

BROADMEADOW REGIONALLY SIGNIFICANT GROWTH AREA

Stage 3: Aboriginal Cultural Heritage Assessment

DRAFT

April 2024



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Prepared by Umwelt (Australia) Pty Limited on behalf of Department of Planning, Housing and Infrastructure (DPHI)

Project Director:Tim AdamsProject Manager:Karyn CookReport No.23192/R06Date:April 2024

Environmental & Social Consultants



This report was prepared using Umwelt's ISO 9001 certified Quality Management System.



Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

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Executive Summary

Overview

Umwelt was engaged by the Department of DPHI Planning, Housing and Infrastructure (DPHI) in partnership with the City of Newcastle (CN), to prepare an Aboriginal Cultural Heritage Assessment Report (ACHAR) to support a new Structure Plan for the Broadmeadow Regionally Significant Growth Area ('the Project'). In December 2022, the NSW Minister for Planning announced Broadmeadow as part of the Planning for Growth NSW Planning Portal (NPP) Program.

DPHI and CN have prepared the Structure Plan, informed by a Place Strategy (prepared by CN) and specialist technical studies that aim to identify any infrastructure requirements needed to activate the precinct and provide an evidence base to inform NSW Government decisions to undertake government-led infrastructure investment into the Project.

Management Measures

An Aboriginal Cultural Heritage Management Plan (ACHMP) should be developed in consultation with Heritage NSW and RAPs. The ACHMP should also engage with other Aboriginal community stakeholders who have contributed to the Connecting with Country assessment. In this way, the plan will present an integrated approach to archaeological, heritage and cultural management, over the life of the project. Based on the currently available archaeological information, the archaeological values and therefore risks associated with the project are low. There are some circumstances during the development cycle in which archaeological significance could be revised. The ACHMP will explain these and what should be done if new information increases archaeological value and risk. The ACHMP will be prepared after the rezoning process has been completed and will inform subsequent phases of the renewal of the Precinct, including detailed design development consent, construction and operation (including maintenance).

Riparian zone naturalisation

All Aboriginal stakeholders involved in the archaeological assessment and the Connecting with Country assessment commented on the loss of natural riparian landscapes across the Broadmeadow area. Aboriginal community stakeholders understand that the area has a high flood hazard and risk and that the current drainage interventions and infrastructure were, when constructed, intended to reduce flooding and improve drainage across the alluvial plain landscapes. However, there was a strong view that a riparian style landscape should be reinstated wherever feasible, on the public open space land and along the drainage lines.

Subsurface review

Broadmeadow is underlain by Quaternary estuarine and Quaternary alluvial plain geology and related landforms, with low gradient Quaternary alluvial fan forms where tributaries enter around the margins of the alluvial plain. The analysis presented in this report indicates that these substrates have a relatively low archaeological potential. Some localised terrain and sedimentary features may have higher archaeological value, as demonstrated through the identification of two (2) areas of PAD – 'Wickham Transport Interchange PAD'; AHIMS ID #38-4-1716 and 'Broadmeadow PAD 2023-01'; AHIMS ID #38-4-2263. Further review would inform a review of the ACHMP, in terms of the potential value of any subsurface archaeological investigations, initially in any of the 'First Moves' areas.



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Previously unrecorded Aboriginal objects/sites

The landscape character and history of the Broadmeadow area suggests that it is unlikely that large stratified Aboriginal occupation sites will be identified during the redevelopment of the area. However, planners need to be aware that if any Aboriginal object is identified during investigations for detailed design or during construction, work must cease and Heritage NSW is to be notified. Furthermore, if a Broadmeadow RAP Group is established, this group should also be notified of any unexpected finds.

Cultural design and interpretation

Broadmeadow is now and will be even more in the future a high-profile focal point for the people of Newcastle. This means there will be multiple opportunities to promote Aboriginal culture, art, design, storytelling, music, history and resilience as the precinct is renewed and reactivated.

Aboriginal cultural centre and services

Aboriginal peoples have made an important historical contribution to the community and work force in Broadmeadow. This history, often associated with family connections to the railways, and sporting clubs is more fully explored in the Aboriginal community engagement report for the project.



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1.0 Introduction

The DPHI Department of Planning, Housing & Infrastructure (DPHI) in partnership with City of Newcastle (CN) is preparing a Broadmeadow Place Strategy, Structure Plan and 'First Moves' State-Led Rezoning (the project) for the Broadmeadow Regionally Significant Growth Area (the Project Area), which will be informed by several technical studies, including this Stage 3 Aboriginal Technical Report (being an Aboriginal Cultural Heritage Assessment Report [ACHAR]).

1.1 Project Objectives

As noted above, DPHI and CN are preparing a Structure Plan for the Project Area that will be informed by a Place Strategy (to be prepared by CN in collaboration with DPHI), several technical studies, including this Technical Report, and community engagement. Collectively, the technical studies will identify any infrastructure requirements needed to activate the precinct and provide an evidence base to inform NSW Government decisions to undertake government-led infrastructure investment and catalyse high productivity economic activity in the precinct. These studies will also inform and support the First-Move State-led Rezoning (to be prepared by DPHI).

It is understood that the delivery of the Structure Plan will involve:

- Integrating the findings of a number of background studies already completed for the area by various State and local agencies and landowners.
- The parallel development of technical studies through the collaborative efforts of a multidisciplinary project team.
- Integrating and testing ideas through a collaborative and iterative process of Structure Plan development.
- Overarching co-ordination of the Structure Plan package by DPHI, with the process to be primarily led by the lead Urban Design and Planning Consultant (with input from DPHI).

It is understood that each consultant/service provider will be responsible for the following deliverables for their discipline:

- Stage 1 Baseline Analysis.
- Stage 2 Scenarios Testing.
- Stage 3 Final Technical Study.
- Stages 4 and 5 of the project pertain to public exhibition of the Structure Plan and finalisation of technical studies in response to the outcomes of the exhibition process.

This Technical Report is intended to inform the Stage 3 – Final Technical Study phase of the project.



1.1.1 'First Moves' State-Led Rezoning

DPHI recognises an urgent need to provide housing close to employment and transport. Four sites within the Project Area have been identified as having potential for 'First Moves' State-led rezoning of. These are:

- The Showground and old Entertainment Centre site. Introduction of medium and higher density residential uses on part of this site, with direct access to open space at the Showground (subject to changes to the Plan of Management for the Showground).
- The former Basketball Stadium site would be rezoned to mixed use residential and commercial.
- The Locomotive Depot land, which includes the State Heritage listed Locomotive Maintenance facility, would be rezoned to provide a mix of open space (protecting and reusing the locomotive facility for a range of recreational and cultural uses), and medium density housing.
- Go Karts and Stadium Forecourt site would be rezoned for commercial and special uses.

These four sites are shown in Figure 1.2.

1.2 Project Area

The Project Area is centred on the sports and entertainment precinct of Broadmeadow, approximately 3 kilometres (km) west of the Newcastle Central Business District (CBD) and within the Newcastle Local Government Area (LGA) (refer to **Figure 1.1** and **Figure 1.2**). It encompasses an area of approximately 313 hectares (h) and the major network roads of Lambton Road, Belford Street, Tudor Street, Turton Road, Griffiths Road, and Chatham Road.







1.3 Scope and Objectives

This ACHAR is part of Package F – Heritage of the strategic assessment of the Project. It builds on an Aboriginal Heritage Analysis Report (Umwelt 2023a), prepared to provide information about the Aboriginal cultural heritage context and values of the Project Area.

The ACHAR has been prepared following the general guidance provided in the:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH [former], 2011).
- Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW [former], 2010).
- City of Newcastle Aboriginal Heritage Strategy 2018.
- City of Newcastle Heritage Strategy 2020-2030.

Aboriginal people are the primary determinants of the cultural significance of their heritage. This ACHAR is prepared to ensure that the information provided by registered Aboriginal parties is documented and presented in a manner that informs decision making on the management of Aboriginal cultural heritage within the Project Area, whilst ensuring that the required archaeological information is also appropriately documented.

The process of preparing this ACHAR aimed to:

- Provide Aboriginal stakeholders with information about the scope of the Project and Aboriginal heritage assessment process.
- Provide opportunities for Aboriginal people who had previously been identified as Registered Aboriginal Parties (RAPs) for the Project to contribute cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places in the Project Area.
- The RAPs were identified through correspondence sent to agencies requesting they confirm relevant ABORIGINAL Parties, and placement of newspaper notices, as required by NPWS guidelines.
- Facilitate a process whereby Aboriginal stakeholders could:
 - o Contribute culturally appropriate information to the assessment.
 - Have input into the development of cultural heritage management options.

The ACHAR report documents the approach, the tasks completed and the outcomes of the assessment process. The ACHAR:

- Describes the applicable regulatory framework relevant to the project.
- Identifies Aboriginal cultural heritage values relevant to the study area which include:
 - Aboriginal objects and sites.
 - Ethnohistorical records.



- o Aboriginal socio-cultural or historic values which might not be related to Aboriginal objects.
- Areas of archaeological sensitivity.
- Describes and characterises the existing environment relevant to the Project, with specific consideration to its implications for past Aboriginal land use.
- Develops a predictive model for the potential Aboriginal archaeological resource of the Project Area.
- Identifies and assesses the Aboriginal cultural heritage significance of the Project Area, at a site (sub precinct) specific scale where feasible. The significance assessment is based on the results of literature review, archaeological investigations and through Aboriginal community consultation.
- Identifies and assesses potential impacts of the project construction and operation on identified Aboriginal cultural heritage values.
- Identifies relevant opportunities and constraints for the Project relating to Aboriginal heritage based on desktop review, consultation and surface inspections.
- Responds to and assesses the potential cultural heritage impacts and risks of land use changes identified in the Structure Plan for the Project.
- Identifies appropriate mitigation and management measures for potentially impacted Aboriginal cultural heritage values in response to their assessed significance.
- Identifies further Aboriginal cultural heritage investigations to be prepared as part of the development assessment process for any new structures or ground disturbing works proposed to be carried out in the development of the Project Area.

1.4 Connecting with Country Assessment

A Connecting with Country assessment (Planning Package H) is being undertaken for the Project, working with the local Aboriginal community to identify ways to strengthen opportunities to care for Country, enhance reconciliation outcomes, and provide enduring benefits for Aboriginal people in the Newcastle area. Its industrial and rail transport land uses over the last 100 years have attracted Aboriginal peoples from across NSW, seeking employment.

Although the Aboriginal cultural heritage assessment and connecting with Country assessment are prepared under different statutory and policy requirements, there are important synergies between the two processes. Culturally appropriate management of the archaeological component of cultural heritage contributes to beneficial Connecting with Country outcomes. The two assessments have multiple stakeholders in common. Umwelt notes that several RAPs are also Elders and Traditional Knowledge Holders and/or own Aboriginal businesses or manage Aboriginal services that will contribute to Aboriginal community well-being if opportunities are incorporated into the Structure Plan and future development strategy.

To assist with integration of Aboriginal cultural and well-being outcomes, Umwelt:

• Confirmed Aboriginal community stakeholders involved in each assessment.



- Participated in the site inspection conducted for Connecting with Country assessment stakeholders, to hear and gain an understanding of the issues raised (see **Section 6.1**).
- Tailored site inspections and consultation about the archaeological values of the Project Area to minimise duplication and the load on Aboriginal stakeholders.

1.5 Limitations

This ACHAR has assessed Aboriginal cultural heritage only. Potential impacts to historical (non-Aboriginal) built heritage have not been addressed, including potential historical archaeological deposits within the Project Area. Impacts to historical (non-Aboriginal) heritage are managed under standalone legislation and must be managed accordingly.

This report is based on existing and publicly available environmental and archaeological information (including AHIMS data) and reports about the Project Area. The background research did not include any independent verification of the results and interpretations of externally sourced existing reports.

The extent of existing development and ground surface disturbance across the Project Area led to a decision not to conduct a detailed field based archaeological assessment. This decision was made in consultation with the RAPs who had registered for the Project, and with the DPHI and CN project team. This does not preclude future subsurface archaeological testing of specific redevelopment sites, to better understand the interaction of the natural landscape of the area, potential archaeological evidence of Aboriginal occupation, and the extent to which disturbance may have destroyed any archaeological materials.

This ACHAR does not provide the level of assessment that would be necessary for an individual development application. It assesses the range of potential cultural heritage impacts and risks associated with a change of land use, taking into account the archaeological and cultural sensitivity of each part of the Project Area. It provides a strategic impact assessment and identifies areas where risks associated with impacts on cultural heritage are expected to be relatively high. It also identifies parts of the Project Area where there is a high level of uncertainty about potential impacts. In these areas, it recommends further investigations to clarify cultural heritage values and potential impacts.

1.6 Authorship and Acknowledgements

Luke Wolfe (Principal Archaeologist, Umwelt) and Pam Dean-Jones (Senior Principal Consultant – Communities and Landscapes) were the primary authors of this report.

Umwelt would like to thank RAPs for their involvement in ongoing consultation, knowledge sharing and fieldwork assistance.



2.0 Statutory Context

2.1 Commonwealth

2.1.1 Native title

A search of the Native Title Tribunal register was undertaken on 18 April 2023. No Native Title Claims and no Indigenous Land-Use Agreements (ILUAs) have been registered or notified by the National Native Title Tribunal as being in place over the Project Area.

2.1.2 Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (the ATSIHP Act) provides protection of places, areas and objects of particular significance to Aboriginal people. Part I, Section 4 of the ATSIHP Act states the intended purpose as the "preservation and protection from injury or desecration of areas and objects in Australia and in Australian waters, being areas and objects that are of particular significance to Aboriginals in accordance with Aboriginal tradition".

For the purposes of the Act, an area or object is considered to have been 'injured or desecrated' if:

a) In the case of an 'area'

- i. it is used or treated in a manner inconsistent with Aboriginal tradition;
- ii. the use or significance of the area in accordance with Aboriginal tradition is adversely affected; and

iii. passage through, or over, or entry upon, the area by any person occurs in a manner inconsistent with Aboriginal tradition

- b) In the case of an 'object'
- i. it is used or treated in a manner inconsistent with Aboriginal tradition.

In instances in which a state or territory authority has approved an activity, under the provisions of the ATSIHP Act the Commonwealth Minister may prevent an activity from occurring by making a declaration to protect an area or object thereby overriding state and territory laws. The Minister may only make a decision after receiving a legally valid application under Section 9 and/or 10 of the ATSIHP Act and, in the case of long-term protection, after reviewing a report documenting the validity of the application. In accordance with Part 2, Section 13 of the ATSIHP Act, the Commonwealth Minister must consult the appropriate minister of that state or territory before making a declaration to protect any area or object under the provisions of Section 9 and/or 10 of the ATSIHP Act.

2.1.3 Environment Protection and Biodiversity Conservation Act 1999

Under Part 9 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), any action that may have a significant impact on a matter of National Environmental Significance may only progress with approval of the Minister for the Department of the Environment. For the purposes of the EPBC Act, an



'action' is defined as any project, development, undertaking, activity, series of activities, or alteration. An action will also require approval if:

- It is undertaken on Commonwealth land and will have/or is likely to have a significant impact.
- It is undertaken outside Commonwealth land and will have or is likely to have a significant impact on the environment on Commonwealth land.
- It is undertaken by the Commonwealth and will have or is likely to have a significant impact.

The EPBC Act defines 'environment' as incorporating both natural and cultural environments and as such, provides protection for items and/or places of Aboriginal cultural heritage. Under the EPBC Act, protected heritage items are listed on the National Heritage List or the Commonwealth Heritage List. These two lists replaced the now superseded Register of the National Estate (RNE), which ceased to be statutory register on 19 February 2012. The RNE remains in service only as an archive of heritage places within Australia.

2.2 State

2.2.1 Environmental Planning and Assessment Act 1979

The Environmental Planning and Assessment Act 1979 (the EP&A Act) regulates development activity in New South Wales. Specifically, Part 3 of the EPA Act provides the legislative framework for plan making including the process for LEP amendments. In accordance with the requirements of Part 3, this assessment includes consideration of Aboriginal cultural heritage. Heritage NSW provided updated advice regarding planning proposals that specifies that planning proposals should identify whether Aboriginal cultural heritage values are known or likely to occur, involving an assessment of archaeological factors and consultation with Aboriginal parties 'who have appropriate cultural information relevant to determining cultural significance'. This advice has been taken into consideration in the preparation of the current assessment.

Any subsequent development within the Project Area will be regulated under Part 4 of the EPA Act. Section 4.15 establishes the matters which the consent authority is required to consider in determining any proposed development application (if applicable), including the likely environmental impacts, which in turn, requires consideration of potential impacts to Aboriginal cultural heritage.

2.2.2 National Parks and Wildlife Act 1974

The National Parks and Wildlife Act 1974 (NSW) (hereafter 'NPW Act)' is the primary statutory control relevant to this report. The NSW Department of Planning and Environment (DPHI) is primarily responsible for regulating the management of Aboriginal cultural heritage in New South Wales under the NPW Act. The NPW Act is accompanied by the National Parks and Wildlife Regulation 2009 (the Regulation), the Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010a – hereafter referred to as the Code of Practice), and other codes of practice relating to demonstration of due diligence.

The NPW Act defines an Aboriginal object as:

....any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales.



Under Section 84 of the NPW Act, an Aboriginal Place must be declared by the Minister as a place that, in the opinion of the Minister, is or was of special significance with respect to Aboriginal culture. In accordance with Section 86(1) of the NPW Act, it is an offence to harm or desecrate a known Aboriginal object, whilst it is also an offence to harm an Aboriginal object under Section 86(2). Similarly, Section 86(4) states that a person must not harm or desecrate an Aboriginal place.

Harm to an Aboriginal object or place is defined as any act or omission that:

- a) destroys, defaces or damages an object or place, or
- b) in relation to an object moves the object from the land on which it had been situated, or
- c) is specified by the regulations, or
- d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or
- (c),

but does not include any act or omission that:

- e) desecrates the object or place, (noting that desecration constitutes a separate offence to harm), or
- f) is trivial or negligible, or
- g) is excluded from this definition by the regulations.

Section 87(1) of the NPW Act specifies that it is a defence to prosecution under Section 86(1) and Section 86(2) if the harm or desecration of an Aboriginal object was authorised by an Aboriginal Heritage Impact Permit (AHIP) and the activities were carried out in accordance with that AHIP. Sections 87(2) and (4) establish that it is a defence to prosecution under Section 86(2) if due diligence was exercised to reasonably determine that the activity or omission would not result in harm to an Aboriginal object or if the activity or omission constituting the offence is a low impact act or omission (as defined in Section 80B of the Regulation). Furthermore, Clause 3A of the Regulation specifies that an act carried out in accordance with the Code of Practice is excluded from the definition of harm.

2.2.3 State Guidelines and Compliance Requirements

This report is prepared in accordance with the following NSW government best practice guidelines for Aboriginal cultural heritage assessment and management:

- Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011).
- Aboriginal Cultural Heritage Consultation Requirements for Proponents (the Consultation Requirements) (DECCW 2010a).
- Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010b) (the Code of Practice).

To demonstrate how this ACHA meets the requirements of the guiding materials, **Table 2.1** documents the required components specified in the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural*



Heritage in NSW (OEH 2011) and the Code of Practice with reference to the section of this document in which they are addressed.

Required Information (Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW)	Relevant Section in this ACHA	Required Information (Code of Practice)	Relevant Section in this ACHA
Introduction	Section 1.0	Introduction	Section 1.0
Description of the area	Section 1.2	Investigator and contributors	Section 1.6
Consultation process	Section 3.0	Description of Modification	Project description, Section 1.2
Summary and analysis of background information	Section 4.0, Section 5.0	Landscape context	Section 4.0
Cultural heritage values and statement of significance	Section 5.0, Section 6.0, Section 7.0, Section 8.0	Previous archaeological work and regional character	Section 5.0
Avoiding and/or mitigating harm	Section 9.0	Predictions	Section 4.3 and Section 5.5
Recommendations	Section 9.0	Sampling strategy and field methods	Section 6.0
		Results	Section 6.2
		Analysis and discussion	Section 6.3, Section 7.0, Section 8.0
		Scientific values and significance assessment	Section 7.0
		Impact assessment	Section 8.1, Section 8.2, Section 8.3
		Management and mitigation measures	Section 9.0
		Recommendations	Section 9.0

Table 2.1 Required Information

2.3 Local

2.3.1 Newcastle Local Environmental Plan 2012

The Newcastle Local Environmental Plan (LEP) 2012 was established under the provisions of the EP&A Act. It provides guidance for development activities within the Newcastle Local Government Area (LGA). Part 5.10 establishes the requirements for development consent in relation to heritage conservation. The objectives of this part of the LEP include conservation of Aboriginal objects or Aboriginal places of heritage significance.



In accordance with these provisions, development consent is required for any activity that will involve:

- destroying or moving an Aboriginal object
- disturbing or excavating an Aboriginal place of significance
- erecting a building on land on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance
- or subdividing land containing an Aboriginal object or Aboriginal place of heritage significance.

There are some minor exceptions to these provisions, including activities that meet the requirements for exempt development. With reference to consideration of the effects of development, Clause 8 of Part 5.10 specifies, that for developments in an Aboriginal place of significance, the consent authority must *consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment.... and notify the local Aboriginal communities about the application and take into consideration any response received within 28 days.*

Schedule 5 of the Newcastle LEP 2012 provides a list of heritage items, heritage conservation areas and archaeological sites within the Newcastle LGA.

2.4 Non-Statutory

2.4.1 Aboriginal Heritage Management Strategy

The CN developed the Aboriginal Heritage Management Strategy 2018 ('the Strategy') as a means of identifying all practicable measures to avoid harm and conserve all significant Aboriginal objects and declared Aboriginal places within City of Newcastle LGA. The Strategy was founded on the principle that it is the responsibility of local government to manage local heritage items through environmental planning instruments, regulatory services and community engagement activities. The Strategy outlines City of Newcastle's specific objectives, strategies and actions, which aim:

- 1. To enhance the Newcastle community's knowledge of and regard for Aboriginal cultural heritage items and places.
- 2. To protect the City of Newcastle's Aboriginal heritage places for the benefit of everyone.
- 3. To protect the integrity of heritage places by ensuring consistent and sympathetic treatments of cultural heritage artefacts and places.
- 4. To invest in the care and promotion Newcastle's Aboriginal heritage places.

The Strategy was intended to be implemented over the period 2018 to 2021. It draws on two key studies:

- Aboriginal Heritage Study, Australian Museum Business Services (AMBS), 2005.
- Aboriginal Heritage Management Strategy, Umwelt (Australia) Pty Ltd, 2016.



The Strategy indicates that the key priority in the assessment of Aboriginal cultural heritage should be to identify all practicable measures to 'avoid harm and conserve the significant Aboriginal objects and declared Aboriginal places, along with their cultural heritage values', as specified in the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW. The management framework outlined in the strategy sets out a range of strategies and actions whereby City of Newcastle will meet community expectations and relevant legislative requirements, guidelines and codes.

City of Newcastle previously prepared a Cultural Strategy (2016-2019), which includes sub strategies such as engagement with the local Aboriginal community. Council has given effect to this strategic direction by establishing and maintaining the Guraki Advisory Committee, an Aboriginal reference group, increasing programming with Aboriginal and Torres Strait Islander people living in the city, and establishing a permanent display at the Newcastle Museum.

The Strategy also includes information about approval pathways for projects that have the potential to impact on Aboriginal heritage in the City. It lists four clusters of future actions, with responsibility and performance indicators to provide some accountability.

2.4.2 City of Newcastle Heritage Strategy 2020-2030

CN prepared its Heritage Strategy 2020-2030 in 2020. In introducing the Aboriginal cultural heritage of the City, the Strategy references language and stories about places along the harbour and coastline of Newcastle, including Mulubinba (the place of many sea ferns), which is the traditional name for the site of Newcastle, sites around Burraghihnbihng (Hexham Swamp), a shell midden at Meekariba (now known as Honeysuckle), Whibayganba (Nobbys Headland) and Burrabihngarn (Stockton). The Strategy also reports cultural seasons, tools, resources, lore and activities, primarily relating to the harbour and coast. The discussion of Awabakal culture in the Strategy does not discuss the land that was part of Awabakal Country in the catchments of coastal creeks, such as Cottage Creek and Styx Creek. It does not discuss cultural land use strategies in the wetlands in the catchments of Newcastle Harbour, relying on the language and archaeological evidence from Hexham Swamp. Physically, the landscape elements are quite different.

The history of European settlement in Newcastle, with exploitation of coal resources, shell resources (both middens and live oyster beds in the estuary), timber resources on the estuarine floodplain, and the early colonial records of Aboriginal cultural activities in close proximity to the harbour, provide useful context for the cultural values of the broader Newcastle landscape, but do not directly reflect on its diversity.

Key themes identified in the Heritage Strategy 2020-2030 are:

- Enhancing our community's knowledge of and regard for local heritage items and places (including Aboriginal objects and places).
- Protect and conserve the City's heritage places (including Aboriginal objects and places) for the benefit of everyone.
- Protect the integrity of heritage places by ensuring consistent and sympathetic uses, physical and aesthetic treatments and outstanding interpretations, including through development assessment processes.
- Invest in the promotion and care of the City's significant heritage places as part of the City's economic and cultural development.

3.0 Aboriginal Community Consultation

3.1 Overview

Consultation with Aboriginal stakeholders is an integral part of identifying and assessing the significance of Aboriginal objects and/or places and determining and carrying out appropriate strategies to mitigate impacts upon Aboriginal heritage. Aboriginal community consultation acknowledges the right of Aboriginal peoples to be involved, through direct participation, on matters that directly affect their cultural heritage. Involving Aboriginal people in all facets of the assessment process ensures that they are given adequate opportunity to share information about cultural values, and to actively participate in the development of appropriate management and/or mitigations measures. Aboriginal community consultation for the current assessment has been initiated and conducted in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW [former], 2010a) (*Consultation Requirements*).

Aboriginal consultation for the Project has been undertaken in accordance with procedures set out in the Consultation Requirements (DECCW, 2010a). These guidelines identify a four-stage process which involves notification and registration of Aboriginal parties, presentation of project and assessment information, gathering information about cultural significance, and provision of a draft ACHAR for Aboriginal stakeholder review.

A summary of the consultation process and its outcomes are provided in the sections below and at **Appendix C**.

3.2 Stage 1 — Notification and Registration of Aboriginal Parties

The aim of Stage 1 of the *Consultation Requirements* is to identify, notify and register Aboriginal stakeholders who hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places in the Project Area.

3.2.1 Consultation with Regulatory Agencies

Section 4.1.2 of the *Consultation Requirements* stipulates that proponents are responsible for determining the names of Aboriginal stakeholders who may hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places. Proponents are required to compile a list of Aboriginal stakeholders who may have an interest in being consulted for a project by writing to:

- Heritage NSW.
- The relevant Local Aboriginal Land Council(s).
- The Registrar, Aboriginal Land Rights Act 1983 for a list of Aboriginal owners.
- The National Native Title Tribunal for a list of registered native title claimants, native title holders.
- Native Title Services Corporation Limited (NTSCORP Limited).
- The relevant local council(s).



• The relevant catchment management authority (i.e., Local Land Services) for contact details of any established Aboriginal reference group.

In accordance with this requirement, the following agencies were contacted via email on 20 April 2023 requesting information on relevant Aboriginal persons and organisations:

- Heritage NSW.
- Awabakal Local Aboriginal Land Council.
- The Office of Registrar, Aboriginal Land Rights Act NSW.
- the National Native Title Tribunal.
- Native Title Services Corporation Limited (NTSCORP Limited).
- Newcastle City Council.
- Hunter Local Land Services.

3.2.2 Public Notification

Section 4.1.3 of the *Consultation Requirements* requires that, in addition to writing to the Aboriginal stakeholders identified by the agencies listed in **Section 3.2.1**, the proponent must also place a notice in the local newspaper circulating in the general location of the proposed project.

A public notice was prepared and placed in the Newcastle Herald on 29 April 2023, detailing the Project name, proponent, location, description and a request for Aboriginal knowledge holders to register interest in the project. The advertisement allowed a 14-day registration period. A copy of the advertisement is included in the consultation documentation provided in **Appendix C**.

3.2.3 Aboriginal Group Invitation to Register

Section 4.1.3 of the *Consultation Requirements* requires that proponents must write to the Aboriginal people whose names were obtained through the regulatory agencies and the relevant Local Aboriginal Land Council(s) to notify them of the proposed project and invite them to register an interest in participating in a process of community consultation. All Aboriginal groups that register their interest in the Project are referred to as Registered Aboriginal Parties (RAPs).

The Aboriginal parties identified by the government agencies were invited to register their interest in the project on 28 June 2023, via email (where provided). Umwelt followed up on the emails via telephone to verify if the parties had received their invitation. Aboriginal parties were given 14 days (to 12 July 2023) to respond to the invitation.

3.2.4 Registered Aboriginal Parties

Fifteen Aboriginal parties registered their interest in being consulted for the project and are listed in **Table 3.1.**



Organisation	Contact
Murra Bidgee Mullangari Aboriginal Corporation	Darleen Johnson / Ryan Johnson
A1 Indigenous Services	Carolyn Hickey
Awabakal & Guringai Pty Ltd	Tracey Howie
Awabakal Descendants Traditional Owners	Peter Leven
Jumbunna Traffic Management Group Pty Ltd	Norm Archibald
Awabakal Traditional Owners Aboriginal Corporation	Kerrie Brauer
Widescope Indigenous Group	Steve Hickey / Donna Hickey
Worimi Traditional Owners Indigenous Corporation	Candy Lee Towers
Jarban & Mugrebea	Les Atkinson
Kamilaroi Yankuntjatjara Working Group	Phil Khan
Nukara Indigenous Cultural & Heritage	Olivia Connors
Kevin Duncan	Kevin Duncan
Lower Hunter Aboriginal Incorporated	David Ahoy
Aaron Talbott	Aaron Talbot
Didge Ngunawal Clan	Lilly Carrol / Paul Boyd

Table 3.1 List of Registered Aboriginal Parties for the Project

3.3 Stages 2 and 3 – Presentation of Information and Gathering Cultural Information

3.3.1 Presentation of Project Information and Assessment Methods

On 28 November 2023, Umwelt issued an email to local RAPs registered within the timeframe. The email was to organise a field inspection of the Broadmeadow area, so that the RAPs could:

- view the landscape characteristics, extent of development and areas of open space
- ask questions about the scope and scale of development
- consider the potential; for cultural heritage values to be impacted
- consider potential opportunities to reflect the cultural heritage values of the place in the design of the development.

An attachment to the email included an overview of the Project, the proposed assessment methods and the consultation process, as well as the results of a preliminary desktop assessment and details about gathering cultural information.

3.3.2 Consultation During and After Fieldwork

A site walkover of the Project Area was conducted with RAP representatives on 29 November 2023 (see **Section 6.0**).



Umwelt discussed the landscape context and various assessment and management options with RAP representatives to identify any potential further investigations and impact mitigation measures, as well as opportunities to reflect and promote culture and heritage in the development concept and design. After the site walkover was completed, the topics discussed informally were summarised and issued to RAPs with the aim of receiving preliminary feedback. Further information about the site walkover is presented in **Section 6.0**.

Umwelt sent a follow up request for feedback about the archaeological potential of the area and feedback about future investigations and management to the RAPs one week after the site walkover.

3.4 Stage 4 – Review of Draft ACHA

3.4.1 Distribution of Draft Report

DRAFTING NOTE: THIS SECTION WILL BE COMPLETED AFTER THE RAPS HAVE HAD AN OPPORTUNITY TO REVIEW THE DRAFT REPORT AND PROVIDE FEEDBACK.

3.4.2 Responses to Draft ACHA

Umwelt reminded RAPs to provide comments on the draft ACHA on XXXX. Additionally, Umwelt emailed RAPs on XXXX with a reminder that the closing date for responses was XXXX.

The issues raised in the comments to the draft ACHA and their responses are provided in Table 3.2.

Table 3.2Draft ACHA: RAP Responses and Outcomes

Торіс	Stage Where Raised	Discussion and Outcomes
TO BE COMPLETED		



4.0 Environmental Context

The following sections review available environmental information to develop an understanding of the predevelopment landscape context of the Project Area and environs. Consideration of the pre-contact landscape context of the Project Area is based on the concept that the nature and distribution of Aboriginal archaeological sites are connected to, but not determined by, the environments in which they occur.

Environmental variables such as topography, geology, hydrology and pre-contact local vegetation and faunal communities are important factors in developing an understanding of how Aboriginal peoples lived and utilised their Country prior to, and around the time of colonisation. In practical terms, these variables would have influenced the suitability of campsites, travelling routes, and availability of drinking water, plant and animal resources, and raw materials for the manufacture of stone and organic implements.

The preservation and visibility of sites is also affected by environmental factors such as vegetation cover, ground surface erodibility, past land-use and disturbance.

A review of the environmental context of the assessment is therefore integral to considerations of site visibility, preservation and occurrence within the Project Area. Available environmental information, including the features of the natural landscape and the extent of disturbance, when considered collectively with available archaeological and ethnographic sources, can ultimately allow a series of archaeological predictions to be developed for the Project Area.

Section 4.0 and **Section 5.0** of this report provide information to support the development of an archaeological predictive framework for the Project Area, by investigating six key questions:

- What were the key landscape elements present within the Project Area prior to the colonial occupation period?
- What would these landscape elements have meant to Aboriginal people and their strategy for living in this landscape?
- How did the landscape change over the period of Aboriginal occupation, noting that there is dated evidence of Aboriginal people living in coastal landscapes in NSW and in the catchment of the Hunter River, extending into the late Pleistocene?
- What evidence of Aboriginal occupation could be expected to be retained in the landscape from Aboriginal activities and where would it be found given the interaction between resources, archaeology and surface processes?
- What changes have occurred in the Project Area environs between the colonial occupation and contemporary periods?
- What are the implications of these changes for the preservation of Aboriginal archaeological evidence within the Project Area?



4.1 Key Landscape Elements and Processes

4.1.1 Hydrology and Catchments

The Project Area comprises an irregular-shaped, mixed-use residential and commercial area of approximately 280 ha, located approximately 4.5 km west of the shoreline of the south arm of the Hunter River, in Newcastle Harbour.

The Project Area occupies an extensive area of low gradient and low elevation drainage plain, mostly within the catchment of Throsby Creek and its main tributary, Styx Creek. Lambton Ker-rai Creek is a tributary of Styx Creek. The catchment of Throsby Creek is approximately 3,000 ha, sufficient to maintain freshwater flows in most conditions. A portion of the smaller Cottage Creek catchment is also present within the Project Area to the south.

Throsby Creek is a tributary of the South Arm of the Hunter River, with the confluence within the harbour or outer estuary. The natural terrain of the Throsby Creek catchment includes steep sided headwaters (on Permian geology), likely with rocky creeks and some free faces or large sandstone boulders. Second and third order creeks are set in deep bedrock-controlled alignments and are relatively straight in channel form. There is a distinct break of slope at elevation approximately 10–20 m above sea level and the channel of Throsby Creek downstream has a very low gradient. The lower reaches of these catchments, which are rarely more than 10 m above sea level, are subject to flash flooding.



Figure 4.1 View taken from the intersection of Glebe Road and Beaumont St Hamilton, looking north across Hamilton towards Waratah (1897)

Source: Newcastle University Cultural Collections.



Multiple historical accounts describe the extent and frequency of flooding in the Broadmeadow area in the late nineteenth century. **Figure 4.1–Figure 4.3** illustrate the terrain and the extent of flooding in the Nineways area. Local topographical variations across the Broadmeadow area, with areas of slightly higher elevation, often remaining free of major flooding impacts. Within the drainage flat terrain, these may be low bedrock outliers, or older terrace surfaces, subsequently incised by Holocene drainage lines. The hills that form the catchment of Styx Creek and Lambton Ker-rai Creek can be seen in the background.

A <u>1892</u> description of Broadmeadow in the Newcastle Morning Herald and Miners Gazette states that:

"When there are heavy rains the water comes down in such a way as to flood the streets and property, the water being sometimes 12 and 18 inches deep on the streets."



Figure 4.2Flooding across the drainage flat at Nineways (Premier Hotel) Broadmeadow in 1892Source: Newcastle University Cultural Collections.





Figure 4.3 View west along Denison St Broadmeadow, towards the Premier Hotel

Source: Newcastle University Cultural Collections.

The Newcastle Morning Herald (1892) article about Broadmeadow further states:

The streets, of which there are but three at present, are well kept and in splendid condition at present, but a very great, perhaps the greatest grievance of the place is that **the drainage is very bad**. When there are heavy rains the water comes down in such a way as to flood the streets and property, the water sometimes being 12 and 18 inches deep on the streets. This evil could be easily remedied by the Government making a large drain and allowing the council to connect the other drains with same, which would then flow into Styx Creek and thence to the Hunter River.

These descriptions and images provide graphic evidence of the flood prone, wetland character of the drainage flats through Broadmeadow, within the catchment of Styx Creek. In its downstream reaches, Throsby Creek is an estuarine tributary of the South Arm of the Hunter River and prior to European occupation of the Newcastle environs, the estuarine channel and associated wetlands likely extended into the northeastern part of the Project Area. The remainder of the Precinct comprises floodplains and former freshwater wetlands above the area of tidal influence along Throsby Creek and its tributaries.

Styx Creek and Ker-rai Creek within the Project Area have both been channelised as concrete stormwater drains since the early twentieth century (works commenced in 1895). These works included straightening and likely deepening of the channel, and construction works also affected adjacent floodplain and terrace terrain.



From a preliminary review, there appears to be little mapped historical evidence or descriptions of the morphology of Throsby Creek as it flowed across the alluvial flats towards its estuarine reaches and junction with the Hunter River. However, based on the plan form and channel form of other less modified creeks in similar contexts in the lower Hunter, some morphological characteristics can be proposed. These include:

- Incised channels through low gradient alluvial fans around the margins of the alluvial flats.
- Meandering low gradient channels across the flats. These may have been incised directly in the older Quaternary/Pleistocene alluvium; or they may be set within inset Holocene floodplains.

WBM (2000) identified 22 distinct sub-catchments for Throsby Creek, although it is apparent that most of these are small catchments (first or second order) on the steep slopes of the upper catchment, which feed into six main tributaries of the main creek. Styx Creek and Throsby Creek at Broadmeadow are at least fourth order systems.

The beds and banks of channels in the upstream reaches of the catchment, outside the Project Area are in erodible soils, impacted by high velocity flows in heavy rainfall events. Channels are subject to erosion, with a high sediment yield expected. Some upper catchment creek lines continue to be not channelised and/or concreted, although much of the natural riparian vegetation has been removed. Under natural conditions, the eroded sediment would have accumulated in alluvial fans and floodplain deposits at and just beyond the break of slope where Permian rocks intersect the Quaternary alluvium. The downstream reaches, crossing the alluvial flats, are naturally subject to flash flooding. In order to control flooding risk, many of the watercourses in the Throsby Creek catchment have been channelised, including Styx Creek which passes through the Project Area completely as an open culvert. The concrete stormwater drainage system has two ongoing effects on the catchment:

- Flows from the upper catchment to the lower catchment are transferred faster than under the natural conditions.
- Sediment loading is increased from the upper catchment more efficiently to the estuarine reaches of the creek.

4.1.2 Geology and Geomorphology

The Hunter River drainage plain is surrounded by steep bedrock hills, with deep narrow valleys, and underlain by interbedded Permian rock units, within the Newcastle and Tomago Coal Measures. There are occasional outliers of Permian bedrock landforms within the drainage plain, with specific expressions along the southern boundary of the Project Area. The drainage plain has accumulated from alluvial and estuarine deposition during the Quaternary period. Geological units are shown in **Figure 4.4** (Newcastle 1:100,000 Coastal Quaternary Geology).





Figure 4.4 Quaternary geology of the Project Area

The Quaternary sediments represent several depositional environments and associated low relief landforms, including the following:

- Alluvial fans (Qavf) where stream channels emerge from steep bedrock valleys to the alluvial and estuarine plain.
- Alluvial plain of Quaternary (Pleistocene and Holocene) age (Qpe, Qpu, Qhap), developed in overbank deposits, with multiple distributary creeks supplying sediment from the upper catchment. Creek channels may have migrated across the plain.
- Wetlands of the Throsby Creek catchment (Qhes, Qhs).
- Wetland foreshores.
- Colluvial deposits around the footslopes of bedrock country and outliers (the Permian bedrock is mapped as Pne and Pto).
- Estuarine channels and potentially tidal delta deposits (Qhec).

Table 4.1 provides further information about the distribution of these sedimentary deposits.



The Quaternary geology mapping indicates only small areas of the Project Area as comprising predominantly fill (Qmx, Qmxf). This contrasts with areas further downstream towards the estuary and harbour, where extensive filling, with depths of at least 1 m, has occurred over the 19th and 20th centuries.

However, further investigation of areas that have been modified by fill or by reshaping/levelling/excavation (e.g., from geotechnical assessments and contamination assessments) would confirm whether there is a wider extent of fill or major surface disturbance across the Project Area. Given the land use history of parts of the Project Area (**Section 4.3**), it is likely that the extent of fill and/or disturbance is greater than that shown in the Quaternary geology mapping. The bedrock structure of the drainage basin is formed in Permian rocks. Key units and their distribution are outlined in **Table 4.1**.

Map Code	Stratigraphic/ Sedimentary Title	Comments
Pne	Newcastle Coal Measures: Quartz lithic sandstone, polymictic conglomerate, carbonaceous claystone, coal, laminated mudstone, tuffaceous mudstone, plant fossils and bioturbation.	There is a small area of Pne within the Project Area, but the Permian rock units form the drainage divide and side slopes, which frames the alluvial plain. Brunker Road is on Pne and there is a small outlier of slightly elevated land on Pne between Dumaresq Street, Steel St and Brunker Road. Glebe Road is along the boundary of the Pne based landforms, but also crosses three areas of Qavf. Pne also underlies the elevated landforms at Tighes Hill (Elizabeth St), and eastern Mayfield (Fawcett Street to Ingall St), with a small outlier at the junction of Ingall St and Maitland Road. These northern Pne areas are outside the Project Area but illustrate the features that may have attracted occupation activity within a changing alluvial, estuarine and marine landscape. Low spurs of Permian bedrock, extending into the alluvial/estuarine plain and wetlands, and elevated bedrock outliers would have high archaeological potential, if undisturbed.
Pto	Tomago Coal Measures: lithic sandstone, laminated carbonaceous shale and mudstone, siltstone, coal sideritic bands, rare pebble para-conglomerate.	Occurs on the hills in Waratah and Mayfield, forming the northern drainage divide and side slopes. Forms the upper catchment of the northern arm of Throsby Creek
Qpe	Undifferentiated Pleistocene estuarine plain, with clay, silt, fluvial sand, marine sand and shell	This is mapped across the majority of the Project Area. The Pleistocene estuarine plain was likely formed during a period of elevated sea level – at approximately 120,000 years ago. Sea level has not been as high since that time, so the estuarine plain sediments have undergone weathering, erosion (e.g. along drainage lines) and, in some areas around the margins, would have been overlaid by more recent alluvial deposits. Qhap (Holocene floodplain) units occupy these inset/overlay locations. The interface of Qpe and Qhap units is likely to be archaeologically sensitive, if undisturbed.

Table 4.1 Permian and Quaternary Stratigraphy of the Project Area and Environs



Map Code	Stratigraphic/ Sedimentary Title	Comments
Qpu	Undifferentiated Pleistocene sediments, including clay, silt, fluvial sand and marine sand	A small area of this unit occurs in the south-eastern part of the Project Area, where the estuarine system of the Hunter River interacts with the coastal system landward of Merewether and Bar Beach (which could have included a separate small estuarine lagoon and back barrier sediments as well as beach and dune). The channel of Cottage Creek flows through this Pleistocene unit, and extends upstream into Qpe materials.
Qavf	Quaternary alluvial and colluvial fan, with fluvial sand, gravel, silt and clay	Around the margins of the alluvial plain, but not represented within the Project Area. These low angle alluvial fans illustrate how sediment is transferred from the steep surrounding hill slopes to the alluvial plain. The alluvial fan units continued to accumulate during the late Pleistocene and into the Holocene and recent, although the channels may have moved and become more or less incised. Each of the tributaries of Throsby Creek catchment has Qavf deposits mapped where creeks emerge from valleys within the steep catchment side slopes to the alluvial flats.
Qap	Quaternary floodplain, with silt, sand and gravel	These deposits are located upstream of the Qpe materials. Their deposition extended over tens of thousands of years. Some areas of Quaternary floodplain may have been stripped or eroded during the last Glacial period (approximately 20,000 to 15,000 years BP). The unit underlies Broadmeadow north of Brunker Road to just north of Griffiths Road and running up each of the tributaries.
Qhap	Holocene floodplain, with silt, fluvial sand and clay	Adjacent to tidal sections of Throsby Creek and Styx Creek and extending as inset channels across the Pleistocene plain. These deposits are up to approximately 7,000 years old. Very little of this material is within the Project Area.

The drainage plain that dominates the landform at Broadmeadow is situated just upstream of the tidal limit of Throsby Creek and Styx Creek.

During the late Quaternary period, sea level has varied by more than 120 metres. This means that the landscape at Broadmeadow has at various times been within the tidal influence of the Hunter estuary, but has also been remote from the coastline for extended periods, particularly during the Last Glacial period. The changes in proximity to the open coast and the estuary have affected the key landscape processes and resources that are part of Country for Awabakal people.

The mapping of Qpe and Qap materials shows the approximate boundary of sediments that are dominated by sand (marine origins) and those dominated by silt and clay (alluvial origins). This distinction was also identified in early mapping of sand deposits that would yield groundwater supply for industrial use in Newcastle.



John Armstrong (1967), writing about the history of the Newcastle water supply, developed a map of the sand beds through Hamilton. In preparing this map, Armstrong references several historical sources, which provide information about the landscape and the presence of Aboriginal people.

Relevant observations include:

- A note (potentially from the Sydney Gazette in 1825?), which supposedly described 'the excellent water from the sandy flats behind the town (Newcastle), in the direction of Hamilton, (where), the Aborigines could obtain water by digging 4 or 5 feet'.
- Elizabeth (grandmother of Hamilton resident David Murray), who settled in the area in 1857 described memories of 'heat, flies and the Aboriginal corrobborees which were held in the vicinity of the racecourse.' This reference is to the Newcastle Racecourse, not the harness racing track which is within the Project Area.
- Armstrong refers to comments by Robert Whytte of the AA Company, made in 1858, about the drainage of the area. At that time, coal mining had been in operation for about ten years. The pit tops were located on what became known as 'Cameron's Hill.'
- 'D and E pits (mines of the AA Company) stand on slightly elevated land close to the western boundary, this land forms an island after a heavy fall of rain and is the only elevated land on the property with the exception of a small portion at the southern boundary, forming the base of one of the Burwood Hills, the rest of the land being an extended flat, uniform in appearance, almost level consisting of sand and silt deposited regularly over the whole.'
- The elevation of the ground and its being the only part of the property where a hard top could be found to bore or sink through, instead of encountering the difficulties of getting through the heavy, quick sand extending over the whole of the other portion.'
- The boundary of the sand beds generally aligns with the extent of Qpe (estuarine) sediments. Armstrong's map shows a channel alignment for Styx Creek, west of Beaumont St and close to the western boundary of the sand beds. The map also shows the presence of swamps in the catchment of Cottage Creek, to the south.
- The identified channel of Styx Creek appears to be a southern tributary of the catchment and can be seen joining the 'Hunter Water Channel', which conveys flows from the other parts of the Styx Creek catchment. There is now no surface expression of this southern tributary.
- It is apparent from the mapping and the descriptions that the catchment of Cottage Creek was largely within the sandbeds, but the catchment of Styx Creek (later confined to the Hunter Water Channel) through the Hamilton and Broadmeadow area was in heavier clay, with prolonged swampy conditions.






4.1.2.1 Depositional history

A simplified summary of the depositional history of the alluvial and estuarine plain that makes up the Project Area, to highlight the variations in depositional environment as sea level has risen and fallen is presented in **Table 4.2**.

Timeframe	Years	Landscape processes
Late Quaternary	Prior to 120,000 years ago	Periods of deposition and erosion, depending on sea level, rainfall conditions and sediment load. Overall infilling of the sedimentary basin. All prior to any evidence of Aboriginal occupation.
Last Interglacial	Approximately 120,000 years ago	Warm conditions, high sea level, at + 4–5 m. Associated with the deposition of the Inner Barrier on the northern side of the Hunter River and deposition of shell beds at Largs in the upper estuary. Potentially extensive estuarine environments across the catchment of Throsby Creek. Prior to Aboriginal occupation.
Last Glacial	From approximately 23,000 years ago to approximately 15,000 years ago	Cold conditions, and sea level dropped to -130 m. The Project Area would have been the upper catchment and remote from the sea. Expect incision along drainage lines and erosion of older beds and banks.

|--|



Timeframe	Years	Landscape processes
		Aboriginal occupation in the catchment during this period is likely, and would have extended across a larger coastal plain that is now below sea level. The oldest archaeological dates from the Hunter region are late Pleistocene (from alluvial terraces in the upper Hunter and from a late Pleistocene transgressive dune near Port Stephens). Pleistocene dates from the Hunter are very rare. Hughes et al 2014 provide a discussion of how landscape processes linked to sea level fluctuations have contributed to limited retention of late Pleistocene archaeological evidence.
Early Holocene	From around 10,000 years ago	Sea level rose rapidly at the end of the Last Glacial, drowning landforms on the shelf and with the coastline rolling landward. Sea level was slightly higher than now in the period 7,000 to 4,000 years approximately. Potentially open estuarine waters in parts of the Project Area, alluvial fans developing around the margins where creeks discharge. Aboriginal people in the area during this period would have retreated landward, into the upper catchment, and around new coastal landforms. Significant landform change at the landscape scale.
Later Holocene	4,000 years to <500 years	Infilling of open water in the estuary. In the Hunter River, sedimentation was from the tidal delta (marine sand) and the fluvial delta into the estuary. This led to the deposition of shoals, islands and wetlands in the lower estuary. In Throsby Creek and its catchment, fluvial delta sediments and then floodplain alluvium infilled older incised channels and levelled the surface of the alluvial plain. Creek channels may have migrated across the surface, and likely had a meandering, 'chain of ponds' form, potential with backswamp features. Colluvial deposition around the margins of the alluvial plain. The alluvial plain was subject to regular shallow inundation by floodwaters from the catchment. Most dated Aboriginal archaeological sites in the lower Hunter are from this period.
Post European settlement	Less than 200 years and mostly within the last 100 years.	Drainage controls introduced to channel flows and reduce flooding. Extensive clearing. Increased catchment sediment load. Widespread ground surface disturbance.

Key questions to be addressed from the geology and geomorphology of the Project Area relate to:

- The potential for archaeological evidence from the Late Pleistocene or early Holocene to be present, and the most likely locations for such evidence to occur.
- Whether any older archaeological evidence could occur in a stratified context.
- The implications of the flood hazard in the Project Area for Aboriginal occupation and the preservation of archaeological evidence.
- The implications of disturbance, including major drainage works, filling and levelling, on ongoing preservation of archaeological evidence.



It is possible that archaeological evidence of Aboriginal occupation of the Project Area could include discarded artefacts from the Late Pleistocene period, when this landscape was a drainage catchment, remote from the seacoast and estuarine influences. If artefacts were discarded at that time, they could have been in three main contexts:

- On or close to the banks of the creeks that flowed through the upland valley during the late Pleistocene. These creeks may have been incised into older Quaternary valley fill sediments. The stratigraphic evidence suggests that any late Pleistocene alluvial surfaces have subsequently potentially been stripped of soil materials during pluvial periods in the early Holocene, and/or have been buried by subsequent Holocene and recent alluvial deposition. During the Holocene, it is apparent that the upland valley floor became a frequently waterlogged and inundated drainage flat.
- On bedrock outliers and foot slopes around the margins of the valley fill. These locations have texture contrast soils, which are generally erodible. While the ground surface has not been buried by subsequent alluvial deposition and valley fill, the A horizon is likely to have been affected by erosion. This means any old occupation evidence is likely to have been eroded and redeposited within colluvial or alluvial fan deposits. All of these substrates have been disturbed by development during the twentieth century.
- On or close to the banks of creeks flowing into and through the Project areas during the Holocene and recent times. These archaeological deposits would be within Holocene alluvial depositional units (floodplain and potentially low terrace). It is apparent that the drainage basin was frequently inundated and had very poor drainage. None-the less, the wetland areas provided valuable resources and would have been accessed by Awabakal people. Activities may have involved flaked stone artefacts, but may also have been based on plant derived tools, which are not preserved in open sites.
- As discussed in **Section 4.3**, the alluvial valley floor has been heavily disturbed by drainage works over the last century. Images of the excavations for sewer and drainage, show and describe both sandy soils and clay soils (including estuarine clays).
- Although they are also disturbed, the alluvial landforms along Ker-rai Creek, outside the Project Area, are likely to provide the best evidence of the types of archaeological deposits that may once have occurred along drainage lines in the Project Area.

4.1.3 Soil Landscapes and Soil Forming Processes

Soil landscape classifications and their boundaries identify areas that are classified by several geographic features. These features are informative for the archaeological sensitivity prediction and investigation. They provide localised information including landform patterns, soils, geology, rock outcrop percentage, land use and vegetation. This information provides another layer to categorise the landscape for the predictive model, additional to what a topographic description can provide. Soil landscape information builds on underlying geology and describes the depths of residual soils and colluvial soils and identifies areas that are characterised by erosion or skeletal soils and exposed bedrock versus those that may contain a deeper profile where cultural material may be buried.

Matthei (1995: 38) maps the soils within the Project Area as belonging largely to the 'Hamilton' soil landscape (*hm*). Described as forming on level to undulating, well drained plain on Quaternary age estuarine clay deposits in the Lower Hunter Plain region, slopes in the Hamilton Soil Landscape are generally less than 2% and elevation less than 12 m, with local relief less than 1 m.



Soil profiles in the eastern part of the Soil Landscape, close to the South Arm of the Hunter River, and Throsby Creek, are identified as (Northcote Principal Profile Form) Uc. These are uniform sandy soil profiles, including dune podsols. These interface with the dune and beach sands that form the soil materials along the natural shoreline of the harbour.

Typically, soil materials in these profiles comprise 20–60 cm of brownish black loamy sand, which in turn overlies 15–30 cm of loose, coarse sand. A brown-orange soft sandy pan greater than 60 cm in thickness often underlies the coarse sands, which at times is underlain by 30–200 cm of earthy coarse sandy loam. On alluvial fan deposits which drain the surrounding bedrock slopes, up to 20 cm of brown sandy clay loam overlies >80 cm of brown silty clay. A soil profile from Alder Park in Glebe Road is described as a Db1.12 Brown Podsolic Principal Profile Form. This profile is described as having A horizon (0–20cm) – moist, crumbly, dark brown coarse sandy clay loam, moderately pedal. This overlies (at a clear boundary), 20–100cm, dark brown medium clay, moist, slightly plastic, moderately pedal, smooth faced peds, some mottles.

Matthei (1995:39) describes soils within the Hamilton soil landscape as often seasonally waterlogged.

Instances of the Killingworth (*ki*) soil landscape are mapped by Matthei (1995:132) around the margins of the Hunter alluvial plain to the west of the Project Area. Small outliers of the Killingworth (ki) soil landscape also occur where Permian rock outcrops at small outliers within the alluvial plain. The Killingworth soil landscape is described as forming on undulating to rolling hills, and steep hills. Slopes are around 20% and elevation is 50 to 160 m, with local relief of 30 m to 100 m. Soils on the steep slopes have texture contrast A and B horizons and include lithosols (on crests) to moderately deep, imperfectly drained podsolics and soloths. A horizons are generally shallow (up to about 30cm and an A2 horizon may be present, particularly on lower slopes) Like the Hamilton soil landscape, soils may also be seasonally waterlogged and have a high erosion hazard. As noted above, hillslope and creek bank erosion can produce high sediment yield from sub catchments in this soil landscape.

There is no evidence in the mapping of soil landscapes that early Holocene or late Pleistocene beach deposits have been recorded around the margins of the alluvial plain of Throsby Creek. The landscape is generally mapped as floodplain, without significant marine influence. This contrasts with the mapped 'Bobs Farm Variant' soil landscape (remnant lake shore beach deposits) around the western shoreline of Hexham Wetland (at the interface of the Permian bedrock and Pleistocene/Holocene sediments). The Bobs Farm Variant is also mapped in the Tilligerry Creek inter-barrier depression, 'inland' of Fullerton Cove.

Soil profiles that have developed across the project area are generally duplex profiles with a moderate to strong texture contrast between the A horizon and B horizon. All soils have a relatively high clay content, especially when compared with the sandy soils to the east.

Where a texture contrast soil occurs on a hillslope it is rare for Aboriginal artefacts to occur within the clay B horizon. The archaeological evidence is confined to the A horizon, which is the active part of the soil profile, connected to surface processes (both bioturbation and erosion and sedimentation). The A horizon is generally 30 cm to 30 cm thick in the duplex soils of the Killingworth Soil Landscape. As discussed in **Section 4.3**, historical and continuing land uses have disturbed, removed, or reworked the soils of the Killingworth soil landscape within the project area.

The key characteristics of the soils within the Hamilton Soil Landscape are heavy texture, sediment accumulation processes and waterlogging. They have well developed structure, and a clear boundary



between the A and B horizons. Although regularly waterlogged, the soil character does not preclude occasional use, certainly for resource gathering, and potentially for temporary campsites. Ongoing sediment accumulation (settling from flood waters) through the late Holocene means that scattered artefactual evidence of occupation (noting that many of the tools would have used plant materials rather than stone) may have been buried or worked into later sediment.

As noted in **Section 4.3**, the extent of ground surface disturbance across the entire Hamilton Soil Landscape is such that any local microtopography has been removed, and the natural ground surface has been disturbed, including excavation and filling to raise ground surfaces above frequent flood levels; this disturbance would have removed or reworked all of the upper part of the soil profile. Creek alignments have been modified, to create straight concrete drains, unrelate to the natural landscape features.

4.1.4 Flora and Fauna

Vegetation of the hillslopes around the alluvial plain at Broadmeadow can be deduced from the descriptions of soil landscapes across the area and is summarised in the *Newcastle Heritage Management Plan* (Umwelt 2005). The catchment of Throsby Creek would have been dominated by spotted gum, swamp mahogany, grey gum, grey ironbark, thin leaved stringy bark and broad-leaved ironbark, with red bloodwood and smooth barked apple on exposed crests. In sheltered gullies, Sydney blue gum and turpentine occur. It is difficult to reconstruct the vegetation of the alluvial flats and wetlands (predominantly on sandy substrates) because no vegetation remains in this area. There are good historical records of vegetation in Hexham Swamp (the Ironbark creek tributary of the Hunter estuary flows through Hexham Swamp), and this provides an indication of what may have been present across the alluvial lowlands of Throsby Creek.

The wetlands of the Hunter River floodplain and its tributaries did not exist as cultural resources in isolation. All were part of a diverse and evolving network of fresh and tidal wetlands (including saltmarsh, mangrove and mudflat and freshwater backswamps), riparian forests and hillsides and gullies woodlands throughout the lower Hunter estuary.

In its natural late Holocene form, the diverse fresh, brackish and saltwater wetlands of Hexham wetland and Ironbark Creek provided a nursery habitat for juvenile fish and prawns. Estuarine fish species, crustaceans and eels would have occupied tidal channels deep into the wetland system. The wetland would also have provided feeding grounds, shelter and roosting habitat for a wide range of resident and migratory waterbirds/shorebirds, including ducks, swans, egrets, ibis, and species now rare or endangered such as the Sharp Tailed Sandpiper. Birds of prey, including the eagle hawk (*Birabahn*), which has high cultural value for the Awabakal people, hunted over the wetland and surrounding forests.

In the case of the Broadmeadow alluvial plain (Styx Creek), likely species on the alluvial plain include river oak (*Allocasuarina*) with swamp mahogany, swamp oak and melaleuca closer to the tidally influenced reaches (where Styx Creek joins Throsby Creek). Along the alluvial valleys upstream of the Project Area, wet forests including flooded gum and weeping lilly pilly occurred. In wetland areas, vegetation could include reed swamps and freshwater meadow species (and cumbungi in pools), as well as potentially leptospernum, melaleuca and callistemon species, which will grow in permanently moist clay rich soils.

The natural diversity of vegetation across the Project Area would have provided terrestrial habitat for diverse animal species – including possum, wallaroo, kangaroo, swamp wallaby, swamp rat, sugar glider, squirrel glider and bandicoot (Umwelt 2002). It would also have provided aquatic habitat.



Artefact Archaeology (2023) report that during their consultation about cultural resources in the natural landscape of the Broadmeadow area, stakeholders referred to grassy areas grazed by 'kangaroos'. These may also have been swamp wallaby.

Records of fauna from the more terrestrial parts of Hexham Swamp provide some indication of the diversity of species that may have been present in the Broadmeadow alluvial plain wetland area. Apart from the marsupials noted above, the wetland area could have provided nesting, roosting and foraging habitat for a range of waterbirds and shorebirds, with the species mix linked to the height and density of vegetation. These include ducks, swan, herons, grebes, cormorants and swamp hens. Diverse frog and reptile species would have been present, including tortoise in pools. Where estuarine channels persisted, potentially in Styx Creek in the northern part of the Project Area, estuarine fish species may have been present.

There are plentiful records of Awabakal people fishing in the Hunter estuary, using spears and nets and from the bank or from canoes made of bark. There are also plentiful records of Awabakal people using nets to snare birds. These tools would leave no archaeological signature.

The Gathang (Warrimay/Worrimi) language includes multiple words that relate to resources and activities in and around the wetlands of the lower Hunter. Examples include:

mundal (net), *muting* (fishing spear), *guuyang* (canoe), marine and terrestrial animals and plants including *bitjagang* (cockles, mussels), *dhirrabuwi* (oyster), *gatigan* (mud crab) and over 17 species of fish (NPWS 2020, Lissarrague 2010).

The Awabakal language also has multiple terms describing the resources of coastal and coastal catchment wetlands. Examples include names for many different marine and estuarine plants, birds, fish and shellfish and tools (See Awabakal Dictionary for other words): e.g. *karobara* (whiting), eels (*batang* (swamp pheasant), *birarowa* (swamp oak), *biraba* (shellfish), kaling (shell), *bowawaal* (curlew), *kaiyaara* (sea grass), *kalaara* (spear used for fishing), *kaniin* (eel), *kataal* (bark of a tree species, and canoes made from that bark), koakabai (yam), koolabiliko (fishing), *koongka* (reed), *kotumaang* (tortoise).

4.2 Land Use and Disturbance

Extensive urban and industrial development across the Project Area has dominated the landscape since the late 19th century, with the implication being the potential disturbance or destruction of Aboriginal sites and archaeological deposits which may have been present. While surficial disturbances are evident throughout the Project Area, local archaeological context confirms that Awabakal archaeological sites and deposits do still occur in the diverse coastal and catchment landscape contexts of the Newcastle local council area, generally beneath contemporary fill and/or disturbances, or as truncated archaeological deposits.

However, as noted in **Section 1.0**, this archaeological evidence has generally been confined to deep, stratified sandy substrates, and large artefact assemblages are not known from shallow duplex soils on bedrock, or from heavy clay alluvial soils.

The best examples are from former shoreline and dune deposits close to Newcastle Harbour. These mirror, in a more confined coastal space, the late Pleistocene and Holocene shoreline and dune deposits to the north of the Hunter River.



4.2.1 Industrial and Urban Development in the Project Area

Examples of the type and scale of urban and industrial development in the Project Area include the following:

- Drainage construction of the main concrete lined stormwater network, noting that the main drain through the low-lying wetlands areas was completed in 1899, and major augmentation was completed in the 1930s. This is discussed further below, as it has had a major impact on areas which would otherwise have high archaeological potential.
- Settlers on the Commonage mostly people who were working in underground pits in Waratah, Lambton etc, or working in the heavy industry (now the Goninans site).
- Industrial includes Goninans (now occupied by UGL), Electric Lamp and Gasworks sites and Waratah Copper Smelter, to the north and north-west and other heavy industry along Throsby Creek.
- In 2019, to celebrate the centenary of Goninans operations in Broadmeadow, UGL compiled a short history of the site and the engineering works that had taken place there.
- Alfred Goninan started his business as General Engineers and Agricultural Implement Makers in 1900, based in Wickham. The initial project was construction of coal wagons for Rhonda Colliery. The business rapidly expanded, from 12 to 90 employees within 2 years.
- In 1919, Goninan took over the Broadmeadow site, which had previously been occupied by a copper smelter (Australian Copper Company). From the Broadmeadow site, Goninans built a reputation for manufacture of a wide range of engineering products, including bridge girders, structural parts for the Newcastle gasworks, rail lines and rolling stock (including locomotives), coal ship loading equipment, sugar and plastic margarine tubs.
- The key considerations from an Aboriginal archaeological heritage perspective are the spatial scale of the Goninan enterprises and the likely extent of ground surface disturbance in the clearing of any remaining native vegetation from the land, construction of hard stands, large machinery sheds (containing a boiler shop, foundry, machine shop, blacksmiths and wagon shop), and rail connections. It is likely the disturbance extended below the topsoil.
- It is likely that many Aboriginal families in Newcastle have connections with the Goninan site, with family members being employed there during the period of operations.
- Grazing and agricultural land (Newcastle Pastoral Reserve (Commonage (Figure 5.8)). Initially established in about 1850 as a place to run stock before their export to New Zealand, the Commonage is reported to have had an area of between 1600 to 2000 acres of poorly drained land to the south of Lambton Road, which was set aside for grazing.
- In the late nineteenth century, it was settled by mining families, with estimates of about 800 families (up to 4000 people) living there (squatting) on approximately 300 acres in 1885. There were questions at that time about the drainage conditions on the land, the management of sanitary waste, the extent of undermining by local collieries and the complete removal of trees, leaving a bare and unstable surface.



- "The Newcastle Pasturage Reserve was marked out in 1850 for the purpose of affording a run for stock which were then being shipped to New Zealand. The immediate purpose of it passed away, but the reserve remained. On it were valuable coal seams, and after the passing of the Land Act of 1861 the land inside its boundaries was mostly leased for mining purposes. The opening of the mines drew a large number of miners to the district, many of them without much money, and they began to put up rough shelter for themselves on the reserve, close to their work. There was nobody to forbid them, or to levy any rent. The quality of the houses put up was very inferior, because as they knew they had no title the men naturally did not care to spend too much." (Sydney Morning Herald June 1889).
- Urban development and housing. The Australian Agricultural Company acquired land in 1829 extending
 west from Brown St, nearly to present Broadmeadow, for mining. Although they did not mine the area
 until later, the control by a mining company prevented development in that area, between
 Broadmeadow and Newcastle. Doring 2006 reports that by 1850, the swampy 'Broadmeadows' area,
 outside the AA company land, was still considered unsuitable for closer settlement. However, the land
 was used for sporting fixtures and horse racing, as early as 1842 (reported in Sydney Morning Herald
 December 1842). Rail infrastructure was installed on land at Hamilton and Broadmeadow from 1887,
 although various private railways had crossed the Commonage for years before that time.
- Mine workers squatted within the Commonage land, close to their pit heads. By 1901, tenure arrangements had been resolved and streets and house blocks were laid out beginning the settlement of suburban Broadmeadow.
- This urban history reinforces the idea that Broadmeadow was poorly drained swampy land, but was cleared for various uses through the second half of the nineteenth century. Ground surface disturbance escalated as mines, railways and associated worker accommodation and recreation uses were established.
- Small commercial areas, including pubs and the Broadmeadow Co-operative. The Co-operative was established in 1887 with 17 members and had 217 members in 1892.
- Rail lines and corridors, maintenance facilities (including State Heritage listed facilities) and stations, also roads and tramlines. The Broadmeadow depot was established in the 1920s and was part of a major program or reorganising maintenance and servicing of rolling stock in NSW at that time. The Broadmeadow depot, which included barracks for workers, provided locomotive stabling and refuelling, and routine maintenance (but not major overhaul work, which was centralised at Everleigh and Honeysuckle, and later at Cardiff and Chullora).
- The key features of the Broadmeadow depot are two large turntables set in roundhouses, which operated simultaneously. For the purpose of understanding Aboriginal archaeological potential in the area, it is the scale of ground surface disturbance involved in establishing the industrial site, rail and road access and accommodation that is relevant. The likely extent of contamination on the land is also relevant, as highly contaminated land is not available for any testing of Aboriginal archaeological value.
- Recreational uses Football stadium, hockey centre, other playing fields, paceway, District Park, Wanderers Oval. Many of these occupy the former Pasturage/Commonage reserve. The ground surface across these extensive sites has been modified to reduce the risk of long periods of standing water. While the construction of the concrete storm water drainage network through Broadmeadow reduced flood risk, the sporting field sites have also been raised (and ground drainage improved) by the addition of fill. Fill materials include coal chitter and steel works slag.



- Newcastle Showground, which formerly extended on both sides of Griffiths Road.
- Former site of District Park Aerodrome reserved for aviation purposes in 1923, Newcastle Aero Club formed and using this site in 1928. The airfield was used until mid-twentieth century and was later redeveloped as sporting fields. The history of the aerodrome, including multiple crashes into local urban areas. Planes flying at the aerodrome included Tiger Moth, Cessna, Ryan Monoplane, Wackett Trainer, C47 Douglas and De Havilland Hornet.
- **Figure 4.6** shows the Broadmeadow area in 1944. The central part of the Project Area is shown as a flat, treeless plain with a large drain traversing it diagonally, to connect to Throsby Cree. At this time, the flats to the north of the drain had been used as an aerodrome, and the current sporting infrastructure was not present. No natural creek channels are visible in this photo. The photo also shows the fig trees already well established and forming a circle in Richardson Park, adjacent to the Showground.



Figure 4.6 1944 aerial image of Broadmeadow, showing cleared land, and Styx Creek drain alignment

4.2.2 Drainage Work

The Newcastle Chronicle (June 1873) provides a description of the muddy and poorly drained conditions across the Broadmeadow area.



'Although the road from Newcastle to the extreme end of Hamilton is as good as could be desired, all commendation must cease there. Once past Hamilton, the traveller enters that is known as the 'Broad Meadows' though which, for nearly a mile, he has to forge his way through mud and water three or more feet deep. In some places the current is so swift and strong across, that regular pits are ploughed in the bottom, in which horses and teams are liable at any time to be plunged. In fact, after a few days rain, it is at peril of life and limb to face the passage of the Broad Meadows, and this is within three miles of the busy and populous port of Newcastle.'

Figure 4.7 and **Figure 4.8** illustrate the extent of disturbance that occurred during the construction of the concrete stormwater drains (and sewage systems) across the Project Area. The concrete drains traversed the area known at 'the Commonage' and connected flows across the drainage plain to the upper reaches of the Throsby Creek estuary.



Figure 4.7 Construction of sewer main in Tudor St Hamilton

Source: Newcastle University Cultural Collections.

A newspaper article from <u>3rd August 1911</u> provides evidence for the former swampy environs in the Hamiton environs, reporting

"Out at Hamilton West the main sewer is being put down at a depth of 16ft. The ground there is a sort of bluish clay, and although it has to be cut out like so much putty, it does not present anything like the same trouble that the sand at the eastern end of the municipality does. Here, as in Denison Street, centrifugal pumps, electrically driven, deal with the water, and the current is supplied from the city council's powerhouse.





Figure 4.8 Drain under construction, reported to be in Broadmeadow or Hamilton North, 6 April 1900

Source: Newcastle University Cultural Collections.

The Newcastle Morning Herald and Miners Advocate 1899 refers to the drainage of the 'Pasturage Reserve' at that time. The land was described as 'originally a swampy lowland'.

'The last pick has been driven in the Pasturage Reserve drainage scheme (also known as the Commonage drainage work), which was commenced some three years ago. There remains the New Lambton branch of the main channel to be completed.'

Earlier reports in the Newcastle Morning Herald and Miners Advocate, over the period from 1892 to 1899 describe the drainage conditions across the Commonage area and the extent and frequency of flooding. These reports also illustrate the scale of construction works in the development of drainage system.

1892 – several examples of flash flooding through the lower sections of Waratah, New Lambton Adamstown, Plattsburg and Broadmeadow, after heavy rain.

A thorough system of drainage at the lower end of the district from New Lambton downwards, through Hamilton, is necessary to prevent these periodical floods, as the water then would have an opportunity of free access to the main channels to the sea.



In common with other parts of the district the rain has done a deal of damage to the roads in the municipality. The lowlands have suffered considerably. The flat between Adamstown and New Lambton and down to Lambton-road was one sheet of water on Friday morning. Numerous dwellings were flooded. People who have lived on the Lambton-road for 17 years say that they never knew the water to be so high as it was on Friday. The proposed high drain will be a blessing to the district, and till it is completed the lowlands between Adamstown, New Lambton, and Broadmeadow will continue to be under water in wet weather.

August 1895 One of the finest pieces of work done in this district is the much-spoken-of Commonage drain. The other day we visited the work and were greatly surprised at the proportions of the huge drain. In fact it is— or will be in rainy seasons — a regular canal. It begins halfway between New Lambton and Hamilton, and runs in a fairly straight line towards a creek flowing into the Hunter. The drain will easily carry off the storm waters from the large area of country comprising the Commonage.

April 1899 The Adamstown branch of the Commonage drain has stopped within a few chains of the Adamstown-New Lambton road near the railway station. The cause of the drain stopping at that point is in consequence of it being found necessary to carry it through private property, and as the authorities have not come to terms with the Waratah Company and other property holders work is suspended and the municipality suffers.

August 1899 Report on how the flooding in the Broadmeadow area was not as bad as former times "which is directly due to the Adamstown branch of the Commonage drainage works being opened cross the Lambton-road, and the Adamstown water thus being given straight course to the main drain'.

Local history source: https://lachlanwetherall.com/category/suburbs-and-towns/hamilton-north-2292/





Figure 4.9 Drain construction near Mackie Avenue in New Lambton in 1901

Source: Newcastle University Cultural Collections.

Figure 4.9 shows drain construction, replacing a natural drainage line, in New Lambton. This photo is outside the Project Area, but in the same tributary catchment. It shows the spotted gum and ironbark forest on the Permian slopes and the drain is excavated into in situ duplex soils.

Before they existed the flat expanse of Broadmeadow was a major hindrance in draining rainfall to the sea. An inquiry in 1893 noted that:

"On account of the defective drainage the water lay on the ground for days and weeks and even months in wet weather. It lay about the houses and became a nuisance not only in the way of locomotion, but was also productive of bad health and disease."

Because the problem spanned the multiple small local councils of the time, the state government in 1894 surveyed a network of drains across the inner suburbs. With an estimated cost of £39,500 work began in May 1895 with the long straight channel through Broadmeadow, following the path of the defunct Australasia Coal Company railway. Construction of the drainage channel up to Lambton progressed steadily and was completed by 1899.

Figure 4.10 shows both the scale of drains that were constructed through Broadmeadow, and one of the former land uses in the area. This image shows both the scale of the drainage works that were constructed through Broadmeadow from the late Nineteenth Century, and the flat terrain through the central drainage



plain and wetland area. The plane had skidded off the runway of the Newcastle Airfield, which had been gazetted in 1923, occupying part of the Commonage. Planes had been landing on flat land in Broadmeadow, close to the Showground, since at least 1914. This land is now public open space and playing fields, including the McDonald Jones Stadium.



Figure 4.10 Crash of a Douglas 47 aircraft, in the concrete stormwater drain at Broadmeadow, in 1944

Source: Archives of Royal Newcastle Aero Club.

Collectively, these images show the extent of ground surface disturbance in Broadmeadow over the period from the mid-19th to the mid-20th centuries.

4.2.3 Fill and Contamination

Ground and groundwater contamination across Broadmeadow and Hamilton North has resulted from both the types of fill material used to raise the ground surface to create flat and relatively flood free sites for heavy industry and recreation, and from the long history of heavy industrial uses.

Contamination assessment conducted for the project revealed that contaminants are widespread across the area. While very high levels of toxic contaminants are associated with the former Gasworks site, former Goninan's site, Electric Light works site, Shell terminal, other heavy industry and adjacent land, there is also background contamination from fill materials. This includes along the 'banks' of the stormwater drainage network. Contamination extends to groundwater.



4.3 Archaeological Implications

The landscape history of the Broadmeadow area has significant implications for the likelihood that archaeological evidence may be present anywhere across the Project area, in surface or subsurface contexts. Key points include:

- The land is within an estuarine hinterland, approximately 3 km from the southern shoreline of the Hunter River estuary in Newcastle Harbour. The main drainage line through the area flows into Throsby Creek, a tributary of the lower estuary, entering Newcastle Harbour between the late Holocene islands of the bay head delta.
- The Project area is dominated by alluvial drainage plain and estuarine flats.
- The land in the northeastern part of the Project Area may have been estuarine throughout the Holocene period and at contact. This area is mapped as Quaternary estuarine plain (*Qpe*). Mangroves and saltmarsh wetlands may have been present, as they were elsewhere in the bayhead delta of the Hunter River estuary. The Styx Creek drain through this area, which is excavated approximately 4 m below the local ground surface (which is at least partly fill), is tidal.
- The remainder of the project area is mapped as Quaternary and Holocene alluvial plain. This land would have slowly accumulated sediment, raising the ground surface, through flood deposition during the late Holocene.
- The entire Broadmeadow area is described historically as being low lying, poorly drained, swampy and subject to flooding. There are some references to high velocity flood flows in some parts of the drainage flat, which suggests that some channelised creek form (and floodway) persisted through the wetland. Details on the alignment of any channels are sketchy. Some historical records do mention deep holes in the bed of the wetlands, which would have held standing water for weeks or months.
- Descriptions form the early twentieth century also discuss the temporary shanty settlements that established on the drainage flat, on the land known as 'the commonage'. This suggests that parts of the drainage flat may have been available for camping, or pedestrian passage, or hunting, during drier periods. Details of the extent of periods of drying are also sketchy.
- The landscape history highlights influences on any occupation strategy that would have created archaeological evidence. It also highlights the types of archaeological evidence that could have occurred, and it presents reasons why any potential archaeological evidence is likely to be poorly preserved. Natural wetland infill processes, intermittent flood scour, a long history of major interventions in the drainage system, and the development of large heavy industry sites all contribute to a low potential for archaeological evidence to be preserved in the area.
- Further information about archaeological potential is provided in **Section 5.0**, and the scope of discussions with Aboriginal stakeholders about the potential for Aboriginal objects to be present is outlined in **Section 6.0** and **Section 7.0**.



5.0 Aboriginal Cultural Context

5.1 Ethnohistoric Background

Ethnographic literature forms one of the principal sources of information available for heritage practitioners to investigate the ways in which Aboriginal peoples experienced their landscape at the time of first contact. As is the case for other parts of Australia, European missionaries, explorers and settlers occupying the broader Hunter region documented their observations of Aboriginal peoples in journals, personal correspondence and reports. Typically, however the overarching tone of these accounts is often Euro-centric. When considered collectively with available archaeological data however, such accounts assist in developing an understanding of Aboriginal life prior to and at the time of European colonisation.

The Project Area falls within the traditional country of the Awabakal people as indicated in Tindale's 1974 mapping (**Figure 5.1**). Land north of the Hunter River is Worimi Country. The Newcastle environs, known in the Awabakal language as '*Mulubinba*' [the place of sea ferns], is a significant place in the Awabakal cultural landscape, reflected through both the tangible evidence of Aboriginal history (recorded Aboriginal sites) and the continuing connection to Country through cultural and spiritual attachment.



Figure 5.1 Excerpt from Tindale's 1974 tribal map

There are records of Aboriginal people interacting with the European population in the early period of occupation, but subsequent records are relatively rare until the modern period (Umwelt, 2014). Prior to European occupation, the shorelines of the Hunter River estuary and coast would have provided a range of reliable and easily accessible resources for the Awabakal people (and Worimi people to the north of the



River), such as freshwater from local springs known to occur near Wolfe and King Streets in the Newcastle CBD (approximately 3 km east of the current Project Area), a range of aquatic fauna and migratory birds from the estuary and coast lines, and rhyolitic tuff for stone tool manufacture from Nobbys Island (*Whibayganba*).

Paintings, sketches and diaries of Reverend Threlkeld and settlers in the early nineteenth century provide observations of the lives of Awabakal people in the lower Hunter, including around the estuary and associated wetlands.

Examples include:

- The fires of many individuals were seen opposite Ash Island, and on the banks of the creek; also in the area of Ash Island were seen part of a net, the remains of fires and also a weir in the creek itself (Grant 1803).
- Grant further described a 'net made of strong grass; and the weir as one of the principal devices for taking fish'.
- Threlkeld's diaries from the 1820s provides more information about structures to assist with fishing:
 - 'Planting sprigs of bushes in a zig zag form across the streams, leaving an interval at the point of every angle where the men stand with their nets to catch what others frighten towards them by splashing the water.'
- Grant 1803 also describes large quantities of fish being caught near the mouth of the Hunter River (although there is no mention of its estuarine tributaries such as Ironbark creek), including schools of mullet, and large 'jewfish'.
- There are references to large expanses of oyster reef and oyster middens, in the lower estuary, including Fullerton Cove, and to people harvesting large mud oysters, both in the Hunter estuary and in Lake Macquarie.
- Cunningham 1827 described the mosaic of vine forests and floodplain lagoons at Wallis Plains (near Morpeth, in the mid to upper estuary). The flooded vine brushes were watered from the backswamps, and linked to the river. They were observed to 'swarm with the most delicious fish.... including immense eels.'
- TR Browne and Joseph Lycett made illustrations of camps on the southern bank of the Hunter River, near its mouth, both of which show the presence of huts.
- Threlkeld observed that the Awabakal people from the sea-coast made reed spears and exchanged them with people from further inland for possum skin rugs and fur cord. During the colonial period, coastal people were also reported to exchange seashells, iron tomahawks and glass for possum skins and sometimes for belts of yarn, and possum fur head pieces (Dawson 1830).
- In Newcastle, Barallier (1802) observed Awabakal people collecting fern roots (rhizomes), likely *Blechnum*), and yams (*Dioscorea transversa*), growing on low freshwater alluvial landforms were also eaten. These would also have been available around the margins of Hexham wetland and were ground between flat stones.



• There are multiple descriptions of the extent of Aboriginal burning of grasslands and grassy woodlands, in both the lower and upper Hunter. In the case of the western parts of Hexham wetland (which may have been freshwater, although the eastern parts were tidal) burning may have included grassland and it is likely that fire was a tool for maintaining grass pick for marsupials on the low ridges and spurs around the wetland.

5.1.1 Impacts of European colonisation

With the arrival of Europeans in eastern Australia in the 1780s, traditional patterns of Aboriginal life throughout New South Wales were quickly and dramatically altered through disease, displacement, forced movement and assimilation. Newcastle, one of the earliest European settlements in Australia, was no exception to this; but its history is also characterised by the development of tenuous relationships between Awabakal people and early European settlers. Perhaps the single-most important source of ethnohistoric information for the Awabakal people was the missionary, Lancelot Threlkeld, who established a mission at Belmont and subsequently at Toronto on Lake Macquarie and collected extensive information about the Awabakal people and their language in the period between 1825–1841.

While records also exist of corroborees or ceremonial events being undertaken in the Newcastle area, there are very few other records of the spiritual beliefs and practices of the Awabakal people, with the notable exception of the recording of two locations (Nobbys Head and Newcastle Beach) associated with spiritual beliefs that featured in the worldview of the Awabakal (Umwelt, 2009).

However, whilst they may be briefer than those provided by Threlkeld, from the very early period of exploration and settlement of Newcastle there are records of interactions between the Awabakal and the newly arrived Europeans. These include descriptions of encounters with Aboriginal people during Lieutenant Grant's expedition to the Hunter River in 1801, who noted the quantity of oyster shell that had accumulated in the prominent midden deposits along the Hunter River.

More extensive interactions followed the establishment of the second penal settlement in 1804 (the stockade in eastern Newcastle dates to 1820), including records of Awabakal people returning escaped convicts to settlement officials, possibly in retribution for the way escaped convicts attacked Awabakal families.

Early artworks from the period by T.R. Browne, Joseph Lycett, Walter Preston and Joseph Cross all show Aboriginal camps bordering the developing settlement between 1812 and 1828. Records exist of Awabakal people receiving gifts of blankets, tobacco and other supplies in thanks for their involvement (Roberts, 2002). Accounts from 1819 and 1820 record the punishment of Europeans for the mistreatment of Aboriginal men, including the execution of John Kirby following a conviction of murder of Burragong (King Jack), an important Awabakal man in the Newcastle region (The Sydney Gazette and New South Wales Adviser 1820: 2).

Threlkeld 1828 in Gunson, 1974) stated that Aboriginal people were 'employed' in the Newcastle settlement as fishermen, water carriers, messengers, servants, and on ships. He also noted that while Aboriginal people were living in camps at Newcastle, it was "being sold out from under their feet, and only the sea-beach, one hundred feet from the high-water mark, is the place on which they may rest their heads beneath burning sun or pitiless storm" (Threlkeld 1828 in Gunson 1974). This demonstrates the ongoing presence of Aboriginal people within proximity to the Newcastle CBD. However, subsequent records of Aboriginal people living or working within the Newcastle CBD are relatively rare until the modern period.



This does not demonstrate the absence of Awabakal people or Aboriginal people more broadly from the area but is more likely symptomatic of the increasing marginalisation of Aboriginal people resulting from the expansion and intensification of European occupation and development of the Newcastle environs.

Awabakal people were severely impacted by the early colonial occupation of the lower Hunter and Newcastle. The contact with Awabakal people by settlers was amongst the earliest in Australia. This means that Awabakal people were exposed to European infectious diseases such as smallpox, earlier than in other areas. The Awabakal population across what are now the cities of Newcastle and Lake Macquarie is estimated to have been about 3000 people prior to 1788, but by the mid nineteenth century, the records suggest the population had reduced to less than 50 people (numbers quoted in McCallum 2021).

Apart from disease, there is clear historical evidence of a brutal frontier war between Awabakal people, timber cutters, oyster harvesters and farming settlers through the early decades of the nineteenth century, with Awabakal people (and Worimi and Wonaruah people elsewhere on the estuary and further up the river) being dispossessed of their Country and access to their resources and cultural places.

As Newcastle expanded following the closure of the penal settlement in 1823, the Awabakal increasingly struggled to access their land and resources within the settlement itself. This is demonstrated by the records of violent clashes between the Awabakal and Europeans in the 1830s in the Lake Macquarie area (Umwelt 2009).

A newspaper account in 1830 indicated that the number of Aboriginal people within the Newcastle area at the time was equal to (if not greater than) the non-Aboriginal population and that Aboriginal people provided services to the 'lowest classes' such as carrying wood and water and received '*small pieces of tobacco or a cob of corn*' in return. Blanket distribution records from 1833 lists 117 Aboriginal people in Newcastle. Subsequent records indicated that only 29 Aboriginal people were listed on a blanket return from 1846 (Umwelt 2009), suggesting a significant downturn in population. In reviewing the numbers of Aboriginal people living within his mission, Threlkeld indicated that the number of Aboriginal people occupying the Belmont, and subsequently Toronto missions, significantly decreased due to the effects of disease and the ongoing attraction of employment in Newcastle.

The experience of Aboriginal peoples in NSW since European occupation has also been one of movement, forced or otherwise, which has seen the translocation of non-Awabakal Aboriginal peoples to the area and subsequent development of their own attachments to Newcastle. The history of the Newcastle (*Mulubinba*) environs therefore spans the traditional and ongoing Awabakal connection to Country, the attachment to places experienced by other Aboriginal peoples, Europeans and other migrant peoples since 1788 and the shared history of all.

5.2 Archaeological Context

5.2.1 Register Searches

5.2.1.1 Aboriginal Heritage Management Information System (AHIMS)

The AHIMS database, administered by Heritage NSW, contains records of all Aboriginal objects reported to the NSW Department of Planning and Environment in accordance with Section 89A of the *National Parks and Wildlife Act 1974.* It also contains information about Aboriginal places, which have been declared by



the Minister to have special significance with respect to Aboriginal culture. Previously recorded Aboriginal objects and declared Aboriginal places are known as 'Aboriginal sites'.

A search of the AHIMS database was undertaken on 14 March 2023 (search number #849133) for an approximate 3 km area centred on the Project Area (i.e., 'the AHIMS search area'). The search identified 15 existing recorded sites. Of the 15 listed sites, 2 were listed as 'destroyed', 2 listed as 'partially destroyed', and 1 site was 'deleted', resulting in 10 valid sites. For the purposes of this assessment, all but the deleted sites in the AHIMS search area were considered for their implications for Aboriginal site prediction.

As is typical for metropolitan areas, areas of potential archaeological deposit (PAD) were common accounting for 46.7% (n=7) of the total AHIMS search results. The concentration of areas of PAD attest to the focussed archaeological investigation of the metropolitan Newcastle environs. The available data suggest that the registered resource and gathering sites may also refer to open artefact sites and have been registered as such. Considered collectively, Aboriginal resource and gathering sites and open artefacts sites form approximately half of the total search type represented in the AHIMS search results, accounting for 53.3% (n=8) of the total AHIMS search results.

Of the Aboriginal sites reported in the AHIMS search results, two (2) areas of PAD – 'Wickham Transport Interchange PAD'; AHIMS ID #38-4-1716 and 'Broadmeadow PAD 2023-01'; AHIMS ID #38-4-2263, extend into the current Project Area:

- Reference to the site card indicates that 'Wickham Transport Interchange PAD'; AHIMS ID #38-4-1716) has been subject to multiple investigations (e.g., Artefact Heritage 2014, Umwelt 2021). Archaeological excavations within the PAD boundaries have to date, recovered more than 8,000 Aboriginal objects. Cultural bearing deposits were identified from 0.4 m below ground surface and extending to 1.7 m depth.
- Broadmeadow PAD 2023-01 (AHIMS ID #38-4-2263) was registered on the AHIMS database earlier in 2023 and covers the entirety of the Locomotive Depot study area. Artefact (2023) suggested that there was likely to be Pleistocene deposits present, though site visit did not reveal evidence of the sand body or any Aboriginal objects the survey did not reveal any disturbance to the sand body.

An additional three (3) sites fall within 500 m of the Project Area - 'Railway Lane'; AHIMS ID #38-4-2136, '10 Dangar Street PAD'; AHIMS ID #38-4-2037, 'Newcastle Interchange Artefact Reburial 1 (NI AR 1)'; AHIMS ID #38-4-2006 and 'Denison Street PAD' (AHIMS ID # 38-4-2135), which is located approximately 100 m east of Parry Street, near the eastern extent of the Project Area. Of those sites which fall within 500 m of the Project Area, all comprise either open artefact sites or areas of PAD. This is generally consistent with the broader Newcastle CBD environs, which indicate a dominance of open artefact sites recorded during intrusive archaeological investigations.

Summary details of the Aboriginal sites reported in the AHIMS search are presented in **Table 5.1**. Aboriginal sites within and adjacent to the Project area shown in **Figure 5.2**.



Table 5.1AHIMS Search Results

Site Type	Count (n)	Percentage
Potential Archaeological Deposit (PAD)	7	46.7%
Open Artefact Site	6	40.0%
Aboriginal Resource and Gathering	2	13.3%
Total	15	100%



Figure 5.2 Aboriginal Sites





5.2.2 Newcastle Local Environmental Plan (LEP) 2012

As discussed in **Section 2.3.1**, Part 5.10 of the Newcastle LEP 2012 establishes the requirements for development consent in relation to heritage conservation, including conservation of Aboriginal objects or Aboriginal places of heritage significance. Schedule 5 of the Newcastle LEP 2012 provides a list of heritage items, heritage conservation areas and archaeological sites within the Newcastle LGA.

A search of the Schedule 5 of the Newcastle LEP 2012 was undertaken on 18 April 2023. The Newcastle LEP 2012 does not currently list any items, objects or places of Aboriginal cultural heritage within the Project Area.

5.2.3 Australian Heritage Database

The Australian Heritage Database contains information about more than 20,000 natural, historic and Indigenous places. The database includes heritage places registered on the following:

- World Heritage List.
- National Heritage List.
- Commonwealth Heritage list.
- Register of the National Estate (archived).

A search of the Australian Heritage Database was undertaken on 18 April 2023. The Australian Heritage Database does not currently list any items, objects or places of Aboriginal cultural heritage within the Project Area.

5.2.4 NSW State Heritage Inventory

The State Heritage Inventory (SHI) includes places and items listed on the NSW State Heritage Register (SHR), LEPs, s170 registers, and interim heritage orders.

A search of the SHI was undertaken on 18 April 2023. The SHI does not currently list any items, objects or places of Aboriginal cultural heritage within the Project Area.

5.2.5 Summary

A review of relevant heritage registers undertaken for the current assessment identified that two (2) areas of PAD – 'Wickham Transport Interchange PAD'; AHIMS ID #38-4-1716) and Broadmeadow PAD 2023-01 (AHIMS ID #38-4-2263) extend into the Project Area. An additional three (3) sites fall within 500 m of the Project Area - 'Railway Lane'; AHIMS ID #38-4-2136, '10 Dangar Street PAD'; AHIMS ID #38-4-2037, 'Newcastle Interchange Artefact Reburial 1 (NI AR 1)'; AHIMS ID #38-4-2006 and 'Denison Street PAD' (AHIMS ID # 38-4-2135), which is located approximately 100 m east of Parry Street, near the eastern extent of the Project Area.

No specific items, objects, sites and/or places or known Aboriginal cultural heritage are currently registered within the Project Area. The absence of recorded Aboriginal cultural heritage within the immediate environs of the Project Area likely stems primarily from the paucity of compliance-based Aboriginal cultural



assessments undertaken in the Broadmeadow environs (and the age of much of the development), rather than being indicative of the lack of Aboriginal archaeological potential and/or cultural values in the area.

The majority of reported Aboriginal sites within the AHIMS search results lie within the Newcastle Central Business District (CBD) and generally fall within 200–300 m of the Hunter River. Unlike the Broadmeadow environs, the Newcastle CBD has been subject to extensive Aboriginal archaeological investigation over the last decade (discussed in **Section 5.3**), and consequently the number of recorded Aboriginal sites in the Newcastle CBD environs reflects this density of recorded Aboriginal sites. Additionally, forty-five Aboriginal sites reported in the AHIMS search results are located of the Stockton Peninsula, approximately 4 km northeast of the Project Area. Like the Newcastle CBD, the Stockton Peninsula has been the subject to numerous investigations, with particular emphasis on the Fort Wallace site (e.g., (Umwelt, 2018; Godden Mackay Logan [GML], 2008). Most of the cultural deposits on or around the Hunter estuary and coastal barrier are within sandy substrates of alluvial or estuarine foreshore or low foreshore dune, or open beach frontal dune and transgressive dune origins.

There is an extensive record of Holocene occupation sites on coastal landforms on both sides of the Hunter River estuary. To the north of the river, archaeological sites are recorded on the dual coastal barrier system, including on Holocene beach and back barrier deposits, along tidal creeks, on Holocene transgressive dunes, Pleistocene beach ridges and Pleistocene reworked sand sheets and low dunes. The dates available for these sites are predominantly Holocene, with rare late Pleistocene dates. There have been some archaeological assessments in the catchment area of Styx Creek and Throsby Creek, upstream of the drainage plain area. Some assessments have also been prepared within the catchment of Ironbark Creek and Hexham wetland. The results of these assessments provide broad archaeological and cultural context for the Project Area. Examples include assessments prepared for the Inner City Bypass (Rankin Park to Jesmond) (Kelleher Nightingale for TfNSW, 2018). The message from this extensive archaeological assemblage, together with the available ethnographic observations, is that there is no reason to believe that Awabakal people would not have used the resources of the local creeks and wetlands (Throsby Creek, Styx Creek and Cottage Creek in this instance).

The landforms, soils and surface processes affecting archaeological remains in the Broadmeadow area are quite separate from those in coastal barrier dune systems. The result is that although the estuarine creeks and wetlands may have provided diverse resources, distinctive coastal archaeological evidence (e.g., shell) will not be retained. Open campsites and artefact scatters are more likely to occur on slightly elevated land along creek corridors and around wetland areas rather than within the wetlands themselves. Ground disturbance in shallow clay-based soils on these bedrock foot slopes and low bedrock outliers is more likely to have destroyed any archaeological evidence than similar levels of disturbance on deep, stratified sandy substrates.

5.3 Previous Assessments

While no available Aboriginal cultural heritage and/or archaeological assessments have been undertaken within the current Project Area or focussing on the Broadmeadows environs, the Newcastle CBD has been the subject to intensive archaeological investigation (comprising both Aboriginal and historical heritage) since the 1990s. Increasing development pressures in recent years have prompted many Aboriginal archaeological investigations, including two dedicated local studies (AMBS, 2005;Umwelt 2016). The majority of these have primarily focused on infrastructure and urban development activities with most being the result of compliance-based assessments.



Collectively, the results of previous investigations within the metropolitan Newcastle environs (including inner Newcastle and the headwaters of small coastal catchments) have established an impression of past-Aboriginal land-use, attesting to an emphasis on low-gradient, sandy landform elements adjacent to the Hunter River, as well as an emphasis on the procurement and reduction of locally sourced Nobbys Tuff and focused utilisation of marine and estuarine resources.

This intensity of localised investigation is further reflected in the notable concentration of Aboriginal sites registered on the AHIMS database within the Newcastle environs (n=-45), with spatial patterning reflecting key areas of development activity. Open artefact sites remain the dominant site type reflected in the Aboriginal archaeological record of the Newcastle CBD environs, though it should be noted that in many cases, open artefact sites also reported instances of shell midden material.

In response to localised development requirements, many areas of PAD are also defined within the CBD environs which have in many cases, gone on to be investigated. To date however, open artefact sites comprising subsurface deposits comprising flaked and ground stone objects remain the most intensively investigated component of the Aboriginal archaeological record of the Newcastle CBD environs, with research largely focussing the technology of associated stone artefact assemblages. The implication for the current framework of the Aboriginal archaeological record in the area is defined on the basis of recovered artefact assemblages.

While investigations within the Newcastle CBD provide limited context to the immediate environs of the Project Area specifically, the results of these investigations provide a degree of local context. A selection of key projects is summarised in **Table 5.2**.



Prior Archaeological Assessment	Overview of Findings	Distance from Project Area
Higginbottom, E. (1999) Report on the archaeological test excavation of the Convict Lumber Yard and Stockade, Newcastle	 Higginbottom undertook archaeological excavations within the former lumber yards, located 2.8 km east of the current Project Area. Aboriginal objects were recovered within deposits of mixed fill and sandy topsoil. Whilst the stratigraphy of the lumber yard excavations was relatively complex and indicative of varying disturbance factors, it was found that some <i>in situ</i> Aboriginal objects were present. Higginbottom concluded that the objects had been disturbed and mixed with remains of early nineteenth century historical occupation, confirming that the site had been disturbed. As one of the earliest archaeological assessments in the Newcastle CBD environs, Higginbottom's 1999 investigation provided a preliminary understanding of the Aboriginal archaeological resource of the Newcastle area and provided evidence that the Newcastle area was actively used by Aboriginal peoples prior to and at the time of Europeans occupation of Newcastle. Referencing recovered objects, Higginbottom also suggested that the coastal area was utilised by both European and Aboriginal peoples concurrently during the early occupation phase of the area. 	2.8 km east
Archaeological Heritage Management Solutions (2001) Accor Ibis Hotel Site 700 Hunter Street Newcastle, NSW. Interim Report on Archaeological Test & Salvage Excavations at the site	AHMS undertook historical and Aboriginal archaeological excavations were conducted at 700 Hunter Street, approximately 900 m east of the current Project Area and adjacent to the former banks of the Hunter River. This area was associated with a former European cemetery and contained numerous grave cuts and skeletal remains, none of which were identified as being of Aboriginal origin. A significant quantity of Aboriginal objects was recovered from test and salvage excavations of the site, including over 4,000 stone artefacts, shell and animal bone. The artefacts were predominantly manufactured from Nobbys Tuff, with comparatively lower quantities of silcrete, chert and quartz. Artefact types included cores, flakes and 'amorphous knapping waste', with some backed blades also recovered. Of the 92 excavated squares, 43% contained 20 or fewer artefacts, 23% contained 21–60 artefacts, 16% contained 61–100 artefacts and 14% contained 100–250 artefacts, with the remaining three squares containing 320, 500 and 537 artefacts, respectively. Aboriginal objects were recovered from grave fills and exhumation deposits as well as remnant topsoils consisting of a black to dark grey sandy loam A1 horizon and a dark grey sandy loam A2 horizon. This soil profile differs from the current Project Area, being that of a brownish black pedal loam topsoil, however it does suggest that areas of intact topsoil may yield varied quantities of Aboriginal objects if investigated. In the current Project Area due to the highly eroding nature of the remnant topsoil it is unlikely that artefactual materials would be recovered.	900 m east

Table 5.2Summary of Aboriginal Cultural Heritage Assessments near the Project Area



Prior Archaeological Assessment	Overview of Findings	Distance from Project Area
Dallas (2004) Aboriginal Archaeological Test Excavation Report Boardwalk Site Honeysuckle Drive Newcastle, NSW	Dallas completed archaeological excavation to support the Honeysuckle Drive Boardwalk redevelopment. Excavations of a shell midden found a low-density scatter of whelk, cockle and oyster shells. A total of 113 lithic objects of Aboriginal origin were found in association with midden material. Additional stone artefacts were also recovered from overlying fill deposits, similar to Higginbottom (1999) above. Dallas (2004) reported that the artefacts were present in relatively low densities across the site, with an average of 11 objects per m ² . Artefacts consisted of flakes, flaked pieces and broken flakes, with the majority of the assemblage manufactured from Nobbys Tuff, with smaller quantities of silcrete, rhyolite and quartz. The results of the assessment confirmed that the focussed Aboriginal occupation of the Newcastle metropolitan environs, with particular emphasis on procuring of estuarine and coastal marine resources. The report, however, suggested that the relatively low density of artefacts recovered from the excavations reflected the perceived low intensity use of the area, pointing towards transient or opportunistic use. Contrarily, the low densities reported by Dallas was more likely the result of ground disturbance, which may have impacted, disturbed or destroyed further evidence of Aboriginal occupation in the subject area.	1.3 km east
Insite Heritage (2005) Test Excavation Report 200–212 Hunter Street, Newcastle	Insite Heritage (2005) conducted test excavations at 200–212 Hunter Street, located within the boundaries of a previously identified area of PAD – '200 Hunter Street PAD' (AHIMS ID #38-4-0796). Excavation activities focused on the remains of three mid-19 th century buildings and recovered Aboriginal objects within natural sandy soils. The majority of recovered objects were manufactured locally available Nobbys Tuff, with a minority of non-diagnostic fragments of fine grained silicious (FGS) material also recovered. One pot lid (a small flake resulting from application of excessive heat to stone) was also recorded. Additional objects exhibited indications of intentional heat alteration, comprising crenated fractures and pot lids. Further excavations of the historic fill material recovered 161 Aboriginal objects. These deposits exhibited a similar range of flaked stone artefacts and were found in association with introduced fill including pebbles and cobbles and materials such as flint and chalcedony. Of those recovered, 19 stone artefacts were encountered within the 1804–1860 layer, and the remaining majority within material dating to the 1860's. Initial assessment suggested that the presence of Aboriginal objects in historical fill was indicative of Aboriginal occupation of the area continuing into the early 19 th century, with areas of mutual occupation being present. However, Insite Heritage concluded that there was no direct evidence of Aboriginal production of flaked stone artefacts, and that artefacts were likely to have been incorporated into the historic levels after their deposition, either transported through fill or other historic activities. Insite determined that imported fill identified beneath historic structures may have been associated with reclamation of the foreshore in the 1850s, or the levelling of the site prior to construction around the mid-1860s.	2.3 km east



Prior Archaeological Assessment	Overview of Findings	Distance from Project Area
Umwelt (Australia) Pty Ltd (2009) Aboriginal Heritage Assessment: Proposed Newcastle CBD Project	Umwelt conducted a detailed archaeological assessment of the proposed 'Newcastle East End' project, located approximately 1.5 km east of the current Project Area. However, as an outcome of the assessment, a large area of potential archaeological deposit ('Newcastle CBD PAD'; AHIMS ID #38-4-1084) was recorded. Based on the outcomes of this assessment, Douglas Partners obtained AHIP #3008 to allow for the completion of geotechnical work within the boundaries of 'Newcastle CBD PAD', AHIMS ID 38-4-1084). Douglas Partners conducted geotechnical work in October and November 2008. Soil samples recovered from boreholes were retained for archaeological inspection, with each sample labelled by sample number and depth. A total of nine confirmed Aboriginal objects were recovered from 3 boreholes. Aboriginal objects consisted of six broken flakes, one flake, one core and one retouched flake. Nobbys Tuff – was the dominant raw material, with seven artefacts manufactured from this material. The remaining two Aboriginal objects were manufactured on fine grained quartzite. A retouched flake displayed characteristics consistent with post-discard heat damage, retained cortex, and also displayed evidence of use wear. In total, these boreholes contained 558 pieces of Nobbys Tuff, 71 pieces of quartzite, 18 pieces of silcrete, 10 pieces of basalt, one piece of quartz and one piece of chert. Most of this material was small and highly fragmented with many waterworn. Such outcomes are comparable to those of previous archaeological investigations within the Newcastle area, such as that of Higginbotham (1999) who recorded large numbers of mudstone fragments, but only a small proportion of these were artefactual. Shell material was also recovered, the vast majority of which was small (less than 10 mm in size) and highly fragmented. Shell fragments consisted of 191 pieces of oyster, 18 pieces of pipi, 2 pieces of mud whelk and 55 indeterminate pieces.	1.5 km east
Archaeological and Heritage Management Solutions (2011) Section 87/90 Aboriginal Heritage Impact Permit #1098622: Excavation Report.	AHMS undertook targeted test salvage excavations at 700 Hunter Street which resulted in the recovery of over 5,000 Aboriginal objects (lithic artefacts). A total of 48 m ² were excavated and resulted in the salvage of 5,534 Aboriginal objects and midden material. In addition, a hearth feature dating to 2,118 and 1,933 BP (calibrated) was also identified. AHMS reported an artefact density of 115.3 objects per m ³ , with some occurrences of over 100 artefacts per test pit. Over 90% of the assemblage was manufactured from locally available Nobbys Tuff with only small quantities of silcrete, chalcedony, chert, quartzite, sandstone, volcanic and glass. Retouched artefacts comprised approximately 2.4% of the assemblage, with two ground implements, two hammerstones, an anvil and a pebble chopper also recovered. OSL dating from the excavation concluded that the oldest deposit dated to 3,500 BP (calibrated) and that later occupation, identified within the A2 soil landscape (upper dune), dated to 2,480–1,933 BP (calibrated). Occupation across this area is believed to have continued after this period, however ground disturbances across the study area severely impacted the A1 horizon.	800 m east



Prior Archaeological Assessment	Overview of Findings	Distance from Project Area
Artefact Heritage Services Pty Ltd (2014) Wickham Transport Interchange Aboriginal Survey Report	Artefact Heritage prepared an Archaeological Survey Report (ASR) for the proposed Wickham Transport Interchange (WTI) to the north and east of the Project Area. The report found that portions of the WTI study area had potential for archaeological deposits and recommended undertaking further archaeological investigation within the bounds of Wickham Transport Interchange PAD (AHIMS ID #38-4-1716). Subsequent excavations were undertaken in two stages in 2015. Cultural deposits were identified up to 1.7 m depth within estuarine channel sediments which Artefact suggested indicated that the ground was alternatively swampy and dry to the north of the study area over the time. Stage 1 testing was undertaken April 2015 and recovered 391 artefacts. Stage 2 undertaken in June-July 2015 adjacent to Stage I recovered a further 3,912 artefacts. It was concluded there was the potential for two main vertical concentrations, possibly representing two discrete occupation layers. Recovered artefacts were subsequently interred in Thomas Armstrong Oval to the north of the Project Area (as site 'Newcastle Interchange Artefact reburial 1 (AHIMS ID #28-4-2006).	200 m east and north
Umwelt (Australia) Pty Ltd (2017) Aboriginal Cultural Heritage Assessment: Newcastle East End Project – Stage 1	Umwelt undertook an Aboriginal cultural heritage assessment for Stage 1 of the 'Newcastle East End' project. This assessment continued from the Umwelt 2009 investigation and provided supplementary information regarding the outcomes of previous archaeological investigations in the local area. Preliminary consultation outcomes with Aboriginal stakeholders identified the Newcastle East End Stage 1 area was as having high cultural significance. Additionally, the Newcastle East End Stage 1 area was assessed as having moderate to high research potential. Subsequently, AHIP #C0003431 was issued for the Newcastle East End Stage 1 area in March 2018. Archaeological salvage works commenced within the Stage 1 area in November 2018. Preliminary results of the excavation identified intact profiles that have been preserved beneath later disturbance episodes. Undisturbed cultural strata were encountered at depths greater than 2 m below the ground level. The investigation determined that the potential for <i>in situ</i> archaeological deposits decreasing away from the former foreshore. In total, approximately 18,000 Aboriginal objects were recovered.	1.5 km east
Umwelt (Australia) Pty Ltd (2017b) Aboriginal Cultural Heritage Assessment Report, Newcastle East End Project, Stage 1.	Umwelt undertook 48 m ² of test excavation for Stage 1 of the Newcastle East End Project, which resulted in the initial recovery of 7,088 Aboriginal objects. Further expansion of test pits combined with mechanical excavation resulted in the recovery of an additional 9,165 Aboriginal objects. Excavations identified large water transported cobbles with a significant number of artefacts exhibiting characterises consistent with post-depositional water rolling. Umwelt suggested this indicated that these objects had been disposed of and subsequently transported via fluvial processes. The assemblage was dominated by objects manufactured from Nobbys Tuff, with silcrete, quartzite and chert present in very limited quantities. Artefacts within the sandy foredune environs include formal tool types (predominantly backed objects and bondi points) as well as other retouched flakes, complete flakes and associated debitage.	1.5 km east



Prior Archaeological Assessment	Overview of Findings	Distance from Project Area
Kelleher Nightingale Consulting Pty Ltd. 2017 and 2018. Newcastle Inner City Bypass, Rankin Park to Jesmond, Aboriginal Archaeological assessment.	KNC conducted surface survey and assessment of Aboriginal archaeological evidence along the bypass route in 2017 and followed with further assessment in 2018. The bypass route broadly follows the drainage divide at the head of Styx Creek. Earlier surveys in this area include Brayshaw and Kerr (1983, for John Hunter hospital), Brayshaw and Associates 1984 (State Highway 23). Other work referenced in the broader Newcastle drainage system context includes Umwelt 2002 (Blue Gum Vista/Sanctuary, for Landcom) and Dean-Jones 1989 (at Winding Creek terrace, Glendale). The surface survey identified several low-density artefact scatters and two PADs. Artefacts comprised tuff, silcrete and greywacke. Although two PADs were identified (one at a low order creek junction), there was very limited subsurface deposit.	
	Test excavation revealed few artefacts. These were primarily in the top 10cm of soil. KNC concluded that this area was likely utilised by Aboriginal people passing through (hunting or gathering activities), rather than for camping. There is no local water source.	
Umwelt (Australia) Pty Ltd (2019) Aboriginal Cultural Heritage Assessment: Newcastle East End Project – Stage 2	Umwelt undertook an Aboriginal cultural heritage assessment for Stage 2 of the Newcastle East End project, following the outcomes of Umwelt's 2009 and 2017 assessments. AHIP #C0005464 was issued for the Newcastle East End Stage 2 area in January 2020 and archaeological excavation works commenced in late 2020. Although contemporary ground disturbances were identified, undisturbed cultural strata were identified at approximately 2.5 m below ground level.	1.5 km east
Umwelt (Australia) Pty Ltd (2020 Newcastle Light Rail Project – Archaeological Report. Works Conducted under AHIP C0002170	Umwelt undertook a targeted salvage excavations within Aboriginal site 'Wickham UFCCALE OS1' (AHIMS ID #38-4-1223). The works resulted in the recovery of 3,189 Aboriginal objects. The excavations were undertaken within the area of sensitivity east of Cottage Creek and identified a disturbed soil profile with little to no archaeological integrity. Similarly, excavations immediately bordering Stewart Avenue suggested similar historical disturbance. The general topography of the area was noted as naturally low-lying and historically subject to inundation periods of sufficient length for the formation of swamp deposit. The area was also noted as being periodically subject to tidal inundation and wave action and a brief period where aeolian sands blew into the area. Umwelt suggested that these factors contributed to the translocation of Aboriginal objects. In contrast, excavations for a deep sewer trench (now located within the access road immediately to the north of the Light Rail stabling facility) identified a relatively intact soil profile beneath a layer of modern fill material. Typically, fill material extended to approximately 0.4 m and was underlain by a light grey fine-grained sand (A2 horizon) that extended to approximately 0.9 to 1 m below the current ground surface and overlay a mid-yellow orange sand trending to a dark orange-brown cemented sand (B horizon). Aboriginal objects were primarily recovered from within the A2 horizon soils, with artefact densities varying substantially.	500 m east



Prior Archaeological Assessment	Overview of Findings	Distance from Project Area
	Six test pits contained less than 50 Aboriginal objects, three contained between 50 and 200 artefacts, with three test pits containing over 200 artefacts (the maximum retaining 796 objects). Aboriginal objects were predominantly found within the upper 50 cm of natural sand deposit but were present lower numbers towards the base of the A horizon. Tuff was the dominant raw material represented within the recovered artefact assemblage. Umwelt identified the geomorphological environment of the phase of occupation was characterised by extensive dune sands that covered the area in the late Holocene (estimated to be between 2,000 to 3,000 BP). Umwelt noted the key indices for occupation within this area and depth included increased diversity in the artefact assemblage, the presence of a partial grindstone (indicative of processing of plant food), the increased evidence for heat treatment, increased rates of core rejuvenation, increased evidence of backed artefact manufacture and the use of strategies to conserve raw materials.	
Umwelt (Australia) Pty Ltd (2021) Heritage Assessment: Newcastle East End Stages 2, 5 and 9. Public Domain Upgrade Works	Umwelt undertook a heritage assessment of the Newcastle East End project, Stages 2, 5 and 9 following the recommendation that prior to the commencement of the proposed works. The assessment included overview of the historic development of the Newcastle CBD environs and demonstrated that the area has been extensively disturbed and utilised during the early development years. The assessment reviewed the historical reclamation activity which developed the Newcastle Harbour, commercial development of the Newcastle city centre, the installation of drainage and subsurface services, and the formalisation of the Newcastle Road system. Umwelt suggested that undisturbed natural sands were still likely at depths of 700 mm below ground level and consequently there was cultural strata to remain at depth.	1.6 km east
Umwelt (Australia) Pty Ltd (2021b) Aboriginal Archaeological Due Diligence Assessment, 11–17 Mosbri Crescent, The Hill	Umwelt undertook an Aboriginal Due Diligence Assessment at 11–17 Mosbri Crescent. This assessment identified that the wider site has been subject to significant modern disturbance through the construction of existing buildings, and carpark facilities. Two Aboriginal objects (tuff flakes) were identified and collectively recorded as Aboriginal site 'NBN_AS1' (AHIMS ID #38-4-2100). No subsurface archaeological potential was noted, as it was observed that the landform was subject to significant erosion.	2 km east



Prior Archaeological Assessment	Overview of Findings	Distance from Project Area
Umwelt (Australia) Pty Ltd (2021c) Newcastle Bus Interchange – Works Conducted under AHIP C0003418	Unwelt undertook Aboriginal archaeological test excavation and salvage at the Newcastle Bus Interchange located approximately 200 m northeast of the Project Area. Investigations within this area identified that the Wickham Transport Interchange PAD (AHIMS ID #38-4-1716) and associated landform extended into this property, with the PAD extended to reflect this. A total of 28 m ⁻¹ of test excavation and a further 30 m ² of salvage was undertaken, recovered over 9,400 Aboriginal objects. The larger, western portion of the site comprised a low-lying salt marsh or swamp area, comprising a coarse-grained sand deposit overlying dense gravels above estuarine sands extending significantly below the water table. Typically, fill materials extended below 1 m depth, overlying a pebble-filled, damp, pale grey/yellow sand (A ₂ horizon). This horizon was consistently subject to flooding during excavation, and predominantly was underlain by a deep estuarine sand deposit. An exception to this was the identification of a dense pebble lens, primarily identified within TP5/6 that was subject to salvage expansion. This dense pebble lens was identified at between 50 and 60 cm below the top of the natural deposit, suggesting that this area may have formed part of a slow-moving creek line that flowed through the swamp or marsh area. A significant number of Aboriginal objects were contained within the pebble lens, accounting for approximately one third of the assemblage. Comparably, the eastern portion of the site near to Hannell Street (located under the former carpark) comprised a soil profile consisting of fine-grained, wind-blown dune sands – consistent with the understanding of dune sands covering the area during the late Holocene. Typically, fill materials were between 0.1 to 0.4 m below the current ground surface, underlain by a light grey fine- grained sand (A ₂ horizon) that extended to approximately 1 m below the current ground surface, underlain by a light grey fine- grained sand (A ₂ horizon, some the etail were between	200 m northeast



Prior Archaeological Assessment	Overview of Findings	Distance from Project Area
RPS (2022) Interim Report: Newcastle East End Project – Stage 2	RPS was engaged to prepare an Aboriginal Archaeological Preliminary Report for East End Stage 2 following Umwelt's 2019–2020 assessment. A fieldwork program comprising Aboriginal community collection was undertaken, with further works including monitoring during perimeter piling works, and bulk sieving of stockpiles. A collective area of 26 m ² was subject to test excavation, with a n additional 3 m ² opened at locations exhibiting higher artefact concentrations. Additional salvage excavations were conducted at test pits with the highest artefact counts.	1.5 km east
	The total test pit and salvage expansion areas covered 32 square metres at the completion of excavation. Over 16,700 Aboriginal objects artefacts were recovered. Preliminary results indicated that most artefacts comprise Nobbys Tuff. Several heat-treated artefacts and specialised tool types were identified including retouched objects (Bondi points, backed microliths, retouched blades, retouched flakes) and multiplatform cores.	
	Reports of onsite non-compliance issues resulted in sieving works being undertaken, which were completed in May 2022. There were an estimated 12,800 lithic artefacts recovered during this time. A more accurate count will be included in the salvage excavation report. The results of Aboriginal community collection and archaeological excavations were not available at the time of the current assessment.	
Artefact Heritage (2023) Broadmeadow Locomotive Precinct Masterplan Planning Proposal	Artefact Heritage (Artefact) prepared an Aboriginal Cultural Heritage Assessment to inform the early planning stages of the Broadmeadow Locomotive Precinct, located within the Locomotive Depot and in the southwestern portion of the current Project area. Artefact completed a survey of the precinct with and recorded an area of PAD on the belief that broadscale mapping suggested that Pleistocene deposits were present. Additionally, a RAP representative indicated a belief that the area would have been a kangaroo and wallaby ranging ground prior to British settlement.	Within



5.4 Key Observations

Key observations to be drawn from a review of the local and regional archaeological context of the Project Area are as follows:

- To date, no known targeted Aboriginal cultural heritage and/or archaeological investigations of the Project Area and immediate environs have been undertaken. Two (2) areas of PAD are currently registered within the Project Area. The boundary of one of these, 'Wickham Transport Interchange PAD' (AHIMS ID #38-4-1716), is based on the specific project area of the Wickham Transport Interchange (Artefact Heritage 2014) and does not reflect the broader archaeological potential of the Project Area. While that specific location has not been subject to targeted archaeological excavation to confirm its extent, excavations within the PAD boundary (and at other locations within 200 m) have confirmed cultural deposits within former estuarine-bordering landform elements. Likewise, the boundary of 'Broadmeadow PAD 2023-01' (AHIMS ID #38-4-2263) was determined on the basis of broadscale geological mapping only and has not been confirmed through subsurface testing.
- The lack of Aboriginal sites within the current Project Area is suggested to not be representative of the overall archaeological potential of the Project Area environs and instead is more likely the result of the absence of compliance-based assessments undertaken in the local area. It is also likely that primary development in the area predates the requirement of environmental and heritage approvals. While there was local interest in fossils and archaeological finds in Newcastle in the late nineteenth and early twentieth centuries, no records of observations or collections by amateur naturalists are known for this area at this time.
- There are, however, historical descriptions of Aboriginal people further to the east in Hamilton (on the sand beds), where they are described digging for water, conducting corrobborees and hunting for small marsupials.
- An understanding of the geomorphic evolution of the Newcastle metropolitan environs is critical to predicting any associated Aboriginal archaeological potential.
- Flaked stone artefact assemblages, often present with other cultural materials/features (i.e., shell midden materials, hearths etc) are the most common site type at a local scale. These sites are recorded close to the harbour or beach foreshores. Shell is not recorded in sites away from the immediate foreshore areas.
- Previous archaeological investigations within the Newcastle metropolitan area have identified former foredune landforms adjacent to the Hunter River as being of high archaeological sensitivity, with the largest and most complex archaeological sites occurring in this context. These sites mirror the extensive archaeological evidence on coastal barrier and dune deposits on the northern side of the Hunter estuary. Available archaeological data suggest that these areas were a likely focal resource zone for Aboriginal people occupying the lower Hunter River area throughout the mid-to-late Holocene.



- A significant assemblage of archaeological sites and materials adjacent to a coastal wetland has been
 recorded on low spurs around Hexham wetland (Ironbark Creek system, tributary to the Hunter River
 upstream of the current project area). It is important to note that Hexham wetland is a large and
 diverse system, with both estuarine and freshwater components. Its shoreline includes early Holocene
 beach and sites as well as low bedrock spurs. There are multiple small tributary freshwater creeks
 between the bedrock spurs (e.g., see Umwelt 2000). Hexham wetland also includes ceremonial sites
 and a gazetted Aboriginal Place (Rocky Knoll). The Hexham wetland evidence demonstrates occupation
 strategies for coastal wetland landscapes, with archaeological evidence on slightly elevated land
 around the margins, particularly where tributary creeks flow from their upper catchment into the
 wetland system. Sites are not within the wetland itself. The Broadmeadow precinct replicates some of
 the landform elements of Hexham wetland, but at a smaller scale. The Hexham evidence reinforces the
 concept that the Throsby Creek wetland was accessed diverse resources, but that physical
 archaeological remains within the wetland are unlikely.
- Archaeological midden assemblages identified in the lower Hunter environs are dominated by marine and estuarine fauna species represented including whelk, cockle and oyster, with fish and bird bone also present in lower concentrations.
- Mid-to-late Holocene flaked stone assemblages within the Newcastle CBD environs attest to a strong preference for locally available (from outcrops along the open coast) Nobbys Tuff.
- There is ethnographic evidence of the use of plant materials in the Awabakal toolkit (nets, baskets, traps etc.,) (e.g., see Threlkeld's journals) but no archaeological evidence of plant-based tools or equipment is known from the lower Hunter. If the uses of estuarine creeks and wetland areas involved plant-based implements, we would not expect to find archaeological evidence, especially given the amount of ground surface disturbance and clearing that occurred.
- Historical records indicate a rapid and extensive level of displacement of Awabakal people from their Country in the early years of the colonial settlement and major changes to the lifestyle of people living around the estuary. However, there is also evidence in historical records of Awabakal people continuing cultural practices, at least in the first half of the nineteenth century, and likely their pathways and relationships with groups to the north and south.

5.5 Archaeological Predictions

Review of Aboriginal archaeological and cultural heritage assessments for the Newcastle environs, when viewed collectively within the context of landscape and environmental data, provide a limited framework in which to develop an understanding of localised Aboriginal occupation and land use patterning within the Newcastle metropolitan region.

As indicated in **Section 5.3**, the vast majority of Aboriginal archaeological investigation of the Newcastle environs are located within the foreshore and CBD areas with a comparatively low frequency of assessments undertaken outside of those areas. This may be due, in part to the focussed and intensive redevelopment of the Newcastle CBD area in recent years and associated need for compliance-based environmental and heritage assessment to support statutory-driven approvals. The result has been a skew in the known Aboriginal cultural landscape of the Newcastle metropolitan area, with the known archaeological record largely focussed on the lower Hunter River foreshore environs.


Nonetheless, review of available paleoenvironmental data presents an opportunity to develop a predictive model for how Aboriginal peoples may have used the wetland environments in and around the Project Area.

In the *Aboriginal Heritage Study: Newcastle Local Government Area*, (AMBS 2005:81) postulate that the urban Newcastle environs inclusive of Broadmeadow would have had extensive flora and faunal resources prior to European occupation and would have provided immediate access to local estuarine and marine resources, in addition to the resources of the Awaba Hills directly to the south. AMBS suggest that these urban areas would have initially retained high archaeological sensitivity prior to development of the area, due in part, to their proximity to the Hunter River and associated tributaries (e.g., Styx Creek and Throsby Creek). However, extensive urban development is suggested as the primary contributory factor for the ultimate reduction of archaeological potential in the Newcastle urban environs.

AMBS conclude that the urban area bounded by Georgetown, Adamstown, Merewether and Islington (inclusive of Broadmeadow) is ultimately low as a result (AMBS 2005: 81 [Table 8]). Reference to Quaternary geological mapping identifies most of the current Project Area as comprising estuarine and/or alluvial plain which is geologically distinct from the stabilised former dune systems which have been investigated within the Newcastle CBD environs. Taken at face value, geological mapping suggests that the majority of the Project Area would not have retained landform elements favourable for sustained occupation by Aboriginal peoples, but instead would have provided wetland resources.

Localised areas adjacent to mapped instances of Permian geology and/or former watercourses (such as Styx Creek) may, however, have provided landform elements suitable for periodic occupation, particularly during the later Holocene. These landform elements, in turn may retain some archaeological potential for open archaeological sites (e.g., open artefact sites, middens etc) but would be limited by historical and contemporary ground disturbances.

Based on available information, the current assessment suggests the overall archaeological potential of the Project Area is generally low.

Based on the information presented in this report, a summary of the potential for different archaeological site types to be present within the Broadmeadow area is provided in **Table 5.3**.

Site Type	Assessment	Potential for occurrence
Art	The topography of the Project Area, does not contain any outcrops or rock overhangs that contain potential for rock art.	Nil
Artefact Scatters/ Isolated artefacts	Stone artefact scatters/isolated artefacts may be present but will likely be relatively dispersed and contain low densities of artefacts. The extent of disturbance suggests the presence of any intact stone artefact sites is unlikely.	Low

Table 5.3 Predicted archaeological potential by site type



Site Type	Assessment	Potential for occurrence
Bora / Ceremonial	Corroboree and ceremonial activities have been described from the shoreline of the Hunter river estuary and at Hamilton (near the Racecourse). Corroboree activities may leave very little archaeological evidence and would be very susceptible to ground disturbance. Ground disturbance across the Project Area is likely to have significantly reduced any potential for archaeological evidence of corrobboree or ceremonial sites to be retained.	
Burial	It is unlikely that the clay soil and sediment units along Styx Creek, or the heavy and shallow duplex soils on any bedrock outliers would have been used for burials. The sandy soils to the east of the project area have some (but low) potential, with potential increasing significantly on the low dunes along the harbour.	Nil -Low
Contact site	The Project Area is on the boundaries of early European settlement in the first decades of Newcastle. However, there are no key features (such as extant historical homesteads, villages or former missions) within the Project Area where it would be expected that contact between Aboriginal and non-Aboriginal people may have occurred. While there are many records of Awabakal people living on the margins of Newcastle, and working in the town, early land use in Broadmeadow was limited to mining and grazing and early settlers lived in shanty town style canvas 'cottages'.	Low
Grinding Grooves	The Project Area does not contain the sandstone geology and outcropping Nil that are essential for grinding grooves.	
Midden	The northern edge of the Project Area crosses the tidal limit of Styx Creek in the Throsby Creek estuary and tides currently penetrate up the stormwater drainage system. However, it is unlikely that occupation activities in the backswamps/wetlands of Broadmeadow would have involved shell fish gathering.	Nil
Modified Trees	odified Trees Scarred trees may once have occurred within the Project Area. It is possible that eucalypts around the wetland margin were used for bark products. Melaleuca within the wetland may also have been used for bark products. All native vegetation from across the project area has been cleared for around 100 years. There are not old growth trees remaining that could have been used in this way.	
PADs	The evidence suggests a very low possibility that artefacts may remain in subsurface contexts. The potential for an intact subsurface deposit is negligible.	Nil- Low
Shelters	The topography of the Project Area, does not contain any outcrops or rock overhangs that contain potential for rock art.	
Quarries (stone or ochre)	There are no rock outcrops that could have provided stone suitable for flaking within the current Project Area. Accessible sources of raw materials are available at Nobbys Beach, Nobbys Headland and Merewether Beach. There is no evidence that any clay suitable for ochre occurs within Project Area, though white ochre (i.e. 'pipeclay) is available around Rocky Knoll in Hexham wetland, approximately 5 km north of the Project Area.	Nil



6.0 Archaeological Assessment

6.1 Overview

The analysis of environmental context, land use history and the available ethnohistory and archaeological evidence for the Broadmeadow area and its landscape context indicate:

- A low likelihood that pre-European Aboriginal use of the area would be evidenced by stone artefact sites. Broadmeadow is described as swampy in most historical accounts. While campsites that could leave stone artefact evidence may have been present on slightly more elevated land, it seems likely that activities across the poorly drained wetland areas focused on gathering of plant resources and/or hunting of birds or marsupials, using plant-based equipment nets, baskets, spears, wooden implements.
- A low likelihood that plant based archaeological materials would be preserved across this landscape. It is clear that major drainage works were constructed from the late nineteenth century and early decades of the twentieth century. This not only reduced flooding across the area, and disturbed large areas of former wetland and/or riparian landscape. It would have dried out wetland soils, exposing materials to oxidation. Widespread clearing of all native vegetation also took place at this time.

There is no Aboriginal archaeological evidence recorded in the Broadmeadow precinct. The Aboriginal archaeological heritage of the area is invisible.

6.1.1 Approach to Site Inspection

The aim of the Project is to develop a strategic plan for future land use in the Broadmeadow area. This project is not providing a development assessment type evaluation of Aboriginal cultural heritage values in the precinct.

As noted above, there are no known Aboriginal archaeological sites in the Project area. Its environmental and development history suggest that the potential for archaeological evidence to be retained, in surface or subsurface contexts, is very low.

The lack of archaeological evidence and low potential does not mean that the landscape has low cultural value.

To inform the strategic land use assessment, considering the specific context of the Project Area, it was agreed to focus field assessment on two aspects:

- A cultural field day, conducted as part of the Aboriginal engagement. Pam Dean-Jones attended this field day to represent Umwelt.
- A site walkover completed with a combined team of Umwelt archaeologists and RAP representatives.

6.1.2 Cultural Field Day

• Twelve people participated in the cultural field day. Of these two represented the DPHI Project team and two represented the Project team at CN. Pam Dean-Jones attended on behalf of Umwelt.



- The non-Project people who attended this field day are involved in Aboriginal organisations in the Newcastle area, notably the CN Guraki Committee and Newcastle University. One person who identified as a RAP participated in this day.
- Two people were from Newcastle University, one from the School of Architecture and one from the Institute for Regional Futures.
- CN Aboriginal Partnerships Coordinator attended and two women who are members of Guraki.
- No-one attended on behalf of Awabakal Local Aboriginal Land Council or the various Traditional Owner family groups.
- The field day was conducted as a drive around on a bus, although people did get out to look more closely at the Styx Creek Drain.

As the bus travelled around the Project Area, the CN Project team gave a commentary on what we were looking at and the sorts of land use proposals that are part of the Structure Plan. The DPHI Project team also offered some information (including reinforcing that this is a Structure Plan and Place Strategy for 30 years, so it should be aspirational for what could be achieved over that time).

There was some discussion about the potential for Aboriginal objects to be present on site. Stakeholders are familiar with the scale of archaeological evidence that has been retrieved from test and salvage excavations along the former Hunter estuary shoreline. The discussion highlighted the differences between the harbour foreshore environment and the landscape at Broadmeadow, reducing expectations that there could be archaeological evidence subsurface.

Everyone seemed to understand that Broadmeadow was swampy in the past and is still highly flood prone. However, they weren't so clear about what this might mean in terms of occupation evidence – or where it could be in relation to the open space and existing developed areas.

The group got out of the bus to have a closer look at the Styx Creek drain – in the Hamilton North area, northeast of the Wanderers stadium and Showground. This land is part of the former Commonage reserve. Photos of the large concrete Commonage drain under construction were taken close to this point. CN also referenced the initially ad hoc settlement of the Commonage by mine workers in the early twentieth century before there were any formal land titles across the Commonage Reserve.

Participants discussed what could be feasible in terms of naturalising the drains which have replaced Styx Creek and Ker-rai creeks. These drains are large and not visually attractive (with no riparian vegetation), but do serve some flood mitigation purpose. The participants of the tour would be keen to see some meanders put back into the plan form, potentially reinstating some wetlands to help manage flood risk. This will be hampered by the presence of the fuel pipeline along the full length of the Styx Creek drain and issues with significant contamination. DPHI advised that they are doing more testing to understand if there are areas where it would be possible to do subsurface works to naturalise the stormwater drains. Participants were keen to see native plants/bush tucker more prominent.

There was also discussion about increasing public access through the area, including a shift from controlled open space-to freely accessible public open space.



Participants were keen that the Structure Plan should discuss the potential for a multipurpose culture/community centre to be included in the design. People said they were expecting a lot of 'push back' on anything like this – after their referendum experience. Accessibility was a key criterion. People could see that it might be a staged process, reusing existing buildings if a site is available, before moving to a purpose-built place, some time in the future.

Some participants referred to the conflicts within the community about who speaks for what, including around language. There were suggestions about using Awabakal words to name places (Newcastle already has a dual naming policy, but is struggling to get agreement between at least three language groups about the correct spelling of various words).

The community representatives said they would also be looking for employment and training opportunities (potentially linked to partners at Uni or TAFE) across the life of the development, to provide a better future for the next generation.

6.1.3 Site Walkover

In order to explore and qualify the archaeological predictions presented in **Section 5.5** of this report, a targeted vehicle and pedestrian site walkover of the Project Area was conducted with RAPs. The site walkover was intended to share information, view the place, and seek and discuss feedback relating to three of the key assessment questions:

- What evidence of Aboriginal occupation could be expected to be retained in the landscape from Aboriginal activities and where would it be found given the interaction between resources, archaeology, and surface processes?
- What changes have occurred in the Project Area environs between the colonial occupation and contemporary periods?
- What are the implications of these changes for the preservation of Aboriginal archaeological evidence within the Project Area?

Answers to these questions inform the assessment of significance, assessment of impact, and proposed future actions to protect, and/or record and/or interpret the cultural heritage values of the landscape.

Prior to the site walkover, places to be visited were identified, based on their landscape context (natural and contemporary), the land use history and known extent and depth of disturbance. The pedestrian component of the site walkover focused on public open space. The site walkover participants agreed that there was no value in walking through existing residential, commercial or industrial sites. The commercial and industrial land has hard (concrete or asphalt) ground surfaces. Where the ground surface is not already hardened, it may be heavily contaminated (e.g., the gas works site, under remediation and not open for access).

Localities visited are summarised in Table 6.1.



Table 6.1 Locations visited on site walkover

Location	Reasons for visiting this part of the Project area
Styx Creek 1, near Magic Park/Harness Racing and the Westpac helicopter service site	The Styx Creek drain (or Commonage Drain) is a large straight line concrete drain running southwest to northeast through the middle of the Project Area. It joins Throsby Creek estuary just outside the northeast corner of the Project Area. Historical photos show the extent of earthworks involved in constructing the drain, and the flood mitigation it was intended to achieve. The drain site is an opportunity to discuss the likely natural character of the land and how it may have been accessed and used by Awabakal people.
Styx Creek 2, Bates St/Chatham Road	As above. This location is towards the northeastern margin of the Project Area. It is also an opportunity to discuss the extent of earthworks that have happened in areas that are now open space.
Ker-rai Creek, near Hockey Centre	Kar-rai Creek flows from the upper catchment of Styx Creek. It has been channelised from Lambton Park to where it joins Styx Creek, east of the Hockey Centre. The downstream part of the channel runs through flat grassed terrain.
Open Space (Smith Park/Showground	This park is on the northern side of Griffiths Road (off Thorn Rod and Boreas Road). Newcastle Showground is to the southeast and the park as formerly part of the Showground site. Smith Park has been used by visiting entertainment such as circuses. It may be a relatively undisturbed parcel of public land, on the northern margin of the drainage plain. Currently grassed, but with some large fig trees.
Tennis Centre/Knights Centre of Excellence	These facilities are on the southern edge of the sporting complex (off Perth Road), within the core of the former drainage flat landscape. Ground surface heavily modified. A southern tributary drain flows past the eastern side of the tennis centre.
Basketball Centre (existing and proposed sites)	The existing site of the Basketball Centre is adjacent to PCYC, off Curley Road and Young Road. The proposed new site is west of Turton Road (Wallarah Oval), adjacent to the Ker-rai Creek drain.
McDonald Jones Stadium area	Major sporting infrastructure occupying the core of the former alluvial/wetland landscape. Very heavily modified.



Location	Reasons for visiting this part of the Project area
Locomotive Depot land (Kings Road)	It was decided not to visit this place as a full survey has previously been completed, including consultation with RAPs. This land is not publicly accessible and can only be viewed from the fence in Newton Street. However, the view from that location does show the type of development on the Locomotive Depot land which was used for locomotive maintenance for close to a century. A separate archaeological survey has recently been conducted across this land, with no Aboriginal archaeological evidence identified.

6.1.4 Information Recording During Site Walkover

As noted above, seven (7) locations were visited during the site walkover. These were selected to provide examples of different land surfaces and previous/current land uses across the Project Area. At each of the places visited within the Project Area, a record was made of the nature of the ground surface and the likely extent of disturbance. The evidence of disturbance was discussed with the RAPs in attendance. Photographs were taken at each place visited within the Project Area.

A selection of these photos is in **Section 7.2**, to illustrate the character of the area, together with a summary of the observations made and discussed.

6.1.5 Coverage

The site walkover was not conducted as a formal archaeological survey. Records of survey coverage were therefore not relevant. The RAPs and two archaeologists walked the full length of the Styx Creek drain and visited adjoining areas, including parks and the Showground. This route provided a cross section through the Development Area.

6.1.6 Survey Limitations

The survey conducted for the Project was not designed to provide detailed survey coverage. Rather it provided an opportunity for RAPs to observe the character of the contemporary landscape and to discuss the extent of disturbance that has impacted any possible archaeological record. A list of parts of the Project Area visited during the field day is included in **Table 6.1** and **Table 6.2**.

Notes of observations made during the field day included the evidence of landscape scale and local ground surface reshaping, filling, excavation, major construction or other activities that would destroy archaeological evidence within any original topsoil materials.

6.2 Survey Results

No Aboriginal archaeological sites were observed during the field day. This was as predicted. The field day focused on the lands along the Styx Creek drain as the path along the drain provides easy pedestrian access through the heart of the proposed redevelopment area and a cross section of the landscape. This route provided a good opportunity to talk about landscape evolution and the history of development across the area.



Observations for each of the locations visited are summarised in **Table 6.2**, with accompanying photographs presented below.

Location	Observations and discussion with RAPs at this location	
Styx Creek 1, near Magic Park/Harness Racing and the Westpac helicopter service site	This section of the Styx Creek drain is just downstream of the junctions with Ker-rai Creek and a second tributary from the south. This tributary joins Styx Creek between the Helicopter service and Magic Park. There is a trash rack in this section of the main drain, which is also crossed by footbridges.	
	To the north of this section of the drain is the Harness Racing club. This is located on land formerly occupied by the Newcastle aerodrome in the early to mid-twentieth century.	
	The Oil pipeline runs along the side of the Styx Creek drain in this area. Installation of the pipeline would have required significant excavation. The presence of the pipeline precludes excavation or construction in the immediate vicinity.	
Styx Creek 2, Bates St/Richardson Park/Chatham Road	On the field day, we looked at Richardson Park. It has large mature fig trees, a turfed field, and an extended frontage to the Styx Creek drain, in the section where it is influenced by tidal water. We observed the tide moving up the drain. Chatham Road is the eastern side of the park, with industrial land beyond that.	
	To the east of Chatham Road is a combination of old small block residential and industrial land. The alignment of Styx Creek, as shown in the Armstrong 1967 map (and now a straight drain), is along the eastern side of the industrial land, with vacant land between this and the railway line (including the gas works site). Land in this area has been affected by contaminating industries for many decades. Remediation involves fill and cap measures.	
Ker-rai Creek, near Hockey Centre	Kar-rai Creek drains a catchment extending into Lambton and New Lambton, to the north of the Russel Road ridgeline. Its floodplain to the west of Turton Road (outside the current project area) has been developed as playing fields and Lambton High School is also on the drainage flat. The entire drainage line is now confined in a concrete stormwater channel. We observed the section where the drain crosses under Turton Road (immediately south of McDonald Jones Stadium). The drain runs between the Stadium and the International Hockey Centre. No natural vegetation remains anywhere along Ker-rai Creek. Both of these facilities have been developed on fill that improves drainage and raises the playing surface above flood levels. The Ker-rai Creek drain has a junction with the Styx Creek drain just to the north of the Knights Centre of Excellence. The ground surface here and at the adjacent	
	Westpac Helicopter base, and Magic Park has been filled to extend the useability of the playing surfaces.	

Table 6.2Summary of Field Observations



Location	Observations and discussion with RAPs at this location		
Open Space (Smith Park/Richardson Park and	Smith Park is used for Oztag and Cricket, as well as a children's playground and bowling club. Currently turfed and has a cricket pitch for summer.		
Showground	The Showground occupies a large area of open space in the northeast of the Project area. It is at the margin of the Qpe (estuarine) and Qhap (fresh alluvium) parts of the drainage flat landscape. It is possible there is estuarine sediment at depth beneath the showground, but the upper sediments would have been deposited in freshwater wetland and flood plain.		
	It is possible that there is only limited fill underlying the ground surface of the Showground, but the ring and surrounding areas have been turfed or concreted. The Showground has been in use on this site for more than a century.		
	Residential land to the west of the showground is on small blocks. This area would have been part of the Commonage in the late nineteenth century.		
Tennis Centre/Knights Centre of Excellence	In combination, these two sporting facilities occupy the drainage flat lands to the south of Styx Creek in Broadmeadow. Both sites occupy raised ground surfaces, and the surface at the tennis centre has also been hardened (hard courts)		
Basketball Centre (existing and proposed sites)	The existing basketball stadium is to the east of Curley Road, and west of the Tennis centre. The Newcastle PCYC is adjacent to the Basketball stadium, north of Young Road. These sites are set back approximately 350 metres from the alignment of the Syx Creek drain. They may be on slightly elevated land (but still within the Qhap alluvium), but the ground surface has been extensively disturbed to provide road, carparks and the foundations for large buildings.		
McDonald Jones Stadium area	The Stadium is a major structure, with grandstands and a high quality playing surface. It is built on and raised above flood levels. The area around the stadium is sealed as car parking.		

Photo 6.1 Lambton Ker-Rai Creek stormwater drain.

All trees have been planted within the last decade. A range of infrastructure (such as pipelines and powerlines) has been installed.









Photo 6.4 Styx Creek drain and southern tributary junction. Magic Park is on the left of the photo and the helicopter base on the right. Both sites are on fill.	<image/>
Photo 6.5 Styx Creek drain, near Chatham Road crossing, with tide water moving up the drain.	



Photo 6.6 Richardson Park. Styx Creek drain is behind the fig trees, in the background of this photo.



6.3 Areas of Archaeological Potential

Archaeological potential is used here to refer to locations where it is possible that Aboriginal archaeological materials remain below the ground surface.

During the site walkover, RAP representatives discussed the historical information about the natural character of the Broadmeadow area and what that landscape would mean in terms of the types of evidence of Awabakal lives in different parts of the area. They also discussed the extent of ground surface disturbance that has occurred across the former wetland area and surrounding low hills and slopes.

The key questions here are:

- What could the natural distribution of archaeological materials have looked like? Would there have been parts of the area with a higher potential for archaeological evidence to have been created?
- Are there any places where it is possible that the archaeological material has been retained either in an intact form or in a reworked form?
- How would we be able to test any theories we have about the locations of potential subsurface archaeological materials?

In relation to these questions, the combined field team noted the following:

• The landscape at Broadmeadow is quite different in terms of its archaeological potential to the sand dune landforms along the southern shore of Newcastle Harbour. Although thousands of stone artefacts have been recovered from subsurface investigations in the dunes, beneath existing development, a similar archaeological signature would not be expected at Broadmeadow. This applies to both landforms underlain by Permian bedrock and to alluvial landforms.



- The natural channel alignment of Styx Creek is currently unknown. The historical records suggest that in some places there was a channel with high velocity flood flows (rather than just diffuse flows through the wetland). Some maps of the plan form of the landscape show a tributary creek channel from the south, and it is apparent that Lambton Ker-rai Creek joined Styx Creek above its tidal limit. However, many of the early maps only show swamp land, and that is the most prominent feature of descriptions of the area standing water, clay substrates and dense wetland vegetation.
- The natural alignment of Styx Creek would not have been a straight line with a uniform depth, as is the case for the stormwater drain. There are suggestions that there were some deep pools within the wetland (as well as shallow areas), and it is likely that the creek meandered through the very low gradient alluvial flats. It would not have been constrained by bedrock landforms at any point through Broadmeadow. There is no evidence as to whether there were any natural levees along any of the creeks.
- There was no evidence that the channels through the wetlands of Broadmeadow were navigable, even with a canoe. There are multiple records of canoes further downstream in Throsby Creek and in Newcastle Harbour, as well as in wetland channels upstream (e.g., around Ash Island).
- The downstream reach of Styx Creek, close to its junction with Throsby Creek, was and is tidal. The wetland communities in this area would have been estuarine or brackish (saltmarsh, and salt tolerant melaleuca and casuarina woodland). There is no evidence that these tidal/brackish areas would have offered better archaeological accumulation contexts than the freshwater wetlands upstream.
- Physical evidence of occupation in the last Holocene and early contact periods is more likely to have accumulated on slightly elevated land adjacent to, around the margins of, or within the alluvial flats. Although soils and substrates in these areas were also likely to have been occasionally waterlogged, these surfaces would have been suitable for camping at times during each year, and would have provided access to the resources of the wetland.
- Some parts of the alluvial plain must have been dry enough for temporary occupation for periods of months at a time. We know that during the early twentieth century mine workers and others 'squatted' within the Commonage area at Broadmeadow, erecting houses of light weight and cheap materials such as canvas. These settlements were affected by floodwaters from time to time and were generally poorly drained. Aboriginal people may have also occupied these areas from time to time before the arrival of Europeans.
- The areas of greatest archaeological sensitivity across the Broadmeadow landscape would have included:
 - Elevated landforms (on bedrock or Quaternary deposits) within approximately 50 metres of the shorelines of Styx Creek, close to its junction with Throsby Creek. Site types here would include open campsites, potentially with shell.



- Land adjacent to creek channels at the upstream edge of the Project Area. This includes any low spurs and other slightly elevated land adjacent to the floodplain of Ker-rai Creek, Styx Creek and other tributaries (i.e., tributaries entering the alluvial drainage flat/floodplain and wetland from the west and south). The site type here would be open campsite and low-density artefact scatter. It is also possible that similar occupation evidence may once have been present on land to the north of the drainage flat/wetland area, but this part of the landscape does not have any creek forms.
- Areas of land that were dry from time to time and were not in floodways, so not subject to high velocity flows during floods. Unfortunately, given the plan form alignment of the creek system is not clear, based on the available information, it is very difficult to identify specific locations that would have met these hydrological criteria.

The site walkover also confirmed the extensive and deep level of disturbance of the landscape. The extent of disturbance in the context of the occupation strategies and archaeological sensitivity of the wetlands and alluvial plain indicate that stratified, or relatively undisturbed archaeological deposits are very unlikely to remain. Despite the assessed low archaeological potential, RAP representatives indicated value in reviewing stratigraphic evidence of future geotechnical testing to add to understanding of the local stratigraphy and refine archaeological predictions.

6.4 Archaeological Resource of the Project Area

- There is evidence that Aboriginal peoples have lived in the valley of the Hunter River, around its estuary, and the coastal catchments to the south (such as Lake Macquarie) and north (Port Stephens and the Karuah River) for tens of thousands of years. Over that time, Aboriginal people have witnessed and adapted to dramatic changes to the landscape in which they lived.
- For coastal peoples, such as the Awabakal and Worimi people south and north of the Hunter River, a key long term adaptation challenge was sea level rise and fall. Accompanying long term changes in sea level there have been long term changes to the Country, including available land (with large areas of dry land being engulfed by tidal waters in the early Holocene period), and to waterways, wetlands, floodplains, and foreshore areas.
- The Broadmeadow area is part of this dynamic landscape. Aboriginal people cared for their Country in all its forms, described the evolving landscape in their intergenerational stories, and learnt to accommodate changes to access and resources.
- In some parts of the coastal landscape, the evidence of adaptation and care has been preserved in
 archaeological deposits in stable and accumulating landforms. Midden sites (also with large numbers of
 flaked and edge ground stone artefacts) in coastal dunes on the open coast and lower reaches of
 estuaries are an example of archaeological materials that have survived further landscape change.
 Large artefact assemblages are also present on terraces, fluvial landforms along creeks and rivers.
- In other parts of the coastal landscape, the nature of the Country, the ways in which it was used, and the poor potential for ongoing preservation of archaeological materials, present a very different level of occupation evidence for future generations to observe.



- The Broadmeadow area is in this latter category. Broadmeadow is only 2–3 km from the nearest part of the Hunter estuary, and the northeastern boundary of the proposed development area is within the tidal section of the Styx Creek/Throsby Creek waterway. However, its geomorphic history is a story of alluvial plain sedimentation, clay soils, low relief, and frequent flooding. The landforms that dominate the Broadmeadow area are Quaternary and Holocene alluvial plains and wetlands.
- These landscapes likely provided a wide range of useful resources plant and animal foods and medicines, different types of bark, reeds, eucalypts (around the margins of the wetlands), vines and other raw materials used for diverse tools and equipment. There is no rock outcrop across the alluvial plains and wetlands.
- Frequently inundated land is poor land for major campsites and ceremonial sites. High velocity floods would scour any artefacts left on the surface. In back swamp areas away from the floodway, Plant based toolkits do not survive well in open landscape contexts.

With this background, the archaeological resource of the Broadmeadow area can be summarised as follows:

- There are no known Aboriginal archaeological sites in the Project area. However, two (2) areas of PAD are currently registered within the Project Area. The boundary of one of these, 'Wickham Transport Interchange PAD' (AHIMS ID #38-4-1716), is based on the specific project area of the Wickham Transport Interchange (Artefact Heritage 2014) and does not reflect the broader archaeological potential of the Project Area. The other, 'Broadmeadow PAD 2023-01' (AHIMS ID #38-4-2263) is located within the Locomotive Depot and was determined on the basis of broadscale geological mapping and to date has not been confirmed through subsurface testing.
- Although it is likely that Aboriginal people accessed the wetland and alluvial flat landscape through what is now Broadmeadow, there is a low probability that archaeological materials would have accumulated in the soils and sediments of the project area prior to European settlement.
- It is likely that the occupation strategy was based on equipment made from plant materials. Estuarine shellfish would not have occurred in this area, so there is a low probability that shell occurred in occupation evidence – shell midden sites are limited to closer to the main estuary shoreline.
- Open campsites may have been established along creeks or on the bedrock foot slopes around the margins of flood prone land. These areas are all now heavily disturbed.

The Project area is considered to have a very limited archaeological resource, which is not visible. The current landscape is greatly modified from the natural landscape, and minor natural landscape features which may have distinguished land of greater archaeological potential, have been removed, leaving only the general broad alluvial plain landform.

It is not proposed to nominate any part of the Project Area as Potential Archaeological Deposit (PAD), although it is noted that Artefact (2023) have recorded part of the Locomotive Depot land as PAD.



The available information about the geomorphic development of the Project Area; soil types; extent of development, excavation and filling and the few descriptions of potential Aboriginal activities in the area do not support the idea of accumulation of physical archaeological evidence (stone artefacts) at any specific location. It is possible that there was a low-density scatter of flaked stone artefacts across the landscape, but this is not sufficient to justify recording a PAD in such a disturbed landscape.

The archaeological value of the project area is low. However, its cultural heritage value is less constrained. Although the area is greatly modified, its connections to the story of Awabakal care for the land and waters of the Hunter estuary remain.



7.0 Significance Of Cultural Heritage Values

7.1 Principles of Assessment

Assessing cultural heritage significance is an essential component for the development of management strategies for the current assessment. In Australia, the primary guide to the assessment of cultural significance is the *Australian ICOMOS Charter for Places of Cultural Significance* (1999), informally known as *The Burra Charter*, which provide a framework for defining significance in terms of "aesthetic, historic, scientific, social or spiritual value for past, present or future generations" (ICOMOS 1999: 2). In New South Wales, Aboriginal cultural heritage values are typically assessed according to *scientific value(s)* and *social (and/or cultural) value(s)* by Aboriginal people. Significance is then further assessed against the archaeological criteria outlined in the *Code of Practice for Archaeological Investigations of Aboriginal Objects in New South Wales* (DECCW 2010b).

Value	Definition
Aesthetic	"Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and material of the fabric; the smells and sounds associated with the place and its use" (ICOMOS 1999: 12).
Historic	"Historic value encompasses the history of aesthetics, science and society[a] place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may have historic value as the site of an important event" (ICOMOS 1999: 12). A place may have historical value because it has influenced or been influenced by an historical event, phase, movement, activity, person or group of people.
Scientific	"The scientific or research value of a place will depend on the importance of the data involved, on its rarity, quality or representativeness, and on the degree to which the place may contribute further substantial information" (ICOMOS 1999:12). See Section 9.2 for further information about the scientific value and significance of the archaeological resource.
Social (cultural)	"Social value embraces the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a majority or minority group" (ICOMOS 1999: 12). There is not always consensus about the cultural value of a place as people experience places and events differently, and in some instances cultural values may be in direct conflict. Cultural significance can only be determined by Aboriginal people and is identified through Aboriginal community consultation.

Table 7.1	Values relevant to determining cultural significance,	as per the Burra Charter
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As noted in **Section 8.0**, the lack of archaeological evidence across the project area and the low likelihood that archaeological objects will be preserved below the ground surface mean that the archaeological component of historic, aesthetic and social significance is very low.

Umwelt has requested advice from the Registered Aboriginal Parties about any matters they would like to have included in relation to these aspects of cultural heritage values and significance.

If the Registered Aboriginal Parties identify any values they would like to have documented in this report, they will be included in a culturally appropriate form in the final document.



7.2 Scientific Values and Significance Assessment

As noted above, the archaeological resource of the Project area is considered to be very limited. The following information is therefore provided as background, to demonstrate how scientific archaeological significance would be assessed, if archaeological sites or potential archaeological sites had been identified.

Archaeological significance is determined by assessing Aboriginal sites/places/objects against a number of archaeological criteria as set out in the Code of Practice. The assessment of Aboriginal archaeological significance is used to develop a series of cultural heritage management and impact mitigation strategies. The archaeological significance of the Assessment Area has been assessed in accordance with the criteria provided in **Table 7.2**.

Criterion	Low Archaeological Significance	Moderate Archaeological Significance	High Archaeological Significance
Rarity	The site within the surrounding landscape, its integrity, contents and/or potential for subsurface artefacts, are common within the local and regional context.	The site within the surrounding landscape, its integrity, contents and/or potential for subsurface artefacts, are common within the regional context but not the local context.	The site within the surrounding landscape, its integrity, contents and/or potential for subsurface artefacts, are rare within the local and regional context.
Representativeness	This site, when viewed in relation to its integrity, contents and/or potential for subsurface artefacts is common within a local and regional context and sites of similar nature (or in better condition) are already set aside for conservation within the region.	This site, when viewed in relation to its integrity, contents and/or potential for subsurface artefacts, is uncommon within a local context but common in a regional context and sites of similar nature (or in better condition) are already set aside for conservation within the region.	This site, when viewed in relation to its integrity, contents and/or potential for subsurface artefacts is uncommon within a local and regional context and sites of similar nature (or in better condition) are not already set aside for conservation within the locality or region.
Research potential	The site, when viewed in relation to its integrity, contents and/or potential for subsurface artefacts has limited potential to contribute to a greater understanding of how Aboriginal people lived within this area or region.	The site, when viewed in relation to its integrity, contents and/or potential for subsurface artefacts has moderate potential to contribute to a greater understanding of how Aboriginal people lived within this area or region.	The site, when viewed in relation to its integrity, contents and/or potential for subsurface artefacts has high potential to contribute to a greater understanding of how Aboriginal people lived within this area or region.

Table 7.2 Archaeological significance assessment criteria (The Burra Charter 2013)



Criterion	Low Archaeological Significance	Moderate Archaeological Significance	High Archaeological Significance
Education potential	The site is not readily accessible and/or when viewed in relation to its contents, integrity and location in the landscape has limited suitability to be used for educational purposes. Other sites with higher education potential are known to be present in the local area and region.	The site is not readily accessible and/or when viewed in relation to its contents, integrity and location in the landscape provides a tangible example that is suitable to assist in educating people regarding how Aboriginal people lived in this area or region. However, other sites with higher education potential are known or expected to be present in the local area or region.	The site is readily accessible and/or when viewed in relation to its contents, integrity and location in the landscape, provides a very good tangible example that is suitable to assist in educating people regarding how Aboriginal people lived in this area or region. Other sites of higher education potential are generally not known to exist in the local area or region.
Integrity	Stratigraphic integrity of the site has clearly been destroyed due to major disturbance/loss of topsoil. The level of disturbance is likely to have removed all spatial and chronological information.	The site appears to have been subject to moderate levels of disturbance, however, there is a moderate possibility that useful spatial information can still be obtained from subsurface investigation of the site, even if it is unlikely that any useful chronological evidence survives.	The site appears relatively undisturbed and there is a high possibility that useful spatial information can still be obtained from subsurface investigation of the site, even if it is still unlikely that any useful chronological evidence survives.

Briefly, in relation to the Project area:

- Rarity: no archaeological sites are known in this area. It is not unusual for there to be a low archaeological signature within wetland areas, although land around the margins of wetland does often have a strong archaeological record.
- Representativeness: there are no artefacts or site types to consider in relation to representativeness.
- Research potential: there is no known or predicted Aboriginal archaeological evidence from the project area. The cultural resources of the area have long since been destroyed. There is no archaeological research potential.
- Education potential. No known Aboriginal sites exist or are considered likely to exist below the surface. There is no modern surface expression of the archaeological record or of the landscape which was cared for by Awabakal people. From an archaeological perspective, the project area has low educational significance. However, from a broader cultural heritage perspective it has strong potential. This is partly because the land is part of a much larger cultural story of Awabakal Country. It is also partly because this area will provide very high exposure for cultural heritage stories and interpretation.



• Integrity. This assessment indicates low landscape integrity, with extensive disturbance of drainage and ground surfaces. Archaeological potential is considered to be low, and evidence would be highly disturbed.

The scientific significance of the archaeological resource of the Broadmeadow project area is therefore considered to be very low. The key value of the area is the capacity for Awabakal people to share their knowledge and stories about the former natural landscape and how people may have adapted to landscape change and cared for the Country.



8.0 Impact Assessment

At the current stage, the potential impact/s to the Aboriginal archaeological resource of the Project Area is difficult to quantify, due to:

- There are no recorded Aboriginal sites in the Broadmeadow area. However, two (2) areas of PAD are currently registered within the Project Area 'Wickham Transport Interchange PAD' (AHIMS ID #38-4-1716) and 'Broadmeadow PAD 2023-01' (AHIMS ID #38-4-2263). In general, the known Aboriginal sites in the general locality are concentrated along the sandy foreshores of Newcastle Harbour, with the majority of sites comprising concentrated, high density open artefact sites.
- There are few detailed observations of historical Aboriginal activities in the Broadmeadow environs. There are historical descriptions and illustrations of Awabakal cultural practices in the mouth of the Hunter estuary, along the foreshore and in other parts of the wider drainage plain (e.g., reportedly, corroborees in the locality of Newcastle Racecourse), but few recorded observations in the swampy reaches of the Styx Creek floodplain. Some hunting of kangaroos on grassy flats in part of the area was ben noted.
- The Project Area is a natural high flood risk area, and Broadmeadow was described in early historical times as a place of frequent inundation and swampy ground. However, the drainage flats that are the primary landform through Broadmeadow were not always inundated and are likely to have been dry for periods of months at a time.
- The land is a sediment accumulation zone, over thousands of years. It is likely that any archaeological materials would have been buried be fine sediment deposition relatively quickly. This precludes the development of large integrated artefact scatters, built up through mixing of many generations of occupation. In other, slightly more elevated areas, the ground surface is developed on bedrock, with shallow A horizons and heavy clay subsoils. These soil profiles are not conductive to in situ accumulation of archaeological materials.
- The ground surface of the Broadmeadow area has been extensively modified and developed. It is currently not clear where natural creek lines flowed through the area, or their natural creek morphology. The poorly drained landscape was the site of very extensive drainage works in the late nineteenth and early twentieth centuries. These works resulted in the construction of new 'drainage lines' that are deep and wide concrete lined channels, with a straight-line plan form. The locations of these, while at the upstream end may reflect where tributary creeks flowed from the catchment to the drainage flat wetland, do not reflect the natural flow paths across the drainage flat. Rather they reflect the most direct possible flow path between the catchment and the estuarine reaches of Throsby Creek.
- Despite the limited archaeological evidence, Awabakal people identify the natural/cultural resources of the drainage flat wetland. Its proximity to places with significant archaeological evidence is indicative that usage was much more than we can see evidence of. The area has cultural heritage values as part of a broader, connected system of Country.



- It is possible that some evidence of Aboriginal occupation remains:
 - In historical residential areas where subsurface impacts were relatively limited and some A horizon may be retained. It is important to note however, that no topsoil or subsoil in the Broadmeadow area is of similar character to the soil profiles along Hunter and King Streets in Newcastle, or further downstream along Throsby Creek.
 - Similarly, in open space on low bedrock spurs between tributary drainage lines, where major development for heavy industry or transport infrastructure has not occurred. Only small, isolated areas fit these criteria.
 - If the natural drainage lines through the area had channelised forms, incised into the drainage flat and with adjacent floodplain and/or terrace landforms (low relief), then it is possible that Aboriginal archaeological materials could have accumulated on low terraces. There is currently no evidence of whether such landforms existed or of their most likely location.
 - Some areas of public open space may have been subject to less ground surface disturbance than private land. The Showground site is an example. This site would still have been levelled with fill.

8.1 Project Sources of Impact

Impact depends on the value of an asset that could be disturbed or destroyed, and the likelihood that disturbance or destruction could occur. Direct impacts can occur on a varying scale. Disturbance, where artefacts are moved locally from their current setting, is distinguished from loss where artefacts are removed entirely from their current context or destroyed. Disturbance means Aboriginal sites and objects will be disrupted and moved a short distance through the displacement of ground. Partial disturbance occurs where a portion of a site will be disturbed. Total disturbance is when the entirety of the Aboriginal site will be disturbed.

Loss entails complete removal of a site's elements, such as through large-scale earthworks. The total modification of a landscape also can constitute loss, even if artefacts are collected and later returned to the modified surface in their original position because the context (an integral part of archaeological site value) is irretrievably lost. Total loss is when the entirety of a site will be lost as a result of the project. Partial loss describes the loss of part of a site.

Almost all of the ground surface across the Project Area has previously been affected by development, including road and rail infrastructure, heavy industry, residential development (mostly small block cottages, plus some medium density), commercial development, filling, development of regional scale recreation infrastructure, and drainage works. In general, the historical development has involved:

- Shallow to moderate ground surface excavation to enable pier or slab foundations (depending on the scale of the buildings).
- In general, the Broadmeadow does not have deep excavation under buildings for the purpose of sub floor level parking or other services. It is understood that because of the ongoing flood risk, deep subsurface excavation to create underground parking is not part of the proposal for Broadmeadow. However, the transition to medium and high-density residential assets (with apartment buildings up to around 20 stories), will require much deeper and more extensive foundations than the earlier residential and commercial development.



- Deep excavation for the purpose of drainage and installation of sewage services. The main drains are some 3–4 metres deep and 10 metres wide, and concrete lined. Tributaries are also concrete lined, with slightly smaller drain dimensions. Sewage lines are also installed some 4 metres below the ground surface.
- In the north of the project area, weirs have been installed in the concrete drains to reduce tidal incursion up the stormwater drain. There are also several trash racks along the stormwater drains, to reduce litter transport.
- Excavation into the B horizon to create stable base for transport infrastructure both road and rail. Fill has also been used beneath transport assets to reduce flood risk.
- Extensive fill using locally available industrial waste materials (coal chitter and/or steel works slag). This may be 2–4 metres deep under some heavy industry and sporting developments.
- The use of fill, and the extent of heavy industry and heavy rail transport across the area has left a contamination impact on the ground surface.
- All natural vegetation has been removed from the area, most of it by around 1920, as part of coal mining, the commencement of residential development, and the commencement of heavy industry.

In this context, the additional sources of impact on potential archaeological resources, that could be associated with the new proposed development across the Precinct include the following:

- Deeper excavation for foundations where old small-scale cottages will be replaced by moderate density to high rise residential dwellings.
- Potential deeper excavation along road corridors where new public transit infrastructure may be constructed. The type of rapid transit infrastructure to be used at Broadmeadow has not been confirmed. It could include light rail (as in Hunter St) or high frequency buses.
- Construction of active transport infrastructure, such as new bike paths or connections is unlikely to create additional impacts on already disturbed ground.
- New or deeper excavation in areas where the current public open space (or community infrastructure) has involved buildings, but not necessarily deep foundations; These areas (such as the Showground land) may also not have been as deeply disturbed in the past. Note however, that the ground surface is still a fine sediment accumulation zone, not a sand dune such as occurs along Newcastle Harbour.
- Potentially removal of contaminated fill; but equally the addition of further clean fill to cap contaminated sites and make them safe for some land uses (such as commercial with concrete slab floors).
- Excavation of land along the concrete drain system, where feasible, to naturalise some parts of the drains (to create flood basins). Other naturalisation is likely to occur within the concrete channel, and will not change the ground impact.
- Extensive landscaping to restore some tree canopy through the area and to create welcoming public places. Unless deep excavation is required as part of the landscaping process, this part of the development would not increase impacts above existing levels.



It is important to note that these potential impacts will not all happen at the same time. Development across the Broadmeadow precinct will be scheduled over a period of up to 30 years.

Because four (4) 'First Moves' sites have been identified, the potential Aboriginal archaeological impacts associated with these locations are specifically addressed below.

First Moves sites (as noted in **Section 1.1.1**):

- The Showground and old Entertainment Centre site. Introduction of medium and higher density residential uses on part of this site, with direct access to open space at the Showground (subject to changes to the Plan of Management for the Showground).
- The former Basketball Stadium site would be rezoned to mixed use residential and commercial.
- Go Karts and Stadium Forecourt site would be rezoned for commercial and special uses.
- The Locomotive Depot, which includes the State Heritage listed Locomotive Maintenance facility, would be rezoned to provide a mix of open space (protecting and reusing the locomotive facility for a range of recreational and cultural uses), and medium density housing. A detailed site-specific assessment has been prepared for the Locomotive Depot land.

8.1.1 Potential Impacts at First Moves Sites

8.1.1.1 Showground Site

The Newcastle Showground has been at its current location for close to 100 years. Development on this site includes the grandstand, stables, exhibition sheds and open space. There will be only relatively minor changes to this part of the site, to make it suitable for use as publicly accessible open space for most of the time. The land is currently fenced and locked except for when there are special events. If large scale-built assets are required as part of the public accessibility process, there is the possibility of an impact exceeding the previous impacts.

The Newcastle Entertainment Centre is a large shed with concrete floor, located on the same general land parcel as the show ring. It has been on this site for 30 to 40 years. Detailed civil engineering for the structure is not documented here, but would have included earthworks into the B horizon of any soil profile (developed in clay) to allow construction of the concrete slab floor. The ground surface around the Exhibition Centre building is also concrete.

It is unlikely that the change from a built asset for entertainment to residential will require disturbance to a greater depth than is currently the case, unless ground surface reshaping is proposed in the landscaping process. It is possible (although unlikely) that a disturbed archaeological resource remains beneath the foundations of the Entertainment Centre. It is highly unlikely that intact archaeological materials remain at this location. Without detailed designs for the proposed new residential development and connections to public open space, it is considered that there is a low likelihood that the future impact would exceed the impact that has already occurred.



8.1.1.2 Basketball Stadium Site

Like the Entertainment Centre, the basketball stadium is a large area recreation structure, built on the drainage flat landform in Broadmeadow. It has a concrete slab floor and a combination of brick and steel shed sides. This building will be demolished and replaced by mixed use development, with commercial and residential components. The land surrounding the Basketball stadium includes a sealed car park, roads and road verges.

Without detailed design information, it is considered unlikely that the redevelopment of the basketball stadium will increase impacts beyond those that have already occurred. Excavation into the clay subsoil has already occurred across the land to prepared foundations for the existing building. Future development will have a similar subsurface footprint.

8.1.1.3 Go Karts and Stadium Forecourt Site

The environs of the proposed Go Karts and Stadium Forecourt Site generally comprises existing building elements interspersed with hardstand areas (e.g. parking facilities, etc) and some soft landscaping. Prior to development in this locale, it is understood that the surrounding environs comprised a swampy landscape that would have been unfavourable to sustained occupation by Aboriginal peoples. Such an environment would have been more suitable to providing access to exploitable resources, but consequently would also be unlikely to preserve archaeological evidence of such activities. It is therefore unlikely that the redevelopment activities within the proposed Go Karts and Stadium Forecourt Site would impact extant Aboriginal objects and/or sites.

8.1.1.4 Locomotive Depot Site

A separate Aboriginal cultural heritage assessment for the Locomotive Depot land was completed in 2023 (Artefact 2023a).

The report reviewed the known archaeology and heritage studies for the Newcastle City area and the catchments of Styx, Cottage and Throsby Creeks. It also presents a review of historical ground surface disturbance on the Locomotive Depot land, based on aerial photographs of the site dating to the 1940s. It is apparent from the aerial photograph analysis that the entire Locomotive Depot site, other than a small parcel in the southwestern corner, has been affected by significant ground disturbing works. Some parts of the land have been disturbed by several iterations of impact. Much of the land is covered by large historical rail infrastructure and buildings; other parts have been disturbed in the process of creating hard stand areas sealed with concrete or tar. The southwestern corner of the land, although not used for structures over the last 80 years, has also been disturbed by activities such as clearing all vegetation, which occurred before the 1940s. Some parts of the land have been filled, with sand, coal chitter or slag. This was confirmed from borehole data which showed fill of varying thicknesses (0.2–1.8 m) across the land.

Site inspections on the Locomotive Depot land did not identify any evidence of Aboriginal occupation on the disturbed. However, Artefact 2023 identified the land as a Potential Archaeological Deposit (PAD) ('Broadmeadow PAD 2023-01'; AHIMS ID #38-4-2263), of unknown archaeological significance, on the basis that the substrate below the fill material was sandy. It should be noted that the sand deposits in Broadmeadow are of a different age, origin and natural morphology to the sand deposits in inner Newcastle. The Broadmeadow sand deposits are not dunes and are not associated with an estuarine foreshore and beach. The archaeological sensitivity of the Quaternary sand deposits on the Locomotive Depot land is lower than that of the Holocene and late Pleistocene sand dunes along the estuary foreshore.



The exact nature of the earthworks required at this site for landscaping of the Heritage area and for foundations for multi-story apartment blocks is not known. It is likely that some components of the construction works will involve excavation below the fill material on the land, and into the upper part of the underlying Quaternary sand material.

It is anticipated that the impact on any archaeological resource which may remain beneath the State Heritage listed rail infrastructure will be low, with minor surface earthworks to address accessibility, and landscaping features. It is possible that the potential impact on substrate of the remainder of the Locomotive Depot land will exceed the previous level of disturbance, in terms of both depth and area of disturbance. This is particularly the case for the southwestern corner of the land which appears to be relatively undisturbed.

8.2 Aboriginal Cultural Heritage Impact

Table 8.1 provides a summary of the assessed Aboriginal cultural heritage impacts of the proposed renewal and redevelopment of the Broadmeadow area. It is important to note that this assessment is at a strategic level only. It is based on proposed land uses and land zonings (including building heights and likely number of stories), not on detailed design for the redevelopment of any parcel of land.

Location or issue	Impact assessment and discussion
Whole of Project area	No Aboriginal sites have previously been recorded, however, two areas of PAD are currently registered within or partially within the Project Area ('Wickham Transport Interchange PAD'; AHIMS ID #38-4-1716 and 'Broadmeadow PAD 2023-01'; AHIMS ID #38-4-2263).
	The Project Area was generally described as swampy land, frequently inundated, in historical records. Although likely to have been a valuable resource area, it would not have attracted intensive occupation and the toolkit may have included organic object that would not survive in the archaeological record.
	Overall, archaeological potential is assessed as low.
	The Project Area has been affected by extensive development reshaping the ground surface, including earthworks/excavation, filling, drainage, creek realignment and development for heavy industry, transport and urban uses.
	The potential for impacts from redevelopment to exceed the previous impact, or to affect substrates not previously impacted, is considered to be low. There are a few locations where it is possible that archaeological objects remain, in disturbed or less disturbed contexts.

Table 8.1	Summary of Aboriginal heritage in	mpact
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Location or issue	Impact assessment and discussion
Showground site	No Aboriginal sites have previously been recorded.
	The Showground is close to the tidal limit in Styx Creek, so the land potentially offered access to estuarine resources as well as freshwater wetland and riparian resources.
	Parts of the Showground site appear to be relatively undisturbed, although there has likely been some filling across the whole area. The main ring and ancillary showground infrastructure will be retained as public open space, and additional ground surface disturbance is expected to be minor.
	Provided there is no excavation for below ground carparks, it is likely that the excavation required for the future redevelopment will not exceed the excavation that has already occurred. This will need to be confirmed in the detailed design phase. In the interim, the archaeological impact is considered to be low.
Basketball Stadium site	No Aboriginal sites have been previously recorded.
	The basketball stadium is on Quaternary estuarine sand and would have been within the flood prone parts of the drainage flat. There has likely been some filling on the land and the existing building would have required excavation into the subsoil. Without any detailed design information, including depth of excavation for the new development, it is likely that the disturbance for the new development will not exceed the depth or area previously disturbed.
	This means a low archaeological impact, subject to detailed design information about extended excavation.
Go Karts and Stadium Forecourt site	No Aboriginal sites have been previously recorded. As indicated above, the proposed Go Karts and Stadium Forecourt site footprint comprised swampy land which would not have been favourable to sustained occupation by Aboriginal peoples, nor would it have suitable for preserving archaeological evidence of resource gathering activities. Overall, archaeological potential is assessed as low.



Location or issue	Impact assessment and discussion
Land along the Styx Creek drain and tributary drains – 'riparian' land.	No Aboriginal sites have previously been recorded.
	The concrete channel of Lambton Ker-rai Creek is likely approximately in the position of the natural channel, where it leaves the foothill land to the west, and flows onto the alluvial plain.
	The alignment of the Styx Creek concrete drain does not appear to follow the natural flow path of the creek. There is very limited information about the morphology or alignment of Styx Creek in the early years of European settlement, and no detailed Holocene geomorphology studies have been prepared for the Broadmeadow area.
	It is known that the alluvial plain is subject to flash flooding extending across a wide area, and in the late nineteenth/early twentieth century, left standing water in deeper pools and channels (floodways).
	Land along Styx creek will be open space. Several flood mitigation strategies are being considered. Because the ground along the creek is constrained by a fuel pipeline and by contamination, these strategies in general do not involve excavation of deep flood storage areas. However, it is possible that some excavation will be required in the vicinity of the drains, to better manage floods and maintain safe access, and to assist with restoring riparian vegetation and habitats, as well as for amenity purposes.
	Detailed designs are not currently available for specific locations. In general, the works required for flood mitigation are likely to be in 'riparian' zone locations that have previously been heavily disturbed, during the construction of the deep stormwater drainage system, and other linear infrastructure.
	Potential archaeological impacts are considered to be low.

8.3 Cumulative Impacts and Intergenerational Loss/Equity

The City of Newcastle area has an extensive and complex archaeological record of the lives of Awabakal and Worimi peoples.

There are some important cumulative impact concerns in the city, which have been raised by RAPs and other Aboriginal stakeholders in the context of the redevelopment of key parts of the City. These include:

- Grief at the loss of the natural harbour foreshore landscape and loss of key landscape features, including oyster reefs and oyster shell middens around the estuary. The morphology of the whole lower estuary has been extensively modified, affecting the cultural landscape and its resources.
- The suburbs of the City of Newcastle were mostly developed in the first half of the twentieth century, with early industrial development occurring for 50 or more years before that. Impacts on culture and heritage in Newcastle relate to one of the longest periods of European settlement of all of NSW.
- Much of the archaeological resource of inner Newcastle, from sites on the dunes along the natural shoreline, was not recorded until investigations triggered by redevelopment commenced. A vast archaeological resource has been revealed. The redevelopment process means that while large assemblages of artefacts have been salvaged, there is little opportunity for in-situ conservation of the archaeological resource.

In combination, these historical losses of archaeological resources and more modern losses have resulted in a significant cumulative impact on the culture and heritage of the Awabakal people.



9.0 Management

9.1 Management and Mitigation Strategy

9.1.1 Management Strategy

This section describes the management measures for identified Aboriginal cultural heritage values in the study area. The management measures proposed in this section respond to:

- the impacts identified in the preceding section
- the assessed significance of the Aboriginal sites
- the views of the Aboriginal community as represented by the RAPs
- the need to address intergenerational equity in the values of Aboriginal heritage
- the need to protect sites not impacted by the Project but under the care of (the Client)
- the need to mitigate the loss and disturbance of impacted Aboriginal sites and Aboriginal objects.

While Aboriginal sites cannot be replaced once lost, the salvage of Aboriginal objects impacted by the project will provide a tangible monument to those sites. Furthermore, with care in curation, those salvaged materials can be better studied to help understand other Aboriginal sites present in the landscape.

Intergenerational equity is a core element in the notion of ecologically sustainable development (ESD), which commonly guides regulators in their review of Aboriginal cultural heritage management. This may be achieved by a program of avoidance and protection for the most significant sites (both scientifically and culturally) and salvage of sites with lesser scientific value but still of cultural importance to the Aboriginal community.

9.1.2 Strategy Options Considered

There are a range of management strategies that are available in relation to the archaeological resource of the Project Area. These include:

- Conservation/avoidance of places of Aboriginal heritage value and archaeological value.
- Mitigation of predicted impacts. This includes further detailed investigation of substrates and the archaeological resource to provide more information about the presence and/or distribution of potential archaeological materials in subsurface contexts.
- Permit impacts without mitigation. This approach is feasible when the archaeological and cultural value of sites and places is considered to be low or negligible. It is not appropriate as a stand-alone management approach where the heritage values are more significant.

The approach at Broadmeadow includes development with and without mitigation of potential impacts on heritage values, specifically archaeological values.



The proposed management approach for the Broadmeadow Precinct reflects the outcomes of consultation with the registered Aboriginal party representatives, including in-field consultation but may be subject to revision based on comments received from the registered Aboriginal parties in relation to the draft ACHA.

Although the archaeological potential of the Precinct is generally low, the landscape is valued by the local Aboriginal community, as represented by the RAPs. Similar expressions of value were made during the inspection of the area for the Connecting with Country assessment.

Management measures therefore include:

- Development across most of the Precinct without further archaeological investigation (no mitigation of impacts).
- Mitigating impacts.
- A cultural heritage management plan for the overall precinct, to guide future engagement with the Aboriginal community through all stages of the development.
- Review of new geotechnical information that may be obtained during the detailed design phase, to confirm local stratigraphic context. In the first instance, this evidence will provide assurance for the RAPs and others in the community about the low archaeological value of the place. It also confirms the character of the substrate and will contribute to telling the cultural story of Broadmeadow.
- Potential subsurface investigations of locations where:
 - \circ There is relatively little evidence of historical ground surface disturbance.
 - Fill depth is less than 1 m.
 - The natural landscape context indicates the potential for occupation evidence to have accumulated at that place.
 - The footprint of proposed future land uses exceeds the footprint (including depth of disturbance) of historical land uses.
- Naturalisation of drainage lines and corridors wherever feasible. It is acknowledged that this is
 hindered by existing infrastructure constraints and contamination. Nonetheless, landscaping of public
 land that reflects the natural features of the Broadmeadow landscape its creeks and wetlands on the
 drainage plain, and using species and communities that are local to this landscape, will both reflect the
 cultural landscape value of the place and help to restore cultural connection to the landscape.
- Interpretation and communication. This will include naming of places and streets, story boards, art works and installations of different scales, building design features, and landscaping features, including planting (species selections, locations).
- Archaeological testing and/or salvage excavations are not proposed at this time.



9.2 Discussion of Management Measures

9.2.1 Aboriginal Cultural Heritage Management Plan

An Aboriginal Cultural Heritage Management Plan (ACHMP) should be developed in consultation with Heritage NSW and RAPs. The ACHMP should also engage with other Aboriginal community stakeholders who have contributed to the Connecting with Country assessment. In this way, the plan will present an integrated approach to archaeological, heritage and cultural management, over the life of the project.

Based on the currently available archaeological information, the archaeological values and therefore risks associated with the project are low. There are some circumstances during the development cycle in which archaeological significance could be revised. The ACHMP will explain these and what should be done if new information increases archaeological value and risk.

In this regard, the ACHMP should:

- Identify all Aboriginal sites (if any are identified at any point in the Project) and area of PAD that are present within the Project area and environs.
- Present the logic for not requiring an AHIP for the development. Note that at this stage, further investigation may be required within the Locomotive Depot ('Broadmeadow PAD 2023-01' [AHIMS ID #38-4-2263]) and the north east of the Project Area ('Wickham Transport Interchange PAD' [AHIMS ID #38-4-1716]).
- Document the approved management measures and provide for documentation and reporting on any measures that have specific timeframes or thresholds.
- Identify measures to ensure ongoing consultation and involvement of project RAPs and other members
 of the Aboriginal community. Aboriginal people should first be consulted about the governance
 arrangements that will meet their needs and provide ongoing opportunities to protect and share
 culture and heritage, as well as reconciliation opportunities in the development and future use of the
 Precinct.
- Document RAP access arrangements for a selection of significant sites for educational purposes. This should also include requirements for inclusion of cultural spaces and cultural interpretation in the landscaping of the precinct. It should explain how Aboriginal people will be involved in the design and maintenance process.
- 'Emergency' protocols for a range of scenarios, such as if a previously unknown site was to be exposed during the development process, or suspected skeletal material.
- Document protocols for educating staff and contractors of their obligations relating to Aboriginal cultural heritage values through a site induction process. This should also include awareness of Awabakal culture and reconciliation issues affecting the detailed design of the site. This could include identifying sites within the Precinct to provide services to Aboriginal peoples in the City of Newcastle.



- Document expectations for the detailed design and construction processes, in terms of respect for Awabakal culture and heritage. This could include guidance on expectations of the approval for individual developments and the tendering process for construction of various parts of the Precinct. This would require collaboration between the various state government landowners.
- Document provisions for review and updates of the ACHMP.

The ACHMP will be prepared after the rezoning process has been completed and will inform subsequent phases of the renewal of the Precinct, including detailed design development consent, construction and operation (including maintenance).

9.2.2 Riparian Zone Naturalisation

All Aboriginal stakeholders involved in the archaeological assessment and the Connecting with Country assessment commented on the loss of natural riparian landscapes across the Broadmeadow area.

Aboriginal community stakeholders understand that the area has a high flood hazard and risk and that the current drainage interventions and infrastructure were, when constructed, intended to reduce flooding and improve drainage across the alluvial plain landscapes.

However, there was a strong view that a riparian style landscape should be reinstated wherever feasible, on the public open space land and along the drainage lines.

Aboriginal stakeholders indicated that they would be supportive of a concept that involved a range of measures such as:

- Modifying drain cross section to increase habitat value within the channel. The recent works in the lowest reaches of Cottage Creek are an example of what may be able to be achieved, with careful design and consultation with flood modellers and contamination specialists.
- Creating shallow flood basins on the alluvial plain, adjacent to the stormwater drains. The detailed design of these will be affected by the position of critical infrastructure, the level of contamination, detailed flood modelling and landscaping requirements to provide for safe public use. While to be functional, some flood basins would need to be grassed and mostly dry, it may be possible to also maintain some wet basins, reinstating some wetland vegetation.
- Planting trees where feasible to provide habitat and shade. No natural vegetation remains in Broadmeadow, but some wetland margin tree species would still grow there.

9.2.3 Subsurface Review

Broadmeadow is underlain by Quaternary estuarine and Quaternary alluvial plain geology and related landforms, with low gradient Quaternary alluvial fan forms where tributaries enter around the margins of the alluvial plain. The analysis presented in this report indicates that these substrates have a relatively low archaeological potential. Some localised terrain and sedimentary features may have higher archaeological value. In the Broadmeadow case, any micro terrain differentiation is masked by the filling, excavation, drainage and development that has happened in the area over the last 120 years. Higher archaeological value localities exist only in theory.



When the project enters the detailed design phase, it is anticipated that there will be further detailed geotechnical, drainage and contamination studies, to inform carefully tailored ground surface reshaping across the precinct. As new subsurface information becomes available, an archaeologist and the RAPs should be informed and given access to the data. It is expected that this will either reinforce the existing assessment of archaeological potential or enable re-evaluation of specific areas which may have higher archaeological potential (for instance, identifying former creek alignments, morphologies and terraces, now below the surface).

This information would inform a review of the ACHMP, in terms of the value of any subsurface archaeological investigations, initially in any of the 'First Moves' areas.

9.2.4 Previously Unrecorded Aboriginal Objects/Sites

The landscape character and history of the Broadmeadow area suggests that it is unlikely that large stratified Aboriginal occupation sites will be identified during the redevelopment of the area. An AHIP is not proposed at this time. However, planners need to be aware that if any Aboriginal object are identified during investigations for detailed design or during construction, work must cease and Heritage NSW is to be notified.

The landscape history at Broadmeadow means it is extremely unlikely that Aboriginal ancestral remains would be found in the subsurface context of the place. None are currently known and there is no constraint to the rezoning process in this regard.

Notwithstanding this, it is important that all personnel working on the project during subsequent construction be briefed on the possibility and the appropriate protocols to follow if bone that could be human remains is found, as well as, what to do if other Aboriginal cultural material is encountered.

9.2.5 Cultural Design and Interpretation

Broadmeadow is now and will be even more in the future a high-profile focal point for the people of Newcastle. This means there will be multiple opportunities to promote Aboriginal culture, art, design, storytelling, music, history and resilience as the precinct is renewed and reactivated.

Aboriginal people are keen to be consulted in the detailed design phase, so that key attributes of a valued cultural landscape can be understood and incorporated. There is also an opportunity to contract Aboriginal businesses in the design, construction and maintenance of landscaping, to reflect cultural values.

9.2.5.1 Aboriginal Cultural Centre and Services

Aboriginal people, both Awabakal people and people from other areas, have made an important historical contribution to the community and work force in Broadmeadow.

It is worth noting that at the last Census, the City of Newcastle had 7,161 Aboriginal citizens, or 4.2% of the population of the City. This is a higher proportion of Aboriginal people than for Aboriginal people across the State as a whole. Aboriginal people in Newcastle are clustered in the 5–14 years, 15–24 years and 25–34 years age groups. The proportions of people in the teenage and young adult age classes (15–24 and 25 to 34 years) are well above the state average (by 3–5%).



This demographic character has implications for the services that are needed to support healthy, active lives, education and employment for Aboriginal people, and how those needs can be built into the management of the renewal of Broadmeadow. It may be that youth facilities, accessible to young Aboriginal people would meet both cultural and social outcomes. This could include a venue for cultural activities, cultural events, within community training and passing on of knowledge. It could also mean tailored health services and after school education facilities.

Interestingly, the Newcastle Census data also show that young Aboriginal people are highly engaged in tertiary education. The data indicate 11.1% of Aboriginal and Torres Strait Islander people in Newcastle are attending a vocational education institution and 16.6% are attending university. The Census suggests these figures are well above the state average. The outcome may be related to long term programs in Newcastle to encourage Aboriginal people to take up tertiary education places and the support provided by Wollotuka at the University (see also the Social Impact Assessment and Connecting with Country Assessments, prepared for Broadmeadow). This is something to be explored further with the community. It is not an archaeological issue, but is an important part of the cultural story of Awabakal and other Aboriginal people in Newcastle.



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Abbreviations

Acronym	Definition
AHD	Australian Height Datum
ACHA/ACHAR	Aboriginal cultural heritage assessment report
AHIMS	Aboriginal Heritage Information Management System
АСНМР	Aboriginal Cultural Heritage Management Plan
AMBS	Australian Museum Business Services
BP	Years before present
с.	circa
cm	centimetres
DEC	Department of Environment and Conservation, now Heritage NSW
DECCW	Department of Environment Climate Change and Water, now Heritage NSW
DPC	Department of Premier and Cabinet
DPHI	Department of Planning and Environment
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
ESD	Ecologically sustainable development
FGS	Fine grained siliceous
g	grams
GIS	geographical information system
GPS	global positioning system
ha	hectare
ICOMOS	International Council on Monuments and Sites
IMT	Indurated mudstone/tuff
km	kilometres
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
m	metres
m ²	square metres
mm	millimetres
n	Number
NSW	New South Wales
OEH	Office of Environment and Heritage, now Heritage NSW
PAD	Potential archaeological deposit
RAP	Registered Aboriginal Party
SEARs	Secretary's Environmental Assessment Requirements



Acronym	Definition
t	Tonne
ТР	Test pit





Site Definitions and Recording Methods Used for This Assessment

A description of terms used to describe different site features that occur throughout NSW is provided below.

Site Feature	Definition and Recording Methods
Aboriginal ceremony and Dreaming	Previously referred to as mythological sites these are spiritual/story places where no physical evidence of previous use of the place may occur; e.g., natural unmodified landscape features, ceremonial or spiritual areas, men's/women's sites, dreaming (creation) tracks, marriage places etc.
Artefact site (open stone artefact site)	Objects such as stone tools, and associated flaked material, spears, manuports, grindstones, discarded stone flakes, modified glass or shell demonstrating evidence of use of the area by Aboriginal people.
	Open stone artefact sites were defined by the presence of one (isolated find) or more (artefact scatter) stone artefacts visible on the ground surface. The boundaries of a site are limited to the spatial extent of the visible stone artefacts. The mapped site points and/or 'site areas' do not represent the areas of potential archaeological deposit (PAD) that also apply to some sites (refer to the term 'PAD' below).
	Open stone artefact sites were recorded by marking each artefact location or each cluster of artefacts within a 5 m radius as a separate waypoint in the GPS. Site boundaries were allocated by drawing a line around the cluster waypoints for each site using ArcGIS software. Stone artefacts more than 50 m apart were recorded as separate sites. Umwelt acknowledges that the 50 m rule applied here is an arbitrary distinction for site boundaries and is used mainly for efficiencies in site management and to establish consistency in site recording methods.
Burials	A traditional or contemporary (post-contact) burial of an Aboriginal person, which may occur outside designated cemeteries and may not be marked; e.g., in caves, marked by stone cairns, in sand areas, along creek banks etc.
Fish trap	A modified area on watercourses where fish were trapped for short-term storage and gathering.
Grinding grooves	Grinding grooves were defined as an area of outcropping bedrock containing evidence of one or more grinding grooves where ground-stone hatchets (axes) or other grinding practices (i.e. seed grinding) were implemented.

Table A.1Site Definitions and Recording



Site Feature	Definition and Recording Methods
Habitation structure	Structures constructed by Aboriginal people for short- or long-term shelter. More temporary structures are commonly preserved away from the NSW coastline, may include historic camps of contemporary significance. Smaller structures may make use of natural materials such as branches, logs and bark sheets or manufactured materials such as corrugated iron to form shelters. Archaeological remains of a former structure such as chimney/fireplace, raised earth building platform, excavated pits, rubble mounds etc.
Modified tree (carved or scarred)	Trees which show the marks of modification as a result of cutting of bark from the trunk for use in the production of shields, canoes, boomerangs, burials shrouds, for medicinal purposes, foot holds etc., or alternately intentional carving of the heartwood of the tree to form a permanent marker to indicate ceremonial use/significance of a nearby area, again these carvings may also act as territorial or burial markers. Modified trees (either carved or scarred) can be difficult to identify. Scars commonly occur on trees through natural processes such a branch tears, insect damage, storm and fire damage and faunal damage. Scars can also occur from mechanical damage from vehicles or farming equipment.
	The attributes of potential scarred trees were discussed during the survey amongst archaeologists and RAPs before it was decided if a scarred would be recorded or not. A precautionary approach was adopted, whereby some of the more ambiguous examples were recorded anyway. The assessment of scar trees was made from the experience of the survey team and the guideline <i>Aboriginal scarred trees in New South Wales: a field manual</i> (DEC 2005). In some of the more ambiguous examples, it cannot be verified whether some scars recorded during the survey are of natural or Aboriginal origin. In such instances, an expert evaluation by a scarred tree expert (arborist or other) would be required to determine the status of certain trees.
Potential archaeological deposit (PAD) and Assessment of Subsurface Archaeological Potential	Approach To Defining PADs Umwelt has defined PADs as the predicted extent of concentrated subsurface Aboriginal objects in a particular area. PADs are not technically Aboriginal sites until, and if, subsurface Aboriginal objects are identified, which is typically established through archaeological test excavation. PAD areas have been assigned to landforms that are distinguishable from the surrounding landscape (eg elevated areas with good outlook overlooking watercourses) as being likely to retain higher artefact densities than the assumed 'background



Site Feature	Definition and Recording Methods
	scatter' of archaeological material in the broader landscape.
	The identification of PADs associated with Aboriginal open camp sites was partly based on observations in the field and discussions with RAPs, but also related to the predictive model. Although PAD was attributed to areas for a variety of reasons, the main qualifiers were:
	• The presence of surface artefacts or other Aboriginal objects. Ground surface.
	 visibility as part of the archaeological survey effort was typically considered high enough in each PAD area to identify at least one or more surface artefacts thereby indicating likelihood of subsurface potential. Notwithstanding, finding no visible surface artefacts in an area would not disqualify an area from being attributed with PAD.
	 Level to gently inclined ground (<10%) indicating suitable camping or activity areas.
	 Contours that distinguish the landforms with PAD from the surrounding landscape (e.g. rise, foot slope, terrace, spur crest, hill crest or knoll). Landform boundaries were also interpreted through observations in the field.
	• Proximity to water: typically up to 100 m from 1 st and 2 nd order streams and up to 200 m from 3 rd order streams and above. Elevated landforms at the confluence of higher order streams were also more likely to be attributed with PAD.
	• Umwelt acknowledges that all PAD areas have been historically cleared of native vegetation and some have been subject to pasture improvements such as ploughing. As such, the term PAD does not necessarily assume high upper subsurface integrity; instead it is a prediction of potential subsurface artefact concentrations.
	Assessment of Subsurface Archaeological Potential
	The approach to defining PADs is also underpinned by an assessment of archaeological potential with reference to factors including the archaeological context of the local area, the evaluation of the soil profile (based on soil landscape mapping, exposed soil profiles identified during the survey and geomorphic understandings of the area) and the predictive model.
	The terms described below are used to classify archaeological potential at specific locations. For an area to be considered 'PAD', it must reach a prediction of moderate or high archaeological potential:



Site Feature	Definition and Recording Methods
	 No archaeological potential: areas where the natural soil profile has been removed through geomorphic processes or human action, thereby removing any archaeological resource of the location. Examples of this category would include a landslide or industrial quarry sites.
	• Low archaeological potential: landscape areas that may have been utilised by Aboriginal people in the past, but at low intensity compared to other areas within the region. The density of artefacts deposited within these areas would therefore be low. This category also includes landscape areas of low terrain integrity, where geomorphic processes or human action may have redistributed artefacts from their deposited locations, resulting in site disturbance or destruction.
	• Moderate archaeological potential: landscape areas that are predicted to have been utilised by Aboriginal people in the past, but not intensively or repeatedly. There is therefore potential for artefactual deposition, but at a lower frequency and density than expected at other areas within the region. Terrain integrity in these areas may be variable, but most open camp sites are expected to be of low-moderate integrity only, with geomorphic processes not acting to bury deposits <i>in situ</i> .
	• High archaeological potential: landscape areas predicted to have been intensively or repeatedly utilised by Aboriginal people in the past and would have been a key location for occupation or other regular use likely to result in the deposition of archaeological material. Terrain integrity in these areas may be variable, but these landforms may include areas of high terrain integrity, where geomorphic processes may have acted to bury deposits <i>in situ</i> . Sites may therefore be of very high archaeological potential.
Restricted	Site information contained in the Aboriginal Heritage Information Management System is available only to certain authorised groups of people, as requested by the Aboriginal community. Detailed information may not be available in search reports.
Shell	An accumulation or deposit of shellfish from beach, estuarine, lacustrine or riverine species resulting from Aboriginal gathering or consumption. Usually found in deposits previously referred to as shell middens. Must be found in association with other objects like stone tools, fish bones, charcoal, fireplaces/hearths, and burials. Will vary greatly in size and composition.



Site Feature	Definition and Recording Methods
Stone quarry	Usually a source of good quality stone which is quarried and used for the production of stone tools. Stone quarries represent where Aboriginal people gathered raw stone materials for stone tools and/or manufactured stone tools from the adjacent source material. Quarry sites are found at rock outcrops where the material was of suitable quality to have been used to manufacture stone tools. Stone quarries were defined by the presence of outcropping stone material with nearby evidence of the same material type used in the stone tool manufacture process. This was most commonly indicated by large stone cores or stone flakes
	distributed amongst the same naturally outcropping material. Umwelt acknowledges that the 'open stone artefact' site type shares some of the same characteristics as 'stone quarries', such as the presence of stone artefacts. However, they have been distinguished from each other because quarries can not only represent open camping activities, but also a fixed location where Aboriginal people needed to visit to extract a resource. In contrast, the location of typical open camp sites were not fixed, but chosen by Aboriginal people for their favourable conditions.





Extensive search - Site list report

<u>SiteID</u>	<u>SiteName</u>		<u>Datum</u>	<u>Zone</u>	<u>Easting</u>	<u>Northing</u>	<u>Context</u>	<u>Site Status **</u>	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
38-4-0663	BRA 1		AGD	56	380750	6354500	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		98300
	<u>Contact</u>		Recorders	Mega	an Mebberso	n			<u>Permits</u>	1472	
38-4-1632	TA1 Newcastle	2	GDA	56	386378	6356088	Open site	Destroyed	Artefact : -		
	<u>Contact</u>		Recorders	Umv	velt (Austral	ia) Pty Limited	- Individual users,M	liss.Nicola Roche	<u>Permits</u>	3683	
38-4-1020	Coutts Sailors	Home PAD1	AGD	56	386358	6355971	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	T Russell	Recorders	Exte	nt Heritage l	Pty Ltd - Pyrmo	nt - Individual user	S	<u>Permits</u>	2734	
38-4-0957	NCL 931		AGD	56	386400	6356000	Open site	Valid	Artefact : -		4417,97762
	<u>Contact</u>	T Russell	<u>Recorders</u>	Noel	een Curran				<u>Permits</u>		
38-4-2192	Stockton Brea	kwater Isolated Find 1	GDA	56	386883	6357481	Open site	Valid	Artefact : -		
	<u>Contact</u>		<u>Recorders</u>	Nich	e Environme	ent and Heritag	e,Ms.Carly Todhunt	er	<u>Permits</u>		
38-4-0772	710 Hunter St	reet Newcastle PAD	GDA	56	384312	6356244	Open site	Valid	Shell : -, Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>		<u>Recorders</u>	Jim V	Wheeler				<u>Permits</u>	1981	
38-4-0851	710 Hunter St	Newcastle, PAD	GDA	56	384312	6356244	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	S Scanlon	<u>Recorders</u>	Jim V	Wheeler,Um	welt (Australia)) Pty Limited - Indiv	ridual users,Mrs.Am	anda Crick <u>Permits</u>		
38-4-1205	Restriction ap ahims@enviro	plied. Please contact mment.nsw.gov.au.					Open site	Valid			
	<u>Contact</u>	Awabakal LALC	<u>Recorders</u>	Brad	l Welsh				<u>Permits</u>		
38-4-1133	Trans Pit 3		AGD	56	386853	6359765	Open site	Valid	Aboriginal Resource and Gathering : 150		102493
	<u>Contact</u>	Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			<u>Permits</u>		
38-4-1135	Revetted area	2	AGD	56 Ma I	386865	6359747	Open site	Valid	Aboriginal Resource and Gathering : 200		102493
29 / 1009	North Stocktor	Mr.Leonard (Lennie) Andersor	ACD	Mr.L		Anderson	Open cite	Valid	Aboriginal Posourco		102402
30-4-1090	Contact	Mr. Leonard (Lennic) Anderson	Recorders	50 Ma I	300009	0559452	open site	Vallu	and Gathering : 46		102495
38-4-1099	<u>Charlie Foes</u>	MILEONALU (Lennie) Anderson	ACD	56	386876	635952 <i>4</i>	Open site	Valid	Aboriginal Ceremony		102493
30-4-1099	Contact	Mu Loonard (Lonnic) Anderson	Recorders	50 Mal	500070	0559524	opensite	Vallu	and Dreaming : 8		102495
38-4-1115	Stockton TW7	MILEONALU (LEINIE) ANUEISOI	ACD	56	286022	6350602	Open site	Valid	Artefact : 150		102493
30-4-1113	Combard		NuD Describe	50	300933	1339092	open site	vanu	AI ICIALI - 130	4700	102473
20 / 1111	Lontact	Mr.Leonard (Lennie) Andersor	ACD	Mr.L	eonard (Len	Anderson	Open cite	Walid	Aboriginal Pasoures	4/33	102402
38-4-1111	NOTIN SLOCKTO	n channe roe	AGD	50	300974	0359/45	Open site	vallu	and Gathering : 300		102493

Report generated by AHIMS Web Service on 23/03/2023 for Alison Fenwick for the following area at Datum :GDA, Zone : 56, Eastings : 377892.0 - 387342.0, Northings : 6353570.0 - 6360410.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 102



Extensive search - Site list report

Client Service ID : 766489

<u>SiteID</u>	<u>SiteName</u>	<u>Datum</u>	<u>Zone</u>	Easting	<u>Northing</u>	<u>Context</u>	Site Status **	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
	Contact Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	nie) Anderson			Permits		
38-4-1122	Stockton 13	AGD	56	386993	6359826	Open site	Valid	Aboriginal Resource and Gathering : 250		102493
	Contact Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	nie) Anderson			<u>Permits</u>		
38-4-0082	Lambton	AGD	56	377918	6355201	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	98458,98459
	Contact	Recorders	Len	Dyall	(0 .	<u> </u>		<u>Permits</u>		
38-4-2083	Cathedral Park PAD	GDA	56	385967	6356000	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact	<u>Recorders</u>	AMA	C Group P/L	,Mr.Benjamin S	Streat		<u>Permits</u>	4830	
38-4-1960	Newcastle Signal Box IF	GDA	56	386076	6356240	Open site	Destroyed	Artefact : -		
	<u>Contact</u>	Recorders	RPS	AAP Consulti	ng Pty Ltd - Ha	amilton,RPS AAP Con	sulting Pty Ltd - H	amilton,RPS <u>Permits</u>		
38-4-2035	Stockton Beach Car Park Spoil	GDA	56	386749	6357283	Open site	Valid	Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	Ms.G	illian Goode				<u>Permits</u>		
38-4-2037	10 Dangar Street PAD	GDA	56	384037	6356470	Open site	Partially Destroyed	Potential Archaeological Deposit (PAD) : -, Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	Umv	velt (Australi	a) Pty Limited	- Individual users,Ur	nwelt (Australia) F	Pty Limited - Permits		
38-4-0832	Empire Hotel PAD	GDA	56	384406	6356139	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact T Russell	<u>Recorders</u>	Jim V	Vheeler,Umv	velt (Australia)) Pty Limited - Indivi	dual users,Mrs.Am	anda Crick Permits	2128,4166,4975,5024	
38-4-1816	Isolated Find 4 -Rail	GDA	56	384514	6356211	Open site	Destroyed	Artefact : -		
	<u>Contact</u>	Recorders	RPS	AAP Consulti	ng Pty Ltd - Ha	amilton,Ms.Cheng-Ye	n Loo	Permits		
38-4-1803	Isolated Find 3-Rail	GDA	56	384525	6356208	Open site	Valid	Artefact : -		
	<u>Contact</u>	Recorders	RPS	AAP Consult	ng Pty Ltd - Ha	amilton,Ms.Cheng-Ye	n Loo	<u>Permits</u>	3970	
38-4-2024	UoN PAD1	GDA	56	384967	6356210	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	<u>Recorders</u>	Curi	o Projects Pty	y Ltd,Mx.Sam (Cooling		<u>Permits</u>	4512	
38-4-1642	#38-4-1642 Hunter Street, Newcastle Fill (PAD located at 1 Merewether Street)	GDA	56	385311	6356226	Open site	Partially Destroyed	Artefact : -, Shell : -		104055,10405 6,104461
	Contact	<u>Recorders</u>	Umv	velt (Australi	a) Pty Limited	- Individual users,Mi	r.Benjamin Streat,N	Ms.Janice Wi Permits	3920,4186,4390,4393,4	602
38-4-1084	Newcastle CBD PAD	GDA	56	385850	6355900	Open site	Partially Destroyed	Potential Archaeological Deposit (PAD) : -, Artefact : -		
	Contact	<u>Recorders</u>	Ms.M	leaghan Russ	sell, RPS AAP Co	onsulting Pty Ltd - Pi	tt Street Sydney,M	rs.Bengi Selv Permits	3008,4225,4248,4557,4	744,5061

Report generated by AHIMS Web Service on 23/03/2023 for Alison Fenwick for the following area at Datum :GDA, Zone : 56, Eastings : 377892.0 - 387342.0, Northings : 6353570.0 - 6360410.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 102



Extensive search - Site list report

<u>SiteID</u>	SiteName	<u>Datum</u>	<u>Zone</u>	Easting	<u>Northing</u>	<u>Context</u>	<u>Site Status **</u>	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
38-4-2096	Restriction applied. Please contact					Open site	Deleted			
	ahims@environment.nsw.gov.au.									
	<u>Contact</u>	<u>Recorders</u>	Univ	ersity of Syd	ney,Mrs.Laura	Dafter		<u>Permits</u>		
38-4-1089	Eames avenue midden	AGD	56	386763	6359283	Open site	Valid	Aboriginal Resource		102493
	Contact Multiseneral (Lennis) Anderson	Decordore	Mart					and Gathering : 60		
29.4.1002	<u>Contact</u> Mr.Leonard (Lennie) Andersor	ACD	MIT.L		Anderson	Oman aita	Valid	Aboriginal Decourac		102402
30-4-1092	Earnes ave shell	AGD	50	300/00	0339239	Open site	vallu	and Gathering : 30		102493
	Contact Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			Permits		
38-4-1101	Stockton North 4	AGD	56	386815	6359452	Open site	Valid	Aboriginal Resource and Gathering : 42		102493
	Contact Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			Permits		
38-4-1119	Stockton 10	AGD	56	386864	6359700	Open site	Valid	Aboriginal Resource		102493
								and Gathering : 200		
	Contact Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			<u>Permits</u>		
38-4-1120	Stockton 11	AGD	56	386902	6359737	Open site	Valid	Artefact : 80		102493
	Contact Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			Permits	4733	
38-4-1121	Stockton12	AGD	56	386929	6359772	Open site	Valid	Aboriginal Resource		102493,10256
								and Gathering : 300		8
	Contact Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			<u>Permits</u>		
38-4-1093	Corroba corroboree ground	AGD	56	386965	6359524	Open site	Valid	Aboriginal Resource		102493
	Contact Mr. Loopard (Loppic) Anderson	Recorders	MrL	oonard (Lon	nia) Andorson			Pormits		
38-4-1110	Stockton TW midden	ACD	56	386997	6359778	Open site	Valid	Aboriginal Ceremony		102493
50-4-1110		AUD	50	300777	0337770	opensite	valiu	and Dreaming : 200		102475
	Contact Mr.Leonard (Lennie) Andersor	Recorders	Mr.P	eter Anderso	on			Permits		
38-4-1108	Stockto Nth TW	AGD	56	387044	6359852	Open site	Valid	Artefact : 150		102493
	Contact Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	nie) Anderson			Permits		
38-4-0940	NU - 0S -1	GDA	56	379264	6360259	Open site	Destroyed	Artefact : 2		102493
	Contact T Russell	Recorders	Mrs.I	Robynne Mil	ls,Umwelt (Aus	stralia) Pty Limited -	Individual users,M	s.Alison Lan Permits	4052	
38-4-1541	WWW IA 02	GDA	56	379386	6359898	Open site	Destroyed	Artefact : 1		
	<u>Contact</u>	Recorders	Hunt	er Water Co	rporation - Nev	wcastle,Umwelt (Aus	tralia) Pty Limited	- Individual Permits	4052	
38-4-0454	Yirannaii;	AGD	56	386150	6355450	Open site	Valid	Aboriginal Ceremony	Natural	1333
								and Dreaming : -	Mythological	
	Contract	Descudence	147	D1 (C				Dermite	(Ritual)	
20 / 2010	<u>Contact</u>	CDA	warr		6256550	Open site	Destroyed	Permits		
38-4-2019	WICKNAM PAD 1	GDA	50	384068	6356550	Open site	Destroyed	Archaeological Deposit (PAD) : 1		
	Contact	Recorders	Eco I	ogical Austr	alia Pty Ltd - S	ydney - Individual us	sers,Eco Logical Au	stralia - Muc Permits	4505,4589	
38-4-1815	Isolated Find 5 - Rail	GDA	56	384520	6356214	Open site	Destroyed	Artefact : -		

Report generated by AHIMS Web Service on 23/03/2023 for Alison Fenwick for the following area at Datum :GDA, Zone : 56, Eastings : 377892.0 - 387342.0, Northings : 6353570.0 - 6360410.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 102



Extensive search - Site list report

<u>SiteID</u>	SiteName	<u>Datum</u>	Zone	Easting	Northing	<u>Context</u>	<u>Site Status **</u>	<u>SiteFeatur</u>	<u>es</u>	<u>SiteTypes</u>	<u>Reports</u>
20 4 1012	<u>Contact</u>	<u>Recorders</u>	RPS A	AP Consultin	ng Pty Ltd - Ha	amilton,Ms.Cheng-Ye	n Loo	Austa fa at	<u>Permits</u>		
38-4-1812	Isolated Find 6 - Kall	GDA	50	384542	6356203	Open site	Destroyed	Artefact : -			
20 4 1017	<u>Contact</u>	<u>Recorders</u>	RPS A	AP Consultin	ng Pty Ltd - Ha	amilton,Ms.Cheng-Ye	n Loo		<u>Permits</u>		
38-4-1817	Arteract Scatter 1 - Kall	GDA	56	384553	6356198	Open site	Destroyed	Artefact : -			
20 4 2200	Contact	Recorders	RPS A	AP Consultin	ng Pty Ltd - Ha	amilton,Ms.Cheng-Ye	n Loo	A + C +	<u>Permits</u>		
38-4-2208	GSCA18 - BS - Shaft Track AF101	GDA	56	382400	6353600	Open site	valid	Artefact : -			
00.4.0406	Contact	Recorders	DPIE	- Armidale,M	Is.Tannah Mu	nson	TT 1: 1		<u>Permits</u>		
38-4-2136	Railway Lane	GDA	56	383657	6356680	Open site	vand	Artefact : -			
00 4 4505	<u>Contact</u>	Recorders	Umw	elt (Australia) Pty Limited	- Individual users,Mi	ss.Nicola Roche		<u>Permits</u>		101115
38-4-1795	38 Hannell St Newcastle (PAD) Artefact Scatter	GDA	56	384090	6356541	Open site	Valid	Artefact : -			104417
00.4.0004	Contact	Recorders	Exter	it Heritage Pi	y Ltd - Pyrmo	nt - Individual users,	Doctor.Tessa Brya	nt	<u>Permits</u>	4122,4589	100056
38-4-0831	Palais Royale	GDA	56	384422	6356195	Open site	Valid	Snell : -, Ar	tefact : ntial		102256
								Archaeolog	rical		
								Deposit (P	, AD) : -		
	Contact T Russell	Recorders	Unive	ersity of New	castle,Jim Wh	eeler,Umwelt (Austra	alia) Pty Limited - I	ndividual u:	<u>Permits</u>	2127,2593,3098,3502	
38-4-1805	Isolated Find 2-Rail	GDA	56	384525	6356208	Open site	Valid	Artefact : -			
	Contact	<u>Recorders</u>	RPS A	AP Consultin	ng Pty Ltd - Ha	amilton,Mr.Ben Slack			<u>Permits</u>	3970	
38-4-2100	NBN_AS1	GDA	56	385660	6355700	Open site	Valid	Artefact : -			
	<u>Contact</u>	<u>Recorders</u>	Umw	elt (Australia) Pty Limited	- Individual users,Mi	ss.Alison Fenwick		<u>Permits</u>	4976	
38-4-1091	Eames Ave midden	AGD	56	386763	6359226	Open site	Valid	Shell:40			102493
	Contact Mr.Leonard (Lennie) Andersor	Recorders	Mr.Le	eonard (Lenn	ie) Anderson				Permits		
38-4-1103	Treatment works2	AGD	56	386987	6359967	Open site	Valid	Burial : 1			102493
	Contact Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.Le	eonard (Lenn	ie) Anderson				<u>Permits</u>		
38-4-1543	WWW AS 04	GDA	56	379526	6359640	Open site	Valid	Artefact : 1			
	<u>Contact</u>	<u>Recorders</u>	Hunt	er Water Cor	poration - Nev	wcastle			Permits		
38-4-2006	Newcastle Interchange Artefact Reburial 1 (NI AR 1)	GDA	56	383373	6356793	Open site	Valid	Artefact : -			
	<u>Contact</u>	<u>Recorders</u>	Artef	act - Cultural	Heritage Man	agement - Pyrmont,N	As.Alyce Haast		Permits		
34-4-0071	RPS Hannell St Pad 1	GDA	56	384090	6356541	Open site	Valid	Potential			
								Archaeolog	gical		
	Contact	Recorders	Mr Io	romy Hill				Deposit (PA	ADJ:- Permits		
38-4-1223	Wickham UFCCALE OS1	GDA	56	384166	6356333	Open site	Destroyed	Artefact : 1	<u>r crimts</u>		
	Contact	Recorders	Umw	elt (Australia) Ptv Limited	- Individual users Str	eat Archaeological	Services M	Permits	4025,4548,4549	
38-4-1814	Isolated Find 8 -Rail	GDA	56	384545	6356199	Open site	Destroyed	Artefact : -	<u> </u>	1020,1010,1017	
	Contact	Recorders	RPS /	AP Consulti	ng Pty Ltd - Ha	amilton Ms Cheng-Ver	n Loo		Permits		
38-4-1813	Isolated Find 7 - Rail	GDA	56	384549	6356205	Open site	Destroyed	Artefact : -	<u></u>		
	<u>Contact</u>	<u>Recorders</u>	RPS A	AP Consulti	ng Pty Ltd - Ha	amilton,Ms.Cheng-Ye	n Loo		<u>Permits</u>		

Report generated by AHIMS Web Service on 23/03/2023 for Alison Fenwick for the following area at Datum :GDA, Zone : 56, Eastings : 377892.0 - 387342.0, Northings : 6353570.0 - 6360410.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 102



Extensive search - Site list report

Client Service ID : 766489

<u>SiteID</u>	<u>SiteName</u>		<u>Datum</u>	<u>Zone</u>	Easting	<u>Northing</u>	<u>Context</u>	Site Status **	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
38-4-1968	UoN1A-1		GDA	56	384823	6356217	Open site	Valid	Artefact : -		
	<u>Contact</u>		<u>Recorders</u>	Gurii	ngai Tribal L	ink Aboriginal	Corporation,Mrs.Tra	cey Howie	<u>Permits</u>	4499,4512	
38-4-0796	200 Hunter Str	reet PAD	AGD	56	385787	6356006	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Mrs.	Angela Besar	nt			<u>Permits</u>	2045,2049	
38-4-2097	Test 2		GDA	56	381636	6358678	Open site	Deleted	Aboriginal Resource and Gathering : -		
20 4 4005	Contact		<u>Recorders</u>	Univ	ersity of Syd	ney,Mrs.Laura	Dafter	TT 1: 1	<u>Permits</u>		400400
38-4-1095	Corroba cerem	ionial grounds	AGD	56	386831	6359408	Open site	Valid	and Dreaming : 1	4000	102493
20 4 1124	<u>Contact</u>	Mr.Leonard (Lennie) Andersor	ACD	Mr.L	eonard (Len	niej Anderson	0	W-1: J	Aboriginal Descures	4332	102402
38-4-1134	Contact	Mu Loonard (Lonnic) Andorroy	AGD	50 Mal	386830	0359/4/	Open site	vand	and Gathering : 50		102493
20 / 1110	Stockton	MILEONATU (Lennie) Anderson	ACD	E6	206064	Anderson	Open cite	Valid	Aboriginal Posourco		102402
30-4-1110	Contract		AGD	50 M I	300004	0359000	open site	vanu	and Gathering : 150		102495
20 / 1117	<u>Contact</u>	Mr.Leonard (Lennie) Andersor	ACD	Mr.L	206007	niej Anderson	Onon site	Valid	Antofont - 70		102402
30-4-1117	SLUCKU 9		AGD	50	300007	0339037	Open site	vanu	Artelact: 70		102495
	<u>Contact</u>	Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			<u>Permits</u>	4733	
38-4-1102	Treatment wo	rks1	AGD	56	386897	6360023	Open site	Valid	Aboriginal Resource and Gathering : 17		102493
	<u>Contact</u>	Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			Permits		
38-4-1113	Stockton CF		AGD	56	386955	6359688	Open site	Valid	Aboriginal Resource and Gathering : 200		102493
	<u>Contact</u>	Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	nie) Anderson	o		<u>Permits</u>		4.0.0.4.0.0
38-4-1114	Stockton twef		AGD	56	386968	6359652	Open site	Valid	Artefact : 300		102493
	<u>Contact</u>	Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			<u>Permits</u>	4733	
38-4-1892	Fort Wallace S	hell 2	GDA	56	387069	6360249	Open site	Valid	Shell : -		
	<u>Contact</u>		<u>Recorders</u>	Umw	velt (Australi	ia) Pty Limited	- Individual users,M	s.Alison Lamond	<u>Permits</u>		
38-4-1123	Stockton 13B		AGD	56	386999	6359876	Open site	Valid	Artefact : 80		102493
	<u>Contact</u>	Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			<u>Permits</u>	4733	
38-4-1104	Treatment wo	rks3	AGD	56	387030	6359965	Open site	Valid	Artefact : 106		102493
	<u>Contact</u>	Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	nie) Anderson			Permits		
38-4-1542	WWW AS SH 0)3	GDA	56	379598	6359654	Open site	Destroyed	Artefact : 1, Shell : 1		
	<u>Contact</u>		Recorders	Hunt	er Water Co	rporation - Ne	wcastle,Umwelt (Aus	tralia) Pty Limited	- Individual Permits	4052	
38-4-1282	Corrobra Oval	1	GDA	56	386800	6359500	Open site	Valid	Aboriginal Ceremony and Dreaming : -, Shell : -		102015,10249 3
	<u>Contact</u>		Recorders	Ms.P	enny Mccard	lle			Permits	3345	

Report generated by AHIMS Web Service on 23/03/2023 for Alison Fenwick for the following area at Datum :GDA, Zone : 56, Eastings : 377892.0 - 387342.0, Northings : 6353570.0 - 6360410.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 102



Extensive search - Site list report

Client Service ID : 766489

<u>SiteID</u>	<u>SiteName</u>	<u>Datum</u>	<u>Zone</u>	Easting	<u>Northing</u>	<u>Context</u>	Site Status **	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
38-4-1804	Isolated Find 1-Rail	GDA	56	384145	6356435	Open site	Valid	Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	RPS	RPS AAP Consulting Pty Ltd - Hamilton,Mr.Ben Slack				<u>Permi</u>	<u>its</u> 4025	
38-4-0952	Bellevue Hotel PAD	GDA	56	384264	6356219	Open site	Valid	Potential Archaeological Deposit (PAD) : -		99845,99874
	<u>Contact</u> Searle	Recorders	Umw	velt (Australi	ia) Pty Limited	- Individual users,Mi	r.Dominic Steele,M	rs.Amanda (<u>Permi</u>	<u>its</u> 2382	
38-4-0544	700 Hunter Street	AGD	56	384250	6356020	Open site	Valid	Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	Dom	inic Steele A	rchaeological (Consulting		<u>Permi</u>	<u>its</u>	
38-4-1818	Isolated Find 9 - Rail	GDA	56	384565	6356195	Open site	Destroyed	Artefact : -		
	<u>Contact</u>	Recorders	RPS A	AAP Consult	ing Pty Ltd - Ha	amilton,Ms.Cheng-Ye	n Loo	<u>Permi</u>	its	
38-4-0048	Merewether;Dixon Park;	AGD	56	384627	6354301	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Len I	Dyall				Permi	its	
38-4-2008	Artifact scatter	GDA	56	384966	6356262	Closed site	Valid	Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	Gurii	ngai Tribal L	ink Aboriginal	Corporation,Guringa	i Tribal Link Abori	iginal Corpol Perm i	its	
38-4-2209	GSCA19 - BS - Shaft Track AFT02	GDA	56	382400	6353590	Open site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	DPIE	- Armidale,	Ms.Tannah Mu	nson		Permi	its	
38-4-1090	Eamens Ave stones	AGD	56	386809	6359269	Open site	Valid	Stone Arrangemen 8	it:	102493
	<u>Contact</u> Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			Permi	<u>its</u>	
38-4-1116	Stockton 8	AGD	56	386894	6359673	Open site	Valid	Aboriginal Ceremo and Dreaming : 50	ony	102493
00 4 4004	<u>Contact</u> Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	nie) Anderson	0 "	** 1.1	<u>Permi</u>	<u>its</u>	100400
38-4-1094	Corrobba Corrobree grounds 1	AGD	56	386965	6359524	Open site	Valid	and Dreaming : 1	ony	102493
00.44405	<u>Contact</u> Mr.Peter Anderson	Recorders	Mr.L	eonard (Len	nie) Anderson	a .		<u>Permi</u>	<u>its</u>	4.0.0.4.0.0
38-4-1105	Treatment works 4	AGD	56	387030	6359956	Open site	Valid	and Gathering : 20	ce 0	102493
00 4 04 67	<u>Contact</u> Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	nie) Anderson	0 "	** 1.1	Permi	<u>its</u>	
38-4-216/		GDA	56	3/830/	6360219	Open site	Valid	Artefact : -		
00.4.000.6	Contact	Recorders	Biosi	s Pty Ltd - W	/ollongong,Mrs	S.Samantha Keats		Permi	<u>its</u>	
38-4-2036	Stockton Beach Trench Spoil	GDA	56	386756	6357281	Open site	Valid	Artefact : -		
	Contact	Recorders	Ms.G	illian Goode		0		Permi	<u>its</u>	
38-4-0559	The Broadwalk- Newcastle 1	AGD	56	385000	6356250	Open site	Valid	Potential Archaeological Deposit (PAD) : 0		98887
20 4 0525	<u>Contact</u>	<u>Recorders</u>	Mary	Dallas Cons	sulting Archaeo	logists (MDCA)	X7 1: 1	<u>Permi</u>	<u>its</u> 1298,2043,2453	100771
38-4-0525	Latholic Education Site	AGD	56	382680	6355710	Open site	valid	Artefact : -	Open Camp Site	100771
	<u>Contact</u>	<u>Recorders</u>	Marg	rit Koettig				Permi	its	

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Extensive search - Site list report

<u>SiteID</u>	<u>SiteName</u>	<u>Datum</u>	<u>Zone</u>	<u>Easting</u>	Northing	<u>Context</u>	Site Status **	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
38-4-2107	Ridgeline and Ridge Crest/Spur 1	GDA	56	381650	6353627	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>	Miss	Rachel (Elle.) (left Virtus Co	ompany) Lillis,Virtus	Heritage Pty Ltd -	Pottsville <u>Permits</u>	5019	
38-4-1097	North Stockton	AGD	56 Ma I	386826	6359419	Open site	Valid	Aboriginal Resource and Gathering : 28	4222	102493
00 4 400 6	<u>Contact</u> Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	niej Anderson	0	TT 1: 1	Permits	4332	100.000
38-4-1096	Corroba 2	AGD	56	386835	6359371	Open site	Valid	Aboriginal Ceremony and Dreaming : 7		102493
	<u>Contact</u> Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	nie) Anderson			Permits	4332	
38-4-1132	Trans Pit 2	AGD	56	386882	6359796	Open site	Valid	Artefact : 50		102493
	Contact Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	nie) Anderson			<u>Permits</u>	4733	
38-4-1131	Trans Pit 1	AGD	56	386913	6359829	Open site	Valid	Aboriginal Resource		102493,10256
								and Gathering : 80		8
	Contact Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			<u>Permits</u>		
38-4-1109	Stockton TW 7	AGD	56	387023	6359825	Open site	Valid	Aboriginal Resource and Gathering : 200		102493
	Contact Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	nie) Anderson			<u>Permits</u>		
38-4-1106	treatment works 5	AGD	56	387082	6359948	Open site	Valid	Artefact : 200		102493
	Contact Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			<u>Permits</u>		
38-4-0085	Lambton;	AGD	56	377918	6355201	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	98458,98459
	<u>Contact</u>	Recorders	Len l	Dyall				<u>Permits</u>		
38-4-1695	11-15 Watt St IF 1	AGD	56	386381	6356080	Open site	Valid	Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.B	enjamin Stre	eat			<u>Permits</u>	3814,3966	
38-4-1716	Wickham Transport Interchange PAD	GDA	56	383426	6356757	Open site	Partially Destroyed	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	Recorders	Arte	fact - Cultura	ıl Heritage Mar	agement - Pyrmont,	Artefact - Cultural I	Heritage Mai <u>Permits</u>	3809,4025,4220,4238,4	1589
38-4-2135	Denison Street PAD	GDA	56	383701	6356381	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>	AMA	C Group P/L	,Mr.Benjamin S	Streat		<u>Permits</u>	4921	
38-4-1222	Cottage Creek OS1	GDA	56	384250	6356324	Open site	Destroyed	Artefact : 1		105248
	<u>Contact</u>	Recorders	Umw	velt (Australi	ia) Pty Limited	- Individual users,Ur	mwelt (Australia) P	ty Limited - Permits	3970,4025,4548,4549,4	1807
38-4-1100	Charlie Foes 2	AGD	56	386850	6359543	Open site	Valid	Aboriginal Resource and Gathering : 43		102493
	Contact Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Len	nie) Anderson			Permits		
38-4-1112	Stockton Stones	AGD	56	386977	6359721	Open site	Valid	Aboriginal Resource and Gathering : 300		102493
	Contact Mr.Leonard (Lennie) Andersor	<u>Recorders</u>	Mr.L	eonard (Len	nie) Anderson			Permits		

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Extensive search - Site list report

Client Service ID : 766489

<u>SiteID</u>	<u>SiteName</u>		<u>Datum</u>	<u>Zone</u>	Easting	<u>Northing</u>	<u>Context</u>	Site Status **	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
38-4-1107	Treatment wo	orks 6	AGD	56	387069	6359892	Open site	Valid	Artefact : 150		102493
	<u>Contact</u>	Mr.Leonard (Lennie) Andersor	Recorders	Mr.L	eonard (Leni	nie) Anderson		<u>Permits</u>			

** Site Status

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution. Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 23/03/2023 for Alison Fenwick for the following area at Datum :GDA, Zone : 56, Eastings : 377892.0 - 387342.0, Northings : 6353570.0 - 6360410.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 102



Your Ref/PO Number : 23192 Client Service ID : 766487

Date: 23 March 2023

Umwelt (Australia) Pty Limited - Individual users

75 York Street Teralba New South Wales 2284 Attention: Alison Fenwick

Email: afenwick@umwelt.com.au

Dear Sir or Madam:

<u>AHIMS Web Service search for the following area at Datum :GDA, Zone : 56, Eastings : 377892.0 -</u> <u>387342.0, Northings : 6353570.0 - 6360410.0 with a Buffer of 0 meters, conducted by Alison Fenwick on</u> <u>23 March 2023.</u>

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

102 Aboriginal sites are recorded in or near the above location.
0 Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.





C.1 Aboriginal Consultation Log

C.2 DRAFTING NOTE: To be included in final version of report

C.3 Stage 1: Notification of project

Evidence of completion of the following activities in accordance with Stage 1 of the ACHCRs including:

- Agency requests and responses.
- Media notification.
- Registrations of interest requests and responses.
- Notification to Heritage NSW and LALC of RAPs.

C.4 Stage 2/3 Presentation of Project information and ACHA methodology, gathering information about cultural significance

Evidence of completion of the following activities in accordance with Stage 2 and Stage 3 of the ACHCRs including:

- Stage 2/3 letter to RAPs providing:
 - o an overview of the project and approval pathways
 - present proposed assessment methodology
 - request information on any Aboriginal cultural heritage values associated with the project and how they may affect, inform or refine the project and/or assessment methods
 - identify any culturally appropriate protocols to be adopted during the information gathering process.
- RAP responses to the Stage 2/3 letter.

C.5 Stage 4: Review of draft ACHA

Evidence of completion of the following activities in accordance with Stage 4 of the ACHCRs including:

- Stage 4 letter to RAPs providing draft ACHA for review and comment.
- RAP responses to the Stage 4 ACHA review.