Proposed Development, Sutherland Hospital

Aboriginal Heritage Assessment

Report to Health Infrastructure NSW
March 2015

artefact

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EXECUTIVE SUMMARY

Health Infrastructure NSW has engaged Artefact Heritage to prepare an Aboriginal Heritage Assessment for the proposed development of a two storey building at Sutherland Hospital. The aim of this study is to identify whether Aboriginal sites or areas of archaeological potential are located within the study area and to provide recommendations for appropriate management and mitigation measures.

The Sutherland Hospital Development (the proposal) consists of a new two storey building adjacent to the existing Emergency Department and refurbishment of part of the existing adjoining building to provide more space.

The area assessed in detail for this study was limited to the site of the proposed two storey building as the refurbishment of existing buildings would not involve subsurface impacts and therefore would not impact Aboriginal objects.

The objective of the assessment is to meet the requirements of the Secretary's Environmental Assessment Requirements (SEARs). In accordance with the SEARs Artefact Heritage has conducted an Aboriginal heritage assessment in order to document and assess Aboriginal cultural heritage and any impacts within the study area. This assessment was conducted in accordance with the Office of Environment and Heritage (OEH) *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW and Community Consultation* (DEC 2011) and *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010).

A search of the Aboriginal Heritage Information Management System (AHIMS) register did not identify any Aboriginal sites within the study area. The results of the site survey and background research informed an assessment of low archaeological potential for the study area.

The La Perouse Local Aboriginal Land Council (LPLALC) were invited to attend the site survey; however at the time of the survey, no representatives were available. A draft version of this document was forwarded to LPLALC for review and comment on 4 March 2015. No comments or recommendations were received from LPLALC.

It is therefore recommended that there are no known Aboriginal heritage constraints on the proposed development. As no impacts to Aboriginal heritage are likely as a result of the proposal further reporting and Aboriginal consultation under the OEH guidelines is not required.

If unexpected Aboriginal objects are uncovered during development, work should cease and a heritage consultant, the Office of Environment and Heritage (OEH) and LPLALC should be informed. If human remains are found, work should cease, the site should be secured and the NSW Police and the OEH should be notified.

If changes are made to the development proposal that may result in impacts to areas not covered by this assessment, further archaeological assessment may be required.

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1 INTRODUCTION AND BACKGROUND

1.1 Introduction

Health Infrastructure NSW has engaged Artefact Heritage to prepare an Aboriginal Heritage Assessment for the proposed development of a two storey building at Sutherland Hospital. The aim of this study is to identify whether Aboriginal sites or areas of archaeological potential are located within the study area and to provide recommendations for appropriate management and mitigation measures.

1.2 The Study Area

The study area is defined by the area of proposed development of a two storey building (plus additional plant room floor) within the hospital precinct (Figure 1). The proposed development relates to a 58.8 metre by 58.8 metre area directly in front (to the north) of the existing Emergency Department.

The proposed development also includes interior refurbishment of part of the existing adjoining building to provide more space, however as these refurbishments will not have subsurface impacts there are no expected impacts to Aboriginal heritage.

The study area is located within the suburb of Caringbah, within the Sutherland Shire in New South Wales (NSW) and is within the Sutherland Shire Council local government area (LGA). The Sutherland Local Environmental Plan 2006 (SLEP) is applicable to the study area. The study area is zoned Zone 12 – Special Uses (Medical Facility) pursuant to the SLEP.

1.2 The Proposal

The Sutherland Hospital Development (the proposal) consists of a new two story building (plus plant room floor) in front of the existing Emergency Department and refurbishment of the existing buildings to provide more space. Generally the scope of works includes:

- A new and expanded Emergency Department
- New acute inpatient beds, including High Dependency/Intensive Care beds and a General Medical Unit
- Additional storage space for theatres

The new 2 storey building will be located as shown below and consist of two clinical floors (level 2 and 3) and plant located on the roof (Figures 2 and 3).

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Figure 1: Existing site plan showing footprint of the new building. Source. Health Infrastructure, NSW. 2015

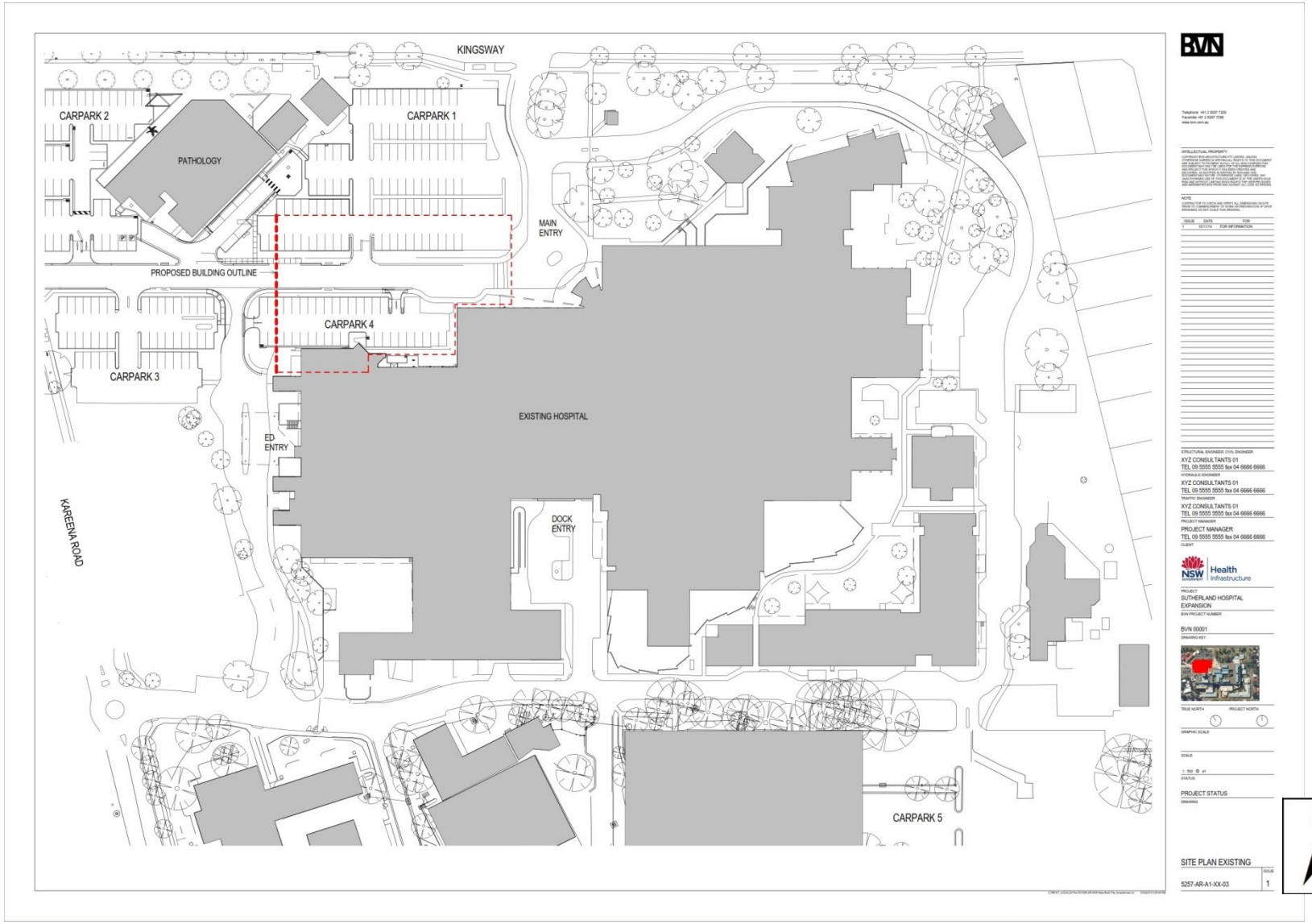


Figure 4 below shows the western side of the site from the Kingsway entrance. The new building areas are shown in colour and existing building areas shown in grey and white. This shows the final proposed layout of the roads and final configuration of the car parks. The car parking and road configuration works have previously been approved under Part 5 of the *Environmental Planning and Assessment Act 1979.*

Figure 2: View from north west corner of the study area. Source. Health Infrastructure, NSW. 2015.

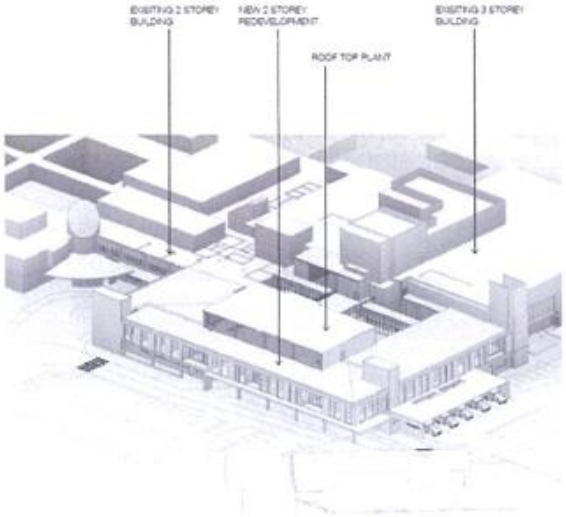


Figure 3: View from the north east of study area. Source. Health Infrastructure, NSW. 2015.

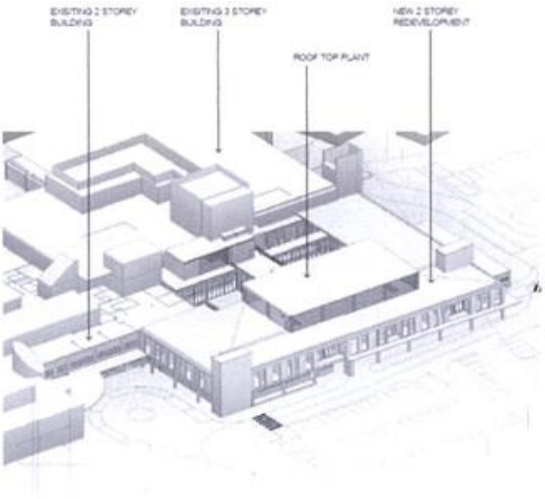
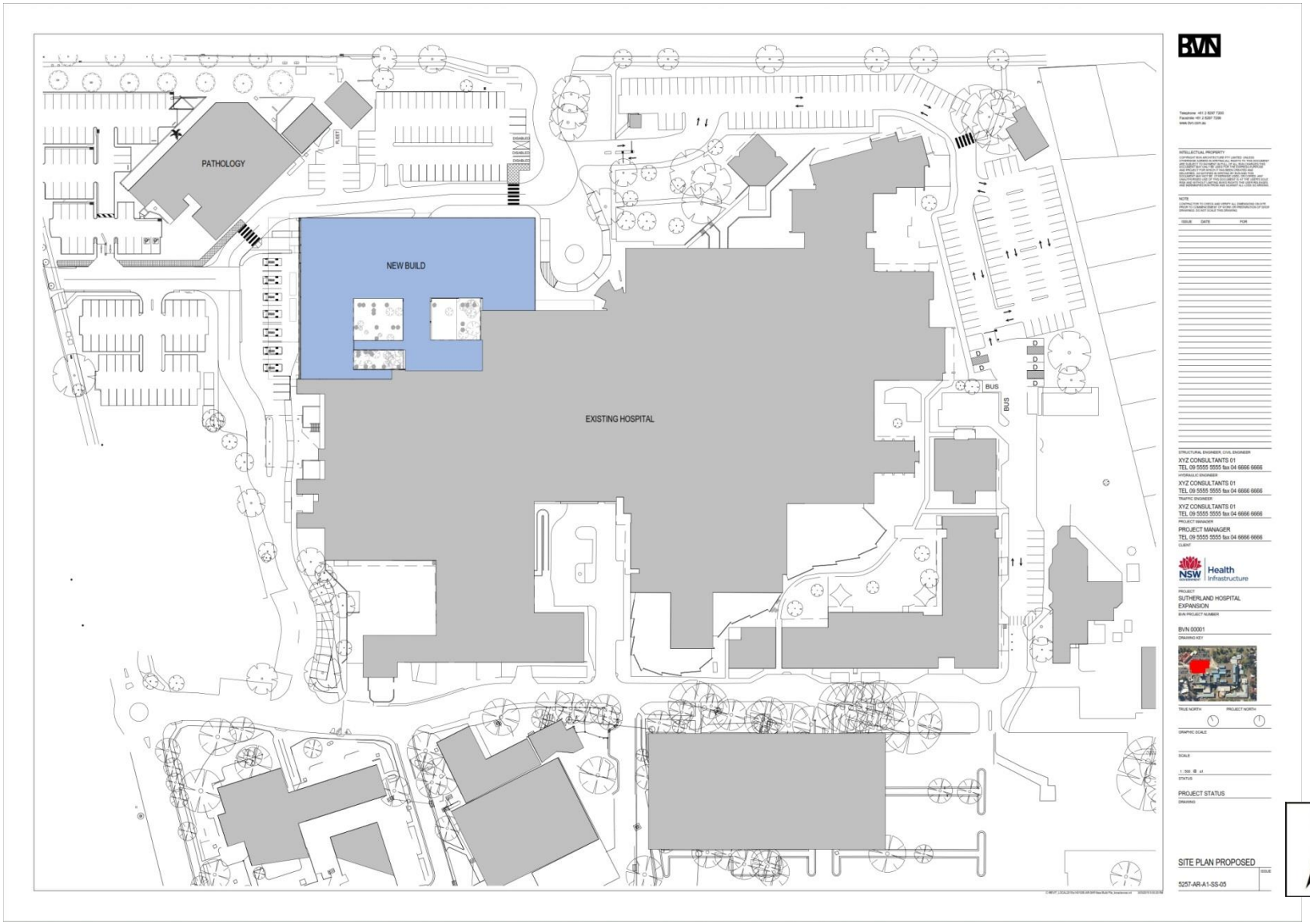


Figure 4: Western side of Sutherland Hospital (proposed building highlighted in blue). Source Health Infrastructure, NSW. 2015.



1.3 Objectives of the Assessment

The objective of the assessment is to meet the requirements of the Secretary's Environmental Assessment Requirements (SEARs). In accordance with the SEARs Artefact Heritage has conducted an Aboriginal Cultural Assessment in order to document and assess both Aboriginal cultural heritage and any impacts within the study area. This assessment was conducted in accordance with the Office of Environment and Heritage (OEH) *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW and Community Consultation* (DEC 2011) and *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010). The main objectives of this study include providing:

- A description of the extent of the study area.
- Discussion of the environmental context of the study area.
- Discussion of the Aboriginal historical context of the study area.
- A summary of the archaeological context of the study area including a discussion of previous archaeological work in the area.
- Development of an archaeological predictive model.
- Description and analysis of Aboriginal sites located within the study area.
- Development of recommendations for whether further archaeological investigation is necessary.

1.4 Aboriginal Consultation

The study area is within the boundary of La Perouse Local Aboriginal Land Council (LPLALC). A representative was invited from the LPLALC to attend the survey; however at the time of the survey, no representatives were available.

A draft version of this document was forwarded to LPLALC for review and comment on 4 March 2015. No comments or recommendations were received from LPLALC.

1.5 Investigator and Contributions

Archaeologist Andrew Crisp prepared this report with management input and revision from Principal Archaeologist Dr Sandra Wallace.

2 LEGISLATIVE CONTEXT

National Parks and Wildlife Act (1974) (NPW Act)

The NPW Act, administered by the OEH provides statutory protection for all Aboriginal 'objects' (consisting of any material evidence of the Aboriginal occupation of NSW) under Section 90 of the Act, and for 'Aboriginal Places' (areas of cultural significance to the Aboriginal community) under Section 84.

The protection provided to Aboriginal objects applies irrespective of the level of their significance or issues of land tenure. However, areas are only gazetted as Aboriginal Places if the Minister is satisfied that sufficient evidence exists to demonstrate that the location was and/or is, of special significance to Aboriginal culture.

The NPW Act was amended in 2010 and as a result the legislative structure for seeking permission to impact on heritage items has changed. A Section 90 permit is now the only Aboriginal Heritage Impact Permit (AHIP) available and is granted by the OEH. Various factors are considered by OEH in the AHIP application process, such as site significance, Aboriginal consultation requirements, ESD principles, project justification and consideration of alternatives. The penalties and fines for damaging or defacing an Aboriginal object have also increased.

As this project is being assessed under Part 4 Division 4.1 of the EP&A Act 1979 permits issued under the NPW Act 1974 are not required.

Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (2010) (Due Diligence Code of Practice)

The Code of Practice was introduced in October 2010 by the OEH (formerly the Department of Environment, Climate Change and Water). The aim of the guidelines is to assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for consent in the form of an AHIP.

A due diligence assessment should take reasonable and practicable steps to ascertain whether there is a likelihood that Aboriginal sites will be disturbed or impacted during the proposed development. If it is assessed that sites exist or have a likelihood of existing within the development area and may be impacted by the proposed development, further archaeological investigations may be required along with an AHIP. If it is found to be unlikely that Aboriginal sites exist within the study area and the due diligence assessment has been conducted according to the Code of Practice, work may proceed without an AHIP.

As this project is being assessed under Part 4, Division 4.1 of the EP&A Act, it is not required to use the Due Diligence Code of Practice. However the Due Diligence Code of Practice has been used in the context of best practice to inform and structure the current study.

Environmental Planning & Assessment Act (1979) (EP&A Act)

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

Planning decisions within LGAs are guided by LEPs. Each LGA is required to develop and maintain an LEP that includes Aboriginal and historical heritage items which are protected under the EP&A Act 1979 and the *Heritage Act 1977.*

The study area is within the Sutherland Shire Council LGA.

The Sutherland Shire LEP 2006 (Part 3, Clause 54) makes standard provision for the protection of Aboriginal objects and Aboriginal places of heritage significance. There are no Aboriginal items within the study area that are listed in the Sutherland Shire LEP 2006.

The proposal will be assessed under Part 4, Division 4.1 of the EP&A Act, which establishes an assessment and approval regime for State Significant Development (SSD). Part 4, Division 4.1 applies to development that is declared to be SSD by a State Environmental Planning Policy (SEPP). Section 89J of the EP&A Act specifies that approvals or permits under section 90 of the NPW Act 1974 are not required for approved SSD projects. This assessment was conducted in accordance with the SEARs, which stipulates that where relevant an assessment should follow the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW and Community Consultation* (DEC 2011) and *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010). (For more detail on SEARs refer to Section1.4 above).

Aboriginal Land Rights Act (1983)

The *Aboriginal Land Rights Act 1983* is administered by the NSW Department of Human Services - Aboriginal Affairs. This Act established Aboriginal Land Councils (at State and Local levels). These bodies have a statutory obligation under the Act to; (a) take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law, and (b) promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area.

Native Title Act (1994)

The *Native Title Act 1994* was introduced to work in conjunction with the Commonwealth Native Title Act. Native Title claims, registers and Indigenous Land Use Agreements are administered under the Act.

3 ENVIRONMENTAL AND HISTORICAL CONTEXT

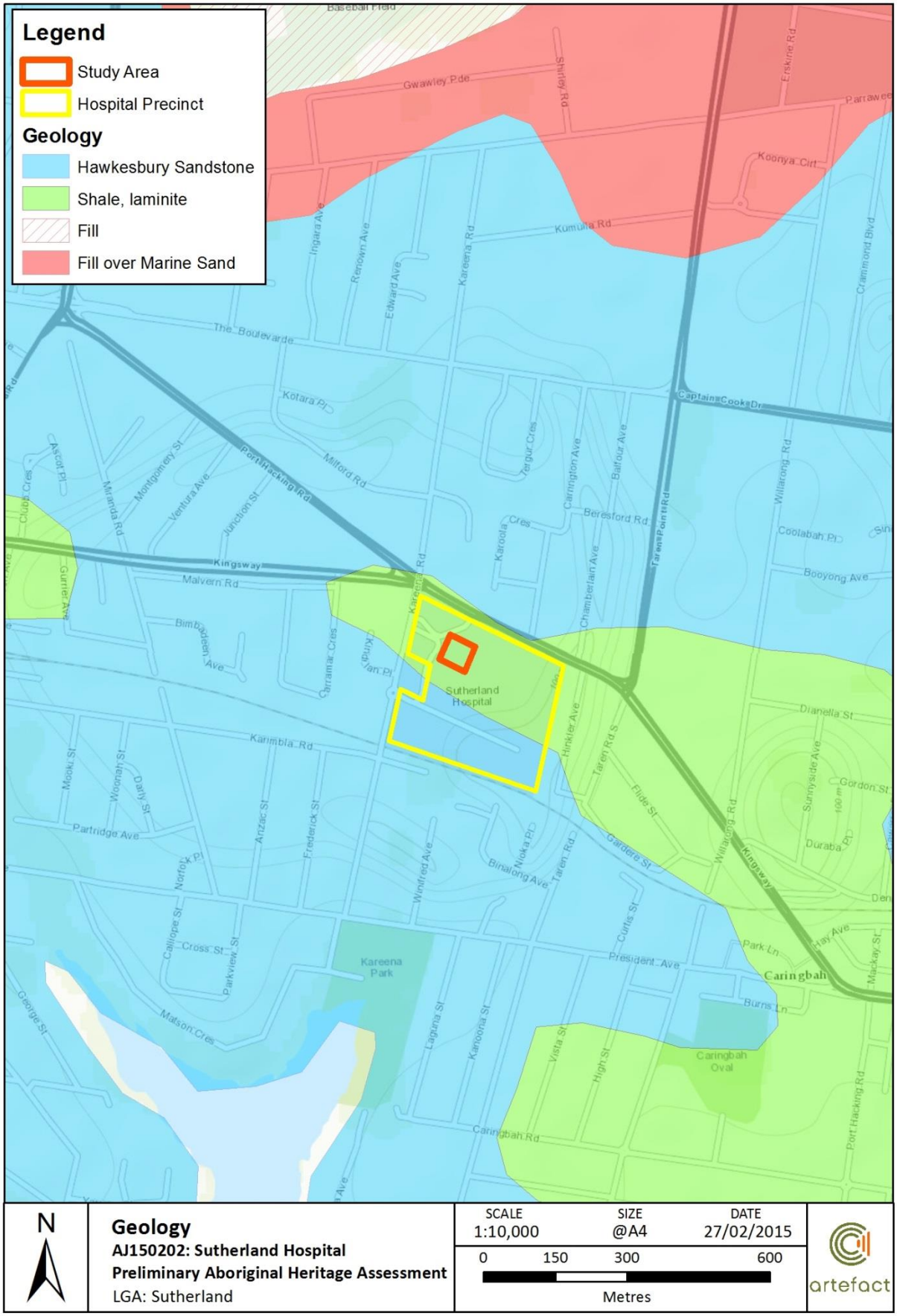
3.1 Landform and Geology

Soils across the study area consist of the Gymea and Blacktown soil landscape (OEH 2015). The Gymea soils are shallow to moderately deep (30-100cm) yellow earths and earthy sands on crests, siliceous sands on benches, and leached sands along drainage lines. The Blacktown soils are shallow to moderately deep (>100 cm) hard-setting mottled texture contrast soils, red and brown podzolic soils on crests grading to yellow podzolic soils on lower slopes and in drainage lines.

The geology underlying the Hospital precinct consists of the Hawkesbury Sandstone and Shale laminate formation (Figure 6). Hawkesbury Sandstone underlies the southern half of Sutherland Hospital and is characterised by medium to coarse-grained quartz sandstone, very minor shale and laminate lenses. The Shale laminate deposit underlies the northern half of Sutherland hospital and is characterised by claystone, siltstone, and laminite (“shale lenses”) (NSW Department of Resources 1985).

The local topography consists of undulating to rolling rises and low hills on Hawkesbury Sandstone. Local relief 20-80 metres, slopes 10-25 per cent. Broad convex crests, moderately inclined side slopes with wide benches, localised rock outcrops on low broken scarps. The sandstone foreshores along the Hacking and Georges rivers have weathered into overhangs that allowed for Aboriginal inhabitants of the region to take shelter from the elements and carry out various activities including but limited to sleeping, eating, camping and sometimes burial. These rocky foreshores are often fringed by mud and sand flats.

Figure 5: Geology of the study area.



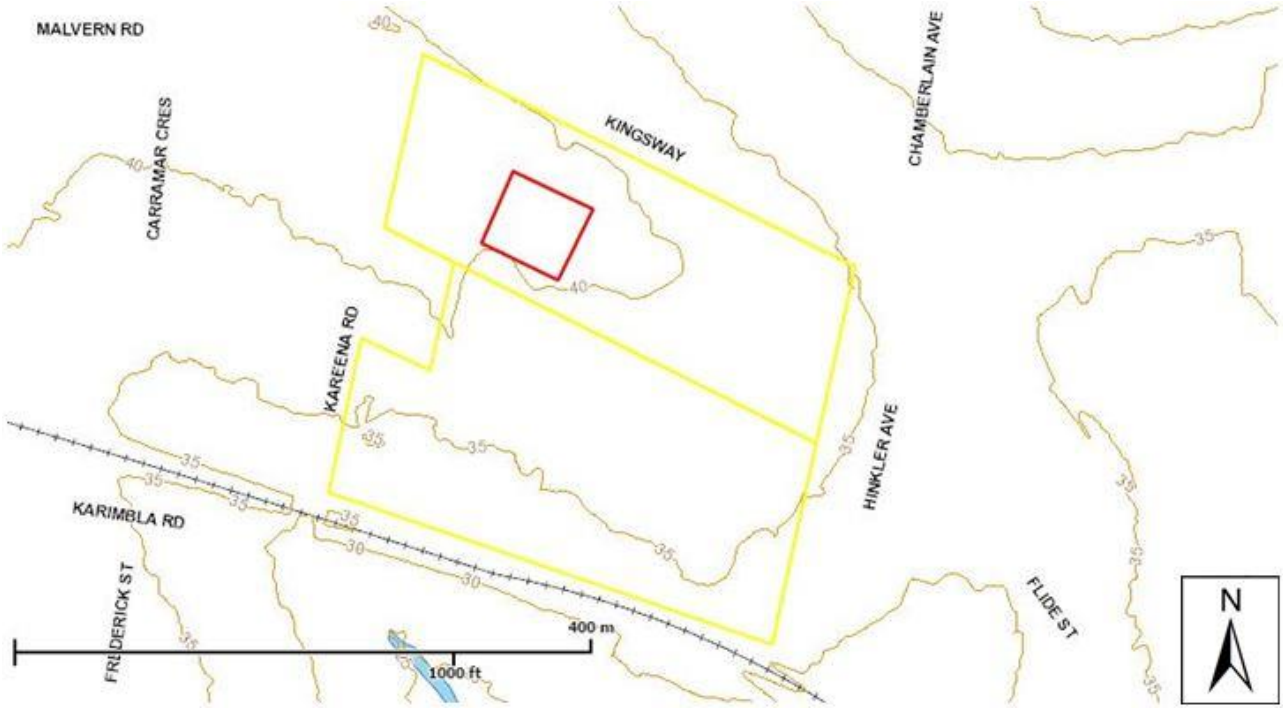
3.2 Hydrology

The study area is situated on a broad high crest that slopes south toward Yowie Bay and into the Hacking River catchment and gently to the north toward the Georges River catchment.

The Hacking River has cut a course through foreshores of Triassic Hawkesbury sandstone formations which rise to steep escarpments around the multiple headlands along its course. The meandering tributaries leading to the river from the west converge south of the suburb of Grays Point and then snake westwards as the Hacking River. The heads of the Hacking River are found between Cronulla to the north and Bundeena to the south.

The Georges River rises on the western slopes of the Illawarra range south of Appin and meanders for 96 kilometres to Botany Bay where the river mouth is adjacent to Dolls Point (Lawrence et al, 1999, p 121). Tributaries that converge into the Georges River and the wider catchment include but are not limited to: Prospect Creek, Williams Creek, Yeramba Lagoon, Salt Pan Creek, Little Salt Pan Creek, Woronora River, Forbes Creek and Boggywell Creek (Dallas 2004, p 16).

Figure 6: Land contours within the Sutherland Hospital grounds (yellow) and the study area (red). Source. Sutherland Council.



3.3 Natural Resources

The vegetation within the study area would have originally comprised a combination of Sydney Coastal Dry Sclerophyll Forest and Sydney Coastal Heaths (Keith 2004). The Sydney Dry Sclerophyll Forest grows on sandstone landscapes in areas below 700 metres elevation, where average rainfall varies from 1000 to 1300 millimetres (Keith 2004:146). This vegetation type encompasses a wide range of related forest and woodland communities. The eucalypt canopy includes Sydney red gum, red bloodwood and Sydney peppermint, brown stringybark, broadleaved scribbly gum and old man banksia (Keith 2004:146). The prominent and diverse sclerophyll shrub understory is shorter and more open on ridges than in gullies, while the open ground layer is dominated by sclerophyll sedges.

The region surrounding the study area would have provided an abundance of native animals Mammals such as kangaroos and wallabies and arboreal mammals such as possums can be used as a food source and also for tool making. For example, tail sinews are known to have been used as a fastening cord, whilst 'bone points' which would have functioned as awls or piercers are an often abundant part of the archaeological record (Attenbrow 2010:118). Ethnographic observations of early European settlers noted that Aboriginal people used a variety of animal parts; claws, talons, bone, skin, teeth, shell, fur and feathers for a variety of tools and non-utilitarian functions. The nearby coastline would have provided an abundance of marine resources, including eels, fish, shellfish and birds. In summary, the study area would have provided a variety of resource and suitable climatic conditions for year round occupation by traditional Aboriginal groups inhabiting the area.

Aboriginal communities living within the Sutherland Shire would have had access to an abundance of food resources. Central to their diets would have been the resources gathered from the estuarine and freshwater Georges and Hacking Rivers along with their associated tributaries. Archaeological deposits from middens in the area have shown that species consumed by local Aboriginal groups were snapper and bream, along with to a lesser extent, flathead, whiting, groper, mulloway, wrasse, and leatherjacket (Turbet, 2001: 31; Attenbrow, 2002:65). Midden excavations near the Georges River reveal that a variety of shellfish and crustacean were procured and utilised by local Aboriginal groups, these included rock oysters, mud oysters, cockles, mussels, spiny oysters, winks, chamas and horned shells, abalone, limpets, Hercules whelks, periwinkles, nerites and pippies.

The diets of Aboriginal communities in this region would not have been limited to sea or river foods, as animal bones recorded in middens in the Royal National Park and at Mill Creek include food species including bandicoot, possum, wallaby, potoroo, water rat, snake, skink and lizard (Turbet, 2001: 32). Smaller animals, insects, seeds, berries and fruits were collected to supplement the protein rich meats and would have enabled a varied diet to be maintained (Dallas, 2004:41).

3.4 Historical Context

The territory that was to become the modern day Sutherland Shire was separated from The Sydney/St George District by the Georges River and Botany Bay. This physical barrier combined with tense relations between the Aboriginal peoples of the region and white settlers significantly hindered the expansion of settlement south of the Georges River (Larkin, 1998:10).

The first landowner in the shire was Captain James Birnie who established 'Alpha' farm on his 'promised' Portion 1 of 700 acres on the Kurnell Peninsula. Grant by promise was the usual way of acquiring land prior to 1830 in the colony. In order to promote farming by emancipated convicts and others in these early years post-settlement, the Governor promised a certain number of acres to an individual. To actually gain a deed of title on any 'promise' the land had to be surveyed under the direction of the Surveyor General.

The study area originally belonged to two individuals prominent in the early years of settlement in the Sutherland Shire. As can be seen in the historic parish map below (Figure 7) the northern half of the study area was part of a parcel of land promised to Gregory Blaxland.

> *"Blaxland was promised a grant in the Wollongong area but, as he wished to have land nearer Sydney, Blaxland sold this promise to John Connell Junior, who selected land in the Miranda area. The land remained in Blaxland's name until the area had been surveyed and title granted to Connell in 1834"* (Hutton Neve 2000, p. 2)

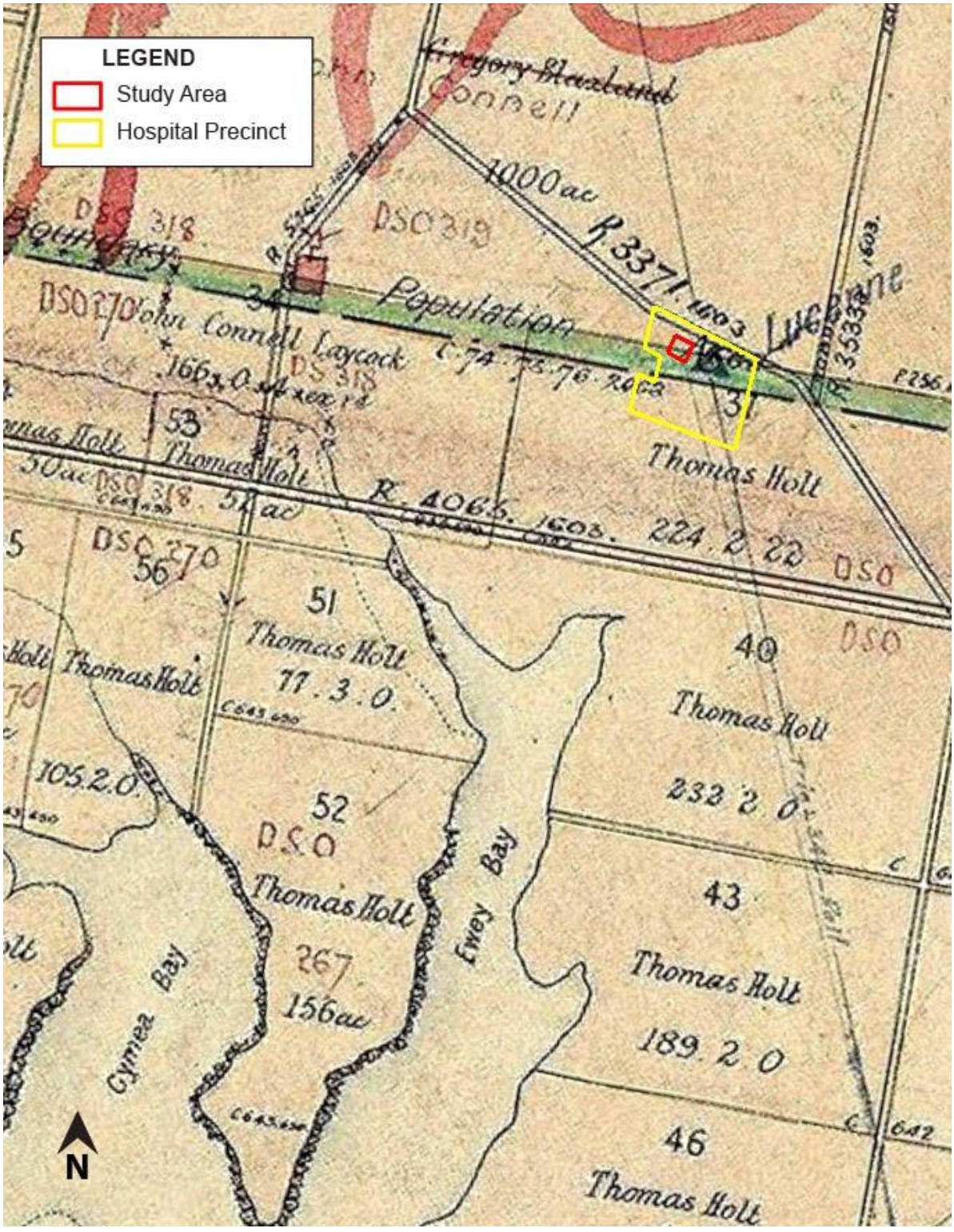
John Connell Junior's land abutted land to the south belonging to the Hon. Thomas Holt, who will be discussed in greater detail below.

1856 saw the first release of land for sale by the Crown within the Sutherland Shire. John Connell Junior purchased several large parcels of property in the Caringbah/Burraneer Bay areas. His nephew John Connell Laycock did the same. 1860 saw the beginning of Thomas Holt's era in the Sutherland Shire following the bankruptcy of John Connell Laycock after his purchase of an extensive portfolio in Sydney, Sutherland, Liverpool and Queensland. Thomas Holt purchased Laycock's entire 4600 acre holding for £3275 (Larkin, 1998, p 10; Curby 1998, p 9). Thomas Holt (1811-1888) arrived in Sydney on the Helvellyn in 1842 and swiftly became a leading figure in Sydney's commercial and public life. Following the release of Crown land in the Sutherland Shire Holt purchased not only from the Crown but also from private owners and 12,000 acre "estate extending from Botany Bay to Port Hacking and including James Cook's landing place where he erected an obelisk in the centenary year.

> *"He also tried to raise sheep on pastures sown with imported grass and then cattle, scientific oyster-farming, timber-getting and coal-mining, each without success. He campaigned for the damming of George's River to supply Sydney with water but the government rejected his scheme" (*Australian Dictionary of Biography, Volume 4, (MUP), 1972).

Thomas Holt's vast estate began to be subdivided around 1900 and these smaller parcels were commonly used to grow fruit or raise poultry. Prior to the First World War Caringbah had been known as Highfield. The establishment of the 'Caringbah' Post Office in 1912 and the continual use of that name by the residents effectively displaced that of Highfield to become the suburb's name (Hutton Neve 2000, p 9).

Figure 7: Undated parish map of Sutherland (post-1861) shows the study area located on the boundary of land belonging to John Connell Jnr and Thomas Holt.



Newspaper articles from the 1940's and 1950's illustrate clearly that local constituents saw a dire need for a Sutherland District Hospital. In 1949 a representative committee of Sutherland citizens launched a publicity campaign to lobby the the Government and Hospitals Commission to build a hospital in Sutherland (*The Sunday Herald*, 6 February 1949, p 6). The campaign included kites flying the message "*We Want a Hospital!*", publicity through radio, newspapers, theatre slides and newsreels, along with pamphlets with space for signatures that would be presented to the Minister for Health or the Premier. The initial move by the citizen's committee was to erect billboards along roadsides within the Sutherland are that read*: "Drive carefully, we have no hospital in this Shire"*.

Shortage of resources, such as steel, in the post-war period caused delays in the construction of NSW hospitals. In 1952 an article state that the Hospital Commission told contractors that severe cuts were imminent. According to the article a contractor who had intended starting the foundations of Sutherland Hospital was told not to begin work (*The Sydney Morning Herald*, Saturday 28 June 1952, p 1). The work of local groups and community organisations contributed to maintaining the pressure on the State Government to construct much needed medical facilities throughout New South Wales. The 1952 Annual Hospital Auxiliaries Conference saw *continued protests at the delay in construction of hospitals throughout the State, especially Sutherland Shire District Hospital* (The Land, Friday 24 October 1952, p 34-35).

Despite all the set-backs and delays 3 September 1955 saw the laying of the foundation stone by New South Wales Premier Cahill. Construction on the hospital continued for three years (Plate) and was opened to the public on the 2 April 1958 (Plate 2). Numerous additions were made to the original four storey bow-tie hospital design throughout the following decades. By the early 2000s the building had become stretched beyond its means and the necessity of new hospital facilities saw the construction of the contemporary hospital on land behind original building. Shortly after the completion of the new hospital in 2004 the original structure (within the study area) was demolished.

Plate 1: Construction of Sutherland Hospital - 20 August 1957. Source. Ken Redshaw (State Library of NSW).

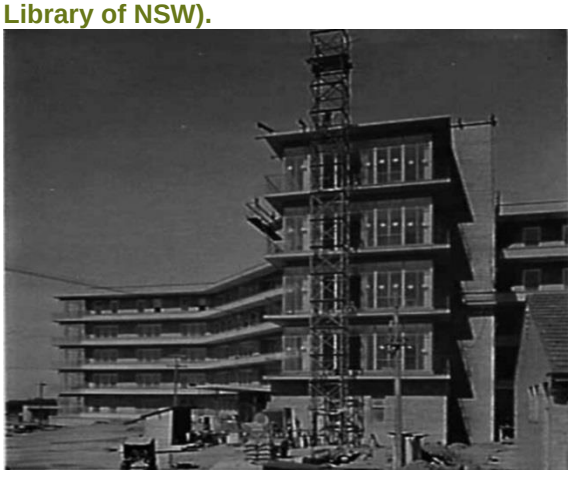


Plate 2: Completed Sutherland Hospital (view over study area from the west) - 11 April 1958. Source. State Library of NSW.

3.5 Land Use History

Aerial photographs of the study area below were obtained from Sutherland Shire Council archives from 1930 to 2014 to give a visual account of the land use. These photographs are summarised in Table 1 below.

Table 1: Summary of Land Use within the Study Area.

Year	Description
1930 (Figure 8)	The aerial shows that the study area had been cleared of vegetation as part of a small acreage farm and is covered in short pasture grass. The layout of the major roads near the study area is already in place. A small foot track passes across the study area.
1943 (Figure 9)	The aerial shows that the study area remained devoid of vegetation. There is evidence to suggest moderate erosion had taken place with small tracks criss-crossing the wider property.
1955 (Figure 10)	Construction of the original hospital complex can be seen to be almost completed in this aerial image. The west wing of the hospital is situated over the study area with significant disturbance noted throughout the remainder of the study area.
1961 (Figure 11)	The original hospital complex had been completed and opening by 1958, the aerial shows that the impact footprint of the complex covered at least half of the study area with the remainder occupied by landscaped garden beds and a large driveway.
1984 (Figure 12)	Extensions to the west wing of the hospital had appeared by 1984 (the emergency department), covering 85% of the study area with high density structures. The remainder was covered by asphalt driveway.
1994 (Figure 13)	The study area changed little in the years between 1984 and 1994.
2001 (Figure 14)	The wider Sutherland Hospital precinct at this point is in the process of demolition in preparation for the construction of the current configuration of Sutherland Hospital to the southwest of the study area.
2006 (Figure 15)	By 2006 the 1950's hospital building and subsequent additions found within the study area had been demolished and replaced with the current configuration of carparks, driveway and landscaped garden beds.

Figure 8: 1930 Aerial Image of the Study Area. Source. Sutherland Council.

Figure 9: 1943 Aerial Image of the Study Area. Source. Sutherland Council.

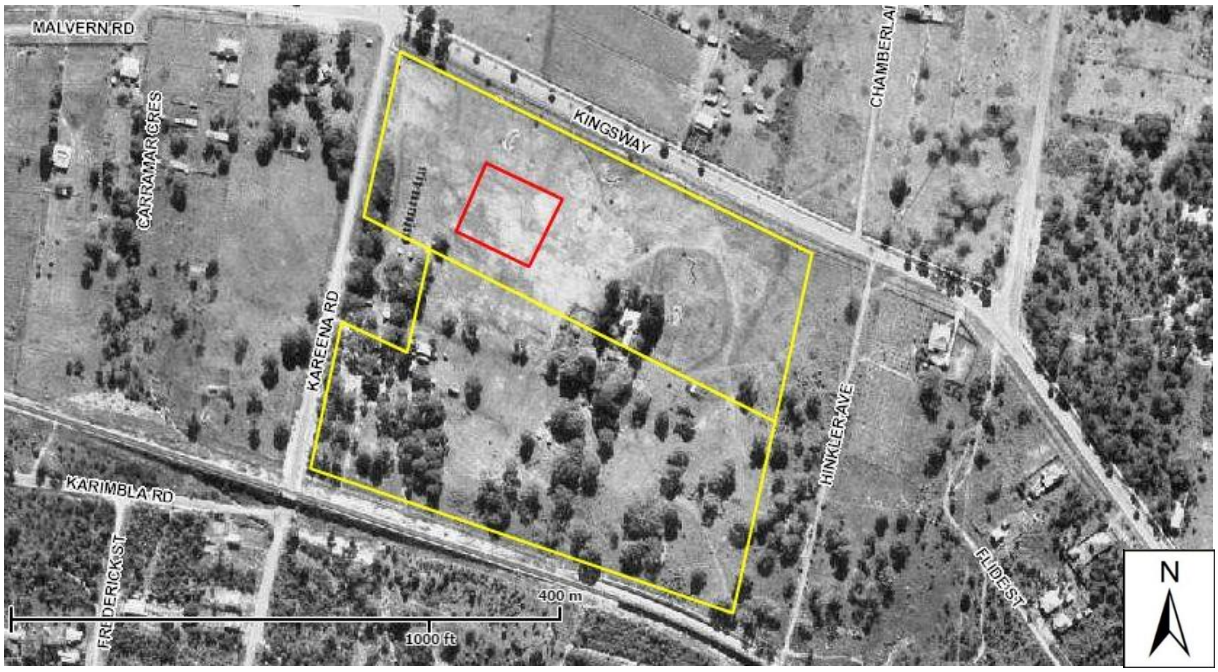


Figure 10: 1955 Aerial Image of the Study Area. Source. Sutherland Council.

Figure 11: 1961 Aerial Image of the Study Area. Source. Sutherland Council.

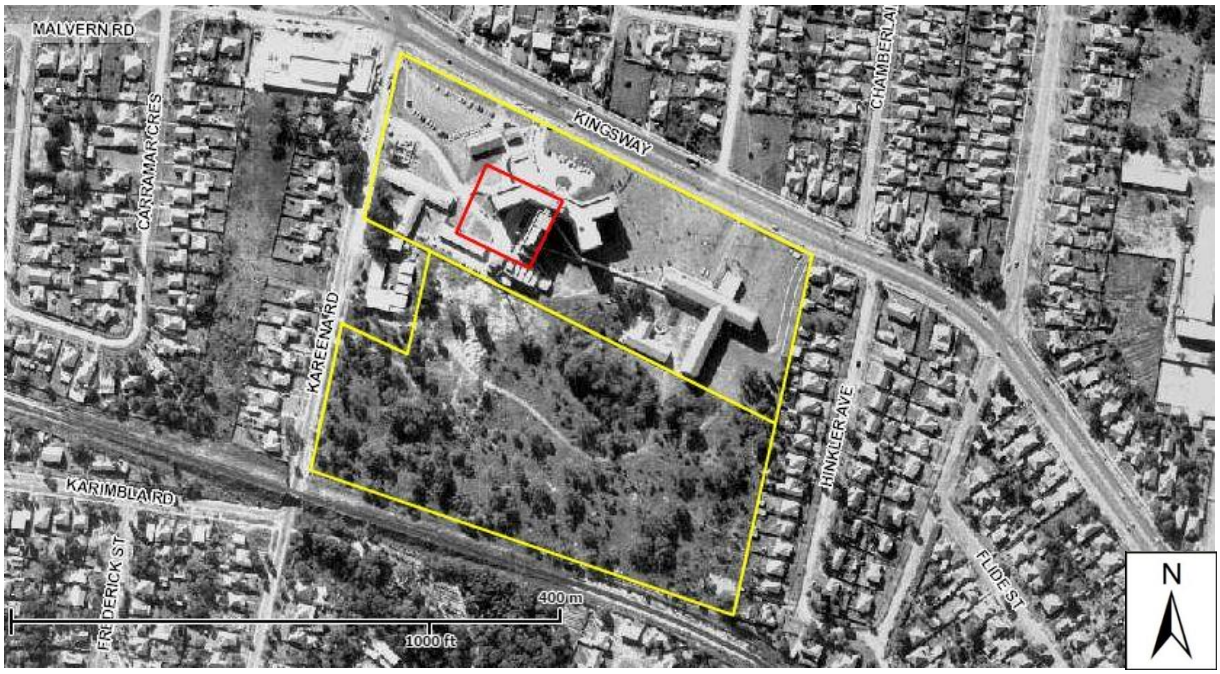


Figure 12: 1984 Aerial Image of the Study Area. Source. Sutherland Council.

Figure 13: 1994 Aerial Image of the Study Area. Source. Sutherland Council.

Figure 14: 2001 Aerial Image of the Study Area. Source. Sutherland Council.

Figure 15: 2006 Aerial Image of the Study Area. Source. Sutherland Council.

4 ABORIGINAL HISTORICAL AND ARCHAEOLOGICAL CONTEXT

4.1 Aboriginal Material Culture

The existing archaeological record is limited to certain materials and objects that were able to withstand degradation and decay. As a result, the most common type of Aboriginal objects remaining in the archaeological record are stone artefacts. Archaeological analyses of these artefacts in their contexts have provided the basis for the interpretation of change in material culture over time. Technologies used for making tools changed, along with preference of raw material. Different types of tools appeared at certain times, for example ground stone hatchets are first observed in the archaeological record around 4,000yBP (years before present) in the Sydney region (Attenbrow 2010:102). It has been argued that these changes in material culture were an indication of changes in social organisation and behaviour.

The Eastern Regional Sequence was first developed by McCarthy in 1948 to explain the typological differences he was seeing in stone tool technology in different stratigraphic levels during excavations such as Lapstone Creek near the foot of the Blue Mountains (McCarthy 1948). The sequence had three phases that corresponded to different technologies and tool types (the Capertian, Bondaian and Eloueran). The categories have been refined through the interpretation of further excavation data and radiocarbon dates (Hiscock & Attenbrow 2005, JMcDCHM 2005). It is now thought that prior to 8,500 yBP tool technology remained fairly static with a preference for silicified tuff, quartz and some unheated silcrete. Bipolar flaking was rare with unifacial flaking predominant. No backed artefacts have been found of this antiquity. After 8,500 yBP silcrete was more dominant as a raw material, and bifacial flaking became the most common technique for tool manufacture. From about 4,000yBP to 1,000yBP backed artefacts appear more frequently. Tool manufacture techniques become more complex and bipolar flaking increases (JMcDCHM 2006). It has been argued that from 1,400 to 1,000 years before contact there is evidence of a decline in tool manufacture. This reduction may be the result of decreased tool making, an increase in the use of organic materials, changes in the way tools were made, or changes in what types of tools were preferred (Attenbrow 2010:102). The reduction in evidence coincides with the reduction in frequency of backed blades as a percentage of the assemblage.

4.2 Aboriginal Histories of the Locality

Prior to the appropriation of their land by Europeans, Aboriginal people lived in small family or clan groups that were associated with particular territories or places. It seems that territorial boundaries were fairly fluid, although details are not known. There is debate about the nature, territory and range of pre-contact language groups of the Sydney region due to the serious impacts European settlement had on Aboriginal culture.

It is widely accepted that the Aboriginal people who inhabited the territory that would later become the Sutherland Shire belonged to two main language groups, Dharawal and Gandangarra. The Dharawal language group appears to have once extended from Kurnell to Nowra in the south, and west to Camden (Dallas 2004). The southern area of the Cumberland Plain, west of the Georges River, and to the southern Blue Mountains is believed to have been the territory in which the Gandangarra language was spoken. The language groups that abutted these territories were the Darug to the north and the Yuin to the south.

4.3 Registered Aboriginal sites in the local area – AHIMS search results

An extensive search of the Aboriginal Heritage Information System (AHIMS) database was undertaken on the 12 February 2015.

An area within a two kilometre radius of the study area was searched in order to gain information on the archaeological context of the area, and to ascertain whether there are any previously recorded Aboriginal sites within the study area. The details of the AHIMS search parameters are as follows:

GDA 1994 MGA 56	323849 - 327873, 6230108 - 6234147,
Buffer	50 m
Number of sites	17
AHIMS Search ID	162253

A total of seventeen sites were identified by the extensive AHIMS search. The frequency of recorded site types is summarised in Table 2 below. The distribution of recorded sites within the AHIMS search area is shown in Table 1 below.

Table 2: Frequency of site features from AHIMS data

Site Features	Frequency	Percentage
Art (Pigment or Engraved), Shell	1	5.9
Artefact	3	17.6
Artefact, Shell	4	23.5
Artefact, Shell, Burial	1	5.9
Grinding Groove	1	5.9
Habitation Structure, Shell	1	5.9
Potential Archaeological Deposit (PAD)	3	17.6
Potential Archaeological Deposit (PAD), Shell	1	5.9
Shell	2	11.8

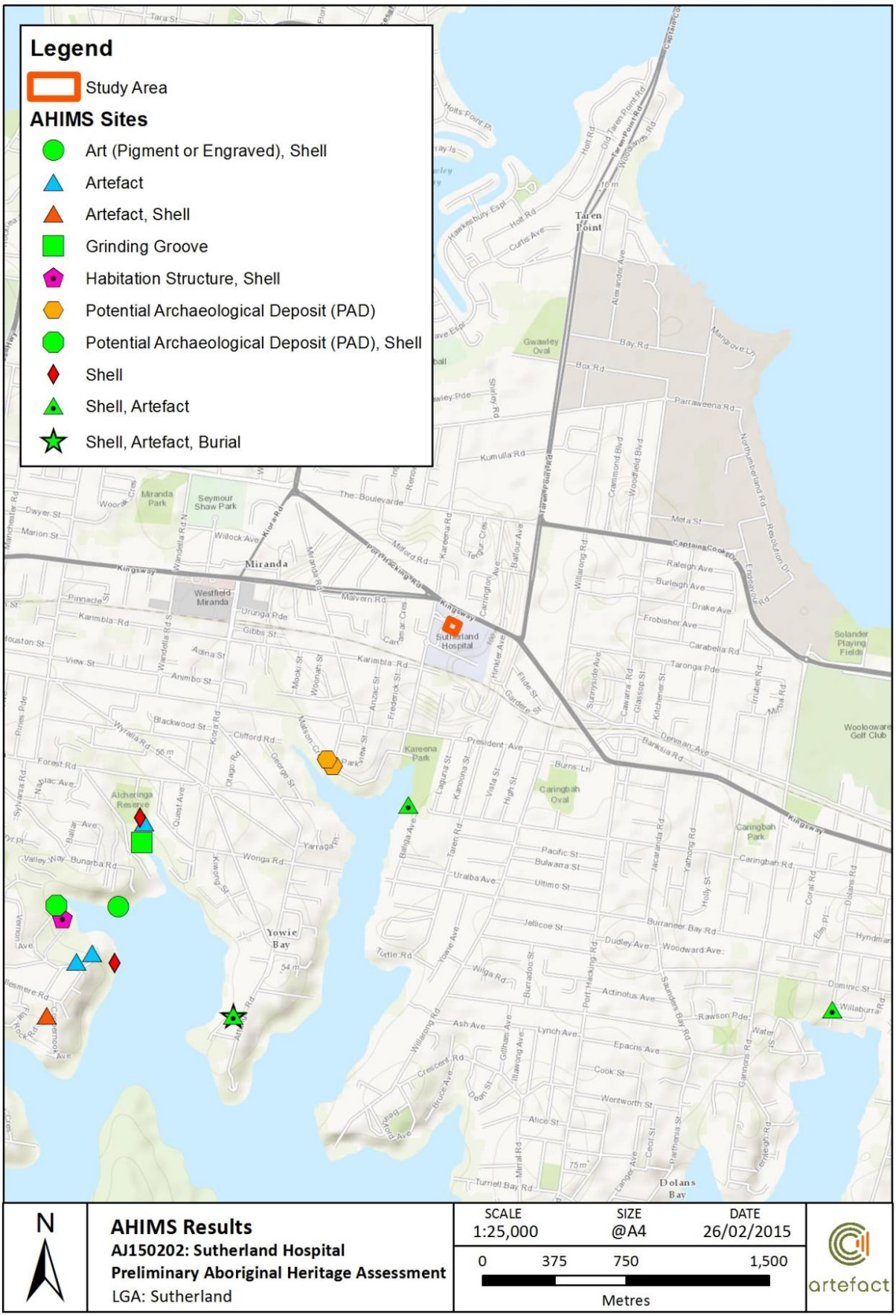
The AHIMS search results reveal that seven of site types in the area are rock shelters: Shelter with midden (n=3, 17.6%), Shelter with midden/Burial(s) (n=1, 5.9%) and Shelter with deposit (n=3, 17.6%). Rock shelters within the region were associated with a number of different features, including: Artefact, Shell (n=3, 17.6%), Shell, Artefact, Burial (n=1, 5.9%), Artefact (n=3, 17.6%). The majority of sites were recorded in close proximity to tributaries of the Port Hacking catchment to the south of the study area; which is related to the sloping, sandstone geological unit which provides natural rock shelters, over hangs, and niches.

There is a particularly high density of sites around Gymea Bay two kilometres to the south west of the study area with nine sites nestled around the fringe of the small bay and three further sites located along Alcheringa Creek which drains into the bay from the north.

The four closest registered sites to the study area are located almost a kilometre away along the sandstone shoreline of Yowie Bay. There is a cluster of three sites recorded by Mary Dallas that are Potential Archaeological Deposits (PADs). These three are located on Matson Crescent on the northern shoreline of the western fork of Yowie Bay. The other site, recorded as a Shelter with Midden is located within Kareena Park on the western shore of Yowie Bay (Figure 16 below).

The overall spatial patterning of sites indicate that most sites are situated outside of the developed areas; located within surrounding bushland and relatively under-developed local reserves with particular focus towards waterways and coastlines.

Figure 16: Results of AHIMS search.



4.4 Previous Archaeological Investigations

Two detailed studies conducted by Mary Dallas Consulting Archaeologists (2002; 2004) on behalf of the Sutherland Shire Council provide context for this study. A brief synopsis of each is given below:

Mary Dallas Consulting Archaeologists (2002) conducted a cultural heritage study of the Sutherland Shire Council LGA focusing on the Port Hacking Catchment (excluding Royal National Park but including Maianbar and Bundeena) and the Kurnell Peninsula to inform future planning and development control processes. The study provides a historical outline for the area, a current state of knowledge about Aboriginal archaeological sites in the district in order to produce Archaeological Sensitivity Maps for the Kurnell Peninsula and Port Hacking.

Mary Dallas Consulting Archaeologists (2004) was engaged by Sutherland Shire Council to inform future land planning and development control processes and to ensure ongoing protection and management of Aboriginal places. Focus of this study is on the western portion of the Sutherland Shire and aims to compliment the previous 2002 study (above) which covered the eastern portion within the Port Hacking catchment.

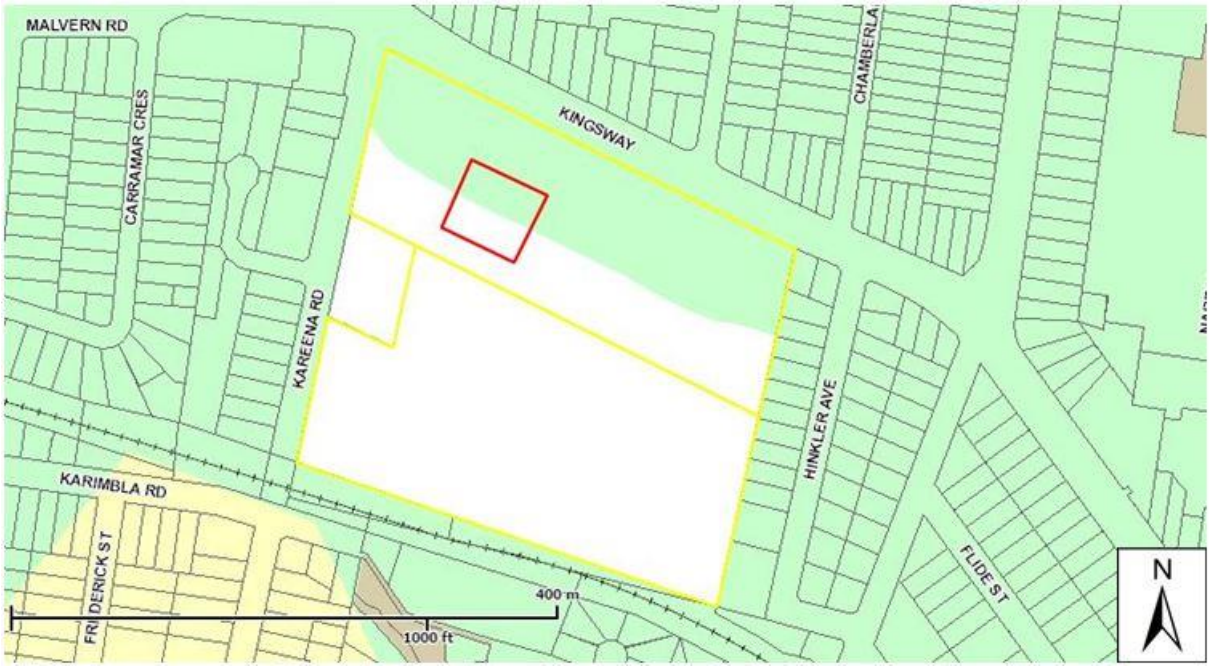
4.5 Sutherland Shire Council Archaeological Potential

Sutherland Shire Council has generated online mapping of Aboriginal archaeological sensitivity, which identified where Aboriginal sites are more likely to be present (SHC 2014: Online). The areas have been divided into four categories:

- **High Archaeological sensitivity (brown)** areas are generally along the foreshore and rivers/creeks. These are the areas where there is the greatest probability of an Aboriginal object being identified.
- **Medium Archaeological sensitivity (yellow)** areas are areas where there is some probability of an Aboriginal object being identified.
- **Low Archaeological sensitivity (green)** areas are areas where this is a low probability of an Aboriginal object being identified.
- **Disturbed land (white)** is generally urbanized, industrialized areas which have been highly disturbed and there is no original land surface or subsurface.

The study area is situated in a small pocket of highly disturbed land (white) within a broader landscape of low archaeological potential (green) (Figure 17).

Figure 17: Archaeological sensitivity within study area. Source. Sutherland Shire Council.



5 PREDICTIONS

Predictive modelling informs an assessment of the archaeological potential of an area by drawing on the results of previous archaeological investigations from geographically and temporally comparable sites. This section will outline Aboriginal land use and the site types generally encountered before detailing previous predictive models and forming a predictive model for the study area.

5.1 Aboriginal Land Use

Assumptions about Aboriginal land use patterns are made on the basis of archaeological information gained from the local area, from observations made by Europeans after settlement of the area, and from information known about available natural resources.

The ethno-historical information indicates that the two main language groups were associated with the study area at the time of European settlement. Those two groups being The Dharawal (also referred to as Turawal, Thurruwal and Thur'ruwal) language group which appears to have extended from Kurnell to Nowra in the South, and as far west as Camden and Gandangara language group is believed to have been spoken about the southern area of the Cumberland Plain, west of the Georges River, and in the southern Blue Mountains (Dallas 2004).

Numerous freshwater sources and estuarine environments are located within the Sutherland Shire and would have provided an abundance of resources for the local Aboriginal population to exploit. Rock shelter and shell midden assemblages have been previously recorded in the local region, providing evidence for Aboriginal occupation.

Archaeological data gathered in the locality suggests that Aboriginal sites would be found across the landscape; with concentrations expected in close proximity to water sources, located on slopes within the sandstone geological unit. The main limitations to the survivability of archaeological material in the study area include the impacts of extensive land clearing associated with logging activity and the later construction of Sutherland Hospital (early 1950s- present).

Underlying the uppermost reaches of creeks leading to the Port Hacking River, which includes the study area, is the Wiannamatta Group of shales. There is a band of these shales running through Sutherland Shire from Engadine in the west to Cronulla on the coast. The archaeological potential for this geological unit has been severely compromised due to extensive development for housing and industry (Dallas 2002, p 30). The likely site types within these locations, according to Dallas, are open scatters of stone artefacts or scarred trees, yet these are unlikely to have survived the intense development within these suburbs except in public reserves.

5.2 Site Types

Material traces of Aboriginal occupation exist throughout the landscape and are known as Aboriginal sites. The primary site types that are found in the region are as follows:

- Stone artefacts – Flaked and ground stone artefacts are the most common trace of Aboriginal occupation in the region. Aboriginal people used particular techniques to flake stone and these changed over time. The approximate age of a tool can often be diagnosed by the way that it was made. Stone artefacts are most often found in scatters that may indicate an Aboriginal campsite was once present. Stone artefacts may also be found as isolated finds. Stone tools in the region are most often made from raw materials known as silcrete, tuff and quartz. These are all easily flaked and form sharp edges, which can be used for cutting or

barbing spears. It is possible that stone artefacts, either on the surface, or buried, exist within the study area.

- Rock shelters (and associated deposits) – Rock shelters were used by Aboriginal people for habitation, rest places and as art or ceremonial sites. Deposits can build up on the floor of these shelters over time and bury traces of Aboriginal occupation. If these deposits are not disturbed, rock shelters can provide an intact stratigraphy that can tell us about the way Aboriginal occupation changed through time. Due to the impact to the ground surface within the study area, there is extremely low potential for rock shelters to be present; this is bolstered by the lack of sandstone within the study area.
- Shell middens – Shell middens are remains of campsites in which the primary traces are shell and/or bones of fish. Shell middens are often found close to rivers or streams and are either along banks or within enclosed shelters. Given the distance to the Hacking River and Georges River there is low potential for a shell midden to be present within the study area.
- Rock engravings/Rock art – Rock engravings are often found in Hawkesbury geologies on flat sandstone platforms. Shapes of animals, ancestor figures or other symbols were carved into the sandstone. Weathering has affected the visibility of many rock engravings. Other rock art of various forms has also been recorded in the Sutherland Shire. Stencils, charcoal drawings and paintings are examples of the techniques used by Aboriginal people. Rock art is relatively rare, but is more common on sandstone geologies. There is low potential for engravings to be present within the study area, due to the lack of sandstone outcropping.
- Grinding grooves –grinding grooves are created by repeated movement of stone across an abrasive rock such as sandstone, often using water. Grinding was used for sharpening axes and other tools. Grinding is also used to process secondary material, such as grass seeds. Grinding grooves are often found on the banks of streams or rock pools. Grinding grooves are normally present within suitable sandstone outcropping. There is low potential for grinding features to be present within the study area, due to the lack of sandstone outcropping.
- PAD – Areas are classified as PADs if there is a likelihood of archaeological material existing below the ground surface, or on the ground surface but obscured from view. An Aboriginal object does not need to be recorded for an area of PAD to be specified. It is possible that PADs are present within the study area.

5.3 Predictive Model

The predictive model comprises a series of statements about the nature and distribution of evidence of Aboriginal land use that is expected in the study area. These statements are based on the information gathered regarding:

- Landscape context and landform units.
- Ethno historical evidence of Aboriginal land use.
- Distribution of natural resources.

- Results of previous archaeological work in the vicinity of the study area.

Predictive statements are as follows:

- Low density artefact scatters, isolated finds will be the most likely Aboriginal site type.
- Aboriginal sites will be located in areas of least ground disturbance.

The potential for Aboriginal sites is reduced by the high levels of ground surface disturbance across the study area.

Rock shelters and grinding features are unlikely to be present, as the study area has been previously impacted. Shell deposits are unlikely to be located within the study area, as it is elevated land that is a significant distance from the nearest waterline. Scarred trees are unlikely to be present as almost all original vegetation has been cleared from the study area. Areas of PAD would not be identified across steep slopes and areas that had been previously disturbed.

6 SITE SURVEY

6.1 Survey methodology

A survey of the study area was conducted on Monday 23 February 2015. The survey team included two archaeologists from Artefact Heritage, Alexander Timms and Andrew Crisp. A representative was invited from the LPLALC to attend the survey; however no representatives were available. Full coverage of the study area was achieved. Buildings, concrete, landscaped garden beds and asphalt surfaces cover a great deal of the study area. As such, there was little to no visibility throughout the study area. However, site survey was useful in clarifying landform features and level of impact.

A handheld Global Positioning System (GPS) was used to track the path of the surveyors and to record site coordinates. An aerial map of the study area was also carried by members of the survey team in the field. All accessible sections of the study area were covered on foot and examined for traces of Aboriginal occupation. However no internal sections of the extant buildings were examined, only outdoor areas.

A photographic record was kept of all sections of the study area that were accessible. Photographs were taken to record landform units (where present) within the study area, vegetation, levels of disturbance, and areas of archaeological potential. Scales were used for photographs where appropriate.

6.2 Survey Results

The study area is 58.8 metres by 58.8 meters and adjoins the northwest corner of the main hospital building (Figure 18 & 24). It extends from the existing north facing façade of the hospital and will incorporate the majority of Carpark 4 (Figures 20, 21 & 24), approximately a third of Carpark 1 (Figure 19) and straddle the current driveway (Figure 25) that runs from The Kingsway, to Kareena Road via the Main Entrance to the hospital. The study area is situated on a broad flat crest with the terrain sloping away gently to the north. Evidence of land modification in the form of ground levelling and retaining walls around Carpark 1 was noticed during site visit.

Extant structures, such as roads and car parks completely covered the ground surface in some areas. However impacts to the ground are evident in these locations; caused by the preparation and construction of built features, as well as underground services (Figures 23 & 23).

Figure 18:North-west corner of study area (South) towards Main Hospital Building.

Figure 19: Carpark 1 covering northern third of study area (East).

Figure 20: Carpark 4 north of Main Hospital Building (West).

Figure 21: Level of disturbance present in exposures within landscaped garden beds.

Figure 22: Example of stormwater drains following roadway through the centre of study area.

Figure 23: Example of services impacts throughout the study area.

Figure 24: Western edge of study area facing Main Hospital Building (South).

Figure 25: Two lane road splitting the study area east/west, facing west towards Kareela Road.

6.3 Survey results

A majority of the study area has been impacted by the development of Sutherland Hospital buildings, carparks, landscaped garden beds, roads and underground services. All of these features would have required significant ground modifications prior to construction.

The central portion of the study area is located on the crest of a ridge top. Ridge top landforms are considered to hold archaeological potential, however, as has been shown by this report the archaeological potential of the study area is very low due to the extent of disturbance that has occurred since the construction of the original Sutherland Hospital in the early 1950's. This area represents the most impacted portion of the study area, as it is experienced some of the most intense development within the Sutherland District Hospital grounds. The current configuration of structures, carparks, stormwater drainage combined with the evidence of a network of underground services suggests yet further layers of disturbance within the study area.

No Aboriginal objects or areas of archaeological potential were identified during the survey.

7 ARCHAEOLOGICAL POTENTIAL

7.1 Assessment of Archaeological Potential

Archaeological potential is closely related to the levels of ground disturbance within a given area. However, other factors are also taken into account when assessing archaeological potential, such as whether artefacts were located on the surface, and whether the area is within a sensitive landform unit according to the predictive statements.

This assessment has identified that a large portion of the study area has been subject to past ground disturbance. *The Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (OEH 2010) defines what comprises disturbed land:

> *(4) For the purposes of this clause, land is disturbed if it is has been the subject of human activity that has changed the lands surface, being changes that remain clear and observable.*

This includes disturbed land via:

> *(c) construction of roads, trails and tracks (including fire trails and tracks and walking tracks),*
>
> *(d) clearing of vegetation,*
>
> *(e) construction of buildings and the erection of other structures,*
>
> *(f) construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines, stormwater drainage and other similar infrastructure),*
>
> *(h) construction of earthworks associated with anything referred to in paragraphs (a)-(g).*

The study area has been subject to extensive land disturbance activities as described by the Code of Practice. A majority of the area has been disturbed via the development of existing structures, roads and subsurface utilities. The broad crest had been extensively excavated during the construction of the original 1950's hospital building, disturbing the natural soil profile. The subsequent demolition of the outdated facility and construction of the present configuration of carparks and services would have contributed further to the reduction of archaeological potential within the study area.

Based on this background information, Aboriginal site distributions in the region, and known levels of disturbance at the site, it is considered that the study area has a low potential to contain Aboriginal objects or archaeological deposits.

8 CONCLUSIONS AND RECOMMENDATIONS

The geology of the region surrounding the study area consists of the Hawkesbury Sandstone formation, which supported a rich array of flora and fauna. The study area is located on a broad crest between the Georges River and the Port Hacking River, therefore the study area would have had subsistence resources available to Aboriginal people and may have been conducive to occupation.

A search of the AHIMS register did not identify any Aboriginal sites within the study area. The AHIMS search identified that Aboriginal sites in the region are generally situated outside of developed areas within relatively low impacted local reserves and along sandstone shorelines. Rock shelter and art sites tend to be associated with sloping land with sandstone outcropping, while artefact and shell sites tend to located close to waterlines.

The study area is positioned on a ridge top landform, which is considered an archaeologically sensitive landform; however the results of the survey indicate that the area has been heavily impacted by past development of the Sutherland Hospital Precinct.

The results of the site survey and background research informed an assessment of low archaeological potential for the study area.

The La Perouse Local Aboriginal Land Council (LPLALC) were invited to attend the site survey, however no representative was available. No areas of cultural significance within the study area have been identified by LPLALC. A draft version of this document was forwarded to LPLALC for review and comment on 4 March 2015. No comments or recommendations were received from LPLALC.

It is therefore recommended that there are no known Aboriginal heritage constraints on the proposed development. As no impacts to Aboriginal heritage are likely as a result of the proposal further reporting and Aboriginal consultation under the OEH guidelines is not required.

If unexpected Aboriginal objects are uncovered during development, work should cease and a heritage consultant, OEH and LPLALC should be informed. If human remains are found, work should cease, the site should be secured and the NSW Police and the OEH should be notified.

If changes are made to the development proposal that may result in impacts to areas not covered by this assessment, further archaeological assessment may be required.

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