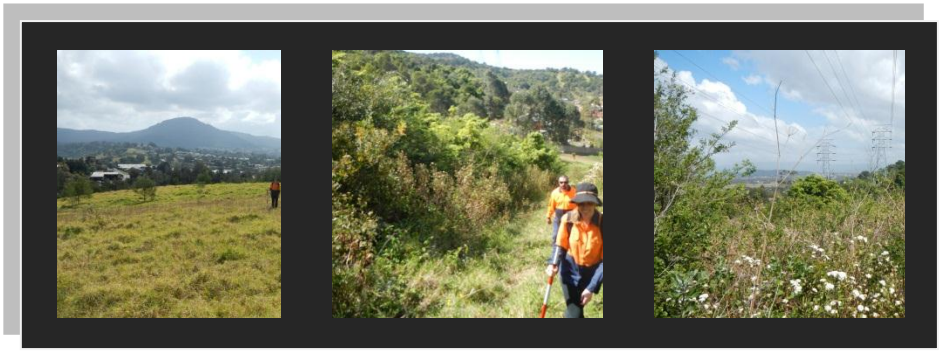
Life City Wollongong: Aboriginal Heritage Assessment

Report to TCG Planning

October 2012



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Executive summary

TCG Planning has been engaged by Delbest Pty Ltd to coordinate the Part 3A development application process in relation to a proposed Master Plan for a 'Hi Tech Holistic Cancer and Medical Hospital Facility' to be known as *Life City Wollongong* (the proposal). The proposed development is to be assessed as a Part 3A project under the transitional arrangements contained in Schedule 6A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Artefact Heritage has been engaged by TCG Planning, on behalf of Delbest Pty Ltd, to conduct an Aboriginal heritage assessment for the proposal.

The subject land was located at Berkeley in the Wollongong local government area (LGA), and was defined as Lot 4 DP 258635, Lot 2 DP 534116 and Lot 2 DP 249814. The subject land covered an area of 16.78 ha, and was bound to the west by the F5 southern freeway, and to the north, east and south by existing residential development in the suburb of Berkeley.

An extensive search of the Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) sites register showed that no previously recorded Aboriginal sites were located either within, or in the immediate vicinity of, the study area. A survey of the study area was conducted on 11 September 2012 with representatives of the Illawarra Local Aboriginal Land Council (ILALC) and Artefact Heritage. The study area was found to contain a majority of low sensitivity landform units (steep slopes), areas of ground disturbance and areas of thick vegetation which obscured ground surface visibility. No Aboriginal sites or areas of potential archaeological deposit (PAD) were identified.

No further investigation of Aboriginal heritage is required before the project commences.

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1.0 Introduction and background

1.1 Introduction

TCG Planning has been engaged by Delbest Pty Ltd to coordinate the Part 3A development application process in relation to a proposed Master Plan for a 'Hi Tech Holistic Cancer and Medical Hospital Facility' to be known as *Life City Wollongong* (the proposal). The proposed development is to be assessed as a Part 3A project under the transitional arrangements contained in Schedule 6A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Artefact Heritage has been engaged by TCG Planning, on behalf of Delbest Pty Ltd, to conduct an Aboriginal heritage assessment for the proposal (see Figure 1).

The subject land was located at Berkeley in the Wollongong local government area (LGA), and was defined as Lot 4 DP 258635, Lot 2 DP 534116 and Lot 2 DP 249814 (Figure 2). The subject land covered an area of 16.78 ha, and was bound to the west by the F5 southern freeway, and to the north, east and south by existing residential development in the suburb of Berkeley.

1.2 Description of the development proposal

The Master Plan for the proposal would provide a comprehensive holistic cancer and medical hospital facility with the following characteristics:

- 320 bed tertiary level cancer and medical hospital;
- medical centre;
- child care centre;
- respite centre;
- staff and patient relative accommodation;
- education and research facilities;
- selective health sciences high school;
- seniors housing;
- outdoor holistic health course for natural therapies; and,
- ancillary uses.

The facility will be developed in eight stages, with the current Aboriginal heritage assessment forming part of the approval process for the Master Plan for the proposal.

Figure 1: Life City Berkeley Master Plan (supplied by TCG Planning)

Figure 2: Study area location (supplied by TCG Planning)

1.3 Objectives of the assessment

The objectives of this study are to comply with the Office of Environment and Heritage (OEH) *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (2010) and the *Draft Guidelines for Aboriginal Heritage Impact Assessment and Community Consultation 2005*. The main objectives of this study include providing:

- A description of the proposal and the extent of the study area.
- A description of Aboriginal community involvement and Aboriginal consultation.
- 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 the Aboriginal site located within the study area.
- Development of a significance assessment for these sites and PADs addressing archaeological values.
- Impact assessment for the recorded Aboriginal sites and PADs.
- Recommendations for management and mitigation measures for Aboriginal sites and PADs in the context of the proposed development.

This study also fulfills the Director General's Requirements (DGRs). In relation to heritage the DGRs state that the following must be taken into account.

"Impacts of the proposal on any Aboriginal or European heritage or archaeological items and measures to conserve these items and mitigate potential impacts including effective community consultation with the Aboriginal communities" (Requirement 13).

Impacts of the proposal are addressed in Section 8.3. Mitigation and conservation measures are addressed in Section 9.0. Aboriginal community consultation is addressed in Section 1.5.

1.4 Investigator and contributions

Josh Symons and Adele Anderson, archaeologists at Artefact Heritage, undertook this study. Josh Symons prepared this report with management input from Principal Archaeologist Dr Sandra Wallace.

1.5 Aboriginal community involvement

Artefact Heritage had discussions with the Illawarra Local Aboriginal Land Council (ILALC) throughout the Aboriginal heritage assessment process. Craig Tunsai attended the field survey as a representative of the ILALC. The Aboriginal heritage values of the study area in relation to the proposal were discussed with Craig in the field

and no particular sites of cultural significance were identified. It should be noted that in general the landscape as a whole is significant to Aboriginal people as part of Country.

A copy of the draft heritage assessment was sent to ILALC for their review and comment. No comments were received within the 28 day submission period.

The OEH *Draft Guidelines for Aboriginal Heritage Impact Assessment and Community Consultation 2005* and *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010) do not require comprehensive Aboriginal consultation unless Aboriginal objects or areas of archaeological potential may be impacted.

Aboriginal consultation has been conducted in accordance with OEH guidelines and fulfills the DGRs for the project.

1.6 Report structure

The study has been divided into the following sections:

Section	Overview
Executive Summary	Summary of the ASR findings.
1. Introduction and background	Introduces the document and proposal.
2. Landscape context	Discusses the environmental context of Aboriginal occupation.
3. Aboriginal historical and archaeological context	Summary of the history of Aboriginal occupation and previous archaeological investigations.
4. Predictions	Provides a predictive model for distribution of archaeological material.
5. Field methods	Outlines the methods and processes used during the ground survey.
6. Results	Outlines the results of the desktop study and ground survey.
7. Analysis and discussion	Discussion of disturbance levels within the study area and results of the field survey.
8. Significance and impact assessment	Assessment of the archaeological significance of the study area and impact assessment.
9. Management and mitigation measures	Discusses appropriate management and mitigation measures for Aboriginal sites and PADs
10. Statutory requirements	Discusses the implications of statutory requirements relating to Aboriginal heritage.
11. Recommendations	Presentation of recommendations arising from the study.

2.0 Landscape context

2.1 Geology and soils

The underlying geology of the study area consisted of interbedded lithic sandstone of the Pheasants Nest Formation, part of a subgroup of the Illawarra Coal Measures and one of the oldest layers in the Sydney Basin. The Pheasants Nest Formation originated as delta and fluvial sediments (Bowman *et al* 1986: 17) at a time when the Sydney Basin was largely underwater. The composition of the geological unit varied with depth, but generally consisted of sandstone, siltstone, claystone and minor coal seams (Bowman *et al* 1986: 17).

Soils across the study area developed *in situ* from the underlying interbedded sandstone of the Pheasants Nest Formation. The predominant residual soil landscape across the study area was Gwynneville soil landscape, whilst on the eastern margin of the study area was the residual Berkeley soil landscape (Hazelton and Tille 1990). The thickness of the soils was dependent on slope, with thinner soils across the steeper slopes prone to erosion in exposed areas.

2.2 Hydrology and landforms

The study area was dominated by a crescent shaped crest landform that formed part of a sequence of high points along the northern margin of Lake Illawarra. The highest point was 74 m AHD, which was just over half the height of Flagstaff Hill, which was located 600 m to the east and approximately 120 m AHD high.

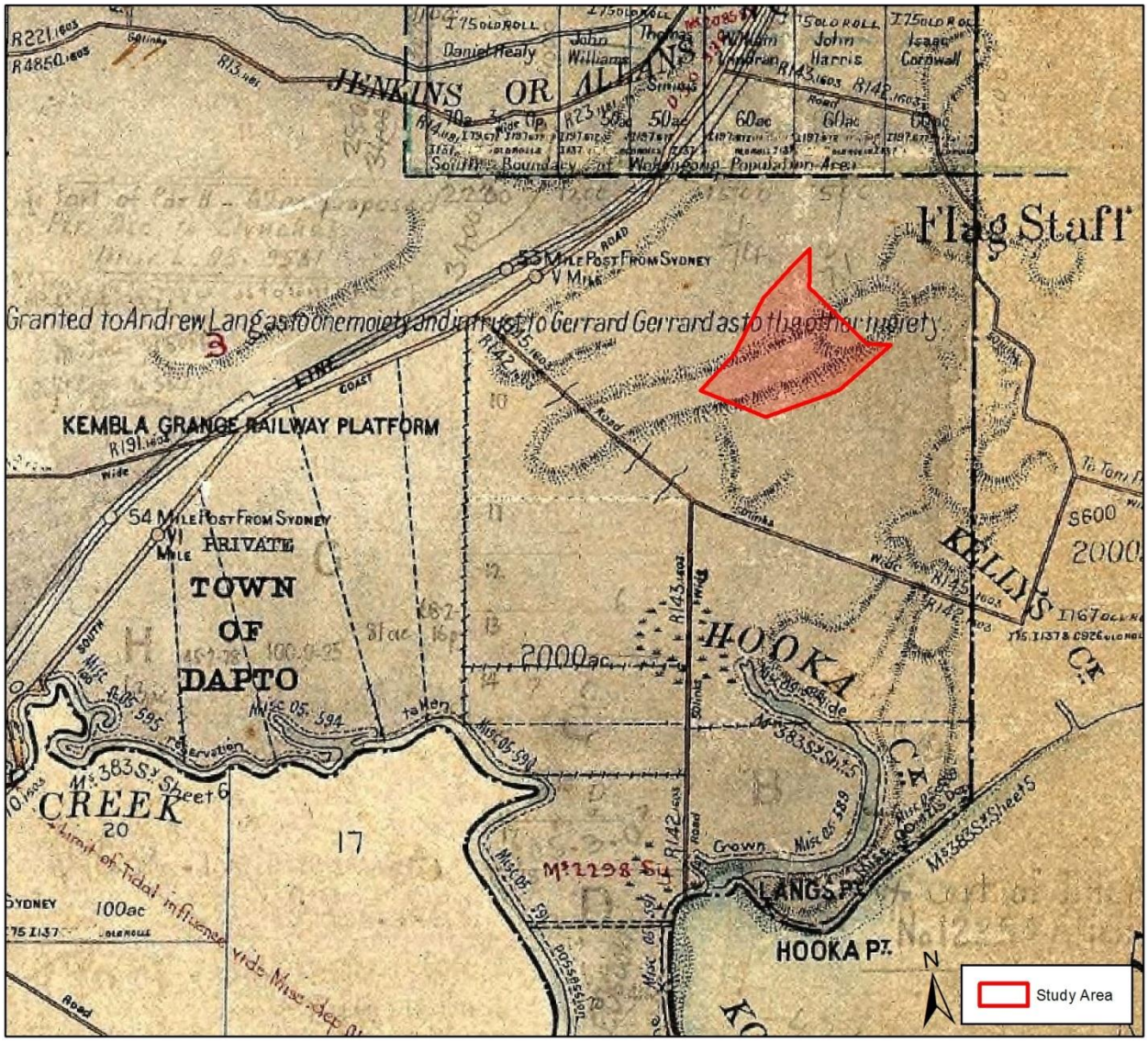
The crest landform within the study area dropped steeply on all sides, with the southern, eastern and northern margins of the study area consisting of steep slopes. The crest landform drops sharply to the west, with a more gently sloping toe slope extending to the north-west corner of the study area, and a shallow, ephemeral drainage channel defining the western slope as an open crescent shape.

2.3 Previous land use

The study area was located in an area that was used predominantly for dairy farming following colonisation and initially formed part of a large, 2,000 acre land grant promised to John Dunlop Wylie in 1829 (AMBS 2010: 51; Kass 2010: 25). Wylie moved cattle to the property, which he had named 'Dunlop Vale' after his uncle James Dunlop (AMBS 2010: 51). However, due to Wylie's financial troubles, the grant was not officially issued, and the land was sold to Andrew Lang and Dr Gerrard Gerrard in 1840 (AMBS 2010: 51; Kass 2010: 25). The property was held in moiety between Andrew Lang and Dr Gerrard Gerrard. Gerrard owned the western half of the property, which he named Kembla Grange (AMBS 2010: 51). A parish map dating to 1895, shown in Figure 3, shows the location of the study area in relation to the land held by Lang and Gerrard. The study western boundary of the study area

forms the edge of the F5 freeway corridor, whilst the land to the north, east and west has been developed into residential subdivisions.

Figure 3: Kembla parish map (c.1895)



2.4 Archaeological implications for the study area

The study area consisted largely of steep slopes bordering a local high point approximately 1.8 km north of Lake Illawarra. The study area was not located in close proximity to perennial fresh water, with the steep slopes not likely to have either been the site of frequent or repeated Aboriginal activities, nor likely to retain intact archaeological deposit.

3.0 Aboriginal historical and archaeological context

3.1 Aboriginal material culture

The oldest dated sites for Aboriginal occupation in the Sydney Basin are from the late Pleistocene period, with a securely dated site at the base of the Blue Mountains of 14,700 years before present (yBP), and two coastal sites south of Wollongong at Bass Point and Burrill Lake in the Shoalhaven both dated to around 20,000 yBP (Lampert 1971; Nanson *et al* 1987). Evidence of Aboriginal occupation has been found dated to 50-60,000 yBP at Lake Mungo in NSW, so it would be likely that Aboriginal people have lived in the Illawarra region for even longer than indicated by the oldest recorded dates available at present. The archaeological material record provides evidence of this long occupation, but also provides evidence of a dynamic culture that has changed through time.

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 4,000 yBP in the Sydney region (Attenbrow 2010:102). It is 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, JMcD CHM 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 4,000 yBP to 1,000 yBP backed artefacts appear more frequently. Tool manufacture techniques become more complex and bipolar flaking increases (JMcD CHM 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.

3.2 Aboriginal histories of the locality

Aboriginal people traditionally lived in small family or clan groups that were associated with particular territories or places. The study area was located within the Dharawal language group area (Attenbrow 2010: 34). The Dharawal language group was largely coastal and is thought to have extended from the Shoalhaven River in the south, to Botany Bay in the north and then inland to Camden (Attenbrow 2010: 34). The Dharawal language group was bordered to the north in the Botany Bay – southern Sydney region by the Darug and to the west in the Mittagong – Moss Vale region by the Gundungurra.

The area covered by the Dharawal language included a variety of landscape and resource types, including coastal and estuarine environments, rolling hills and creeks bordering the coastal environment, and the large sandstone escarpment and plateau. Sullivan (cited in Rich 1988: 23) suggested that the boundary between the Gundungurra and the Dharawal was the divide between the coastal and inland river systems, which runs on an approximate south-west to north-east line east of Wingello, Bundanoon, Robertson and Mittagong. Movement across these different terrain types and resource areas may have been dictated by the season or purpose (DEC 2005: 8). Additionally, exchange with people from surrounding language groups included Gundungarra and Wiradjuri people travelling to the coast to exchange foods and raw materials, whilst the Dharawal and Awabakal (Central Coast region) shared ceremonies (DEC 2005: 8).

Long-term areas of interaction and 'travel corridors' for movement between different language groups may have existed where there were shared boundaries. Laila Haglund has suggested that the Campbelltown area in south-west Sydney may have represented the intersection between the boundaries of the Dharawal, Darug and Gundungurra, and that the Narrelan Valley may have been part of a 'travel corridor' facilitating movement between the north-western Sydney and the Illawarra (JMcD CHM 2007: 21 after Haglund 1989).

Early interaction between the Dharawal and the British was intermittent and brief. The earliest sighting of British people by the Dharawal would most likely have been when they saw sailing ships along the coast. The records of Captain Cook and several of his crew document seeing numerous fires and occasional Aboriginal people on the coastline in the Illawarra region (Organ 1993: 46). Organ (1993: 49) documents an anonymous exploration journal attributed to surveyor George William Evans, which documented an overland expedition north from Jervis Bay via Wollongong in 1812. The exploration party encountered several groups of Aboriginal people, and at one point exchanged some of their possessions with one of the groups for oysters (Organ 1993: 49).

Several of the early British settlers in the Illawarra recorded large gatherings of Aboriginal people, including a reference by Navin (1994: 8) that Robert James, a local resident of the area, recorded a camp of around 100 Aboriginal people on the banks of American Creek at Mount Kembla. In 1836 a group of around 200 Aboriginal people were observed in the Illawarra area as they were preparing to travel to Cowpastures in south-west Sydney (Griffin 1986: 6 cited in AMBS 2010: 33).

A variety of flora and fauna resources were utilised in the Illawarra region for subsistence, personal ornament and tool requirements. The variety of subsistence resources in the Illawarra included marine, estuarine, freshwater and hinterland flora and fauna. Early British records documented torchlight spearing of bream and consumption of whale meat (Organ 1993: 262). The consumption of whale was documented as an important event linked to the spirits of their ancestors (Organ 1993: 262). Cabbage trees were used for various purposes, including utilisation of the fibre (Organ 1993: 155), used to make bridges over creeks and for food (AMBS 2010: 35). Other plant species utilised for food and tolls included bats-wing tree, grass tree, Gymea lily, various Eucalypt *sp*., mat-rush, sticky hop bush, Melalseuca and black wattle (AMBS 2010: 35).

3.3 AHIMS search results

An extensive search of the Aboriginal Heritage Information System (AHIMS) database was undertaken on the 3 September 2012 for sites registered within the following coordinates:

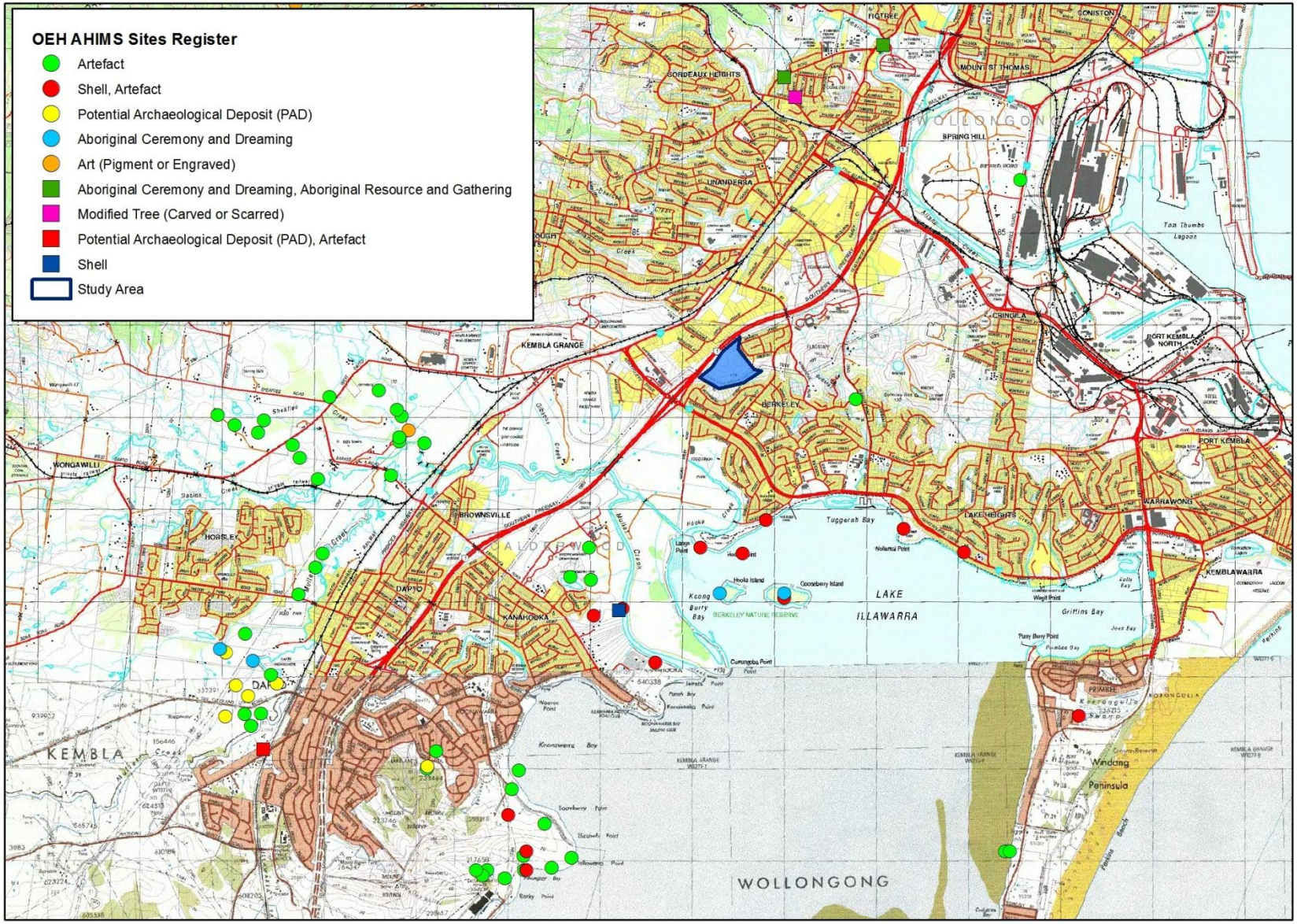
GDA 1994 MGA 56	296000E – 306000E 6178000N – 6188000N
Buffer	50 m
Number of sites	76
AHIMS Search ID	78986

The distribution of recorded sites within the AHIMS search area is shown in Figure 4. The location of Aboriginal sites is considered culturally sensitive information. It is advised that this information, including the AHIMS data appearing on the heritage maps for the proposal be removed from this report if it is to enter the public domain.

Table 1: Frequency of site types from AHIMS data.

Site Type	Frequency	Percentage
AFT (artefact)	46	60.5
SHL, AFT (shell, artefact)	13	17.1
PAD (potential archaeological deposit)	6	7.9
ACD (Aboriginal ceremony and dreaming)	4	5.3
ART (art, pigment or engraved)	2	2.6
ACD, ARG (Aboriginal ceremony and dreaming, Aboriginal resource and gathering)	2	2.6
TRE (modified tree, carved or scarred)	1	1.3
PAD, AFT (potential archaeological deposit, artefact)	1	1.3
SHL (shell)	1	1.3

Figure 4: OEH AHIMS sites register search 78986 (background © NSW Department of Finance and Services)



There are no previously recorded Aboriginal sites listed on the AHIMS site register which are located within the study area.

Artefact sites, consisting of isolated artefacts or artefact scatters, were the most frequent recorded site type in the vicinity of the study area. A number of midden sites (shell) have been recorded around the periphery of Lake Illawarra, approximately 2 km south of the study area, whilst the recorded artefact sites were largely confined to areas further inland and associated with fresh water drainage lines. The distribution of site types demonstrates the variety of site types in the region, and the exploitation of estuarine resources by Aboriginal people.

3.4 Previous archaeological investigations

A number of previous archaeological investigations have been conducted in the area. The investigations have covered varying types of the local terrain, including assessments bordering Lake Illawarra, assessments of areas across the undulating terrain of Berkeley, and assessments further to the west beneath the Illawarra Escarpment.

Previous archaeological investigations in the vicinity of the study area and covering similar local high point landforms include an assessment of portal and reservoir sites in Berkeley and West Dapto by Navin (1994), and consent to destroy application by Kayandel (2003). Navin (1994) assessed the location of water reservoirs and associated infrastructure on a local high point in Berkeley 1.7 km east of the current study area. No Aboriginal sites were identified by Navin within the Berkeley reservoir site. The absence of archaeological material was attributed disturbance within the area from existing water infrastructure and the lower likelihood of archaeological material on the higher terrain in Berkeley (Navin 1994: 10). Navin (1994: 10) suggested that higher density archaeological deposits would more likely be associated with areas adjacent to Lake Illawarra and the Pacific Ocean coastline.

Kayandel (2003) conducted archaeological monitoring of earthworks at a small residential subdivision on Berkeley Road, and approximately 1.2 km east of the current study area. The subject site was situated on the lower southern slope of Flagstaff Hill, the high point immediately east of the current study area, and bordering Budjong Creek. One artefact was identified during the earthworks monitoring program.

Archaeological excavation was conducted on the lower foothills of the Illawarra Escarpment at Figtree, approximately 4 km north of the current study area (Dallas and Navin 1997). The test excavation program included five grader scrapes 100 m long and 3 m wide across the spur crest landform units, nine backhoe trenches adjacent to the grader scrapes and two backhoe trenches on alluvial flat landform units. A total of three stone artefacts were retrieved, all of which were recovered from one grader scrape (Dallas and Navin 1997: 11). Dallas and Navin (1997: 13) suggest that the results indicate a low density artefact scatter across the spur crests of the area.

Extensive archaeological assessment and preliminary sub-surface excavation have occurred within the West Dapto Urban Release Area (WDURA), located across gently undulating farming land between the Princes Highway and the Illawarra Escarpment. The WDURA covers a planned residential release area, and is extended over a large area stretching from Yallah in the south to Kembla Grange in the north. The WDURA has been subject to an archaeological assessment with sample field survey and test excavation (AMBS 2006), a preliminary Sydney Water Aboriginal heritage desktop assessment that covered both WDURA and surrounding area, including the current study area (AMBS 2010), and sub-surface investigation in specific release areas (AHMS 2011).

A total of 136 test pits were excavated across the WDURA by AMBS (2006), sampling the main landform units within the study area – slope, alluvial flat, drainage channels and crest. Artefacts were retrieved from just over half of the test pits (n=75), with the highest number retrieved (n=146) from a test pit in a slope landform context (AMBS 2010: 38). The results indicated that depending on levels of disturbance, areas of high archaeological sensitivity were mostly associated with watercourses, but could occur across all landform units (AMBS 2010: 92). Based on high levels of disturbance, AMBS (2010: 87) identified the area including the current study area east to Port Kembla as demonstrating low archaeological sensitivity.

AHMS (2011) conducted further archaeological test excavation of a property off Bong Bong Road in the WDURA that had been the subject of limited test excavation by AMBS (2006). AMBS (2006) had retrieved three artefacts from six test pits in the property, with AHMS conducting an extended test excavation program of 47 test pits. The 47 test pits were distributed across transects that sampled each of the landform units within the property, including low-lying open depression, a creek levee and undulating slopes (AHMS 2011: 18). A total of 34 stone artefacts were retrieved from the test excavation program, with an average artefact density of 0.7/m^2 (AHMS 2011: 19). AHMS (2011: 52) suggested that the retrieved lithic assemblage demonstrated activities associated with raw material procurement, knapping and tool utilisation.

Several archaeological investigations have demonstrated the presence of shell midden deposit and stone artefacts on the northern margin of Lake Illawarra at Hooka Point. Hooka Point is located at the mouth of Hooka Creek and is approximately 1.6 km south of the current study area. Investigations have included a research oriented archaeological excavation at Hooka Point by Peter White (White 1975) and archaeological assessments for the installation of recreational facilities (Navin 1997; Navin Officer 2003). A number of midden sites have been identified in the locality of Hooka Point, AHIMS # 52-2-0033, 52-2-1287 and 52-2-1288. Sub-surface investigation at site AHIMS # 52-2-0033 identified that the midden deposit was significantly re-worked, whilst subsequent assessments have identified areas of introduced fill and disturbance at Hooka Point (Navin 1997; Navin Officer 2003).

3.5 Archaeological implications for the study area

The results of previous surveys and sub-subsurface investigations in the region suggest that low density archaeological deposits are most likely to occur across crest landforms, with more varied higher density archaeological deposit occurring closer to watercourses, estuarine resources around Lake Illawarra, and the ocean coastline. Additionally, surface disturbance was found to dramatically reduce the chances of identifying archaeological deposit in crest landform contexts. A preliminary desktop review for the WDURA, which included the study area (AMBS 2010) suggested that the current study area was located in an area of low archaeological sensitivity due to high levels of disturbance.

4.0 Predictions

4.1 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.

As Aboriginal people were mobile hunter-gatherers, it would be likely that they moved across the landscape between resources. It would also be likely that movement was related to socio/cultural factors such as gatherings and ceremonial obligations. Campsites would have provided temporary residences such as bark structures. It is difficult to ascertain whether a campsite existed at a given location, but correlations between stone artefact density and campsites are often assumed. While it would be likely that knapping would have occurred at a campsite, it would also be likely that knapping would have occurred during movement across the landscape, as tools were prepared or repaired during hunting and gathering activities.

Archaeological data gathered in the locality suggests that artefacts would be found across the landscape in varying densities with lower densities expected across higher crest landforms. The main limitation to the survivability of archaeological material in the area is impacts of soil and sand extraction, flooding, and infrastructure development.

4.2 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 modeling proposed in previous investigations.

Predictive statements are as follows:

- stone artefacts/artefact scatters will be the most likely Aboriginal site type;
- artefact densities will be low;
- stone artefacts will be less likely to be identified on steep slopes;
- artefacts will be located in areas of least ground disturbance.

It is probable that the only material traces of Aboriginal occupation remaining will be stone artefacts. The potential for shelter sites, rock engravings and grinding grooves is limited by the nature of the underlying geology, which consisted of interbedded lithic sandstone more likely to fragment. There is potential for shell fragments associated with campsites may be present within the study area due to the location of extensive estuarine resources 1.8 km to the south.

Areas of potential archaeological deposit (PAD) would be dependent on levels of disturbance, landform and the degree of surface visibility. Areas of PAD would not be identified across steep slopes.

5.0 Field methods

5.1 Site definition

An Aboriginal site is generally defined as an Aboriginal object or place. An Aboriginal object is the material evidence of Aboriginal land use, such as stone tools, scarred trees or rock art. Some sites, or Aboriginal places can also be intangible and although they might not be visible, these places have cultural significance to Aboriginal people.

OEH guidelines state in regard to site definition that one or more of the following criteria must be used when recording material traces of Aboriginal land use:

- The spatial extent of the visible objects, or direct evidence of their location.
- Obvious physical boundaries where present, e.g. mound site and middens (if visibility is good), a ceremonial ground.
- Identification by the Aboriginal community on the basis of cultural information.

5.2 Survey methodology

A sample survey of the study area was conducted on 11 September 2012. Due to large areas of impenetrable weeds on the eastern and southern slopes of the study area, as well as dense grass reducing surface visibility to zero over much of the western half of the study area, a sample survey was conducted. The sample survey consisted of 12 transects across the study area (See Figure 7). All transects were covered on foot and examined for traces of Aboriginal occupation.

A sample survey of the study area is acceptable under the OEH *Code of Practice* (2010) with justification. There were two main reasons for conducting a sample survey of the study area, which included dense, impenetrable weeds over 2 m high on the western and southern slopes of the study area, and dense grass cover across much of the western half of the study area. The only places accessible amongst the dense weeds were where paths had been cut to access the 330kV transmission line towers. Surface visibility across the western half of the study area was limited to unformed vehicle paths and areas of erosion on the steeper slopes.

The survey was undertaken in accordance with the OEH *Code of Practice* (2010). A handheld Global Positioning System (GPS) was used to track the path of the surveyors. An aerial map of the study area was carried by members of the survey team in the field.

A photographic record was kept of all sections of the study area that were accessible. Photographs were taken to record different aspects of the landform units within the study area, vegetation, and levels of disturbance.

Figure 5: Survey units (background image © Google 2012)

6.0 Results

6.1 Effective survey coverage

The study area consisted predominantly of steep to moderately steep gradients, with the flattest area occurring across the crest of the hill. The crest landform consisted of several components, including the flat crest of the hill and moderately sloping crest landform units on the toe slopes that descended west towards the south-western corner of the study area, north-west to the entrance of the study area at Warwick Street, and to the north-east. The flat crest landform unit was quite narrow, measuring approximately 20-30 m across before dropping away steeply.

The slope landform units to the south and east of the crest landform were very steep and covered in thick weeds over 2 m high. The vegetation was impenetrable except for a vehicle path cut through to the transmission line towers in the south-east corner of the study area, and a mostly overgrown and very steep path to the transmission line towers on the mid-eastern boundary of the study area.

Due to the nature of the toe slopes to the west and north-east, the western half of the study area was crescent shaped, forming natural open depression at its centre. Slopes across the western half of the study area varied from very steep closer to the crest landform units, to moderately steep towards the western boundary of the study area. Vegetation consisted predominantly of thick, long grass cover that limited surface visibility to zero across the majority of the area. The only areas of surface visibility were observed across unformed vehicle tracks that crossed the area, and intermittent areas of erosion on the steeper slopes.

Table 2: Survey coverage

Survey Unit	Landform	Survey unit area (m²)	Visibility (%)	Exposure (%)	Effective coverage area (m²)	Effective coverage (%)
1	Crest	14,545	30	40	1,745	12
2	Slope	1,911	5	5	5	0.3
3	Slope	3,763	2	5	4	0.1
4	Slope	2,706	20	20	108	4
5	Slope	2,364	40	40	378	16
6	Slope	2,301	5	5	6	0.3
7	Upper slope	5,268	5	10	26	0.5
8	Mid slope	4,016	2	5	4	0.1
9	Mid slope	7,896	10	20	18	0.2
10	Mid slope	8,506	2	5	9	0.1
11	Open depression	4,873	5	20	49	1
12	Slope	2,530	2	5	3	0.1

Table 3: Landform survey coverage

Landform	Landform area (m²)	Area effectively surveyed (m²)	% of landform effectively surveyed	Number of sites	Number of artefacts or features
Crest	14,545	1,745	12	-	-
Upper slope	5,268	26	0.5	-	-
Mid slope	20,418	31	0.2	-	-
Slope	15,575	504	3	-	-
Open depression	4,873	49	1	-	-

Plate 1: Impenetrable weed vegetation

Plate 2: Narrow path cut through thick vegetation

Plate 3: View west across the study area with Mt Kemble visible right background of photo

Plate 4: View west over disturbed area in north-east corner of study area

Plate 5: View east of erosion gully associated with a contour bank

7.0 Analysis and discussion

7.1 Levels of disturbance

Observations made across the study area during the field survey suggest that the subject site has been significantly disturbed. Extensive vegetation clearance has taken place across the study area, with the subsequent establishment of thick, tall weeds on the southern and western slopes. Several areas of earthworks were observed, including large contour banks across the western half of the study area. The contour banks were substantial features with significant impact for up to 3 m either side. A large area of extensive earthwork disturbance and possible deposition of fill was identified across the gently sloping crest landform in the north-western portion of the study area, just inside the entrance from Warwick Street.

Numerous instances of rubbish dumping were observed across the study area, including building site waste, domestic rubbish and vegetation refuse. Several trail bike tracks had been cut across the western slopes, with a trail bike jump excavated on the crest landform in the south-eastern corner of the study area. The vehicle tracks that cross the area had contributed to surface erosion, whilst across the north-western toe slope the vehicle track had been partially excavated into the terrain, resulting in bordering spoil piles and increased erosion.

7.2 Results discussion

No previously recorded Aboriginal sites were located within the study area, and no previously un-identified Aboriginal sites were recorded during the field survey. The nature of landform units within the study area and high levels of ground disturbance are likely factors that may explain the absence of Aboriginal sites.

The study area consisted of a local high-point bordered by steep slopes. Previous archaeological investigations in the region have indicated that crest landform units are likely to consist of low density archaeological deposit, which suggests that the likelihood of identifying archaeological material across the narrow crest landform unit within the study area was low. Additionally, the steep slopes that make-up a large portion of the study area preclude both the likelihood of activities occurring in those contexts in the first instance, and the survivability of archaeological deposit should it be present.

With the landform units suggesting a low likelihood of archaeological material occurring within the study area, the high levels of disturbance observed during the field survey further lower the archaeological potential of the study area. Those areas that would be the most likely to contain low density archaeological deposit – the crest landform units, were also the areas where significant surface disturbance were observed.

8.0 Significance assessment and impact assessment

8.1 Assessment criteria

Archaeological significance refers to the archaeological or scientific importance of a landscape or area. This is characterised using archaeological criteria such as archaeological research potential, representativeness and rarity of the archaeological resource and potential for educational values. These are outlined below:

- Research potential: does the evidence suggest any potential to contribute to an understanding of the area and/or region and/or state's natural and cultural history?
- Representativeness: how much variability (outside and/or inside the subject area) exists, what is already conserved, how much connectivity is there?
- Rarity: is the subject area important in demonstrating a distinctive way of life, custom, process, land-use, function or design no longer practised? Is it in danger of being lost or of exceptional interest?
- Education potential: does the subject area contain teaching sites or sites that might have teaching potential?

Cultural values and significance would be discussed by the ILALC in their survey report and included in Appendix 1 of the final report.

8.2 Archaeological significance assessment

The study area does not provide good research potential as there are no areas of archaeological potential to be investigated. Representativeness values are low within the study area and it is not rare within the local context. The area does not have potential to be used for education in Aboriginal heritage or archaeology. The study area is therefore assessed as having a low archaeological significance.

8.3 Impact assessment

No Aboriginal sites, areas of particular cultural significance, or areas of archaeological potential will be impacted by the project.

9.0 Management and mitigation measures

9.1 Guiding principles

The overall guiding principle for cultural heritage management is that where possible Aboriginal sites should be conserved. If conservation is not practical, measures should be taken to mitigate against impacts to Aboriginal sites.

The nature of the mitigation measures recommended is primarily based on an assessment of archaeological significance. The recommendations will also be informed by cultural significance as discussed by the Aboriginal stakeholder groups.

9.2 Mitigation measures

Mitigation measures recommended vary depending on the assessment of archaeological significance of the area and are based on its research potential, rarity, representativeness and educational value. In general the following mitigation measures would be employed:

- Low archaeological significance – No further work required. No archaeological constraints on development.
- Moderate archaeological significance – Test excavation would be required to investigate whether significant archaeological deposits were retained within the area of moderate potential.
- High archaeological significance – Conservation as a priority. Test excavations would be required if the areas of high potential were to be impacted. Further mitigation measures such as salvage excavations or heritage interpretation may also be necessary.

As the entire study area has a low archaeological significance no specific mitigation measures are required. There are no archaeological constraints on development. If unexpected Aboriginal objects are located during works, all works must stop in the vicinity and the OEH, ILALC and a cultural heritage consultant should be notified. Further archaeological investigations may be required before works can commence.

10.0 Statutory requirements

This study has been undertaken in the context of several items of legislation that relate to Aboriginal heritage and its protection in New South Wales.

National Parks and Wildlife Act (1974)

The *National Parks & Wildlife Act 1974*, 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 Act was recently amended (2010) and as a result the legislative structure for seeking permission to impact on heritage items has changed. An s.90 permit is now the only 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 part of the administration of Part 6 of the Act OEH has developed regulatory guidelines on Aboriginal consultation, which are outlined in *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010). Guidelines have also been developed for the processes of due diligence - *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (2010), and for investigation of Aboriginal objects - *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (2010) in accordance with the 2010 amendment to the Act.

As the current project will be assessed under the transitional arrangements for Part 3A projects, permits are not required in order to disturb Aboriginal objects.

Environmental Planning & Assessment Act (1979)

The EP&A Act is administered by the Department of the Premier and Cabinet 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.

In 2005 the Act was amended with the introduction of section Part 3A. This section 'switches off' Part 6 of the NPW Act which specifies penalties for destruction of Aboriginal heritage. NPW Act s90 AHIPs are therefore not

required to impact on Aboriginal heritage under Part 3A development applications as the penalties for doing so are nullified. Under Part 3A assessments proponents must adhere to the *Draft Guidelines for Aboriginal Heritage Impact Assessment and Community Consultation 2005* developed by the OEH. Part 3A has recently been abolished with transitional arrangements put in place by the State Government.

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.

11.0 Recommendations

The following recommendations were based on consideration of:

- Statutory requirements under the *National Parks and Wildlife Act 1974* as amended.
- The results of the background research, site survey and assessment.
- The interests of the Aboriginal stakeholder groups.
- The likely impacts of the proposed development.

It was found that:

- No Aboriginal sites were located within the study area
- No areas of archaeological potential were located within the study area.
- High levels of disturbance were observed across the study area.
- The study area was found to demonstrate low archaeological significance.
- Significance and values relating to Aboriginal heritage would not be impacted by the proposal.

It is therefore recommended that:

- No further investigation of Aboriginal heritage is required before the proposal commences.
- If Aboriginal objects are located during works an archaeologist, the ILALC and the OEH should be notified and further archaeological work and Aboriginal consultation may be necessary.
- If human skeletal remains are encountered during excavation, work must cease immediately and the NSW Police, and the OEH must be notified. If the skeletal remains are found to be Aboriginal a process of consultation and investigation in accordance with the OEH guidelines must be implemented.

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