ST CATHERINE'S SCHOOL, WAVERLEY, NEW SOUTH WALES

Aboriginal and Historical Archaeological Assessment, Statement of Heritage Impact

FINAL REPORT

Prepared by

Austral Archaeology Pty Ltd
Archaeological & Cultural Heritage Consultants

For

St Catherine's School, Waverley

28 August 2014

Job Number: 1407

EXECUTIVE SUMMARY

Austral Archaeology Pty Ltd (Austral Archaeology) has been commissioned by St Catherine's School Waverley, to assist with the preparation of an Environmental Impact Statement (EIS) to accompany a Development Application (DA) for the school which is located at 26 Albion Street, Waverley (the site).

The DA seeks concept approval for the school's Campus Master Plan and detailed design approval of the proposed Stage 1 works which comprise of a new Research, Performing Arts and Aquatic Centre (RPAC).

This report has been prepared to address Key Issue No. 9 Heritage and No. 10 Aboriginal Heritage (refer below) as stated in the Director General's Environmental Assessment Requirements (DGRs) issued on 29 January 2014 (SSD 6339).

Director General's Environmental Assessment Requirements (DGR's) relevant to heritage;

> *9. Heritage*
>
> *A heritage impact assessment should provide an assessment of the historic and archaeological significance of St Catherine's School site, including curtilage of the heritage items within the sites. The assessment should be undertaken in accordance with the guidelines in the NSW Heritage Manual and provide consideration of the impact on the heritage significance of the heritage items and conservation area and in areas of archaeological significance. The EIS should also identify any proposed measures to conserve the heritage significance of the site.*
>
> *10. Aboriginal Heritage*
>
> *The EIS shall address aboriginal heritage in accordance with the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC 2005) and Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.*

St Catherine's School occupies land bordered by Albion Street, Macpherson Street, Bronte Road, Leichhardt Street and Leichhardt Lane, Waverley, New South Wales (the study area). The study area location is shown in Figure 1.1 and Figure 1.2).

Lot Number	DP Number
A	318719
B	318719
C	318719
1	80046
12	2049
13	2049
16	2049
117	1161589
560	1138118

This *Aboriginal and Historical Archaeological Assessment and Statement of Heritage Impact* prepared by Austral Archaeology addresses Section 9 and Section 10 of the DGRs. The intention of this report is to conduct an archaeological assessment which will examine the proposed development in light of the archaeological potential and significance of the study area and to provide suitable management recommendations,

Conclusions

A search of the Aboriginal Heritage Information Management System (AHIMS) Database returned no sites within 50 metre boundary of the study area. Given the site's documented history of use and continuous development since European settlement, it is clear that this location qualifies as 'disturbed' land according to the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010b).

Two areas have been identified as archaeologically sensitive within the study area; they are considered to have low potential to contain *in–situ* archaeological material (Figure 8.1). The archaeological material may comprise the remains of a wooden structure built in 1887, identified as the school 'Hospital' and parts of an 1889 residential building identified as the 'Cottage' that was utilised by St Catherine's from the mid-20th century.

It is concluded that the St Catherine's School site has very low to low archaeological potential and any possible features would be of Local significance and low research potential. The construction of the proposed RPAC building is likely to remove any surviving archaeological remains within the designated sensitive zones (Figure 8.1).

Recommendations

The following recommendations are made in conjunction with Figure 11.1. It is recommended that:

1) No further investigative work need be undertaken in regards to the Aboriginal cultural heritage at St Catherine's School, Waverley. This report documents the results of a site inspection in April 2014 that resulted in no Aboriginal sites being located within the current impact area. The survey and background research also confirmed the disturbed nature of the study area.
2) No further archaeological investigation needs to be undertaken in the areas assessed to contain low, very low or nil archaeological potential and that works in these areas can proceed with caution. These areas are marked green on Figure 10.4.
3) In the event that historical archaeological relics not assessed or anticipated by this report are found during the works, all works in the immediate vicinity are to cease immediately and a qualified archaeologist be contacted to assess the situation and consult with the Heritage Branch of the OEH regarding the most appropriate course of action.
4) In the event that Aboriginal archaeological material or deposits are encountered during earthworks, all works affecting that material or deposits must cease immediately to allow an archaeologist to make an assessment of the find. The archaeologist may need to consult with the Office of Environment and Heritage (OEH) and the relevant Aboriginal stakeholders, regarding the find. Section 89A of the NPW Act 1974 requires that the OEH must be notified of any Aboriginal objects discovered within a reasonable time.
5) Should the proposed development be altered significantly from the proposed concept design, then a reassessment of the heritage/archaeological impact may be required. This includes any impacts not explicitly stated in Section 10 and includes the installation of any subsurface services.
6) One copy of this report should be lodged with the local studies collection of the local library, and an additional copy should be lodged with the New South Wales Heritage Branch library at:

   Heritage Branch

   3 Marist Place

   Parramatta NSW 2150

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1.1 Introduction

Austral Archaeology Pty Ltd (Austral Archaeology) has been commissioned by St Catherine's School Waverley, to assist with the preparation of an Environmental Impact Statement (EIS) to accompany a Development Application (DA) for the school which is located at 26 Albion Street, Waverley (the study area).

The DA seeks concept approval for the school's Campus Master Plan and detailed design approval of the proposed Stage 1 works which comprise of a new Research, Performing Arts and Aquatic Centre (RPAC).

This report has been prepared to address Key Issue No. 9 Heritage and No. 10 Aboriginal Heritage (refer below) as stated in the Director General's Environmental Assessment Requirements (DGRs) issued on 29 January 2014 (SSD 6339).

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Following consultation with relevant advisory bodies, several additional conditions were also included as attachments to the DGRs. The Heritage Architect and Advisor to Waverley Council requested that:

> As the existing campus contains a wide variety of structures, several by noted architectural practises, it is recommended that an inventory of buildings including age and designer together with photographic archival records of each be incorporated in the master planning and DA process. A detailed archival record of Jane Barker Hall should be provided prior to demolition.

In addition, the Heritage Council of NSW requested that the existing NBRS+Partners heritage impact assessment be revised to include the following archaeological information:

- An assessment of the heritage significance of the St Catherine's School site prepared in accordance with Heritage Council significance assessment criteria. This assessment should include natural areas and places of Aboriginal, historic or archaeological significance.
- A revised assessment of any impacts the development may have upon the heritage significance of the site. This assessment should take into consideration any impacts to natural areas and places of Aboriginal, historic or archaeological significance as well as the character of the area surrounding the site including The Charing Cross Conservation Area.
- An archaeological assessment prepared by a suitably qualified and experienced archaeologist. If they exist, archaeological zoning plans or archaeological management plans should be consulted and referenced in the heritage impact assessment.
- A list of proposed policies/measures to conserve the heritage significance of the site. Furthermore, it is requested that the environmental impact assessment demonstrate how the subject project has minimised any identified impacts on places, items or relics of significance

to Aboriginal people. Where it is likely that the project will impact on Aboriginal heritage, adequate community consultation should take place regarding the assessment of significance, likely impacts and management/mitigation measures. For guidelines regarding the assessment of Aboriginal sites, please contact the Environmental Protection & Regulation Group of the Office of Environment & Heritage;

This *Aboriginal and Historical Assessment and Statement of Heritage Impact* prepared by Austral Archaeology addresses Section 9 and Section 10 of the DGRs and the specific archaeological requirements of the Heritage Council of NSW. The intention of this report is to provide an archaeological assessment which will examine the proposed development in light of the archaeological potential and significance of the study area, and which will provide suitable management recommendations.

St Catherine's School occupies land bordered by Albion Street, Macpherson Street, Bronte Road, Leichhardt Street and Leichhardt Lane, Waverley, New South Wales (the study area). The study area location is shown in Figure 1.1 and Figure 1.2).

Table 1.1: Summary of Lot numbers and DP's within the project area.

Lot Number	DP Number
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12	2049
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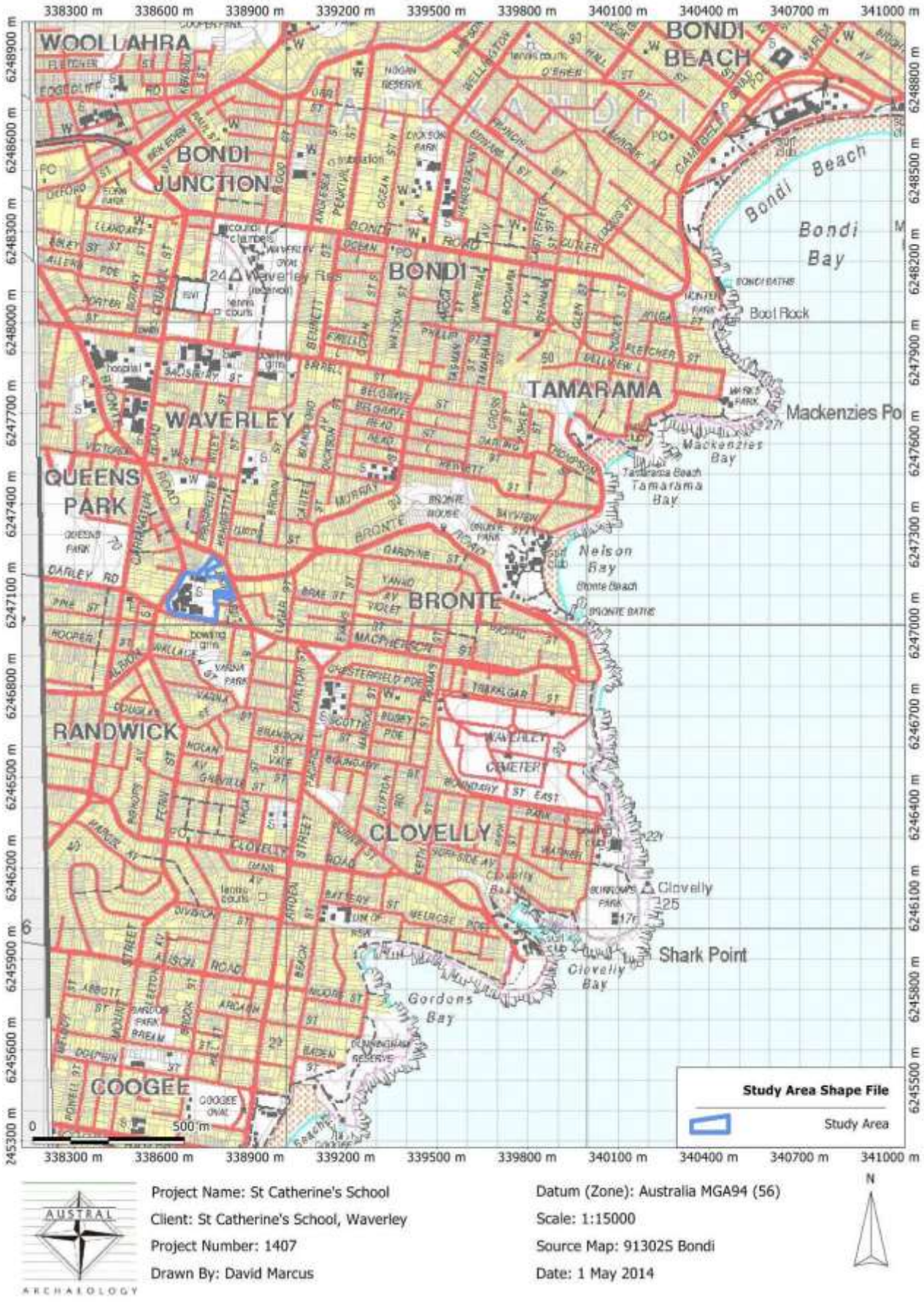

Figure 1.1 Topographic map showing study area in relation to major Sydney suburbs.

Figure 1.2 Aerial photograph showing the location of the study area in relation to the surrounding area.

1.1 Objectives

The objectives of this report are as follows:

- Undertake a due diligence process to identify whether or not Aboriginal objects are, or likely to be, present in the area.
- Determine whether or not development activities are likely to harm Aboriginal objects (if present).
- Identify any potential historical archaeological resources, values or constraints present within the study area.
- Produce an archaeological predictive model and sensitivity map to guide any management decisions regarding the study area.
- Make a statement of significance regarding any archaeological heritage present within the study area.
- Assess the impact of the proposed works on any identified heritage resources.
- Make appropriate management and mitigation recommendations.

1.2 Proposed Works

The scope of works described in this section is taken from plans and information provided by Sandrick Project Directions and is described in greater detail in Section 10.

The main components of the proposed works which are likely to impact on archaeological material have been identified as follows:

- Demolition of an existing outdoor swimming pool and construction of a new multi-level building (RPAC).
- Excavation of an underground link between the Aquatic Centre of the RPAC and the existing Jo Karaolis Sports Centre.
- Demolition of the existing Jane Barker Hall (JBH) and construction of a new building.

1.3 Project Team and Acknowledgements

This project was overseen by Justin McCarthy (Managing Director). The assessment was coordinated and conducted by Sarah McGuinness (Senior Archaeologist) who also undertook the GIS mapping in this report. Justin McCarthy provided input into the management recommendations and reviewed the draft report. David Marcus (Senior Archaeologist) proof-read the report and provided quality assurance.

Austral Archaeology would like to acknowledge the participation of the following people and organisations that have contributed to the preparation of this report:

Adam Martinez – Sandrick Project Directions

1.4 Methodology

This report draws on material contained in the following report:

- *Heritage Assessment: St Catherine's School, Master Plan Submission, Waverley NSW* (NBRS & Partners Pty Ltd 2014)

The methodology supporting this report involved a period of research to locate additional background material and a synthesis of the historical research to better reflect and understand the archaeo-historical context and potential of the study area.

This report is underpinned by the philosophy of the ICOMOS *Burra Charter* and by the practices and guidelines of the New South Wales Heritage Branch.

1.5 Limitations of the Report

In order to accurately plot a map or aerial image onto a known geographic coordinate system, a GIS program must perform the act of "georeferencing". For the purpose of this project, the GIS operator took previously georeferenced aerial photos and topographic maps to use as a base for the projection. Known reference points, or "control points", are marked on both the base map and the subject map. The GIS program then predicts the spatial location of each control point on the subject map based on their location on the base map, with a residual error.

Additional errors are also present in early plans due to inherent inaccuracy in early survey plans and recordings. While these inaccuracies may be minor, GIS mapping can compound these errors when comparing different maps, as earlier maps inherently contain less structures and features which can be compared to later maps.

As a result of a combination between the residual error in georeferencing of historical plans and the inherent inaccuracy, many of the figures included in this document show the approximate location of features rather than exact representations of the potential sub-surface archaeology. However, it should be noted that the maximum error is only expected to be up to 5 metres.

The statement of archaeological potential only applies to subsurface features or deposits associated with the Aboriginal and European occupation of the site and not to any built heritage items currently on the site.

The results, assessments and judgements contained in this report are constrained by the standard limitations of historical research and by the unpredictability inherent in archaeological zoning from the desktop. Whilst every effort has been made to gain insight to the historical archaeological profile of the subject site, Austral Archaeology Pty Ltd cannot be held accountable for errors or omissions arising from such constraining factors.

1.6 Data Restrictions

This report contains descriptions and locational data relating to Aboriginal archaeological and cultural material and sites. This information is considered sensitive and of great importance to the Aboriginal community. As a result, public exhibition of this report in its present form would not be appropriate.

Should public exhibition of this document be required, it is advisable that Austral Archaeology be contacted in order to ascertain information which should be removed prior to public release.

1.7 Abbreviations

The following abbreviations are used within this report:

AHC	Australian Heritage Council
Burra Charter	The Australia ICOMOS Charter for Places of Cultural Significance
CHL	Commonwealth Heritage List
CMP	Conservation Management Plan
DoP	NSW Department of Planning
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&BC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental Planning Instrument
Heritage Act	*New South Wales Heritage Act 1977*
ICOMOS	International Council on Monuments and Sites
LEP	Local Environmental Plan
LGA	Local Government Area
NHL	National Heritage List
NP&W Act	*National Parks and Wildlife Act 1974*
NSW HC	New South Wales Heritage Council
NT Register	Register of the National Trust (NSW)
OEH	Office of Environment and Heritage
RAIA	Royal Australian Institute of Architects
RMS	Roads and Maritime Services
RNE	Register of the National Estate
SEPP	State Environmental Planning Policy
SHI	State Heritage Inventory
SHR	State Heritage Register
SOHI	Statement of Heritage Impact

Refer also to the document Heritage Terms and Abbreviations, published by the Heritage Office and available on the website: http://www.environment.nsw.gov.au/heritage/index.htm.

2 STATUTORY CONTEXT

The St Catherine's School project is being assessed as a State Significant Development under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The planning instrument relevant to this project is the *Waverley Local Environment Plan 2012* (Waverley LEP).

Part 5 State Significant Development Approval replaces the approval processes that would usually be required under Part 3 or other Parts of the EP&A Act and the Minister for Planning becomes the consent authority for the project.

In relation to historical archaeological requirements, the Part 5 approval effectively 'turns off' the provisions of the *Heritage Act 1977*. While specific approval under the Heritage Act (e.g. excavation permit) is not required for this project, the DGRs provides specific terms of the Part 5 Approval which still require appropriate management of the site's historical archaeological resources.

With respect to Aboriginal cultural heritage management, the only requirement of the approvals issued is that liaison is undertaken with the Aboriginal community, works are to cease in the vicinity of any unexpected objects found and that any finds are to be reported immediately to the Office of Environment and Heritage (OEH) in accordance with Section 91 of the *National Parks and Wildlife Act 1974*.

2.1 Waverley Local Environment Plan 2012

2.1.1 Charing Cross Conservation Area

The Waverley LEP identifies the Charing Cross Conservation Area (Figure 2.1) as a local Heritage conservation area. The area is identified as containing well preserved examples of late 19th and early 20th century commercial architecture. The study area falls within the Charing Cross Conservation Area.

2.1.2 Heritage Listings

Four buildings within the study area are identified as Local Heritage Items in the Waverley LEP as having heritage significance. No Heritage Items are to be impacted by the proposed development.

Table 2.1 Heritage Items

Item	Description	Location	Significance
St John's	Georgian style stone building	26 Albion St. Lot 1 DP 76210; Lot 1 DP 80046; Lot 560 DP 752011; Lot C DP 318719	Local
St Catherine's School house	Georgian style stone building	2 Albion St. Lot C DP 318719	Local
La Vicompte	Late Victorian mansion	1 Leichhardt Street. Lot 6 DP 2049	Local
Ventor	Late Victorian Italianate style	5 Leichhardt Street	Local

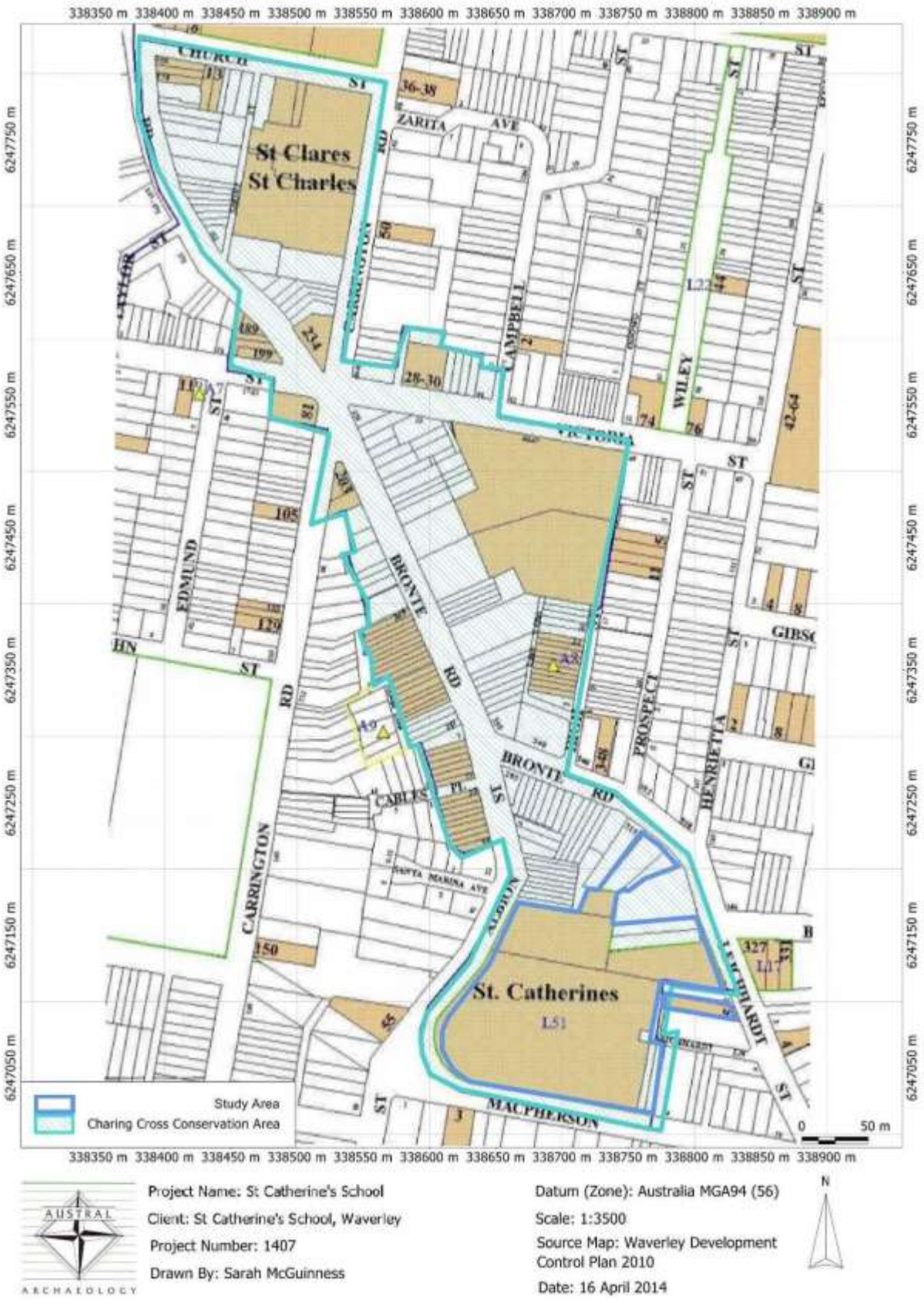

Figure 2.1 Excerpt from the Waverley Development Plan 2012 showing the Charing Cross Conservation Area (light blue) and the Study Area (blue).

3 LANDSCAPE CONTEXT

The natural environment of an area influences not only the availability of local resources, such as food or raw materials for artefacts, but also determines the likely presence and/or absence of various archaeological site types which may be encountered during a field investigation.

Resource distribution and availability is strongly influenced by the environment. The location of different site-types (such as rock-shelters, middens, open camp-sites, axe grinding grooves, engravings etc) are strongly influenced by the nature of soils, the composition of vegetation cover and the climatic characteristics of a region, along with a range of other associated characteristics that are specific to different land systems and bedrock geology. In turn this effects resource availability of e.g. fresh drinking water, plant and animal foods, raw materials for stone tools, wood and vegetable fibre used for tool production and maintenance.

Therefore examining the environmental context of a study area is essential in accurately assessing potential past Aboriginal land-use practices and/or predicting site types and distribution patterns within any given landscape, cultural or not. The information that is outlined below is applicable for the assessment of site potential of the current study area.

3.1 Geological Context and Soil Landscapes

The study area lies within the Botany Lowlands, within the Sydney Basin region. The Botany Lowlands are typically characterised by Newport (**np**) soil landscapes, with Hawkesbury Sandstone (**ha)** and Lambert (**la**) soils occurring in occasional expanses. The study area is situated directly above Newport (**np**) and Hawkesbury (**ha**) soil profiles (Chapman & Murphy 1989:98-99).

The Newport (**np**) soil landscape is described by Chapman and Murphy (1989) as shallow, windblown sands overlying interbedded laminate, shale and quartz to lithic quartz sandstone. In some areas Hawkesbury Sandstone is the underlying geology. The topography of gently undulating plains to rolling rises is influenced by the underlying bedrock. Local relief is generally less than 10 metres, while slopes as generally up to 12%. Slopes are gently to moderately inclined, generally 10-30% and often have a southerly or westerly aspect. Isolated areas that have been affected by erosion can exhibit a steeper slope gradient, usually up to 35%.

Newport (**np**) topsoil consists of loose dark brown loamy sand (**np1**) that can contain well-sorted quartz grains. This overlies greyish-yellow brown clayey sand (**np2**) and bleached loose sand (**np3**). Below, a black, soft, sandy organic pan containing quartz sand grains (**np4**) overlies a brown, soft, sandy iron pan that also contains quartz sand grains (**np5**). Finally, a yellow, mottled clayey sand with clay coated quartz grain inclusions (**np6**) overlays the bedrock. Soil depth or the presence of the different soil materials can vary considerably, dependant on location within the landscape (Chapman & Murphy 1989:98-99)

The Hawkesbury Sandstone (**ha**) soil profile is characterised by medium to coarse-grained quartz sandstone with minor shale and laminate lenses. The sandstone has a distinct blocky appearance, created by the bedding plane formation and widely spaced joints. The topography is generally rolling to very steep hills, with slope gradients ranging from 25% to 70%. Crests and ridges are convex and narrow, usually above 300 metres wide and moderately inclined to precipitous. Valleys are narrow and incised.

The Hawkesbury soil (**ha**) topsoil consists of loose, coarse quartz sand containing weathered sandstone fragments (**ha1**). This overlies an earthy, yellowish-brown sandy clay loam with a common occurrence of gravels, stone and ironstone plated sandstone fragments (**ha2**). Finally, a pale, fine sandy clay loam to medium clay with common stratified ironstone gravels overlies the base sandstone geology (**ha3**) (Chapman & Murphy 1989:45-46).

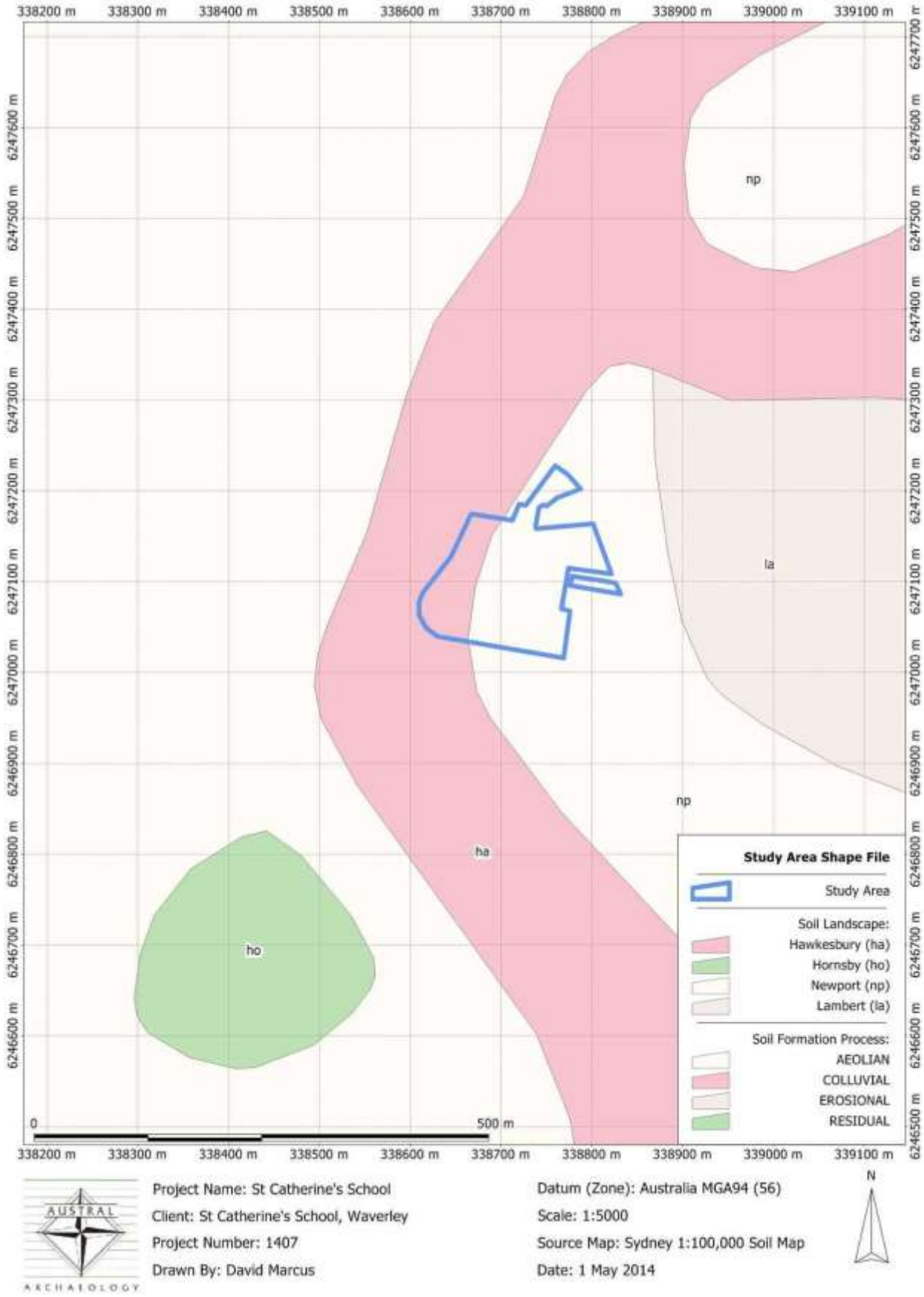

Figure 3.1 Soil landscape of the study area and surrounding area.

3.2 Hydrology

There are no major rivers or tributaries within the study area or within the surrounding area. The hydrology of the study area is predominantly defined by the underlying geological formation of the Waverley Local Government Area (LGA) with higher ground being represented by sandstone bedrock and lower areas consisting of sandy substrates. Waverley contains three catchment areas, one of which is close to the current study area. Queens Park, located in the south-west of the Waverley LGA, drains into the headwaters of the Lachlan Swap system and eventually into Botany Bay. These catchment areas would have provided numerous semi-permanent sources of fresh water to the local Gadigal people. Areas with reliable water sources were often popular for campsite locations as were the elevated landforms and areas around such water sources (Steele 2009:22-23).

3.3 Climate

The climate of the study area is temperate with cool winters and warm to hot summers. As recorded at nearby Observatory Hill, July is the coolest month with average daily temperatures ranging from 8.1ºC to 16.3ºC while January is the warmest month with average daily temperatures ranging from 18.7ºC to 25.9ºC (Bureau of Meteorology 2014). Waverley is situated within the coastal range of high average rainfall that decreases westward towards Parramatta (Chapman & Murphy 1989:2). Average annual rainfall is 1213.9 millimetres with the highest rainfall occurring in the late summer into autumn months and the lowest during winter (Bureau of Meteorology 2014). The area receives an average of 143.6 days of rain per year.

3.4 Flora and Fauna

Vegetation around the study area has mainly been cleared. Historically, it would have consisted of low sand dunes with *Spinifex hirsutus* (coastal Spinifex) and *Festuca littoralis* (beach fescue) along the immediate coastal strip, grading into *Hibbertia scandens* (snake vine)*, Correas alba (*white correas)*, Leptospermum laevigatum* (coastal tea tree) and *Banskia interifolia* (coastal banskia) within the raised dunes. The region's raised sandstone plateaus were dominated by heath and shrub, including species of *Patersonia (*purple flag). There is no record of rainforest occurring behind the dune systems (Benson and Howell 1990:97).

Minimal useful timber would have been available around the study area. Benson and Howell note that isolated wooded valleys around Coogee are likely to have been the extent of timber source material within Sydney's Eastern Suburbs (Benson and Howell 1990:96).

Attenbrow notes that the pre-contact fauna of the Sydney Region was typical of that of wider eastern New South Wales, consisting of vast communities of land and marine animals (Attenbrow 2002a:42). Most land species would have been widespread across the New South Wales coast; these included kangaroos, wallabies, possums, echidnas, bandicoots, gliders, emus, native rats and mice and goannas. Marine fauna would have varied across a diversity of water sources; the region surrounding the study area would have accommodated shellfish, fish and crustacea in abundance within saltwater estuaries and beaches, while larger marine animals such as sharks, turtles, dolphins and seals would have been present within the deeper water off the coastline. Occasional whales and rarer dugongs may have been present within the region (Attenbrow 2002a:43).

3.5 Section Summary

The current flora and fauna inhabiting the study area is not indicative of the range and quality present prior to European settlement. Available plant and animal resources would have been sufficient for the needs of Aboriginal people and allowed for trade with neighbouring groups. Some of the same characteristics which made the area of use to past Aboriginal people also would have made it attractive to European settlers, leading to extensive clearing for agricultural, pastoral and rural residential use. The implications of these factors for the archaeological potential of the study area are discussed in Section 8.

4 ABORIGINAL ARCHAEOLOGICAL CONTEXT

4.1 The Sydney Area Archaeological Context

4.1.1 Population and Contact History

The present study area lies close to Botany Bay and the landing place of Captain Cook's ships and later, the initial landing point for the First Fleet. First-hand accounts of the Aboriginal occupation of the surrounding area made by Joseph Banks and other members of the fleet are well documented. Nevertheless, population estimates at the time of contact are notoriously problematic as Aboriginal groups avoided the early settlers and were highly mobile. Another factor which complicates an accurate estimation is the effect of European diseases such as influenza and smallpox, which decimated Aboriginal populations soon after contact.

The study area lies within the boundary of the region identified by Tindale in 1974 as belonging to the Gadigal (Attenbrow 2002a:23), also referred to in academic literature as the Cadi (Attenbrow 2002a:24). Using Attenbrow's language map, the Gadigal language boundary extends roughly from the northern shore of the Georges River to Port Jackson in the north (Attenbrow 2002a:23). It is likely that this boundary was fluid, as Aboriginal people formed part of a dynamic culture which encouraged movement throughout the landscape in order to assist in the ceremonial and functional practicalities of daily life (Niche 2010:17). As such, defined borders for tribal groups need to be recognised as an artificial constraint designed by anthropologists (Organ 1990:xliii).

In 1788 when the First Fleet arrived carrying 1,200 people to feed and accommodate, the marine and land resources around Botany Bay and Port Jackson were stretched considerably (Attenbrow 2002a:83). The British arrival coincided with the beginning of an El Nino weather cycle, which would have further contributed to the scarcity of natural resources and fresh water in the area (Attenbrow 2002a:83).

The effect this had on the Indigenous population was great. Attenbrow (2002) writes that in the early months of 1788, Indigenous populations would often help European fishing ships unload in return for part of the catch. By late 1788 these interactions became hostile as each party became more desperate to survive and food resources dwindled.

In the early days of European settlement, there are accounts of the British offering shark and sting-ray to the Aboriginal population, but being refused (Vinnicombe 1980). As food became increasingly scarce, instances of local Aboriginals accepting shark and sting-ray increased as did attacks by Aboriginal people on European settlers, if they refused to share resources. This led to retaliation from the European settlers. The combination of an outbreak of smallpox in 1789 and the removal of a large number of Aboriginal men following arrests and murders for various crimes led to a great upheaval within the Aboriginal communities of the Sydney Basin and the loss of cultural knowledge (Attenbrow 2002a).

This ethno history should be employed with caution and Hiscock (2008:17) has recently argued that even very early historical accounts of Aboriginal people may not be a suitable basis for analogy. As Aboriginal groups had to change their economic, cultural and political practices in order to cope with the social impacts of disease in the historic period, he argues that it is likely that similar drastic changes happened in the past in response to "altered cultural and environmental circumstances" following the arrival of Europeans. Social disruption around settlement areas and coastal fringes caused by European settlers pushing Aboriginal people to the fringes of their traditional lands would have caused such drastic changes.

4.1.2 Material Culture

The material culture of the Aboriginal people of the Sydney region at the time of European contact was diverse, and utilised materials derived from a variety of plants, birds and animals as well as stone. Below is only a short summary of the types of material known to have been used by the Aboriginal people of the Sydney region.

Spears in the Sydney region were usually made of a grasstree spike (for the shaft) with a hardwood point. Stone, bone, shell or wood were sometimes used as barbs (Turbet 2001:40). Thin and straight spear-throwers were made from wattle (Turbet 2001:40). Fishing spears were usually tipped with four hardwood prongs with bone points (Attenbrow 2002a:117, 119; Turbet 2001:42). Fish were also caught by means of shell or bird talon fish hooks (Attenbrow 2002a:117, Turbet 2001:45).

Bark of various types were used for making such diverse items as wrappings for new-born babies, shelters, canoes, paddles, shields and torches (Attenbrow 2002a:Table 10.1). Resin from the grasstree was used as an adhesive for tool and weapon making (Attenbrow 2002a:116, Turbet 2001:36). Similarly, 'Boomerang' is believed to be a Darug word. Various kinds of boomerangs and clubs were made from hardwoods as were such items as digging sticks (Turbet 2001:37-39, 45, Attenbrow 2002a:112).

Stone artefacts are often the only physical indication of Aboriginal use of an area. The knapping of stone artefacts can indicate one of two things, the use of stone to create tools and the discard of these tools once they have been used, or sometimes both. The knapping of stone creates a large amount of stone debris in very little time. Large knapping events tend to occur in proximity to sources of permanent water (McDonald 2000). This is probably because the availability of resources made these good places to camp for short periods of time. Small scale knapping events can occur anywhere in the landscape and are associated with the manufacture or maintenance of stone tools as a direct result of a specific need. This implies that artefact densities at sites away from watercourses will be more diffuse.

Stone was commonly used for tools and, apart from discarded shell in middens, is the most common material found in archaeological sites of the Sydney region. Stone or stone tools were used for axe heads, spear barbs and as woodworking tools, amongst other things.

Archaeological investigation has resulted in the recognition of changes in the types of stone tools used by Aboriginal people in the Sydney region through time. A sequence of changes in stone tool types in eastern New South Wales was identified by archaeologist FD McCarthy who named it the 'Eastern Regional Sequence' (McCarthy 1976:96-98). McCarthy identified '*Capertian*,' '*Bondaian'* and '*Eloueran'* phases of the sequence, which together appear to span the last 15,000 years in the Sydney region.

McCarthy's sequence was the source of academic debate, with Stockton & Holland (1974:53-56) offering an alternative to McCarthy's theory by proposing four phases of the Eastern Regional Sequence. After *Capertian*, they separated the *Bondaian* phase into the *Early Bondaian* and *Middle Bondaian* phases, where Bondi points and other small tools become apparent in assemblages in Eastern New South Wales. *Late Bondaian* referred to McCarthy's *Elouera*n phase. Stockton & Holland's won the day and their terms are used in the Sydney region today (Attenbrow 2002a:156).

Broadly speaking, *Capertian* assemblages contain tools which are generally larger in size than later assemblages, but also contain smaller tools, such as thumbnail scrapers and dentated saws. In the late Holocene (from approximately 5,000 years ago), backed artefacts such as Bondi points, Elouera and geometric microliths appear in archaeological assemblages in the Sydney region, and these tools are characteristically much smaller than those of earlier phases. Edge ground implements appear in regional assemblages for the first time at about 4,500 to 4,000 years ago.

From about 1,600 years ago, Bondi points and geometric microliths began to drop out of use in the coastal parts of the Sydney region, although the Elouera continued to be used. This corresponds to the *Late Bondaian* phase and is characterised by a marked increase in both the use of quartz and the use of the bipolar flaking technique (Attenbrow 2004:74-75).

4.1.3 Food

Prior to the removal of the natural vegetation, the ecological diversity of the area would have provided a wide range of resources available for exploitation. Aboriginal people frequenting the study area would have had access to resources from the rich coastal strip, as well as those available in the wider coastal woodlands and hinterland.

Marine foods from the coast would have been a major source of nourishment with fish and shellfish, crustaceans such as oysters, crabs and crayfish and larger marine animals such as seals and whales all being utilised (Attenbrow 2002a:63-70). The low lying lagoons from Rose Bay to Bondi (such as the Lachlan Swamps) would have offered fresh water eels and crayfish and attracted birds and terrestrial wildlife (Steele 2009:44).

Hunting of land animals by coastal groups is under-represented in historical accounts, although large animals such as kangaroos, wallabies, possums, fruit-bats and other smaller mammals such as native rats and mice were available in the coastal woodland environs (Attenbrow 2002a:69-70).

In summer, spring and autumn there would have been a large variety of plant foods available to the coastal communities of the Waverley area due to the diversity of coastal and woodland vegetation. However, it is not specifically known as to the exact contribution that different plant species made to the Aboriginal peoples diet in differing areas of the Sydney region (Gay 1998:12).

4.1.4 Early Archaeological Models

Many of the earliest archaeological models were either developed for the entirety of the southern New South Wales coastline, stretching from Sydney down to Batemans Bay, or concentrated on the Sydney region (Navin 1987:29). These settlement models focussed on seasonal mobility, with exploitation of inland resources in winter and coastal resources for the remainder of the year (i.e. Attenbrow 1983; Poiner 1971 & 1976).

Foley (1981) developed a general site distribution model for forager settlement patterns. The general principles described by Foley have been considered useful indicators of sites location across the Australian landscape and has been used as the basis for many current settlement models.

The model splits hunter gatherer sites into two main categories; 'residential base camps' and 'activities areas' (Foley 1981). People reside in one general location or locations, probably in proximity to a good source of permanent water with shelter from the elements, and travel throughout the local landscape to gather resources at known locations. The right hand side of Figure 4.1 shows how this settlement pattern would look in terms of artefact discard. The majority of artefacts are deposited in proximity to the residential base camp, fewer at the various resource locations and a general low, random scatter amount throughout the rest of the landscape, mainly on travelling routes between activity areas and the base camp. The model, however, does not take into account the use of more than one base camp in an area, or changing preferences of camping areas over time; nor does it account for the movement of resources over time.

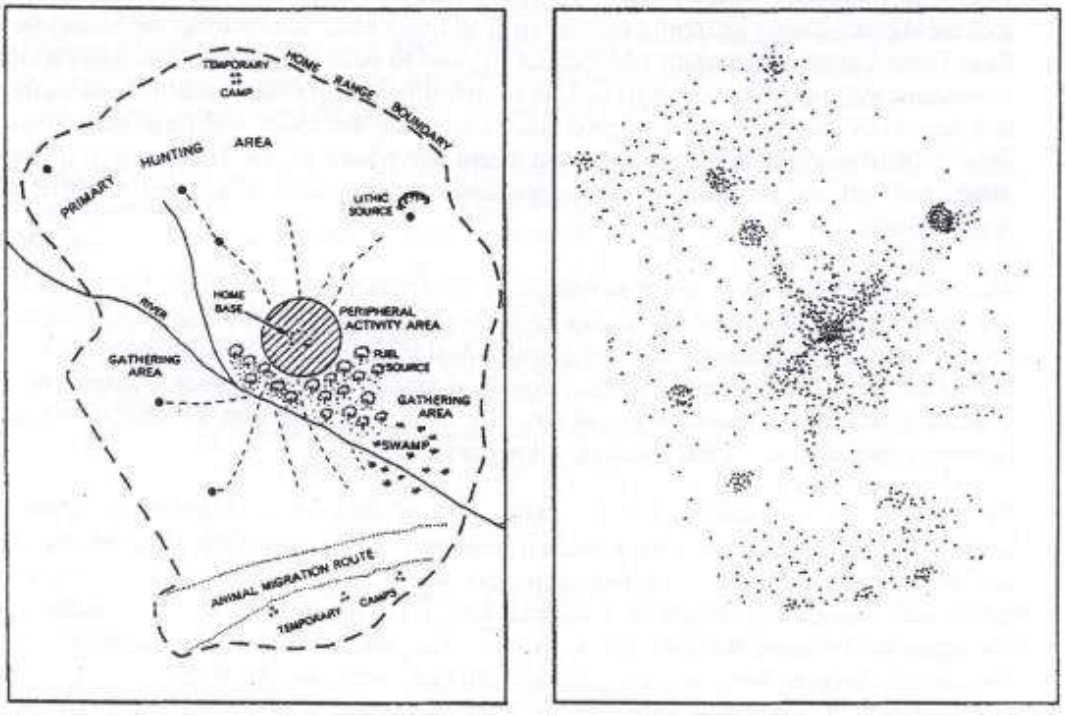

Figure 4.1 Foraging Model (Foley 1981)

Subsequent models were specifically developed to predict Aboriginal occupation in the Port Jackson catchment across a range of aquatic and geographic zones (Attenbrow 2002a:51). It was found that Aboriginal site location and typology was influenced by a number of factors,

mainly proximity to water, the local geology and the accessibility to resources. There was a general trend toward archaeological deposits associated with tool-making occurring close to estuarine and freshwater waterways, and marine shorelines. Middens were generally noted in close proximity to estuarine and coastal zones and usually within areas of Hawkesbury Sandstone geology (Attenbrow 2002a:52).

Similarly, studies in the Georges River area situated approximately 20 kilometres to the south-west of the study area identified geology as an important factor influencing the distribution of Aboriginal sites. The presence of Hawkesbury sandstone outcrops in the area, ranging between 10 and 100 metres in length, facilitates the abundance of rock shelters. Pigment, engraved art and grinding grooves are, by their very nature, reliant on the presence of these suitable sandstone outcrops (Therin 2006:13).

Based on the above statements, Therin made the following predictions for Aboriginal cultural heritage (Therin 2006:13):

- *Aboriginal Heritage Sites are most likely to occur along the coastal fringe, in areas of sandstone outcropping and in proximity to fresh water resources*
- *Middens may occur anywhere on the coastal zone. The presence of a midden will be directly influenced by the gradient and disturbance of the shoreline;*
- *Open artefact scatters may occur on in the study area. The level of ground visibility and exposure will greatly influence the identification of stone artefacts;*
- *Rock shelters with art (pigment) or containing a deposit may occur if suitable sandstone overhangs are present;*
- *Rock engravings as art or grinding grooves may occur if suitable sandstone shelves are present;*
- *Scarred trees are unlikely due to substantial historical and modern vegetation clearance;*
- *The presence of burials is possible if middens are present or there is suitable sandy deposit.*

4.1.5 Later Work

The predominant tool used to create archaeological models elsewhere in New South Wales is that of stream order models based on the degree of water permanence, as developed by McDonald for use on the Cumberland Plain. McDonald (1997a, 1997b, 1999 & 2000) has drawn on stream order modelling in order to forecast the potential nature and complexity of sites. These models can also be used to predict site distribution and the possible range of activities carried out at a particular site as well as the frequency and/or duration of occupation.

It is therefore possible, McDonald concluded, to use stream order modelling to make general predictions about the location and nature of Aboriginal sites. Water permanence (i.e. stream order), landscape unit (i.e. hill top, creek flat) as well as the proximity to artefact raw materials can result in variations in the density and complexity of an Aboriginal archaeological feature (McDonald 1997a; 2000:19). Site location and duration of occupation predictions therefore relate to stream order in the following ways:

- *In the headwaters of upper tributaries (1st order creeks) archaeological evidence will be sparse and represent little more than a background scatter;*
- *In the middle reaches of minor tributaries (2nd order creeks) archaeological evidence will be sparse but indicate focussed activity (e.g. one-off camp locations, single episode knapping floors);*
- *In the lower reaches of tributary creeks (3rd order creeks) will be archaeological evidence for more frequent occupation. This will include repeated occupation by small groups, knapping floors (perhaps used and re-used), and evidence of more concentrated activities;*
- *On major creek lines and rivers (4th order), archaeological evidence will indicate more permanent or repeated occupation. Sites will be complex, with a range of lithic activities represented, and may even be stratified;*

- *Creek junctions may provide foci for site activity; the size of the confluence (in terms of stream ranking nodes) could be expected to influence the size of the site;*
- *Ridge top locations between drainage lines will usually contain limited archaeological evidence, although isolated knapping floors or other forms of one-off occupation may be in evidence in such a location* (McDonald, 2000:19).

The use of stream order modelling continue to exert influence over the creation of archaeological occupation models, and remains the most used type of predictive model for the Sydney Basin.

4.2 Heritage Database Search Results

4.2.1 Aboriginal Heritage Information Management System Search Results

A search of the Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) was undertaken on 28 March 2014, AHIMS client number 129946. The results from the AHIMS search identified three previously recorded sites within a one kilometre radius of the study area (Figure 4.2).

It should be noted that there is duplication of the data in the results provided by AHIMS. The site Queens Park Pad (#45-6-2897) is identical in both name and co-ordinates to site #45-6-2896, It is assumed that this site is an incorrect duplication and the OEH has been notified of this duplication. The site has been removed from discussion in this report.

Neither of the two remaining sites was situated within the study area; both were located in Queen's Park, on Queen's Park Road Waverley, approximately one kilometre from the study area.

Table 4.1 Summary of sites recorded within 1 kilometre of the study area

Feature Type	Total	%
Shelter with Art	1	50
Shelter with Potential Archaeological Deposit (PAD)	1	50
TOTAL	**2**	**100%**

Table 4.1 above shows that there are two different site types represented by the search results: shelter with art and shelter with Potential Archaeological Deposit (PAD). As both sites are sandstone shelters, rock shelters are therefore the most common site type in the area. One shelter with art forms 50% of the sites represented in the data, as does one shelter with PAD. Considering the geology and typography of the Waverley area, the occurrence of shelter sites is to be expected.

Figure 4.2 Location of previously recorded Aboriginal sites as identified through AHIMS search.

4.3 Previous Archaeological Investigations in the Vicinity of the Subject Land

Although European observers recorded various aspects of the lifestyles of Aboriginal people around the Sydney area from the beginning of European settlement in the 19th century, archaeological investigations of Aboriginal sites were not properly undertaken till the 20th century. Even early in the 20th century a number of extensive stone artefact deposits were collected without proper archaeological recording from areas within the eastern Sydney peninsula. These collections are now housed in the Australian Museum (Attenbrow 2002a:17).

Archaeological sites are frequently recorded across the Sydney region, with over 4000 sites registered on AHIMS for the Sydney region alone. One hundred and forty-five pre-colonial sites are registered across the eastern Sydney peninsula consisting of; engraved images (55) and grinding grooves (3) on rock platforms, pigment (11) and engraved (3) images in rockshelters, burials in both rockshelters (2) and open contexts (4), shell middens in both rockshelters (31) and open contexts (33), isolated stone artefacts (9) and other archaeological deposits in rock shelters (3) and open contexts (11) (Attenbrow 2002b:15).

However, the recorded sites are predominantly within close proximity to the coastline, with only seven being recorded in locations more than 500 metres from the sea. Attenbrow (2002b:17) states that at least 19 sites have been partially or fully excavated within the eastern Sydney peninsula, including Yarra Point (Rich 1986), Frenchmans Bay (McIntyre 1985 in Rich 1986, Table 14), Mt Trefle and Hydrofoil in Vaucluse (Attenbrow & Steele 1995); Milk Beach IV (Rich 1984); and Prince of Wales Hospital, Randwick (Godden *et al*. 1997). However, none of these fall within the study area.

Steele (2009) thoroughly reinvestigated the AHIMS data for the Waverley LGA, including checking site coordinates and revealed that of the eleven sites that were registered within the LGA, two sites were incorrectly located and fell outside the LGA boundaries. The remaining nine sites consisted of five rock engravings, two shelters with middens, one open campsite and burial and one shelter with art (Steele 2009:72).

The two closest sites to the study area are 'Queens Park', AHIMS site numbers 45-6-2896 and 45-6-0675. The later was documented in 1979 as 'one of a series [of rockshelters], at the north end. No deposit. Twenty white human hand stencils, rather faded' (Guider recorded in Attenbrow 2002b:14).

It therefore can be seen that relative to the wider Sydney region, few sites have been recorded within the Waverley area. This underrepresentation may be due to unpublished reports from early excavations and the early expansion and development of the area before Cultural Heritage Management procedures came into place in the 20th century.

Of the sites documented in Waverley, these most commonly consists of open scatters of archaeological material such as stone artefacts, engraved or pigmented images, midden material or burials.

4.3.1 Archaeological Investigations in the Local Region

Much of the archaeological work in the local area has been undertaken as a result of development-driven management archaeology, or consultancies. Table 4.2 below outlines the details and results of some of the many relevant archaeological consultants' reports from the region:

Table 4.2 A summary of professional Archaeological investigations in the Local Region

Reference	Study area location/ description	Results	Site distribution / Conclusion
Brayshaw 1982	Hugh Bamford Reserve and Bondi Golf Course	Comprehensive ground surface survey. Partial re-identification of known engraving site with European ships, one site not relocated	Recommended protection and management of engraving site.
McDonald 2000	Location of proposed train station and tunnel at Bondi Beach and access shaft at Waverley Park	Comprehensive ground surface survey. No new sites identified. Re-identification of large campsite scatter on Bondi Beach	Historical impact means surface sites unlikely. Possibility of sub surface relics within the sand body. Recommended program of test excavation should project proceed.
Kate Sullivan and Associates 2001	Reserves along the Dover Heights Cliff between Waverley and Vaucluse	Engraving site relocated. New engraved motif identified. New shelter with PAD identified	
Attenbrow 2002a	Centennial, Moore's and Queens Park	Ground surface survey. No new site identified	No likelihood of unidentified engravings or grinding grooves within the parks.
Steele 2003	Waverley Cemetery	No sites identified within the study area.	Some possibility of covered engravings or grinding grooves on areas of cliff top. Recommended Aboriginal Stakeholder involvement if any works to proceed in the area.
Steele 2004	Bronte Park	Heavy widespread disturbance identified. No aboriginal sites located despite presence of overhangs and shelters behind the beach. Fire blackened roof of one shelter may indicate Aboriginal use.	Gullys identified as having some potential archaeological sensitivity due to potential of buried axe grinding grooves. Monitoring by Aboriginal Stakeholders recommended for any future work or maintenance.
Steele 2005a	Tamarama Park	Heavy disturbance and modifications. No new sites identified. Previously recorded shelter examined and found to be in good condition	Some potential for buried axe grinding grooves. Midden within rock shelter recommended to be covered with geo-tech fabric for preservation
Steele 2005b	Waverley Cemetery	No new sites identified	
Kate Sullivan and Associates 2005	Marks Park	No new sites identified. Previous engraving site relocated	

5 HISTORICAL BACKGROUND

The following historical background is designed to contextualise a site specific history which will aid understanding of the archaeological potential of the study area, and is comprised of two main sections; the first is a historical sketch of early settlement of the region while the second is a targeted historical background of the study area.

This historical background draws strongly upon the previous work of NBRS & Partners Pty Ltd (2014) and the Waverley City Council *History of Waverley 1859-1959*, prepared for the Municipality's 100th anniversary celebrations. This current work will synthesise the results of previous assessments and investigations into a comprehensive document and provides a useful and concise summary of the history of Waverley and the archaeological potential of the study area.

5.1 Waverley Historical Sketch

5.1.1 Early Waverley: Three Land Grants

The land situated to the west of Bondi Beach, in the area currently identified as the Municipality of Waverley, was originally subject to three land grants issued by the New South Wales Governor.

The first land grant issued was given by Colonel William Paterson to William Roberts on 22 December 1809 during the deposition of Governor Bligh. Governor Macquarie, under instruction to cancel land grants made during Bligh's deposition, ordered the land to be surrendered to the Crown in 1810. However, the land was subsequently re-granted to Roberts.

The two hundred acres of land was situated to the north of the current study area; between Bondi Beach and the South Head Road to the east and west, and Beach Road and Edward Street to the north and south. Roberts leased his land for cattle farming and continued to reside in Sydney (Dowd 1959:2);

> Horned Cattle. William Roberts, corner of Castlereagh Street, hereby gives Notice that he has a Farm at 'Bundye' near Sydney, which is calculated for the Depasturage of the above description which will be taken every possible care of at the low rate of sixpence a week for each head which will be necessary to defray the expense of a proper Herdsman." (*Sydney Gazette*, 31 August 1811)

The first development within the area was recorded as a crude track that followed a ridgeline from the south of Sydney Harbour to Bondi Beach and Rose Bay before rising towards the South Head. The track led to the South Head signal station that had been established in 1792 (Brady & Meyer 2004:8). James Meehan, Head Surveyor of the Colony noted the track during his 1809 survey to measure the land for Roberts' original grant (Dowd 1959:12). In 1811, 21 soldiers of the 73rd Regiment constructed a formal Public Road to the South Head signal station, identified as the South Head Road (Dowd 1959:4).

It was further upgraded in 1820 by Major Druitt. As the area became more readily accessible from Sydney, the South Head Road became a popular route for weekend excursions to what is now the Waverley Municipality (Brady & Meyer, 2004:8).

The 'Bondi Estate' stayed within the Roberts' family until 1851 when it was sold to Edward Smith Hall. From 1879, the property was subject to many subdivisions (Dowd 1959:10). A public reserve was created 100 feet (30.48 metres) from the high tide mark at Bondi Beach and taken over by the Government for "the health and recreation of the inhabitants of Sydney" (Dowd 1959:12).

In a grant adjacent to William Roberts land, thirty acres was given to John Hurd, a convict from Exeter, England, and a previous employee of Roberts. The land extended from the headland at North Bondi in the east to Wairoa Avenue to the west. Following Hurd's death in 1813, the land became subject to a property dispute that was not resolved until 1841 when a fresh deed of grant was issued to Parry Long (Dowd 1959:11). A District Council's assessment for annual value in 1844 found that no part of the property was occupied; the first subdivision of the grant did not occur until 1881 (Dowd 1959:12).

The third land grant was issued to Thomas Jones in 1821 (Brady & Meyer 2004:8) and was subsequently sold to William Foreman in 1825 for "an old Horse; worn out" (Dowd 1959:12).

The estate was listed for rent by Foreman on 2 June 1825 in the *Sydney Gazette;*

> To be Let, and entered on immediately a neat cottage together with 60 acres of Land a part in cultivation having a having a good garden well-fenced in, about an acre and a half, situated on the South Head Road about three miles from town, for the term of three or five years at a very moderate Rent:—For particulars enquire of William Foreman near the King's Wharf, George St Sydney (*Sydney Gazette*, 2 June 1825)

Barnett Levey rented and occupied the land from 1826 and took over as official grantee on 19 October 1831. The sixty acre lot situated along the South Head Road became the foundation for much of the modern day suburb of Waverley, with the Municipality taking its name from Levey's house, constructed in the late 1820s;

> This splendid building which Mr. B. Levey is erecting at about three miles on the South Head Road, which has a commanding view of Sydney to the west and of the ocean to the east, has been named by the proprietor 'Waverley House' in honour of Sir Walter Scott. (*Sydney Gazette,* 11 November 1827)

By 1828, Levey had constructed several cottages along the northern side of Waverley House, forming part of his planned Waverley Crescent Subdivision (Figure 5.1) (Dowd 1959:19). Sixty-three additional allotments from the Waverley Estate were advertised for auction in 1828;

> 63 allotments on the South Head Road, 4 ½ miles from Sydney, situated at Bell Vue—each allotment it is intended shall comprise a frontage to the main road of 30 feet and 300 feet in depth, with a lawn the whole front of the buildings, and a fountain in the centre. It is proposed to sell the land in separate allotments for whatever they fetch and each purchaser will be required to build a cottage—the whole to be erected under a joint continuation of verandah. The purchaser to be allowed the ground without any rent whatever, independent of the purchase money or fee simple, for 50 years and then to revert to ground landlord. The building to be erected in the form of a crescent and to be designated Waverley Crescent, after the name of the celebrated novels. (*The Australian*, 30 January 1828)

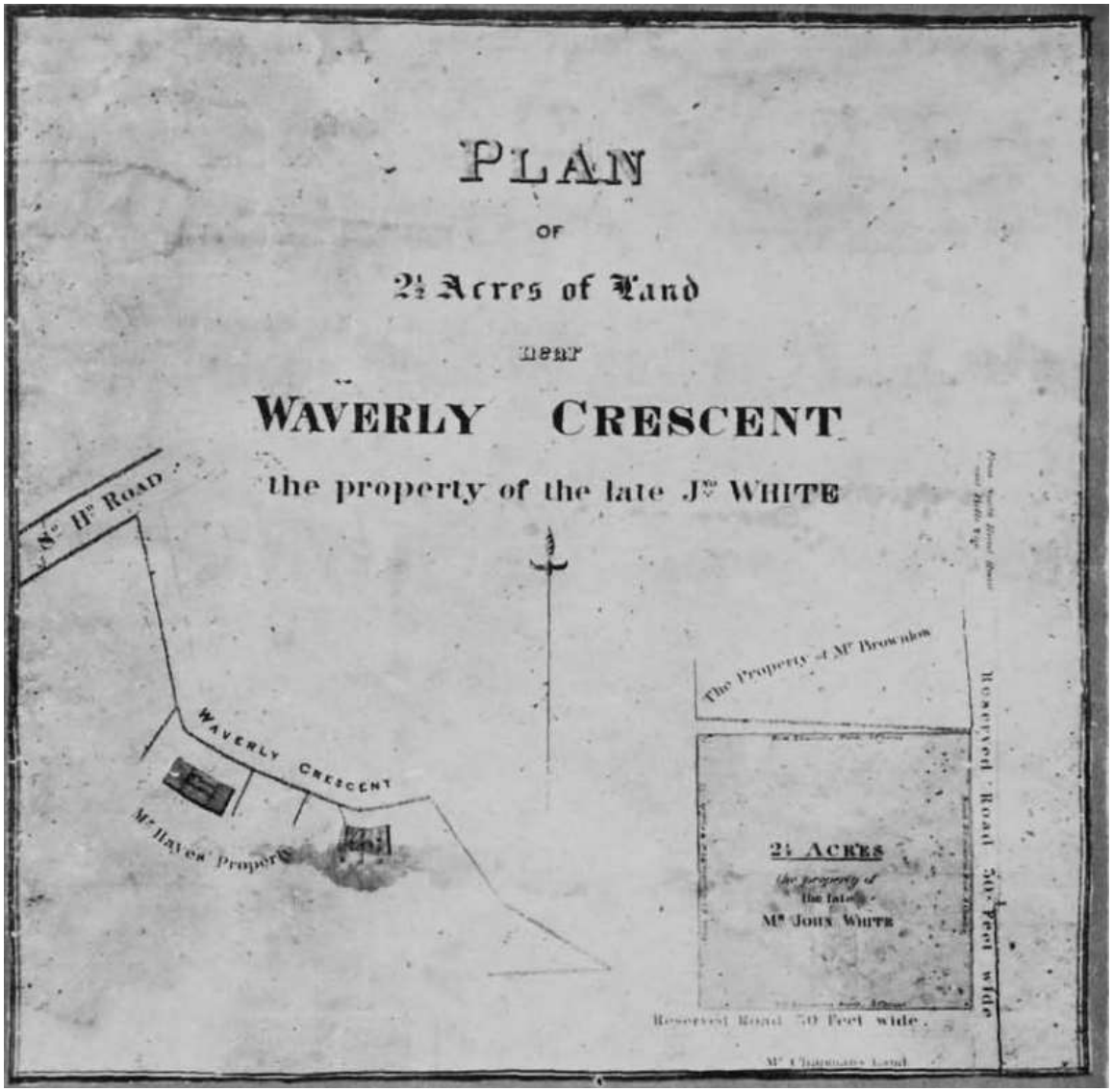

Figure 5.1 1842 Surveyors plan of the original Waverley Settlement. (Source: Dowd 1959:18).

5.1.2 The Municipality of Waverley

By the mid-19th century, Sydney was rapidly expanding and widespread settlement was occurring away from Sydney Harbour. The township of Waverley Crescent, initiated by Barnett Levey in 1828 had proved popular, with The Gazetter of The Australian Colonies describing Waverley in 1849 as "a neat little village with an orphan school on the South Head Road about four miles from Sydney" (*The Gazetter of the Australian Colonies* 1849).

By 1859, the population of Waverley had again increased, and a petition was put forward by 70 representatives of the 1,200 persons that lived in the rural districts of Waverley, Bondi and Little Coogee to recognise the autonomy of the fledgling town. Consequently, on 16 June1859, Waverley was declared Sydney's second municipality (Dowd 1959:XII).

Over the following half-century, Waverley continued to grow. In 1887, *The Sydney Morning Herald* detailed;

> The total number of houses in the borough is 1,510 and the number of ratepayers is 1,758…At the present there is no system of sewerage or drainage in the borough, excepting merely the surface drainage; but as soon as the main Bondi sewer is completed the drains will be connected with it. All the inhabited portions of the district are being reticulated with pipes for the supply of Nepean water. The sanitary condition of the borough is very good, the ocean breezes sweeping over it doubtless contributing in no small degree to its healthiness and purity. The death rate is unusually low; the percentage last month was only 0.03 of the population. (*The Sydney Morning Herald, 13* December 1887)

By the early 20th century, the Municipality had reached a population of 52,030 persons and had 62 miles (100km) of made streets (Dowd 1959:82). The economic depression of the 1930's hit Sydney hard, with Waverley no exception. The Government provided thousands of pounds of relief funds to Waverley and a portion of Waverley Park was used for the issue of Government Rations. A large scale initiative for Drainage Works began in 1935 and provided residents with work under the Government Relief Work Emergency Scheme. The works saw the drainage systems, footpaths, kerbs, roads and streets upgraded across the Municipality (Dowd 1959:82). The end of the depression bought a boom in housing development, with the majority of residential housing in Waverley constructed in the years following the downturn (Dowd 1959:86).

The outbreak of war in 1939 saw the appointment of Wardens and the creation of Emergency Services and Wardens Posts, for the protection of residents of Waverley. Decontamination and Demolition Squads were formed for the purpose of rectifying the dangerous condition of houses in the event of any hostilities from the area of open coastline. The preparation undertaken by Waverley Council and residents was put to the test on 8 June 1942 when shells from a Japanese submarine fell on Simpson Street in Bondi. The damage following the shelling was minor, with no injuries sustained by the Waverley inhabitants (Dowd 1959:84).

5.1.3 Post War Waverley

The Waverley population stood at 75,000 by 1951, with an increase of over 10,000 residents since the outbreak of war (Dowd 1959:87). The Waverley Municipality celebrated its 100th anniversary in 1959, commemorating the development of the small scattered settlement into a significant residential district;

> Waverley's celebrations for its centenary in 1959 included: a formal dinner at the Rex Hotel, church services, the planting of pine trees at South Bondi, sporting events, a garden competition, a festival of nations and an historical play put on by the Bondi Theatrical Society.

(http://www.waverley.nsw.gov.au/__data/assets/pdf_file/0006/8754/WaverleyCelebratesCentenary.pdf)

The population of the area decreased slightly in the late 20th century with 2011 statistics identifying over 69,000 inhabitants (Waverley City Council website).

5.2 Site Specific Historical Sketch

The study area, comprising St Catherine's School grounds bounded by Albion Street, Macpherson Street, Leichhardt Lane, Leichhardt Street and Bronte Road, is situated to the south of the Waverley commercial centre. Despite a very close proximity to the southern boundary of Roberts' grant, as noted above in Section 5.1.1, the St Catherine's property remained undeveloped Crown Land for much of Waverley's early history.

5.2.1 The origins of St Catherine's Clergy Daughters School

On 5 March 1856, St Catherine's Clergy Daughters School was opened by Mrs. Barker, wife of the Lord Bishop of Sydney. The school was temporarily situated at 'Thorn Bank' (later 'Winchcombe'), Point Piper Road (now Ocean Street, Woollahra) and housed seven boarders (Dowd 1959:204).

Following applications by Bishop Barker for a permanent school site, the Surveyor General wrote;

> The Colonial Secretary having intimated to me in his letter of the 12th July, 1856, that His Excellency the Governor with the advice of the Executive Council had been pleased to approve of the land applied for the Bishop of Sydney . . . as a site for the education of the Daughters of the Clergymen of the Church of England the grant should issued to the Bishop. (Dowd 1959: 204)

The Surveyor General's Department undertook a survey of the proposed site, which was completed on 16 October 1856. The property measured 3 acres, two roods and 3 perches (around 1.5 hectares) and was situated on Frenchman's Road (now Albion Street) and an unnamed road (later Nelson Road and now Macpherson Street) (Figure 5.2). An additional two acres of land adjoining the eastern boundary of the property was also granted. The Church of England authorities found it unsuitable for their purposes and the land was subdivided and sold in lots in 1887 (Figure 5.3) (Dowd 1959:204).

Figure 5.2 1856 Crown Plan 619-730, County of Cumberland Parish of Alexandria near Waverley (Source: NSW Land and Property Information).

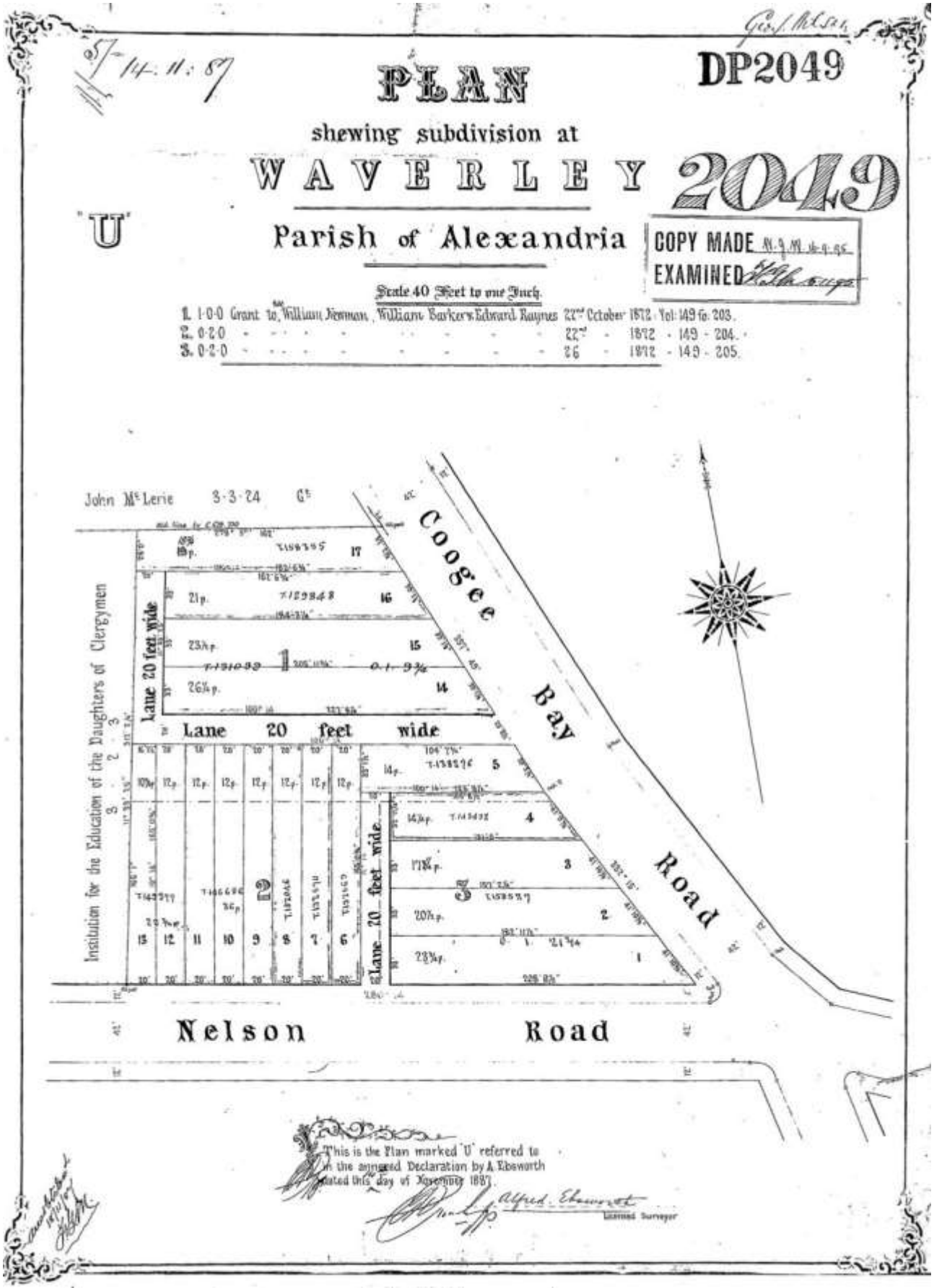

Figure 5.3 Subdivision of DP 2049 at Waverley Parish of Alexandria, November 1887 (Source: NSW Land & Property Information).

The site chosen for the school house overlooked the Pacific Ocean to the east and an expanse of open country and moorland to the west. Bishop Barker laid the foundation stone for the new building on 16 September 1857, declaring in front of an audience of 400;

> The school to be called St. Catherine's, intended for the education of the daughters of the Clergy of the United Church of England and Ireland, administered in Australia in the name of the Father, and of the Son, and of the Holy Ghost, Amen. (*The Sydney Morning Herald*, 16 September 1857)

The school house was opened in 1859 at an estimated cost of £3,000, and consisted of seven rooms housing 13 pupils (Dowd 1959: 204).

5.2.2 The expansion of St Catherine's Clergy Daughters School

In 1884 the original school building was extended to accommodate a further 20 students, all daughters of the laity. A tennis court and detached hospital were also added. The hospital building, identified in Figure 5.6, can be seen on the 1889 Detail Survey Plan (Figure 5.5) and photograph (Plate 5.1). The hospital building was later used as the kindergarten (Croft 1996:45). Further extensive additions to the accommodation dormitories were undertaken by 1886 (Figure 5.6).

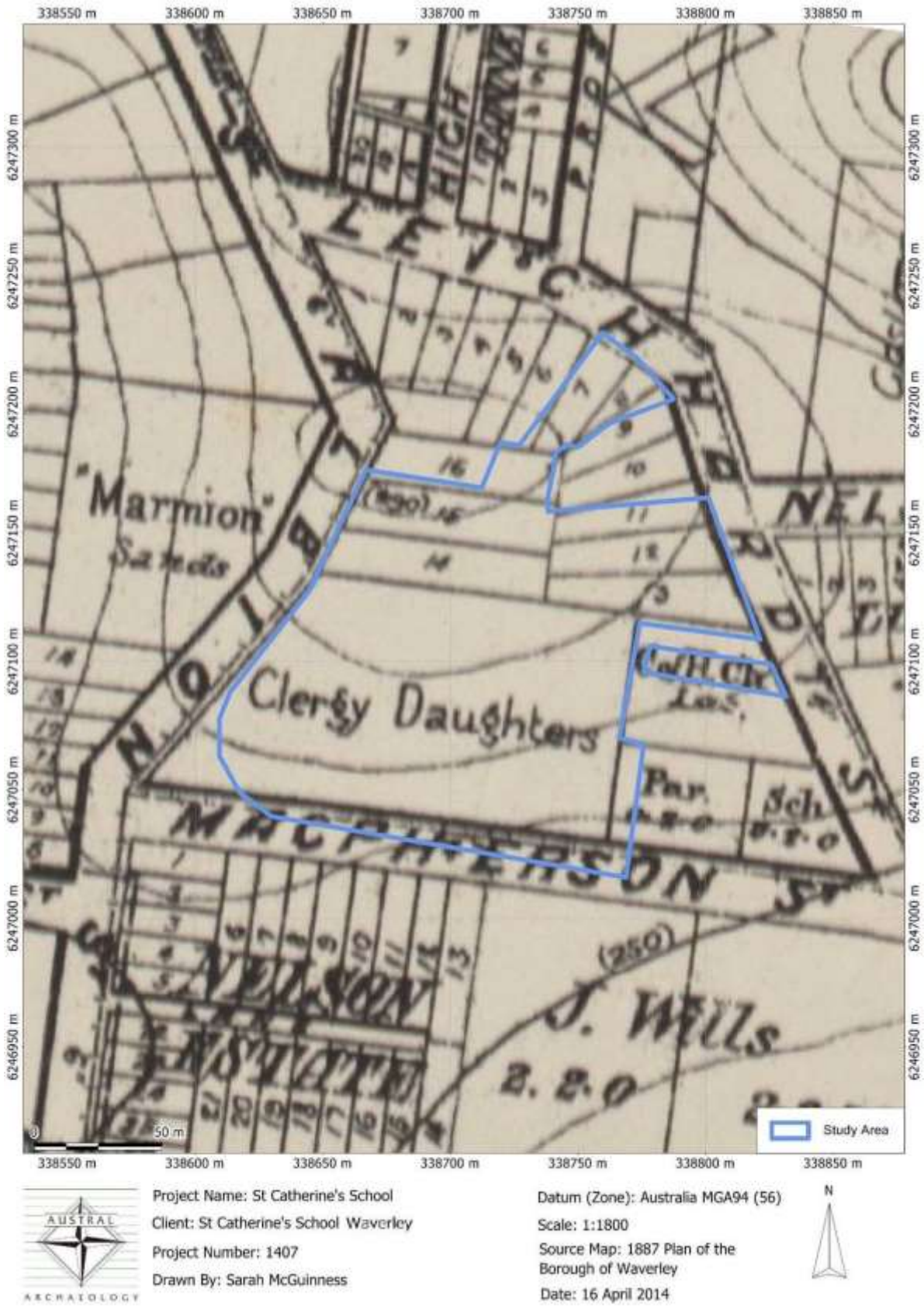

Figure 5.4 1887 Plan of the Borough of Waverley, showing subdivisions of the Study Area (Source: National Library of Australia).

Figure 5.5 1889 Detail Survey Waverley Sheet 15 (Source: State Library of New South Wales).

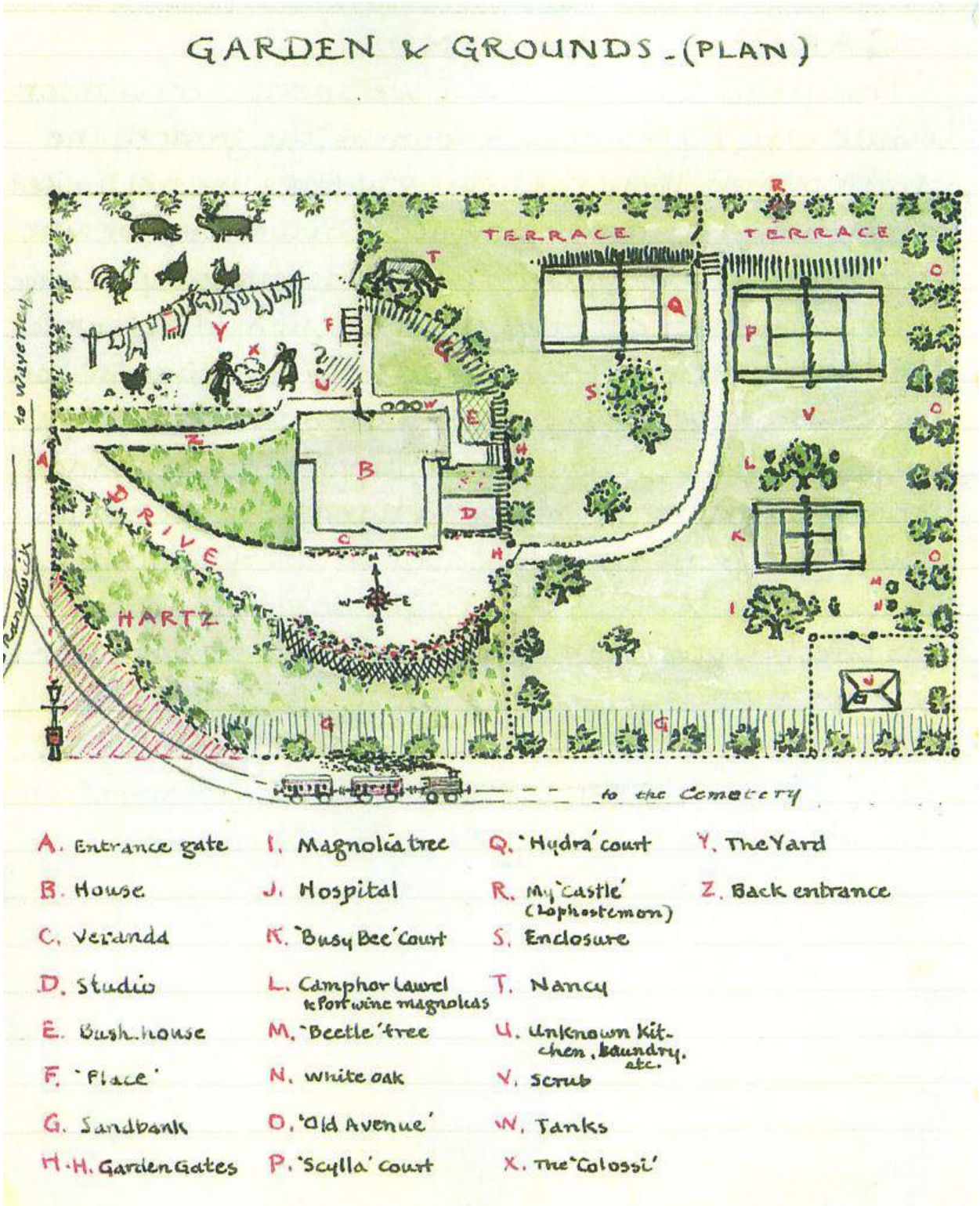

Figure 5.6 Sketch of St Catherine's grounds c.1890s (Source: Croft 1996).

Plate 5.1 School girls standing in front of the Studio. The building to the left is the detached hospital (Source: Croft 1996*).*

A writer from *The Town and County Journal* described and sketched (Figure 5.7) St Catherine's in 1892;

> Perhaps the most prominent institution in Waverley is St. Catherine's Clergy Daughters' School. It stands at the corner where the electric tram branches off towards Randwick, and is not in a very good position -for a sketch. However, by taking an artistic liberty, and ignoring the trees which shut it in from the road, I am able to give a fairly good idea of it. It is well known that it is scarcely necessary for me to give many details respecting it. The high standard of its educational course, and the ability with which the lady principal and her assistants carry it out, are facts with which the Sydney public have long been familiar. The school is a substantial building of plain exterior, but well arranged and comfortable within. It is surrounded by its own grounds, which are tastefully laid out, and rich with trees and shrubs. There is a good asphalt tennis court, and there are the usual arrangements for recreation. Standing on high ground, it commands a fine view of the coast, and occupies one of the healthiest situations to be found in the neighbor- hood of Sydney. (*Town and County Journal,* 27 February 1892: 50)

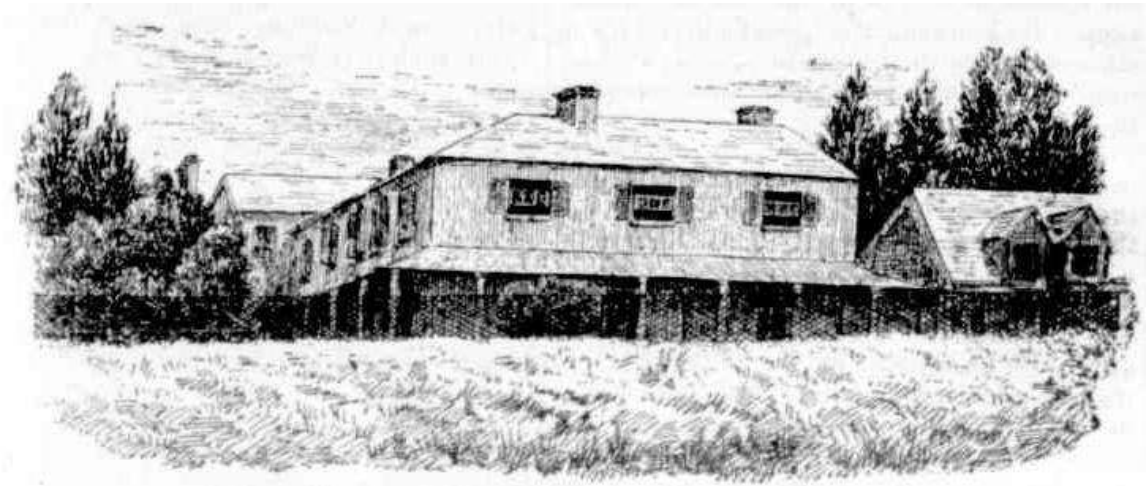

Figure 5.7 St Catherine's Clergy Daughters School Waverley. Sketched looking north-west from Macpherson Street. (Source: *Town and Country Journal,* 27 February 1892:50).

The start of the 20th century saw St Catherine's celebrate its 50th anniversary jubilee in 1906, and the addition of a hall and four new classrooms in 1912 (Figure 5.8 and Plate 5.2). The following years saw further expansion with the addition of accommodation facilities and leveling of the grounds for tennis and basketball courts.

Figure 5.8 New building added 1912 (Source: Croft1996).

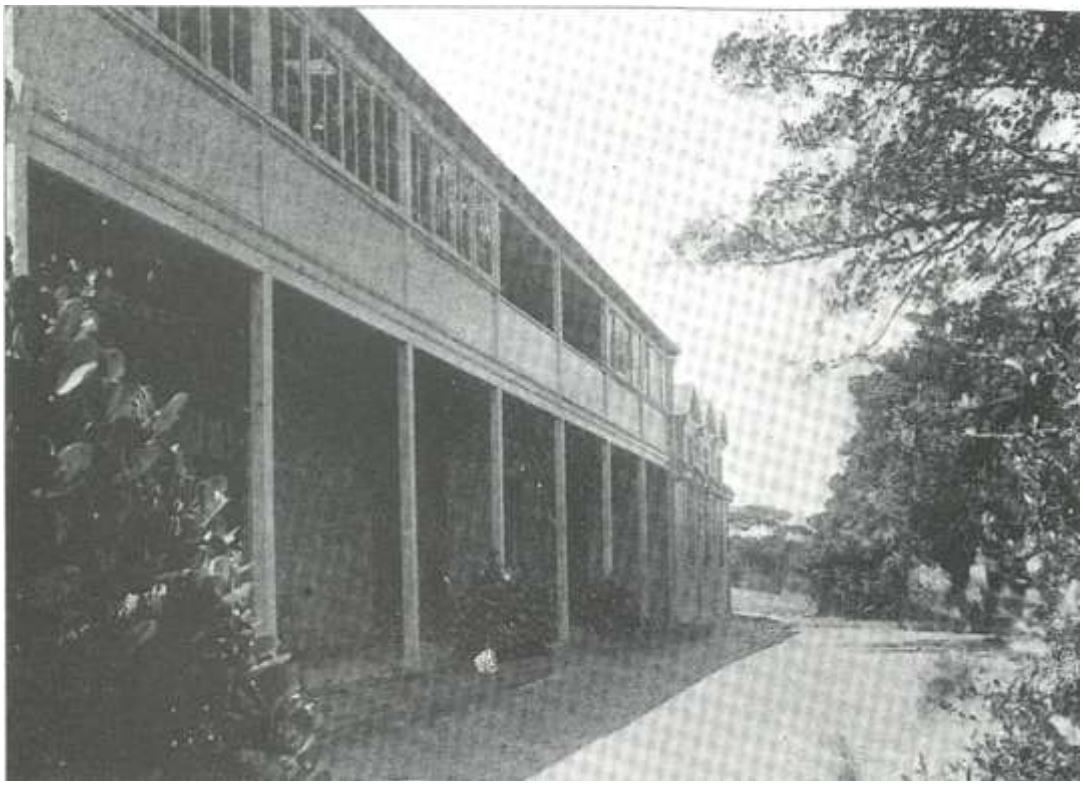

Plate 5.2 New building added 1912 (Source: Croft 1996).

Further works were undertaken during the mid 1930s;

> …the original building was renovated and refurnished, and maids' quarters and the Kindergarten were extended. A new wing comprising new Chapel, three additional schoolrooms, more accommodation for boarders and for staff in residence was completed, and the old Chapel adapted for use as a science room in 1937. (Dowd 1959:205)

An ever expanding school population necessitated the construction of an additional two classrooms, a science laboratory, arts room and further dormitory construction during the 1940s.

Plate 5.3 1943 aerial photograph of St Catherine's School grounds (Source: NSW Land and Property Information).

Plate 5.4 Original School Building with extensions 1955. Looking across the 'field' towards the west (Source: Croft 1996).

Throughout the later half of the 20th century, St Catherine's continued to grow and began to incorporate some of the surrounding residential blocks into the school grounds. The 'St Clair' house and grounds at 2 Macpherson Street was acquired by St Catherine's School in 1950. Renamed 'The Cottage', the building, dating to 1889, was converted into two classrooms, a laboratory, staff room and art rooms. The Cottage was partially demolished in the 1970s for the construction of a swimming pool (NRBS & Partners Pty Ltd 2014:14). Number 1 Leichhardt Street was purchased in 1954, with the locally heritage listed building 'La Vicomte' utilised as classrooms and staff quarters. The locally heritage listed 'St John's' building at 24 Albion Street was purchased by St Catherine's in January 1957. The original building was incorporated into the Isabel Hall Wing with only a minimal historical façade retained (NRBS 2014:24).

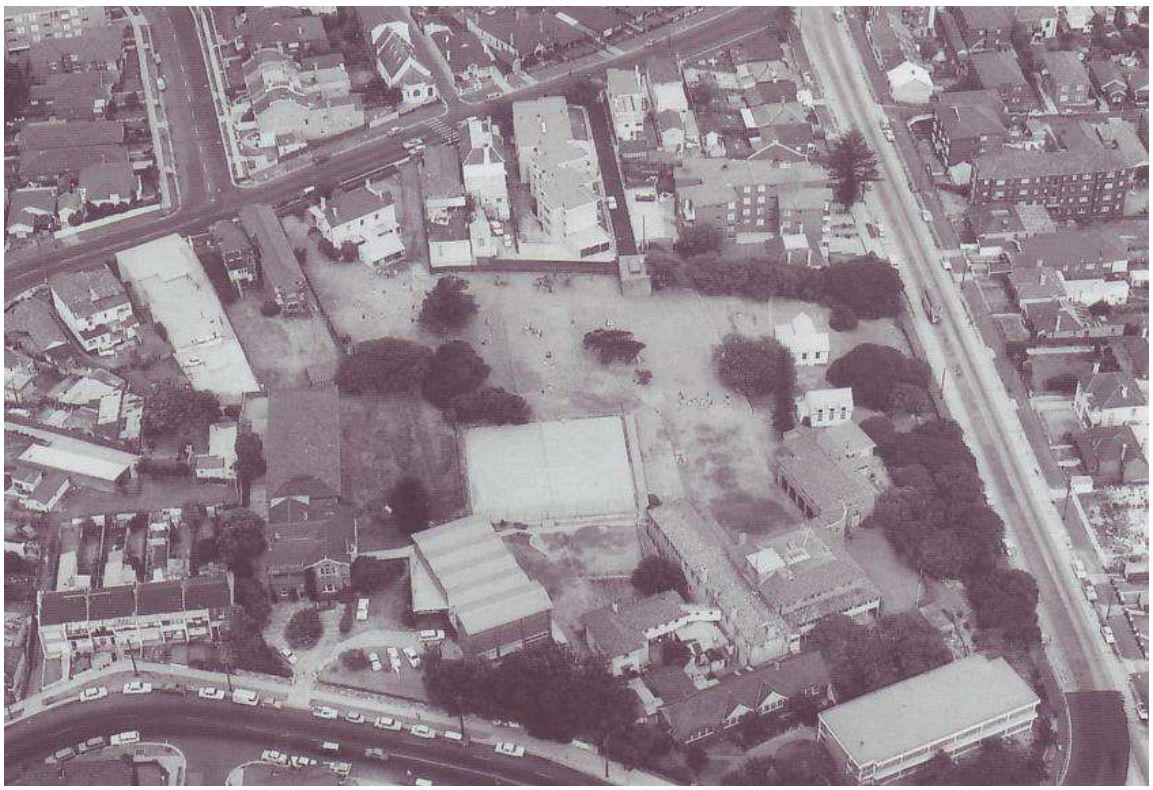

Plate 5.5 Oblique aerial of St Catherine's in 1968 with newly expanded property boundaries. Facing south-east (Source: NBRS 2014:35).

The historic house and lot 'Ventnor' on Leichhardt Street was added to the school property in June of 1976 (NRBS 2014:13). Various properties along Bronte Road were purchased by St Catherine's in the late 20th and early 21st century and were incorporated into a Junior Innovation Campus and Music and Visual Arts wing in 2011 (NRBS 2014:25).

Table 5.1: Summary of key construction and property acquisition events occurring within the study area

Date	Event
1856	Property granted to the Church of England Sydney Diocese
1857	Foundation Stone laid by Bishop Barker
1859	School building consisting of 7 rooms opened
1884	Unspecified extensions, tennis court and detached hospital constructed
1886	Accommodation dormitories extended
1887	Adjoining 2 acres of land to the east of main school grounds sold
1912	Addition of a school hall and 4 new classrooms
1910s	Addition of accommodation facilities, ground levelling for tennis and basketball courts
1935-1936	Renovation and refurbishment of original school building, extensions to maids quarters and kindergarten, construction of a new wing with chapel, 3 school rooms, additional accommodation and refurbishment of old chapel into science room
1940s	Construction of 2 new classrooms, a science laboratory, arts room and additional accommodation facilities
1950	'The Cottage' 2 Macpherson Street purchased
1954	'La Vicomte' 1 Leichhardt Street purchased
1957	'St John's' 24 Albion Street purchased, incorporated into Isabel Hall Wing
1970	'The Cottage' partially demolished for construction of a swimming pool
1972	323 Bronte Road purchased
1976	'Ventnor' Leichhardt Street purchased
1982	315 Bronte Road purchased, used for demountable buildings
1994	317 Bronte Road 'Garfield' purchased
1998	325 Bronte Road purchased
2000	Buildings on 323 and 325 Bronte Road demolished, Junior School constructed on the property, attached to 'La Vicomte'
2002	319A Bronte Road purchased
2011	Junior Innovation Campus with Music and Visual Arts extension opened, incorporating 315, 317 and 319A Bronte Road

Figure 5.9 Location of known location of Hospital and Cottage structures in relation to the study area

6 ARCHAEOLOGICAL PREDICTIVE MODELLING

An assessment of archaeological potential usually considers the historic sequence of occupation in comparison to the structures which are currently extant, as well as the impact that the more recent constructions and works would have had on the earlier occupation phases and, as such, the likely intactness of the archaeological resource. This, in turn, is tied in with the extent to which a site may contribute knowledge not available from other sources to current themes in historical archaeology and related disciplines.

In regard to the assessment of the study area, the archaeological potential depends upon the anticipated likelihood for the survival of buried structural fabric and cultural deposits as well as an estimation of archaeological integrity. Structural fabric refers to what is generally regarded as building or civil engineering remnants. Cultural deposits refer to archaeological deposits, i.e. deposited sediments containing artefacts etc.

Having analysed the historical evidence in the previous chapters, the following section presents a summary of the potential for a physical archaeological resource to be present in the study area, that is, its archaeological sensitivity/potential.

6.1 Aboriginal Predictive Modeling

The moderate climate of the Waverley Municipality and its location within the wider Sydney Basin is believed to have been conducive to Aboriginal occupation in the past. The study area lies within a resource base associated primarily with the coastline. Habitats associated with the marine environment would have supported a wide range of animals, fish, birds and mammals.

In summary, the main trends broadly seen across the Waverley area are:

- Specific archaeological sites are most likely to appear on related landforms.
- Site frequency and density are dependent on their location in the landscape.
- Rock shelters and engraving sites can only be located in areas of exposed sandstone.
- Aboriginal scarred trees may still be present in areas where remnant old growth vegetation exists.
- Shell middens are likely and are most frequent along the foreshore.
- Artefact scatters are commonly located in close proximity to rock shelters and middens, permanent water sources along creek banks, alluvial flats and low slopes.
- The majority of sites occur on or just below ridgelines or on the shoreline.
- Artefact assemblages are the lowest frequency site type in the area, potentially due to low surface visibility and high levels of modern disturbance.
- While surface artefact scatters may indicate the presence of subsurface archaeological deposits, surface artefact distribution and density may not accurately reflect those of subsurface archaeological deposits.
- PADs are most likely to occur in close proximity to rock shelters or middens.
- Aboriginal occupation is focused around rock shelters and creeklines.
- The presence of alluvial soils aids identification of PADs while erosional soils are likely to not preserve archaeological material.

The general studies of the Waverley area, the specific investigations surrounding the study area and the search of AHIMS have helped to predict what site types can be expected during the site inspection for this particular assessment and with what frequency. These are:

- Shell middens are unlikely to be present due to the distance from the shoreline.
- Open camp sites or isolated finds of flaked or ground stone are moderately likely to be present, due to the potential usage of the nearby sandstone ridge by Aboriginal people.

- PADs are unlikely to be present due to the high levels of historical disturbance known to have occurred within the study area.
- Burials are unlikely to be present, due to the high levels of historical disturbance present within the study area.
- Ceremonial grounds are unlikely to be present due to their general rarity within New South Wales.
- Stone arrangements are unlikely to be present due to their general rarity within New South Wales.
- Scarred trees are not likely to be present due to the lack of preservation of older vegetation within the study area.
- Grinding Grooves are not likely to be present due to a lack of suitable requirements (i.e. exposed bedrock near to a water source) existing within the study area.

6.2 Historical Predictive Modeling

The following predictive model draws on the areas of known archaeological sensitivity demarcated in Figure 8.1.

As a general rule of archaeology, sites first redeveloped in either the 19th or early 20th century can also retain evidence of occupation from earlier periods. It is also very common that such evidence can be recovered even when sites are redeveloped or disturbed by modern developments. Based on the detailed background history, the following general predictive statements can be made:

- There is potential for archaeological material being present within the study area which relates to the early usage of the St Catherine's School building, its outbuildings and yard areas.
- Buildings associated with St Catherine's School were present in the study area from the mid-1800s and are still in current use.
- Any part of the study area which currently contains a building is considered to have nil archaeological potential, although this is dependent on construction techniques used during building of the post-1900s structures within the study area.
- There is a low likelihood of archaeological material or features being present in the south-eastern quarter of the study area, in the location of the recorded detached hospital and cottage buildings due to high levels of historical disturbance.
- There is a very low likelihood of archaeological material being present in the central part of the study area, in areas outside of the footprint of the school buildings due to no record of historical buildings in the area and high levels of historical ground disturbance. Any such material will relate to either yard spaces or unrecorded outbuildings associated with the school buildings.
- There is a very low likelihood of archaeological material being present in the north-western part of the study area, near the location of the Jane Barker Hall due to no record of historical structures in this area and high levels of historical ground disturbance. Any such material would relate to yard areas, unrecorded outbuildings or boundary fences associated with the original school building.
- There is a moderate likelihood that deeper features such as cesspits or wells may exist within the study area, although it is not possible to predict the location of such features.

7 SITE INSPECTION

7.1 Introduction

Sarah McGuinness and Kieren Watson (Austral Archaeology) conducted a brief site inspection on 16 April 2014 in order to identify areas of archaeological potential within the study area. The inspection examined all parts of the study area but focused on locations which are to be impacted under the proposed development.

The inspection identified that the entire study area has been subject to extensive and widespread impact from ground levelling and excavation, construction and landscaping. Such impacts have occurred constantly throughout St Catherine's 160 years history, with much of the major excavation works undertaken in the late 20th and early 21st century.

7.2 Areas of Inspection

The key areas that were inspected are described in relation to the proposed impacts due to occur in each location to examine any possible archaeological features or deposits.

7.2.1 Jane Barker Hall Redevelopment

The Jane Barker Hall, opened in 1960, is situated along the Albion Street frontage of St Catherine's. The Hall adjoins the St John's building along its northern perimeter. To the west of the Hall's entrance is a sealed car park and hedged garden bed, separating the area from Albion Street.

Plate 7.1 South-east facing view of Jane Barker Hall entrance with sealed car park.

Plate 7.2 West facing view of sealed car park at the front of the Jane Barker Hall, Albion Street behind hedged garden.

Plate 7.3 East facing view of St John's building, adjoined by Jane Barker Hall.

7.2.2 RPAC development

The proposed RPAC development is located in the south-eastern quarter of the study area. In the vicinity of the proposed development is currently a swimming pool, constructed in 1970, and several demountable school buildings. Extensive excavation, terracing and ground levelling has occurred in the vicinity of the pool.

Plate 7.4 View south from the terraced Netball field. The swimming pool is situated to the left.

Plate 7.5 View north from the pool area. Note the terraced Netball field with excavated pathway in the mid-ground.

Plate 7.6 View south-east, with the location of the 1887 Hospital in the grassed foreground. Note the extensive impact of the pool. The surrounding sloping ground has been subject to earthwork for the excavation of the pool.

Plate 7.7 View west from pool. the location of Hospital building is in grassed foreground. The excavated ground slopes significantly toward pool.

Plate 7.8 View south showing the location of Hospital building.

Plate 7.9 View south-east toward location of 1889 Cottage. Note the small brick pool structure and extensive terracing in the Cottage location.

Plate 7.10 View north-east toward demountable school buildings. Note the terracing to the front of the demountable buildings in the location of the Cottage.

Plate 7.11 View north-west, taken from Macpherson Street. Yellow structure is the pool fence. Note the terracing and landscaping in the area between the pool and the street frontage.

7.2.3 General Study Area

The greater part of the study area has been subject to significant and widespread subsurface impacts. Much of the St Catherine's grounds have been developed, with the remainder subject to landscaping or terracing and levelling for sports grounds.

Plate 7.12 View south-east with ocean visible between the two trees, showing terraced Netball field.

Plate 7.13 View south of landscaping and terracing near Dame Joan Sutherland Centre.

7.3 Summary

The site inspection identified no Aboriginal sites or areas of PADs within the study area. The inspection revealed that the vast majority of the study area has been subject to extensive impact during St Catherine's 160 year history. Through construction, ground levelling and terracing, excavation and landscaping, the study area has sustained significant subsurface impact and is unlikely to contain either *in-situ* Aboriginal or European historical archaeological deposits or structures.

8 HISTORICAL LAND USE AND SENSITIVIY MAPPING

8.1 Historical Land Use

Although the Waverley area is dominated by sandy soil and was not considered suitable for agriculture, farming practices were established early in the district's history. Cattle were being run on the original land grants in the area as early as 1811 (Sydney Gazette, 31 August 1811), establishing farming practices that continued for much of Waverley's early history.

Flagstaff Farm (now Waverley Park), established by 1850, saw cattle grazing on the sand dunes until 1879. A large market garden created by local Chinese residents on the former farm produced the first successful agricultural pursuit in the district until its closure in the 1890s. A larger Chinese garden prospered in Tamarama until 1909.

Dairy farming quickly became an established practice in the district. Mackenzie Dairy, established in the 1860s, had become one of Sydney's largest dairy producers by the turn of the century. By this time, 34 dairies were registered in the Municipality, with much of Sydney's milk and dairy supplies farmed in the Waverley area (Meyer & Brady 2007:16).

Pigs and poultry farmed in the Waverley area also supplied meat to Sydney markets until the 1880's, when concerns about water pollution from farming led the Waverley Council to prohibit pig farming. A large ostrich farm was established near South Head by Joseph Barracluff in 1889. This successful livestock business prospered until after World War I, with the land subdivided for residential housing in 1925 (Meyer & Brady 2007:16).

The study area was not subject to any recorded use until the construction of the St Catherine's School in 1856 and as such it is unlikely that any of the formal farming practices listed above occurred in the immediate locality. However it is likely that the wider Waverley area was used for widespread cattle grazing throughout much of the early 19th century, when occupation of the area was sparsely scattered and grant boundaries were not enforced. The low lying heath vegetation that once dominated the sand body (as noted in Section 3.1), would have provided a substantial food source for roaming cattle and this no doubt contributed to the clearance of flora and reduction of faunal habitat in both the immediate and wider landscape.

8.2 Degree of Historical Disturbance and Impacts

The survival and visibility of Aboriginal and historical sites within the study is greatly affected by the process of vegetation clearance and significant modern disturbance from building developments. These factors need to be considered when assessing the archaeological potential of the study area.

The impacts across the majority of the study area included vegetation clearance and introduction of non-native flora, widespread ground levelling and terracing for construction of structures, sports grounds and landscaping, and significant sub-surface excavation for a swimming pool and basement level structures.

In summary, the study area has been subject to widespread and extensive disturbance over St Catherine's 160 year history that has significantly affected the archaeological potential.

8.3 Sensitivity Mapping

The results of Section 6 Predictive Modelling and Section 8.2 Degree of Historical Disturbance and Impacts are depicted in an archaeological sensitivity map below (Figure 8.1). This map shows the degree of archaeological potential within the study area following site development and widespread earthworks. The sensitivity map is applicable to Aboriginal and historical archaeological potential. The map forms the basis for the conclusions and management recommendations outlined in Section 11.

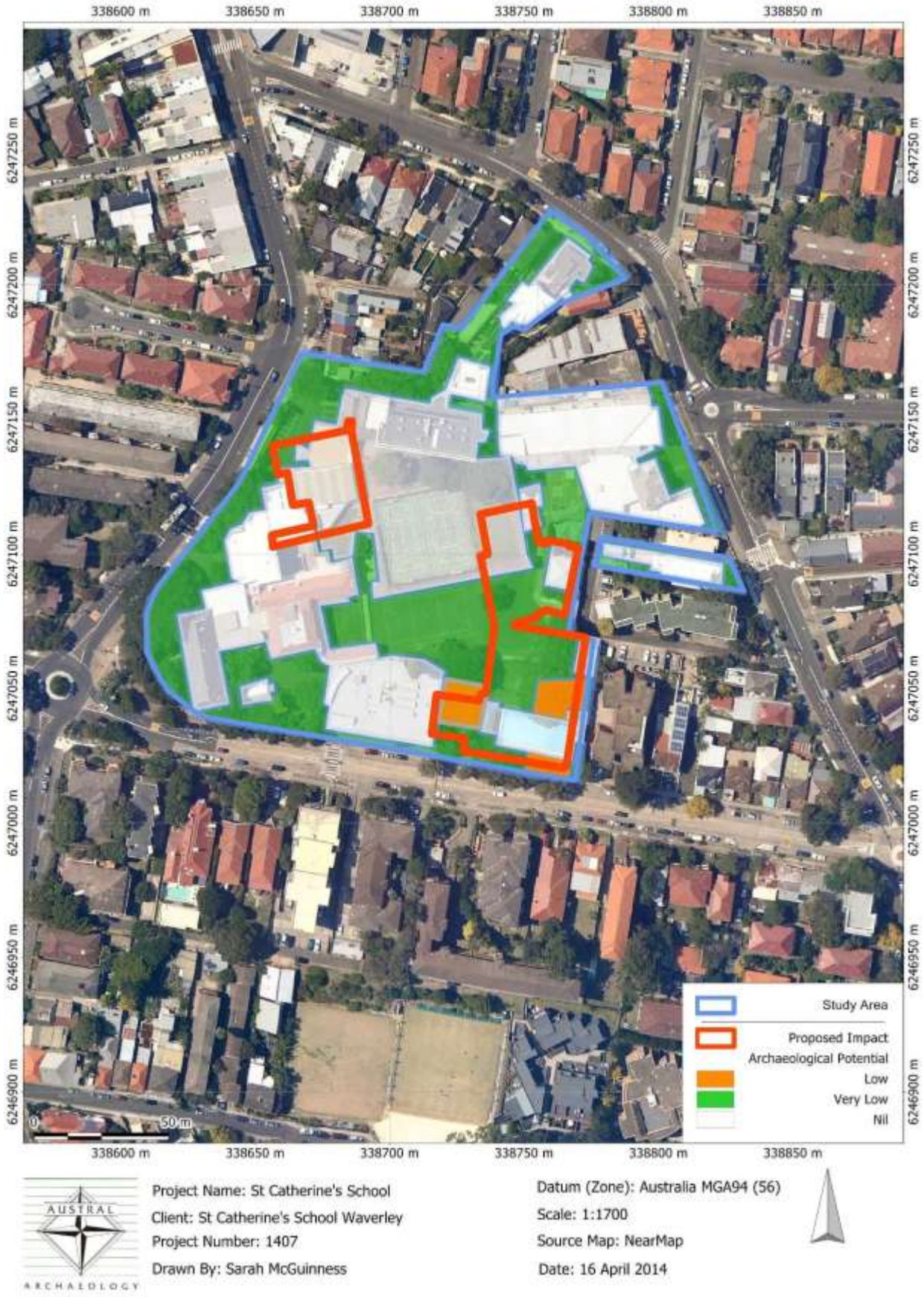

Figure 8.1 Areas of archaeological potential within the study area in relation to proposed Stage 1 impacts.

9 ASSESSMENT OF SIGNIFICANCE

9.1 Introduction

An assessment of cultural significance seeks to establish the importance that a place has to the community. The concept of cultural significance is intrinsically tied to the fabric of the place, its history, setting and its relationship to other items in its surrounds and the response it evokes from the community.

The assessment of cultural significance with respect to archaeological sites can present difficulties because the nature and extent of the "relics" are often indeterminate and value judgements therefore need to be made on the basis of potential attributes. The element of judgement can be greatly reduced by historical or other research, as has been completed for the current study. Archaeological deposits and features provide important evidence of the history and settlement of New South Wales. These heritage items may include deposits containing material culture (artefacts) that can be analysed to yield information regarding early urban development that is unavailable from other sources. Archaeological investigations can reveal much about technology, industry, past economic and social conditions and people's lives.

Sites that contain these elements therefore have scientific value that may be of considerable significance when analysed in association with documentary evidence. It is through this potential to reveal information about the past use of a place that archaeological sites have heritage significance.

9.2 Basis for Assessment

The Burra Charter of Australia ICOMOS was formulated in 1979 (revised 1999), based largely on the Venice Charter (for International Heritage) of 1966. The Burra Charter is the standard adopted by most heritage practitioners in Australia. The Charter divides significance into four categories for the purpose of assessment. They are: Aesthetic, Historical, Scientific/Technical, and Social significance.

The Heritage Council of New South Wales has established a set of seven criteria to be used in assessing cultural heritage significance in New South Wales, and specific guidelines have been produced to assist archaeologists in assessing significance for subsurface deposits. These are published in the Heritage Council's *Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009). The Heritage Council's criteria incorporate those of the Burra Charter, but are expanded to include rarity, representative value, and associative value.

In order to determine the significance of a historical site, the Heritage Council have determined that the following seven criteria are to be considered (Heritage Branch 2009:3):

- **Criterion (a): an item is important in the course, or pattern, of NSW's cultural or natural history (or the local area);**
- **Criterion (b): an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the local area);**
- **Criterion (c): an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);**
- **Criterion (d): an item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons (or the local area);**
- **Criterion (e): an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the local area);**
- **Criterion (f): an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the local area); and**
- **Criterion (g): an item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places or cultural or natural environments (or the local area).**

These criteria were designed for use on known or built heritage items, where above ground heritage is both tangible and easily identified. As the nature of archaeology is that it is invisible until disturbed, the presence and attributes of archaeological material must be assumed based on the recorded levels of disturbance, known site history and the creation of predictive statements. Ultimately, the actual presence of archaeological material can only ever be framed in terms of the potential for it to be present.

The Heritage Branch has assisted archaeologists by creating questions which are framed around the main NSW Heritage Criteria, and which can be used to assess the relative importance of any archaeology which is likely to be present. The questions to be asked of an archaeological deposit differ from the main criteria, but can be seen to be referential to them, in order to create a suitable framework for assessing archaeological sites.

Therefore, it should be noted that although the study area contains built heritage, the significance of the built heritage has already been assessed as being of Local significance and as such is listed on the Waverley LEP. The following assessment deals solely with the significance of any potential archaeological material present within the study area.

In addition, this assessment details the potential significance associated with the parts of the study area which are likely to be impacted during construction of the RPAC development.

9.3 Significance Assessment

9.3.1 Assessment Criteria

The following section addresses the significance of the potential archaeological resource in accordance with the criteria adopted in the Heritage Council's significance guidelines for archaeological deposits (Heritage Council 2009:11-13).

Archaeological Research Potential (current NSW Heritage Criterion e)

- ***To which contexts (historical, archaeological and research-based) is it anticipated that the site will yield important information?***
- ***Is the site likely to contain the mixed remains of several occupations and eras, or is it expected that the site has the remains of a single occupation or a short time-period?***
- ***Is the site rare or representative in terms of the extent, nature, integrity and preservation of the deposits (if known)?***
- ***Are there a large number of similar sites?***

Residential and suburban school sites are considered a common feature of both the greater Sydney region specifically and New South Wales generally. Countless examples of such sites are extant throughout the state.

- ***Is this type of site already well-documented in the historical record?***

Such residential and school yard sites are well represented in the historical record.

- ***Has this site type already been previously investigated with results available?***

Archaeological investigations of school yard sites have been previously undertaken. Austral Tasmania Pty Ltd undertook excavation of a school building in early 2014 (Austral Tasmania 2014).

- ***Is the excavation of this site likely to enhance or duplicate the data set?***

While some information relating to specific site questions such as construction techniques may be answered through excavation of the archaeologically sensitive areas, this is unlikely to provide enhancement to the existing knowledge of St Catherine's School occupation and use.

What is the ability of the archaeological evidence to provide information about a site that could not be derived from any other source and which contributes to the archaeological significance of that site?

From examination of areas of archaeological potential within the study area, it has been concluded in this assessment that *in-situ* archaeological remains are unlikely to survive. As such,

it is anticipated that the site does not have archaeological research potential and therefore does not satisfy NSW Heritage Criterion (e).

Associations with individuals, events or groups of historical importance (NSW Heritage Criteria a, b and e)

- ***Does the archaeological site link to any NSW Historic Themes? Will the site contain 'relics' and remains which may illustrate a significant pattern in State or local history?***

The relevant themes which may be applied solely to the archaeological potential of the study area are listed below in Table 9.1.

Table 9.1 Historical Themes

Australian Theme	New South Wales Theme	Local Themes
3. Developing local, regional and national economies	Health	Medical consulting rooms
4. Building settlements, towns and cities	Accommodation	Cottage and house site (archaeological).
6. Education	Education	School, kindergarten, playground.
8. Developing Australia's cultural life	Domestic Life	Domestic artefact scatter and arrangement of interior rooms.
9. Marking the phases of life	Persons	A family home and a place of residence.

- ***Is the site widely recognised?***

Although the St Catherine's School is recognised as the oldest Anglican girls school in Australia and is a familiar feature of the Waverley suburb, the individual history of specific structures within the overall study area, such as the former Hospital and former Cottage structures are not widely known. Histories of St Catherine's mention these buildings only in passing, with the Hospital structure in particular identified by name only in sketches and reminisces of past St Catherine's students.

- ***Does the site have symbolic value?***

The site has symbolic value to the Anglican community through the generations of girls educated and instilled with Anglican values at St Catherine's School.

- ***Is there a community of interest (past or present) which identifies with, and values the specific site?***

The site has symbolic value as part of the St Catherine's institution and its 160 year history. The current and former St Catherine's value the site, and a St Catherine's Old Girls' Association was formed in 1921.

- ***Is the site likely to provide material expression of a particular event or cultural identity?***

The site may provide material culture relating to the middle to upper class Anglican community from the mid-19th century to current times.

The 50th and 100th year anniversary jubilees held in 1906 and 1956 respectively, are the most significant documented events to have occurred within the study area. It is unlikely either of these events will be identified through archaeological investigation.

- ***Is the site associated with an important person? (the role of the person in State or local history must be demonstrated/known)***

Soprano Dame Joan Sutherland attended St Catherine's from 1934 when she was seven years old. Sutherland is regarded as one of the most remarkable female opera singers of the 20th century and is noted for her contribution to opera from the late 1950s to the 1980s.

- ***What is the strength of association between the person and the site?***

Dame Sutherland specifically remembered her kindergarten classes in the old converted wooden hospital building; flat tables with lockers against the walls, and a holly bush outside (Croft 1996: 45). In 1994, funds raised by the school led to the construction of the Joan Sutherland Performing Arts Centre, fronting Macpherson Street. The building acknowledged the importance of Dame Joan's association with the school.

- ***Did the person live or work at the site? During the phase of their career for which they are most recognised? Is that likely to be evident in the archaeology /physical evidence of the site?***

Dame Joan Sutherland was schooled at St Catherine's. Her family lived in Sydney so she did not board at the school. Sutherland's opera career for which she is renowned followed in the decades after her time at St Catherine's. There is unlikely to be any archaeological remains that related to Dame Sutherland's association with St Catherine's.

- ***Did a significant event or discovery take place at the site? Is that evident/or likely to be evident in the archaeology/physical evidence of the site?***

No significant events or discoveries are associated with the study area.

Do the archaeological remains have particular associations with individuals, groups and events which may transform mundane places or objects into significant items through the association with important historical occurrences?

It is unlikely that the association of the Anglican community and Dame Joan Sutherland with St Catherine's will be identified through the archaeological record.

It has been concluded in this assessment that *in-situ* archaeological remains are unlikely to survive within the study area. As such it is anticipated that the site does not satisfy NSW Heritage Criteria (a), (b), (d) and (e).

Aesthetic or Technical Significance (NSW Heritage Criterion c)

- ***Does the site/is the site likely to have aesthetic value?***
- ***Does the site/is the site likely to embody distinctive characteristics?***
- ***Does the site/is the site likely to embody a distinctive architectural or engineering style or pattern/layout?***
- ***Does the site demonstrate a technology which is the first or last of its kind?***
- ***Does the site demonstrate a range of, or change in, technology?***

Will an archaeological excavation reveal highly intact and legible remains in the form of aesthetically attractive artefacts, aged and worn fabric and remnant structures, which may allow both professionals and the community to connect with the past through tangible physical evidence?

It has been concluded in this assessment that *in-situ* archaeological remains are unlikely to survive within the study area. It is therefore considered that the site therefore would not provide a material culture and does not meet NSW Heritage Criteria (c) in this regard.

Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria a, c, f, and g)

- ***Does the site contain well-preserved or rare examples of technologies or occupations which are typical of particular historic periods or eras of particular significance?***

It is unlikely that any well-preserved or rare examples of technologies or occupations will be present in the study area.

- ***Was it a long-term or short-term use?***

The study area has been utilised as St Catherine's School grounds for 160 years. The former Hospital building was constructed by 1887 while the former Cottage building was constructed in 1889 and obtained by St Catherine's in 1950.

- ***Does the site demonstrate a short period of occupation and therefore represents only a limited phase of the operations of a site or technology or site? Or does the site reflect occupation over a long period?***

The site demonstrates long term occupation of the study area by a single institution, documenting its evolution into a modern establishment.

- ***Does the site demonstrate continuity or change?***

The site demonstrates a continuity of occupation of the St Catherine's School grounds, with a consistent attitude toward change and development into a modern teaching institute.

- ***Are the remains at the site highly intact, legible and readily able to be interpreted?***

Previous significant and widespread construction and earthworks across much of the St Catherine's grounds are likely to have removed any intact archaeological remains associated with any archaeological evidence.

Do the archaeological remains have an ability to demonstrate how a site was used, what processes occurred, how work was undertaken and the scale of an industrial practice or other historic occupation.

It has been concluded in this assessment that *in-situ* archaeological remains are unlikely to survive within the study area. It is considered that the study area does not meet NSW Heritage Criteria (a), (c), (f) and (g) in this regard.

9.3.2 Statement of Significance

The study area has been listed as locally significant as part of the Charing Cross Conservation Area for its association with the wider Waverley suburb. Furthermore, four structures within the study area are listed as locally significant in the Waverley LEP. However these listings relate to built heritage rather than the archaeological potential associated with early occupation of the study area.

Previous substantial development and earthworks within the study area are likely to have removed all archaeological evidence of Aboriginal occupation and of the former Hospital and Cottage structures. The study area is therefore considered to have a low potential for *in-situ* archaeological remains.

As such, the archaeological resource within the study area does not meet the Heritage Significance Criteria at any level.

10 STATEMENT OF HERITAGE IMPACT

10.1 Proposed Works

The proposed works comprises various construction, demolition and renovation works to create educational precincts, circulation and wet weather networks, disabled access and modern learning spaces in order to facilitate the growth of the St Catherine's School population over the next 15 years (Figure 10.1 and Figure 10.3).

Key features of the proposal are:

- Demolition of the existing outdoor swimming pool and construction of a new multi-level building (RPAC). The core facilities proposed within the RPAC include a new Research Centre, Performing Arts Auditorium, Aquatic Centre and Multi-Purpose Hall, with pedestrian links to the existing Dame Joan Sutherland Centre (DJSC) and Jo Karaolis Sports Centre (JKSC).
- Demolition of the existing Jane Barker Hall (JBH) and construction of a new building.
- Demolition of the existing print room, reception and link building between Lenthall and the Administration Building (Level 6) and construction of new boarder's common room.

10.2 Predicted Impact on the Potential Archaeological Resource

The following section provides an assessment of each predicted impact of the proposed works and whether the task has potential to impact on the identified archaeological resource (Figure 10.2 and Figure 10.4).

10.2.1 Predicted Impacts with Potential to Harm the Archaeological Resource

- **Construction of the RPAC building**

The RPAC has been identified as having the greatest potential impact to any potential archaeological resource. Construction of the multi-level RPAC will require extensive ground disturbance across the entire building footprint.

The building will be constructed in the location of a former school outbuilding, initially constructed in 1887 as a detached hospital and later utilised as a kindergarten, and in the location of 'The Cottage', dating to 1889 (Figure 5.9).

The location of the proposed works has been subject to significant impact during the construction of a pool in 1970. The surrounding area is likely to have been impacted during the ground disturbance, with evidence of terracing and levelling identified in the greater pool area.

There is a low potential for *in-situ* Aboriginal and historical archaeological remains and deposits in the area of the proposed RPAC building.

- **Excavation of the underground link between the RPAC building and the existing Jo Karaolis Sports Centre**

The excavated walkway will require extensive earthworks including cutting and filling in previously levelled ground below and to the east of an existing grassed Netball field.

No historic structures have been identified in the area of the proposed walkway, and ground levelling, terracing and landscaping works are likely to have removed any Aboriginal or historic archaeological deposits.

There is a very low potential for *in-situ* Aboriginal and historic archaeological remains and deposits in the area of the underground walkway link.

10.2.2 Predicted Impacts with No Potential to Impact the Archaeological Resource

- **Demolition and Redevelopment of the Jane Barker Hall**

Demolition of the Jane Barker Hall is not expected to impact upon any potential archaeological resource associated with the St Catherine's School grounds. No potential archaeology was identified in the area proposed to be subject to subsurface excavation.

Demolition and redevelopment of the Jane Barker Hall is unlikely to impact on the adjacent locally heritage significant St John's building.

- **Creation or realignment of covered walkways**

The realignment or creation of covered walkways is expected to occur at or above existing ground levels and is unlikely to impact potential archaeological resources.

- **Renovation of existing spaces**

Renovation of existing spaces is expected to be superficial refurbishment of existing structures and is unlikely to impact potential archaeological resources.

Figure 10.1 Location of proposed works within the study area.

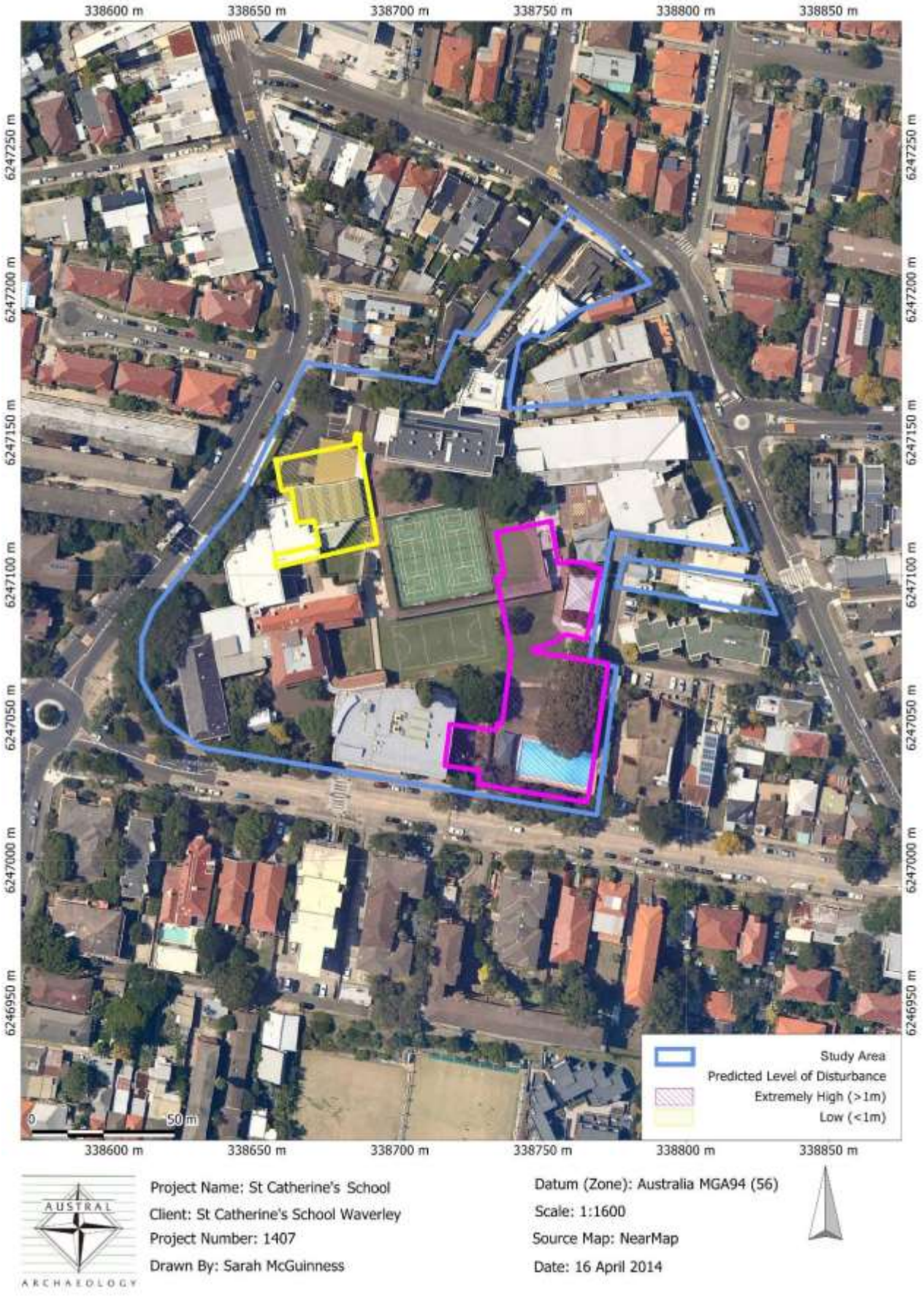

Figure 10.2 Predicted levels of impact from proposed stage 1 works.

Figure 10.3 Architectural Master Plan showing study area and proposed works. Existing structures shown in grey and proposed development shown in yellow (Supplied by Sandrick Project Directions)

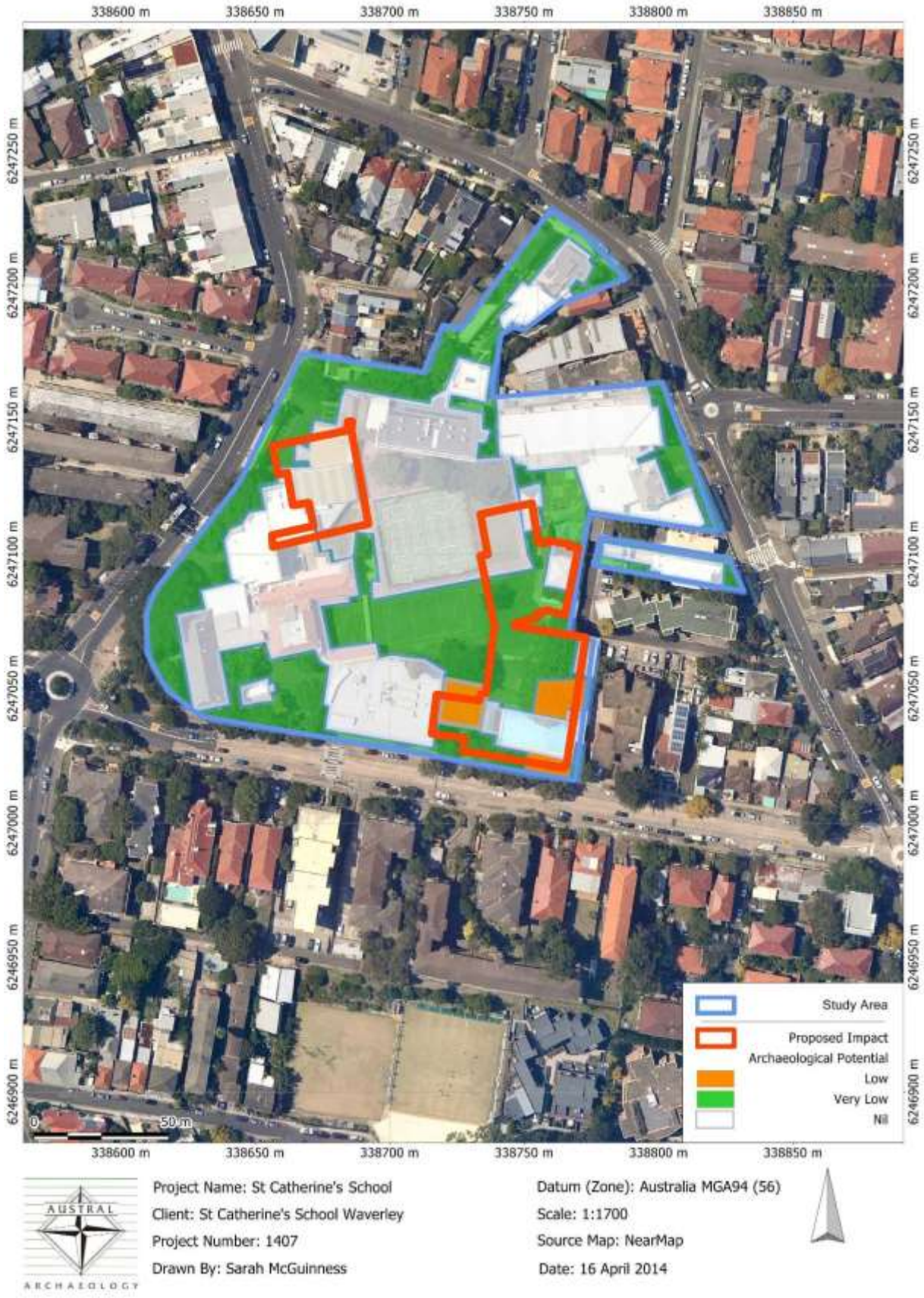

Figure 10.4 Proposed impacts in relation to areas of archaeological potential

The potential heritage impact of the proposed development is considered below utilising the format recommended in the NSW Heritage Manual guidelines document 'Statements of Heritage Impact'.

What aspects of the proposal respect or enhance the heritage significance of the study area?

The majority of the study area is not considered to have heritage significance except for the areas of archaeological potential identified in Figure 10.4 and the locally heritage listed buildings (Table 2.1). None of the buildings of heritage significance are to be impacted by the proposed design.

The history and archaeology of the study area could be explained through interpretation within the buildings and grounds of the school. In the event that any unexpected archaeological discoveries are made in the future, there may also be potential for the publication of archaeological results as well as the display and interpretation of any objects or items recovered from the study area.

What aspects of the proposal could have a detrimental effect on the heritage significance of the study area?

The proposed development may adversely impact on any archaeological material which may be present in the south east of the study area, namely the location of an outbuilding identified as the School Hospital and noted on the 1889 Survey Plan.

It is considered that the recommendations in this report provide adequate mitigative strategies for management of the archaeological values of the site.

Have more sympathetic options been considered and discounted?

The archaeological consultant did not have input into other design options which are more sympathetic to both the built heritage and the archaeological heritage. As any potential archaeological deposits or features will be of local significance and low research potential, investigation of other options was not required. The current design is seen as being a viable perpetuation of St Catherine's history of redevelopment and expansion.

11 CONCLUSIONS AND RECOMMENDATIONS

11.1 Conclusions

A search of the Aboriginal Heritage Information Management System Database regarding the property returned a result of no sites within at least a 50 metre radius of the study area. Given the site's documented history of use and continuous development since European settlement, it is clear that this location qualifies as 'disturbed' land according to the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010b).

Two areas have been identified as archaeologically sensitive within the study area; they are considered to have low potential to contain *in–situ* archaeological material (Figure 8.1). The archaeological material may comprise the remains of a wooden structure built in 1887, identified as the school 'Hospital' and parts of an 1889 residential building identified as the 'Cottage' that was utilised by St Catherine's from the mid-20th century.

It is concluded that the St Catherine's School site has very low to low archaeological potential and any possible features would be of Local significance and low research potential. The construction of the proposed RPAC building is likely to remove any surviving archaeological remains within the designated sensitive zones (Figure 8.1).

11.2 Recommendations

The following recommendations are made in conjunction with Figure 11.1. It is recommended that:

1) No further investigative work need be undertaken in regards to the Aboriginal cultural heritage at St Catherine's School, Waverley. This report documents the results of a site inspection in April 2014 that resulted in no Aboriginal sites being located within the current impact area. The survey and background research also confirmed the disturbed nature of the study area.

2) No further archaeological investigation needs to be undertaken in the areas assessed to contain low, very low or nil archaeological potential and that works in these areas can proceed with caution. These areas are marked green on Figure 10.4.

3) In the event that historical archaeological relics not assessed or anticipated by this report are found during the works, all works in the immediate vicinity are to cease immediately and a qualified archaeologist be contacted to assess the situation and consult with the Heritage Branch of the OEH regarding the most appropriate course of action.

4) In the event that Aboriginal archaeological material or deposits are encountered during earthworks, all works affecting that material or deposits must cease immediately to allow an archaeologist to make an assessment of the find. The archaeologist may need to consult with the Office of Environment and Heritage (OEH) and the relevant Aboriginal stakeholders, regarding the find. Section 89A of the NPW Act 1974 requires that the OEH must be notified of any Aboriginal objects discovered within a reasonable time.

5) Should the proposed development be altered significantly from the proposed concept design, then a reassessment of the heritage/archaeological impact may be required. This includes any impacts not explicitly stated in Section 10 and includes the installation of any subsurface services.

6) One copy of this report should be lodged with the local studies collection of the local library, and an additional copy should be lodged with the New South Wales Heritage Branch library at:

   Heritage Branch

   3 Marist Place

   Parramatta NSW 2150

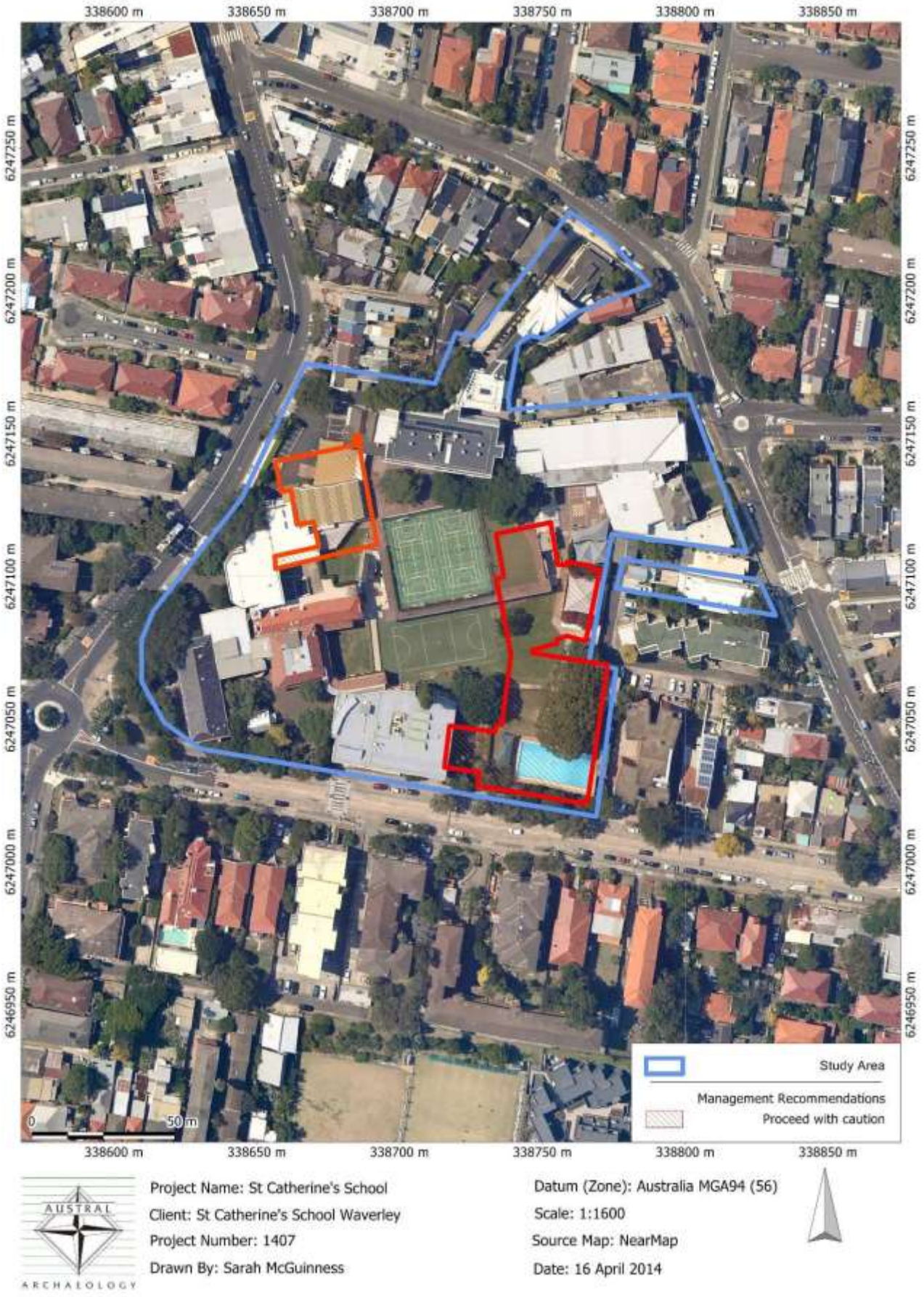

Figure 11.1 Proposed management recommendations for areas of archaeological sensitivity

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