

Moorebank Precinct West (MPW) – Stage 2 Proposal

Non-Indigenous Heritage Impact Assessment



SIMTA

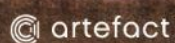
SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant
Development

Moorebank Precinct West Stage 2

Non-Indigenous (Historic) Heritage
Impact Assessment

Report to Arcadis
August 2016



Artefact Heritage
ABN 73 144 973 526
Level 4, Building B
35 Saunders Street
Pyrmont NSW 2009
Australia

+61 2 9518 8411
office@artefact.net.au

EXECUTIVE SUMMARY

On the 3 June 2016 Concept Plan Approval (SSD 5066) was granted, under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), to develop the Moorebank Precinct West Project (MPW Project) on the western side of Moorebank Avenue, Moorebank, in south-western Sydney (the MPW site).

The MPW Project involves the development of intermodal freight terminal facilities (IMT), linked to Port Botany, the interstate and intrastate freight rail network. The MPW Project includes associated commercial infrastructure (i.e. warehousing), a rail link connecting the MPW site to the Southern Sydney Freight Line (SSFL), and a road entry and exit point from Moorebank Avenue.

This report has been prepared as part of a State Significant Development (SSD) Application for which approval is sought under Part 4, Division 4.1 of the EP&A Act. This report has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) (ref: SSD 16-7709 and dated 14 July 2016) and revised environmental mitigation measures (REMMs) identified in the MPW Concept Plan Approval (SSD_5066).

This report outlines the findings of a review of the European Heritage chapter of the MPW Concept Plan EIS, associated European Heritage Technical Paper and archival recording documentation in relation to the mitigation measures outlined in the REMMs and Ministers Conditions of Approval (MCoA). This report has identified that a number of items of heritage significance within the MPW site have been relocated through the Moorebank Unit Relocation (MUR) and all remaining items and areas of archaeological potential will be subject to mitigation measures during MPW Early Works.

Overview of Findings

One heritage item is identified as requiring consideration in future design and operation of the Proposal site:

- Moorebank Cultural Landscape.

These findings are based on the assumption that all other mitigation measures identified in the MUR Project, the MPW Concept Design EIS, the European Heritage Technical Paper prepared for MPW Concept Design EIS, the REMMS and MCoA have been conducted as Early Works. Where any of those tasks have not been completed during Early Works they will need to be addressed prior to construction works commencing.

Recommendations

It is recommended that:

- Further detailed design incorporates the existing road names and places within the Proposal site to mitigate loss of significance to the Moorebank Cultural Landscape item. Continued commemoration of significant events and individuals would be considered through the naming of buildings and proposed for construction as part of the Proposal
- The Unanticipated Discoveries Protocol (detailed in Appendix 7 of Technical Paper 11 – European Heritage Impact Assessment in Volume 8, MPW Concept Plan EIS) would be followed in the event that historical items or relics or suspected burials are encountered during excavation works.

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1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

On the 3 June 2016 Concept Plan Approval (SSD 5066) was granted, under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), to develop the Moorebank Precinct West Project (MPW Project) on the western side of Moorebank Avenue, Moorebank, in south-western Sydney (the MPW site).

The MPW Project involves the development of intermodal freight terminal facilities (IMT), linked to Port Botany, the interstate and intrastate freight rail network. The MPW Project includes associated commercial infrastructure (i.e. warehousing), a rail link connecting the MPW site to the Southern Sydney Freight Line (SSFL), and a road entry and exit point from Moorebank Avenue.

Under the Concept Plan Approval, the MPW Project is to be developed in four phases, being:

- Early Works development phase, comprising:
 - The demolition of existing buildings and structures
 - Service utility terminations and diversion/relocation
 - Removal of existing hardstand/roads/pavements and infrastructure associated with existing buildings
 - Rehabilitation of the excavation/earthmoving training area (i.e. 'dust bowl')
 - Remediation of contaminated land and hotspots, including areas known to contain asbestos, and the removal of:
 - » Underground storage tanks (USTs)
 - » Unexploded ordnance (UXO) and explosive ordnance waste (EOW) if found
 - » Asbestos contaminated buildings
 - Archaeological salvage of Indigenous and non-Indigenous sites
 - Establishment of a conservation area along the Georges River
 - Establishment of construction facilities (which may include a construction laydown area, site offices, hygiene units, kitchen facilities, wheel wash and staff parking) and access, including site security
 - Vegetation removal, including the relocation of hollow-bearing trees, as required for remediation and demolition purposes
- Development of the intermodal terminal (IMT) facility and initial warehousing facilities
- 'Ramp up' of the IMT capacity and warehousing
- Development of further warehousing.

Approval for the Early Works phase (MPW Concept Plan Approval) was granted as the first stage of the MPW Project within the Concept Plan Approval. Works, approved as part of this stage are anticipated to commence in the third quarter of 2016.

Commonwealth Approval (No. 2011/6086), under the *Environmental Protection Biodiversity Conservation Act 1999* (EPBC Act), was also granted in mid-2016 (soon after the Concept Plan Approval) for the MPW Project. In addition to this, the Planning Proposal (PP_2012_LPOOL_004_00)

which provided a rezoning of part of the MPW site, and surrounds, was gazetted on 24 June 2016 into the *Liverpool Local Environmental Plan 2008* (Amendment No. 62).

On 5 December 2014, Moorebank Intermodal Terminal Company (MIC) and SIMTA announced their in-principle agreement to develop the Moorebank IMT Precinct on a whole of precinct basis. This agreement is subject to satisfying several conditions which both parties are currently working towards. SIMTA is therefore seeking approval to build and operate the IMT facility and warehousing under the MPW Project Concept Approval, known as the MPW Stage 2 Proposal (the Proposal).

Artefact Heritage has been engaged by Arcadis on behalf of SIMTA to complete a non-Indigenous Heritage Impact Assessment for the Proposal. This report assesses the impacts to non-Indigenous heritage items and areas of archaeological potential within the MPW Stage 2 Construction zone (hereafter the Proposal site, see Figure 1). This report does not assess any impacts associated with works conducted as part of the MPE project, including the Rail Link that extends east of Moorebank Avenue (Figure 1).

1.2 Report Purpose

This report has been prepared to support the Environmental Impact Statement (EIS) for approval of the Proposal. A summary of the works included in the Proposal is provided below.

This report has been prepared as part of a State Significant Development (SSD) Application for which approval is sought under Part 4, Division 4.1 of the EP&A Act. This report has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) (ref: SSD 16-7709 and dated 14 July 2016) and revised environmental mitigation measures (REMMs) identified in the MPW Concept Plan Approval (SSD_5066). Table 1 provides a summary of the SEARs and the REMMs from the MPW Concept Plan Approval, which are relevant to this report and the section where they have been addressed in this report.

The objective of this report is to provide an updated non-Indigenous heritage impact assessment, in accordance with the NSW Heritage Council guidelines and relevant legislation. Projects approved as SSD are not subject to section 139 permits and approvals (Section 2). The NSW Heritage Council guidelines have been applied to assessment to ensure best practice standards. This report builds upon investigations conducted as part of the MPW Concept Plan and Stage 1 approval and includes a cumulative impact assessment. This assessment addresses all non-Indigenous heritage items or areas of archaeological potential which may be impacted by the Proposal (Figure 1) (excluding those approved for impact by Early Works).

Table 1 Assessment requirements

Section / number	SEAR / REMM	Where addressed in this report
SEARS		
	An assessment of the heritage impacts of the proposal. The assessment shall:	
10	a) consider impacts to non-Indigenous heritage. For any identified impacts, the assessment shall: <ul style="list-style-type: none"> i. include a statement of heritage impact; ii. be undertaken by a suitably qualified heritage consultant(s); and iii. outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures). Mitigation 	Section 6.0 Heritage Impact Assessment Section 7.0 Mitigation and Management Measures Section 8.0 Recommendations

Section / number	SEAR / REMM	Where addressed in this report
	<p>measures should include (but not be limited to) photographic archival recording and adaptive reuse of buildings or building elements on site).</p> <p>Note: Where excavation is proposed, the heritage consultant undertaking the assessment must meet the NSW Heritage Council's Excavation Director criteria.</p>	
REMMS		
13A	Road names within the School of Military Engineering (SME) would be retained where possible.	Section 7.0 Mitigation and Management Measures
13B	Continued commemoration of significant events and individuals would be considered through the naming of buildings, streets and the rail bridge proposed for construction as part of the project.	Section 7.0 Mitigation and Management Measures
13C	Where reasonable and feasible options exist for avoiding impacts on one or more identified items, preference would be given to conserving items of Commonwealth or State significance.	Section 7.0 Mitigation and Management Measures
13D	Where avoidance of impacts on a heritage item is not reasonable or feasible, mitigation works inclusive of archival recordings, salvage of archaeological deposits, relocation of significant elements of the built environment and/or adaptive reuse would be undertaken.	Completed as part of Early Works
13E	A European heritage interpretation strategy would be developed in close consultation with local historical societies, former and current staff and military personnel.	Completed as part of Early Works
13F	No impacts would occur within the potential archaeological deposits (PAD) boundaries (MHPAD1 and MHPAD2) without prior archaeological salvage, as these sites contain archaeological deposits, inclusive of in-situ building remains, that are assessed to be of local significance in the context of the history of military housing and training at Moorebank.	Completed as part of Early Works
13G	In addition to archival recording of the Transport Compound Workshop (B99), consideration would be given during the detailed design stage to the in-situ conservation or adaptive reuse of this structure within the Project site. This would assist with mitigation of heritage impacts on the structure itself and the Moorebank Cultural Landscape as a whole.	Completed as part of Early Works
13H	In addition to archival recording, the Dog Cemetery (MH1) would be repositioned and the individual graves interred. This would be carried out in accordance with the wishes of the SME's Explosive Detection Dogs unit and respecting the social value of the site.	Completed as part of Early Works
13I	In addition to archival recording, consideration would be given during detailed design to the in-situ conservation of the Commemorative Garden (MH6). If in-situ conservation is not possible, the plaques and planting should be relocated to an alternative location on public display within the Project.	Completed as part of Early Works
13J	For the southern rail access, heritage item Railway viaduct, Main Southern Railway Line (item 12) should be noted on all	Construction of the Rail link would be undertaken as part of the MPE

Section / number	SEAR / REMM	Where addressed in this report
	plans and maps during construction and all care taken to avoid this item.	Stage 1 Approval and as such no mitigation or management measures for this item are presented in this document
13K	The Unanticipated Discoveries Protocol (detailed in Appendix 7 of Technical Paper 11 – European Heritage Impact Assessment in Volume 8) would be followed in the event that heritage items or relics or suspected burials are encountered during excavation works.	Section 7.0 Mitigation and Management Measures
13L	The Unanticipated Discoveries Protocol (detailed in Appendix 7 of Technical Paper 11 – European Heritage Impact Assessment in Volume 8) would be followed in the event that historical maritime items or relics are encountered during bridge works within the Georges River	Construction of the Rail link would be undertaken as part of the MPE Stage 1 Approval
13M	<p>Further consideration would be given to options for the retention and/or relocation and adaptive reuse of the CUST Hut and the RAAF STRARCH Hangar to mitigate impacts on heritage values associated with these structures and to broaden their cultural landscape.</p> <p>Options considered for mitigation in order of preference are:</p> <ul style="list-style-type: none"> • Relocation (either offsite or onsite) and conserve/adaptive reuse – this would be investigated further as part of the detailed design and any future development applications • Interpretive commemoration utilising materials/elements from the building – this may be required but would be determined by the findings from investigations in option 1 above • Demolition may be required but would be determined by the findings from investigations in option 1 above • The first preference would be to retain and adaptively re-use these items on the redeveloped Project site (within the precinct but outside the secure area, as part of the administrative facilities or similar). If this is not feasible or practicable, the second preference would be for relocation to another appropriate location, potentially with adaptive reuse. 	Completed as part of Early Works

1.2.1 Background to this Assessment

Several heritage assessments have previously been undertaken within the Proposal site, the most relevant of which include:

- Moorebank Unit Relocation (MUR) project conducted by ERM on behalf of the Department of Defence. This investigation is integral to the recommendations of the MPW Concept Plan EIS¹

¹ ERM 2013 Moorebank Unit Relocation (MUR) Project: Steele Barracks, NSW, Heritage Impact Assessment. Report to Point Project Management on behalf of Department of Defence.

- MPW Concept Plan EIS European heritage assessment Technical Paper. Conducted by Navin Officer Heritage Consultants (NOHC), this investigation is the key assessment for MPW Concept Plan that leads into the current assessment for the Proposal²
- MPW Concept Plan EIS chapter prepared by Parsons Brinckerhoff (PB). That investigation summarised the findings and recommendations of both the MUR Project and MPW Concept Plan Technical Paper³
- Further documentation of heritage items for MPW Stage 1 conducted by NOHC and PB, including archival recording reports and structural assessments of both the RAAF STRARCH Hangar and CUST Hut
- MPE Stage 1 Non-Indigenous heritage impact assessment report prepared by Artefact Heritage.

Minister's Conditions of Approval (MCoA) for MPW Stage 1 (Early Works)

The MCoA define MPW Stage 1 (Early Works) as involving: the demolition of buildings, including services termination and diversion; rehabilitation of the excavation / earthmoving training area; remediation of contaminated land; removal of underground storage tanks; heritage impact remediation works; and the establishment of construction facilities and access, including site security.

The MCoA state (under B6 and B8) that prior to construction:

- The Applicant shall not harm, modify or otherwise impact any heritage items outside the subject site
- Prior to the commencement of Early Works affecting non-Indigenous sites MHPAD1 and MHPAD2, the Applicant shall undertake any further archaeological excavation works recommended by the results of the non-Indigenous archaeological investigation program. Within 12 months of completing the above work, unless otherwise agreed by the Secretary, the Applicant shall submit a report containing the findings of the excavations, including artefact analysis, and the identification of a final repository for finds, prepared in consultation with the OEH (Heritage branch) and to the satisfaction of the Secretary.
Note that where archaeological testing has occurred as part of the Environmental Assessment and the results are included in the documents listed in Condition 4 the sites tested must still form part of the methodology and final report prepared for the non-Indigenous archaeological investigation program.
- Prior to the commencement of Early Works affecting the CUST Hut, RAAF STRARCH Hangar, the Dog Cemetery and Commemorative Gardens, the Applicant shall prepare a report in consultation with the Heritage Council of NSW, the local Council and the local Historical Society, which considers the options for mitigation of these items. In relation to the Dog Cemetery, consultation should also occur with the School of Military Engineering's Explosive Detection Dog's Unit. The

² NOHC 2014 Moorebank Intermodal Terminal (Stage 1) Chapter 21 – European Heritage Assessment. Report prepared for Parson Brinckerhoff.

³ PB 2014 'European Heritage' in Moorebank Intermodal Terminal Project EIS.

report shall include the archival recordings and the historical research, where required, to the Secretary, the Heritage Council of NSW, the local Council and the local Historical Society.

The MCoA also details the requirements for a Construction Heritage Management Plan (CHMP) for MPW Stage 1.

MCoA specific to the Proposal

Although the MCoA is prepared specifically for Stage 1 Early Works, E20 of the MCoA details that all future Development Applications shall assess impacts to non-Indigenous heritage from the proposal and propose management and mitigation measures in line with State and Federal heritage legislation. As noted above, it is assumed for this report that all relevant non-Indigenous heritage mitigation measures appropriate to the MPW Site will be conducted during Stage 1 Early Works. As such, the Moorebank Cultural Landscape is the only identified heritage item in the MPW site which requires continuing management and mitigation, since management measures are ongoing during construction and operation.

1.3 Proposal Overview

The Proposal involves the construction and operation of an Intermodal terminal (IMT) facility and associated warehousing.

The IMT facility would have the necessary infrastructure to support a container freight throughput volume of 500,000 twenty-foot equivalent units (TEUs) per annum. Specifically, the IMT facility within the Proposal site would include the following key components:

- Truck processing, holding and loading areas – with entrance and exit from Moorebank Avenue via an upgraded intersection and a round-about to distribute traffic between the warehousing precinct and the IMT
- Rail loading and container storage areas – installation of nine rail sidings, with an adjacent container storage area serviced by manual handling equipment
- Administration facility – office building with associated car parking and light vehicle access from Moorebank Avenue
- The Rail link connection – rail sidings within the IMT facility, which would be linked (to the south) to the Rail link (constructed as part of the MPE Project (SSD 14-6766)).

Also included within the Proposal are the following key components:

- Warehousing area – construction and operation of approximately 215,000 m² GFA of warehousing, with warehouses ranging in size from 4,000 m² to 71,000 m². Included within the warehousing area would be ancillary offices, truck and light vehicle parking, associated warehouse access roads.
- Freight village – construction and operation of approximately 800 m² of retail premises, with access from the internal road.
- Upgraded intersection on Moorebank Avenue and internal road – including works to Moorebank Avenue, Anzac Road to accommodate the proposed site entrance to Moorebank Avenue, and construction of an internal road.

- Ancillary works – including vegetation clearing, earth works, drainage and on-site detention, utilities installation/connection, signage and landscaping.

1.4 Proposal Components and Key Terms

Table 2 provides a summary of the key terms included within this report.

Table 2: Key terms

Term	Definition
Moorebank Precinct West (MPW) Concept Plan Approval (Concept approval and Early Works)	MPW Concept Plan and Stage 1 Approval (SSD 5066) granted on 3 June 2016 for the development of the MPW Intermodal terminal facility at Moorebank and the undertaking of the Early Works. Granted under Part 4, Division 4.1 of the Environmental Planning and Assessment Act 1979. This reference also includes associated Conditions of Approval and Revised Environmental Management Measures, which form part of the documentation for the approval. N.B. Previously the MIC Concept Plan Approval
Moorebank Precinct West (MPW) EPBC Approval	Commonwealth Approval (No. 2011/6086), granted in mid-2016 under the <i>Environmental Biodiversity Protection Conservation Act 1999</i> , for the impact of the MPW Project on listed threatened species and communities and impacts on the environment by a Commonwealth agency.
Moorebank Precinct West (MPW) Concept Plan EIS	The Environmental Impact Statement prepared to support the application for approval of the MPW Concept Plan and Early Works (Stage 1) under the Environment Protection and Biodiversity Conservation Act 1999 and the Environmental Planning and Assessment Act 1979. N.B. Previously the MIC Concept Plan EIS
Revised Environmental Management Measures (REMMs)	The environmental management measures for the MPW Concept Plan Approval as presented within the MIC Supplementary Response to Submissions (SRtS) (PB, 2015) and approved under the MPW Concept Plan Approval.
Moorebank Precinct West (MPW) Planning Proposal	Planning Proposal (PP_2012_LPOOL_004_00) to rezone the MPW site from 'SP2- Defence to 'IN1- Light Industrial' and 'E3- Management', as part of an amendment to the Liverpool Local Environmental Plan 2008 (as amended) gazetted on 24 June 2016.
Moorebank Precinct West (MPW) Project	The MPW Intermodal Terminal Facility as approved under the MPW Concept Plan Approval (5066) and the MPW EPBC Approval (2011/6086). N.B. Previously the MIC Project
Moorebank Precinct West (MPW) site	The site which is the subject of the MPW Concept Plan Approval, MPW EPBC Proposal and MPW Planning Proposal (comprising Lot 1 DP1197707 and Lots 100, 101 DP1049508 and Lot 2 DP 1197707). The MPW site does not include the rail link as referenced in the MPW Concept Plan Approval or MPE Concept Plan Approval. N.B. Previously the MIC site.
Early Works	Works approved under Stage 1 of the MPW Concept Plan Approval (SSD 5066), within the MPW site, including: establishment of construction compounds, building demolition, remediation, heritage impact mitigation works and establishment of the conservation area.
Early Works Approval	Approval for the Early Works (Stage 1) component of the MPW Project under the MPW Concept Plan Approval (SSD 5066) and the (yet to be granted) MPW EPBC Approval. Largely contained in Schedule 3 of the MPW Concept Plan Approval.

Term	Definition
Early Works area	Includes the area of the MPW site subject to the Early works approved under the MPW Concept Plan Approval (SSD 5066).
Proposal	MPW Stage 2 Proposal (the subject of this EIS), namely Stage 2 of the MPW Concept Plan Approval (SSD 5066) including construction and operation of an IMT facility, warehouses, a Rail link connection and Moorebank Avenue/Anzac Road intersection works.
Proposal site	The subject of this EIS, the part of the MPW site which includes all areas to be disturbed by the MPW Stage 2 Proposal (including the operational area and construction area).
IMT facility	The Intermodal terminal facility on the Proposal site, including truck processing, holding and loading areas, rail loading and container storage areas, nine rail sidings, loco shifter and an administration facility and workshop.
Rail link connection	Rail connection located within the Proposal site which connects to the Rail link included in the MPE Stage 1 Proposal (SSD 14-6766).
Proposal operational rail line	The section of the Rail link connection and Rail link between the SSFL and the Rail link connection (included in the MPE Stage 1 Proposal) to be utilised for the operation of the Proposal.
construction area	Extent of construction works, namely areas to be disturbed during the construction of the Proposal.
operational area	Extent of operational activities for the operation of the Proposal.
Moorebank conservation area/conservation area	Vegetated area to remain to the west of the Georges River, to be subject to biodiversity offset, as part of the MPW Project.
Moorebank Precinct (MP)	Refers to the whole Moorebank intermodal precinct, i.e. the MPE site and the MPW site.

1.5 Site Description

The Proposal site is generally bounded by the Georges River to the west, Moorebank Avenue to the east, the East Hills Railway Line to the south and the M5 Motorway to the north. It is located on Moorebank Avenue, Moorebank and forms Lot 1 in Deposited Plan (DP) 1197707⁴. The Proposal site also contains Lots 100 and 101 DP1049508, which are located north of Bapaume Road and west of Moorebank Avenue. The Proposal site is located wholly within Commonwealth Land.

The Proposal would also require works to upgrade the intersection of the MPW site with Moorebank Avenue and would therefore be undertaken on the following parcels of land:

- Moorebank Avenue, owned by the Commonwealth Government, south of Anzac Road Lot 2, DP 1197707 (formerly part of Lot 3001, DP 1125930)
- Moorebank Avenue, owned by Roads and Maritime Services, north of Anzac Road
- A portion of Bapaume Road, a public road that is the responsibility of Liverpool City Council
- A portion of Anzac Road, owned by Liverpool City Council, to the east of Moorebank Avenue

⁴ Previously legally described as "Lot 3001, DP 1125930" in the MPW Concept Plan Approval (SSD 5066), however has since been subdivided.

The key existing features of the site are:

- Relatively flat topography, with the western edge flowing down towards the Georges River, which forms the western boundary to the MPW site
- A number of linked ponds in the south-west corner of the Proposal site, within the existing golf course, that link to Anzac Creek, which is an ephemeral tributary of the Georges River
- An existing stormwater system comprising pits, pipes and open channels
- Direct frontage to Moorebank Avenue, which is a publicly used private road, south of Anzac Road and a publicly owned and used road north of Anzac Road
- The majority of the site has been developed and comprises low-rise buildings (including warehouses, administrative offices, operative buildings and residential buildings), access roads, open areas and landscaped fields for the former School of Military Engineering (SME) and the Royal Australian Engineers (RAE) Golf Course and Club. Defence has since vacated and all buildings on the site are currently unoccupied and will be removed during the Early Works
- Native and exotic vegetation is scattered across the Proposal site
- The riparian area of the Georges River lies to the west of the Proposal site and contains a substantial corridor of native and introduced vegetation. The riparian vegetation corridor provides a wildlife corridor and a buffer for the protection of soil stability, water quality and aquatic habitats. This area has been defined as a conservation area as part of the MPW Concept Plan Approval
- As stated above, the majority of the Proposal site has been developed, however heritage and biodiversity values still remain on the site
- A strip of land (up to approximately 250 metres wide) along the western edge of the MPW site lies below the 1% annual exceedance probability (AEP) flood level
- The site is privately owned by the Commonwealth and leased by SIMTA.

A number of residential suburbs are located in proximity to the Proposal site, including:

- Wattle Grove, located approximately 1,000 m from the Proposal site and 1,000 m from the Rail link connection to the east. The Rail link, which will be used during operation of the Proposal is 1,260 m to the west of Wattle Grove at its closest point
- Moorebank, located approximately 630 m from the Proposal site and more than 1,400 m from the Rail link connection to the north. The Rail link is 2,500 m to the south of Moorebank at its closest point
- Casula, located approximately 330 m from the Proposal site and 1,200 m from the Rail link connection to the west. The Rail link is approximately 290 m to the east of Casula at the closest point
- Glenfield, located approximately 820 metres from the Proposal site and 1,100 metres from the Rail link connection to the south-west. The Rail link is approximately 750 m to the east of Glenfield at its closest point.

Figure 1 shows the Proposal construction and operational areas. Impacts associated with construction of the Rail link is not included in this assessment as it is included in the MPE project.

1.6 Construction Overview

Subject to planning approval, construction of the Proposal is planned to commence in the third quarter of 2017. The total period of construction works for the Proposal is anticipated to be approximately 36 months. The indicative work periods and activities are included as Appendix 1.

1.6.1 Construction Program and Activities

The construction works have been divided into seven 'works periods' which are interrelated and may potentially overlap. Subject to confirmation of construction staging, the order of these construction works periods may shift slightly.

A summary of the indicative activities included in each of these works periods, which is relevant to the construction of the IMT facility, the Rail link connection and the warehouses, is provided in Appendix 1.

1.6.2 Ancillary Compounds

Temporary construction compounds, a batching plant and communal parking areas would be required to support construction works for the Proposal.

At this stage construction compounds identified for the Proposal include:

- Earthworks Compound
- Interstate Compound
- Rail Compound.

Access to the compound sites would be via existing access points to the Proposal site from Moorebank Avenue. An area would be made available in the northern portion of the Proposal site to provide worker parking, once the Moorebank Avenue / Anzac Road intersection upgrade is complete. In addition to the above compounds individual smaller compounds would be established for the construction of each warehouse.

1.7 Authorship

This report was written by Duncan Jones (Archaeologist), Alyce Howard (Archaeologist) and Josh Symons (Principal). This report was reviewed by Dr Sandra Wallace (Principal) who also provided management input and final review.

1.8 Limitations and Assumptions

Assessment of significance is based upon the findings of the MUR project and MPW Concept Plan EIS investigations and previous investigations within the study area.

Early Works subject to the MCoA were ongoing or to be completed at the time this report was prepared. For the purpose of this report it is assumed that all non-Indigenous heritage mitigation measures will be conducted during Early Works. As such, an assumption and basis of the findings of this report is that all necessary non-Indigenous mitigation measures relevant to the MPW Site have been or will be conducted during Early Works.

Figure 1: Proposal site, including proposed construction and operational areas



2.0 STATUTORY CONTEXT

There are several items of State legislation that are relevant to the current study. This section provides a summary of these Acts and the implications for the Proposal.

2.1 Environmental Planning and Assessment Act 1979

The *Environment Planning and Assessment Act 1979* (EP&A Act) is administered by the Department of the Planning and Environment and provides planning controls and requirements for environmental assessment in the development approval process. This Act has three main parts of direct relevance to Indigenous cultural heritage. Namely, Part 3 which governs the preparation of planning instruments, Part 4 which relates to development assessment process for local government (consent) authorities and Part 5 which relates to activity approvals by governing (determining) authorities.

Planning decisions within Local Government Areas (LGAs) are guided by Local Environmental Plans (LEPs). Each LGA is required to develop and maintain an LEP that includes Indigenous and non-Indigenous heritage items which are protected under the EP&A Act 1979 and the *Heritage Act 1977* (Heritage Act). The study area is located at the boundary of the Liverpool LGA.

The proposal will be assessed under Part 4, Division 4.1 of the EP&A Act, which establishes an assessment and approval regime for State Significant Development (SSD). Part 4, Division 4.1 applies to development that is declared to be SSD by a State Environmental Planning Policy (SEPP). Section 89J of the EP&A Act specifies that approvals or permits under Part 4 or Section 139 of the Heritage Act are not required for approved SSD projects. However, approval from the Minister of Planning and Environment is required and an EIS must be submitted. The EIS must address the impact of the project on heritage items, through the framework of existing heritage legislation including the Heritage Act, and the local LEPs and Development Control Plans (DCPs).

2.2 NSW 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.

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 SHR is administered by the Heritage Division of the Office of Environment and Heritage (OEH) 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 heritage significance for the whole of NSW.

Archaeological Relics

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”

Section 139 to 145 of the Heritage Act prevents 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.

As a SSD project, separate approval or permits under the Heritage Act are not required.

Section 170 Registers

Under the Heritage Act all government agencies are required to identify, conserve and manage heritage items in their ownership or control. Section 170 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 ensure that all items inscribed on its list are maintained with due diligence in accordance with State Owned Heritage Management Principles approved by the 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.

2.3 Register Searches

An updated search of the relevant statutory and non-statutory heritage registers was conducted for this study. The result of these searches is summarised in Table 3 below.

Table 3: Updated register search results

Item Name	Register	Significance	Location in relation to the Proposal construction and operational area
Australian Army Engineers Group (Item 57)	SHR Liverpool LEP 2008	Local	Within
Kitchener House (Item 58)	SHR, Liverpool LEP 2008, Register of the National Estate	Local	Adjacent
Casual Powerhouse (Item 10)	SHR, Liverpool LEP 2008	Local	Adjacent
Railway Viaduct (Item 11)	SHR, Liverpool LEP 2008	Local	Adjacent
Railway Viaduct (Item 12)	SHR, Liverpool LEP 2008	Local	Adjacent
Glenfield Farm Group	SHR, Liverpool LEP 2008, Register of the National Estate	State and local	Adjacent
SME	State Heritage Inventory Database (Database no. 1970180) and Liverpool LEP 2008	State and local	Within

3.0 SUMMARY AND ANALYSIS OF BACKGROUND INFORMATION

A comprehensive presentation of background context information for the MPW Project was presented in the MPW Concept Plan EIS European Heritage technical paper.⁵ A synthesised presentation and summary of that background information is presented below.⁶

3.1 Historical Context

3.1.1 Pre-Military Occupation and Use

Thomas Moore

Land grants in the area of Moorebank date to 1798, but it was not until 1805 that Thomas Moore acquired land along the eastern bank of Georges River. Over the next 15 years Moore received almost 8000 acres of land in grants, in addition he built a home for he and his wife Rachel the site of which is situated in Thomas Moore Park, Whelan Avenue, Chipping Norton. Moore partook in agricultural activities on his land. Before his death, Moore transferred his Moorebank estate of approximately 6,400 acres, together with lots he owned in the township of Liverpool, to the church to be held in trust. He similarly left his house and grounds to the church for the establishment of a college for young Protestant men, which later became the Moore Theological College, which was transferred to Newtown in 1891.

A Church of England Estate

Up to and after the property was sold in the mid-1880s, many tenants undertook farming and rural pursuits on the land.

Western Side of the Georges River

On the western side of the George's River, Eber Bunker was initially granted 400 acres of land which he named Collingwood. Dairy and tenant farming were undertaken on the property.

Collingwood Estate

Following Bunkers' death his land underwent significant change as a result of disposal and development. This area was developed as a golf course in the later twentieth century, and has also seen the recent construction of the Southern Sydney Freight Line.

3.1.2 Military Occupation and History

Military use of the Liverpool area in the 19th Century

From 1811 the Liverpool area was subject to extensive Defence involvement. From 1870 annual training military camps were routinely held at Richmond, Campbell Fields, Windsor, the Royal National Park, and Campbelltown.

⁵ NOHC 2014

⁶ NOHC 2014 p.24–50

First Military Use of Moorebank Estate

1894 saw the first military use of Moorebank Estate with artillery, cavalry, light horse, engineer and medical units being used for training in mock military engagement.

Liverpool Manoeuvre Area

Brigadier-General J.M. Gordon submitted a plan to the Military Board for a tract of land, including Moorebank, to be resumed for military purposes. Lord Kitchener, after being invited by the government to Australia, spent time staying in a still extant cottage on the eastern side of Moorebank Avenue, the cottage is listed on the NSW State Heritage Inventory. Up to 1915 the following military buildings were established:

- A Military Isolation Camp
- Mobilisation Stores
- Small Arms Ammunition Stores
- A rifle range
- Official Moorebank Parade Ground.

3.1.3 World War I: Liverpool Camp

Liverpool Camp was utilised by the Australian Imperial Force (AIF) to train new recruits during World War I. Internees at the Old Army Camp at Holsworthy were made to quarry sandstone, build stone structures and construct a branch of the railway line.

3.1.4 The Inter War Period

The end of World War I saw the buildings at Liverpool Camp used infrequently. Training camps continued to be intermittently held. After 1920 more buildings were erected, including:

- New Mobilisation Stores
- Training Depot for instructors and new recruits
- Magazine
- Explosive Store
- Laboratory test house
- Isolation store.

During the 1930s Moorebank was used as a Voluntary Trades School. In 1933 a railway line was opened for the purpose of sand mining as part of the Moorebank Sand Company, but was no longer in use by May 1938, and the light rail line was later removed during World War II. Despite this activity, most of Moorebank was bushland until the late 1930s. Building activity in the 1930s included:

- The erection of two brick stores at the Department of the Interior
- The Central Training Depot was re-opened after being closed for 17 years.

3.1.5 World War II: Engineers at Moorebank

A military school of engineering was temporarily established at the Liverpool Military Camp. In 1940 the new military school of engineering established the field engineering wing at Moorebank, training camp buildings were built at Moorebank. Other developments in the early war years included:

- No 1 Training School
- A Mechanisation Centre or Depot
- An ordnance store workshop and vehicle store at the depot
- Stormwater, sewerage and fire services for the facility
- The 8th Division Supply Column.

3.1.6 Post War: decline and redevelopment in the 1940s and 1950s

A three phase rehabilitation and redevelopment of the SME site began in the late 1940s until the late 1950s. A chapel was established, with the first service being held on Christmas Day 1957, it was succeeded a decade later by a purpose built chapel. Other development included:

Phase 1:

- 1949: temporary wartime huts were replaced by substantial barracks
- 1950: Extra accommodation buildings were brought in from others in the Liverpool area
- 1953: New centralised mess and kitchen.

Phase 2:

- Late 1952: 9 two story timber framed and clad barracks building, completed in 1953
- 1952: Imported prefabricated houses to serve as married quarters completed in early 1953
- Bridging Hard and Boat Harbour built at the wet gap bring area on the river
- ARMCO Hut two Sydney Williams huts built in the Bridging Store area
- Light Rail Line constructed built from the Bridging Store area to the wet bridging gap
- 1953: Kennels, classrooms and dog stores built for dog training.

Phase 3:

- 1953: Construction commenced on the Trades Training Wing, consisting of an administrative building, engineering workshops, carpentry workshops, and thirteen lecture and demonstration rooms
- 1955: Two brick instructional buildings were erected
- 1955-56: Two brick Q stores for SME and two for 7 Independent Field Squadron
- 1955-56: Brick Administrative Building
- 1955-57: Soldiers' Club constructed
- 1955: Building nos. 20 and 22, which had been erected during WWII, were converted into training buildings
- 1956: Officers' mess erected.

3.1.7 Expansion in the 1960s and 1970s

Development during this time included:

- A mock Vietnamese village
- Two new double story barracks
- A new chapel.

3.1.8 Development and Organisational Changes from the 1980s onwards

Development during this time included:

- A major rebuild of SME's buildings and facilities
- The 2nd Training Group, the Eastern Region Cadet Wing and the Education Wing moved from Ingleburn to SME
- During 2003-5 a Vietnam War Memorial was erected at Steele Barracks (previously known as the School of Military Engineering).

3.2 Previous Heritage Assessments in the Local Area

3.2.1 Moorebank Defence Site Heritage Assessment (Graham Brooks and Associates, 2004)

This assessment included all of the Defence lands within the Proposal site. The assessment of heritage significance concluded that the following elements on the SME and Base Administration Support Centre sites were of cultural heritage significance:

- Road pattern and boundary alignment
- Naming of roads and areas within the SME
- Memorials, chapel, museum, entrance gates and movable heritage relating to the use of the SME by the RAE
- Cultural plantings and natural landscape.

3.2.2 Environmental Assessment for the Proposed South Sydney Freight Line (Parsons Brinckerhoff 2006)

In 2006 Parsons Brinckerhoff undertook an Environmental Assessment on behalf of ARTC for the proposed South Sydney Freight Line between Macarthur and Sefton in southern Sydney. For the section of the freight line adjacent to the Proposal site, this assessment identified the following sites as being of cultural heritage significance:

- Casula railway station and footbridge, opened in 1894 (located south-west of the Proposal site), was identified as being of local significance. In addition, the footbridge is listed on the RailCorp (now Sydney Trains) s170 register (a register of relevant rail heritage under the NSW Heritage Act 1977)

- The Casula Powerhouse Arts Centre (former Liverpool Power Station), built in 1953, was assessed as having local significance but was not yet listed
- Casula Railway Viaduct, an 1891 brick masonry viaduct, was assessed as being of local significance and listed on the Campbelltown City LEP.

3.2.3 Moorebank Intermodal Terminal – Existing Aboriginal and European Heritage (CDFD 2011)

In 2011 Parsons Brinckerhoff prepared a review of the existing Aboriginal and European heritage for the Moorebank Intermodal Terminal (CDFD 2011). The assessment area included the current Proposal site.

This European heritage assessment addressed both a European built environment component and a European archaeological (non-built environment), or subsurface, component. The archaeological field surveys identified six European archaeological sites and one potential archaeological deposit within the Proposal site. The report recommended that an assessment of heritage impacts should be undertaken upon confirmation of a preferred concept.

3.2.4 Environmental Assessment Part 3A Concept Application for Moorebank Precinct East (MPE) [previously titled Sydney Intermodal Terminal Alliance (SIMTA)] of the Moorebank Intermodal Terminal Facility (Urbis 2012)

This assessment identified the SME as a listed item in the Liverpool LEP (2008), which includes the RAE Memorial Chapel, RAE Monument, Major General Sir Clive Steele Memorial Gates and the CUST Hut, and an area around these built structures.

This assessment also identified the Casula Regional Arts Centre as listed in the Liverpool LEP. This building was built in the 1950s by the Electricity Commission of NSW, as one of a number of 'package' power stations, all of a similar design. The assessment of the building's heritage significance was based on the ability of the site to demonstrate the development of Casula post-WWII, when industrial expansion and residential growth necessitated an interim local power supply.

3.2.5 Moorebank Unit Relocation (MUR) Project: Steele Barracks, NSW, Heritage Impact Assessment (ERM 2013)

In 2013, ERM undertook a heritage impact assessment to assess the potential impacts of the proposed relocation of 18 heritage items from the SME site to the Holsworthy Barracks as part of the MUR Project, due to be completed before the start of the Early Works. These items are listed in Table 4 below. The heritage significance of two items that were not removed from the SME site as part of the MUR Project were also assessed (the Cullen Universal Steel Truss (CUST) Hut and the STRARCH Hangar).

The MUR report also acknowledged that relocation of heritage items is not normally a preferred outcome; however, given the alternative of potential demolition if left in situ, relocation was considered to be an appropriate mitigation strategy in this case. The items were primarily identified as having heritage significance in terms of their social value, that is their association with Defence personnel. As Defence was also relocating to the Holsworthy Barrack this was found to contribute to the appropriateness of the mitigation measures.

All impacts associated with the MUR Project are considered to be outside the scope of the MPW Project and this EIS. This includes the impact of the MUR Project both on the items being relocated,

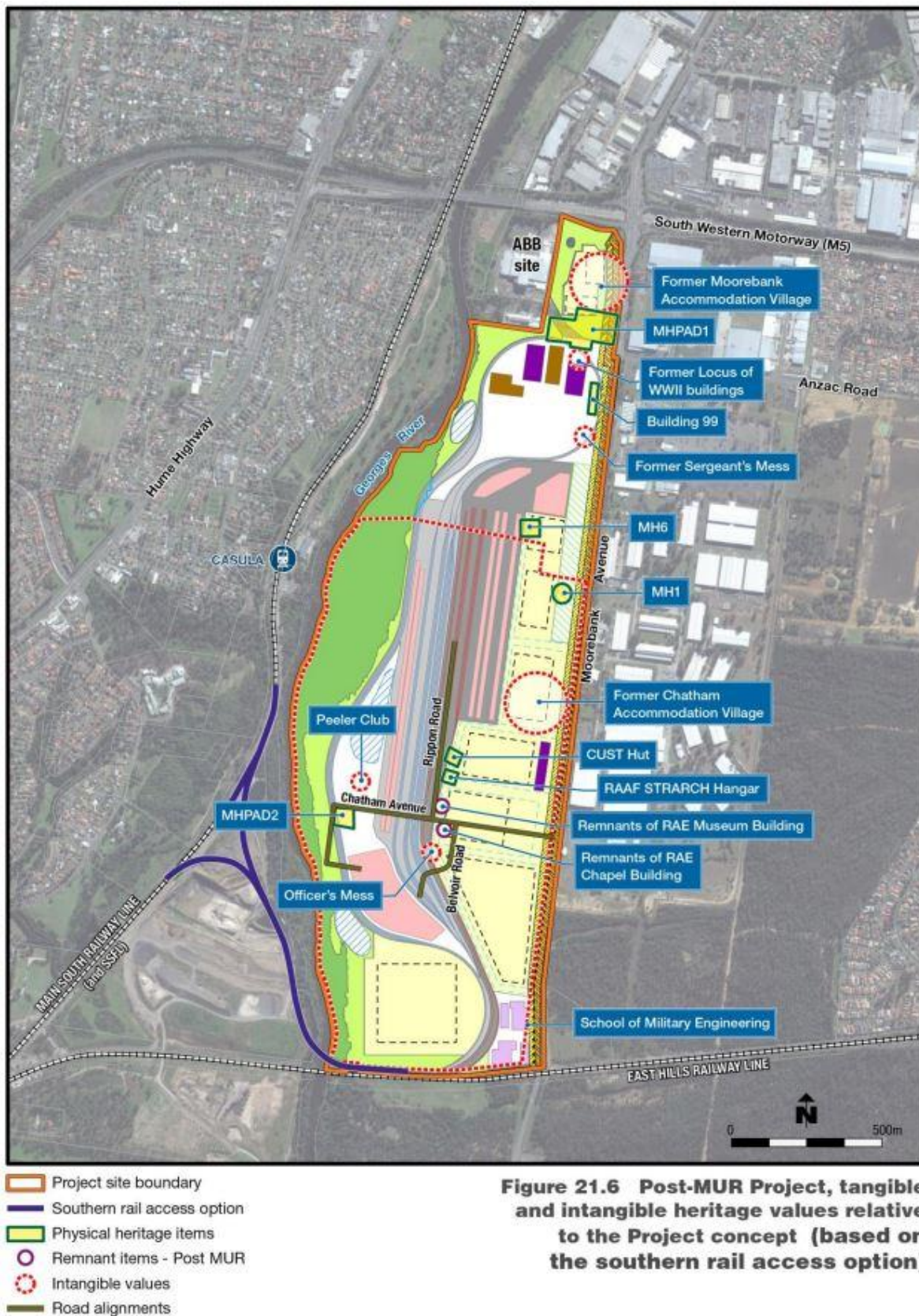
and on the heritage significance of the SME site as a result of the removal of the items and relocation of the Defence activities. As a consequence, for the assessment of heritage impacts from the MPW Proposal, the 'baseline' environment comprises the SME site with these items removed.

Table 4: Items addressed in ERM (2013) Heritage Impact Assessment for MUR Project

No	Name	Management and mitigation recommended as part of the MUR Project ⁷
1	Burma-Thai Cross	To be relocated
2	Headstone of Lieutenant Hodgson	To be relocated
3	Bell and bell tower	To be relocated
4	Hanging plant containers, Chapel	To be relocated
5	Baptismal font, Chapel	To be relocated
6	Altar chairs, Chapel	To be relocated
7	Three badges on front of Chapel	To be relocated
8	Sandstone in the walls of the Chapel and plaques	To be relocated
9	Clive Steele Memorial Gates	To be relocated
10	The Service dog cemetery	To be relocated
11	The Commanding Officers (CO's) walk, vicinity of the Officers Mess	To be relocated
12	Australian Panel Bridge	To be relocated
13	Bailey Bridge	To be relocated
14	Heavy Girder Bridge	To be relocated
15	Steele Bridge	To be relocated
16	The RAE Memorial and Fountain	To be relocated
17	The Vietnam Veterans' Memorial and associated plaques	To be relocated
18	RAE Corps Museum wall and collection	To be relocated
19	CUST Hut	To remain at SME site
20	STRARCH Hangar	To remain at SME site

The findings and recommendations of the MUR heritage assessment have since been superseded by heritage assessments conducted by NOHC (2014). In the case of contradictory heritage assessments, NOHC assessments for MPW Concept Plan EIS would be used. A map of heritage items remaining in the MPW Site following the MUR Project is included as Figure 2.

⁷ ERM 2013

Figure 2: Stage 1 heritage items following the MUR Project⁸⁸ Ibid. p.21-53

3.2.6 MPE [previously titled Sydney Intermodal Terminal Alliance (SIMTA)] Stage 1A: Non-Indigenous Heritage Impact Assessment Report (Artefact 2012)

Artefact prepared a non-Indigenous heritage impact assessment report for Stage 1 of the MPE Project.⁹ Large portions of the MPE Stage 1 area overlap with the current assessment area, specifically the southern rail link west of Moorebank Avenue. A map showing the area assessed in the MPE Stage 1 report is shown as Figure 3.

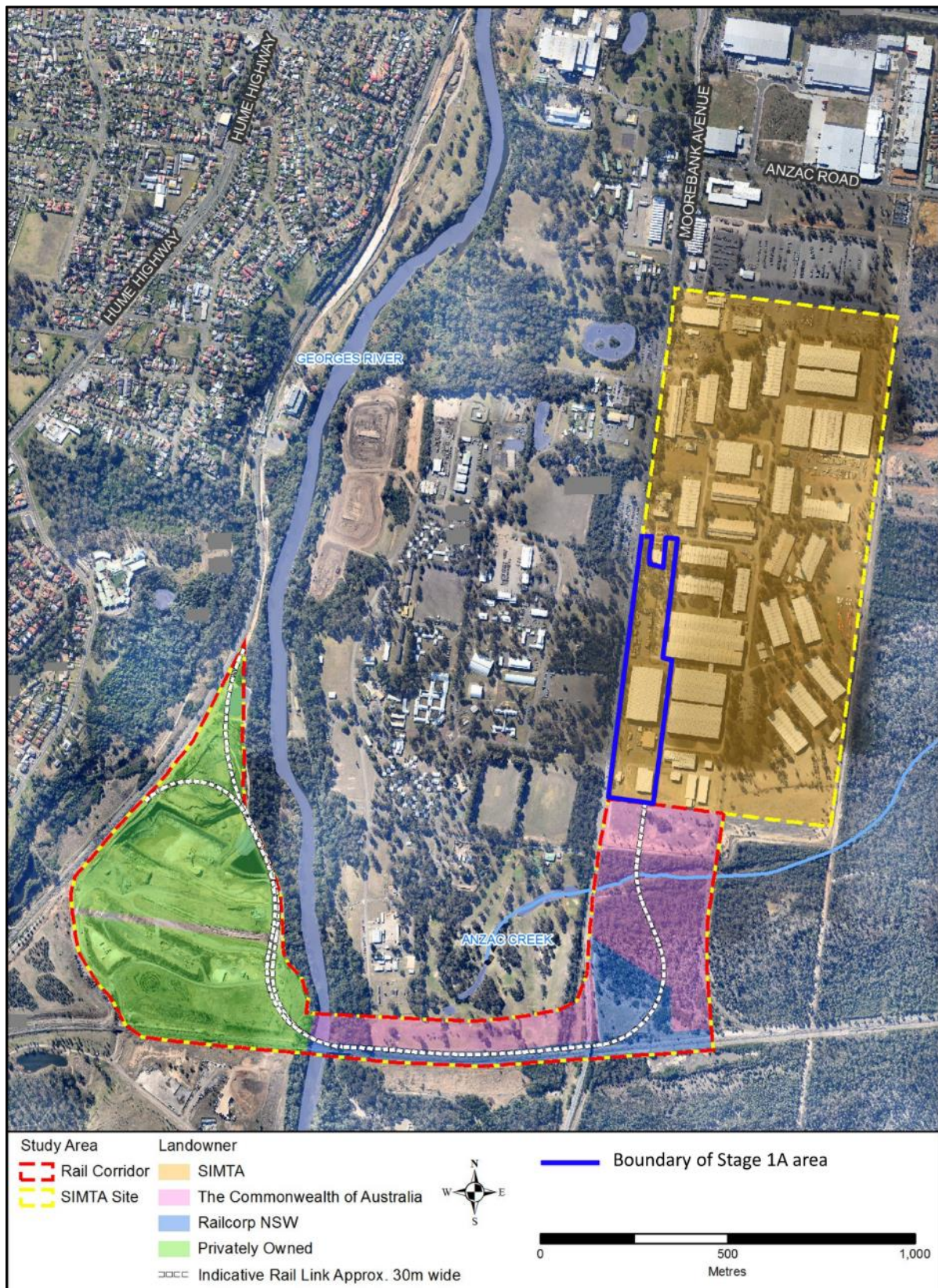
Key findings of the MPE Stage 1 non-Indigenous heritage assessment with regard to the current assessment include:¹⁰

- There are no items of known or likely heritage significance within the proposed Stage 1A rail corridor area. The vegetated portion of the SME complex to the south of the former Defence National Storage Distribution Centre (DNSDC) was not subject to historical development, while the remainder of the land has been significantly disturbed through the creation of the RAE golf course, East Hills railway line, and the Glenfield Waste Disposal facility
- The proposed rail corridor and associated Rail link would not have a significant impact on the Glenfield Farm SHR item, as views from the item have already been compromised by the creation of the Glenfield Waste Disposal facility and the ongoing construction of the SSFL.

⁹ Artefact Heritage 2012

¹⁰ Artefact Heritage 2012 p.ii

Figure 3: Location of MPE [previously titled SIMTA] Stage 1 area assessed by Artefact¹¹



¹¹ Ibid 2012 p.10

4.0 ADDITIONAL INVESTIGATION FOR THE PROPOSAL

Since the MPW Concept Plan EIS and subsequent addendum reporting (NOHC 2014, NOHC Sept 2014, NOHC 2015) was prepared, three minor additional areas were added to the Proposal site boundary, corresponding to OSD channels extending from the western margin of the Proposal operational site and protrude into an area which was previously designated as an offset area to the Georges River (additional areas are included in Figure 1).

A site visit was conducted by Alyce Howard (Artefact) and registered Indigenous parties (RAPs) was conducted as part of this assessment on 8 June 2016 in order to assess and inspect the additional areas.

Impacts to this additional area are discussed in Section 6.2.

4.1 Results of the Inspection of Additional Proposal Site Areas

4.1.1 Southern Addition to the Proposal Site

The southern addition to the Proposal site is located on a flat terrace landform on the east bank of the Georges River. The area is approximately 110 metres long and 70 metres wide. Dense vegetation restricted physical access and visibility was nil (Plate 1 and Plate 2). As such, it is estimated that less than 10% of the total area was surveyed. Evidence of significant flooding (high rainfalls were experienced earlier that week) was observed across the area. It is likely that this area experiences regular flooding and erosion/deposition of deposits. No works or relics were identified within the southern addition to the Proposal site. Based on both background research conducted for this Project and the additional site inspection this area has been assessed as having nil archaeological potential.

Plate 1: Dense vegetation within the southern addition (view SW)



Plate 2: Dense vegetation within the southern addition (view NW)



4.1.2 Central Addition to the Proposal Site

The central addition to the Stage 2 Construction Area is located on a flat terrace landform on the east bank of the Georges River. The area is approximately 180 metres long and 50 metres wide. Vegetation restricted physical access in the easternmost extent of the area, and grasses were dense in the western portion, resulting in nil visibility (Plate 3 and Plate 4). As such, it is estimated that less than 10% of the total area was surveyed. Evidence of significant flooding (high rainfalls were experienced earlier that week) was observed across the area. It is likely that this area experiences regular flooding and erosion/deposition of deposits. No works or relics were identified within the

central addition to the Proposal site. Based on both background research conducted for this Project and the additional site inspection this area has been assessed as having nil archaeological potential.

Plate 3: Grasses within the eastern portion of the central addition (view W)



Plate 4: Dense vegetation within the western portion of the addition (view W)



4.1.3 Northern Addition to the Proposal Site

The northern addition to the Proposal site is located on a flat terrace landform on the east bank of the Georges River. The area is approximately 170 metres long and 70 metres wide. Dense vegetation restricted physical and visibility was close to nil (Plate 3 and Plate 4). The northern addition is located adjacent a cleared area. No works or relics were identified within the central addition to the Proposal site. Based on both background research conducted for this Project and the additional site inspection this area has been assessed as having nil archaeological potential.

Plate 5: Looking at the northern addition from the edge of the cleared area (view W)



Plate 6: Dense vegetation within portions of the northern addition (view NW)



5.0 STATEMENT OF SIGNIFICANCE

NOHC were commissioned in 2010 by PB to produce the European (non-Indigenous) Heritage Technical Paper for the MPW Concept Plan EIS.¹² In addition to NOHC's technical paper, PB collated information from previously conducted assessments within the MPW site to produce the European Heritage chapter of the MPW Concept Plan EIS.¹³

Sections 5.1 - 5.4 detail the non-Indigenous heritage items which were identified for the MPW site. Sections 6.1 and 6.2 detail the items which are to be managed as part of Early Works and the Proposal respectively. Section 7.0 outlines management measures for the Proposal.

Table 5 provides a summary of the description and statement of significance for each item and areas of archaeological potential remaining on the site following the MUR project, to be subject to heritage mitigation measures during Early Works.

Table 6 provides a summary of the description and statement of significance for identified heritage items adjacent to the Proposal site.

Table 7 provides a summary of the description and statement of significance for identified heritage items remaining as part of the Proposal.

5.1 Description and Statement of Significance

The location of all non-Indigenous heritage items and areas of archaeological potential identified for the site (MPW Concept Plan Approval EIS and this investigation) is shown in Figure 4.

Sections 5.2 to 5.4 summarises the description and statement of significance for items regarded as having nil significance or nil/low archaeological potential during previous investigations.

5.2 Items of Nil Significance

A number of possible heritage items were assessed by NOHC to not fulfil any heritage significance criteria. As these items had no heritage significance they were not summarised or assessed for this report. These items are listed below:

- Drainage Ditches
- MH3: Light Rail Piece
- MH4: Light Rail Piece
- MH5: Large Above Ground Concrete Block
- MH7: Liverpool Golf Course
- Archaeological site MHPAD3
- Remaining elements of the RAE Museum Sandstone Wall – This item has been identified for partial relocation as part of the MUR Project, meaning that the remaining stone does not retain significance.

¹² NOHC 2014

¹³ PB 2014

5.3 Items with Nil or Low Archaeological Potential

A number of possible archaeological sites were assessed by NOHC to have nil archaeological potential (see Figure 4). These items are listed below:

- Farm – 1
- 19C Farm – 2
- 19C Farm – 3
- 19C Farm – 4
- 19C Farm – 5
- 19C Farm – 6
- 19C Farm – 7
- 19C Farm – 8
- 19C Farm – 9
- 19C Farm – 10
- Orchard
- 1912-1 (former building)
- 1912-2 (former building)
- SM – 1 (Former loading stage)
- SM – 2 (Former siding and sand loading bins)

5.4 MAPAD2 (Units 1 and 2)

MAPAD2 (Units 1 and 2) is a historical archaeological and Indigenous site excavated on the western side of Georges River. NOHC assessed the site as demonstrating Commonwealth, State and Local significance due to their demonstration of environmental conditions prior to and subsequent to European settlement. The site has significance for its archaeological evidence of sediment deposition changes following construction of Liverpool Weir (SHR 01804).

MAPAD2 (Units 1 and 2) was investigated during Stage 1 due to the potential impacts to the site from the northern and central MPE rail link options. With the selection of the southern MPE Rail link, MAPAD2 (Units 1 and 2) will not be impacted by the Proposal.

Figure 4: The location of all non-Indigenous heritage items and areas of archaeological potential identified for the Proposal site

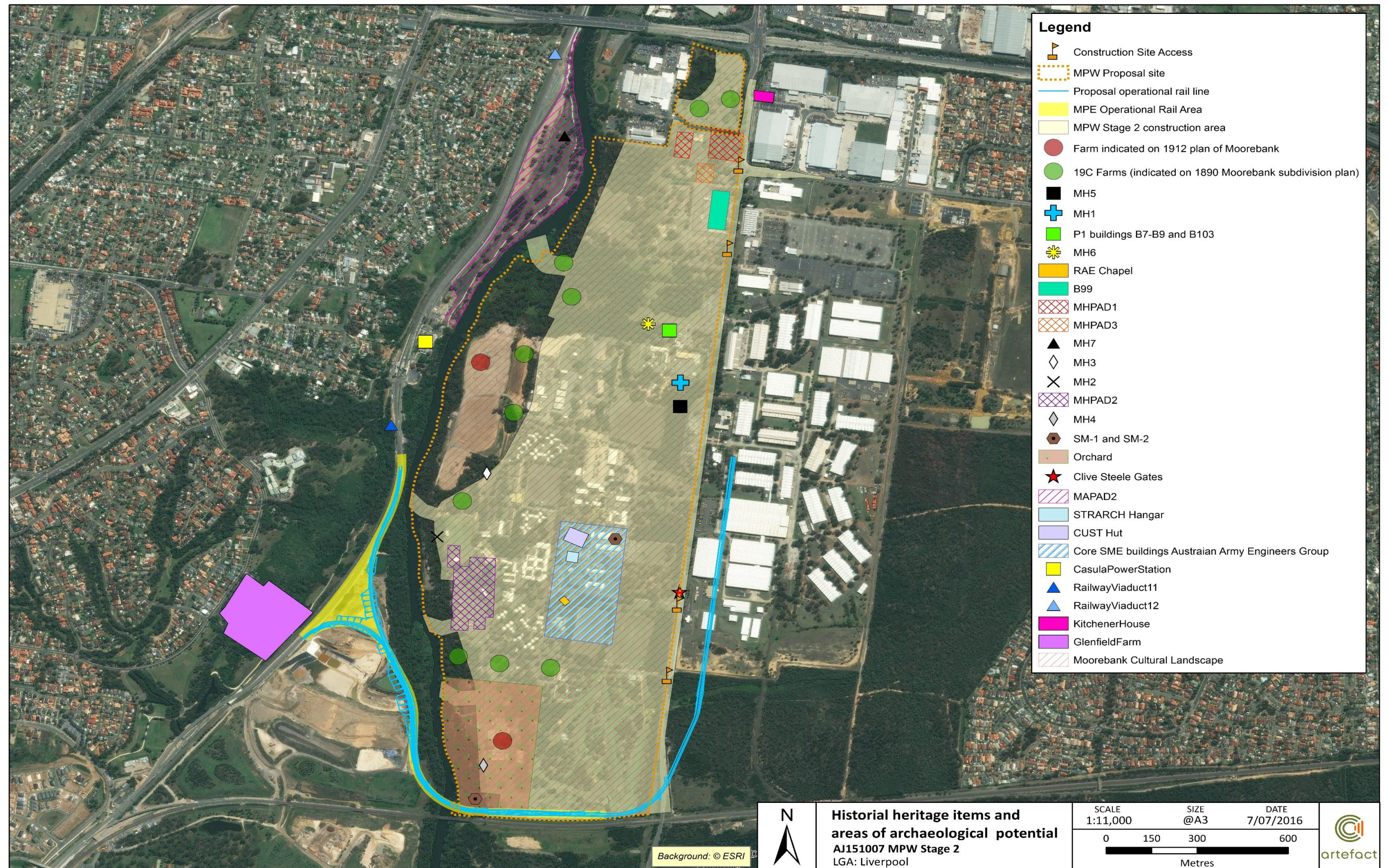


Table 5: Identified heritage items within the MPW site

Item	Description	Significance Level*	Statement of Significance	Archaeological Potential
RAAF STRARCH Hangar	The Hangar building is located within the Heritage Park between the CUST Hut and Bicentenary Building. The building is 30m x 32m and comprises a post tensioned steel truss roof which is tied down to large concrete footings. The name of the building (STRARCH) comes from the stressed arch design. The ends of the building are open. Walls on the long axis of the building are clad in Colourbond corrugated sheeting, as is the roof. The building has a level concrete floor throughout. The building is a recent addition to the Park and houses large machinery and equipment from the RAE Museum collection. The hangar is in very good condition.	Commonwealth, State and Local	The integrity and intactness of this structure provides for a high level of technical significance, whilst not possessing associated archaeological research potential. The integrity, uniqueness and intactness of this structure provides for a high level of technical significance.	None identified
CUST Hut	The CUST Hut is a single level arch type structure of steel frame construction, one of three known to exist in Sydney. The MPW Concept Plan EIS found that it was relocated from Kapooka in approximately 1948. Assuming it was fabricated and erected at Kapooka around 1944, it is approximately 70 years old. It was refurbished in the mid 1990's and remains functional in its current location.	Commonwealth, State and Local	The CUST Hut is the oldest surviving building in the SME site. It is a rare example of a Cullen Unified Steel Truss building still in use and more so in military ownership in New South Wales. The building has historic significance to the SME site and technical significance of an increasingly rare construction system for clear span vaulted warehouses. The CUST Hut has a strong and special association with Lieutenant Colonel D.R. (Dan) Cullen. It is important in the history and development of the SME site. The integrity and intactness of this structure provides for a high level of technical significance. The possible subsurface integrity of this site represents significant archaeological research potential at a local level.	Identified archaeological potential associated with the former earthen floor of the CUST Hut which has been covered by a concrete slab
RAE Chapel	A two-storey high building containing a single level chapel and office areas. Two significant memorials are also located outside in the courtyard.	Commonwealth and State	The religious nature of this site and its containment of various items, namely a number of memorials,	Nil

Item	Description	Significance Level*	Statement of Significance	Archaeological Potential
			ascribe to it a social value whilst not possessing archaeological research potential	
RAE Museum Sandstone Wall	The RAE Corps Museum was formally a 1950s administration building. The sandstone wall which forms part of the south-east corner of the building is constructed from stone derived from an old WWI Prisoner of War built Railway Bridge. The bridge formed part of the railway line servicing the Liverpool Army Complex and the POW camp. The stone was later recovered and erected at its current location in 1972.	Commonwealth, State and Local	The RAE Museum Sandstone Wall possesses significant social value at a local level whilst not possessing archaeological research potential.	Nil
MH1 Dog Cemetery	This item comprises a cemetery for dogs and is located adjacent to the current dog training area in the northern portion of the SME. Dog training was established at Moorebank in the 1950s, with kennels, classrooms and stores originally located adjacent to the Dry Bridging Area. Training was discontinued in the 1960s, but revived in 1969 following success by US Forces with dogs in the Vietnam conflict. The current training area, near to the cemetery dates from the revival of the training course, from 1969. The cemetery grounds are defined by a gravelled rectangular earth platform, approximately 20 x 20m, around and within which, at least seven graves can be distinguished. Each evident grave has variously defined borders, using stone cobbles, brick, and wooden elements. Rope and plastic dog toys have been placed on some graves. Three graves contain standing wooden crosses	Commonwealth and Local	The cemetery as a memorial possesses significant social value at a local level.	High
B99 Transport	The workshop structure at Building 99 is a steel framed, saw tooth roofed workshop. It was constructed during WWII, a period of significant	Commonwealth and Local	The Transport Compound Workshop is locally rare, within the context of the Moorebank Cultural Landscape, as a WWII era building that remains in	Nil

Item	Description	Significance Level*	Statement of Significance	Archaeological Potential
Compound Workshop	expansion at Moorebank. The building was later reclad with Colourbond steel sheeting in the 1990s. Within a comparative context, particularly in terms of Commonwealth owned places, the Transport Compound Workshop (B99) is one of many similar extant structure from the WWII period. However, unlike many similar structures that are listed on the CHL, Building 99 has lost most of its original context.		situ. This building also contributes to the historical significance of The Moorebank Cultural Landscape.	
MH6 Commemorative Garden	This item consists of a commemorative garden comprised of a number of plantings, commemorative cairns and rock edged garden beds, some of which are identified with brass plaques. The garden has the form of an open woodland with an established lawn, and has been developed within the north-eastern portion of a remnant bushland block, immediately west of the Defence Support Group of buildings. There is no formal or defined edge to the garden area except for a cyclone boundary fence on the northern side. The boundary corners presented above are indicative and approximate only.	Commonwealth, State and Local	The site as a memorial possesses significant social value at a local level whilst not possessing archaeological research potential	Nil
Areas of archaeological potential within the Proposal site				
MHPAD 1	Test excavation during Stage 1 uncovered brick paving, brick footings and walking paths. Artefacts recovered from the excavation included discarded domestic items such as ceramics, plastics and bottles.	Local	The site is thought to have been the location of the World War I and World War II period quarters	
MHPAD 2	Test excavation uncovered brick paving, brick footings and walking paths. A small amount of discarded domestic rubbish artefacts such as ceramic, glass and iron bulldog clip.	Local	This site corresponds to the former location of a number of WWII period buildings	

* = These significance rankings are taken from NOHC 2014 and PB 2014. Rather than Commonwealth significance, it is likely that these items would demonstrate either local, state or national significance

Table 6: Identified heritage items adjacent to the Proposal site

Item	Description	Significance Level	Statement of Significance
Kitchener House	This is a Federation cottage used by Lord Kitchener in 1910 to review the status of the Australian army. The building is outside of the study area boundary. The building is now privately owned.	State	Kitchener House demonstrates the military history of the Liverpool area and the links between Australia and Britain at the turn of the 20th century. It is associated Field Marshal Lord Kitchener and has been the residence of various senior officers and their families for over ninety years. The site as an example of a Federation style residence indicates a level of technical achievement and creativity in its design and construction. It is a fine representative example of a Federation style building set in its own gardens, it is aesthetically pleasing. Kitchener House is now one of the best preserved Federation Bungalows in the Liverpool area. There is the potential to gain more information on the site from further architectural, archaeological and documentary research.
Glenfield Farm	Glenfield Farm is a rural 19 th century property consisting of a housing complex, outbuildings, remnant farms, gardens and homesteads.	State	Glenfield Farm homestead and its outbuildings are of exceptional historical significance as one of the few surviving rural farm complexes in New South Wales dating from the original land grant of 1810 and still capable of use for family living and limited farming activities. It is associated in the 19th century with Dr Charles Throsby, an eminent colonial officer and explorer of his time (1802-1828) and in the 20th century with James Leacock, an innovative dairy farmer, entrepreneur and idealist. Its buildings provide valuable evidence of the architectural style and nature of construction of rural buildings during the early days of European settlement, as well as the lifestyle of those who occupied it. The homestead is one of very few buildings in the State that has been continuously occupied as a private residence. The survival of all buildings relatively intact is remarkable, and is valued by the community. Taken as a whole, the grounds of Glenfield Farm that remain have the capability to demonstrate both the core activities of the farm, and, to a modest degree, the planting tastes, garden layout, and functional requirements of successive occupants. Their approach

Item	Description	Significance Level	Statement of Significance
			was, for the most part, pragmatic and utilitarian - as is often the case with dairy farms - and cumulatively the grounds have high heritage significance.
Casula Power Station	<p>This item consists of the Power Station Complex. The complex occupies a roughly rectangular flat site located to the east of the Casula Railway Station and Railway line. The complex comprises of the main powerhouse building which is the largest structure, several smaller ancillary buildings of brick construction and three large steel tanks presumably for water storage. There is also a former coal loading area between the Powerhouse and the railway line. The smaller buildings are likely to have provided administrative and amenities facilities, with those adjacent to the tanks containing the pump room.</p>	State	<p>The Powerhouse Regional Arts Centre demonstrates the development of Casula during a period when economic conditions of industrial expansion and residential growth in the region required an interim local generating capacity and power supply facility. The complex in its design, construction and use as a Power Station indicates a level of technical achievement and traces the evolution of the technologies used in the generation and supply of electricity since the 1950s. The complex is representative of the power station constructed immediately after World War II and represents the end of the transition from steam to electricity as a major power source.</p> <p>Aesthetically the scale of the powerhouse and adjacent chimney stack and its prominent sitting on a ridge along the banks of the George River, adds a landmark quality to the complex. Socially the complex is now a Arts Centre and the grounds of the complex are part of the "Liverpool Peace Park" dedicated to various groups effected by nuclear testing in South Australia.</p>

Table 7: Non-Indigenous heritage items remaining following Early Works activities

Item	Description	Significance Level	Statement of Significance
Moorebank Cultural Landscape	The Moorebank Cultural Landscape was assessed in the MPW Concept Plan EIS as a locally distinct and representative cultural landscape, the product of numerous phases of land-use and occupation spanning Indigenous occupation through to the European settlement and the present day. Built, modified and natural features reflect phases of use and associated cultural history patterns. The Moorebank Cultural Landscape has strong and/or special associations with Thomas Moore, the Australian Army (particularly the SME) and the Aboriginal community. Furthermore, the archaeological deposits identified within the Proposal have the potential to yield information that would contribute to an understanding of its cultural history	Commonwealth and Local	The Moorebank Cultural Landscape is the product of numerous phases of land-use and occupation spanning Indigenous occupation (pre-European settlement) through to the present day. Many of these phases of use and associated cultural history patterns are evidenced within different portions of the landscape. The toponyms, buildings, spatial organisation, memorials, archaeological deposits and elements of the natural landscape have various strong and/or special associations with Thomas Moore, the Australian Army (particularly the SME) and the Aboriginal community. Furthermore, the archaeological deposits identified within the project area have the potential to yield information that would contribute to an understanding of its cultural history. The landscape as a whole is also notable as a locally distinct and representative cultural landscape.

6.0 HERITAGE IMPACT ASSESSMENT

6.1 Identified Heritage Items Impacted as Part of MPW Early Works

Of the heritage items listed in Section 5.0 and shown in Figure 4, impacts to the following will be addressed and mitigated by Early Works and will not be discussed further in this assessment:

- MH1 Dog Cemetery – MCoA (E9) notes that the Applicant shall prepare a report regarding mitigation measures, which are to be developed in consultation with the School of Military Engineering's Explosive Detection Dog's Unit. The REMMS (13H) and note archival recording and reposition of the individual graves is to occur during Early Works
- B99 Transport Compound Workshop – REMMS 13G notes archival recording and consideration given to in situ conservation or adaptive reuse of this structure within the Proposal site during Early Works
- MHPAD1 and MHPAD2 – REMMS 13F notes that salvage of archaeological deposits at MHPAD1 and MHPAD2 will take place during MPW Stage 1. The MCoA also states that further archaeological excavation works would be undertaken as part of Early Works
- MH6 Commemorative Garden – Loss of some social value following MUR. REMMS 13I notes that archival recording and consideration of in situ conservation of the item would take place during MPW Stage 1. The MCoA (B9) also states that a report detailing mitigation measures for this item would be undertaken as part of Early Works
- The MCoA (B9) states that prior to the commencement of Early Works affecting the CUST Hut, the Applicant shall prepare a report in consultation with the Heritage Council of NSW, the local Council and the local Historical Society which considers the options for mitigation of this item. The report shall include archival recordings and the historical research, where required, to the Secretary, the Heritage Council of NSW, the local Council and the local Historical Society. Archival recording has been conducted for this item already. MPW Early Works will need to consider the archaeological potential of the buried earthen floor during removal of the concrete slab
- The MCoA (B9) states prior to the commencement of Early Works affecting the RAAF STRARCH Hangar, the Applicant shall prepare a report in consultation with the Heritage Council of NSW, the local Council and the local Historical Society which considers the options for mitigation of this item. The report shall include archival recordings and the historical research, where required, to the Secretary, the Heritage Council of NSW, the local Council and the local Historical Society. Archival recording has been conducted for this item already
- RAE Chapel – Elements of this item have been removed as part of the MUR Project. The MPW Concept Plan EIS recommended further archival recording of the remaining elements prior to demolition during Early Works
- Moorebank Cultural Landscape – Mitigation measures recommended in the MPW Concept Plan EIS, such as archival recording and Heritage Interpretation Strategy (HIS) will be completed during Early Works. Further ongoing management during the Proposal is addressed in Section 7.1.1.

6.2 Proposal Heritage Impact Assessment

A statement of heritage impacts for heritage items that would be directly or indirectly impacted by the Proposal is outlined in Table 8 below. Impacts to these items are illustrated in Figure 5.

No heritage works or relics were identified within the three additions to the Proposal site. As such, there are no additional heritage constraints in those additional areas.

Table 8: Proposal Statement of Heritage Impact¹⁴

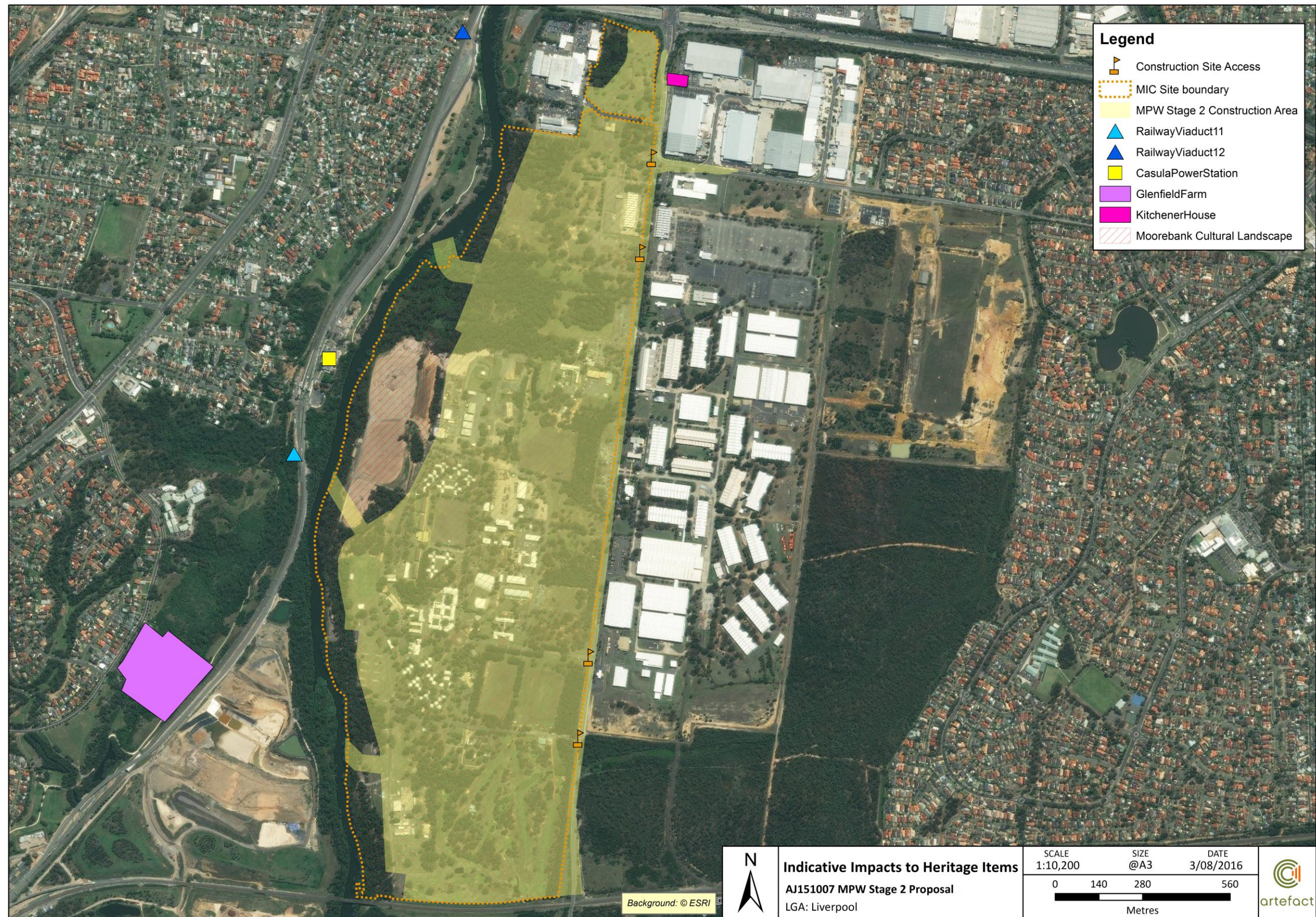
Site ID	Aspects that could detrimentally affect the item's heritage significance	Resulting impacts on the item's heritage significance	Proposal impacts
Moorebank Cultural Landscape	<p>The MPW Concept Plan EIS assessed impacts to the Moorebank Cultural Landscape as resulting in 'disturbance to archaeological deposits, removal of remaining landscape elements, loss of the existing landscape setting, historical associations and loss of access to items. The Moorebank Cultural Landscape has been assessed to be of local and commonwealth significance in terms of historical associations, research potential, technological characteristics, uniqueness, and Aboriginal cultural values.'</p> <p>The Proposal would involve the removal of any remaining landscape settings not impacted during Early Works.</p>	<p>Negligible impact to the significance of the item above that assessed and approved in the MPW Concept Plan EIS.</p> <p>Remaining impacts to Aboriginal cultural values within the Moorebank Cultural Landscape are discussed in the Aboriginal Heritage Technical Paper.</p>	Negligible impact to the item above that assessed and approved in the MPW Concept Plan EIS
Kitchener House	<p>Kitchener House is located to the northeast of the Proposal site on the eastern side of Moorebank Avenue. Impacts to the setting and visual aspects from the house have occurred since its original construction in 1910, including substantial modifications to Moorebank Avenue, construction of an industrial estate surrounding three sides of the house, and construction and subsequent demolition of other structures in the area.</p> <p>Physical impacts to Kitchener House are nil, this item is outside of the Proposal site. Visual impacts to this item have been assessed and are included in the Visual amenity, Urban design and Landscape report (Appendix T of this EIS). Noise impacts to this item have been assessed as part of the Noise and Vibration Impact Assessment, included as Appendix N of this EIS.</p>	<p>Negligible impact to the significance of the item.</p>	Negligible

¹⁴ Impact descriptions taken from NOHC 2014 p.207-209 and PB 2014 p.21-45 – 21-47

Site ID	Aspects that could detrimentally affect the item's heritage significance	Resulting impacts on the item's heritage significance	Proposal impacts
Glenfield Farm	Physical impacts to this item as a result of the works are nil. The visual impacts anticipated as a result of the Proposal are assessed in the Visual amenity, Urban design and Landscape report (Appendix T of this EIS). Noise impacts, including the anticipated impacts of rail noise to the heritage item are assessed as part of the Noise and Vibration Impact Assessment, included as Appendix N of this EIS.	Refer to Appendix T and Appendix N of this EIS for visual and noise impacts respectively.	Negligible
Casula Power Station	Physical impacts to this item as a result of the works are nil. The visual impacts anticipated as a result of the Proposal are assessed in the Visual amenity, Urban design and Landscape report (Appendix T of this EIS). Noise impacts, including the anticipated impacts of rail noise to the heritage item are assessed as part of the Noise and Vibration Impact Assessment, included as Appendix N of this EIS.	Refer to Appendix T and Appendix N of this EIS for visual and noise impacts respectively.	Negligible
Railway Viaducts (Items 11 and 12)	Visual impact to the site from the increase of structure height on the eastern side of the Georges River.	Existing vegetation screening along Georges River will limit visual impact to both items. Negligible impact to the significance of the items.	Negligible

These findings are based on the assumption that all other mitigation measures identified in the MUR Project, the MPW Concept Design EIS, the European Heritage Technical Paper prepared for MPW Concept Design EIS, the REMMS and MCOA have been conducted during Early Works. Where any of those tasks have not been completed during Early Works they will need to be addressed prior to construction works commencing.

Figure 5: Indicative impacts to heritage items remaining within and adjacent to the Proposal site



7.0 MITIGATION AND MANAGEMENT MEASURES

7.1 Mitigation Measures

The majority of the identified heritage items and elements of the Moorebank Cultural Landscape identified within the Proposal site have been either relocated to Holsworthy Barracks or subject to other mitigation measures carried out during Early Works.

7.1.1 Moorebank Cultural Landscape

The social and historical significance values of the Moorebank Cultural Landscape have been impacted by the relocation of items as part of the MUR project. The MPW Concept Plan EIS notes that 'the residual Moorebank Cultural Landscape will be a fragmented one, with a further loss of historical and social connection through the cessation of occupation and use.'¹⁵

Further mitigation measures to be adapted throughout design, construction and operation of the site include:

- Naming of roads would consider previous School of Military Engineering (SME) street names.
- Naming of buildings and roads (in addition to above) would consider commemoration of significant events and individuals related to the Moorebank Cultural Landscape

The Moorebank Cultural Landscape is also significant for its Aboriginal heritage values. A full discussion of the identified Aboriginal cultural heritage values of the Proposal site is included in the separate Aboriginal heritage assessment document¹⁶.

7.2 Management Measures

Ongoing management measures throughout the construction phase of the Proposal includes the following:

- The Unanticipated Discoveries Protocol (detailed in Appendix 7 of Technical Paper 11 – European Heritage Impact Assessment in Volume 8) would be followed in the event that non-Indigenous heritage items or relics or suspected burials are encountered during excavation works
- Further detailed design incorporating the existing road names within the Proposal site to mitigate loss of significance to the Moorebank Cultural Landscape item (see section 7.1.1 above). Continued commemoration of significant events and individuals would be considered through the naming of buildings and proposed for construction as part of the Proposal

It is assumed the mitigation measures specific to the Early Works will be taken into consideration for that project and are not repeated here.

¹⁵ PB 2014 p.21-43

¹⁶ Artefact Heritage 2016

8.0 RECOMMENDATIONS

The following recommendations are based on consideration of:

- Legislative, policy and procedural requirements for the assessment of non-Indigenous heritage
- The draft SEARS
- The REMMS
- The MCoA
- The findings and recommendations of the MPW Concept Plan EIS ¹⁷ and the MUR Project¹⁸

One heritage item was identified as requiring consideration in future design and operation of the Proposal site:

- Moorebank Cultural Landscape.

These findings are based on the assumption that all other mitigation measures identified in the MUR Project, the MPW Concept Design EIS, the European Heritage Technical Paper prepared for MPW Concept Design EIS, the REMMS and MCoA have been conducted during Early Works. Where any of those tasks have not been completed during Early Works they will need to be addressed prior to construction works commencing on the Proposal.

It is recommended that:

- Further detailed design incorporates the existing road names and places within the Proposal site to mitigate loss of significance to the Moorebank Cultural Landscape item. Continued commemoration of significant events and individuals would be considered through the naming of buildings and streets proposed for construction as part of the Proposal
- The Unanticipated Discoveries Protocol (detailed in Appendix 7 of Technical Paper 11 – European Heritage Impact Assessment in Volume 8) would be followed in the event that non-Indigenous heritage items or relics or suspected burials are encountered during excavation works

¹⁷ NOHC 2014

¹⁸ ERM 2013

9.0 REFERENCES

- CDFD. 2011. Moorebank Intermodal Terminal – Existing Aboriginal and European Heritage.
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- Parsons Brinckerhoff. 2006. Environmental assessment for the proposed South Sydney Freight Line
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10.0 APPENDICES

10.1 Appendix 1: Work Periods and Activities

Term	Definition
Pre-construction fill placement and stockpiling	<ul style="list-style-type: none"> • Establishment of temporary erosion and sediment controls • Minor clearing and grubbing of temporary stockpiling area • Establishment of a temporary stockpiling pad and associated temporary access roads • Installation of temporary construction compound, including amenities and office for bulk earthworks • Importation and placement of approximately 400,000 cubic metres (m3) of clean fill
Site preparation activities	<ul style="list-style-type: none"> • Establishment of construction compound fencing and hoardings • Installation of temporary sediment and erosion control measures • Vegetation clearance • Installation of temporary site offices and amenities • Construction of hardstands for staff parking and laydown areas • Establishment of temporary batch plant sites and installation of batch plant • Construction of access roads, site entry and exit points and security (N.B. preference is to use existing access where practicable) • Set up of construction monitoring equipment
Bulk earthworks, drainage and utilities	<ul style="list-style-type: none"> • Importation, stockpiling and placement of approximately 1,200,000 m³ of imported clean fill (Bulk Earthworks) and raising of the Proposal site to final level • Installation of OSDs • Drainage and utilities installation • Establishment of a concrete batching plant

Term	Definition
Moorebank Avenue intersection works and internal road network	<ul style="list-style-type: none"> • Relocation, adjustment and/or protection of all affected utilities, services and signage, as required • Establishment of traffic management devices • Installation of erosion and sediment controls • Stripping and stockpiling of topsoil by excavators and trucks • Drainage works • Progressive stabilisation of exposed areas • Compaction of widening areas • Preparation of new lane surfaces • Forming of new kerbs, gutters, medians and other structures • Construction of asphalt and concrete pavement • Landscaping of exposed earthworks areas • New line marking, lighting and sign posting • Removal of construction traffic management and progressive opening of new works to traffic
IMT facility and Rail link connection construction	<ul style="list-style-type: none"> • Importation, placement and compaction of engineering fill • Compaction of engineering fill • Importation and placement of ballast material • Establish formwork and reinforcement for sidings and bridge infrastructure • Placement of concrete, curing and sealing • Installation of permanent ways and rail systems • Installation of permanent access gates, security gatehouse and permanent fencing • Installation of the connection between the Rail link and the IMT facility sidings • Erection of IMT facility administration building – excavation foundation and floor slab construction, structural wall and roof framework, and roofing • Internal fit-out of building with control room, office, workshops, loco-shifter and staff amenities

Term	Definition
Construction and fit-out of warehousing	<ul style="list-style-type: none"> • Establishment of construction compound, temporary fencing/ hoardings and temporary sediment and erosion control • Installation of temporary site offices and amenities • Excavation, foundation and floor slab installation • Erection of framework and structural walls • Installation of roof • Internal fit out • Landscaping and surrounds • Preparation of warehouse access road subgrade • Forming of new kerbs, gutters, medians and other structures • Construction of asphalt and concrete pavement • New line marking, lighting and sign posting • Removal of construction traffic management and progressive opening of the internal road and warehouse access roads to traffic
Miscellaneous structural construction and finishing works	<ul style="list-style-type: none"> • Decommissioning/demobilisation of construction sites • Commissioning of operational facilities • Landscaping • Rehabilitation of affected areas • Post-construction condition surveys • Removal of construction environmental controls • Removal of construction ancillary facility related traffic signage



artefact

Artefact Heritage

ABN 73 144 973 526

Level 4, Building B

35 Saunders Street

Pymont NSW 2009

Australia

+61 2 9518 8411

office@artefact.net.au

www.artefact.net.au