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West Gables Rezoning, Box Hill NSW Aboriginal Heritage Archaeological Assessment

Stockland Development Pty Ltd

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Template 2.8.1

Contents

1. Introduction	1
1.1 Project background	1
1.2 Location of the proposed works	1
1.3 Consultation	1
1.4 Authorship	1
2. Legislative context.....	4
3. Consultation.....	5
3.1 Stage 1 – Notification of planning proposal and registration of interest.....	5
3.2 Stage 2 and Stage 3 – Presentation of information about the proposed rezoning and gathering information on cultural significance/ values.....	6
4. Environmental context	7
4.1 Bioregion	7
5.2 Vegetation	8
5.2 Hydrology	8
4.2 Land Use History.....	8
5. Archaeological Context.....	13
5.1 Ethnohistory	13
5.2 Previous archaeological assessments	14
5.3 AHIMS search	20
6. Regional character and predictive model.....	24
6.1 Regional character.....	24
6.2 Predictive Model	25
6.2.1 Site types	25
6.2.2 Site occurrence.....	26
7. Archaeological Survey	28
7.1 Purpose.....	28
7.2 Survey strategy.....	28
7.2.1 Site definition and recording	28
7.2.2 Protocol for recording Potential Archaeological Deposits.....	29
7.2.3 Limitations	29
7.3 Survey results	29
7.3.1 Survey coverage.....	35
7.4 Discussion	36

8. Cultural heritage values	39
8.1 Description of cultural heritage values	39
8.2 Aboriginal cultural significance	40
8.3 Scientific significance	40
Research Potential	40
Representativeness.....	40
Rarity.....	40
Educational Potential.....	40
8.3.1 Scientific significance assessment.....	41
9. Impact assessment	42
10. Recommendations.....	43
References	44
Appendix A AHIMS Search and site cards	46

List of Figures

Figure 1: Location of the study area.....	3
Figure 2: Soil landscapes and hydrology of the study area	9
Figure 3: 1955 aerial (source: NSW Historical Imagery).....	10
Figure 4: 1975 aerial imagery (source: NSW Historical Imagery).....	11
Figure 5: 1994 aerial imagery (source: NSW Historical Imagery).....	12
Figure 6: Regional overview of AHIMS sites.....	21
Figure 7: AHIMS sites in proximity to the study area.....	22
Figure 8: Extent of registered PADs within study area	23
Figure 9: Facing north, south-west corner of study area showing signs of disturbance related to market gardening (Lot 12 DP1157044).....	30
Figure 10: View facing east showing slope down towards north, gravel driveway and residence (Lot 12 DP1157044).....	30
Figure 11: View north, showing AHIMS ID 45-5-4077 in flat landform with northern orientated slope towards dam at northern extent (AHIMS ID 45-5-4077)	31
Figure 12: Surface visibility within area of PAD showing mixed deposits of orange clay and loam (AHIMS ID 45-5-4078).....	31
Figure 13: View facing north-west within area of PAD (AHIMS ID 45-5-4078) showing flat landform with northern orientated slope and dense grass coverage	31
Figure 14: Facing east, showing northern orientated slope towards dam and disturbance related to residential dwellings.....	31
Figure 15: View facing north-east, showing gentle northern orientated slope towards dam.....	31
Figure 16: View north-west, showing gentle south-north orientated slope and area of exposure around dam with mixed bedrock and brown loams.....	31
Figure 17: View south in northern extent of study area, showing gentle south-north orientated slope, power lines and dense vegetation	32

Figure 18: View east towards north-eastern boundary of study area showing powerlines and dense grass cover.....	32
Figure 19: View north showing northern orientated slope and landscaped grass area with horse paddocks at 149 Boundary Road.....	32
Figure 20: View facing east showing north-south orientated slope and residence on at top of slope at 4 Cataract Road, represents high point	32
Figure 21: View west, showing northern orientated slope and dense grass cover towards western boundary (Lot 20 DP255616)	32
Figure 22: View north showing flat, sheltered area, with gentle northern orientated slope towards dam beyond trees (Lot 20 DP255616)	32
Figure 23: Exposed orange - brown loams	33
Figure 24: View east showing flat landform with dense grass cover (Lot 20 DP255616)	33
Figure 25: View facing west showing dense grass cover and gentle slope downwards towards north (Lot 13 DP255616)	33
Figure 26: View east towards dam (Lot 13 DP255616), with area of exposure revealing mixed orange loams	33
Figure 27: Area of exposure near dam showing south-north orientated slope, orange-brown loams and grass cover (Lot 13 DP255616).....	33
Figure 28: View facing north showing landscaping and mound (Lot 2 DP1213569)	33
Figure 29: Survey units and landforms.....	37
Figure 30: Desktop assessment and archaeological survey results	38
Figure 31: Concept design for rezoning of West Gables	42

List of Tables

Table 1: Registered Aboriginal Parties	5
Table 2: Cumberland Plain subregion summary (source: NSW Department of Planning, Industry and Environment).....	7
Table 3: Search parameters for AHIMS search:	20
Table 4: Frequencies of site types.....	20
Table 5: AHIMS sites within the study area	20
Table 6: Predictive model for the occurrence of archaeological site types in the study area	26
Table 7: Survey unit description summary.....	34
Table 8: Survey coverage	35
Table 9: Landform summary	36
Table 10: Scientific significance assessment	41

Abbreviations

Abbreviation	Description
ACHA	Aboriginal Cultural Heritage Assessment
AHIP	Aboriginal Heritage Impact Permit
AHIMS	Aboriginal Heritage Information Management System
DCP	Development Control Plan
DECCW	(Former) Department of Environment Climate Change and Water
ELA	Eco Logical Australia Pty Ltd
Heritage NSW	Heritage NSW, Department of Premier and Cabinet
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
OEH	NSW Office of Environment and Heritage
PAD	Potential Archaeological Deposit
RAP	Registered Aboriginal Party
SHI	State Heritage Inventory
SHR	State Heritage Register

1. Introduction

1.1 Project background

Eco Logical Australia (ELA) has been engaged by Stockland Development Pty Ltd and Allam Property Group to undertake an Aboriginal Heritage Archaeological Assessment to support a Planning Proposal to rezone an 80.1 hectare parcel of land (West Gables) for residential use. The proposed rezoning area is bound by Boundary Road and Old Pitt Town Road, Gables, hereafter referred to the study area (Figure 1).

The Aboriginal heritage archaeological and landscape assessment is required where there is the potential to be, impacts on areas, objects, places or landscapes of heritage significance to Aboriginal culture and landscape. This assessment has been undertaken in accordance with Heritage NSW, Department of Premier and Cabinet (Heritage NSW) *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010b).

The aims of the Aboriginal Heritage Archaeological Assessment are to:

- Undertake background research and an archaeological field survey
- Determine if there is scientific, historic, aesthetic, and cultural values within the study area through Aboriginal consultation.
- Identify any impacts based the on indicative concept plan, provide constraints and propose any potential management measures.

1.2 Location of the proposed works

The site is located in the suburb of Gables, on the borders of Oakville, and Box Hill, within the Hills Shire Local Government Area (LGA), Parish of Nelson, County of Cumberland. The study area is approximately 80.1 ha in area and comprises the following - Lot 11 DP593517, Lot 20 DP255616, Lot 13-14 and 19 DP255616, Lot 12 DP1157044, Lot 2-6 DP39157, Lot 2 DP1213569, Lot 20-21 DP609902 and Lot 10A DP39157.

1.3 Consultation

Preliminary consultation has been undertaken to identify any potential cultural values that may be present in the study area. Aboriginal groups were identified for preliminary consultation in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010c). The archaeological survey was undertaken with Steve Randall of Deerubbin Local Aboriginal Land Council (LALC) in attendance.

1.4 Authorship

This assessment has been prepared by ELA Archaeologists Kate Storan and Charlotte Bradshaw, with support from ELA Senior Archaeologist Jennifer Norfolk. It was reviewed by ELA Principal Heritage Consultant Karyn McLeod.

Kate Storan has a BA (Archaeology) from Macquarie University. Charlotte Bradshaw Bachelor of Arts (Archaeology) from University of Sydney. Jennifer Norfolk has an MSc. (Marine Archaeology) from

Southampton University. Karyn McLeod has a BA Honours (Archaeology) from the University of Sydney and an MA (Cultural Heritage) from Deakin University.



Figure 1: Location of the study area

2. Legislative context

NATIONAL PARKS AND WILDLIFE ACT 1974

Aboriginal cultural heritage in NSW is afforded protection under the provisions of the *National Parks and Wildlife Act 1974* (NSW) [NPW Act]. The Act is administered by Heritage NSW, which has responsibilities under the legislation for the proper care, preservation, and protection of 'Aboriginal objects' and 'Aboriginal places'.

Under the provisions of the NPW Act, all Aboriginal objects are protected irrespective of their level of significance or issues of land tenure. Aboriginal objects are defined by the Act as, *any deposit, object or material evidence (that is not a handicraft made for sale) relating to Aboriginal habitation of NSW, before or during the occupation of that area by persons of non-Aboriginal extraction (and includes Aboriginal remains)*. Aboriginal objects are limited to physical evidence and may be referred to as 'Aboriginal sites', 'relics' or 'cultural material'. Aboriginal objects can include scarred trees, artefact scatters, middens, rock art and engravings, as well as post-contact sites and activities such as fringe camps and stockyards. Heritage NSW must be notified about the discovery of Aboriginal objects under section 89A of the NPW Act.

Part 5 of the NPW Act provides specific protection for Aboriginal objects and places by making it an offence to destroy, deface, damage, or move them from the land. *The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (CoP) (DECCW 2010a) as adopted by the and Wildlife Regulation 2019 (NPW Regulation) made under the NPW Act, provides guidance to individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects. The CoP also determines whether proponents should apply for consent in the form of an Aboriginal Heritage Impact Permit (AHIP) under section 90 of the Act. The CoP can be used for all activities across all environments. The NPW Act provides that a person who exercises due diligence in determining that their actions will not harm Aboriginal objects has a defence against prosecution for the strict liability offence if they later unknowingly harm an object without an AHIP. However, if an Aboriginal object is encountered in the course of an activity work must cease and an application should be made for an AHIP.

The Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010b) assists in establishing the requirements for undertaking archaeological investigation without an AHIP or establishing the requirements that must be followed when carrying out archaeological investigation in NSW where an application for an AHIP is likely to be made. Heritage NSW recommends that the requirements of this Code also be followed where a proponent may be uncertain about whether or not their proposed activity may have the potential to harm Aboriginal objects or declared Aboriginal places.

3. Consultation

Preliminary consultation has been undertaken in line with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010c). This has ensured that Aboriginal stakeholders have been able to register and therefore be fully engaged on all aspects relating to identifying cultural heritage constraints for the planning proposal.

3.1 Stage 1 – Notification of planning proposal and registration of interest

WRITTEN REQUEST FOR INFORMATION ABOUT ABORIGINAL ORGANISATIONS

ELA, on behalf of the proponent, undertook a registration process for Aboriginal people with knowledge of the area. ELA wrote to the following organisations (as per *4.1.2 Consultation Requirements* on 18 March 2022, in order to identify Aboriginal people who may hold cultural knowledge relevant to determining the significance of Aboriginal objects or place:

- Heritage NSW.
- Deerubbin Local Aboriginal Land Council.
- Registrar, Aboriginal Land Rights Act 1983.
- The National Native Title Tribunal.
- Native Title Services Corporation Limited
- The Hills Shire Council; and
- The Greater Sydney Local Land Services.

PLACEMENT OF ADVERTISEMENT IN LOCAL PAPER

An advertisement was placed in the Hawkesbury Gazette on 20 April 2022 inviting interested Aboriginal stakeholders to register interest in providing cultural knowledge in relation to the proposed rezoning.

LETTERS TO ABORIGINAL ORGANISATIONS

As per 4.1.3 of the *Consultation Requirements*, ELA wrote to the Aboriginal organizations identified through the above process on 13 April 2022, inviting them to register an interest in the project. The registration closing date was set for 27 April 2022.

Registrants became the Registered Aboriginal Parties (RAPs) for the project. Table 1 below details the RAP's for the project.

Table 1: Registered Aboriginal Parties

Registered Aboriginal Party	Contact Name
Didge Ngunawal Clan	Lilly Carroll
Tocomwall	Scott Franks
Kamilaroi	Phil Khan
Merrigarn	Shaun Carroll
Darug Custodian Aboriginal Corporation	Justine Coplin
Muragadi	Jesse Johnson
B.H Heritage Consultants	Ralph Hampton
Butucarbin Aboriginal Corporation	Lowanna Gibson
A1 Indigenous Services	Carolyn Hickey

Registered Aboriginal Party	Contact Name
Gilay Consultants	Carolyn Slater
Murra Bidgee Mullangari Aboriginal Corporation	Ryan Johnson
Mundawari Heritage Consultants	Dean Delponte
Wailwan Aboriginal Group	Phillip Boney
Thoorga Nura	John Carriage
Waawaar Awaa Aboriginal Corporation	Rodney Gunther

3.2 Stage 2 and Stage 3 – Presentation of information about the proposed rezoning and gathering information on cultural significance/ values

PROJECT INFORMATION AND METHODOLOGY

Following the registration of Aboriginal parties, ELA presented the proposed project information and survey methodology for review with a request for any cultural knowledge or cultural values that might be present in the study area. This information was sent to the RAPs on 9 May 2022, with a close of review period on 3 June 2022.

No cultural values or potential heritage constraints were identified. Responses supporting the methodology were received from seven (7) of the registered Aboriginal parties

ARCHAEOLOGICAL SURVEY

An archaeological survey was undertaken by ELA Archaeologists Charlotte Bradshaw and Kate Storan with Steve Randall, Heritage Officer from Deerubbin LALC, on 19 May 2022. The survey resulted in the identification of some areas of archaeological potential within the study area. Further details regarding the archaeological survey can be found in Section 7 of this report.

4. Environmental context

4.1 Bioregion

The natural environment influences the distribution of archaeological material in a variety of ways and knowledge of the physical landscape and environment is a vital part of understanding the archaeology of an area. The availability and distribution of resources influenced past land use as people needed access to natural resources to survive.

Since the time of Aboriginal occupation, the environment and resources in many places is likely to have changed. As such, archaeologists cannot always draw direct inferences from the current environment. Historical land use and environmental degradation have impacted on the survival of material remains. Acidic soils, if present, are less likely to have preserved fragile organic materials such as bone or shell. Areas that have been subject to heavy erosion, some agricultural practices or other earth disturbances are less likely to contain in situ deposits of archaeological material.

The study area is situated within the Cumberland subregion of the NSW Sydney Basin bioregion of NSW (NSW NPWS, 2003). The typical characteristics of this bioregion are summarised in Table 2 below:

Table 2: Cumberland Plain subregion summary (source: NSW Department of Planning, Industry and Environment)

Cumberland subregion	
Geology	Triassic Wianamatta groups shales and sandstones. A down warped block on the coastal side of the Lapstone monocline. Intruded by a small number of volcanic vents and partly covered by Tertiary river gravels and sands. Quaternary alluvium along the main streams.
Landforms	Low rolling hills and wide valleys in a rain shadow area below the Blue Mountains. At least three terrace levels evident in the gravel splays. Volcanics from low hills in the shale landscapes. Swamps and lagoons on the floodplain of the Nepean River.
Soils	Red and yellow texture contrast soils on slopes, becoming harsher and sometimes affected by salt in tributary valley floors. Pedal uniform red to brown clays on volcanics. Poor uniform stony soils, often with texture contrast profiles on older gravels, high quality loams on modern floodplain alluvium.
Vegetation	Grey box, forest red gum, narrow leaved ironbark woodland with some spotted gum on the shale hills. Hard leaved scribbly gum, rough barked apple and old man banksia on alluvial sands and gravels. Broad leaved apple, cabbage gum and forest red gum with abundant swamp oak on river flats. Tall spike rush and juncus with Paramatta red gum in lagoons and swamps.

The study area is located on the low lying, gently undulating hills and plains of the northern Cumberland Plain. The underlying geology of the study area is predominantly Ashfield Shale.

BLACKTOWN RESIDUAL SOIL LANDSCAPE

The soil landscape in the study area is the residual Blacktown residual soil landscape, consisting of shallow to moderately deep soil with a relatively low susceptibility to erosion. Blacktown soils are conducive to artefact survivability however the acidity within in these soils quickly removes organics. In addition, the tendency of these soils to deflate often result in a temporal collapse where archaeological objects from multiple time periods can accumulate within a single layer.

5.2 Vegetation

Vegetation is limited in the study area, with the majority of the landscape having been cleared of vegetation. Original vegetation would have included tree species typical of the Cumberland Plain woodland group, with various eucalypt species, spotted gum and occasional ironbark's. Alluvial woodland with a denser understorey would have been present along the creek margins.

5.2 Hydrology

The study area is in the Hawkesbury River catchment and is between two drainage systems. The minor drainage lines to the south flow into Killarney Chain of Ponds, the drainage lines to the west flow into Longneck Creek then the Hawkesbury River. The drainage lines dissecting the study area flow north into Cataract Creek then Cattai Creek and then the Hawkesbury River. This drainage lines have been highly modified by the adjacent Gables development and previous land use practices and dam construction. The closest permanent water source is Cattai Creek, approximately 2.4 kilometres to the east and Makenzie's Creek, approximately 2.4km to the north-west.

4.2 Land Use History

The study area has been extensively modified by previous land-use practices and is predominantly utilised for small rural allotments, grazing cattle and market gardens. All allotments with a frontage to Old Pitt Town Road display evidence of moderate to high disturbance in the form of clearing, building construction, the provision of services, driveways, landscaping, dam construction and market gardening. There are small areas of low disturbance. The larger allotments with frontage to Boundary Road show less evidence of disturbance, however all have been cleared and subject to dam construction, the construction of buildings and some market gardening. Historical aerial imagery informs past land use and any disturbance that has occurred within the study area. Historical aerals of the study area were accessed via NSW Spatial Services Historical Imagery from 1955, 1975 and 1994 to ascertain levels of disturbance. The analysis of the aerals is as follows (Figure 3, Figure 4, Figure 5):

1955: The study area has been predominantly cleared of vegetation and is used as grazing land. Urban development is limited in the surrounding area. Vegetation comprises isolated trees in the southern portion of the study area and low-density patches of trees in the northern portion, which are inferred to be regrowth by the size of the trees. The presence of structures is limited to an industrial shed along Boundary Road and a small industrial / farm complex to the north of Cataract Road.

1975: Significant changes to the landscape have taken place from the 1955 aerial image as the study area is more intensively used, with new dams, driveways and buildings including sheds visible. The original industrial / farm complex to the north of Cataract Road has also expanded with signs of minor cultivation to the south of the shed structures. Some vegetation has also been cleared to the north of Cataract Road. Surrounding urban / semi-rural development had also increased in density.

1994: Further housing has been constructed on the southern boundary along Old Pitt Town Road and agricultural cropping along Boundary Road has occurred, with numerous plots visible on the corner of Boundary and Old Pitt Town Road and north of Cataract Road and south of Red Gables Road. Semi-rural development has further increased to the west and south of the study area, but intense urban development has yet to take place.

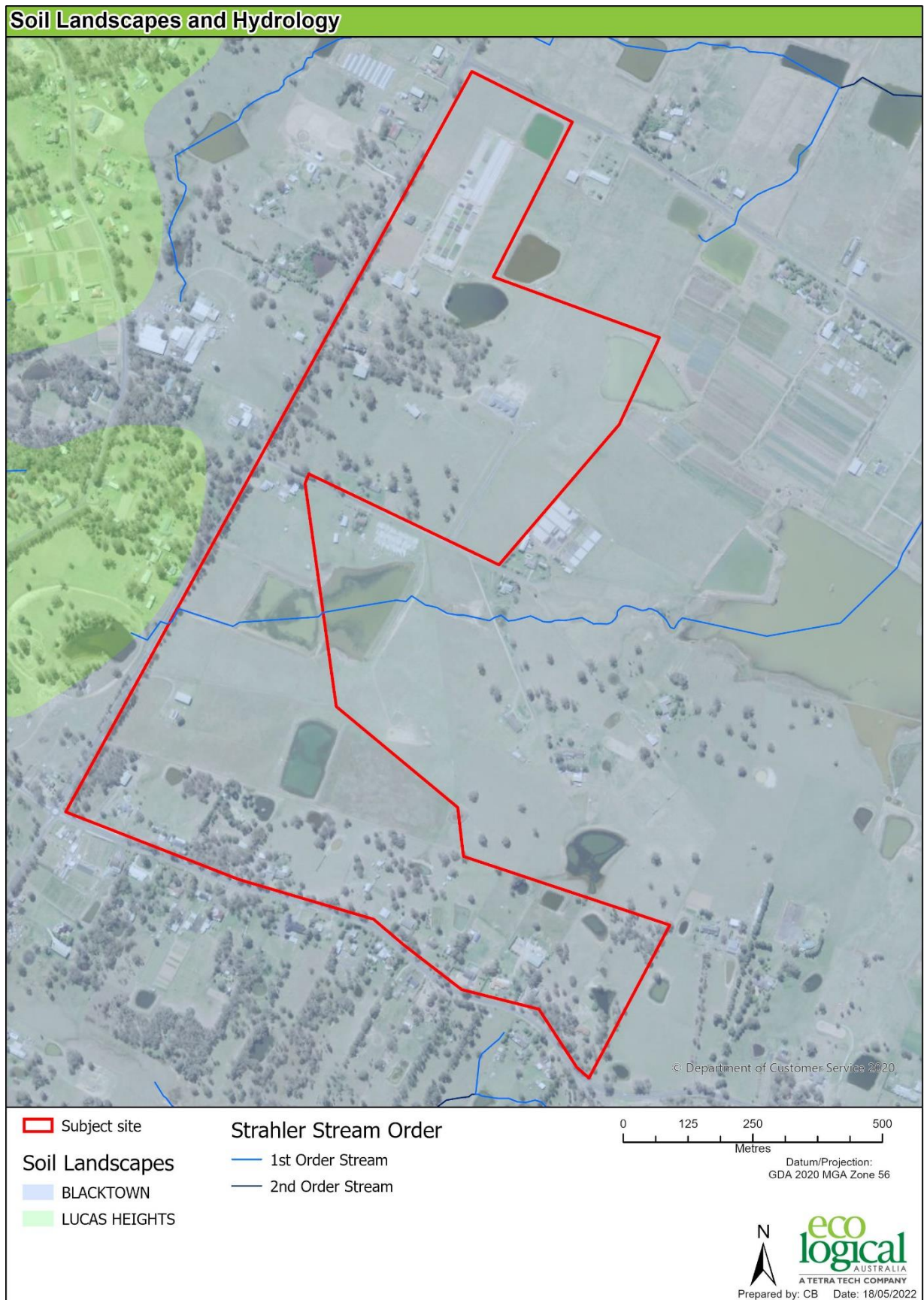


Figure 2: Soil landscapes and hydrology of the study area

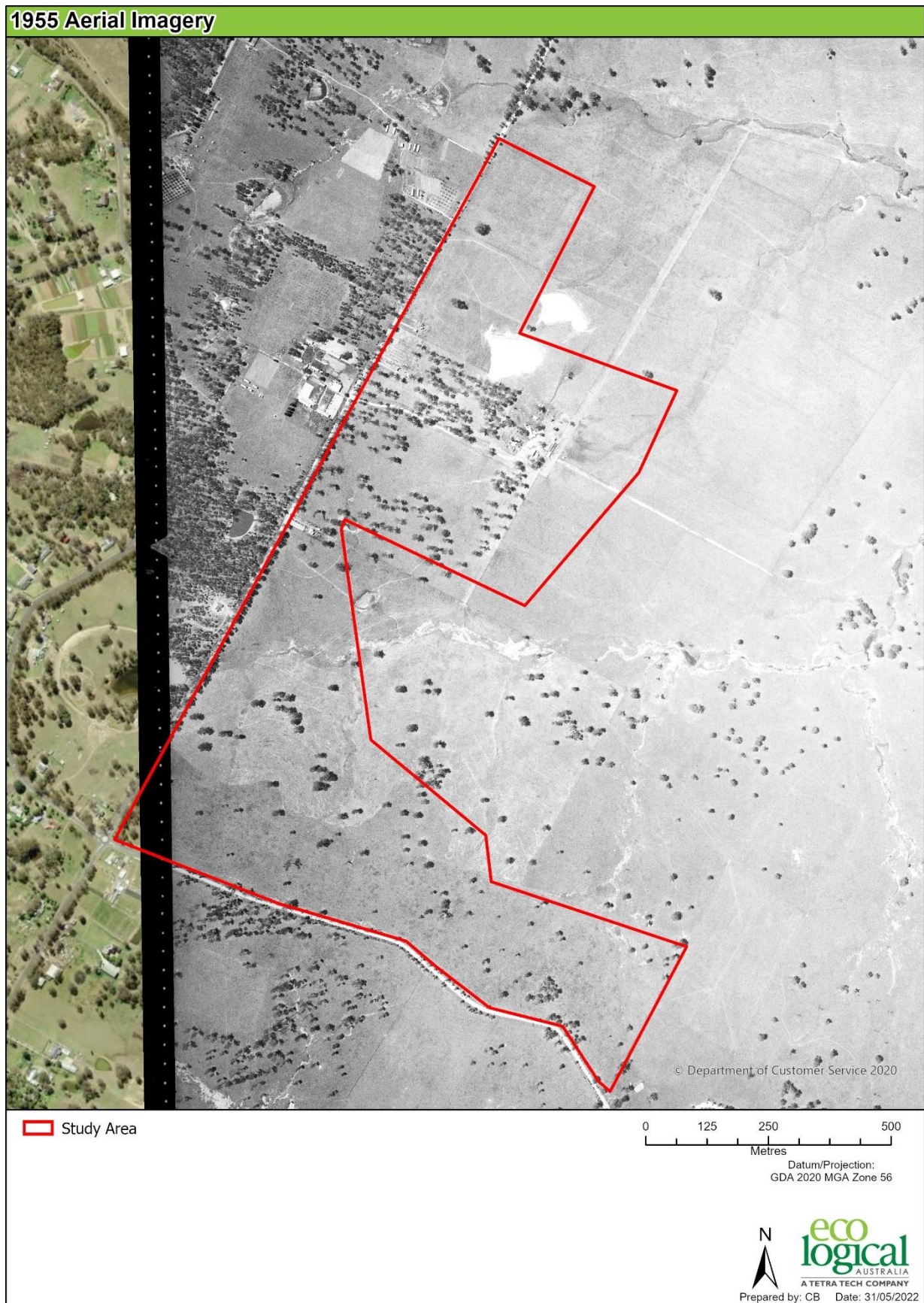


Figure 3: 1955 aerial (source: NSW Historical Imagery)



Figure 4: 1975 aerial imagery (source: NSW Historical Imagery)

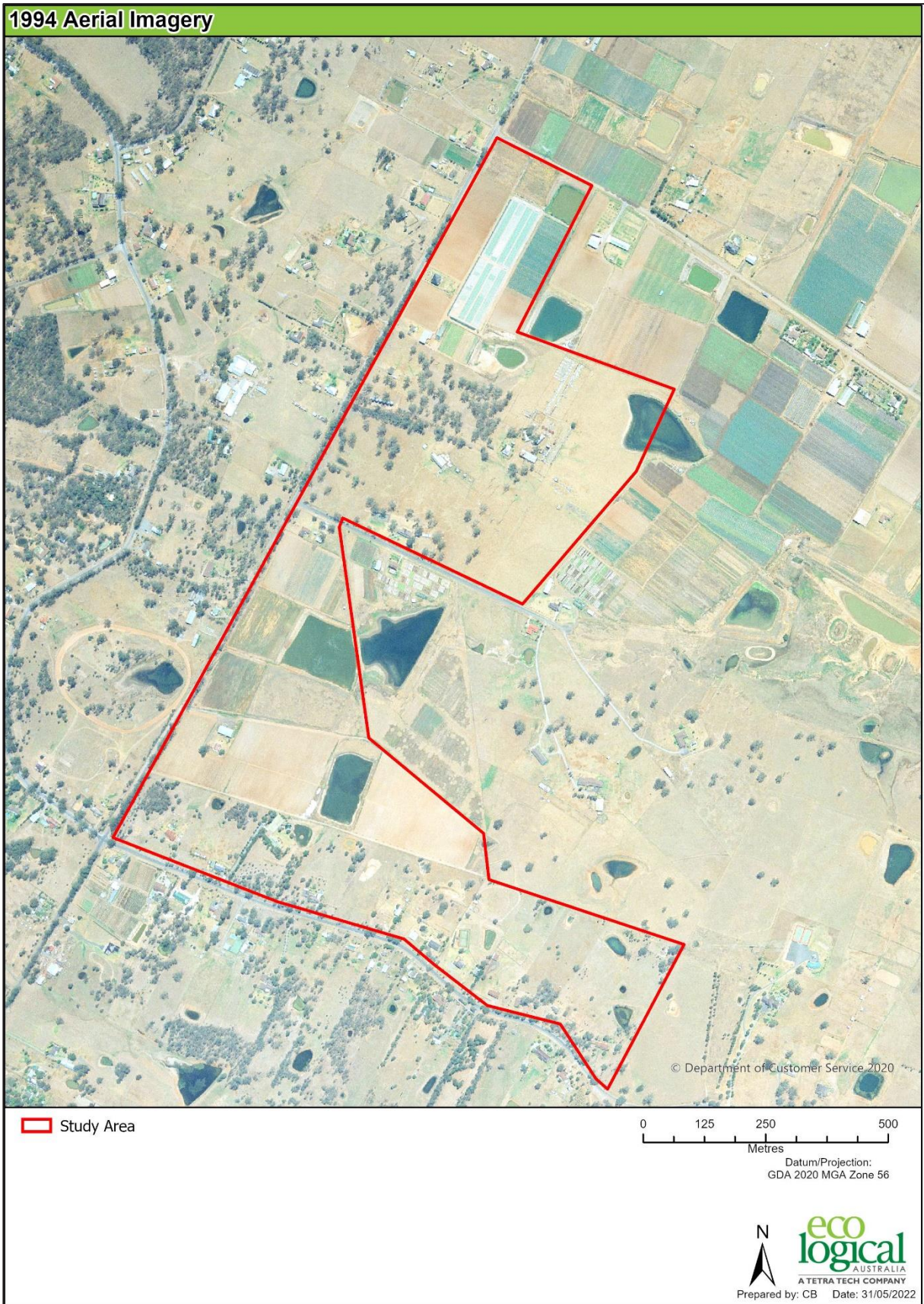


Figure 5: 1994 aerial imagery (source: NSW Historical Imagery)

5. Archaeological Context

5.1 Ethnohistory

An accurate reconstruction of past lifeways, technologies and land-use patterns of pre-colonial era First Australians can be flawed as it is often dependant on historical documents written by Europeans who held an ethnocentric bias concerning cultures that they did not fully understand. When possible, Aboriginal oral history is an invaluable resource in understanding the past. Archaeological investigations, in conjunction with both Aboriginal oral history and European documentation, can inform these gaps in our understanding, and in many cases challenge the biased notions proliferated by early colonial accounts.

Landscapes are not simply inert backdrops or containers for the arrangement of human artefacts; [they] are a product of a complex interaction between a symbolically and historically constituted human social world and a material environment (Godwin and Weiner 2006:124)

Dates of the earliest occupation of the continent by Aboriginal people are subject to continued revision as more research is undertaken. The earliest undisputed radiocarbon date from the region comes from a rock shelter site north of Penrith on the Nepean, known as Shaw's Creek K2, which has been dated to 14,700 +/- 250 BP (Attenbrow 2010). However, dates of more than 40,000 years (ANU-4016) have been claimed for artefacts found in gravels of the Cranebrook Terrace on the Nepean River which suggests earlier Aboriginal occupation of the Sydney region (Nanson *et al.* 1987; Stockton & Holland 1974).

At the time of European settlement, the Cumberland Plain was thought to be close to the intersection of a number of tribal boundaries. There is debate over the extent and nature of territorial boundaries in the Sydney Basin. This is due in part to the absence of ethnographic and linguistic studies at the time of contact, the scarcity of adequate historical documentation and anthropological interest until well after settlement of the region (McDonald 2007) as well as the colonial impacts to the oral histories and knowledge of the Darug groups. The linguistic evidence from the Sydney region indicates the presence of five discrete language groups at European contact (Capell 1970, Dawes 1970). As the evidence is unclear and at times contradictory, there are conflicting views on how it can be interpreted. At the time of contact and in early 19th century ethnographic accounts, it is indicated that the Bedigal group inhabited the wider Box Hill region, a group who spoke the Darug (or Dharug) language which was spoken by many groups within the Sydney Basin (JMcCHM 2011).

Campsites used by Aboriginal groups in the Cumberland Plain were described by Collins (1798) as being made of the bark of a single tree, bent in the middle and placed on its two ends on the ground, in order to form an acute angle. Due to being situated inland, the Bedigal people made use of natural resources centred around the major river systems and creek lines within the area, the largest of which being the Hawkesbury River. Creeks and rivers provided abundant marine resources, while land-based food sources included a variety of animals, such as birds, possums, goannas, and wallabies. Lithic resources for tool production were sourced from multiple locations, but the largest stone quarry within the north-west Sydney region was Plumpton Quarry, which provided an abundance of silcrete material to create tools that can now be found across the Hills Shire and Blacktown regions (Attenbrow 2010; Kohen 1993).

The archaeological record is limited to materials and objects that were able to survive post-deposition. As a result, the most common type of Aboriginal objects remaining in the archaeological record are stone artefacts. Archaeological analysis 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 Before Present years (BP) in the Sydney region (Attenbrow 2010). It is argued that these changes in material culture were an indication of changes in social organisation and behaviour.

5.2 Previous archaeological assessments

A number of Aboriginal archaeological assessments have been conducted within the Box Hill area (AECOM 2011; AHMS 2009; AHMS 2011) over the past fifteen years due to an increasing amount of residential development in the area. These assessments indicate that the most prevalent site types found in the area are artefact scatters, Potential Archaeological Deposits (PAD) and isolated artefacts. Most of the sites recorded have been identified on lower slopes within close proximity (~200m) to water sources such as the Killarney Chain of Ponds Creek and associated tributaries. Previous studies within the Box Hill area also show that artefact material is dominated by silcrete, followed by volcanic tuff (sometimes referred to as mudstone), both of which are materials commonly used by Aboriginal groups in the Cumberland Plain. The following section summarises some of the previous archaeological studies that have been undertaken within the Box Hill area.

ARCHAEOLOGICAL AND HERITAGE MANAGEMENT SOLUTIONS, 2009. ABORIGINAL HERITAGE DESKTOP REVIEW AND ARCHAEOLOGICAL SENSITIVITY MAPPING FOR THE NORTH WEST AND SOUTH WEST GROWTH CENTRES. UNPUBLISHED REPORT TO SYDNEY WATER.

Archaeological and Heritage Management Solutions (AHMS) were previously engaged by Sydney Water to prepare an Aboriginal heritage desktop review and archaeological sensitivity mapping for the northwest and southwest growth centres, two large land areas within western Sydney that have been prioritised by NSW for rapid residential development. Box Hill is located within the northwest growth centre. AHMS developed a predictive model for Aboriginal archaeological resources in the northwest growth centre which found:

“In the NW assessment area, the model identified areas of very high (5.6%), high (20.4%), moderate (34.1%) and low (39.9%) archaeological probability. Areas of very high and high archaeological probability were in proximity to higher order streams, including South Creek, First Ponds Creek, Killarney Chain of Ponds and Second Ponds Creek. A test of the model using the known/documented sites and a comparison with other studies in the region suggest it is approximately 70% effective at predicting archaeological resources.”

The AHMS report did note that one of the main limitations to this predictive model is the absence of information on areas of previous disturbance. It is therefore possible that areas which have been disturbed previously have been revegetated in recent times giving the impression of undisturbed land.

ARCHAEOLOGICAL AND HERITAGE MANAGEMENT SOLUTIONS, 2011. WATER RELATED SERVICES FOR THE NORTH WEST GROWTH CENTRE – SECOND RELEASE PRECINCTS – ABORIGINAL HERITAGE IMPACT ASSESSMENT. REPORT TO SYDNEY WATER.

AHMS was previously engaged by Sydney Water to prepare an Aboriginal heritage impact assessment for water related services for the North West Growth Centre – Second Release Precincts.

An initial desktop assessment, including an extensive search of the AHIMS database, identified a total of 179 previously recorded Aboriginal sites within the north-west growth centre area, including 7 sites, 5 PADs, one isolated find and one artefact scatter with PAD, within land potentially impacted by the proposal. The majority of sites recorded on the AHIMS database within the area were artefacts (77%) and PAD (15%). Several sites were recorded in proximity to Eastern Creek and its tributaries, highlighting the significance of the terraces and tributaries associated with Eastern Creek.

A review of previous archaeological assessments within the vicinity of the study area indicated that Aboriginal sites with higher artefact densities occurred near high order drainage lines, with low densities occurring near lower, small order drainage lines. The dominant raw material of Aboriginal sites within the region comprised of silcrete, with quartzite, tuff and indurated mudstone comprising some sites. Proximity to raw materials was found to be a key factor in artefact distribution and areas of historical disturbance compromised the survival of Aboriginal objects.

A field survey was undertaken over a period of 30 days. The survey covered areas that included land adjacent to the Killarney Chain of Ponds and Eastern Creek, roads and streets in the eastern extent of the Riverstone Precinct, land near Schofields, large portions of Box Hill and sections of Windsor Road. Survey coverage was noted to be low due to dense grass cover, and the majority of the survey covered areas within road corridors which were considered to be highly disturbed. The general area was characterised by undulating slopes and hills, with lower slopes around the two main tributaries. These creek lines were found to be within lower slopes or alluvial flats, which retained archaeological values, or low-lying flood prone and swampy conditions which were considered to have low archaeological potential. A total of 21 Aboriginal sites were identified during the assessment and would be impacted by the proposed development, including 14 PADs, one artefact scatter, 4 artefact scatters with PAD and 2 isolated finds. These sites were identified near the major streams of the Killarney Chain of Ponds and tributaries, Eastern Creek and tributaries and First Ponds Creek in elevated, level areas. Despite disturbance noted in some areas, artefact scatters indicated there was potential for nearby subsurface artefact bearing deposits. The sites were assessed as having low-high significance.

As a result of this assessment, recommendations included consultation with RAPs to continue and harm should be avoided to any places of Aboriginal significance, with relocation of the pipeline preferred. In places that impacts could not be avoided, partial impact should be considered, and mitigation measures implemented.

AECOM, 2011. BOX HILL AND BOX HILL INDUSTRIAL PRECINCTS ABORIGINAL HERITAGE ASSESSMENT REPORT: FINAL STEP 3 REPORT. PREPARED FOR DEPARTMENT OF PLANNING.

The Box Hill and Box Hill Industrial Precincts were subject to further assessment in 2011 by AECOM. This assessment included field survey of both precincts, which identified 11 additional archaeological sites, including nine open artefact scatters and two isolated finds. Twenty-four of the twenty-seven previously recorded sites and PADs already existing within the precincts were relocated, with the remaining three

sites having been destroyed as a result of upgrades to Windsor Road. The newly identified sites consisted of open artefact scatters and isolated finds of silcrete and mudstone, including cores, complete flakes, flaked fragments and broken flakes. Newly identified artefacts at the previously recorded sites included retouched flakes and a Bondi Point.

The majority of identified sites were found in the western half of the AECOM study area, in association with extant or former creek lines. All sites were recorded on the flats or lower slopes associated with established drainage systems, with no sites recorded higher up the slopes or on ridgelines or crests. The authors noted that this apparent site patterning was likely a product of differential ground visibility in these environments, with fluvial erosion around the creek lines contributing to the identification of artefacts in these locations. It was suggested recorded site locations were surface manifestations of a more-or-less continuous subsurface archaeological landscape in the study area which would vary in scale and density based on environmental factors such as landform and distance to water.

KELLEHER NIGHTINGALE CONSULTING, 2013. BOX HILL NORTH PLANNING PROPOSAL – ABORIGINAL HERITAGE ASSESSMENT. PREPARED FOR APP CORPORATION.

Kelleher Nightingale Consulting (KNC) was previously engaged by APP Corporation to prepare a planning proposal for the rezoning of lands at Box Hill North for residential purposes. The land, 'Box Hill North' and now known as 'The Gables', was approximately 390 hectares in size and located in the area directly adjoining the east and north of the current study area.

The initial desktop assessment, including an extensive search of the AHIMS database, identified a total of 96 Aboriginal sites within the vicinity of the study area. No Aboriginal sites had previously been recorded as being within the study area, and the majority of sites recorded on the AHIMS database were artefact sites (58%), PAD (21.9%) and art sites (6%). A review of previous archaeological investigations within the region identified artefact scatters and isolated finds comprising mostly of silcrete were prevalent, and the majority of PADs were located on flat and lower slopes in close proximity to creek lines and in relatively undisturbed contexts.

A survey of the study area was undertaken in three survey units. Survey unit 1, which comprised of the north-eastern corner of the study area where Cataract Creek crossed Maguire Road, had low surface visibility due to grass cover, with some erosion scours on the eastern bank of the creek. Ground disturbance was considered to be low, limited to vegetation clearance and the construction of a house and driveway. Survey unit 2, which comprised of the north-western portion of the study area, had low surface visibility due to grass cover, with some exposures near the dam and along unsealed driveways. High disturbance was noted in the south-western portion of the study area due to past and current market gardening and the construction of dams. Surface visibility in survey unit 3, in the southern portion of the study area, was also considered to be low, limited to stock tracks, vehicle tracks and erosion scours and was noted to be good near the flats on the margin of the dam. The centre of survey unit 3 had been disturbed due to market gardening and the construction of a dam and residence. The area to the south of the dam appeared to be less disturbed. Overall, visibility across the study area was low due to grass cover, and a lack of access to some properties limited survey coverage.

Overall, the assessment identified four Aboriginal archaeological sites within the study area, including a grinding groove, two open artefact scatters and one isolated find. The grinding grooves were found to the west of Cataract Creek in survey unit 2, in an area with exposed sandstone bench outcrops and

within a slope landform context. One open artefact scatter comprised of 22 silcrete artefacts on the eastern side of Cataract Creek in survey unit 1. The artefact scatter was located approximately 100m to the southwest of the grinding grooves, on a level terrace and in an area of exposure along the creekbank. Another artefact scatter, comprising of 25 silcrete and tuff artefacts, was found in survey unit 3 within an area of exposure along the lower slopes and creekbanks on the drainage line flats of Cataract Creek. One isolated silcrete artefact was identified in survey unit 3 on the southern edge of a large dam to the south of Red Gables Road.

As a result, of this assessment, the majority of the northern and southern portions of the study area were considered to have moderate archaeological potential, with the central portion of the study area considered to have low archaeological potential. The areas in proximity to the identified Aboriginal sites and in undisturbed contexts were considered to be of high archaeological potential. Recommendations included an ACHA be undertaken for any future development to support an AHIP application for any impacts to the identified Aboriginal sites, with continued Aboriginal consultation.

KELLEHER NIGHTINGALE, 2014. BOX HILL NORTH: CULTURAL HERITAGE ASSESSMENT REPORT, PREPARED FOR E.J. COOPER AND SON PTY LIMITED.

KNC prepared an Aboriginal Cultural Heritage Assessment for staged development of lands known as Box Hill North. This includes all the land now known as the 'Gable's directly adjoining the east and north of the study area. Test excavation of 56 test squares resulted in the recording of seven Aboriginal sites and an AHIP (C0001213) was sought for the entirety of the lands subject to the proposed development. A mitigation program comprising archaeological salvage was undertaken prior to construction.

The artefact densities uncovered within Box Hill North indicate that the areas adjacent to Cataract Creek were utilised frequently and/or extensively by past Aboriginal people. The surrounding slopes were also utilised; however, artefact densities are considerably less in these locations, suggesting that they were utilised for a different purpose, less frequently and/or extensively than sites closer to the creek. Human and environmental disturbance within the study area have affected the survival of archaeological deposits. Moreover, test excavation results indicated many areas were affected by flooding, agricultural activity and water management which displayed low artefact densities and disturbed subsurface deposits. These disturbed areas contain low archaeological potential.

ECO LOGICAL AUSTRALIA, 2021. 11-13 HYNDS ROAD, BOX HILL – ABORIGINAL HERITAGE DUE DILIGENCE ASSESSMENT. PREPARED FOR RJS AND JGS DEVELOPMENTS PTY LTD.

ELA was previously engaged by RJS and JGS Developments Pty Ltd to prepare an Aboriginal Heritage Due Diligence Assessment to support the proposed residential subdivision of 11 and 13 Hynds Road, Box Hill NSW, located approximately 4.4km to the south-east of the current study area.

The initial desktop assessment, including an extensive search of the AHIMS database, identified 105 Aboriginal sites within the vicinity of the study area. The search did not identify any previously recorded sites within the study area, though four sites were recorded as being within 400m of it. Most sites within the vicinity of the study area were artefacts (62%) and PADs (15%). The study area had been mapped as being in an area of moderate archaeological sensitivity by the Box Hill Growth Centre Precincts Development Control Plan 2016 (Box Hill DCP).

A visual inspection of the study area was undertaken which did not identify any new Aboriginal objects and noted both areas of disturbance and potential within the study area. There was evidence of previous disturbances in the southern portion of the study area related to the construction of a driveway, residential buildings, services and a swimming pool. The rear of the study area had not been observably disturbed and consisted of an open paddock with an ephemeral drainage line running through the centre, which had been subject to clearance and agricultural land use.

As a result of the assessment, Aboriginal objects were found to have a moderate potential to be present within the study area and as such, further assessment and mitigation measures were recommended.

ECO LOGICAL AUSTRALIA, 2021. TERRY AND MASON ROAD, BOX HILL DETENTION BASINS – ABORIGINAL HERITAGE ASSESSMENT. PREPARED FOR J. WYNDHAM PRINCE PTY LTD.

ELA was previously engaged by J. Wyndham Prince Pty Ltd to prepare an Aboriginal heritage assessment for the proposed construction of two regional detention basins and an associated drainage line within Box Hills NSW. In relation to the current study area, this assessment was undertaken approximately 3.2km to the south-east. ELA had previously conducted an Aboriginal due diligence assessment which found there was a previously recorded Aboriginal site (AHIMS ID 45-5-4877) within the study area and identified the landform to be sensitive as it was within 200m of a tributary of the Killarney Chain of Ponds.

An extensive search of the AHIMS database was conducted which identified a total of 102 Aboriginal sites within a 4km radius of the study area. One site had been identified within the study area, and three sites were identified within 200m of the study area. The majority of sites recorded on the AHIMS database within the vicinity of the study area were artefact scatters or isolated finds (72%), PAD (18%) and artefact with associated PAD (8%). A review of previous archaeological assessments indicated the study area had undergone land disturbance from past land use practices, drainage works, residential construction and erosional processes. Large portions of the study area had been assessed as having low sensitivity and a test excavation identified the AHIMS site recorded within the study area was of low significance due to it being in a disturbed context.

A survey of the study area was undertaken which confirmed that the majority of the study area had previously been disturbed. This disturbance was related to land clearing for residential purposes, market gardening and the construction of dams. Ground surface visibility was low due to grass cover and in areas of exposure mixed clay loams were observed. No Aboriginal objects were identified throughout the study area and it was noted that the past disturbance had likely impacted any Aboriginal objects that may have been present.

As a result of this assessment, it was considered that the archaeological potential within the area of proposed works was low-nil. Recommendations included that no further archaeological assessment would be necessary, and works could proceed with caution, with an unexpected finds policy implemented. If any Aboriginal sites were found to be impacted by the proposed works, an AHIP should be sought.

ECO LOGICAL AUSTRALIA, 2021. WEST GABLES HISTORIC AND ABORIGINAL HERITAGE ADVICE. PREPARED FOR STOCKLAND.

ELA was previously engaged by Stockland to provide preliminary heritage advice for a number of properties adjoining the Gables in Box Hill North, which comprises of the current study area.

The desktop assessment, including an extensive search of the AHIMS database, identified a total of 29 Aboriginal sites within the vicinity of the study area. Two previously registered sites, AHIMS ID 45-5-4078 and AHIMS ID 45-5-4077, both PADs, were identified as being within the study area.

A review of previous archaeological assessments identified that Aboriginal sites were prevalent in proximity to water sources and in undisturbed contexts. A test excavation of the land to the east and north of the study area identified seven Aboriginal sites in close proximity to Cataract Creek, indicating Aboriginal people utilised the area frequently.

As a result, portions of the study area were assessed as having sensitive landforms as the study area was within 200m of a water source. No creek lines were identified within the study area, though several drainage lines in the vicinity fed into Cataract Creek to the north east and Mckenzie's Creek to the north west. Further assessment in the form of an ACHA and test excavation was recommended in the areas of PAD as well as in any areas of sensitivity identified during the survey.

SUMMARY OF PREVIOUS INVESTIGATIONS

Previous archaeological investigations in proximity to the study area have covered landscapes similar to those that exist in the West Gables. Archaeological potential has been identified on lower slopes and terraces associated with creeks and excavations of areas such as this that occur within a similar sandstone/shale interface zone have yielded substantial archaeological deposits, indicating these areas are capable of retaining significant archaeology. Excavations such as those conducted at Rouse Hill have added significantly to our understanding of past Aboriginal people's use of these landscapes. The artefact densities uncovered within Box Hill North indicate that the areas adjacent to Cataract Creek were utilised frequently by past Aboriginal people. The surrounding slopes were also utilised; however, artefact densities are lower in these locations, indicating that they were used sporadically.

Based on the outcomes of previous local archaeological assessments, it is likely the current study area has the potential for archaeological deposits to be present. Human and environmental disturbance within the study area and surrounding landscape has impacted on the survival of intact archaeological deposits. Previous test excavations have found low artefact densities and disturbed subsurface deposits in areas that have been affected by flooding and past and present agricultural activity, indicating a low archaeological potential. The results of the assessment of the land immediately to the north and east indicates Aboriginal sites are likely to occur within the current study area, particularly in similar landforms and in undisturbed contexts.

The presence of archaeological sites does not necessarily preclude development, provided appropriate management or mitigation is undertaken. A holistic approach to Aboriginal heritage during the planning and development process can help to ensure satisfactory heritage outcomes.

5.3 AHIMS search

The Aboriginal Heritage Information Management System (AHIMS) is a database that retains information and records pertaining to the identified and recorded Aboriginal cultural heritage sites, objects, and declared places throughout New South Wales. It is maintained and regulated by Heritage NSW under Section 90Q of the NPW Act. An extensive search of the AHIMS database was conducted on 17 March 2022 to identify if any registered Aboriginal sites were present within, or adjacent to, the study area (Appendix A). The AHIMS database search was conducted within the following coordinates:

Table 3: Search parameters for AHIMS search:

GDA Zone	56
Lat, Long	-33.64, 150.87
to Lat, Long	-33.60, 150.93
Buffer	0 m

The AHIMS search identified 52 Aboriginal sites within the search parameters. The distribution of recorded Aboriginal sites within the vicinity of the study area is shown in Figure 6. The frequencies of site types recorded within the AHIMS database search area are listed in Table 4 below:

Table 4: Frequencies of site types

Site Features	Number	Percentage of site types
Artefact	38	73
Art (Pigment or Engraved)	1	2
Artefact, Art	2	4
Artefact, Grinding Groove	1	2
Artefact, PAD	3	6
Grinding Groove	2	4
Potential Archaeological Deposit (PAD)	5	10
Total	52	100

The majority of Aboriginal sites within the search parameters with artefact scatters or isolated finds (73%), followed by PAD (10%). Two (2) Aboriginal sites have been identified by the AHIMS search as located within the study area (Table 5).

Table 5: AHIMS sites within the study area

AHIMS ID	Site Name	Site features	Description
45-5-4077	PAD 1016-6	PAD	Recorded by Alan Williams as part of the AHMS (2011) North West Growth Centre assessment. The PAD is located on a level hillcrest overlooking a chain of ponds on a dammed drainage line. Site contains areas of low disturbance.
45-5-4078	PAD 1017-6	PAD	Recorded by Alan Williams as part of the AHMS (2011) North West Growth Centre assessment. PAD is located on the same landform as 1016-6, on a crest overlooking a dammed drainage line with relatively low disturbance levels.

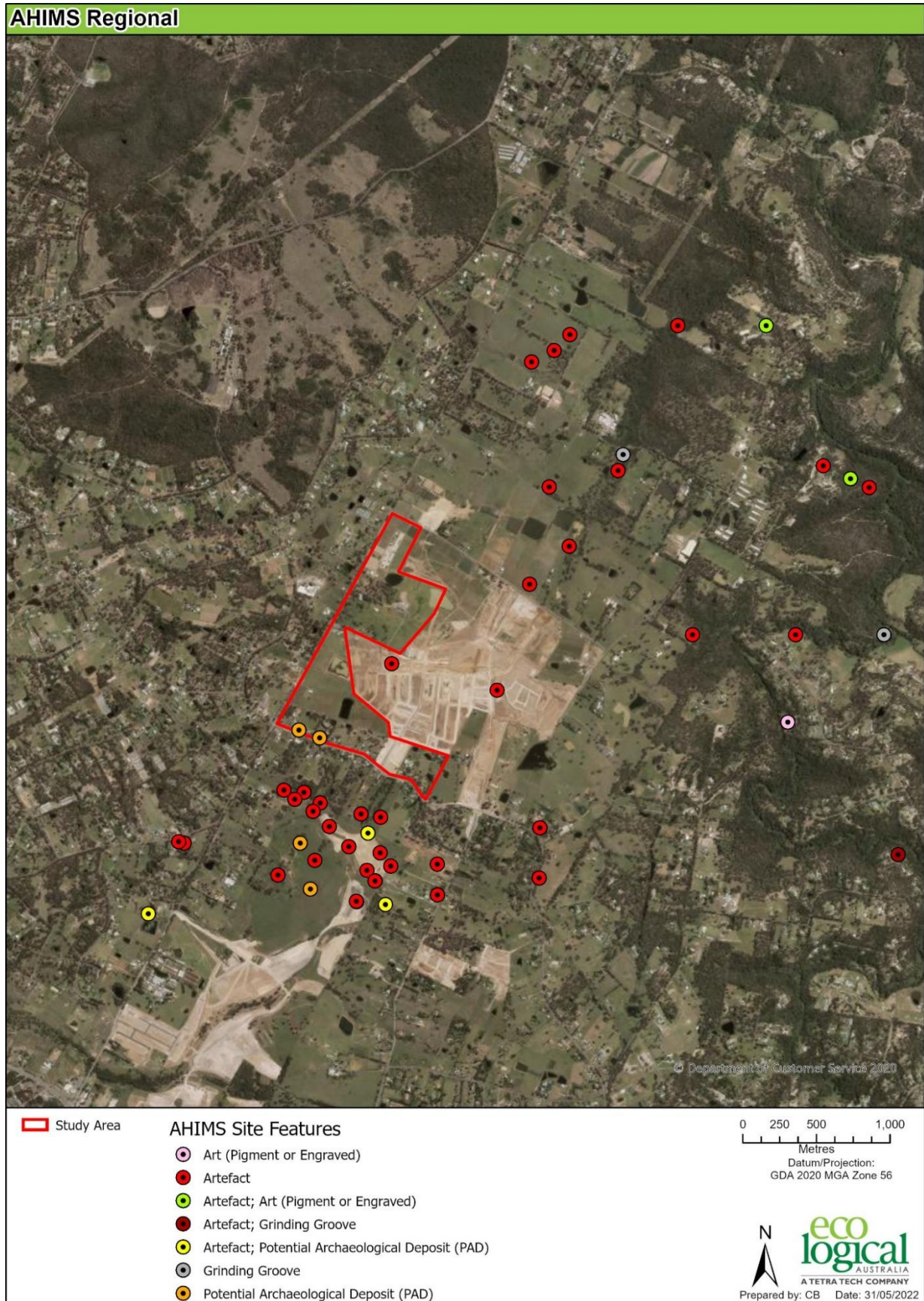


Figure 6: Regional overview of AHIMS sites



Figure 7: AHIMS sites in proximity to the study area



Figure 8: Extent of registered PADs within study area

6. Regional character and predictive model

6.1 Regional character

Previous archaeological assessments across the region provide important data on Aboriginal archaeological site distribution and typology from which an understanding of the archaeological landscape within the study area can be developed.

Aboriginal occupation in the Sydney region encompasses at least 20,000 years with dates of 13,000 years BP at Shaws Creek in the Blue Mountain foothills; 11,000 BP for Mangrove Creek and Loggers Shelter and c. 20,000 BP at Burrill Lake on the South Coast (Attenbrow 2002). The majority of sites in the Sydney region have been dated to within the last 3,000 to 5,000 years, with many researchers proposing that occupation intensity increased from this period. This apparent intensity of occupation may have been influenced by rising sea levels which by about 6,500 years ago had risen to their present levels.

Open artefact sites and artefact scatters are the most common site types identified within the Cumberland Plain (Artefact 2012). These sites are most commonly found in landforms associated with permanent water sources, such as river banks and alluvial flats (White and McDonald 2010).

Large, concentrated assemblages are more likely to be located within resource rich areas (AMC 2014). Complex sites, containing multiple artefact types and archaeological features, are often located in close proximity (~150m) to permanent water sources (Niche 2020). The confluence of creek lines could provide focal points for occupation and the size of the stream's Strahler order could influence the size of the assemblages present (Niche 2020). The crests of hills and ridge tops also have the potential to contain larger sites (AMBS 2012).

Low density assemblages of artefacts are also located in close proximity to reliable water sources. Whilst these sites can represent smaller or less frequent instances of occupation, disturbances from historic land use and erosion can also affect artefact count (Niche 2020).

The majority of artefact assemblages are comprised primarily of unretouched flakes and debitage, with a smaller percentage of formal tool types being present (AMBS 2012). The most common raw material used to manufacture tools is silcrete (Niche, 2020, Artefact 2012), followed by tuff/chert (AMC 2014). Silcrete sources are generally located in the north western Cumberland Plain

Areas with few or no sites identified on the surface have often been shown to contain subsurface archaeological deposits and the distribution of surface artefacts is not a reliable indicator of an area's archaeological potential (Niche 2012). PADs are most likely to be located along valley floors and low slopes and ridgelines between flat landforms (GML 2020) and possess low-to-moderate density archaeological deposits (AHMS 2005 in AMC 2014). Sites situated in the alluvial soils of the South Creek Soil Profile have the potential for stratified deposits (GML 2020), however; low-lying, flood prone areas are unlikely to have been used extensively for camping (Steele 2001 in AMC 2014).

Instances of old growth vegetation are present in the region and have the potential to contain culturally modified trees (Artefact 2010). However, such instances are rare as large-scale land clearance has removed the majority of old growth vegetation from the Cumberland plain (AMC 2014).

6.2 Predictive Model

A commonly utilised tool in the planning and management of Aboriginal cultural heritage are predictive models. These models aim to identify specific landforms and places within the landscape which may contain archaeological material. They usually begin as geographically broad models, constructed through extensive reviews of the available literature to determine basic patterns of site distribution, before being refined according to the specific landform and environmental characteristics of the study area.

Predictive models are almost solely based upon a cultural ecological perspective of the landscape: landforms and environmental characteristics provided a distinct set of subsistence constraints, meaning the landscape could only be occupied in particular ways in order to minimise distance to potable water, maximise biodiversity, and provide shelter from the elements. Accordingly, there is an expectation that land use patterns vary between separate environmental zones due to differing constraints and that this will manifest in alternate spatial distributions of archaeological material. While some social factors may have influenced communities to venture through certain landscapes, other social factors may have resulted in the avoidance of landscapes, regardless of environmental conditions. Due to this, to understand the cultural context of a certain landscape consultation with local Aboriginal knowledge holders and community members is essential.

6.2.1 Site types

There are several common Aboriginal cultural heritage site types that may be found in the study area.

Open camp sites / stone artefact scatters represent past Aboriginal subsistence and stone knapping activities and may include archaeological remains such as stone artefacts and hearths. This site type usually appears as surface artefact scatters in areas where vegetation is limited, and ground surface visibility is high. They are also often exposed by erosion, agricultural events (such as ploughing), and the creation of informal, unsealed vehicle access tracks and walking paths. Open campsites are often located on dry, relatively flat land along or adjacent to rivers and creeks. Sites that contain surface or subsurface deposits resulting from repeated or continuous occupation are more likely to occur on elevated ground near permanent, reliable water sources. Flat, open areas associated with creeks and their resource-rich environments would have offered ideal camping areas to the Aboriginal inhabitants of the local area.

Isolated artefacts may represent a single item discard event or the result of limited stone knapping activity. The identification of isolated artefacts may indicate the presence of a more extensive, subsurface *in situ* archaeological deposit, or a larger deposit obscured by low ground visibility. Isolated artefacts are likely to be located on landforms associated with a range of activities, such as ridge lines that would have provided ease of movement through the area and level areas with access to a water source. Artefact scatters and isolated artefacts are the most common site types found in association with fresh water and/or food resource gathering areas.

Potential Archaeological Deposit (PAD) are areas where there is no surface expression of stone artefacts, but, due to a landscape feature or isolated artefact, there is a strong likelihood that the area will contain subsurface *in situ* archaeological deposits. Landscape features that may indicate a PAD include proximity to reliable water sources, particularly terraces and flats, ridge lines and ridge tops, and sand dune systems.

Culturally modified trees exhibit evidence of the deliberate removal of the *periderm* (outer bark), *phloem* (inner bark), and, in some cases, the sapwood. These materials can be used to manufacture a variety of items, including shields, Coolamon (bowls or trays), watercraft, containers, and a range of wooden tools and implements. Trees may also have been scarred in order to gain access to food resources (such as cutting toe-holds so as to climb the tree and catch possums or birds) or to mark locations (such as tribal territories). In some instances, Aboriginal people marked important features or locations (such as ceremonial grounds) by carving patterns or motifs into the sapwood of established trees or bending and grafting the branches of saplings to create rings.

Grinding grooves are the physical evidence of tool making or food processing activities undertaken by Aboriginal people. The manual rubbing of stones against other stones creates grooves in the rock; these are usually found on flat areas of abrasive rock such as sandstone in close proximity to water courses.

Bora grounds / ceremonial sites are locations that have spiritual or ceremonial values to Aboriginal people. Such sites may comprise natural or altered landforms and, in some cases, will also contain archaeological material. For example, bora grounds are a ceremonial site type usually consisting of a cleared area around one or more raised earth circles connected by a pathway. Bora grounds are often accompanied by ground drawings or mouldings of people, animals or deities, or geometrically carved designs on the surrounding trees.

Burials often took place in proximity to camp sites, as most people tended to die in or close to camp and it is difficult to move a body over a long distance. Soft, sandy soils on or close to rivers and creeks allowed for easier removal of earth for burial. Similarly, rock shelters or middens also provided accessible burial places. Burial sites may be marked by stone cairns, modified trees, or a natural landmark. They may also be identified through historic records or oral histories.

Contact / historical sites can include a wide variety of sites and may be identified through artefactual evidence or oral histories. Artefacts located at such sites may involve the use of introduced materials such as glass or ceramics or may have social significance regarding the interaction between Aboriginal people and European settlers.

6.2.2 Site occurrence

Based on the results produced from the landscape assessment, searches of the AHIMS and state heritage registers, and examination of the regional and local Aboriginal archaeological context, the below predictive model (Table 6) has been designed for the study area.

Table 6: Predictive model for the occurrence of archaeological site types in the study area

Site Type	Description	Likelihood of occurrence
Open camp sites / stone artefact scatters / isolated finds	Artefact scatters and isolated artefacts are the most common site types found in association with fresh water, and/or food resource gathering areas. Artefact scatters and isolated finds are reported to be the most common archaeological site type in the study area.	Low. There are no recorded artefact sites within the study area. This site type could occur in areas of low disturbance, but historic aerials indicate the majority of the study area has been modified as a result of past and present land use
Potential Archaeological Deposits	The study area is a landform that could be considered to be potentially archaeologically sensitive	Moderate. There are two registered PADs within the study area.

Site Type	Description	Likelihood of occurrence
Culturally modified trees	Culturally modified trees may be present wherever tree specimens of an appropriate age are present. Widespread land clearing has been undertaken within the study area.	Low. The majority of the study area has been cleared of native vegetation, and there are no recorded scarred trees on the AHIMS database within the vicinity of the study area
Axe grinding grooves	Although the study area is in proximity to a watercourse, the underlying geomorphology of the study area is not conducive to this site type, no naturally exposed bedrock	Low. Desktop assessment does not suggest sandstone exposure required for grinding grooves within the study area
Bora grounds / ceremonial sites	There is a low reported incidence of ceremonial sites in proximity to the study area.	Low. Whilst the AHIMS search and land formation does not suggest the study area is a bora/ceremonial site, these sites can often be intangible and informed only by oral history and cultural knowledge
Burials	There is a low reported incidence of burial sites in proximity to the study area. The Blacktown soils are shallow, and it is unlikely that this site type would be present.	Low. There are no recorded burials within the vicinity of the study area, and the study area is not in close proximity to a permanent water source indicating this is unlikely to occur
Contact / historical sites	Contact sites may occur in any area where Aboriginal people encountered early European settlers.	Low. No AHIMS sites in proximity to the study area record contact/historical sites

7. Archaeological Survey

7.1 Purpose

The purpose of the survey was to assess the current condition of the Aboriginal sites identified within the study area and to identify any unrecorded Aboriginal sites or objects. Areas of subsurface archaeological potential identified in the desktop assessment were also inspected.

7.2 Survey strategy

Archaeological survey of the study area was conducted on foot, in accordance with the *Code of Practice*. The overall strategy was to complete a full coverage survey however it was targeted as not all properties could be accessed. A handheld Global Positioning System (GPS) was used to track the survey area which covered and recorded the location of key features (disturbances, areas of archaeological sensitivity/potential). The coordinate system projection used for all site recording was GDA94 MGA 56.

The field survey methodology was as follows:

- Record the landform, general soil information, surface conditions and vegetation conditions encountered during the survey and how these impact on the visibility of objects
- Define the boundaries of any Aboriginal sites and areas of PAD based on landmarks and historical maps
- Reinspect previously identified Aboriginal sites and areas of archaeological potential within the study area
- Identify areas of disturbance which may have impacted the presence of intact soils and archaeological features
- Consultation with Aboriginal representatives to discuss the potential intangible cultural heritage values of the study area
- Collect information to ascertain whether further archaeological investigation is required.

All ground exposures were examined for Aboriginal objects (stone artefacts, imported shell, or other traces of Aboriginal occupation and old growth trees were examined for signs of cultural scarring and marking.

A photographic record was kept during the survey. Photographs were taken to record aspects of survey units including vegetation and disturbance. Scales were used for photographs where appropriate.

7.2.1 Site definition and recording

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.

The Heritage NSW 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.

For the purposes of this study, an Aboriginal site would be defined by recording the spatial extent of visible traces or the direct evidence of their location.

7.2.2 Protocol for recording Potential Archaeological Deposits

Where areas of PAD are identified towards the margins of each survey unit, efforts must be made by the survey team to delineate each area of potential beyond the survey unit. Where the extent of the PAD extends beyond the survey unit, efforts must be made to map the extent of that feature up to approximately 70 m outside the survey unit. If it is likely that these PADs continue beyond that point, the survey team must justify that the distance is adequate to provide an accurate representation of the PAD with regard to future planning and design for the project.

7.2.3 Limitations

Some properties were not accessible during the survey as ELA were not granted entry. As such, predictions are based on the sampling of landforms that were accessible during the survey. Due to dense grass coverage across a majority of the study area, there was also low surface visibility which limited survey coverage. Predictions regarding the potential for further subsurface archaeological materials to exist within the study area is based on evidence from the desktop assessment, including surface indications, environmental contexts, local artefact distribution patterns and previous archaeological excavations and assessments within the vicinity of the study area.

7.3 Survey results

The study was a sample survey due to limitations regarding access to certain portions of the study area. The survey focused on areas that appeared to have undergone low disturbance as indicated by the desktop assessment, areas in proximity to drainage lines, areas of exposure surrounding dams and within the two areas of previously registered PAD.

The study area comprised of gently undulating rises, with moderate and gentle slopes, drainage lines and ridgelines. There was evidence of moderate to high disturbance across the majority of the study area which has been largely cleared of vegetation for agricultural and residential use, large portions had been market gardened previously and dams and residential dwellings had been constructed. There was very limited surface visibility across the study area due to dense grass cover and exposures were limited to areas adjacent to the constructed dams. No surface artefacts were identified.

The southern extent of the study area which bounds Old Pitt Town Road, is situated on a crest landform, with a moderate to steep slope down towards the north (Figure 9 – Figure 16, Figure 28). Ground disturbance was considered to be low to moderate, as residences, driveways and dams had been constructed and there was evidence of past and present pastoral activities (Figure 9, Figure 10, Figure 14). The two areas of PAD were re-identified, situated within a crest landform overlooking a dammed drainage line to the north-east (Figure 11, Figure 12, Figure 13). PAD 1016-6 (AHIMS ID 45-5-4077) is located within a horse paddock and has undergone moderate disturbance as a result of this land use. PAD 1017-6 (AHIMS ID 45-5-4078) is located in a re-vegetated area of open forest and has undergone low disturbance, with exception to the installation of an electrical pole and the clearing of vegetation.

There was very limited surface visibility due to dense grass and areas of re-vegetation (Figure 13). In areas of exposure a mixed deposit of orange-brown sandy loams and bedrock was observed, and surface visibility was limited to areas adjacent to the dams at the base of the slope (Figure 15, Figure 16). No surface artefacts were identified in any of the surveyed areas bounding Old Pitt Town Road.

Lot 13 DP255616 is located on a gently sloping, north facing landform that appeared to have undergone moderate ground disturbance related to the construction of a residence in the north-western corner, pastoral land use and a constructed dam in the centre of the lot (Figure 25 – Figure 26). Surface visibility was low due to dense grass cover, with exposures limited to the unsealed driveway around the residence and the areas adjacent to the dam (Figure 27, Figure 26). In areas of exposure, a mixed deposit of orange-brown loams was observed, and no surface artefacts were identified.

Lot 20 DP255616 is located on a gently sloping landform, with a level hillcrest on the top of the slope (Figure 19 – Figure 24). Ground disturbance was considered to be low to moderate, with a residence constructed in the south-western corner, horse paddocks and grazing areas and several fences and sheds (Figure 19). An area on top of the crest appeared to have undergone low disturbance and was in a sheltered area facing the highest point of the study area (Figure 20, Figure 24). Visibility was limited due to dense grass cover, and in areas of exposure an orange-brown loam was observed (Figure 23). No surface artefacts were identified in any areas of exposure.

Lot 11 DP593517 comprised of a gently, north-eastern orientated sloping landform which appeared to have undergone moderate ground disturbance related to pastoral land use and market gardening (Figure 17, Figure 18). A residence had been constructed in the south-western corner of the lot and power lines were indicated moderate disturbance had occurred. There was very limited surface visibility due to dense grass cover and no areas of potential were identified (Figure 17, Figure 18).



Figure 9: Facing north, south-west corner of study area showing signs of disturbance related to market gardening (Lot 12 DP1157044)



Figure 10: View facing east showing slope down towards north, gravel driveway and residence (Lot 12 DP1157044)



Figure 11: View north, showing AHIMS ID 45-5-4077 in flat landform with northern orientated slope towards dam at northern extent (AHIMS ID 45-5-4077)



Figure 12: Surface visibility within area of PAD showing mixed deposits of orange clay and loam (AHIMS ID 45-5-4078)



Figure 13: View facing north-west within area of PAD (AHIMS ID 45-5-4078) showing flat landform with northern orientated slope and dense grass coverage



Figure 14: Facing east, showing northern orientated slope towards dam and disturbance related to residential dwellings



Figure 15: View facing north-east, showing gentle northern orientated slope towards dam



Figure 16: View north-west, showing gentle south-north orientated slope and area of exposure around dam with mixed bedrock and brown loams



Figure 17: View south in northern extent of study area, showing gentle south-north orientated slope, power lines and dense vegetation



Figure 18: View east towards north-eastern boundary of study area showing powerlines and dense grass cover



Figure 19: View north showing northern orientated slope and landscaped grass area with horse paddocks at 149 Boundary Road



Figure 20: View facing east showing north-south orientated slope and residence on at top of slope at 4 Cataract Road, represents high point



Figure 21: View west, showing northern orientated slope and dense grass cover towards western boundary (Lot 20 DP255616)



Figure 22: View north showing flat, sheltered area, with gentle northern orientated slope towards dam beyond trees (Lot 20 DP255616)



Figure 23: Exposed orange - brown loams



Figure 24: View east showing flat landform with dense grass cover (Lot 20 DP255616)



Figure 25: View facing west showing dense grass cover and gentle slope downwards towards north (Lot 13 DP255616)



Figure 26: View east towards dam (Lot 13 DP255616), with area of exposure revealing mixed orange loams



Figure 27: Area of exposure near dam showing south-north orientated slope, orange-brown loams and grass cover (Lot 13 DP255616)



Figure 28: View facing north showing landscaping and mound (Lot 2 DP1213569)

Table 7: Survey unit description summary

Address	Landform	Visibility, exposure and soils	Disturbance	Archaeological potential	AHIMS
93 Old Pitt Town Road Lot 12 DP1157044	Moderate slope; crest	Low visibility, limited exposure (unsealed gravel driveway)	Moderate to high disturbance related to market gardening and pastoral activities, residence and driveway	No potential, shallow mixed soils with moderate to high disturbance from market gardening and landscape modification	No
95 Old Pitt Town Road Lot 2 DP39157	Moderate slope; crest	Low visibility and exposure limited to constructed dam revealing orange-brown loams	Moderate disturbance observed in area of PAD related to land use as a horse paddock and landscape modification, including dam and residence	Yes, registered PAD in south-western corner with low disturbance	AHIMS ID 45-5-4077 (PAD)
97 Old Pitt Town Road Lot 3 DP39157	Moderate slope; crest	Low visibility, some exposure near dam and in area of PAD revealing orange-brown loams	Low disturbance observed in area of PAD, moderate disturbance related to residential dwellings and dam in southern portion of lot	Yes, registered PAD in south-eastern corner with low disturbance	AHIMS ID 45-5-4078 (PAD)
103 Old Pitt Town Road Lot 6 DP39157	Steep slope; crest	Low visibility, exposures around dam showing mixed bedrock and orange-brown loams	Moderate to high disturbance related to market gardening, residential dwellings and landscape modification (dam) in northern portion of lot	No potential, shallow mixed soils with moderate to high disturbance from market gardening and landscape modification	No
105 Old Pitt Town Road Lot 2 DP1213569	Moderate slope	Low visibility, dense vegetation	High disturbance related to pastoral land use and market gardening activities; large mound observed in eastern portion	No potential, shallow mixed soils with moderate to high disturbance from market gardening and landscape modification	No
145 Boundary Road Lot 13 DP255616	Drainage line; gentle slope	Low visibility due to dense vegetation, exposed unsealed gravel driveway around residence and orange-brown loams around dam	Moderate to high disturbance related to market gardening and agricultural activities, residence and landscape modification (dam) in centre of lot	No potential, shallow mixed soils with moderate to high disturbance from market gardening and landscape modification	No
2 Cataract Road, 149 Boundary Road Lot 20 DP255616	Gentle slope; crest	Low visibility due to dense vegetation, orange-brown loams observed in areas of exposure	Majority of lot displayed moderate to high ground disturbance related to pastoral land use, fencing, horse paddocks, residential dwellings and a driveway, area of low disturbance atop crest	No in areas of moderate to high disturbance, yes in areas of low disturbance	No

Address	Landform	Visibility, exposure and soils	Disturbance	Archaeological potential	AHIMS
151 Boundary Road Lot 11 DP593517	Gentle slope	Low visibility due to dense vegetation	Moderate to high disturbance related to market gardening and agricultural activities, residence and landscape modification (dam) in north-eastern portion of lot	No potential, shallow mixed soils with moderate to high disturbance from market gardening and landscape modification	No

7.3.1 Survey coverage

In accordance with Heritage NSW *Code of Practice* the study area was surveyed in relation to survey units, landforms, and landscapes.

Table 8: Survey coverage

Survey Unit	Landform	Survey Unit Area (m ²)	Visibility (%)	Exposure (%)	Effective coverage (ECA)	Effective coverage
Lot 12 DP1157044	Slope	12,703	20	10	254	2%
	Crest	7,542	0	0	0	0
Lot 2 DP39157	Slope	12,705	5	5	31	0.25%
	Crest	8,947	2	0	0	0
Lot 3 DP39157	Slope	9,515	5	5	24	0.25%
	Crest	8,854	20	5	89	1%
Lot 6 DP39157	Slope	12,438	10	5	62	1%
	Crest	7,694	5	5	19	0.25%
Lot 2 DP1213569	Slope	14,906	0	0	0	0
	Crest	5,071	30	2	30	0.6%
Lot 13 DP255616	Slope	109,461	10	5	547	1%
Lot 19-20 DP255616	Slope	170,499	5	2	170	0.1%
	Crest	89,341	20	5	893	1%
Lot 11 DP593517	Slope	95,132	5	3	142	0.15%

Table 9: Landform summary

Landform	Landform area	Area effectively surveyed	% landform effectively surveyed	Number of sites	Number of artefacts or features
Slope	437,359	1,230	0.3	0	2
Crest	127,449	1,031	0.8	2	2

7.4 Discussion

During the archaeological survey, an assessment of archaeological potential was conducted within the study area. The characterisation of archaeological potential was based on several factors known to influence both the location and preservation of archaeological sites in landscapes such as those present in the study area. These factors included landform context, aspect, distance to water, integrity of the ground surface / assessment of disturbance and location relative to identified archaeological sites.

The majority of the study area has undergone moderate to high ground disturbance primarily due to vegetation clearance, agricultural and residential use. There was generally low surface visibility and soil exposures, no Aboriginal objects were identified during the archaeological survey. In areas of low disturbance two previously registered PADs, AHIMS ID 45-5-4077 and AHIMS ID 45-5-4078, were re-identified during the survey.

Crest and ridge landforms, where stable, offer a unique archaeological perspective, in that they were often used differently than the more utilitarian areas near creeks. Areas of archaeological potential have been identified across the upper slope landforms in close proximity to drainage lines. These areas are relatively flat and sheltered and would have been favourable locations for campsites while in close proximity to resources zones on the lower slopes and larger drainage lines/ creek lines. Observations of the soil exposures along the property lines and road verges suggested these areas retained a reasonably good depth of soil. Groves of large trees still exist, and past land disturbance was limited to vegetation clearance.

Locations in close proximity to water sources have been identified as archaeologically sensitive in a number of both local and regional archaeological investigations. In addition, the lower slopes and flatter areas adjacent to Boundary Road were assessed as high archaeological potential in previous archaeological investigations in the surrounding area, however the historical aerials and site survey has resulted in a low archaeological potential for these sensitive landforms. The properties have been subject to intensive market gardening/ agricultural activities and is considered to retain low archaeological potential due to modification of the ground surface.

Overall, the majority of the study area had low surface visibility due to dense vegetation, and in areas of exposure no surface artefacts were identified. Two previously identified areas of PAD are located within the study area and three new areas of PAD have been identified by this assessment.

As portions of the study area were not accessible during the survey, more detailed surveying and further investigation needs to be conducted to inform any future development of the study area and would be anticipated to undertaken prior to the Development Assessment process. This is consistent with the advice provided by Steven Randall of Deerubbin LALC who was in attendance for the survey.

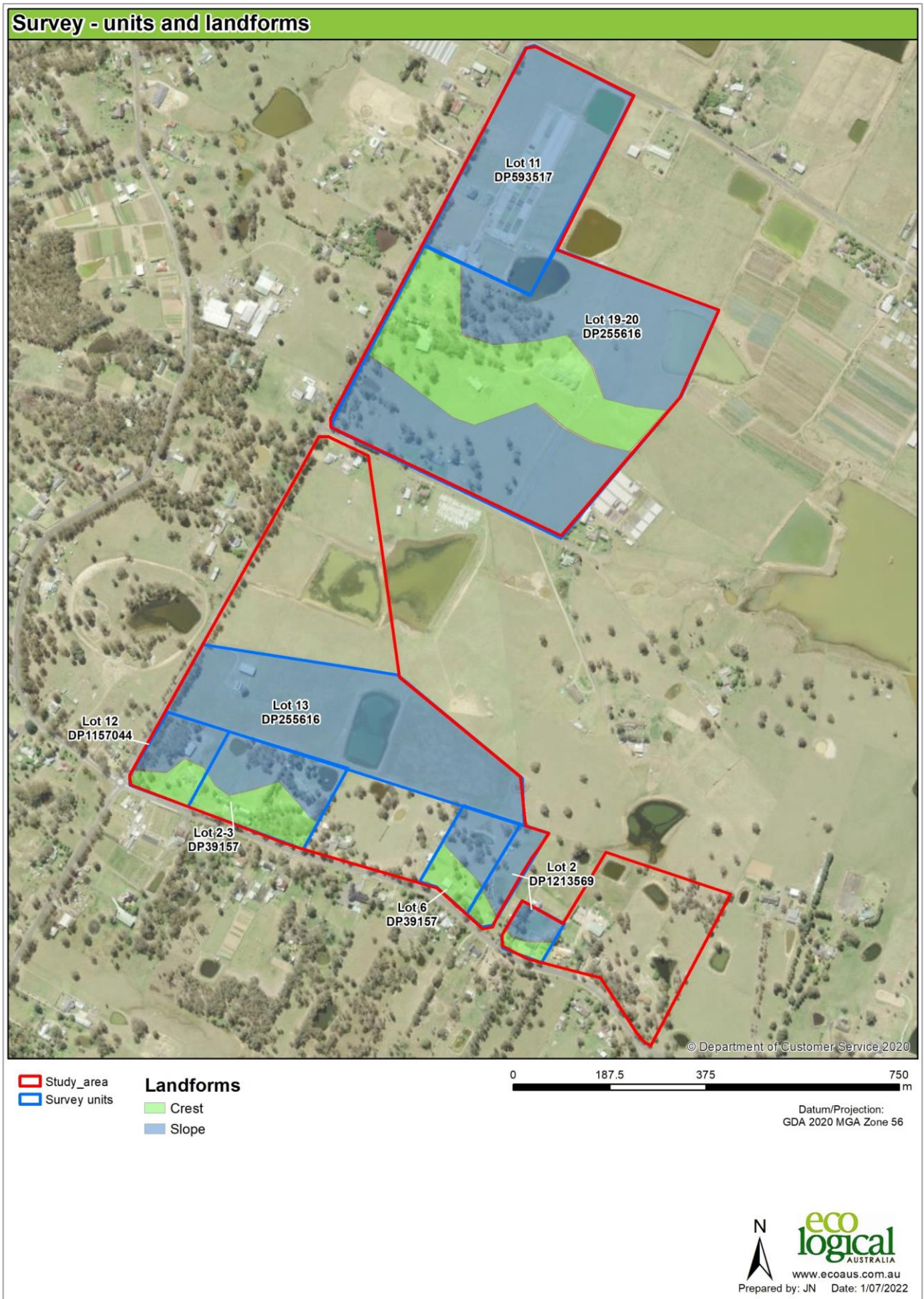


Figure 29: Survey units and landforms

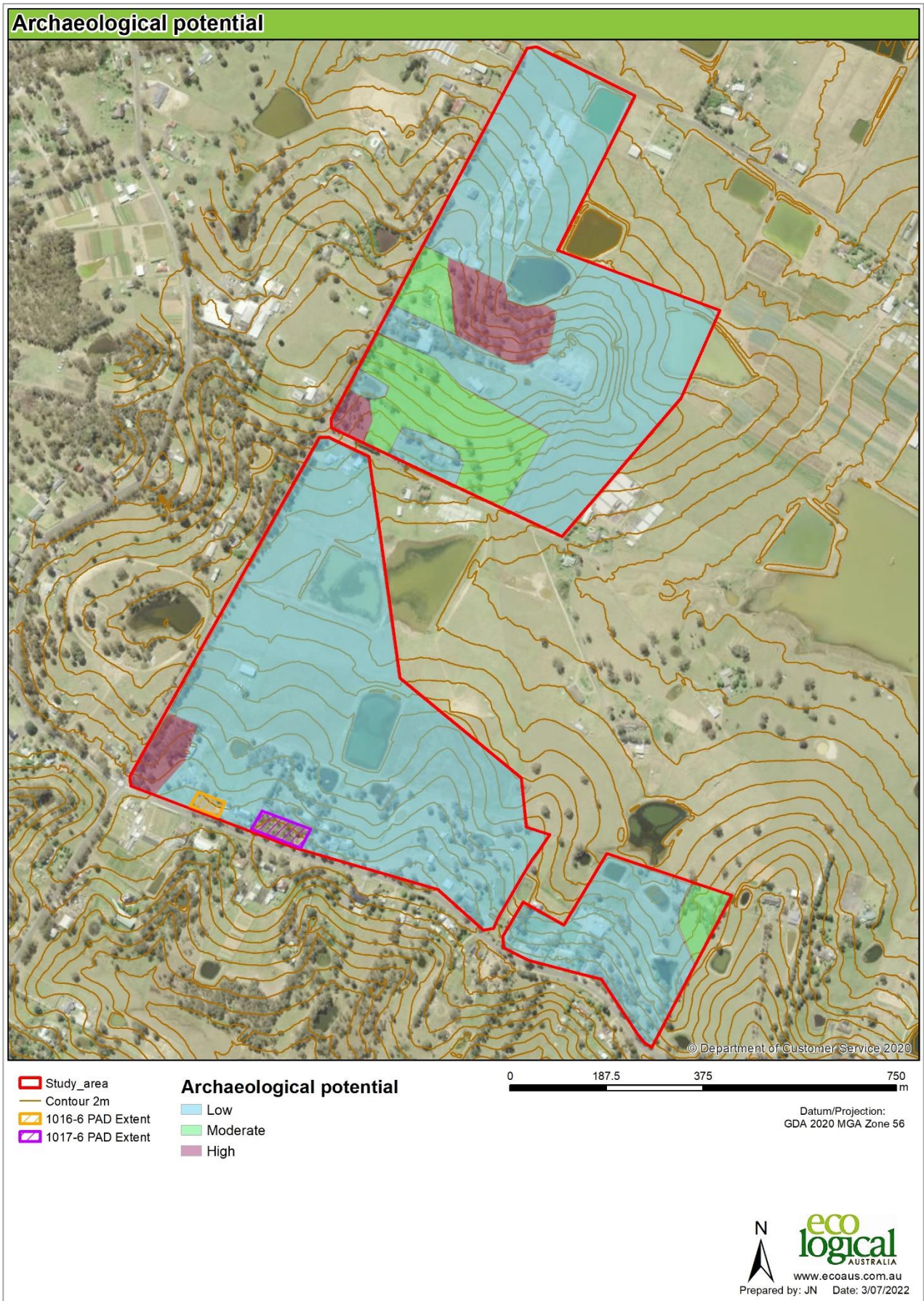


Figure 30: Desktop assessment and archaeological survey results

8. Cultural heritage values

The Australia ICOMOS *Burra Charter 2013* provides guidance for the assessment, conservation, and management of places of cultural significance. Cultural significance is defined in the Burra Charter as ‘a concept which helps in estimating the value of places’. The places that are likely to be of significance are those which help an understanding of the past or enrich the present, and which will be of value to future generations” (Burra Charter 2013). The Burra Charter provides a definition of cultural significance as “aesthetic, historic, scientific, social or spiritual value for past, present or future generations”. Aboriginal cultural heritage sites can be assessed through the application of these five principle values.

- Social or cultural value (assessed only by Aboriginal people).
- Historical value.
- Scientific/archaeological value (assessed mostly by archaeologists/heritage consultants).
- Aesthetic value.
- Spiritual value.
- This section presents an assessment of Aboriginal cultural heritage values based on these principles.

8.1 Description of cultural heritage values

The review of background information and information gained through consultation with Aboriginal people should provide insight into past events. These include how the landscape was used and why the identified Aboriginal objects are in this location, along with contemporary uses of the land. The following descriptions of cultural heritage values are drawn from the *Guide to investigating, assessing, and reporting on Aboriginal cultural heritage in NSW* (OEH 2011).

Social or cultural value refers to the spiritual, traditional, historical, or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them. Aboriginal cultural values can only be determined through consultation with the Aboriginal community. All Aboriginal sites are considered to have cultural significance to the Aboriginal community as they provide physical evidence of past Aboriginal use and occupation of the area. Aboriginal cultural significance may include social, spiritual, historic, and archaeological values, and is determined by the Aboriginal community.

Historic value refers to the associations of a place with a historically important person, event, phase, or activity in an Aboriginal community. Historic places do not always have physical evidence of their historical importance (such as structures, planted vegetation or landscape modifications). They may have ‘shared’ historic values with other (non-Aboriginal) communities and include places of post-contact Aboriginal history.

Scientific (archaeological) value refers to the importance of a landscape, area, place or object because of its rarity, representativeness, and the extent to which it may contribute to further understanding and information (Australia ICOMOS 2013).

Aesthetic value refers to the sensory, scenic, architectural, and creative aspects of the place. It is often closely linked with the social values. It may consider form, scale, colour, texture and material of the

fabric or landscape, and the smell and sounds associated with the place and its use (Australia ICOMOS 2013). As noted above aesthetic significance is often closely linked to social and cultural significance. Generally aesthetic significance is considered to mean the visual beauty of a place. Examples of archaeological sites that may have high aesthetic values include rock art sites or sites located in visually pleasing environments (NSW NPWS 1997: 11).

8.2 Aboriginal cultural significance

Any Aboriginal sites are considered by the Aboriginal community as being of high social and cultural significance. No social or cultural significance was identified through Aboriginal community consultation.

No historic associations with 'place' were identified during the course of the background research, field survey and through preliminary consultation.

The study area has been modified/disturbed and no aesthetic values were identified through consultation or the field survey.

8.3 Scientific significance

As with cultural, historic, and aesthetic significance; scientific significance can be difficult to establish. Certain criteria must therefore be addressed in order to assess the scientific significance of archaeological sites. Scientific significance contains four subsets: research potential, representativeness, rarity, and educational potential. These are outlined below.

Research Potential: is the ability of a site to contribute to our understanding of Aboriginal occupation locally and on a regional scale. The potential for the site to build a chronology, the level of disturbance within a site, and the relationship between the site and other sites in the archaeological landscape are factors which are considered when determining the research potential of a site.

Representativeness: is defined as the level of how well or how accurately something reflects upon a sample. The objective of this criterion is to determine if the class of site being assessed should be conserved in order to ensure that a representative sample of the archaeological record be retained. The conservation objective which underwrites the 'representativeness' criteria is that such a sample should be conserved (NSW NPWS 1997: 7-9).

Rarity: This criterion is similar to that of representativeness, it is defined as something rare, unusual, or uncommon. If a site is uncommon or rare it will fulfil the criterion of representativeness. The criterion of rarity may be assessed at a range of levels including local, regional, state, national and global (NSW NPWS 1997: 10).

Educational Potential: This criterion relates to the ability of the cultural heritage item or place to inform and/or educate people about one or other aspects of the past. It incorporates notions of intactness, relevance, interpretative value, and accessibility. Where archaeologists or others carrying out cultural heritage assessments are promoting/advocating the educational value of a cultural heritage item or place it is imperative that public input and support for this value is achieved and sought. Without public input and support the educative value of the items/places is likely to not ever be fully realised (NSW NPWS 1997: 10).

8.3.1 Scientific significance assessment

Artefact sites make up 84% of sites identified within the vicinity of the study area and are well represented in the regional archaeological record. Previous investigations within the vicinity of the study area have identified predominately low-density artefact scatters in disturbed contexts. The raw materials of the artefacts identified within the vicinity of the study area are predominantly silcrete, a common site type across the Cumberland Plain. This significance assessment addresses only the scientific significance. Cultural significance can only be informed by consultation with the local Aboriginal community.

A summary of the scientific significance of AHIMS sites identified within the study area is presented in Table 10.

Table 10: Scientific significance assessment

Site name (AHIMS ID)	Research potential	Representative	Rarity	Education potential	Scientific Significance
AHIMS ID 45-5-4077 (PAD)	Unknown	Unknown	Unknown	Unknown	Unknown
AHIMS ID 45-5-4078 (PAD)	Unknown	Unknown	Unknown	Unknown	Unknown

No Aboriginal objects were identified through the course of the archaeological assessment therefore the study area has no current scientific significance. Through desktop assessment there is potential for there to be Aboriginal objects within the study area. Past land use has impacted the potential for intact archaeological deposits to be present across the majority of the study area. Further archaeological investigations will be required to identify the presence of Aboriginal objects in areas of moderate to high potential. At present the scientific significance is unknown.

9. Impact assessment

An indicative layout has been prepared for the study area, which includes the majority of the land proposed for rezoning will be developed in the future. At the time of this assessment, the proposed impacts to Aboriginal objects is unknown, however areas assessed as having high to moderate potential to contain Aboriginal objects will likely be impacted by future development. As such, any future development within the study area that would impact the ground surface will require further archaeological investigation to determine the presence of Aboriginal objects in the study area and an Aboriginal cultural heritage assessment would be required to assess the significance of Aboriginal objects (if present) and to undertake an impact assessment to provide management and mitigation measures. It is anticipated that this assessment would be undertaken prior to the Development Assessment process.

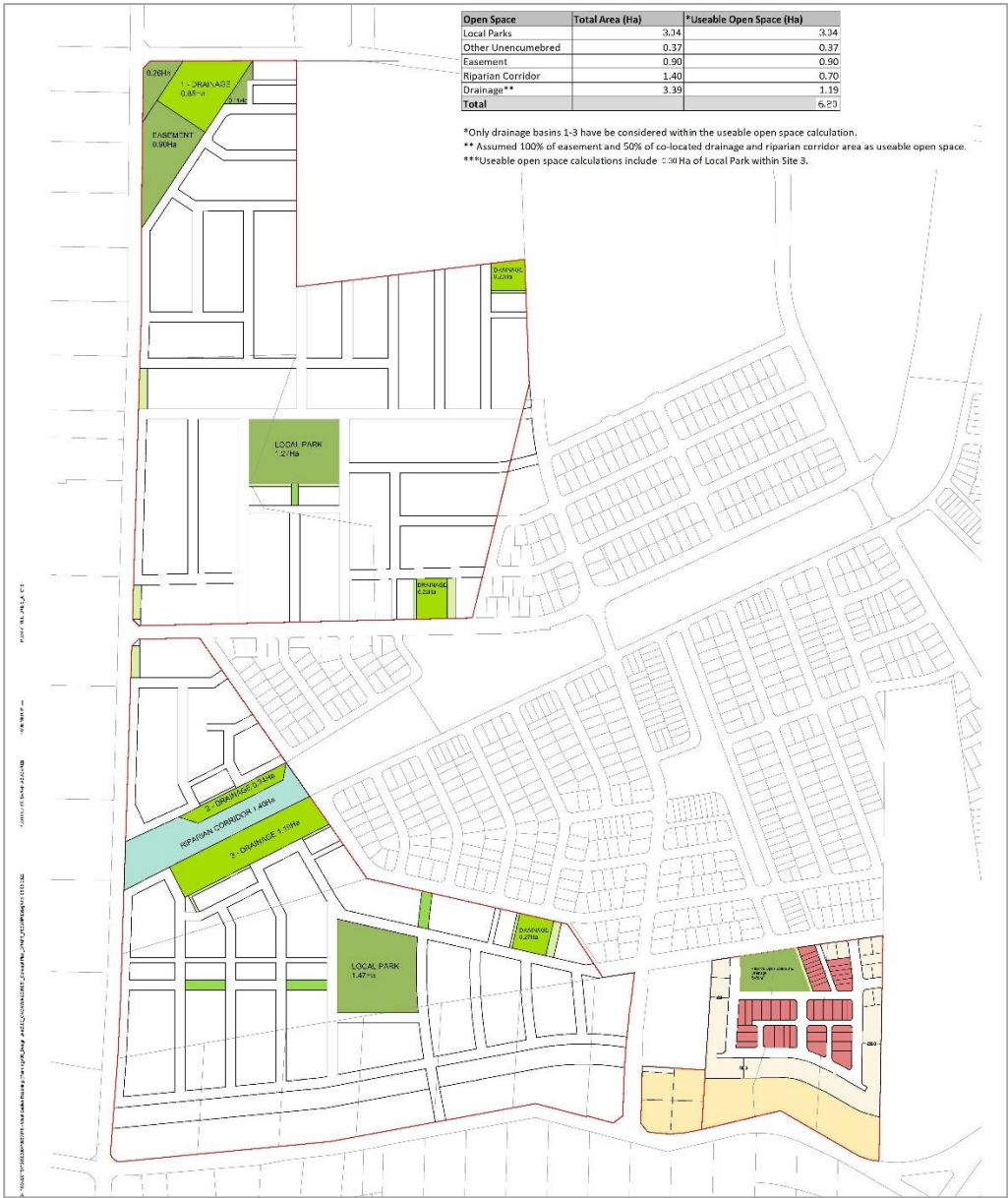


Figure 31: Concept design for rezoning of West Gables

10. Recommendations

The following recommendations are based on consideration of:

- Statutory requirements under the *National Parks and Wildlife Act 1974* as amended
- The potential impacts from the proposed substation works
- The Potential Archaeological Deposits identified through the archaeological assessment.

RECOMMENDATION 1 – AVOIDANCE AND CONSERVATION

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

- Rezoning masterplans should consider avoiding and conserving areas of high archaeological potential identified by this report as Aboriginal objects are likely to be present in these areas.

RECOMMENDATION 2 - FURTHER INVESTIGATIONS

If the rezoning of the study area indicates that future development will impact on areas of high to moderate potential, then the following will be required prior to the Development Assessment process:

Archaeological test excavations may be required across areas of high to moderate PAD and AHIMS ID 45-5-4077 and AHIMS ID 45-5-4078 to identify the presence of Aboriginal objects and to understand the exact nature and extent of the potential sites. Archaeological investigations in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010b) with full Aboriginal community consultation in accordance with *Aboriginal cultural heritage consultation requirements for proponents* (DECCW, 2010c).

RECOMMENDATION 3 - ABORIGINAL CULTURAL HERITAGE ASSESSMENT

If Aboriginal objects are identified through test excavations, then an Aboriginal Cultural Heritage Assessment will be required to assess the significance of the Aboriginal cultural values identified, assess the impacts and provide management and mitigations measures prior to development. The ACHA would be undertaken in accordance with the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011). An AHIP may be required.

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Appendix A AHIMS Search and site cards



AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 22SYD1514

Client Service ID : 668474

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-5-0217	Cattai Creek Y-Junction Shelter	AGD	56	307000	6276900	Closed site	Valid	Artefact : -	Shelter with Deposit	362
	<u>Contact</u>	<u>Recorders</u>	ASRSYS					<u>Permits</u>		
45-5-0218	Cattai Creek Blue Gum Creek	AGD	56	308300	6276900	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	362
	<u>Contact</u>	<u>Recorders</u>	ASRSYS					<u>Permits</u>		
45-5-0230	Cattai Creek Nelson	AGD	56	307700	6276900	Closed site	Valid	Artefact : -	Shelter with Deposit	362
	<u>Contact</u>	<u>Recorders</u>	Ms.Laila Haglund					<u>Permits</u>		
45-5-0178	Herne Trig;Nelson;	AGD	56	308396	6275406	Closed site	Valid	Artefact : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	Mr.R Taplin					<u>Permits</u>		
45-5-0180	Nelson;	AGD	56	307647	6276306	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>	Mr.R Taplin					<u>Permits</u>		
45-5-0184	Curtis Trig Cattai Creek Wrecked Car Shelter	AGD	56	308200	6277900	Closed site	Valid	Artefact : -	Shelter with Deposit	362
	<u>Contact</u>	<u>Recorders</u>	Mr.R Taplin					<u>Permits</u>		
45-5-0185	Curtis Trig;Cattai Creek;	AGD	56	308073	6277960	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -	Rock Engraving,Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	Mr.R Taplin					<u>Permits</u>		
45-5-0186	Curtis Trig;Cattai Creek;	AGD	56	307888	6278048	Closed site	Valid	Artefact : -	Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	Mr.R Taplin					<u>Permits</u>		
45-5-0187	Junction Shelter Cataract Ck	AGD	56	306900	6279000	Closed site	Valid	Artefact : -	Shelter with Deposit	362
	<u>Contact</u>	<u>Recorders</u>	Mr.R Taplin					<u>Permits</u>		
45-5-0188	Maralya	AGD	56	307500	6279000	Closed site	Valid	Artefact : -, Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Deposit	362
	<u>Contact</u>	<u>Recorders</u>	ASRSYS					<u>Permits</u>		
45-5-3168	Boundary Road Reserve 1	AGD	56	306167	6278939	Open site	Valid	Artefact : 1		
	<u>Contact</u>	T Russell	<u>Recorders</u>	ERM Australia Pty Ltd- Sydney CBD				<u>Permits</u>		
45-5-3169	Boundary Road Reserve 2	AGD	56	306060	6278831	Open site	Valid	Artefact : 1		
	<u>Contact</u>	T Russell	<u>Recorders</u>	ERM Australia Pty Ltd- Sydney CBD				<u>Permits</u>		
45-5-3170	Boundary Road Reserve 3	AGD	56	305907	6278753	Open site	Valid	Artefact : 2		
	<u>Contact</u>	T Russell	<u>Recorders</u>	ERM Australia Pty Ltd- Sydney CBD				<u>Permits</u>		

Report generated by AHIMS Web Service on 17/03/2022 for Matthew Finlayson for the following area at Lat, Long From : -33.645, 150.8755 - Lat, Long To : -33.6093, 150.9373. Number of Aboriginal sites and Aboriginal objects found is 52

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Page 1 of 4



AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 22SYD1514

Client Service ID : 668474

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-5-3831	BH PAD 2	GDA	56	304509	6275362	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		101832
	Contact		Recorders	Mr.Evan Raper				Permits		
45-5-3834	BH PAD 5	GDA	56	304440	6275674	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		101832
	Contact		Recorders	Mr.Evan Raper				Permits		
45-5-3818	BH 1 & BH 1 PAD	GDA	56	304900	6275742	Open site	Destroyed	Artefact : 1, Potential Archaeological Deposit (PAD) : -		101832
	Contact		Recorders	Mr.Evan Raper,AECOM Australia Pty Ltd - Sydney				Permits	3838	
45-5-3819	BH 2	GDA	56	304770	6275650	Open site	Destroyed	Artefact : 1		101832
	Contact		Recorders	Mr.Evan Raper,AECOM Australia Pty Ltd - Sydney				Permits	3838	
45-5-3820	BH 3	GDA	56	304823	6275276	Open site	Destroyed	Artefact : 1		101832
	Contact		Recorders	Mr.Evan Raper,AECOM Australia Pty Ltd - Sydney				Permits	3838	
45-5-3829	BH 12	GDA	56	304821	6275279	Open site	Destroyed	Artefact : 1		101832,102500
	Contact		Recorders	Mr.Evan Raper,AECOM Australia Pty Ltd - Sydney				Permits	3838	
45-5-3830	BH PAD 1	GDA	56	304440	6275674	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		101832
	Contact		Recorders	Mr.Evan Raper				Permits		
45-5-3973	BH AS1	GDA	56	304986	6275850	Open site	Destroyed	Artefact : 2		
	Contact		Recorders	AECOM Australia Pty Ltd - Sydney,AECOM Australia Pty Ltd - Sydney,Andrew McL				Permits	3838	
45-5-3974	BH AS2	GDA	56	304893	6275489	Open site	Destroyed	Artefact : 1		
	Contact		Recorders	AECOM Australia Pty Ltd - Sydney,AECOM Australia Pty Ltd - Sydney,Andrew McL				Permits	3838	
45-5-3975	BH AS3	GDA	56	304638	6275787	Open site	Destroyed	Artefact : -		
	Contact		Recorders	AECOM Australia Pty Ltd - Sydney,AECOM Australia Pty Ltd - Sydney,Andrew McL				Permits	3838	
45-5-3976	BH AS4	GDA	56	304527	6275890	Open site	Destroyed	Artefact : 7		
	Contact		Recorders	AECOM Australia Pty Ltd - Sydney,AECOM Australia Pty Ltd - Sydney,Andrew McL				Permits	3838	
45-5-3977	BH AS5	GDA	56	304329	6276034	Open site	Destroyed	Artefact : 1		
	Contact		Recorders	AECOM Australia Pty Ltd - Sydney,AECOM Australia Pty Ltd - Sydney,Andrew McL				Permits	3838	
45-5-4076	Isolated Object 1015-5	GDA	56	306068	6275778	Open site	Valid	Artefact : 1		
	Contact		Recorders	Extent Heritage Pty Ltd - Pyrmont - Individual users,Doctor.Alan Williams				Permits		
45-5-4077	PAD 1016-6	GDA	56	304431	6276442	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact		Recorders	Extent Heritage Pty Ltd - Pyrmont - Individual users,Doctor.Alan Williams				Permits		

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Page 2 of 4



AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 22SYD1514

Client Service ID : 668474

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-5-4078	PAD 1017-6	GDA	56	304572	6276389	Open site	Valid	Potential Archaeological Deposit (PAD) :-		
	Contact	Recorders	Extent Heritage Pty Ltd - Pyrmont - Individual users, Doctor Alan Williams					Permits		
45-5-4297	Box Hill North 1 (BHN 1)	GDA	56	306633	6278314	Open site	Valid	Grinding Groove :-		
	Contact	Recorders	Mr. Mark Rawson, Kelleher Nightingale Consulting Pty Ltd					Permits		
45-5-4298	Box Hill North 2 (BHN 2)	GDA	56	306599	6278205	Open site	Destroyed	Artefact : 1		
	Contact	Recorders	Mr. Mark Rawson, Kelleher Nightingale Consulting Pty Ltd, Kelleher Nightingale Con					Permits	3859,4666	
45-5-4299	Box Hill North 3 (BHN 3)	GDA	56	305061	6276893	Open site	Destroyed	Artefact : 1		
	Contact	Recorders	Kelleher Nightingale Consulting Pty Ltd, Kelleher Nightingale Consulting Pty Ltd, Mi					Permits	3859,4666	
45-5-4300	Box Hill North 4 (BHN 4)	GDA	56	305777	6276713	Open site	Destroyed	Artefact : 1		
	Contact	Recorders	Mr. Mark Rawson, Kelleher Nightingale Consulting Pty Ltd, Kelleher Nightingale Con					Permits	3859,4666	
45-5-4129	BH-IA1	GDA	56	304403	6275972	Open site	Valid	Artefact : 1		
	Contact	Recorders	South East Archaeology, Andrew McLaren					Permits	3838	
45-5-4130	BH-IA2	GDA	56	304948	6275417	Open site	Destroyed	Artefact : 1		
	Contact	Recorders	AECOM Australia Pty Ltd - Sydney, AECOM Australia Pty Ltd - Sydney, Andrew McL					Permits	3838	
45-5-4504	BH-IA4-14	GDA	56	304289	6275457	Open site	Destroyed	Artefact :-		
	Contact	Recorders	AECOM Australia Pty Ltd - Sydney, AECOM Australia Pty Ltd - Sydney					Permits	3838	
45-5-4513	BH-IA3-14	GDA	56	304539	6275557	Open site	Destroyed	Artefact :-		
	Contact	Recorders	AECOM Australia Pty Ltd - Sydney, Andrew McLaren					Permits	3838	
45-5-4500	Box Hill North 7 (BHN 7)	GDA	56	305998	6277433	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Matthew Kelleher, Kelleher Nightingale Consulting Pty Ltd, Miss Kristen Taylor					Permits	3859,4666	
45-5-4501	Box Hill North 5 (BHN 5)	GDA	56	306267	6277691	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Matthew Kelleher, Kelleher Nightingale Consulting Pty Ltd, Miss Kristen Taylor					Permits	3859,4666	
45-5-4502	Box Hill North 6 (BHN 6)	GDA	56	306131	6278094	Open site	Destroyed	Artefact :-		
	Contact	Recorders	Matthew Kelleher, Kelleher Nightingale Consulting Pty Ltd, Miss Kristen Taylor					Permits	3859,4666	
45-5-4511	BH-IA1-14	GDA	56	304983	6275608	Open site	Destroyed	Artefact :-		
	Contact	Recorders	AECOM Australia Pty Ltd - Sydney, Mr. Andrew McLane					Permits	3838	
45-5-4512	BH-IA2-14	GDA	56	304949	6275418	Open site	Destroyed	Artefact :-		
	Contact	Recorders	AECOM Australia Pty Ltd - Sydney, Mr. Andrew McLane					Permits	3838	
45-5-4633	Terry Rd IF1	GDA	56	305371	6275531	Open site	Valid	Artefact :-		
	Contact	Recorders	Ms. Tamika Goward					Permits	3908	
45-5-4915	Old Pit Town Rd 001	GDA	56	304853	6275872	Open site	Valid	Artefact :-		
	Contact	Recorders	MCH - McCardle Cultural Heritage Pty Ltd, Ms. Penny McCardle					Permits	4281	
45-5-4930	OPTR/BH/1	GDA	56	304465	6276019	Open site	Partially Destroyed	Artefact :-		
	Contact	Recorders	MCH - McCardle Cultural Heritage Pty Ltd, MCH - McCardle Cultural Heritage Pty Lt					Permits	4319,4320	

Report generated by AHIMS Web Service on 17/03/2022 for Matthew Finlayson for the following area at Lat, Long From : -33.645, 150.8755 - Lat, Long To : -33.6093, 150.9373. Number of Aboriginal sites and Aboriginal objects found is 52

This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 3 of 4



AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 22SYD1514

Client Service ID : 668474

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-5-4852	Terry Rd OCS PAD-1	GDA	56	305019	6275257	Open site	Destroyed	Artefact : -, Potential Archaeological Deposit (PAD) :-		
	Contact	Recorders	Niche Environment and Heritage,Niche Environment and Heritage,Mr.Balazs Hiansi							
45-5-4967	OPTR/BH/PAD1	GDA	56	304576	6275947	Open site	Valid	Artefact : -	4323,4500	
	Contact	Recorders	MCH - McCardle Cultural Heritage Pty Ltd,Ms.Penny McCardle							
45-5-5288	TR-AS2	GDA	56	305055	6275518	Open site	Destroyed	Artefact : -	4575	
	Contact	Recorders	Extent Heritage Pty Ltd - Pyrmont - Individual users,Extent Heritage Pty Ltd - Pyrm							
45-5-5289	TR-AS1	GDA	56	305372	6275322	Open site	Destroyed	Artefact : -	4653,4742	
	Contact	Recorders	Extent Heritage Pty Ltd - Pyrmont - Individual users,Extent Heritage Pty Ltd - Pyrm							
45-5-5466	Regis Artefact Scatter	GDA	56	306063	6275437	Open site	Valid	Artefact : -		
	Contact	Recorders	Artefact - Cultural Heritage Management - Pyrmont,Ms.Isabel Wheeler							
45-5-5488	VP6	GDA	56	303408	6275194	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) :-		
	Contact	Recorders	Apex Archaeology,Ms.Jenni Bate							
45-5-5457	Menin Road IA 1	GDA	56	303651	6275674	Open site	Valid	Artefact : -		104807,104808
	Contact	Recorders	Biosis Pty Ltd - Wollongong,Mrs.Samantha Keats							
45-5-5458	Menin Road IA 2	GDA	56	303614	6275684	Open site	Valid	Artefact : -		104807,104808
	Contact	Recorders	Biosis Pty Ltd - Wollongong,Mrs.Samantha Keats							

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

Report generated by AHIMS Web Service on 17/03/2022 for Matthew Finlayson for the following area at Lat, Long From : -33.645, 150.8755 - Lat, Long To : -33.6093, 150.9373. Number of Aboriginal sites and Aboriginal objects found is 52

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Page 4 of 4



Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220



Office Use Only

Site Number 45-5-4077

Date received / / Date entered into system 20/6/11 Date catalogued / /

Entered by (I.D.)

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

For Further Information Contact:

☐ Nominated Trustee

Title Surname First Name Initials
 Organisation
 Address
 Phone number Fax

☐ Knowledge Holder

Title Surname First Name Initials
 Organisation
 Address
 Phone number Fax

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name PAD 1016-6
 Easting 304431 Northing 6276442 AGD/GDA GDA
 Mapsheet
 Zone 56 Location Method Non-Differential GPS

Other Registration

Primary Recorder

Title Surname First Name Initials
 Organisation AHMS
 Address 349 ANNANDALE ST ANNANDALE
 Phone number 02 9555 4000 Fax 02 9555 7005
 Date recorded 1/6/2010

Office Use Only

Client on system

Client on system

Client on system

NPWS Aboriginal Site Recording Form - Site Information

page 3

General Site Information

Closed Site

Shelter/Cave Formation

- ☐ Boulder
☐ Wind erosion
☐ Water erosion
☐ Rock collapse

Rock Surface Condition

- ☐ Boulder
☐ Sandstone platform
☐ Silica gloss
☐ Tessellated
☐ Weathered
☐ Other platform

Open Site

Site Orientation

- ☐ N-S
☐ NE-SW
☐ E-W
☐ SE-NW
☐ N/A

Condition of Ceiling

- ☐ Boulder
☐ Sandstone platform
☐ Silica gloss
☐ Tessellated
☐ Weathered
☐ Other platform

Shelter Aspect

- ☐ North
☐ North East
☐ East
☐ South East
☐ South
☐ South West
☐ West
☐ North West

Features

- ☐ 1. Aboriginal Ceremony & Dreaming
☐ 2. Aboriginal Resource & Gathering
☐ 3. Art
☐ 4. Artefact
☐ 5. Burial
☐ 6. Ceremonial Ring
☐ 7. Conflict
☐ 8. Earth Mound
☐ 9. Fish Trap
☐ 10. Grinding Groove
☐ 11. Habitation Structure
☐ 12. Hearth
☐ 13. Non Human Bone & Organic Material
☐ 14. Ochre quarry
☒ 15. Potential Archaeological Deposit
☐ 16. Stone Quarry
☐ 17. Shell
☐ 18. Stone Arrangement
☐ 19. Modified Tree
☐ 20. Water Hole

Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- Internal length
 Internal width
 Shelter height
 Shelter floor area

Open Site Dimensions (m)

- Total length of visible site
 Average width of visible site
 Estimated area of visible site
 Length of assessed site area

NPWS Aboriginal Site Recording Form - Site Interpretation and Community Statement *page 4*

Aboriginal Community Interpretation and Management Recommendations

The management recommendations and community consultation are currently being developed for the site for an assessment on behalf of Sydney Water.

Please refer to the AHMS (2010) Aboriginal Heritage Impact Assessment for Water Related Services for the North West Growth Centre Second Release Precincts for information on scientific and cultural significance, Aboriginal community interpretation and management recommendations.

Preliminary Site Assessment

Site Cultural & Scientific Analysis and Preliminary Management Recommendations

This section should only be filled in by the Endorsees

Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

Title	Surname	First Name	Initials
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Organisation	<input type="text"/>		
Address	<input type="text"/>		
Phone number	<input type="text"/>	Fax	<input type="text"/>

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No.

Comments

This PAD and 1017-6 occupy the same landform unit. The area comprises a level hillcrest which overlooks a chain of ponds and is situated high on a dammed drainage line. The whole landform has the potential to hold subsurface deposits, however the area is characterised by a range of disturbance levels. Areas of low disturbance, include a horse paddock on north side of Old Pitttown Road.



Map of site 1016-6

North west assessment area – Photograph # 1116



North west assessment area – Photograph # 1117





Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220



Office Use Only

Site Number 45-5-4078

Date received / / Date entered into system 20/6/11 Date catalogued / /

Entered by (I.D.)

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

For Further Information Contact:

☐ Nominated Trustee

Title Surname First Name Initials
 Organisation
 Address
 Phone number Fax

☐ Knowledge Holder

Title Surname First Name Initials
 Organisation
 Address
 Phone number Fax

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name PAD 1017-6
 Easting 304572 Northing 6276389 AGD/GDA GDA
 Mapsheet
 Zone 56 Location Method Non-Differential GPS

Other Registration

Primary Recorder

Title Surname First Name Initials
 Organisation AHMS
 Address 349 ANNANDALE ST ANNANDALE
 Phone number 02 9555 4000 Fax 02 9555 7005
 Date recorded 1/6/2010

Office Use Only

Client on system

Client on system

Client on system

NPWS Aboriginal Site Recording Form - Site Information

page 3

General Site Information

Closed Site

Shelter/Cave Formation

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☐ Wind erosion
☐ Water erosion
☐ Rock collapse

Rock Surface Condition

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☐ Sandstone platform
☐ Silica gloss
☐ Tessellated
☐ Weathered
☐ Other platform

Open Site

Site Orientation

- ☐ N-S
☐ NE-SW
☐ E-W
☐ SE-NW
☐ N/A

Condition of Ceiling

- ☐ Boulder
☐ Sandstone platform
☐ Silica gloss
☐ Tessellated
☐ Weathered
☐ Other platform

Shelter Aspect

- ☐ North
☐ North East
☐ East
☐ South East
☐ South
☐ South West
☐ West
☐ North West

Features

- ☐ 1. Aboriginal Ceremony & Dreaming
☐ 2. Aboriginal Resource & Gathering
☐ 3. Art
☐ 4. Artefact
☐ 5. Burial
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Site Plan

Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- Internal length
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 Shelter height
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 Length of assessed site area

NPWS Aboriginal Site Recording Form - Site Interpretation and Community Statement *page 4*

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Endorsed by: ☐ Knowledge Holder ☐ Nominated Trustee ☐ Native Title Holder ☐ Community Consensus

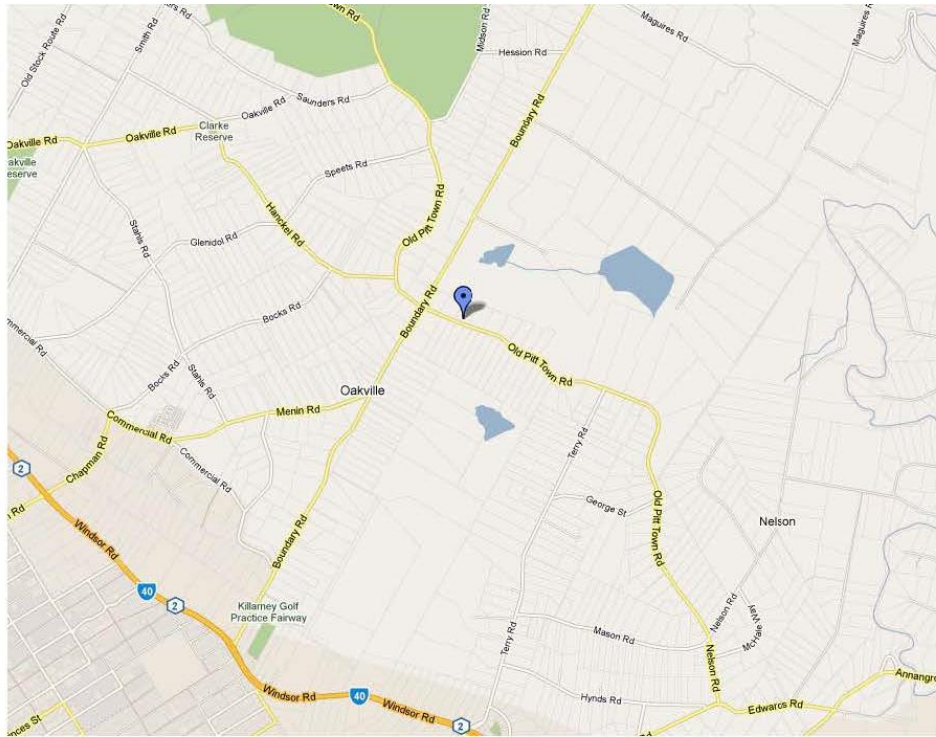
Title	Surname	First Name	Initials
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Organisation	<input type="text"/>		
Address	<input type="text"/>		
Phone number	<input type="text"/>	Fax	<input type="text"/>

Attachments (No.)

- ☐ A4 location map
- ☐ B/W photographs
- ☐ Colour photographs
- ☐ Slides
- ☐ Aerial photographs
- ☐ Site plans, drawings
- ☐ Recording tables
- ☐ Other
- ☐ Feature inserts-No.

Comments

This area, occupying the same land unit as 1016-6, is an empty lot with relatively low disturbance levels, although there is evidence of former clearing and re-growth, both exotics and natives being present. This level area on the crest overlooks a now dammed drainage line to the northeast, which would have likely constituted a chain of ponds with ephemeral flows in pre-European times.



Location of site 1017-6



Map of Site 1017-6 (PAD)

North west assessment area – Photograph # 1118



North west assessment area – Photograph # 1119



