

## ITEM 2

## PUBLIC EXHIBITION - FLAGSTAFF HILL AND SMITHS HILL FORTS CONSERVATION MANAGEMENT PLAN

A draft Conservation Management Plan has been prepared for the Flagstaff Hill and Smith's Hill Fortifications. This report seeks Council's endorsement of the draft Conservation Management Plan for public exhibition to allow stakeholders and the community feedback.

The Conservation Management Plan is intended to guide future decision making, asset management plans and maintenance plans for the fortifications and will facilitate the sustainable long-term management and conservation of these existing assets. It will also inform potential future use and activation considerations.

The outcomes of the exhibition process will be reported to a future meeting of Council with recommendations relating to finalisation of the Conservation Management Plan.

### RECOMMENDATION

The draft Flagstaff Hill and Smiths Hill Forts Conservation Management Plan be endorsed for exhibition for a minimum period of 28 days.

### REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

Authorised by: Linda Davis, Director Planning + Environment - Future City + Neighbourhoods

### ATTACHMENTS

- 1 Draft Flagstaff Hill and Smiths Hill Forts Conservation Management Plan

### ACRONYMS USED IN REPORT

Abbreviation	Meaning
Act	NSW Heritage Act 1977
CMP	Conservation Management Plan

### BACKGROUND

#### History and Significance of the Fortifications

Wollongong Harbour was initially constructed between 1837-1844 by convict labour and became the centre of activity in the Town of Wollongong. The Harbour was the key point of arrival and the centre of trade into and out of the Town. The Harbour fast became one of the key ports within the colony of NSW and demanded protection from potential threat following the Crimean War.

The earliest defences installed to protect Wollongong Harbour were the three 68-pound guns installed on timber carriages on Flagstaff Hill in 1879-1880. These three guns remain on the headland nearby to the Flagstaff Hill Fort.

Between 1890 and 1891 defences were upgraded to include the "Signal Hill" (now Flagstaff Hill) Fort. The Forts submerged gun pit was fitted with a 6-inch Armstrong Disappearing Gun and the Fort also housed a fixed Machine gun. Whilst the Disappearing Gun was later removed, and some elements of the Fort including the Depression Range Finding Station and the Observation Post were later demolished, much of the fortification remains intact.

In 1892-1893 the Smith's Hill Fort (located within Battery Park above North Wollongong Beach), was constructed to supplement the Flagstaff Hill Fortifications, and to provide broader protection from the northern side of the Harbour. This fortification was fitted with two 80-pound muzzle-loading guns installed on circular carriages, along with a 1.5-inch calibre Nordenfelt quick firing gun. The Fort is particularly unique in NSW in retaining all three of its guns, including the last two complete 80-pound guns (of the 25 ordered by the NSW Government in 1872) and having them retained in their original positions.

The Wollongong Fortifications are also unique in that they were not updated or upgraded during World War II as was the case for most coastal fortifications, as by that time Port Kembla Harbour had become the focus of strategic Military protections and the Illowra Fortress (including Hill 60, the Breakwater Battery, Fort Drummond and associated sites) was established for this purpose. As such, the Forts remain as largely intact examples of Colonial era Military fortifications.

The two Wollongong Fortifications form a key component of the Wollongong Harbour Precinct State Heritage Area and represent colonial coastal defence sites of great historic significance to not only the local area, but to the State of NSW and beyond.

### Basis for the Conservation Management Plan

During 2020 Council received a proposal from Inside Industry and Destination Wollongong to establish a Blue Mile Heritage Tour of the area surrounding Wollongong Harbour and sought consideration to the potential inclusion of the Wollongong Fortifications as part of these tours.

At the same time, the Rotary Sunrise Group, the National Trust, members of the Wollongong Heritage Reference Group, and other community members were raising concern in relation to the condition of the Fortifications and the need for maintenance and conservation works. Particular concern was raised in relation to the declining condition of the guns at both sites, and the various other metal components.

At this time, the Rotary Sunrise group had maintained a long running role as “informal caretakers” of the Smith’s Hill Fort. Rotary Sunrise has since dissolved and handed over their caretaker interests to Rotary Wollongong. The underground components have not been accessed for some time due to risk issues.

The Flagstaff Hill Fort and the Smith’s Hill Fort are both significant listed components of the Wollongong Harbour Precinct State Heritage Area. As such, the two sites are protected under the *NSW Heritage Act 1977*. Any proposed works or adaptive re-use project to the fortifications may trigger necessary approvals under sections 57-60 of the Act. There are a range of relevant standard and site-specific exemptions that allow for certain works to be undertaken, including many maintenance tasks. The following map shows the location of the two study area locations as they sit within the NSW Heritage Register listing boundary for the Wollongong Harbour Precinct.



**Figure 1: Map showing the two CMP study areas overlaid on the Wollongong Harbour Precinct State Heritage Register Map.**

The State Heritage listing, and the high level of significance attached to the fortifications, demands careful consideration of the various site features and requires management within a heritage framework to ensure that any works respond to the site's significance.

During 2024 Council engaged GML Heritage to prepare the draft CMP for the Flagstaff Hill and Smith's Hill Fortifications as well as the three 68-pound guns located on Flagstaff Hill. GML Heritage were assisted by a sub-consultant who specialise in metal conservation guidance and advice.

### **Land Ownership**

The Flagstaff Hill Fort is located largely on Council owned land, whilst the three separate guns on Flagstaff Hill and the Smith's Hill Fortifications are located on Crown Reserves where Council is the Crown Land Manager. These sites are all located within the land that is subject to the recently endorsed Wollongong City Foreshore Plan of Management 2025.

Both Forts are on land zoned RE1 Public Recreation under the Wollongong Local Environmental Plan 2009.

## **PROPOSAL**

### **The draft Conservation Management Plan**

The draft CMP includes a detailed history and assessment of the significance of the Forts and surrounds. A detailed condition assessment of the Forts was undertaken by the consultant team, who have provided a detailed assessment of, and specifications for the conservation and maintenance of the guns and other metal components that make up parts of the fortifications.

From these assessments a range of conservation policies have been developed to inform and guide the future management of the two sites, including decision making in relation to the future management, conservation and possible use or activation of the Forts.

### **Conservation Works Schedule and Maintenance Schedule**

A detailed Schedule of Conservation Works, and Schedule of Maintenance Works have been developed. These schedules are provided as Appendix 1 of the draft CMP (Attachment 1).

The Conservation Schedules provide detailed guidance in relation to the recommended works to repair, conserve and maintain the heritage fabric of the Fortifications including the guns and other metal components as well as practical guidance in relation to the ongoing maintenance and upkeep of the site including site drainage, electricals, painting and protective coatings.

Subject to further development, costing and prioritisation the maintenance schedule will inform Council's Asset Management Plan as well as guiding decision making in relation to future project development.

### **Preliminary Structural Assessments**

The draft CMP and the attached Conservation Works and Maintenance Schedules have also been informed by preliminary structural engineering assessments undertaken by Council staff. These reports have identified a number of key issues including some significant structural failures in the brick and concrete walls of the Smith's Hill Forts Depression Range Finding Station (the northern most component), as well as some key issues with the capping of the old vertical access points from the Flagstaff Hill Fortification into the partly demolished and buried Depression Range Finding Station and Observation Station located to the north and south of the gun pit. These will require some further investigation.

### **Arborist Assessment**

An Arborist Assessment of three Norfolk Island Pines was prepared to inform the CMP. It found that the structural failure of the Smith's Hill Range Finding Station was likely being exacerbated by tree roots. The Arborist Assessment concluded that one of the Norfolk Pines should be removed from the site due to its inappropriate location directly above the underground Fortification. This tree is believed to have been planted in the 1960's when the Smith's Hill Fort was largely buried underground to form Battery Park. The tree has been assessed as being likely to further damage the Fortification, and due to the restricted soil depth, is at some risk of toppling over in strong winds. The removal of the tree will be further considered following the public exhibition process, and through Council's normal project

considerations. Should the tree be removed, consideration would be given for suitable replacement(s) as per Council's Tree Management and Urban Greening Policies.

### **3D Survey/Scan of both Forts**

To support the development of the CMP, and potential future interpretation outcomes, a 3D survey/scan of the two fortifications has been completed. This detailed scan data provides a multitude of uses, including the ability to easily produce plans, cross sections and drawings of the Forts and their facilities. It allows highly accurate measurement of various features, including settlement cracks and signs of movement, and provides data that can be made available for viewing and use on the web. The scans also have significant potential for use as part of future interpretation outcomes. The Flagstaff Hill Fort 3D laser scan has been made available on the Web and can be accessed via the following link:

<https://www.arcgis.com/home/webscene/viewer.html?webscene=51a57da971b3474ea3a04a7fd3b12095&viewpoint=cam:150.90952162,-34.42292488,71.772;10.439,63.194>

### **Confined Spaces Procedures and Classification**

During 2020 an initial site inspection was undertaken of the Fortifications. Due to the sealed nature of the Flagstaff Hill Fort, having long had the steel doors welded shut, the site is presently required to be treated as a confined space. This requires complex procedures, qualified staff/contractors, and monitoring procedures to be put in place each time the facility is accessed. During the preparation of the CMP, the Smith's Hill Fort was also found to be holding water due to blocked pipes in the drainage system. This resulted in the need for both facilities to be treated as confined spaces.

Advice received during the development of the CMP suggests that the confined spaces classification for the two Fortifications could be removed, with the implementation of works to provide more accessibility (with operable and lockable entry doors), renewal/repairs to the drainage systems, and review of the ventilation network.

Works to achieve this reclassification would significantly improve access arrangements and would make maintenance and other tasks a much more simple and less costly and complex exercise. This would also remove a barrier to the potential re-use and activation of the facilities in the future should this be desired.

### **CONSULTATION AND COMMUNICATION**

During the preparation of the draft CMP, and this report, Council staff have engaged broadly with a range of key stakeholders, interest groups, and key members of the community who have had a history of involvement with or expressed an interest in the Fortifications.

The Wollongong Heritage Reference Group have been provided with regular updates throughout the development of the CMP. Members have provided various inputs and have provided guidance to the development of the project. The CMP also responds to requests from the Heritage Reference Group Membership to include the project in the Implementation Plan attached to the Wollongong Heritage Strategy 2023-2027.

Council's Heritage staff have met with Destination Wollongong, Rotary Wollongong, the National Trust of Australia (NSW) - Illawarra Shoalhaven Branch, Inside Industry, and the Illawarra Historical Society. In addition, Council staff have met with a range of key community members and individuals with significant knowledge and interest in the site.

During the preparation of the report a range of Council staff and teams have provided input and support to the project. This input included the preparation of preliminary structural assessments of both fortifications (these are included within the draft CMP within the attachments to Appendix 1 of the CMP), the preparation of a full 3D Survey Scan of both facilities by Council's Survey team, as well as a range of input from Council's Infrastructure, Works and Property and Recreation teams. This input has informed the draft CMP and its recommendations.

The public exhibition process will provide for further opportunity to engage with key stakeholders, interested community members and various internal Council Divisions to further develop the CMP. Feedback and comments received will be reported back to Council.



## PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong Our Future 2035 Goal 2: “We have well planned, connected and liveable places”. It specifically delivers on the following -

Community Strategic Plan 2035	Delivery Program 2025-2029
Strategy	Service
2.7 Develop and implement programs and projects that achieve proactive heritage management, education and promotion.	Land Use Planning

Further, this report delivers on the Wollongong Heritage Strategy 2023-2027. Specifically, this report responds to Strategy 8, as well as to Action 8.4 within the Implementation Plan as follows:

**Strategy 8:** *Implement best practice heritage asset management procedures as a positive example to the community*

**Action 8.4:** *Prepare a conservation management plan for the fortification in the Wollongong Harbour State Heritage Precinct and explore options for their future activation.*

## SUSTAINABILITY IMPLICATIONS

The focus of the CMP is on achieving conservation of existing significant fabric of two existing heritage assets, well as providing Policy based guidance to inform potential use and activation considerations. The CMP is intended to guide future decision making, asset management plans and maintenance plans for the fortifications and is aimed at providing for the sustainable long-term management and conservation of these existing assets. Sustainability outcomes are inherently embedded within this process.

## RISK MANAGEMENT

The current condition of the existing fortifications presents some significant risks that were part of the basis for the preparation of the CMP. The current level of maintenance is poor, and elements of the site, including rusted metal components, and some structural aspects pose a level of risk, both in terms of injury to members of the public, as well as a reputational risk due to the poor condition of some components on the site.

The study included a detailed condition assessment of the existing fabric of both the above and below ground components of the fortifications. This condition assessment incorporated Preliminary Structural Assessments of both Fortifications as well as a detailed review of, and recommendations for, the treatment and management of the various steel components including various steel doors, components and fixtures, the guns located both at Flagstaff Hill and Smiths Hill Forts, and their steel fixtures, components and attachments.

The CMP has identified several risk issues relating to the condition of the existing fabric and these have informed the draft Conservation and Maintenance Schedules provided within Appendix 1 of the draft document. These schedules provide detailed recommendations for suggested works that are aimed at addressing risk, as well as ensuring ongoing conservation.

The recommended works, following exhibition of the draft documents, will need to be incorporated into Council's Asset Management Plans and Maintenance Plans for the sites, with further consideration to the prioritisation of key site risks to determine prioritisation and programming. The implementation of planned works and projects will require further project development and budgeting processes as part of Council's normal approach to identifying and prioritising actions from supporting documents as an additional step following the finalisation of the CMP.

The preparation of this report has the potential to raise the expectations of the community, and stakeholders who have been engaged in the process, that the recommended works and activities will be progressed in full and in a short timeframe. It will be important to manage these expectations during the community and stakeholder engagement process to ensure that it is made clear that commitments of funding for any proposed works will be subject to additional process and allocation of funding.

## FINANCIAL IMPLICATIONS

As noted above, the CMP does highlight that there is a backlog of maintenance across both fortifications. A range of items have been identified that would need to inform the review of Council's Asset Management Plans and Asset Maintenance Plans for these assets.

Any decisions relating to financial commitments relating to this report will be the subject of separate reporting processes as part of Council's annual budgeting process. The works arising from this report may also have the potential to attract grant funding, including potential funding through the NSW Heritage Grants Program.

The exhibition of the draft CMP and the community, stakeholder and further internal input and discussion will inform these additional considerations.

As such, there are no direct financial considerations arising from this report.

## CONCLUSION

The draft Conservation Management Plan for Flagstaff Hill and Smith's Hill Fortifications provides Council with thoughtful and considered policy guidance to shape and inform the future management of the two Wollongong Fortifications. The public exhibition of the document will ensure that the community and stakeholders have opportunity to inform the finalisation of the Conservation Management Plan, as well as providing input into the future management and activation of the fortifications.

The recommendations of this report will provide for the progression of the public exhibition process and ensure the future report back on the outcomes of the exhibition to allow Council to further consider the recommendations of the report and its implementation.

# Flagstaff Hill and Smiths Hill Forts, Wollongong

Conservation Management Plan

Final Draft Report (August 2025)



## Acknowledgement of Country

We respect and acknowledge the First Nations peoples of the lands and waterways on which we live and work, their rich cultural heritage and their deep connection to Country, and we acknowledge their Elders past and present. We are committed to truth-telling and to engaging with First Nations peoples to support the protection of their culture and heritage. We strongly advocate social, cultural and political justice and support the Uluru Statement from the Heart.

## Cultural warning

Aboriginal and Torres Strait Islander readers are advised that this report may contain images or names of First Nations people who have passed away.



## Report register

The following report register documents the development of this report, in accordance with GML's Quality Management System.

Job No.	Issue No.	Notes/Description	Issue Date
24-0147	1	Draft Report	31 July 2025
24-0147	2	Final Draft Report	8 August 2025

### Quality management

The report has been reviewed and approved for issue in accordance with the GML quality management policy and procedures.

It aligns with best-practice heritage conservation and management, *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance, 2013* and heritage and environmental legislation and guidelines relevant to the subject place.

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## Executive summary

Flagstaff Hill Fort and Smiths Hill Fort (the subject sites) are located within the state heritage-listed Wollongong Harbour Precinct. The forts are key components of and contributors to the state-listed heritage values of the Wollongong Harbour Precinct.

The subject sites are managed by Wollongong City Council (the Council), which commissioned GML Heritage Pty Ltd (GML) to prepare a conservation management plan (CMP) for the study areas. The heritage assessment in this CMP considered Flagstaff Hill and Smiths Hill Forts to have state significance as well-preserved examples of coastal fortifications from the late nineteenth century. The forts are also rare examples of military fortifications that retain their original artillery in situ (noting that the three vintage guns on Flagstaff Hill have been moved to new locations in the vicinity).

This CMP has been prepared to provide a framework for the subject sites' ongoing conservation, care, maintenance, use and management by the Council. The CMP is a user-friendly guide to managing change at the subject sites and the wider Wollongong Harbour Precinct. Assessment of future proposals affecting those areas must consider the significance of the Wollongong Harbour Precinct and of the subject sites, the compatibility of uses and development of the Wollongong Harbour Precinct as a whole and the interrelationship between the two coastal defence fortifications. The forts should be managed in conjunction with each other due to their significance as part of a tactical coastal defence system—this should be carried out with a consistent and wholistic approach to the management, conservation and maintenance of the forts.

Flagstaff Hill and Smiths Hill Forts are situated at key foreshore locations within the City of Wollongong that attract high visitation from local residents and visitors. The public currently has above-ground access to the forts but not to their underground areas. There are opportunities to provide improved public accessibility to the subject sites' above-ground and underground areas. This CMP includes schedules of conservation works for the forts (Appendix 1), which should be implemented to facilitate the opening up of the forts for public visitation, cultural tourism and heritage interpretation.



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<i>(Coordinator Heritage, Wollongong City Council), 28 July 2025</i>	
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# Introduction



# 1 Introduction

City of Wollongong Council (Council) has commissioned GML Heritage Pty Ltd (GML) to prepare a Conservation Management Plan (CMP) for Flagstaff Hill and Smiths Hill Fortifications (the forts) in order to ensure their ongoing conservation and guide decision-making in relation to the ongoing management and future use of the forts.

## 1.1 Study area

### 1.1.1 General study area

Flagstaff Hill and Smiths Hill Forts are located in the city of Wollongong, within the Illawarra, which is a coastal region of New South Wales (NSW). The forts are located approximately two kilometres east of the Wollongong Central Business District (CBD) and approximately 90 kilometres south of the Sydney CBD. The site of Smiths Hill Fort is today known as Battery Park (gazetted as such in 1976).

Flagstaff Hill Fort is largely in Council ownership. Smiths Hill Fort is on state-owned Crown land that is in City of Wollongong Council's care and control. Parts of the Flagstaff Hill study area are also in Crown ownership but placed under Council's care and control. The 3 guns on Flagstaff Hill are also on Crown land. This arrangement is governed by the *Crown Land Management Act 2016* (NSW), which allows councils to manage Crown land as if it were public land under the *Local Government Act 1993* (NSW).

The forts are located along the Wollongong foreshore referred to as the Blue Mile. This area comprises a number of parks, open public spaces and beaches stretching from Wollongong Golf Course through to Stuart Park to the north.

The forts are located approximately 1.3 kilometres away from each other, with Smiths Hill Fort located to the north of Flagstaff Hill Fort. Whilst Flagstaff Hill and Smiths Hill Forts are physically separated from one another, this CMP covers both forts.

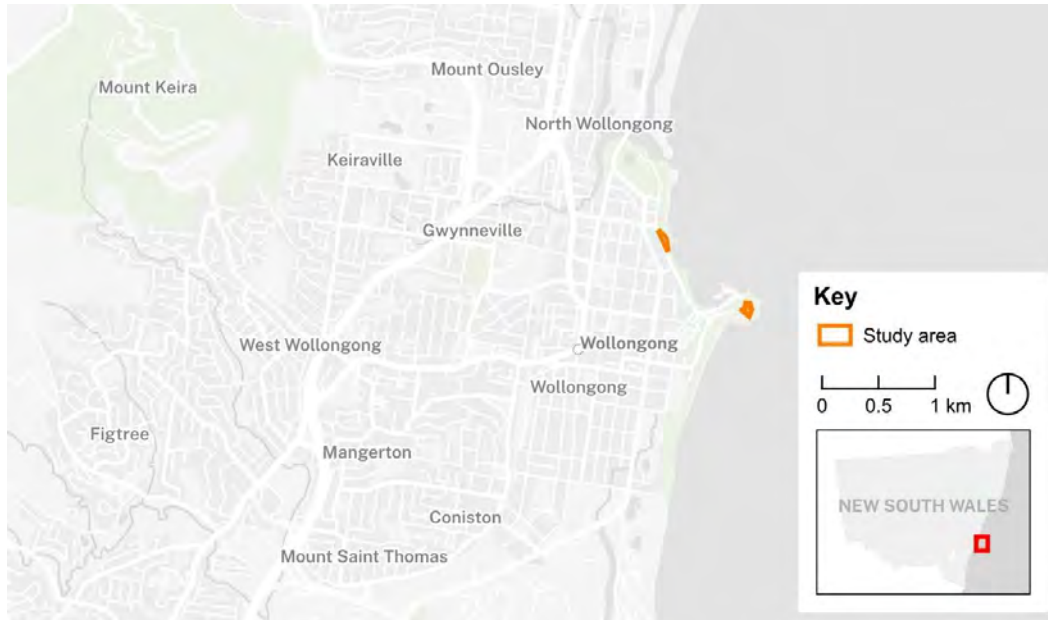


Figure 1.1 Study areas shown in orange, in their regional context. (Source: NSW Spatial Services with GML overlay)



Figure 1.2 Aerial plan of the study areas in their regional context, shown in orange. (Source: © NSW Spatial Services with GML overlay)



Figure 1.3 Aerial view of the study areas, outlined in orange, showing their surrounding context.  
(Source: © Nearmap with GML overlay)





## 1.1.2 Specific study areas

The specific study areas that relate to each of the forts have been determined by Council and are outlined in further detail below.

### Flagstaff Hill Fort

The study area for the Flagstaff Hill Fort includes the physical extent of the fortifications (above and below ground), as well as three cannons. This study area also includes grassed areas and landscape elements associated with the Flagstaff Point Crown reserve, which is currently used as a public park.

This approximate extent of the study area is shown outlined in orange in Figure 1.5. Although the 1937 Wollongong Head Lighthouse is located within the boundaries of the study area, it is excluded from further investigation as part of this CMP.



Figure 1.4 Approximate study area for the Flagstaff Hill Fort, outlined in orange (noting that the 1937 Wollongong Head Lighthouse is excluded from the study area for this CMP). (Source: © Nearmap 2024 with GML overlay)

### Smiths Hill Fort

The study area for the Smiths Hill Fort includes the physical extent of the fortifications present in Battery Park, both below as well as above the ground's surface. This study area also includes grassed areas and landscape elements associated with portions of Battery Park. This study area is shown in Figure 1.4.





Figure 1.5 Approximate study area for the Smiths Hill Fort, outlined in orange. (Source: © Nearmap 2024 with GML overlay)

## 1.2 Heritage context

The study areas either include, or are located in the vicinity of, a number of state and local heritage listings. The listings are outlined in the following tables and annotated heritage maps.

Table 1.1 Heritage listings associated with Flagstaff Hill Fort.

Item name/description	Instrument	Item No.	Significance
Wollongong Harbour Precinct	State Heritage Register	01823	State
North Beach Precinct and Belmore Basin Heritage Conservation Area	Wollongong LEP 2009	-	State
Flagstaff Hill Fort	Wollongong LEP 2009	5933	State
Wollongong Head Lighthouse	Wollongong LEP 2009	6375	State
Three Guns	Wollongong LEP 2009	6376	State



Table 1.2 Heritage listings in the vicinity of the Flagstaff Hill Fort study area.

Item name/description	Instrument	Item No.	Significance
Nuns' Baths	Wollongong LEP 2009	6289	State
Seawall	Wollongong LEP 2009	6344	State
Ladies' Baths	Wollongong LEP 2009	6373	State
Site of Coke Works, including remains of coke oven	Wollongong LEP 2009	6406	State

Table 1.3 Heritage listings associated with Smiths Hill Fort.

Item name/description	Instrument	Item No.	Significance
North Beach Precinct	State Heritage Register	01737	State
Wollongong Harbour Precinct	State Heritage Register	01823	State
North Beach Precinct and Belmore Basin Heritage Conservation Area	Wollongong LEP 2009	-	State
Battery Park, Cliff Road	Wollongong LEP 2009	5934	State

Table 1.4 Heritage listings in the vicinity of the Smiths Hill Fort study area.

Item name/description	Instrument	Item No.	Significance
North Beach pavilion	Wollongong LEP 2009	61033	State
North Beach Surf Club	Wollongong LEP 2009	61035	Local
North Beach kiosk and residence	Wollongong LEP 2009	61036	State
Group of Norfolk Island Pines and Canary Island Palms	Wollongong LEP 2009	6283	Local
Railway Cutting and Embankments	Wollongong LEP 2009	6306	State



Figure 1.6 Wollongong Harbour Precinct and North Beach Precinct State Heritage Register (SHR) listed curtilages, with the approximate location of the study areas outlined in orange. (Source: Heritage Council of NSW, with GML overlay)





Figure 1.7 Heritage map from the Wollongong LEP 2009, with the approximate location of the study areas outlined in orange. (Source: Wollongong LEP 2009, NSW Spatial Services basemap with GML overlay)

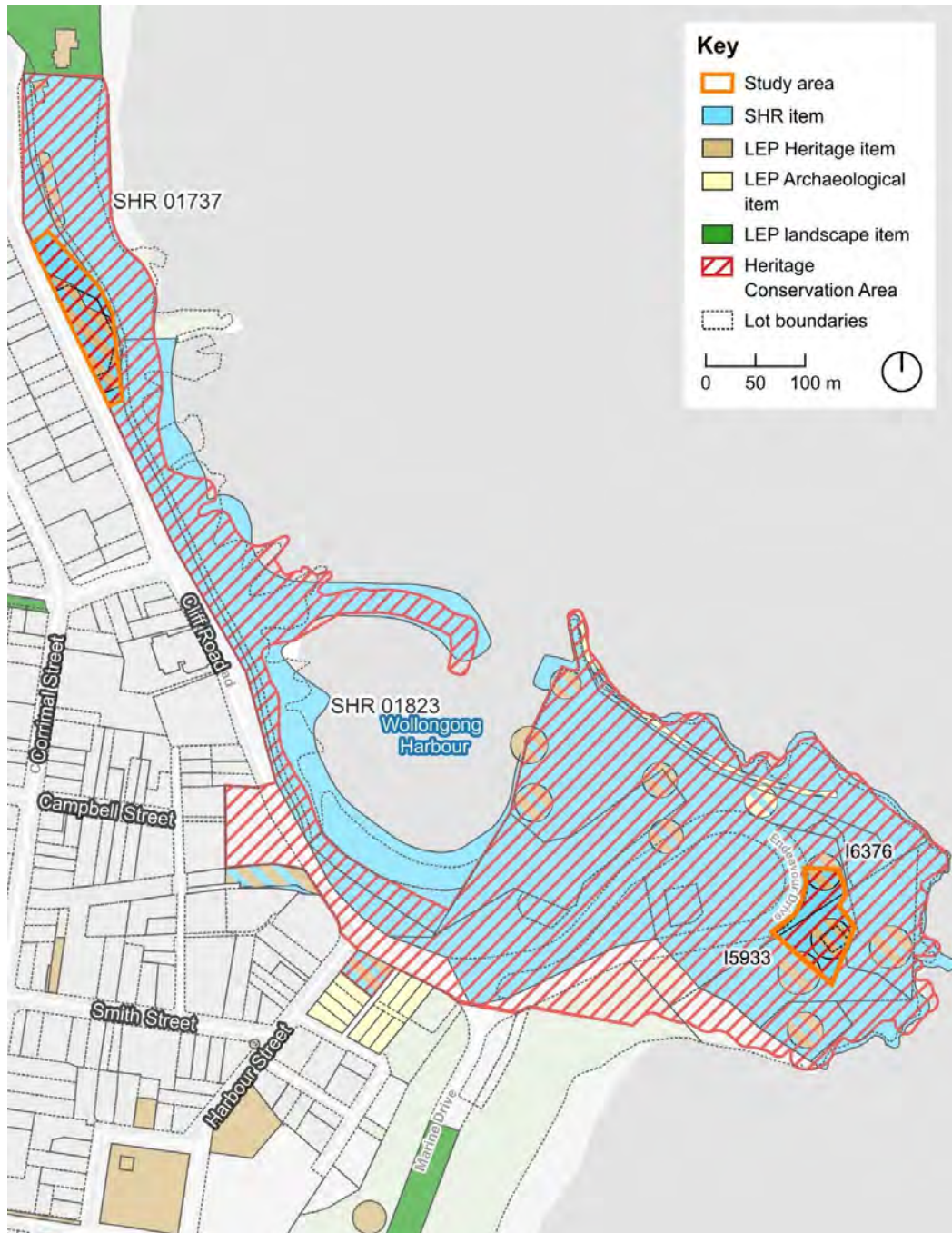


Figure 1.8 Heritage context map, showing the study areas outlined in orange. (Source: State Heritage Inventory and Wollongong LEP 2009, with GML overlay)





## 1.3 Key objectives

A CMP details why and how a place has been established to have heritage significance and outlines the policies necessary to retain its significance and enable appropriate future use and management.

The objectives of this CMP include the provision of guidance for establishing sustainable future uses and managing the conservation of the heritage significance of the place by:

- understanding the place through investigation of its context, history, physical fabric and research potential;
- establishing a statement of significance for the place that is based on documentary and physical evidence to determine the nature and degree of significance of the forts and their setting with regard to comparable sites in the wider community; and
- developing conservation policies to guide current and future owners of the place on the conservation of its heritage significance, with consideration of any potential future reuse or development.

This CMP aims to be a practical document that will guide future planning for the forts and provide a standard against which to assess the heritage impact of future proposals; it should be used when planning any works, both temporary and permanent. In the first instance, it is intended to assist Council in identifying a future use for the forts, which will also assist in the retention of its significance and enhance its value to the local community.

## 1.4 Methodology

This report has been prepared in accordance with the following documents and best practice guidelines:

- *Guidelines for Preparing a Statement of Heritage Impact*;<sup>1</sup>
- *Assessing Heritage Significance: Guidelines for Assessing Places and Objects against the Heritage Council of NSW Criteria (Assessing Heritage Significance guidelines)*;<sup>2</sup>
- *Assessing Significance for Historical Archaeological Sites and Relics*;<sup>3</sup>
- Heritage Council of NSW Guidelines for CMP preparation, including 'Statement of Best Practice for Conservation Management Plans'<sup>4</sup> and 'Guide on Developing a Conservation Management Plan';<sup>5</sup> and
- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013 (the Burra Charter)*.<sup>6</sup>

This CMP is consistent with the principles of The Conservation Plan<sup>7</sup>, prepared by James Semple Kerr.



### 1.4.1 Limitations

This CMP is subject to the following limitations:

- There was no formal public consultation process undertaken to assess community associations with the forts or social significance.
- The site description and analysis were prepared following inspection of the buildings and grounds, but without intervention into the existing fabric associated with the fortifications. Visual observation primarily informed this analysis.
- An Aboriginal Heritage Information Management System (AHIMS) search has been undertaken as part of the preparation of this CMP. However, an assessment of Aboriginal cultural heritage values associated with the site has not been conducted as part of this CMP.

### 1.4.2 Terminology

This report follows the Burra Charter in its use of the following terms and definitions:

- **Place** means site, area, building or other work, group of buildings or other works together with associated contents and surroundings. Cultural significance means aesthetic, historic, scientific or social value for past, present or future generations.
- **Conservation** means all the processes of looking after a place so as to retain its cultural significance. It includes maintenance and may according to circumstance include preservation, restoration, reconstruction and adaptation and will be commonly a combination of more than one of these.
- **Fabric** means all the physical material of the place.
- **Maintenance** means the continuous protective care of the fabric, contents and setting of a place, and is to be distinguished from repair. Repair involves restoration or reconstruction and it should be treated accordingly.
- **Preservation** means maintaining the fabric of a place in its existing state and retarding deterioration.
- **Restoration** means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.
- **Reconstruction** means returning a place as nearly as possible to a known earlier state and is distinguished by the introduction of materials (new or old) into the fabric. This is not to be confused with either re-creation or conjectural reconstruction which are outside the scope of this Charter.
- **Adaptation** means modifying a place to suit proposed compatible uses.
- **Compatible use** means a use which involves no change to the culturally significant fabric, changes which are substantially reversible, or changes which require minimum impact.



## 1.5 Authorship

This report was prepared by Christiane Moodie (Senior Heritage Consultant), Linda Phung (Heritage Consultant), Jacob Gwiazdzinski (Heritage Consultant, Archaeologist), David McBeath (Metal Conservator, OHM Consultant) and Oliver McBeath (Metal Conservator, OHM Consultants). Léonie Masson (Associate, Historian) provided the historical overview and Catherine Forbes (GML Principal) prepared the schedules of conservation works. Strategic oversight and review was provided by Hendry Wan (GML Senior Associate) and Abi Cryerhall (GML Principal).

## 1.6 Acknowledgements

GML gratefully acknowledges the assistance of the following individuals who provided valuable assistance over the course of the project:

- Joel Thompson (Coordinator Heritage, City of Wollongong Council);
- Carly Boag (Heritage Officer, City of Wollongong Council);
- Kate Rintoul (Coordinator Strategic Planning, City of Wollongong Council);
- Jarrad Davis (Surveyor, City of Wollongong Council);
- Denise Marinkovic Casas (Heritage Advisor, City of Wollongong Council); and
- David Green (Land Use Planning Manager, City of Wollongong Council).

## 1.7 Endnotes

- <sup>1</sup> Department of Planning and Environment 2023, *Guidelines for Preparing a Statement of Heritage Impact*, <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Heritage/guidelines-for-preparing-a-statement-of-heritage-impact-230201.pdf>.
- <sup>2</sup> Department of Planning and Environment 2023, *Assessing Heritage Significance: Guidelines for Assessing Places and Objects against the Heritage Council of NSW Criteria*, <https://www.environment.nsw.gov.au/research-and-publications/publications-search/assessing-heritage-significance>.
- <sup>3</sup> NSW Heritage Branch 2009, *Assessing Significance for Historical Archaeological Sites and 'Relics'*, Department of Planning, <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Heritage/>.
- <sup>4</sup> Heritage Council of NSW 2021, 'Statement of Best Practice of Conservation Management Plans', Department of Planning and Environment, <https://www.environment.nsw.gov.au/topics/heritage/manage-heritage-items/conservation-management-plans>.
- <sup>5</sup> Heritage Council of NSW 2021, 'Guide on Developing a Conservation Management Plan', Department of Planning and Environment, <https://www.heritage.nsw.gov.au/assets/Guidance-on-Developing-a-Conservation-Management-Plan-25-May-2021-v2.pdf>.
- <sup>6</sup> Australia ICOMOS Inc, *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013*, Australia ICOMOS Inc, Burwood, VIC, 2000.



- <sup>7</sup> Kerr, J S 2013, *Conservation Plan: a guide to the preparation of conservation plans for places of European cultural significance*, seventh edition, Australia ICOMOS International Council on Monuments and Sites.

# Historical context



## 2 Historical context

### 2.1 Introduction

The following summary history places the development of Flagstaff Hill and Smiths Hill Forts within the context of the natural and cultural setting, including Aboriginal connections to Wollongong in the late-nineteenth and early twentieth century.

The following history is supplemented with additional primary and secondary information and illustrative material sourced from the National Library of Australia (Trove), NSW Land Registry Services, City of Wollongong Council and Wollongong Library's Local Studies Collection, State Library of NSW (SLNSW), Museums of History NSW—State Archives Collection, and other state and local repositories.

### 2.2 Aboriginal Country: The early colonial period and ongoing connections

The Traditional Custodians of Wollongong and the wider Illawarra are the Wodi Wodi. The custodianship has been traditionally described as stretching between Wollongong to the Shoalhaven River and from the coast to Moss Vale, Picton and Marulan.<sup>1</sup> The Wodi Wodi spoke a dialect of the Dharawal language, linking them to other Dharawal speakers from as far north as Botany Bay and Campbelltown, as far west as Moss Vale and the Nepean, and as far south as the Shoalhaven River and Jervis Bay. The Dharawal considered themselves to be divided into the inland Freshwater People, the swampland Bitter Water People and coastal Saltwater People.

The Wodi Wodi regularly travelled through the lands of other Dharawal speakers, and periodically into neighbouring territories for trade, ceremony and other social gatherings. The Gundangurra and Wiradjuri travelled to Wodi Wodi lands on the coast to trade. This trade is known to have included source materials and goods<sup>2</sup>, but also foodstuff, with marine and freshwater fish, oysters, waterfowl and grubs of the Illawarra being of high value.

Land grants and farming in the Wollongong area alienated Aboriginal people from their Country. European settlers erected fences, huts and stockyards, cut down trees, formed roads and generally restricted access across the land and to the waterways. The ever-increasing number of settlers arriving from the 1830s mirrored a corresponding decline in the number of Illawarra Aboriginal people.



Figure 2.1 Map showing the location of the Dharawal and other neighbouring Aboriginal groups.  
(Source: Wesson 2005<sup>3</sup>)

## 2.3 Early Wollongong

At the time of European settlement, the area that came to be named Wollongong was the territory of the Wodi Wodi people, who were a part of the broader Dharawal language group.<sup>4</sup>

In 1815 Dr Charles Throsby travelled to the Wollongong area from the west with the help of two Aboriginal guides in search of good pasture and fresh water for his cattle. He built a stockyard and hut near the corner of today's Harbour and Smith streets.<sup>5</sup> Throsby was not the first European to visit the area, but he was the first to establish a settlement there,<sup>6</sup> and was soon followed by others looking for good grazing land and water.<sup>7</sup>



Dr Charles Throsby's nephew, Charles Throsby Smith, had been living on his uncle's farm previously and was officially given a grant of 300 acres on 20 December 1835. His grant encompassed the land originally occupied by his uncle and he invested heavily in the property.<sup>8</sup> The property was named Bustle Farm, and it included the area upon which the town of Wollongong and the site of the proposed development is located.<sup>9</sup> Today, Charles Throsby Smith is sometimes remembered as the 'father of Wollongong'. He played an important role in the development of the new town, actively promoted business and industrial opportunities for the area, and held a number of public offices, including the position of Mayor.

A number of key moments throughout the nineteenth century demonstrate that the settlement was increasing in significance. The first of these occurred with the establishment of a garrison on 10 July 1826.<sup>10</sup> On 26 November 1834 the town of Wollongong was pegged and gazetted by the Surveyor-General, Major Thomas Mitchell. The area between Smith and Crown streets on the north and south, and Keira and Harbour streets on the east and west, was chosen as the site of the new town centre.<sup>11</sup> In 1834 the Illawarra District Council was inaugurated. It administered the land along the coast from Bulli in the north to Nowra in the south, and inland to Kangaroo Valley in the west. In 1859 the Municipality of Wollongong was proclaimed, making it one of the first two municipalities in New South Wales.<sup>12</sup> Despite these significant milestones, the town remained small in the mid-nineteenth century. GC Mundy estimated that in 1849 the town had 120 houses and a population of 500 to 600. In 1855 it consisted of a single main street with scattered development on side streets.<sup>13</sup>

Prior to the completion of the railway line the port of Wollongong was important as the main means of transport in and out of the Illawarra. Even before the Wollongong Harbour was completed in c1848, a steam ship regularly ran between Sydney and Wollongong as the overland route between the towns was rugged.<sup>14</sup> When the railway opened in 1887 the town spread westward but the port remained an important focus for the town and its trade.<sup>15</sup> Dairying had been one of the area's original industries but agriculture more broadly, as well as fishing, timber, coal and, later, manufacturing, had an important place in the nineteenth-century economic development of the town.<sup>16</sup>

On 11 September 1942 Wollongong was proclaimed a city. In 1947 the City of Greater Wollongong was formed, encompassing the shires of Bulli and Central Illawarra and the Municipality of North Illawarra. In 1970 the City of Greater Wollongong was renamed the City of Wollongong.<sup>17</sup>





## 2.4 Defending Wollongong

At the height of the Crimean War and fear of a Russian invasion of coastal ports of Australia's east coast, military authorities sent down to Wollongong two 64-pounder muzzle loaders (described as of Waterloo vintage).<sup>18</sup> The Russian scare subsided soon after with the guns probably never having been fired due to the absence of a local militia to operate the guns.

In the 1860s there were calls for Australia's defences to be boosted following visits by raider warships employed by Confederates to Melbourne. The departure in 1870 of the last British troops forced New South Wales and the Australian colonies to establish army and naval contingents. In New South Wales the Parliament passed a raft of defence bills to form a small army and navy including volunteer rifle, artillery and cavalry units. A volunteer rifle corps was formed in Wollongong.

The *Australian Town and Country Journal* reported in November 1878 that the new military force was to comprise 1500 members with four batteries of artillery based at Sydney, one battery at Newcastle and one at Wollongong under the name 'the New South Wales Regiment of Volunteer Artillery'.<sup>19</sup> Later the same month Captain Owen and Captain Adjutant Taunton of the Volunteer Artillery visited Wollongong to enrol volunteers in the corps with 'most satisfactory results' as the full complement was reached on this occasion.<sup>20</sup>

The Wollongong battery (No 6 Volunteer Artillery) joined the Newcastle battery and other artillery and army corps, as well as members of the Permanent Forces, at a training camp at Middle Head in April 1879. Under the leadership of Captain Owen and Captain Robinson, the Wollongong Artillery performed heavy gun drills at the fortifications.

The *Illawarra Mercury* wrote in May 1879:

When are the big guns coming down from Sydney for our artillerymen to do the heavy business on Flag Staff point? It is too bad to have gunners with no more than half grown rifles to practice with, and no cartridges even for that purpose. Artillerymen, without either batteries or big guns, are not much better off than "Horse Marines".<sup>21</sup>

In July 1879, the *SS Havilah* landed three 68-pounder muzzle loaders at Wollongong Harbour; however, no action had been taken for over two months to place the cannons into position. The *Illawarra Mercury* was critical of the military authorities, writing:

the three pieces of cannon that were landed at Belmore Basin some two or three months ago for the Artillery Company here, are still lying on the wharf like so much old iron. When those guns have been sent down here, why in the name of business are they not put in position and made available for the use intended?<sup>22</sup>



The three cannons lay on the north side of the Belmore Basin until 1 October, when Captain Owen and Lieutenant Robertson, Sergeant-Major McEwin (Permanent Forces) and Staff Sergeant Carmichael were present as the No 6 Artillery Company assembled to mount the three cannons into position. By the end of the day, two of the three guns were mounted on their carriages, 'but there being no horses available for their conveyance to Flagstaff Hill, they had to be left where they were, and will be used for drill purposes until they can be taken to their destination'. The third gun remained unmounted at this time.<sup>23</sup> The guns were not relocated into their permanent position on Flagstaff Hill until October 1880. It is believed that the three circa 1861 vintage guns were originally located in front of '...the house on the Hill', which was the headquarters of the officer-in-charge of the fortifications at Signal Hill.<sup>24</sup>

On Friday 22 October 1880 a detachment of the Permanent Artillery led by Lieutenant Arthur Le Patourel arrived in Wollongong to remove the three guns, platforms and mountings to the hill for drill purposes. The next day the guns were placed on trucks lent by the acting engineer for the harbour works and mounted on the north-east slope of Flagstaff Hill, facing the Bellambi Reef. However, 'they are only just mounted as two of them were at the Basin, no platforms provided on which to traverse them in circular former', so they could only be elevated and lowered in the course of drill or shooting practice.<sup>25</sup> The work of mounting the guns was completed over the weekend and the first practice with the guns was planned for 2pm on Tuesday 26 October.<sup>26</sup>

The cannons installed at Flagstaff Hill could fire a 30kg shell up to 1.6km. Gunnery practice was carried out on a regular basis and led by Major MacCabe, Captain Robertson and Captain Beatson. Throughout the same period the Wollongong Artillery Volunteers regularly won the annual nine-day gunnery competitions at Middle Head in Sydney, which were held each easter.

In 1882 the *Illawarra Mercury* urged the government to erect a fort at Wollongong for artillery practice and to protect the port in the event of war.<sup>27</sup> Calls for a fort at Wollongong were repeated in successive years with the local newspaper identifying the port's vulnerability to attack from foreign vessels and the need to protect the coal trade in the Illawarra district. The cannons installed at Flagstaff Hill in 1879–1880 were considered obsolete by 1887 as they had a short range and would not adequately meet the threat posed by enemy ships to Australia's coastal ports including Wollongong. One commentator in 1885 criticised the 'exposed guns' on Flagstaff Hill as useless, even for drill purposes 'much less for actual war engagement'.<sup>28</sup> At this date a public meeting unanimously endorsed the motion to request the government erect a proper fort to protect the harbour and town.

Major General Schaw inspected the defences of New South Wales in 1887 and a report was tabled in parliament in December.



He considered that Wollongong was the only point in the Illawarra district that required defences and that the threat to shipping may be averted or substantially reduced by mounting one 8-inch BL (breech-loading) gun with two machine guns on the rising ground east of the town, and supporting it by two torpedo launches kept at the station in war time. In conclusion he recommended re-arming Wollongong at a cost of £9,000.<sup>29</sup>



Figure 2.2 Flagstaff Hill looking to Wollongong and Mount Keira, date not identified. The three vintage cannons and a gun are visible in the foreground. (Source: Wollongong City Libraries, P31982 <<https://wollongong.spydus.com/cgi-bin/spydus.exe/ENQ/OPAC/BIBENQ?SETLVL=&BRN=640764>>)

## 2.5 Flagstaff Hill Fort

The Military Works Branch of the Public Works Department prepared drawings for the proposed fort in 1889. Later the same year tenders were invited for the construction of a battery on the Government Reserve at Signal Hill, Wollongong in October.<sup>30</sup>

One very large gun is to be placed under cover near the summit of Flagstaff Point, the arrangement of it being such that it can be veered round to any point required...it has been recommended that two smaller guns be placed in position on the south side of the Point, and two other such on the north side, and that the three old 78 pounders now unmounted on the ground be position nearer to the entrance to the harbour in order to be available to sink any boats attempting to land with an enemy.<sup>31</sup>

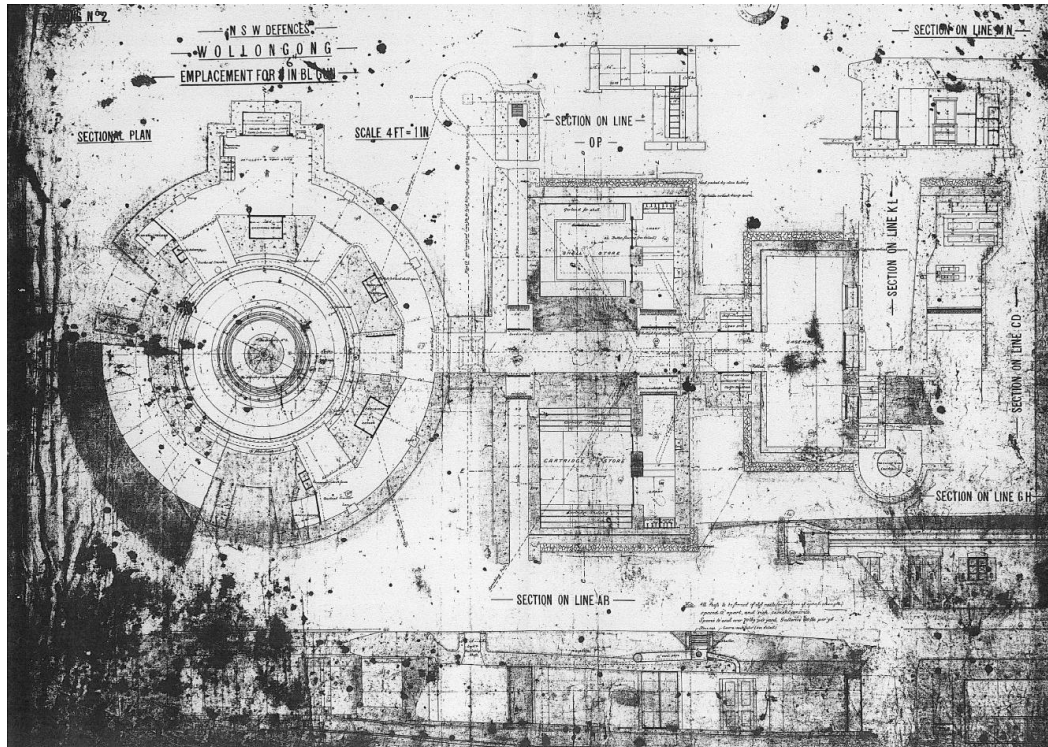


Figure 2.3 Flagstaff Hill Fort drawing showing the plan layout, elevation and sections, date unknown (Source: Wollongong City Libraries)

The contract was awarded in November 1889 to James Russell & Co of Sydney who submitted the lowest tender of £3,235 15s 5½d.<sup>32</sup> Work on the gun emplacement commenced in February 1890 under the supervision of Percy J Owen, Public Works Engineer, and Alfred Hall representing James Russell & Co. The Illawarra Mercury have a detailed account of the design and location of the fortifications:

The fortifications will comprise three guns, the largest being a 6 hydro-pneumatic disappearing breech-loading gun, and the other two will be guns of a rapidly firing nature. The former piece of ordnance will be placed on the crown of Flagstaff Point within a few feet of the Flagstaff on the western side, and will have a sweeping 'range of the Pacific from the headland north towards the south. The quick firing guns will be erected on the south slope of the Point, and will have a south east range facing the islands. In connection with the defensive work two observing stations are to be erected in a line running almost S.E. and N.W. The heavy gun is to be mounted on a massive mechanism which is secreted in a pit, and by the storage of the energy of recoil this mechanism is worked to elevate the gun above surface level for its discharge. Besides this pit there are to be a number of subterranean magazines and passages excavated. The excavations will be carried to a depth of 10ft, and the roofing will be made of concrete (18 inches), a layer of asphalt and an artificial surface of two or three feet.





Round the pit into which the gun drops after its discharge there will be a number of recesses allowing space for re-loading. The gun is worked on a pivot.<sup>33</sup>

Early on, the excavation work was hampered at times by heavy rain and the superintendent was forced to dig a drainage channel to drain the excavation pit.<sup>34</sup>

The *Illawarra Mercury* gave a progress report in April on construction of the fort (Figure 2.4). The barracks were under construction to house the officers to be permanently stationed at the fortifications. The gun-pit excavation was finished to the requisite depth; the central smaller pit and the two adjoining magazine pits were excavated at the same time. Early in May the first batch of concrete was laid; however, work was held up soon after when heavy rain flooded the gun pit and magazines excavations with 100,000 gallons of water having to be drained before work could continue.<sup>35</sup>

The following month the concreting of the gun-pit walls was virtually finished and the builders were concreting the walls of the magazine adjacent to the gun pit. The passages to the observing stations and magazines were about to be opened up, though 'the stone in which the excavating has been done is not of a refractory nature, a matter that promoted operations'.<sup>36</sup>

Cheney and Ryan commenced work on forming the new road to the fort in June. In anticipation of the imminent arrival of the gun, 'as protection against possible attack, the masonry is covered with five feet of concrete, and a roofing of steel rails'.<sup>37</sup> The gun arrived in the port on 27 June and was unloaded at Belmore Basin under the supervision of Percy Owen. The ordnance and its mechanisms were placed into storage near the site awaiting installation after all the construction works were completed.<sup>38</sup>

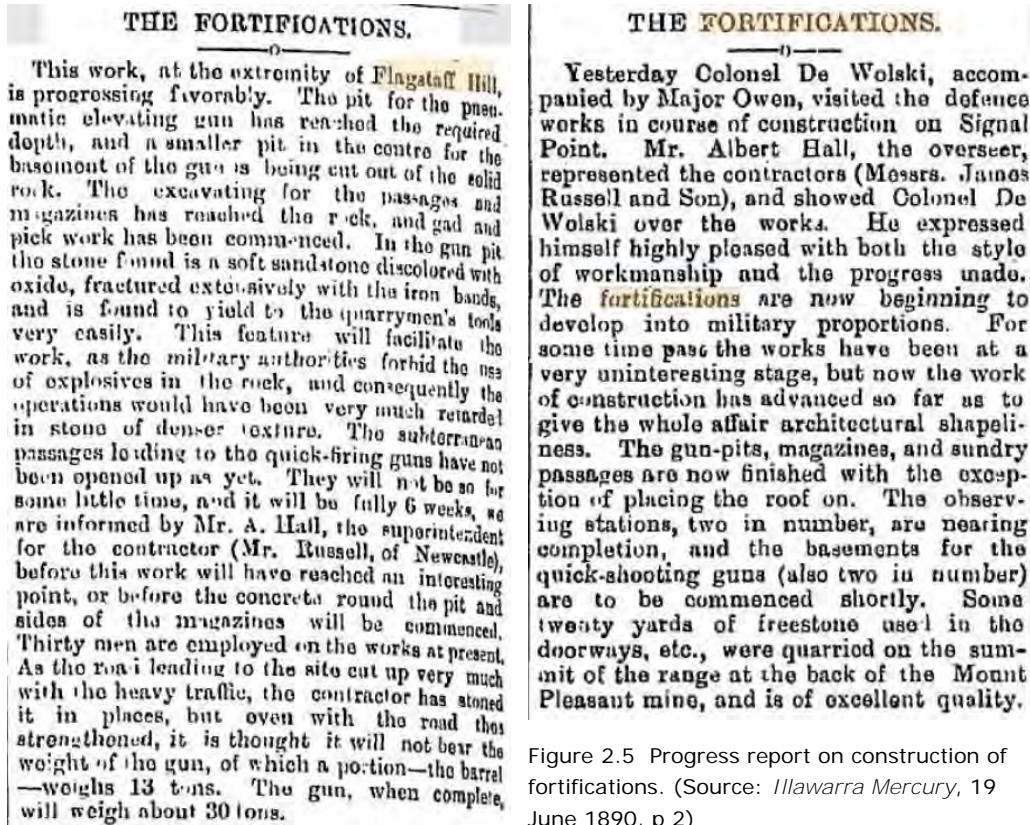


Figure 2.4 Progress report on construction of the fort. (Source: *Illawarra Mercury*, 1 April 1890, p 2)

Figure 2.5 Progress report on construction of fortifications. (Source: *Illawarra Mercury*, 19 June 1890, p 2)

General Richardson visited Wollongong in early July and pronounced himself pleased with the rapid progress of construction of the fortifications. The concreting of the 'overhang' was nearly completed, being an important piece of work at the site.<sup>39</sup> A detailed progress report was published in the *Illawarra Mercury* later in the month providing many construction details. For instance: 1500 cubic yards of material removed during excavation were to be used to cover the whole fortification; a 45-foot concrete pit was dug; the magazine rooms were of two-foot thick concrete with the roofing reinforced with steel rails and a five-foot layer of earth over the top; the entrance to the gun pit was from the circular corridor behind the gun-pit wall; two corridors led off to observation points east and west of the pit; and the fort entrance was made of brick with an enclosed courtyard in front of the fort entered by a massive plate-iron gate.<sup>40</sup>



By early November the fortifications were complete except for erecting the big gun, the two sharpshooting guns and the two signal stations. The whole surface of the crown of the concrete gun pit, magazine, passages and courtyard were levelled down and 'caused Signal Hill to present a very good appearance'.<sup>41</sup>

At the end of January 1891 a detachment of Permanent Artillery were in Wollongong to assist in the erection of the large gun in the new fortifications.<sup>42</sup> However, according to a report in the *Illawarra Mercury* one month later, 'the erection of the big gun on Signal Hill is being proceeded with as expeditiously as circumstances will admit'.<sup>43</sup>

The land occupied by the military authorities at Flagstaff Hill was formerly surveyed in 1892, as shown in Figure 2.6. This plan does not show any of the fortification structures excepting a barbed wire fence. The signal station is depicted on this plan.

The threat of a Russian attack dissipated in 1893. This did not stop Major General Hutton and a party visiting Wollongong in June to inspect the fortifications and the local detachment of the Permanent Artillery. He expressed himself most pleased with the guns and defence works as well as the state of the barracks. He returned in November to witness military manoeuvres demonstrating the capability of the local defences provided at various forts and emplacements including Flagstaff Hill and Smiths Hill from a sea-based attack on Wollongong and Port Kembla.<sup>44</sup>

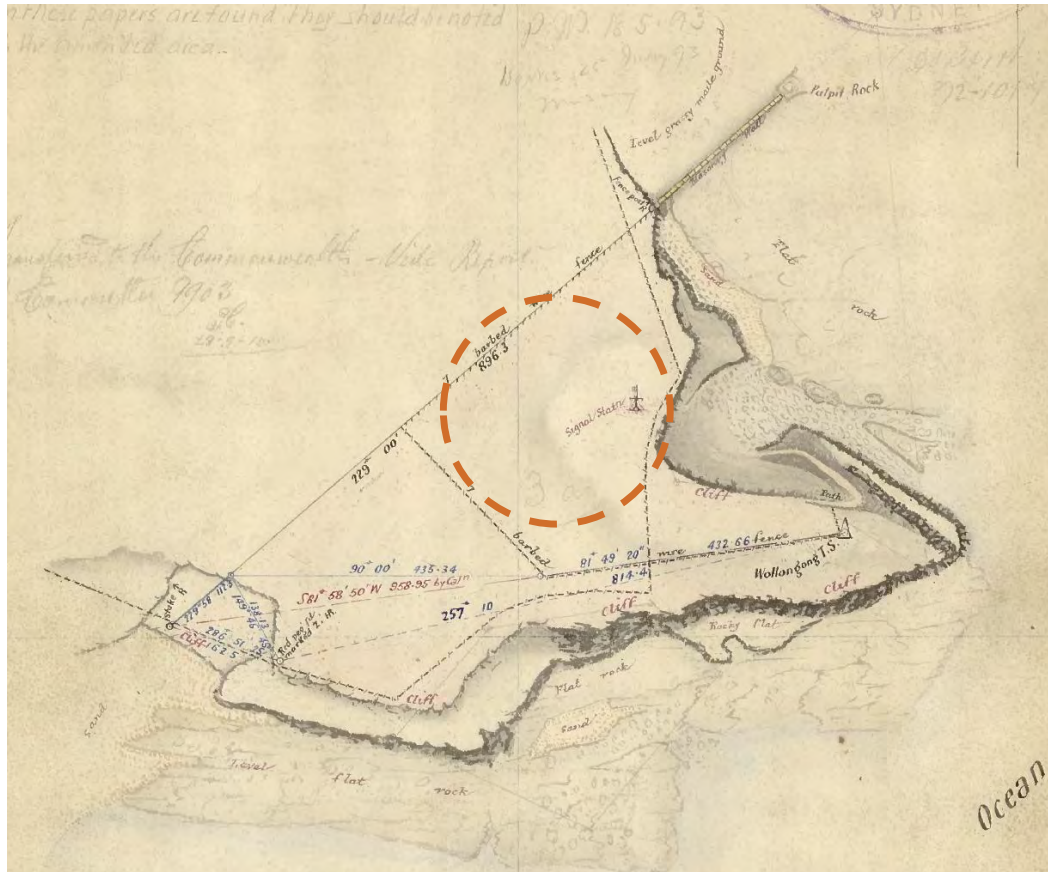


Figure 2.6 Plan of three acres at Flagstaff Hill (Signal Hill), Wollongong Harbour occupied by the Military Authorities, 1892, showing the approximate location of the Flagstaff Hill Fort study area, indicated by dashed orange circle. The flagstaff is in the approximate area of the Wollongong Head lighthouse. (Source: NSW Land Registry Services, Crown Plan 644-3000)





Figure 2.7 Cannons in place at Flagstaff Hill with Pilots house in background left and barracks in the background right, 1897. (Source: Wollongong City Libraries, P02/P02683)

In 1901 the NSW Government appointed a committee to report on the value of state properties prior to their transfer to the Commonwealth. The report was tabled to Parliament in 1903. The value of the Flagstaff Hill (Signal Hill) Fort was determined to total £5,880 as shown in the report (Figure 2.8).

WOLLONGONG.			
SIGNAL HILL FORT.			
The Fort consists of one gun-pit for B.L. gun, with six shell recesses built in concrete, with covered passages, magazine and shell store, lamp-room, laboratory, surgical passage, store passage for making up cartridges, pump passage, and shell, cartridge, and fuse recesses, passages to two D.R.F. stations, and emplacement for Q.F. gun ...	£	s.	d.
Machine-gun Shed and Store, corrugated iron ...	4,200	0	0
Quarters, comprising men's room, canteen and store-room and office and married quarters; two rooms, with kitchen, lavatory, and verandah; also washhouse, men's lavatory, store, latrines, coal-shed, and large underground ...	157	10	0
Stables and Fodder-shed ...	1,207	10	0
Picket-fence Enclosure, including two large gates, roads, and sundry work ...	105	0	0
	210	0	0
	<hr/>		
	£5,880	0	0

Figure 2.8 Valuation of Flagstaff Hill (Signal Hill) Fort, Wollongong. (Source: State properties transferred to the Commonwealth: report of the Committee, 1903, Trove, National Library of Australia, <https://nla.gov.au:443/tarkine/nla.obj-2373358216>)



During 1905 tenders were invited for repairs to the fortifications, barracks and quarters at Flagstaff Hill and Smiths Hill.<sup>45</sup> There were also calls for electric lighting at the fort.<sup>46</sup> The fortifications were still utilised by the local artillery regiment in November 1907 when Major-General Head, Inspector-General of the Commonwealth Forces, visited Wollongong to inspect shooting drills by the AGA Artillery.<sup>47</sup>

In 1914 the fort was handed over to Wollongong Council as a permissive occupancy;<sup>48</sup> however, the big gun remained in place until August 1937 when the 6-inch BL was removed from the gun pit and transported to Sydney.<sup>49</sup> The following month Dixon Primer and Company wrote to Council offering £10 for the three old gun barrels lying on Flagstaff Hill; the Council refused the price offered.<sup>50</sup>

The Council's health inspector reported in August 1941 on the occupation of the old fort by a lessee as a residence and the use of the structure for mushroom culture. The Council was advised that the Department of Interior had served a seven-day notice to the tenant to vacate the premises.<sup>51</sup> One month later the Parks and Gardens Committee considered a report from the inspector of reserves regarding the condition of the Flagstaff Hill and Smiths Hill Forts. The inspector recommended:

That the condition of the old forts on Flagstaff Hill be communicated to the Department of Interior suggesting that immediate steps be taken to eliminate the dangerous condition referred to by the inspector; and suggesting that the site of the gun emplacements should now be added to the permissive occupancy granted to the council in relation of the extension of the reserve in this locality.<sup>52</sup>

The Council was advised in January 1949 that the old gun pits at Flagstaff Hill were to be filled in shortly. This was completed within 12 months, with access to the fort being bricked up and the gun pit filled in with sand.

In mid-1954 the Commonwealth Government threatened to take back the Flagstaff Hill site if the Council did not offer an alternative site for an Army training depot.<sup>53</sup> Stuart Park was one of the preferred options, but the local community were not pleased with either of these sites and the depot was the subject of several editorials and letters in the *Illawarra Mercury*. The Illawarra Historical Society were vehement in their opposition to the Flagstaff Hill site, wanting it retained for the public.<sup>54</sup> Ultimately the Council offered a portion of Beaton Park, Gwynneville for the depot, which was accepted in October the same year. In one newspaper account the land encompassing the fort and lighthouse owned by the Commonwealth was terraced 'recently'.<sup>55</sup>

In the 1970s the western and southern walls of the former fort were demolished and the area levelled to create a car park.<sup>56</sup>

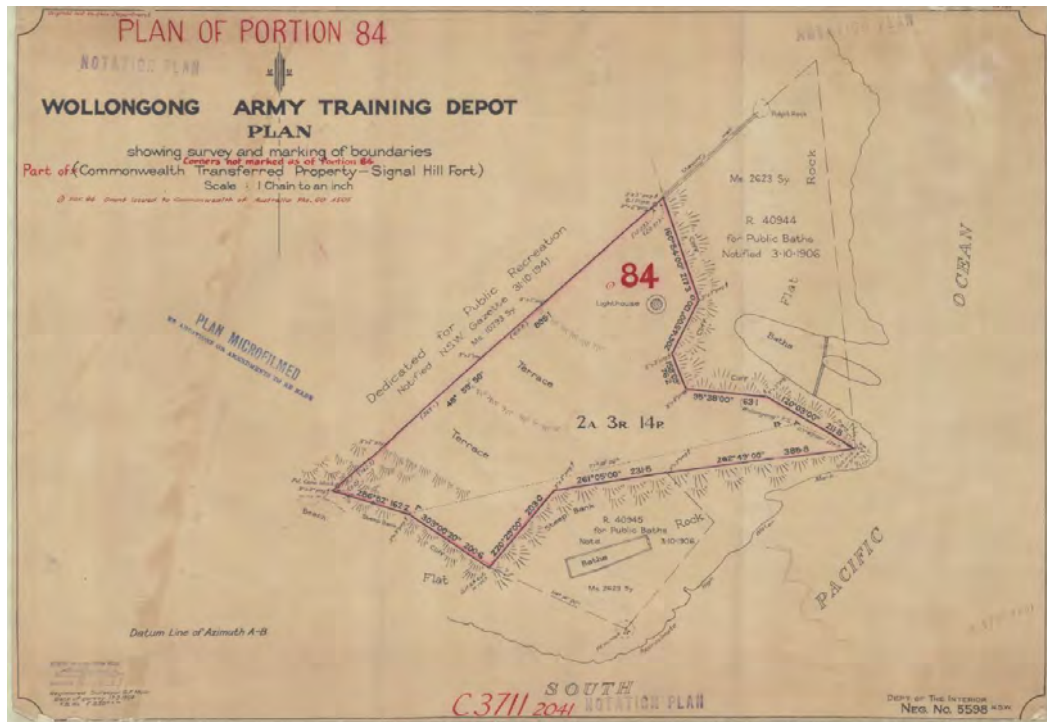


Figure 2.9 Plan of Portion 84 comprising Flagstaff Hill Fort as surveyed for the Wollongong Army Training Depot, 1954. (Source: NSW Land Registry Services, Crown Plan 3711-2041)

The *Illawarra Mercury* reported in June 1970 that the Jaycees suggested turning the Flagstaff Hill Fort into a tourist information centre in 1970. This suggestion was repeated in April 1978. The detail this time was that the building at the south-east corner of the present car park be made with a low-profile concrete slab roof, grassed over, and to also possibly excavate the original circular gun pit (currently filled in with sand) to provide a large circular room to house the Star Shell collection recently acquired by the Council.<sup>57</sup> No action was taken in this regard and in 1980 the *Illawarra Mercury* reported that the Council's heritage committee were considering converting the old fort into a museum.<sup>58</sup> The museum idea did not apparently progress as in 1982 the Council communicated with the Royal Australian Artillery Historical Society regarding the history of the 68 pounder guns that were once located at Flagstaff Hill with the aim of restoring the three guns to the site in time for Heritage Week 1983, pending permission from the Department of Defence. At the time two of the guns were located at the Army Reserve Depot at Gwynneville and the third was outside the Navy Cadets hall in Harbour Street.<sup>59</sup>

The three cannons were restored and relocated to Flagstaff Hill in time for Heritage Week 1983.



Figure 2.10 One of the restored guns being fired during Heritage Week 1983. Photographed by Steve Dillon. (Source: Wollongong City Libraries, P12/P12159.)



Figure 2.11 Three restored guns at Flagstaff Hill during Heritage Week 1983. Photographed by Steve Dillon. (Source: Wollongong City Libraries, P12/P12157)



Figure 2.12 Restored gun ready for firing, Heritage Week 1983. Photographed by Steve Dillon. (Source: Wollongong City Libraries, P12/P12158.)





Figure 2.13 Undated photograph of Flagstaff Hill Fort. Image by Anne C Ali. (Source: P04/P04518)

During the second half of 1996 the Department of Education Employment and Training (DEET) provided the funds for jobless people to clean up the Flagstaff Hill Fort site. This involved digging out the exterior walls and inserting steel shutters, bricking up the doors and windows and generally cleaning up the site.<sup>60</sup>





Figure 2.14 Fortifications in 1994. Photograph by Patricia Vidal. (Source: Wollongong City Libraries, P11/P11054)



Figure 2.15 1994 view of cannons at Flagstaff Hill. Photograph by Patricia Vidal (Source: Wollongong City Libraries, P11/P11056)

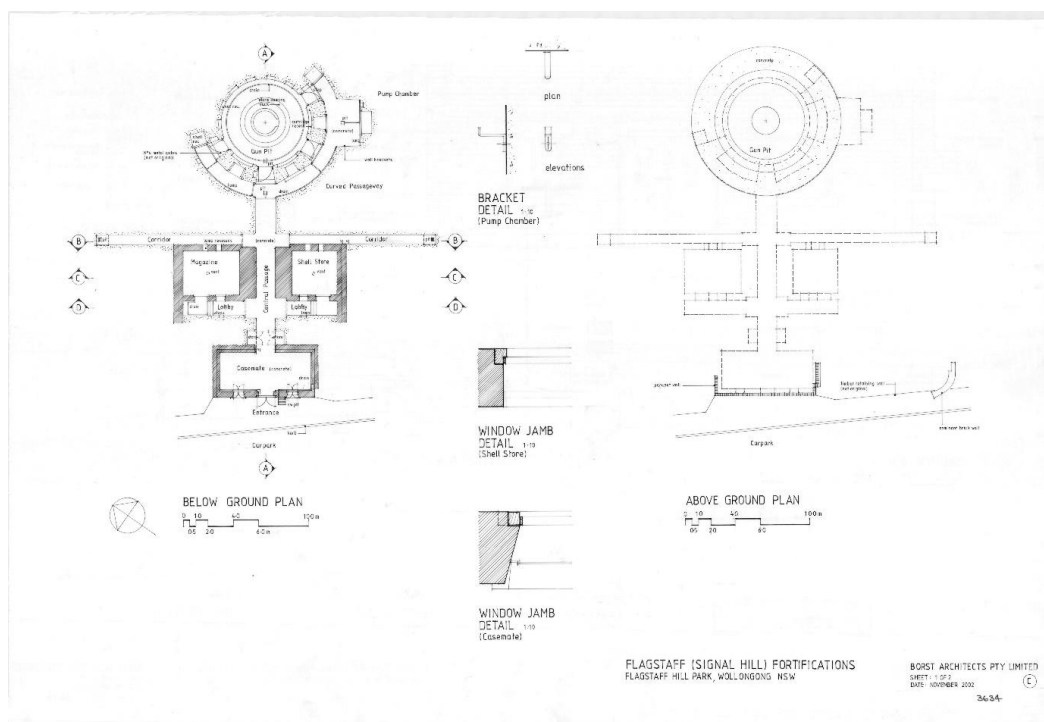


Figure 2.16 Sheet 1 of 2, Flagstaff Hill fortifications drawn by Borst Architects Pty Ltd, November 2002. (Source: Wollongong City Libraries)

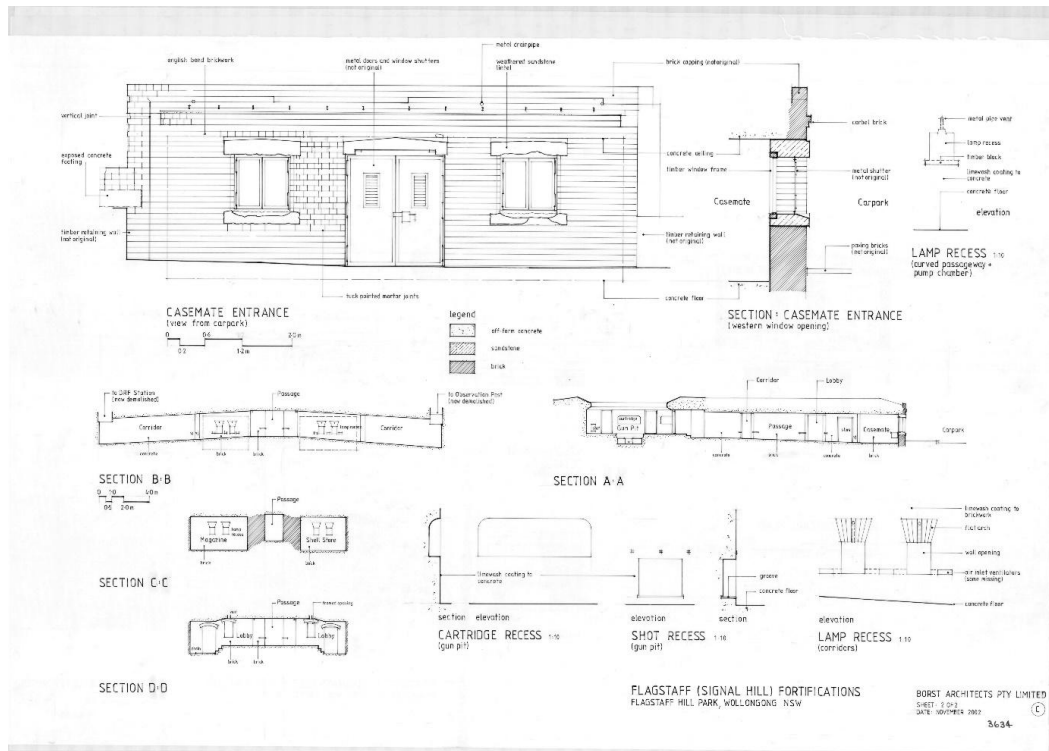


Figure 2.17 Sheet 2 of 2, Flagstaff Hill fortifications drawn by Borst Architects Pty Ltd, November 2002. (Source: Wollongong City Libraries)

## 2.6 Smiths Hill Fort

Smiths Hill Fort was originally located on Portion 69 of the Parish of Wollongong and located within the limits of the Wollongong Harbour Trust. The land shown in the survey plan of 1892 () was proposed to be dedicated for defence purposes. Two years later the land was resumed for the purposes of National Defence at Smiths Hill under the provisions of the Wollongong Harbour Trust Act.

The land was set aside for defence in response to the threat of a Russian attack upon Wollongong Harbour. It was selected because of its location that overlooked the harbour and backed onto Cliff Road, which was useful for communication. As early as 1885, when Flagstaff Hill Fort was under consideration, two smaller batteries were recommended north and south of that site, encompassing the present site of Smiths Hill.

Following construction of the fort at Flagstaff Hill, the NSW government approved a budget of £2000 to build the Smiths Hill Fort to support the defence of Wollongong Harbour to the north. The announcement was made in February 1892.



At this time the Council approached the Harbour Trust Board regarding the encroachment on Cliff Road which stymied Council's plans to form a 'fine esplanade'.<sup>61</sup> The Harbour Trust promised to compensate the Council by providing adjoining land to make the road 66 feet wide.

The *Illawarra Mercury* gave regular accounts of the progress of the Smiths Hill Fort. For instance, in July 1892, Colonel Airey visited Wollongong to finalise the plans for the proposed fort, intimating the work would commence soon.<sup>62</sup> Drawings for the battery were completed in August and in the meantime the Commanding Engineer's office in Sydney invited tenders for its construction in July.<sup>63</sup> The contract was awarded in September to W Hart of Sydney.

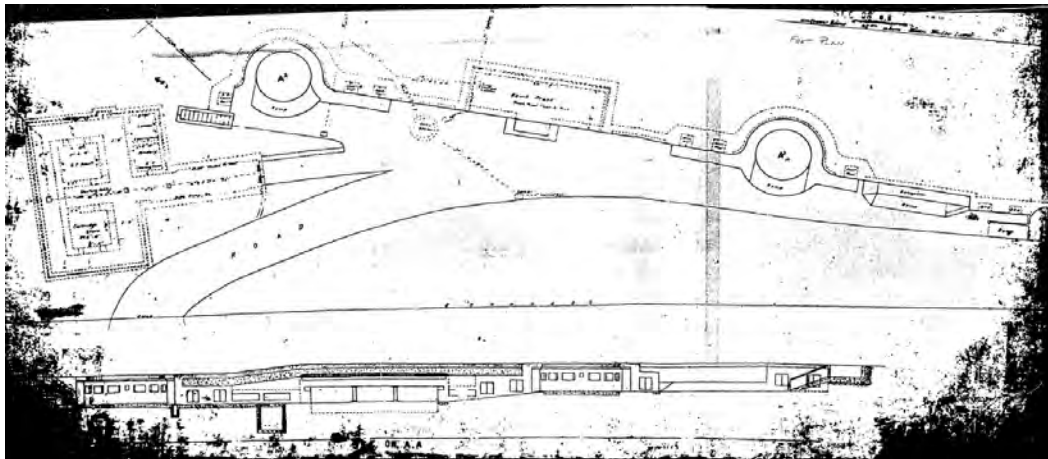


Figure 2.18 Plan of Smiths Hill Fort, 1892. (Source: Scott, GJ 1981, *Smith's Hill Fort Project*)

Work on the site commenced in September 1892 but progressed so slowly that locals were questioning the reasons for the delay.<sup>64</sup> It appears that one reason for the delay was the trucks of materials for the new fort 'which were troubling and hindering the contractor for the new breakwater' were removed in March 1893 and 'both works are now going on smooth and well'.<sup>65</sup>



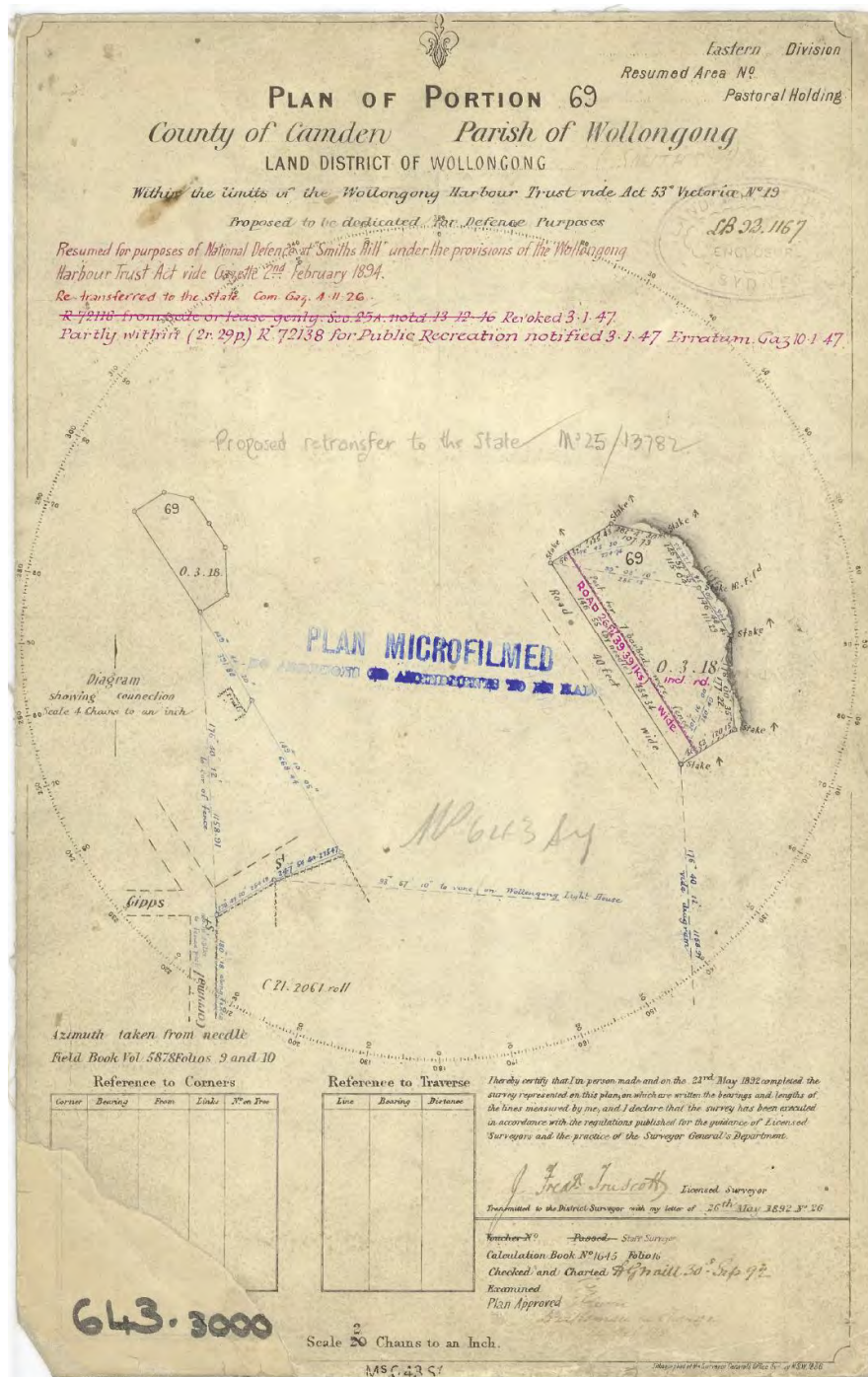


Figure 2.19 Plan of Portion 69 in the Parish of Wollongong comprising the site of Smiths Hill Fort, 1892, with later annotations. (Source: NSW Land Registry Services, Crown Plan 643-3000)





Two 80-pounder, muzzle-loading guns were installed in the fort by late October as Colonial Spalding, Captain Savage, Mr Thorpe (artificer), Captain MacCabe and Lieutenant Beatson were present for the test firing of the guns.

Three shots (common shell) were fired from No 1 gun and two from No 2 gun. The guns were elevated and depressed to their utmost limits, and the trial was most satisfactory. The magazine shell rooms were also inspected by the Colonel.<sup>66</sup>

The battery was completed by November 1893 at a cost of £2,270. The new fort was involved in a large military display the same month attended by Major-General Hutton.

Smiths Hill Fort was a hidden battery on high ground above Wollongong Harbour, with underground rooms for supplies, ammunition and shelter. It had two 36 kg cannons (80-pounder guns) and a 3.8cm quick firing gun (1.5-inch calibre Nordenfelt gun).<sup>67</sup> The fort was manned by a team of nine volunteer militia (Army Reserves).

The Russian scare dissipated before completion of the fort in 1893; however, the cannons were still used extensively for company training under Major Henry Osborne MacCabe and maintained by the Wollongong–Bulli Half Company, such as in May 1895 during a weekend military encampment when the artillery were drilled at the guns at the Smiths Hill and Flagstaff Hill (Signal Hill) Forts.<sup>68</sup> In 1896 for instance, the local artillery company (Wollongong detachment of No 6 Company, 2nd Division, Garrison Artillery) carried out shooting practice all day on 8 August with the Nordenfelt gun at Smiths Hill with targets moored at ranges between 1200 and 1500 yards.

The practice was excellent, one of the targets being struck and sunk at the second round. The company evidently intends to maintain its reputation as the premier artillery company in the colony.<sup>69</sup>

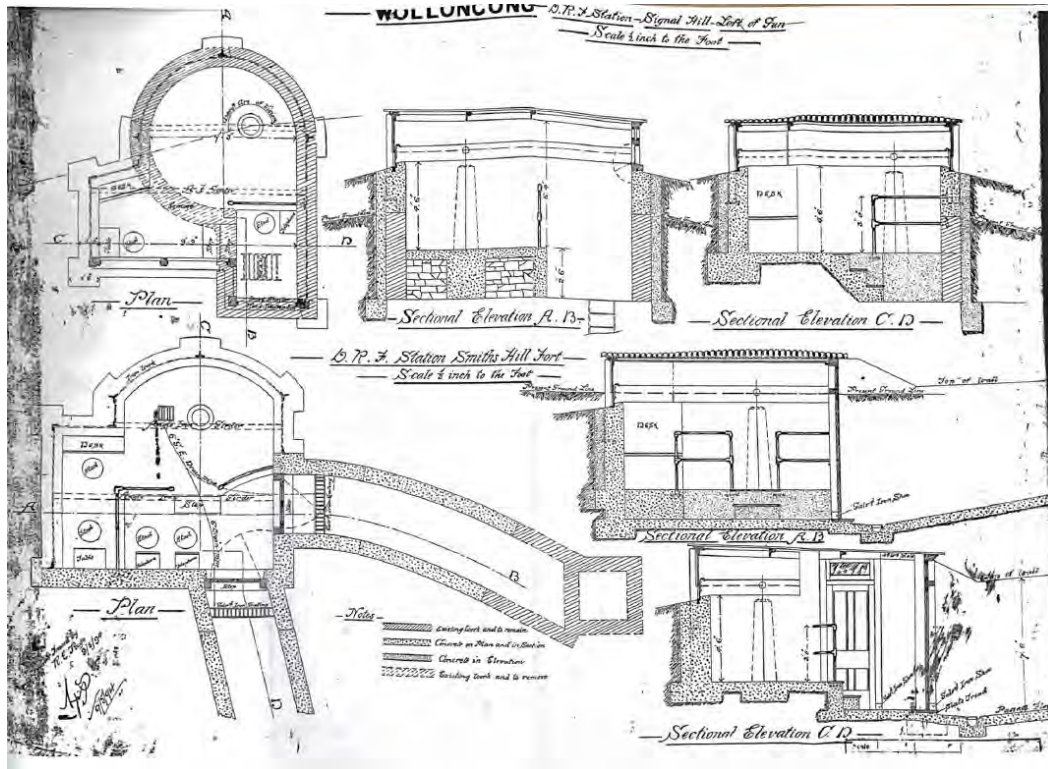


Figure 2.20 Drawing of the depression range finder (DRF) at Smiths Hill Fort, 1894. The DRF at Signal Hill (Flagstaff Hill) was modified (enlarged) at the same time to provide more comfortable occupation. (Source: Australian Army Museum of NSW, Victoria Barracks, Sydney—to be confirmed)

In April 1899 the lancers, infantry and artillery engaged in military manoeuvres to practice defending Wollongong from an attack by sea. The artillery manned the guns at Smiths Hill and Flagstaff Hill Forts.<sup>70</sup> Similar events occurred annually.

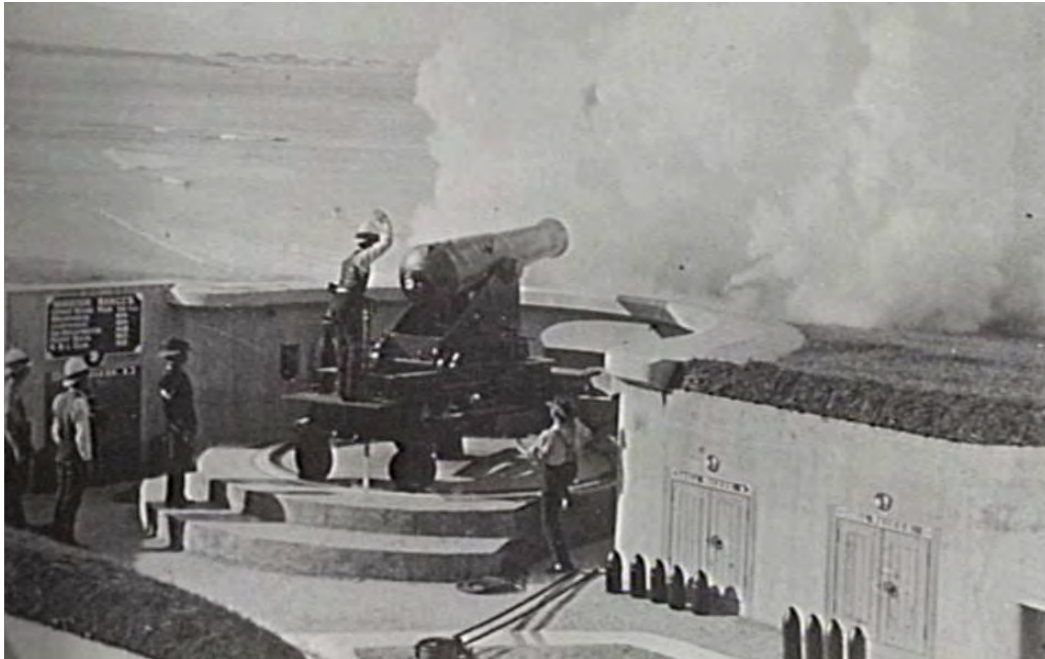


Figure 2.21 Practice firing of the gun at the north emplacement of Smiths Hill Fort, c1900.  
(Source: Wollongong City Libraries, P04/P04517)

In 1901 the NSW government appointed a committee to report on the value of state properties prior to their transfer to the Commonwealth. The report was tabled to Parliament in 1903. The value of the Smiths Hill Fort was determined to total £2,100 as described in the report (Figure 2.22).

SMITH'S HILL FORT.	
Consists of casemate, with surgical equipment, artillery fittings, &c., magazine lamp-room, laboratory, two open M.L. gun-pits, three shell recesses, emplacement for Q.F. guns, two underground tanks, shelter-shed for one man, three 400-gallon tanks, and latrine; barbed wire enclosure, gates, &c. ... ..	
	£2,100 0 0

Figure 2.22 State properties transferred to the Commonwealth, report of the Committee, 1903.  
(Source: Trove, National Library of Australia, <https://nla.gov.au:443/tarkine/nla.obj-2373358216>)

The big guns at Smiths Hill Fort were declared obsolete by August 1903 and the officer-in-charge was ordered to dismantle them and plug the bores.<sup>71</sup> The dismantling of the guns was of concern to the local artillery as 'there is no word if modern guns are to replace them, and the local corps is in a dilemma how to continue effective drill if confined to the Flagstaff guns'.<sup>72</sup> Further to that, the guns were only used to 'train recruits in gun discipline and accustom them to gun fire'.<sup>73</sup>



Despite opposition from the Wollongong Council, the work was completed promptly and Sergeant Mitchell, in charge of the local forts for several years, was transferred to Newcastle and a corporal appointed in his place at Wollongong.<sup>74</sup> The Defence Department and State of New South Wales did not object to dismantling the obsolete guns and suggested they may be taken over by Wollongong Council for 'ornamental purposes'.<sup>75</sup>

Despite the dismantling of the guns at the fort, in June 1907 the Government Architect's Office invited tenders for construction of a single men's quarters at Smiths Hill Fort. The contract was awarded in October to John Farquharson of Wollongong for £44 10s.<sup>76</sup>

The following year H Williams' tender of £26 3s 6d was accepted for general repairs to the fort and quarters at Smiths Hill, with the work being expected to be completed within four weeks.<sup>77</sup>

The Wollongong and District Citizens' Committee considered a motion at their May 1912 meeting from committee member SR Musgrave:

That the Military Department be asked to fortify with modern armament, Port Kembla Harbor [sic], and also to place up-to-date guns in place of the obsolete ones now at Smith Hill Fort and Signal Hill Fort.<sup>78</sup>

There appears to have been no response to this motion and, with the advent of the First World War, the military authorities focus was on events in Europe. There is a single mention in the *Illawarra Mercury* in June 1914 in which the military authorities complained to Wollongong Council about the flooding of the fort resulting from defective drainage of Cliff Road.<sup>79</sup> There was no follow-up report in the newspaper, so it is unclear if the issue was dealt with by the Council.

The Smiths Hill Fort site was retransferred to the NSW government in September 1926 as it was no longer required for Commonwealth purpose, as notified in the *Commonwealth of Australia Gazette* (Figure 2.23). The sum of £700 was paid in compensation to the Commonwealth.



**RETRANSFER OF DEFENCE LAND AT WOLLONGONG,  
IN THE STATE OF NEW SOUTH WALES, TO THE  
GOVERNMENT OF THE STATE.**

**H**IS Excellency the Governor-General in Council, in consideration of the remission of the compensation money to the extent of £700, has approved that authority be granted for the retransfer to the Government of the State of New South Wales of certain Defence land at Wollongong, in the State of New South Wales, as described in the schedule hereunder, such land being no longer required for Commonwealth purposes; and, in accordance with such approval, the land was retransferred on 21st September, 1926.

W. C. HILL, Minister of State for Works and Railways.  
(A.25/3834.)

**DESCRIPTION OF LAND REFERRED TO.**

All that piece or parcel of land containing an area of 3 roods 18 perches, more or less, being the property entered on page 24 of the Schedule of Transferred Properties in the State of New South Wales as Smith's Hill Fort, and being portion 69, Parish of Wollongong, County of Camden, State of New South Wales, Commonwealth of Australia, as shown hachured on plan hereunder:—

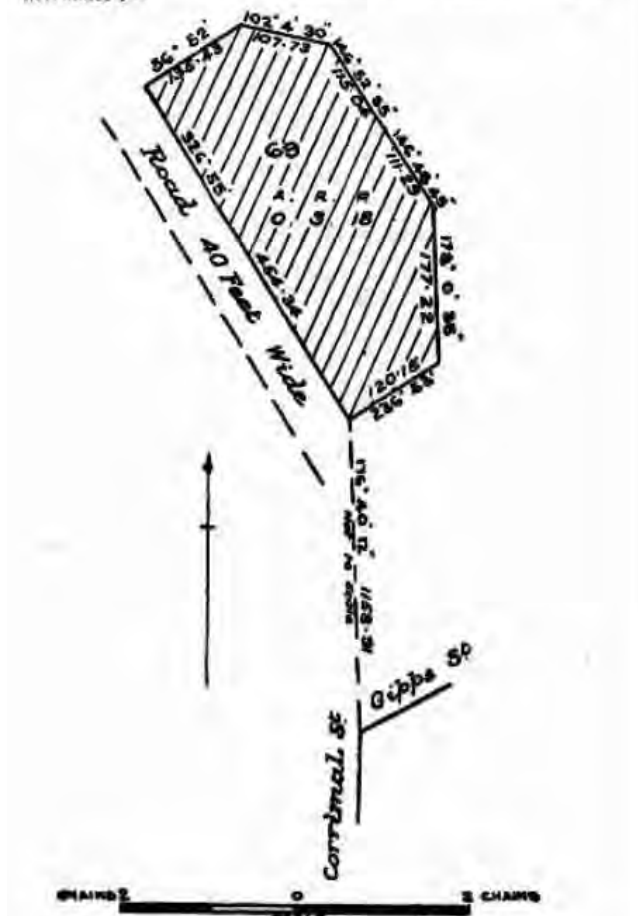


Figure 2.23 Retransfer of Smiths Hill Fort to the NSW government. (Source: *Commonwealth of Australia Gazette*, 4 November 1926, p 1792)





Figure 2.24 Smiths Hill Fort, c1920. (Source: Wollongong City Libraries, P04/P04512)



Figure 2.25 Smiths Hill Fort with North Beach in the background, c1926. (Source: Wollongong City Libraries, P04/P04509)





Figure 2.26 Smiths Hill Fort, c1930. (Source: Wollongong City Libraries, P04/P04503)



Figure 2.27 Smiths Hill Fort looking towards Wollongong Harbour, c1930. Sid Thorne photograph. (Source: Wollongong City Libraries, P04/P04515)



Figure 2.28 Smiths Hill Fort, c1936. (Source: Wollongong City Libraries, P04/P04505)

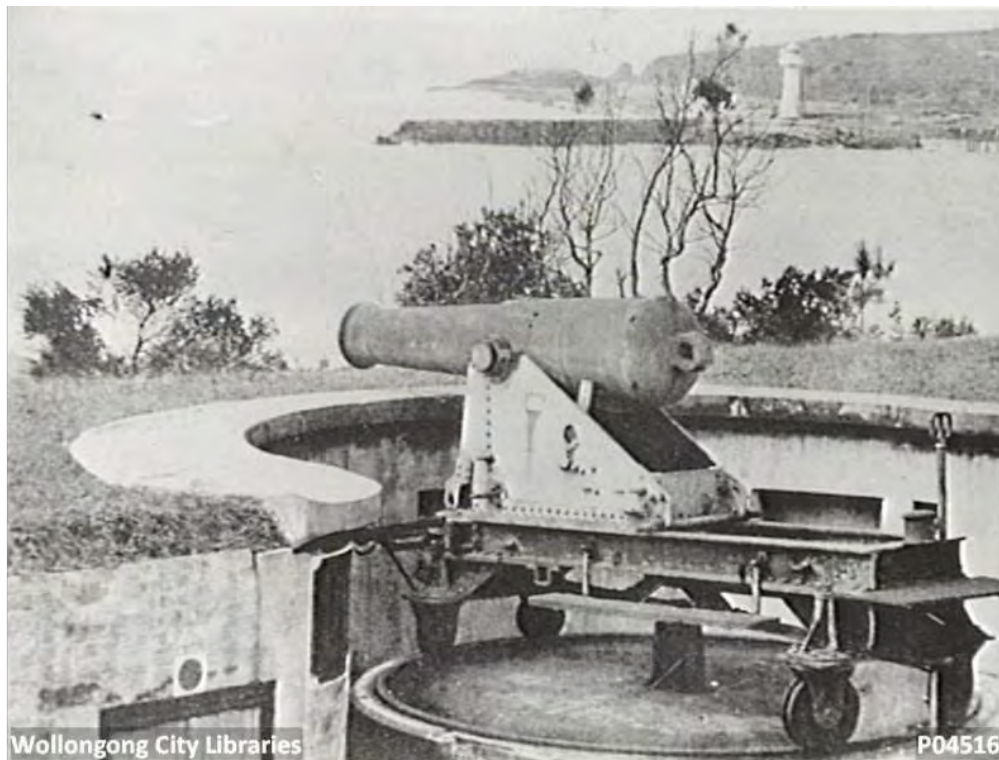


Figure 2.29 Pre-1937 view of gun emplacement, Smiths Hill Fort with Wollongong Harbour in background. (Source: Wollongong City Libraries, P04/P04516)





Figure 2.30 Smiths Hill Fort in Battery Park, February 1942. (Source: Wollongong City Libraries, P23595)

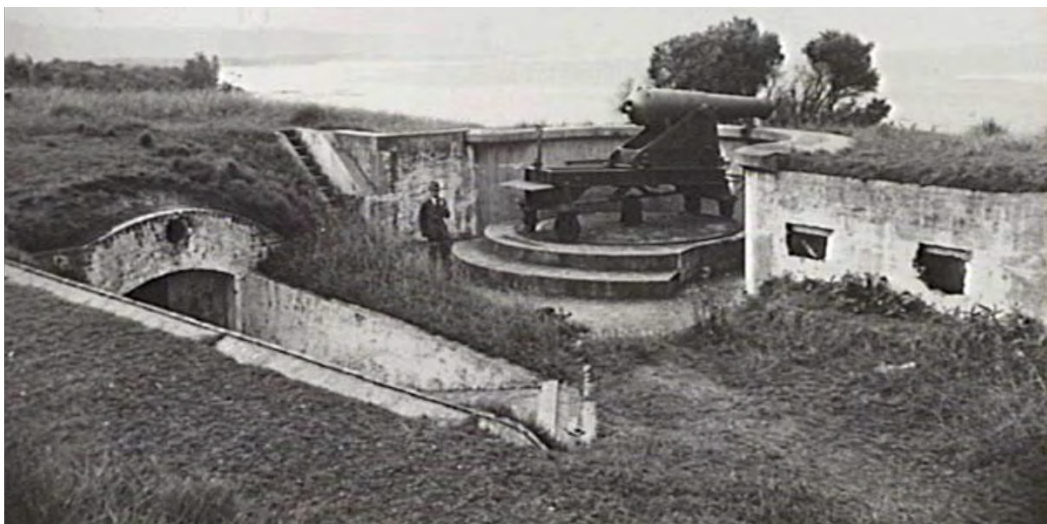


Figure 2.31 Smiths Hill Fort by pre-late 1940s, undated. (Source: Wollongong City Libraries, P04/P04507)



Figure 2.32 Smiths Hill Fort after 1937. (Source: Wollongong City Libraries, P04/P04508)

The West Wollongong Parents and Citizens Association (P and C Association) and the local historical society protested plans by the council to fill in the fort at Smiths Hill in 1946. The historical society believed the fort was a link to the early history of Australia and suggested that the guns be dismantled and suitably re-mounted in close proximity with a plaque.<sup>80</sup> Wollongong City Council decided to seal the fort entrances with stone, fill behind the walls with boiler ash and cover with topsoil to create a park.<sup>81</sup> At the Wollongong City Council meeting in May 1946 the Parks and Gardens Committee reported that a stone wall was constructed at the entrance to the underground fortifications and arrangements were made for the delivery of filling. Council advised the P and C Association that 'adequate provision was being made for the preservation of the guns as historical relics and that in the opinion of the council the historical value of the gun pits was nil'.<sup>82</sup>

At July's meeting of the council the Illawarra Historical Society presented a sketch plan for an alternative proposal for the beautification of the site. The plan was rejected in favour of council's original project.<sup>83</sup> Council commenced to fill in the emplacements in 1946.

Council was appointed Trustees of the Smiths Hill Fort in April 1947.<sup>84</sup> Parts of the old fort were demolished in 1947 for the sum of £159 and associated improvements cost £200. In September the same year Council voted to spend £850 to construct retaining walls, fencing and paths, and to remove of the gun barrels and turn the area into a public car park.<sup>85</sup>



The plan to convert the fort site to a carpark was rejected in November 1948 with the Council recommending further plans be prepared to provide for other uses of the site than car parking.<sup>86</sup>

The Council voted in May 1949 to spend £1250 on improvements on the site of Smiths Hill Fort on Cliff Road.<sup>87</sup> One alderman, H Frew, was opposed to this spending, citing more important jobs in the municipality such as the repairing of roads. He opposed the proposed work at the old fort as it 'will use men and materials that are required for other urgent works'.<sup>88</sup>

Battery Park, including the Smiths Hill Fort, was officially gazetted on 2 April 1976 as a reserve in the Wollongong local government area. Three years later the Council received a request in November to investigate the condition of the buried gun carriages with a view to a full excavation and restoration of the fort. The following year the Smiths Hill Fort Committee was formed and held a public meeting to discuss the project.

GJ Scott, President of the Smiths Hill Fort Committee, prepared a history of early fortifications around Wollongong, including Smiths Hill Fort, in 1981 as part of a proposal and development application to the Council to excavate around the guns and restore them back to their original condition. The report and development application contain drawings of the park area with the battery area outlined and shaded (Figure 2.33) and also the design of the carriage medium No 6 (64CWT). The Council approved the plan to restore the fort in June 1981.

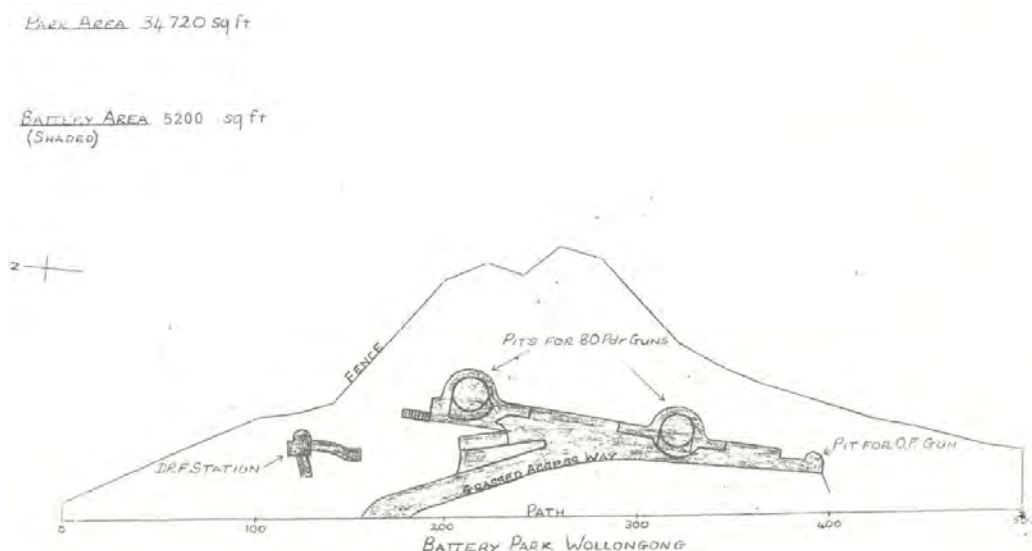


Figure 2.33 Battery area shown within Battery Park, 1981, drawn by GJ Scott. (Source: *Smith's Hill Fort Project*, prepared by GJ Scott, Part E)



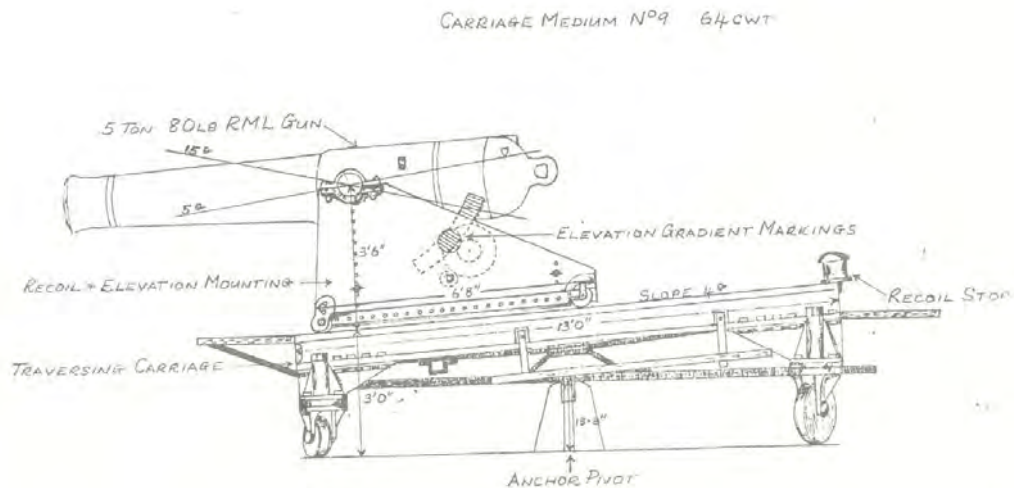


Figure 2.34 Section design of carriage medium No 9 (64 CWT), 1981, drawn by GJ Scott. (Source: *Smith's Hill Fort Project*, prepared by GJ Scott, Part E)

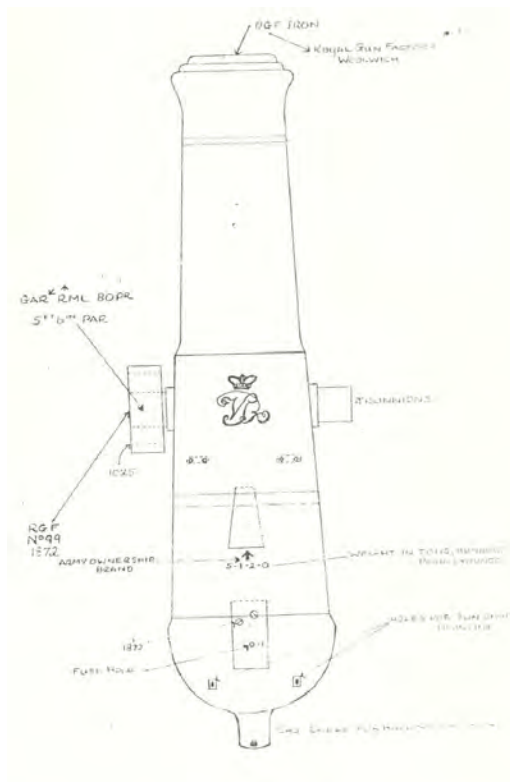


Figure 2.35 Design of carriage medium No 9 (64 CWT), 1981, drawn by GJ Scott. (Source: *Smith's Hill Fort Project*, prepared by GJ Scott, Part E)

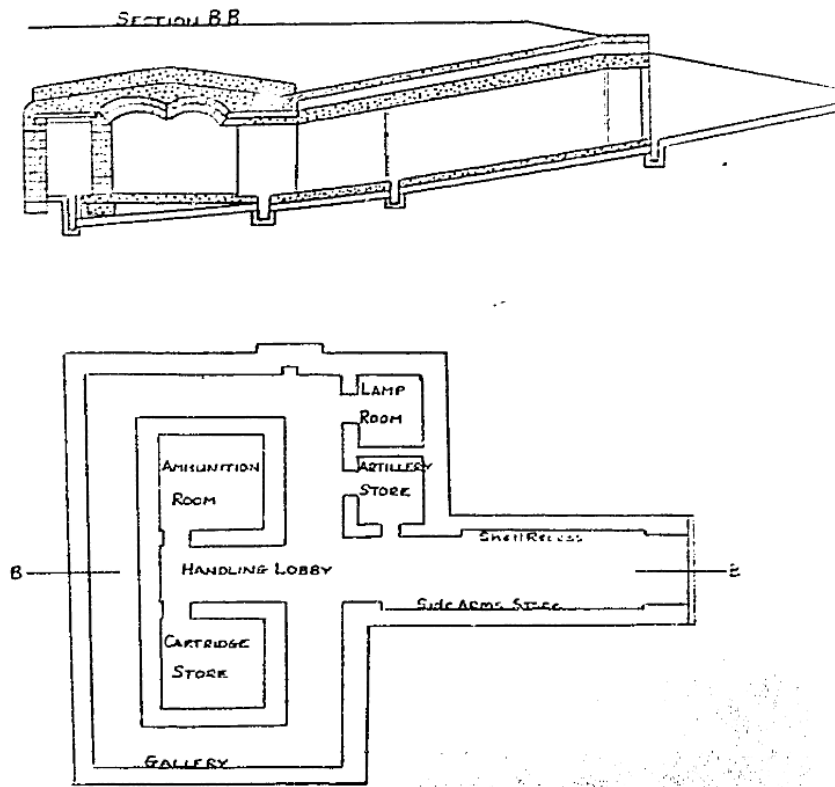


Figure 2.36 Smiths Hill Fort magazine plans and section, 1981. (Source: *Smith's Hill Fort Project*, prepared by GJ Scott, Part E)

The Royal Australian Artillery Historical Society wrote to Council in 1982 indicating that the guns were owned by their society and on loan to Council and that they were to be housed in some recognised artillery fort or site. Two years later the Wollongong City Council gave permission to GC Wilson to examine the guns and report on the condition of the carriages. Wilson recommended the guns be removed and restored.

M Egan prepared a report for the Heritage Council on the excavation of the guns and magazine at Battery Park in 1986. The report included a summary of the history prepared by GJ Scott in 1981. Scott recommended then that the fort's guns be uncovered and refurbished to prevent further corrosion, then remounted in their original position. Scott's research found that Smiths Hill Fort is a significant site in Australia's colonial military history, having the last two complete 80-pounder guns surviving in Australia of the 25 that were ordered by the New South Wales Government in 1872. Further, the battery is an important example of late nineteenth-century Australian gun emplacements as it underwent no modernising alterations.<sup>89</sup>



The excavation of the two 80-pounder guns took place on 22 and 23 May 1986 by volunteers using backhoe, hand tools and a crane. An area of approximately 1.5m around each gun was excavated to safely remove them from the ground. The overall condition of the northern gun mount and carriage was similar to what Wilson reported in 1984. The southern gun was found to be slightly less corroded; its wooden foot plate was better preserved, enabling it to provide the dimensions and details required for its modern reconstruction. A full description of the underground portions of the fort were explored during the excavation.

The 1986 excavation report noted that the corroded 1.5-inch Nordenfolt gun found near the entrance was removed and was undergoing restoration by the Australian Iron and Steel at Wollongong under the supervision of Brendan Kelson, the curator of Arms and Armaments at the Australian War Memorial Museum.

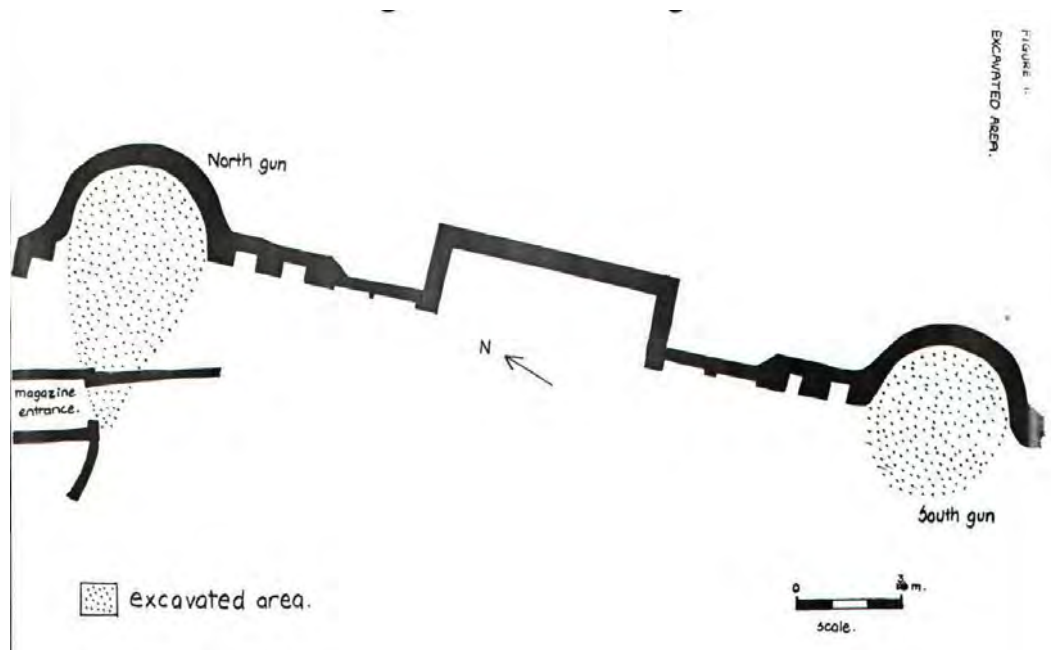


Figure 2.37 Plan of Battery Park showing area excavated at the fort in 1986. (Source: Smiths Hill Fort Wollongong, Excavation Report, May 1986)

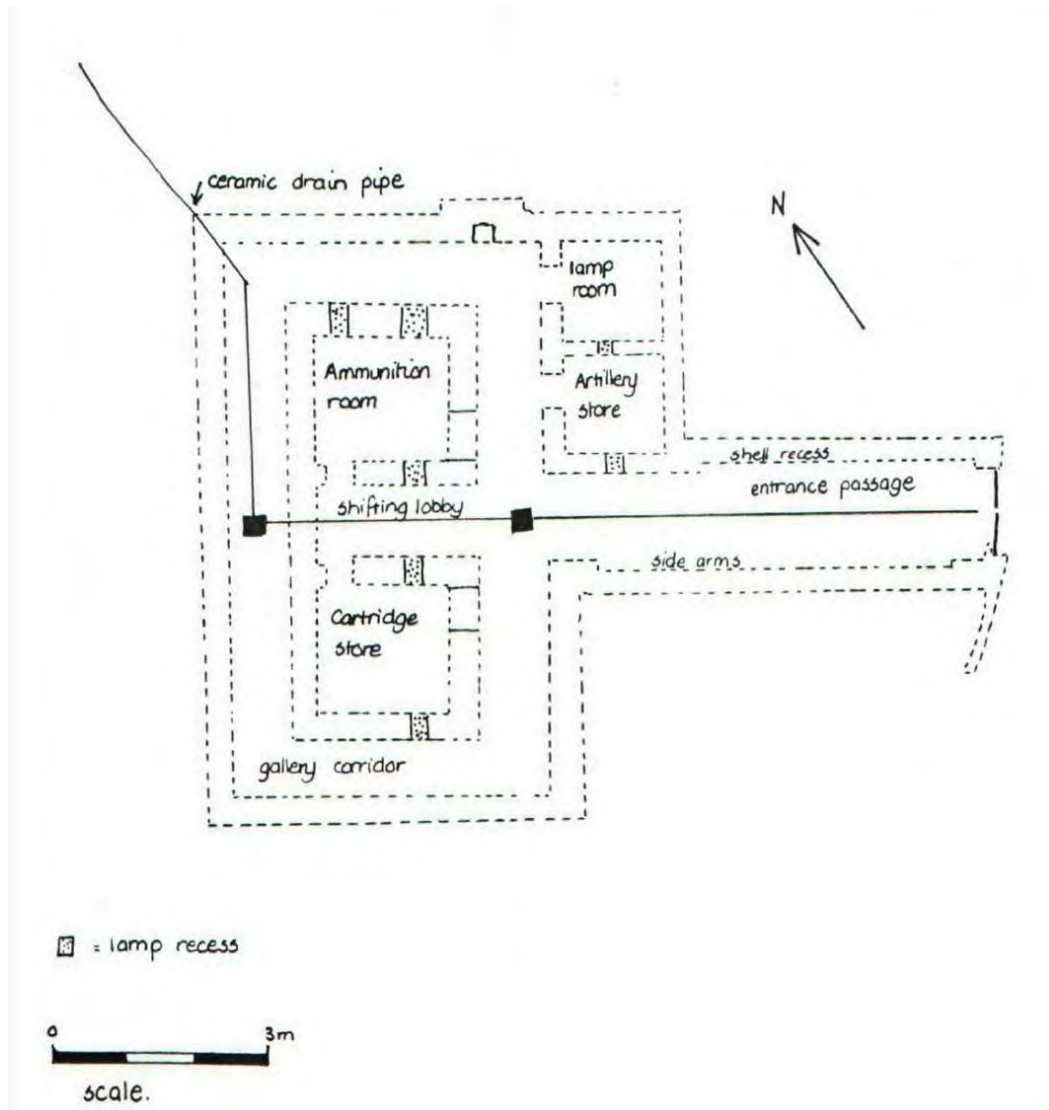


Figure 2.38 Plan of magazine drawn following excavation of the former fort, 1986. (Source: Smiths Hill Fort Wollongong, Excavation Report, May 1986)

After the removal of the guns and inspection by Wilson, the guns were transported to Bendigo where they were restored using a Bicentennial Committee special grant of \$30,000 awarded to the Illawarra Environmental Heritage Committee.

In 1988 the fort was fully excavated by volunteers supervised by Andrew Wilson and the structure was painted. The restored guns were reinstated and the surrounding Battery Park was grassed. The Nordenfolt gun removed prior to the fort being filled in the late 1940s was apparently stored at the Breakwater Battery storage area at this time.



The restored Smiths Hill Fort at Battery Park was officially opened on Monday 18 December 1988 by the Member for Cunningham, Stewart West, with a colonial re-enactment.

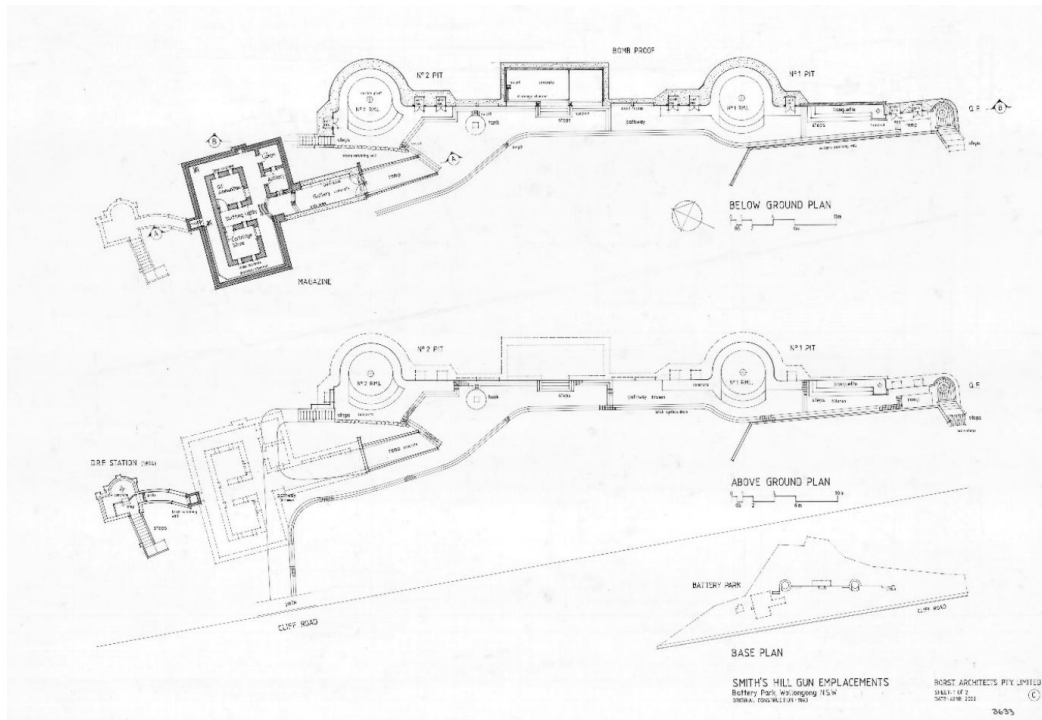


Figure 2.39 Sheet 1 of 2, Smiths Hill gun emplacements, Battery Park, Wollongong, 2002, drawn by Borst Architects Pty Ltd. (Source: Wollongong City Libraries)



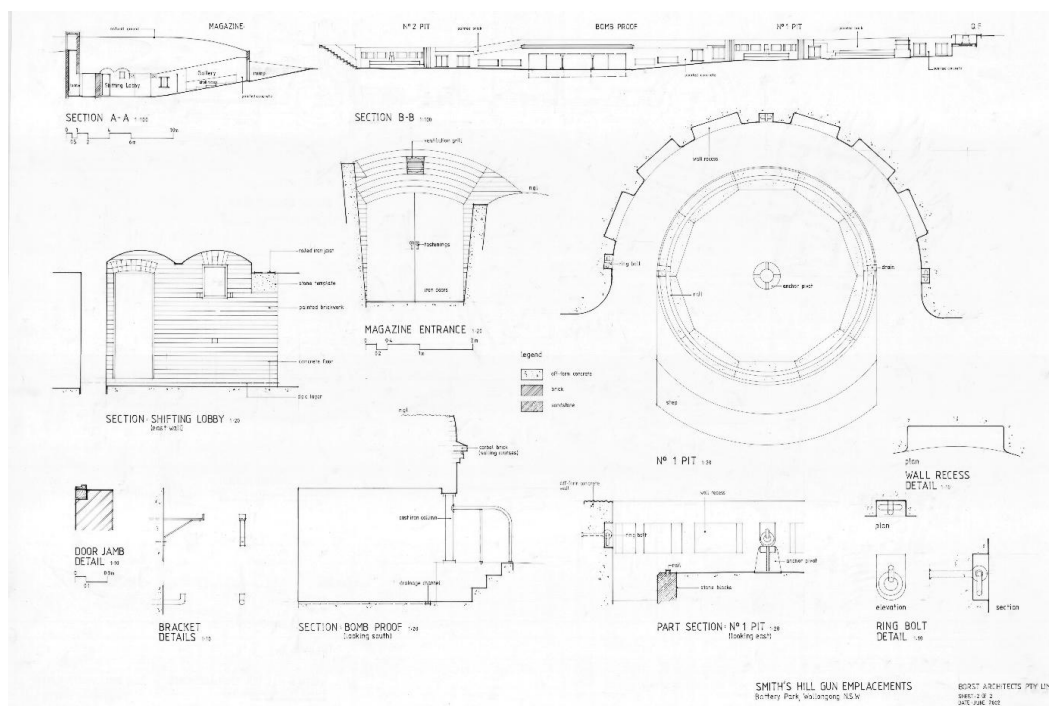


Figure 2.40 Sheet 2 of 2, Smiths Hill gun emplacements, Battery Park, Wollongong, 2002, drawn by Borst Architects Pty Ltd. (Source: Wollongong City Libraries)

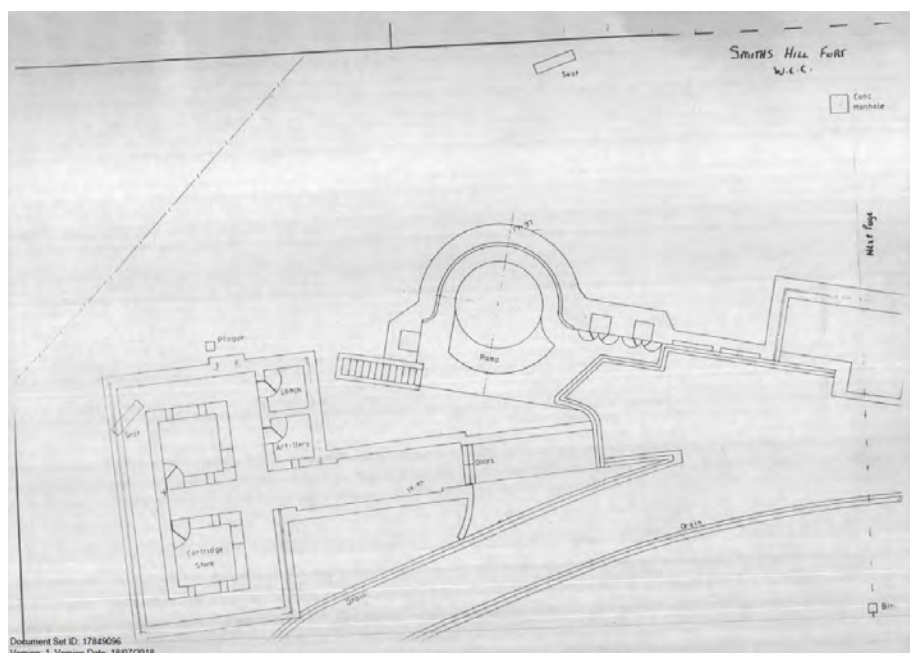


Figure 2.41 Left hand portion of plan showing the footprint of Smiths Hill Fort, 2018. (Source: City of Wollongong Council)

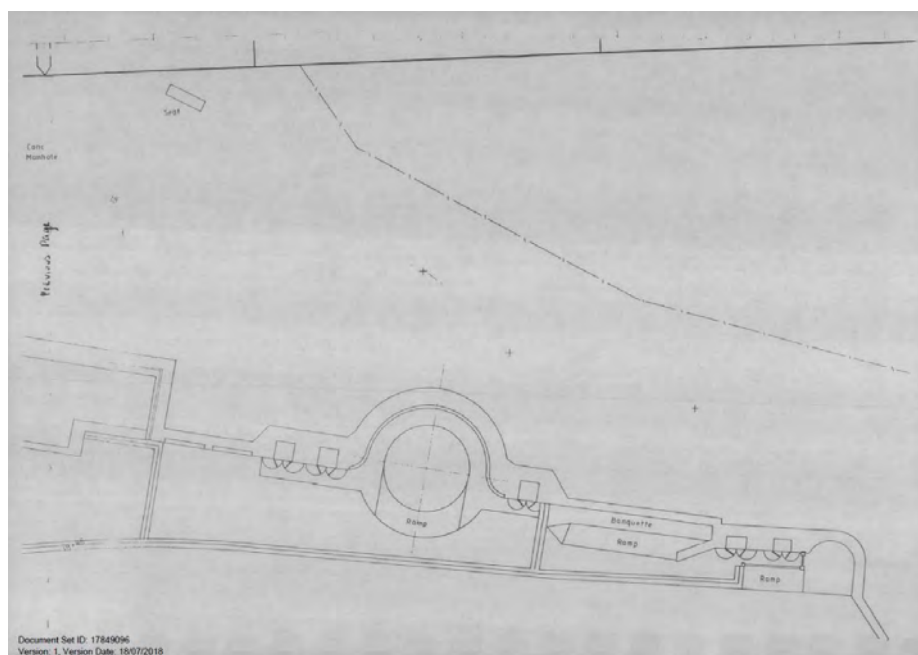


Figure 2.42 Right hand portion of plan showing the footprint of Smiths Hill Fort, 2018. (Source: City of Wollongong Council)



## 2.7 Timeline

Table 2.1 Timeline summary of the development of Flagstaff Hill and Smiths Hill Forts.

Date	Event
1872	Breakwater Lighthouse constructed
1878	No 6 Battery Volunteer Artillery formed
July 1879	<i>SS Havilah</i> delivers three cannons to Wollongong Harbour
October 1879	Three guns placed in a temporary position on northern aspect of Flagstaff Hill facing the harbour
October 1880	Three guns moved to their permanent position on northeast slope of Flagstaff Hill First shooting practice takes place at Flagstaff Hill on 26 October
1885	Site selected at Flagstaff Hill for one large gun and recommendations for two smaller batteries north and south of Flagstaff Point with the old 68 pounder guns relocated to near the harbour entrance. Total cost estimated at £4,000
1887	Guns at Flagstaff Hill considered obsolete Major General Shaw reports to Parliament on defences in NSW including a report from Major Penrose with recommendations for re-arming Wollongong
1889	Military Works Branch of Public Works Department draws up plans for Flagstaff Hill Fort Tenders invited for construction on the government reserve at Flagstaff Hill (Signal Hill) Tender awarded to James Russel & Co
February 1890	Construction of Flagstaff Hill Fort commences under supervision of PJ Owen, supervising engineer and Alfred Hall of James Russell & Co
June 1890	<i>ISN Bega</i> lands a dismantled 6-inch BL and associated equipment at Wollongong. Gun built by Armstrongs Elswick Ordnance Company, England
November 1890	Construction of Flagstaff Hill Fort complete except for mounting the main gun, sharpshooting guns and two signal stations.
January/February 1891	Permanent Artillery arrives in Wollongong to assist in erecting the large gun in fort
1892	Land occupied by Military Authorities surveyed
March 1892	NSW Government votes to spend £2000 to construct a two gun battery at Smiths Hill
July 1892	Commanding Engineer's Office invites tenders to construct Smiths Hill Fort
August 1892	Colonial Architect completes drawings for Smiths Hill Fort
September 1892	W Hart commences construction of Smiths Hill Fort



Date	Event
October 1893	Two 80-pounder guns, constructed in Woolwich in 1872, mounted on carriages Test firing of guns
November 1893	Smiths Hill Fort completed Smiths Hill and Flagstaff Hill Forts involved in a large military exercise witnessed by Major General Hutton
1903	State Committee value Smiths Hill and Flagstaff Hill Forts prior to their transfer to the Commonwealth Smiths Hill Fort guns declared obsolete and the officer-in-charge is instructed to dismantle them and plug the bores (August)
1905	Tenders invited for repairs to Flagstaff Hill fortifications, barracks and quarters at Flagstaff Hill and Smiths Hill Forts
1907	Government Architect's Office invites tenders for single men's quarters at Smiths Hill Fort; contract won by John Farquharson
1908	Tender awarded to H Williams for general repairs to the forts and quarters at Smiths Hill
1912	Wollongong and District Citizens Committee considers motion to provide up-to-date guns at Smiths Hill and Flagstaff Hill Forts
1914	Both forts handed over to Wollongong Council as permissive occupancy
1926	Smiths Hill Fort is re-transferred to the NSW government
1937	Wollongong Head Lighthouse is constructed on Flagstaff Point and comes into service, taking over from the Breakwater Lighthouse as the major light in the area.
August 1937	Big gun at Flagstaff Hill Fort removed and transported to Sydney
1941	Lessee of Flagstaff Hill Fort gun pit given notice to vacate
1946	Plan to fill in Smiths Hill Fort Opposition from West Wollongong P & C Association and Illawarra Historical Society Council erects stone wall at Smiths Hill Fort and decides to seal fort entrances with stone, fill behind them with boiler ash and cover the fort with topsoil
1947	Council appointed Trustee of Smiths Hill Fort Demolition of old the fort completed; improvements completed Council votes to spend money to construct retaining walls and fencing, form paths, remove gun barrels, and turn Smiths Hill Fort into car park
1948	Council abandons the plan to convert Smiths Hill fort to car park
1949	Gun pit at Flagstaff Hill is filled with sand and the entrance is bricked up Council votes to spend £1250 on improvements at Smiths Hill Fort



Date	Event
1954	Commonwealth request Council to offer a site for an Army training depot or to re-occupy the Flagstaff Hill site
1970s	West and south walls of Flagstaff Hill Fort are demolished and the area is levelled for a carpark
June 1970	Jaycees suggests turning Flagstaff Hill Fort into tourist information centre
1976	Battery Park, including Smiths Hill Fort, is formally gazetted
April 1978	New idea for a tourist information centre at Flagstaff Hill includes excavation of the original gun pit
1980	Council's heritage committee suggests converting Flagstaff Hill Fort to a museum
1981	Smiths Hill Fort Committee formed; GJ Scott elected President GJ Scott prepares report to Council to excavate and examine guns and carriages of Smiths Hill Fort
1982	Council seeks advice from Royal Artillery Historical Society for the possibility of restoring three 68 pounder guns for re-erection by Heritage Week 1983
April 1983	Heritage Week Three cannons are restored and relocated to Flagstaff Hill
1984	Council approves GC Wilson to partially excavate and examine the guns at Smiths Hill Fort Wilson recommends that the guns are removed and restored
1986	Report by M Egan on the excavation of the guns and magazine at Smiths Hill Fort in May Guns are restored in Victoria
1988	Smiths Hill Fort is fully excavated, the structure painted and restored guns re-instated, and the surrounding park is grassed Smiths Hill Fort is officially re-opened on 18 December
1996	Jobless people clean up Flagstaff Hill Fort site including digging out the exterior walls, inserting steel shutters, and bricking up doors and windows

## 2.8 Endnotes

- <sup>1</sup> Wesson S 2005 (ed), *A History of Aboriginal People of the Illawarra 1770–1970*, Department of Environment and Conservation (NSW), National Parks and Wildlife Service
- <sup>2</sup> Munt S, White B, and Owen T 2023, 'Social information inherent in backed artefacts from the Illawarra, western, and southwestern Sydney, NSW', *Australian Archaeology*, DOI: 10.1080/03122417.2023.2218992





- <sup>3</sup> Wesson S 2005 (ed), *A History of Aboriginal People of the Illawarra 1770–1970*, Department of Environment and Conservation (NSW), National Parks and Wildlife Service, p 8.
- <sup>4</sup> Kass, T, *A Thematic History of the City of Wollongong*, report prepared for City of Wollongong, May 2010, p 11.
- <sup>5</sup> Kass, T, *A Thematic History of the City of Wollongong*, report prepared for City of Wollongong, May 2010, p 19.
- <sup>6</sup> Kass, T, *A Thematic History of the City of Wollongong*, report prepared for City of Wollongong, May 2010, p 19.
- <sup>7</sup> Warne, K 2007, *Wollongong: Pictorial History*, Kingsclear Books, Alexandria, p 11; Kass, T, *A Thematic History of the City of Wollongong*, report prepared for City of Wollongong, May 2010, p 19.
- <sup>8</sup> 33/8124, Col Sec re Land, Charles Throsby Smith file, SRNSW 2/7972
- <sup>9</sup> Kass, T, *A Thematic History of the City of Wollongong*, report prepared for City of Wollongong, May 2010, p 23.
- <sup>10</sup> Kass, T, *A Thematic History of the City of Wollongong*, report prepared for City of Wollongong, May 2010, p 22.
- <sup>11</sup> Warne, K 2007, *Wollongong: Pictorial History*, Kingsclear Books, Alexandria, p 21.
- <sup>12</sup> Wollongong City Libraries, Wollongong, 2015, 'Wollongong: Parish of Wollongong County of Camden', viewed 11 August 2016 <<http://www.wollongong.nsw.gov.au/library/onlineresources/suburbprofiles/Pages/Wollongong.aspx>>.
- <sup>13</sup> Kass, T, *A Thematic History of the City of Wollongong*, report prepared for City of Wollongong, May 2010, p 23.
- <sup>14</sup> Warne, K 2007, *Wollongong: Pictorial History*, Kingsclear Books, Alexandria, p 25.
- <sup>15</sup> Rappoport Pty Ltd, 2015, Statement of Heritage Impact. Proposed Development at Keira and Thomas Street Wollongong NSW 2500, unpublished report, November 2015, p 21.
- <sup>16</sup> Kass, T, *A Thematic History of the City of Wollongong*, report prepared for City of Wollongong, May 2010, pp 61–72.
- <sup>17</sup> Wollongong City Libraries, Wollongong, 2015, 'Wollongong: Parish of Wollongong County of Camden', viewed 11 August 2016 <<http://www.wollongong.nsw.gov.au/library/onlineresources/suburbprofiles/Pages/Wollongong.aspx>>.
- <sup>18</sup> Scott, GJ, 'Wollongong Harbour Fortifications', *Illawarra Historical Society Bulletin*, November 1980, p 71.
- <sup>19</sup> 'Our New Military Organisation', *Australian Town and Country Journal*, 2 November 1878, p 26, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article70596282>>.
- <sup>20</sup> 'The Volunteer Artillery', *The Maitland Mercury and Hunter River General Advertiser*, 28 November 1878, p 3, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article18823264>>.
- <sup>21</sup> 'Kaleidoscope Views', *Illawarra Mercury*, 9 May 1879, p 2, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article135685406>>.
- <sup>22</sup> 'Committee Arrangements', *Illawarra Mercury*, 9 September 1879, p 2, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article135687994>>.
- <sup>23</sup> 'Meeting of Miners and others at Bulli', *Illawarra Mercury*, 3 October 1879, p 2, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article135687125>>.
- <sup>24</sup> Peter Freeman Pty Ltd 2002, *Wollongong Head Lighthouse Wollongong Conservation Management Plan*, p 27.



- 25 'The Bermagai Mystery', *Illawarra Mercury*, 26 October 1880, p 3, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article135940551>>.
- 26 'The Bermagai Mystery', *Illawarra Mercury*, 26 October 1880, p 3, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article1359405>>.
- 27 'The Scrap Album', *Illawarra Mercury*, 20 October 1882, p 2, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article136461836>>.
- 28 'Defence Works For Wollongong', *Illawarra Mercury*, 16 May 1885, p 2, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article132343469>>.
- 29 'The Defences of New South Wales', *The Sydney Morning Herald*, 2 December 1887, p 11, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article13676270>>.
- 30 'Advertising', *Illawarra Mercury*, 31 October 1889, p 3, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article135705791>>.
- 31 'Sporting', *Illawarra Mercury*, 31 October 1889: 3, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article135705793>>.
- 32 'Tender Board', *Newcastle Morning Herald and Miners' Advocate*, 8 November 1889, p 5, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article139272458>>.
- 33 'The Proposed Fortifications', *Illawarra Mercury*, 20 February 1890, p 3, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132640892>>.
- 34 'The Scrap Album', *Illawarra Mercury*, 25 March 1890, p 2, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article132638603>>.
- 35 'Opening Of Parliament', *Illawarra Mercury*, 1 May 1890: 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132640786>>.
- 36 'Fortifications', *Illawarra Mercury*, 10 April 1890, p 3, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article132637711>>.
- 37 'Bulli', *The Sydney Mail and New South Wales Advertiser*, 2 August 1890, p 276, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article163648738>>.
- 38 'The Fortifications', *Illawarra Mercury*, 28 June 1890, p 3, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132639366>>.
- 39 'Military', *Illawarra Mercury*, 3 July 1890, p 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132639813>>.
- 40 'The Fortifications', *Illawarra Mercury*, 19 July 1890, p 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132637079>>.
- 41 'Bulli', *The Sydney Mail and New South Wales Advertiser*, 8 November 1890, p 1059, Trove, National Library of Australia, viewed 24 June 2024 <<http://nla.gov.au/nla.news-article163648064>>.
- 42 'The Scrap Album', *Illawarra Mercury*, 31 January 1891, p 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132635237>>.
- 43 'Caution', *Illawarra Mercury*, 26 February 1891, p 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132635272>>.
- 44 'Military Display in Wollongong', *Illawarra Mercury*, 28 November 1893, p 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132196142>>.
- 45 'Tenders Received', *The Sydney Morning Herald*, 1 August 1905, p 8, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article14691008>>.
- 46 'Signal Hill Fort', *Illawarra Mercury*, 23 November 1904, p 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132239490>>.
- 47 'The Searchlight', *Illawarra Mercury*, 8 November 1907, p 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132119409>>.



- 48 'Wollongong's Old Forts', *Illawarra Mercury*, 2 July 1937, p 14, Trove, National Library of Australia, viewed 13 June 2024 <<http://nla.gov.au/nla.news-article132563342>>.
- 49 'Searchlight', *Illawarra Mercury*, 13 August 1937, p 5, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132555595>>.
- 50 'Parks & Gardens Committee Report', *Illawarra Mercury*, 17 September 1937, p 7, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132560181>>.
- 51 'Health Committee Report', *Illawarra Mercury*, 29 August 1941, p 10, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article249155017>>.
- 52 'Parks & Gardens Committee Report', *Illawarra Mercury*, 26 September 1941, p 12, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article249152550>>.
- 53 'Bombshell Letter on Flagstaff Hill Depot', *Illawarra Daily Mercury*, 22 July 1954, p 1, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article133680199>>.
- 54 'Concern On Flagstaff Hill Move', *Illawarra Daily Mercury*, 26 July 1954, p 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article133675983>>.
- 55 'Conference Today On Site For Army Depot', *South Coast Times and Wollongong Argus*, 29 July 1954, p 1, Trove, National Library of Australia, viewed 27 June 2024 <<http://nla.gov.au/nla.news-article142728933>>.
- 56 Hutton, Meredith 1997, *Conservation study for Belmore Basin Conservation Area Wollongong, NSW*.
- 57 Hutton, Meredith 1997, *Conservation study for Belmore Basin Conservation Area Wollongong, NSW*.
- 58 Hutton, Meredith 1997, *Conservation study for Belmore Basin Conservation Area Wollongong, NSW*.
- 59 Hutton, Meredith 1997, *Conservation study for Belmore Basin Conservation Area Wollongong, NSW*.
- 60 Hutton, Meredith 1997, *Conservation study for Belmore Basin Conservation Area Wollongong, NSW*.
- 61 'Wollongong: Another Battery', *Australian Town and Country Journal*, 13 February 1892, p 17, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article71233985>>.
- 62 'Wollongong', *The Sydney Mail and New South Wales Advertiser*, 23 July 1892, p 225, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article162191441>>.
- 63 'Advertising', *Illawarra Mercury*, 19 July 1892, p 3, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132289561>>.
- 64 'The Scrap Album', *Illawarra Mercury*, 4 March 1893, p 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132287914>>.
- 65 'The Scrap Album', *Illawarra Mercury*, 16 March 1893, p 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132294121>>.
- 66 'The Scrap Album', *Illawarra Mercury*, 28 October 1893, p 2, Trove, National Library of Australia, viewed 25 June 2024 <<http://nla.gov.au/nla.news-article132201116>>.
- 67 Scott, GJ 1981, *Smith's Hill Fort Project*, Part A.
- 68 'The Military Encampment', *Illawarra Mercury*, 21 May 1895, p 2, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article132298614>>.
- 69 'The Scrap Album', *Illawarra Mercury*, 11 August 1896, p 3, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article132300584>>.



- <sup>70</sup> 'The Camp at Wollongong', *The Daily Telegraph*, 4 April 1899, p 5, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article236780926>>.
- <sup>71</sup> 'The Man in the Street Says', *Illawarra Mercury*, 1 August 1903, p 2, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article132120642>>.
- <sup>72</sup> 'Wollongong's Defences', *The Sydney Morning Herald*, 14 August 1907, p 10, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article14888461>>.
- <sup>73</sup> 'Local Defences', *The Sydney Morning Herald*, 15 August 1907, p 6, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article14904751>>.
- <sup>74</sup> 'South Coast News', *The Shoalhaven Telegraph*, 5 August 1903, p 5, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article127186425>>.
- <sup>75</sup> 'Defence of the South Coast', *The Sydney Morning Herald*, 29 August 1907, p 6, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article14905782>>.
- <sup>76</sup> 'The Searchlight', *Illawarra Mercury*, 10 October 1903, p 2, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article132124859>>.
- <sup>77</sup> 'Accepted tenders', *South Coast Times and Wollongong Argus*, 24 December 1904, p 17, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article142853902>>.
- <sup>78</sup> 'Wollongong and District Citizens' Committee', *South Coast Times and Wollongong Argus*, 3 May 1912, p 11, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article141914346>>.
- <sup>79</sup> 'Wollongong Council', *Illawarra Mercury*, 2 June 1914, p 5, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article132104299>>.
- <sup>80</sup> 'Wollongong City Council', *South Coast Times and Wollongong Argus*, 26 April 1946, p 14, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article142091769>>.
- <sup>81</sup> Scott, GJ 1981, *Smith's Hill Fort Project*, Part A.
- <sup>82</sup> 'Wollongong City Council', *South Coast Times and Wollongong Argus*, 24 May 1946, p 18, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article142091326>>.
- <sup>83</sup> 'Wollongong City Council', *South Coast Times and Wollongong Argus*, 19 July 1946, p 18, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article142090530>>.
- <sup>84</sup> 'Wollongong City Council', *South Coast Times and Wollongong Argus*, 18 April 1947, p 19, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article142226680>>.
- <sup>85</sup> 'Fort Will Become Car Park', *Illawarra Mercury*, 19 September 1947, p 6, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article133911488>>.
- <sup>86</sup> 'Old Fort Site', *Illawarra Mercury*, 18 November 1948, p 1, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article136450934>>.
- <sup>87</sup> 'Week By Week', *South Coast Times and Wollongong Argus*, 26 May 1949, p 16, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article142263643>>.
- <sup>88</sup> 'North Beach Improvements', *Illawarra Mercury*, 26 May 1949, p 10, Trove, National Library of Australia, viewed 26 June 2024 <<http://nla.gov.au/nla.news-article136449891>>.
- <sup>89</sup> Egan, M 1986, *Smiths Hill Fort Wollongong: Excavation Report*.

# Physical analysis





## 3 Physical analysis

The underground and above-ground components of Flagstaff Hill Fort as well as the above-ground components of Smiths Hill Fort were inspected by GML and OHM Consultants on 31 May 2024.

A second site visit inspecting the underground components of Smiths Hill Fort was conducted by GML (Hendry Wan, Jacob Gwiazdzinski and Linda Phung) and OHM (David McBeath) on 2 August 2024.

### 3.1 Flagstaff Hill Fort

#### 3.1.1 Setting and context

The Flagstaff Hill Fort study area (Flagstaff Hill) is located at the edge of a cliff towards the eastern most point of Endeavour Drive, where the road loops back around on itself. The coast wraps around the eastern portion of the study area and a grassed rocky outcrop is set below the height of the study area. The Nuns' Baths and Ladies' Baths are tidal rock pools that form part of the surrounding grassed rocky outcrop, along with a number of stone seawalls. Wollongong Harbour is located to the northwest of Flagstaff Hill, while City Beach is located to the south.



Figure 3.1 Looking north towards the Pacific Ocean from the northwestern portion of the Flagstaff Hill Fort study area.



Figure 3.2 Looking northeast towards the Pacific Ocean from the northwestern edge of the Flagstaff Hill study area.



Figure 3.3 Looking southwest along Endeavour Drive towards Flagstaff Hill.



Figure 3.4 Looking northwest across Endeavour Drive from the northwestern portion of the Flagstaff Hill study area, towards north Wollongong.



Figure 3.5 Looking northeast from the northern edge of the Flagstaff Hill study area towards the Nuns' Baths tidal rock pool.



Figure 3.6 Looking south from the northeastern edge of the Flagstaff Hill study area towards City Beach.



Figure 3.7 Looking south from the northeastern edge of the Flagstaff Hill study area towards the Ladies' Baths tidal rock pool.



Figure 3.8 Looking north towards the seawall that surrounds the Nuns' Baths tidal rock pool.



### 3.1.2 External/above-ground features and fabric

The Flagstaff Hill study area is a large, open, grassed area used as a public park. The land is uneven, falling to all sides. The highest point of the land comprises the Wollongong Lighthouse and a circular, open pit (former gun pit) which is surrounded by a metal fence.

The northern part of the study area is terraced with two curved stone retaining walls defining the two different levels of the park. An interpretation panel positioned on a concrete base is set within one of the lower rock-lined retaining walls. A small marble dedication plaque/memorial is located in the upper level of this part of the study area. The lower portion comprises three, evenly spaced guns which face towards the ocean with a small, concrete/stone memorial/dedication plaque located immediately to the south of the guns. A picnic table is located to the southeast of the three guns.

A metal fence wraps around the eastern and southern boundaries of the study area, separating Flagstaff Hill from the rocky outcrop and ocean below. This fence begins around 10 metres to the north of the three guns and terminates at the carparks located towards the south of the study area. The land at the southwestern edge of the study area has been levelled to form two separate carparking areas, with the more northern of the carparks positioned higher than the more southern carpark. Whilst the northern half of the northern-most carpark forms part of the study area, the lower of the two carparks to the south does not form part of the study area. Nonetheless, both carparks are similar in size and design, lined in a bitumen finish, and are accessed via Endeavour Drive to their west.

The entry into the underground components of the fort is located along the northern boundary of the northern-most carpark. It comprises a single-storey brick wall with a flat roof that forms part of the public park area above. The brick wall comprises a centrally positioned door opening and two evenly spaced window openings on either side. Metal double doors are located within the door opening, while the two window openings have been infilled with metal sheeting of a similar finish to the double doors. Timber retaining walls (comprising large section timbers laid horizontally and held in place by vertical timber posts of similar dimensions) are located either side of the brick wall and support the sloping landscaped parkland above. A remnant, low, curved brick wall is located just to the southeast of the entry into the underground areas of the fort. A brick-paved pathway separates the entry into the underground areas of the fort and the carpark. A concrete-lined pathway, running west-east, connects the carparks to Flagstaff Point Lighthouse Lookout at the most eastern point.

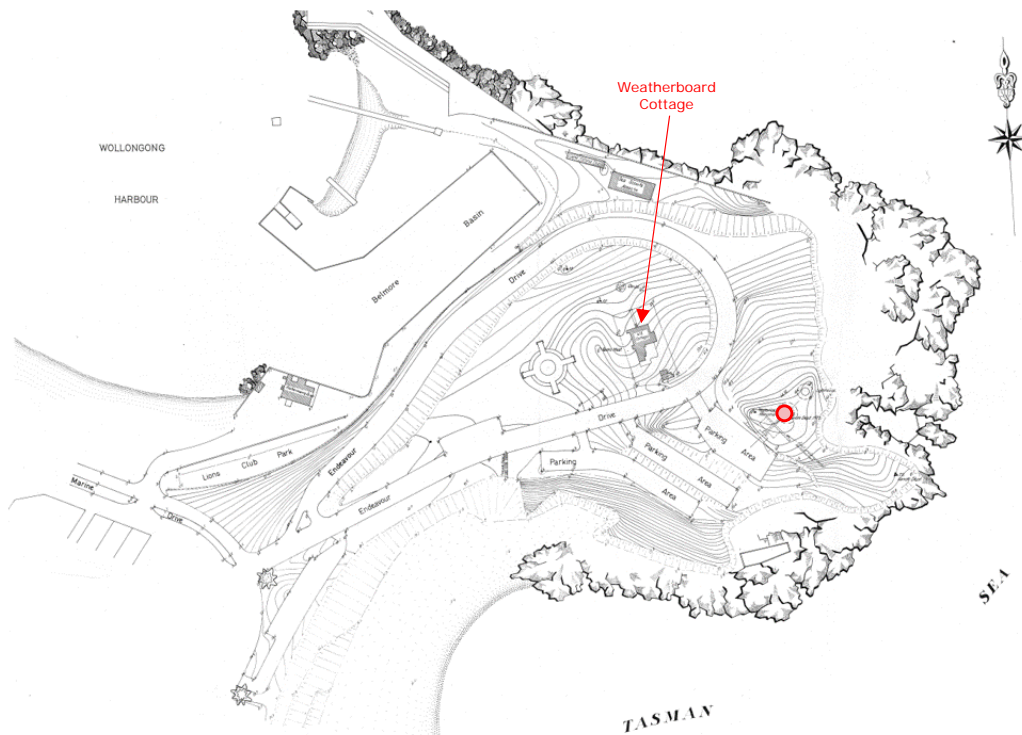


Figure 3.9 Physical relationship between Flagstaff Hill Fort and 'W.B. cottage' (possibly the pilot's cottage) on Flagstaff Hill, c1970s. (Source: City of Wollongong Council, n.d.)



Figure 3.10 Looking northeast towards the entry into the underground areas of Flagstaff Hill Fort from the surrounding carpark area.



Figure 3.11 Looking north towards the entry into the underground area of Flagstaff Hill Fort.





Figure 3.12 Looking towards the northwest portion of the entry into the underground areas of Flagstaff Hill Fort.



Figure 3.13 Remnant brick retaining wall located to the southeast of the entry into the underground areas of Flagstaff Hill Fort.



Figure 3.14 Looking down from Flagstaff Hill park into the former gun pit.



Figure 3.15 Looking north from the southwestern edge of Flagstaff Hill park towards the Pacific Ocean. Flagstaff Hill Fort (1890) pre-dated the Wollongong Head Lighthouse (1937).





Figure 3.16 Looking west from the southwestern edge of Flagstaff Hill towards the carparks and Endeavour Drive.



Figure 3.17 Looking north from the southwestern edge of Flagstaff Hill towards North Wollongong. The Lieutenant James Cook monument is seen in the foreground.



Figure 3.18 Looking northeast towards the Pacific Ocean. The northeastern edge of the Flagstaff Hill study area is seen in the background, along with the three guns and park furniture.



Figure 3.19 Looking northeast towards the Pacific Ocean. The northeastern edge of the Flagstaff Hill study area is seen in the background, along with a number of guns. A war monument is seen in the foreground.



Figure 3.20 Close-up image of the Australia's National Servicemen war monument seen in Figure 3.19.



Figure 3.21 Australia's National Servicemen plaque inscription.



Figure 3.22 Three guns located along the northern edge of the Flagstaff Hill study area.



Figure 3.23 Interpretation plaque (installed during Heritage Week 1983) for the three relocated guns.



Figure 3.24 Looking southwest from the northeastern edge of the Flagstaff Hill study area towards the three guns.



Figure 3.25 Interpretation panel (Wollongong Harbour History Walk No. 8—Flagstaff Battery) located within the rock-lined retaining wall surrounding the three guns.



Figure 3.26 Looking south across the park from the northern edge of the Flagstaff Hill study area.



Figure 3.27 Looking southwest across the park from the northern edge of the Flagstaff Hill study area.





Figure 3.28 Looking northeast across the park from the northeastern edge of the Flagstaff Hill study area.



Figure 3.29 Looking northeast from the southwestern edge of the study area.



Figure 3.30 Looking east across the park from the southwestern edge of the study area.



Figure 3.31 Looking southeast across the park from the southwestern edge of the study area.



Figure 3.32 Looking south across the park towards the Pacific Ocean.



Figure 3.33 Looking southwest across the park towards the carpark.



Figure 3.34 Looking from the southwest edge of the Flagstaff Hill study area towards the carpark.



Figure 3.35 Looking northwest across the park from the southeast edge of the site.



Figure 3.36 Looking northeast from the carpark towards the park and the Flagstaff Point Lighthouse.



Figure 3.37 Looking northeast from the lower portion of the carpark to the upper portion of the carpark.

### 3.1.3 Underground features and fabric

The underground portion of Flagstaff Hill Fort is mostly symmetrical in its overall layout and footprint. A central passage runs through the centre, connecting the former casemate at the entry (located towards the southwestern-most end), through to a former gun battery at the northeastern-most end. Moving from the southwest through to the northeast along the central passage, the spaces/rooms are as follows:

- Two former storage recesses that are located either side of the main central passage—Store (No. 6) and Laboratory (No. 7).





- A short passage and set of stairs to the northwest of the central passage provides access to, and acts as a lobby to, a former magazine store (No. 4). This is mirrored on the other side of the central passage, with another small walkway and set of stairs providing access and acting as a lobby to a former shell store (No. 5).
- A narrow, ventilated tunnel is located directly to the northeast of the former magazine (No. 4) and shell store (No. 5). At the end of this tunnel are the Depression Range Finder (No. 2) at the northwestern end and an Observation Post (No. 3) at the southeastern end.

Table 3.1 provides a description of each of the underground spaces within Flagstaff Hill Fort. Figure 3.38 shows the above and underground structural elements of the fort.

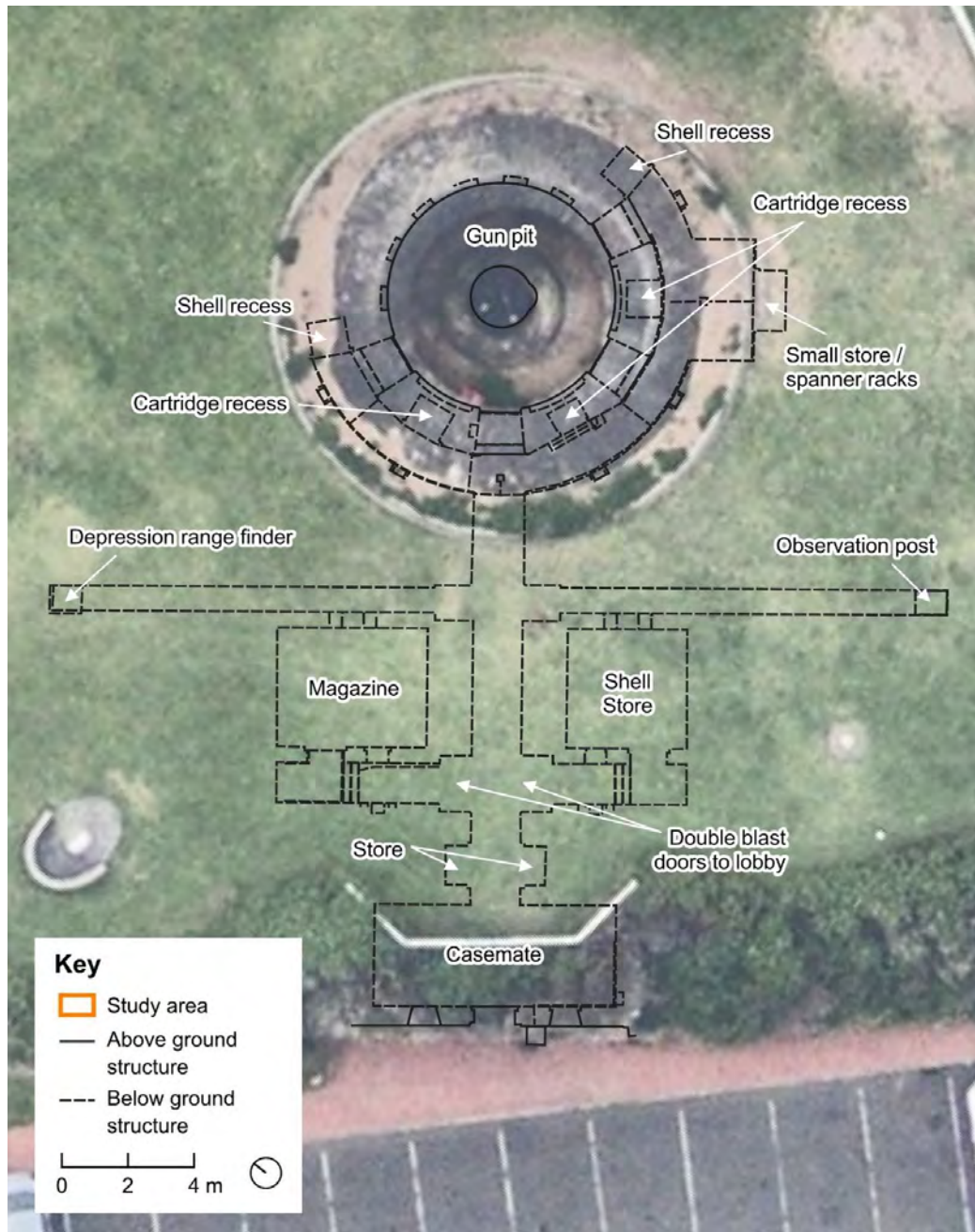


Figure 3.38 Surviving above and below ground structural elements of Flagstaff Hill Fort. (Source: GML additions to City of Wollongong Council plans, Nearmap basemap)



Table 3.1 The underground spaces of Flagstaff Hill Fort.

Room/space	Description
Casemate (No. 12)	<ul style="list-style-type: none"> <li>Two small rooms located either side of the central passage.</li> <li>Painted concrete ceiling.</li> <li>Double-skin brick walls with sections covered in graffiti.</li> <li>Unpainted concrete floor.</li> <li>Lighting is limited, with one batten light fitting fixed to the ceiling.</li> <li>Cabling runs along the top of the walls where they meet the ceilings. Some of the cabling hangs over the doorway between the casemate and the central passage.</li> <li>A large amount of rubbish is located within this space across a large portion of the floor.</li> </ul>
Storage recesses located on either side of the central passage—Store (No. 6) and Laboratory (No. 7)	<ul style="list-style-type: none"> <li>The recesses are a standard door height but are wider than a standard door.</li> <li>The southwestern and back walls to the recesses are concrete, while the walls surrounding the recesses along their northeastern sides are painted concrete. The walls would have originally been painted; however, sections of paint have worn away.</li> <li>The floor within both recesses is unpainted concrete.</li> <li>The recess on the southeastern side of the central passage retains its original timber lintel. The lintel associated with the recess on the southeastern side of the central passage is no longer extant.</li> <li>There is evidence along the side walls of the recesses of there having been doors that would have closed off the recesses from the central passage.</li> </ul>
Central passage	<ul style="list-style-type: none"> <li>Painted concrete ceiling. Orange rust stains are located across the ceiling space, indicative of where water leakages may have occurred.</li> <li>Sections of wall are painted concrete whilst other sections are double-brick walls. The walls would have originally been painted; however, sections of paint have worn away.</li> <li>Unpainted concrete floor.</li> <li>A number of small openings and holes are located across the length of each of the walls located on either side of the central passage. These may be evidence of the location of former fixings or niches.</li> <li>A number of metal fixings and fixtures, such as angle brackets, are located along the length of the central passage.</li> </ul>



Room/space	Description
Magazine (No. 4)	<ul style="list-style-type: none"> <li>A short walkway along the length of the southwestern edge of the magazine connects the magazine to the central hallway. It has an unpainted concrete ceiling and floor.</li> <li>The southwestern wall of the short walkway is concrete while the northeastern wall is double brick. These walls would have originally been painted; however, sections of paint have worn away.</li> <li>A small niche, likely used to hold a light, is located within the southwestern wall of the short hallway.</li> <li>Three concrete steps connect the short walkway to a landing below.</li> <li>The unpainted brick wall at the end of the short walkway has graffiti painted across it.</li> <li>An arched doorway located along the southwestern wall of the magazine, close to the western corner, provides access from the landing into the former magazine space.</li> <li>The magazine room has an unpainted concrete floor, painted concrete ceiling and unpainted brick walls.</li> <li>A small window opening is located along the southwestern wall of the magazine and another two small window openings are located along the northeastern wall of the magazine, connecting the magazine with the ventilated tunnel to the northeast.</li> <li>Lighting is limited, with one batten light fitting fixed to the ceiling. Cabling associated with this light also hangs from the ceiling.</li> </ul>
Shell store (No. 5)	<ul style="list-style-type: none"> <li>A short walkway along the length of the southwestern edge of the shell store connects the shell store to the central hallway. It has an unpainted concrete ceiling and floor.</li> <li>The southwestern wall of the short walkway is concrete whilst the northeastern wall is double brick. These walls would have originally been painted; however, sections of paint have worn away.</li> <li>A small niche, likely used to hold a light, is located within the southwestern wall of the short hallway.</li> <li>Three concrete steps connect the short walkway to a landing below.</li> <li>An arched doorway located along the southwestern wall of the magazine, close to the eastern corner, provides access from the landing into the former shell store space.</li> <li>The shell store has an unpainted concrete floor and painted concrete ceiling.</li> <li>The shell store has brick walls that are painted from the level of the floor to halfway up the walls.</li> </ul>



Room/space	Description
	<ul style="list-style-type: none"> <li>A small window opening is located along the southwestern wall of the magazine and another two small window openings are located along the northeastern wall of the magazine, connecting the magazine with the ventilated tunnel to the northeast.</li> <li>Lighting is limited, with one batten light fitting fixed to the ceiling. Cabling associated with this light also hangs from the ceiling.</li> </ul>
Ventilated tunnels	<ul style="list-style-type: none"> <li>The ventilated tunnels, located either side of the central hallway directly to the northeast of the magazine and shell store, have painted concrete ceilings and unpainted concrete floors.</li> <li>The walls along the southwestern side are painted brick whilst the walls along the northeastern side are painted concrete. Areas of paint along the walls have worn away over time.</li> <li>Metal grille security gates/doors are located at the entry of each of the ventilated tunnels; the gate/door to the southeast of the central passage is fixed open (No. 3), while the gate/door to the northwest of the central passage is fixed shut (No. 2).</li> <li>Metal elements (refer Figure 3.53) are located atop the ceiling at the end of each of the tunnels. These metal elements indicate the location of where vents would have been originally located.</li> </ul>
Gun battery (No. 1)	<ul style="list-style-type: none"> <li>The gun battery comprises an open, former gun pit located at the end of the central passage that is surrounded by a circular concrete wall.</li> <li>The curved walls that surround the former gun pit are painted concrete. An unpainted concrete topping/parapet and metal fence is located at the top of the curved concrete wall and separates the former gun pit from the park above.</li> <li>A number of small nibs (cartridge recesses—No. 10) are located within the wall surrounding the former gun pit.</li> <li>A number of doorways with metal doors (likely later) are also located within the wall surrounding the former gun pit. The door towards the southwestern end of the curved concrete wall provides access to the central passage.</li> <li>The former gun pit itself is also circular, constructed of unpainted concrete. A hole in the middle of the pit indicates the location of where a gun would have originally been located.</li> <li>The southwestern portion of the circular concrete wall contains a curved passageway that houses the former pump chamber, artillery stores and fireplaces, which are accessed from the central passage.</li> </ul>





Room/space	Description
	<ul style="list-style-type: none"> <li>The former pump chamber, artillery stores, fireplaces, as well as a number of small nibs within the circular concrete wall, have concrete ceilings and concrete floors. The ceilings, walls and floors within this area of the former fort are painted; however, sections of paint have worn away.</li> </ul>



Figure 3.39 Looking from within the former casemate (No. 12) towards the entry into the underground areas of Flagstaff Hill Fort.



Figure 3.40 Looking northwest through the former casemate (No. 12).



Figure 3.41 Looking southeast through the former casemate (No. 12).



Figure 3.42 Painted brick wall located along the southeast edge of the central passage.



Figure 3.43 Large recess (Store—No. 6) located on the northwestern side of the central passage.



Figure 3.44 Large recess (Laboratory—No. 7) located on the southeastern side of the central passage.



Figure 3.45 Looking northeast along the central passage.



Figure 3.46 Looking northwest down the entry stairs into the magazine (No. 4).



Figure 3.47 Looking northeast through the magazine (No. 4).



Figure 3.48 Looking north through the main shell store (No. 5).





Figure 3.49 Looking southeast towards the entry into the main shell store (No. 5).



Figure 3.50 Small niche (lamp recess?) located within one of the walls at the entry into the shell store (No. 5).



Figure 3.51 Looking northwest towards the entry into the ventilated tunnel (No. 2) located directly to the northwest of the magazine.



Figure 3.52 Looking southeast to the entry into the ventilated tunnel (No. 3), located directly to the northeast of the shell store.



Figure 3.53 The end of one of the ventilated tunnels. It appears the vent has now been covered over.



Figure 3.54 Looking from the ventilated tunnel towards an opening located along the wall separating the ventilated tunnel and the magazine (No. 4).



Figure 3.55 Looking northeast towards the gun pit (No. 1) from the central passage.



Figure 3.56 Looking northeast towards the gun pit (No. 1) and shell recesses, with the Flagstaff Point Lighthouse in the background.





Figure 3.57 Looking down into the gun pit (No. 1).



Figure 3.58 Looking north to the shell recess at the end of the curving passageway surrounding the southwestern section of the former gun pit.



Figure 3.59 Looking to a shell recess (No. 11) located at the end of the curving passageway surrounding the gun battery.

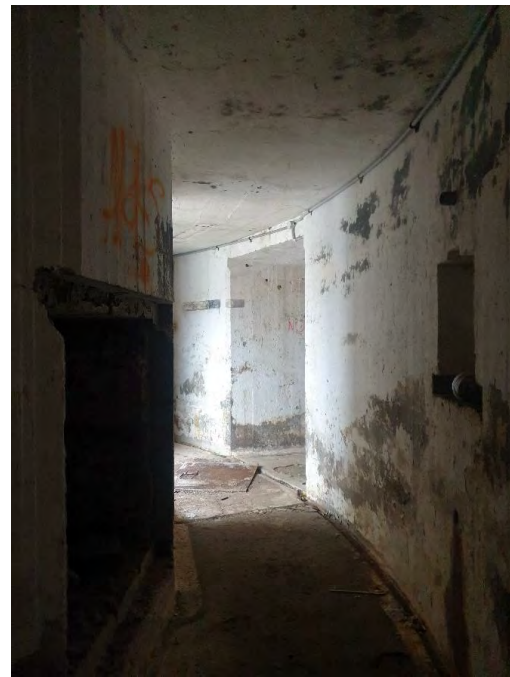


Figure 3.60 Looking east around the curving passageway to the artillery store and pump (No. 8).



Figure 3.61 A cartridge recess located within the curving passageway surrounding the gun battery.



Figure 3.62 Looking to a shell recess (No. 11) located at the eastern end of the curving passageway, shell recess (left) and pump chamber (right).



Figure 3.63 Shell recess (No. 11) located at the eastern end of the curving passageway surrounding the gun battery.



Figure 3.64 Looking towards a later door located at the eastern end of the gun battery.

## 3.2 Smiths Hill Fort

### 3.2.1 Setting and context

The Smiths Hill Fort study area (Smiths Hill) is located within the central portion of Battery Park, which is a public, landscaped park set atop a cliff edge/rocky outcrop above the Blue Mile coastal walkway that wraps around the coastline. The pathway and ocean below the study area are screened from view from the Smiths Hill Fort by a number of small to medium sized plantings that line the cliff edge/rocky outcrop.



North Wollongong Beach is located to the north of the study area, while the former Men's Baths tidal rock pool and Continental Ocean Pool are located to the south of the study area. Cliff Road forms the western boundary of the study area. Directly to the west of Cliff Road is a residential area defined by a number of small scale one and two-storey dwellings, as well as a number of multi-storey, medium scale apartment buildings.



Figure 3.65 Residential area to the northwest of the Smiths Hill Fort study area.



Figure 3.66 Looking east from Cliff Road towards the North Beach Kiosk.



Figure 3.67 Looking south from the public seating area located on the eastern side of Cliff Road. North Beach and the North Beach Pavilion are located to the left of the image in the background.



Figure 3.68 Looking southeast from the public seating area located on the eastern side of Cliff Road. North Beach and the North Beach Pavilion are located below the level of the road, while Flagstaff Hill is visible in the background of the image.





Figure 3.69 Looking east from Cliff Road towards North Beach.



Figure 3.70 Looking south along the pathway and public park located on the eastern side of Cliff Road. The Smiths Hill Fort study area is in the background of the image.

### 3.2.2 External/above-ground features and fabric

The Smiths Hill Fort study area is mostly flat; however, the southwestern portion of the study area rises up towards Cliff Road and forms a landscaped embankment. Most of the study area is taken up by sections of the former fort that are located above the ground's surface. The remaining portions of the study area are taken up by grassed, landscaped areas, noting that most of the landscaped park areas are positioned above the height of the above-ground components of the fort. A metal fence runs north-south around the eastern edge of the study area and a number of tall Norfolk Pine trees are also located around the eastern boundary of the study area.

The former fort is split into two separated components within the park: a former depression range finder (DRF) is located within the northern portion of the park while the remaining components of the former fort are located to the south. A tall Norfolk Pine tree separates these two sections of the fort. An interpretation panel is located towards the northwestern corner of the study area where a set of concrete steps provide access to the study area from Cliff Road above. A bitumen pathway curves around from these steps to the south and turns into a bitumen ramp which provides access to the main section of the above-ground areas of the fort and forms the southern portion of the park.

The former range finder is set below the level of the surrounding grassed park area. Although it may have originally been a partially or fully enclosed/roofed space, it is now an open space comprising a number of painted brick and concrete walls. It is surrounded by a metal fence. A set of concrete steps are located along its western edge and provide access from the grassed park area down into the range finder below.



An open, narrow passage that may have formerly been an enclosed tunnel space comprises the southern portion of the range finder. A grilled door is located at the end of this passageway and provides ventilation to the underground components of Smiths Hill Fort. The northern portion, which would have contained the range finder, is raised above the height of the surrounding concreted area and is accessed via a small concrete step. The range finder itself would have been positioned close to the curved wall that forms the eastern portion of this area of the former fort. The floors of this portion of the fort are concrete.

To the south, the main portion of the former fort comprises a number of components. A bitumen pathway runs north-south along the western portion of this area of the fort. The western boundary of this portion of the fort is defined by the landscaped embankment that separates the study area from Cliff Road.

A painted concrete and brick wall runs north-south along the eastern edge of the southern portion of the fort. Along this wall are a number of open niches, as well as a number of niches enclosed by later timber doors. Guns are located at the northern and southern ends of the eastern wall. They are raised above the ground's surface and accessed via concrete steps. A semi-enclosed bunker (bombproof shelter) is also positioned centrally along this concrete and brick wall.

At the southern-most end of this portion of the fort is a raised concrete and timber platform. This platform has a gun positioned on top of it. This raised platform is accessed via a bitumen-lined ramp. A set of timber steps would have also provided access to the raised platform. However, these timber steps have been partially dismantled and are currently located next to the ramp.



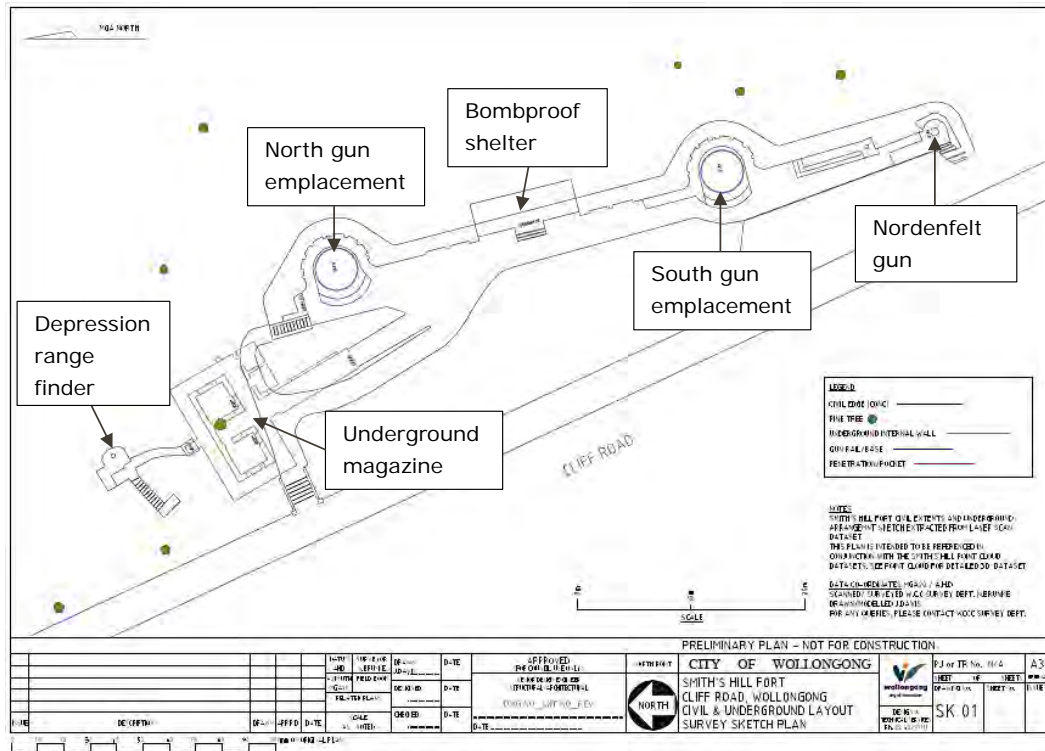


Figure 3.71 Smiths Hill Fort layout. (Source: City of Wollongong Council 2024, with GML overlay)



Figure 3.72 Looking south towards the depression range finder.



Figure 3.73 Looking into the former interior of the depression range finder.



Figure 3.74 Looking north into the depression range finder.



Figure 3.75 Interpretation panel position along the western boundary of the study area.



Figure 3.76 Looking south towards the Smiths Hill study area from its northern portion.



Figure 3.77 Looking east towards the entry into the underground areas of the fort.





Figure 3.78 Looking towards one of the guns located closer to the northern end of the study area.



Figure 3.79 Close-up image of the gun located closer to the northern end of the study area.



Figure 3.80 Former shell store recess located along the eastern edge of the exposed portion of Smiths Hill Fort.



Figure 3.81 Looking south across the exposed portion of Smiths Hill Fort.



Figure 3.82 Looking south towards the bombproof shelter.



Figure 3.83 Looking north through the bombproof shelter.



Figure 3.84 Niches located along the eastern wall that surrounds the exposed portions of the Smiths Hill Fort.



Figure 3.85 Looking towards one of the guns located closer to the southern end of the study area.



Figure 3.86 A recess located in the eastern wall which surrounds the exposed portions of Smiths Hill Fort



Figure 3.87 Looking north from the southern end of the exposed portions of Smiths Hill Fort.





Figure 3.88 Looking down towards the ramp that leads up to the gun located at the southern end of the Smiths Hill Fort.



Figure 3.89 Looking down at the gun located at the southern end of the Smiths Hill Fort.



Figure 3.90 Looking towards the former timber that provided access to the gun located at the southern end of the Smiths Hill Fort.



Figure 3.91 Looking at the former stair access located at the southern end of the Smiths Hill Fort that provides access from the fort to Cliff Road.





Figure 3.92 Looking southwest from the eastern edge of the Smiths Hill Fort towards Cliff Road.



Figure 3.93 Covered pit (likely the cap over one of the underground tanks) located along the grassed area towards the eastern portion of the study area.



Figure 3.94 Looking east from the northwestern corner of the Smiths Hill Fort study area.



Figure 3.95 Looking west from the northwestern corner of the Smiths Hill Fort study area towards Cliff Road.

### 3.2.3 Underground features and fabric

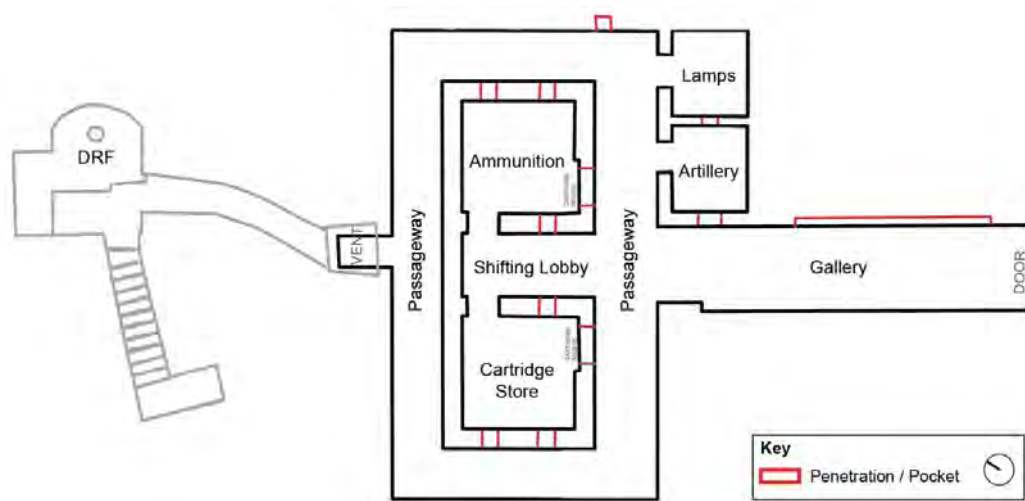


Figure 3.96 Plan of the underground magazine (in black) and DRF (in grey) of Smiths Hill Fort, based on plan drawn following excavation of the former fort, 1986. (Source: City of Wollongong Council 2024)

The underground portion of Smiths Hill comprises of a long entry ramp that opens into a rectangular space. A narrow passageway runs the perimeter of the fort and allows access to two larger square rooms at the centre and two smaller square rooms along the southeastern wall.

The following table provides a description of each of the underground spaces in the Smiths Hill Fort.

Table 3.2 Description of underground elements.

Area	Description
Entrance and gallery	<ul style="list-style-type: none"> <li>Long ramp from ground level to the underground portion.</li> <li>Painted brick walls, concrete floor and ceiling, stone corner blocks.</li> <li>Steel double-leaf doors with a brick arch.</li> <li>Stepped recess and timber-framed window opening to the artillery room on northeastern wall.</li> <li>Services/conduits running along ceilings.</li> <li>Vertical gap in the wall (possibly for ventilation).</li> </ul>
Passageways and vent	<ul style="list-style-type: none"> <li>Brick walls, concrete ceiling and floor, stone corners.</li> </ul>



Area	Description
	<ul style="list-style-type: none"> <li>• Drainage channel along the perimeter.</li> <li>• Ladder to the DRF section.</li> </ul>
Shifting lobby	<ul style="list-style-type: none"> <li>• Lobby located between the ammunition room and cartridge store.</li> <li>• Painted brick walls, double barrel vault ceiling of brick, stone corners, concrete floor.</li> <li>• High lamp recess and doorway with brick lintel on either wall.</li> </ul>
Cartridge store	<ul style="list-style-type: none"> <li>• Brick walls, double barrel vault ceiling, concrete floor.</li> <li>• Timber door frame, no attached door.</li> <li>• A cartridge recess opening on the south wall. Brick arch lintel and additional timber support lintel. Evidence of a structure fixed to this wall around the opening.</li> <li>• Two small openings on the west wall and one on the east wall, circular ceiling vent.</li> <li>• A painted sign above the brick lintel on the outer side reads 'CARTRIDGE RECESS'.</li> </ul>
Ammunition	<ul style="list-style-type: none"> <li>• Same materials and openings as cartridge store with a mirrored layout.</li> <li>• New timber door and frame.</li> </ul>
Lamps	<ul style="list-style-type: none"> <li>• Brick walls, concrete ceiling and floor.</li> <li>• Timber door frame, no door.</li> <li>• Small opening on the west wall to the artillery room.</li> </ul>
Artillery	<ul style="list-style-type: none"> <li>• Brick walls, concrete ceiling and floor.</li> <li>• Openings to the lamps room and on the west wall to the gallery with a timber frame and shutters.</li> </ul>



Figure 3.97 Entry into underground area of Smiths Hill Fort.



Figure 3.98 Gallery with a ramp to ground level.



Figure 3.99 Passageway showing the ammunition and cartridge room.



Figure 3.100 Passageway showing brick walls, concrete ceiling and a stone corner.





Figure 3.101 Ladder to the DRF area.



Figure 3.102 Shifting lobby.



Figure 3.103 Cartridge store.



Figure 3.104 Ammunition room.



Figure 3.105 Lamps room.



Figure 3.106 Artillery room.

# Understanding the place— significance



## 4 Understanding the place— significance

### 4.1 Introduction

An assessment of heritage significance is conducted to establish why a place is important. The Burra Charter defines cultural significance as 'aesthetic, historic, scientific, social or spiritual value for past, present or future generations.'<sup>1</sup> Significance is embodied in the place's physical fabric, setting and relationship to other items, the recorded associations with the place, and the response it evokes in the community or in individuals to whom it is important.

This section sets out an assessment of the heritage significance of Flagstaff Hill and Smiths Hill Forts in accordance with the standard criteria identified in the Assessing Heritage Significance guidelines (2023). The evaluation includes consideration of the place's original and subsequent layering of fabric, uses, associations, meanings and relationship to both the immediate and wider setting.

#### 4.1.1 Assessment approach

Flagstaff Hill and Smiths Hill Forts are not individually listed as SHR items in their own right. They are, however, located within the SHR-listed Wollongong Harbour Precinct (SHR 01823).

The State Heritage Inventory (SHI) provides the following Statement of Significance for the Wollongong Harbour Precinct SHR listing:

Wollongong Harbour Precinct is of State significance because it displays the infrastructure on which the first southern port outside Sydney was founded and developed at Wollongong. It also provides evidence of the measures taken to defend that important southern outpost of the colony.

The Precinct includes fabric deriving from each stage of its development from the substantially intact 19th century convict-built harbour together with modifications made as it developed from a commercial harbour to its present function as a fishing and tourist port.

The harbour was the first port in the Illawarra and is the oldest and most intact extant block walled harbour in NSW. It comprises the Belmore Basin (the block walled harbour); the 1869 rubble mound breakwater; mooring rings, other related appurtenances and remnants of facilities left as the harbour developed.

Also included in the Precinct is the 1872 Breakwater lighthouse, one of the early lighthouses of NSW and one of only two wrought iron lighthouses in NSW - the other



being at Ulladulla and built to the same design by the same engineer, Joseph Mather of Sydney.

Other inclusions in the precinct are

- the 1937 Wollongong Head lighthouse;
- the 1858 brick and stone Old Court House and the weatherboard Customs Office;
- the remains of the 1891 Flagstaff Hill Fort;
- the remains of the 1893 Smiths Hill Fort (Battery Park);
- the remains of the Nuns' Pool/Chain Baths dating from the 1830s;
- the remains of the Ladies' Baths dating from the mid 1850s;
- the Mens Ocean Baths dating from c.1871;
- the Mt Pleasant tramway alignment, cutting and embankment - once the permanent way along which from the 1860s to 1933, coal wagons were conveyed from the Mt Pleasant coal mine to Wollongong Harbour; it is now a pedestrian track and cycleway;
- the remains of a bridge on the alignment of the 1864 tramway that conveyed coal to the harbour from the Mt Keira Osborne-Wallsend colliery;
  - the buried remains of coke ovens dating from 1875.

The harbour is associated with two of the most important Colonial engineers; Belmore Basin was constructed under George Barney, Commanding Royal Engineer and Colonial Engineer, and the outer harbour under Edward Orpen Moriarty, first Engineer-in-Chief, Harbours & Rivers of the Public Works Department, whose work included the Breakwater lighthouse.

The Harbour was essential to the development of Wollongong and was the focus of Wollongong's commercial, administrative, judicial and social activities from the early 19th century until well into the 20th century.

The cluster of ocean baths shows the evolution of public bathing from the gender-segregated pools in use from the 19th century as represented by the 1830s Nuns Pool, the 1850s Ladies Baths and the 1871 Mens Ocean Baths, to the introduction of mixed (or continental) bathing in the Mens Baths between the First and Second World Wars, and development in the 1960s of the latter into a complex with an Olympic-size pool and children's pool.

- The old courthouse is one of the earliest designed and built by the newly reorganised Colonial Architect's office after self government in 1856; its design is repeated in other district court houses;
- The fortifications were the southern-most of the colony's defences that covered the major centres of Newcastle, Sydney and Wollongong and are representative of defence strategy and technology of the late 19th century;
- The bee-hive coke ovens are the only intact examples of their type remaining in NSW.





As the Flagstaff Hill and Smiths Hill Forts occupy different sites within the Wollongong Harbour Precinct, this assessment has been divided into three parts:

1. Overall site—significance assessment of the forts in the context of the Wollongong Harbour Precinct;
2. Flagstaff Hill Fort—significance assessment of Flagstaff Hill Fort and its specific above-ground and underground elements; and
3. Smiths Hill Fort—significance assessment of Smiths Hill Fort and its specific above-ground and underground elements.

This approach allows for site-wide and specific policies to be developed that can appropriately address changes to the whole precinct, each site and individual built elements.

## 4.2 Comparative analysis

The following section compares heritage listed sites similar to Flagstaff Hill and Smiths Hill Forts within NSW, interstate and overseas to consider their relative significance, similarities and differences.

Table 4.1 Comparative analysis.

### Fort Scratchley, part of the Coal River Precinct



**Address:** Nobbys Road, Newcastle East, NSW

**Significance:** State

**Listing:** SHR 01674

**Image source:** Visit NSW

Fort Scratchley is located within the Coal River Precinct on the eastern headland of the entrance to Newcastle harbour.

By the mid-nineteenth century, fears of foreign invasion—particularly from Russia during the Crimean War—led to the formation of local volunteer defence units. In 1866, the first artillery (32-pounder smoothbore cannon) was installed on what was then known as Signal Hill.

In 1876, the British Government sent Major General Sir William Jervois and Lieutenant Colonel Peter Scratchley to advise on naval defences. Under the direction of Jervois and Scratchley, Colonial Architect James Barnet oversaw the construction of the fort. It was designed around a battery with three 6-inch guns facing eastward in an arc to the ocean, with other guns covering the harbour to the north and west. The gun emplacements were cut into the top of the hill to present a low profile to attack.

Fort Scratchley was completed in 1882, with upgrades continuing into the 1890s. Its construction incorporated concrete elements, though there were problems with the concrete as early as 1890.



### Fort Scratchley, part of the Coal River Precinct



Guided tunnel tours are led by Fort Scratchley Historical Society volunteers. (Source: Fort Scratchley Historical Society website <<https://fortscratchley.org.au/tours>>)

The new guns were in position by 1882, and construction of accommodation for the troops followed, with the Commandant's cottage and barracks buildings completed in 1886. Other small detached buildings were also built at this time and in 1892 the dry moat and perimeter wall were completed. Mines laid in the harbour channel could be exploded from a control pit at Fort Scratchley.<sup>2</sup>

The fort also features underground tunnels and gun emplacements. Surviving cannons at the site include the two 6-inch Mk VII naval guns, and two 80-pounder Rifled Muzzle Loading guns.<sup>3</sup>

Its most notable military action occurred during World War II, when it became the only Australian coastal fort to fire on an enemy vessel, engaging a Japanese submarine in 1942.

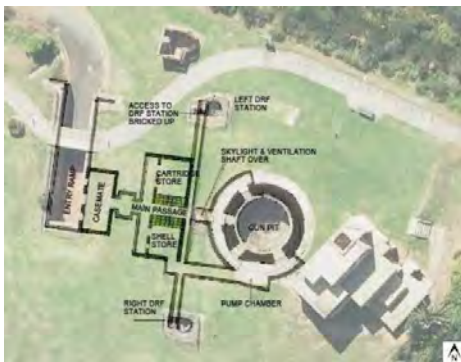
Today, the former barracks and other military buildings form part of the Fort Scratchley Historical Site, which operates as a museum and tourist attraction.

Guided tours, including tunnel tours, offer insights into the fort's military history and its role in Australia's coastal defence network.

The tunnel tours include underground ammunition stores (used to safely store explosives and shells); gun emplacements (where cannons and other artillery were positioned); passageways; rooms; and areas with display of wartime equipment and interpretive signage.

Fort Scratchley, together with the Shepherds Hill Defence Group, is comparable to the Flagstaff Hill and Smiths Hill Forts. Each of the Newcastle and Wollongong fortifications is located near another fortification as part of a strategic coastal defence network.

### Shepherds Hill Defence Group military installations



The Shepherds Hill Defence Group, together with Fort Scratchley nearby, was an important defence and observation post during the time of the Crimean War. In the late nineteenth century, amid fears of a Russian invasion, Colonel Peter Scratchley proposed a series of fortifications to protect Newcastle's valuable coalfields. The military occupation of Shepherds Hill commenced, with the construction of an 8-inch disappearing gun emplacement and accompanying underground rooms. During World War II, the fortifications at Shepherds Hill played a coordinating role in the defence of Newcastle and its steelworks from foreign attack.



### Shepherds Hill Defence Group military installations

**Address:** 41 The Terrace, Newcastle, and 65 Nesca Parade, The Hill, NSW

**Significance:** State

**Listing:** SHR 01806

**Image source:** City Plan Services, Shepherds Hill Defence Group Military Installations Conservation Management Plan (CMP), 3 July 2019

The plan layout of the underground rooms, the DRFs and the disappearing gun pit at Shepherds Hill is similar to the layout at Flagstaff Hill. The Shepherds Hill fortification and the Flagstaff Hill fortification are of similar design, featuring the same component elements adapted and laid out to suit their specific sites.

There are two DRF stations above ground, which were previously accessible from the underground tunnel network; however, they have since been partially filled in with sand and rubble. The DRF stations were used as posts to assist with scoping for potential targets in the water north and south of the disappearing gun pit.

There is a concrete observation post (commissioned in 1938), which is a separate structure.

The 8-inch gun was removed from the gun pit and in 1920, the gun was sold to the steelworks as scrap metal.<sup>4</sup>

### Middle Head Military Fortifications



**Address:** Middle Head Road, Mosman, NSW

**Significance:** State

**Listing:** SHR 00999

**Image source:** Wikimedia Commons

The Middle Head Military Fortifications, together with fortifications at Georges Head and Bradleys Head, was part of a broader network of 'outer harbour' defences of Sydney Harbour. Unlike Flagstaff Hill and Smiths Hill Forts, the Middle Head military complex is located, and hidden, among dense bushland along the coast.

The SHR curtilage is over a large area at Middle Head incorporating several historic batteries in the vicinity of each other. The Middle Head Military Fortifications include Outer Middle Head Battery (with two circular emplacements), Inner Middle Head Battery, and Obelisk Battery.

The fortifications date from the time when defence was first moved away from Sydney Cove and towards The Heads. The first gun emplacement was built in 1801 during the Napoleonic Wars—there is a heritage interpretation panel at the site of the 1801 battery. The image on the left shows the barbettes and concrete bunkers—note there is no fence or railing around them—at the main battery, which was constructed in 1871. The 1942 casemate batteries are located near the Outer Middle Head Battery site.

The Middle Head forts and the Wollongong forts are of similar design, featuring the same component elements adapted and laid out to suit their specific sites. The whole site is linked by underground tunnels, ancillary rooms and



### Middle Head Military Fortifications

magazines. All the gun emplacements at Middle Head have been removed, unlike the six guns that survive at the Wollongong forts.

Today, visitors can explore the historic tunnels, gun pits, and enjoy panoramic views of Sydney Harbour, and connecting with military history from the early 1800s to World War II. Middle Head Officers' Quarters (1881) have been adapted for short-stay accommodation.

### Bare Island Fort



**Address:** Bare Island Road, La Perouse, Botany Bay

**Significance:** State

**Listing:** SHR 00978

**Image source:** NSW Government website  
<<https://www.nsw.gov.au/visiting-and-exploring-nsw/locations-and-attractions/bare-island-fort>>

Bare Island Fort, constructed in 1885, was part of a broader effort to defend Sydney's southern 'back door' (Botany Bay) from a feared Russian invasion during the nineteenth century, a concern that arose during the Crimean War and persisted into the 1880s.

The fort was designed using comparatively new mass concrete construction techniques and included the insertion of massive iron walls and shields and mechanically assisted appliances. It originally featured a five-gun battery with bombproof tunnels.

By 1908, the fort was decommissioned as a military site due to its obsolescence and structural problems (compare the Smiths Hill Fort guns, declared obsolete in 1903 within 10 years of installation). A significant number of the guns were removed or scrapped, likely during the early twentieth century. However, some gun emplacements and structural elements still remain on the island, including the gun casemates, magazines, and shell stores.

Today, the site is managed by the NSW National Parks and Wildlife Service and is used for tours and historical interpretation. Bare Island Fort, constructed on an island, is a comparatively small site. It is one of several sites at the La Perouse headland visited for cultural tourism and recreation.





### Malabar Headland



**Address:** Fishermans Road, Malabar

**Significance:** State

**Listing:** SHR 01741

**Image source:** © David Noble

Malabar Headland includes a World War II coastal defence site of historic significance, the Boora Point Battery. This is an imposing landmark that is important for providing tangible evidence of Australia's coastal defence efforts in Sydney's southern headland during World War II.

The battery was designed for a counter-bombardment role and could also perform a close defence role. It was sited to fire into a gap between the Signal Battery (South Head) and the Banks Battery (at Cape Banks, the northern headland of Botany Bay).

The battery featured two 6-inch naval guns (installed around 1942) mounted on concrete emplacements, supported by observation posts, searchlight blockhouses, and a narrow-gauge railway for transporting ammunition and supplies.

The guns were positioned to cover approaches to Sydney Harbour but could not be rotated to fire inland, emphasising their role in maritime defence. The guns were removed in the early 1960s, but much of the infrastructure remains.

Malabar Headland is now a SHR-listed site, recognised for its cultural and military significance. Today, the Malabar Headland is used for passive recreational pursuits such as walking. Evidence of vandalism is widespread—obvious examples include graffiti covering the historic fortifications and the dumping and burning of cars. In 2021, the National Parks and Wildlife Service upgraded the walking track from Magic Point to Boora Point, while also incorporating the Artillery Loop track. The track takes visitors past important remnant Eastern Suburbs Banksia Scrub, historic World War II defences and exceptional views of the sandstone cliffs and the ocean beyond.

### Hill 60/Illowra Battery



Hill 60/Illowra Battery is SHR listed primarily for the rare suite of Aboriginal sites and their continuing significance for the Aboriginal community.

Illowra Battery was constructed in 1941 at a hilltop location overlooking the harbour, to protect Port Kembla's coal industry, which was vital for the manufacture of iron and steel for the war effort. By the time of World War II, it was more important to prevent attacks against the Port Kembla industrial complex, rather than the original Wollongong Harbour (noting that Flagstaff Hill and



### Hill 60/Illowra Battery

**Address:** Military Road, Port Kembla

**Significance:** State

**Listing:** SHR 01492

**Image source:** Wikimedia Commons

Smiths Hill Forts were obsolete and abandoned by the 1930s, and the Wollongong Head Lighthouse was built in 1937).

Illowra Battery originally included numerous above-ground and underground structures. By the time of World War II, the defence installations at Hill 60 also included anti-aircraft guns (potential attacks came from the air as well as the sea). Structures that remain include two large BL 6-inch Mk XI naval gun emplacements; a network of two steeply descending tunnels; and the main concrete bunker, which is connected to the tunnels.

Today, the Hill 60 Lookout offers panoramic views and is part of a public park, making the site accessible for historical exploration and sightseeing. However, there is evidence of vandalism: the walls inside the underground complex are covered in layers of elaborate graffiti.

### Fort Nepean, part of Point Nepean Defence and Quarantine Precinct, Victoria



**Address:** Point Nepean Road, Portsea, VIC

**Significance:** State

**Listing:** Victorian Heritage Register (VHR) H2030

**Image Source:** Wikimedia Commons

Fort Nepean, established in the 1870s, was part of a network of coastal defences designed to protect Port Phillip Bay, the maritime gateway to Melbourne.

By the 1890s, Fort Nepean was dubbed 'Victoria's Gibraltar' due to its formidable defences.

On 5 August 1914, Fort Nepean fired the first Allied shot of World War I, targeting the German freighter SS *Pfalz* attempting to escape Port Phillip. During World War II, the fort was modernised with longer-range 6-inch Mk VII naval guns, searchlights, and underground bunkers.

Fort Nepean and Flagstaff Hill and Smiths Hill Forts are associated with military technology development and shared similar artillery including:

- Rifled Muzzle Loading (RML) 80-pounder;
- 6-inch Breech Loading (BL) Mark V;
- Nordenfelt quick-firing guns; and
- disappearing guns on a hydro-pneumatic mount.

The Fort Nepean site includes an extensive tunnel network, connecting gun emplacements, observation posts, and ammunition stores. These tunnels are now open to the public as part of the Point Nepean National Park, offering a glimpse into Melbourne's defence history.



#### Fort Taiaroa, Dunedin, New Zealand



**Address:** 1259 Harington Point Road, Dunedin Central, New Zealand

**Significance:** Historic Place Category 1

**Listing:** New Zealand Heritage List/Rārangī Kōrero (Listing number 369)

**Image source:** New Zealand Tourism  
<<https://www.newzealand.com/in/plan/business/historic-fort-taiaroa/>>

Fort Taiaroa was built on the headland (tip of the Otago Peninsula) to counter the potential threat of a Russian invasion in the late 1880s and was later used for training and defence during World War I and World War II.

It features the world's only restored 6-inch Armstrong hydropneumatic disappearing gun (1886) still in its original gun pit and in working condition.

The site also includes underground tunnels, magazines, and a battery observation post with its original 1886 DRF.

Today, visitors to the Taiaroa Head Fort can go on a guided tour of the underground tunnels.

## 4.3 Overall site comprising the two forts

### 4.3.1 Discussion of significance

This section provides a discussion of significance for the overall site and assesses the significance of both forts in the context of the Wollongong Harbour Precinct. The significance assessments for the individual forts are provided separately in Section 4.4 and Section 4.5.

Table 4.2 Discussion of significance of the two forts overall.

Criteria	Discussion
<b>Criterion A (Historic significance)</b> An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).	<p>The fortifications at Flagstaff Hill and Smiths Hill in Wollongong represent a significant chapter in Australia's coastal defence history. Their planning and construction occurred during a period of heightened colonial tension.</p> <p>The fortifications demonstrate the New South Wales response to the departure of the last British troops in 1870, forcing the colony to establish army and naval contingents. The decision to construct the forts was also due to the threat of a Russian attack.</p> <p>They reflect the strategic military architecture of the late nineteenth century and technological advancements in fortification design, construction and artillery.</p> <p>The fortifications are able to demonstrate the history and development of the Wollongong Harbour Precinct and its colonial role in defence and in providing access for goods and people to and from the southernmost outpost of the</p>



Criteria	Discussion
	<p>colony from the 1880s to the early twentieth century. The two forts were a united effort to secure the harbour and its infrastructure—they were a critical part of Wollongong Harbour Precinct's layered coastal defence system.</p> <p>The subsequent decommissioning of the forts reflects the subsiding threat of war and the development of the Wollongong Harbour Precinct from a commercial and industrial area to a recreation and tourism focused one.</p> <p>Flagstaff Hill and Smiths Hill Forts meet the threshold under this criterion at a state level.</p>
<p><b>Criterion B (Historical association)</b></p> <p>An item has strong or special association with the life or works of a person, or group of persons, of importance in the cultural or natural history of NSW (or the cultural or natural history of the local area).</p>	<p>Flagstaff Hill and Smiths Hill Forts have historical association with various branches of the military and local forces including the Permanent Artillery, Wollongong Volunteer Artillery, and the Wollongong detachment of No 6 Company, 2nd Division, Garrison Artillery.</p> <p>It is also associated with the Department of Public Works Military Works Branch, which designed Flagstaff Hill Fort, and the Colonial Architect's Department, which designed Smiths Hill Fort.</p> <p>Rotary Club of Wollongong, Rotary Club of Illawarra Sunrise and the local branch of the National Trust (Illawarra Shoalhaven Branch) have strong links to the ongoing conservation, use and maintenance of the forts, particularly the Smiths Hill Fort since 1988 when the fort was unburied as part of the Bicentenary celebrations.</p> <p>The forts have limited associations with notable individuals.</p> <p>Flagstaff Hill and Smiths Hill Forts meet the threshold under this criterion at a local level.</p>
<p><b>Criterion C (Aesthetic/creative/technical achievement)</b></p> <p>An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).</p>	<p>Flagstaff Hill and Smiths Hill Forts were chosen for their strategic vantage point overlooking the Illawarra coastline and the Port of Wollongong. There are a variety of significant historic views and vistas to and from these vantage points, which contribute to Wollongong Harbour Precinct's significant values.</p> <p>The forts are landmarks in the Wollongong Harbour Precinct and bookend the historic precinct, demonstrating their combined efforts in protecting the area, and are key contributors to its distinctive mid-nineteenth century harbour landscape.</p> <p>The design of the fortifications demonstrates the strategic and technological considerations of nineteenth-century military architecture. Flagstaff Hill Fort was designed to protect the inner harbour and coal-loading facilities from close-range attacks. Smiths Hill Fort was positioned on high ground with a commanding view of the coastline and sea approaches, which enabled longer-range targeting of ships approaching from the sea. The forts incorporated several key architectural and defensive features that were characteristic of coastal fortifications of the era.</p>





Criteria	Discussion
	<p>It included gun emplacements that housed artillery pieces, such as the 6-inch disappearing gun at Flagstaff Hill Fort and two rifled muzzle-loading guns at Smiths Hill Fort.</p> <p>The design of both Flagstaff Hill and Smiths Hill casemates considered not only the need for protection from incoming shelling but the potential of the hazards of handling explosives by inclusion of separate magazines, venting, flame-proof lanterns and blast doors, etc. Through their placement, structural design, and incorporation of advanced artillery technology, the forts played a crucial role in safeguarding the Illawarra region and contributing to Australia's broader coastal defence network.</p> <p>Flagstaff Hill and Smiths Hill Forts meet the threshold under this criterion at a state level.</p>
<p><b>Criterion D (Social, cultural, and spiritual)</b></p> <p>An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.</p>	<p>The Aboriginal cultural heritage values associated with the two sites have not been assessed as part of this CMP. However, it is known that headlands and coastline high points such as at Signal Hill (Flagstaff Hill) and Smiths Hill are vantage points providing visual and spiritual connections to a number of Aboriginal sites in the vicinity that are likely sites of early contact.</p> <p>These interconnected sites are acknowledged as areas of very high cultural significance to the local Aboriginal people; they have a continuing connection to the land. See also the Aboriginal Cultural Context summary (Appendix 2).</p> <p>As part of this CMP project, in 2024 and 2025, Council's Heritage Team carried out stakeholder consultation with various interest groups, community members and other stakeholders to seek their input and views on the key issues regarding the sites. The following is summarised from Council's stakeholder consultation log (with some minor editorial amendments).</p> <p>The Flagstaff Hill and Smiths Hill Forts are regarded as key landmarks within the broader Wollongong Harbour Precinct; they are places that symbolically represent some aspect of the past that local communities feel contributes to the local identity.</p> <p>The forts are located within key foreshore locations in the City that attract high visitation from local residents and tourists; the forts are widely appreciated for their contribution to the broader historical context, being located within the Wollongong Harbour Precinct and immediately adjacent to the North Beach Precinct, which is also state-listed.</p> <p>The Flagstaff Hill and Smiths Hill Forts are places where local communities regularly gather for rituals or ceremonies such as Australia Day marches (Flagstaff Hill), Anzac Day and Remembrance Day services (Smiths Hill).</p>



Criteria	Discussion
	<p>Community organisations including the Rotary Club continue to have an active involvement and interest in the ongoing management of the sites, particularly the Smiths Hill Fort.</p> <p>Flagstaff Hill and Smiths Hill Forts meet the threshold under this criterion at a local level.</p>
<p><b>Criterion E (Research potential)</b></p> <p>An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).</p>	<p>The forts have the ability to yield site-specific information that contributes to an understanding of the coastal defence of Wollongong Harbour in the late nineteenth century. The forts also have the ability to contribute information on the evolution of defence technology. The sites are among a small number of surviving sites in NSW that can contribute information on early military protection facilities, their construction and use within the state, and provide valuable insight into the impacts and considerations of the Crimean War on Australian soil. Flagstaff Hill and Smiths Hill Forts meet the threshold under this criterion at a state level.</p> <p>The research potential for Flagstaff Hill and Smiths Hill Forts is discussed in detail in Section 4.6 Archaeological potential overview. The archaeological remains pertaining to the removed elements of Flagstaff Hill and Smiths Hill are significant at a state level for their research potential. If present, these remains would provide a unique resource for understanding the sites and would contribute to the overall significance of both places.</p>
<p><b>Criterion F (Rare)</b></p> <p>An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).</p>	<p>Flagstaff Hill and Smiths Hill Forts are rare examples of intact colonial military fortifications in the Illawarra area that retain their original artillery.</p> <p>The forts are key components and landmarks within the Wollongong Harbour Precinct, which has multiple sites of heritage value including commercial, administrative, judicial and social activities from the early nineteenth century until well into the twentieth century. The existence of fortifications like Flagstaff Hill and Smiths Hill Forts within one harbour precinct with multiple sites of significance is a rare conglomerate of significant components in NSW.</p> <p>Flagstaff Hill and Smiths Hill Forts meet the threshold under this criterion at a state level.</p>
<p><b>Criterion G (Representative)</b></p> <p>An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).</p>	<p>Flagstaff Hill and Smiths Hill Forts are representative of late nineteenth-century military technology and architecture. The setting of the forts within the broader Wollongong Harbour Precinct enhances the understanding of coastal defences, their operation and strategic design.</p> <p>Flagstaff Hill and Smiths Hill Forts meet the threshold under this criterion at a state level.</p>



### 4.3.2 Statement of significance

Flagstaff Hill and Smiths Hill Forts are of state significance as well-preserved examples of coastal fortifications from the late nineteenth century and the earliest in the Illawarra area. Their planning and construction occurred during a period of heightened colonial tension, and they represent a significant chapter in Australia's coastal defence history, from the period of the Crimean War as well as during later periods of conflict.

The two sites are of historical interest individually and as part of the wider Wollongong Harbour Precinct, offering insights into the military history of the region and the defence strategies employed by the NSW Colonial Government to protect the harbour when in the 1880s Wollongong Harbour was the third most active port in the Colony of NSW.

The forts comprise gun emplacements, underground rooms and connecting tunnels that were used by the military for strategic defence and training. They are rare, intact examples of their type, and Smiths Hill Fort retains original artillery in position.

The forts are both significant for their archaeological research potential in relation to the removed elements of the original complexes, which are poorly understood through documentary sources.

Flagstaff Hill and Smiths Hill Forts are key components and contributors to the state-listed heritage values of the Wollongong Harbour Precinct.

### 4.3.3 Significant components

Different components of a place may make a different relative contribution to its heritage value. Loss of integrity of components of the place may also diminish significance.

Specifying the relative contribution of an item or its components to the overall significance of the place provides a useful framework for making decisions about the conservation of and/or changes to the place. The table below sets out terms used to describe the grades of significance for different components of the place, as per the Assessing Heritage Significance guidelines.

Although the guidelines do not include a 'neutral' grading, for this CMP one has been included to classify elements that neither contribute to nor detract from the significance of Flagstaff Hill and Smiths Hill Forts.

Overall, Flagstaff Hill and Smiths Hill Forts have a high level of significance within the Wollongong Harbour Precinct. Each component of the site and the building fabric contributes to this assessment.



Table 4.3 Heritage significance gradings.

Grading	Justification
Exceptional (E)	Rare or outstanding element directly contributing to a place or object's significance.
High (H)	High degree of original fabric. Demonstrates a key element of the place or object's significance. Alterations do not detract from its significance.
Moderate (M)	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the place or object.
Little (L)	Alterations detract from significance. Difficult to interpret.
Neutral (N)	An element or zone that has no contributory significance to the place or object but does not diminish its significance.
Intrusive (I)	Damaging to the place or object's significance.

### 4.3.4 Components within the sites

Significant elements within the sites are described in the below table.

Table 4.4 Significant elements within the forts.

Element	Comment	Significance
Flagstaff Hill Fort	Setting, built elements and relics of the fort.	Exceptional
Smiths Hill Fort	Setting, built elements and relics of the fort.	Exceptional
Significant views	Reciprocal visual connection between Flagstaff Hill and Smiths Hill Forts as well as the views to the harbour from the forts.	Exceptional





## 4.4 Flagstaff Hill Fort

### 4.4.1 Discussion of significance

Table 4.5 Discussion of significance of Flagstaff Hill Fort.

Criteria	Discussion for Flagstaff Hill Fort
<b>Criterion A (Historic significance)</b> An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).	<p>Flagstaff Hill Fort is important in Wollongong's history as a former defence site illustrating military technology development and strategy in NSW in the late nineteenth century and early twentieth century.</p> <p>Constructed in 1890, it is the earliest fortification structure in the Illawarra area and is representative of the colony's efforts to protect the port and coal industry in Wollongong following the departure of the last British troops from Australia in 1870. The decision to construct the fort was also due to the perceived threat of a Russian attack.</p> <p>The hill's elevation provided an ideal position for monitoring maritime activity and engaging potential threats before they could approach Wollongong Harbour. The primary purpose of the fort was to serve as a deterrent to hostile forces, providing both a visible and operational means of defence. The location and design were integral to its function, enabling the defenders to maximise their firepower while minimising vulnerability.</p> <p>The subsequent decommissioning of the Flagstaff Hill Fort—and the subsequent construction of Wollongong Head Lighthouse in 1937 'in the line of fire' from the fort—prior to World War II reflects the subsiding threat of war and the development of the Wollongong Harbour Precinct from a commercial and industrial area to a recreation and tourism focused one.</p> <p>Flagstaff Hill Fort meets the threshold under this criterion at a state level.</p>
<b>Criterion B (Historical association)</b> An item has strong or special association with the life or works of a person, or group of persons, of importance in the cultural or natural history (or the cultural or natural history of the local area).	<p>The fort is associated with the Military Works Branch of the NSW Public Works Department, which prepared the original design.</p> <p>It has some association with local artillery groups who were stationed at the fort.</p> <p>The fort has limited associations with notable individuals, mostly in the capacity of visits from General Richardson and Major General Hutton during its period of occupation.</p> <p>Flagstaff Hill Fort meets the threshold under this criterion at a local level.</p>
<b>Criterion C (Aesthetic/creative/technical achievement)</b>	<p>Flagstaff Hill Fort is a substantially intact example of late nineteenth-century fortification design in NSW. It is positioned on a natural vantage point along the coast and features typical defence elements including a circular gun emplacement for disappearing guns, shell and cartridge</p>



Criteria	Discussion for Flagstaff Hill Fort
An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).	<p>storage rooms and a series of underground connecting tunnels.</p> <p>The three SMBL 68-pounder Mark I guns restored to the site in 1983 demonstrate early military technology. The construction of the fort and gun pit for rifled artillery reflected a shift in strategy, emphasising precision and power to counter increasingly sophisticated naval forces. The disappearing gun mechanism was another notable advancement, illustrating the integration of engineering with defence. The disappearing gun was a technological innovation that allowed the gun to retract behind a protective parapet after firing, thereby shielding it and its crew from return fire.</p> <p>The fort is a landmark in the Wollongong Harbour Precinct and is a key contributor to its distinctive mid-nineteenth century harbour landscape.</p> <p>Flagstaff Hill Fort meets the threshold under this criterion at a state level.</p>
<p><b>Criterion D (Social, cultural, and spiritual)</b></p> <p>An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural, or spiritual reasons.</p>	<p>Flagstaff Hill Fort is regarded as a key landmark within the broader Wollongong Harbour Precinct; it is a place that symbolically represents aspects of the past that local communities feel contribute to the local identity.</p> <p>The fort is situated within a key foreshore location within the City that attracts high visitation from local residents and tourists and is widely appreciated for its contribution to the broader historical context, being located within the Wollongong Harbour Precinct.</p> <p>Flagstaff Hill Fort is a place where local communities regularly gather for rituals and ceremonies such as the Australia Day march.</p> <p>Community organisations including the Rotary Club continue to have an active involvement and interest in the ongoing management of the sites, particularly the Smiths Hill Fort.</p> <p>Flagstaff Hill Fort meets the threshold under this criterion at a local level.</p>
<p><b>Criterion E (Research potential)</b></p> <p>An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).</p>	<p>Flagstaff Hill Fort has the ability to yield site-specific information that contributes to an understanding of the coastal defence of Wollongong Harbour in the late nineteenth century. The fort also has the ability to contribute information on the evolution of defence technology such as from guns located in the open landscape to an underground fortification. Flagstaff Hill Fort meets the threshold under this criterion at a state level.</p> <p>The archaeological remains pertaining to the removed elements of Flagstaff Hill Fort are significant at a local-state level for their research potential. If present, these remains would provide a unique resource for understanding the site.</p>



Criteria	Discussion for Flagstaff Hill Fort
<b>Criterion F (Rare)</b> An item possesses uncommon, rare, or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).	Flagstaff Hill Fort is rare as one of the earliest remaining colonial fortifications in NSW. The fort retains its original design, layout, form, fabric, evidence of a gun emplacement (disappearing gun) and original artillery (the three 1861 quick-firing guns, which are also heritage-listed on the Wollongong LEP 2009). Flagstaff Hill Fort meets the threshold under this criterion at a state level.
<b>Criterion G (Representative)</b> An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).	Flagstaff Hill Fort is representative of late nineteenth-century military strategy and defence technology. It demonstrates the evolution of fortifications from active defence sites to training areas and then to public recreation spaces, reflecting the development of Wollongong Harbour. Flagstaff Hill Fort meets the threshold under this criterion at a state level.
<b>Integrity</b>	The internal, underground spaces of the fort are fairly intact. The remnant above-ground external elements, however, have moderate integrity—the demolition of the fort entrance side walls, removal of the DRF station and observation post and the addition of modern safety fencing around the gun pit have impacted its readability in the landscape.

## 4.4.2 Statement of significance

Flagstaff Hill Fort is of state significance as a significant example of late nineteenth-century fortification design and one of the earliest forts in the Illawarra region. The fort represents the colony's defence strategy to protect the developing harbour, shipping, and coal industry in Wollongong.

Flagstaff Hill Fort has association with the Military Works Branch of the NSW Public Works Department and local artillery groups.

The location of the fort on the headland, original building fabric and artillery provide evidence of military technology development in NSW. The fort has the ability to demonstrate the technological change and transition from muzzle-loaded cannons (1861 vintage guns at the former Signal Hill Battery) to breech-loading gun technology (1890s hydro-pneumatic disappearing gun at Flagstaff Hill Fort). Potential archaeological remains hold research significance at a local–state level as they could provide new information about the structure of the fort, its use and occupation.

Flagstaff Hill Fort is a key component and contributor to the state-listed heritage values of the Wollongong Harbour Precinct.



### 4.4.3 Gradings of significance

Individual components of Flagstaff Hill Fort have been ranked according to their significance as described in the below table.

#### Built elements

##### Above ground









Figure 4.1 Significance grading of above-ground elements. (Source: Nearmap 2024 with GML overlay)

Table 4.6 Significance grading of above-ground components of Flagstaff Hill Fort.

Element	Image	Comment	Significance
General		Landscape and setting: The natural vantage point created by the headland, slope and clearance are significant elements that aid in understanding the defence strategy.	Exceptional
		Gun pit: Above-ground elements of the gun pit. Although the gun is no longer in situ, the gun pit is able to demonstrate a key element of the fort's significance.	Concrete structure— Exceptional Gun pit fence— Intrusive





Element	Image	Comment	Significance
	 	Perimeter fence: Non-original element that impacts the interpretability of surveillance views from the gun pit and the 68-pounder guns to the harbour.	Neutral
Fort entrance	 	Original brick façade and entrance to the underground fort with original openings, sandstone lintel and sills.	Exceptional
		Steel doors and windows.	Configuration and opening—Exceptional Steel doors and frames—Low significance (not original)
		Carpark area immediately in front of the entrance: Original setting has been altered and side walls have been removed for carpark use.	Intrusive
Memorials and monuments		Various memorials and monuments are placed around the site—not all are directly related to Flagstaff Hill Fort. They interpret various significant values of the Wollongong Harbour Precinct.	No. 8 Wollongong Harbour History Walk—Moderate Plaque for three guns during Heritage Week 1983—Moderate
Guns		The 68-pounder guns are original and were restored in the 1980s. However, they are not at their original locations.  The 68-pounder guns are remnants of Australia's	Exceptional



Element	Image	Comment	Significance
		coastal defence system from the nineteenth century. These guns were originally installed to protect the coastline from naval threats in 1879/1880, reflecting the military strategies of the time. Designed to fire 68-pound solid shot cannon balls, they were a crucial part of the defensive fortifications.	
<b>DRF station</b>	No image available	<p>The DRF equipment and station have been removed. The location has significance in aiding the understanding of the fort operations.</p> <p>The DRF has high archaeological potential.</p>	Exceptional
<b>Observation post</b>	No image available	<p>The observation post elements have been removed. The location has significance in aiding the understanding of the fort operations.</p> <p>The observation post has high archaeological potential.</p>	Exceptional

## Below ground

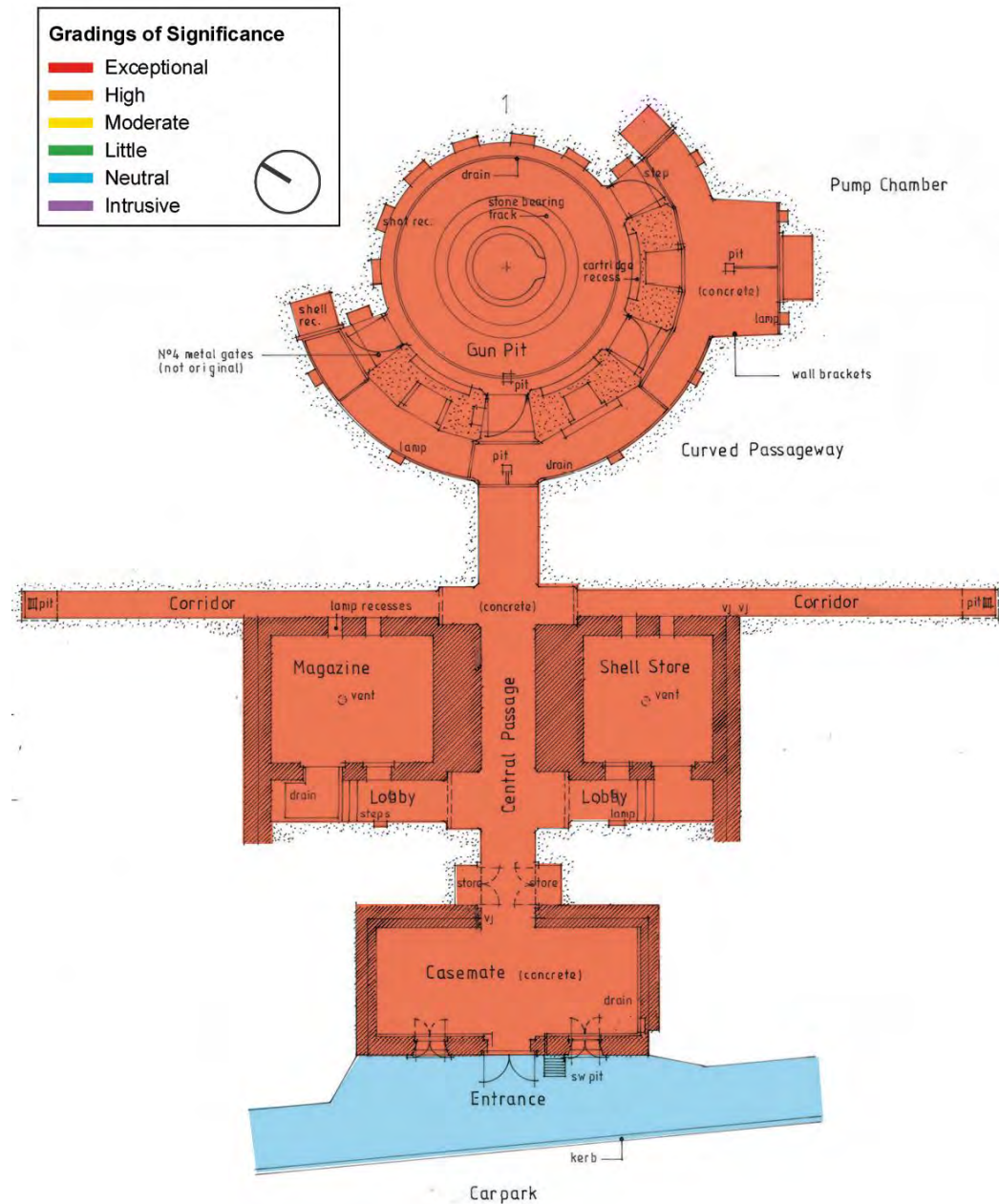


Figure 4.2 Significance grading of below-ground elements. (Source: Borst Architects 2002 with GML overlay)



Table 4.7 Significance grading of below-ground components of Flagstaff Hill Fort.

Element	Image	Comment	Significance
<b>Underground built elements</b>		<p>The original location and functional layout of the underground rooms including the casemate, central passage and lobby, magazine store, shell store, corridor, gun pit, cartridge and shell recess stores.</p> <p>Original brick walls, concrete floor and ceiling have been retained.</p> <p>Original openings, arched doorways, niches and recesses have been retained.</p> <p>Ventilated tunnels have been retained.</p>	Exceptional

## Views


Although the landscape, particularly the levels of the park that surrounds Flagstaff Hill Fort, has been significantly altered over time, significant views are retained to the surrounding ocean, as well as to and from the surrounding coastline and other areas of Wollongong.








Figure 4.3 Aerial view of Flagstaff Hill Fort showing significant views. (Source: Nearmap 2024 with GML overlay)

Table 4.8 Significance gradings of views at Flagstaff Hill Fort.

View	Description	Image	Significance
<b>View 1</b>	Sweeping panoramic view from Flagstaff Hill out towards the ocean, North Wollongong and Wollongong Harbour (including Battery Park) reflects the historical relationship of Flagstaff Hill with Wollongong Harbour and the wider Wollongong township. This view highlights this area of Wollongong Harbour as being a strategic point in the original fortification of the colony.		Exceptional



View	Description	Image	Significance
<b>View 2</b>	View of the three guns overlooking the ocean. The guns are not at their original locations but were moved further up the hill when the current road and park layout were constructed. This view demonstrates the significant role the fort played in surveying the surrounding ocean for any incoming enemy ships.		Exceptional
<b>View 3</b>	View from the gun pit demonstrating the historical function of the disappearing gun, which laid hidden before rising above the walls to fire. The view is partially obscured by the addition of the lighthouse.  The 1937 Wollongong Head Lighthouse is located within the boundaries of the study area and of Flagstaff Hill Fort's heritage curtilage. Construction of the lighthouse occurred between 1935 and 1937, shortly before the large gun in the Flagstaff gun pit was removed. Although the lighthouse is listed as a heritage item on the Wollongong LEP 2009, its location disrupts the historic line of fire from the gun pit and impacts the interpretability of the fort's original function.		Exceptional
<b>View 4</b>	View towards City Beach and the surrounding ocean demonstrating the height of Flagstaff Hill Fort relative to the township and vantage points for surveying the ocean.		Exceptional



## 4.5 Smiths Hill Fort

### 4.5.1 Discussion of significance

Table 4.9 Discussion of significance of Smiths Hill Fort.

Criteria	Discussion
<b>Criterion A (Historic significance)</b> An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).	<p>Smiths Hill Fort is historically significant as one of the earliest formalised fortifications in the Illawarra region.</p> <p>It was planned and built several years after Flagstaff Hill Fort was constructed, demonstrating the defence planning and whole-of-place strategy to protect the harbour and ports following the departure of the last British troops from Australia in 1870.</p> <p>The hill's elevation provided an ideal position for monitoring maritime activity and engaging potential threats before they could approach Wollongong Harbour.</p> <p>The primary purpose of the fort was to serve as a deterrent to hostile forces, providing both a visible and operational means of defence. The location and design were integral to its function, enabling the defenders to maximise their firepower while minimising vulnerability.</p> <p>While the land was originally set aside in response to possible Russian attacks, the threat dissipated before the completion of the fort and it functioned primarily for military training purposes.</p> <p>The subsequent decommissioning, infill and excavation of the Smiths Hill Fort reflect the subsiding threat of war and the development of the Wollongong Harbour Precinct from a commercial and industrial area to a recreation and tourism focused one.</p> <p>Smiths Hill Fort meets the threshold under this criterion at a state level.</p>
<b>Criterion B (Historical association)</b> An item has strong or special association with the life or works of a person, or group of persons, of importance in the cultural or natural history of NSW (or the cultural or natural history of the local area).	<p>Smiths Hill Fort has association with the Colonial Architect's Department, which designed the fort.</p> <p>It also has association with the volunteer militia (army reserves) who manned it and various Wollongong artillery companies who used the fort for shooting practice and annual training events.</p> <p>The Rotary Club of Wollongong, Rotary Club of Illawarra Sunrise, and the local branch of the National Trust (Illawarra Shoalhaven Branch) have strong links to the ongoing conservation, use and maintenance of Smiths Hill Fort since 1988 when the fort was unburied as part of the Bicentenary celebrations.</p> <p>Smiths Hill Fort meets the threshold under this criterion at a local level.</p>



Criteria	Discussion
<p><b>Criterion C (Aesthetic/creative/technical achievement)</b></p> <p>An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).</p>	<p>Smiths Hill Fort is an intact example of late nineteenth-century fortification design in NSW. It is positioned on high ground above Wollongong Harbour with a hidden battery and underground protected rooms. It has a commanding view of the coastline and sea approaches, which enabled longer-range targeting of ships approaching from the sea. Two 80-pounder rifled muzzle-loading guns and a Nordenfelt quick-firing gun remain in situ, demonstrating the shift in military strategy from cannonballs to rifled technology, allowing them to fire shell projectiles with greater accuracy and range.</p> <p>The fort is a landmark in the Wollongong Harbour Precinct and is a key contributor to its distinctive mid-nineteenth century harbour landscape.</p> <p>Smiths Hill Fort meets the threshold under this criterion at a state level.</p>
<p><b>Criterion D (Social, cultural, and spiritual)</b></p> <p>An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.</p>	<p>Smiths Hill Fort is regarded as a key landmark within the broader Wollongong Harbour Precinct; it is a place that symbolically represents aspects of the past that local communities feel contributes to the local identity.</p> <p>The fort is situated within a key foreshore location within the City that attracts high visitation from local residents and tourists and is widely appreciated for its contribution to the broader historical context, being located within the Wollongong Harbour Precinct and immediately adjacent to the North Beach Precinct, which is also state-listed.</p> <p>Smiths Hill Fort is a place where local communities regularly gather for rituals and ceremonies such as Anzac Day and Remembrance Day services.</p> <p>Community organisations including the Rotary Club continue to have an active involvement and interest in the ongoing management of the fort.</p> <p>Smiths Hill Fort meets the threshold under this criterion at a local level.</p>
<p><b>Criterion E (Research potential)</b></p> <p>An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).</p>	<p>Smiths Hill Fort has the ability to yield site-specific information that contributes to an understanding of the coastal defence of Wollongong Harbour in the late nineteenth century. The banquettes at the fort was a key feature of its defensive design, which allowed the infantry to stand and fire over the parapet while remaining protected. The banquettes would have been used by soldiers manning the fort's walls and small arms positions, complementing the heavy artillery.</p> <p>Smiths Hill Fort included a banquettes, gun pits for the two 80-pounder rifled muzzle-loading guns, the Nordenfelt quick-firing gun, a DRF station, underground magazines and tunnels.</p> <p>Smiths Hill Fort meets the threshold under this criterion at a state level.</p>





Criteria	Discussion
	The archaeological remains pertaining to the removed elements of Smiths Hill Fort are significant at a state level for their research potential. If present, these remains would provide a unique resource of understanding the site.
<b>Criterion F (Rare)</b> An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).	<p>Smiths Hill Fort is rare as one of the earliest formalised fortifications in the Illawarra region and one of the few surviving late nineteenth-century forts in NSW built as a response to the perceived threat of Russian attack.</p> <p>Smiths Hill Fort is a rare example in NSW in that its original artillery is still in position—all three guns have a provenance with the site and were reinstated to their original positions in the late 1980s—within an unaltered battery layout.</p> <p>Smiths Hill Fort meets the threshold under this criterion at a state level.</p>
<b>Criterion G (Representative)</b> An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).	<p>Smiths Hill Fort is representative of late nineteenth-century military strategy and defence technology in NSW.</p> <p>It also demonstrates the evolution of fortifications from active defence sites to training areas and then to public recreation spaces, reflecting the development of Wollongong Harbour.</p> <p>Smiths Hill Fort meets the threshold under this criterion at a state level.</p>
<b>Integrity</b>	The above-ground and underground spaces and elements of the fort as well as the remnant guns are fairly intact.

## 4.5.2 Statement of significance

Smiths Hill Fort is of state significance as a significant example of late nineteenth-century fortification design and one of the earliest forts in the Illawarra region. The fort represents the colony's defence strategy to protect the developing Wollongong Harbour and is a rare example in NSW where the original artillery is still in position.

The fort's location, original building fabric and remnant guns provide evidence of military technology development. The defence system at the fort included above-ground and underground elements and spaces, including a banquette, gun pits for two 80-pounder rifled muzzle-loading guns, the Nordenfelt quick-firing gun, a DRF station, underground magazines and tunnels.

Smiths Hill Fort has a strong association with volunteer militia and local artillery groups and sustained a role in military training events after the conflict had ended.



Potential archaeological remains hold research significance at a local–state level as they could provide new information about structure of the fort, its use and occupation.

Smiths Hill Fort is a key component of and contributor to the state-listed heritage values of the Wollongong Harbour Precinct.

### **4.5.3 Gradings of significance**

Individual components of Smiths Hill fort have been graded according to their significance as described in the below table.

## Built elements

### Above ground







Figure 4.4 Significance grading for the built and landscape components of Smiths Hill Fort. Note, however, some vegetation impacts the interpretability of the defensive function of the fort (see discussion of views below). (Source: Wollongong Design and Technical Services 2024, Nearmap 2024 with GML overlay)



Table 4.10 Significance grading of above-ground components of Smiths Hill Fort.

Element	Image	Comment	Significance
<b>General</b>		Landscape: The setting, slope and views to and from the fort.	Exceptional
		Circulation: Concrete paths between fort areas.	Little
		Signage: The interpretive signage is placed away from other built elements and does not detract from the setting.	Neutral
		Landscape: Dense vegetation to the east of the fort impacts the interpretability of surveillance views to the harbour.	Intrusive
<b>Bombproof bunker/casemate</b>		Fences: An early timber arris rail fence has been replaced with a less visually permeable metal fence along the top of the fort, further impacting the interpretability of surveillance views to the harbour. A second metal fence runs along the park perimeter.	Neutral
		The original location, layout and fabric (thick masonry walls and steel reinforced roof) of the casemate are key to the understanding of the fort's design and operation.	Exceptional
		The design considered the protection required from incoming shelling and the potential hazards of handling explosives by separating the stores.	Exceptional
		Signage: Interpretive signs for the casemate and store recesses repainted in their original locations.	High



Element	Image	Comment	Significance
<b>Banquette</b>		The original location, layout and fabric of the banquette, which allowed for soldiers to view over the fort walls.	Exceptional
<b>Gun pit for 80-pounder guns</b>		<p>Gun pit: The location, layout and fabric of the gun pit are original. They are significant in demonstrating the operation and technology of the time.</p> <p>Gun: The original 80-pounder guns in their original placement on the rotating barbettes.</p>	<p>Exceptional</p> <p>Exceptional</p>
<b>Gun pit for rapid firing gun</b>		<p>Gun pit: The original location, layout and fabric of the southernmost gun pit.</p> <p>Gun: The original 1 1/2-inch Nordenfelt rapid-firing gun was for fast-moving vessels.</p> <p>Ramp: The original timber steps have been dismantled and replaced with a concrete ramp.</p> <p>An 1892 plan shows a ramp at that location (see Figure 2.18).</p>	<p>Exceptional</p> <p>Exceptional</p> <p>Moderate</p>
<b>DRF station</b>		<p>Position and layout of the DRF station: These elements are key to understanding the fort's operation—they provided the target location for the guns.</p> <p>Original fabric: The brick walls provide insight into its construction. Note, however, the original DRF instruments have been removed, impacting the DRF's interpretability.</p> <p>Railing: The railing installed along the top of the DRF station is intrusive and impacts the DRF's interpretability as well as contributing to the fracturing of the brick retaining wall.</p>	<p>Exceptional</p> <p>Exceptional</p> <p>Intrusive</p>



## Below ground

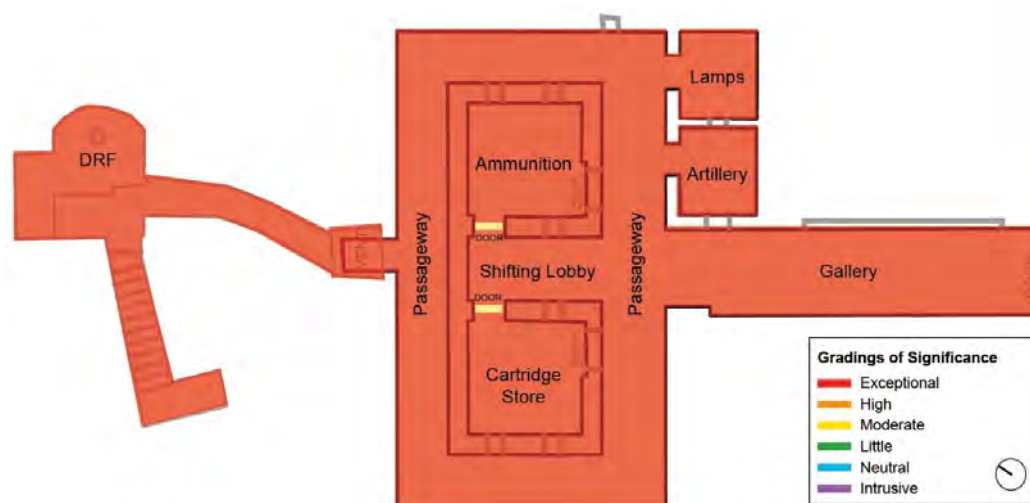




Figure 4.5 Significance grading of underground components of Smiths Hill Fort. (Source: City of Wollongong Design & Technical Services 2024 with GML overlay)

Table 4.11 Significance grading of underground components of Smiths Hill Fort.


Element	Image	Comment	Significance
Underground bunker		The original location and layout of the underground rooms including the gallery, lamps room, artillery, shifting lobby, cartridge store, ammunition, ramp and passageways.	Exceptional
		<p>Original brick walls with stone corner capitals have been retained.</p> <p>Original barrel vaulted ceilings have been retained; however, steel beams are significantly damaged due to rust.</p> <p>Original lamp recesses, vents, drainage channels and signage.</p>	<p>Moderate</p> <p>Original timber elements—some doors and door architraves, however, have been replaced with new.</p>

## Views






Figure 4.6 Aerial view of Smiths Hill Fort showing significant views. (Source: Nearmap 2024 with GML overlay)

Table 4.12 Significance gradings of views at Smiths Hill Fort.

View	Description	Image	Significance
View 1	A view looking east towards the ocean from one of the guns positioned in its original location. By being set below the height of the surrounding park and coastline, the fort and its guns were able to be hidden from view from any potential enemy ships. This view highlights the important role the Smiths Hill Fort played in the original fortification of the Illawarra region.		Exceptional



View	Description	Image	Significance
View 2	View from the park area looking east out towards the ocean. Though obscured by plantings, it is significant in demonstrating the fort's role in surveillance and protection from potential attacks from the sea in the Illawarra region.		Exceptional
View 3	View looking north towards the Wollongong coastline from the eastern portion of the park. It demonstrates the height of this area above the surrounding coastline, which would have supported the fort's operations, particularly the DRF.		Exceptional
View 4	View looking southeast from the eastern portion of the park towards Wollongong Harbour and Flagstaff Hill Fort. This view highlights the visual relationship that has been retained between Flagstaff Hill Fort and Smiths Hill Fort and their combined efforts in protecting the Wollongong coastline.		Exceptional

## 4.6 Archaeological potential

### 4.6.1 Overview

Archaeological potential is defined as 'the degree of physical evidence present on an archaeological site, usually assessed on the basis of physical evaluation and historical research'.<sup>5</sup> This section considers the likelihood of Aboriginal and non-Aboriginal archaeological remains surviving on the subject sites and divides them into zones of archaeological potential, which will assist with the development of management policies. The potential is arranged with respect to the various phases of use and development of the site as understood through historical research, and archaeological reports and investigations.



#### 4.6.2 Preliminary Aboriginal archaeological analysis

An extensive search of the Aboriginal Heritage Information System (AHIMS) was carried out to identify whether registered Aboriginal sites are present in the study area or nearby. The results are detailed below. No Aboriginal sites were recorded at either Smiths Hill or Flagstaff Hill, but a number of registered sites are recorded in close proximity.

Any ground disturbance works at either site may require further assessment of proposed impacts, which may not be limited to an Aboriginal Due Diligence Assessment and an application for an Aboriginal Heritage Impact Permit (AHIP).

#### Aboriginal heritage context

The study area is located on the traditional lands of the Wodi Wodi. The custodianship has been traditionally described as stretching between Wollongong to the Shoalhaven River and from the coast to Moss Vale, Picton and Marulan.<sup>6</sup> The Wodi Wodi spoke a dialect of the Dharawal language, linking them to other Dharawal speakers from as far north as Botany Bay and Campbelltown, as far west as Moss Vale and the Nepean, and as far south as the Shoalhaven River and Jervis Bay. The Dharawal considered themselves to be divided into the inland Freshwater People, the swampland Bitter Water People and coastal Saltwater People.

The Wodi Wodi regularly travelled through the lands of other Dharawal speakers, and periodically into neighbouring territories for trade, ceremony and other social gatherings. The Gundungurra and Wiradjuri travelled to Wodi Wodi lands on the coast to trade. This trade is known to have included source materials and goods,<sup>7</sup> but also foodstuffs, with marine and freshwater fish, oysters, waterfowl and grubs of the Illawarra being of high value.

Land grants and farming in the Wollongong area alienated Aboriginal people from their Country. European settlers erected fences, huts and stockyards, cut down trees, formed roads and generally restricted access across the land and to the waterways. The ever-increasing number of settlers arriving from the 1830s mirrored a corresponding decline in the number of Aboriginal people in the Illawarra; however, evidence from archaeological sites in the vicinity suggests a continuation of cultural practices within Wollongong during the post-contact period.<sup>8</sup>

A statement on the Aboriginal cultural context of the Wollongong harbour and headlands provided by City of Wollongong Council is included as an appendix to this report (Appendix 2).



## Aboriginal Heritage Information Management System

A search of the Heritage NSW AHIMS database was undertaken on 24 May 2024, reference number 24-0147-Extensive (Appendix 4). The search covered a zone from Lat, Long -34.4395, 150.871 to Lat, Long -34.4041, 150.9328 with no buffer. The results of the search are shown in Table 4.13 and Figure 4.7–Figure 4.9. In total 18 Aboriginal sites were identified.

No Aboriginal sites recorded as restricted were present within the AHIMS search boundary.

There are no previously recorded Aboriginal sites within the study area.

Table 4.13 Results of the AHIMS search.

Site features	Frequency	Percentage
Midden	7	38.9%
Artefact	3	16.7%
Burial	2	11.1%
Potential Archaeological Deposit (PAD)	2	11.1%
PAD with Artefact	1	5.6%
Grinding groove	1	5.6%
Habitation	1	5.6%
Grinding groove, stone arrangement	1	5.6%
<b>Total</b>	<b>18</b>	<b>100%</b>

The registered sites returned in the AHIMS search are all closely clustered around waterways, the majority being located around the seashore.

A grinding groove site is located adjacent to the water 144m to the south of Smiths Hill Fort and a midden site was located on the shore 172m to the north of Smiths Hill. The closest site to Smiths Hill not on the seashore is a PAD 390m south.

The closest site to Flagstaff Hill was a midden located 390m to the west and downslope. The closest site not located on the foreshore was an artefact site 540m to the northwest. No other sites were located on the headland.

The most frequent site types in the AHIMS search results are middens (about 39%), which are often associated with stone artefacts and shelters. Spatially, they are associated with permanent sources of water and near locations with a plentiful and reliable supply of shellfish. Though prevalent, it is likely that the distribution of midden material is underrepresented in the archaeological record.





Lime manufacturing, undertaken in the early nineteenth century to produce construction materials, utilised shell taken from Aboriginal middens and involved excavating and removing a large quantity of midden material. In general, intact portions of shoreline can be assumed to have potential for middens.

Artefact sites consist of open artefact scatters, isolated finds and/or subsurface artefact assemblages found within intact topsoil A horizons. Flaked stone tools are the primary artefact type and silcrete is the dominant material, although silicified tuff, chert and quartz are also found. Spatially, they tend to be associated with lower slopes, alluvial terraces and flats bordering waterways, particularly in relatively undisturbed areas. These watercourses provided a reliable source of food and water for Aboriginal people, and previous studies on areas throughout the broader Sydney metropolitan area have noted the strong association between artefact sites and permanent watercourses.

The next most common site type within the AHIMS search area was PADs, making up approximately 11% of sites when considering combined PADs with artefact sites. We note that a PAD is not necessarily an Aboriginal site, but an area designated as having potential to contain Aboriginal objects. Therefore, the presence and distribution of PADs reflect the potential for an intact A horizon on landforms with proven archaeological sensitivity (such as alluvial terraces, floodplains and lower slopes). Historical disturbances both within and surrounding the study area will have disturbed or removed shallow artefact-bearing soil horizons in discrete areas of the site, meaning there is limited potential for Aboriginal archaeological material.

Both forts are in very close proximity to the ocean, which provides a habitat for fish, shellfish and birds. The closest freshwater source to Smiths Hill Fort is Fairy Creek approximately 690m to the north. Fairy Creek flows from Cabbage Tree Creek, which flows southeasterly from the Illawarra Escarpment.

The closest freshwater source to Flagstaff Hill Fort is Smiths Hill Creek, 490m to the northwest. The Gurungaty Waterway is located 1.1km to the southwest but originally flowed into Lang Park<sup>9</sup> from the south and originates at the Illawarra Escarpment to the west. Sections of both waterways have been partially channelised and natural gullies landscaped for housing in the last 100 years. Prior to European colonisation there was also a freshwater wetland in the location of Lang Park, located approximately 480m to the southwest. The availability of water has significant implications for the range of resources available and the suitability of an area for human occupation.

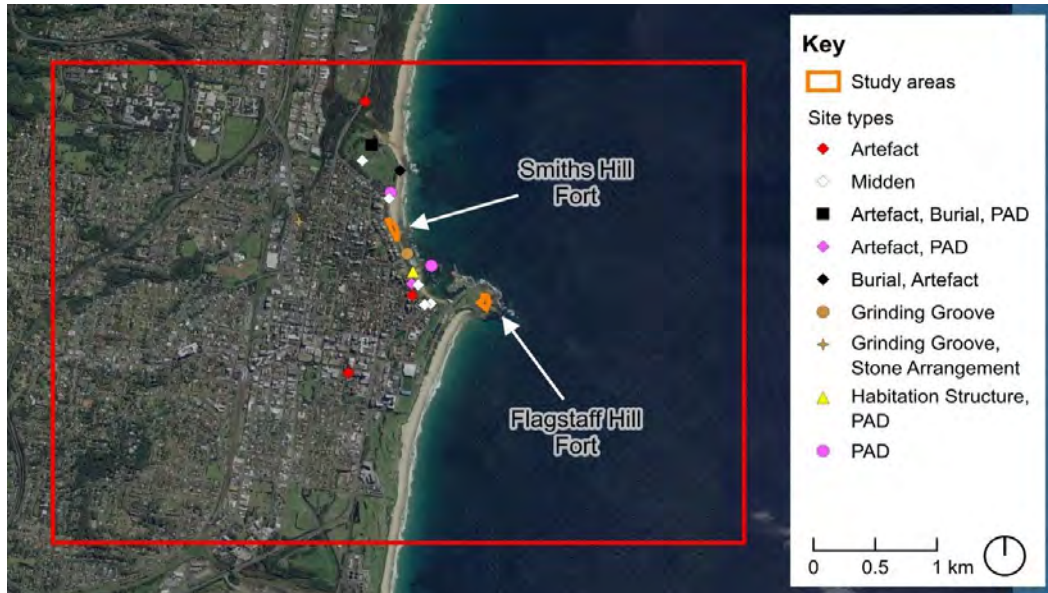


Figure 4.7 AHIMS search results. The patterning shows the concentration of sites along the coast and a diversity of site types in this area. The majority of sites are located in the sand dunes close to the water's edge, in contrast to both study areas, which are at an elevated position away from water. (Source: Heritage NSW AHIMS data, SIX Maps basemap with GML overlay, 2024)



Figure 4.8 Detailed AHIMS search results focused around Flagstaff Hill. There are no registered Aboriginal sites within the study area. (Source: Heritage NSW AHIMS data, SIX Maps basemap with GML overlay, 2024)



Figure 4.9 Detailed AHIMS search results focused around Smiths Hill. There are no registered Aboriginal sites within the study area. (Source: Heritage NSW AHIMS data, SIX Maps basemap with GML overlay, 2024)





Figure 4.10 Hydrology and contours across and surrounding the Flagstaff Hill Fort. (Source: SIX Maps with GML overlay, 2024)



Figure 4.11 Hydrology and contours across and surrounding the Smiths Hill Fort. (Source: SIX Maps with GML overlay, 2024)





## Overview of Aboriginal archaeological potential

The coastal locations, proximity to freshwater and the known proximity of registered sites make these study areas probable locations for Aboriginal occupation. However, both sites contain an overall low potential for evidence of Aboriginal archaeology. The significant impacts caused by the construction of the forts, including removal of natural soil horizons, are likely to have had significant impacts across both sites.

A targeted due diligence assessment should be undertaken for specific future works to identify the potential for Aboriginal cultural material to be present in specific areas of the site.

### 4.6.3 Historical archaeological potential and significance

Archaeological potential refers to the likelihood that a site may contain physical evidence related to an earlier phase of occupation, activity or development. This term is different from 'archaeological significance' and 'archaeological research potential', which are more subjective terms related to the value of the archaeological resource in terms of levels of significance.

A full assessment of the historical archaeological potential and significance of Flagstaff Hill and Smiths Hill Forts is included as an appendix to this report (Appendix 3).

## Archaeological potential

Archaeological potential is usually described as nil, low, moderate or high, and is assessed as follows:

- Nil—no known historical activities that would have left an archaeological signature. Previous construction, or other activities, have removed all archaeology.
- Low—it is unlikely the historical archaeological evidence associated with this historical phase or feature survives. Archaeological remains are likely to have been subject to a high level of previous disturbance.
- Moderate—it is possible that some historical archaeological evidence associated with this historical phase or feature survives. If archaeological remains survive, they may have been subject to some disturbance.
- High—it is likely that archaeological evidence associated with this historical phase or feature survives intact. Archaeological remains are likely to be intact, as the level of site disturbance appears to be minimal.



## Archaeological significance

Although subsurface archaeological remains often form an integral component of the overall significance of a heritage place, it is necessary to assess them independently from above-ground as well as other historical elements. Assessing the heritage value of these subsurface archaeological remains is made more difficult by the fact that their extent and nature is often unknown. It becomes necessary for judgements to be made on the basis of expected or potential attributes.

Archaeological significance refers to the cultural, historic, social, aesthetic, or research value afforded to known or potential archaeological remains. The NSW heritage criteria are used to evaluate whether the known or potential archaeological remains meet the threshold for significance. Additional guidance is provided in *Assessing Significance for Historical Archaeological Sites and 'Relics'*, published by the NSW Heritage Branch (now Heritage NSW) in 2009.

Archaeological significance and 'relics' in NSW are defined as being either local or state significant in Section 4A of the *Heritage Act 1977* (NSW):

- Local—in relation to a place, building, work, relic, movable object, or precinct, means significance to the area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.
- State—in relation to a place, building, work, relic, movable 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.

An overview plan of the archaeological potential of the sites is provided in Figure 4.12 and Figure 4.13.

### 4.6.4 Flagstaff Hill Fort

#### Statement of historical archaeological significance

The potential historical archaeological resource is predominantly associated with Phase 2 (1890–1914) Flagstaff Hill fort and Phase 3 (1914–present) ownership by Council. There is overall moderate–high potential for archaeology associated with these two phases.

Potential archaeological remains of the original elements of the fort (Phase 2: 1890–1914), including the observation rooms and original fort walls, have the potential to enhance our understanding of the structures as they were originally constructed and would be significant at a state level for their historical significance, research potential, and representativeness, and at a local level for rarity.



Artefacts associated with the occupation of the site as a military fortification would be significant at a local, and potentially state, level for their ability to contribute to our understanding of militia who occupied the site, and potentially military life more broadly in NSW depending on the nature of the artefacts.

Artefacts recovered from the backfill over the fort's substructure deposited during its construction would be significant at a local level for their historical and potential research value. Generally, the potential archaeology of the site may hold significance at a local level for its importance to the local community.

## Summary of archaeological potential and significance

The table below summarises the study area's potential for historical archaeological features and deposits and includes an assessment of their significance. Figure 4.12 illustrates the areas of archaeological potential within the Flagstaff Hill Fort site.

Table 4.14 Assessed levels of archaeological potential and significance within the Flagstaff Hill Fort.

Phase	Possible archaeological remains	Potential	Significance
<b>Phase 1: 1815–1890</b>  Early European Settlement of Wollongong	Evidence of land clearance and timber getting camps.	Nil–low	Nil  Unlikely to be present
	Evidence of the former convict stockade.		
	Remains of former flagstaff.		
	Industrial and recreational activities undertaken on headland.		
<b>Phase 2: 1890–1914</b>  Flagstaff Hill Fort	Evidence of observation structures above the ends of the east–west corridors: • masonry footings and surfaces.	High	State
	Artefacts relating to military life and the use of the fort by local militia: • personal, military-specific or institutional items.	Low–moderate	
	Former fort retaining walls southeast and southwest of the entrance: • masonry footings.	Moderate–high	
	Evidence of the fort's construction: • cuts and fills; • objects discarded by construction workers; and • former drainage channel.	High	Local

Phase	Possible archaeological remains	Potential	Significance
	Evidence of the former roadways constructed to the fort.	Nil-low	Nil
<b>Phase 3: 1914–present</b> Ownership by Council	Evidence of the demolition of the above-ground elements and introduced fills to cover the site.	High	Nil
	Retaining wall constructed to the northwest of the entrance.	Moderate	
	Landscaping and park infrastructure elements.		

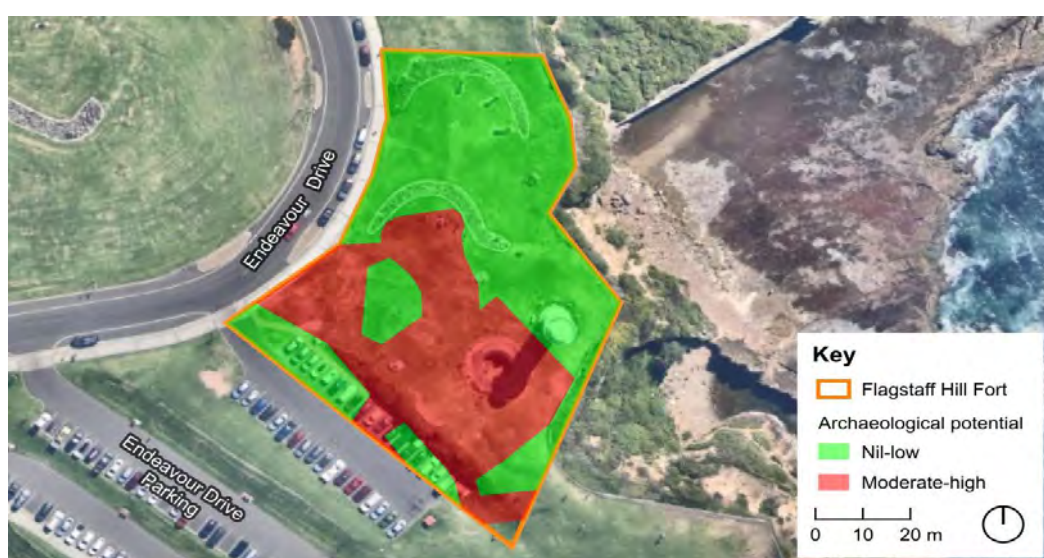


Figure 4.12 Archaeological potential of the Flagstaff Hill Fort site, informed by historical aerial photographs, plans and recorded descriptions. (Source: Nearmap with GML overlay)

## 4.6.5 Smiths Hill Fort

### Statement of historical archaeological significance

The archaeological significance of Smiths Hill Fort is mostly associated with it being one of the earliest formalised fortifications in the Illawarra region. Any surviving evidence of original elements of the fort, including the observation rooms, machine gun placements or the water tanks, has the potential to enhance our understanding of the structures as they were originally constructed and would be significant at a state level for their historical, research, rarity and representative values.





Discrete artefacts that could be securely associated with the occupation of the site as a military fortification could be considered at a state level for their historical and social values in their ability to contribute to our understanding of the local militia who occupied the site.

Any evidence of the fort's construction, including artefacts recovered from the backfill surrounding the built elements, would only be considered significant at a local level for their research and cultural values. Generally, the potential archaeology of the site may hold significance at a local level for its importance to the local community.

## Summary of archaeological potential and significance

The table below summarises the study area's potential for historical archaeological features and deposits. Figure 4.13 illustrates the areas of archaeological potential within the Smiths Hill Fort site.

Table 4.15 Assessed levels of archaeological potential and significance within the Smiths Hill Fort.

Phase	Possible archaeological remains	Potential	Significance
<b>Phase 1: 1815–1839</b>	Evidence of land clearance and timber getting camps.	Nil–low	Nil
Early European Settlement of Wollongong	Evidence of use of the site during Throsby's early land grant.		Unlikely to be present
<b>Phase 2: 1839–1892</b>	Evidence of former cannon placements.	Nil–low	Nil
Early Coastal Defence			
<b>Phase 3: 1892–1914</b>	Partially removed elements of the former fort:	Moderate–high	State
Smiths Hill Fort	<ul style="list-style-type: none"> <li>subterranean tanks;</li> <li>machine gun placements;</li> <li>observation stations; and</li> <li>truncated remains of single men's quarters building.</li> </ul> Former latrine and associated services: <ul style="list-style-type: none"> <li>truncated footings; and</li> <li>redundant service alignments.</li> </ul>		
	Artefacts relating to the use of the fort by local militia:	Low	
	<ul style="list-style-type: none"> <li>military or personal items.</li> </ul>		
	Evidence of the construction process of the fort.	High	Local



Phase	Possible archaeological remains	Potential	Significance
	Evidence of an earlier fence line along the eastern boundary of the fort.	Moderate	Nil
<b>Phase 4: 1914–present</b>	Evidence of the removal of above-ground elements and introduced fills to cover the site.	High	Nil
Ownership by Council	Landscaping and park infrastructure elements including redundant mid–late twentieth-century services.	Moderate	

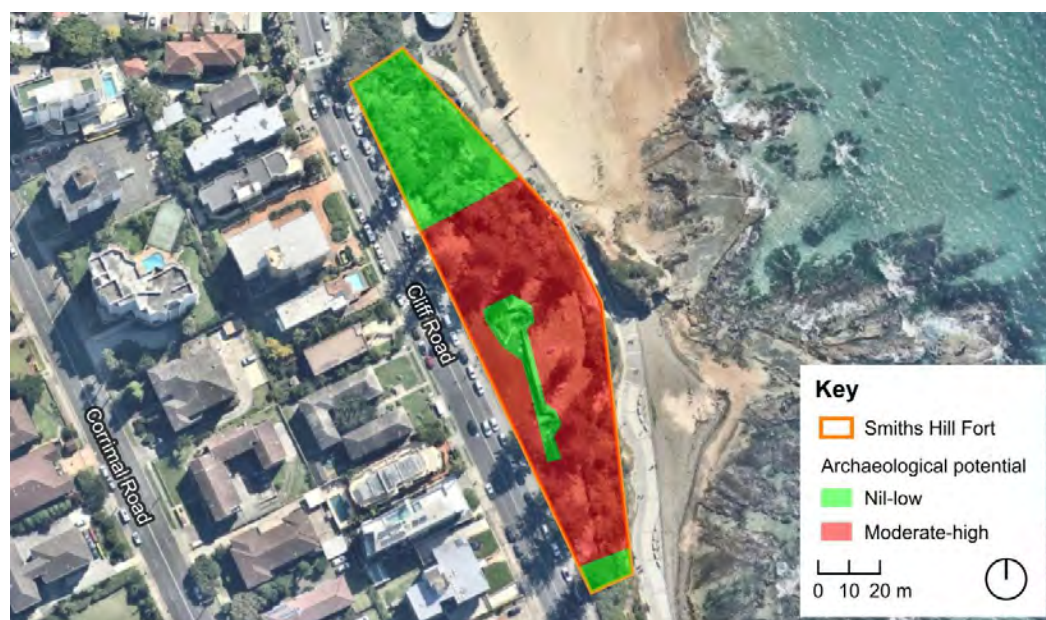


Figure 4.13 Archaeological potential of the Smiths Hill Fort site, informed by historical aerial photographs, plans and recorded descriptions. (Source: Informed by Crown Plan 643-3000, with Nearmap basemap and GML overlay)



## 4.7 Endnotes

- <sup>1</sup> Australia ICOMOS Inc, *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance 2013*, Australia ICOMOS Inc, Burwood, VIC, p 2.
- <sup>2</sup> City of Newcastle, Fort Scratchley website, 'Fort history', accessed 24 June 2025 <<https://newcastle.nsw.gov.au/fort-scratchley/history-education/fort-history>>.
- <sup>3</sup> Fort Scratchley Historical Society, 'History', accessed 24 June 2025 <<https://fortscratchley.org.au/history/>>.
- <sup>4</sup> City Plan Services, Shepherds Hill Defence Group Military Installations Conservation Management Plan, July 2019, p 117.
- <sup>5</sup> Heritage Office 1996 *Archaeological Assessments, Archaeological assessment guidelines*. Department of Urban Affairs and Planning (NSW).
- <sup>6</sup> Wesson, S 2005 (ed), *A History of Aboriginal People of the Illawarra 1770–1970*, Department of Environment and Conservation (NSW), National Parks and Wildlife Service.
- <sup>7</sup> Munt S, White B, and Owen T 2023, 'Social information inherent in backed artefacts from the Illawarra, western, and southwestern Sydney, NSW', *Australian Archaeology*, DOI: 10.1080/03122417.2023.2218992.
- <sup>8</sup> Thompson, J 2025, Aboriginal Cultural Context Summary, personal comms.
- <sup>9</sup> Thompson, J 2025, personal comms.

# Opportunities and constraints





## 5 Opportunities and constraints

This section of the report discusses the constraints, issues and opportunities that affect the conservation and management of the forts, both now and looking towards the future. The discussion in this section is the precursor to the conservation policies (Section 6) and identifies issues that should be addressed.

### 5.1 Issues arising from significance

Considering the forts' significance, the key findings and issues that need to be addressed in the conservation policy and guidelines include the following:

- Flagstaff Hill Fort and Smiths Hill Fort are unique and notable defence structures of state heritage significance. The site and surrounds are to be conserved and managed in a way that respects, responds to and supports the understanding, awareness and appreciation of heritage significance.
- The forts are located in the state heritage listed Wollongong Harbour Precinct. Proposals for new work or uses of the forts should consider the impact on the individual sites as well as the precinct as a whole. Conversely, development in the precinct should consider the significance of the forts.
- The forts' preservation, moderate to high degree of integrity and intactness was in part due to their care and management by the site owners and key stakeholders. Their opening up for public visitation can bring new hazards and risks to the forts' fabric, including potential archaeology, which is of high and exceptional significance. Maintenance procedures should be put in place to ensure its conservation.
- From both sites, there are significant views of the harbour and the sea, demonstrating their range and lines of sight. The view catchment area has been partially obscured by vegetation and other structures. Significant views should be reinstated and maintained, which may require limiting development and change in these areas.
- Though built within the same period, Flagstaff Hill and Smiths Hill Forts demonstrate different approaches to defence design and construction in the late nineteenth century. Their distinctive characteristics should be retained and interpreted.
- The remnant guns and associated material are of exceptional significance. Their location and positioning should be retained as they are integral to understanding the function of the forts and military strategy of the time.
- There are potential archaeological remains in the vicinity of both forts, which are likely to contribute to the significance of the exposed fabric. Proposals for new work should consider the potential to impact these remains and mitigated wherever possible.

## 5.2 Issues arising from the integrity and physical condition of the place

### 5.2.1 Integrity

#### Flagstaff Hill Fort

The Flagstaff Hill fortifications retain a moderate degree of integrity.

##### c1861 68-pounder guns

The three original 1861 guns survive and are mounted on replica timber carriages and concrete plinths in the park to the north of the lighthouse. However, they are not in their original locations due to the construction during the mid-twentieth century of the road up to the Flagstaff Hill reserve. Nor do the guns have their original orientation. Originally, they faced the harbour rather than facing out to sea as they currently do.

There is little opportunity to relocate the three cannons to their original locations, where the road is now—see the figures below.

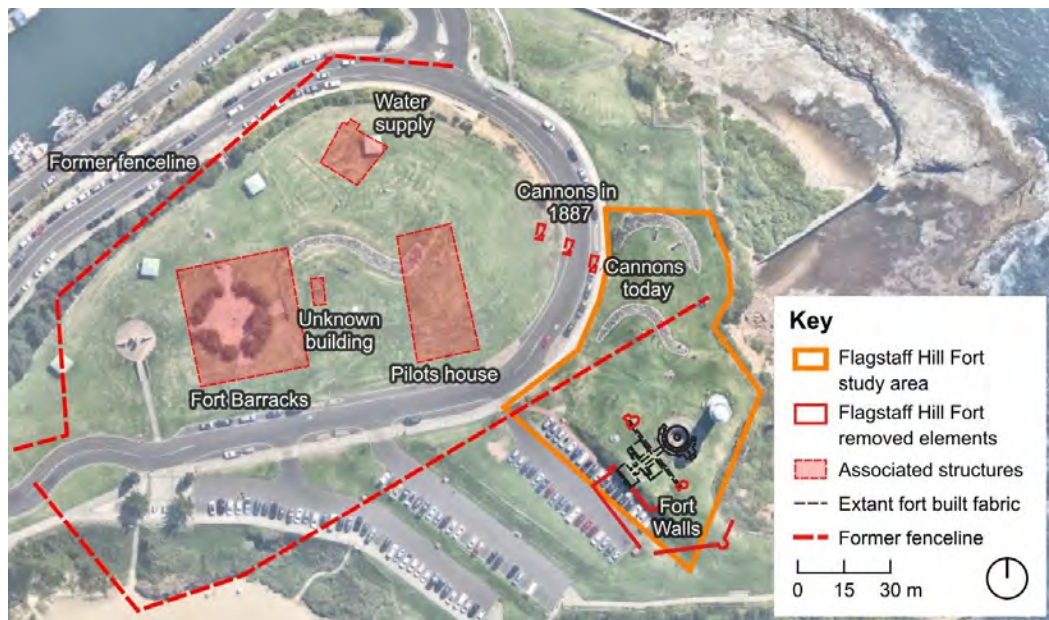


Figure 5.1 Location of study area in relation to related elements formerly present at Flagstaff Hill. (Source: Nearmap basemap, informed by 1938 aerial, c1887 Map of Wollongong Harbour, and 1933 Map of the Town of Wollongong, with GML overlay)



Figure 5.2 Flagstaff Hill looking to Wollongong and Mount Keira, date not identified. The three vintage cannons and a gun are visible in the foreground. (Source: Wollongong City Libraries, P31982 <<https://wollongong.spydus.com/cgi-bin/spydus.exe/ENQ/OPAC/BIBENQ?SETLVL=&BRN=640764>>)

### 1890 fortifications

The masonry structures of the underground components of the Flagstaff Hill fortifications remain substantially intact, including the layout of tunnels and internal spaces.

The walls that once enclosed the forecourt area to the southwest of the fortifications, however, have been removed for the construction of the existing carpark. However, there appears to be some evidence of remains existing beneath the grassed mound to the east of the fortifications.

### Above-ground structures

The above-ground structures of the observation post and the DRF have been removed and the pits infilled. There is some evidence that remnants of the below-ground structures may remain beneath the grass as buried built heritage features or truncated archaeological remains.

### Armaments



All armaments, including the disappearing gun and ammunitions, have been removed from the site. Even so, the circular gun pit remains intact, including its broad apron that sits over the pit walls at ground level.

Within the pit, the stone and metal track on which the gun turned survive and the pit housing for the pneumatic mechanism for the disappearing gun also remains intact.

### **Entrance to underground fortifications**

The ground level in front of the main entrance to the underground fortifications appears to have been raised at least two to four brick courses for the construction of the carpark and adjoining footpath. The brick façade at the entrance to the underground fortifications retains its original window and door openings with their stone sills and lintels.

The entry doors, timber casement windows and steel shutters have all been removed from these openings, although one timber window frame and remnants of the strap and gudgeon hinges for the shutters remain. More recent steel plate security doors and shutters have been fitted to steel frames set into the external face of the openings to prevent entry. Security doors have also been added to the openings to the gun pit.

There has been some modification to the brickwork on either side of the main entrance to accommodate the steel door frame (and brick infill wall that pre-dated the doors).

### **Underground fortifications**

The brick and concrete construction of the walls is clearly evident, particularly where the linings have been removed from the cartridge and shell recesses, with all materials clearly expressed. The steel rails supporting the concrete ceiling/roof are also clearly evident over the entrances to the passages and spaces within the underground fortifications. The floor is concrete, although there is evidence of a timber floor in the shell store (now removed). The floor was set with gravel fill between the joists. It appears that this type of floor was also used in the magazine, although little evidence remains.

The four sets of blast-proof doors that once stood at the entrances to the passages to the magazine, shell store, DRF and observation post are no longer present, although evidence remains of their locations, and the wall-mounted strap and gudgeon hinges that held the outer doors. Galvanised steel-framed doors stand in the location of the inner doors, but do not appear to be original.

Several original timber door frames and a window frame survive in openings to the laboratory and various stores. Timber doors, shelving, racks and linings have also been removed from the various stores and wall recesses, and the lamps have been removed from their wall niches. Although none of the protective glass that enclosed the lamp niches remains, there is evidence of their fixing into the walls and the ventilation system used for the lamps.





Although the ladders that gave access to the observation post and DRF have been removed, shadows remain on the walls of the shafts to show their former locations.

Remnant paintwork indicates that the internal walls and ceilings were painted (probably lime washed) and there is evidence of a two-tone painted skirting. Evidence also remains of painted signage that indicates the former use of the spaces.

#### **Demolished elements of original fortifications**

The extent to which remains of the removed observation post, DRF, and former above-ground walls survive archaeologically is unknown.

#### **Ventilation and drainage systems**

The ventilation and drainage systems are substantially original and illustrate how air and water were dealt with in the subterranean fortifications.

Ventilation openings are clearly evident in the ceilings of the magazine and shell store and the passages leading to them. These vents originally discharged through grated ventilation shafts that rose up through the fill above the fortifications, but these have since been infilled. The vents currently appear to discharge through terracotta pipes in the front façade of the fortification. Wall vents exist in the passages to the observation post and DRF. The floor is drained through a system of small open dish drains that flow to a number of grated drainage pits. These appear to discharge through the cliff face beyond the lighthouse.

#### **Setting and relationship to harbour**

Following the decommissioning of Flagstaff Hill Fort and its transfer to Wollongong Council in 1914, plans were made for a new lighthouse to take over the Breakwater Lighthouse. Wollongong Head Lighthouse was constructed in 1937 northeast of the Flagstaff Hill gun pit. The location of the lighthouse obscures the line of sight of the gun pit to the sea, which is a significant view. The brick entry walls of the fort were demolished in the 1970s and a carpark was constructed directly in front. The integrity of the setting has been compromised.

### **Smiths Hill Fort**

The Smiths Hill fortifications retain a high degree of integrity.

#### **1893 gun battery**

The masonry structures of both the above-ground and underground components of the Smiths Hill Fort remain substantially intact. All three original guns are mounted in their original locations within the gun battery. The bombproof shelter (casemate) and the walls of the DRF also remain substantially intact, as do the numerous shell recesses in the battery walls. The top of the DRF and the aprons to the large gun pits are missing.



There is evidence of non-structural stud walls having once enclosed the southern portion of the bombproof shelter, but these have been removed.

The vehicular accessway into the fortifications has been modified to form a pedestrian path. The steps down into the fortifications remain intact. The shell recesses in the walls of the fortification have been fitted with replica timber doors. Iron fixtures and fittings survive on the walls of the gun pits.

### **Underground magazine**

Inside the underground magazine the layout of spaces and passages remains intact. The concrete and cavity brick construction (with rows of iron bands tying the two double skins of brickwork together) is clearly evident, as are the original floor drains and the ventilation system, including the louvred vent above the main entry door.

Large stone quoins hold the top corners of the walls in the centre block. The lamp niches remain in the walls of the passages, together with their vents. Although the lamps no longer exist, several lamp mounts and the frames that held the protective glass that enclosed the lamps survive.

The iron rails supporting the concrete roof/ceiling structure are evident at the crossing of the passages, resting on the stone quoins. The ceiling of the ammunition and cartridge stores are brick vaulted, the vaults also resting on the iron rails.

A pair of iron doors stand in the entry to the underground fortifications. These appear to be original. Most of the original internal timber door frames and window frames remain in their original openings. There is at least one original timber door along with several replica doors. The joinery from the low openings in the walls of the cartridge and ammunition stores no longer survives. The recesses indicate that these could possibly have consisted of vertical sliding shutters.

The internal walls and ceiling have been painted in recent years and the internal painted signage has been repainted over doors and other openings.

There are several racks surviving on the walls of the fort, as well as replica gun cleaning and loading equipment inside the main entry passage to the underground fortifications.

### **Depression range finder**

A metal ladder survives in the shaft rising up to the DRF. However, the above-ground structure of the DRF is missing. Within the underground fortifications are a collection of iron doors and shutters, but their origin is unknown. It is possible these belonged to the upper section of the DRF and/or the bombproof shelter. They do not appear to belong to existing openings in the complex.



### Underground tanks

A square hatch above a partially visible convex concrete substructure is visible to the north of the fortifications within the park and is likely the remains of one of the two underground tanks.

It is unclear what the integrity of the substructure is beneath the ground surface. The location of the other tank is unknown and the integrity of this tank is unknown.

### Setting and relationship to harbour

Following the decommissioning of the fort, trees were planted in the park that was established over the top of it. These now obscure the views over the harbour from the fort and the lines of sight for the guns. Thus, the integrity of the setting has been compromised. Some vegetation (trees) may need to be thinned, trimmed or removed to help improve the understanding and interpretation of the setting and the fort's strategic location.

### Demolished elements of original fortifications

The extent to which remains of the removed machine gun placements, observation stations and single men's quarters building survive archaeologically is unknown.

## 5.2.2 Condition of fabric

### Site inspections and reports

Table 5.1 Documentation used to inform the condition assessment.

Document	Author	Date
Flagstaff Hill – Structural Assessment Report	Ben Hogendyk (Structural Engineer) and Emil Toussis (Senior Structural Engineer), City of Wollongong Council	June 2024
Preliminary Structural Report, Smith's Hill Fortification, Cliff Road, Wollongong	Emil Toussis (Senior structural engineer) and Ann Rojanawisut (Design Engineer), City of Wollongong Council	August 2024
The Flagstaff Hill Fort & Smiths Hill Fort Metal Work Wollongong Condition Report & Specification	Dave McBeath (Metals Conservator) and Oliver McBeath (Metals Conservator), OHM Consultants	June 2024
Project task	Personnel	Date
Site inspection and condition assessment	Catherine Forbes (Principal and Heritage Architect), GML Heritage	September 2024



## Flagstaff Hill Fort

### 1861 cannons

The 1861 cannons were restored in the 1980s and remain in good condition, although the paintwork has deteriorated significantly. Two of the gun barrels are open to the air and subject to water entry.

The third is fitted with a timber tampion that is showing some signs of decay.

The timber gun carriages, which are held together with galvanised steel bolts, are also showing significant signs of decay; several timbers need repair or replacement. The concrete plinths are in good condition.

### Disappearing gun pit

The structure of the gun pit, including its concrete apron, appears to be in good condition, although there is a considerable amount of rubbish and water sitting in the bottom of the pit. The fence around the pit is generally in good condition.

The steel doors and panels across the openings into the gun pit are in fair condition. Corrosion prevents them from being easily opened.

### Brick façade to underground fortifications

The front façade to the underground fortifications is in poor to moderate condition. The fence above the façade is in reasonable condition, but showing loss of its bonded paint coating.

The wall structure of the main entrance façade to the underground fortifications appears to be sound. However, the brickwork has ragged edges, with broken, loose and missing bricks, where the adjoining walls have been demolished. Mortar is missing from the top courses of the brickwork which hold the fill and vegetation above the fortifications and from the brickwork below the windows. There are weep holes evident in the wall above the string course over the windows and doors to allow ground water to drain from the roof. It is not clear if the terracotta pipes in the main façade are related to roof water drainage or the ventilation system for the underground spaces. The latter is more likely.

The cement render on the sides of the underground fortifications is also decayed.

### External windows and doors

The steel security doors and window shutters are severely corroded due to their exposure to the salty sea air and their being regularly broken into by vandals. They are currently welded shut to prevent entry. The stone lintels and sills to the window and door openings are also severely decayed from being scoured by the salt-laden winds impacting the site.

The brick paving in front of the entrance door has subsided. The bricks placed within the entrance door opening are loose and several have been displaced.





## **Underground structure**

### **Floors**

The concrete floor is generally in fair condition, although uneven with some areas where the surface has decayed and hollowed out. The floors are largely covered in litter and silt.

The floor in the shell store retains the fill that filled the space between the concrete slab and the timber floor over it and is not trafficable, whereas the fill to the floor in the magazine has been removed, leaving the concrete exposed.

### **Walls**

Internally, the masonry structure of the underground fortifications appears to be in good condition, showing little sign of settlement, cracking or movement. However, it was noted that the quality of concrete wall construction visible inside the wall recesses was poor. The walls appear to consist of mass concrete with very little cement, ungraded and poorly compacted large coarse aggregate and air pockets. The timber bands set into the walls for the mounting of shelving and brackets are showing some signs of decay. Iron brackets and other fixings are corroded. The surviving timber door and window frames are in fair condition, but their joints have opened up.

### **Ceiling/roof**

The ceilings are exhibiting minor cracks, rust stains, spalling and areas of salt decay. The bottoms of the iron rails supporting the concrete roof and ceiling above the fortifications are corroded. The metal ventilation pipes located in the ceiling are also corroded.

The condition of the asphalt layer originally used as waterproofing over the concrete roof structure is unknown. As there has been little excavation of the fill over the underground fortifications since the structure was built, the asphalt layer over the structure's roof is probably still substantially intact, although decayed as a consequence of constant exposure to ground water over many years.

There are no signs of collapse in the fill over the roof of the fortifications. However, the iron grates supporting the fill placed over the observation post and DRF shafts are severely corroded and failing.

### **Painted finishes and signage**

The paint is peeling in places and the painted signage is not easily legible. There is some graffiti on the walls.

### **Drainage and ventilation**

The wall and ceiling surfaces are generally damp, and water is sitting in some of the drains. The drainage sumps are full of debris, the grates over the sumps are severely corroded and there is mould on wall and ceiling surfaces.



It is understood that some of the drainage discharges out through the cliff face beyond the lighthouse. The rest appears to discharge to the sump in the footpath adjacent to the main entrance to the facility.

The original ventilation system has been compromised by the infilling of the vertical ventilation shafts above the underground complex.

Some ventilation is currently provided through louvres in the door to the gun pit, gaps around the windows and doors in the front façade and through a pipe in the wall above the entry doors.

The ventilation and drainage systems need further investigation to determine their functionality.

#### **Electrical wiring**

Electrical wiring is loose and disconnected, and lighting is non-functional.

### **Smiths Hill Fort**

#### **Guns and gun emplacements**

The guns and their carriages were conserved during the 1980s, but are now showing loss of paint and signs of corrosion. The iron rings and other metal artefacts fixed to the walls of the gun emplacements are generally in good condition, but also showing signs of corrosion.

The steel tracks beneath the guns are severely corroded. The stonework supporting the tracks is generally in fair condition albeit with some old non-structural damage to its outer edges and some decay of its top surface. The circular concrete plinths on which the guns are mounted are generally in good condition.

The timber floor under the Nordenfelt gun is showing advanced signs of decay.

#### **Gun battery walls**

The concrete sections of the battery walls are generally in good condition, although there is some cracking halfway up the walls adjacent to the northern circular gun emplacement.

There is cracking in the upper brick sections of the battery walls, especially between the two large gun emplacements and over the top of the bombproof shelter. Weeds are growing in the brick joints above the bombproof shelter. The top few courses of brickwork above the banquette are displaced, possibly due to water pressure behind the wall. There is also substantial cracking and partial displacement in the walls around the Nordenfelt gun, possibly from the roots of the Norfolk Island Pine that is growing above it.



There is evidence that the walls have been render patched/repared previously.

Several of the replica timber doors that enclose the shell and cartridge recesses in the battery wall have been broken by vandals.

### **Bombproof shelter**

The concrete floor, walls and roof of the bombproof shelter are in fair condition. There is considerable rust staining in the northeastern corner of the shelter and signs of water entry at the junction between the wall and roof. The floor drain appears to be blocked. The concrete steps down into the bombproof shelter are in fair condition.

The original steel columns (large section) that support the concrete roof of the bombproof shelter are corroded and the steel beam they are supporting is severely corroded. Supplementary steel posts have been added to support the beam and are in good condition, although the fixings are corroding. The steel stair balustrades are also corroded and one of the chains enclosing the shelter is broken.

### **Battery pavement**

The surface of the concrete pavement of the battery and the banquette is aged and uneven but is generally in fair condition. The asphalt surface on the floor of the battery and the pedestrian path down into the battery is in fair condition. Weeds are growing in the joints between the concrete slabs, asphalt and bricks of the dish drains. There is some decay of the asphalt surface around the brick drain at the top of the ramp down into the underground magazine.

The numerous brick dish drains are in fair condition, but some of the bricks are broken and the edges are raised, creating trip hazards. The drains and the grated drainage sumps are full of silt and debris, including gravel from the landscaping above the battery and fronds from the surrounding Norfolk Island Pine trees.

The tank below the paving could not be inspected. The steel lid is new and in good condition.

### **Steps and ramp down to the gun battery**

The northern concrete steps down into the gun battery are in fair condition, but their side walls are cracked and partially displaced. The concrete around the cracks has fractured and some has broken off.

The southern steps down into the gun battery and the adjacent wall are in poor condition and appear to have been displaced by the adjacent tree.

The timber balustrade to the ramp at the southern end of the battery is broken and has been removed. There is some decay of the concrete at the top of the ramp and cracking in the pavement around the Nordenfelt gun.

**Underground magazine**

The interior of the underground magazine complex is very damp and there is mould on the floors, walls and ceiling.

There is a considerable amount of timber and other material stored in the passages of the complex, which do not appear to belong to the complex.

**Floor**

The concrete floor of the underground magazine complex is in fair condition, but its surface is rough and uneven in parts.

The dish drains across the midpoint of the ramp down into the underground magazine and at the bottom of the ramp present a trip hazard.

**Walls**

The concrete and brick masonry walls of the underground magazine complex are in good condition, including the stone quoins at the corners of the structure. There does not appear to be any major cracking or displacement issues. However, the iron hands holding the double skins of brickwork together across the wall cavities are corroded and their structural integrity is unknown.

Iron fixtures on the walls, including brackets and the frames around the lamp niches, are in fair condition but corroded. The bronze remnants of the lamp housings located in the niches facing the cartridge store and ammunition store are corroded, but still intact. The loose iron brackets, chains and other artefacts stored within the underground complex are severely corroded. They require sorting, cleaning, and rust treatment before considering any potential reinstatement in their original locations.

The sloping sill to the window opening into the artillery room has been rendered in recent years and the render has failed.

**Ceiling/roof**

The flat concrete ceilings over the passages, lamp and artillery rooms and the brick vaulted ceilings over the central block of spaces (ammunition store, shifting lobby and cartridge store) appear to be in good condition, although the iron rails supporting the ceiling/roof structure are corroded. The concrete adjacent the rails, however, is only showing a small amount of spalling. The arch bars over openings are also corroded. The metal ventilation pipes set into the ceiling appear to be in fair condition—some appear to have been replaced in recent years.

The condition of the waterproofing over the top of the underground structure is unknown.

**Access shaft to depression range finder**



The steel ladder up to the DRF is severely corroded and partially collapsed within the shaft. The top of the shaft has been fitted with an electric fan set into a panel of unknown material (possibly fibrous cement sheet).

#### **Doors, windows and louvred vents**

The steel doors at the entrance to the magazine are corroded, but still functional. The louvred steel vent above the doors is severely corroded and missing one louver.

The surviving original internal timber window and door frames are in fair condition, although some of their joints have opened up and there is evidence of some decay where they are in contact with the floor. The timber is also very dry.

The loose sections of mortice and tenoned door framing stored in the cartridge store are also in fair condition and could potentially be reinstated.

The replica timber doors and shutter are in good condition, although their hinges are corroded.

The remnant iron ladder, shutters, doors and other panels stored within the underground magazine are severely corroded.

#### **Drainage and ventilation**

The magazine complex was recently flooded due to blockages in the drainage system. The drainage pits and pipes have recently been cleaned out. However, the sumps still hold a lot of silt. The small dish drains formed in the concrete floor are generally in good condition, but the grates over the drainage sumps in the lowest section of the magazine complex are severely corroded. The terracotta pipe in the drainage sump at the bottom of the ramp down into the magazine is broken.

Ventilation holes in the ceilings of the storage spaces appear to be connected through to the vent over the entrance doors. Additional ventilation is provided by the cavities in the brick walls, which are open to the underground passages.

#### **Electrical services**

The electrical conduits appear to be sound, although some of the fixings have corroded and are no longer intact. Batten light fittings appear to be sound, but power points are corroded and not safe.

#### **Paint finishes and painted signage**

The external paintwork has been impacted by the cracking in the masonry structure.

Internally, the use of acrylic paints has resulted in the paint peeling off the damp walls. There is some evidence that limewash may have been used on the ceilings, but that the walls appear to have possibly been unpainted brickwork originally.





The painted signage on the walls, both external and internal, has been repainted in recent years and is still highly legible.

#### **Depression range finder**

Both the concrete and the brick retaining walls of the DRF are in very poor condition. The walls are extensively cracked and displaced, possibly as a consequence of water pressure behind the walls and roots from the surrounding Norfolk Island Pine trees.

Some of the cracks are several centimetres wide and have concrete fracturing and spalling around them and grass and roots growing through them.

The sill and apron around the outer edge of the DRF are also cracked and broken. Some of the cracks align with the steel posts of the balustrade fixed to the top of the structure.

There is evidence of numerous repairs having been undertaken in the past, but the damage has continued. The top of the shaft containing the ladder up from the underground magazine has been rebuilt, as has the brickwork at the top of the entry stairs. In both cases the brickwork has again failed. Steel braces have been inserted between the walls of the passage leading from the underground magazine to prevent them from collapsing in, but the brickwork is continuing to fail around these braces.

The concrete steps and floor of the DRF are in fair condition. One step has been topped with a slate tread.

The stone mount for the DRF is in fair condition and needs repainting. The iron brackets on the walls are corroded, but also in fair condition.

The louvred panel to the ladder shaft is corroded and missing several of its louvres, possibly due to vandalism.

#### **Landscape features**

The steel pipe rail fences around the DRF are in poor condition. They have lost much of their paint finish and are corroding. Some sections have been modified and some damaged.

The pipe rail fences around the garden bed at the southern end of the battery and along the wall at the entrance to the underground magazine are in fair condition. They have lost some paint and are showing signs of corrosion.

The newer steel fences around the battery are generally in good condition. However, the concrete kerb surrounding the site is in poor condition, having broken in many places.



## 5.3 NSW heritage management framework

In NSW, heritage values, listed places and items of heritage significance, including historical archaeological 'relics', declared Aboriginal places and Aboriginal objects are afforded statutory protection under the following legislation:

- *National Parks and Wildlife Act 1974* (NSW) (NPW Act);
- *Heritage Act 1977* (NSW) (Heritage Act); and
- *Environmental Planning and Assessment Act 1979* (NSW) (EPA Act).

### 5.3.1 National Parks and Wildlife Act 1974

The NPW Act provides statutory protection for all Aboriginal objects (consisting of any material evidence of the Indigenous occupation of New South Wales) under Section 90 of the NPW Act, and for Aboriginal places (areas of cultural significance to the Aboriginal community) under Section 84 of the NPW Act.

Aboriginal objects and places are afforded automatic statutory protection in NSW whereby it is an offence (without the Minister's consent) to harm an Aboriginal object or declared Aboriginal place.

The NPW Act defines an Aboriginal object as:

any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction and includes Aboriginal remains.

The protection provided to Aboriginal objects and places applies irrespective of the level of their significance or issues of land tenure. Sites of traditional significance that do not necessarily contain material remains may be gazetted as 'Aboriginal places' and thereby be protected under the NPW Act. However, areas are only gazetted if the Minister responsible is satisfied that sufficient evidence exists to demonstrate that the location was and/or is of special significance to Aboriginal culture.

A strict liability offence applies for harm to or desecration of an Aboriginal object or declared Aboriginal place. The definition of 'harm' includes destroying, defacing, damaging or moving an Aboriginal object or declared Aboriginal place. The strict liability offence of harming Aboriginal objects has several defences. The two defences relevant to any proposed development are the statutory defence of due diligence, through complying with an adopted industry code, or compliance with the conditions of an AHIP. Under the NPW Act, any activities that may harm Aboriginal sites require approval under Section 90 of the NPW Act (ie an AHIP).

Some activities are also classified as 'low impact' acts under the NPW Regulations 2019, Section 58.



Known Aboriginal 'objects' as defined by the NPW Act are listed on the AHIMS, administered by Heritage NSW.

A search of the AHIMS database was conducted on 24 May 2024. No sites were identified as being present within the study areas.

### 5.3.2 Heritage Act 1977

The Heritage Act is a statutory tool designed to conserve NSW's environmental heritage including items of local heritage significance. It is used to regulate the impacts of development on the state's heritage assets. The Heritage Act describes a heritage item as a 'place, building, work, relic, movable object or precinct.'

#### State Heritage Register

The State Heritage Register (SHR) was established under Section 22 of the Heritage Act. It comprises a list of identified heritage items determined to be of significance to the people of NSW. The SHR includes items and places such as buildings, works, archaeological relics, movable objects and precincts.

Individually, Flagstaff Hill Fort and Smiths Hill Fort are not listed on the SHR; however, both are within the Wollongong Harbour Precinct, which is listed on the SHR.

#### Relics provisions

Archaeological relics are protected under the relics provisions (Section 139 to 146) of the Heritage Act. The Act defines 'relic' as any deposit, 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.

Sections 139–145 of the Heritage Act prevent the excavation of a relic, except in accordance with an excavation permit (or an exemption from the need for a permit) issued by the Heritage Council of New South Wales.

Section 139 [1] of the Heritage Act states:

A person must not disturb or excavate land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit.

Approval under these provisions is required to impact or harm archaeological relics.



### 5.3.3 Environmental Planning and Assessment Act 1979

The EPA Act is administered by the NSW Department of Planning, Housing and Infrastructure and provides for environmental planning instruments to be made to guide the process of development and land use. The EPA Act also provides for the protection of local heritage items and conservation areas through listing on Local Environmental Plans (LEPs) and State Environmental Planning Policies, which provide local councils with the framework required to make planning decisions. This includes ensuring that existing significant settings, plantings and garden elements are protected and integrated into development.

#### Wollongong Local Environmental Plan 2009

The Wollongong LEP 2009 provides a framework for local planning and development in the Wollongong local government area. It outlines the requirements of managing heritage items and gives City of Wollongong Council powers as the consent authority for developments. This includes the authority to require heritage assessments, CMPs and heritage impact assessments for proposed developments at or near heritage items.

Flagstaff Hill Fort and Smiths Hill Fort are listed as heritage items of state significance in the Wollongong LEP 2009.

The objectives of heritage conservation in Wollongong are stated in Clause 5.10 of the Wollongong LEP 2009:

- (a) to conserve the environmental heritage of Wollongong,
- (b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,
- (c) to conserve archaeological sites,
- (d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

Development consent is required for works that will have an impact on a heritage item. A development application (DA) providing sufficient information to identify the proposed works and an assessment of their impacts, if required, must be submitted to Council for approval. Clause 5.10(2) outlines work to a heritage item that require development consent:

- (a) demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance)—
  - (i) a heritage item,
  - (ii) an Aboriginal object,
  - (iii) a building, work, relic or tree within a heritage conservation area,



(b) altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,

(c) disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,

(d) disturbing or excavating an Aboriginal place of heritage significance,

(e) erecting a building on land—

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,

(f) subdividing land—

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.

Some minor developments are exempt from the requirement for development consent, as outlined in Clause 5.10(3) of the Wollongong LEP 2009. Development consent under this clause is not required if:

(a) the applicant has notified the consent authority of the proposed development and the consent authority has advised the applicant in writing before any work is carried out that it is satisfied that the proposed development—

(i) is of a minor nature or is for the maintenance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or archaeological site or a building, work, relic, tree or place within the heritage conservation area, and

(ii) would not adversely affect the heritage significance of the heritage item, Aboriginal object, Aboriginal place, archaeological site or heritage conservation area,

or

(b) the development is in a cemetery or burial ground and the proposed development—

(i) is the creation of a new grave or monument, or excavation or disturbance of land for the purpose of conserving or repairing monuments or grave markers, and

(ii) would not cause disturbance to human remains, relics, Aboriginal objects in the form of grave goods, or to an Aboriginal place of heritage significance, or

(c) the development is limited to the removal of a tree or other vegetation that the Council is satisfied is a risk to human life or property, or

(d) the development is exempt development.

Clause 5.10 (4) states:





The consent authority must, before granting consent under this clause in respect of a heritage item or heritage conservation area, consider the effect of the proposed development on the heritage significance of the item or area concerned. This subclause applies regardless of whether a heritage management document is prepared under subclause (5) or a heritage conservation management plan is submitted under subclause (6).

Clause 5.10(5) outlines the requirement for assessing the impact of development on heritage items.

They consent authority may, before granting consent to any development:

- (a) on land on which a heritage item is located, or
- (b) on land that is within a heritage conservation area, or
- (c) on land that is within the vicinity of land referred to in paragraph (a) or (b),

require a heritage management document to be prepared that assesses the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item or heritage conservation area concerned.

Clause 5.10 (7) addresses archaeological sites:

The consent authority must, before granting consent under this clause to the carrying out of development on an archaeological site (other than land listed on the State Heritage Register or to which an interim heritage order under the Heritage Act 1977 applies)—

- (a) notify the Heritage Council of its intention to grant consent, and
- (b) take into consideration any response received from the Heritage Council within 28 days after the notice is sent.

Clause 5.10(8) establishes guidelines for places of Aboriginal significance:

The consent authority must, before granting consent under this clause to the carrying out of development in an Aboriginal place of heritage significance—

- (a) consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment (which may involve consideration of a heritage impact statement), and
- (b) notify the local Aboriginal communities, in writing or in such other manner as may be appropriate, about the application and take into consideration any response received within 28 days after the notice is sent.

Clause 5.10(9) outlines requirements of notification to the Heritage Council before demolition of state heritage items:

The consent authority must, before granting consent under this clause for the demolition of a nominated State heritage item—

- (a) notify the Heritage Council about the application, and



(b) take into consideration any response received from the Heritage Council within 28 days after the notice is sent.

Clause 5.10(10) outlines conservation incentives:

The consent authority may grant consent to development for any purpose of a building that is a heritage item or of the land on which such a building is erected, or for any purpose on an Aboriginal place of heritage significance, even though development for that purpose would otherwise not be allowed by this Plan, if the consent authority is satisfied that—

- (a) the conservation of the heritage item or Aboriginal place of heritage significance is facilitated by the granting of consent, and
- (b) the proposed development is in accordance with a heritage management document that has been approved by the consent authority, and
- (c) the consent to the proposed development would require that all necessary conservation work identified in the heritage management document is carried out, and
- (d) the proposed development would not adversely affect the heritage significance of the heritage item, including its setting, or the heritage significance of the Aboriginal place of heritage significance, and
- (e) the proposed development would not have any significant adverse effect on the amenity of the surrounding area.

## 5.4 Commonwealth legislation

The following Commonwealth legislative requirements and codes are relevant to the forts:

- *Work Health and Safety Act 2011*;
- *Disability Discrimination Act 1992 (DDA)*; and
- *National Construction Code (NCC)*.

Compliance could result in heritage impacts that may require mitigation.

### Work Health and Safety Act 2011

This Act regulates workplace health and safety. It specifically aims to protect people at workplaces from risk to their health or safety and to promote safe and healthy work environments. The objectives of the Act are as follows:

- (1) The main object of this Act is to provide for a balanced and nationally consistent framework to secure the health and safety of workers and workplaces by—
  - (a) protecting workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work or from specified types of substances or plant, and



(b) providing for fair and effective workplace representation, consultation, co-operation and issue resolution in relation to work health and safety, and

(c) encouraging unions and employer organisations to take a constructive role in promoting improvements in work health and safety practices, and assisting persons conducting businesses or undertakings and workers to achieve a healthier and safer working environment, and

(d) promoting the provision of advice, information, education and training in relation to work health and safety, and

(e) securing compliance with this Act through effective and appropriate compliance and enforcement measures, and

(f) ensuring appropriate scrutiny and review of actions taken by persons exercising powers and performing functions under this Act, and

(g) providing a framework for continuous improvement and progressively higher standards of work health and safety, and

(h) maintaining and strengthening the national harmonisation of laws relating to work health and safety and to facilitate a consistent national approach to work health and safety in this jurisdiction.

(2) In furthering subsection (1) (a), regard must be had to the principle that workers and other persons should be given the highest level of protection against harm to their health, safety and welfare from hazards and risks arising from work or from specified types of substances or plant as is reasonably practicable.

## **Disability Discrimination Act 1992**

The DDA makes it unlawful to discriminate against a person in many areas of public life, including employment, education, getting or using services, renting or buying a house or unit, and accessing public places, because of their disability. The objectives of the DDA are as follows:

(a) to eliminate, as far as possible, discrimination against persons on the ground of disability in the areas of:

(i) work, accommodation, education, access to premises, clubs and sport; and

(ii) the provision of goods, facilities, services and land; and

(iii) existing laws; and

(iv) the administration of Commonwealth laws and programs; and

(b) to ensure, as far as practicable, that persons with disabilities have the same rights to equality before the law as the rest of the community; and

(c) to promote recognition and acceptance within the community of the principle that persons with disabilities have the same fundamental rights as the rest of the community.



## National Construction Code

All new works to the forts must comply with the Building Code of Australia (BCA) as part of the NCC. The BCA is a performance-based document, meaning strict compliance with the standards of the code may not be required if it can be demonstrated that an alternative solution will comply with performance requirements. This can allow flexibility to minimise the heritage impacts but needs to be carefully considered.

When upgrades are undertaken at the forts, owners/managers should seek the advice of a BCA expert with substantial experience in understanding how the BCA is applied in a heritage context.

The BCA does not apply retrospectively, meaning there is no requirement to undertake upgrades to Flagstaff Hill Fort or Smiths Hill Fort to meet the standards of the code. However, all future works will need to meet the requirements of the code.

## 5.5 Approvals

### 5.5.1 Conflict of interest

Environmental Planning and Assessment Amendment (Conflict of Interest) Regulation 2023 requires Council to manage conflicts of interest that may arise in connection with Council-related DAs because Council is often the consent authority. City of Wollongong Council's management strategy for Council-related DAs is as follows:

- Council-related applications and approvals to modify development consents will be referred to the Wollongong Local Planning Panel for determination, as required by Schedule 2 of the Local Planning Panels Direction; Council is not the consent authority.
- Council-related development over \$5 million will be referred to the Southern Regional Planning Panel for determination; Council is not the consent authority.
- Certification of Council-related development must be undertaken in accordance with the requirements of the conflict-of-interest provisions detailed in the *Building and Development Certifiers Act 2018* (NSW) and the Building and Development Certifiers Regulation 2020.
- Key project milestones following the development consent will be reported at a public Council meeting.

## 5.6 The Burra Charter best-practice standard

The Burra Charter is widely accepted nationally as the underlying methodology by which all works to sites and buildings of cultural significance are undertaken.



Procedures for managing changes and activities at the site should be in accordance with the recognised methodology of the Burra Charter. The principles and processes of the Burra Charter should be followed for all matters concerning the conservation of cultural significance and managing change.

## 5.7 Heritage Strategy 2023–2027

The *Heritage Strategy 2023–2027: Conserving and Enhancing our City's Rich Heritage*, prepared in September 2023 by City of Wollongong Council, expands on the heritage aspects of the *Our Wollongong Our Future 2032 Wollongong Community Strategic Plan*.

This strategy identifies four key objectives:

1. Provide for the long-term sustainable management of Wollongong's shared cultural heritage;
2. Ensure that the Community, including the Wollongong Heritage Reference Group are actively engaged in the development and delivery of Council's heritage policies and priorities;
3. Provide a formal mechanism for evaluating, and reporting on Council's performance in heritage management; and
4. Provide the supporting policy framework for delivery of the Wollongong's Heritage Implementation Plan 2023-2027.<sup>1</sup>

These objectives are supported by nine key heritage strategies:

1. Actively involve the community in the management of Wollongong's heritage;
2. Maintain an up-to-date list of heritage items;
3. Provide qualified and trained people to support the ongoing management of Wollongong's heritage and provide professional planning advice;
4. Develop and implement programs and projects that aim to achieve proactive heritage management;
5. Provide funding for heritage projects and programs;
6. Identify and manage key heritage precincts, streetscapes, cultural and natural landscapes;
7. Implement heritage education and promotion programs;
8. Implement best practice heritage asset management procedures as a positive example for the community; and
9. Promote sustainable development and Caring for Country as tools for heritage management.<sup>2</sup>





Management of the forts should be in accordance with the objective and strategies identified.

## 5.8 Opportunities and constraints for managing future changes

### 5.8.1 Uses

#### Ongoing use and conservation

- The forts are currently vacant and the above-ground elements are used as part of a public recreation area whereas the underground areas are sealed off. Their uses are a product of having been infilled and landscaped over to create parks. Following their excavation, the forts adopted these uses. New uses should consider the function of the parks and the surrounding public spaces.
- Previous uses of Smiths Hill Fort's underground areas included as a meeting space for Rotary Club members. This connection should be researched further to understand its operation, and advantages, disadvantages and opportunities for similar uses.
- Although the forts were previously used for defence and training purposes, this is no longer relevant and continuing these uses is not essential to their significance. There is opportunity for new uses that suit the needs of the community and future generations.
- Human and financial resources are limited, and works/labour/materials are costly; however, improved infrastructure could increase tourism and provide revenue for future works. There is also potential to use this opportunity to train local tradespeople in traditional heritage trades.

#### Compatible uses

- Compatible uses at Flagstaff Hill Fort and Smiths Hill Fort must not compromise the cultural significance of the sites or of the Wollongong Harbour Precinct.
- Community and public uses of the sites are generally compatible with their significance, provided they do not result in adverse heritage impacts to the sites. There is opportunity for commercial and educational uses such as guided tours or public art spaces, which would make use of the underground areas and increase the appreciation and awareness of the forts and their history as well as creating an ongoing source of revenue for Council.
- The physical condition and accessibility issues of both the forts poses a financial burden for Council regardless of any changes in use. The current structural and water ingress issues should be addressed, and a cyclical maintenance plan should be implemented to prevent further deterioration of built elements.



- Compatible uses will need to be assessed on a case-by-case basis, guided by the principles and policies of this CMP.
- Temporary use and associated works should be reversible without causing incremental/cumulative impact or damage to significant fabric or landscape.
- The introduction and integration of modern services and facilities for the continuing use or new uses should avoid or minimise damage to significant fabric, potential archaeology, landscape and spaces/zones.
- Although the preferred option is to find a use for all areas of the fort, the underground areas will likely remain vacant and sealed until conservation and remediation works have been carried out—see the schedules of conservation works for the two forts in Appendix 1 of this CMP. There are opportunities to carry out priority conservation works and follow a cyclical maintenance plan to improve its physical condition for ongoing cultural tourism and heritage interpretation. It is expected that Council will consult key stakeholders about the future compatible uses of the two forts in the context of the broader Wollongong Harbour Precinct.
- Private uses that would prevent public appreciation of the forts, the landscape and surrounding park are inappropriate.

## 5.8.2 Future development

- A key constraint on the future development of the sites is their significance, including views. New development should not obscure significant views to and from the forts. This would limit the height and location of any new development.
- There is little scope for development to occur at Smiths Hill Fort and in the underground areas of Flagstaff Hill Fort due to the heritage significance of their structures, layouts and remnant artillery. Any development would need to be carefully considered to minimise any adverse heritage impacts to key spaces and elements of exceptional and high significance.
- There is opportunity for the development of the area in front of the Flagstaff Hill Fort entrance and the carpark to reinstate the original boundary walls and create a visitor's centre, gallery or museum. Such future developments should be focused on improving the visitor experience and appreciation of the sites' history.
- This CMP has identified the potential for historical archaeological remains to be present at both Flagstaff Hill and Smiths Hill Forts. Any future works that have the potential to have moderate or greater impact on historical archaeology within the SHR curtilage of either site are subject to Section 60 (S60) approval under the Heritage Act.

The historical archaeological assessment within this report could be used as the basis for preparing a historical archaeological impact assessment and historical archaeological research design (ARD), which would be required to be submitted to Heritage NSW to support an S60 application.



- No registered Aboriginal sites were identified within the sites. An Aboriginal Due Diligence report should be prepared to assess any proposed works and their potential to impact (harm) Aboriginal heritage that may be present.

A DD is likely to recommend preparing an Aboriginal cultural heritage assessment report to support an application for an AHIP under Section 90 of the NPW Act if the DD determines that proposed works have the potential to harm Aboriginal heritage. Low impact activities (as identified under Section 58 of the NPW Regulations 2019) have a defence against harm and can proceed without an AHIP.

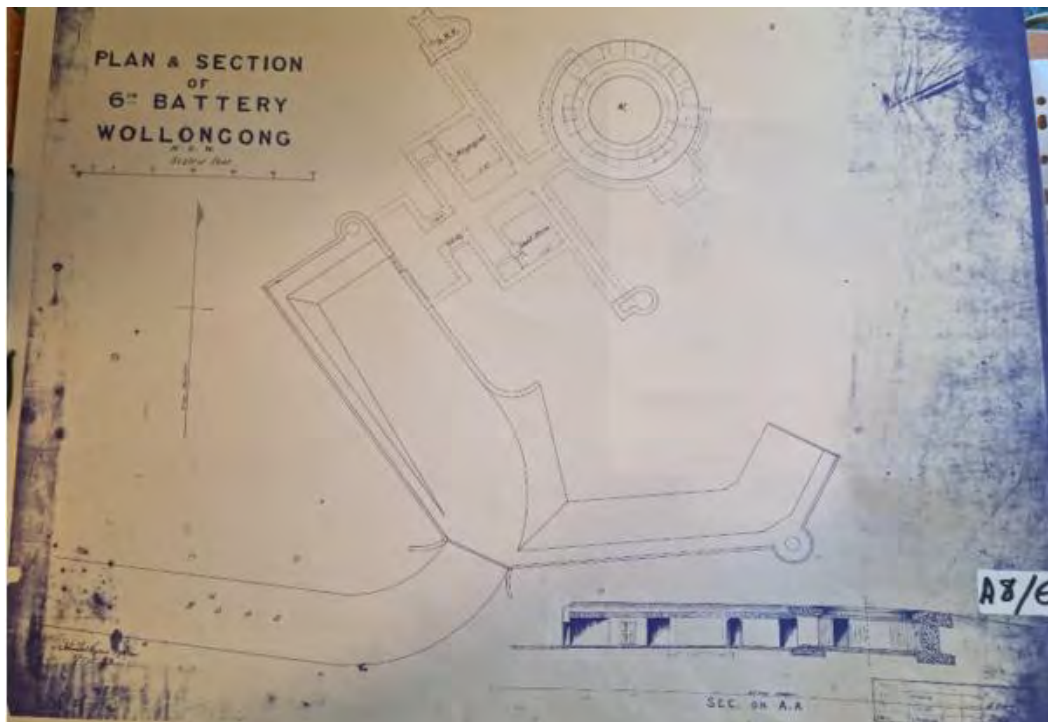


Figure 5.3 Engineering drawing showing the original extent of the Flagstaff Hill Fort. (Source: Royal Australian Artillery Historical Company archives)

### 5.8.3 Heritage curtilage

- The term 'heritage curtilage' means 'the area of land (including land covered by water) surrounding an item or area of heritage significance which is essential for retaining and interpreting its heritage significance'.<sup>3</sup>
- There are several types of heritage curtilages, including 'lot boundary', 'reduced', 'expanded' and 'composite'.



- Within a heritage curtilage (area of land) there may also exist areas and parts/elements/features of varying degrees of heritage significance including little significance, no significance, or parts/elements/features that are intrusive.
- Flagstaff Hill and Smiths Hill Forts are located within the Wollongong Harbour Precinct SHR-listed curtilage.
- Although Flagstaff Hill Fort (Lots 1 and 2, DP 222318) is listed on the Wollongong LEP 2009 (I5933) as a heritage item of state significance, it is not listed on the SHR.
- Although 'Battery Park' (Smiths Hill Fort) (Lots 69 and 70, DP 751299) is listed on the Wollongong LEP 2009 (I5934) as a heritage item of state significance, it is not listed on the SHR.
- It should be noted that this CMP assessed and provided significance gradings for the study areas identified and provided by Council. These study areas do not align with the Wollongong LEP-listed 'lot boundary' curtilages.
- Although these irregularities may not cause site management issues for Council, the irregularities may nevertheless cause confusion as to the actual heritage curtilage of each fort. The heritage curtilage of Flagstaff Hill Fort, for example, may need to include the related elements in the former 'barrack precinct'—indicated in Figure 5.1—in order to include 'the area of land ... surrounding an item or area of heritage significance which is essential for retaining and interpreting its heritage significance' as per the definition above.

## 5.8.4 Accessibility

- Equitable access across the two sites is very limited, particularly in the underground spaces. There is dedicated disability parking at the carpark in front of Flagstaff Hill Fort allowing visitors to view the fort entrance and take the concrete path north towards the guns; however, there is no formalised access to the guns or the gun pit.
- There is no equitable access into Smiths Hill Fort or dedicated disability parking. There is street parking on Cliff Road alongside the fort and a paved path where the fort can be viewed.
- Where modifications are proposed to achieve compliance, they will need to consider the heritage significance of the areas, fabric and landscape. Elements of exceptional and high significance at Flagstaff Hill and Smiths Hill Forts have little tolerance for permanent modifications though reversible and temporary changes may be acceptable. There is limited scope for accessibility upgrades in the underground spaces of both forts.
- Areas of moderate or little significance—such as the brick paved path in front of the Flagstaff Hill entrance and the concrete path connecting the different areas of Smiths Hill Fort to Cliff Road—provide more scope to meet DDA standards.



- There is opportunity to restore the original ground level in front of the main entrance to the underground areas of Flagstaff Hill Fort to create an accessible entry and reduce water ingress / rising damp.
- There is opportunity to integrate the early vehicle access road into Smiths Hill from Cliff Road to create an accessible entry.

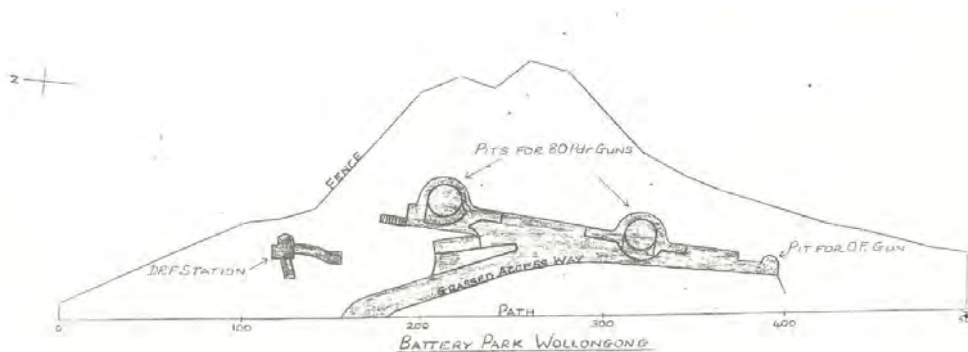


Figure 5.4 Smiths Hill Fort sketch plan showing the grassed access way. (Source: G.J. Scott, *Smith's Hill Fort Project* 1981 <<https://ehive.com/collections/201005/objects/1832766/the-smiths-hill-fort-project-1981>>)

### 5.8.5 Underground spaces

- There is little to no potential to reconfigure the underground spaces of Flagstaff Hill and Smiths Hill Forts.
- If the underground fortifications were to be open to the public, there is opportunity to restore the original arrangement and elements by interpreting or replacing missing blast doors, windows frames, lamp recess covers etc. Further research into the design and type of these missing elements would need to be undertaken.
- Further research into the provenance of discarded and deconstructed items left in both forts should be undertaken. There is opportunity to enhance our understanding of the fort design and operations. Preliminary investigations of the items during site inspection suggest most discarded items could originate from the forts.

### 5.8.6 Interpretation

- All interpretation, existing and future, should be part of an integrated strategy within the state-listed Wollongong Harbour Precinct to ensure information is not repeated or inaccurate. The existing Heritage Strategy 2023–2027, Blue Mile Vision and Master Plan, and the Blue Mile Heritage Interpretation Strategy should be reviewed to ensure interpretation of the broader Wollongong Harbour Precinct is not disjointed, contradictory or inconsistent.





- Existing signage, memorials, monuments, plaques and other interpretation should be reviewed and updated if required.
- There is opportunity for interpretation of inaccessible areas of Flagstaff Hill and Smiths Hill Forts. If the underground areas are to remain vacant and sealed from the public, they could be interpreted through signage, augmented reality, objects display or other appropriate media.
- The entry into the underground components of Flagstaff Hill Fort is located along the northern boundary of the northernmost carpark. Incidents have occurred in which vehicles parked in front of the entry doors have used a winch to pull the steel doors out/open. This area of the carpark was originally part of the entry forecourt of Flagstaff Hill Fort—see Figure 1.13 in Appendix 3 (Historical archaeological potential and significance assessment). The existing metal double doors and frames are not original and are of low significance. The doors are currently 'sealed' as a temporary measure to minimise or disincentivise vandalism of the fort. There are interpretation opportunities to rebuild the removed walls of the former entry forecourt, based on documentary and archaeological evidence, if available. This would require the removal of a number of carparking spaces and the redesign of the carparking area. The reinstatement of an entry forecourt would not only create an exclusion zone for vehicles in front of the fort entry but would also create a potential meeting point for guided heritage tours of the fort and of the precinct.
- There is opportunity to interpret the disappearing gun and gun pit at Flagstaff Hill. Interpretation can demonstrate the mechanics of the gun, loading, unloading, positioning and firing.
- Historical images and plans show above-ground structures for the DRF and observation post at Flagstaff Hill. These areas are currently infilled and there is little observable evidence of them above ground. There is an opportunity to interpret the footprint and structure of the underground fortifications above ground to create a visual connection between the gun pit and fort entrance.

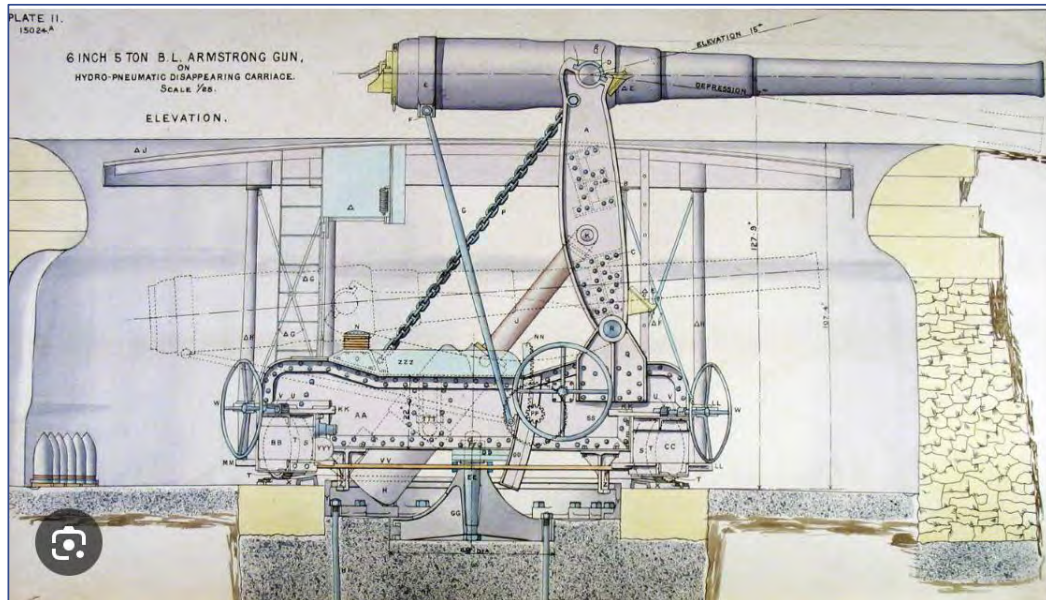


Figure 5.5 6-inch disappearing gun drawing. (Source: Nepean Historical Society)

### 5.8.7 Hazards and risks

- Due to lack of security, the sites are vulnerable to vandalism, trespassing and damage. The entry doors to Flagstaff Hill fort must be welded shut following site work, limiting access and resources. Security can be improved by installing additional lighting of the forts at night, creating a new gate or enclosed structure in front of the Flagstaff Hill Fort entrance, and upgrading fencing for the gun pit at Flagstaff Hill and DRF at Smiths Hill. The implementation of these security measures could have potential impacts on the heritage significance of the sites. New measures should be sympathetically designed.
- The underground areas of Flagstaff Hill and Smiths Hill Forts are less susceptible to extreme weather damage as they are protected underground. The main risk is water ingress, damage and mould due to the lack of drainage and ventilation.
- The infilled DRF and observation post access shafts are in poor condition and could potentially collapse. There is opportunity to excavate the infill and open the shafts for ventilation and interpretation. A vent or roof structure based off the original structure could be placed over the shafts above ground for security.
- The DRF station at Smiths Hill Fort is in poor condition and at risk of further damage and collapse.



### 5.8.8 Ownership and management

- Flagstaff Hill Fort and Smiths Hill Fort are either in Council's ownership, or on Crown land (state-owned) but in Council's care and control.
- Council manages both sites, within the broader Wollongong Harbour Precinct.
- The forts are situated within key foreshore locations within the city that attract high visitation from local residents and tourists; the forts are widely appreciated for their contribution to the broader historical context, being located within the Wollongong Harbour Precinct. Smiths Hill Fort is located immediately adjacent to the North Beach Precinct, which is also state listed.
- Council, Destination Wollongong, various interest groups, community organisations such as Rotary Club, local residents and other key stakeholders have all expressed a desire to make visitation possible and to provide in situ heritage interpretation. Any cultural tourism to the forts should be managed with Council's involvement.
- As a matter of priority, funding should be sought and granted to implement the schedules of conservation works for the forts.

## 5.9 Endnotes

- <sup>1</sup> City of Wollongong Council, *Heritage Strategy 2023–2027: Conserving and Enhancing our City's Rich Heritage*, September 2023, p 7.
- <sup>2</sup> City of Wollongong Council, *Heritage Strategy 2023–2027: Conserving and Enhancing our City's Rich Heritage*, September 2023, p 8.
- <sup>3</sup> Heritage Office & Department of Urban Affairs and Planning 1996, *Heritage Curtilages*, accessed 24 June 2025 <<https://www.environment.nsw.gov.au/publications/heritage-curtilages>>.

# Conservation policies



## 6 Conservation policies

This CMP has included discussion of relevant constraints, including matters that derive from Flagstaff Hill Fort and Smiths Hill Fort's heritage values, the condition of the fabric, the sites' use and context in relation to the reserve. The following conservation policy framework will facilitate positive heritage outcomes and provide guidance on managing potentially conflicting objectives. Where a matter falls outside the jurisdiction/scope of the conservation policies, the conservation principles can inform decision-making. The principles focus on the key concepts of significance, compatible use, evolution of the place and engagement. Where necessary, the policies are prefaced by a short discussion outlining the reasoning behind the policies.

- Conservation principles guide the creation of the policies and decisions in situations outside the scope of the policies.
- General conservation policies apply to all decision-makers and outline the best-practice management approach to conservation.
- Specific conservation policies apply to specific activities, landscapes, elements and materials, and provide specialised and practicable advice 'on the ground'.

The policies seek to:

- retain the cultural significance of the forts, including their significant character, elements and fabric, as well as their relationship to the wider setting;
- provide recommendations for the conservation (including adaptation) of areas, elements and fabric of the forts; and
- identify where and how adaptation and new works can be carried out to ensure compatibility with maintaining the significance of the forts and provide for the conservation and long-term security of their significant features.

### 6.1 Conservation principles

Significance and heritage values should be central to understanding and managing Flagstaff Hill Fort and Smiths Hill Fort. Best-practice heritage standards for the management, conservation and interpretation of heritage values are always to be applied to ensure the maintenance and conservation of the forts into the future.

The principles that follow inform the philosophical approach to the policies.

#### Key principles

Flagstaff Hill Fort and Smiths Hill Fort have cultural significance as notable defence structures with rare extant artillery in its original location. The setting and significant views are integral to understanding the history and design of the forts.





### Key principles

Flagstaff Hill Fort and Smiths Hill Fort have a role in demonstrating the development and importance of Wollongong Harbour.

Flagstaff Hill Fort and Smiths Hill Fort are intact examples of late nineteenth-century military design and strategy in NSW. Their distinct designs are technologically interesting for two forts built within a similar period.

The principles of the Burra Charter should apply to all decisions that have the potential to impact the heritage significance of Flagstaff Hill Fort and Smiths Hill Fort.

The history and significance of Flagstaff Hill Fort and Smiths Hill Fort should be made known and accessible to visitors through interpretation that increases visitor engagement and understanding of the forts and their elements.

Flagstaff Hill Fort and Smiths Hill Fort should be retained as accessible public assets, used and valued by the community and visitors for a wide range of reasons including their historical, aesthetic, technical and research values.

All decisions should be informed by research.

All actions at the sites should comply with applicable legislation and regulations.

## 6.2 General conservation policies

The following policies outline the main objectives for managing the forts and provide an overarching general approach for their conservation and management.

### 6.2.1 Primary conservation policy

The significance of the forts should guide the conservation of significant areas, elements and fabric as well as key visual and physical relationships. In this context 'conservation' includes all the activities ascribed to it in the Burra Charter, including maintenance, restoration, reconstruction and adaptation.

The following table sets out in general terms the appropriate treatment of elements and spaces related to their level of significance.

Table 6.1 Appropriate treatment of elements according to significance.

Level of significance	Appropriate treatment
Exceptional	Preservation, restoration, reconstruction. Adaptation and/or interpretation where significant layout, elements and/or fabric are altered or missing.
High	As for above, with greater allowance for adaptation where this is in accordance with overall significance, intactness/integrity and use.
Moderate	Retention and conservation where possible. Adaptation and/or alteration permissible with heritage advice.



Level of significance	Appropriate treatment
Neutral	Can be freely modified or removed.
Little	As for moderate, with fewer constraints on removal.
Intrusive	Remove/modify to reduce adverse impacts.

The treatment of all site attributes and components (including areas, elements and fabric) should be directly related to the nature and degree of their significance. The conservation of attributes and components of highest significance should be prioritised.

Major aspects of significance (including areas, elements and fabric) should be given priority and protection in the conservation, adaptation and development of the place.

## Policies

### Policy 1.1—Best conservation practice

The ongoing conservation and development of the forts should be carried out in accordance with the principles of the Burra Charter.

### Policy 1.2—Relationship to significance

The statement of significance and assessments of the significance of individual elements set out in this report should guide all planning for and carrying out of work on the sites.

### Policy 1.3—Conservation in accordance with significance

The components and attributes of Flagstaff Hill Fort and Smiths Hill Fort that contribute to their significance (particularly their historical and aesthetic/technical significance) should be appropriately conserved and interpreted as part of the use and management of the sites.

### Policy 1.4—Damage to significant components

Works that would adversely impact on significant areas, elements, fabric or other aspects of the forts' significance should only be permitted where:

- the work makes possible the recovery of aspects of greater significance;
- the work helps ensure the security and viability of the sites;
- there is no feasible alternative (eg to meet safety or legal requirements); and
- the area, element, fabric or other aspect of significance is adequately recorded and, where appropriate, interpreted.

### Policy 1.5—Statutory obligations

Future change and management of the forts should have regard to all statutory obligations arising from the forts' inclusion as a heritage item within Wollongong Harbour Precinct listed on the State Heritage Register and within the Wollongong LEP 2009.

### Policy 1.6—Further research

Carry out Aboriginal cultural values assessment and Traditional Owner engagement. The outcome would inform an overall understanding, conservation and interpretation of the Aboriginal values of the area and should be included in a future revision of this CMP.



## 6.2.2 Adoption and review of policies

### Policies

#### Policy 2.1—Adoption of this CMP

The conservation policies set out in this document should be adopted and endorsed as a guide to future conservation, management and development of the place.

#### Policy 2.2—Regular review of policies

The conservation policies should be reviewed by Council at least every five years to ensure they remain responsive and relevant to proposed changes in use, management and ownership.

The conservation policies should also be reviewed when major works are proposed to ensure they are adequately addressed.

#### Policy 2.3—Professional advice

Appropriate professional advice should be obtained to help review and/or amend specific policies when required.

#### Policy 2.4—Integrated approach

All policies should be considered as interrelated. They should be applied in an integrated rather than an isolated manner.

Specific policies may need to be amended in light of new circumstances. The first review should be carried out within five years, or when there is a proposed change of use, or when major works are proposed.

The CMP should be made available and distributed to all parties concerned with the ongoing management and care for the place, including to potential tenant, user or occupant, once a long-term use for the forts is established.

## 6.2.3 Managing change

A competent and coordinated decision-making process is required in order to develop and maintain the forts, and manage change within the sites.

Photographic recording would contribute to our understanding of the sites and record the sites' significant values at a moment in time before major change occurs. Before any major development occurs at the sites, an archival recording should be undertaken, in accordance with Heritage NSW guidelines.

### Policies

#### Policy 3.1—Flexible approach

The management of the forts should be sufficiently flexible to accommodate the operations of a suitable future use for the sites, while maintaining a high standard of conservation management.



## Policies

### Policy 3.2—Professional advice

The process for obtaining approval should conform to statutory requirements. Major proposals for change should involve careful design and thorough heritage impact assessment.

Where approvals may be needed for works affecting significant fabric or areas, early consultation should occur with approval authorities.

### Policy 3.3—Archival recording

Major proposals for change should be preceded by a photographic archival recording of Flagstaff Hill Fort and/or Smiths Hill Fort and their settings.

### Policy 3.4—Documenting change

A register should be kept and maintained to record all regular preventative maintenance works, as well as any structural or safety issues as they arise.

For any future works, ensure that Council collates, maintains and archives the drawings, schedules of work, photographs and all professional reports.

## 6.2.4 Conservation advice

The experience and skills required in the conservation of old buildings is different than the skills required in the design and construction of new buildings. The Burra Charter encourages the use of skills and appropriate professional advice from a range of relevant disciplines (Article 4.1).

The involvement of skilled and competent advice is essential to the successful long-term implementation of this CMP. Consultant advice and contractual work on significant elements and/or fabric must be carried out by firms or persons with proven expertise in conservation-related projects in the relevant field(s).

## Policies

### Policy 4.1—Expert conservation advice

Persons with relevant expertise and experience in conservation projects should be involved in the interpretation of this CMP and the resolution of conservation issues, including the design and supervision of work.

### Policy 4.2—Skilled tradespeople

Where maintenance or other works are carried out on site, use tradespeople with demonstrated experience working with comparable heritage sites and heritage fabric.



## 6.2.5 Future use and development of the place

### Policies

#### Policy 5.1—Consistent approach irrespective of use

The policies set out in this part of the document should be applied irrespective of the uses of the forts.

#### Policy 5.2—Ownership

The forts are either in Council's ownership, or on Crown land (state-owned) but in Council's care and control.

If the ownership and management of the sites come under a new arrangement, the policies of the CMP must be reviewed in accordance with Policy 2.2. New policies will need to be developed to ensure that the significance of the forts is retained and managed.

#### Policy 5.3—Evaluating potential uses

In evaluating potential uses for Flagstaff Hill Fort and Smiths Hill Fort, the approach should, where possible, ensure that the forts and their settings retain their significance and character. The cultural significance of the Wollongong Harbour Precinct (within which the forts are located) also should not be compromised.

#### Policy 5.4—Compatible uses

The primary function of Flagstaff Hill Fort and Smiths Hill Fort should continue to be public space serving the community and visitors.

Compatible uses that promote the forts' history, heritage interpretation and connection to the Wollongong Harbour Precinct such as guided tours and public art installations must be consistent with the policies in this CMP.

#### Policy 5.5—Incompatible uses

Uses requiring subdivision of the sites, partitioning of significant spaces or services that would have a strong adverse impact on the significance and character of the sites are unacceptable.

Private uses that would prevent public appreciation of the forts, their landscapes and settings, are incompatible.

#### Policy 5.6—Vacancy and non-use of underground areas

While waiting to decide on future uses and visitation access to the forts, the sites should be kept secure and protective measures strengthened to discourage and minimise vandalism. These protective measures must not have a physical or visual impact on significant fabric and values.

## 6.2.6 Interpretation

### Policies

#### Policy 6.1—General interpretation

Develop a heritage interpretation strategy for Flagstaff Hill Fort and Smiths Hill Fort in conjunction with the Wollongong Harbour Precinct to ensure a cohesive approach to storytelling and prioritised devices, aligned to stage funding eg signage, web, app. The strategy should also consider renewing current initiatives including the plan and photo panel at Smiths Hill Fort and the plaque at Flagstaff Hill Fort, which is part of the Wollongong Coastal Walk. Interpretation should also consider removed elements that have the potential to be present as archaeological remains.





## Policies

### Policy 6.2—Inclusivity

Utilise digital platforms such as web and phone apps to create access-friendly experiences for the elderly, people with physical disabilities or less mobile visitors.

### Policy 6.3—Visitor experience

Preparation of an overarching heritage interpretation strategy would improve the legibility of interpretation on site. Signage should be integrated with interpretation to enhance public appreciation and visitor experience. This could consider interpretation closer to each element of the forts, and key plans to show how these visually disconnected elements interact eg the entrance of Flagstaff Hill Fort and the gun pit, and the main area of the Smiths Hill Fort and the DRF.

### Policy 6.4—Interpretation of archaeological values

Interpretation of the significant archaeological resource within the Flagstaff Hill and Smiths Hill Forts should be incorporated into the design and implementation of physical signage and digital interpretation.

## 6.2.7 Maintenance

## Policies

### Policy 7.1—Maintenance

Cyclical maintenance of significant structures, fabric and spaces should be undertaken as part of day-to-day site management.

Implement the cyclical maintenance program in the schedules of conservation works (Section 5 in Appendix 1).

### Policy 7.2—Skilled professionals

Appropriately skilled heritage personnel should be involved in documentation, supervision and implementation of maintenance works on significant fabric.

### Policy 7.3—Maintenance plan

Undertake the priority conservation works identified in the schedules of conservation works (Appendix 1).

### Policy 7.4—Register of works

A register should be kept and maintained to record all regular preventative maintenance works, as well as any structural or safety issues as they arise.

### Policy 7.5—Materials

Modern materials should be avoided where they may be likely to impact upon or cause damage to significant original fabric.

If damage to significant fabric occurs during works, work in the area should cease and appropriate advice should be sought.



## 6.2.8 Aboriginal cultural heritage

Aboriginal archaeology and sites are protected under the NPW Act. A due diligence assessment should be undertaken in response to future ground-disturbing works to assess the potential for the site to contain Aboriginal objects.

This assessment (Section 4.1.6) has concluded that the study areas have low potential for Aboriginal sites or objects. This is based on a review of the environmental context, predictive modelling and past developments that have impacted the survival of intact deposits. An assessment of the study areas' social, aesthetic and historical Aboriginal cultural values was outside the scope of this assessment.

### Policies

#### Policy 8.1—Consultation with Aboriginal stakeholders

Aboriginal people are the primary determinants of their own heritage. The sites of the forts and/or broader Wollongong Harbour Precinct could hold social value and/or association with members of the local Aboriginal community.

In the first instance, a program of consultation should occur with relevant Aboriginal stakeholders about any proposed project or works that may impact on areas of Aboriginal archaeological potential or cultural significance. This consultation should follow the guidelines presented in *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (NSW Department of Environment, Climate Change and Water).

#### Policy 8.2—Statutory obligations relating to Aboriginal cultural heritage

If future works, including ground-disturbing activities, are proposed in areas of Aboriginal cultural heritage sensitivity an Aboriginal heritage assessment should be prepared. Works in this area may require an AHIP under Section 90 of the NPW Act.

- Outside the area of Aboriginal cultural heritage sensitivity, any future works can proceed subject to caution. An unexpected finds procedure should be developed for future works.
- All contractors and subcontractors should be made aware of their obligations in relation to the Aboriginal heritage and archaeological remains.
- Should any Aboriginal objects be identified during work, these works must cease and the advice of Heritage NSW and a qualified archaeologist specialising in Aboriginal archaeology must be sought. Should any identified objects be subject to harm, an AHIP would need to be sought.

#### Policy 8.3—Interpretation

Recognition of the Aboriginal history of the forts, and any associated cultural values, should be built into future interpretation and planning.

## 6.2.9 Historical archaeology

Significant historical archaeological remains (relics) have statutory protection under the Heritage Act (the Act). A targeted historical archaeological assessment should be undertaken prior to proposed works likely to impact significant relics. The assessment in this CMP (Appendix 3) has concluded that the study areas have high potential for significant archaeological remains that would be protected under the Act.



Ground-disturbing works that are not covered by standard exemptions and are undertaken on properties listed on the SHR are required to acquire an excavation permit under Section 60 of the Heritage Act before proceeding. Heritage approval may require the creation of an ARD to support an application.

#### Policies

##### Policy 9.1—Avoid and minimise ground disturbance

Future works involving any ground disturbance should avoid the location of known and potential historical archaeological features. Refer to Section 4 of this CMP for more detail and a plan showing the identified areas of historical archaeological potential.

##### Policy 9.2—Archaeological impact assessment

- Where impacts to historical archaeological remains cannot be avoided, an ARD should be prepared to provide a methodology and research aims for a program of archaeological investigation.
- Approval under Section 60 of the Heritage Act will be required for ground-disturbing works inside the SHR curtilage prior to the commencement of work.
- Minor maintenance, repair and excavation works within the SHR curtilage may qualify for a standard exemption, providing there is no disturbance to state significant historical archaeological remains.
- All contractors and subcontractors should be made aware of their obligations in relation to the potential historical archaeological remains.

##### Policy 9.3—Unexpected finds protocol

- If unexpected or state significant archaeological remains not identified by this assessment are discovered during excavation works, all works in this area should cease and Heritage NSW must be notified in accordance with Section 146 of the Heritage Act.

##### Policy 9.4—Interpretation

- Potential archaeological features should be included in interpretive elements as part of the overall narrative of the sites.
- The findings of any historical archaeological investigations should be incorporated into future interpretation of the forts and broader precinct.
- Reinstate the observation post and DFR station at the forts if the opportunity arises. Excavate infill in the access shafts and interpret the spaces through reconstruction of the above-ground structures using historical plans and images or using information panels or indicators of the footprint of the structures.

## 6.2.10 Sustainability

Sustainability and risk management involves balancing environmental, cultural, social and economic demands to deliver intergenerational equity—meeting the needs of current generations without compromising the needs of future generations.



## Policies

### Policy 10.1—Sustainable management

The heritage values of the Flagstaff Hill and Smiths Hill Forts should be sustainably managed and used to meet the needs of present and future generations.

Investigative works to improve drainage above and underground of the forts should take this into consideration.

### Policy 10.2—Climate and sustainability

Increased extreme weather poses an issue to the maintenance and conservation of heritage assets into the future.

Taking a reactive approach to climate change could result in additional costs in the long term, threatening the sustainability of these coastal heritage assets.

Risk management plan for the forts and the wider Wollongong Harbour Precinct should be prepared by suitably qualified and skilled specialists with experience in comparable heritage sites.

## 6.3 Specific conservation policies

### 6.3.1 Existing fabric and spaces

The existing fabric, elements and spaces of Flagstaff Hill Fort and Smiths Hill Fort, including the above-ground and underground built structures, movable objects, landscape and archaeological elements, have been graded to reflect their contribution to the overall significance of the place.

Future proposals for change, including conservation works and new structures, must be undertaken with consideration for the significance of each area as well as significant views. The existing fabric must be maintained in good condition to ensure its longevity.

## Policies

### Policy 11.1—Conservation of physical fabric

Maintain the forts in good condition according to a maintenance plan.

Elements and spaces of exceptional and high significance should be retained and conserved as far as practicable. Elements and spaces of low significance provide opportunities for change and development. Removal of significant fabric should only occur where it allows for the conservation of fabric of greater significance, or is essential for conservation of the sites.

Refer to the schedules of conservation works (Appendix 1).

### Policy 11.2—Scheduled monitoring

Flagstaff Hill Fort and Smiths Hill Fort should be continually monitored and professionally reviewed periodically to ensure that significant fabric, underground spaces and elements are being appropriately maintained.

It is recommended to increase monitoring following an extreme weather event.

Refer to the maintenance plan in the schedules of conservation works for the forts (Section 5 of Appendix 1).



## Policies

### Policy 11.3—Conserve original fabric

All original and early fabric and spaces in the forts should be retained unless stated otherwise in these policies.

Conservation works should be undertaken to ensure the longevity of early and original fabric followed by periodic maintenance.

Damaged elements should be repaired in the first instance, or replaced like-for-like if repair is not possible.

Retain key attributes of significance:

- Flagstaff Hill Fort including above-ground and underground spaces, their layout and fabric;
- the three 68-pounder guns at Flagstaff Hill;
- Smiths Hill Fort including above-ground and underground spaces, their layout and fabric;
- the original 80-pounder guns and 1 ½ inch Nordenfolt rapid-firing gun in their original gun pits at Smiths Hill Fort; and
- panoramic views and lines of sight to and from the forts and the harbour/sea.

### Policy 11.4—Elements of exceptional significance

Elements of exceptional significance are elements that directly contribute to the overall significance of the forts. These elements must not be obstructed by new buildings, services or landscape elements and must remain clearly visible.

Damaged elements of exceptional significance should be repaired with sympathetic materials.

### Policy 11.5—Elements of high significance

Elements of high significance have a high degree of original fabric and demonstrate key aspects of the heritage values of the forts. These elements must not be obstructed by new buildings or services or landscape elements and must remain clearly visible.

Damaged elements of exceptional significance should be repaired with sympathetic materials.

If part removal or part alteration of elements of high significance is crucial for a viable and compatible new use for the forts, this could be considered with appropriate input from heritage professionals.

### Policy 11.6—Elements of moderate significance

Elements of moderate significance have been altered or no longer demonstrate key aspects of the heritage values of the forts, yet still contribute to the overall significance of the place. Some change is acceptable as long as elements of high or exceptional significance are retained.

### Policy 11.7—Elements of little significance

Elements of little significance do not substantially contribute to the heritage values of the forts. They may be elements that have been irreversibly altered or may have been added during later phases of the fort's life. Changes to elements and spaces of little significance are acceptable.

### Policy 11.8—Elements of neutral significance

Elements of no significance do not contribute to the heritage values of the forts and do not detract from them. Changes to elements of no significance are freely acceptable.

### Policy 11.9—Removal of intrusive elements

Intrusive elements identified in this CMP should be removed when the opportunity arises. Essential services could be replaced with more sympathetic materials or technologies.





## Policies

### Policy 11.10—Reconstruction/reinstatement of missing elements

Architectural elements—for example, blast doors in underground areas and lamp recess windows—that are known to have existed should be reconstructed.

New heritage elements should not be introduced unless there is sufficient evidence that they existed previously.

### Policy 11.11—Integrity of the structure

Flagstaff Hill Fort and Smiths Hill Fort should be investigated by specialists experienced in working with heritage structures in order to establish the structural integrity of the roof and building. A pest inspection should be undertaken to ensure the structures are free of termites.

Any remedial action recommended by a structural engineer should be undertaken in consultation with a suitably qualified heritage professional.

### Policy 11.12—Hazardous materials

Asbestos-containing materials should be removed from the sites entirely and replaced with a non-asbestos containing material. If elements of high significance have been identified as containing asbestos, they should be carefully removed and recreated to match the existing.

### Policy 11.13—Heritage paint scheme

Repainting of elements of the forts should be in accordance with the schedules of conservation works (Appendix 1).

### Policy 11.14—Interior and underground spaces and elements

Conservation and maintenance of interior and underground spaces and elements of the forts should be in accordance with the schedules of conservation works (Appendix 1).

## 6.3.2 Adaptation

## Policies

### Policy 12.1—Conservation and adaptation works

Appropriately sensitive adaptation works can be undertaken where they enhance public appreciation of the sites and do not impact upon the significance of the forts, including;

- removal of intrusive elements and finishes;
- introduction of new services to rationalise existing ad hoc services, improve the amenity of the place, and comply with provisions in the BCA; and
- construction of new facilities that are related to the compatible use of the forts and do not impact on significant elements and spaces.

New spaces within the forts created by partitioning or demolition should not occur.



## Policies

### Policy 12.2—Maintain separation between old and new

Additions to the forts should be carefully considered.

There should be a clear distinction—in their materiality and physical separation—between the existing forts and any future structures adjacent to the forts or in their vicinity.

### Policy 12.3—Design details of new works

New structures or reconstructed elements should not have a physical or visual impact on the forts and their settings.

The provision of new elements within the existing fort structures should be limited to those that are appropriate, having regard to:

- the significance of the spaces and fabric;
- the spatial qualities of the rooms to be adapted; and
- the key relationships created by the location of windows, doors, floors, and other architectural elements.

Design details of new structures should be distinguishable from the details of original or earlier significant structures and fabric.

The design details, scale, form, massing, materials palette, colours and finishes of new structures should consider how the forts sit within their respective coastal landscapes and headlands.

### Policy 12.4—Use of appropriately qualified, skilled and experienced specialists

New structures should be designed by an architect with experience designing for comparable heritage sites and defence architecture, with input from suitably qualified, skilled and experienced heritage professionals and tradespeople.

### Policy 12.5—Reversibility of new work

Alterations and additions to existing structures should enable their future reversibility and removal with little or no damage to significant fabric, elements, spaces or features.

### Policy 12.6—Services upgrades

The removal or replacement of current services should be in accordance with the schedules of conservation works (Appendix 1).

New services should be concealed where possible and introduced through already disturbed fabric rather than undisturbed original fabric.

## 6.3.3 Curtilage and setting

## Policies

### Policy 13.1—Curtilage

Any future development should have a minimal visual impact on the significant views to and from the forts.



## Policies

### Policy 13.2—Landscape

New landscaping is acceptable in conjunction with a compatible future use where it is designed to be sympathetic to the significance of the place.

Undertake regular landscaping maintenance to ensure that no future plantings obscure significant views to, from or within the forts. Refer to the maintenance plan in the schedules of conservation works (Section 5 in Appendix 1) for the forts.

### Policy 13.3—Retain significant views

Retain and enhance important views and vistas, visual qualities and landscape character of the sites. Avoid tree planting and development that would conceal or obscure significant views.

Visual clutter in the form of signage, infrastructure, carparking, etc within the key view corridors to and from the forts should be minimised.

### Policy 13.4—Carparking

As opportunities arise, relocate carparking spaces away from being located directly in front of the Flagstaff Hill Fort entrance, to improve security measures and public visitation access to the fort.

Carparking on Cliff Road adjacent to Smiths Hill Fort can remain in place.

## 6.3.4 Signage and wayfinding

## Policies

### Policy 14.1—Signage

Signage should identify both forts and their above-ground and underground areas and significant removed elements. Signage for the forts should reference each other and interpret their interrelationship.

### Policy 14.2—Identification of movable heritage / remnant artillery

Maintain a register of the movable items (such as those currently stored in some of the underground rooms) to ensure the collection is integrated into future interpretation of the forts.

Remnant artillery should be identified with interpretive signage.

## 6.3.5 Accessibility

## Policies

### Policy 15.1—Public accessibility to the sites

The above-ground areas of the forts are generally accessible to the public. This accessibility should be maintained and enhanced.

Accessibility methods should be weighed up against heritage considerations. Accessibility solutions should be designed with consideration to minimising impact on significant fabric and qualities.

Ensure accessibility issues are assessed and solutions proposed in a planned rather than ad hoc manner.



## Policies

### **Policy 15.2—Underground areas of the forts**

As opportunities arise, improve equitable access to the underground areas of the forts, as far as it is possible.

### **Policy 15.3—DDA 1992 standards**

Areas of moderate or little significance, such as the brick paved path in front of the Flagstaff Hill Fort entrance and the concrete path connecting the different areas of Smiths Hill Fort to Cliff Road, provide more scope to meet DDA standards.

# Implementation plan





## 7 Implementation plan

This section sets out action plans for implementing the conservation policies discussed in Section 6 of this CMP. The following actions are based upon the principles of the Burra Charter. These actions are not prescriptive but should guide Council in prioritising, implementing and achieving the objectives of the conservation policies.

Table 7.1 Priority levels of actions necessary to conserve Flagstaff Hill and Smiths Hill Forts.

Priority	Timing	Action
High	<1 year	Actions needed to rectify problems that could cause immediate risk of damage, loss or detriment to significant fabric, areas or landscape.
Medium	1–5 years	Actions that should be planned and implemented within 1 to 5 years in order to reduce the risk of damage, loss or detriment to significant fabric, areas or landscape.
Low	5–10 years	Actions forming part of a longer-term management or maintenance strategy, to maintain and enhance significance.
Ongoing		Actions to be commenced within the year and implemented cyclically or continuously in line with work programs.

Table 7.2 Action plan for policy implementation.

Action	Priority	Relevant policy
<b>Primary conservation policy</b>		
Ensure the content of current and future management documents that apply to Flagstaff Hill Fort, Smiths Hill Fort and Wollongong Harbour Precinct are fully integrated and aligned with CMP principles and policies.	High	2.4
<b>Adoption and review of policies</b>		
Adopt this CMP as the basis for managing Flagstaff Hill Fort and Smiths Hill Fort.	High	2.1, 2.2
Apply the policies irrespective of the uses of the forts.		
Following the formal adoption of this CMP by Council, update the State Heritage Inventory listings for Flagstaff Hill Fort and Smiths Hill Fort to reflect the heritage values identified in this CMP to maintain consistency. Update and expand the descriptions in each inventory.	High	1.2, 2.1
Review this CMP and update it every five years or if any major changes occur on the sites.	Low and as required	2.2



Action	Priority	Relevant policy
Distribute this CMP to Council, Heritage NSW, Wollongong Local Studies library and key stakeholders.	High	3.4
<b>Future use of the forts</b>		
Review the potential future uses of the forts, including the possibility of cultural tourism to above-ground and underground spaces.	High	5.3, 5.4, 5.5
Develop a heritage induction toolbox and provide a briefing to Council staff and contractors carrying out conservation works, repairs and/or maintenance.	High—provide as required	4.1, 4.2
<b>Interpretation and visitor engagement</b>		
Review the Heritage Strategy 2023–2027, Blue Mile Vision and Master Plan, and the Blue Mile Heritage Interpretation Strategy.  If necessary, revise any existing heritage interpretation strategy or plan, to respond to the significance assessment and conservation policies in this CMP.	Medium	6.1, 6.2, 6.3, 6.4
Review and update interpretation strategies and directional signage within the Wollongong Harbour Precinct as conditions and public visitation needs evolve.	When cultural tourism to the forts has been decided by Council or made possible	6.1, 6.3, 13.1
Develop a consistent look and feel for signage and interpretive devices across the Wollongong Harbour Precinct. Consolidate wayfinding and interpretive signage to minimise interventions into significant fabric.	When cultural tourism to the forts has been decided by Council or made possible	6.1, 6.3, 14.1
Maintain a register of the movable items (such as those currently stored in some of the underground rooms) to ensure the collection is integrated into future interpretation of the forts.	Prior to carrying out of schedules of conservation works	14.2
<b>Maintenance</b>		
Provide a heritage induction to Council staff and contractors carrying out maintenance works.	High—provide as required	7.1, 7.2, 7.3, 7.4
Undertake the priority conservation works identified in the schedules of conservation works (Appendix 1).	High	7.3
Cyclical maintenance of significant buildings and structures should be undertaken as part of day-to-day site management.  Implement the cyclical maintenance program in the schedules of conservation works (Section 5 in Appendix 1).	High—ongoing	7.1



Action	Priority	Relevant policy
<b>Accessibility</b>		
Engage BCA consultants to identify accessibility issues and requirements. With the involvement of an appropriately skilled and experienced heritage specialist, investigate and develop methods that could improve accessibility to above-ground and underground spaces of the forts.	Medium	15.1, 15.2, 15.3
<b>Further research</b>		
Carry out Aboriginal cultural values assessment and Traditional Owner engagement. The outcome would inform an overall understanding and conservation of Aboriginal values of the area. Their stories would inform future interpretation strategies and should be included in a future revision of this CMP.	Medium	1.6

# Appendices



## 8 Appendices

### Appendix 1

Schedules of Conservation Works—Flagstaff Hill and Smiths Hill Forts



# Flagstaff Hill and Smiths Hill Forts, Wollongong

Schedules of Conservation Works

Final Draft Report (August 2025)

## Acknowledgement of Country

We respect and acknowledge the First Nations peoples of the lands and waterways on which we live and work, their rich cultural heritage and their deep connection to Country, and we acknowledge their Elders past and present. We are committed to truth-telling and to engaging with First Nations peoples to support the protection of their culture and heritage. We strongly advocate social, cultural and political justice and support the Uluru Statement from the Heart.

## Cultural warning

Aboriginal and Torres Strait Islander readers are advised that this report may contain images or names of First Nations people who have passed away.



## Report register

The following report register documents the development of this report, in accordance with GML's Quality Management System.

Job No.	Issue No.	Notes/Description	Issue Date
24-0147	1	Draft Schedules of Conservation Works (part of the CMP)	13 January 2025
24-0147	2	Revised Report following client comments	31 July 2025
24-0147	3	Final Draft report	8 August 2025

### Quality management

The report has been reviewed and approved for issue in accordance with the GML quality management policy and procedures.

It aligns with best-practice heritage conservation and management, *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance, 2013* and heritage and environmental legislation and guidelines relevant to the subject place.

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	Michael Dellapina (Arborist Public Tree Management), Arborist Assessment 3x Araucaria heterophylla (Norfolk Island Pines): Smiths Hill Fort, Battery Park, Wollongong, report prepared for Wollongong City Council, 27 February 2025	





# Introduction



# 1 Introduction

## 1.1 Introduction

The schedules of conservation works in this report have been prepared for the Flagstaff Hill and Smiths Hill Forts based on a visual inspection of the two fortifications, structural reports prepared for City of Wollongong Council by DTS (Flagstaff Hill—5 June 2024; Smiths Hill—27 August 2024) and a condition report for the metalwork prepared by OHM Consultants (July 2025). Copies of these reports are included in Appendices A–C.

## 1.2 Site identification

The fortifications at Flagstaff Hill comprise three cannons mounted on timber carriages, a gun pit for a disappearing gun and underground facilities including a magazine and shell store. These are located at Flagstaff Point, in the public reserve surrounding the Flagstaff Point Lighthouse.

The fortifications at Smiths Hill comprise a gun battery, including its three original guns, an underground magazine complex and a depression range finder. These are located in Battery Park, North Wollongong. Refer to Figure 1.1, Figure 1.3 and Figure 1.2.



Figure 1.1 Aerial view of the study areas, outlined in orange, showing their surrounding context.  
(Source: © Nearmap with GML overlay, 2024)





Figure 1.2 Approximate study area for the Flagstaff Hill Fort, outlined in orange (noting that the 1937 Wollongong Head Lighthouse is excluded from the study area for this CMP). (Source: © Nearmap with GML overlay, 2024)



Figure 1.3 Approximate study area for the Smiths Hill Fort, outlined in orange. (Source: © Nearmap with GML overlay, 2024)





## 1.3 Heritage significance

The Flagstaff Hill and Smiths Hill Forts are identified as heritage items in the *Wollongong Local Environmental Plan 2009*. The fortifications have been identified as being of state significance and, as a group, they have been identified as being rare in their capacity to demonstrate the development of military approaches to protecting the east coast of Australia between the 1870s and the early twentieth century.

## 1.4 Outline scope of works

The schedules of works have been divided into three separate scopes for each site. These are as follows:

1. Works to conserve the external and publicly accessible components of the sites.
2. Works to stabilise the interiors of the subterranean fortifications in their current state—potential access for visitors would be provided only with a guide.
3. Works to make the interiors safely accessible for regular visitation by the public (potential), including enabling provision of a small shop or information centre relating to the forts, subject to an approved and adopted interpretation strategy (refer to Section 6—Conservation policies).

The schedules of works include repairs to the historical fabric of the forts. They do not include provision of interpretation elements, noting that the existing interpretation plan is recommended to be revised following the adoption of this CMP.

## 1.5 Limitations

The schedules of works are based on a visual inspection of the historical fabric of the forts only. No opening-up works were undertaken to identify issues hidden within or behind the heritage fabric of the forts.

## 1.6 Authorship

These schedules of conservation works have been prepared by Catherine Forbes, Principal and architect, GML Heritage Pty Ltd.

## 1.7 Related documentation

These schedules of works should be read in conjunction with the documents identified in Table 1.1.



Table 1.1 Related documentation.

Location	Report
Appendix A	DTS, Flagstaff Hill: Structural Assessment Report, report prepared for Wollongong City Council, 5 June 2024.
Appendix B	DTS, Preliminary Structural Report: Smith's Hill Fortification, Cliff Road, Wollongong, report prepared for Wollongong City Council, 27 August 2024.
Appendix C	OHM Consultants, The Flagstaff Hill Fort & Smith's Hill Fort Metal Work, Wollongong: Condition Report & Specification, report prepared for GML Heritage Pty Ltd, July 2025.
Appendix D	Michael Dellapina (Arborist Public Tree Management), Arborist Assessment 3x <i>Araucaria heterophylla</i> (Norfolk Island Pines): Smiths Hill Fort, Battery Park, Wollongong, report prepared for Wollongong City Council, 27 February 2025.

# Heritage principles for conservation and repair works



## 2 Heritage principles for conservation and repair works

### 2.1 Intent of the works

It is a requirement that heritage places be conserved and that original fabric be retained and repaired in accordance with best conservation principles and processes, as outlined in the *Australia ICOMOS Charter for the Conservation of Places of Significance, 2013* (the Burra Charter). This includes retaining as much original fabric as possible.

### 2.2 Heritage advice

The contractor must retain as part of their team an architect/heritage consultant with expertise in conservation of heritage buildings/fabric.

The architect/heritage consultant must provide a heritage induction to the contractor and subcontractors on site prior to commencement of the project.

The architect/heritage consultant is to review the proposed repair methodologies, inspect the works and provide advice to the contractor as required to ensure that the materials and techniques used are appropriate to the heritage significance of the forts and the conservation of their heritage fabric.

### 2.3 Appropriate skills and expertise

Any work to heritage fabric must be carried out by tradespeople with appropriate skills and experience.

For this project, expertise and experience is required in the conservation of historical metalwork, including the conservation of guns and artillery, traditional brick masonry and traditional carpentry and joinery work.

### 2.4 Methodology for works to heritage fabric

All works to the heritage buildings should follow these general principles:

- Conserve and re-use all sound original/early building fabric wherever possible.
- Ensure that wherever early fabric is dismantled for repair, the work is done in such a way as to retain as much of the original fabric as possible.
- Ensure that whenever fabric is removed it is done carefully, so as to retain maximum original fabric.



- Ensure that significant early fabric is protected from ongoing deterioration by undertaking repairs using specified and/or otherwise approved methods and materials.
- Ensure that all new work to replace damaged and/or missing components and/or fabric matches the significant early materials and detail, as identified on site. A selected section/component of original work will be nominated as a suitable sample for matching by the heritage consultant in consultation with the contractor prior to commencement.

## 2.5 Protection of heritage fabric during the works

Implement appropriate measures to prevent adverse impacts on the features and fabric of the heritage buildings, particularly physical impacts during the works. Protection measures must ensure that:

- Any potential impacts are resolved in consultation with the architect/heritage consultant before work is commenced.
- All contractors and subcontractors working on the site are briefed about:
  - the heritage significance of the site and relevant statutory controls;
  - the significant features that need to be protected; and
  - measures being taken to limit adverse impacts (eg not using particular tools/equipment, taking care during demolition/penetration works to minimise damage to the existing building fabric and protect fragile elements, etc).
- Heritage fabric and components (such as floor finishes, joinery, walls, leading edges, salient angles, etc) are physically protected during the works (including demolition works) with protective coverings or hoardings to prevent impact damage.
- Heritage fabric and components are protected from vibrations during the works. Sledgehammers, kango hammers and other large or mechanised implements that vibrate the structure are not to be used unless specifically authorised by the architect.
- Where items such as windows, doors or roofing are removed during the progress of the works, adequate coverings are provided to prevent the entry of wind and water, and the coverings are fixed in a way that does not cause damage to the building fabric.
- Heritage fabric that is temporarily removed for repairs is stored in a way that protects it from the weather and damp—it is not placed directly on the ground and must be covered.
- Hot works (eg paint removal, epoxy repair, welding, etc) do not cause undue risk to the heritage structure.





## 2.6 General principles for works to existing fabric

The repair and maintenance of existing fabric and the fixing of new elements and services should comply with the following principles:

- All contractors, subcontractors and tradespeople must understand the important nature of the building's fabric.
- Fixing methods must be reversible, allowing later removal of the element, repair or refixing without risk of damage to the surrounding or significant material.
- In principle, all connecting material must be weaker than the material it is joining. For example, the mortar used between bricks or stones should be weaker than the bricks or stones. This will allow the stresses to be accommodated within the joint rather than transferring the stresses to the body of the material, causing it to fail.
- Fixing methods and materials used must be chemically and mechanically compatible with both the substrate and the element to be fixed. For example, metals must be galvanically compatible. There must be no risk of accelerated corrosion, staining, damage or other adverse effects.
- Traditional fixing methods and materials are to be used in preference to modern techniques unless these have been proven in similar situations and have been widely accepted as appropriate by conservation specialists.
- When choosing fixing locations, use existing/earlier fixing points wherever possible in preference to creating new ones.
- Do not fix in locations that will place significant fabric at risk of fracture, damage or failure.
- When fixing to significant fabric, choose a location that will be easy to repair and disguise, should the fixing be removed at a later date.
- Any fixing method must be tested first in a discreet, out-of-the-way location to ensure that it will be appropriate and can be relocated if required with minimal negative impact.
- Wherever possible, original/existing fabric (eg metalwork, timber members, stones, bricks) must be salvaged for re-use in preference to new materials. Fabric must be dismantled carefully so that maximum original fabric is retained.
- Where scheduled 'to match existing', new elements shall do so exactly in outward appearance, including moulding profiles, member sizes, construction, finish, colour, etc. It is not necessary to match elements that are not exposed to view unless otherwise scheduled. For example, timber species of structural elements may not need to be matched; however, strength and durability should be matched.
- Joinery must be constructed in the traditional manner with traditional fixings unless otherwise scheduled or specified.



## 2.7 Principles for introduction of new fabric

Some details may not be able to be fully resolved until opening-up works have occurred on site. In addition, some details need to be resolved when integrated with other building work/services.

The contractor must work collaboratively with the architect/heritage consultant before and during the course of the project on all issues, details and installation methods with potential heritage impacts to resolve these in the best way possible (preferably during opening-up works) to minimise damage/demolition/excavation works.

The connection/junction between new and old fabric must be carefully considered to minimise the impact of new work on the early fabric of the heritage structures. Impacts may relate to fixings, materials selection, weatherproofing details, structural details, modifications to accommodate rainwater goods, etc.

Generally, impacts on the heritage fabric must be reduced by:

- Ensuring that compatible materials are used (especially metals) to prevent corrosion or decay.
- Ensuring that junctions are detailed to provide adequate weatherproofing to prevent water entry.
- Ensuring that ventilation requirements are carefully considered so that the historical structures and their fabric are able to breathe adequately.
- Ensuring that new finishes do not seal the walls and ceilings, preventing them from being able to breathe. Finishes that seal the surfaces prevent the building fabric from drying out and can cause damage to the historical fabric.
- Ensuring that the installation of new services respects the heritage values of the heritage structures. Exposed services, such as electrical wiring, must not detract from the aesthetic quality of the building.

# Flagstaff Hill Fort—schedule of conservation works

## 3 Flagstaff Hill Fort—schedule of conservation works

### 3.1 Identification of elements

The structures and elements of the Flagstaff Hill Fort are identified in Figure 3.1 and Figure 3.2.



Figure 3.1 Flagstaff Hill Fort site showing boundaries and key above-ground elements. (Source: Nearmap, with GML overlay)

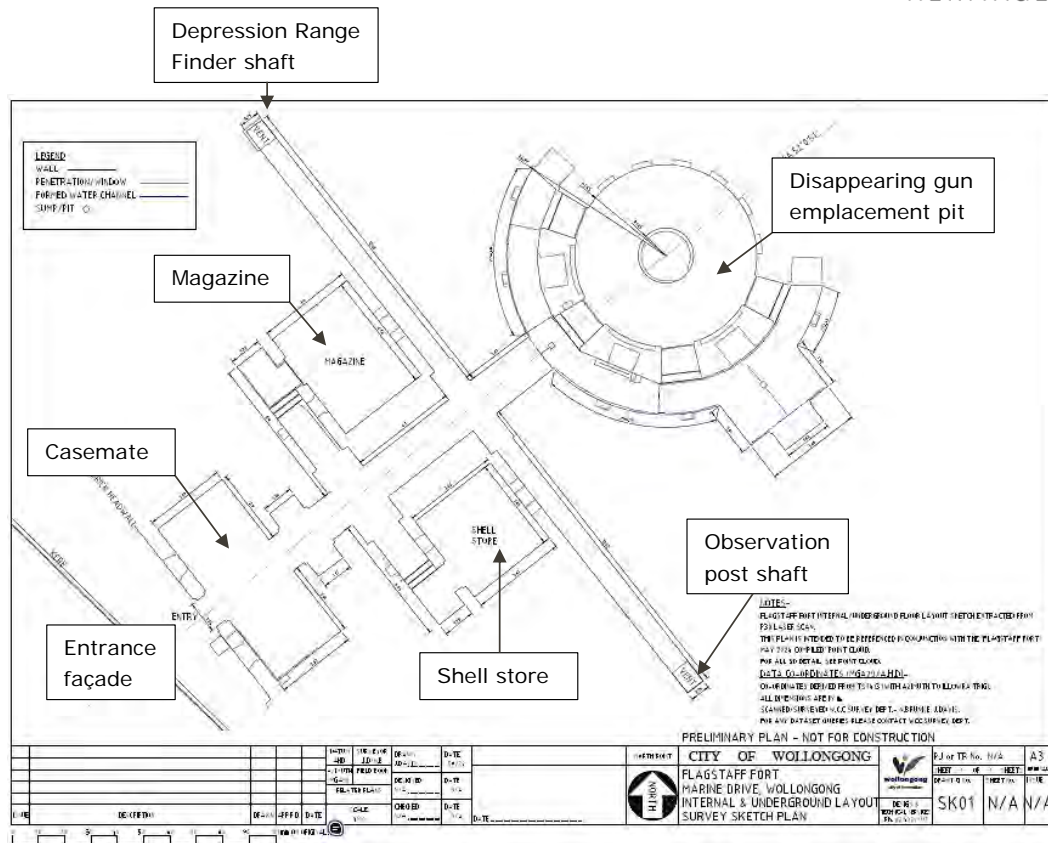


Figure 3.2 Flagstaff Hill Fort—plan of underground spaces. (Source: City of Wollongong with GML overlay, 2024)

## 3.2 Outline scope of works

This schedule of works includes repairs to the historical fabric of the Flagstaff Hill Fort. It does not include design and documentation of new elements.

The schedule has been divided into three separate scopes of work. These are as follows:

1. Works to conserve the external and publicly accessible components of the site. These works include repairs to:
  - a. 1861 cannons;
  - b. apron, walls and fencing to the gun emplacement pit; and
  - c. front entrance façade to the subterranean fortification.
2. Works to stabilise the interiors of the subterranean fortification in their current state, with potential access only being provided to visitors on a guided tour. These works include:
  - a. Stabilisation works to interior surfaces, fixtures and fittings;





- b. cleaning out of existing drainage system and repairs to drainage infrastructure;
  - c. cleaning out of ventilation system and repairs to ventilation infrastructure; and
  - d. make safe works to access shafts to former observation post and former depression range finder.
3. Works to make the interiors safely accessible for potential regular visitation by the public, including enabling provision of a small shop or information centre relating to the forts, subject to an approved and adopted interpretation strategy (refer to Section 6—Conservation policies):
  - a. modifications to forecourt of subterranean structure;
  - b. external drainage and waterproofing works;
  - c. remedial works to former observation post and former depression range finder access shafts to improve ventilation of underground spaces;
  - d. removal of trip hazards; and
  - e. provision of electric lighting and power.

### 3.3 Conservation work priorities

The works that are of the **highest priority** are those that address the following issues:

- security of the site—to prevent damage to the site and its structures through unauthorised entry and vandalism;
- stability of the structures—to prevent structural failures;
- weathertightness of the underground fortifications—to slow down the decay of the heritage fabric; and
- health and safety of visitors—to minimise risks to people.

**Investigative works** are also of **high priority** as they will inform decision-making relating to future conservation works (eg investigations into ventilation and drainage systems; assessments of the integrity and stability of former structures and remains to determine whether they should be conserved/reconstructed and, if so, how).

Other works of **high or medium priority** are essential to the care and maintenance of significant fabric, to minimise its loss. Many of these tasks will be ongoing.

**Low priority** works are those that are not critical to the ongoing care of the place, but would assist in interpreting the use and significance of the place to visitors.



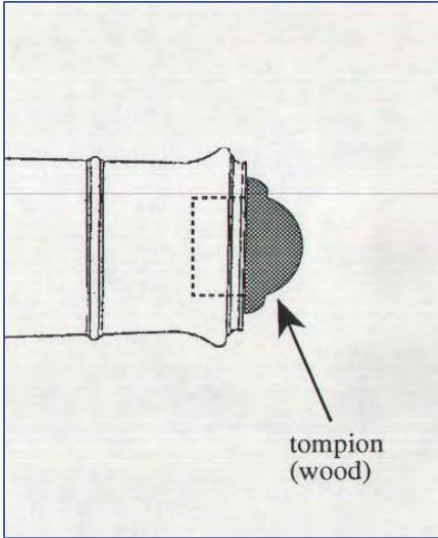
Schedule 1 (external works) and schedule 2 (internal works) generally contain high and medium priority works.

Schedule 3 (to enable visitation) generally contains lower priority works, although some works fit into the higher priority categories.






Priority	Timeframe
<b>High priority works</b> , including investigative works	Works should be undertaken within 1–3 years
<b>Medium priority works</b>	Works should be undertaken within 3–5 years
<b>Low priority works</b>	Works should be undertaken within 5–10 years

## 3.4 Schedule 1: External conservation works



Item, image and significance	Description of works	Priority
<b>1861 guns and carriages</b>		
<p><b>1861 68-pounder guns</b></p> <p>Guns are of exceptional significance.</p>  	<ul style="list-style-type: none"> <li>Carefully remove fixings and lift cannons out of gun carriages using a soft sling. Refer to methodology provided by OHM Consultants in Appendix C.</li> <li>Take cannons to workshop for cleaning, rust removal, rust treatment and repainting as specified, in black.</li> <li>Once works are complete and carriages have been repaired, return guns to carriages and refix.</li> <li>Provide a new tompson to detail for each gun to prevent water entry. Prepare and paint in black.</li> </ul>  <p>tompson (wood)</p>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p>
<p><b>Timber gun carriages—stage 1: temporary repairs</b></p> <p>Gun carriages are reconstructions and of low significance. However, they are important to supporting and interpreting the guns.</p>	<ul style="list-style-type: none"> <li>If cannons are not to be restored off site within 3 years, undertake temporary repairs as follows:             <ul style="list-style-type: none"> <li>Check over timber for signs of decay and rot.</li> <li>Remove soft, unsound timber.</li> <li>Fill larger cavities with epoxy resin.</li> <li>Fill surface fissures with wood filler.</li> </ul> </li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p>

Item, image and significance	Description of works	Priority
 	<ul style="list-style-type: none"> <li>– Prepare and paint as specified in Russet Red colour. Refer to methodology provided by OHM Consultants in Appendix C.</li> <li>– Provide additional coat to end grain.</li> </ul>	
<p><b>Timber gun carriages—stage 2: full repairs</b></p>  	<ul style="list-style-type: none"> <li>• When cannons are scheduled to be restored off site:             <ul style="list-style-type: none"> <li>– Carefully disassemble timber carriages to undertake repair/replacement works—remove bolt hole plugs and salvage bolts.</li> </ul> </li> <li>• Undertake the following repairs:             <ul style="list-style-type: none"> <li>– Check over all timber elements to assess their condition, paying particular attention to areas that are concealed when the carriages are assembled.</li> <li>– If timber element is more than 50% decayed, allow to replace timber element with a new section to match the original. Ensure timber is well seasoned and has a high durability rating.</li> <li>– If timber element is less than 50% decayed, allow to piece in a new section of timber to match the original. Ensure timber is well seasoned and has a high durability rating.</li> </ul> </li> <li>• Reassemble carriages using salvaged bolts.</li> <li>• Provide new plugs to bolt holes.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p>




Item, image and significance	Description of works	Priority
		
<p><b>Concrete gun plinths</b></p> <p>Gun plinths are of low significance.</p> 	<ul style="list-style-type: none"> <li>The existing concrete plinths are in good condition. No works proposed.</li> <li>However, the plinths are not correctly oriented. If it is proposed to relocate and/or reorient the cannons, allow to remove existing plinths and provide new plinths to match the existing in the new locations identified on plan.</li> </ul>	<p><b>Low</b> priority.</p>
<b>Circular gun emplacement pit</b>		
<p><b>Fence around circular gun emplacement pit</b></p> <p>The fence is of low significance.</p> 	<ul style="list-style-type: none"> <li>Check over fence surrounding gun pit for peeling paint finish, broken joints or members (none currently obvious).</li> <li>Prepare and paint areas where paint is missing. Colour to match existing.</li> </ul>	<p><b>Medium</b> priority for safety.</p> <p>Low priority for conservation.</p> <p>Check annually.</p>
<p><b>Concrete apron to circular gun emplacement pit</b></p> <p>The pit apron is of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Remove debris and plants from top of concrete apron to gun pit. Check over surface of concrete apron for cracks, spalling and erosion of the surface. Remove loose cement patching.</li> <li>Cut out cracks wider than 5mm to facilitate bonding and repair with compo mortar as specified. Colour and texture of patch is to match the surrounding concrete.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Monitor annually.</p>






Item, image and significance	Description of works	Priority
 	<ul style="list-style-type: none"> <li>Repair surface of apron with compo render only where the loss of surface material there is greater than 10mm in depth. Colour and texture of patch is to match the surrounding concrete.</li> </ul>	
<p><b>Walls around circular gun emplacement pit</b></p> <p>The walls are of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Check over walls of gun pit for peeling paint, cracks or spalling.</li> <li>Fill cracks wider than 5mm with compo mortar as specified.</li> <li>Prepare and paint walls as specified. Do not paint over historical painted signage.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p>
<p><b>Floor of gun emplacement pit</b></p> <p>Pit floor is of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Remove all rubbish, plants, gravel and other debris from floor of gun pit. Check over concrete pavement and stones set into pavement.</li> </ul>	<p><b>Medium</b> priority.</p>





Item, image and significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>Remove loose and decayed cement render.</li> <li>Patch repair inner edge of concrete apron to circular pit that once accommodated gun mount with compo mortar as specified.</li> <li>Fill cracks in concrete that are wider than 5mm with compo mortar as specified.</li> </ul>	Complete within 3–5 years. Remove weeds quarterly.
<p><b>Circular pit at centre of gun emplacement pit</b></p> <p>Pit for disappearing gun mechanism is of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Remove water from mechanical pit at centre of gun emplacement pit and check over surviving metalwork from former disappearing gun.</li> <li>Investigate and clean out drains from pit.</li> </ul>	<b>High</b> priority. Complete within 1–3 years.
<p><b>Metal fixtures and fittings in gun emplacement pit</b></p> <p>Gun fixtures and fittings are of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Check over all metal fixtures and fittings.</li> <li>Remove corrosion back to a clean, bright surface. Treat metal with rust inhibitor.</li> <li>Prepare and paint as specified.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years.
<p><b>Steel doors and panels to circular gun pit openings</b></p> <p>Doors are of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Retain and conserve existing doors and panels in situ.</li> <li>Clean back corrosion to a clean, bright surface.</li> <li>Treat with rust inhibitor.</li> <li>Put doors in full working order.</li> <li>Prepare and paint as specified.</li> </ul>	<b>High</b> priority. Complete within 1–3 years.



Item, image and significance	Description of works	Priority
		
<b>Brick façade to underground fortifications</b>		
<p><b>Brick paved footpath</b></p> <p>Brick paving is of low significance.</p>  	<ul style="list-style-type: none"> <li>Lift and salvage paving bricks between carpark kerb and brick façade to underground fortification complex.</li> <li>Lower the ground level between carpark and building so that the finished ground level when bricks are re-laid is the same as the original door threshold.</li> <li>Ramp pavement down from footpath level to door threshold level from both directions.</li> <li>If needed, construct new low retaining wall to support concrete kerb and carpark. Wall is to sit under the kerb and not encroach on the new footpath.</li> <li>Re-lay brick pavers to new ground levels.</li> <li>Lower the top of the grated drainage sump to be level with the finished paving level. Ensure all paving slopes away from the entry door to the fortification and towards the top edge of the drainage pit.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Lowering of ground level will improve access and drainage and provide some security from vehicle impacts.</p>




Item, image and significance	Description of works	Priority
		
<p><b>Brick façade</b></p> <p>Brick façade is of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Remove all vegetation and roots growing in brickwork.</li> <li>Allow to point up all open joints in the top course of brickwork.</li> <li>Allow to point up open joints in brickwork below left (northern) window.</li> <li>Clean out all weep holes above string course.</li> <li>Re-bed and point up loose bricks in top section of wall and in ragged ends of wall left by demolition of surrounding walls.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p>
<p><b>Entrance doors</b></p> <p>Steel doors and frames are not original and are of low significance. Opening is of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Remove loose bricks from threshold and make good.</li> <li>Remove steel doors and frame. Make good fixing point with compo mortar. Provide temporary support for lintel until new steel lintel and doors are installed.</li> <li>Provide new stainless steel support (eg arch bar) to lintel. Steel is to be unobtrusive.</li> <li>Provide new stainless steel posts to support arch bar and lintel; size of posts is to fit recess left by existing steel doors (to be removed). Width of posts is to align with inner edge of the lintel label moulds.</li> <li>Provide new steel frame and doors to detail. New doors are to be set back into rebate on inner face of wall.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p>



Item, image and significance	Description of works	Priority
		
<p><b>Windows</b></p> <p>Steel window shutters and frames are of not original and are of low significance.</p> <p>Openings are of exceptional significance.</p> <p>Timber window elements and remains of iron strap and gudgeon hinges are original and of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Remove steel shutters and frames from window openings. Make good fixing points in masonry using compo mortar.</li> <li>Conserve surviving timber window frame and retain in situ.</li> <li>Conserve remains of iron brackets/strap and gudgeon hinges from original shutters in situ. Clean back corroded material and treat with rust inhibitor. Prepare and paint metalwork.</li> <li>Provide new steel frame and shutters to detail.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p>
<p><b>Stone sills and lintels</b></p> <p>Stone sills and lintels are of exceptional significance.</p>	<p>Door:</p> <ul style="list-style-type: none"> <li>Remove loose bricks from door threshold.</li> <li>Check over stone lintel. Provide temporary support for lintel until new lintel and/or steel doors are installed.</li> <li>If lintel has lost more than 50% of its depth, replace lintel stone in sandstone, detail to match the original prior to decay—including pointed pediment detail to top of stone and label mould to bottom edge.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>Stone lintels and sills are in very poor condition and in danger of failing.</p>




Item, image and significance	Description of works	Priority
 <p>Door.</p>  <p>Northern window.</p>	<ul style="list-style-type: none"> <li>If lintel has lost less than 50% of its depth, undertake the following repairs:           <ul style="list-style-type: none"> <li>Cut out decayed underside of stone to even surface, leaving external face of existing stone intact to minimum 100mm depth.</li> <li>Piece in new sandstone lintel beneath existing stone and pin it to the existing stone with stainless steel pins as specified.</li> <li>Pin broken corner of lintel back to lintel with stainless steel pins as specified.</li> <li>Patch repair underside of lintel where steel frame fixings have been removed using compo mortar as specified.</li> </ul> </li> <li>Northern window:           <ul style="list-style-type: none"> <li>Check over stone lintel and sill.</li> <li>Conserve sill in situ.</li> </ul> </li> <li>Gently brush back decayed surface of stone to sound surface.</li> <li>Piece in section of stone to fill hollow beneath sill.</li> <li>Southern window:           <ul style="list-style-type: none"> <li>Replace stone lintel in sandstone; detail to match the original prior to its decay—including pointed pediment detail to top of stone (refer to lintel over door) and flat bottom to bottom of stone.</li> <li>Replace stone sill in sandstone; detail to match the original prior to its decay—including curved slope to top surface of sill (refer to above instructions for northern window) and inclusion of recessed drip to underside of sill.</li> </ul> </li> </ul>	




Item, image and significance	Description of works	Priority
 <p>Southern window.</p>		
<p><b>Steel ventilation pipes</b></p> <p>Ventilation pipes are of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Clean out vent pipes projecting from façade.</li> <li>Investigate where pipes are connected using smoke test and fibre optic video camera (industrial endoscope).</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>Tests will assist in decision-making for internal works.</p>
<p><b>Former observation post and depression range finder</b></p>		
<p><b>Former observation post and depression range finder</b> (see Figure 1.13 in Appendix 3)</p> 	<ul style="list-style-type: none"> <li>Undertake physical investigation into tops of shafts to locate and investigate the integrity of the sites of former observation post and depression range finder to:               <ul style="list-style-type: none"> <li>assess extent and condition of subsurface remains; and</li> <li>assess material, condition and stability of fill.</li> </ul> </li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>Tests will assist in decision-making for protection of archaeology during internal works and</p>



Item, image and significance	Description of works	Priority
		stabilisation of shafts.
<b>Drainage and ventilation</b>	<ul style="list-style-type: none"> <li>Use ground penetrating radar to investigate location and condition of drainage and ventilation pipes from fortifications.</li> </ul>	<b>High priority.</b> Complete within 1–3 years. To assist in identifying existing drainage and ventilation systems.

## 3.5 Schedule 2: Internal conservation works

Item, image and significance	Description of works	Priority
<b>Generally</b> 	<ul style="list-style-type: none"> <li>Remove all rubbish and debris from interior of the complex.</li> <li>Check over bricks stored in casemate. If they match those of the front elevation, retain and store them within the complex in a nominated location.</li> <li>Salvage old loose ironwork scattered throughout the complex. Label and store it in a relevant location (ie in the space to which it belongs).</li> <li>Undertake hazardous materials investigation.</li> <li>Investigate mould treatment options that will not impact original surfaces eg Ultraviolet-C (UV-C) light.</li> <li>Remove redundant electrical conduits and lighting.</li> </ul>	<b>High priority.</b> Complete within 1–3 years. Important to sort and identify fabric for undertaking conservation works.
<b>Concrete floor, ramps and steps</b> Concrete floor is original and of exceptional significance. Painted line is also of exceptional significance.	<ul style="list-style-type: none"> <li>Remove all loose friable material from surface of concrete floor.</li> <li>Retain and conserve all ramps and steps.</li> <li>Conserve painted black line around edge of floor.</li> <li>If there is a concern regarding trip hazards, insert a thin, loose fit piece of sheet material (eg ply or fibrous cement sheet) into hollow in floor to</li> </ul>	<b>Medium priority.</b> Complete within 3–5 years. Ongoing. To conserve original fabric and






Item, image and significance	Description of works	Priority
	<p>bring it up to level with finished floor surface.</p> 	<p>reduce trip hazards.</p>
<p><b>Gravel floor</b></p> <p>Gravel is part of original floor to shell store and of exceptional significance.</p>  <p>Shell store.</p>	<ul style="list-style-type: none"> <li>Retain and conserve compacted gravel floor in shell store, including evidence of timber joists that once contained the gravel.</li> <li>Retain and conserve evidence of former floor surface (now removed) in magazine—rough concrete edge at base of walls.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Ongoing.</p> <p>To conserve original fabric.</p>







Item, image and significance	Description of works	Priority
	 Magazine (cartridge store).	
<b>Drains and grated sumps</b> Drains and sumps are original and of exceptional significance. 	<ul style="list-style-type: none"> <li>• Clear all floor drains of debris.</li> <li>• Clean out all drainage pits and sumps.</li> <li>• Where grates are missing, provide new steel grates to pits/sumps, sized to fit the tops of the existing pit openings. Grates are to be removable to enable cleaning.</li> </ul>	<b>High</b> priority. Complete within 1–3 years. Drainage is essential to conservation of structure. Grates are needed for safety. Cleaning will be ongoing.
<b>Drainage pipes</b> Drainage pipes are original and of high significance. They are important to weatherproofing the structure and maintaining it in good condition.	<ul style="list-style-type: none"> <li>• Investigate drainage system from underground complex (using industrial endoscope). Map drainage pipes and outlets.</li> <li>• Clear all pipes of roots and debris and ensure drains are functional.</li> </ul>	<b>High</b> priority. Complete within 1–3 years. Drainage is essential to conservation of structure. Cleaning will be ongoing.







Item, image and significance	Description of works	Priority
<p><b>Brick walls</b></p> <p>Brick walls are of exceptional significance, as is the original painted signage.</p>   <p>Graffiti.</p>  <p>Mould.</p>	<ul style="list-style-type: none"> <li>• Brush walls with soft bristle brush to remove loose material—flaking paint, decaying surface of bricks and mortar. Collect debris and remove from site.</li> <li>• Be careful to conserve remnant painted signage and painted skirting detail.</li> <li>• Remove peeling or separated acrylic paint layers.</li> <li>• Retain and conserve limewash finish.</li> <li>• Remove modern graffiti from brickwork using approved materials and methodology. Ensure that method is selective to individual paint layers and does not remove earlier wall finishes, surface of bricks or mortar from between bricks.</li> <li>• Remove mould using approved materials and methodology. Avoid using bleach. If vinegar is used, gently spray onto surface and dab off. Avoid rubbing surface as this will remove limewash. Avoid contact with metals.</li> </ul>   <p>Example of remnant signage.</p>	<p><b>Medium</b> priority.</p> <p>Mould removal will be ongoing.</p> <p>For conservation of original fabric, but also for health and safety of visitors and staff.</p>






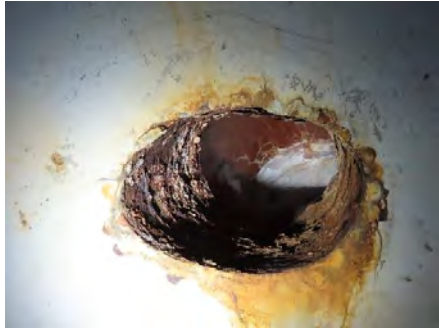


Item, image and significance	Description of works	Priority
<p><b>Concrete walls</b></p> <p>Concrete walls are of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>• Conserve evidence of formwork used to build walls.</li> <li>• Brush walls with soft bristle brush to remove loose material—flaking paint, decaying surface of bricks and mortar. Collect debris and remove from site.</li> <li>• Be careful to conserve remnant painted signage and painted skirting details.</li> <li>• Remove peeling acrylic paint layers.</li> <li>• Retain and conserve limewash finish.</li> <li>• Remove modern graffiti from concrete walls using approved materials and methodology. Ensure that method is selective to individual paint layers and does not remove earlier wall finishes or impact surface of concrete.</li> <li>• Remove mould using approved materials and methodology. Avoid using bleach. If vinegar is used, gently spray onto surface and dab off. Avoid rubbing surface as this will remove limewash. Avoid contact with metals.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Mould removal will be ongoing.</p> <p>For conservation of original fabric, but also for health and safety of visitors and staff.</p>
<p><b>Lamp niches</b></p> <p>Lamp niches are of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>• Conserve all lamp niches in situ, including ventilation pipes and openings in wall (above and to each side of each niche).</li> <li>• Conserve metal surrounds to wall vents.</li> <li>• Conserve lamp housing in the shelf of each niche.</li> <li>• Conserve all evidence of the framing for fireproof glass enclosures to the lamps. This includes scarring and remains of metalwork left in wall surrounding the recesses.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Ongoing.</p> <p>To conserve original fabric.</p>







Item, image and significance	Description of works	Priority
		
<p><b>Wall recesses</b></p> <p>Wall recesses are of exceptional significance.</p>  	<ul style="list-style-type: none"> <li>Retain and conserve all wall recesses in their existing state.</li> <li>Conserve all evidence of how recesses were constructed.</li> <li>Conserve remnant framing and timber elements that originally formed linings to recesses in situ.</li> <li>Remove rubbish and decayed material from openings.</li> <li>Conserve metal fixtures and fittings in situ.</li> </ul> 	<p><b>High</b> priority.</p> <p>Ongoing.</p> <p>To prevent further loss of significant fabric.</p>






Item, image and significance	Description of works	Priority
<b>Ceilings</b> Ceilings are original and of exceptional significance. 	<ul style="list-style-type: none"> <li>• Brush ceilings with soft bristle brush to remove loose material—flaking paint, decaying surface of bricks and mortar. Collect debris and remove from site.</li> <li>• Remove peeling acrylic paint layers.</li> <li>• Retain and conserve limewash finish.</li> <li>• Remove modern graffiti from ceiling using approved materials and methodology. Ensure that method is selective to individual paint layers and does not remove earlier ceiling finishes, surface of bricks or mortar from between bricks.</li> <li>• Remove mould using approved materials and methodology. Avoid using bleach. If vinegar is used, gently spray onto surface and dab off. Avoid rubbing surface as this will remove limewash. Avoid contact with metals.</li> </ul>	<b>Medium</b> priority. Mould removal will be ongoing. For conservation of original fabric, but also for health and safety of visitors and staff.
<b>Iron rails/beams in ceilings</b> Iron rails/beams are original fabric and of exceptional significance. 	<ul style="list-style-type: none"> <li>• Carefully remove any loose and spalling concrete from around iron rails.</li> <li>• Remove any loose rusted material from surface of rails.</li> <li>• Investigate structural integrity of iron rails and concrete around them.</li> <li>• Clean and treat with rust inhibitor.</li> </ul>	<b>High</b> priority. Complete within 1–3 years. Important to maintaining structural stability.
<b>Metal ceiling vents</b> Ceiling vents are original fabric and of exceptional significance.	<ul style="list-style-type: none"> <li>• Retain existing ceiling vents in situ.</li> </ul>	<b>High</b> priority.

Item, image and significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>Investigate and map reticulation of ventilation system using industrial endoscope.</li> <li>Investigate materials used for construction of ventilation pipework.</li> <li>Treat metalwork with rust inhibitor.</li> </ul> 	<p>Complete within 1–3 years.</p> <p>Important to maintaining air quality as well as conservation of significant fabric.</p>
<p><b>Terracotta ceiling vent</b></p> <p>Terracotta vent is introduced fabric and of moderate significance.</p> 	<ul style="list-style-type: none"> <li>Conserve terracotta vent pipes in situ.</li> <li>Investigate vent's connection with the original ventilation system—assumed to have been installed when roof vents blocked up.</li> </ul> 	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>Important to maintaining air quality.</p>
<p><b>Door and window openings and timber frames</b></p> <p>Door and window openings and timber frames are original and of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Retain and conserve brick arched heads and rendered sills to openings.</li> <li>Retain and conserve all timber window and door frames in situ.</li> <li>Retain all surviving window and door hardware in situ.</li> <li>Clean and treat all surviving metalwork with rust inhibitor.</li> <li>Where frames are missing, retain all evidence of where timber frames were originally fitted.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 1–3 years.</p> <p>To conserve original fabric.</p> <p>Ongoing.</p>





Item, image and significance	Description of works	Priority
 <p>Internal window to shell store.</p>		
 <p>Timber lintel to laboratory.</p>	 <p>Northern window of front façade showing timber frame for casement sashes and strap and gudgeon shutter hinges.</p>	






Item, image and significance	Description of works	Priority
 <p>Evidence of door frame around store.</p>		
<p><b>Internal steel doors and frames</b></p> <p>Remains of steel doors and frames are of exceptional significance</p> <p>Note: Bombproof covering materials are missing</p> 	<ul style="list-style-type: none"> <li>Retain and conserve metal doors, frames, lintels, stops and hinges in situ.</li> </ul> 	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Ongoing.</p>




Item, image and significance	Description of works	Priority
		
<p><b>Iron/steel fixtures and fixings</b></p> <p>All early fixings are of exceptional significance.</p>  	<ul style="list-style-type: none"> <li>Retain and conserve original fixtures and fittings in situ.</li> <li>Retain and conserve strap hinges on corners of passages in situ.</li> <li>Clean and treat all ironwork with rust inhibitor.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Ongoing.</p> <p>To conserve original fabric.</p>
<p><b>Shaft to former observation post</b></p> <p>Shaft is of exceptional significance.</p> <p>Structure supporting shaft is of low significance.</p>	<ul style="list-style-type: none"> <li>Investigate integrity and stability of structure holding fill in shaft leading up to former observation post.</li> <li>Record existing iron structure in photographs and drawings.</li> <li>If shaft is to be reopened in the future, construct timber frame beneath shaft to support structure and fill above.</li> <li>Install temporary safety barricade across passage to prevent entry to area below shaft.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>For safety.</p>



Item, image and significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>• Monitor condition of shaft closely.</li> <li>• If shaft is not to be reopened, construct new structural support to replace existing steel grate. The support structure should not obscure evidence of the shaft from view.</li> </ul> 	
<p><b>Shaft to former depression range finder</b></p> <p>Shaft is of exceptional significance.</p> <p>Structure supporting shaft is of low significance.</p> 	<ul style="list-style-type: none"> <li>• Investigate integrity and stability of structure holding fill in shaft leading up to former depression range finder.</li> <li>• Record existing iron structure in photographs and drawings.</li> <li>• If shaft is to be reopened in the future, construct timber frame beneath shaft to support structure and fill above.</li> <li>• Install temporary safety barricade across passage to prevent entry to area below shaft.</li> <li>• Monitor condition of shaft closely.</li> <li>• If shaft is not to be reopened, construct new structural support to replace existing steel grate. The support structure should not obscure evidence of the shaft and ladder from view.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>For safety.</p>



Item, image and significance	Description of works	Priority
		

### 3.6 Schedule 3: Internal refurbishment works to enable regular visitation

This schedule of works assumes that works outlined in schedules 1 and 2 have been completed and that works outlined in schedule 3 are being undertaken within 3–5 years of the schedules 1 and 2 works.


This schedule also assumes that ventilation and drainage are key to making the place healthier and safer for regular compatible use, occupation or public visitation.

Item, significance	Description of works	Priority
<b>Waterproofing, drainage works</b>		
<b>Fill over underground fortifications</b> Covering to fortifications is of high significance	<ul style="list-style-type: none"> <li>Under an archaeological watching brief, remove the fill from over the top of the underground fortifications. Retain fill on site for reinstatement on completion of drainage and waterproofing works.</li> <li>Inspect existing waterproofing to structure to assess its condition. Retain and conserve existing waterproofing in situ (anticipated to be asphalt).</li> <li>Provide a new waterproofing system over the top of the roof of the structure and around all the walls.</li> <li>Following installation of new drainage and reconstruction of shafts, reinstate fill and grass over hill.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. For waterproofing of underground structure. Undertake in conjunction with drainage works and investigations of ventilation system and shafts to observation post and depression range finder.
<b>Drainage works</b>	<ul style="list-style-type: none"> <li>Investigate existing drainage to hill over fortifications.</li> </ul>	<b>Medium</b> priority.





Item, significance	Description of works	Priority
Original drainage system is of high significance.	<ul style="list-style-type: none"> <li>Provide new supplementary drainage as required to remove water from area of underground fortifications.</li> <li>Provide new agricultural drains around the base of the exposed walls. Connect new drains to existing drainage system.</li> </ul>	<p>Complete within 3–5 years.</p> <p>For removing water from underground structure.</p> <p>Undertake in conjunction with drainage works and investigations of ventilation system and shafts to observation post and depression range finder.</p>
<b>Ventilation through observation post and depression range finder shafts</b>		
<p><b>Shafts to former observation post and depression range finder</b></p> <p>Shafts are of exceptional significance, although they may not be intact.</p>	<ul style="list-style-type: none"> <li>While underground fortifications are uncovered, investigate remains of original ventilation shafts and of shafts providing access up to former observation post and former depression range finder.</li> <li>Remove fill from shafts and remains of observation post and depression range finder. Conserve remains in situ.</li> <li>Repair/reconstruct shafts to former observation post and former depression range finder, subject to an approved and adopted interpretation strategy (see below).</li> <li>Consider reconstruction of missing components of observation post and depression range finder. Refer to historical drawings for details.</li> <li>If observation post and depression range finder are not to be reconstructed, incorporate vents in tops of shafts to supplement existing ventilation system for underground spaces.</li> </ul>	<p>Investigations of shafts—<b>high</b> priority.</p> <p>Complete within 1–3 years.</p> <p>Works to shafts—<b>medium</b> priority (unless there is danger of collapse).</p> <p>Complete within 3–5 years.</p> <p>Undertake in conjunction with investigations into ventilation system and waterproofing and drainage works.</p>
<p><b>New lightweight structures</b></p> <p>New fabric.</p>	<ul style="list-style-type: none"> <li>Construct new lightweight roofed shelters over shafts to prevent water entry. These shelters would be designed to interpret the structures that previously existed in these locations, subject to an approved and adopted interpretation strategy (see below). Refer to historical drawings, aerial photographs and site plans.</li> <li>Enclose structures with an appropriate safety fence for protection and to prevent access.</li> <li>Include a grate over the shaft structure.</li> </ul>	<p><b>Low</b> priority.</p> <p>Complete within 5–10 years.</p> <p>For interpretation of key components of site, now missing.</p>

Item, significance	Description of works	Priority
<b>Exterior works to underground complex</b>		
<b>Entrance forecourt to underground fortifications</b>  Existing footpath and carpark are of low significance.	<ul style="list-style-type: none"> <li>Remove parking spaces from immediately in front of main entrance to underground fortifications.</li> <li>Develop design for new forecourt in front of main entrance to interpret former nineteenth-century walled compound area. Possibly build low walls and seating around original (southern) walled entrance to underground fortifications. Refer to original plans for fortifications.</li> </ul>  <ul style="list-style-type: none"> <li>Install bollards to prevent vehicular access and entry to new forecourt area.</li> <li>Use paving to define area that is pedestrianised zone only.</li> </ul>	<b>Bollards—high priority.</b> Complete within 1–3 years. For protection of site. Forecourt development— <b>medium priority.</b> Complete within 3–5 years. To improve safety and interpretation of site.
<b>Brickwork</b>  Exceptional significance.	<ul style="list-style-type: none"> <li>Review condition of brickwork.</li> <li>Undertake necessary repairs using methodology described in schedule 1 works.</li> </ul>	<b>High priority.</b> Complete within 1–3 years Refer to schedule 1.
<b>Stone lintels and sills</b>  Exceptional significance.	<ul style="list-style-type: none"> <li>Review condition of stone lintels and sills.</li> <li>Undertake necessary repairs using methodology described in schedule 1 works.</li> </ul>	<b>High priority.</b> Complete within 1–3 years. Refer to schedule 1.
<b>Timber windows</b>  Reconstructed elements.  Openings and original design are of exceptional significance.	<ul style="list-style-type: none"> <li>Reconstruct timber casement windows to front elevation. Refer to original drawings for fortifications.</li> <li>Retain and re-use original frame in northern window in situ.</li> <li>Construct new frame fit to southern window opening; detail to match that in northern window opening.</li> <li>Construct two pairs of three-pane casement sashes as shown in drawings.</li> </ul>	<b>Low priority.</b> Complete within 5–10 years. For recovery and reconstruction of elements of exceptional significance and improvement of interpretation of site.



Item, significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>Provide stainless steel hinges to match evidence on existing window frame.</li> <li>Provide stainless steel casement sash fasteners and locks.</li> <li>Allow to paint windows; colour to match evidence on surviving original frame.</li> </ul>	
<b>Steel window shutters</b> Reconstructed elements.	<ul style="list-style-type: none"> <li>Retain new steel shutters replaced as part of schedule 1 works.</li> </ul>	<b>High</b> priority. Complete within 1–3 years. Refer to schedule 1.
<b>Steel door</b> Reconstructed elements.	<ul style="list-style-type: none"> <li>Retain new steel shutters replaced as part of schedule 1 works.</li> </ul>	<b>High</b> priority. Complete within 1–3 years. Refer to schedule 1.
<b>Interior works</b>		
<b>Concrete floor, ramps and steps</b> Exceptional significance.	<ul style="list-style-type: none"> <li>Conserve existing floor finish.</li> <li>Fill hollows in floor where there is a trip hazard with cement; finish to match original floor finish.</li> <li>Provide safety strips if needed to steps and low lintels.</li> </ul>	<b>Low</b> priority. Complete within 5–10 years. To improve access.
<b>Gravel floor</b> Exceptional significance.	<ul style="list-style-type: none"> <li>Conserve existing gravel floor in shell store including evidence of timber framing (now removed).</li> <li>Install temporary barrier across entrance to shell store to prevent entry, but still allow a view of the space.</li> </ul>	<b>Low</b> priority. Complete within 5–10 years. To conserve fragile fabric while providing access.
<b>Dish drains</b> Exceptional significance.	<ul style="list-style-type: none"> <li>Conserve all original floor drains.</li> <li>Ensure drainage system is clear and functional.</li> </ul>	<b>High</b> priority. Complete within 1–3 years. Refer to schedule 1.
<b>Grated pits/sumps</b> New grates are of low significance.	<ul style="list-style-type: none"> <li>Retain grates over drainage pits—installed as part of schedule 2 works.</li> <li>Treat grates with rust inhibitor.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. Refer to schedule 2.
<b>Floor finish to casemate</b> Exceptional significance.	<ul style="list-style-type: none"> <li>If casemate is to be used for a small shop or information desk, provide new loose fit sheet flooring over existing floor.</li> </ul>	<b>Low</b> priority. To facilitate use only.
<b>Wall finish</b>	<ul style="list-style-type: none"> <li>Treat mould.</li> <li>Remove any acrylic paint.</li> </ul>	<b>Medium</b> priority.



Item, significance	Description of works	Priority
Exceptional significance.	<ul style="list-style-type: none"> <li>Limewash walls that were originally limewashed.</li> <li>Do not limewash walls that have not been limewashed previously.</li> </ul>	<p>Complete within 3–5 years.</p> <p>Refer to schedule 2.</p>
<b>Ceiling finish</b> Exceptional significance.	<ul style="list-style-type: none"> <li>Fill cracks with lime plaster.</li> <li>Treat mould.</li> <li>Remove any acrylic paint.</li> <li>Limewash ceiling.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Refer to schedule 2.</p>
<b>Painted signage</b> Exceptional significance.	<ul style="list-style-type: none"> <li>Conserve historical signage where it exists, including ghost signage.</li> <li>Do not paint over or repaint signage.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Refer to schedule 2.</p>
<b>Internal timber doors and windows</b> Exceptional significance.	<ul style="list-style-type: none"> <li>Conserve surviving frames in situ.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Refer to schedule 2.</p>
<b>Galvanised steel doors and frames</b> Exceptional significance.	<ul style="list-style-type: none"> <li>Conserve blast-proof doors and frames in situ.</li> <li>Ease hinges.</li> <li>Clean back steelwork to clean surface, removing severely corroded material only.</li> <li>Treat with rust inhibitor.</li> <li>Prepare and paint using grey zinc-based paint.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Refer to schedule 2.</p>
<b>Lamp niches and associated ventilation holes</b> Exceptional significance.	<ul style="list-style-type: none"> <li>Conserve lamp niches and associated ventilation holes as noted in schedule 2 works.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Refer to schedule 2.</p>
<b>Iron fixtures and fixings</b> Exceptional significance.	<ul style="list-style-type: none"> <li>Clean back ironwork to clean, bright finish.</li> <li>Treat with rust inhibitor.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Refer to schedule 2.</p>
<b>Ceiling and wall vents</b> Exceptional significance.	<ul style="list-style-type: none"> <li>Retain and clean out original ventilation pipes.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Refer to schedule 2.</p>
<b>Shaft to former observation post</b>	<ul style="list-style-type: none"> <li>In consultation with structural engineer, carefully remove fill and steel structure from shaft. Assess its condition.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p>



Item, significance	Description of works	Priority
Exceptional significance.	<ul style="list-style-type: none"> <li>Undertake repairs to shaft, if viable.</li> <li>Once shaft is repaired, remove temporary supporting structure and safety barrier.</li> <li>Provide grate at top of shaft to enable natural air flow.</li> </ul>	<p>To improve ventilation and to conserve significant fabric.</p> <p>Consider/undertake works in conjunction with lightweight structures above.</p>
<b>Shaft to former depression range finder</b> Exceptional significance.	<ul style="list-style-type: none"> <li>In consultation with structural engineer, carefully remove fill and steel structure from shaft. Assess its condition.</li> <li>Undertake repairs to shaft, if viable.</li> <li>Once shaft is repaired, remove temporary supporting structure and safety barrier.</li> <li>Provide grate at top of shaft to enable natural air flow.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>To improve ventilation and to conserve significant fabric.</p> <p>Consider/undertake works in conjunction with lightweight structures above.</p>
<b>Lighting and power</b> Low significance.	<ul style="list-style-type: none"> <li>Install lighting and power to enable use of casemate for visitor information and to facilitate tour of underground spaces.</li> <li>All conduits are to be surface-mounted and laid out to minimise their physical and visual impact on the spaces.</li> <li>Provide 2 double general power outlets (GPOs) in casemate only.</li> </ul>	<p><b>Low</b> priority.</p> <p>Complete within 5–10 years.</p> <p>For visitation only.</p>
<b>Interpretation</b>		
<b>Interpretation strategy</b>	<ul style="list-style-type: none"> <li>Develop and implement interpretation strategy for the site and precinct (incorporating the Smiths Hill Fort site) in accordance with conservation policy for heritage interpretation.</li> <li>Provide interpretation signage (including QR codes) or similar to explain history and use of the structures on the hill, including how they were designed to operate. Include interpretation for:               <ul style="list-style-type: none"> <li>disappearing gun;</li> <li>observation point; and</li> <li>depression range finder.</li> </ul> </li> <li>Provide interpretation signage (including QR codes) or similar that explains the history, use and layout of the underground structures. Include interpretation for:               <ul style="list-style-type: none"> <li>layout of fortifications;</li> <li>storage and handling of ammunition within the fort; and</li> </ul> </li> </ul>	<p><b>High</b> priority.</p> <p>Complete strategy within 1–3 years.</p> <p>Implement strategy within 3–5 years.</p>





Item, significance	Description of works	Priority
	<ul style="list-style-type: none"><li>– loading and cleaning of guns.</li><li>• Provide interpretation that links the fortifications at this site to the fortifications at Smiths Hill.</li></ul>	

# Smiths Hill Fort— schedule of conservation works

## 4 Smiths Hill Fort—schedule of conservation works

## 4.1 Identification of elements

The structures and elements of the Smiths Hill Fort are identified in Figure 4.1 and Figure 4.2.

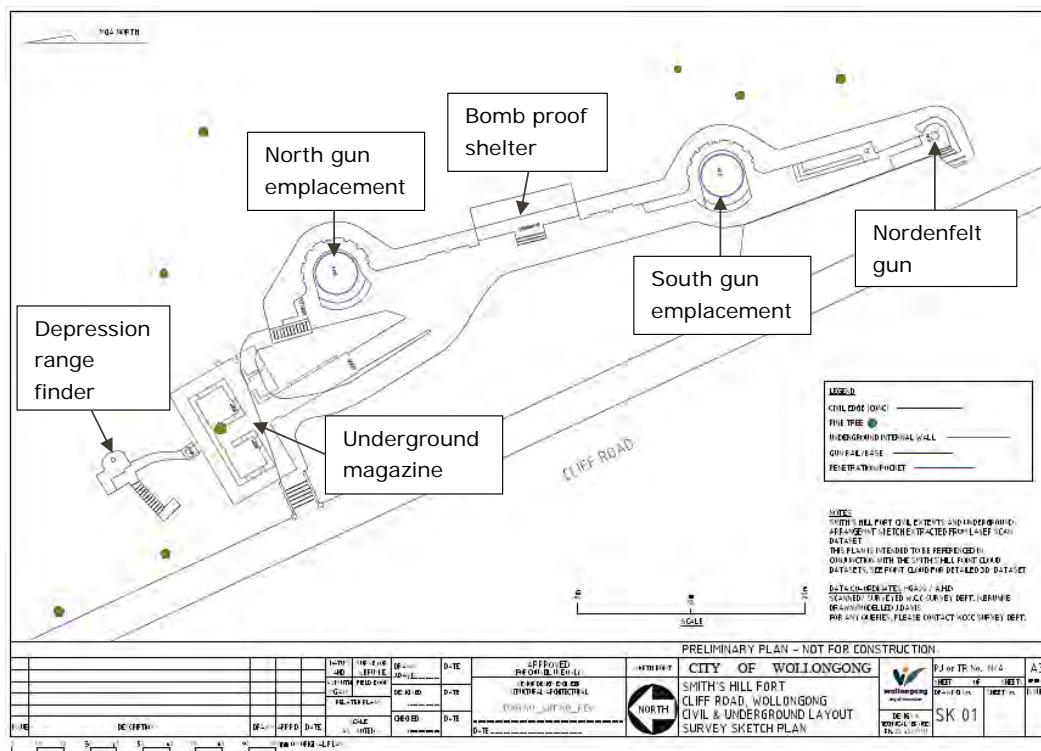


Figure 4.1 Smiths Hill Fort layout. (Source: City of Wollongong with GML overlay, 2024)

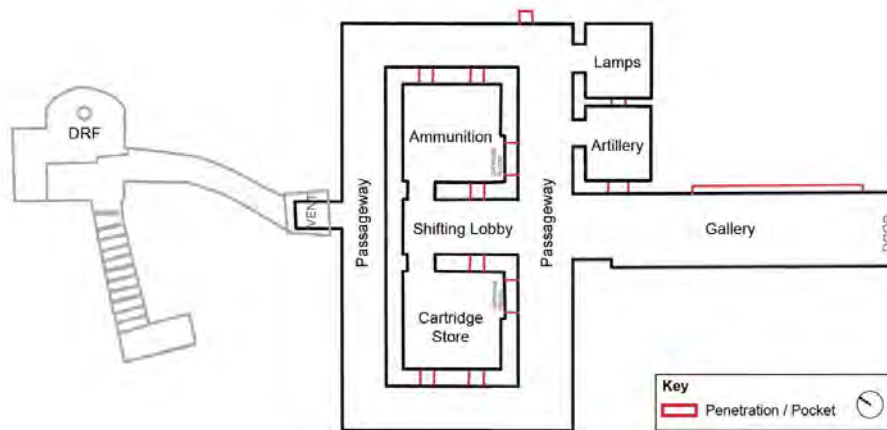


Figure 4.2 Plan of the underground magazine (in black) and depression range finder (or DRF, in grey) of Smiths Hill Fort, based on plan drawn following excavation of the former fort, 1986. (Source: City of Wollongong Council, 2024)

## 4.2 Outline scope of works

This schedule of works includes repairs to the historical fabric of the Smiths Hill Fort. It does not include design and documentation of new elements.

The schedule of works has been divided into three separate scopes of work. These are as follows:

1. Works to stabilise the site and to conserve the external and publicly accessible components of the site. These works include:
  - a. tree removal and site stabilisation works;
  - b. repairs to outdoor fortifications accessible from Battery Park, including gun emplacements and casemate;
  - c. remedial works to the former depression range finder access shaft; and
  - d. repairs to the entrance façade to the subterranean fortification.
2. Works to stabilise the interiors of the subterranean fortification in their current state, with potential access only being provided to visitors on a guided tour. These works include:



- a. stabilisation works to interior surfaces, fixtures and fittings;
  - b. cleaning out of existing drainage system and repairs to drainage infrastructure;  
and
  - c. cleaning out of ventilation system and repairs to ventilation infrastructure.
3. Works to improve interpretation and make the interiors safely accessible for potential regular visitation by the public:
  - a. supplementary waterproofing and drainage;
  - b. internal painting; and
  - c. provision of electric lighting and power.

## 4.3 Conservation work priorities

The works that are of the **highest priority** are those that address the following issues:

- security of the site—to prevent damage to the site including its guns and structures through vandalism and unauthorised entry;
- health and safety of visitors—to minimise risks to people;
- stability of the structures—to prevent structural failures; and
- weathertightness of the underground fortifications—to slow down the decay of the heritage fabric.

**Investigative works** are also of **high priority** as they will inform decision-making in regard to future conservation works (eg investigations into drainage and ventilation systems; invasion of tree roots and stability of structures).

Other works of **high or medium priority** are essential to the care and maintenance of significant fabric, to minimise fabric loss. Some items will require ongoing monitoring and maintenance tasks.

**Low priority** works are those that are not critical to the ongoing care of the place, but would assist in interpreting the use and significance of the place to visitors.

Schedule 4 (external works) and schedule 5 (internal works) generally contain high and medium priority works.

Schedule 6 (to enable visitation) generally contains lower priority works, although some works fit into the higher priority categories.






Priority	Timeframe
<b>High priority works</b> , including investigative works	Works should be undertaken within 1–3 years.
<b>Medium priority works</b>	Works should be undertaken within 3–5 years.
<b>Low priority works</b>	Works should be undertaken within 5–10 years.





## 4.4 Schedule 4: External conservation works

Item, image and significance	Description of works	Priority
<b>Tree removal</b>		
<p><b>Norfolk Island Pines</b></p> <p>Trees are <b>significant</b> to the park and are listed as significant landscape items by Council.</p>  <p>Tree over underground fortifications.</p> <p><b>Issue:</b> damage to structures caused by trees.</p>	<ul style="list-style-type: none"> <li>Refer to arborist's report (Appendix D) on trees at northern end of fortifications.</li> <li>Carefully remove tree from top of underground fortifications. Grind out stump if possible without damaging structure.</li> <li>Engage arborist to investigate tree up the hill from the Nordenfelt gun to determine its impact on the fortifications.</li> <li>Cut back invasive roots of trees that are impacting the fortification structures.</li> <li>Install a tree root barrier behind the fortification walls.</li> <li>Continue to monitor roots.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>Essential to protect and limit damage to heritage structures.</p>
<b>Engineering services</b>		
<p>Geotechnical engineer.</p> <p><b>Issue:</b> subsidence of site.</p>	<ul style="list-style-type: none"> <li>Commission a geotechnical investigation of the foundation conditions and water flow paths around the fortifications.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>To understand stability of site.</p>
<p>Structural/civil engineer.</p> <p><b>Issue:</b> subsidence of site and structural damage to fortifications.</p>	<ul style="list-style-type: none"> <li>Refer to structural report (Appendix B).</li> <li>Engage a structural/civil engineer to design remedial solutions to enable retention and stabilisation of the existing walls in situ. All solutions must be discussed with the heritage consultant to ensure that they minimise their heritage impacts on the fortifications. Possible solutions may include a combination of the following:               <ul style="list-style-type: none"> <li>stitching and patching of cracks using Helifix ties or similar;</li> <li>installation of steel anchors through the walls that extend back into the embankment behind the walls;</li> </ul> </li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>To stabilise structures and prevent further damage.</p>





Item, image and significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>– installation of subsurface drainage (eg agricultural drains) behind the walls;</li> <li>– inclusion of weep holes or drainage holes through the walls to prevent water from building up behind the walls; and</li> <li>– reconstruction of brick walls with piers or other strengthening built into the walls to strengthen them.</li> <li>• If the site continues to subside after tree removal and installation of tree root barriers, engage a structural or civil engineer to design a remedial solution to stabilise the ground around the fortification walls, particularly in the areas around: <ul style="list-style-type: none"> <li>– the walls of the depression range finder;</li> <li>– the retaining wall above the banquette; and</li> <li>– the walls around the Nordenfelt gun.</li> </ul> </li> <li>• With engineering input, consider construction of a subsurface wall system to stabilise the site and minimise movement/land slip and the incursion of tree roots. Potential systems could include: <ul style="list-style-type: none"> <li>– shoring behind the existing walls; and</li> <li>– a contiguous pile wall outside the existing walls—between the road and the depression range finder, and possibly also below the depression range finder.</li> </ul> </li> </ul>	
<p>Hydraulics engineer.</p> <p><b>Issue:</b> water in underground fortifications and walls of casemate.</p>	<ul style="list-style-type: none"> <li>• If drainage continues to be an issue following cleaning out of existing drains, engage a hydraulics engineer to: <ul style="list-style-type: none"> <li>– investigate the existing drainage systems, including drainage into the existing water cisterns/tanks (one inside battery and one downhill from battery); and</li> <li>– if necessary, design a new drainage system to supplement the existing to redirect water away from the fortification walls.</li> </ul> </li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>To keep water out of structures and prevent further damage.</p>







Item, image and significance	Description of works	Priority
<b>Depression range finder</b>		
Photographic record.	<ul style="list-style-type: none"> <li>Prior to undertaking repair and reconstruction works, photographically record the depression range finder—all elevations, floor and layout.</li> </ul>	<b>High</b> priority. Complete within 1–3 years.
<b>Fence</b> Fence is of low significance. 	<ul style="list-style-type: none"> <li>Remove existing fence.</li> <li>Provide a new steel fence or other safety barrier outside the existing structure. It must be freestanding and not fixed to the structure.</li> </ul>	<b>High</b> priority. Complete within 1–3 years. Current fence has caused damage to structure.
<b>Vegetation</b> Grass is of low significance. (Fortification walls are of exceptional significance.) 	<ul style="list-style-type: none"> <li>Remove grass from around walls.</li> <li>Poison and remove roots penetrating walls.</li> </ul>	<b>High</b> priority. Complete within 1–3 years. Ongoing.
<b>New subsurface walls and drainage to stabilise site</b> New fabric—must be unobtrusive.	<ul style="list-style-type: none"> <li>If tree removal and root barriers have not been sufficient to stabilise site, construct new walls (eg below-ground contiguous pier walls) around the site of the depression range finder, as detailed by the structural engineer, to stabilise the site. The purpose of these walls is to remove pressure from the depression range finder walls.               <ul style="list-style-type: none"> <li>The tops of the retaining walls should finish at ground level.</li> <li>Provide drainage to the area between the new retaining walls and the depression range finder walls.</li> </ul> </li> </ul>	<b>High</b> priority. Complete within 1–3 years. To stabilise site and prevent further damage to significant structure.



Item, image and significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>Fill and returf this area so that the depression range finder continues to be set into the ground.</li> </ul>	
<p><b>Concrete floor and steps of depression range finder</b></p> <p>Concrete floor and steps are original fabric and are of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Remove all debris from depression range finder.</li> <li>Conserve existing concrete floor and steps.</li> <li>Investigate area around slate tread, which does not appear to be original. Retain in situ.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>Ongoing.</p>
<p><b>Grated drains</b></p> <p>Drain is original, of exceptional significance and important for removing water from site.</p> <p>Grates may not be original (age to be confirmed). However, grates were included over the drains in the original design. The hinged grates allow easy access to clean out drains.</p> 	<ul style="list-style-type: none"> <li>Clean out all drains and ensure they are fully functional.</li> <li>Investigate and map drainage system using industrial endoscope.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p>






Item, image and significance	Description of works	Priority
<p><b>Concrete walls of depression range finder</b></p> <p>Walls are original fabric and of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Remove loose pieces of concrete and cement patching.</li> <li>Assess cracks and displacement.</li> <li>Stitch cracks in concrete walls using HeliBars or similar and fill gaps with cement mortar as detailed by engineer. Finish should match surrounding wall finish (markings from timber boarded formwork).</li> <li>Provide vertical control joints between concrete and brickwork where cracks exist.</li> <li>Fill cracks in top edge of depression range finder with cement mortar; finish to match surrounding surfaces.</li> <li>Patch top of concrete wall where balustrade removed with cement mortar.</li> </ul> 	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p> <p>To stabilise and conserve significant structure.</p>
<p><b>Brick walls on uphill side of depression range finder</b></p> <p>Red brickwork at top of stairs is not original and of low significance.</p>	<ul style="list-style-type: none"> <li>Brickwork of top section of wall appears to be single-skin only and inadequate to retain the embankment above it.</li> </ul>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p>

Item, image and significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>Rebuild damaged brickwork at top of stairs:               <ul style="list-style-type: none"> <li>Ensure new brickwork is bonded into existing brickwork.</li> <li>Incorporate strengthening elements as detailed by engineer (eg second skin of brickwork).</li> <li>Include subsurface drainage and weep holes or drainage holes in wall.</li> </ul> </li> </ul>	To stabilise structure.
<p><b>Brick walls between shaft and depression range finder</b></p> <p>Brick walls are original and of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>With the exception of the top courses, brickwork appears to be original. Salvage original bricks from collapsing walls.</li> <li>Rebuild brick walls as detailed by structural engineer:               <ul style="list-style-type: none"> <li>Re-use original bricks for the exposed front face of the walls.</li> <li>Note that face brickwork is currently laid in stretcher bond. If stretcher bond is to be retained, include ties to bond inner and outer brick skins together.</li> <li>New bricks may be used for concealed brickwork and to complete the top of the walls.</li> <li>Include wall strengthening or external piers as detailed by engineer.</li> <li>Include weep holes or drainage holes to prevent build-up of water behind walls.</li> </ul> </li> <li>Provide subsurface drainage behind walls as detailed by hydraulics engineer.</li> <li>Remove steel braces once repairs are complete, and make good, but only if drainage and strengthening of walls have been undertaken.</li> </ul>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p> <p>To stabilise and conserve significant structure.</p>




Item, image and significance	Description of works	Priority
	 	
<p><b>Access shaft from underground fortifications</b></p> <p>Shaft is original and of exceptional significance.</p> <p>Recent brickwork at top of shaft is of low significance.</p> 	<ul style="list-style-type: none"> <li>Remove section of non-original brickwork and concrete slab from top of shaft.</li> <li>Investigate condition of original brickwork below. Point up open joints using cement mortar to match original.</li> <li>Rebuild top of shaft, ensuring that brickwork aligns with walls below. Provide new roof.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>To stabilise and conserve significant structure.</p>





Item, image and significance	Description of works	Priority
<p><b>Handrails inside depression range finder</b></p> <p>Steel handrails are original and of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Retain existing handrails.</li> <li>Treat handrails with rust inhibitor, prepare and paint.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>To conserve significant fabric.</p>
<p><b>Stone pillar</b></p> <p>Stone pillar appears to be early and of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Retain and conserve pillar.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Ongoing.</p>
<p><b>Timber door frames</b></p> <p>Timber door frames are modern fabric and of low significance.</p> <p>They assist in interpreting the depression range finder.</p> 	<ul style="list-style-type: none"> <li>Retain existing timber door frames.</li> <li>Repair as necessary.</li> <li>Prepare and paint.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p>



Item, image and significance	Description of works	Priority
<b>Metal ventilation panel to shaft</b> Metal panel is intrusive. 	<ul style="list-style-type: none"> <li>Remove existing panel and frame.</li> <li>Replace with new louvred panel in same location; size to match existing.</li> </ul>	<b>High priority.</b> Complete within 1–3 years. Work to be undertaken in conjunction with work to access shaft.
<b>Battery—generally</b>		
<b>Debris</b>  	<ul style="list-style-type: none"> <li>Remove all loose gravel and other debris from floor of battery.</li> </ul>	<b>High priority.</b> Complete within 1–3 years. Ongoing.
<b>Concrete paving</b> Early concrete paving is of exceptional significance. 	<ul style="list-style-type: none"> <li>Retain and conserve concrete paving to battery.</li> </ul> 	<b>High priority.</b> Complete within 1–3 years. Ongoing.
<b>Asphalt paving</b> Asphalt is of moderate significance.	<ul style="list-style-type: none"> <li>Retain and conserve asphalt paving.</li> <li>Patch repair asphalt with asphalt.</li> </ul>	<b>High priority.</b> Complete within 1–3 years. Ongoing.



Item, image and significance	Description of works	Priority
 <p>Decayed asphalt adjacent to brick drain and concrete ramp down to underground magazine.</p>		To reduce decay around drain.
<p><b>Drains and cistern (tank)</b></p> <p>Underground cistern (tank) is of high significance.</p> <p>Brick drains are of high significance.</p> <p>Steel grates may not all be original (age to be confirmed), but grates over drains are a significant component of the original design.</p>  <p>Brick drains.</p>  <p>Cistern (tank).</p>	<ul style="list-style-type: none"> <li>Clean out all drains and ensure that they are fully functional.</li> <li>Investigate and map existing drainage system using industrial endoscope.</li> <li>Check falls of drains to drainage pits.</li> <li>Make good asphalt and concrete around drains to ensure there are no washouts or hollows to hold water.</li> <li>Ensure all pits have steel grates over them.</li> <li>Check over brick drains and reset bricks that have lifted or are creating a trip hazard.</li> <li>Retain and conserve water cistern located under battery paving. Retain existing metal lid.</li> <li>Investigate condition of cistern and check that it is not leaking.</li> </ul>  <p>Drainage pit with hinged grate.</p>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p> <p>Ongoing.</p> <p>To maintain proper drainage around the fort.</p>



Item, image and significance	Description of works	Priority
<b>New supplementary drainage</b> New work.	<ul style="list-style-type: none"> <li>If found to be necessary following investigations of existing site drainage, undertake supplementary drainage works to redirect water away from fortifications. This is most likely needed around the eastern side of the bombproof shelter.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. Undertake with other site drainage works.
<b>Concrete ramps</b> Concrete ramp down to underground magazine is early and of exceptional significance. Concrete ramp up to Nordenfelt gun is also early and of exceptional significance. 	<ul style="list-style-type: none"> <li>Retain and conserve concrete ramp down to underground magazine.</li> <li>Retain ramp up to Nordenfelt gun.</li> <li>Ramp may be replaced if necessary to meet other requirements.</li> <li>If ramp is to be retained, reinstate balustrade to ramp up to Nordenfelt gun.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. Balustrade is for safety.
<b>Concrete steps and banquette</b> Banquette is of exceptional significance. 	<ul style="list-style-type: none"> <li>Retain and conserve banquette.</li> <li>Retain and conserve concrete steps.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. Ongoing.
<b>Concrete walls</b> Early concrete walls of fortifications, which exhibit clear bands from their construction, are of exceptional significance.	<ul style="list-style-type: none"> <li>Retain and conserve concrete walls.</li> <li>Remove loose pieces of concrete and cement patching.</li> <li>Assess cracks and displacement adjacent to northern and southern stairs and in wall around Nordenfelt gun.</li> </ul>	<b>High</b> priority. Complete within 1–3 years. To conserve significant fabric.



Item, image and significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>Stitch cracks in concrete walls as detailed by engineer (eg using HeliBars or similar and fill gaps with cement mortar).</li> <li>Provide vertical control joints between concrete and brickwork where substantial cracks exist.</li> </ul>	
<p><b>Brick walls</b></p> <p>Brick walls of fortifications are of exceptional significance.</p>  <p>Vegetation in joints above bombproof shelter.</p>  <p>Displaced brickwork above banquette.</p>	<ul style="list-style-type: none"> <li>Poison and remove all vegetation growing in brickwork.</li> <li>Assess cracks and displacement in brick walls above concrete.</li> <li>Generally, retain and conserve brickwork in situ.</li> <li>Investigate construction of wall and condition of brickwork.</li> <li>Undertake stitch repairs or install anchors as detailed by structural engineer.</li> <li>Only rebuild brick walls where stitching is not a viable option. Rebuilding is to be as detailed by structural engineer and may include the following:             <ul style="list-style-type: none"> <li>Copy existing bonding pattern and raked detail to top of wall.</li> <li>Re-use original bricks for the exposed front face of the walls.</li> <li>New bricks may be used for concealed brickwork and to complete the top of the walls.</li> <li>Include wall strengthening or external piers as detailed by engineer.</li> <li>Include weep holes or drainage holes to prevent build-up of water behind walls.</li> </ul> </li> </ul>	<p><b>High</b> priority—remove weeds, point up joints and monitor movement.</p> <p>Complete within 1–3 years.</p> <p><b>Medium</b> priority—undertake repair and stabilisation works.</p> <p>Complete within 3–5 years.</p> <p>To conserve significant fabric and prevent further damage.</p>









Item, image and significance	Description of works	Priority
 <p>Raked top to brick wall.</p>	<ul style="list-style-type: none"> <li>Provide subsurface drainage behind walls as detailed by hydraulics engineer.</li> <li>Replace damaged bricks to top of wall.</li> </ul>  <p>Cracks at junction between brickwork and concrete.</p>	
<p><b>Timber doors to shell recesses</b></p> <p>Timber doors to shell recesses are not original, but have been made to replicate the original doors. They are of moderate significance.</p>  <p>Broken top rail to doors.</p>	<ul style="list-style-type: none"> <li>Fill gaps around edges of frames with mortar.</li> <li>Repair timber doors, by replacing broken or decayed elements such as rails or stiles.</li> <li>For longer-term solution, replace doors in hardwood—detail to match existing.</li> <li>Prepare and paint doors and frames.</li> </ul> 	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p>
<p><b>Metalwork</b></p> <p>Early iron fixings are of exceptional significance.</p> <p>Replica fixings are of moderate significance.</p>	<ul style="list-style-type: none"> <li>Clean back ironwork and steelwork fixed to walls to clean, bright surface.</li> <li>Treat with rust inhibitor.</li> <li>Prepare and paint.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>To conserve significant fabric and minimise corrosion.</p>

Item, image and significance	Description of works	Priority
		
<p><b>Paintwork and signage</b></p> <p>Existing painted signage replicates early signage and is of moderate significance.</p> 	<ul style="list-style-type: none"> <li>Conserve existing painted signage.</li> <li>Do not paint over or repaint signage.</li> <li>Prepare and paint walls.</li> </ul> 	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>To be undertaken with other repairs to brick and concrete walls.</p>
<p><b>Aprons to gun emplacements</b></p> <p>Aprons to gun emplacements are of exceptional significance.</p>  	<ul style="list-style-type: none"> <li>Reconstruct moulded aprons to the top of the walls surrounding the two large gun emplacements. Detail of apron to match original drawings and detail of apron around disappearing gun emplacement at Flagstaff Hill.</li> </ul>  <p>Apron around Flagstaff Hill disappearing gun emplacement—for matching reference.</p>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>To be undertaken with other repairs to brick and concrete walls.</p>










Item, image and significance	Description of works	Priority
<b>Gun emplacements</b>		
<p><b>Guns and gun carriages</b></p> <p>Guns and carriages are of exceptional significance.</p>  	<ul style="list-style-type: none"> <li>Carefully remove fixings and lift guns out of gun carriages using a soft sling. Refer to methodology provided by OHM consultants in Appendix C.</li> <li>Take guns to workshop for cleaning, rust removal, rust treatment and repainting as specified, in black.</li> <li>Once works are complete and carriages have been repaired, return guns to carriages and reinstate on site.</li> <li>Provide a new tompion to detail for each gun to prevent water entry. Prepare and paint in black.</li> </ul>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p> <p>To conserve significant fabric and to reduce risk of cuts to visitors.</p>
<p><b>Raised concrete plinths</b></p> <p>Raised concrete plinths are original and of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Retain and conserve concrete plinths to gun emplacements.</li> <li>Point up cracks in plinth.</li> <li>Remove debris from drains in surface of plinth and ensure they are functional.</li> </ul>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p> <p>Undertake works at same time as repairs to guns and carriages.</p>
<p><b>Stone ring to plinths</b></p> <p>Stone capping is of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Retain and conserve stone edges to plinths.</li> <li>Remove debris from drains and ensure they are functional.</li> <li>Remove loose and decayed stone debris using a soft bristle brush.</li> <li>Check over joints and cracks in stones.</li> </ul>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p> <p>Undertake works at same time as repairs to guns.</p>

Item, image and significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>• Check over previous patch repairs. Remove loose patching material.</li> <li>• Point up open joints with lime compo mortar. Do not widen joints.</li> <li>• Patch repair stones only where there is a recess in the top of the stone to hold water—greater than 5mm deep.</li> </ul> 	
<p><b>Steel rails for guns</b></p> <p>Steel rails supporting guns are of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>• Clean rails back to clean, bright metal.</li> <li>• Treat rails with rust converter.</li> </ul>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p> <p>Undertake works at same time as repairs to guns.</p>




Item, image and significance	Description of works	Priority
<p><b>Timber deck under Nordenfelt gun</b></p> <p>Timber deck is not original and is of low significance, although the iron straps and bolts securing the timbers are of moderate significance.</p> 	<ul style="list-style-type: none"> <li>Remove debris and check over timber deck.</li> <li>Replace decayed timbers.</li> <li>Oil deck to extend its life.</li> <li>Clean back metalwork to bright surface.</li> <li>Treat with rust inhibitor.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>Undertake works at same time as repairs to guns.</p>
<b>Bombproof shelter</b>		
<p><b>Concrete floor</b></p> <p>Floor and steps of bombproof shelter are of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Retain and conserve existing concrete floor and steps, including finish.</li> <li>Remove debris from space and clean out drainage channels.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Ongoing.</p>
<p><b>Brick and concrete walls</b></p> <p>Walls of bombproof shelter are of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Retain and conserve existing brick walls surrounding space.</li> <li>Retain and conserve concrete retaining wall along western edge of space.</li> <li>Investigate source of water in northeastern corner of space.</li> <li>If required, implement supplementary drainage works to redirect water away from walls—refer to above schedule for preliminary investigations and supplementary drainage works.</li> </ul>	<p><b>High</b> priority—investigation of water entry.</p> <p>Complete within 1–3 years.</p> <p>Conservation ongoing.</p>

Item, image and significance	Description of works	Priority
<p><b>Concrete roof</b></p> <p>Roof of bombproof shelter is of exceptional significance.</p> <p>Evidence of former structure in southern half of casemate is of high significance.</p> 	<ul style="list-style-type: none"> <li>Remove peeling paint. Prepare and paint walls.</li> </ul>	
<p><b>Original steel columns, beam and handrails</b></p> <p>Beam is original and of exceptional significance.</p> <p>Large diameter steel columns are original and of exceptional significance.</p> <p>Handrails are of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Retain and conserve existing concrete roof.</li> <li>Retain timber plate fixed to underside of roof and evidence of timbers embedded in concrete at southern end of space.</li> <li>Remove peeling paint and spalling concrete from ceiling.</li> <li>Clean any exposed reinforcement and treat with rust inhibitor.</li> <li>Remove peeling paint. Prepare and paint ceiling.</li> </ul>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p>
	<ul style="list-style-type: none"> <li>Clean steelwork back to clean, bright surface.</li> <li>Treat with rust inhibitor.</li> <li>Prepare and paint.</li> </ul>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p> <p>To conserve original fabric and maintain structural integrity.</p>










Item, image and significance	Description of works	Priority
		
<p><b>Galvanised steel columns and chains</b></p> <p>Small diameter columns and chains are late twentieth-century and of low significance.</p>	<ul style="list-style-type: none"> <li>Investigate structural integrity of steel columns and temporary prop supports.</li> <li>Repair broken chain at southern end of space.</li> <li>Clean steelwork back to clean, bright surface.</li> <li>Treat with rust inhibitor.</li> <li>Prepare and paint.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p>
<b>Entrance to underground magazine</b>		
<p><b>Brickwork</b></p> <p>Brickwork above entry is of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Retain and conserve brickwork, including arch detail over door.</li> <li>Check over joints at top of wall and point up any open joints with compo mortar.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Undertake works at same time as other brick repairs to fortification.</p>
<p><b>Steel doors</b></p> <p>Steel doors appear to be early and of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Retain and conserve steel doors.</li> <li>Ease doors and ensure they are in full working order.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p>








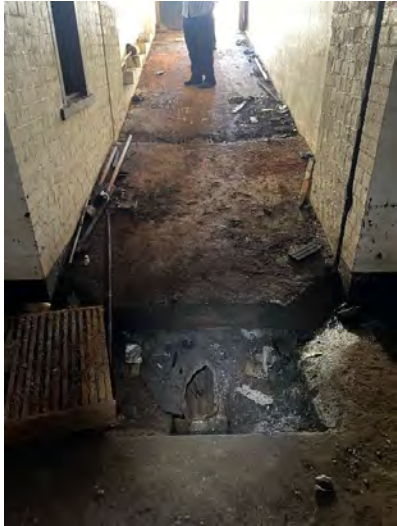




Item, image and significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>• Clean back metal to clean, bright finish.</li> <li>• Treat with rust inhibitor.</li> <li>• Prepare and paint.</li> </ul>	To conserve significant fabric.
<p><b>Louvred vent above doors</b></p> <p>Brick opening for vent is original and of exceptional significance.</p> <p>Louvred vent appears to have been replaced.</p>	<ul style="list-style-type: none"> <li>• Retain and conserve louvred vent.</li> <li>• Clean back metal to clean, bright finish.</li> <li>• Treat with rust inhibitor.</li> <li>• Prepare and paint.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p>
<b>Landscape elements</b>		
<p><b>Steel fence</b></p> <p>Steel fence is modern and of low significance.</p> 	<ul style="list-style-type: none"> <li>• Retain existing fence until it is determined to replace it (refer to Section 6—Conservation policies).</li> <li>• Touch up paintwork on fence as needed.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p>
<p><b>Gravel</b></p> <p>Gravel is of low significance.</p> 	<ul style="list-style-type: none"> <li>• Retain but manage gravel so that it does not constantly fall into battery.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Ongoing.</p>

## 4.5 Schedule 5: Internal conservation works

Item, image and significance	Description of works	Priority
<p><b>Generally</b></p> <p>Significance of stored elements to be assessed.</p> <p>Steel elements may not be of significance, but need to be reviewed by a specialist in armaments.</p> <p>Timber joinery elements (doors, frames, architraves) are original and of exceptional significance.</p>  <p>Steel shutters and grates.</p>  <p>Steel panels.</p>	<ul style="list-style-type: none"> <li>Remove all rubbish and debris from interior of the complex.</li> <li>Check through stored metalwork with heritage consultant with expertise in fortification hardware and armaments. This includes large steel plates, shutters, brackets and grates, all of which appear to belong to the fortification complex.             <ul style="list-style-type: none"> <li>Remove items that are clearly modern and do not belong to the fortifications.</li> <li>Salvage all other items, brush off surface corrosion and remove areas of friable corrosion. Treat with rust inhibitor.</li> <li>Record, label and inventory items and, if possible, identify their original functions and locations.</li> <li>Store items off the floor (on palette) and manage items in accordance with conservation policy for movable heritage—until detailed investigations can identify their original use, heritage significance, future viability and interpretation potential.</li> </ul> </li> <li>Check over stored timber items that appear to belong to the fortification complex (eg door frames, panel door leaves including replica doors, timbers with tenons, mortices or rebates).             <ul style="list-style-type: none"> <li>Salvage, inventory and store items for future/potential reinstatement.</li> </ul> </li> <li>Remove loose bricks and pile of loose timbers.</li> <li>Undertake hazardous materials investigation.</li> <li>Investigate mould treatment options that will not impact original surfaces eg UV-C light.</li> </ul>	<p><b>High</b> priority.</p> <p>Complete within 1–3 years.</p> <p>To conserve significant elements to enable their future reinstatement where appropriate.</p>





Item, image and significance	Description of works	Priority
 <p>Metal brackets.</p>	 <p>Timber door frames and doors.</p>  <p>Timber framing.</p>	
<p><b>Concrete floor</b></p> <p>Concrete floor is original and of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>• Retain and conserve existing finish to concrete floor.</li> <li>• Conserve painted black line around edge of floor.</li> <li>• Conserve painted skirting.</li> <li>• Remove all loose friable material from surface of concrete floor.</li> <li>• If there is a concern regarding trip hazards, insert a thin, loose fit piece of sheet material (eg ply or fibrous cement sheet) into hollow in floor to bring it up to level with finished floor surface.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Ongoing.</p>



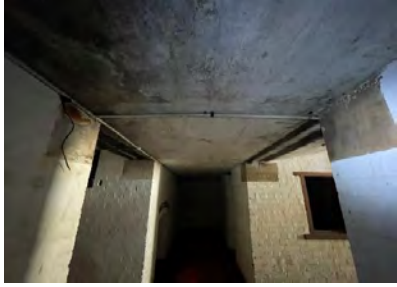
Item, image and significance	Description of works	Priority
		
<p><b>Drains and grated sumps</b></p> <p>Drains formed in concrete floor are original and of exceptional significance.</p> <p>Grates may not be original (age to be confirmed).</p> <p>However, grates were included over the drains in the original design. The hinged grates allow easy access to clean out drains.</p>  <p>Pit with grate.</p>	<ul style="list-style-type: none"> <li>• Clear all floor drains of debris.</li> <li>• Conserve open channels and dish drains.</li> <li>• Clean out all drainage pits and sumps.</li> <li>• Clean existing grates and treat with rust inhibitor.</li> <li>• If grates are too fragile, provide new steel grates to pits/sumps. Grates are to match existing and are to be removable to enable cleaning.</li> </ul>  <p>Dish drain.</p>  <p>Channel drain.</p>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p> <p>Maintenance of drains will be ongoing.</p>
<p><b>Drainage pipes</b></p>	<ul style="list-style-type: none"> <li>• Investigate drainage system from underground complex (using industrial endoscope). Map drainage pipes and outlets.</li> </ul>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p>



Item, image and significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>Clear all pipes of roots and debris and ensure drains are functional.</li> <li>Replace broken pipes to ensure system is complete.</li> </ul>	Maintenance of pipes will be ongoing.
<p><b>Concrete walls</b></p> <p>Concrete walls, which exhibit banding from construction, are original and of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Conserve evidence of formwork used to build walls.</li> <li>Brush walls with soft bristle brush to remove loose material—flaking paint, decaying surface or delamination. Collect debris and remove from site.</li> <li>Be careful to conserve remnant painted signage and painted skirting details.</li> <li>Remove peeling acrylic paint layers.</li> <li>Retain and conserve limewash finish.</li> <li>Remove mould using approved materials and methodology. Avoid using bleach. If vinegar is used, gently spray onto surface and dab off. Avoid rubbing surface as this will remove limewash. Avoid contact with metals.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Mould removal will be ongoing.</p> <p>For conservation of original fabric, but also for health and safety of visitors and staff.</p>
<p><b>Brick walls and cornerstones</b></p> <p>Brick walls and cornerstones are original and of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Brush walls with soft bristle brush to remove loose material—flaking paint, decaying surface of bricks and mortar. Collect debris and remove from site.</li> <li>Be careful to conserve remnant painted signage and painted skirting detail.</li> <li>Retain and conserve metal fixings.</li> <li>Retain and conserve shadows left by former shelving, frames, and so on.</li> <li>Remove peeling or bubbling acrylic paint layers.</li> <li>Retain and conserve limewash finish.</li> <li>Retain and conserve unpainted brickwork.</li> <li>Conserve corner stones in unpainted state.</li> <li>Remove mould using approved materials and methodology. Avoid using bleach. If vinegar is used, gently spray onto surface and dab off. Avoid rubbing surface as this will remove limewash. Avoid contact with metals.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Mould removal will be ongoing.</p> <p>For conservation of original fabric, but also for health and safety of visitors and staff.</p>





Item, image and significance	Description of works	Priority
 <p>Shadow left by shutter framing to opening from cartridge store.</p>	<ul style="list-style-type: none"> <li>Do not block wall cavities—doing so contributes to the lack of ventilation of the underground spaces.</li> </ul>  <p>Cavity in brickwork.</p>	
<p><b>Access shaft to depression range finder</b></p> <p>Shaft is of exceptional significance.</p> <p>Ladder is of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Retain remnant limewash on walls.</li> <li>Retain and conserve metal ladder in situ.</li> <li>Retain and conserve shadow of frame above opening to shaft.</li> <li>Replace ventilation fan when needed.</li> </ul>  <p>Shadow of frame.</p>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Ongoing.</p>
<p><b>Lamp niches</b></p> <p>Lamp niches are of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Conserve all lamp niches in situ, including ventilation pipes and openings in wall (above and to each side of each niche).</li> <li>Conserve metal frames and lamp housings.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Ongoing.</p>

Item, image and significance	Description of works	Priority
 <p>Framed lamp niche with ventilation holes on each side and at top of niche.</p>	<ul style="list-style-type: none"> <li>Conserve lamp housing in the shelf of each niche.</li> <li>Conserve all evidence of the framing for fireproof glass enclosures to the lamps.</li> </ul>  <p>Lamp housing.</p>	
<p><b>Concrete ceiling</b></p> <p>Concrete ceiling is original and of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Brush ceilings with soft bristle brush to remove loose material—flaking paint, decaying surface of bricks and mortar. Collect debris and remove from site.</li> <li>Remove peeling acrylic paint layers.</li> <li>Retain and conserve limewash finish.</li> <li>Remove mould using approved materials and methodology. Avoid using bleach. If vinegar is used, gently spray onto surface and dab off. Avoid rubbing surface as this will remove limewash. Avoid contact with metals.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Mould removal will be ongoing.</p> <p>For conservation of original fabric, but also for health and safety of visitors and staff.</p>
<p><b>Brick vaulted ceilings</b></p> <p>Brick vaulted ceiling is original and of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Brush ceilings with soft bristle brush to remove loose material—flaking paint, decaying surface of bricks and mortar. Collect debris and remove from site.</li> <li>Remove peeling acrylic paint layers.</li> <li>Retain and conserve limewash finish.</li> <li>Remove mould using approved materials and methodology. Avoid using bleach. If vinegar is used, gently spray onto surface and dab</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Mould removal will be ongoing.</p> <p>For conservation of original</p>







Item, image and significance	Description of works	Priority
	<p>off. Avoid rubbing surface as this will remove limewash. Avoid contact with metals.</p>	<p>fabric, but also for health and safety of visitors and staff.</p>
<p><b>Iron rails/beams in ceiling</b></p> <p>Ceiling beams are original and of exceptional significance.</p> 	<ul style="list-style-type: none"> <li>Carefully remove any loose and spalling concrete from around iron rails.</li> <li>Remove any loose rusted material from surface of rails.</li> <li>Investigate structural integrity of iron rails and concrete around them.</li> <li>Clean and treat with rust inhibitor.</li> </ul>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p> <p>For integrity and stability of structure.</p>
<p><b>Ceiling vents</b></p> <p>Ventilation system is of exceptional significance.</p> <p>Individual ceiling vent outlets may be original or may have been replaced.</p>	<ul style="list-style-type: none"> <li>Retain existing ceiling vents in situ.</li> <li>Investigate and map reticulation of ventilation system using industrial endoscope.</li> <li>Investigate materials used for construction of ventilation pipework.</li> <li>It is possible vent pipes have been impacted by tree growing over top of fortifications.</li> <li>Clear blocked vent pipes to ensure ventilation systems is working.</li> <li>Replace broken vent pipes.</li> </ul>	<p><b>High priority.</b></p> <p>Complete within 1–3 years.</p> <p>For air quality in underground fortifications.</p>

Item, image and significance	Description of works	Priority
		
<p><b>Internal window and doors</b></p> <p>Timber lintels and timber window and door frames are original and of exceptional significance.</p> <p>Timber door to ammunition store is a replica of the original door. It is of moderate significance.</p> <p>Window shutters are not original and are of low significance.</p>  <p>Door frame.</p>	<ul style="list-style-type: none"> <li>• Retain and conserve brick arched heads and rendered sills to openings.</li> <li>• Retain and conserve all timber window and door frames in situ.</li> <li>• Retain and conserve timber lintels in situ.</li> <li>• Retain window shutters and replica door in situ.</li> <li>• Retain all surviving window and door hardware in situ.</li> <li>• Clean and treat all surviving metalwork with rust inhibitor.</li> <li>• Retain and conserve all evidence of hardware where doors have been removed.</li> <li>• Where frames are missing, retain all evidence of where timber frames were originally fitted.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Ongoing.</p>



Item, image and significance	Description of works	Priority
 <p>Replica panel door.</p>	 <p>Timber frame showing evidence of hinges.</p>	
 <p>Window shutters.</p>	 <p>Timber lintel.</p>	
<p><b>Metal fixtures and fittings</b></p> <p>All original iron and steel fixtures are of exceptional significance.</p>	<ul style="list-style-type: none"> <li>Conserve all metal fixtures and fittings in situ.</li> <li>Clean and treat all metalwork with rust inhibitor.</li> </ul>	<p><b>Medium</b> priority.</p> <p>Complete within 3–5 years.</p> <p>Ongoing.</p>



Item, image and significance	Description of works	Priority
 Ladder and fixings in shaft.	 Bracket.	
<b>Electrical services and lighting</b> Electrical circuitry and fixtures are of low significance. 	<ul style="list-style-type: none"> <li>Review condition of existing electrical conduits, power outlets and lighting.</li> <li>Review condition of fan in access shaft to depression range finder.</li> <li>Remove all items that are not safe.</li> </ul> 	<b>High</b> priority. Complete within 1–3 years. For safety.
<b>Equipment for cleaning and loading of guns and flagpole</b> Items are replicas and of moderate significance.	<ul style="list-style-type: none"> <li>Retain and conserve all replica equipment for cleaning and loading of guns in situ.</li> <li>Flagpole may be retained in situ.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. Ongoing.



Item, image and significance	Description of works	Priority
		

## 4.6 Schedule 6: Internal refurbishment works to enable ongoing compatible use

This schedule of works assumes that works outlined in schedules 4 and 5 have been completed and that works outlined in schedule 6 will be undertaken within three to five years of the schedules 4 and 5 works.

This schedule also assumes that ventilation and drainage are key to making the place healthier and safer for ongoing compatible use, occupation or public visitation.

Item and significance	Description of works	Priority
<b>Waterproofing, drainage works</b>		
<b>Fill over and waterproofing of underground fortifications</b> Fill was placed following opening up of site to expose fortifications. Fill material is not significant.	<ul style="list-style-type: none"> <li>Remove tree from over fortifications.</li> <li>Under an archaeological watching brief, remove the fill from over the top of and around the underground fortifications. Retain fill on site for reinstatement on completion of drainage and waterproofing works.</li> <li>Inspect damage to fortifications, drainage and ventilation system from tree roots.</li> <li>Inspect existing waterproofing of structure to assess its condition. Retain and conserve existing waterproofing in situ (anticipated to be asphalt).</li> <li>Provide a new waterproofing system over the top of the roof of the structure and around all the walls.</li> <li>Following installation of new drainage and repairs to ventilation system, reinstate fill and grass over the top of the fortifications.</li> </ul>	<b>High priority.</b> Complete within 1–3 years. Undertake works in conjunction with tree removal.
<b>Drainage</b>	<ul style="list-style-type: none"> <li>Investigate existing drainage around the underground fortifications.</li> </ul>	<b>High priority.</b> Complete within 1–3 years.



Item and significance	Description of works	Priority
Original drainage system is of high significance.	<ul style="list-style-type: none"> <li>Undertake necessary repairs to drainage pipes.</li> <li>Provide new supplementary drainage as required to remove water from area of underground fortifications.</li> <li>Connect new drains to existing drainage system.</li> </ul>	Undertake works in conjunction with tree removal.
<b>Ventilation</b>		
<b>Ventilation</b> Original ventilation system is of high significance.	<ul style="list-style-type: none"> <li>While underground fortifications are uncovered, investigate remains of original ventilation system.</li> <li>Undertake necessary repairs to ventilation pipework.</li> <li>Provide new fan to top of access shaft to former depression range finder.</li> </ul>	<b>High priority.</b> Complete within 1–3 years. Undertake works in conjunction with tree removal.
<b>Interior works</b>		
<b>Concrete floor, ramps and steps</b> Fortification floor, ramp and steps are of exceptional significance.	<ul style="list-style-type: none"> <li>Conserve existing floor finish.</li> <li>Fill hollows in floor where there is a trip hazard with cement; finish to match original floor finish.</li> <li>Provide safety strips if needed to steps and low lintels.</li> </ul>	<b>Low priority.</b> Complete within 5–10 years. To minimise trip hazards.
<b>Dish drains</b> Floor drains are of exceptional significance.	<ul style="list-style-type: none"> <li>Conserve all original floor drains.</li> <li>Ensure drainage system is clear and functional.</li> </ul>	<b>High priority.</b> Complete within 1–3 years. Ongoing.
<b>Grated pits/sumps</b> Grates are of low significance.	<ul style="list-style-type: none"> <li>Retain grates over drainage pits—installed as part of schedule 5 works.</li> <li>Treat grates with rust inhibitor.</li> </ul>	<b>Medium priority.</b> Complete within 3–5 years.
<b>Wall finish</b> Acrylic paint is recent and intrusive. Limewash is original and of high significance. Unpainted brickwork and concrete is of exceptional significance.	<ul style="list-style-type: none"> <li>Treat mould.</li> <li>Remove any acrylic paint.</li> <li>Investigate paint layers to confirm original paint scheme, including whether walls were painted at all.</li> <li>Limewash walls that were originally limewashed.</li> <li>Do not limewash walls that were not limewashed previously.</li> </ul>	<b>Medium priority.</b> Complete within 3–5 years. Ongoing.
<b>Ceiling finish</b> Acrylic paint is recent and intrusive.	<ul style="list-style-type: none"> <li>Fill cracks with lime plaster.</li> <li>Treat mould.</li> <li>Remove any acrylic paint.</li> </ul>	<b>Medium priority.</b> Complete within 3–5 years.



Item and significance	Description of works	Priority
Limewash is original and of high significance.	<ul style="list-style-type: none"> <li>Limewash ceiling.</li> </ul>	Ongoing.
<b>Painted signage</b> Faded early signage is original and of exceptional significance. Repainted signage is of high significance.	<ul style="list-style-type: none"> <li>Conserve historical signage where it exists, including ghost signage.</li> <li>Do not paint over or repaint signage.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. Ongoing.
<b>Internal timber doors and windows</b> Original timber door and window joinery is of exceptional significance.	<ul style="list-style-type: none"> <li>Conserve surviving internal timber doors and windows, including their frames, in situ.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. Ongoing.
<b>Lamp niches and associated ventilation holes</b> Lamp niches and associated ventilation holes are of exceptional significance.	<ul style="list-style-type: none"> <li>Conserve lamp niches and associated ventilation holes as noted in schedule 5 works.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. Ongoing.
<b>Iron and steel fixtures and fixings</b> Original iron and steel fixtures and fixings are of exceptional significance.	<ul style="list-style-type: none"> <li>Clean back ironwork to clean, bright finish.</li> <li>Treat with rust inhibitor.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. Ongoing.
<b>Ceiling and wall vents</b> Vents are of exceptional significance.	<ul style="list-style-type: none"> <li>Retain and clean out original ventilation pipes.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. Ongoing.
<b>Shaft to former depression range finder</b> Shaft is of exceptional significance.	<ul style="list-style-type: none"> <li>The ladder is not safe.</li> <li>Provide barrier across entrance to shaft to prevent entry. Barrier should not block view of shaft.</li> </ul>	<b>Medium</b> priority. Complete within 3–5 years. Ongoing.
<b>Lighting and power</b> Electrical services are of low significance.	<ul style="list-style-type: none"> <li>Install or upgrade lighting and power to enable ongoing compatible use, occupation or public visitation of the underground spaces.</li> <li>All conduits are to be surface-mounted and laid out to minimise their physical and visual impact on the spaces.</li> </ul>	<b>Low</b> priority. Complete within 5–10 years. To facilitate visitation.



Item and significance	Description of works	Priority
	<ul style="list-style-type: none"> <li>Provide 2 double general power outlets (GPOs) in the underground magazine complex only.</li> </ul>	
<b>Interpretation</b>		
<b>Interpretation strategy</b>	<ul style="list-style-type: none"> <li>Develop and implement interpretation strategy for the site and precinct in accordance with conservation policy for heritage interpretation.</li> <li>Provide interpretation signage (including QR codes) or similar to explain history and use of the guns and above-ground structures. Include interpretation for: <ul style="list-style-type: none"> <li>each gun;</li> <li>depression range finder; and</li> <li>bombproof shelter.</li> </ul> </li> <li>Provide interpretation signage (including QR codes) or similar to explain the history, use and layout of the underground structures. Include interpretation for: <ul style="list-style-type: none"> <li>layout of underground magazine; and</li> <li>storage and handling of ammunition within the fort.</li> </ul> </li> <li>Provide interpretation that links the fortifications at this site to the fortifications at Flagstaff Hill.</li> </ul>	<p><b>High</b> priority—development of interpretation strategy.</p> <p>Complete within 1–3 years.</p> <p><b>Medium</b> priority—implementation of interpretation strategy.</p> <p>Complete within 3–5 years.</p> <p>To promote visitation and aid understanding of the site.</p>



# Maintenance plan



## 5 Maintenance plan

The following table provides guidelines for cyclical maintenance and inspections. It is based on the inspection schedule included in the NSW Heritage Office (now Heritage NSW) document titled *The Maintenance of Heritage Assets: A Practical Guide (1998)*.

Table 5.1 Maintenance tasks and intervals.

Type	Maintenance task	Interval (regularity)
Landscape—mowing	As per Council's usual landscape maintenance schedule.	Weekly in summer and three-weekly in winter.
Landscape—weeds	Remove weeds from joints and drains.	Weekly in summer and three-weekly in winter.
Landscape—tree roots	Monitor growth and intrusion into area around historical structures.	Annually.
Landscape—hard paving	Weed bricks, clear gravel and debris.	Monthly and after storms.
Landscape—gravel surfaces	Weed monthly; rake back into place. Monitor for washouts.	Monthly and after storms.
Surface drains	Check condition of subsurface drains with CCTV.	Biannually.
Surface drains and sumps	Clear surface drains and sumps. Remove gravel, vegetation and other debris.	Monthly and after storms.
Subsurface pipes	Clear subsurface pipes with electric eel.	Biannually or more frequently if underground fortifications begin to hold water.
Smiths Hill Fort around underground fortifications and depression range finder Flagstaff Hill Fort above shafts to former observation post and depression range finder	Monitor subsidence.	Annually. If there is movement, monitor quarterly.
Metal artefacts	Monitor for evidence of corrosion.	Monitor annually. Clean and treat with rust inhibitor where recommended every 5 years, paint every 5 years.
Masonry walls, ceilings	Check for evidence of salt decay. Remove salty material from site.	Monitor annually.



Type	Maintenance task	Interval (regularity)
Masonry walls, ceilings	Monitor cracks, using tell-tales.	Annually. If there is movement, monitor quarterly.
Masonry walls—Smiths Hill Fort	Monitor wall displacement, using tell-tales.	Annually for Smiths Hill Fort casemate. Every 3 months for Smiths Hill Fort depression range finder walls.
Mould	Demould underground structures. Treat as necessary.	Monitor every 6 months.
Painted surfaces	Repaint to match existing.	Every 7–10 years externally. Review condition every 15–20 years internally.



# Appendices





## 6 Appendices

### Appendix A

DTS, Flagstaff Hill: Structural Assessment Report, report prepared for Wollongong City Council, 5 June 2024



## FLAGSTAFF HILL - STRUCTURAL ASSESSMENT REPORT

## Structural Assessment Report

June 5, 2024

# Executive Summary

The purpose of this commission is to review the current state of the historical Flagstaff Hill fort and assess the current condition and performance of the existing construction along with any high-level recommendations for remediation to reinstate defective structural elements to protect and serve the facility function in the short-term period.

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### 1.1 Attachments:

1. High Level Defect Mapping
2. Flagstaff Hill -Wollongong site plan – P116/5-2
3. Flagstaff Hill -Wollongong Plan of Existing underground Fortification site plan – P116/9

## Structural Assessment Report

June 5, 2024

## 2 Introduction

DTS was engaged on the 30<sup>th</sup> of May 2024 by councils internal city strategy and heritage divisions to undertake a visual structural assessment of the Flagstaff Hill Fort.

The inspection will comprise of a visual walkthrough, recording defects together with photographs of the damage observed, all to be outlined and discussed in this Structural Assessment Report, and issued to councils internal city strategy and heritage divisions for their review and consideration.



Figure 1: Site location

## 3 Purpose and Scope

The purpose of this report is to convey high-level analysis and recommendations drawn from an initial structural inspection and assessment completed by councils internal engineers. Our aim of the investigation was to establish any high-risk structural defects and review the performance of the original construction of the fort. Where possible, we have also commented on the expected cause of inspected deterioration.

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Our scope does not include, and no effort will be made to undertake structural analysis to assess the capacity and integrity of the main structural elements of the building structures other than to report any obvious deficiencies observed.

## 4 General

We understand that the intent of this structural assessment is to inform councils internal city strategy and heritage divisions on the current condition and to inform what, if any, potential the structure has for future usage by council and the community.

## 5 Report Qualifications

- > This report has been prepared for councils internal city strategy and heritage divisions, and should not be relied upon by any third party. No responsibility is undertaken to any third party in the use of this report.
- > There has been no detailed assessment, this report predominantly relies on a visual inspection of the areas of the facility accessed and observed from safe areas.
- > We do not claim to have discovered or seen every hidden defect in existence on the roof. Furthermore, the determination of proposed remediation should be considered indicative only and aided by ongoing, routine inspections that will guide the Strategic Asset Facilities Management team.
- > Generally, DTS will not be aware of the long-term planned use of the asset and will form recommendations based on a continuation of the existing use of the asset as is, unless specifically requested to do otherwise.
- > The services undertaken by DTS in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report. The opinions, conclusions and any recommendations in this report are based on the site conditions encountered and information reviewed at the date of preparation of the assessment report.
- > Site conditions at other parts of the structure may be different from the site conditions found at the specific location investigated. Investigations undertaken and options offered in respect of this report are constrained by the site conditions, such as the structural facility condition including the services. As a result, not all relevant site features and conditions may have been identified in this report.
- > This report does not reference or explore any access/egress requirements to the NCC and Australian standards and has been completed purely as a structural assessment.



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### 6 General Background to the Facility

- > The flagstaff hill fort was built circa 1890-1891 and consists of brick and reinforced concrete construction. The fort appears to be founded on rock and set into the headland, it is unknown how much cut and fill was used in the construction of the fort. Much of the construction is unknown as no Work as Executed or Design drawings were locatable.
- > We note that the facility is located in an aggressive coastal environment and the facility and roof will be exposed to extreme prevailing weather conditions.

### 7 Building Construction

- > The roof construction comprises of a reinforced concrete slab clear spanning across the room spaces in the order of 5.0 m, these slabs are supported each side of the rooms by brickwork walls set out on a regular grid system.
- > The facility roof drainage appears unique as it features cast in-situ cast-iron pipes that are arranged on a regular grid system.
- > The roof has cast in steel members, at the entrance to branch off tunnels from the main central tunnel. The design behind this cast in member is unknown, however possible reasons could be to facilitate a large sliding door, for formwork to be built off or as a joint.
- > It should be recognized that some 100 years ago concrete quality in an aggressive environment such as this location was generally not recognized and special precautions were not normally taken as they are today, such as increased cement content and extra rebar cover.
- > Concrete visibly contained oversized and ungraded aggregate within
- > Walls were either brick or reinforced concrete type construction, with seemingly varied thickness dependent on location within the structure
- > Walls height varied from 2m – 3m
- > The flooring was reinforced concrete slab, expected to be founded on rock, however this has not been confirmed. The concrete slabs in the shell storage room has evidence of a set in flooring of unknown material at one point in history, shown by a grid pattern
- > Floors have cast in drainage channels, and drainage sumps leading to and underfloor drainage network

### 8 Existing Documents

- > Prior to the investigation we sought to review work as executed drawings, and specifications so that clues to the facility and roof deterioration may be revealed. Unfortunately, these records are minimal.
- > In addition, at the time of writing this report there are no existing facility roof maintenance reports available to understand the general history of this concrete roof

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particularly the roof leak that has occurred and the order roof deterioration that may have occurred.

## 9 List of Documents Provided

- > Flagstaff Hill -Wollongong site plan – P116/5-2
- > Flagstaff Hill -Wollongong Plan of Existing underground Fortification site plan – P116/9

## 10 Building Inspection

An inspection was undertaken on 31st May 2024 by Ben Hogendyk and Emil Toussis from Wollongong City Councils Design and Technical Services division.

The inspection comprised of a walkthrough visual inspection inside and outside Flagstaff Hill subject to availability of safe and reasonable access on the day of the inspection. No destructive testing or other quantitative investigations were completed.

Inspected areas are as follows:

- General walkthrough inside the fort facility inspecting the structural concrete and brick elements.
- General walkthrough outside the fort inspecting the condition above the underground facility.
- At the time of inspection, structural did not have access to the central cannon pit

## 11 Observations

Generally, the entire structure presented well for its age, no major deformation or structural damage could be seen that would warrant large scale structural repair works and/or closure of the structure, however throughout the investigation we noted multiple issues and items that would need to be investigated further and remediated before opening up to the public (Refer section 11).

Sounding out of certain areas showed the concrete to be in reasonable condition, however the overlayed plaster/paint was brittle and degraded in multiple locations. A detailed investigation should be completed once areas have been cleaned, as certain sections could not be properly inspected. The fort showed no obvious signs of differential settlement and looks to be securely located on a stable foundation, brick walls were relatively level with no joint displacements observed, indicating little differential lateral movement has occurred.

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### OUTSIDE:

#### 11.1 General walk around

Visual inspection revealed the following:

- a) The concrete roof is performing satisfactorily with no evidence of major structural deformations precluding the usage of this facility as maybe intended.
- b) Major corrosion was viewed on external doors and window shutters
- c) No visible outflow for the drainage system on the North side of the network
- d) No visible outflow for the ventilation system
- e) No obvious signs of settlement or collapse in the fill above the network
- f) A pit was located externally on the South side of the network, structural understands this pit captures a portion of the forts drainage
- g) The visible concrete in the cannon pit looked in reasonable condition, especially as it is exposed to the elements

### INSIDE:

#### 11.2 General walk through the building

Visual inspection revealed the following:

- a) There is visual evidence of minor- severe structural damage to some elements as follows:
  - Minor to severe cracking to the wall cladding
  - Apparent concrete spalling to the concrete slab in multiple locations
  - Minor movement cracking to the main brickworks that supports the concrete roof over.
  - Severe to minor rust stains that have extruded through a hole from the bottom of the concrete slab.
  - Cracking and associated corrosion of reinforcement due to seepage through the crack in multiple locations
- b) The presence of water and moisture was seen throughout the network, the magazine chamber had standing of approximately 10mm depth.
- c) A once present drainage network with channels and outflow plumbing
- d) Inset/cast in shelving and other unknown structures were once present throughout the fort

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- e) Heavy slide doors were once present in numerous locations
- f) A lighting network was post installed but has since deteriorated and collapsed
- g) The fort has had a lot of items that were installed during the initial construction, since removed. These include but are not limited to: Grates, grills, doors, hatches, storage etc.

## 12 Remediation and risk rating

Below is a summary on items of note that will need to be remediated. These have been categorised from high risk to low risk, noting importance of the repair works.

High risk structural items:

- The two ventilation shafts and hatches were severely corroded and in disrepair, these vents looked to be holding back concrete blocks and debris that were used to fill the shafts in. There is risk of collapse at anytime here and shoring or opening (removal of the debris) of these shafts should be completed. This item will require further investigation and design to be made safe. For the short term structural proposes the areas to be cordoned off during future site visits by council and contractors
- Intrusion of water was seen throughout the structure along joints, large cracks and open sections. The seepage showed signs of discolouration associated with efflorescence and staining associated with degradation and corrosion of the reinforcement within the concrete. Due to the period of construction, it is assumed that no impermeable barrier was provided to stop this seepage from occurring as would now have been done as standard practice. This item will need to be investigated further and a remediation provided

Moderate risk items:

- Evidence suggests the presence of a once operating drainage and ventilation network, however a lot of the system has been blocked and fallen into disrepair. Evidence of ventilation and drainage pipes experiencing vertical and lateral movement differential to the structure as a whole, which could make repair works difficult in practice. Drainage is still mostly unknown and will need to be resolved
- One of the sandstone lintels is disintegrating due to exposure to southerly winds (wind erosion), repair or replacement required

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- Cast in steel members have experienced extensive corrosion and are causing flaking and spalling in the surrounding concrete, further investigation will determine the implications however repairs and protection of members should be explored.

### Low risk items:

- Spalling and cracking is evident in concrete at various locations , dependent on the intended function, this may need repair for aesthetics (some spalling sections must be repaired)
- Access issues, trip hazards, uneven floors, stairs not to code etc
- Residual timber cast-ins are rotting/deteriorating
- Damaged and broken bricks observed, some sections may require repair
- Lighting to be replaced

## 13 Discussion / Conclusion

This report does not intend to describe the cause of the observed defects fully. However, a general explanation of the relevant aspects of cause of deterioration of the roof is outlined below.

Whilst the fort has a multitude of issues that will need rectification if future habitable usage is proposed, the general construction seems to be in fair condition. Future use of the fort by council seems feasible from our initial inspection, however considerable investment and work would be required to safely facilitate use of the structure for the community.

The fort was built before Australian standards were introduced so quality of construction was extremely reliant on the constructors ability. Visual investigation showed various non-conformances with todays standard and concrete construction in general, that being said no major structural defects were noted.

- > The facility has been operational for some 100 years and has performed reasonably well considering its age in this coastal aggressive environment.
- > Prevailing extreme weather conditions will impact on the general structural performance, particularly on exposed concrete and steel elements.
- > In this coastal aggressive environment, the present wet humid conditions contain chloride ions, this promotes and exacerbates corrosion. Consequently, all elements that do not have adequate protection will breakdown under these conditions resulting in a rusted-out steelwork and concrete spalling.



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- 
- > Based on our site observations and the extent of defects observed we consider that in the short-term remediation solution will be considered as hit and miss approach and may not be certified and come with a guarantee to the client's satisfaction.
  - > Whilst cracking in multiple locations was observed, they generally aligned at expected areas and didn't indicate overloading or differential movement. The cracks fell within damage category 0-2, which is repairable without major structural work.
  - > Moisture and mould were observed in most areas of the network, which is deemed consequential of the failed drainage and ventilation network as well as water ingress through cracks and concrete capillary action.

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### 14 Recommendations

An initial short-term recommendation by structural would be to cordon off access to both vertical shafts, whilst the shafts have remained intact for presumably a long time, any interference by workers could cause a collapse.

D.T.S recommends further investigations to be conducted to develop a complete picture of the site, these include:

- > Concrete condition assessment (compressive strength, carbonation, thickness, aggregate etc.)
- > Detailed cleaning of the fort
- > Reinforcement scanning and condition assessment
- > Geotechnical assessment
- > Comprehensive drainage and ventilation investigation
- > Comprehensive defect survey to facilitate specification

After further investigations have taken place a remediation specification can be developed to facilitate the repair works. Expected works required from a high-level:

- > Removal of existing paint/plaster and cleaning of network, re-application and painting where required
- > Mortar repair of cracked, spalling and damaged concrete, elastic injection at joint cracks
- > Application of a concrete impregnation protection system throughout roof structure to reduce seepage
- > Sealing or opening of vertical shafts
- > Clearing and re-opening of existing drainage and ventilation networks, construction of new drainage system in some areas
- > Brickwork repair
- > Replacement or repair of existing doors

Report Written by:



Ben Hogendyk  
Structural Engineer

Report reviewed by:



Emil Toussis  
Senior Structural Engineer

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## 15 Typical Defects and Grading



The below table show typical defects observed throughout the structure, this is an example, not an exhaustive defect survey. Please refer to attached plan for location.

**Defects Category Table**

Category	Description	Typical Characteristics
Type 1	Low Level Damage	Local damage No influence on load capacity Slight brick defects
Type 2	Medium Level Damage	Local extensive damage Slight influence on load capacity Moderate brick defects
Type 3	High Level or high-risk Damage	Large scale damage Strong influence on load capacity Extensive brick defects



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Item No.	Component	Observation Assessment	Photographic Observation	Condition Grade
1	Concrete wall to roof transition	Joint seepage at expected construction joint or cracking, staining due to water ingress and resultant corrosion of reinforcement. Mould build up due to moisture		1
2	Floor in shell storage room	Evidence of potential floor system, now considered a trip hazard. Exposed aggregate is atypical to current concrete construction		N/A

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Item No.	Component	Observation Assessment	Photographic Observation	Condition Grade
3	Concrete wall to roof transition	Joint seepage at expected construction joint or cracking, staining due to water ingress and resultant corrosion of reinforcement. Mould build up due to moisture, typical around cannon pit		1
4	Cast in steel member	Severe corrosion of member, spalling and flaking of concrete along edges.		1





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Item No.	Component	Observation Assessment	Photographic Observation	Condition Grade
5	Cast in steel member	Severe corrosion of member, spalling and flaking of concrete along edges.		1
6	Vertical hatch	Extreme corrosion identified, risk of collapse		3



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7	Vertical hatch	Extreme corrosion identified, risk of collapse		3
8	Existing Drainage Network	Blockages, differential movement, debris and evidence of not operating as intended		2



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Item No.	Component	Observation Assessment	Photographic Observation	Condition Grade
9	Cast in ventilation pipes	Cast in steelwork has corroded and spalled in multiple locations throughout the structure		1
10	Brickwork	Damaged bricks visible throughout structure		1

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11	Sandstone lintel	Section loss of lintel block, expected to be caused by strong winds blowing through gaps		1
12	Joint	Typical joint crack with evidence of internal corrosion, joint not typically protected as general construction is currently completed.		1



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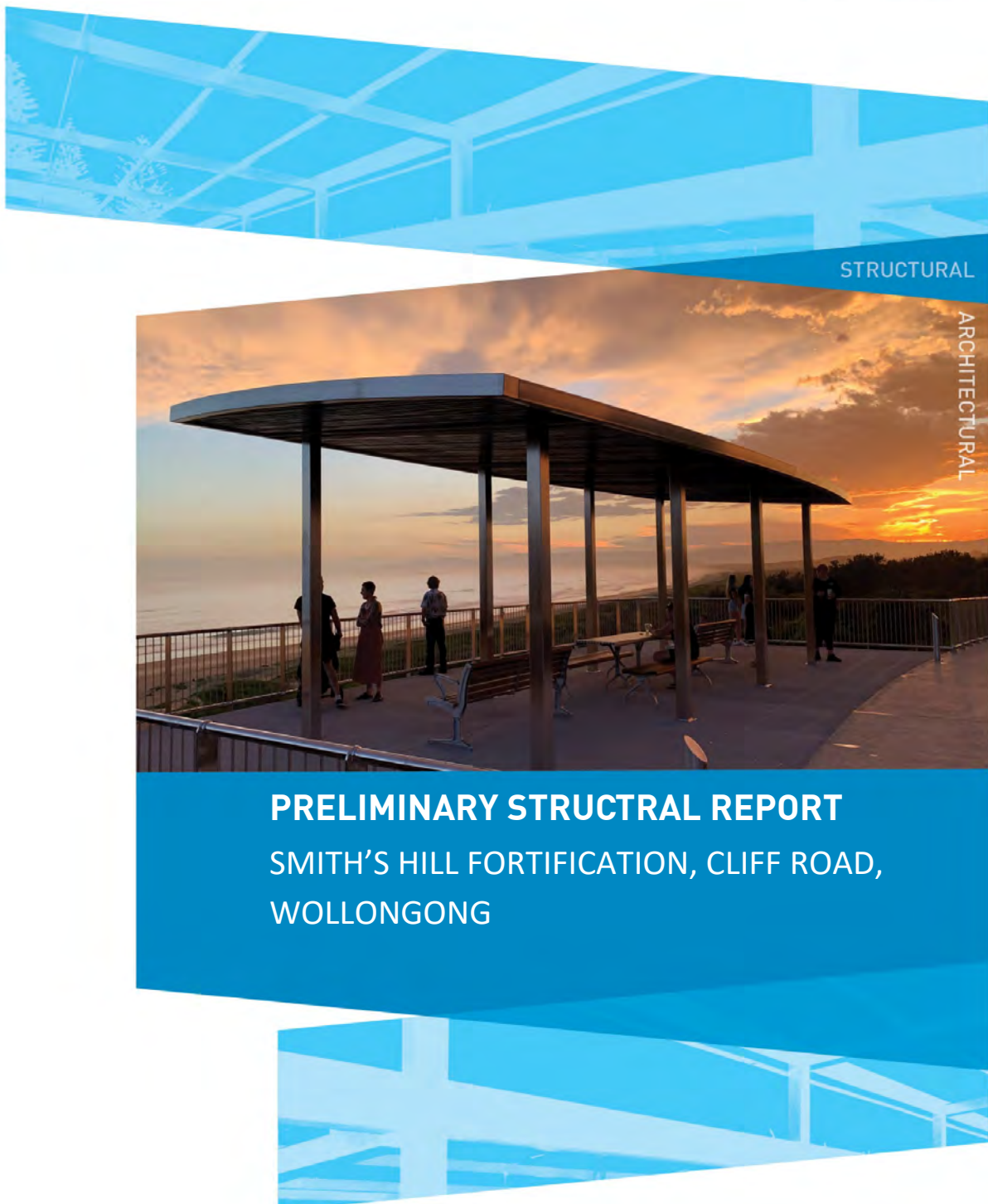
13	Concrete wall to roof transition	Typical spalling visible, generally minor		1
14	Cast in ventilation	Evidence of differential movement once pipe passes through wall, may make reopening of existing networks difficult		2





## Appendix B

DTS, Preliminary Structural Report: Smith's Hill Fortification, Cliff Road, Wollongong, report prepared for Wollongong City Council, 27 August 2024



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## Document History

Revision	Description	Date	Prepared By	Signature
1	Draft	21/08/2024	A.Rojanawisut	-
2	Draft	22/08/2024	Emil Toussis	-
3	Draft	22/08/2024	A.Rojanawisut	-
4	Issued for Heritage Team Review	27/08/2024	Emil Toussis Ann Rojanawisut	<i>Emil Toussis</i> <i>Ann Rojanawisut</i>

## **1. Introduction**

DTS has been requested to investigate the condition of a historical fortification to report on the structural conditions and provide any structural remedial measures.

The inspection comprised of a visual walkthrough, recording defects together with photographs of the damage observed. The purpose of this commission is to review the current state of the facilities, for future reference and to provide advice on the performance with recommendations for remediation to reinstate defective structural elements to protect and serve the facility function in the short-term of 5-10-year period?

## **2. Purpose and Scope**

The purpose of this report is to provide the client a background understanding on the process of evaluation of the structural condition of the elements that a method of remediation can be considered. The report will present recommendations based on the visual evaluation of the facilities under inspection. The inspection was undertaken on the 2<sup>nd</sup> August 2024 by Emil Toussis in the presence of Joel Thompson.

Our scope does not include, and no effort will be made to undertake structural analysis to assess the capacity and integrity of the main structural elements of the facility other than to report any obvious significant deficiencies observed.

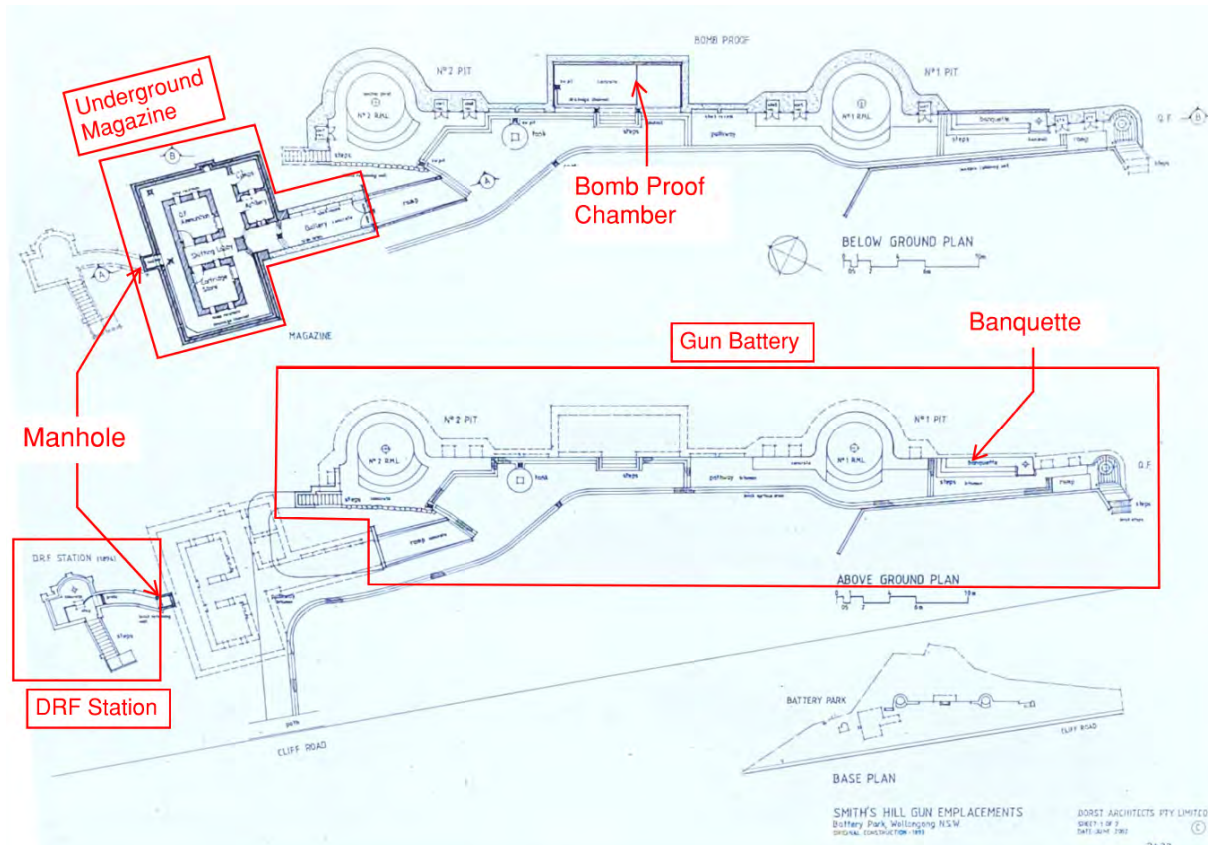
## **3. General**

We understand that Joel Thompson will review this structural assessment report and provide direction and action as deemed necessary prior to implementing the recommended remediation work of the defects found associated with this facility.

## **4. Existing documents**

Prior to the investigation we sought to review existing drawings, and maintenance reports so that clues to possible structural defects may be revealed.

## 5. Historical/ General Background



Smith's Hill Fortification was built in 1890-1891. It comprised of the gun battery, a depression range finder (DRF) and underground magazine. In early 1900s the fort was closed and was filled with boiler ash in 1946 to create Battery Park but the fort was uncovered and restored in 1988. The fortification is a historically significant and part of the Wollongong Harbour State Heritage Register Item.

The fort is surrounded by park and trees, located adjacent to the ocean on the eastern side and Cliff Road on the western side. There are tall mature Norfolk Island Pines in the vicinity of the fortification.

## 6. Investigation Procedure

- Our aim of the investigation was to establish where possible the cause of possible deterioration and to determine the most cost-effective remediation repair solution.
- An inspection of the fortification and associated structures were carried out by DTS on the 2 August 2024.
- The objectives of our inspection were to report on the structural implications of the Depression Range Finder brickwork tunnel, the underground Magazine building and the Gun Battery, and to advise on any structural remedial measures necessary.



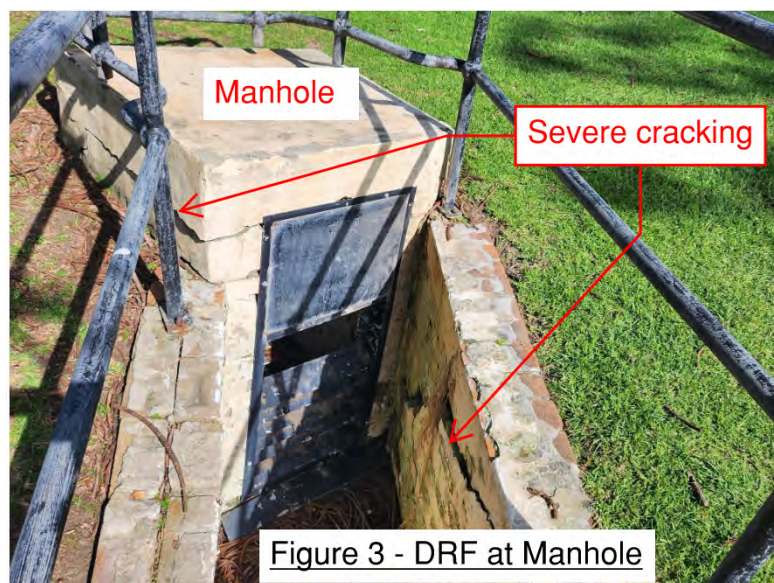
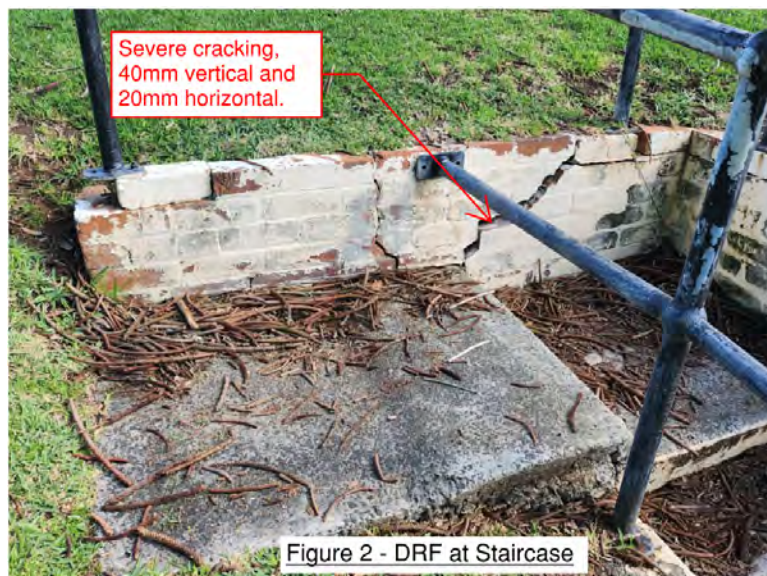
- Survey and 3D scan were carried out on the same day of the structural inspection to utilise the understanding of the geometry and nature of the site including underground structures.
- Our inspection was limited to a visual examination of the exposed and accessible areas of the structures. Hence the drainage pit and drainage trench covered by silt cannot be properly inspected.

## 7. Condition Assessment:

### 7.1 Outside Observations

#### 7.1.1 At the Depression Range Finder (DRF) Station

Significant cracking has occurred on every side of the brickwork trench. The cracking is random in pattern and occurs in numerous locations throughout the brick walls. The most significant and extensive cracking has occurred on the south-western side of the trench generally at the staircase (refer to figure 2) and near the manhole entry to underground magazine (refer to figure 3).



In our opinion the cracking to the brick walls is the result of the number of interacting influences, including the following: -

- 1) long-term brick growth in the brickwork walls.
- 2) The presence of large trees and lawns adjacent to the walls will influence the moisture content in the soils. Thus, influencing the expansion and contraction movements of the soil behind the wall. These will transmit movements into the retaining brick walls.
- 3) Potential down slope ground movement when combined with underground excessive moisture in times of prolonged significant wet weather events.
- 4) Due to above condition, it could transmit lateral and vertical movements into the adjacent brick walls, thus causing additional cracking. In addition, it is possible that movement may continue to occur at the crack locations in the future.
- 5) Temperature and moisture variations in the brick walls inducing cyclic expansion and contraction stresses in the walls.

#### *7.1.2 At the Gun Battery*

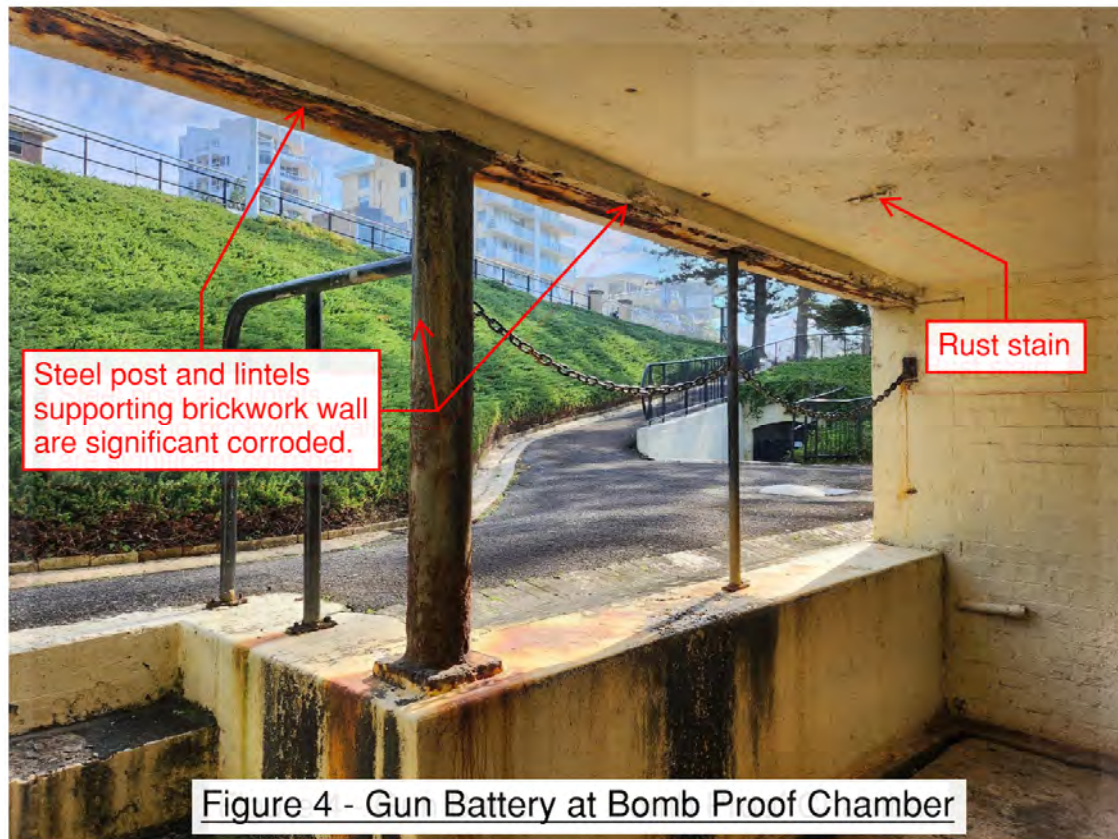
The moderate cracking and horizontal movement have occurred on the brickwork wall of the Banquette (refer to figure 5). The cause of the problem could be the nearby Norfolk Islands Pine which influences moisture content of the soil behind the wall.

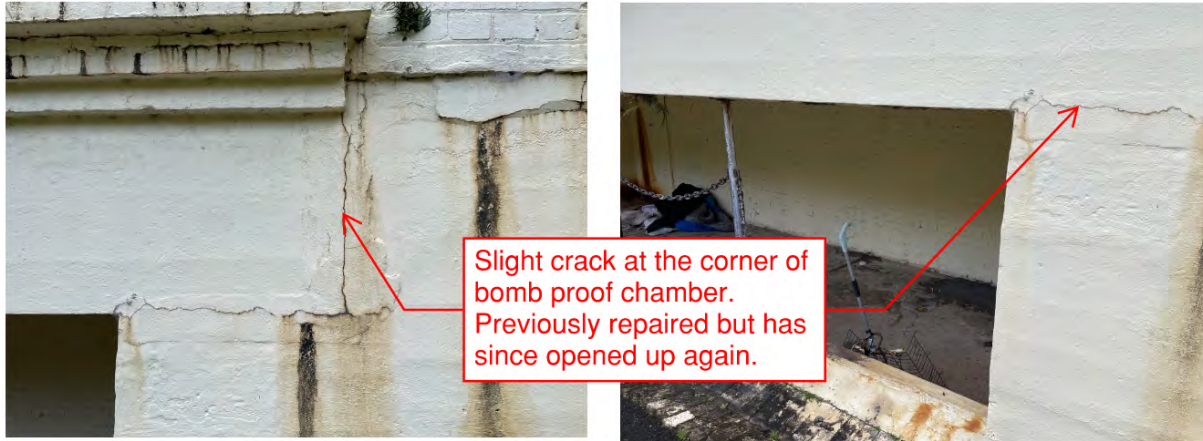
There is a slight cracking has occurred at the top right corner of the Bomb Proof chamber (refer to figures 6 and 7). The cause of the problem could be a slightly sagging of the steel lintel at the opening. There is evidence of repair work undertaken but the problem still occurs. However, it does not appear to be a major structural problem, the wall is still stable, and the capacity of the wall structure appears to be sound.

The steel posts and lintels supporting the brickwork walls at the Bomb Proof chamber show evidence of heavy corrosion. The corrosion could be the results from the following.

- 1) The steel components have met the end of their life span.
- 2) There were no steel protection methods such as galvanising and coating invented during the time of construction.
- 3) The steel elements are exposed to prolonged major storm events.
- 4) The site is located within the aggressive coastline environment.







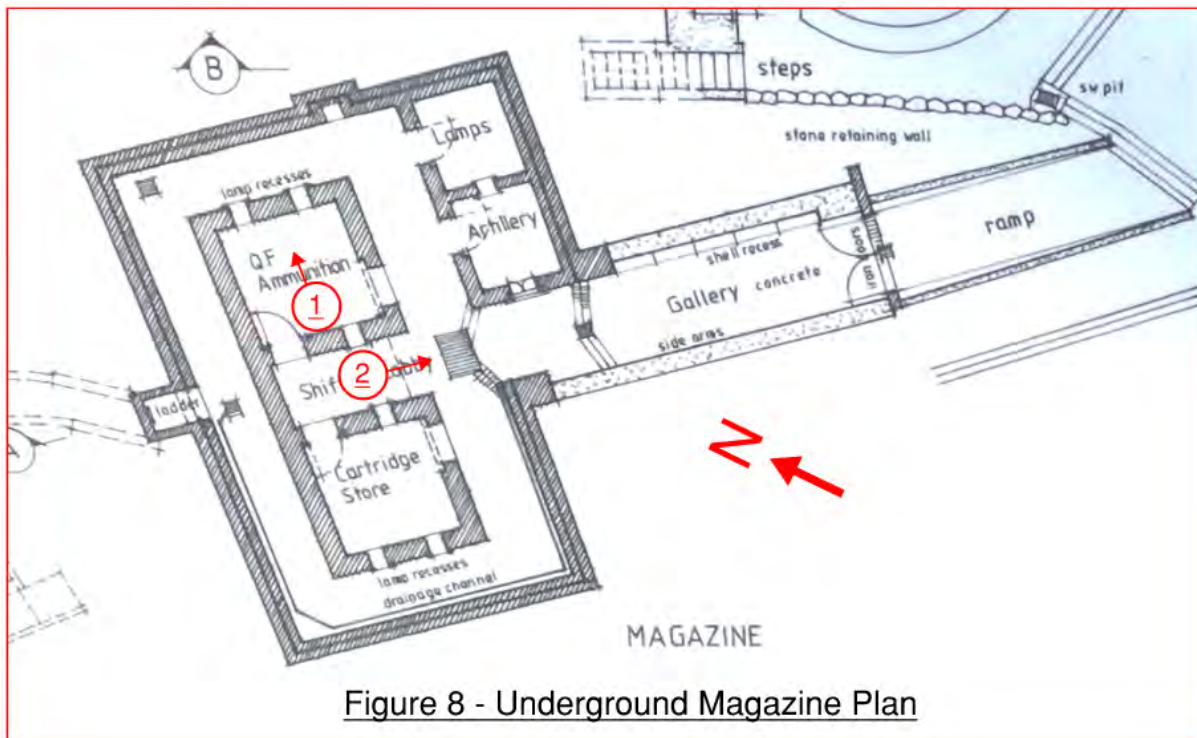
Figures 6 and 7 - Gun Battery at Bomb Proof Chamber

## 7.2 Inside Observations

### 7.2.1 At the Underground Magazine

- I. General site drainage was reviewed and identified that in most areas the drainage needs attention and improvement.
- II. Based on our visual examination of the existing magazine there is no signs of visual structural defects in the forms of cracking to the brick walls and do not appear to be any serious structural inadequacies.
- III. However, significant rust and deterioration are visible to the steel beams supporting brick arches (marked as location 1).
- IV. In our opinion, the moisture from poor ventilation and drainage system, and the aggressive coastal atmosphere promoted cause the corrosion at these locations. The floor in a few locations were noticeably wet and covered with silt at the time of our inspection.







## 8. Discussion / Conclusion

This report has been prepared in order to understand the current condition of this facility and provide guidance to effective rectification work.

- The facility has been open for public for some 36 years and has performed relatively well in this very aggressive coastal environment.
- It is known that in this coastal aggressive environment, the present wet humid conditions contain chloride ions, this promotes and exacerbates corrosion, causing pitting, and crevice corrosion of the steel components, as evident in several locations. All metal elements eventually will breakdown under these conditions resulting in rust stains and structural defects.

### 8.1 Outside

- I. For long term satisfactory results, we recommend that all exposed steelwork is treated to protect against the nearby aggressive coastline environment with an approved paint system applied in strict accordance with the manufactures specification.
- II. The cause of the brick movement and spalling to the Gun Battery brick walls needs to be identified and monitoring before remediation (refer to figures 6 and 7).
- III. In areas where water is able to freely ponds, review and rectify the concrete surface falls to allow water to drain effectively into the present drainage system.
- IV. A vigorous regular maintenance regime must be enforced to ensure all the concrete and steel elements are effectively protected against the aggressive environment to perform as intended.
- V. Concrete testing to identify the extent of concrete damage as observed.

### 8.2 Inside

- I. As we are not aware of the client's maintenance program to service this coastal environment, we suggest that it would be prudent for the client to invest and produce an approved vigorous regimented maintenance regime that must be enforced to ensure all steelwork and brickwork elements are able to perform effectively in this coastal aggressive environment in accordance with Australian design standards and sound construction practices.
- II. It should be noted and taken into consideration that steelwork maintenance to treat corroded steelwork will require all pockets of rust to be systematically removed by power tool cleaning such as wire brushing, or sand blasting, as the most important stage of painting is the

preparation before painting commences, otherwise there is a likelihood that the paint coating will fail prematurely.

- III. It should be also understood that, as the site location exposure falls in a high category C4, high atmospheric corrosivity, all structural steel protective paint coat, must comply with AS/NZS 2312.1: 2014 to give a maximum maintenance free period of 25 years.
- IV. Investigate the cause of the stormwater ponding into the rooms at the lower level, the extent of the water problem needs to be clearly identified and rectified to drain effectively into the present drainage system.
- V. Natural ventilation requirements to satisfy current standards and sound practices.

## 9. Recommendations

1. We suggest that DRF station conditions are substantially derogatory, and the remedial works would be very expensive. The remedial works are not limited to the following.
  - I. Providing subsoil drain behind the wall which will involve with digging trench behind the wall and installation of a long length of drainage pipe to discharge at an appropriate location.
  - II. Reinstate the drainage of the DRF trench.
  - III. Install vertical control joints into existing brick walls.
  - IV. Where considered static, replace the damaged bricks and mortar to the cracks.In our opinion, the reinstatement of the DRF station would be undesirable and the benefit of it would not outweigh the cost.
2. The steel beams in the Magazine should be replaced with galvanised steel.
3. The steel posts and the steel lintels at the Bomb Proof chamber should be replaced with galvanised steel. Welding of the supporting posts to steel lintels and bolting the bottom of the posts to the brickwork are considered necessary.
4. The brick cracks at the Gun Battery Banquette could be repaired using mortar and replacing of damaged brick courses. To protect further movement, installation of subsoil drain and tree root barrier should be sufficient.
5. If the slight cracks at the top corner of the Bomb Proof chamber (refer to figures 6 and 7) have no sign of further movement (after monitoring for a period of time), the cracks could be a cosmetic repair using patching mortar. This repair should be carried out after replacing the steel lintels as mentioned in the number 3 above.
6. The drainage systems should be improved. Further investigation and recommendation from Stormwater team would be valuable.





## Appendix C

OHM Consultants, The Flagstaff Hill Fort & Smith's Hill Fort Metal Work, Wollongong: Condition  
Report & Specification, report prepared for GML Heritage Pty Ltd, July 2025

# Flagstaff Hill Fort & Smiths Hill Fort Wollongong

## Metal Work Condition Report & Specification

Prepared for GML Heritage Pty Ltd

July 2025



OHM Consultants

V3



OHM Consultants

## Introduction

This report pertains particularly to the metalwork of the two forts at Wollongong Flagstaff Hill (formally Signal Hill Battery) and Smiths Hill.

Together the sites show the technological change and transition from cannon ball to shell armoury technology. While the disappearing gun has been removed the casemate still demonstrates the changing technology that was a global strategic effort seen at a local seaport in Australia.

The design of both Flagstaff Hill and Smiths Hill casemates consider not only the protection from incoming shelling but the potential of the hazards of handling explosives by inclusion of separate magazines, venting, flame proof lanterns and blast doors, etc.

Smiths Hill is a rare example where the original artillery is still in position in NSW.

The two forts are in reasonable condition, but both require catch up maintenance work and a schedule of routine maintenance developed to keep these important sites at significant level.

Much of the metal fabric at Flagstaff Hill is not original and introduced to provide security to the site after closure as a military fort.

The report recommendations regarding the preservation has been divided into interior and exterior because the exterior items are largely intact in a marine environment. They have a historic and an interpretive roll to the public as open display. The interior items are mostly missing, degraded or partly intact and have historic value to the site but not normally open to the public and preservation techniques are recommended to stabilise them only.

This report documents historic metal components only and should be read as part of the total conservation management plan.

## Authors

Dave McBeath  
Oliver McBeath

## Guiding Documents

- ECM\_4593316\_v1\_DA-1981 217 Restoration of Old Smiths Hill Fort Project 1981 - Battery Park
- ECM\_25151221\_v1\_Plan set - Smiths Hill Fort

OHM Consultants

## Flagstaff Hill

The 68-pound guns at Flagstaff Hill in Wollongong are remnants of Australia's coastal defence system from the 19th century. These guns were originally installed to protect the coastline from naval threats in 1879/80, reflecting the military strategies of the time. Designed to fire 68-pound solid shot cannon balls, they were a crucial part of the defensive fortifications.



*One of the Flagstaff Hill 68lbs gun barrels with Standing & Bradleys Head gun with reproduction Standing and Slide*

The installation of artillery at Flagstaff Hill was part of broader efforts to secure strategic locations in Australia against potential attacks, particularly during periods of colonial tension. Today, these historical guns serve as important artifacts, offering an insight into the past military defences and the historical context of the region. The fortifications at Flagstaff Hill (formally Signal Hill) in Wollongong represent a significant chapter in Australia's coastal defence history, embodying the strategic military architecture of the 19th century. These structures were part of a broader network of defences established to protect the colonies from potential naval threats. The design of the fortifications at Flagstaff Hill reflects both the technological advancements of the period and the geographical considerations that influenced military planning.

### Strategic Placement and Purpose

Flagstaff Hill was chosen for its strategic vantage point overlooking the Illawarra coastline and the Port of Wollongong. The hill's elevation provided an ideal position for monitoring maritime activity and engaging potential threats before they could approach the harbor. The primary purpose of the fort was to serve as a deterrent to hostile forces, providing both a visible and operational means of defence. The location and design were integral to its function, enabling the defenders to maximise their firepower while minimising vulnerability.

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#### Architectural and Defensive Features

The second fort's design incorporated several key architectural and defensive features that were characteristic of coastal fortifications of the era. It included gun emplacements that housed artillery pieces, such as the 6-inch disappearing gun. These emplacements were strategically positioned to provide optimal coverage and range, allowing for effective targeting of enemy vessels. The disappearing gun was a technological innovation that allowed the gun to retract behind a protective parapet after firing, thereby shielding it and its crew from return fire.

In addition to the gun emplacements, the fort included reinforced casemates and storage facilities for ammunition and supplies. These structures were built with thick masonry walls and the introduction of steel reinforced roofs using railway tracks, designed to withstand bombardment and protect critical resources. The fortifications also featured underground bunkers and interconnected tunnels, providing safe passage for troops and a means of rapid mobilisation in response to threats.

#### Technological Advancements

The design of the fort at Flagstaff Hill was influenced by advancements in military technology during the late 19th century. One significant aspect was the use of rifled artillery, which offered greater accuracy and range than previous smoothbore cannons installed earlier overlooking Wollongong Harbour. The incorporation of such technology reflected a shift in military strategy, emphasising precision and power to counter increasingly sophisticated naval forces.

The disappearing gun mechanism was another notable advancement, illustrating the integration of engineering with defensive strategy. This innovation not only protected the artillery but also enhanced the element of surprise in combat, as the gun could be hidden between shots.

#### Historical Context and Legacy

The construction of the fortifications at Flagstaff Hill occurred during a period of heightened colonial tension and the expansion of British imperial influence. The perceived threat of naval incursions from foreign powers motivated the development of coastal defences throughout Australia. Flagstaff Hill, like other fortifications, was part of a unified effort to secure vital ports and infrastructure against these threats.

Today, the remnants of the fortifications at Flagstaff Hill serve as a historical monument, attracting visitors interested in military history and architecture. The site offers educational insights into the defence strategies of the past and the technological innovations of the period. It stands as a testament to the strategic foresight and engineering prowess that characterised the coastal defences of the time.

In conclusion, the design of the fortifications at Flagstaff Hill Wollongong exemplifies the strategic and technological considerations of 19th-century military architecture. Through its placement, structural design, and incorporation of advanced artillery technology, the fort played a crucial role in safeguarding the region and contributing to Australia's broader coastal defence network. Its legacy continues to inform and educate, preserving an important aspect of the nation's historical heritage.

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*Drawing Signal Hill Battery, RAAHC*

The 6-inch disappearing gun at Flagstaff Hill in Wollongong was a historically significant piece of military artillery. It was part of the coastal defence system in Australia, designed to protect the coastline from potential naval threats in the late 19th and early 20th centuries. The term "disappearing gun" refers to the gun's ability to retract or "disappear" behind a parapet or fortification after firing. This mechanism helped protect the gun and its crew from enemy fire by lowering the gun into a concealed position for reloading.

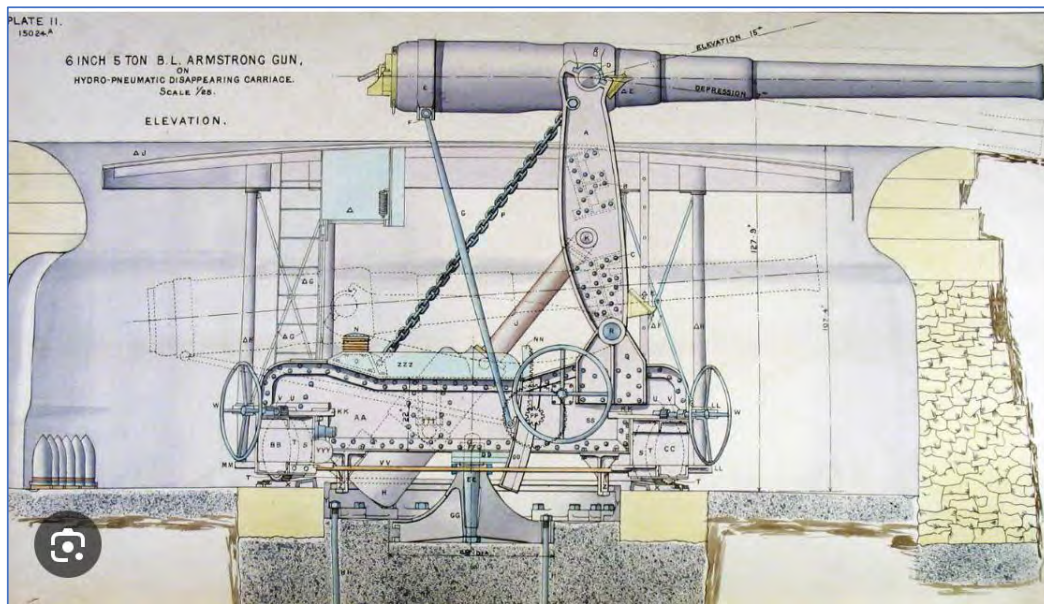
The 6-inch disappearing gun, also known as a disappearing carriage, was a type of coastal artillery used in the late 19th and early 20th centuries, including at locations such as Wollongong, Middle Head and Steel Point in NSW. This design aimed to protect coastal areas from naval attacks while minimising the gun's exposure to enemy fire. Here's how it generally worked:

1. Design and Mechanism: The disappearing gun was mounted on a special carriage that allowed it to be raised and lowered. When in the firing position, the gun was elevated and aimed at its target. After firing, the gun was automatically or manually lowered back into a pit or a protected position.
2. Firing Process: When the gun was fired, the recoil caused the carriage to move backward. This design had a counterbalance system that allowed the gun to disappear into its protected recess. This feature reduced the gun's visibility and vulnerability to return fire from enemy ships.
3. Loading Mechanism: The loading of the gun often required it to be in a horizontal position, so the gun would be elevated, the shell and powder would be loaded, and then the gun would be lowered again for safety when not in use.
4. Protection: The disappearance of the gun into a fortified position provided additional protection from enemy shells and observation. It could only be effectively targeted from protected positions, adding to its defensive capabilities.

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5. Deployment in Wollongong: The use of disappearing guns in Wollongong would have been part of the area's coastal defence strategy, particularly given its strategic location. These guns were intended to deter naval attacks and provide artillery support against potential threats.

The disappearing gun technology became less common as naval warfare evolved, and newer technologies and tactics emerged. However, they were an innovative solution for coastal defence during their time.



6 inch Disappearing Gun drawing , Nepean Historical Society

## Flagstaff Hill Fabric

Flagstaff Hill Fort ironwork consists of two main areas external and internal.

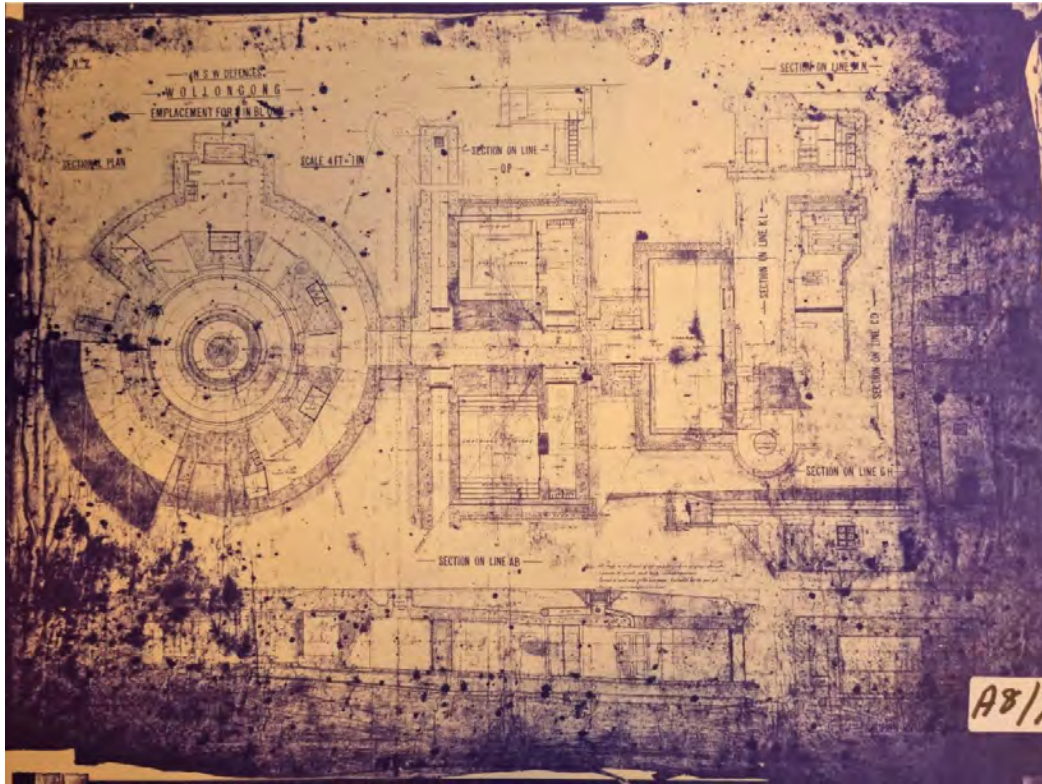
External metal work consists of three(3) 68lbs gun barrels on timber supports as part of the early endeavours to provide security to Wollongong Harbour as the first phase the ports security.

The second phase of security was the construction of a casemate armed with a 6-inch disappearing gun of which a portion of the casemate and gun pit remaining. None of the fortress external metalwork is original and has been installed to provide security to the site.

A major part of the fort's strength is in design of a roof using 70Lbs railway track set in concrete and overlaid with earth to form the casemate fort. A venting system was built into the structures roof to provide a dry aired space required to keep gun powder dry and a spark free environment for the light system of lanterns built into the walls of the tunnels.



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Layout drawings for Flagstaff Hill RAAHC

Internally the casemate was fitted with timber framing and doors as part of the spark free design of forts from this period.

Internally there are a few components survive intact and there are traces of components that have been imbedded into the masonry such as vents, hinges and brackets.

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The internal fittings of the fort have been removed although there is much evidence still evident that it was installed such as lanterns, racks, vents and ladders.



*Depression Range Finder access where a ladder was positioned.*



*Remnants of the lantern niches which featured a safety light casing. Similar safety lights at Fort Scratchley, Newcastle.*

Very few metal items remain at the Flagstaff Hill (Signal Hill) Fort. Three (3) 68lbs gun barrels from the 1879 phase of established military protection. Internal metal fitting from the 1890 fortress constructed for 6" disappearing gun. The significance of Flagstaff Hill is the early defence layout and position of the site rather than the remaining original metal components remaining at the fort.


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RAAHC


## Fabric

### 68 LBS Gun Barrels

The three muzzle loaded guns at Flagstaff Hill are located near their original positions but were moved further up the hill when the current road and park out layout were constructed. Originally installed at a lower position over the 1890 and recorded to have a timber Standing and Slide (Carriage).


Gun 10754 SBML 68 Pounder Mark I	
	
Date of manufacture	1861
Place of manufacture	Low Moor
<b>Condition</b> The gun barrel remain on an outline of the Standing carriage. The barrel is in a good condition but has a failing paint system that is not offering any corrosion protection. The barrel has a timber tampion possibly allowing water into its barrel. The Standing is in sound condition but will need to be renewed within 10 years. The paint condition is poor. Small amount of timber decay starting.	
<b>Recommendations</b> Paint the Standing carriage with timber primer oil-based paint and topcoat immediately to protect it until a replacement is produced. The barrel should be lifted and a new outline Standing carriage be designed and constructed within ten years with annual inspections of its condition. The external gun should be treated for corrosion and painted with a 2-pac zinc enriched paint system to protect it. It is recommended that a tampion be fitted that is weatherproof.	

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Gun 10656 SBML 68 Pounder Mark I	
	
Date of manufacture	1861
Place of manufacture	Low Moor
<p>Condition</p> <p>The gun barrel remain on an outline of the Standing carriage.</p> <p>The barrel is in a good condition but has a failing paint system that is not offering any corrosion protection. The barrel has a timber tampion possibly allowing water into its barrel.</p> <p>The Standing is in sound condition but will need to be renewed within 10 years. The paint condition is poor. Small amount of timber decay starting.</p>	
<p>Recommendations</p> <p>Paint the Standing carriage with timber primer oil-based paint and topcoat immediately to protect it until a replacement is produced.</p> <p>The barrel should be lifted and a new outline Standing carriage be designed and constructed within ten years with annual inspections of its condition.</p> <p>The external gun should be treated for corrosion and painted with a 2-pac zinc enriched paint system to protect it.</p> <p>It is recommended that a tampion be fitted that is weatherproof.</p>	



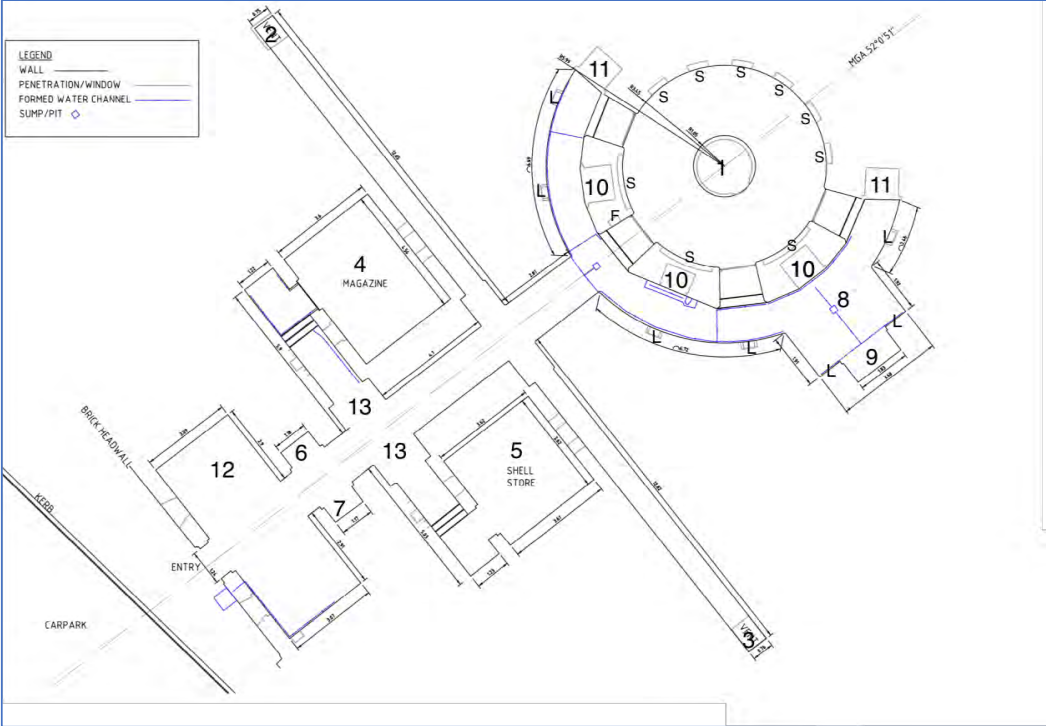
OHM Consultants

Gun 10653 SBML 68 Pounder Mark I	
	
Date of manufacture	1861
Place of manufacture	Low Moor
<p>Condition</p> <p>The gun barrel remain on an outline of the Standing carriage.</p> <p>The barrel is in a good condition but has a failing paint system that is not offering any corrosion protection. The barrel has a timber tampion possibly allowing water into its barrel.</p> <p>The Standing is in sound condition but will need to be renewed within 10 years. The paint condition is poor. Small amount of timber decay starting.</p>	
<p>Recommendations</p> <p>Paint the Standing carriage with timber primer oil-based paint and topcoat immediately to protect it until a replacement is produced.</p> <p>The barrel should be lifted and a new outline Standing carriage be designed and constructed within ten years with annual inspections of its condition.</p> <p>The external gun should be treated for corrosion and painted with a 2-pac zinc enriched paint system to protect it.</p> <p>It is recommended that a tampion be fitted that is weatherproof.</p>	

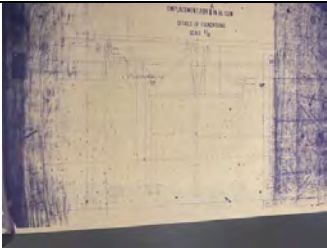


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The remaining parts of the Flagstaff Fort




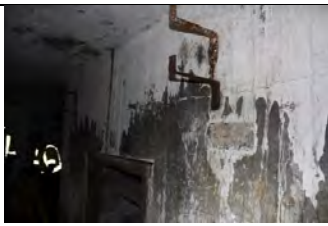


Flagstaff Hill Fort Wollongong City Council Drawing, 2024

No.	Room		Significant Metal Items	
1	Gun position	Pit	Potential foundation gun parts remain. Casemate doors into the gun pit are modern security additions.	
Recommended Action	Note: that any subsurface works may encounter the gun foundation. The tunnel doors should be left and maintained but are not part of the heritage significant fabric.			




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2	Depression Range Finder	Surface	Nil Remove and infilled with a new cast iron grille.	
Recommended Action	The cast iron grille covering the original access point is not original and it is in a poor condition. The access point should be maintained with a new secure hatch.			
3	Observation Post	Surface	Nil Removed and infilled with a cast iron grille.	
Recommended Action	The cast iron grille covering the original access point is not original and it is in a poor condition. The access point should be maintained with a new secure hatch.			
4	Magazine	Internal	Door frame	
Recommended Action	Maintain all parts in situ as significant fabric, no work required if the structure is kept water tight.			
5	Shell Store	Internal	Roof vent	
Recommended Action	Maintain all parts in situ as significant fabric. Treat with corrosion control such as Feronite.			
6	Store	Internal	Nil	
7	Laboratory	Internal	Nil	

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8	Artillery Store & Pump	Internal	Wall racks Multiple	
Recommended Action	Maintain all parts in situ as significant fabric. Treat with corrosion control such as Feronite or similar.			
			Wall racks	
Recommended Action	Maintain all parts in situ as significant fabric. Treat with corrosion control such as Feronite or similar.			
			Roof beams Multiple	
Recommended Action	Maintain all parts in situ as significant fabric. Treat with corrosion control such as Feronite or similar.			
			Lamp niche vent remnants including substrate pipework	
Recommended Action	Maintain all parts in situ as significant fabric. Treat with corrosion control such as Feronite or similar.			

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			Vent grille	
Recommended Action	Maintain all parts in situ as significant fabric. Treat with corrosion control such as Feronite or similar.			
9	Small store/Spanner Racks	Internal	Nil	
10	Cartridge Recess	Internal	Nil	
11	Shell Recess	Internal	Nil	
12	Casemate	Internal	Nil	
13	Double Blast Doors to Lobby	Internal		
			Door hinge	
Recommended Action	Maintain all parts in situ as significant fabric. Treat with corrosion control such as Feronite or similar.			
			Door hinge	
Recommended Action	Maintain all parts in situ as significant fabric. Treat with corrosion control such as Feronite or similar.			
F	Fuses	Internal		
L	Lamp	Internal	Remnant frames & vents	

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Recommended Action	Maintain all parts in situ as significant fabric. Treat with corrosion control such as Feronite or similar.			
S	Shell Recess	Pit	Nil	

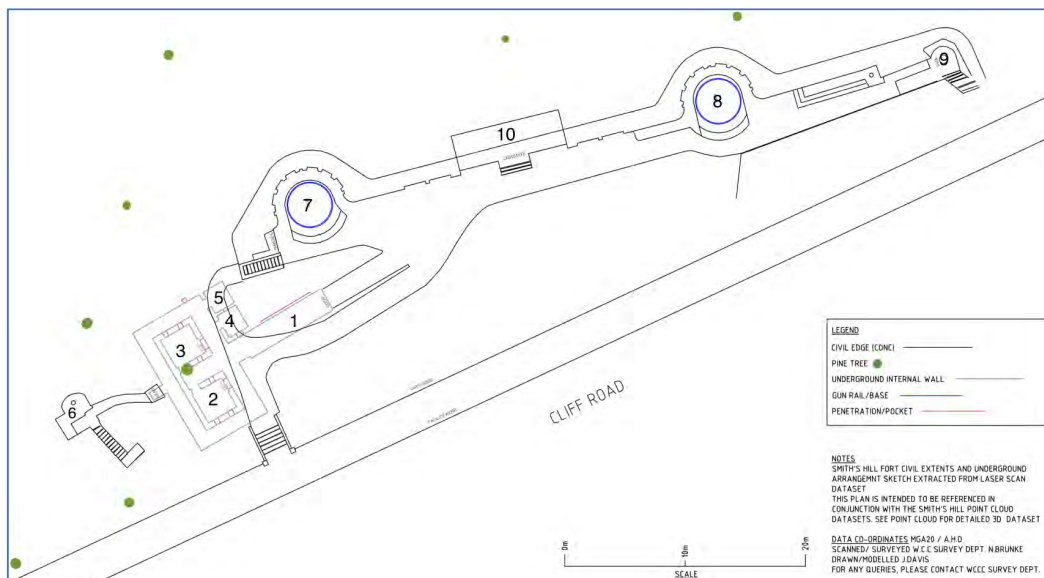


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## Smiths Hill




The casemates at Wollongong are part of the historical defensive structures located at Smiths Hill Fort. Built in 1891, these casemates served as fortified gun emplacements designed to protect artillery and their crews from enemy fire while providing a defensible position from which to operate.

The 80 lbs RML guns used 68-pound gun barrels that can be viewed at Flagstaff Hill and were rifled to allow them to fire a shell projectile rather than a cannonball demonstrating the technological advancement from smoothbore to rifled technology. This allowed for more accurate targeting and range increasing the effectiveness of the fort.






Smiths Hill Fort, Wollongong City Council Drawing, 2024


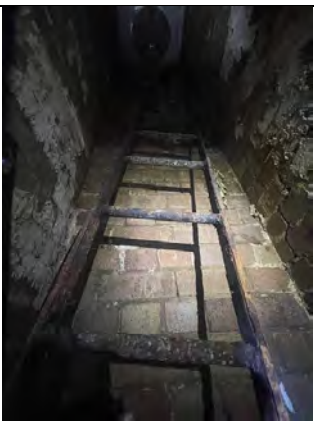

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	Room			
1	Entrance Hall	Internal/external		
			Secure entrance doors	
Recommended Action	See treatment pg. 27			
			Vents	
Recommended Action	See treatment pg. 27			
			Wall racks	
Recommended Action	See treatment pg. 27			

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			Wall racks	
Recommended Action	See treatment pg. 27			
			Drain grilles	
Recommended Action	See treatment pg. 27			
2	Cartridge Room	Internal		
			Lamp niche x2	
Recommended Action	See treatment pg. 27			
3	Ammunition Room	Internal		

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			Lamp niche x2	
Recommended Action	See treatment pg. 27			
4	Artillery Store	Internal		
5	Lamp Room	Internal		
6	Depression Range Finder	External/i nternal		
			Ladder	
Recommended Action	Maintain out of use. See treatment pg. 27			
7	80 lbs. RML Gun	External		
Recommended Action	See treatment pg. 27			

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			Ring x 2	
Recommended Action	See treatment pg. 27			
			Rail	
Recommended Action	See treatment pg. 27			
8	80 lbs. RML Gun	External		
Recommended Action	See treatment pg. 27			



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			Ring x 2	
Recommended Action	See treatment pg. 27			
			Rail	
Recommended Action	See treatment pg. 27			
9	Nordenfelt Rapid Fire Gun (1 1/2 inch)	External		
Recommended Action	See treatment pg. 27 Replace locks with secure harden bolts.			
10	Bomb Proof Room	External		

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			Columns	
Recommended Action	See treatment pg. 27			
	Metal items	Internal	Assorted	
		A number of loose iron items are contained within the casemate and appear to have been collected when the fort was excavated and securely stored. These items provenance have not been identified.		
Recommended Action	Store off the ground in a dry position.			

## Key Features of the Casemate and barbette at Smiths Hill:

1. Structure: Casemates are typically made of thick masonry or concrete, providing robust protection from enemy bombardment. At Smiths Hill Fort, they were constructed to house and protect the artillery pieces stationed there, such as the larger calibre guns 80lbs. used in coastal defence.
2. Purpose: The primary function of the barbette was to allow a greater rotation to the guns and to protect the gun crews and ammunition from incoming fire.

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They allowed guns to fire over the parapet while keeping most of the structure and personnel shielded.

3. Design: The design integrated both functional military architecture and strategic positioning. The barbettes at Smiths Hill were strategically placed to offer clear fields of fire toward the sea, allowing defenders to engage any approaching enemy vessels.
4. Historical Significance: These casemates, along with other structures at Smiths Hill Fort, reflect the military engineering and defence strategies of the period. They provide insight into the technology and methods used to secure Australia's coastlines against maritime threats.
5. Current Status: Today, the casemates are part of a historic site open to the public. Smiths Hill Fort and its casemates remain a significant cultural and historical site, illustrating the efforts made to protect Wollongong and the wider Illawarra region during times of strategic military importance. Smiths Hill in Wollongong, Australia, is known for its historical significance, particularly regarding military history.

The 80-pound guns at Smiths Hill Fort in Wollongong are significant historical artifacts from the late 19th century, serving as part of the coastal defence installations. Smiths Hill Fort was constructed in the 1890s to protect Wollongong against potential maritime threats. These 80-pound rifled muzzle-loading guns were designed to fire heavy artillery shells, providing substantial defensive capability against enemy ships.

Smiths Hill Fort itself is a well-preserved example of coastal fortifications from that era. It includes the gun emplacements, underground rooms, and connecting tunnels that were used by the military for strategic defence. Today, the site is of historical interest and is open to the public, offering insights into the military history of the region and the defence strategies employed at the time.

The 80-pound guns were rifled muzzle-loading guns, a type of artillery used in the late 19th century for coastal defence. Here's how they generally worked:

1. Loading: The guns were loaded from the muzzle (the front end of the barrel). A gun crew would first swab the barrel to clean out any residue from the previous shot. Then, they would load a gunpowder charge followed by the projectile—an 80-pound shell. The projectile was often made of solid iron or contained explosive material.
2. Rifling: The inside of the barrel was rifled, meaning it had spiral grooves cut into it. This rifling imparted a spin to the projectile as it was fired, improving its range and accuracy compared to smoothbore guns.
3. Aiming: The gun crew aimed the weapon using a combination of direct sight and calculations, adjusting for factors like distance to the target, wind conditions, and the projectile's trajectory. The guns were typically mounted on carriages that allowed for horizontal and vertical adjustments.
4. Firing: Once aimed, the gun was fired by igniting the gunpowder charge. This was usually done with a lanyard that pulled a friction primer, igniting a small powder charge and then the main charge.
5. Recoil Management: These guns used a system of buffers and sometimes counterweights to manage the recoil when fired. The gun would often roll back on its carriage, and the crew would push it back into position after firing.
6. Reloading: After firing, the crew would swab the barrel again to cool it down and remove any burning remnants before reloading for the next shot.

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These types of guns required a well-trained crew to operate efficiently. They played a significant role in coastal defence during an era when naval threats were a considerable concern for coastal cities like Wollongong.

The 11/2-inch Nordenfelt gun was a type of early rapid-firing gun used in the late 19th century, including at coastal defence locations such as Wollongong. The Nordenfelt gun was a manually operated, the gun was designed for defence against fast-moving small craft.

#### Features and Operation:

1. This design allowed for a rapid succession of shots, increasing the rate of fire compared to similar single-barrel guns of the time.
2. Manual Operation: The gun was operated using a hand crank, which would chamber, fire, and extract cartridges sequentially from each barrel. This mechanical operation allowed for relatively rapid firing rates compared to other contemporary weapons, though still requiring manual effort.
3. Ammunition: The Nordenfelt gun used fixed ammunition, meaning the projectile and propellant were contained in a single cartridge, simplifying the loading process and allowing for quicker firing.
4. Role in Defence: At coastal defence sites like Wollongong, the Nordenfelt was used to protect against fast-moving targets, such as small enemy vessels that might try to attack or penetrate defences close to shore.
5. Deployment: These guns were commonly mounted on naval ships and at coastal fortifications where a rapid response to close-range threats was essential.

The introduction and use of rapid-firing guns like the Nordenfelt represented a significant advancement in military technology during the period, providing a balance between the firepower of larger guns and the speed required to deal with fast-moving threats. At Wollongong, such a weapon would have been part of a broader strategy to secure the coastline and important harbor areas against potential naval incursions.

Smiths Hill Fort is a reasonable condition and was restored in 1988 to its current condition.

The two 80lbs RML guns and one 1 ½ inch Nordenfelt rapid firing gun. All guns have a provenance with the site and were returned to their original positions during the restoration.

The Smiths Hill Fort was buried in 1946 and was exposed in the 1980's as part of Australia's Bicentennial celebrations. The guns were restored by apprentices at the Bendigo Ordnance Factory in 1986.

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Restoration plaque, Smiths Hill

Gun 69 RML 80 Pounder Mark I	
Date of manufacture	1872 conversion
Place of manufacture	Royal Gun Factory
Recommended Action	Recommendations below.

Gun 99 RML 80 Pounder Mark I	
Date of manufacture	1872 conversion
Place of manufacture	Royal Gun Factory
Recommended Action	Recommendations below.

Gun 4092 QF 1 3/4 Pounder Mark I Nordenfelt (1 1/2 inch)	
Date of manufacture	1885
Place of manufacture	Nordenfelt Guns and Ammunition Company
<p>The gun was removed for safe keeping but has recently been returned to its original position. The gun needs corrosion control as recommended with all the iron work at Smiths Hill. Recommendations below.</p> <p>The locks that have placed at the base of the gun should be removed and replaced with security bolts. The gun barrel may be removed from the base for safe storage, but this should only be done if a secure repository can be established off site.</p>	



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## Treatment

### Exterior

All guns, timber and iron carriages at Flagstaff Hill and Smiths Hill

The following treatment should be undertaken.

### Record

A record should be kept and presented as part of this contract and presented on completion of site works.

The record will form a report that should include,

- A photographic record of the project detailing each stage,
- A record of all products used,
- A description of works undertaken including dimensions,
- Care and maintenance recommendations

### Transport and Removal

The barrels and carriage are to be removed in separate parts.

All lifting at any stage in this project must be done with soft slings of adequate strength to safely move the required weight without causing damage.

The barrel should be lifted off the carriage after releasing the trunnion caps by removing the iron pins and hinging back the caps.

Slings should be placed around the muzzle and vent field astragals with the centre of gravity approximately at the trunnions.

Carefully pack and safely remove both sections off site.

The barrels of the 68lbs and 80 lbs guns weigh 4.9 tonnes each.

### Dismantling

Dismantle the gun carriage removing all the metal components included in this report so that they can be treated as recommended in the Ironwork section below.

All timber sections of 68lbs guns should be replaced using the current gun Standings as a template to produce the reproduction Standings.

### Guns & Ironwork

The ironwork is to be abrasive blasted externally using an inert abrasive medium to the following finish.

The abrasive blasting is to be carried out by a contractor with experience in dealing with historic material.

- Abrasive blast cleaning AS1627.4 class 2.5
- 1<sup>st</sup> coat: Application of Dulux Zincode 402 surface primer to prepared ironwork to a DFT of 75 microns.
- 2<sup>nd</sup> coat: Application of Dulux Duremax GPE to a DFT of 200 microns.
- 3<sup>rd</sup> coat: Application of topcoat of Dulux Weathermax HBR to a DTF of 100 Microns

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Colour : satin black

Abrasive blast clean to Sa21/2 (ISO 8501-1:2007) or SSPC-SP6. If oxidation has occurred between blasting and application of Marine Epoxy Undercoat the surface should be reblasted to the specified visual standard. Care should be undertaken not to over blast and report any defects.

Review all sections condition and report any defects that have become exposed after abrasive blasting.

Paint the ironwork using a marine epoxy system as outlined below and should be applied according to the manufactures recommendations. The painted surfaces should be complete and have no defects.

Apply the paint as specified by the product technical data sheet for a marine environment.

The barrel is to have all its paint removed by abrasive blasting using a soft medium. It is to be cleaned internally and externally.

#### Metal Paint system

- 1<sup>st</sup> coat: Application of Dulux Zincanode 402 surface primer to prepared ironwork to a DFT of 75 microns.
- 2<sup>nd</sup> coat: Application of Dulux Duremax GPE to a DFT of 200 microns.
- 3<sup>rd</sup> coat: Application of topcoat of Dulux Weathermax HBR to a DTF of 100 Microns

All metal sections are to be painted satin black.

It is recommended that a new tompion be produced and fitted to all the gun barrels to impede the ingress of water.

#### Timber

All timber sections of the carriage should be replaced with new Australian hardwood timber sections with measurements taken from the existing carriages.

All new sections should be manufactured from seasoned Australian Hardwood rated to F17, H4 grade resistant to rot and in ground contact.

All new timbers are to be the best quality of their respective kind, sound and well-seasoned, free from sap, shakes, large or loose knots and other defects.

The new replacement sections should be manufactured to the existing design, dimension and detail.

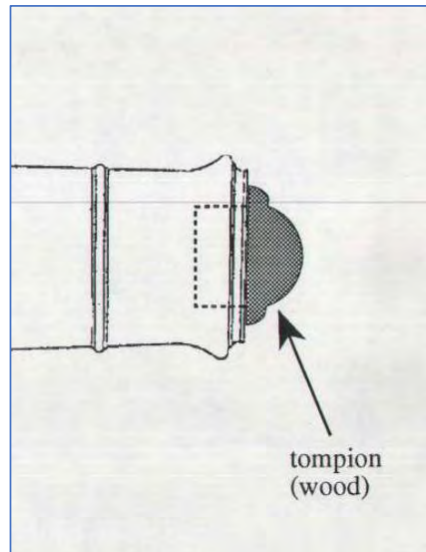
Adhesives to be used in new component manufacture must be for exterior use and compatible with the timber paint system.

The treated ironwork is to be reused in the new timber carriage and their location is to be taken from the existing carriage.

#### Tompion Design

The tompion dimensions are to be taken from the barrel.

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The new replacement sections should be manufactured to the existing design, dimension and detail. The tompion section should be a firm press fit into the bore. The new sections should be manufactured from seasoned Australian Hardwood rated to F17, H4 grade resistant to rot and in ground contact. Adhesives to be used in contact with gun barrel non-acid curing silicone elastomer. The section to be repaired is to have all existing paint removed from the area. All timber of the defect is to be removed until sound timber is located. The repair section is to be either replaced with a timber insert or an epoxy filler suitable for external or marine use. All timber repairs when complete will be true in profile and dimension with the adjacent fabric.

### Timber Standing/carriage preparation

All timber is to be prepared and sanded to provide a sound and keyed surface for repainting.

All areas of the timber gun carriage are to be painted. Particular attention should be paid to end grains and joints. After priming, an undercoat should be applied to produce a uniform film covering the whole surface.

The timber is to be painted with a 3-coat system.

- 1<sup>st</sup> coat: Oil based primer sealer undercoat dry coat 40 microns
- 2<sup>nd</sup> coat: Premium enamel Topcoat
- 3<sup>rd</sup> coat: Premium enamel Topcoat

All timber is to be painted with following finished colour paints.

Gun Carriage – Russet Red  
Tompion - Black

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##### Reassembly

The carriage is to be reassembled after construction and painting have been carried out to the original format.

All paint is to be made good after assembly so that it provides a sound and decorative finish required for outdoors.

The barrel is to have its tompion fitted and adhered securely into place.

The gun carriage and barrel are to be transported and lifted back into position using soft slings separately. The trunnion caps are to be secured into position once the gun is secured on site.

##### Interior

The interiors should be kept dry and regular checks should be made to make sure that floor drains are kept clear and functioning.

All interiors should be cleaned free of all rubbish and the initial clean should be carried out with a watching brief to identify and collect any historic material.

All metal (ironwork) should be treated for corrosion by painting the items with corrosion inhibitor such as Feronite to protect them.



## Appendix D

Michael Dellapina (Arborist Public Tree Management), Arborist Assessment 3x Araucaria heterophylla (Norfolk Island Pines): Smiths Hill Fort, Battery Park, Wollongong, **report** prepared for Wollongong City Council, 27 February 2025





# Arborist Assessment

*3x Araucaria heterophylla*  
(Norfolk Island Pines)



## Smiths Hill Fort Battery Park, Wollongong

*Report prepared by*

**Michael Dellapina**  
Arborist Public Tree Management  
(AQF5 Arborist)  
Open Space + Environmental Services  
Wollongong City Council

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## 1 Introduction

On site preliminary tree assessments were conducted by Council's AQF5 Arborist, Michael Dellapina. The provided Condition Report on Cliff Road / Smith Hill Fortifications, Wollongong, by Damien Allan BE (Mech) CPEng. was read prior to onsite inspection, and points 5, 16, 17, 18, 19, 20, 21 and 22a were reviewed, as they referred to tree issues.

The report identified three trees which may be impacting the Fort structures within Battery Park, due to their proximity to these structures.

### 1.1 The site – Aerial image showing identified tree locations





## 1.2 The trees

Tree assessments have been undertaken on three trees. All trees have been identified as *Araucaria heterophylla* (Norfolk Island pine) and identified as Tree ID 63385, Tree ID 63386, and Tree ID 63387.

All trees appear to have been planted between 1951 and 1955 as indicated by 'IntraMaps' aerial images.



## 2 Observations

### 2.1 Tree 1 (ID 63385) – *Araucaria heterophylla*

TREEPLOTTER INVENTORY		Norfolk Island Pine Tree ID #63385
		Battery Park - Cliff Road WOLLONGONG
<b>Tree</b>		<b>Photos</b>
Primary ID:	63385	 <p>Tree ID 63385 - Araucaria heterophylla Norfolk Island pine Remove tree, growing on top of a underground structure.</p> <p>Tree ID 63385 - Araucaria heterophylla.jpg 27/02/2025</p>  <p>Tree ID 63385 - Araucaria heterophylla - (2).jpg 27/02/2025</p>
Asset ID:		
Status:	Alive	
Common Name:	Norfolk Island Pine	
Botanical Name:	<i>Araucaria heterophylla</i>	
Origin:		
Code:	ARHE	
Family:	Araucariaceae	
Genus:	Araucaria	
Cultivar:		
Number of Stems:	1	
DBH [in]:	34	
DBH [cm]:	87	
DBH [cm] Stem 1:		
DBH [cm] Stem 2:		
DBH [cm] Stem 3:		
DBH [cm] Stem 4:		
DBH [cm] Stem 5:		
DBH [cm] Stem 6:		
DBH Range:	>75cm	
Tree Height (Estimated) [m]:	25	
Height Range:	20-30 Metres	
Width:	8	
Health:	Good	
Useful Life Expectancy:	50+ years	
Condition (Leaf):	Good	
Canopy Structure:	Good	
Age Class:	Mature	
Homewood ID:		
Observations:	codominant, Poor Location	
Tree Comments:	A mature established tree presenting good health and vitality. Tree is typical of its species with no obvious signs of structural weakness, free from pests or disease and contributing to habitat. Codominant in upper crown. Located 2.1m south of fort	



structure, several surface roots up to 100mmØ. Tree is located within Heritage Item - State - Battery Park and is growing on top of the underground fort structure; this structure may not have been constructed to support the additional weight such as a large tree and its root system.

Stock Type:

City Managed: True

Botanic Gardens ID: 1

Crown Light Exposure:

Archived: No

null:

New Data Field:

Has Ecobenefits: No

#### Location

Address: Battery Park - Cliff Road  
WOLLONGONG

Address Number:

Address Street: Cliff Road  
WOLLONGONG

Street Planted:

Suburb:

Postcode:

Organization: Wollongong City Council

City: Wollongong

Tree Type: Park

Growing Space:

Land Use: Park/ Vacant/ Other

Location on Site:

Planting Site Width:

Pit Size:

Park Name:

Longitude: 150.90146598493

Latitude: -34.416156085575

Easting:

Northing:

#### Design & Construction

Diameter at Root Flare (DRF) [m]: 1.15

#### Street View





#### Map



Tree Protection Zone (TPZ) [m]:	10.44
Structural Root Zone (SRZ) [m]:	3.51
Describe proposed works:	
Impact of proposed works:	
Type of impact:	
Tree retention value:	
Tree protection:	
Tree protection notes:	
Root investigation - slit trench:	
Hand dig only:	
Proposed max excavation depth (mm):	
Prune no roots greater than (mm):	
Excavation instructions:	
Pavement treatment:	
Pavement construction notes:	
Project arborist required to supervise works:	
Project arborist certified works complete:	
Report Prepared: February 27, 2025	

## 2.2 Tree 2 (ID 63386) – *Araucaria heterophylla*

TREEPLOTTER <sup>TM</sup> INVENTORY		Norfolk Island Pine Tree ID #63386
		Battery Park - Cliff Road WOLLONGONG
<b>Tree</b>		<b>Photos</b>
Primary ID:	63386	 <p>Tree ID 63386 <i>Araucaria heterophylla</i> Norfolk Island pine Russett tree, investigate root prune.</p> <p>Tree ID 63386 - <i>Araucaria heterophylla</i>.jpg 27/02/2025</p>  <p>Tree ID 63386 - <i>Araucaria heterophylla</i> - (2).jpg 27/02/2025</p>
Asset ID:		
Status:	Alive	
Common Name:	Norfolk Island Pine	
Botanical Name:	<i>Araucaria heterophylla</i>	
Origin:		
Code:	ARHE	
Family:	Araucariaceae	
Genus:	<i>Araucaria</i>	
Cultivar:		
Number of Stems:	1	
DBH [in]:	30	
DBH [cm]:	75	
DBH [cm] Stem 1:		
DBH [cm] Stem 2:		
DBH [cm] Stem 3:		
DBH [cm] Stem 4:		
DBH [cm] Stem 5:		
DBH [cm] Stem 6:		
DBH Range:	>75cm	
Tree Height (Estimated) [m]:	20	
Height Range:	20-30 Metres	
Width:	10	
Health:	Good	
Useful Life Expectancy:	50+ years	
Condition (Leaf):	Good	
Canopy Structure:	Good	
Age Class:	Mature	
Homewood ID:		
Observations:	ccdominant	
Tree Comments:	A mature established tree presenting good health and vitality. Tree is typical of its species with no obvious signs	

of structural weakness, free from pests or disease and contributing to habitat. Recommend retain tree, due to growing within an area that has been identified as Coastal Hazard Geotechnical risk. Undertake an investigative slit trench dig alongside the affected sections of the fort structure to identify any tree roots. If tree roots found, identify impacts upon the structure and investigate the feasibility of undertaking suitable root pruning and instillation of a tree root barrier. Codominant in upper crown. Located 2.5m west of fort structure. Tree is located within Heritage Item - State - Battery Park.

Stock Type:

City Managed: True

Botanic Gardens ID: 1

Crown Light Exposure:

Archived: No

null:

New Data Field:

Has Ecobenefits: No

Location

Address: Battery Park - Cliff Road WOLLONGONG

Address Number:

Address Street: Cliff Road WOLLONGONG

Street Planted:

Suburb:

Postcode:

## Street View



## Map



Organization:	Wollongong City Council
City:	Wollongong
Tree Type:	Park
Growing Space:	
Land Use:	Park/ Vacant/ Other
Location on Site:	
Planting Site Width:	
Plt Size:	
Park Name:	
Longitude:	150.90134432099
Latitude:	-34.416095006889
Easting:	
Northing:	
<b>Design &amp; Construction</b>	
Diameter at Root Flare (DRF) [m]:	0.85
Tree Protection Zone (TPZ) [m]:	9
Structural Root Zone (SRZ) [m]:	3.09
Describe proposed works:	
Impact of proposed works:	
Type of impact:	
Tree retention value:	
Tree protection:	
Tree protection notes:	
Root investigation - slit trench:	
Hand dig only:	
Proposed max excavation depth (mm):	
Prune no roots greater than (mm):	
Excavation instructions:	
Pavement treatment:	
Pavement construction notes:	




Project arborist  
required to supervise  
works:

Project arborist  
certified works  
complete:

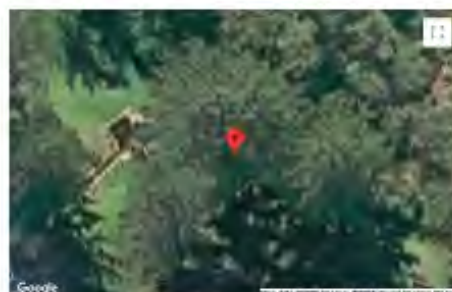
Report Prepared: February 27, 2025

## 2.3 Tree 3 (ID 63387) – *Araucaria heterophylla*

TREEPLOTTER INVENTORY		Norfolk Island Pine Tree ID #63387 Battery Park - Cliff Road WOLLONGONG	
<b>Tree</b>			
Primary ID:	63387		
Asset ID:			
Status:	Alive		
Common Name:	Norfolk Island Pine		
Botanical Name:	<i>Araucaria heterophylla</i>		
Origin:			
Code:	ARHE		
Family:	Araucariaceae		
Genus:	Araucaria		
Cultivar:			
Number of Stems:	1		
DBH [in]:	34		
DBH [cm]:	87		
DBH [cm] Stem 1:			
DBH [cm] Stem 2:			
DBH [cm] Stem 3:			
DBH [cm] Stem 4:			
DBH [cm] Stem 5:			
DBH [cm] Stem 6:			
DBH Range:	>75cm		
Tree Height (Estimated) [m]:	22		
Height Range:	20-30 Metres		
Width:	12		
Health:	Good		
Useful Life Expectancy:	50+ years		
Condition (Leaf):	Good		
Canopy Structure:	Good		
Age Class:	Mature		
Homewood ID:			
Observations:			
Tree Comments:	A mature established tree presenting good health and vitality. Tree is typical of its species with no obvious signs		
<b>Photos</b>			
		 <p>Tree ID 63387 <i>Araucaria heterophylla</i> Norfolk Island pine Retain tree, (Coastal Hazard Geotechnical risk) Investigate root prune.</p> <p>Tree ID 63387 - <i>Araucaria heterophylla</i>.jpg 27/02/2025</p>	
		 <p>Tree ID 63387 - <i>Araucaria heterophylla</i> - (2).jpg 27/02/2025</p>	

of structural weakness, free from pests or disease and contributing to habitat. Recommend retain tree, due to its location, which is on the top edge of a steep slope within an area that has been identified as Coastal Hazard Geotechnical risk. Undertake an investigative slit trench dig alongside the affected sections of the fort structure to identify any tree roots. If tree roots found, identify impacts upon the structure and investigate the feasibility of undertaking suitable root pruning and instillation of a tree root barrier. Tree is located 5.1m & 5.6m east of fort structure. Tree is located within Heritage Item - State - Battery Park.

#### Map



#### Stock Type:

City Managed: True

Botanic Gardens ID: 1

Crown Light Exposure:

Archived: No

null:

New Data Field:

Has Ecobenefits: No

#### Location

Address: Battery Park - Cliff Road WOLLONGONG

Address Number:

Address Street: Cliff Road WOLLONGONG

Street Planted:

Suburb:

Postcode:

Organization:	Wollongong City Council
City:	Wollongong
Tree Type:	Park
Growing Space:	
Land Use:	Park/ Vacant/ Other
Location on Site:	
Planting Site Width:	
Pit Size:	
Park Name:	
Longitude:	150.90151426469
Latitude:	-34.416077534707
Easting:	
Northing:	
<b>Design &amp; Construction</b>	
Diameter at Root Flare (DRF) [m]:	1.01
Tree Protection Zone (TPZ) [m]:	10.44
Structural Root Zone (SRZ) [m]:	3.32
Describe proposed works:	
Impact of proposed works:	
Type of impact:	
Tree retention value:	
Tree protection:	
Tree protection notes:	
Root investigation - slit trench:	
Hand dig only:	
Proposed max excavation depth (mm):	
Prune no roots greater than (mm):	
Excavation instructions:	
Pavement treatment:	
Pavement construction notes:	

Project arborist  
required to supervise  
works:

Project arborist  
certified works  
complete:

Report Prepared: February 27, 2025



### 3 Preliminary Recommendations

- **Tree 1 (Tree ID 63385) *Araucaria heterophylla* – Remove.**

Growing on top of the underground fort structure; this structure may not have been constructed to support the additional weight such as a large tree and its root system.

- **Tree 2 (Tree ID 63386) *Araucaria heterophylla* – Retain.**

Further investigation required. Undertake an investigative slit trench dig alongside the affected sections of the fort structure to identify any tree roots. If tree roots found, identify impacts upon the structure and investigate the feasibility of undertaking suitable root pruning and installation of a tree root barrier.

- **Tree 3 (Tree ID 63387) *Araucaria heterophylla* – Retain.**

Further investigation required. Undertake an investigative slit trench dig alongside the affected sections of the fort structure to identify any tree roots. If tree roots found, identify impacts upon the structure and investigate the feasibility of undertaking suitable root pruning and installation of a tree root barrier.

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## Appendix 2

Wollongong Council Statement of Aboriginal Cultural Context, prepared by Joel Thompson  
(Coordinator Heritage, Wollongong City Council), 28 July 2025

## Wollongong Fortifications CMP

### Aboriginal Cultural Context Summary

Joel Thompson

28 July 2025

The Wollongong Harbour Precinct within which the study areas for the Fortifications discussed in this report are located within a landform context that is known to have been of high significance to the local Aboriginal people.

Elevated headlands along the Illawarra Coastline, with a fresh water supply, rock platforms and sandy beaches to their northern side have been consistently highlighted as areas of very high cultural significance along the coastline. The Sandon Point Aboriginal Place and Bellambi Point Aboriginal Place to the north, as well as Hill 60 and Bass Point to the south, demonstrate these same landform characteristics and have all long been acknowledged as areas of very high cultural significance.

The landform context surrounding Wollongong Harbour would have provided for all of the daily needs of the local people. Fresh water was available from the small stream to the north of the headland, the rock platforms and sandy beach areas would have supplied an abundance of fish, shellfish and crustaceans that were staples within the diets of the local saltwater people. The area must also have abounded in grassy pasturelands in that the first documented settler, Charles Throsby, along with his cattle were led directly to this location by Aboriginal guides in 1815, when he was in search of suitable grazing land during a severe drought. This suggests suitable habitat for Kangaroos, Wallabies and other species that would have contributed to the diet of the local people.

Archaeological studies undertaken within the Wollongong Harbour area including at Osborne Park and Brighton Lawn have also confirmed that despite over 200 years of intensive occupation and development, archaeological evidence of intensive use and occupation remains. Middens, stone tool making sites, and evidence of extensive burning are all located within the area albeit within a disturbed and altered contexts. This further confirms the significance of the area to the local people.

Elevated areas on headlands, and other highpoints above protected beaches are also known to have been used by Aboriginal people as signal points to pass on messages between tribes. The use of fires as a communication tool is highlighted by Aunty Sharralyn Robinson, who credits this form as communication as the reason why Captain James Cook encountered fires all along the eastern coastline during his 1776 exploration. These high points also served as important viewing locations, including as viewing points used to assist with fishing enterprise and to monitor movements of

people within the area. This practice is still continued to this day in commercial fishing enterprises at Hill 60/Red Point, the next headland south of the study area.

The use of the area as a viewing point and signal point aligns the cultural historical significance and use of the area with the reasons why these locations would have been chosen for defensive strategy in the protection of Wollongong Harbour. Extensive views over the ocean surrounding the protected harbour were the primary determinant in the choosing of the two fort locations for protections. The reasons these locations were selected would likely have led to the areas having significance to the local Aboriginal Community for similar observational purposes.

Archaeological evidence within the broader area, including at nearby Stuart Park, also confirms that the current Wollongong Coastline has been intensively occupied since the stabilisation of existing sea-levels around 6000 years ago. Radiocarbon dating has consistently confirmed occupation dating from 4000-6000 years ago, with some local sites also confirming much longer periods of Aboriginal occupation.

During their construction, the locations of the two forts underwent substantial landform alterations and have been subjected to over 200 years of historical development activity. As such, the Aboriginal archaeological record could be reasonably expected to have been impacted far more intensively than in other areas within the Wollongong LGA. Further, Aboriginal people would have been less likely to be able to continue traditional cultural practices within the study area beyond the first settlement in the area in 1815-1816. Although evidence from a recent archaeological study undertaken by Comber Consultants near Wollongong Harbour did locate a single glass artefact within a tool making context, suggesting that post contact expression of traditional cultural practice did continue beyond the availability of glass materials, perhaps from the 1830s Brighton Hotel which was established near Brighton Lawn.

It is clear that the study area represents a highly significant cultural context and that evidence of Aboriginal use, occupation and activity remains within the area. The local community maintain a strong cultural connection to the area

## Appendix 3

Historical archaeological potential and significance assessment—Flagstaff Hill and Smiths Hill Forts





# 1 Historical archaeological potential and significance assessment

## 1.1 Relevant archaeological studies

There have been no known archaeological investigations within the site and relatively few within the surrounding area. The results of two investigations undertaken in the vicinity of the site, as well as investigations undertaken at the comparative site of Fort Scratchley in Newcastle, have helped to inform this assessment and are summarised below.

### 7 Harbour St, Wollongong

Archaeological testing and monitoring works were undertaken by AMAC Group in 2010 at the location of a residential property on part of the site of the former Wollongong Gaol<sup>1</sup>. A previous assessment had identified high potential for structural remains of a former gaol building of local significance to be located at the site. The site had been subjected to limited disturbance owing to the construction of a single storey dwelling which occupied a portion of the property. The results of both programs revealed that a truncated natural soil horizon was present beneath twentieth century fills, with several displaced artefacts associated with the occupation of the gaol interspersed throughout. No structural remains were identified, which was interpreted to be due to errors in the historical plans.

### 4 Robertson Street, Wollongong

In 2012 AMAC Group undertook archaeological excavations in the rear of a residential property on part of the site of the former Wollongong Gaol<sup>2</sup>. Test excavations identified the remains of a late nineteenth century brick wall and associated construction fills with minimal modern impacts. Bulk excavations revealed intact dish drain, additional footings and a small number of displaced artefacts contemporary to the period of the gaol's occupation.

### Fort Scratchley

The only contemporary fortification subject to archaeological investigation in NSW, a test trench was excavated in 1979 by consultant archaeologists Graham Wilson and Martin Davies<sup>3</sup> within Room B of the c.1882 fort, with the intention of identifying occupation deposits. A thin deposit was located above construction fill, the former containing mostly construction debris and very scant evidence of the occupation of the site.



The construction fill was a substantial clay layer which did not contain any artefactual material. The site had been subject to minimal / disturbance. Insufficient archaeological evidence was identified during the excavation to identify the former functions of the space.

## 1.2 Flagstaff Hill Fort

### 1.2.1 Analysis of site disturbance

The site has been subject to minimal disturbance since the original construction of the fort at the end of the nineteenth century. Any archaeological remains within the footprint of the site which pre-dated the fort's construction are most likely to have been completely removed in the process of excavating the hillside to construct the substructure.

The demolition of the walls which once flanked the entrance in the 1970s was the most substantial impact to the site and done to facilitate new landscaping and the construction of the carpark and footpath at the south of the site. This process is likely to have removed most of the evidence of the walls to the level of the footings.

Removal of the observation post and depression range finder is likely to have been only to the extent of demolition the structures to the level of the surrounding landscape and is unlikely to have completely removed all structural remains.

In recent decades, the interior of the fort substructure has been subject to substantial interference by persons forcing their way in, which is likely to have disturbed any deposits which may have been present from the period of the fort's use.

It is unclear to what extent the top of the site has been levelled, and if former paths and roadways have been removed. A Before You Dig (BYD) inquiry was undertaken and no services were identified within the study area. Any otherwise unidentified services which may have been installed are likely to have only caused localised impacts to archaeological remains. Any modern park infrastructure is likely to have only caused localised impacts to construction fills and deposits.



Figure 1.1 Front entrance as it appeared at the time of the site visit.



Figure 1.2 Evidence of the removal of brick walling to the south of the entrance. Any evidence has been obscured beneath more recent landscaping and overgrowth.



Figure 1.3 An extended portion of wall has been truncated to the south of the entrance with a truncated section visible at the right.



Figure 1.4 Landscaping in the approximate location of one of the former observation rooms to the north of the gun pit does not demonstrate any evidence of the former structure.



Figure 1.5 Concrete feature to the north of the entrance appears to be in line with former wall.



Figure 1.6 There have been minimal recent ground impacts above the fort substructure.



## 1.2.2 Historical development of the site

The development of Flagstaff Hill Fort can broadly be understood in Four main phases:

- Phase 1: 1815-1890—Early European settlement of Wollongong;
- Phase 2: 1890—1914 Flagstaff Hill Fort;
- Phase 3: 1914—Present—Ownership by Wollongong Council.

## 1.2.3 Assessment of archaeological potential

### Phase 1: 1815–1890—Early European settlement of Wollongong

The first Europeans to occupy the Illawarra were transient timber (cedar) getters who felled and processed the native cedar forests along the east coast, south of Sydney, while living in temporary, slab timber houses. No plans were made which indicate the locations of these camps. As it is unclear if the subject site was targeted for logging, there is a nil-low potential for archaeology relating to semi-permanent timber-getters camps to be present within the study area. There is low potential for evidence of land clearance such as tree throws.

Flagstaff Hill was a prominent location in Wollongong's early development, with a convict stockade being constructed somewhere on the headland and occupied by 300 convicts who were used to construct the harbor from 1837.<sup>4</sup> The exact location of the stockade is unknown and was likely located closer to the harbor construction works, and so archaeological features which related to it are unlikely to be located within the study area. Additionally, any archaeology relating to this use within the subject site is likely to have been completely removed or heavily truncated by the deep excavation caused by the construction of the fort. There is a nil-low potential for evidence of the convict stockade.

A sketch plan from 1855 appears to show a built feature about the centre of the headland, however nothing is shown in the approximate area of the site which is located further to the south. This suggests that by this stage no formal structures were present in this location of the headland, and there is no indication that anything was situated here until the construction of the fort.

The headland was also the site of early industrial activities, such as salt and coke making works, and recreational activities including the use of the nun's baths. While these were located north and west of the study area, there is a nil-low potential for isolated archaeological remains related to these activities to be present within the study area. There is nil-low potential for structural evidence of the former flagstaff, which was located in the approximate location of the Flagstaff Point to the north of the fort lighthouse, or any associated undocumented structures as the significant excavation cuts caused by the construction of the fort have likely removed any archaeological evidence.



Figure 1.7 Detail of a 1855 sketch plan showing location of a built feature on the north part of the headland, indicated in area of the red box. The study area is located slightly to the south. (Source: SLNSW A 331A / 853567)

## Phase 2: 1890-1914—Flagstaff Hill Fort

The Flagstaff Hill fort was constructed from 1890 and included the bulk excavation of a discrete part of the headland to place in the subterranean elements. It is unclear how far this extended beyond the footprint of the fort. There is a high potential for evidence of the excavation in the form of the cut and backfills to be present. There is a high potential for remains of the temporary drain made during construction of the Flagstaff Hill fort to be preserved beneath the backfills.

The backfill placed around the fort as part of its construction in the significant landscape cut, may include deposits such as construction materials and domestic items, despite no similar artefacts being identified in the archaeological excavation of the construction cut at Fort Scratchley. There is a low-moderate potential for these to be present at Flagstaff Hill.

Visual inspection showed numerous gaps and crevices which may have collected and retained artefacts (Figure 1.10 and Figure 1.11) and there is a low-moderate potential for these artefacts to be present.





An undated plan shows the location of the original extent of the fort structures (Figure 1.9) with these elements still faintly visible on the 1938 aerial (Figure 1.12). This includes the former observation and range finding rooms at the ends of the north and south corridors. There is a high potential for truncated structural remains of the former fort elements to be preserved in situ. These may include footings, surfaces, and evidence of how they interfaced with the below ground elements of the fort.

The undated plan and 1938 aerial also shows the now truncated external wall to the south-east of the subterranean entryway, as well as another short wall to the south-west. Evidence of these walls may continue to survive archaeologically beneath the more recent carpark and landscaping. Due to the minimal disturbance of the site since coming into ownership by council in 1914, there is a moderate-high potential for archaeological evidence of these features. The location of these features relative to the modern layout of the headland is shown in Figure 1.13.

Roads or tracks are also visible to and over the fort on this aerial which may also pre-date the ownership of the fort by council, although it is unclear how formalised these were and how likely they are to have survived archaeologically. There is nil-low potential for archaeological evidence of these to be present as potential remains are likely ephemeral and may have been little more than dirt tracks.

The fort was part of a much larger defence complex built at Flagstaff Hill, which included a purpose-built barracks, water supply and associated infrastructure (Figure 1.8). The archaeological potential and significance of these elements have not been assessed as part of this CMP.

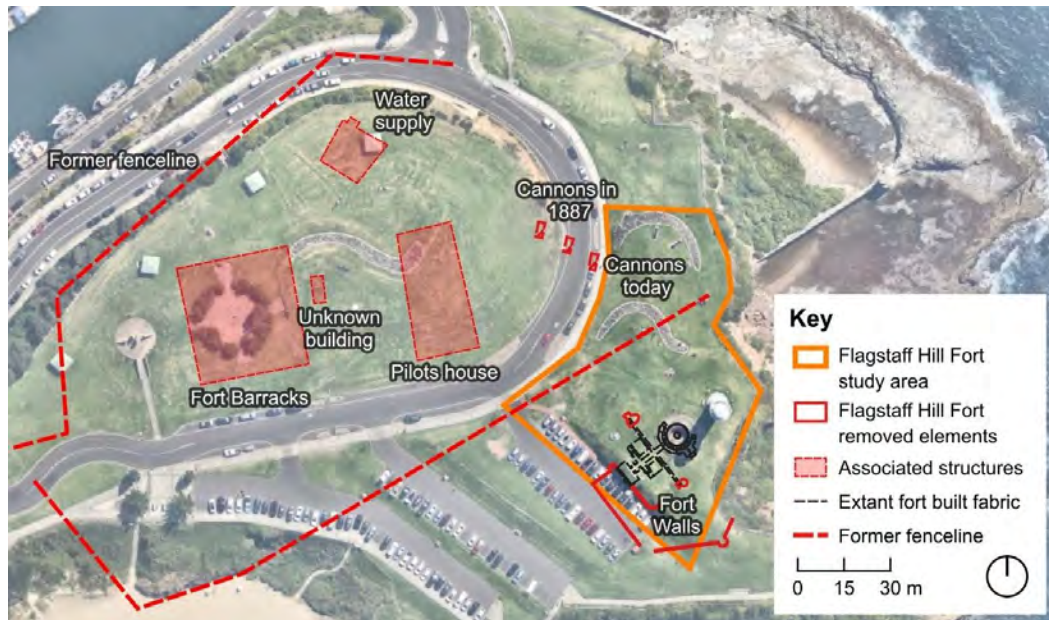


Figure 1.8 Location of study area in relation to related elements formerly present at Flagstaff Hill.  
(Source: informed by 1938 aerial, c1887 Map of Wollongong Harbour, and 1933 Map of the Town of Wollongong. Nearmap basemap with GML overlay)

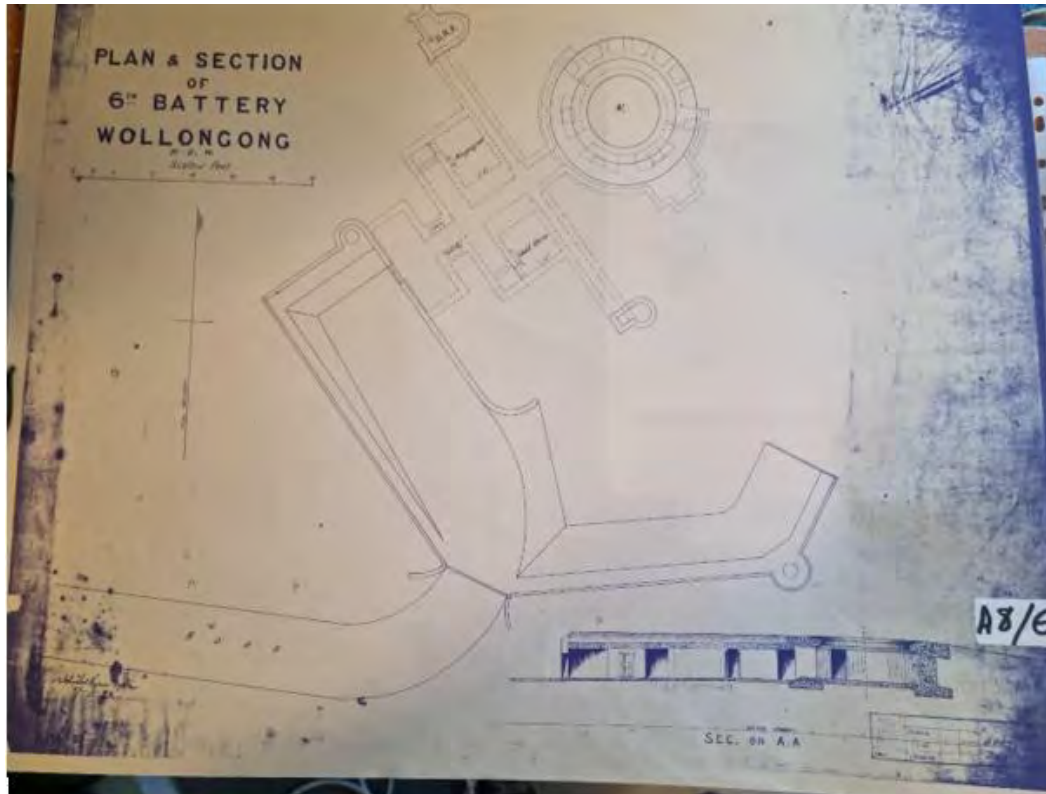


Figure 1.9 Engineering drawing showing the original extent of the Flagstaff Hill fortifications. (Source: Royal Australian Artillery Historical Company archives)

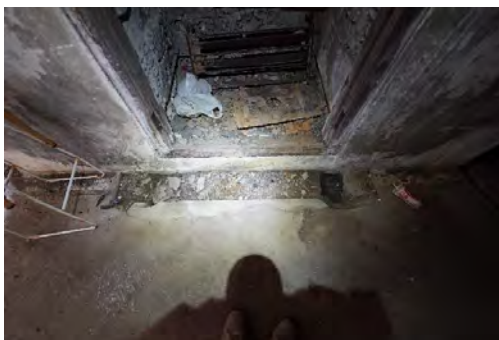


Figure 1.10 Gaps in and around the cartridge stores provide spaces for artefacts to accumulate.



Figure 1.11 Gaps around wall insets provide space for artefacts to accumulate.



Figure 1.12 1938 aerial of study area with overlay indicating the location of observation rooms to north and south of gun pit, as well as a former path or roadway over the top of the below ground elements. A retaining wall can be seen extending to the south of the entry. (Source: Wollongong City Council 1938 with GML overlay)

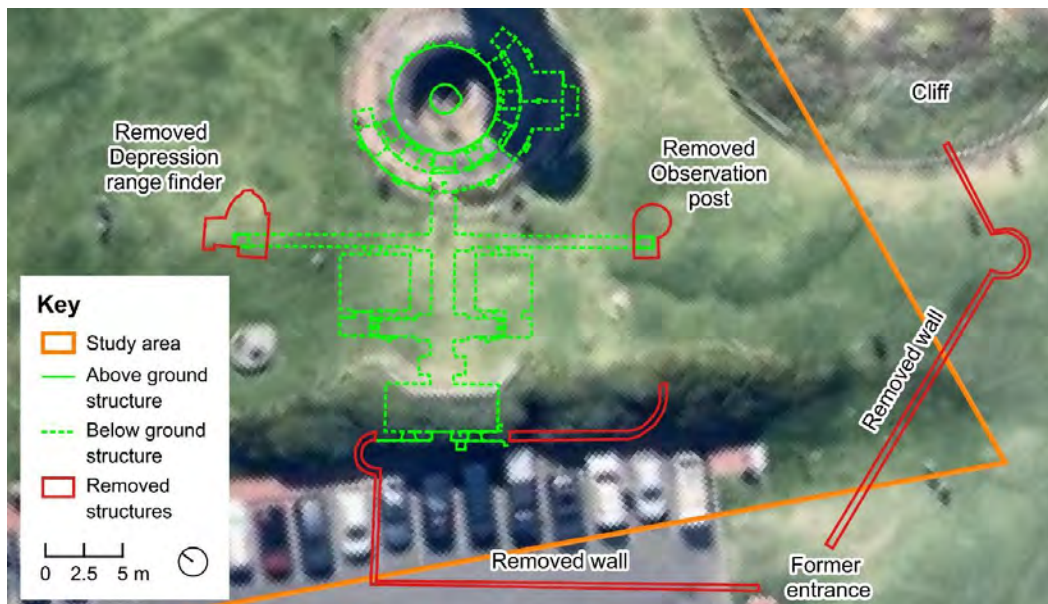


Figure 1.13 Showing the site today with the location of above and below ground structures and removed elements directly related to Flagstaff Hill fort. (Source: Wollongong City Council laser scan data, Nearmap basemap with GML additions)





### Phase 3: 1914–Present—Ownership by Wollongong Council

There has been minimal changes since the handover of the fort to council in 1914. The 1941–1951 aerals show the continued survival of elements such as the road / paths and the south external walls. By 1949 Council had filled the gun pit with sand and bricked up the entrance. As both of these actions were reversed, evidence of these are unlikely to have survived archaeologically. The 1961 aerial (Figure 1.16) shows landscaping around the entrance to the fort which has coincided with the removal both south external walls and indicates the construction of a north-west aligned wall. The carpark immediately to the front of the fort entry has been constructed. It is unclear at what point the observation rooms were removed, but they appear to be gone by the time of the 1977 aerial (Figure 1.19). There is high potential for the remains of introduced fills above the observation rooms. Brick or concrete footings belonging to the retaining wall to the south of the entry may survive beneath the more recent landscaping. The aerals from 1977 onward (Figure 1.20 to Figure 1.23) show minimal changes to the study area, and any archaeology relating to this period is most likely contained to the introduction and removal of park furniture and any services. Evidence of these in the form of concrete platforms and cut / fills are likely to survive within the study area. There is a moderate potential for archaeological evidence of these features.



Figure 1.14 1941 aerial of study area showing above and below ground elements of Flagstaff Hill fort. The aerial shows minimal changes from the 1938 aerial. (Source: Wollongong City Council with GML overlay)



Figure 1.15 1948-51 aerial of study area showing above and below ground elements of Flagstaff Hill fort. (Source: Wollongong City Council with GML overlay)





Figure 1.16 1961 aerial of study area showing above and below ground elements of Flagstaff Hill fort. A new retaining wall has been constructed to the north of the entrance and a new car park has been constructed to the south of the fort. (Source: Wollongong City Council with GML overlay)



Figure 1.17 1966 aerial of study area showing above and below ground elements of Flagstaff Hill fort. More extensive roads or paths have been constructed above the fort. (Source: Wollongong City Council with GML overlay)



Figure 1.18 1975 aerial of study area showing above and below ground elements of Flagstaff Hill fort. The parking space to the front of the fort has been asphalted. (Source: Wollongong City Council with GML overlay)



Figure 1.19 1977 aerial of study area showing above and below ground elements of Flagstaff Hill fort. The new landscaping to the north of study area has been excavated and by this time the retaining wall to the south of the entry has been removed. (Source: Wollongong City Council with GML overlay)



Figure 1.20 1986-87 aerial of study area showing above and below ground elements of Flagstaff Hill fort. Showing placement of the cannons at the north of the study area. (Source: Wollongong City Council with GML overlay)



Figure 1.21 1993 aerial of study area showing above and below ground elements of Flagstaff Hill fort. Showing minimal changes to the study area from the 1986-87 plan. (Source: Wollongong City Council with GML overlay)



Figure 1.22 2001 aerial of study area showing above and below ground elements of Flagstaff Hill fort. Showing minimal changes to the study area from the 1986-87 plan. (Source: Wollongong City Council with GML overlay)





Figure 1.23 2006 aerial of study area showing above and below ground elements of Flagstaff Hill fort. Showing minimal changes to the study area from the 1986-87 plan. (Source: Wollongong City Council with GML overlay)

## 1.2.4 Assessment of archaeological significance

This significance assessment specifically considers the historical archaeological resource of the Flagstaff Hill fort study area and is presented in Table 1.1 below.

Table 1.1 Significance assessment of the potential archaeological remains within the Flagstaff Hill fort study area against the NSW Heritage criteria.

Criterion	Potential archaeological remains
<b>Criterion A (Historic significance)</b> An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).	<p>Flagstaff Hill fort is historically significant as the culmination of attitudes towards Wollongong's strategic importance in NSW which had been held since the mid-nineteenth century. The fort was the most significant element of a complex of defensive buildings placed on the Flagstaff Hill headland, including above ground barracks and other military buildings.</p> <p>The potential archaeological resource is anticipated as being associated with the construction and use of the fort (Phase 2: 1890-1914) including evidence of the construction into the hill and former features of the fort including the observation rooms. These remains may contribute to the state significance of the site in demonstrating the original layout and operation of the fort as one of two primary defensive features of the city of</p>



Criterion	Potential archaeological remains
	<p>Wollongong. Artefacts associated with the fort's use could enhance the historical significance of the fort.</p> <p>Historical artefacts associated with the forts construction could be considered significant at a local level for representing aspects of life in Wollongong during the late nineteenth century.</p> <p>There is nil-low potential for archaeology associated with Phase 1 (1815-1890) early settlement of Wollongong, including evidence of the convict stockade, the former flagstaff, use of the coke ovens, recreational activities or evidence of other undocumented structures on the Flagstaff Hill headland, or earlier coastal defences. These remains, as well as potential archaeology associated with the twentieth century use and ownership by Wollongong Council (Phase 3: 1914-present) would not be considered significant under this criterion.</p> <p>Under this criterion, the potential historical archaeological resource would be significant at a local and state level.</p>
<p><b>Criterion B (Historical association)</b></p> <p>An item has strong or special association with the life or works of a person, or group of persons, of importance in the cultural or natural history (or the cultural or natural history of the local area).</p>	<p>The fort has limited associations with notable individuals, mostly in the capacity of visits from General Richardson and Major General Hutton during its period of occupation. The potential archaeological is highly unlikely to be directly associated with these individuals.</p> <p>Under this criterion, the potential historical archaeological resource would not meet the threshold for significance.</p>
<p><b>Criterion C (Aesthetic/creative/technical achievement)</b></p> <p>An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).</p>	<p>The anticipated historical archaeological resource (largely structural remains of the former depression range finder observation post and former fortification walls) are unlikely to individually demonstrate creative or technical achievements or demonstrate aesthetic characteristics.</p> <p>The exact layout of the fortifications is unique amongst late nineteenth century fortifications in NSW however it is composed of elements which are common amongst other contemporary examples. These features would not satisfy this criteria for significance.</p> <p>Under this criterion, the potential historical archaeological resource would not meet the threshold for significance.</p>
<p><b>Criterion D (Social, cultural, and spiritual)</b></p> <p>An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural, or spiritual reasons.</p>	<p>Consultation undertaken by Wollongong Council with Destination Wollongong, Rotary Club of Wollongong, and individuals previously associated with the conservation of the fort confirms that the built fabric holds social significance, which is likely to extent to archaeological remains.</p> <p>Remains of the fort may also hold social significance for current and former residents of Wollongong who may be associated with persons that built or used the fort. The potential archaeology associated with the fort could also be significant to those interested in military history and former military personnel.</p>





Criterion	Potential archaeological remains
	Under this criterion the archaeological remains would be considered significant at a local level.
<p><b>Criterion E (Research potential)</b></p> <p>An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).</p>	<p>Buried remains of the Flagstaff fort (Phase 2: 1890-1914), include structural remains of the former observation and range finding rooms, as well as walls extending from the south of the fort entrance. These features were original elements of the fortifications and would be considered to contribute to the state significance of the site, particular to how late nineteenth century fortifications were constructed and used.</p> <p>Several fortifications dating to the late nineteenth century were constructed in New South Wales, however few of them have been archaeologically excavated. There are no known examples of archaeological programs undertaken on forts in the Illawarra. Archaeological investigation at the site could contribute to research and understanding of a key phase of military history in NSW and Australia.</p> <p>Artefacts from deposits within or surrounding the fort may include items such as food containers and personal effects belonging to the soldiers stationed at the fort. They could also be associated with the operations of the fort. Analysis of artefacts could yield new information about the volunteer militia who staffed the fort and how the fort functioned day-to-day. Artefact deposits, if present, could contribute unique or new evidence which could enhance the state significance of the site.</p> <p>Evidence of the fort's construction, including the drainage systems used in its construction, and the cuts and fills may be considered locally significant for their ability to provide unique evidence. Artefacts present within the construction trenches for the fort may also contribute to our understanding of the people who built it and how it was built. However, the origin of the fills used would likely be unknown and artefacts may not be able to provide new insights.</p> <p>Archaeological remains associated with the use and ownership of Wollongong Council in the twentieth century (Phase 3: 1914-present) are unlikely to contribute to the archaeological research potential of the site. There is nil-low potential for archaeology associated with the early development of Wollongong (Phase 1: 1815-1890) and ephemeral or truncated remains that may be present would likely not have research potential.</p> <p>Potential archaeology relating to Phase 1 (1815-1839) are likely to only relate to ephemeral activities if present. These remains would not be considered significant under this criterion.</p> <p>Under this criterion, the potential historical archaeological resource would be significant at a local and state level.</p>



Criterion	Potential archaeological remains
<b>Criterion F (Rare)</b> An item possesses uncommon, rare, or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).	<p>Several other forts were constructed toward the end of the nineteenth century across NSW (see Section 4.2), however each of these were built to different designs which responded to their local environments. Given most of the fort remains intact and the removed elements are common features of late nineteenth / early twentieth century NSW fortifications (range finder and observation rooms, former fort walls), the potential archaeology would only be considered to meet this criterion at a local level.</p> <p>Artefacts associated with the volunteer militia, if they could be securely dated, would be rare at least at a local level and potentially state depending on the nature of the object.</p> <p>Under this criterion, the potential historical archaeological resource would be significant at a local level.</p>
<b>Criterion G (Representative)</b> An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).	<p>Potential archaeological remains associated with Flagstaff Hill fort are expected to be predominantly structural and largely relate to elements of the fort removed to facilitate landscaping and a carpark in the mid twentieth century. Other fortifications dating to this period are more intact, however archaeological evidence of the removed elements such as the walls, observation post and depression range finder would likely enhance the state significance of Flagstaff Hill fort as a representative example of its type.</p> <p>There is unlikely to be any substantial deposits of artefactual material present at the site. Disentangling these items from later rubbish accumulated at the site may also impact the ability to demonstrate a representative picture of the persons who occupied the fort during its phase of use. If a clear association could be made, these objects could enhance the state significance of the site.</p> <p>Artefacts relating to the construction workers who built the fort could be considered representative of everyday life in Wollongong at the end of the nineteenth century and could be considered significant at a local level.</p> <p>Under this criterion, the potential historical archaeological resource could be significant at a state and local level.</p>

### Statement of historical archaeological significance

The potential historical archaeological resource is predominantly associated with Phase 2 (1890–1914) Flagstaff Hill fort and Phase 3 (1914–present) ownership by Wollongong Council. There is overall moderate-high potential for archaeology associated with these two phases.

Potential archaeological remains of the original elements of the fort (Phase 2: 1890–1914), including the observation rooms, original fort walls, have the potential to enhance our understanding of the structures as they were originally constructed and would be significant at a state level for their historical significance, research potential, and representativeness, and a local level for rarity.



Artefacts associated with the occupation of the site as a military fortification would be significant at a local, and potentially state, level for their ability to contribute to our understanding of militia who occupied the site, and potentially military life more broadly in NSW depending on the nature of the artefacts.

Artefacts recovered from the backfill over the fort's substructure deposited during its construction would be significant at a local level for their historical and potential research value. Generally, the potential archaeology of the site may hold significance at a local level for its importance to the local community.

### Summary of archaeological potential and significance

Table 1.2 below summarises the study area's potential for historical archaeological features and deposits and includes an assessment of their significance. Figure 4.14 illustrates the areas of archaeological potential within the Smiths Hill site.

Table 1.2 Assessed levels of archaeological potential and significance within the study area.

Phase	Possible archaeological remains	Potential	Significance
<b>Phase 1: 1815–1890</b>	Evidence of land clearance and timber getting camps	Nil-low	Nil Unlikely to be present
<b>Early European Settlement of Wollongong</b>	Evidence of the former convict stockade		
	Remains of former flagstaff		
	Industrial and recreational activities undertaken on headland		
<b>Phase 2: 1890–1914</b>	Evidence of observation structures above the ends of the east-west corridors	High	State
<b>Flagstaff Hill Fort</b>	<ul style="list-style-type: none"><li>Masonry footings and surfaces</li></ul>	Low-Moderate	
	Artefacts relating to the use of the fort by local militia and military life <ul style="list-style-type: none"><li>Personal, military-specific or institutional items</li></ul>		
	Former fort retaining walls south-east and south-west of the entrance <ul style="list-style-type: none"><li>Masonry footings</li></ul>	Moderate-high	
	Evidence of forts construction <ul style="list-style-type: none"><li>Cuts and fills</li><li>Objects discarded by construction workers</li><li>Former drainage channel</li></ul>	High	Local
	Evidence of the former roadways constructed to fort	Nil-Low	Nil



Phase	Possible archaeological remains	Potential	Significance
<b>Phase 3: 1914–Present</b> <b>Ownership by Wollongong Council</b>	Evidence of the demolition of the above ground elements and introduced fills to cover the site.	High	Nil
	Retaining wall constructed to the north-west of the entrance	Moderate	
	Landscaping and park infrastructure elements		

## 1.3 Smiths Hill Fort

### 1.3.1 Analysis of site disturbance

The site has been subject to minimal disturbance since the original construction of the forts at the end of the nineteenth century. Construction of the fort involved large-scale excavation and would have had a substantial impact.

Repeated flooding events in the magazine will have likely highly disturbed any archaeological deposits dating to the period of the sites use.

Removal of the observation rooms and machine gun placements are likely to have been only to the extent of leveling the structures to the surrounding landscape and is unlikely to have completely removed all evidence of their presence.

Any deposits which have accumulated in the water tanks (Figure 1.27) are likely to remain in situ but it is unclear if potential artefacts were accumulated stratigraphically. The planting of Norfolk Island Pines (Figure 1.24) may have had localised impacts on archaeological remains located beneath or adjacent them. If water remained or accumulated in the tanks it is possible that tree roots have permeated the structures and may have compromised their stability.

It is unclear to what extent the top of the site has been levelled since being taken over by Council and any if former paths and roadways have been removed. It is unclear if services have been installed around the study area which may have caused localised impacts to archaeological remains. Any modern park infrastructure is likely to have only caused localised impacts to construction fills and very shallow deposits.



Figure 1.24 Modern accessibility upgrades to access the fort from Cliff Road include new stairways and hand rails.



Figure 1.25 Landscaping and the fencing along the east side of the fort has been carried out since the fort was uncovered again in the late 1980s.



Figure 1.26 The grassed area to the east of the fort shows the twentieth century planting of Norfolk Island Pines but minimal evidence of other impacts to any potential archaeology in this area.



Figure 1.27 Potential evidence of one of the two underground tanks installed to the east of the fort structures.





Figure 1.28 The swivel gun is situated on a butt-joint timber base which may conceal deposits dating from the occupation of the site.



Figure 1.29 It is unclear if the Depression Range Finder Station may have originally had an overstructure, however this would have been located on top of the exposed built elements



Figure 1.30 Modern drains have been installed which interface with the potentially original dish-drains. Their alignment is concealed by the asphalt surface.



Figure 1.31 A pump room has been installed at the east end of the passage leading from the DRF station.



### 1.3.2 Historical development of the site

The development of Smiths Hill Fort can broadly be understood in Four main phases:

- Phase 1: 1815–1839—Early European settlement of Wollongong;
- Phase 2: 1839–1892 Early coastal defence;
- Phase 3: 1892–1914 Smiths Hill Fort; and
- Phase 4: 1914–Present—Taking up of site by Wollongong Council.

### 1.3.3 Assessment of archaeological potential

#### Phase 1: 1815–1839—Early European settlement of Wollongong

The first Europeans to occupy the Illawarra were transient timber (cedar) getters who felled and processed the native cedar forests along the east coast, south of Sydney, while living in temporary, slab timber houses. No plans were made which indicate the locations of these camps. As it is unclear if the subject site was targeted for logging, there is a low-nil potential for archaeology relating to semi-permanent timber-getters camps to be present within the study area. There is low potential for evidence of land clearance such as tree throws.

The earliest records of the site show it being part of the Throsby allotment dating to from 1835, however there is no recorded evidence of the site being developed during this period. There is nil-low potential for archaeology to be present relating to the Throsby land grant, which could include ephemeral evidence of agricultural activities or isolated artefacts.

#### Phase 2: 1839–1892—Early Coastal Defence

The 1892 survey plan (Figure 1.32) which ascribes the site for defence purposes does not provide any evidence of the site's development to this point, with no other evidence to indicate the site's use until then. A newspaper article from 1937 reports that Smiths Hill was the original location of the three cannons now located at Flagstaff Hill, but does not indicate that any formal structure or substructure was built to compliment these.<sup>5</sup>

Potential archaeology relating to the original cannon placement may include the remains of former cannon bases or surfaces. Given the large-scale excavation required for the fort's construction, any remains would likely have been removed. Therefore, there is a nil-low potential for archaeological remains for dating to this phase.



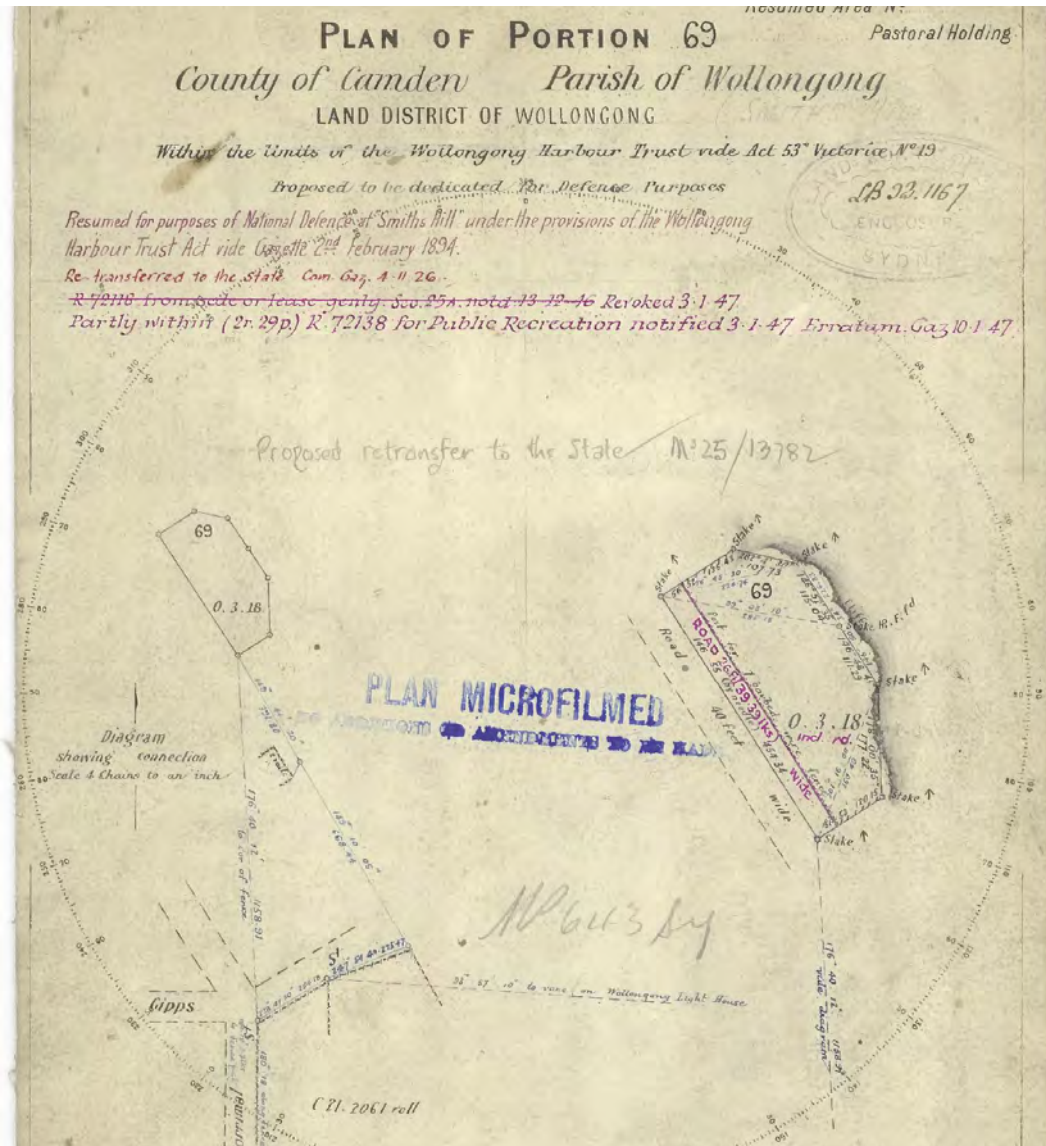


Figure 1.32 Detail of Crown Plan showing site of Smith's Hill fort with no evidence of previous land use. (Source: NSW Land Registry Services, Crown Plan 643-3000)

### Phase 3: 1892–1914—Smiths Hill Fort

The fort was constructed from 1892 and included most of the elements visible today. There is a high potential for archaeological evidence of its construction to be present, including cuts and fills associated with the excavation of the hillside to place the fort structures.



The backfill within the construction cuts may include artefacts and other materials associated with the construction and those involved in the building works. A concrete hatch is visible in the middle of the grassed area to the east of the fort and this is likely to be an access to one of the two underground tanks described in a 1903 report.<sup>6</sup> Unfortunately no plan could be located which shows the size and exact location of these tanks. The report also details a latrine which may have been an unfixed temporary structure. There is a moderate-high potential for archaeological evidence of these features to survive, with remains likely including truncated masonry or concrete footings or bases, and redundant drainage and sewerage systems.

The excavation report of the fort mentions that there were observation stations to the side of the main part of the fort, as well as two machine gun placements to the south of the study area. It is unclear if the observation stations were above or below ground structures, however there is a moderate-high potential for archaeological evidence of brick or concrete footings to survive. The machine gun placements are also likely to retain structural evidence of the same form, however it is not clear how extensive these were. In 1907 a contract was awarded for the construction of a single men's quarters on the fort, however no plans have been located in the research for this report which indicate the extent or location of this structure. The building was likely located quite close to the fortifications within the park and there is moderate-high potential for elements of it to survive archaeologically. Any archaeological remains would likely include brick / concrete footings or postholes, as well as potentially deposits associated with the occupation of the building. There is also moderate potential for evidence of an earlier fence line suggested to have been along the eastern boundary of the fort.

It is unclear whether an over-structure was built for the range finding room, but if constructed, this feature would have been located above the extant built elements. There is nil potential for archaeological evidence of this feature to survive archaeologically.

Visual inspection showed very limited areas that artefacts relating to the militia use of the fort may have collected, indicating a low potential for these potential archaeological remains to be present.

The site has been minimally altered since the burial and re-excavation of the fort. There is high potential for the remains of introduced fills to cover the site, and there may be evidence of cuts made during excavation works to uncover the site. There is a moderate potential for evidence of previous landscaping, removed park furniture and redundant service alignments to be present across the site.

### **1.3.4 Assessment of archaeological significance**

This significance assessment specifically considers the historical archaeological resource of the Smiths Hill fort study area and is presented in Table 1.3 below.



Table 1.3 Significance assessment of the potential archaeological remains within the Smiths Hill fort study area against the NSW Heritage criteria.

Criterion	Potential archaeological remains
<b>Criterion A (Historic significance)</b> An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).	<p>Smiths Hill fort is historically significant as the culmination of attitudes towards Wollongong's strategic importance in NSW which had been held since the mid-nineteenth century. The potential archaeological resource is anticipated as being largely associated with the original features and its use by the local militia.</p> <p>Removed features including the observation room, machine gun placements and former tanks would be contribute to the state significance of the site for its historical value in demonstrating the originally intended layout and operation of the fort.</p> <p>Evidence of the construction of the fort, including excavation of the hill and construction fills would be considered significant at a local level.</p> <p>Potential archaeology relating to Phases 1-2 (1815-1892) and Phase 4 (1914-Present) are likely to be highly ephemeral and would not contribute to the historic significance of the place.</p> <p>Under this criterion, archaeological evidence would be significant at a state and local level.</p>
<b>Criterion B (Historical association)</b> An item has strong or special association with the life or works of a person, or group of persons, of importance in the cultural or natural history (or the cultural or natural history of the local area).	<p>No significant associations with individuals or groups have been identified in relation to the anticipated historical archaeological resource in the subject site.</p> <p>Under this criterion, the potential historical archaeological resource would not meet the threshold for significance.</p>
<b>Criterion C (Aesthetic/creative/technical achievement)</b> An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).	<p>The exact layout of the fortifications is unique amongst late nineteenth century fortifications in NSW however it is composed of elements which are common amongst other contemporary examples. The only structural elements potentially represented in the archaeology of the site would be the single men's quarters building, latrine, and associated services would not satisfy this criteria for significance.</p> <p>The anticipated historical archaeological resource (largely structural remains) are unlikely to individually demonstrate creative or technical achievements or demonstrate unique aesthetic characteristics.</p> <p>Under this criterion, the potential historical archaeological resource would not meet the threshold for significance.</p>
<b>Criterion D (Social, cultural, and spiritual)</b> An item has strong or special association with a particular community or cultural group in NSW	<p>Consultation undertaken by Wollongong Council with Destination Wollongong, Rotary Club of Wollongong, and individuals previously associated with the conservation of the fort confirms that the built fabric holds social significance, which is likely to extent to archaeological remains.</p>





Criterion	Potential archaeological remains
(or the local area) for social, cultural, or spiritual reasons.	<p>Remains of the fort may also hold social significance for current and former residents of Wollongong who may be associated with persons that built or used the fort. The potential archaeology associated with the fort could also be significant to those interested in military history and former military personnel.</p> <p>Under this criterion the archaeological remains would be considered significant at a local level.</p>
<p><b>Criterion E (Research potential)</b></p> <p>An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).</p>	<p>The potential archaeological resource of the Smiths Hill fort is expected to be associated with the construction and use of site. Several fortifications dating to the late nineteenth century were constructed in New South Wales (see Section 4.2), however few of them have been archaeologically excavated. There are no known examples of archaeological programs undertaken on forts in the Illawarra.</p> <p>Substantive and intact archaeological remains of the single men's quarters, machine gun placements, observation stations, and water tanks would be considered to contribute to the state significance of the site, particular to how late nineteenth century fortifications were organised and used. Given the lack of documentary evidence for the location of these elements, and the lack of standardised design, archaeological remains would present a unique source of evidence.</p> <p>Artefacts from deposits within or surrounding the fort may include personal items such as food containers and personal effects belonging to the soldiers stationed at the fort, or associated with the operations of the fort. Analysis of artefacts could yield new information about the volunteer militia who staffed the fort and how the fort functioned day-to-day. Artefact deposits, if present and clearly associated with the militia, could contribute unique or new evidence which could enhance the state significance of the site.</p> <p>Artefacts present within the construction trenches for the fort may contribute to our understanding of the people who built it and how it was built. However, the origin of the fills used would likely be unknown and artefacts may not be able to provide new insights.</p> <p>Under this criterion, archaeological evidence would be significant at a state and local level.</p>
<p><b>Criterion F (Rare)</b></p> <p>An item possesses uncommon, rare, or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).</p>	<p>The potential archaeological resource of the Smiths Hill fort is expected to be associated with the construction and use of site. Several other forts were constructed toward the end of the nineteenth century across NSW (see Section 4.2), however each of these were built to different designs which responded to their local environments. In the context of other fortifications from the same period, substantive and intact archaeological remains associated with the fort would only be considered to meet this criterion at a local level.</p>



Criterion	Potential archaeological remains
	<p>Artefacts associated with the volunteer militia, if they could be securely dated, would be rare at least at a local level and potentially state depending on the nature of the object.</p> <p>Under this criterion, archaeological evidence would be significant at a state and local level.</p>
<p><b>Criterion G (Representative)</b></p> <p>An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments (or a class of the local area's cultural or natural places; or cultural or natural environments).</p>	<p>Potential archaeological remains associated with Smiths Hill fort are expected to be limited and predominantly structural, with archaeological remains of the former likely temporary latrine or associated services in particular not expected to be a representative example of their type. Archaeological remains relating to the single men's quarters, machine gun placements, observation stations, or water storage tanks would likely enhance the state significance of Smiths Hill fort as a representative example of its type.</p> <p>There is unlikely to be any substantial deposits of artefactual material present at the site. Disentangling these items from later rubbish accumulated at the site may also impact the ability to demonstrate a representative picture of the persons who occupied the fort during its phase of use. If a clear association could be made, these objects could enhance the state significance of the site.</p> <p>Under this criterion the potential historical archaeological resource of the use of the Smiths Hill fort may meet the threshold of significance at a state level.</p>

## Statement of historical archaeological significance

The archaeological significance of Smiths Hill fort is mostly associated with it being one of the earliest formalised fortifications in the Illawarra region. Any surviving evidence of original elements of the fort, including the observation rooms, machine gun placements or the water tanks has the potential to enhance our understanding of the structures as they were originally constructed and would be significant at a state level for their historical, research, rarity and representative values.

Discrete artefacts which could be securely associated with the occupation of the site as a military fortification could be considered at a state level for their historical and social values in their ability to contribute to our understanding of the local militia who occupied the site.

Any evidence of the fort's construction, including artefacts recovered from the backfill surrounding the built elements would only be considered significant at a local level for their research and cultural values. Generally, the potential archaeology of the site may hold significance at a local level for its importance to the local community.



## Summary of archaeological potential and significance

Table 1.4 summarises the study area's potential for historical archaeological features and deposits. Figure 4.15 illustrates the areas of archaeological potential within the Smiths Hill site.

Table 1.4 Assessed levels of archaeological potential and significance within the study area.

Phase	Possible archaeological remains	Potential	Significance
<b>Phase 1: 1815-1839</b> <b>Early European Settlement of Wollongong</b>	Evidence of land clearance and timber getting camps	Nil-low	Nil
	Evidence of use of the site during Throsby's early land grant		Unlikely to be present
<b>Phase 2: 1839-1892</b> <b>Early Coastal Defence</b>	Evidence of former cannon placements	Nil-low	Nil
<b>Phase 3: 1892-1914</b> <b>Smiths Hill Fort</b>	Partially removed elements of the former fort <ul style="list-style-type: none"> <li>Subterranean tanks</li> <li>Machine gun placements</li> <li>Observation stations</li> <li>Truncated remains of single men's quarters building</li> </ul> Former latrine and associated services <ul style="list-style-type: none"> <li>Truncated footings</li> <li>Redundant service alignments</li> </ul>	Moderate-high	State
	Artefacts relating to the use of the fort by local militia <ul style="list-style-type: none"> <li>Military or personal items</li> </ul>	Low	
	Evidence of the construction process of the fort	High	Local
	Evidence of an earlier fence line along the east boundary of the fort	Moderate	Nil
	Evidence of the removal of above ground elements and introduced fills to cover the site.	High	Nil
<b>Phase 4: 1914-Present</b> <b>Ownership by Wollongong Council</b>	Landscaping and park infrastructure elements including redundant mid-late twentieth century services	Moderate	



## 2 Endnotes

- <sup>1</sup> AMAC Group 2013, Final Archaeological Report 7 Harbour Street, Wollongong, NSW. Unpublished report to Mr Craig Osborne.
- <sup>2</sup> AMAC Group 2013, Final Archaeological Report 4 Robertson Street, Wollongong, NSW. Unpublished report to Mr James Isabella.
- <sup>3</sup> Wilson, G and Davies, M 1979, Fort Scratchley Report, 1. Archaeological Report. Unpublished Report to the department of Construction.
- <sup>4</sup> Illawarra, Chapter II, The Kiama Independent, and Shoalhaven advertiser, 1 April 1875, p 1.
- <sup>5</sup> Wollongong's old forts, *Illawarra Mercury*, 2 July 1937, p 14.
- <sup>6</sup> Smiths Hill Fort 1903 State properties transferred to the Commonwealth: report of Committee, p 17.

## Appendix 4

Aboriginal Heritage Information Management System (AHIMS) search results





## AHIMS Web Services (AWS) Search Result

Your Ref/PO Number : 24-0147 BASIC

Client Service ID : 903593

GML Heritage Pty Ltd - Surry Hills

Date: 24 June 2024

Level 17 323 Castlereagh Street  
Haymarket New South Wales 2000

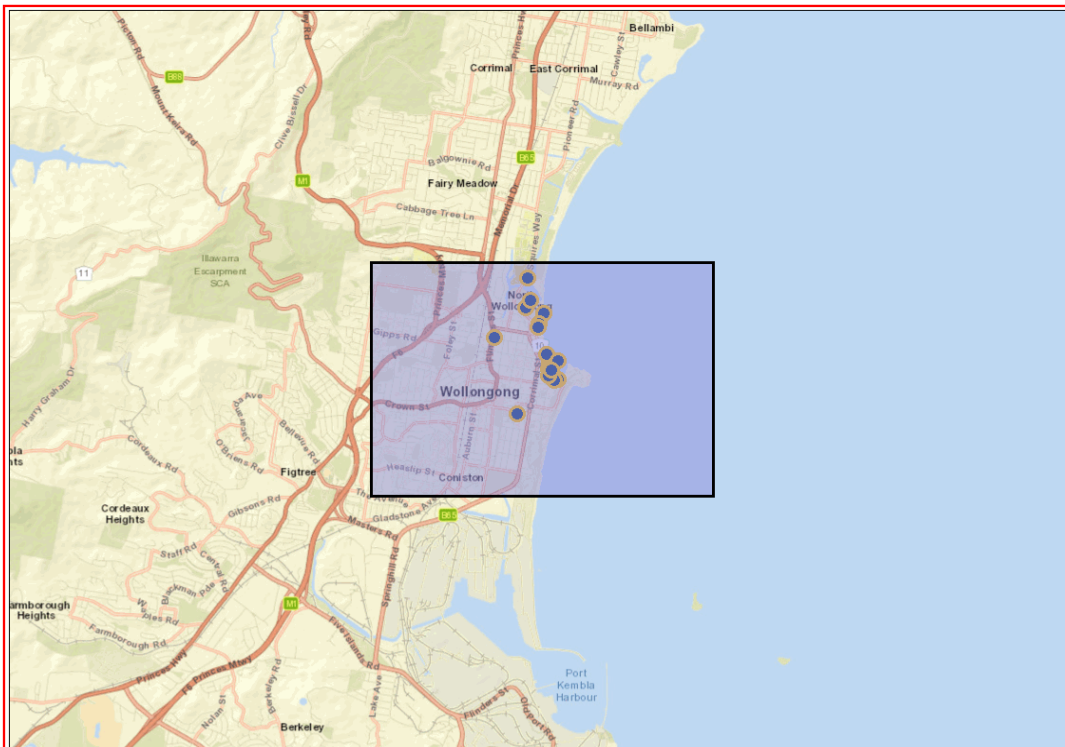
Attention: Jacob Gwiazdzinski

Email: jacobg@gml.com.au

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lat, Long From : -34.4395, 150.871 - Lat, Long To : -34.4041, 150.9328, conducted by Jacob Gwiazdzinski on 24 June 2024.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

18	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

**If your search shows Aboriginal sites or places what should you do?**

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette](https://www.legislation.nsw.gov.au/gazette) (<https://www.legislation.nsw.gov.au/gazette>) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

**Important information about your AHIMS search**

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.