

Appendix D

Non-Aboriginal heritage assessment

Sydney Metro West Modification: Clyde stabling and maintenance facility

Technical Paper: Non-Aboriginal
Heritage

Report to Sydney Metro Authority

November 2021



 artefact

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EXECUTIVE SUMMARY

Sydney Metro West

Sydney Metro is Australia's biggest public transport program. The Sydney Metro West project is part of the broader Sydney Metro and includes a new 24-kilometre metro line that will connect Greater Parramatta with the Sydney CBD. Stations include Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street (Sydney CBD). This infrastructure investment will double the rail capacity of the Greater Parramatta to Sydney CBD corridor with a travel time target between the two centres of about 20 minutes.

The planning approval process for Sydney Metro West is being completed as a staged infrastructure application under section 5.20 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The approved project

Planning approval for Sydney Metro West Project Concept, from Westmead to the Sydney CBD as well as station excavation and tunnelling between Westmead and The Bays (the approved project) was granted by the Minister for Planning and Public Spaces on 11 March 2020 (SSI-10038) and is described in the following documents:

- The Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD (Sydney Metro, 2020a)
- The Sydney Metro West Westmead to The Bays and Sydney CBD Submissions Report (Concept and Stage 1) (Sydney Metro, 2020b)
- The Sydney Metro West Westmead to The Bays and Sydney CBD Amendment Report (Concept and Stage 1) (Sydney Metro, 2020c)
- Conditions of Approval for Sydney Metro West – Concept and Stage 1 Construction (SSI 10038) (Department of Planning and Environment, 2021)

The proposed modification

The proposed modification relates to the major civil construction work at the Clyde stabling and maintenance facility and would include:

- Rosehill dive structure relocation and extension
- Kay Street and Unwin Street realignment.

These changes to the design for the approved project would require:

- Additional land required for future planning applications brought forward
- Additional impact to heritage not assessed as part of the approved project
- Additional impact to biodiversity not assessed as part of the approved project

There would be no changes proposed to the Concept as described in Chapter 6 (Concept description) of the Environmental Impact Statement.

Approach to Non-Aboriginal Heritage Assessment

Artefact Heritage has been engaged to prepare a non-Aboriginal heritage assessment for the proposed modification to the approved project at the Clyde stabling and maintenance facility construction site. This technical paper considers the impacts on listed heritage items and potential archaeological resources within the modified study area and includes:

- Identification of items and areas of heritage significance that would be materially affected by the proposed modification to the approved project at the Clyde stabling and maintenance facility construction site, by field survey and research, including any buildings, works, relics, views or places of heritage significance
- Consideration of the potential impacts on the values, settings and integrity of heritage areas and items and archaeological resources located within the proposed modified construction site at the Clyde stabling and maintenance facility, including items both above and below ground and, where such potential exists, the likely significance of those impacts
- Outlining the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures).

Overview of potential impacts

The proposed modification to approved project has the potential to have impacts that are more than minor on the following heritage items in Table 1 below.

Table 1: Overview of potential impacts

Heritage item	Location	Significance	Description of potential impact
Rosehill Railway Station Footbridge	Within additional area required for the Clyde stabling and maintenance facility construction site	Local	Direct impact: Major Overall impact: Major
Rosehill Railway Station	Within additional area required for the Clyde stabling and maintenance facility construction site	Potential heritage item	Direct impact: Major Overall impact: Major
Non-Aboriginal archaeological remains	Within additional area required for the Clyde stabling and maintenance facility construction site	Nil	Direct impact: Neutral Overall impact: Neutral

Summary of mitigation response

The mitigation measures identified for the approved project would be applied to minimise impacts associated with the proposed modification. Changed and additional mitigation measures are proposed as a result of the modification are shown in **bold** text and are provided in Table 2.

Table 2: Revised Non-Aboriginal heritage mitigation measures

Reference	Impact / Issue	Mitigation measure	Applicable location ¹
Changed mitigation measures			
NAH1	Archival recording	Archival recording and reporting of the following heritage and unlisted potential heritage item items would be carried out in accordance with the NSW Heritage Office's <i>How to Prepare Archival Records of Heritage Items</i> (1998), and <i>Photographic Recording of Heritage Items Using Film or Digital Capture</i> (2006): <ul style="list-style-type: none"> • Shops (and potential archaeological site) (Parramatta LEP Item No. I703) • Kia Ora (and potential archaeological site) (Parramatta LEP Item No. I716) • RTA Depot (Parramatta LEP Item No. I576) • State Abattoirs (SEPP Listing No. A) • White Bay Power Station (SHR Listing No. 01015) • Rosehill Railway Station Footbridge (SHI no. 4801762) • Rosehill Railway Station Footbridge (unlisted potential heritage item). 	PMS, CSMF, SOPMS, TBS, CSMF
Additional mitigation measures			
NAH11	Removal / Salvage	Prior to commencement of demolition of heritage elements at Rosehill Railway Station and Rosehill Railway Station Footbridge, significant heritage fabric would be identified for salvage and reuse opportunities for salvaged fabric considered.	CSMF

¹ WMS: Westmead metro station; PMS: Parramatta metro station; CSMF: Clyde stabling and maintenance facility; SSF: Silverwater services facility; SOPMS: Sydney Olympic Park metro station; NSMS: North Strathfield metro station; BNS: Burwood North Station; FDS: Five Dock Station; TBS: The Bays Station; Metro rail tunnels: Metro rail tunnels not related to other sites (eg tunnel boring machine works); PSR: Power supply routes.

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1.0 INTRODUCTION

1.1 Sydney Metro West

Sydney Metro is Australia's biggest public transport program. The Sydney Metro West project is part of the broader Sydney Metro and includes a new 24-kilometre metro line that will connect Greater Parramatta with the Sydney CBD. Stations include Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street (Sydney CBD). This infrastructure investment will double the rail capacity of the Greater Parramatta to Sydney CBD corridor with a travel time target between the two centres of about 20 minutes.

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1.1.1 The approved project

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1.1.2 The proposed modification

The proposed modification relates to the major civil construction work at the Clyde Stabling and maintenance facility and would include:

- Rosehill dive structure relocation and extension
- Kay Street and Unwin Street realignment.

These changes to the design for the approved project would require:

- Additional land required for future planning applications brought forward
- Additional impact to heritage not assessed as part of the approved project
- Additional impact to biodiversity not assessed as part of the approved project

There would be no changes proposed to the Concept as described in Chapter 6 (Concept description) of the Environmental Impact Statement.

1.1.3 Location

Sydney Metro West would mainly be located underground in twin tunnels. The major civil construction work assessed as part of the approved project extends from Westmead to The Bays (refer Figure 1).



Figure 1: Sydney Metro West network

1.2 Purpose and scope of this report

This technical paper, Technical Paper 3: Non-Aboriginal heritage is one of several technical documents that form part of the proposed modification assessment. The purpose of this technical paper is to identify and assess the non-Aboriginal heritage impacts of the proposed modification to the approved project at the Clyde stabling and maintenance facility construction site and recommend mitigation measures to minimise the potential impacts of the proposed works. In doing so it responds directly to the Secretary's Environmental Assessment Requirements (SEARs) outlined in Section 1.3.

This technical paper considers the impacts on listed heritage items and potential archaeological resources within the modified study area and includes:

- Identification of items and areas of heritage significance that would be materially affected by the modification to the approved project at the Clyde stabling and maintenance facility construction site, by field survey and research, including any buildings, works, relics, views or places of heritage significance
- Consideration of the potential impacts on the values, settings and integrity of heritage areas and items and archaeological resources located within the proposed modifications at the Clyde stabling and maintenance facility construction site, including items both above and below ground and, where such potential exists, the likely significance of those impacts

- Outlining the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures).

1.3 Secretary's Environmental Assessment Requirements

The SEARs were issued for Stage 1 on 11 December 2019. The requirements specific to non-Aboriginal heritage, and where these requirements are addressed in this technical paper, are outlined in Table 3 below.

Table 3: Sydney Metro West Stage 1 Secretary's Environmental Assessment Requirements – Non-Aboriginal heritage

Secretary's Environmental Assessment Requirements	Where addressed
1) Potential direct and / or indirect impacts (including cumulative impacts) to the heritage significance of:	
a) Environmental heritage, as defined under the <i>Heritage Act 1977</i> ; and	Section 6.0 and 7.0
b) Items listed on National and World Heritage lists; and	Section 6.0
c) Heritage items and conservation areas identified in environmental planning instruments applicable to the project area.	Section 6.0
2) Where impacts to State or locally significant heritage items are identified, the assessment must:	
a) Include a significance assessment, a statement of heritage impact for all heritage items and a historical archaeological assessment;	Section 6.0
b) Consider any relevant conservation management plan;	Section 6.0
c) Consider impacts to the item of significance by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment (as relevant) and whether these are temporary or permanent;	Section 6.0
d) Outline measures to avoid and minimise those impacts during construction in accordance with the current guidelines;	Section 9.0
e) Be undertaken by a suitably qualified heritage consultant(s) and/or historical archaeologist (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria)	Section 1.4

Further, the SEARs reference the investigations and assessments identified in the Sydney Metro West Scoping Report – Westmead to The Bays and Sydney CBD (Sydney Metro, 2019). Table 4 outlines where these requirements have been addressed.

Table 4: Sydney Metro West scoping report assessment requirements – Non-Aboriginal heritage

Scoping report requirements – Stage 1	Where addressed
<p>The non-Aboriginal heritage assessment for Stage 1 will:</p> <ul style="list-style-type: none"> Identify items and areas of heritage significance that would be materially affected by Stage 1, by field survey and research, including any buildings, work, relics, gardens, landscapes, views, trees or places of heritage significance. 	<p>Section 7.0</p>
<ul style="list-style-type: none"> Consider the potential on the values, settings and integrity of heritage areas and items and archaeological resources located near Stage 1, including items both above and below ground and, where such potential exists, the likely significance of those impacts. 	<p>Section 7.0</p>
<ul style="list-style-type: none"> Outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) in accordance with relevant best practice guidelines. 	<p>Section 9.0</p>

1.4 Authors

This report was prepared by Sarah-Jane Zammit (Senior Heritage Consultant), Elanor Pitt (Heritage Consultant) and Duncan Jones (Principal). Management input and review as provided by Dr Sandra Wallace (Director).

The qualifications of the heritage consultants involved in the production of the report are included in Table 5.

Table 5: Qualifications

Name	Qualification	Years Experience
Dr Sandra Wallace	PhD Archaeology BA Prehistoric and Historic Archaeology (Hons)	18 years
Duncan Jones	BA Prehistoric and Historic Archaeology (Hons)	13 years
Sarah-Jane Zammit	PhD Architecture (candidate) MA Heritage Conservation MA Architecture BA Architecture	9 years
Elanor Pitt	MA Archaeology BA Archaeology B Eng (Civil)	5 years

Neither the approved project nor this modification assessment have triggered the requirement for an Excavation Director. However, future works may require the need for a consultant that satisfies the Heritage Council of NSW Criteria for assessing Excavation Directors as outlined in mitigation measures NAH6 and NAH7 of the approved project Environmental Impact Statement.

2.0 LEGISLATIVE CONTEXT

2.1 Introduction

There are several items of legislation which are relevant to the approved project and the proposed modification application. This chapter provides a summary of these and the potential implications to the modification application.

2.2 The World Heritage Convention

The *Convention Concerning the Protection of World Cultural and National Heritage* (the World Heritage Convention) was adopted by the General Conference of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) on 16 November 1972, and came into force on 17 December 1975. The World Heritage Convention aims to promote international cooperation to protect heritage that is of such outstanding universal value that its conservation is important for current and future generations. It sets out the criteria that a site must meet to be inscribed on the World Heritage List and the role of State Parties in the protection and preservation of world and their own national heritage.

2.2.1 World Heritage List

The World Heritage List contains sites that have been listed by UNESCO as being of special cultural or physical significance.

There are no items listed on the World Heritage List located within the proposed modification to the approved project construction site.

2.3 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legislative framework for the protection and management of matters of national environmental significance, that is, flora, fauna, ecological communities and heritage places of national and international importance. Heritage items are protected through their inclusion on the World Heritage List, Commonwealth Heritage List or the National Heritage List.

The EPBC Act stipulates that a person who has proposed an action that will, or is likely to, have a significant impact on a World, National or Commonwealth Heritage site must refer the action to the Department of the Environment and Minister for the Environment (hereafter Minister). The Minister will then determine if the action requires approval under the EPBC Act. If approval is required, an environmental assessment would need to be prepared. The Minister would approve or decline the action based on this assessment.

A significant impact is defined as “an impact which is important, notable, or of consequence, having regard to its context or intensity”. The significance of the action is based on the sensitivity, value and quality of the environment that is to be impacted, and the duration, magnitude and geographic extent of the impact. If the action is to be undertaken in accordance with an accredited management plan, approval is not needed, and the matter would not be referred to the Minister.

There would be no direct impacts within heritage items listed on the World Heritage List or National Heritage List as a result of the proposed modification to the approved project. Therefore, there would be no significant heritage impacts as defined under the EPBC Act. The proposed modification to the approved project would therefore not require referral for heritage values under the EPBC Act.

2.3.1 Commonwealth Heritage List

The Commonwealth Heritage List has been established to list heritage places that are either entirely within a Commonwealth area, or outside the Australian jurisdiction and owned or leased by the Commonwealth or a Commonwealth Authority. The Commonwealth Heritage List includes natural, Indigenous and historic heritage places which the Minister is satisfied have one or more Commonwealth Heritage values.

There are no items listed on the Commonwealth Heritage List located within the proposed modification to the approved project construction site.

2.3.2 National Heritage List

The National Heritage List has been established to list places of outstanding heritage significance to Australia. It includes natural, historic and Indigenous places that are of outstanding national heritage value to the Australian nation.

There are no items listed on the National Heritage List located within the proposed modification to the approved project construction site. Items which are located directly above the tunnel alignment were assessed as part of the approved project, and are not assessed as part of this report. The impacts associated with the tunnel alignment are unchanged by the proposed modification to the approved project.

2.4 New South Wales Heritage Act 1977

The NSW *Heritage Act 1977* (Heritage Act) provides protection for items of 'environmental heritage' in NSW. 'Environmental heritage' includes places, buildings, works, relics, movable objects or precincts considered significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. Items considered to be significant to the state are listed on the State Heritage Register (SHR) and cannot be demolished, altered, moved or damaged, or their significance altered without approval from the Heritage Council of NSW.

Although the requirements for permits under the Heritage Act are not required for an approved State significant infrastructure project, the Heritage Act is relevant in that it guides assessment and defines statutory listed items. Relevant regulations are also required to be used under the Secretary's Environmental Assessment Requirements and certain sections of the Heritage Act potentially relevant to the proposal, such as Section 146 (notification of discovery of relics) are still applicable to approved State significant infrastructure projects.

2.4.1 State Heritage Register

The SHR was established under Section 22 of the Heritage Act and is a list of places and objects of particular importance to the people of NSW, including archaeological sites. The State Heritage Register is administered by Heritage NSW and includes a diverse range of over 1500 items, in both private and public ownership. To be listed, an item must be deemed to be of State heritage significance as directed by the Minister and only if recommended by Heritage Council, pursuant to Section 23 of the Heritage Act.

2.4.2 Section 170 heritage registers

Under the Heritage Act all government agencies are required to identify, conserve and manage heritage items in their ownership or control. Section 170 of the Heritage Act requires all government

agencies to maintain a Heritage and Conservation Register that lists all heritage assets and an assessment of the significance of each asset. They must also ensure that all items inscribed on its list are maintained with due diligence in accordance with State Owned Heritage Management Principles approved by the NSW Government on advice of the NSW Heritage Council. These principles serve to protect and conserve the heritage significance of items and are based on NSW heritage legislation and guidelines.

There is **one item** which is listed on the Railcorp s170 register within the additional area required for construction at the Clyde stabling and maintenance facility.

2.4.3 Conservation Management Plans

A Conservation Management Plan (CMP) is a heritage management document which according to Section 38A(3) of the Heritage Act:

- identifies the state heritage significance of an item,
- sets out policies and strategies for the retention of that significance, and
- is prepared in accordance with the guidelines for the preparation of conservation management plans (if any) publicly issued from time to time by the Heritage Council.

As a requirement under Section 38A (1) of the Heritage Act, CMPs were required to be submitted to the NSW Heritage Council for endorsement. From December 2020, this requirement was removed, bringing the NSW Heritage process in line with other jurisdictions across Australia.

The following CMPs have been previously prepared:

- The 'Railway Footbridge Heritage Conservation Strategy' was prepared by the NSW Government Architect's Office Heritage Group in August 2016 and includes a discussion and assessment of the Rosehill Railway Station Footbridge.
- The 'Heritage Platforms Conservation Management Strategy' was prepared by Australian Museum Consulting in May 2015.

2.4.4 Archaeological relics and works

The Heritage Act also provides protection for 'relics', which includes archaeological material or deposits. Section 4 (1) of the Heritage Act (as amended in 2009) defines a relic as:

"...any deposit, artefact, object or material evidence that:

- (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
- (b) is of State or local heritage significance"*

Sections 139 to 145 of the Heritage Act prevent the excavation or disturbance of land known or likely to contain relics, unless under an excavation permit. Section 139 (1) states:

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

Excavation permits are issued by the Heritage Council of NSW, or its Delegate, under Section 140 of the Heritage Act for relics not listed on the SHR or under Section 60 for impacts within SHR

curtilages. An application for an excavation permit must be supported by an Archaeological Research Design (ARD) and Archaeological Assessment prepared in accordance with the NSW Heritage Division archaeological guidelines. Minor works that would have a minimal impact on archaeological relics may be granted an exception under Section 139 (4) or an exemption under Section 57 (2) of the Heritage Act. However, the proposal is subject to Part 5.2 (State significant infrastructure) provisions of the EP&A Act, and therefore excavation permits, or exemptions would not be required.

The Heritage Act defines 'works' as being in a separate category to archaeological 'relics'. The Heritage Act classifies 'works' as evidence of historical infrastructure. 'Works' may be buried, and therefore archaeological in nature, however, exposure of a 'work' does not trigger reporting obligations under the Heritage Act. The following examples are commonly considered to be 'works':

- Former road surfaces or pavement and kerbing.
- Evidence of former drainage infrastructure, where there are no historical artefacts in association with the item.
- Building footings associated with former infrastructure facilities, where there are no historical artefacts in association with the item.

2.5 Environmental Planning and Assessment Act 1979

The EP&A Act establishes the framework for cultural heritage values to be formally assessed in the land use planning, development consent and environmental impact assessment processes. The EP&A Act requires that environmental impacts are considered prior to land development; this includes impacts on cultural heritage items and places as well as archaeological sites and deposits. The EP&A Act also requires that local governments prepare planning instruments (such as Local Environmental Plans (LEPs)) in accordance with the EP&A Act to provide guidance on the level of environmental assessment required.

The study area for the proposed modification to the approved project construction site is located within the Local Government Area (LGA) of Parramatta. The study area is therefore subject to the Parramatta Local Environmental Plan 2011 (PLEP 2011).

The aim of the LEPs in relation to heritage is to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings, views and archaeological sites. The LEP's list items of heritage significance within the LGA.

2.6 Non-statutory heritage registers

2.6.1 National Trust Register (NSW)

The National Trust is one of Australia's heritage conservation charities, which was established in 1945. The Trusts mission is the safeguard of built, natural and cultural heritage of Australia for future generations. The National Trust owns or manages over 300 heritage places across Australia, and the National Trust of Australia (NSW) maintains a Register of landscapes, townscapes, buildings, industrial sites, cemeteries and other items or places which the Trust determines have cultural significance and are worthy of conservation. Currently, there are over 12,000 items which have been 'Classified' on the Trust's Register.² No items on the National Trust Register would be impacted by the proposed modification.

² nationaltrust.org.au/heritage-register-2/, accessed 11/05/21.

2.6.2 Register of National Estate

The Register of National Estate (RNE) was originally established under the *Australian Heritage Commission Act 1975* which was repealed in 1999 by the EPBC Act. The RNE was officially closed in 2007 with all references and register items removed from the EPBC Act on 19 February 2012. Prior to its repeal, the RNE was a statutory register of more than 13,000 places – including many places of local or state significance.³ No items on the Register of National Estate would be impacted by the proposed modification.

2.6.3 The Australian Institute of Architects Register of Significant Architecture

The NSW Chapter of the Australian Institute of Architects (AIA) has maintained a register of significant architecture in NSW since 1949, focusing on twentieth century heritage. The register not only focuses on twentieth century heritage but seeks to preserve buildings of merit award-winning buildings. The register has over 3,000 buildings listed on the register.⁴

³ <https://www.environment.gov.au/heritage/places/register-national-estate>, accessed 11/05/21.

⁴ <https://architectureau.com/articles/aia-heritage-upgrade/>, accessed 11/05/21.

3.0 ASSESSMENT METHODOLOGY

3.1 Overview

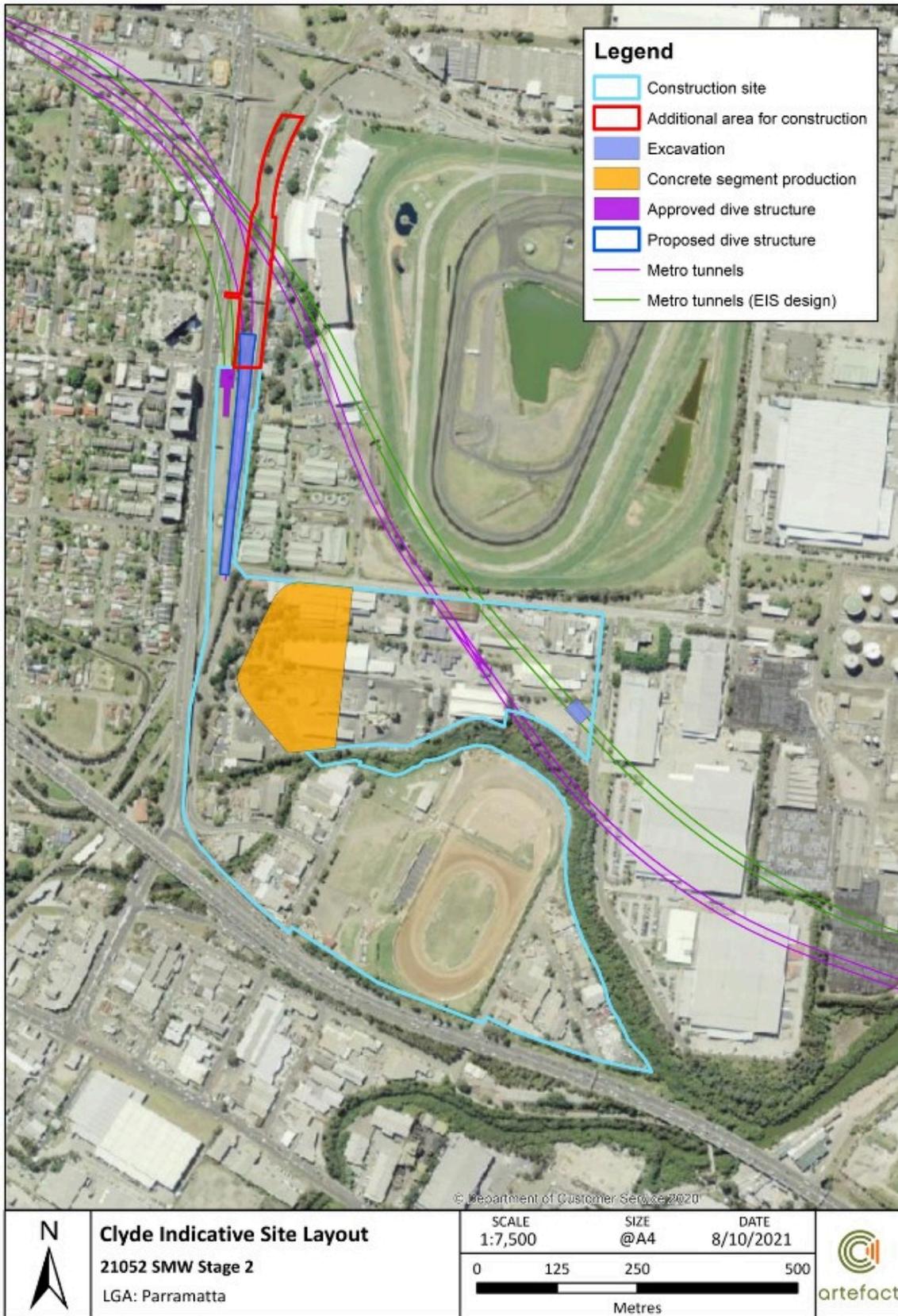
The potential non-Aboriginal heritage impacts which would arise as a result of the proposed modification at the Clyde stabling and maintenance facility construction site have been assessed using the following methodology. This assessment is consistent with relevant Heritage NSW assessment guidelines, discussed in the sections below.

- Desktop investigation – involving the identification of heritage listed items, and potential heritage items within and in the vicinity of the proposal through an examination of primary and secondary historical and archaeological written pictorial photograph and cartographic resources
- Site assessment – involving assessments of condition and integrity of known heritage items as well as identification and assessment of potential heritage items. Site assessments also involve detailed examination of ground levels and the urban landscape to inform discussions of archaeological potential for the construction sites. Site visits to the construction site was undertaken by Artefact on 27 August 2021.
- Identification of potential heritage items which are not currently listed under statutory legislation
- The preparation of heritage significance assessments (or update of existing assessments), using existing heritage significance documentation and updated where necessary based on the results of desktop historical research and the site inspections
- The preparation of detailed non-Aboriginal archaeological potential and significance assessments and zoning mapping for the construction sites, based on the results of historical research and the site inspection
- The preparation of impact assessments for all listed and potential heritage items identified within the study areas, as well as archaeological impact assessments for all predicted significant non-Aboriginal archaeological resources
- Identification of mitigation measures to minimise impacts to the significance of heritage items and significant non-Aboriginal archaeological resources.

3.2 Study area

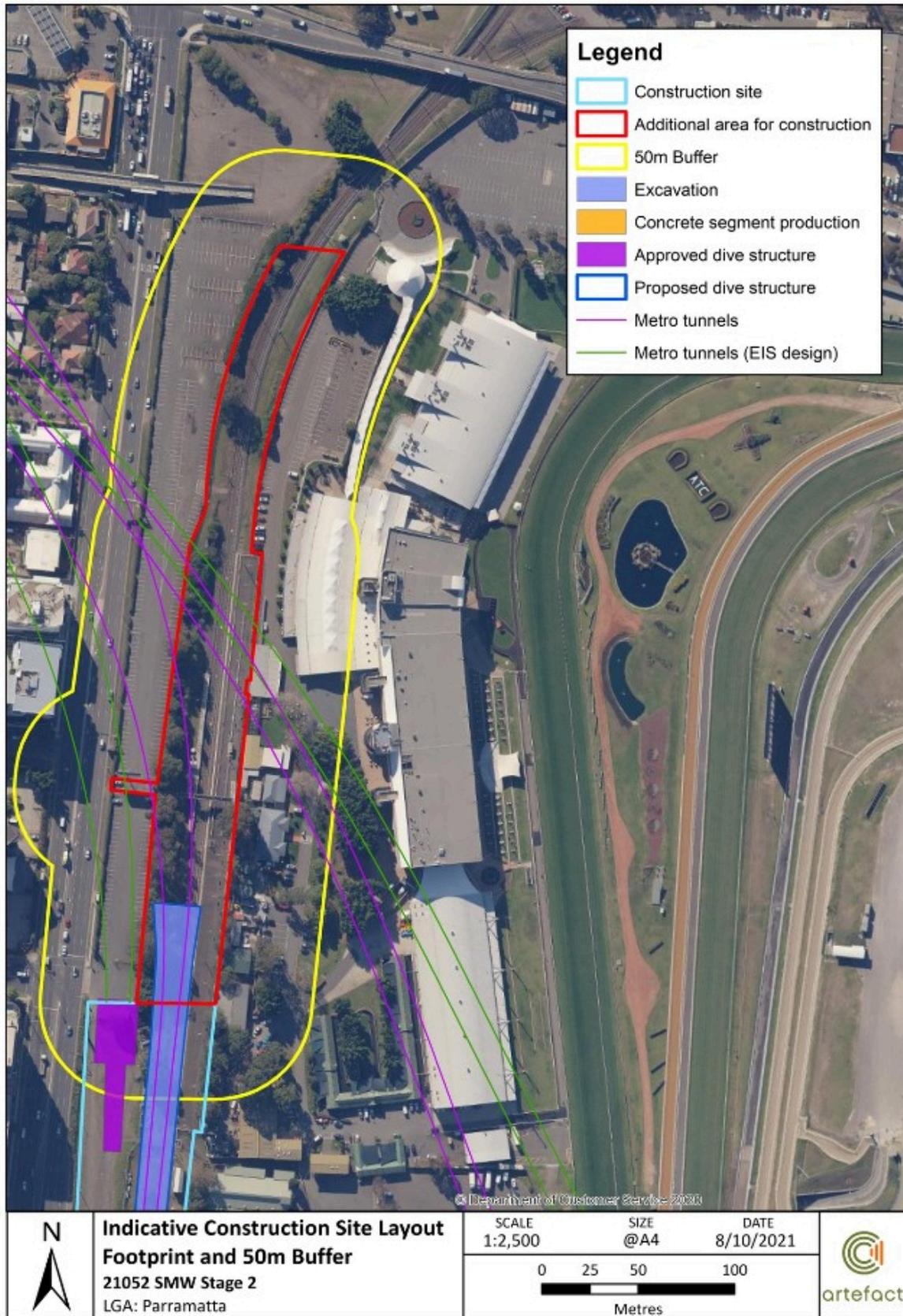
The proposed modification to the approved project construction site is shown in Figure 2 and Figure 3. For the purpose of this investigation, the study area for the construction site has been defined as including a 50 metre buffer around the construction footprint that incorporates not only the proposed modification to the construction site but also ancillary works (such as drainage or any required remediation), facilities and access ways to each area during construction.

The use of a study area (encompassing the buffer) helps to identify heritage items which are potentially within the visual catchment of the proposed modifications to the approved project construction site, where visual impacts on that item may occur. It also supports assessment of other indirect impacts on heritage fabric (for example, as a result of vibration). Any reference to the 'study area' in this chapter includes reference to the 50 metre buffer around the proposed modified construction site footprint, unless otherwise stated. Areas not within the proposed modified construction site footprint have been previously assessed as part of the approved project.



Document Path: D:\GIS\GIS_Mapping\21052_Metro_West_Stage2\MXD\Clyde Modification\MXD\20210810\Clyde_Modification_20210810.mxd

Figure 2: Map outlining the study areas and proposed tunnel alignment (Source: Artefact, 2021).



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Figure 3: Additional area required for construction at Clyde stabling and maintenance facility

3.3 Identification of heritage listed items

A heritage register search was carried out in September 2021. Heritage listed items within the study areas were identified through a search of relevant state and federal statutory and non-statutory heritage registers:

- World Heritage List
- Commonwealth Heritage List
- National Heritage List
- State Heritage Register
- *Sydney Regional Environmental Plan No 26 – City West*
- *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*
- City of Sydney LEP 2012
- Leichhardt LEP 2013
- Section 170 Heritage and Conservation Registers
- NSW State Heritage Inventory database
- National Trust
- Institute of Architects Register of Significant Buildings
- Register of the National Estate.

Items listed on these registers have been previously assessed against the NSW Heritage Assessment guidelines. Statements of heritage significance, based on the NSW Heritage Assessment guidelines, as they appear in relevant heritage inventory sheets and documents, are provided throughout this assessment and updated as required. Additional items which have been identified within the additional area required for construction, or within the 50m buffer, have been assessed in Section 6.0.

CMPs and other heritage management documents and guidelines have been used, where relevant, to provide additional information regarding heritage significance. Where CMPs have been written for a heritage item they have been referenced and cited.

3.4 Identification of potential heritage items

This assessment involves a preliminary assessment of potential unlisted heritage items that are located within the additional area required for construction, which would be directly impacted by the proposed modification to the approved project. Interior access to potential unlisted heritage items was not possible during the assessment as only publicly accessible areas were surveyed.

3.5 Heritage significance assessments

3.5.1 NSW heritage assessment criteria

Determining the significance of heritage items or a potential archaeological resource is undertaken in accordance with *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance, 2013* (Burra Charter) by the International Council on Monuments and Sites (ICOMOS). The principles of the Burra Charter are relevant to the assessment, conservation and management of sites and relics. The assessment of heritage significance is outlined through legislation in the Heritage

Act and implemented through the *NSW Heritage Manual* and the *Archaeological Assessment Guidelines* (NSW Heritage Office and NSW Department of Urban Affairs and Planning 1996).⁵

If an item meets one of the seven NSW heritage assessment criteria (Table 6), and retains the integrity of its key attributes, it can be considered to have heritage significance. The significance of an item or potential archaeological site can then be assessed as being of local or state significance. If a potential archaeological resource does not reach the local or state significance threshold, then it is not classified as a relic under the Heritage Act.

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

'Local heritage significance', in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.⁶

The overall aim of assessing archaeological significance is to identify whether an archaeological resource, deposit, site or feature is of cultural value. All assessments of significance will result in a succinct statement of heritage significance that summarises the values of the place, site, resource, deposit or feature.

The heritage significance assessment criteria were referred to and have informed the preparation of the built heritage assessment (refer to Section 3.6) and the non-Aboriginal archaeological impact assessment (refer to Section 3.7). In Section 6.3.3, built heritage items are listed along with their State Heritage Inventory (SHI) Statements of Significance which were written based on the heritage significance assessment criteria. In addition, potential heritage items were assessed for significance using the criteria. Similarly, Section 7.2.4 takes into consideration the criteria when assessing significance of potential archaeological remains. Each listed heritage item, potential heritage item, or potential archaeological remains is assessed against the seven criteria outlined in Table 6.

Table 6: NSW heritage assessment criteria

Criteria	Description
A – Historical significance	An item is important in the course or pattern of the local area or states cultural or natural history.
B – Associative significance	An item has strong or special associations with the life or works of a person, or group of persons, of importance in the local area's or State's cultural or natural history.
C – Aesthetic significance	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in the local area or state.
D – Social significance	An item has strong or special association with a particular community or cultural group in the local area or state for social, cultural or spiritual reasons.
E – Research potential	An item has potential to yield information that will contribute to an understanding of the local area's or State's cultural or natural history.

⁵ Heritage Office and Department of Urban Affairs and Planning 1996. *NSW Heritage Manual*; 25-27

⁶ This section is an extract based on the Heritage Office Assessing Significance for Historical Archaeological Sites and Relics 2009:6.

Criteria	Description
F – Rarity	An item possesses uncommon, rare or endangered aspects of the local area's or State's cultural or natural history.
G - Representativeness	An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places of cultural or natural environments (or the cultural or natural history of the local area or state).

3.6 Heritage impact assessment

This technical paper has been prepared in accordance with the NSW Heritage Office and Department of Urban Affairs and Planning *NSW Heritage Manual*⁷ and the NSW Heritage Office *Statements of Heritage Impact*.⁸ The guidelines pose a series of questions and prompts to aid in the consideration of impacts due to the proposal.

Impacts to heritage significance of items can be caused by project activities which would overall result in the reduction in the significance of an item. The assessment of the impacts to the heritage significance of an item are a twofold: assessment of the impact to the overall heritage significance; and an assessment of the specific impacts from particular works or activities to the impacted fabric or element (including views). An assessment of views takes into consideration the significant view corridors to and from a heritage item, the significance of these views to the overall significance of the heritage item, and the potential impacts to these within the urban setting.

The assessment of views also takes into consideration the item's heritage curtilage. A heritage curtilage is defined by the NSW Heritage Office as "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. It can apply to either – land which is integral to the heritage significance of items of the built heritage; or a precinct which includes buildings, works, relics, trees or places and their setting."⁹ As such, heritage curtilage for properties within the study area are subject to the following types of heritage curtilage:

- Lot Boundary Heritage Curtilage: where the lot would adequately contain the heritage significance of the place, including buildings, gardens and other significant features such as walls, fences and driveways that contribute to the heritage significance of the place
- Expanded Heritage Curtilage: where an area larger than the lot boundary is required to retain the heritage significance of the place, including its landscape setting or visual catchment.

Specific categories of impact types have been developed based on guidelines outlined in the ICOMOS document *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties*.¹⁰ It is noted that these guidelines have been prepared specifically for holistic assessments of heritage impacts against WHL items. As such the definitions of these impacts have been developed from the ICOMOS guidelines to address assessment requirements outlined in the

⁷ NSW Heritage Branch, 1996. *NSW Heritage Manual*.

⁸ NSW Heritage Office, 2002. *Statements of Heritage Impact*.

⁹ NSW Heritage Office, 1996, *Heritage Curtilages*

¹⁰ ICOMOS, January 2011. *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties*. Accessed online at: https://www.icomos.org/world_heritage/HIA_20110201.pdf

Secretary's Environmental Assessment Requirements for classifying direct and indirect impacts, for a consistent measure of environmental impacts for the proposal overall.

A description of each type of impact is provided in Table 7.

Table 7. Terminology for heritage impact types

Impact	Definition
Direct	Impacts resulting from works that would result in physical alterations or damage to the item that would alter its heritage significance.
Potential direct	Possible impacts resulting from increased noise, vibration and ground settlement which may result in changes to a heritage item. While these impacts would result in potential physical alterations to heritage significant items, these categories of impacts have been separated from other direct impacts to provide clarity in management response.
Indirect (visual)	Impacts to significant view lines as well as heritage vistas and setting of the item, which would alter its heritage significance.
Archaeological	Impacts to potential archaeological remains predicted within the study area.

3.6.1 Assessment of direct and indirect impacts

In order to consistently identify the magnitude of impact resulting from the proposal, terminology and definitions adapted from ICOMOS guidelines¹¹ will be used throughout this document. These categories are also consistent with Heritage NSW guidelines on assessing the degree of heritage impact.¹² The terminology is provided and described in Table 8.

Table 8. Terminology for assessing the magnitude of direct and indirect heritage impacts

Magnitude	Definition
Major	Actions that would have a long-term and substantial impact on the significance of a heritage item. Actions that would remove key historic building elements, key historic landscape features, or significant archaeological materials, thereby resulting in a change of historic character, or altering of a historical resource. These actions cannot be fully mitigated.
Moderate	This would include actions involving the modification of a heritage item, including altering the setting of a heritage item or landscape, partially removing archaeological resources, or the alteration of significant elements of fabric from historic structures. The impacts arising from such actions may be able to be partially mitigated.
Minor	Actions that would result in the slight alteration of heritage buildings, archaeological resources, or the setting of an historical item. The impacts arising from such actions can usually be mitigated.

¹¹ ICOMOS, January 2011. *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties*. Accessed online at: https://www.icrom.org/sites/default/files/2018-07/icomos_guidance_on_heritage_impact_assessments_for_cultural_world_heritage_properties.pdf

¹² Heritage NSW 2020. *NSW Material Threshold Policy*.

Magnitude	Definition
Negligible	Actions that would result in very minor changes to heritage items.
Neutral	Actions that would have no heritage impact.

3.6.2 Assessment of vibration impacts

Vibration arising from construction or excavation work has the potential to impact on the fabric of heritage items, potentially causing subsidence, or affecting structural integrity.

In locations where heritage items would be adjacent to demolition, construction or excavation works, an assessment of potential direct impact through vibration has been undertaken.

A conservative vibration damage screening level of 7.5 millimetres per second peak particle velocity has been adopted for the assessment. This screening level has been established with reference to the minor cosmetic damage criteria in *British Standard BS 7385:2 – 1993*. The vibration levels specified in this standard are designed to minimise the risk of threshold or cosmetic surface cracks and are set well below the levels that have potential to cause damage to the main structure.

The recommended screening level of 7.5 millimetres per second peak particle velocity is also applicable to heritage items unless it is known that the item is structurally unsound – in which case, a lower screening level may be applicable.

During main tunnelling works, it is anticipated that ground-borne vibration associated with tunnel boring machine use would be much lower than the 7.5 millimetres per second peak particle velocity screening level. As such the study area for assessment of potential impacts to heritage items does not extend to areas above the tunnel alignment that are outside the nominated study area for the Clyde construction site.

Vibration impacts to heritage items have been assessed based on a review of modelled vibration levels generated as part of the assessment in Technical Paper 2.

Potential vibration impacts have been assessed by applying the following methodology:

- Where vibration levels are predicted to be below the relevant vibration screening level, potential vibration impacts are considered negligible and no further assessment of vibration-related impacts on that structure would be required
- Where vibration levels are predicted to be at or above the vibration screening level, further investigation would be undertaken to ensure vibration levels remain below appropriate limits for that structure, including:
 - A more detailed analysis of the building structure and potential vibration characteristics would be completed to determine the applicable safe vibration level or required changes to the construction method
 - Attended vibration monitoring would be undertaken from the structure's closest point to the vibration source
- Where the building is a heritage building, and the predicted vibration level is above the vibration screening level, a more detailed assessment of the structure would be undertaken

that specifically considers the heritage values of the structure and sensitive heritage fabric would be identified in consultation with a heritage specialist to ensure it is adequately monitored and managed.

3.6.3 Assessment of settlement impacts

Ground excavation for the proposed modification has the potential to cause ground movement caused by the redistribution of the stresses within the ground or groundwater drawdown. Section 6.3.3 provides the potential heritage impact and magnitude of settlement to heritage items within or within close proximity to the proposed construction sites. This assessment has excluded heritage items which have been assessed as having a settlement risk of below Risk Level 2 (slight).

3.6.4 Assessment of cumulative impacts

A cumulative impact assessment for other potential impacts to non-Aboriginal heritage has been provided within Section 8.0. Cumulative impacts represent the incremental loss of – or modifications to – a historical or environmental resource over time. These can result from individually minor, but collectively significant, actions and must therefore be considered in the wider developmental context in order to minimise impacts.

In order to address the cumulative impacts of the proposed modification to the approved project, major infrastructure and commercial developments within the construction site footprint, or those projects which would cause heritage impact to items considered within this assessment, were assessed for cumulative impact. The assessment of cumulative impact to NSW railway heritage has also been assessed. Projects which would not impact heritage, those outside the curtilage of the construction sites or those which do not have publicly accessible construction information have not been included within the cumulative impact assessment.

3.7 Non-Aboriginal archaeological assessment

3.7.1 Assessment of archaeological potential

The assessment of historical archaeological potential discusses the study area's potential to contain historical archaeological resources. This assessment is based on consideration of historic land use, current ground conditions, analysis of the historical development of the study area, and considering whether subsequent actions (either natural or human) may have impacted on archaeological evidence for these former land uses.

'Archaeological potential' refers to the likelihood that an area contains physical remains associated with an earlier phase of occupation, activity or development of that area. This is distinct from 'archaeological significance' and 'archaeological research potential'. 'Archaeological significance' refers to the cultural value of the known items within an area, whilst 'archaeological research potential' refers to the cultural value of the potential archaeological remains in an area. Both 'archaeological significance' and 'archaeological research potential' are the primary basis of the mitigation measures included in this document.

Knowledge of previous archaeological investigations, and an understanding of the potential archaeological remains have been assessed with due consideration of the historic land use and previous ground disturbance that may have impacted any subsurface archaeological remains. This is presented using the grades of archaeological potential provided in Table 9.

Table 9. Grades of archaeological potential

Grading	Justification
Nil	No evidence of historical development or use, or where previous impacts such as deep basement structures would have removed all archaeological potential.
Low	Little or low intensity historical development, or where there have been substantial previous impacts, disturbance and truncation in locations where some archaeological remains such as deep subsurface features (privies, cesspits or wells) may survive.
Moderate	Known historical development and some previous impacts, but it is likely that archaeological remains survive with some localised truncation and disturbance.
High	Evidence of multiple phases of historical development and structures with minimal or localised later development impacts, and it is likely the archaeological resource would be largely intact.

3.7.2 Research potential and archaeological significance

In 1984, Bickford and Sullivan¹³ examined the concept and assessment of archaeological research potential; that is, the extent to which archaeological resources can address research questions. They developed three questions which can be used to assess the research potential of an archaeological site:

- Can the site contribute knowledge that no other resource can?
- Can the site contribute knowledge that no other site can?
- Is this knowledge relevant to:
 - General questions about human history?
 - Other substantive questions relating to Australian history?
 - Other major research questions?

In the 2009 guidelines *Assessing Significance for Historical Archaeological Sites and 'Relics'*, the NSW Heritage Division has since provided a broader approach to assessing the archaeological significance of sites, which includes consideration of a site's intactness, rarity, representativeness, and whether many similar sites have already been recorded, as well as other factors. This document acknowledges the difficulty of assessing the significance of potential subsurface remains, because the assessment must rely on predicted rather than known attributes.¹⁴ A site can have high potential for archaeological remains, and yet still be of low research potential if those remains are unlikely to provide significant information or make contributions to our current state of knowledge.

In addition, these archaeological guidelines address the potential significance of archaeological remains against the NSW Heritage Assessment Criteria. A discussion of how these criteria apply to assessments of archaeological remains has been extracted from the 2009 guidelines and provided in Table 10.

¹³ Bickford, A. and S. Sullivan, 1984. "Assessing the research potential of historic sites" in *Sites Surveys and Significance Assessment in Australian Archaeology*.

¹⁴ NSW Heritage Branch 2009

Table 10. NSW Heritage criteria for assessing significance related to archaeological sites and relics¹⁵

Criteria	Discussion
<p>Archaeological research potential (criterion E)</p>	<p>Archaeological research potential is the ability of archaeological evidence, through analysis and interpretation, to provide information about a site that could not be derived from any other source and which contributes to the archaeological significance of that site and its 'relics'.</p> <p>The integrity of the site, the state of preservation of archaeological material and deposits will also be relevant.</p>
<p>Associations with individuals, events or groups of historical importance (criteria A, B & D)</p>	<p>Archaeological remains may have particular associations with individuals, groups and events which may transform mundane places or objects into significant items through the association with important historical occurrences.</p>
<p>Aesthetic or technical significance (criterion C)</p>	<p>Whilst the technical value of archaeology is usually considered as 'research potential' aesthetic values are not usually considered to be relevant to archaeological sites. This is often because until a site has been excavated, its actual features and attributes may remain unknown. It is also because aesthetic is often interpreted to mean attractive, as opposed to the broader sense of sensory perception or 'feeling' as expressed in the Burra Charter.</p> <p>Nevertheless, archaeological excavations which reveal highly intact and legible remains in the form of aesthetically attractive artefacts, aged and worn fabric and remnant structures, may allow both professionals and the community to connect with the past through tangible physical evidence.</p>
<p>Ability to demonstrate the past through archaeological remains (criteria A, C, F & G)</p>	<p>Archaeological remains have an ability to demonstrate how a site was used, what processes occurred, how work was undertaken and the scale of an industrial practice or other historic occupation. They can demonstrate the principal characteristics of a place or process that may be rare or common.</p> <p>A site may best demonstrate these aspects at the time of excavation. It may also be possible to explain the nature of the site and demonstrate past practices via public interpretation either before, during, or after excavation.</p>

¹⁵ *ibid*

4.0 MODIFICATION DESCRIPTION

4.1 Rosehill dive structure

The Rosehill dive structure is required to provide for a future connection from the Clyde stabling and maintenance facility to the mainline tunnels. The proposed modification includes:

- Relocation east and extension of the Rosehill dive structure further north-east within the former T6 Carlingford Line
- Additional construction area, previously identified in the Environmental Impact Statement as required for future use, to allow for:
 - Enabling works as outlined in Section 9.4.1 of the Environmental Impact Statement
 - Removal of the Rosehill Railway Station Footbridge which is of local heritage significance, listed under the RailCorp Heritage and Conservation Register under Section 170 of the *NSW Heritage Act 1977* (NSW), and provision for an alternative crossing of the former T6 Carlingford Line prior to removal of the footbridge
 - Removal of the platforms and station furniture at the former Rosehill Railway Station
- Minor realignment of the tunnel portal connecting the mainline tunnels to the revised Rosehill dive structure location.

The revised Rosehill dive structure is present in Figure 4. Further investigation into temporary facilities to support additional access to the tunnels would be considered as part of detailed construction planning.



Figure 4: Clyde stabling and maintenance facility indicative construction site (proposed modification)

4.2 Kay Street and Unwin Street realignment

The realignment of Kay Street and Unwin Street is required to provide general traffic and B-double access around the Clyde stabling and maintenance facility construction site. The proposed modification includes the following changes to the Kay Street and Unwin Street realignment:

- A road bridge as opposed to an underpass to cross the future metro rail tracks
- Elevation of the Kay Street and Unwin Street realignment for about 250 metres
- Minor realignment of the Kay Street and Unwin Street route
- A shared path to accommodate pedestrians and cyclists on one side.

The revised Kay Street and Unwin Street realignment is presented in Figure 5.

The proposed modification does not include any changes to the culverts located at A'Becketts Creek and Duck Creek assessed as part of the approved project. These structures and the changes to A'Becketts Creek and Duck Creek as part of the approved project are subjective to ongoing design development to ensure project outcomes are met.

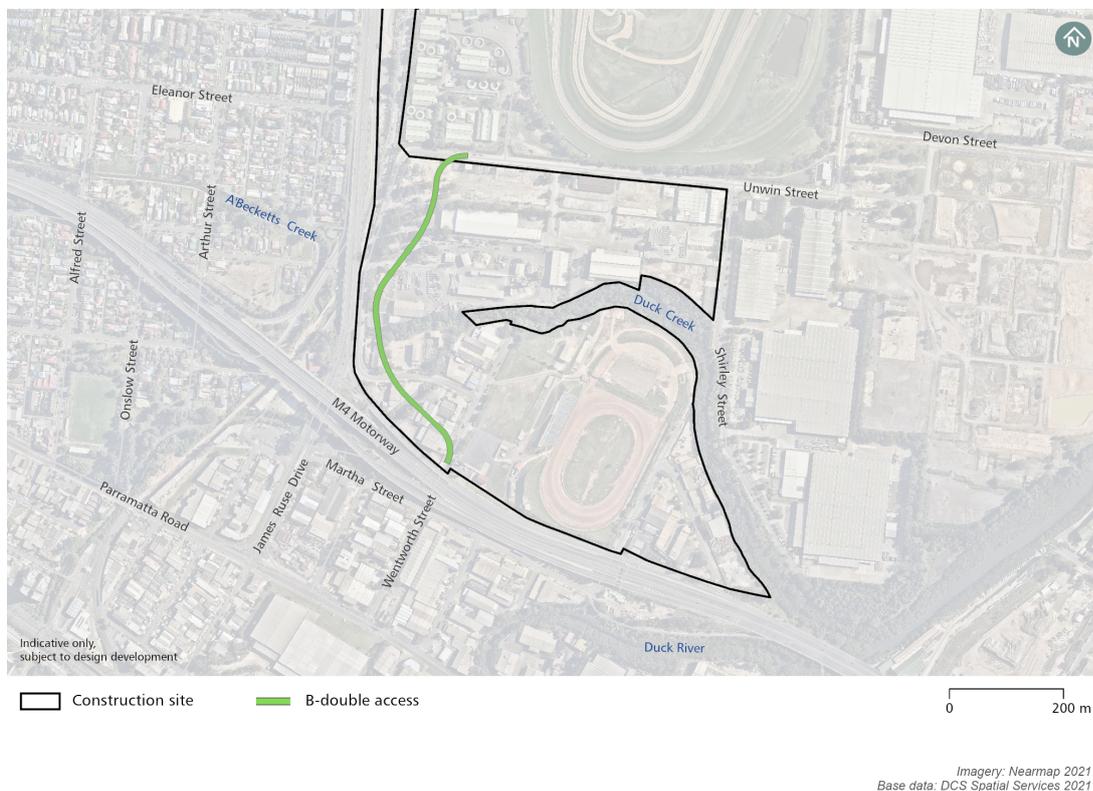


Figure 5: Kay Street and Unwin Street route realignment (proposed modification)

5.0 HISTORICAL BACKGROUND

5.1 Introduction

The following section provides the historical context for the early development of Sydney, and a historical development of the Clyde study area. Historical background for the other study areas of the approved project are not included in this report.

5.2 Aboriginal occupation and European contact

Prior to the appropriation of their land by Europeans, Aboriginal people lived in small family or clan groups that were associated with particular territories or places. It seems that territorial boundaries were fairly fluid, although details are not known. The language group spoken across Sydney was known as Darug (Dharruk – alternate spelling). This term was used for the first time in 1900, as before the 1800s language groups or dialects were not discussed in the literature.¹⁶ The Darug language group is thought to have covered the area south from Port Jackson, north from Botany Bay, and west from Parramatta.¹⁷

The name Gadigal and its alternative spellings (Cadigal, Cadi) was used in the earliest historical records of the European settlement in Sydney to describe the Aboriginal band or clan that lived on the southern shore of Port Jackson, from South Head west to the Darling Harbour area. The term Eora is also used as a name for the Aboriginal people south of Port Jackson. The term Eora was likely a word used by the Gadigal people to refer to an Aboriginal person, rather than a reference to a clan or band in particular. However, it became a widespread term for the Aboriginal people on the southern shore of Port Jackson and is currently used by Gadigal people to refer to the central Sydney area – referred to as 'Eora Country'.¹⁸



Figure 6: Aboriginal activities on the shore of Port Jackson in 1824. Source: Peron and Freycinet 1824.

¹⁶ R. H. Mathews and Miss Mary Martha Everitt, 1900. 'The organisation, language and initiation ceremonies of the Aborigines of the south-east coast of NSW'. *Journal & Proceedings of the Royal Society of NSW*. 34:262-281; Valerie Attenbrow, 2010. *Sydney's Aboriginal Past: investigating the archaeological and historical records* (2nd ed). University of NSW Press, Sydney.

¹⁷ Attenbrow 2010. p 34.

¹⁸ Attenbrow 2010. p 22 and 35-36.

5.3 Clyde

In 1793, at present-day Clyde, John Macarthur was granted 100-acres on the north side of Duck Creek (Figure 9). It was on this land that Macarthur established Elizabeth Farm (Figure 10). Macarthur soon extended the Elizabeth Farm estate through the acquisition of further land grants and purchase of neighbouring lots. By 1798, the farm was over 500 acres in size, and over 1100 acres by 1816.¹⁹ Macarthur died in 1834, with ownership passing to his son Edward. Elizabeth Farm was purchased by Septimus Alfred Stephen in 1881 for £50,000.

Other early grants in the area included 100-acres granted to James Smith on 3 January 1818 on the south side of Duck Creek.²⁰ Smith's grant transferred to William Charles Wentworth who used the land for animal grazing. Wentworth died in 1872, following which, the grant was subdivided as the D'Arcy Park Estate (Figure 11). Subdivision plans from c1880-1900 show that streets and lots had been laid out, and a few structures had been built. In addition, a 1908 St John Parish map maintains that these streets had been established.

Between 1883 and 1884, much of John Macarthur's original land grant, including Elizabeth Farm was subdivided and sold off (Figure 8). At this time, the majority of Clyde approved project study area does not appear to have been included within this subdivision, however, the rail line and Aston Street (James Ruse Drive) had been laid out. In the 1880s subdivision, it was marketed as Rosehill by the then owner Septimus Alfred Stephen. It was hoped that the subdivision and selling of the Elizabeth Farm allotments would allow for greater residential development in the area. The allotments offered were relatively large for their time, generally measuring approximately 66 feet wide.²¹ However, the planned residential development did not prove to be economically viable. With the residential development proving to be relatively unviable, the majority of the land grants were purchased by industrial companies who seized the opportunity that the Duck River frontage and rail connections provided at the site.

Industries that flourished in the wider area included Shirley Fertilizer along Shirley Street, galvanised iron and wire netting works by Arthur and St John Lysaght in 1884, the Australian Kerosene Oil and Mining Company in 1885, Anschau's Tannery in 1895, the Wunderlich Tile Works in 1910, the John Fell & Co Pty Ltd oil company in 1913, James Hardie and Company in 1916, Wesco Paints in 1920 and the Australian Branch of the Goodyear Tyre and Rubber Company in 1926.²² On these properties industrial yards and warehouses were developed during the late nineteenth and early twentieth centuries.

Most of the residential development in the area was for the workers of the local industries. Houses reflected this economy, with interwar bungalow style houses and works cottages. Some of these houses were resumed with the expansion of James Hardie and Company's asbestos factory. Most of the area is now industrial or left barren as remediation of the asbestos factory and other industrial land has not been fully completed.

A tramway also went through parts of the locality. The tramway was opened in 1884 after a Jeanneret's Tramway Act was passed in 1881 allowing for the construction of the private tramway between the Duck River Wharf and Parramatta. The alignment still exists today as Grand Avenue. Both the railway and tramway aided in the development of Camellia as an industrial suburb.

¹⁹ OEH 2001 'Parramatta Archaeological Management Unit 3035'

²⁰ OEH, 2000. 'Parramatta Archaeological Management Unit 2969'. Accessed 2 July 2019, <https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2242969>

²¹ OEH 2001 'Parramatta Archaeological Management Unit 2978'

²² OEH 2001 'Parramatta Archaeological Management Unit 2864'

NOTICE.—All Cattle found trespassing in future on my inclosed Paddock on the Parramatta Road, and bounded by Duck River and Mr. M'Arthur's Creek, will be impounded forthwith, without any respect to Persons.
JAMES SMITH.

Figure 7: Notice within the *Sydney Gazette* by James Smith, 12 June 1819²³

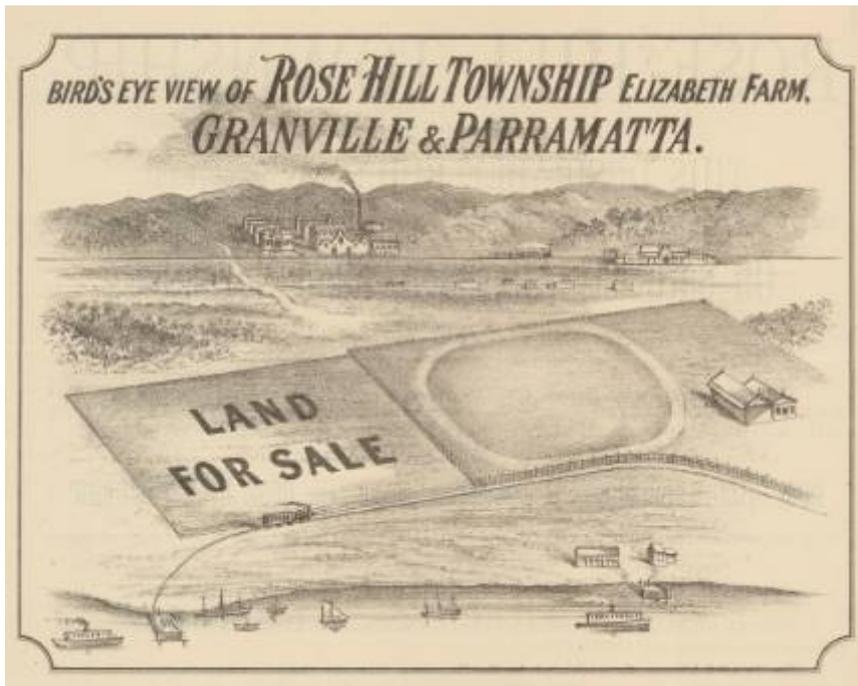


Figure 8: Elizabeth Farm action poster, c1883-1884²⁴

²³ James Smith, 12 June 2019. 'Advertisement' *The Sydney Gazette*. P. 2, accessed 2 July 2019, <https://trove.nla.gov.au/newspaper/page/494252#>

²⁴ Hardie & Gorman, c1883-1884. 'Birds Eye View of Rose Hill Township, Elizabeth Farm'. Accessed 2 May 2019, http://digital.sl.nsw.gov.au/delivery/DeliveryManagerServlet?dps_pid=IE9140867&change_ing=



Figure 9: Detail of 1859 plan showing the approved construction site and additional area required for construction outlined in red.

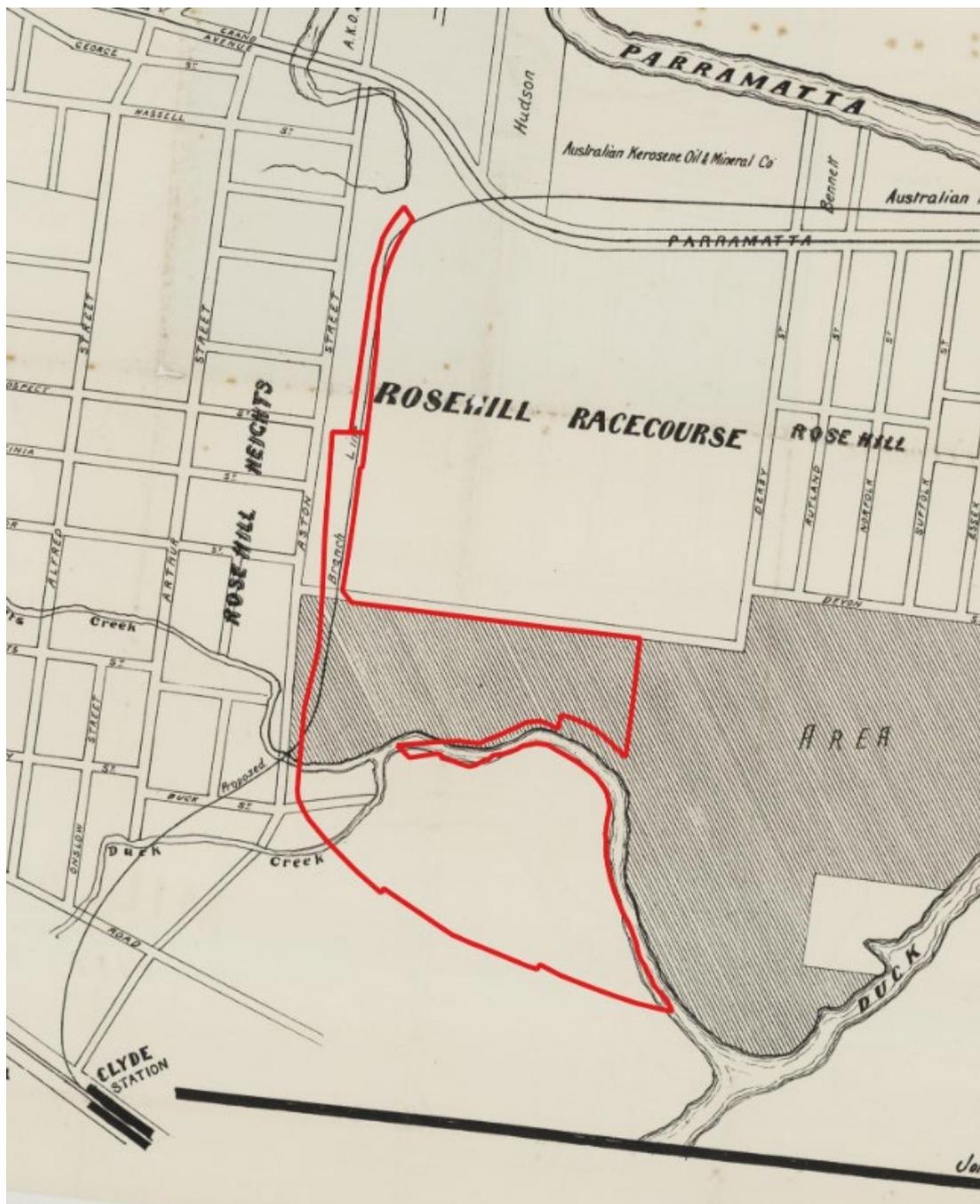


Figure 10: Detail of Elizabeth Farm map, date unknown (approximate location of the approved construction site and additional area required for construction outlined in red)²⁵

²⁵ Mills & Pile, n.d. 'Elizabeth Farm', *Parramatta Subdivision Plans 1876-1929*. Accessed 2 May 2019, <https://trove.nla.gov.au/map/result?q=rosehill+subdivision&l-availability=y>

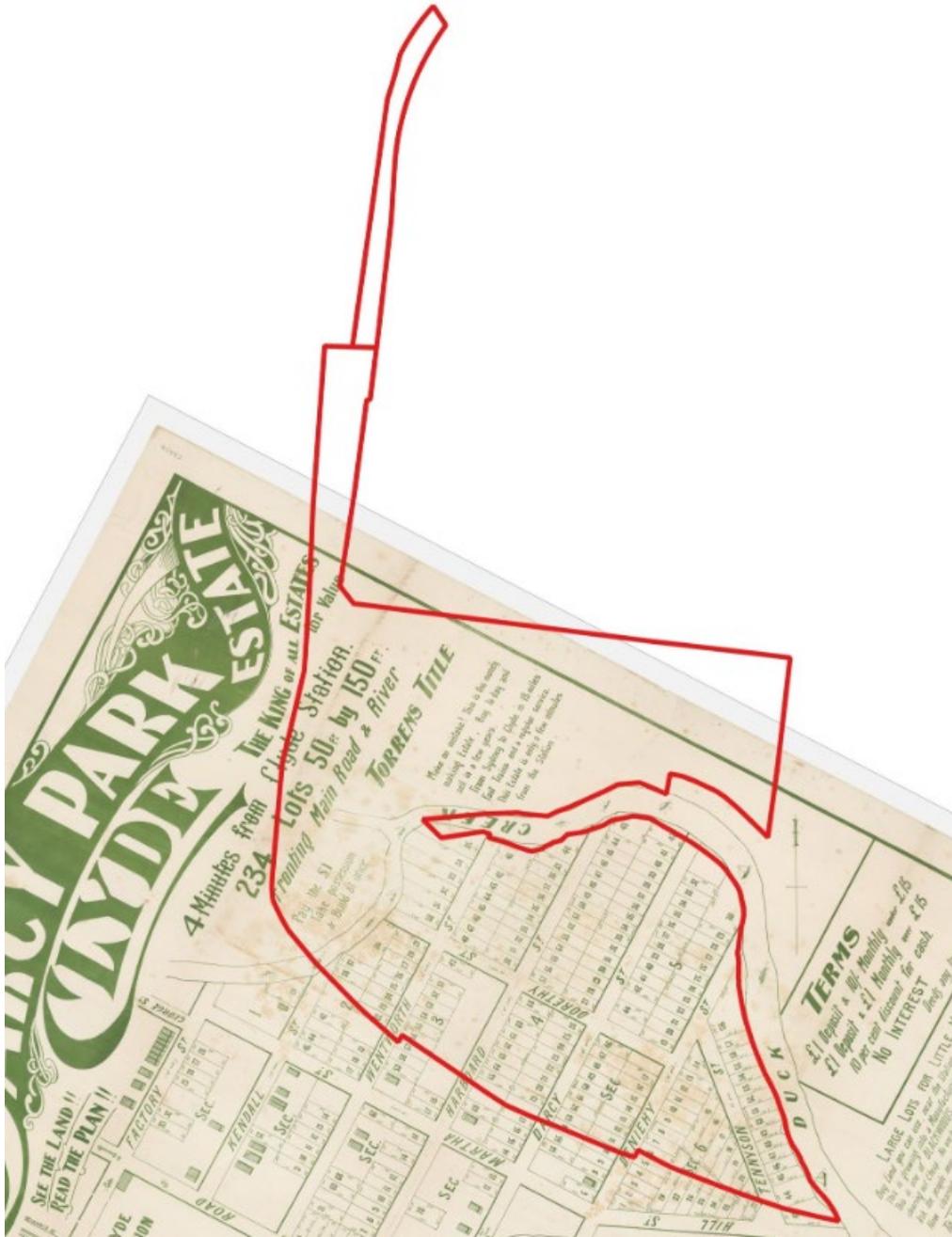


Figure 11: Darcy Estate subdivision plan, c1872-1880, showing the approved construction site and additional area required for construction outlined in red

5.3.1 Establishment of Rosehill Railway Station and the Carlingford Railway Line

In 1882, the Carlingford Railway Line branch was opened originally servicing between Clyde and Subiaco (later renamed Camellia). The single train line was privately financed and operated by John Bennett. Bennett also purchased the land directly north of the approved project study area, and east of the proposed modified study area in 1883 to develop into a racecourse. Completed in February 1885, Bennett named the racecourse and recreational grounds as 'Rosehill Racing Club' (now known as Rosehill Gardens Racecourse), using 'Rosehill' which was the name Governor Arthur Phillip gave to the area before it was renamed Parramatta in 1791.²⁶

To encourage and enable more visitors and patrons to visit his racing club, Bennett sought agreement from the NSW government for permission to construct a private railway line which branched off the already established Clyde Line, with a new platform named 'Rosehill' to be located adjacent to the racecourse. In April 1896 a bridge was constructed to traverse the Parramatta River, allowing the train line to extend to Carlingford. The line from Rosehill to Carlingford (originally Pennant Hills) was operated by a separate private owner by the name of Simpson, who operated the 'Rosehill Railway Company' primarily to carry oranges and their growers from the north-western suburbs and farms to Sydney.²⁷

At Rosehill, a single 1000ft (approximately 300m) long platform on the eastern side of the track was constructed in 1888. The platform was constructed from concrete finished with cinder.²⁸ The concrete wall was designed to be supported by an earth filled structure. This was the first major use of concrete for railway construction in NSW, and was designed by civil engineer Charles Chowderly, and represented a major cost saving for the proprietors of the line.²⁹ This extra large single platform featured similar designs to the early brick and stone platforms, incorporating a dock which allowed for side-loading or end-loading of carriages or wagons.³⁰ This was a useful design for a station which serviced the racecourse, but also functioned as an industrial platform, as Rosehill Railway Station intersected with the Sandown Line (1888-2010) which serviced the industrial areas to the north of the racecourse along the Parramatta and Duck Rivers.

Both private railways operated by Bennett and Simpson failed to prosper in the late nineteenth century, and by the end of 1896, all services ceased, and the assets were liquidated, becoming the property of the mortgagee, the Bank of New Zealand. In 1901 the NSW Government purchased both lines for £22,500, and they were officially transferred to Government ownership by August of that year. At this time, passenger services along the line recommenced, and connected to the existing NSW Railway network.³¹

When the NSW Government took ownership of the railway, the tracks were duplicated and new station buildings were constructed along the eastern platform (Figure 15).³² In 1929, a steel Warren truss footbridge was constructed over the tracks from the western area of the railway to provide

²⁶ City of Parramatta – Research & Collections, *Parramatta History and Heritage Rosehill – A Brief History*, 2019, accessed 2 September 2021,

<https://historyandheritage.cityofparramatta.nsw.gov.au/research-topics/suburbs/rosehill-brief-history>

²⁷ Transport Heritage NSW, 'Farewell Carlingford Line', 5 January 2020, accessed 2 September 2021,

<https://www.thnsw.com.au/post/farewell-carlingford-line>

²⁸ Sydney Morning Herald, 'Opening of the Railway to Rosehill Racecourse', 18 January 1888

²⁹ Australian Museum Consulting, *Heritage Platforms Conservation Management Strategy – Appendix B'*, 2015, p. 24.

³⁰ Australian Museum Consulting, *Heritage Platforms Conservation Management Strategy – Appendix B'*, 2015, p. 7.

³¹ Transport Heritage NSW, 'Farewell Carlingford Line', 5 January 2020, accessed 2 September 2021,

<https://www.thnsw.com.au/post/farewell-carlingford-line>

³² City of Parramatta – Research & Collections, *Parramatta History and Heritage Rosehill – A Brief History*, 2019, accessed 2 September 2021,

<https://historyandheritage.cityofparramatta.nsw.gov.au/research-topics/suburbs/rosehill-brief-history>

pedestrian access to the adjacent Rosehill Gardens Racecourse (Figure 12).³³ The trainline was electrified from Clyde to Rosehill by 1939, with the electrification of the remaining line from Rosehill to Carlingford not completed until 1959.

In the 1940s during World War Two, Rosehill Railway Station was used by Ambulance Trains which were staffed by Australian and United States military personnel, to transfer patients from the trains to road ambulances which would drive the injured to Concord Repatriation Hospital (Figure 13 and Figure 14).³⁴

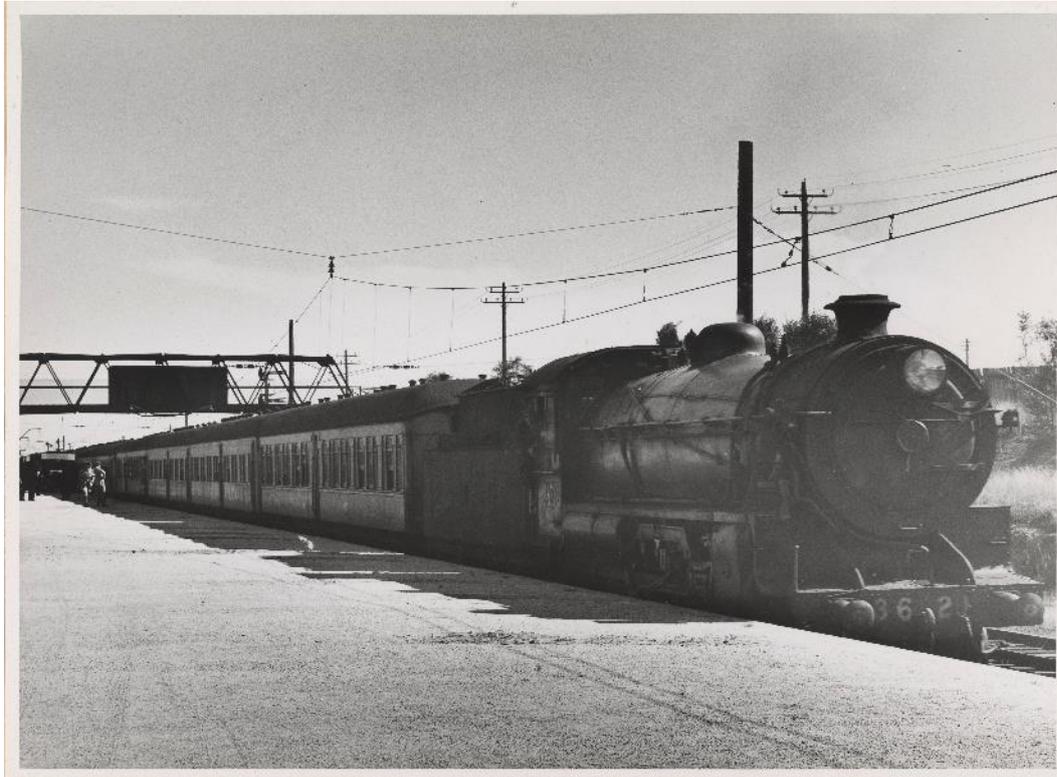


Figure 12: Rosehill Railway Station with footbridge in background, 28 January 1944³⁵

³³ Rosehill Railway Station Footbridge, State Heritage Inventory, accessed 2 September 2021, <https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=4801762>

³⁴ Transport Heritage NSW, 'Farewell Carlingford Line', 5 January 2020, accessed 2 September 2021, <https://www.thnsw.com.au/post/farewell-carlingford-line>

³⁵ NSW State Archives, image no. NRS-17420-2-45-{SAMS1}-8



Figure 13: Rosehill Railway Station with ambulance vehicles lined up on the eastern platform in preparation for an Ambulance train's arrival, 28 January 1944 ³⁶

³⁶ NSW State Archives, image no. NRS-17420-2-45-{SAMS1}-9

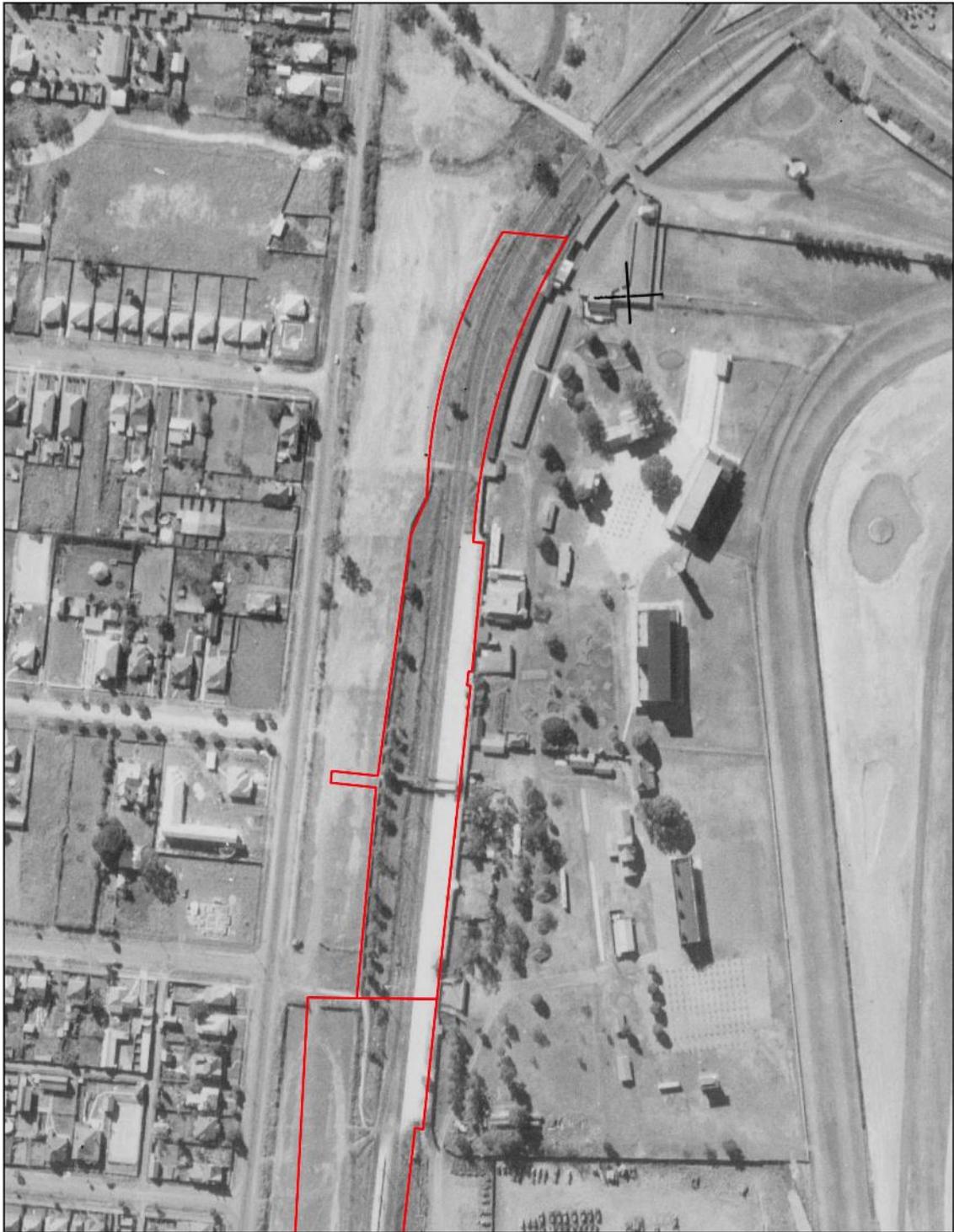


Figure 14: Rosehill Railway Station with ambulance train offloading patients to the ambulance vehicles for transfer to Concord Repatriation Hospital, 12 May 1944 ³⁷

After the end of World War Two, passenger operations resumed at Rosehill Railway Station, and by May 1959, a smaller four car platform was constructed on the western side of the tracks, at the same time the trainline continuing north to Carlingford was electrified (Figure 16). At this time, the main train operations relocated to the four-car platform, with the longer 16-car platform reserved for industrial trains servicing the Sandown Line or for special trains on selected Rosehill Gardens race days. The Sandown railway line continued to serve passengers until 1991, with freight services ceasing in 2010.

The Carlingford Line ceased train operations in 2020 in preparation for the development of the Parramatta Light Rail. Rosehill Railway Station closed permanently at this time.

³⁷ NSW State Archives, image no. NRS-17420-2-45[SAMS1]-13



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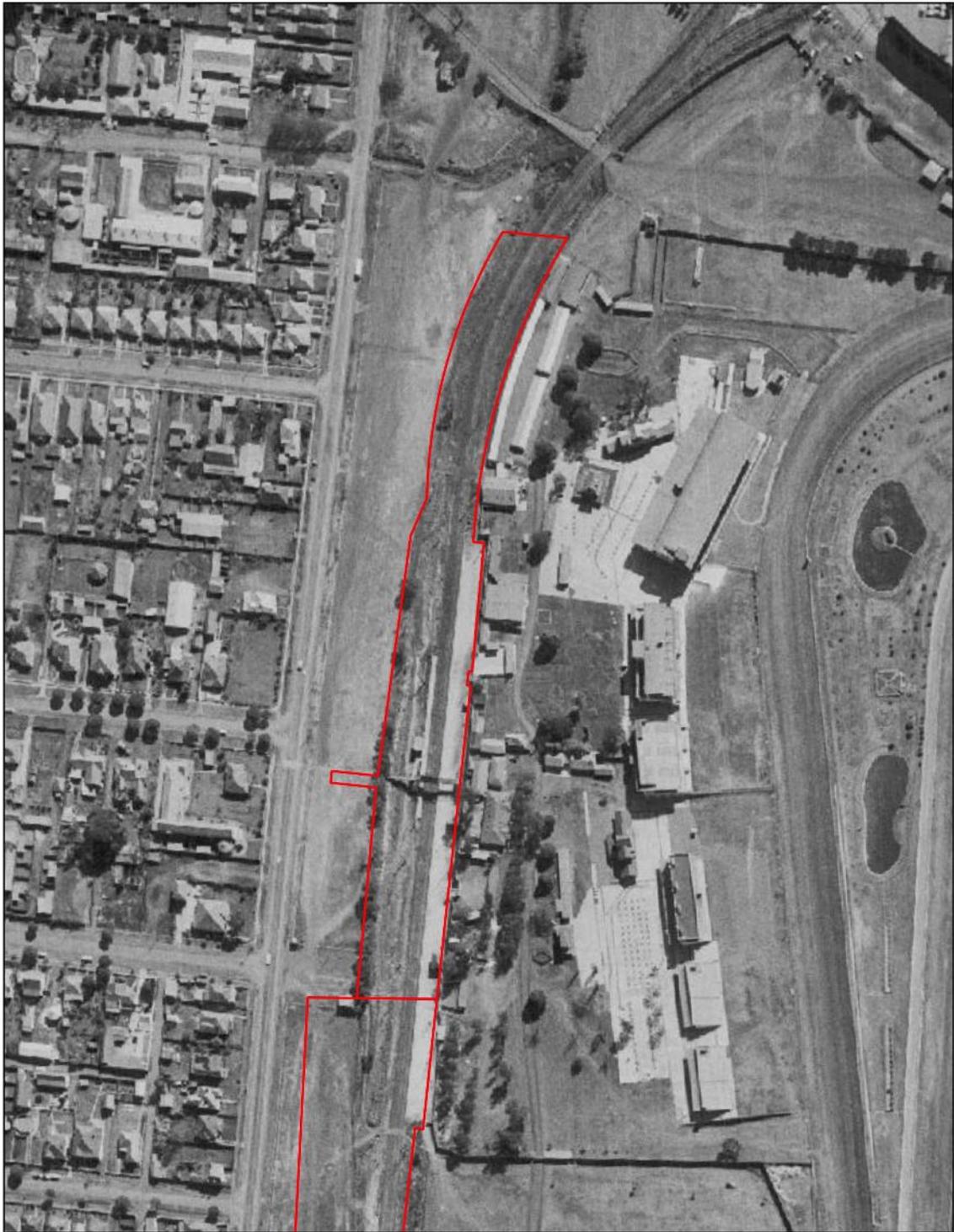
Rosehill Railway Station c.1951
20005 Clyde Modification
LGA: City of Parramatta

Scale: 1:2500
Size: A4
Date: 24-09-2021



Figure 15: Rosehill Railway Station c1951³⁸

³⁸ NSW Historical Imagery with Artefact overlay



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Rosehill Railway Station c.1965
20005 Clyde Modification
LGA: City of Parramatta

Scale: 1:2500
Size: A4
Date: 24-09-2021

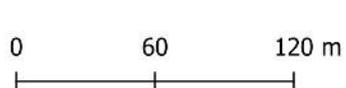


Figure 16: Rosehill Railway Station c1965, note the construction of the western platform³⁹

³⁹ NSW Historical Imagery with Artefact overlay.

5.3.2 Clyde stabling and maintenance facility construction site

The Clyde stabling and maintenance facility construction site is divided by Duck Creek and A'Becketts Creek, upper tributaries of Duck River. The northern portion of the site is located within the curtilage of John Macarthur's land grant which he acquired from 1793. Macarthur's land was developed into Elizabeth Farm and used for agricultural purposes. From 1883-1884, Elizabeth Farm was subdivided and sold off. A map of the parish of St John from c1925 shows that the site was not included within this subdivision (Figure 17), indicating that this area, north of Duck Creek and A'Becketts Creek, remained undeveloped. However, aerial imagery from 1943 reveals that an area approximately 75 metres wide, directly south of Unwin Street, had been utilised for industrial activities, which incorporated a rail siding connecting to the T6 Carlingford Line (Figure 18). This rail siding does not appear on historic mapping; however, it is clear within the 1943 aerial and remnants can be seen at the study area today. In addition, an area of approximately 60 x 150 metres had been utilised by 'Shirley Fertiliser' off Shirley Street. The remaining land north of Duck Creek and A'Becketts Creek appears to have been relatively undeveloped, although a number of tracks appear throughout and two small structures can be seen in a clearing to the west within the 1943 aerial imagery.

The Rosehill dive structure and tunnel portal would be located in the northern portion of the Clyde stabling and maintenance facility construction site, past Unwin Street, along James Ruse Drive, covering the T6 Carlingford Rail Line rail corridor and a carparking facility. This area falls within John Macarthur's land grant and was not built upon until the coming of John Bennett's rail line and station in 1888.

The area directly south of Duck Creek is located within James Smith's 1818 land grant, which was utilised for agricultural purposes up until subdivision which took place from 1872. Streets and allotments were laid out, however an approximate 30 acre area was resumed here for the establishment of the Granville Showground, later the Parramatta City Raceway and Sydney Speedway (Figure 17).

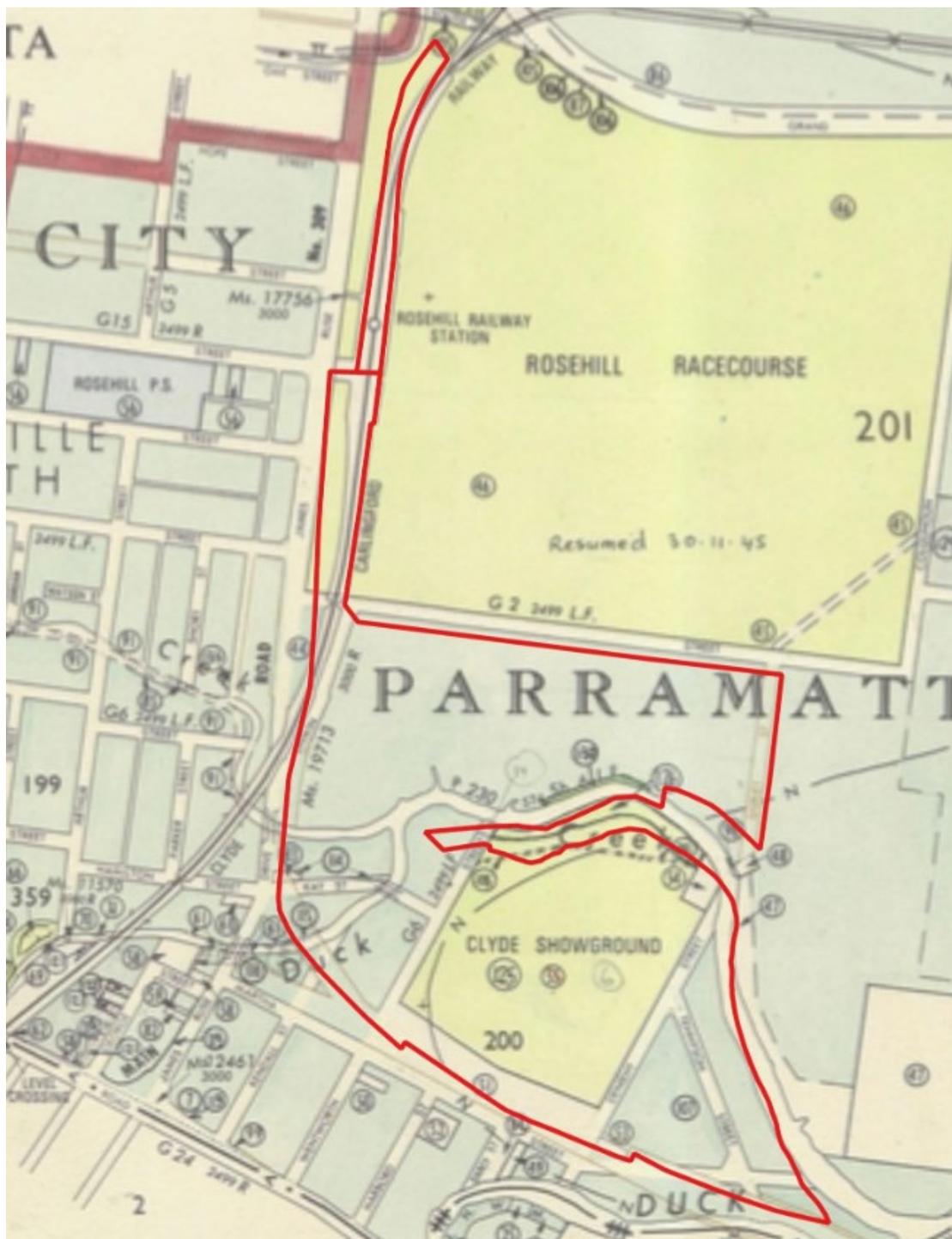


Figure 17: Undated (post-1925) Parish of St John map, showing Granville Showground (Clyde Showground) and undeveloped area north of Duck Creek (construction site outlined in red)⁴⁰

⁴⁰ Land Registry Services, n.d. 'St John Parish'. Accessed 3 July 2019, <https://hlrv.nswlrs.com.au/>

6.0 BUILT HERITAGE ASSESSMENT

6.1 Introduction

Items which were identified as part of the approved project's assessment have been included in Section 6.2 for reference. These items have not been reassessed as part of this modification assessment.

This chapter provides an assessment of potential heritage impacts that would result from the proposed modifications to the approved project at the Clyde stabling and maintenance facility construction site. The potential Items listed on statutory heritage registers located within each construction site and study area are described in this section, and a significance assessment provided for each heritage item (listed and any identified unlisted items).

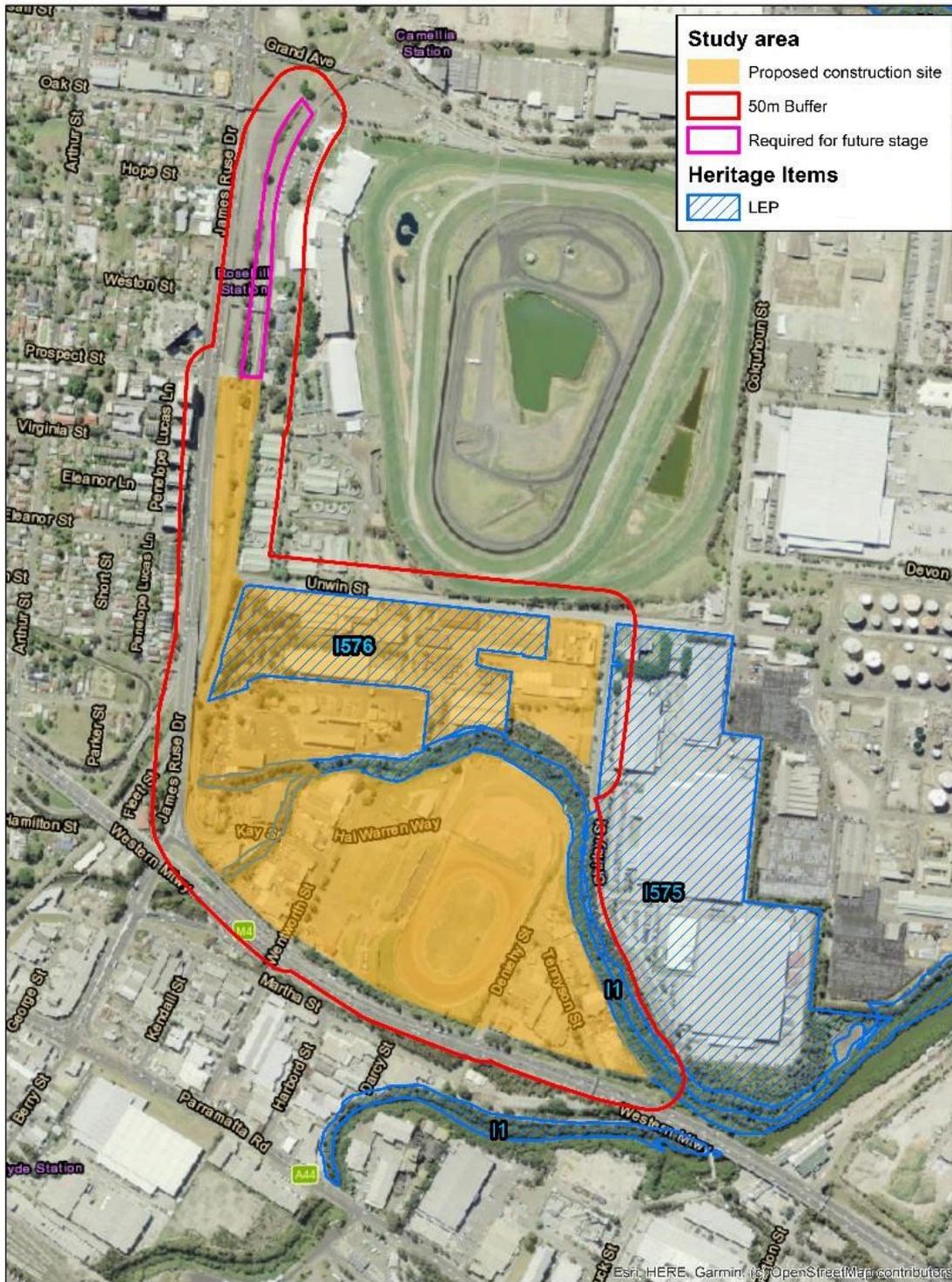
6.2 Approved project: Clyde stabling and maintenance facility construction site

6.2.1 Summary of heritage listed items

Table 11 provides a summary of the listed heritage items located within the approved project study area surrounding the Clyde stabling and maintenance facility construction site. The heritage curtilages of these listed heritage items are illustrated on the following Figure 19.

Table 11: Heritage items within approved project study area - Clyde stabling and maintenance facility construction site

Heritage item	Register listings	Address	Significance	Relationship to the construction site
Wetlands	Parramatta LEP Item No. I1	Parramatta River, Camellia, Ermington, Parramatta and Rydalmere, NSW	Local	Partially within construction site.
RTA Depot	Parramatta LEP Item No. I576	1B and 5 Unwin Street, Rosehill NSW 2142	Local	Within construction site
Capral Aluminium	Parramatta LEP Item No. I575	3-11 Shirley Street, Rosehill, NSW 2142	Local	Partially within buffer zone; 20 metres east of construction site



Document Path: D:\GIS\GIS_Mapping\18260_Sydney_Metro_West\PROJECT\Study area and heritage maps\18260_Clyde stabling_HeritageItems.mxd

Clyde stabling and maintenance facility - Heritage Items
 18260 Metro West
 LGA: City of Parramatta

SCALE 1:8,000
 SIZE A4
 DATE 5/12/2019

0 200 400 m

Figure 19: Approved project: Clyde stabling and maintenance facility construction site heritage items map

6.3 Proposed Modified Study Area

6.3.1 Summary of heritage listed items within the proposed modified study area

Table 12 provides a summary of the listed heritage items located within the proposed modified study area surrounding the Clyde stabling and maintenance facility construction site. The heritage curtilages of these listed heritage items are illustrated on the following Figure 20.

Table 12: Heritage items within the proposed modification to the approved study area

Heritage item	Register listings	Address	Significance	Relationship to the construction site
Rosehill Railway Station Footbridge	S170 (SHI no. 4801762)	James Ruse Drive, Rosehill	Local	Within additional area required for the Clyde stabling and maintenance facility construction site
Rosehill Railway Station	Potential heritage item	James Ruse Drive, Rosehill	Local	Within additional area required for the Clyde stabling and maintenance facility construction site

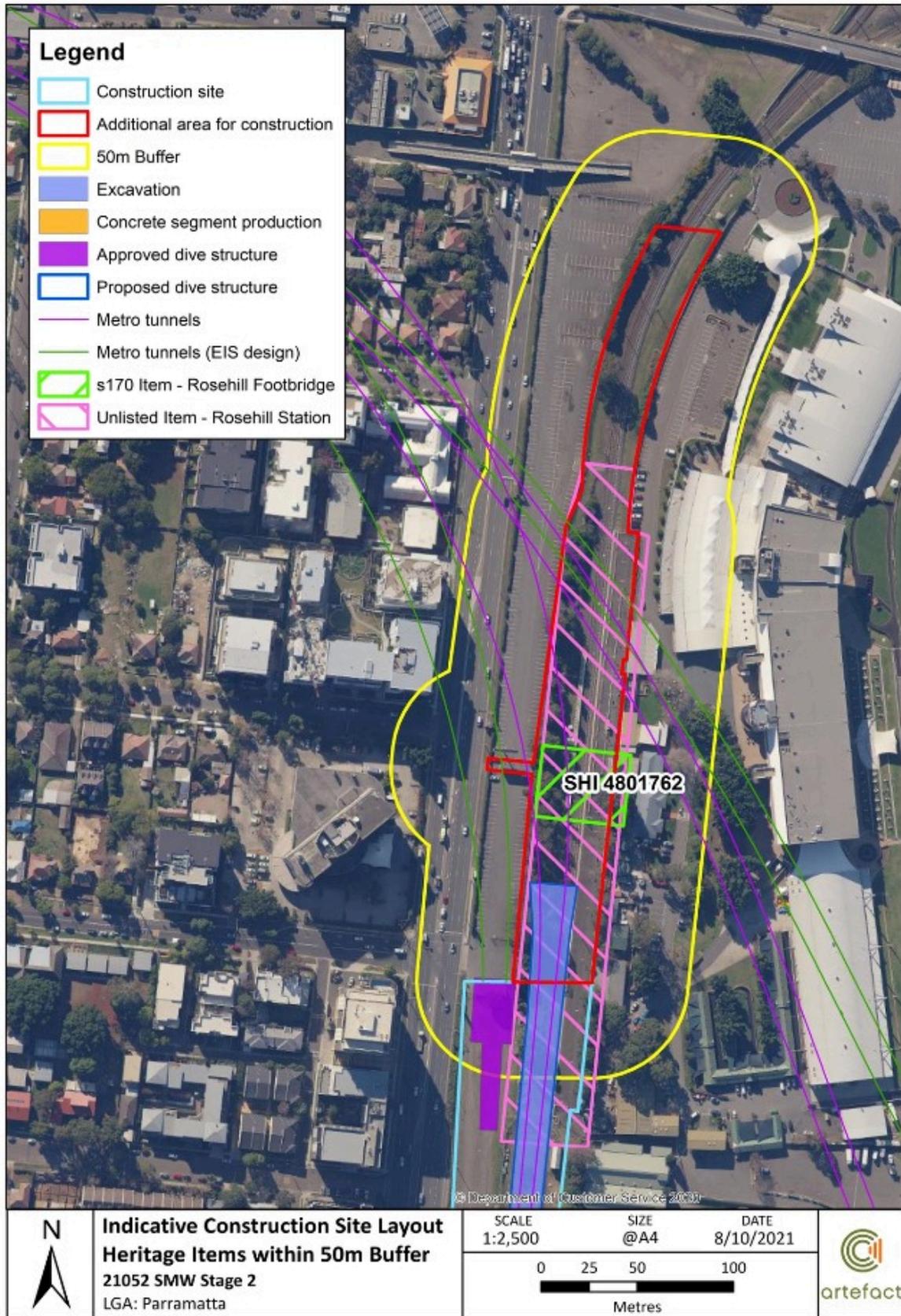


Figure 20: Proposed modified construction footprint for Clyde stabling and maintenance facility heritage items map

6.3.2 Existing environment

The existing environment surrounding the additional area required at the Clyde stabling and maintenance facility construction site is industrial. The proposed modified footprint is set within the Rosehill Railway corridor, which is part of the former T6 Carlingford Line. The remainder of the approved project study area at Clyde stabling and maintenance facility is set within the RTA Depot, a heavily modified industrial landscape north of the Duck River; and the Sydney Speedway and surrounding industrial streetscape, south of the Duck River. To the north and east of the construction site is the Rosehill Gardens Racecourse, with the commuter parking to the west of the railway corridor accessed from James Ruse Drive.

The Rosehill Railway corridor is a disused trainline, with the tracks already removed as part of the Parramatta Light Rail works (Figure 21, Figure 39 and Figure 40). The corridor includes two items of built heritage – Rosehill Railway Station and Rosehill Railway Station Footbridge.

Rosehill Railway Station is comprised of two platforms (Figure 24, Figure 26, Figure 37). The eastern platform was constructed in 1888 and is part of the original structures at the station. Measuring at approximately 300m, the platform is unusually long, and can accommodate 16-car trains. The eastern platform is the first platform to be constructed from concrete. It is backfilled with earth (Figure 21, Figure 22), and was originally finished with cinder, which was later resurfaced with a brick coping and concrete finish. The platform has been raised over the years since the mid-nineteenth century, with an additional four brick courses above the original concrete structure and early brick coping (Figure 23). The platform retains evidence of the original ramps and docks which allowed for end-loading of carriage or wagons on the platform (Figure 38). The platform has been partially demolished as a result of the Parramatta Light Rail works (Figure 22).

The western platform constructed c1959 is constructed in a steel truss structure with a reinforced concrete slab (Figure 25). The platform retains its integrity and is in good condition. The original station buildings and shelters on the platforms have been demolished. Contemporary corrugated metal shelters and timber furniture are located on both platforms (Figure 35).

Both platforms are connected by the Rosehill Railway Station Footbridge which was constructed in 1929 to connect the parking area to the west and Rosehill Gardens Racecourse to the east across the railway tracks (Figure 26-Figure 36). The footbridge is a steel riveted through Warren truss design on steel trestles and channel iron stair stringers. The footbridge is in good condition and retains a high level of integrity, having had only minor modifications including the installation of a protective guard screen (c1999) to stop pedestrians climbing and jumping or falling from the truss system, and a new deck installed c1996 (Figure 36).



Figure 21: Rosehill Railway Station viewed from the southern track approach, tracks have been removed.



Figure 22: Rosehill Railway Station, eastern platform has been partially demolished as part of the Parramatta Light Rail. Note the original concrete construction and backfill.



Figure 23: Eastern platform, concrete construction with early brick coping, and later (post 1940s) brick course additions to raise the platform height.



Figure 24: Rosehill Railway Station, eastern platform (c1888) and western platform (c1959).



Figure 25: Western platform, steel truss construction with reinforced concrete slab.



Figure 26: Rosehill Railway Station with Rosehill Railway Footbridge crossing tracks, with stair access to each platform.



Figure 27: Rosehill Railway Footbridge and stair access onto the eastern platform.



Figure 28: Rosehill Railway Footbridge, warren truss structure constructed c1929.



Figure 29: Western entrance to the Footbridge from the carpark area.



Figure 30: Western access stairs to Footbridge and western platform.



Figure 31: Western approach to Rosehill Railway Footbridge.



Figure 32: Rosehill Railway Footbridge looking east to Rosehill Gardens Racecourse.



Figure 33: Western stairs from Footbridge to western platform.

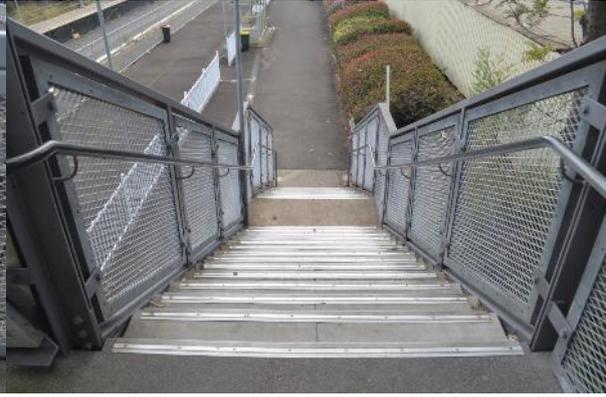


Figure 34: Eastern stairs from Footbridge to eastern platform.



Figure 35: View of Rosehill Railway Station from Footbridge.



Figure 36: Rosehill Railway Footbridge looking west towards commuter carpark.



Figure 37: Rosehill Railway Station looking south through the tracks.



Figure 38: Eastern platform at its northern end, the concrete ramp indicates the original height and extent of the platform and is evidence that there was a loading dock for vehicles – especially used for ambulances in WWII. Brick courses indicate the extent platform has been raised post 1940s.



Figure 39: Clyde stabling and maintenance yard, with remnant tracks in place.

Figure 40: Removed tracks.

6.3.3 Significance and impact assessments for individual items

6.3.3.1 Rosehill Railway Station Footbridge

The following information in Table 13 outlines the heritage significance of the heritage item – Rosehill Railway Station Footbridge and assesses the potential impact of the proposed removal of the item on its heritage significance. The information which is italicised has been adapted from the State Heritage Inventory and HAMS for the Rosehill Railway Station Footbridge.⁴¹

Table 13: Heritage significance and impact assessment for the Rosehill Railway Station footbridge, s170 item (SHI no. 4801762).

Rosehill Railway Station Footbridge

Image



Figure 41: Rosehill Railway Station Footbridge. (Source: Artefact, 2021)

Heritage Listings	S170 (SHI no. 4801762)
Significance	Local
Description	<p><i>The footbridge is a steel riveted through Warren truss footbridge on steel trestles and channel iron stair stringers. An important feature of the bridge is the depth of the truss. Previous trusses were shallow so horizontal top bracing could not be used. At Rosehill the trusses are tall enough to have top bracing over peoples' heads.</i></p> <p>The footbridge was constructed in 1929, and has had minor modifications including the installation of a protective guard screen (c1999) to stop pedestrians climbing and jumping or falling from the truss system. A new decking was installed c1996.</p>

⁴¹ <https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=4801762>, accessed 3 September 2021.

Rosehill Railway Station Footbridge

Statement of significance	<p><i>The Rosehill Railway Station footbridge is of local significance as the earliest example of an overhead braced Warren truss footbridge constructed for the NSW Railways.</i></p> <p><i>The footbridge was identified as an item of high heritage significance in the 2016 'Railway Footbridges Heritage Conservation Strategy'. The Rosehill Railway Station footbridge is an early and relatively rare example of an overhead braced Warren truss footbridge constructed for the NSW Railways. The bridge remains highly intact and is the earliest remaining structure at Rosehill Railway Station - an important station associated with the adjacent Rosehill Racecourse. The footbridge has a high level of integrity, despite new decking and safe guards which are considered of low impact and reversible.</i></p>
Impact type	Direct: Acquired within construction site, to be removed
Heritage impact assessment	<p>The heritage item would be removed as part of the proposed modification. The footbridge is of local significance, is highly intact with minor non-significant and reversible modifications and is one of 24 Warren truss footbridges that remain in NSW. It has been assessed as an item of high heritage significance in the 2016 'Railway Footbridges Heritage Conservation Strategy'. The demolition of the footbridge would have a major direct heritage impact and would result in a loss of a relatively rare remaining example of the bridge type, and a diminished understanding of the relationship between the railway corridor (now decommissioned since the closure of the Carlingford T6 line), Rosehill Railway Station (to be removed) and its relationship with Rosehill Gardens Racecourse. The removal of the heritage item will also have a cumulative impact on the loss of NSW railway heritage.</p> <p>Direct impact: Major</p>

6.3.3.2 Rosehill Railway Station

The following information in Table 14 outlines the potential heritage significance of the Rosehill Railway Station and assesses the potential impact of the works as part of the proposed modification. The following assessment has been undertaken to determine the heritage significance of the item in light of its proposed removal as part of the construction works associated with the proposed modification to the approved project.

Table 14: Heritage significance and impact assessment for the Rosehill Railway Station Footbridge, potential heritage item.

Rosehill Railway Station

Image



Figure 42: Rosehill Railway Station (Source: Artefact, 2021).

Heritage Listings Unlisted

Significance Potential local heritage item

Rosehill Railway Station is comprised of two platforms, the eastern platform was constructed in 1888 and is part of the original structures at the station. It is the first platform to be constructed from concrete, which is backfilled with earth, and finished originally with cinder. The cinder was later resurfaced with a brick coping and concrete finish. The platform has been raised over the years since mid-19th Century, with an additional four brick courses above the original concrete structure and early brick coping. The platform has been partially demolished as a result of the Parramatta Light Rail works.

Description The western platform constructed c1959 is constructed in a steel truss structure with a reinforced concrete slab. The platform retains its integrity and is in good condition.

Both platforms are connected by the steel truss footbridge which spans the tracks from the commuter parking on the west, across to the racecourse on the east.

The original station buildings and shelters on the platforms have been demolished. Contemporary corrugated metal shelters and timber furniture are located on both platforms.

The railway tracks have been removed as part of the Parramatta Light Rail works.

Rosehill Railway Station

Criterion (a)

Rosehill Railway Station is historically associated with the development of the T6 Carlingford Railway line, as originally constructed by John Bennett (Clyde to Camellia) and Simpson (Camellia to Carlingford). Rosehill Railway Station is also historically significant as the train station developed to service Rosehill Gardens Racecourse, which John Bennett constructed in 1885. Rosehill Railway Station was also located at the intersection of the Carlingford Railway line and the Sandown Railway line which serviced the industrial area which developed from the subdivision of the Macarthur's Elizabeth Farm estate.

Rosehill Railway Station meets the threshold for listing at the Local level.

Criterion (b)

Rosehill Railway Station is associated with John Bennett, who was a well known son of a free-settler and built theatres on the goldfields in Victoria and NSW before moving to Sydney. He made his fortune through the theatre, especially through the importation of overseas actors and singer to Australia. In 1882, Bennett constructed the first part of the Carlingford Railway Line, known then as the Clyde line, servicing Clyde to Subiaco (now Camellia). In 1883 Bennett purchased land from the Elizabeth Farm subdivision and constructed the Rosehill Gardens Racecourse and recreational grounds. In 1885, Bennett constructed the Rosehill Railway Station to augment the existing Clyde line, and provide a direct service for visitors and patrons to his racing club.

Rosehill Railway Station meets the threshold for listing at the Local level.

Criterion (c)

Assessment
of
Significance

The eastern platform at the Rosehill Railway Station is significant as it represents the first major use of concrete for railway construction in NSW, and is the first platform to be constructed of concrete. The platform is also significant for its unusual length, which at 1000ft (approximately 300m) can accommodate 16-car trains.

Rosehill Railway Station meets the threshold for listing at the Local level.

Criterion (d)

Rosehill Railway Station is significant for its association with the Australian and American Armed Forces and Medical Corp who used the Station in World War Two to transport the injured on Ambulance trains, and offload them onto Ambulance vehicles which were parked on the eastern platform to drive patients to Concorde Rehabilitation Hospital.

The Station is also significant for its association with patrons of Rosehill Gardens Racecourse, as the primary public transport route and transit stop to access the racecourse on race days, with special trains parking alongside the eastern platform.

Rosehill Railway Station meets the threshold for listing at the Local level.

Criterion (e)

Rosehill Railway Station does not provide substantial evidence that it has the potential to yield information which would contribute to an understanding of NSW's cultural or natural history (or that of the local area).

Rosehill Railway Station does not meet the threshold for the criteria for listing at either the State or Local level.

Rosehill Railway Station

Criterion (f)

Rosehill Railway Station does not provide substantial evidence or possess uncommon, rare or endangered aspects of NSW's cultural or natural history.

Rosehill Railway Station does not meet the threshold for the criteria for listing at either the State or Local level.

Criterion (g)

The eastern platform at Rosehill Railway Station is a good representative example of railway platforms and infrastructure which were constructed from concrete in the late 19th Century in NSW.

Rosehill Railway Station meets the threshold for listing at the Local level.

Statement of significance	<p>Rosehill Railway Station is an item of high heritage significance. The Station is historically significant for its association with John Bennett, the owner and developer of the Rosehill Gardens Racecourse, as well as the developer of the Clyde line, one of the two private lines which formed the Carlingford Railway Line. The Station is also significant for its role and use during World War Two where it was used as a transit transfer between Ambulance Trains and Ambulance vehicles, for the transportation of injured servicemen and women of the Australian and American armed forces.</p> <p>The eastern platform at Rosehill Railway Station is aesthetically and technically significant as the first major use of concrete for railway construction in NSW.</p>
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Impact type	Direct: Acquired within construction site, to be removed
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Heritage impact assessment	<p>The heritage item would be removed as part of the proposed modification. Whilst Rosehill Railway Station is currently unlisted, it meets the criteria for local heritage listing and listing on Transport Asset Holding Entity's s170 register. The impact of the removal of the Rosehill Railway Station would have a major direct impact, with the loss of an 1888 railway station and the first railway platform to be constructed from concrete in NSW. The removal of the train station would have a further cumulative impact on the loss of heritage along the Carlingford Line, which although decommissioned and partially dismantled, still provides understanding and heritage interpretation of the development of the railway network. The removal of the Rosehill Railway Station would also have a cumulative impact on NSW railway heritage. The station's removal would also cause a diminished understanding of the public transportation network and its relationship with Rosehill Gardens Racecourse.</p> <p>Direct impact: Major</p>
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6.3.4 Assessment against Heritage Conservation Strategies

6.3.4.1 Railway Footbridges Heritage Conservation Strategy 2016

The conservation management strategies provided in the Railway Footbridges Heritage Conservation Strategy (HCS) 2016 prepared by the Government Architect's Office Heritage Group⁴² have been reviewed. Strategies provided in the HCS relevant to assessing the impacts of the proposed modifications to the approved project have been extracted and provided below for reference.

⁴² GAO Heritage Group, *Railway Footbridges Heritage Conservation Strategy*, August 2016.

Table 15: Relevant conservation strategies – Railway Footbridges Heritage Conservation Strategy

Strategy	Assessment of impacts against recommendations
8	<p><i>Retain all footbridges of High Significance.</i></p> <ul style="list-style-type: none"> - <i>Changes to footbridges of High significance should be avoided and minimal changes should be made only if no other alternative exists.</i> - <i>Aim to retain the original fabric or if necessary renew using matching components.</i> - <i>Take opportunities to reverse unsympathetic changes made in the past.</i> - <i>Retain visual and functional relationship of the bridges to their settings.</i> - <i>Give preference to changes that are reversible.</i> - <i>Prior to any change full archival recording is recommended.</i> - <i>Footbridges of High heritage significance may accommodate minor sympathetic change to meet current safety and access standards.</i> <hr/> <p>The proposed modification to the approved project construction site at the Clyde stabling and maintenance facility would result in the removal of the Rosehill Railway Station Footbridge, which has been identified by the 2016 Heritage Conservation Strategy as an item of high significance. Furthermore, it was noted that the Rosehill Railway Station Footbridge is one of only 24 remaining footbridges designed and constructed in the warren truss style, and is relatively rare.</p> <p>The proposed modification is not consistent with the intent of Strategy 8, which seeks for the retention and conservation of the Rosehill Railway Station Footbridge, as an item of high significance. The proposed modification seeks to remove the footbridge, which would result in permanent physical changes to the area, and loss of an understanding of the spatial and visual relationship between the Rosehill Gardens Racecourse and the railway corridor (and former Rosehill Railway Station).</p> <p>As a relatively rare footbridge with high integrity, the removal of the footbridge would result in the loss of a rare representative of the Warren truss style footbridge and would cause a further loss and cumulative impact to Railway heritage across NSW.</p> <p>Mitigation measures at Section 9.0 include archival recording prior to its removal.</p>
11	<p><i>Important heritage relationships between heritage footbridges and other heritage elements in a railway station precinct should be maintained, particularly where the elements, such as Overhead Booking Offices are physically connected.</i></p> <hr/> <p>The proposed modification would result in the removal of the Rosehill Railway Station Footbridge and a loss of understanding of the continuous historic relationship between the footbridge, rail corridor (and former Rosehill Railway Station) and the Rosehill Gardens Racecourse, which was established in the area in 1885.</p>
12	<p><i>Communicate the history and significance of railway station footbridges and their associated station precincts through interpretive media; in particular as part of major station upgrades.</i></p> <hr/> <p>Mitigation measures provided at Section 9.0 of this report include consideration of the footbridge in the Metro West Heritage Interpretation Strategy.</p>

Strategy	Assessment of impacts against recommendations
14	<p><i>Ensure that changes to the footbridge are accompanied by:</i></p> <ul style="list-style-type: none"> - Documentation of the reasoning behind major decisions; - Records of any testing or additional research undertaken; and - Appropriate archiving of this documentation. <hr/> <p>The documents included as part of the proposed modification to the approved project (including this report) provide the reasoning and additional research for the proposed removal of the Rosehill Railway Station Footbridge. These reports and documentation would be archived on the Sydney Major Infrastructure website.</p>
16	<p><i>Ensure any change that reduces cultural significance is reversible and is reversed when circumstances permit. Reversible changes should be considered temporary. Non-reversible change should only be used as a last resort and should not prevent future conservation action.</i></p> <hr/> <p>The removal of the Rosehill Railway Station Footbridge as part of the proposed modification would not be reversible and would not allow for future conservation of the footbridge. The change would result in a loss of heritage locally and within the collective heritage of the NSW railways.</p>

6.3.4.2 Heritage Platform Conservation Management Strategy 2015

The conservation management strategies provided in the Heritage Platform Conservation Management Strategy (CMS) 2015 prepared by Australian Museum Consulting for Sydney Trains⁴³ have been reviewed. Strategies provided in the CMS relevant to assessing the impacts of the proposed modifications to the approved works have been extracted and provided below for reference.

Table 16: Relevant conservation strategies – Heritage Platform Conservation Management Strategy

Strategy	Assessment of impacts against recommendations
1	<p><i>Manage and operate heritage platforms in a way that recognises the heritage values of each place. This includes the heritage value of each platform, its associated elements, and the overall heritage value of its station or place.</i></p> <hr/> <p>The proposed modification at the Clyde stabling and maintenance facility would result in the removal of the Rosehill Railway Station, which has been assessed in this report as an item of local heritage significance. Through the proposed removal of Rosehill Railway Station is not consistent with the intent of Strategy 1 and does not recognise or manage the heritage values and significance identified at the Station.</p> <p>The late nineteenth century station includes the first concrete platform (eastern platform) in NSW, and is technologically significant for its construction method, as well as its unusually large size (300m). The removal of the station and the platform would result in permanent physical changes to the area, and a loss of the historical operational and spatial relationship between the station and Rosehill Gardens Racecourse.</p>

⁴³ Australian Museum Consulting, *Heritage Platforms Conservation Management Strategy*, May 2015.

Strategy	Assessment of impacts against recommendations
7	<p><i>Retain and conserve original or other historic platform detailing and surface features where these contribute to the heritage significance of the platform and the station precinct.</i></p> <hr/> <p>The proposed modification is not consistent with the intent of Strategy 7, as it seeks to remove the platforms associated with Rosehill Railway Station.</p> <p>The proposed modification would result in the removal of the historic 1888 eastern platform at Rosehill Railway Station, which was the first platform to be constructed from concrete and could retain the original cinder finish beneath early brick copings. The proposed modification does not retain or conserve the original historic platform which contributes to the heritage significance of the precinct and the NSW railway network.</p>
8	<p><i>Major change should be managed through an integrated planning process, which considers measures to avoid, minimise, or mitigate adverse impacts on the heritage significance of the platform and the boarder place at each stage of the process.</i></p> <hr/> <p>The proposed modification would result in major change to the Rosehill Railway Station precinct. The proposed works are part of an integrated planning process which is seeking modification to the approved project Measures to avoid, minimise and mitigate adverse impacts are provided at Section 9.0.</p>
12	<p><i>Make a record of existing structural designs, fabric, and uses before changes are made.</i></p> <hr/> <p>Mitigation measures provided at Section 9.0 of this report include photographic archival recording prior to the removal of the Rosehill Railway Station that the platforms.</p>
13	<p><i>Communicate the history and significance of heritage platforms to users of station precincts through interpretive media.</i></p> <hr/> <p>. Mitigation measures provided at Section 9.0 of this report include consideration of the interpretation of the station and platforms in the Metro West Heritage Interpretation Strategy.</p>

6.3.5 Overview of heritage impacts

The following information in Table 17 provides an overview of the potential heritage impacts which would arise as a result of the proposed modifications to the approved project at the Clyde stabling and maintenance facility construction site.

Table 17: Heritage impacts for proposed modification to the Clyde stabling and maintenance facility construction site

Item	Construction site	Significance	Description of potential impact
Rosehill Railway Station Footbridge	Within additional area required for the Clyde stabling and maintenance facility construction site	Local	Direct impact: Major Overall impact: Major
Rosehill Railway Station	Within additional area required for the Clyde stabling and maintenance facility construction site	Potential local heritage item	Direct impact: Major Overall impact: Major

7.0 NON-ABORIGINAL ARCHAEOLOGICAL IMPACT ASSESSMENT

7.1 Methodology

7.1.1 Archaeological potential

Historical archaeological potential is defined as the potential of a site to contain historical archaeological relics, as classified under the Heritage Act. The assessment of historical archaeological potential is based on the identification of former land uses and evaluating whether subsequent actions (either natural or human) may have impacted on archaeological evidence for these former land uses. Knowledge of previous archaeological investigations, understanding of the types of archaeological remains likely to be associated with various land uses, and the results of site inspections are also taken into consideration when evaluating the potential of an area to contain archaeological remains.

The assessment of archaeological potential for the modified construction footprint at Clyde stabling and maintenance facility contained in this report is based on the historical background provided in Section 5.0, in addition to an analysis of archaeological investigations undertaken in the vicinity of the modified construction footprint. This historical background provided in Section 5.0 was generally limited to an analysis of historical plans and readily available secondary sources. Note that the non-Aboriginal archaeological assessment provided in this report is contained to the area within the proposed modified construction footprint at Clyde stabling and maintenance facility. An assessment for the rest of the Clyde stabling and maintenance facility has been provided in the *Sydney Metro West Technical Paper 3 Non-Aboriginal Heritage Report* prepared by Artefact in April 2020.⁴⁴

The assessment is informed by the NSW Heritage Division's 2009 guidelines *Assessing Significance for Historical Archaeological Sites and Relics*.⁴⁵ Archaeological assessments have been prepared for only those areas which are located within the proposed construction site footprints for the works.

7.1.2 Regional archaeological studies

A number of archaeological assessments and excavations have been conducted within the vicinity of the proposed modified construction footprint at Clyde stabling and maintenance facility, as well as archaeological assessments and excavations which have been conducted on similar types of subsurface remains as to those predicted within the modified footprint.

In 2000, Godden Mackay Logan prepared the *Parramatta Historical Archaeological Landscape Study (PHALMS)*, an overarching assessment of historical archaeological potential and significance for the Parramatta area.⁴⁶ The landscape study provided historical backgrounds and non-Aboriginal archaeological potential assessments for discrete areas of the Parramatta, designating these areas as Archaeological Management Units (AMUs).

The AMUs located in the vicinity of the modified construction footprint of the Clyde stabling and maintenance facility are briefly discussed below. Although the PHALMS listings not considered

⁴⁴ Artefact Heritage Services 2020. *Sydney Metro West Technical Paper 3 Non-Aboriginal Heritage Report*. Report to Sydney Metro.

⁴⁵ NSW Heritage Division 2009. *Assessing Significance for Historical Archaeological Sites and Relics*.

⁴⁶ Godden Mackay Logan 2000. *Parramatta Historical Archaeological Landscape Study (PHALMS)*. November 2000. Report prepared for the NSW Heritage Office.

binding assessments, they are used as a guide for archaeological research into archaeological potential and significance.

7.1.2.1 PAMU 2911

The proposed modified construction footprint of the Clyde stabling and maintenance facility is located within Parramatta Archaeological Management Unit (PAMU) 2911. The following description of PAMU 2911 has been extracted from the PHALMS inventory sheet:⁴⁷

This AMU has no current archaeological research potential.

The route of the railway line runs through a number of early farming grants. The railway line extended north from the main Sydney line from 1886, initially as a private line serving the racecourse and the adjacent industrial area. The line came under government control in 1900.

The physical archaeological evidence within this area are unlikely to include features which have potential to yield information relating to major historic themes and current research questions.

The archaeological resources of this AMU are likely to be largely intact, but subject to minor disturbance in some areas.

This AMU has no archaeological significance.

The Summary of Actions table in the PHALMS report identifies PAMU 2911 as an area of nil significance and research potential, requiring no archaeological management other than s146 Notification of discovery of relic under the Heritage Act.⁴⁸ This area of the AMU is located within the T6 Carlingford Railway Line corridor, which comprises the proposed modified construction footprint of Clyde stabling and maintenance facility. The construction and use of the railway line since the 1880s would have resulted in the removal of archaeological remains of phases dating prior to the construction of the railway line.

7.1.2.2 PAMU 2870

PAMU 2870 along James Ruse Drive is located directly to the west of the modified construction footprint of the Clyde stabling and maintenance facility. The following description of the AMU has been extracted from the SHI listing for PAMU 2870:⁴⁹

This AMU has no current archaeological research potential.

James Ruse Drive was formerly part of early farm grants to the north and south of the river and marked the eastern town boundary in 1844. Aston Street was upgraded to James Ruse Drive in the late twentieth century, creating a main traffic route to the east of the city centre.

⁴⁷ Godden Mackay Logan 2000. 'Parramatta Archaeological Management Unit 2911'. *Parramatta Historical Archaeological Landscape Study (PHALMS)*. November 2000. Report prepared for the NSW Heritage Office.

⁴⁸ Godden Mackay Logan 2000. *Parramatta Historical Archaeological Landscape Study (PHALMS)*. November 2000. Report prepared for the NSW Heritage Office.

⁴⁹ NSW Government 2001. 'Parramatta Archaeological Management Unit 2870'. *State Heritage Inventory*. Accessed online at: <https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=2242870> (14/09/2021).

The physical archaeological evidence within this area is unlikely to include features which have potential to yield information relating to major historic themes and current research questions.

Archaeological evidence at this site is likely to be subject to major disturbance.

This AMU has no archaeological significance.

This indicates that significant archaeological remains are not likely to be preserved below the current alignment of James Ruse Drive. The Summary of Actions table in the PHALMS report identifies PAMU 2911 as an area of nil significance and research potential, requiring no archaeological management other than s146 Notification of discovery of relic under the Heritage Act.⁵⁰

7.1.2.3 PAMU 2909

The proposed modified construction footprint of the Clyde stabling and maintenance facility is located directly to the east of Parramatta Archaeological Management Unit 2909, which has the following provided description:⁵¹

This AMU has moderate archaeological research potential.

This area was part of Macarthur's Elizabeth Farm Estate. Sheather's nursery occupied the northern part of the subject area from 1852. Elizabeth Farm was subdivided in the 1880s and the subject area remained largely undeveloped due to its alienated location between James Ruse Drive and the railway line.

The physical archaeological evidence within this area may include open deposits and scatters, ecological samples and individual artefacts which have potential to yield information relating to major historic themes including Agriculture, Land Tenure, Townships, Transport and Industry.

Archaeological evidence at this site is likely to be largely intact, but subject to minor disturbance in some areas.

This AMU is of Local significance.

The extent of PAMU 2909 is located directly to the west of the modified footprint of the Clyde stabling and maintenance facility along the Carlingford Railway Line and to the east of James Ruse Drive. A small section of the proposed modified footprint of the Clyde stabling and maintenance facility is located within this PAMU. This area has not seen significant construction activities and is presently largely hardstand carparking. The Summary of Actions table in the PHALMS report identifies PAMU 2909 as an area of local significance and moderate research potential, requiring a s140 under the Heritage Act.⁵²

This section of the modified footprint within PAMU 2909 was potentially a part of Sheather's nursery (a tenant on Macarthur's land grant) in the late nineteenth century; it is known that the Camellia nursery buildings were situated in the northern extent of this area of AMU, towards the Parramatta

⁵⁰ Godden Mackay Logan 2000. *Parramatta Historical Archaeological Landscape Study (PHALMS)*. November 2000. Report prepared for the NSW Heritage Office.

⁵¹ NSW Government 2001. 'Parramatta Archaeological Management Unit 2909'. *State Heritage Inventory*. Accessed online at: <https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=2242909> (14/09/2021).

⁵² Godden Mackay Logan 2000. *Parramatta Historical Archaeological Landscape Study (PHALMS)*. November 2000. Report prepared for the NSW Heritage Office.

River. The southern extent of this property, within which this section of the modified construction footprint is located, was not known to have been developed beyond informal farming and horticulture. It is uncertain whether this land was used by Sheather following the development of the railway line in the 1880s. By 1943, aerial imagery indicates that this area was open ground with no significant structures and was not used for agriculture at this time. Therefore, this part of the study area would not have moderate potential for locally significant archaeology as part of PAMU 2909. Significant archaeological remains are unlikely to be present within this portion of the study area.

7.2 Clyde stabling and maintenance facility

7.2.1 Land use summary

The historical development of the proposed modified construction footprint of Clyde stabling and maintenance facility has been divided into the following historical phases of activity:

- **Phase 1 (c.1793 – c.1883): Early land grants and Elizabeth Farm.** The land within the modified construction footprint of Clyde stabling and maintenance facility was granted to John Macarthur in 1793, who used the land for pastoral uses as part of Elizabeth Farm.
- **Phase 2 (c.1883 – 1901): Subdivision and Rosehill Railway Station.** The land within the footprint was bought by John Bennett and set aside for the private Rosehill Railway Station, with the station and associated railway corridor completed in 1888, including a long platform on the eastern side of the track.
- **Phase 3 (1901 – 2020): Public railway station and duplication.** Rosehill Railway Station was bought by the NSW Government in 1901, duplicated, upgraded and connected to the NSW Railway network and used as a public passenger service. During WWII, the station was used for transferring patients to the Concord Repatriation Hospital. During this phase, the trainline was electrified from Clyde to Rosehill by 1939 and Rosehill to Carlingford by 1959. A shorter western platform was constructed in 1959, with main train operations relocated to the new platform and the longer eastern platform used for industrial trains or special services.
- **Phase 4 (2020 – Present): Decommissioning and the Parramatta Light Rail.** In 2020, the station was decommissioned, the railway tracks removed and sections of the platforms altered for the Parramatta Light Rail works.

7.2.2 Previous impacts

Within the proposed modified construction footprint of Clyde stabling and maintenance facility, a moderate degree of ground disturbance would have been caused by the construction of Rosehill Railway Station and Carlingford railway line, including the railway corridor, platforms and railway buildings. Impacts to surface features have been undertaken since Rosehill Railway Station's decommissioning, including physical impacts to the eastern platform and the removal of the railway tracks. In addition, the roots of the line of trees along the western edge of the railway station are likely to have disturbed any in situ archaeological deposits from phase 1. The area of the modified construction footprint within PAMU 2909, identified as an area of moderate potential for archaeological remains of local significance in the PHALMS,⁵³ is located within the carpark to the

⁵³ Godden Mackay Logan 2000. *Parramatta Historical Archaeological Landscape Study (PHALMS)*. November 2000. Report prepared for the NSW Heritage Office.

west of the station. Although the carpark only comprises a hardstand and no documented historical structures are known in this area, it is likely that the earthworks for the construction of the hardstand would have disturbed and removed any evidence of pastoral and horticultural use of the area, due to the likely ephemeral and shallow nature of such remains.

7.2.3 Approved impacts as part of the approved project

The proposed modified construction footprint of Clyde stabling and maintenance facility is outside of the approved project study area and therefore, impacts to the proposed modified construction footprint have not been approved. The Sydney Metro West Technical Paper 3: Non-Aboriginal Heritage Report did not predict significant archaeological remains within the original footprint of the Clyde stabling and maintenance facility construction site, and as such, it was concluded that any demolition, clearing and excavation works resulting in ground disturbance would have no impact to significant non-Aboriginal archaeological remains.⁵⁴

7.2.4 Assessment of archaeological potential

An assessment of the archaeological potential of the proposed modified construction footprint at Clyde stabling and maintenance facility, based on the historical background of the site and historical ground disturbance, is provided in Table 18.

Table 18: Predicted archaeological remains and potential within the modified construction footprint at Clyde stabling and maintenance facility

Phase	Site features	Potential archaeological remains	Potential
Phase 1 (c.1793 – c.1883) Early land grants and Elizabeth Farm	Land clearing, informal grazing	While part of the wider 'Elizabeth Farm' land grant from 1793, the construction footprint was not known to have been utilised for activity beyond animal grazing due to the marshy nature of the area. Archaeological remains associated with informal animal grazing could include tree boles, fence line postholes, plough lines, field drains and isolated artefact scatters. However, the subsequent ground disturbance caused by the construction and use of the railway corridor would have likely completely removed any evidence of these relatively ephemeral remains. The area of the footprint within PHALMS PAMU 2909 to the west of the station has experienced little development, but it is likely that any remains associated with the horticultural and pastoral use of this area would be restricted to ephemeral features such as tree boles, plough lines and postholes, which are likely to have been disturbed by the construction of the carpark.	Nil
Phase 2 (c.1883 – 1901) Subdivision and Rosehill Railway Station	Railway corridor and station	Archaeological remains associated with the construction of the Rosehill Railway Station and railway corridor could include earthworks, footings of early platform structures, buried railway infrastructure, services, early platform surfaces and isolated ex situ artefacts dropped by users of the station. The rest of the features associated with the private Rosehill Railway Station are extant above the ground, such as the platforms, and therefore do not comprise archaeological remains.	Low

⁵⁴ Artefact Heritage Services 2020. *Sydney Metro West Technical Paper 3 Non-Aboriginal Heritage Report*. Report to Sydney Metro, p. 286.

Phase	Site features	Potential archaeological remains	Potential
Phase 3 (1901 – 2020) Public railway station and duplication	Public railway corridor and station	Archaeological remains associated with the duplication of Rosehill Railway Station and its use as a public station could include earthworks, footings of platform structures, footings of staircases at the end of the platforms, buried railway infrastructure, services, earlier platform surfaces, palisade fencing, ancillary structures along the railway corridor and isolated ex situ artefacts dropped by users of the station. The rest of the features associated with the public phase of Rosehill Railway Station are extant above the ground, such as the platforms, and therefore do not comprise archaeological remains.	Moderate
Phase 4 (2020 – Present) Decommissioning and the Parramatta Light Rail	Railway corridor and station	It is anticipated that there will be no archaeological remains associated with the decommissioning of the railway station and the removal of the railway tracks and sections of the platforms.	Nil

7.2.5 Assessment of archaeological significance

An assessment of the archaeological significance of the potential archaeological remains within the proposed modified construction footprint at Clyde stabling and maintenance facility is provided in Figure 19. The significance assessment has been prepared according to the guidelines and methodology outlined in Section 3.7 of this report. Note that only archaeological remains that have been predicted to be present are discussed in the following table.

Table 19: Predicted archaeological significance within the modified construction footprint at Clyde stabling and maintenance facility

Phase	Site features	Discussion	Significance
Phase Archaeological research potential (criterion E)	Phase 2 (c.1883 – 1901) Subdivision and Rosehill Railway Station	<p>The potential remains associated with the private phase of Rosehill Railway Station and the railway corridor, such as earthworks, footings of early platform structures, buried railway infrastructure, services, early platform surfaces and isolated ex situ artefacts dropped by users of the station. These features may have the potential to provide information about the early use of the station which is not attainable from the documentary record. However, as late nineteenth-century railways are relatively common in Sydney and NSW, it is unlikely that the remains would contribute additional knowledge not readily available from the historical record or contemporaneous sites. As such, it is unlikely that such remains would meet the threshold for local significance. Railway infrastructure dating to this period is not considered rare or unique in Sydney. In addition, the majority of such features would comprise 'works' as defined under the Heritage Act; it is unlikely that such features would be considered 'relics'.</p> <p>The Phase 2 (c.1883-1901) remains associated with the early private use of Rosehill Railway Station would not reach the threshold for local significance under this criterion.</p>	Nil

Phase	Site features	Discussion	Significance
	Phase 3 (1901 – 2020) Public railway station and duplication	<p>The potential archaeological remains associated with the duplication of Rosehill Railway Station and its use as a public station could include earthworks, footings of platform structures, footings of staircases at the end of the platforms, buried railway infrastructure, services, earlier platform surfaces, palisade fencing, ancillary structures along the railway corridor and isolated ex situ artefacts dropped by users of the station. In addition, the remains dating to the use of the station during WWII for use by Ambulance Trains for repatriation to Concord Repatriation Hospital are unlikely to demonstrate information other than that attainable from the documentary record. These features are likely to provide little additional information about the use of the station that is not otherwise attainable from the documentary record. In addition, railway infrastructure dating to this period is not considered rare or unique in Sydney. As such, it is unlikely that such remains would meet the threshold for local significance under this criterion. In addition, the majority of such features would comprise 'works' as defined under the Heritage Act; it is unlikely that such features would be considered 'relics'.</p> <p>The Phase 3 (1901-2020) remains associated with the public use of Rosehill Railway Station would not reach the threshold for local significance under this criterion.</p>	Nil
	Phase 2 (c.1883 – 1901) Subdivision and Rosehill Railway Station	<p>The potential archaeological remains dating to Phase 2 (c.1883 – 1901) are associated with John Bennett, a well-known son of a free-settler, who built theatres on the goldfields in Victoria and NSW before moving to Sydney. However, seeing as his venture into private railways in the Parramatta area was not successful, it is unlikely that archaeological remains dating to this period would meet the threshold for local significance.</p> <p>The Phase 2 (c.1883-1901) remains associated with the early private use of Rosehill Railway Station would not reach the threshold for local significance under this criterion.</p>	Nil
Associations with individuals, events or groups of historical importance (criteria A, B & D)	Phase 3 (1901 – 2020) Public railway station and duplication	<p>The potential archaeological remains dating to Phase 3 (1901 – 2020) relating to duplication, platform structures are associated with the NSW Government, including footings of platform structures, footings of staircases at the end of the platforms, buried railway infrastructure, services, earlier platform surfaces, palisade fencing, ancillary structures along the railway corridor. In addition, features dating to WWII could be associated with the Australian and United States militaries and ambulance drivers for the Concord Repatriation Hospital. However, such remains would be unlikely to be diagnostic or readily identifiable with such groups of historical importance and are more likely to be representative of twentieth-century railway stations in general.</p> <p>The Phase 3 (1901 – 2020) remains associated with Rosehill Railway Station would not reach the threshold for local significance under this criterion.</p>	Nil

Phase	Site features	Discussion	Significance
Aesthetic or technical significance (criterion C)	Phase 2 (c.1883 – 1901) Subdivision and Rosehill Railway Station	<p>The potential archaeological remains dating to the private railway in Phase 2 (c.1883 – 1901) may be able to demonstrate the nature of the early railway and changes in technology over time. However, they are unlikely to demonstrate aesthetic or technical significance beyond what is already known about late nineteenth-century train stations and railways.</p> <p>The Phase 2 (c.1883-1901) remains would not reach the threshold for local significance under this criterion.</p>	Nil
	Phase 3 (1901 – 2020) Public railway station and duplication	<p>The potential archaeological remains dating to Phase 3 (1901 – 2020) may be able to demonstrate the nature of the railway and changes in technology over time. However, they are unlikely to demonstrate aesthetic or technical significance beyond what is already known about twentieth-century train stations and railways.</p> <p>The Phase 3 (1901 – 2020) remains would not reach the threshold for local significance under this criterion.</p>	Nil
Ability to demonstrate the past through archaeological remains (criteria A, C, F & G)	Phase 2 (c.1883 – 1901) Subdivision and Rosehill Railway Station	<p>Archaeological remains from Phase 2 (c.1883 – 1901) have an ability to demonstrate how the railway station and railway corridor was used in the late nineteenth century, but as late nineteenth-century railways are relatively common in Sydney and NSW, it is unlikely that the remains would contribute additional knowledge not readily available from the historical record or contemporaneous sites.</p> <p>The Phase 2 (c.1883-1901) remains would not reach the threshold for local significance under this criterion.</p>	Nil
	Phase 3 (1901 – 2020) Public railway station and duplication	<p>Archaeological remains from Phase 3 (1901 – 2020) have an ability to demonstrate how the railway station and railway corridor was used throughout the twentieth century, but as late such railways are relatively common in Sydney and NSW, it is unlikely that the remains would contribute additional knowledge not readily available from the historical record or contemporaneous sites.</p> <p>The Phase 3 (1901 – 2020) remains would not reach the threshold for local significance under this criterion.</p>	Nil
Summary of significance	Phase 2 (c.1883 – 1901) Subdivision and Rosehill Railway Station	<p>The potential remains associated with the private phase of Rosehill Railway Station and the railway corridor during Phase 2 (c.1883 – 1901), such as earthworks, footings of early platform structures, buried railway infrastructure, services, early platform surfaces and isolated ex situ artefacts dropped by users of the station. It is unlikely that such remains would meet the threshold for local significance, as such evidence is unlikely to demonstrate rare or unique information otherwise unattainable from the documentary record and comparable sites. Such remains are unlikely to meet the threshold for local significance for their research potential, ability to demonstrate the past, technical significance or association with particular groups, events or people. In addition, the majority of such features would comprise 'works' as defined under the Heritage Act; it is unlikely that such features would be considered 'relics'.</p>	Nil

Phase	Site features	Discussion	Significance
	Phase 3 (1901 – 2020) Public railway station and duplication	The potential remains associated with the public phase of Rosehill Railway Station and the railway corridor Phase 3 (1901 – 2020), would include earthworks, footings of platform structures, footings of staircases at the end of the platforms, buried railway infrastructure, services, earlier platform surfaces, palisade fencing, ancillary structures along the railway corridor and isolated ex situ artefacts dropped by users of the station. It is unlikely that such remains would meet the threshold for local significance, as such evidence is unlikely to demonstrate rare or unique information otherwise unattainable from the documentary record and comparable sites. Such remains are unlikely to meet the threshold for local significance for their research potential, ability to demonstrate the past, technical significance or association with particular groups, events or people. In addition, the majority of such features would comprise 'works' as defined under the Heritage Act; it is unlikely that such features would be considered 'relics'.	Nil

7.2.6 Summary

Table 20 below provides a summary of the archaeological potential and significance for BH019.

Table 20: Summary of archaeological potential and significance for the modified footprint

Phase	Potential archaeological remains	Potential	Significance
Phase 1 (c.1793 – c.1883) Early land grants and Elizabeth Farm	Archaeological remains associated with informal animal grazing could include tree boles, fence line postholes, plough lines, field drains and isolated artefact scatters. However, the subsequent ground disturbance caused by the construction and use of the railway corridor would have likely completely removed any evidence of these relatively ephemeral remains.	Nil	N/A
Phase 2 (c.1883 – 1901) Subdivision and Rosehill Railway Station	Archaeological remains associated with the construction of the Rosehill Railway Station and railway corridor could include earthworks, footings of early platform structures, buried railway infrastructure, services, early platform surfaces and isolated ex situ artefacts dropped by users of the station.	Low	Nil
Phase 3 (1901 – 2020) Public railway station and duplication	Archaeological remains associated with the duplication of Rosehill Railway Station and its use as a public station could include earthworks, footings of platform structures, footings of staircases at the end of the platforms, buried railway infrastructure, services, earlier platform surfaces, palisade fencing, ancillary structures along the railway corridor and isolated ex situ artefacts dropped by users of the station.	Moderate	Nil
Phase 4 (2020 – Present) Decommissioning and the Parramatta Light Rail	It is anticipated that there will be no archaeological remains associated with the decommissioning of the railway station and the removal of the railway tracks and sections of the platforms.	Nil	N/A

7.2.7 Non-Aboriginal archaeological impact assessment

Significant archaeological remains have not been predicted to be located within the proposed modified construction footprint at Clyde stabling and maintenance facility. As such, modified demolition, clearing and excavation works resulting in ground disturbance would not disturb archaeological remains. The works within the proposed modified construction footprint at Clyde stabling and maintenance facility would not result in impacts to significant non-Aboriginal archaeological remains or 'relics' as defined under the Heritage Act.

7.2.8 Mitigation measures

Ground disturbing works within the proposed modified construction footprint at Clyde stabling and maintenance facility construction site should adhere to Sydney Metro's Unexpected Heritage Finds Procedure.

8.0 CUMULATIVE IMPACT ASSESSMENT

8.1 Introduction

Cumulative impacts represent the incremental loss of, or modifications to, a historical or environmental resource over time. These can result from individually minor, but collectively significant, actions and must therefore be considered in the wider developmental context to minimise impacts.⁵⁵

The following sections summarise the heritage impacts of major rail and road infrastructure projects and other relevant project in the vicinity of the proposed modification to the approved construction site at Clyde stabling and maintenance facility. Cumulative impacts of these projects and the proposed modification to the approved project works are described in Section 8.0. The following sections do not summarise the cumulative heritage impacts to other construction sites which form part of the approved project works, or the tunnel alignment. Refer to the approved project's Environmental Impact Statement for cumulative impacts and details relating to these other construction areas.

8.2 Related projects

8.2.1 Clyde stabling and maintenance facility construction site

A summary of heritage impacts of major infrastructure and commercial projects within the vicinity of the proposed modified Clyde stabling and maintenance facility construction site has been provided in Table 21.

Table 21: Summary of major infrastructure and commercial projects within the vicinity of the proposed modified Clyde stabling and maintenance facility construction site

Project	Description	Heritage impacts
Viva Energy Clyde Western Area Remediation Project	The proposal involves the remediation of contaminated soils associated with former oil refinery activities to facilitate future development of the land for other purposes permissible under the existing land use zoning	<ul style="list-style-type: none"> Assessed as having a potential indirect impact on the Lower Duck River Wetlands Assessed as having a direct impact on the heritage significance of the Clyde Refinery
Clyde Terminal Conversion Project	Demolition of existing processing units; conversion of part of the existing Clyde Refinery assets to receive, store, blend and distribute finished products	<ul style="list-style-type: none"> Assessed as having a negative impact on the heritage significance of the former Clyde Refinery Potential impact to archaeological evidence of the original John Fell & Co. refinery

⁵⁵ Washington State Department of Transportation 2008. Guidance on Preparing Cumulative Impact Analyses, p. 3.

8.2.1.1 Discussion of cumulative impacts for the proposed modified Clyde stabling and maintenance facility construction site

The construction site for the Clyde stabling and maintenance facility would require the removal of all structures across the site, with exception of the façade of the locally heritage listed RTA Depot (Parramatta LEP Item No. I576) as outlined in the approved project's Environmental Impact Statement. Additional to these impacts, the modified construction site would also require the removal of the locally heritage listed and S170 register item – Rosehill Railway Station Footbridge (SHI no. 4801762) and the removal of the Rosehill Railway Station which is not heritage listed but has been established as of potential local heritage significance (refer Section 6.3.3.2).

The existing environment surrounding the additional area required for construction at the Clyde stabling and maintenance facility is industrial. The proposed modified construction site is set within the Rosehill Railway corridor, whilst the remainder of the unmodified approved project is set within the RTA Depot, a heavily modified industrial landscape north of the Duck River; and the Sydney Speedway and surrounding industrial streetscape, south of the Duck River.

The wider context surrounding the proposed modified Clyde stabling and maintenance facility construction site is predominantly industrial, including the historic Capral Aluminium site to the east. The Rosehill Gardens Racecourse is located to the north and east. Duck River, a tributary of the Parramatta River, is located running through the study area and includes the heritage listed Wetlands ecosystem. Duck River provides a natural barrier between the study area and industrial context of Silverwater beyond.

Clyde industrial area is undergoing a number of developments, as seen above in Table 21, including the Viva Energy Clyde Western Area Remediation Project and the Clyde Terminal Conversion Project which are expected to have an impact on the heritage significance of the former Clyde Refinery as well as impacting the overall character and amenity of the suburb.

The proposed modification to the Clyde stabling and maintenance facility construction site would result in impacts to non-Aboriginal heritage items, resulting in a loss of local heritage in the Clyde area and a loss in particular to the collective NSW railway heritage. The proposed modification to the approved project would result in the removal of the Rosehill Railway Footbridge, which is relatively rare, as one of 24 remaining warren truss steel bridges in NSW, resulting in a cumulative impact on the collective heritage of railway bridges and railway heritage in NSW. The proposed modification would also result in the removal of Rosehill Railway Station which is a late nineteenth century railway station and retains the first concrete platform in NSW (eastern platform) which has a relatively high level of integrity. The removal of the railway station would result in a cumulative impact on the collective heritage of platforms and railway station in NSW.

The proposed modification to the construction site would also result in a cumulative impact to the local setting and presents a further move away from the historic agricultural land use of the site. As a result of the proposed modification to the approved project construction site footprint, the proposed modification of the approved project works at the Clyde stabling and maintenance facility would result in moderate cumulative impacts to heritage items in the local area and NSW.

9.0 MITIGATION AND MANAGEMENT MEASURES

9.1 Mitigation measures for the approved project

The mitigation measures identified for the approved project would be applied to minimise impacts associated with the proposed modification. Changed and additional mitigation measures are proposed as a result of the modification are shown in **bold** text and are provided in Table 22. Rows highlighted in grey include either an addition or change to an existing mitigation measure.

Table 22: Non-Aboriginal heritage mitigation measures

Reference	Impact / Issue	Mitigation measure	Applicable location(s) ⁵⁶
NAH1	Archival recording	Archival recording and reporting of the following heritage and unlisted potential heritage items would be carried out in accordance with the NSW Heritage Office's <i>How to Prepare Archival Records of Heritage Items</i> (1998), and <i>Photographic Recording of Heritage Items Using Film or Digital Capture</i> (2006): <ul style="list-style-type: none"> • Shops (and potential archaeological site) (Parramatta LEP Item No. I703) • Kia Ora (and potential archaeological site) (Parramatta LEP Item No. I716) • RTA Depot (Parramatta LEP Item No. I576) • State Abattoirs (SEPP Listing No. A) • White Bay Power Station (SHR Listing No. 01015) • Rosehill Railway Station Footbridge (SHI no. 4801762) • Rosehill Railway Station (unlisted potential heritage item). 	PMS, CSMF, SOPMS, TBS, CSMF
NAH2	Demolition	A method for the demolition of existing buildings and / or structures at the specified construction sites would be developed to minimise direct and indirect impacts to adjacent and / or adjoining heritage items.	PMS, CSMF, SOPMS, TBS
NAH3	Salvage	Prior to commencement of demolition of heritage elements at White Bay Power Station within The Bays construction site, significant heritage fabric would be identified for salvage and reuse opportunities for salvaged fabric considered.	TBS

⁵⁶ WMS: Westmead metro station; PMS: Parramatta metro station; CSMF: Clyde stabling and maintenance facility; SSF: Silverwater services facility; SOPMS: Sydney Olympic Park metro station; NSMS: North Strathfield metro station; BNS: Burwood North Station; FDS: Five Dock Station; TBS: The Bays Station; Metro rail tunnels: Metro rail tunnels not related to other sites (eg tunnel boring machine works); PSR: Power supply routes.

Reference	Impact / Issue	Mitigation measure	Applicable location(s) ⁵⁶
NAH4	Visual impacts	The policies of the White Bay Power Station Conservation Management Plan (CMP) would be considered in regard to visual impacts of the Stage 1 works, particularly the acoustic shed (or other acoustic measures) and any temporary structures. Significant view lines would be retained during Stage 1 works.	TBS
NAH5	Heritage interpretation	Where heritage items, including significant archaeology are impacted by Stage 1 works, consideration would be given to their inclusion in the Heritage Interpretation Plan (HIP) for future project stages.	All
NAH6	Archaeology	An archaeological research design(s) would be prepared and implemented to identify the need for archaeological testing or monitoring. Archaeological mitigation measures recommended in the archaeological research design would be carried out in accordance with Heritage Council guidelines, and where appropriate supervised by a suitably qualified Excavation Director with experience in managing State significant archaeology.	All
NAH7	Archaeology	An Archaeological Excavation Report would be prepared by the Excavation Director and would be provided to the NSW Heritage Division within two years of the completion of archaeological excavations specified in the archaeological research design(s).	All
NAH8	Archaeology	In the event that State significant archaeologically associated with early convict occupation is located at Parramatta metro station: <ul style="list-style-type: none"> In situ conservation would be considered. If in situ conservation is not feasible and reasonable, a strategy to mitigate impacts would be prepared in consultation with the NSW Heritage Council (or delegate) An Archaeological Method Statement (AMS) would be prepared in consultation with the NSW Heritage 	PMS

Reference	Impact / Issue	Mitigation measure	Applicable location(s) ⁵⁶
		<p>Council (or delegate) for management of the archaeological remains, whether for conservation or archaeological investigation and recording</p> <ul style="list-style-type: none"> • An accessible publication would be prepared within two years of archaeological excavations to document the archaeological investigations • Sydney Metro would provide for the meaningful curation, display and public access of any artefacts collected. This may involve partnerships with museums, local heritage centres and/or universities. 	
NAH9	Archaeology	The impacted gardens within the State Abattoirs would be reinstated with sympathetic landscaping that is in keeping with the provisions of the Conservation Management Plan.	SOPMS
NAH10	Archival recording	<p>An assessment of significance would be prepared in consultation with the relevant local council for the following potential unlisted heritage items:</p> <ul style="list-style-type: none"> • 220 Church Street, Parramatta • 48 Macquarie Street, Parramatta • Pine Inn at 19 Parramatta Road, Concord • 338-340 Parramatta Road, Burwood • Former warehouse shed, Glebe Island. <p>If the assessment of significance confirms these items have local heritage value, an archival recording would be undertaken</p>	PMS, BNS, TBS,
NAH11	Removal / Salvage	Prior to commencement of demolition of heritage elements at Rosehill Railway Station and Rosehill Railway Footbridge, significant heritage fabric would be identified for salvage and reuse opportunities for salvaged fabric considered.	CSMF

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