeline infrastructure and removal of the existing BLB1 structures.
- Stage 3 - Dredging, reclamation and construction of the extended container wharf and quayline.
- Stage 4 - Installation of container terminal infrastructure (DHI Seaport 2025: 3).

The report details the existing environmental conditions that can influence wave and current energy. Any impact to shoreline morphology, from changes that may occur from would be the result of changes to sand supply, sediment movement and potential for erosional and depositional activity in the Project area.

Statements made in the report regarding these changes included:

Sand supply

The existing and post-PBQEP basin areas are excellent deep port facilities in terms of exhibiting weak currents and waves. The basin will receive some small amount of sediment via Bunnerong Creek during extreme runoff events. However, the Brotherson Basin is fundamentally a sediment sink, particularly for sand, and will remain so following the introduction of the PBQEP. The PBQEP development clearly has no effect on sand supply to any beach.

Water levels or currents

Substantial changes to the baseline hydrodynamic regime would need to occur along active beaches to impact morphology, and there is no reason to expect this to be the case as a result of the PBQEP development. Statistics from the year-long 2D hydrodynamic ... confirm that changes to water levels and currents in front of beaches are indeed negligible.

Wave exposure

Longshore transport at beaches around the fringe of Botany Bay occurs due to a combination of wave exposure by swell and by sea generated via fetch-limited growth within the Bay. Swell dominates in terms of longshore transport, with transport via local sea waves being a minor contributor. (WSP 2025: 42)

PBQEP dredging and reclamation footprint is entirely surrounded by existing port infrastructure. As such, there are no beaches downwave of the proposed development which could be impacted in terms of alterations in swell exposure (WSP 2025: 43).

In relation to alterations to water levels and currents, the report concluded that:



Large-scale changes to water levels and currents along beach areas within Botany Bay have the potential to affect shoreline morphology. As the PBQEP development occurs within a sheltered portion of Port Botany, there is no reason to expect such changes to water levels and currents to occur in the vicinity of the beach frontage.

In regard to alterations to locally generated waves, the report notes there would be a small change to locally generated waves, and that:

The baseline swell forcing which is the primarily driver of shoreline morphology does not change as a result of the introduction of PBQEP (DHI Seaport 2025: 48)

Overall, the report concluded that the existing wave and hydrodynamic conditions acting upon the shorelines around Botany Bay will be “unchanged by the PBQEP project” (DHI Seaport 2025: 48)



5 Archaeological Analysis

5.1 Potential for maritime archaeological relics

Based on historical research, shipwreck database searches and a review of previous historical and maritime archaeological assessments adjacent to the subject site, there is a low potential for underwater cultural heritage remains to be present within the Project area. The following section outlines the archaeological potential within and immediately adjacent to the Project area.

Prior to the construction of the Port Botany Container Terminal in the early 1970s, the Project area was wholly located within Botany Bay. The nearby uses of the foreshore area included late 19th century and early 20th century were associated with both recreational and industrial uses of the foreshore area. These former foreshore areas are well outside the Project area for this assessment; however, their former use indicates there was some maritime use close to the Project area.

Of particular note, the former APM Jetty that was constructed in c.1901 and was used to unload raw materials for the site. From the 1920s the jetty was also used for the unloading of coal to the Bunnerong Oil refinery and in the 1960s to support sand dredging. Cosmos Archaeology assessed the archaeological potential associated with this jetty as being remote (low) as it was likely that archaeological potential would predominately relate to the raw and processed materials that were imported and exported from this jetty (Cosmos Archaeology 2002: 33). This report agrees with that assessment. While the outer end of the jetty extended into the current eastern end of Brotherson Dock, reclamation and dredging works inside the dock area is likely to have removed any archaeological remains associated with this jetty. There are not expected to be any archaeological potential associated with the former Government Jetty or relics related to its use and operation.

Other maritime uses of the area prior to the initial reclamations and construction of Brotherson Dock and subsequent expansion of the Port Botany Container Terminal would have been restricted to vessels traversing across this area. Historical aerial photographs of Botany Bay show the gradual reclamation and formation of Brotherson Dock and the facilities to the south, from the late 1970s onwards. From the 1980s through to 1990s, other than the BLB1 and navigation markers in the bay, there does not appear to have been other moorings, dolphins or other structures presented within the Project area.

In regard to shipwrecks, assessments by Clark (1992) and Cosmos Archaeology (2002) identified one potential shipwreck that may have been present within their respective Project areas that overlap with this report. The wreck of the *Prompt* (1881) was washed ashore near Government Jetty in 1881. The exact location of the wreck site was not known, and in addition to this, it is not clear if the wreck may have been refloated or salvaged. If driven ashore near the former Government Wharf, the site would have been located greater than 500m away towards the northeast of the Project area, now possibly under the reclamation fill associated with the 1970s Brotherson Dock construction or subsequent 2004 expansion of Port Botany.

A search of the NSW Maritime Heritage Database returned a total of 22 Shipwrecks lost within or on approach to Botany Bay. Interrogation of the dataset refined this list to 9 possible shipwrecks possibly lost in the general larger area surrounding this assessment's Project area. Of these, there are only two that have the potential to be present in the Project area. The first was the wreck of the *Prompt* (1881) already discussed above, and the wreck of the *Minnie Wamsley* (1903). Constructed in Balmain in 1884, *Minnie Wamsley* was a 14m timber hulled single screwed schooner. The vessel was wrecked in a gale in Botany Bay. The exact location of this wreck is unknown; however, review of the geophysical data collected for this Project, and previous Port Authority surveys of the seabed



between 2023 to 2026, did not identify any potential anomalies within the footprint of the impact area for the Project.

The anomaly identified by WSP and Marine Earth Science, Contact 0001, is located approximately 250m to the west of the existing Brotherson Dock within the swing basin area. Using both the SSS and MBES data collected by WSP and Marine Earth Sciences for the Project, and the survey data collected by Port Authority Hydrographic Survey team, this anomaly appears to be the outer edge of a larger seabed topographic feature. This larger seabed feature is generally 330m long and up to 70m wide in sections (see Figure 4.13). Contact 0001 is 23m in length with some noticeable features, including a straight edge running on its northern side and a curved shape on its southern side. Also, along its southern side, a clearly defined shadow and possible scour is present (Figure 4.12). This shape is consistent with other seabed topographic features visible in the MBES data.

No borehole or vibrocore data was collected outside of the proposed impact footprint for this Project. The closest borehole data collected was from BH4, located at the western end of the proposed quayline extension of Brotherson Dock. The sediment data at the top of this core reveals the top layer of sand extends 1.7m below the seabed and is situated over the top of a stiff silty clay (WSP 2026: Datasheet BH04-1). A borehole further to the south in the location of the new BLB3, BH08, reveals that the seabed consists of a very soft silty clay that becomes firm to very stiff at depth (WSP 2026: BH08-1). This material looks very similar to the seabed material surrounding Contact 0001 and the larger seabed topography feature present in the MBES data collected by Port Authority.

The size and dimensions of the anomaly, being 23m long, does not fit the dimensions of the wreck *Minnie Wamsley*, which was 14m long. Other known shipwrecks that have been lost in Botany Bay have a geographical reference where they were lost. During or after the wrecking event, survivors and/or witnesses noted the general area where the ships were wrecked, providing valuable information as to their possible whereabouts. Of the seven other shipwrecks lost on the northern and northwestern sections of Botany Bay, they have general locations associated with their wrecking location, placing them outside of the Project area. The potential for an unknown shipwreck to be present in Port Botany is low. A vessel of that size is likely to have been reported and an insurance claim and investigation made.

The MBES and SSS data cannot positively identify what Contact 0001 is; however, it is highly likely that Contact 0001 is related to the stiffer silty clay present below the sand deposits within Botany Bay that have been exposed or brought up to the surface within the swing basin area. The settling of stiffer material on the softer sandy deposits may have formed these features on the seabed.



6 Impact Assessment

6.1 The Proposal

The following description of works has been taken from the PBQEP EIS prepared for the Project (AECOM 2025). The following description concentrates on the proposed works that would have an impact on the seabed and does not include proposed works that would take place behind the existing quayline or seawall areas.

- Construction of an extended quayline (BD12) on the southern side of Brotherson Dock, including dredging of the Brotherson Dock channel and berths to provide material for reclamation of land. This would provide:
 - Extension of the southern side of the Brotherson Dock quayline by around 314 metres to provide a combined quayline length on the southern side of Brotherson Dock of around 1,250 metres to accommodate up to three longer container vessels, commensurate with the quayline length available to stevedore operators in other parts of the port.
 - An additional 5.3 hectares of wharf area (wharf hardstand)
- Consequential changes to the bulk liquids berths at the port, including demolition of the existing Bulk Liquids Berth 1 (BLB1), construction and operation of a new Bulk Liquids Berth (BLB3) in a more southerly location, and associated changes to pipework and bulk liquids handling infrastructure within the port. The types and volumes of bulk liquids would remain unchanged.

6.2 Construction Methodology

Construction of the new BLB3

Construction of the new BLB3 would involve:

- Piling and construction of a suspended deck structure (requiring approximately 119 piles)
- Assembly and installation of mooring dolphins
- Installation of BLB3 infrastructure
- Installation of new pipeline rack and exchange facility
- Construction of a new operations/ control facility
- Installation of electrical services
- Construction of a new emergency egress at the existing BLB2.

Assembly and installation of mooring dolphins

Nine mooring dolphins would be fabricated onsite. Mooring dolphins would be installed at BLB3, supported by steel tubular piles.

Installation of a new deck structure and steel tubular piles at the BLB3 would follow the piling process described below.

Installation of BLB3 infrastructure

Fire monitor towers, walkways and fenders would be fabricated and assembled off-site prior to delivery by road to a laydown area at the Project site.

Mobile cranes and elevated work platforms would load the fire monitor towers, walkways, fenders, MLAs and gangway onto barges and deliver them to a jack-up or floating barge secured by mooring lines. Cranes would then place them in their designated locations at BLB3.



Decommissioning and removal of the existing BLB1 and tugboat jetty

Most of the decommissioning and demolition of BLB1 would take place after construction of BLB3 is completed to avoid disrupting Port Botany's bulk liquids trade.

Decommissioning and demolition activities would involve:

- Demolition and removal of the tugboat jetty south of BLB3
- Cessation of operations associated with BLB1
- Flushing and pigging (pipe clearing) of pipelines associated with BLB1
- Disposal of excess product to appropriately licensed waste facilities
- Demolition and removal of BLB1 infrastructure and associated pipelines including:
 - Central working platform and access bridge
 - Mooring dolphins
 - BLB1 equipment including fire monitor towers, walkways, fenders, marine loading arms and hydraulic gangways where not being reused
 - Associated services, including connections to power, lighting, water, sewer, communications and amenities.

Demolition activities would include both waterside and landside activities. A crawler crane on a jack-up barge would be used to dismantle and remove the BLB1 and tugboat jetty equipment. Barges would transport the removed equipment for temporary storage before disposal at a licensed waste management facility or reuse at BLB3. Some parts of the BLB1, including the MLAs and hydraulic gangway, would be relocated to BLB2.

Piles and decking currently used to support the BLB1 structure would be removed as described in relation to piling and wharf deck construction.

Tugboats would continue to operate from other existing sites within Port Botany.

Construction of extended quayline and wharf area

Construction of the extended quayline on the southern side of Brotherson Dock would involve the following main activities:

- Construction of a bund wall, dredging and reclamation works
- Piling and wharf deck construction.

The new extended quayline and wharf area would have an overall footprint of six hectares. This would allow a hardstand area around 5.3 hectares, composed of the reclaimed area (four hectares) and suspended deck (1.3 hectares).

An indicative cross section of the extended quayline is provided in Figure 6.1 and Figure 6.2, which show the layers of the bund wall, reclamation area, piling and deck structure.



Construction of the bund wall, dredging and reclamation

To extend the southern side of Brotherson Dock, the Project would require dredging and reclamation activities. This would comprise:

- Demolition of the current Brotherson Dock quay end
- Construction of a bund wall including a core, geofabric textile layer, and outer rock armour layer
- Progressive dredging of Brotherson Dock, with the dredged material used to fill behind the bund wall
- Compaction of dredged materials within the reclamation area.

Bund wall construction

Construction of the bund wall would take place from landside construction areas. Aggregate fill and rock armour would be delivered by road from the temporarily stockpile site. Truck and dog trailers would transport the material to the construction site, where it would be placed underwater using tipping trucks or long-reach excavators.

A bund wall would be constructed to contain reclaimed material dredged from within Brotherson Dock, and serve as the foundation for the extended quayline. The bund wall would comprise three elements:

- The core made of aggregate fill material sourced from tunnelling or similar projects or quarried from existing sites
- A permeable geofabric textile layer to contain the core of the bund wall, and minimise washing out of fine aggregate fill and reclamation material
- An outer rock armour layer for structural protection and erosion control (Figure 6.1).

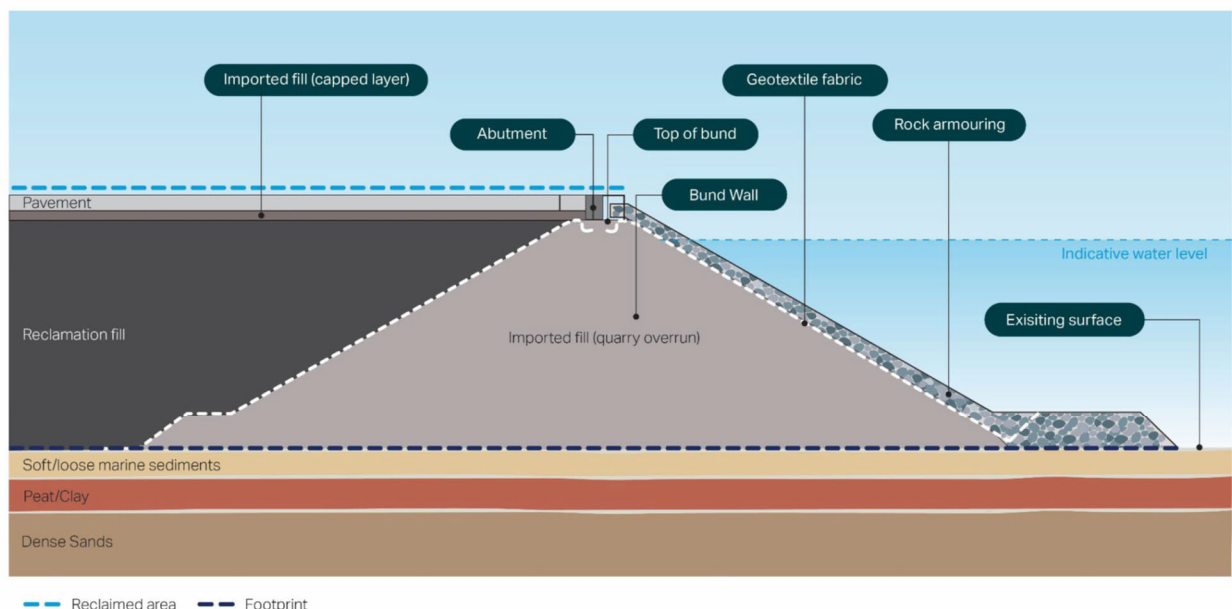


Figure 6.1: Typical Bund wall construction cross section (AECOM 2025)

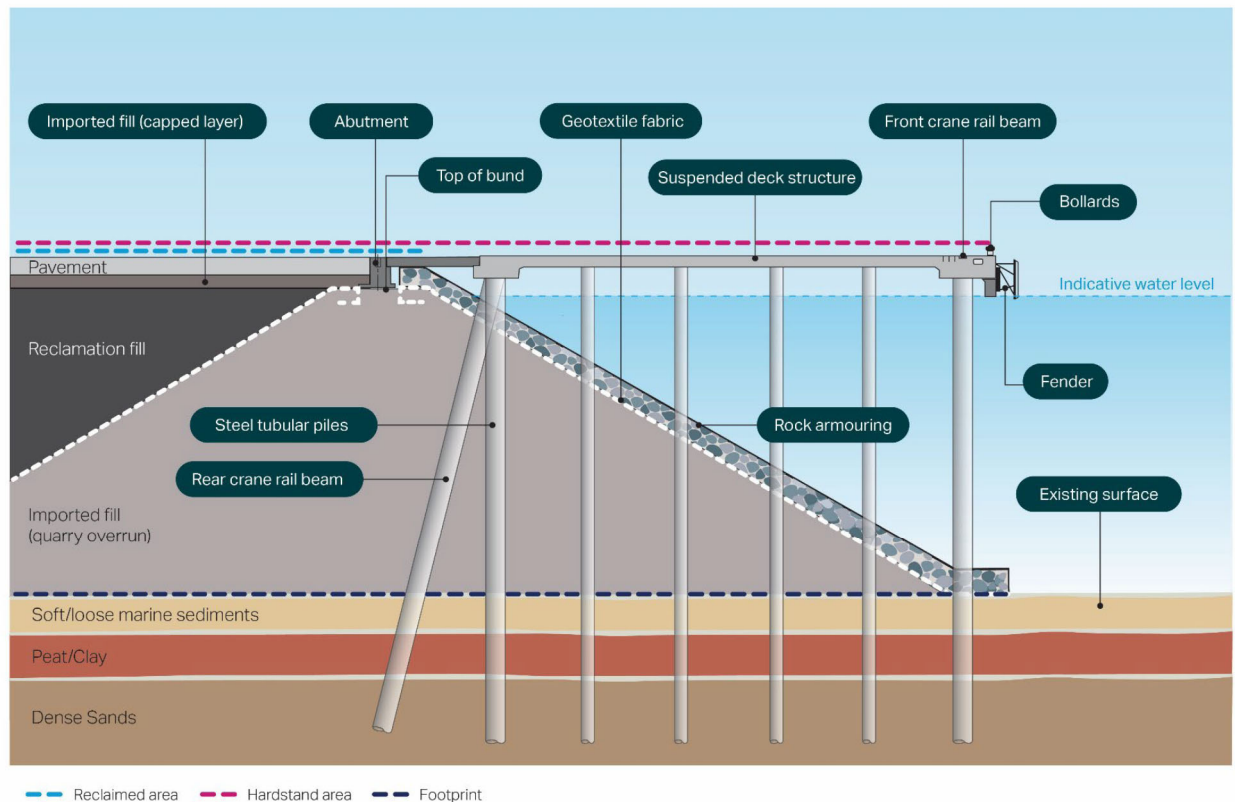


Figure 6.2: Indicative cross section of the quayline and wharf construction (AECOM 2025)

Dredging and reclamation

A key component of the Project would involve dredging works and reclamation of land.

To maintain depths required by vessels to berth, the Brotherson Dock bed is already regularly redistributed to ensure depths 14.5 metres below water level, without exposing material from the seabed to air. As part of the Project, Brotherson Dock would be dredged up to a further 4.5 metres below existing seabed levels, to a total of 19 metres below water level, to provide a source of material for the reclamation. The area in Brotherson Dock to be dredged as part the Project is shown in Figure 1.2.

Approximately 600,000 cubic metres of dredged material would be extracted from Brotherson Dock using a trailer suction dredge. Once loaded, the slurry would be hydraulically placed into the reclamation area, behind the rock bund. Excess water would be drained (or dewatered) via a single, dedicated overflow structure in the south east corner of the reclamation area (Figure 6.3). Excess dredged material not required for the reclamation area would be redistributed to deeper areas within Brotherson Dock.

Rock or concrete mats (scour mattresses) would be installed on the seabed alongside the berthing face to protect the berth face from undermining from erosion of the seabed.



Piling and wharf deck construction

- Construction of the new BLB3
- Demolition of the existing BLB1 and the tugboat jetty
- Construction of the extended quayline and wharf area.

Both the new BLB3, and the extended quayline and wharf area would be comprised of a suspended deck structure supported by steel tubular piles. A total of 119 piles would be required for the construction of BLB3, and a total of 380 with anticipated lengths of up to around 70 metres for the extended quayline and wharf area. Both waterside and landside construction activities would be required for installation, as detailed below.

Piles would be driven into the seabed using a pile driver or hammer mounted on either a jack-up barge or floating barge restrained by mooring lines. Two piling methods would be considered:

- It is expected that installation of one pile would first involve vibratory piling, followed by impact pile driving, in one workday.



Piles would be driven to depths around two metres below the sandstone seabed (refer to example depths in Figure 3-8). Vertical piles would be organised in a grid formation with raked piles (driven at an angle) to provide additional support to the suspended deck structures.

Demolition of BLB1 and the tugboat jetty would involve removal of the suspended deck structure and piles. Pile extraction would involve the same methods as installation, but in reverse. A crawler crane would move demolished materials onto barges. Barges would transport demolished material to WSCC01 for storage before disposal at a licensed waste management facility.

6.3 Potential impacts

Preamble

Potential impacts to maritime archaeological relics and/or articles are from both direct and indirect impacts from the proposed works. For the proposed quayline expansion the direct impact would be from:

- dredging activities within Brotherson Dock;
- preparation of reclamation activities including placement of rock armour;
- Driving of piles for the quayline extension, BLB3 and associated dolphins; and
- Extraction of piles from BLB1.

Indirect impacts from the piles would occur from any potential long-term changes to the hydrodynamic environment caused from the proposed dredging and reclamation works, as well as from the construction of the new BLB3.

The three main impacts to shipwrecks and other maritime archaeological relics are categorised as mechanical, chemical and biological.

- *Mechanical* damage, is where the physical integrity of the site is affected by the impacts of wave, surge, current, sand abrasion as well as cultural behaviour such as dredging, dragging anchors or vessels running aground. Increases in mechanical damage to a site can result from increases in tidal flows and increased exposure of sites to sediment erosion.
- *Chemical* damage relates primarily to the corrosion of the metal components of a site. Changes in pH levels, salinity, light levels (heat) and water movement can dramatically increase electrochemical (corrosion) activity for metal components immersed in seawater.
- *Biological* damage occurs where organic materials, such as wreck or wharf timbers, are exposed to biological organisms such as marine borers and bacteria, and in some cases vegetation. In relation to marine heritage sites, increased biological damage will occur if buried sites, or partially exposed sites, are further exposed, due to sediment erosion. This can expose areas where an equilibrium has been reached between the organic and the shipwreck material, however, the removal of the organic material exposes the portion of the shipwreck to additional chemical and/or mechanical forces.

If shipwrecks or maritime archaeological sites are influenced by one or more of the above-described impacts, it may cause accelerated deterioration, that may include damage to the structural integrity of the heritage site, including the potential for collapse, deterioration or deflation of the site. Any of these impacts would potentially result in impacts to heritage significance and archaeological potential.



Dredging of Brotherson Dock

The proposed dredging of Brotherson Dock from the existing 14.5m to 19m is not expected to have any known or potential impacts to maritime archaeological or other underwater cultural heritage sites. The dock has previously been dredged deeper during the initial construction of Brotherson Dock. Review of the geophysical data collected by Port Authority between 2023 and 2026, and data collected specifically for the Project by WSP and Marine Earth Science in 2025 did not show any potential underwater cultural heritage anomalies within the proposed dredge area within the dock itself. The smaller contacts that were identified in the 2025 data are likely to be objects deposited on the seabed more recently during the operation of the site as Brotherson Dock.

Decommissioning of the Tug Boat Wharf and BLB1

The decommissioning of the current Tugboat jetty and BLB 1 would include the removal of the existing piles from both structures. Piles would be removed with the use of a jack-up-barge supporting a crane, with piles being vibrated as they are lifted to assisted with removing the piles whole from the seabed. There are no known or potential underwater cultural heritage sites present under or in the immediate vicinity of both structures. There are no anomalies identified in the review of the Port Authority MBES data in the vicinity of both existing structures or identified from the historical research undertaken for this assessment.

Construction of the BLB3

The construction of BLB3 would include the driving of piles and placement of mooring dolphins through the use of a jack-up-barge supporting a crane. The proposed location of the piles and impacts to the surrounding seabed from the spuds on the seabed would not be located near any known or potential underwater cultural heritage sites within the Project area.

Expansion of the quayline at Brotherson Dock

The expansion of the southern quayline of Brotherson Dock, including piling, placement of rock armour, reclamation works are not expected to have any impact on any known maritime archaeological or underwater cultural heritage sites.

The works would be undertaken approximately 50m to the south of Contact 0001, a potential anomaly identified in the WSP and Marine Earth Science's geophysical survey. The anomaly is highly unlikely to be a shipwreck or other underwater cultural heritage item; however, the only way to positively identify if Contact 0001 is or is not a possible underwater cultural heritage item would be to undertake a maritime archaeological diver survey or use underwater video survey of the site. Undertaking a diver or remote operated vehicle survey of Contact 0001 is very difficult due to its location in the swing basin and 24 hour, 7 days a week, operation of Brotherson Dock.

No dredging works are proposed over Contact 0001. Construction works along the quayline include the construction of bund wall and rock armour, with piling works being undertaken for the construction of the new quayline. Piling works would be installed with the use of a Jack-up-barge with a mounted crane. While in operation for piling works along the outer edge of the new quayline, the barge would be at least 25m from the location of Contact 0001. In addition to this, support spud-barges may be required to be placed on the north, east and/or western sides of the main barge (Figure 6.4). If positive identification of Contact 0001 cannot be made prior to construction works, a construction buffer zone should be established around the perimeter of Contact 0001. A protective barrier of at least 5m should be established around Contact 0001. This protective area should be established around Contact 0001 whereby vessels would be allowed to traffic over the top of the



site, but no anchoring or placement of spuds from jack up barges would be allowed. This would ensure that no construction impacts to the anomaly would be possible.

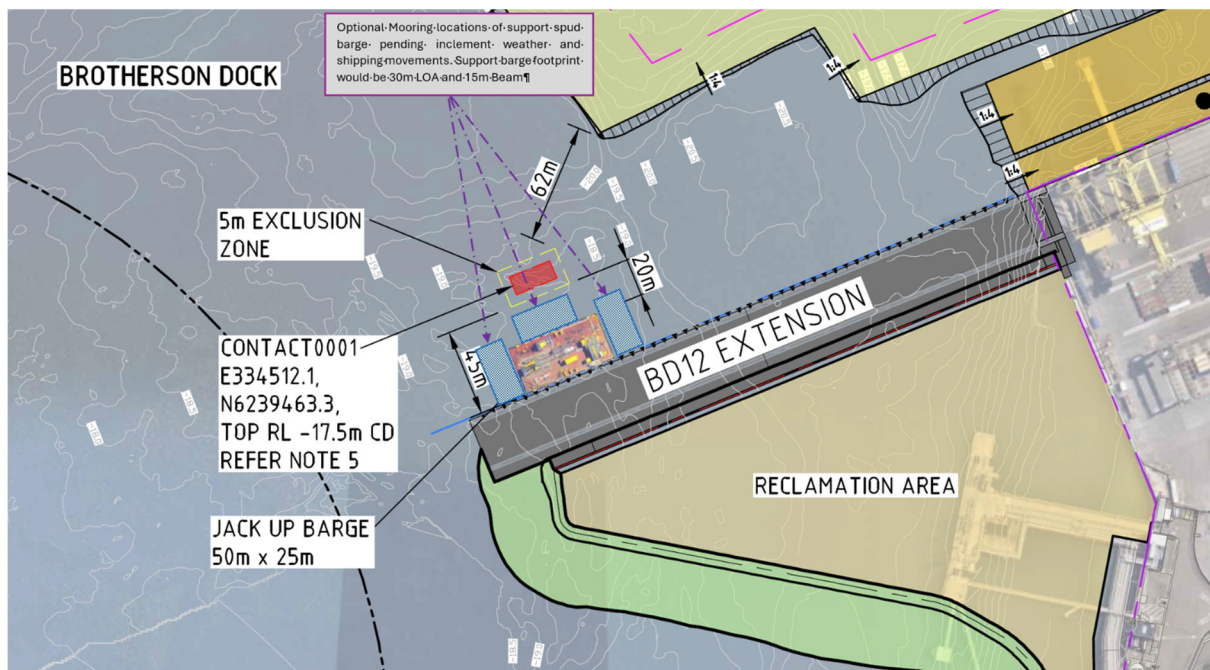


Figure 6.4: Detailed drawing showing the location of the piling barge used the quayline extension in relation to Contact 0001 (Source NSW Ports).

Operation of Brotherson Dock and BLB 3

Changes to coastal hydrodynamic processes that would occur within the Project area and the wider Botany Bay area completed by DHI Seaport (2025) concluded that dredging, reclamation and construction of the new BLB3 would have a negligible impact to currents, waves and sediment transport. Generally, Brotherson Dock and the surrounding Project area would remain a sediment sink, that is, there is some sediment transported into the site; however, this sediment load is expected to be similar to the levels currently experienced in the Project area. Additionally, the Project area is not expected to have any increase or decrease in wave or current action due to these proposed works. Overall, the report concluded that the existing wave and hydrodynamic conditions acting upon the shorelines around Botany Bay will be “unchanged by the PBQEP project” (DHI Seaport 2025: 48).

As there is not expected to be any changes to the hydrodynamic environment, there is not expected to be long term indirect impacts to any known or potential underwater cultural heritage within the Project area, or within the greater Botany Bay area from after the construction or operation of the Project.



7 Conclusions and Recommendations

7.1 Conclusions

- MTS Heritage were engaged by NSW Ports to prepare an MAA for the proposed Port Botany Quayline Expansion Project. The Project would result in the expansion of the quayline of the southern side of Brotherson Dock, creation of a new Bulk Liquid Berth (BLB3) and removal of the existing Tugboat jetty and BLB1. Reclamation fill required for the Project would be sourced from capital dredging works inside Brotherson dock.
- Historical research undertaken for this MAA has outlined that the original foreshore was located approximately 400m to the northeast of the current Brotherson Dock area. The earliest maritime uses of the area were market gardens and meat preserving and tallow works. It was not until 1901 when the APM was constructed that any maritime infrastructure was constructed close to the Project area. The wharf extended into the current northeastern corner of the Brotherson Dock area, north of the current jetties. The wharf was removed from the site by 1978 for the construction of the dock. There are not expected to be any maritime archaeological remains associated with this former wharf within the Project area due to extensive dredging that has occurred.
- Port Botany was constructed between 1976 and 1982, when the Brotherson Dock 2, located on the southern side of the dock was constructed. For its construction, reclamation material was primarily sourced from dredge material within the dock area and wider port construction area. This included dredging the dock and swing basin area 3m deeper.
- A review of the MBES and SSS data collected for the Project and previously by Port Authority did not identify no known or potential maritime archaeological sites or relics within the proposed Brotherson Dock area. A review of the Port Authority MNES data along the southern part of the Project area between BLB1 and the current tug boat wharf where the new BLB3 would be constructed did not identify any potential maritime archaeological or other underwater cultural heritage objects or sites.
- A site identified in the SSS and MBES data collected by WSP for the Project, known as Contact 0001, is located approximately 50m to the north of the proposed quayline extension area. A review of this data and survey data collected by Port Authority of the wider Project area suggests this Contact is likely to be a seabed topographic feature and is very unlikely to be a shipwreck or other maritime archaeological site.
- As Contact 0001 is located at the entrance to Brotherson Dock, diving in this area is not possible due to the 24 hour operation of the dock. As a precaution, a construction exclusion zone is recommended to be established around the Contact. Vessels would be able to traffic over the Contact, however, no anchoring or placing of subds from a jack up barge would be allowed in the exclusion area.
- The Project is unlikely to impact on any known or potential maritime archaeological or other underwater cultural heritage site within the Project area.



7.2 Recommendations

Based on the historical research, review of geophysical data and an understanding of the proposed impacts from the development, the following recommendations for the Project are provided.

- The proposed expansion of Port Botany, including the removal of existing BLB1 and Tug Boat Wharf, construction of BLB3, dredging of Brotherson Dock and the reclamation and expansion of the quayline, is unlikely to impact on any known or potential maritime archaeological sites or deposits within or adjacent to the Project area.
- Whilst unlikely to be a shipwreck or other maritime archaeological site, as a precaution, a construction exclusion zone should be established around Contact 001. No anchoring or mooring of vessels should occur within a 5m radius around the site.
- In the event that an unexpected maritime archaeological find is discovered during construction works, the Maritime Archaeological Unexpected Finds Protocol included as Annexure C of this report should be followed.



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Annexure A: *Prompt* – NSW Maritime Heritage Database Listing

Prompt

[History](#) | [Database](#) | [Links](#) | [Print](#)

History

The wooden schooner *Prompt* was lost on the 30th of January 1881 during a gale, having been washed ashore near the government wharf, Botany Bay.

Database

Site information

Site ID:	646	Construction:	Wood
Type:	Schooner	Sub-industry:	
Primary industry:		Net tonnage:	
Gross tonnage:		Beam (mtrs):	
Length (mtrs):		Cargo:	
Draft (mtrs):		State built:	
Engine:	NA	builder:	
Country built:		When built:	
Port built:		Official number:	
Port registered:			
Registration number:			
Sources:	SMH 1/2/1881		
Comments:			

Lost event

When lost:	1881/1/30	Where lost:	Botany Bay, ashore near govt wharf
Wrecked/Refloated:	Wrecked	Sinking:	Gale
From port:		To port:	
Master:		Owner:	Messers Fraser & Co
Crew:		Passengers:	
Crew deaths:	0	Passenger deaths:	
Total deaths:	0		

Location

Maximum latitude:		Minimum latitude:			
Maximum longitude:		Minimum longitude:			
Datum used:					
Datum	Latitude	Longitude	Zone	Easting	Northing

AGD66
AGD84
GDA94
WGS84

Management

Found:	No	Inspected:	No
Protected:	NSW Heritage Act 1977	Jurisdiction:	State
Protection notes:			
Signage:		Web address:	

Links

There are currently no links associated with this site.



Annexure B: *Minnie Wamsley* – NSW Maritime Heritage Database Listing

Minnie Wamsley

[History](#) | [Database](#) | [Links](#) | [Print](#)

History

In 1903 the 17 ton *Minnie Wamsley* was lost during a storm in Botany Bay, Sydney.

The Sydney registered 14.9 metre wooden screw steamer was built in 1884 in Balmain, Sydney Harbour.

Database

Site information

Site ID:	828	Construction:	Wood carvel
Type:	Steamer screw	Sub-industry:	
Primary industry:		Net tonnage:	12
Gross tonnage:	17	Beam (mtrs):	3.596
Length (mtrs):	14.99	Cargo:	
Draft (mtrs):	1.219	State built:	New South Wales
Engine:	High Pressure Inverted	builder:	
Country built:	AUSTRALIA	When built:	1884
Port built:	Sydney Harbour, Balmain	Official number:	89252
Port registered:	Sydney		
Registration number:	37/1884		
Sources:	RBS		
Comments:			

Lost event

When lost:	1903	Where lost:	Sydney, Botany Bay
Wrecked/Refloated:	Wrecked	Sinking:	Storm
From port:		To port:	
Master:		Owner:	
Crew:		Passengers:	
Crew deaths:		Passenger deaths:	
Total deaths:			

Location

Maximum latitude:		Minimum latitude:	
Maximum longitude:		Minimum longitude:	
Datum used:			
Datum	Latitude	Longitude	Zone Easting Northing

AGD66
AGD84
GDA94
WGS84

Management

Found:	No	Inspected:	NO
Protected:	Historic Shipwrecks Act 1976	Jurisdiction:	Federal
Protection notes:			
Signage:		Web address:	

Links

There are currently no links associated with this site.



Annexure C: PBQEP Maritime Archaeological Unexpected Finds Protocol



Port Botany Quayline Equalisation Project:

Maritime Unexpected Find Procedure

Report prepared for Port Botany Operations Pty Ltd as Trustee for
Port Botany Unit Trust (NSW Ports)
March 2026

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Project Name: Port Botany Quayline Equalisation Project
Document Title: Port Botany Quayline Equalisation Project –Maritime Unexpected Finds Protocol
Revision: 2 – Final
Date: 24 March 2026
Client Name: Port Botany Operations Pty Ltd as Trustee for Port Botany Unit Trust (NSW Ports)
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Revision	Date Issued	Description	Authors	Reviewed	Date Comments received
1	16/03/2026	Draft MUFP	C. Lewczak	F. Leslie	19/03/2026
2	24/03/2026	Final MUFP	C. Lewczak		

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Project Understanding

This maritime unexpected finds procedure (MUFP) has been provided to assist NSW Ports in identifying and managing maritime archaeological specific unexpected finds that may be encountered during construction phase of the Port Botany Quayline Equalisation Project (PBQEP).

The Project would involve two principal components:

- Construction of an extended quayline (BD12) on the southern side of Brotherson Dock, including dredging of the Brotherson Dock channel and berths to provide material for reclamation of land. This would provide:
 - Extension of the southern side of the Brotherson Dock quayline by around 314 metres to provide a combined quayline length on the southern side of Brotherson Dock of around 1,250 metres to accommodate up to three longer container vessels, commensurate with the quayline length available to stevedore operators in other parts of the port.
 - An additional 5.3 hectares of wharf area (wharf hardstand)
- Consequential changes to the bulk liquids berths at the port, including demolition of the existing Bulk Liquids Berth 1 (BLB1), construction and operation of a new Bulk Liquids Berth (BLB3) in a more southerly location, and associated changes to pipework and bulk liquids handling infrastructure within the port. The types and volumes of bulk liquids would remain unchanged.

This MUFP has been informed by the Maritime Archaeological Assessment (MAA) prepared by MTS Heritage Pty Ltd (MTS Heritage) for this this project and includes:

- Project Understanding;
- Unexpected finds, stop work triggers and notification procedures
- Considerations for short and long-term storage of maritime archaeological relics; and,
- Recording examples.

Background

MTS Heritage Pty Ltd (MTS Heritage) was engaged by Port Botany Operations Pty Limited as trustee for Port Botany Unit Trust (referred herein as NSW Ports) to prepare a MAA to assess the proposed PBQEP (the Project).

Historical research undertaken for the project has identified that the original shoreline in this section of Botany Bay was located approximately 400m to the north. Early market gardens and noxious industries were present on the foreshore of Botany Bay from the early half of the 19th century. It was not until the construction of the Australian Paper Mill site in 1901 that a maritime infrastructure site was located close to the Project area. The paper mill wharf extended into what is now the northeast corner of the Brotherson Dock, and the wharf was removed from the site by 1978 for the construction of the dock. There are not expected to be any maritime archaeological remains associated with this former wharf within the project area due to extensive dredging that has occurred.

The construction of the Port Botany site between 1976 and 1982 included extensive reclamation works, with the reclamation material coming from dredging within Brotherson Dock and the greater swing basin area. Design plans for the construction of the new dock show that it was dredged by approximately 3m.



A review of the MBES and SSS data collected for the Project and previously Port Authority surveys of the greater dock area did not identify any known maritime archaeological sites or relics within the proposed Brotherson Dock area. A review of the Port Authority MBES data along the southern part of the Project area between BLB1 and the current Tugboat jetty where the new BLB3 would be constructed did not identify any potential maritime archaeological or other underwater cultural heritage objects or sites.

An anomaly identified in the SSS and MBES data collected by WSP for the Project, known as Contact 0001, is located approximately 50m to the north from the proposed quayline extension area. A review of this data and survey data collected by Port Authority of the wider Project area indicates Contact 0001 is highly likely to be a seabed topographic feature and is highly unlikely to be a shipwreck or other maritime archaeological site.

Based on the historical research, review of geophysical data and an understanding of the proposed impacts from the development, the report recommended that:

- The proposed expansion of Port Botany, including the removal of existing BLB1 and Tugboat jetty, construction of BLB3, dredging of Brotherson Dock and the reclamation and expansion of the quayline, is unlikely to impact on any known or potential maritime archaeological sites or deposits within or adjacent to the Project area.
- Whilst unlikely to be a shipwreck or other maritime archaeological site, as a precaution, a construction exclusion zone should be established around Contact 001. No anchoring or mooring of vessels should occur within a 5m radius around the site.
- In the event that an unexpected maritime archaeological find is discovered during construction works, the Maritime Archaeological Unexpected Finds Protocol included as Annexure A of this report should be followed.

This MUFP has been prepared to satisfy those recommendations.

Statutory Requirements

The Project area for this development is located within and overwater of Botany Bay. As such, the primary legislation for the protection of maritime archaeological sites and articles, including shipwreck, wharves, seawalls, is the Heritage Act of NSW.

Heritage Act of New South Wales (NSW) 1977

The *Heritage Act 1977* (Heritage Act) is a statutory tool designed to conserve environmental heritage in NSW. It is used to regulate development impacts on the State's historical heritage assets. The Act defines a heritage item as '*a place, building, work, relic, moveable object or precinct*'.

To assist management of the State's heritage assets, the Act distinguishes between items of Local and State heritage significance.

'Local heritage significance', in relation to a place, building, work, relic, moveable object or precinct means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item'

'State heritage significance', in relation to a place, building, work, relic, moveable object or precinct means significance to the State in relation to the historical scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item'

As outlined in the following subsections, different parts of the Heritage Act are designed to protect and conserve heritage items.



Archaeological relics

Archaeological 'relics' are defined by the Heritage Act as:

'any deposit, artefact, object or material evidence that:

(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and

(b) is of State or local heritage significance'

Part 6 Division 9 of the Heritage Act protects archaeological relics from being 'exposed, moved, damaged or destroyed' by the disturbance or excavation of land. This protection extends to the situation where a person has 'reasonable cause to suspect' that archaeological remains may be affected by the disturbance or excavation of the land. It applies to all land in NSW that is not included in the SHR.

Section 146 of the Act requires any person who is aware or believes that they have discovered or located a relic must notify the Heritage Council of NSW providing details of the location and other information required.

Protection of historic shipwrecks

Part 3C of the Heritage Act relates to the protection of shipwrecks within State waters. In NSW, an historic shipwreck means the remains of any ship that have been situated in State waters for 75 years or more, or that are the subject of a historic shipwrecks' protection order. Historic shipwrecks are protected under the Heritage Act and a Register of Shipwrecks is kept by the Heritage Council. It is noted that items not listed on the Register may still be protected under the relic's provisions of the Heritage Act (see 'Relics').

The protection afforded under the Heritage Act also extends to articles associated with a shipwreck including articles that formed part of, or had been installed on, or carried in, the ship, or constructed or used by a person associated with the ship.

Part 3C of the Act applies to shipwrecks and associated articles within State waters that are not the subject of an IHO or included, or within an area included, on the SHR. Under the Act, it is an offence to "move, damage or destroy" a shipwreck in NSW unless in accordance with a permit.

The Heritage Council of NSW is required to maintain a Register of Shipwrecks. This register contains particulars of each historic shipwreck protected or afforded protection by the Minister.

The NSW Heritage Act also protects maritime archaeological remains associated with harbour development, including wharves, landings, seawalls and other similar infrastructure sites.



Maritime Archaeological Induction Requirements

Site Induction

All employees, contractors and sub-contractors involved in ground-disturbing activities will undergo a maritime archaeological heritage induction. This induction will be conducted by the Project's Maritime Archaeologist. In addition, visitors to the project and general contractors not involved in ground-disturbing activities will be made aware of their obligation to avoid impacts to maritime archaeological and/or heritage sites, as a component of the general site induction.

The following points will be conveyed through site induction material:

- The history of Botany Bay and Port Botany, including its maritime history. These included the establishment of the early market gardens and noxious trades; the establishment of the Government Wharf and Australian Papermill Wharf and shipping and shipwrecks within Botany Bay.
- Maritime archaeological relics may include items of State or local heritage significance, that are important to understand the historical, social or specific maritime history of the local area, and may have archaeological research potential.
- Any maritime archaeological relics assessed as having heritage significance are protected by law under the NSW Heritage Act 1977, and if discovered, require additional consultation and notification to Heritage NSW.



Maritime Archaeological Unexpected Finds Procedure

The Procedure

The unexpected finds procedure is as follows

1. On discovery of a potential archaeological find, or identified relic, the Vessel Master must notify the Project's Environmental Manager. Photographs and a GPS position of where the potential find was encountered should be taken and passed on with the notification of the object's discovery. Examples of how to take photographs and the types of materials that could be expected are provided below.
2. The Project's Environmental Manager must contact the Project Maritime Archaeologist with all supporting information so the Maritime Archaeologist can determine if the item is a possible heritage item.
3. The Project Maritime Archaeologist must be given time to assess the find and its heritage significance, and, if the object is possibly a singular item or there is potential for a larger deposit or site.
4. If the find is assessed as being a possible heritage item, work is to cease in the immediate area where the discovery of the object was found/encountered until further investigation can be made. Notification of the discovery of a shipwreck is required to be made to Heritage NSW under S.146 of the *Heritage Act, 1977*.
5. Heritage items that are identified on the seabed should be left *in situ*. If the item was recovered floating in the water, the object should be kept wet, placed in a tub filled with ocean water (if not too large) and taken back to shore and the next available opportunity to be stored in a secure location at one of the construction laydown areas being established for the project at Port Botany. The Project Maritime Archaeologist would then attend site as soon as possible to make further recordings and recommendations based on their assessment of the item. Recommendations would include possible long term conservation of the find and future storage or display.

The Project Maritime Archaeologist would need to determine if the find is from a potential shipwreck or other underwater cultural heritage site, or, if the object is from a debris field or similar scatter. If part of a shipwreck is discovered, it would likely require some time to investigate, determine its location and provide mitigation measures. Individual finds relating to potential dumped debris may have been transported into the area via natural coastal processes, and is likely to be less significant, and likely to continue without much delay.

Failure to follow the unexpected finds procedure may result in a breach of the *NSW Heritage Act 1977*. Penalties for breaches of either of these Acts may apply.

Long-term Care and Conservation – *ex situ*

Long-term care and conservation would only be considered for those relics that have been assessed as being of State significance or have exceptional archaeological research potential. The conservation and storage of items is dependent on their type, specifically the material composition of the relics (such as timber, glass or ferrous material etc.). Specialised heritage conservation advice would be sourced from an experienced artefact specialist with maritime archaeological experience.

Long-term care and conservation would broadly follow the following process:



1. If the item has been identified as being of State Significance and determined to be an object that should be conserved (following the unexpected finds protocol and consultation with Heritage NSW), specialist heritage conservation advice would be sought immediately.
2. During the conservation process discussions regarding the potential for storage, public display and interpretation of the object(s) would commence.
3. If an object is to be put on display by NSW Ports, a Heritage Interpretation Plan, including provisions for ongoing care and conservation of the relic(s), would be prepared by a suitably qualified and experienced expert and submitted to Heritage NSW for approval. This would include ongoing requirements for the conservation of relic(s) on display.

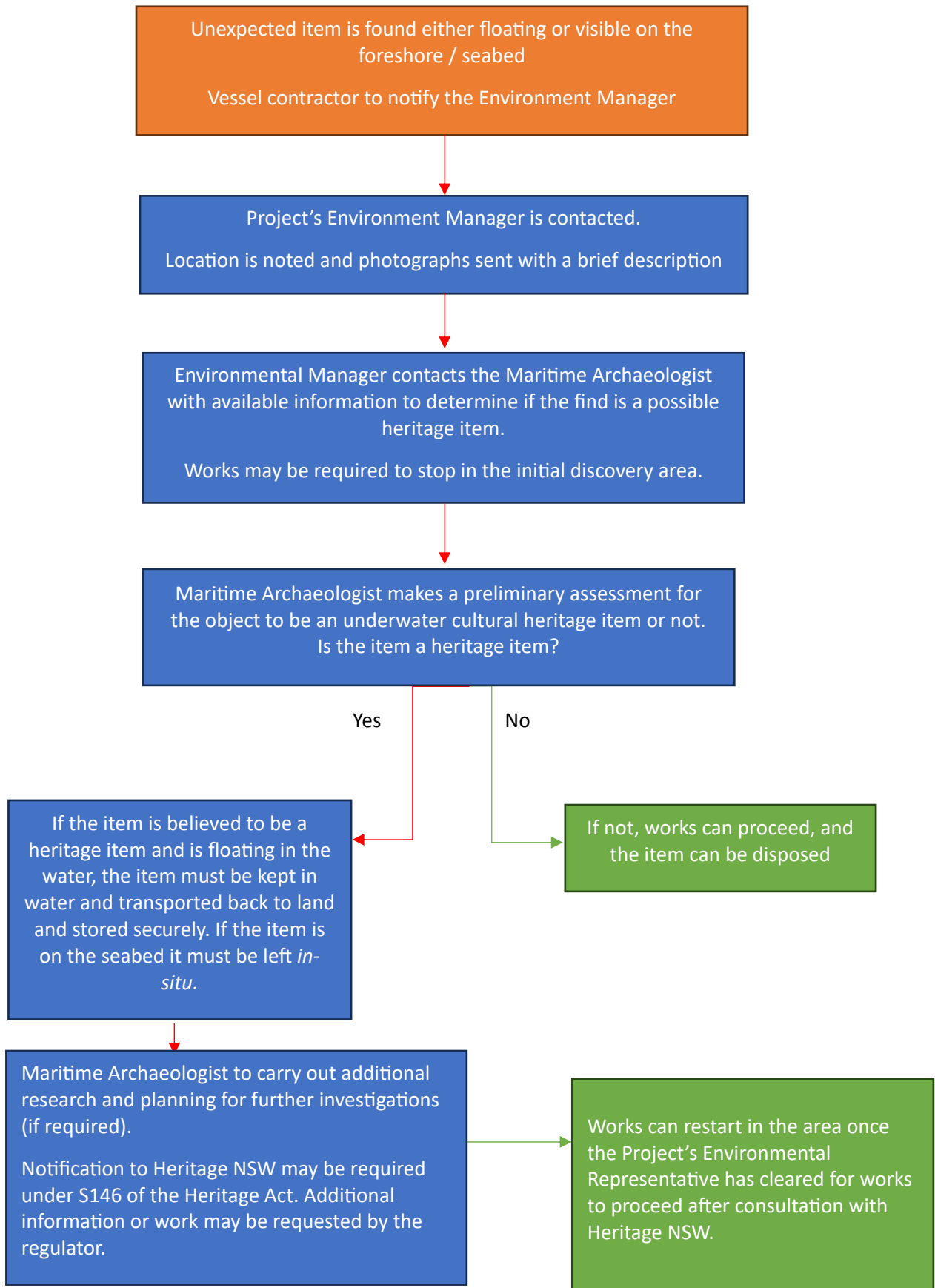


Figure 1: Maritime Unexpected Finds Protocol flowchart.



Photograph recording examples and possible material examples

DISCOVERY OF PREVIOUSLY UNIDENTIFIED HERITAGE OBJECTS DURING ACTIVITIES EXAMPLE PHOTOGRAPHIC RECORDING GUIDE



- 1 SCALE IN EVERY PHOTO
Scale can be
 - Tape Measure
 - Photo Scale.
- 2 PHOTOS FROM DIFFERENT ANGLES
Flip the object over, or photograph the sandstone from side.
- 3 CLOSE UP OF DETAILS
Including features, text and marks.
Detailed photos can be taken in the site office at the end of the day.
- 4 PHOTOS MUST BE IN FOCUS
Details need to be clear when zooming in.
- 5 OBJECTS CAN BE CLEANED
Water can be used to gently remove dirt in order to highlight or reveal details.
- 6 OBJECTS MUST BE KEPT SOMEWHERE SAFE
Objects can be put into zip lock bags or blocks can be stacked somewhere safe.





EXAMPLE OF TIMBER ITEMS



Examples of how to photograph unknown timber items.

Scale in every photograph.

The background of each photograph should be kept as clean as possible to see the item clearly.





EXAMPLE OF METAL ITEMS



Examples of how to take detailed photographs of metal items.

Photographs of the whole item should be taken before taking detailed photographs.

Scale should be present in every photograph and located close to the detail being shot.

Different angles of the same detail should be taken.



Multiple small objects can be photographed in one shot. Items should be spaced so each can be clearly seen.

The scale needs to be visible so accurate measurements can be taken from the photos.

Detailed photos should still be taken if objects have writing or other stamped features on them.





EXAMPLE OF MARITIME INFRASTRUCTURE ITEMS



How to photograph piles.

Scale should be placed horizontal to one side.



How to photograph misc maritime items within a trench.

If the trench is shallow - scale can be placed outside the trench.

If the trench is deep, the scale should be placed within the trench.





References

MTS Heritage Pty Ltd, 2026, Port Botany Quayline Equalisation Project Maritime Archaeological Assessment. Report prepared for Port Botany Operations Pty Ltd as Trustee for Port Botany Unit Trust (NSW Ports).