

Sydney Zoo, Bungarribee Precinct

Non-Aboriginal Statement of Heritage
Impacts

Report to Sydney Zoo

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EXECUTIVE SUMMARY

Sydney Zoo is seeking approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the construction of a zoo (Sydney Zoo) within the Bungarribee Precinct in the Western Sydney Parklands.

The project was declared to be State Significant Development (SSD). Assessment and approval is being pursued in accordance with the EP&A Act. The Secretary's Environmental Assessment Requirements (SEARs) for the project have been issued and set out the environmental assessment requirements for the project.

In accordance with the SEARs Artefact Heritage has prepared a Statement of Heritage Impact (SoHI) including a non-Aboriginal archaeological assessment for the study area. The objective of this assessment is to meet the requirements of the SEARs.

It was found that:

- There are no listed heritage items within the study area.
- There is nil-low potential for archaeological relics associated with the Rooty Hill Government Farm to be present within the study area.
- There is nil-low potential for archaeological relics associated with the Bungarribee Estate to be present within the study area.
- There is nil-low potential for archaeological relics associated with the OTC transmission station to be present within the study area.

It is therefore recommended that:

- A Heritage Interpretation Plan (HIP) should be prepared for the study area. The study area will focus on the heritage features of Bungarribee Precinct as a whole and provide direction for how interpretation might be incorporated into the Zoo development.
- If unexpected archaeological finds are discovered during the proposed works, a heritage consultant should be engaged to assess the find and the NSW Heritage Division would be notified of the discovery of a relic in accordance with Section 146 of the NSW *Heritage Act 1977*.
- A heritage induction would be provided to workers before construction begins informing them of the location of heritage items outside the study area, including the extant gate entrance for the former OTC transmission station, and guidelines to follow if unanticipated heritage items or deposits are located during works.

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1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

Sydney Zoo is seeking approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the construction of a zoo (Sydney Zoo) within the Bungarribee Precinct in the Western Sydney Parklands.

The project was declared to be State Significant Development (SSD). Assessment and approval is being pursued in accordance with the EP&A Act. The Secretary's Environmental Assessment Requirements (SEARs) for the project have been issued and set out the environmental assessment requirements for the project.

In accordance with the SEARs Artefact Heritage has prepared a Statement of Heritage Impact (SoHI) including a non-Aboriginal archaeological assessment within the study area. The objective of the assessment is to meet the requirements of the SEARs.

1.2 Project site boundary and SoHI study area

The study area is located in the southern portion of Lot 101/ DP1195067 within the Blacktown City Local Government Area (LGA). It is bounded by Eastern Creek to the west, Doonside Road to the east and the Great Western Highway to the south (Figure 1). The study area measures 16.5 hectares.

1.3 The proposal

The proposal includes the development of the land within the study area into a world class zoo exhibiting a wide range of popular animal species. The facility will provide an immersive safari-like experience including open grassland areas, elevated walkways and boardwalks, reptile and nocturnal animal houses, aquarium and infrastructure to service 30+ exhibits. Education and conservation programs planned for the zoo are intended to provide a focus on local heritage values including natural and Aboriginal heritage.

The proposed development of Sydney Zoo will include.

- Animal exhibits across several enclosures of varying design for a range of native and exotic animals.
- Back-of-house buildings for exhibits.
- Main entrance building comprising entry/exit, and gift shop.
- Restaurant and café.
- Kiosks and amenities.
- Show arena.
- Picnic areas and gardens.
- Wetlands and waterways.
- Service building containing:
 - Administration areas;
 - Curatorial and food preparation areas; and
 - Veterinarian space.
- Service yard with maintenance shelter.
- Main formal carpark on asphalt 387 vehicles, overflow on asphalt road 88 vehicles (total on asphalt 475 vehicles), overflow on gravel 800 vehicles, disabled spots 9 vehicles, total parking 1284 vehicles. Access via an internal road connecting to the Great Western Highway.

- Bus parking.

Construction of the project is expected to take approximately 8 – 12 months to complete.

1.4 Scope of this assessment

The objective of the assessment is to meet the requirements of the SEARs. In accordance with the SEARs Artefact Heritage has prepared a Statement of Heritage Impact (SoHI) including a non-Aboriginal archaeological assessment within the study area.

The scope of assessment included:

- An overview of the historical development of the study area.
- Identification of heritage items and potential archaeological sites within the study area.
- A site inspection.
- Assessment of historical archaeological potential and significance within the study area.
- Assessment of potential impacts to heritage assets
- Conclusions and recommendations including proposed mitigation strategies for the management of significant archaeological resources and statutory requirements.

1.5 Report authorship and acknowledgements

This report was prepared by Alyce Haast, Archaeologist at Artefact Heritage, with contributions by Veronica Norman, Archaeologist and Josh Symons, Senior Archaeologist. Dr Sandra Wallace, Principal Archaeologist at Artefact Heritage, provided review, management input and advice.

Figure 1: Location of the study area



Figure 2: Proposed design of Sydney Zoo



2.0 LEGISLATIVE CONTEXT

2.1 Introduction

There are several items of State legislation that are relevant to the current study. A summary of these Acts and the potential legislative implications for the proposed development follow.

2.2 *Heritage Act 1977*

The NSW *Heritage Act 1977* (Heritage Act) is the primary item of State legislation affording protection to items of environmental heritage in NSW. The Heritage Act is designed to protect both listed heritage items, such as standing structures, and potential archaeological remains or relics. Under the Heritage Act, 'items of environmental heritage' include places, buildings, works, relics, moveable objects and precincts identified as significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. State significant items are listed on the NSW State Heritage Register (SHR) and are given automatic protection under the Heritage Act against any activities that may damage or affect its heritage significance.

State Heritage Register

The SHR was established under Section 22 of the Heritage Act and is a list of places and objects of particular importance to the people of NSW, including archaeological sites. The SHR is administered by the Heritage Division of the Office of Environment and Heritage (OEH). This includes a diverse range of over 1500 items, in both private and public ownership. To be listed, an item must be deemed to be of heritage significance for the whole of NSW.

There are no items listed on the SHR located within the study area.

Section 170 Registers

Under the Heritage Act all government agencies are required to identify, conserve and manage heritage items in their ownership or control. Section 170 requires all government agencies to maintain a Heritage and Conservation Register that lists all heritage assets and an assessment of the significance of each asset. They must ensure that all items inscribed on its list are maintained with due diligence in accordance with State Owned Heritage Management Principles approved by the Government on advice of the NSW Heritage Council. These principles serve to protect and conserve the heritage significance of items and are based on NSW heritage legislation and guidelines.

There are no items listed on the s170 registers located within the study area.

Archaeological relics

Part 6 Division 9 of the Heritage Act protects archaeological 'relics' from being exposed, moved, damaged or destroyed. This protection extends to situations where a person has reasonable cause to suspect that archaeological remains may be affected by the disturbance or excavation of the land. It applies to all land in NSW that is not included in the SHR. Section 4(1) of the Heritage Act (as amended 2009) defines 'relic' as follows:

"relic means any deposit, artefact, object or material evidence that:

(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and

(b) is of State or local heritage significance.”

Sections 139-145 of the Heritage Act prevent the excavation or disturbance of land known or likely to contain relics, unless in accordance with an excavation permit. Excavation permits are issued under Section 140 of the Heritage Act, or Section 60 for sites listed on the SHR. Excavation Permit Applications must be supported by an Archaeological Research Design. Section 146 of the Heritage Act requires that any discovery or location of a ‘relic’ is reported to the Heritage Council.

If the proposed works are minor and would have minimal impact on the heritage significance of the place or site, they may be granted an exception or exemption under Section 139 (4) of the Heritage Act.

Section 146 of the Heritage Act requires any person who is aware or believes that they have discovered or located a relic must notify the Heritage Council of NSW providing details of the location and other information required.

Works

The Heritage Act identified ‘works’ as being in a separate category to archaeological ‘relics.’ ‘Works’ refer to past evidence of infrastructure. ‘Works’ may be buried, and therefore archaeological in nature, however, exposure of a ‘work’ does not trigger reporting obligations under the Heritage Act. ‘Works’, as items of environmental heritage, have the potential to provide information that contributes to our knowledge of past practices, and good environmental practice recognises this. Roads and Maritime, for example, uses its *Standard Management Procedure: Unexpected Heritage Items^[1]* to manage the discovery of such items.

2.3 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (the EP&A Act) establishes a framework for cultural heritage values to be formally assessed in the land use planning and development consent process. The EP&A Act requires that environmental impacts are considered before land development; this includes impacts on cultural heritage items and places as well as archaeological sites and deposits. The EP&A Act also requires that Local Governments prepare planning instruments (such as Local Environmental Plans [LEP] and Development Control Plans [DCP]) in accordance with the EP&A Act to provide guidance on the level of environmental assessment required.

The proposal will be assessed under Part 4, Division 4.1 of the EP&A Act, which establishes an assessment and approval regime for State Significant Development (SSD). Part 4, Division 4.1 applies to development that is declared to be SSD by a State Environmental Planning Policy (SEPP). Section 89J of the EP&A Act specifies that approvals or permits under section 90 of the NPW Act 1974 are not required for approved SSD projects.

The study area is located within the Blacktown LGA and is subject to SEPP 2009 (Western Sydney Parklands).

^[1] Roads and Maritime July 2015: <http://www.rms.nsw.gov.au/documents/about/environment/protecting-heritage/managing-development/unexpected-archaeological-finds-procedure.pdf>

2.3.1 State Environmental Planning Policy (Western Sydney Parklands) 2009

The *State Environmental Planning Policy (Western Sydney Parklands) 2009* (SEPP) puts in place planning controls that allow the Trust to develop the Parklands into multi-use urban parklands for western Sydney by:

- Allowing for a diverse range of recreational, entertainment and tourist facilities within the Parklands.
- Allowing for a range of commercial, retail, infrastructure and other uses consistent with the Metropolitan Strategy, which will deliver beneficial social and economic outcomes to western Sydney.
- Continuing to allow for and facilitate the location of government infrastructure and service facilities within the Parklands.
- Protecting and enhance the natural systems of the Parklands, including flora and fauna species and communities and riparian corridors.
- Protecting and enhancing the cultural and historical heritage of the Parklands.
- Maintaining the rural character of parts of the Parklands by allowing sustainable extensive agriculture, horticulture, forestry and the like.
- Facilitating public access to, and use and enjoyment of, the Parklands.
- Facilitating the use of the Parklands to meet a range of community needs and interests, including those that promote health and wellbeing in the community.
- Encouraging the use of the Parklands for education and research purposes, including accommodation and other facilities to support these purposes.
- Allowing for interim uses on private land in the Parklands if such uses do not adversely affect the establishment of the Parklands or the ability of the Trust to carry out its functions as set out in the *Western Sydney Parklands Act 2006*.
- Ensuring that development of the Parklands is undertaken in an ecologically sustainable way.

The SEPP aims to conserve the environmental heritage of the Parklands and to conserve the heritage significance of heritage items within the Parklands, including associated fabric, settings and views. Development consent is required if heritage items listed in Schedule 1 of SEPP 2009 or shown on the Heritage Map are to be impacted. There are no listed heritage items in Schedule 1 of the SEPP 2009 within Bungarribee Precinct.

2.3.2 Blacktown LEP 2015

No heritage items or archaeological sites within the study area are included in Schedule 5 of the Blacktown LEP 2015.

2.4 *Environmental Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legislative framework for the protection and management of matters of national environmental significance, that is, flora, fauna, ecological communities and heritage places of national and

international importance. Heritage items are protected through their inscription on the World Heritage List, Commonwealth Heritage List or the National Heritage List.

The EPBC Act stipulates that a person who has proposed an action that will, or is likely to, have a significant impact on a World, National or Commonwealth Heritage site must refer the action to the Minister for Sustainability, Environment, Water, Population and Communities (hereafter Minister). The Minister will then determine if the action requires approval under the EPBC Act. If approval is required, an environmental assessment would need to be prepared. The Minister would approve or decline the action based on this assessment.

A significant impact is defined as “an impact which is important, notable, or of consequence, having regard to its context or intensity.” The significance of the action is based on the sensitivity, value and quality of the environment that is to be impacted, and the duration, magnitude and geographic extent of the impact. If the action is to be undertaken in accordance with an accredited management plan, approval is not needed and the matter not need be referred to the Minister.

Commonwealth Heritage List

The Commonwealth Heritage List has been established to list heritage places that are either entirely within a Commonwealth area, or outside the Australian jurisdiction and owned or leased by the Commonwealth or a Commonwealth Authority. The Commonwealth Heritage List includes natural, Indigenous and historic heritage places which the Minister for Sustainability, Environment, Water, Population and Communities is satisfied have one or more Commonwealth Heritage values.

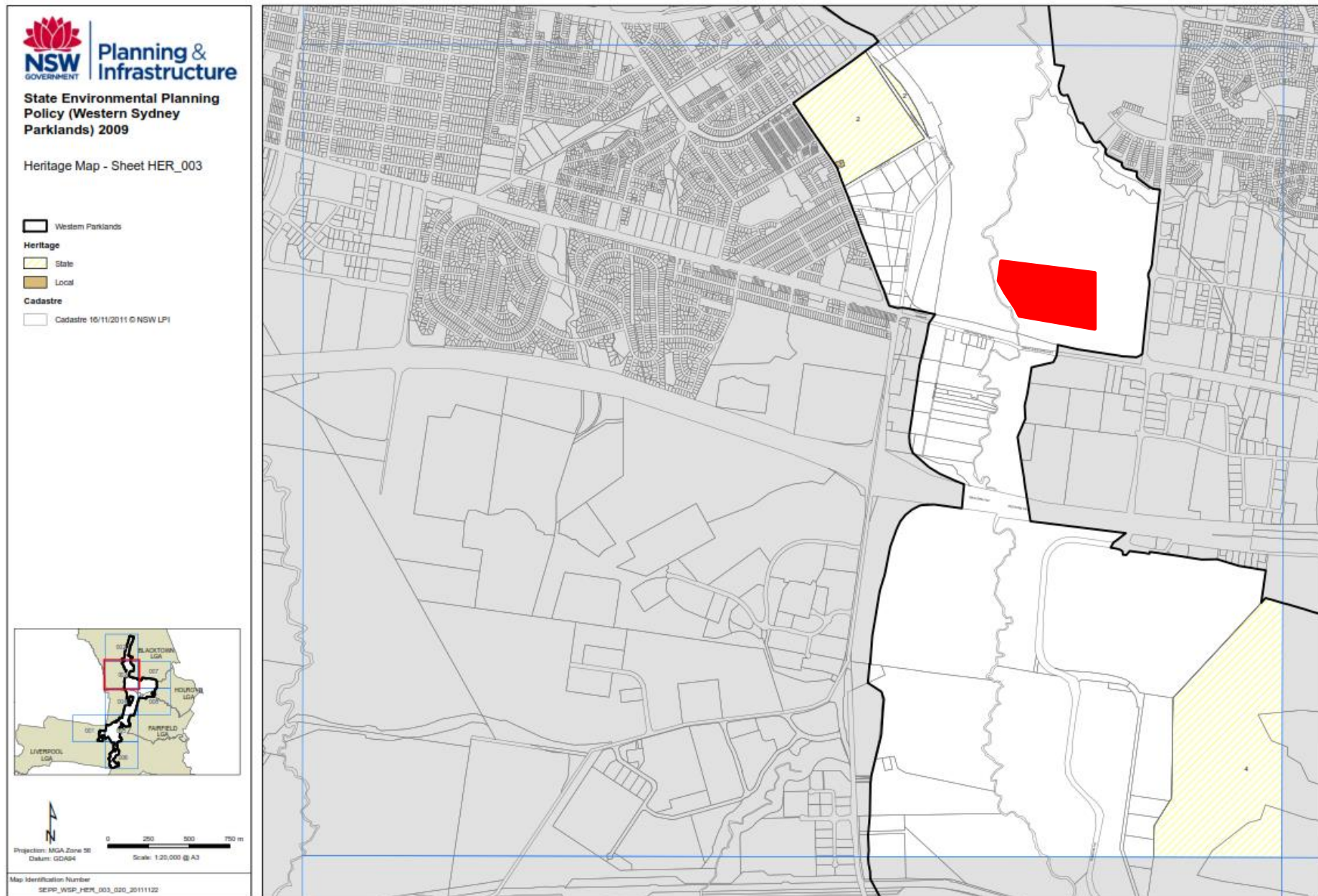
No sites within or near the study area are included on the Commonwealth Heritage List.

National Heritage List

The National Heritage List has been established to list places of outstanding heritage significance to Australia. It includes natural, historic and Indigenous places that are of outstanding national heritage value to the Australian nation.

No sites within or near the study area are included on the National Heritage List.

Figure 3: SEPP (Western Sydney Parklands) Heritage Map (approximate location of the study area indicated by the red polygon)



3.0 HISTORICAL CONTEXT

3.1 Aboriginal histories of the locality

Prior to the appropriation of their land by Europeans, Aboriginal people lived in small family or clan groups that were associated with particular territories or places. It seems that territorial boundaries were fairly fluid, although details are not known. The language group spoken on the Cumberland Plain is known as Darug (Dharruk – alternative spelling). This term was used for the first time in 1900 (Matthews & Everitt) as before the late 1800s language groups or dialects were not discussed in the literature (Attenbrow 2010:31). The Darug language group is thought to have extended from Appin in the south to the Hawkesbury River, west of the Georges River, Parramatta, the Lane Cove River and to Berowra Creek (Attenbrow 2010:34). This area was home to a number of different clan groups throughout the Cumberland Plain.

British colonisation had a profound and devastating effect on the Aboriginal population of the Sydney region, including Darug speakers. In the early days of the colony Aboriginal people were disenfranchised from their land as the British claimed areas for settlement and agriculture. The colonists, often at the expense of the local Aboriginal groups, also claimed resources such as pasture, timber, fishing grounds and water sources. Overall the devastation of the Aboriginal culture did not come about through war with the British, but instead through disease and forced removal from traditional lands. It is thought that during the 1789 smallpox epidemic over half of the Aboriginal people of the Sydney region died. The disease spread west to the Darug of the Cumberland Plain and north to the Hawkesbury. It may have in fact spread much further afield, over the Blue Mountains (Butlin 1983). This loss of life meant that some of the Aboriginal groups who lived away from the coastal settlement of Sydney may have disappeared entirely before Europeans could observe them, or record their clan names (Karskens 2010:452).

The British initially thought that Aboriginal people did not live inland, but were confined to the coast taking advantage of the abundant marine resources available. The first major expeditions into the interior did not witness any Aboriginal people, but evidence of their existence was noted. In April 1788 Governor Philip led an expedition west to Prospect Hill. It was noted, ‘...that these parts are frequented by the natives was undeniably proved by the temporary huts which were seen in several places. Near one of these huts, the bones of kangaroo were found, and several trees where seen on fire’ (Stockdale 1789).

In 1789 Captain Watkin Tench led an expedition to the Nepean River. He noted that:

Traces of the natives appeared at every step, sometimes in their hunting huts which consist of nothing more than a large piece of bark bent in the middle and opened at both ends, exactly resembling two cards set up to form an acute angle; sometimes in marks on trees which they had climbed; or in squirrel-traps.... We also met with two old damaged canoes hauled up on the beach. (Tench 1789)

It wasn't until rural settlement began in the western Cumberland Plain, around 1791 that the colonists and Aboriginal people came face to face. Relations quickly disintegrated, and tensions over land and resources spilled over. Governor King sanctioned the shooting of Aboriginal peoples in a General Order made in 1801 (Kohen 1986:24). Intermittent killings on both sides continued for over 15 years, including the Appin massacre and attacks at South Creek in 1816 (Karskens 2010: 225, Kohen 1986:23).

Although tensions existed between Aboriginal people and Europeans on the Cumberland Plain, a number of Aboriginal families continued to live semi-traditional lives in the area. The first parcels of land granted to an Aboriginal person were to the north-west of the study area between Richmond Road and Plumpton Ridge along Bells Creek. Governor Macquarie granted this land to Colebee and Nurragingy in 1819. Colebee did not stay long but Nurragingy lived on the land and it remained in the family until 1920 when it was resumed by the Aboriginal Protection Board (Kohen 1986:27).

The government policy of removal of Aboriginal children from their parents in order to assimilate them into white society began fairly early on in the colony's history, and was epitomized by the development of the Native Institution at Parramatta in 1814. This facility was moved to the Black Town settlement in 1823 approximately six kilometres north-west of the current study area. It was closed in 1829 and the land was used for farming, but the site remains significant for its historical, archaeological and social values (GML 2010:36).

Into the nineteenth and twentieth centuries descendants of Darug language speakers continued to live in Western Sydney along with Aboriginal people from other areas of NSW. The Aboriginal groups in their comments on this study will address the contemporary cultural, social and spiritual meanings of the locality.

3.2 Early colonial history – Rooty Hill Government Farm

In the past, Eastern Creek acted as a Parish and property boundary. The historic development of the eastern side of the creek was quite different from the historic development on the western side of Eastern Creek. The area east of the creek formed part of a grant that from 1822 until the 1950s remained a single Estate. The area west of the creek was subdivided from the 1840s and a commercial strip fronted the Great Western Road from the 1880s.

In 1802 Governor Philip King reserved 38,728 acres at Rooty Hill, including the Bungarribee Precinct, as government farm land, providing pasture for government herds and as a failsafe against food shortages. The farm also gave the government control over the price of livestock, preventing private graziers from exploiting the market (The Rooty Hill SHR). Rooty Hill was one of four government farms, with others having been established at Rose Hill (Parramatta) in 1788, Toongabbie in 1791 and Castle Hill in 1801.

Between January 1810 and 1821 Governor Lachlan Macquarie erected a residence for the farm's overseer on the northern slope of Rooty Hill and temporary huts for the accommodation of 20 stock keepers. The farm was also divided into paddocks with fences erected between them (The Rooty Hill SHR).

In 1822 the cost of government farms came under fire in John Thomas Bigge's *Report of the Commissioner of inquiry into the state of the colony of New South Wales* and the size of the Rooty Hill farm was cut, with land being granted around its perimeter. Under Governor Thomas Brisbane the farm was further reduced, and in 1828, under Governor Ralph Darling, closed, the remaining land being handed over to the Church and Schools Corporation (The Rooty Hill SHR).

3.3 Early land grants – Bungarribee Estate

The study area originally formed part of a 2,000 acre grant to Colonel John Campbell, received on 30 June 1823 (Figure 6) (Austral Archaeology 2000: 5). It was "bounded on the north by a line bearing east 180 chains 50 links commencing at Eastern Creek, on the east side by a line bearing south 150 chains to the Great Western Road, on the south by that road and on the west by Eastern Creek" (Austral Archaeology 2000: 5).

Campbell, his wife Annabella, and nine children had arrived from Scotland in 1821 aboard the *Lustiana*. Soon after their arrival the Colonial Secretary's records indicate that Campbell was allowed to select 22 convicts to assist him in the clearing of 80 acres at "Prospect" (notice dated 17 November 1821). The 1822 Land and Stock Muster lists Campbell as having cleared 130 acres and cultivated 15 acres of wheat, five acres of barley and two acres of potatoes at "Parramatta" and as keeping 24 cattle, 28 hogs and 1 horse (Johnson 2000: 3 – 4).

Campbell built his homestead on the western slope of the highest point on his grant, approximately one kilometre north of the current study area. The homestead featured a "two storeyed, circular conical roofed tower with two single storey verandah wings radiating from it" with an "L shaped drum at the junction of the two arms" (Austral Archaeology 2000: 8). A number of outbuildings were also erected including a barracks to accommodate Campbell's convict workforce, a large barn, stables and a blacksmiths and a carpenters shop.

Campbell's Estate is described in a sale notice of 1828, after his death, as:

2000 acres of very excellent land, fenced all round, has 250 acres cleared, four large enclosed paddocks, various stockyards and piggery, a garden consisting of eight acres, with a great number and variety of young fruit trees well watered, and two creeks always supplied with water run through the farm.

It continues to describe the homestead:

Built of the very best materials, and scarcely completed at Mr. Campbell's death, consists of a dining room, drawing room, and five bedrooms on the ground floor, and four small rooms in the upper storey. Attached is a most excellent kitchen or servants room, with store, ham house, stable, barn, carpenter and blacksmiths' shops; superior barracks for the men... The dairy is considered to be, in design, the most complete in the colony, it is not quite finished, but a trifle will complete it.

Thomas Icely purchased the Estate in 1828, and 'finished' the homestead. As a champion horse breeder, Icely established the Estate as a horse stud. The Estate was sold in 1832 to Charles Smith and to Henry Kater in 1839, both of whom continued use of the Estate as a horse stud (Austral Archaeology 2000: 25).

In 1845 the Estate was sold to the East India Company, who used it as a remount depot for horses purchased in NSW to be shipped to India for the British cavalry (Austral Archaeology 2000: 25; GML 2007: 10).

The Estate also passed through the hands of entrepreneur Benjamin Boyd (1846 to 1851) (Austral Archaeology 2000: 10) and was used for agricultural purposes, the barn being used for the storage of produce such as wheat, potatoes and oaten hay (Austral Archaeology 2000: 25), until the Estate was sold to Major J Walters in 1901.

There were some modifications made to the Estate as when it was purchased by Walters "the only buildings besides the residence (were) an old brick house men's quarters, large brick barn with 10 loose boxes around it, brick dairy and wooden vehicle house" (extract from a letter from Walters to G. R. Nichols; quoted in Austral Archaeology 2000: 25). Walters continued to use the Estate for agricultural purposes with 200 milking cows and 400 grazing cattle on the land. A number of crops were also cultivated including potatoes, maize, wheat, barley, sorghum, millet and barley (Austral Archaeology 2000: 25).

The Estate was sold in 1920 to Charles Hopkins and to brothers T.R and A.J Cleaver before it was resumed by the OTC in 1949. At the time of its resumption Hardie & Gorman valued the Estate at 12,300 pounds. At this time the land has been “fully cleared except for shade and shelter trees” and was “completely fenced, and subdivided into about 20 paddocks, by post and wire and cyclone fencing, with some post and rail fencing” (National Archives of Australia series # SP246/2). The Estate included:

1. *A Homestead built of brick, cement rendered, part weatherboard, with slate and iron roof, containing about 15 Rooms.*
2. *Galvanised Iron Shed and Horse Yard constructed of bush posts and rails.*
3. *Galvanised iron Shelter with open fronts and ends, also galvanised iron Store and Fowl Sheds.*
4. *Brick Harness Room with iron roof.*
5. *Large brick Barn, brick floor, galvanised iron roof, with attached Feeding Bails, having lean-to galvanised iron roof, concrete floor. Also attached constructed of brick with iron roof are six (6) horse boxes.*
6. *Dairy Building constructed of brick with tile and iron roof, and cement floor, comprising Milk Room, Cool Room, Can Room, and Motor Room, and twelve (12) walk thorough Bails, together with open concrete yard adjoining.*(National Archives of Australia series # SP246/2).

3.4 Wallgrove Dispersal Area

During World War II (WWII), the current area occupied by Bungaribee Precinct was resumed for use as a RAAF dispersal area. Department of the Interior records show that “the Commonwealth acquired from certain persons, owning land between the Great Western Highway and the Railway line at Doonside, part of their land for use as an airstrip” (National Archives of Australia series # SP857/6) (Figure 17).

The RAAF dispersal area was one of a series of RAAF airbases built across NSW during WWII. The Wallgrove Dispersal Area supported the Schofields Aerodrome and Richmond Air Base.

RAAF records indicate the Wallgrove Dispersal Area comprised a sealed landing strip, taxiways and hides (aircraft dispersal pads). Previous archaeological investigations (GML 2007: 46) indicate the dispersal area also included an air raid trench.

The Land Valuation Committee NSW costed the construction of the Wallgrove Dispersal Area at 30,000 pounds. It is noted that “T.R. Cleaver... (is) to be given Rights of Way between Eastern Creek and Runway and between Bungaribee Creek and runway” and it is recommended that “he be granted a licence to travel over the enclosed portion of Doonside Road” (National Archives of Australia series # SP857/6). The cost of the dispersal area was seen to be reasonable given its “geographical position and proximity to Wallgrove Camp” (National Archives of Australia series # SP857/6).

The landing strip was later used by local flying clubs. Senior engineer for the OTC, R. G. Reed was informed that not only did a member of the Aero Club land on the strip on Sunday 27 August 1950, but left his plane unattended there for over an hour. In his correspondence with the Chief Engineer, Reed considered it urgent “official notification be given to R.A.A.F authorities, and in particular Aero Clubs likely to use this area for emergency or practice landings” as survey pegs and location poles for

OTC services had been placed at the site. "Contact with survey pegs or location poles could cause damage to a plane's landing gear. When masts and wires for rhombic radiators are erected they will constitute a very dangerous hazard if landings are attempted, resulting in wrecking of light planes and possible death or serious injury to pilots."

3.5 OTC Transmission station

The Bungarribee Precinct was resumed by the OTC in 1954. Messrs. Hardie & Gorman had valued the land at 24,207 pounds (National Archives of Australia series # SP246/2). The site was chosen as it was a large cleared and relatively flat space, with good ground conductivity and a lack of interference from other services (Austral Archaeology 2000: 37).

Not all residents were in favour of the acquisition, Miss C. D. Learmonth noting:

I am not desirous of disposing of my property for the following reasons: -

It is portion of an original Grant to my Great Grandfather and has been in the family for close on 150 years, he having arrived from Scotland in the year 1799 and settled on the property soon afterwards, and it has never been sold.

You will appreciate that I have a certain sentimental attachment to my old home which I would like to see retained within the family (National Archives of Australia series # SP246/2).

Learmonth, like other landowners, were given leases for their properties and allowed to reside there until either they decided to move or until their death, whichever came first. The leases were not allowed to be transferred to their descendants and came with the condition that the OTC would have unrestricted access to the properties (National Archives of Australia series # SP246/2).

A transmission station was built on the site and a series of aeriels were erected across the land holding for transmitting radio signals. The OTC station was a two building with a large transmitter hall, diesel generator and power rooms and workshops and offices. The OTC transmission station was officially opened by the Postmaster General in February 1957.

An area to the north of Bungarribee Precinct was developed as a housing estate for OTC staff. The estate was accessed off Doonside Road and included a curving access road and street plantings and a number of residences. The housing estate was designed by the architects Hannessy & Co who had also been commissioned for the transmission station at Doonside and at Bringelly (GML 2007: 11).

The OTC provided international telegraph, local radiotelephone and pictogram services and high frequency maritime radiotelegraph and coastal radio services (Austral Archaeology 2000: 37). The OTC transmission station operated until the 1990s. However, with advances in telecommunication technologies throughout the 1960s the station started to experience downturns in radio transmission. New technologies were installed in the 1970s and full time staff were no longer required to be located at the station. In the 1980s the transmission station was kept in reserve until it was decommissioned in the 1990s. In 2001 the OTC transmission station was demolished, the transmission towers having been removed some time earlier (GML 2007: 13).

3.6 Bungaribee Land-Use History

An overview of land ownership and land-use history within Bungaribee Precinct, WSPT is included in Table 1.

Table 1: Land use history of site

Time period	Owner & land use
1802	Government farm land
1823	Colonel John Campbell, farming, homestead and outbuildings including barracks, barn, stables, blacksmiths and a carpenter's shop
1828	Thomas Icely, homestead additions, horse stud
1832	Charles Smith, horse stud
1839	Henry Kater, horse stud
1845	East India Company, remount depot for horses
1846-1851	Benjamin Boyd, agricultural purposes
1901	Major. J. Walters, agricultural purposes
1920	Charles Hopkins, T.R. and A.J Cleaver
WWII	Commonwealth, RAAF dispersal area
c.1941	Commonwealth, Bungaribee Estate used for military purposes
1954	Commonwealth, OTC transmission station and aerials, housing estate
2001	WSPT, Transmission station demolished

3.7 Aerial Analysis

A comparison of aerial photos dating from 1943 (Figure 4), 1961 (Figure 5), 1998 (Figure 6) and 2015 (Figure 7) reveals the minimal changes to the study area and immediate vicinity over the last 75 years. This includes:

- No evidence of any structures within the study area
- Demolition of OTC Station and associated towers to the north of the study area
- Development of recreational infrastructure and access tracks/ roads to the northeast of the study area
- Realignment of the Great Western Highway into a two carriage way road
- Demolition of small structures to the southwest and west of the study area
- Construction of commercial and industrial structures to the east of Doonside Road.

Figure 4: 1943 aerial with approximate study area location indicated in red, image via sixmaps



Figure 5: 1961 aerial with approximate study area location indicated in red



Figure 6: 1998 aerial with approximate study area location indicated in red



Figure 7: 2015 aerial with approximate study area location indicated in red



4.0 DESCRIPTION OF THE STUDY AREA

4.1 Background

A site inspection of the study area was conducted on 3 August 2015 by Josh Symons (Senior Archaeologist) and Claire Rayner (Archaeologist). The aim of the inspection was to identify and assess any areas of archaeological potential, unlisted heritage items or heritage views and vistas within the study area. The inspection was undertaken on foot and a photographic record was made.

4.2 Site description

The study area is generally comprised of cleared fields with a wooded area located to the west of the study area relating to Eastern Creek. Disturbance related to drainage pipelines and vehicle tracks are apparent throughout the study area. The study area is dominated by thick grasses and subsequently has very low visibility.

During the site inspection two concrete footings were identified within the study area (Plate 3-5). The footings are likely to be associated with former OTC transmission towers.

No other items of unlisted heritage or archaeological potential were identified during the site visit.

Plate 1: View east towards Doonside Road



Plate 2: Study area, aspect northwest



Plate 3: Concrete tower pad



Plate 4: Concrete tower pad



Plate 5: Revegetated area adjacent to Eastern Creek



Plate 6: Former entrance to OTC transmission station (outside the study area)



Plate 7: View west towards Eastern Creek



Plate 8: View west towards Eastern Creek



5.0 POTENTIAL HERITAGE ITEMS

5.1 Remains of the OTC transmission station

5.1.1 History

Following the Second World War, the Wallgrove Dispersal Area was acquired by the OTC. A series of transmission towers and a transmission station were built on the site. Roads were also constructed to facilitate movement across the site and the grounds were landscaped.

5.1.2 Archaeological potential

The OTC transmission station was closed in the 1990s and the transmission towers and station buildings demolished in 2001. Since its demolition there have been few disturbances, the land having been incorporated into the Western Sydney Parklands. Although other areas within the Precinct have been developed for recreational purposes, the former OTC site has not been impacted. The OTC transmission station buildings were located outside the study area.

During the site inspection the location of two concrete tower pads were identified. Although previous reporting suggests that several additional transmission towers are likely to have been located through the current study area, it is likely that many of those concrete pads have either been completely removed or covered by dense grass.

The former OTC transmission station entrance gates off the Great Western Highway are extant and located outside the study area.

It is unlikely that subsurface archaeological potential associated with the OTC transmission station remains located within the current study area.

Plate 9: Site of the former OTC transmission station buildings (outside the study area)



Plate 10: Extant entrance to the OTC transmission station (outside the study area)



6.0 ARCHAEOLOGICAL POTENTIAL

6.1 Introduction

Non-Aboriginal archaeological potential is defined as the potential of a site to contain historical archaeological relics, as classified under the *NSW Heritage Act 1977*. Non-Aboriginal archaeological potential is assessed by identifying former land uses and associated features through historical research, and evaluating whether subsequent actions (either natural or human) may have impacted on evidence for these former land uses.

The following discussion of the historical archaeological potential of the study area is not intended to be exhaustive. Based on the history of the site and the likely lack of disturbance that has occurred throughout the study area, there is always some probability that unexpected historical archaeological remains may be encountered during works. The following discussion is, therefore, indicative only.

6.2 Previous archaeological studies

A number of studies have been conducted within the Bungarrabee Precinct and its surrounds.

In 2000 Austral Archaeology conducted an archaeological assessment of the former OTC transmission station. The assessment included the current study area as well as land to the north, now called Bunya. It was found that there was extant and potential archaeological evidence of the former Bungarrabee Estate within the north-easternmost part of that assessment area and of the former OTC transmission station within the northern, central and southern parts of the assessment area. Structural remains of a former farm and a disused well and brick structure were also identified within the north western part of the assessment area and a dome covered well in the southern western part of the assessment area. Each of those items is located outside the current study area.

Test excavations were later conducted, revealing the foundations of the Bungarrabee Estate and several outbuildings. The test trenches within the homestead footprint comprised of demolition rubble, which when removed revealed sandstone foundations up to three courses high as well as basal pebble pavers and a possible staircase leading to a cellar. Test excavations were also conducted in the north eastern part of the assessment area where the remains of a 1900s farm had been identified.

In 2007 GML was commissioned to prepare a Conservation Management Plan (CMP) for the Doonside Parcel located north of the Bungarrabee Precinct and within the area Austral Archaeology conducted test excavations of the Bungarrabee Estate in 2000. Test excavations were conducted to better define the boundaries of a Core Heritage Area of the Bungarrabee Estate to be incorporated into concept plans for the land parcel. Test excavations revealed the location of two timber outbuildings one northwest of the homestead and one south of the homestead. Several fence lines and drainage channels were also identified.

In 2014 Artefact Heritage completed a non-Aboriginal heritage assessment of Bungarrabee Precinct, including the current study area. Artefact (2014) identified moderate archaeological potential relating to historic uses of the Bungarrabee area including the potential remains of areas such as the Eastern Creek farms and Mansell farms. With the exception of partial remains of concrete tower pads associated with the OTC transmission centre, these historical features fall outside the current study area.

6.3 Discussion of Archaeological Potential

Archaeological potential is defined as the potential of a site to contain archaeological relics, as classified under the NSW *Heritage Act 1977*. Archaeological potential is assessed by identifying former land uses and associated features through historical research, and evaluating whether subsequent actions (either natural or human) may have impacted on evidence for these former land uses. The potential impacts to the study area have been outlined in the previous section. Types of archaeological remains often found in agricultural and small-scale industrial contexts may include the following:

- Evidence for gardens, layout and use of the yard areas
- Fence lines which may assist with clarification of lot boundaries and indicate the internal use of lots
- Evidence of land clearing or modification
- Rubbish dumps and other occupational debris
- Scientific analysis of crops and earlier vegetation obtained from pollen and soil evidence
- Land clearing and modification of the landform, including major infilling events i.e. backfilling of dams or ponds
- Former road surfaces.

A series of grades of potential have been identified and mapped to indicate the degree to which archaeological remains are likely to survive within the study area. The mapping of archaeological potential addresses the potential archaeological remains in the area, as the location of potential impacts is unknown. The identified levels of archaeological potential are:

Low potential: while there is likely to be quite high impacts in these areas, deeper sub-surface features such as wells, cesspits and their artefact-bearing deposits may survive.

Moderate potential: while there are impacts in this area, a range of archaeological remains are likely to survive across the site, including building footings and shallower remains as well as deeper sub-surface features.

High potential: substantially intact archaeological remains could survive in these areas.

6.3.1 Rooty Hill Government Farm

Between 1802 and 1822 the Bungarribee Precinct formed part of a government farm that provided pasture for government herds and acted as a failsafe against food shortages. The focus of farm activities was on the northern side of Rooty Hill, northwest of the Bungarribee Precinct. The remainder of the farm was divided into paddocks with fences erected between them. Some sections were cleared and cultivated while others were left in their natural state or stock to graze. There are no records of structures associated with the farm having been erected within the study area.

There is nil-low potential for archaeological relics associated with the Rooty Hill Government Farm to be present within the study area.

6.3.2 The Bungarribee Estate

The study area is located within the 2,000 acre grant to Campbell in 1822. Campbell built his homestead and a number of outbuildings on the western slope of Bungarribee Hill, north of the study area. The focus of activities fell outside of the Bungarribee Precinct which remained vacant apart from an entrance to the Estate in the southern portion of the Precinct and a drive that led to the homestead. A number of fence lines also existed within the Precinct.

No specific reference to the location of 1826 boundary markers or fences associated with the early use of the site as part of the Bungarribee homestead is identified in the Austral (2000) report.

There is nil-low potential for archaeological relics associated with the Bungarribee Estate to be present within the study area.

6.3.3 OTC Transmission station and towers.

The site of the former OTC transmission station buildings is located approximately 200 metres to the north of the current study area.

The station was closed in the 1990s and the transmission towers and station buildings demolished in 2001. Since its demolition there have been few disturbances, the land having been incorporated into the Western Sydney Parklands. Although other areas within the Precinct have been developed for recreational purposes, the OTC site has not been impacted.

In 2000 Austral Archaeology identified the extant remains of the OTC transmission station including the main station building, a storage shed and several workshops, all located outside the current study area. Austral Archaeology (2000b: 52) found the site “unlikely to yield further archaeological material other than what is presently visible.” It was assessed to have low potential for subsurface remains. GML (2007b: 42) noted the extant entrance gates on the Great Western Highway and assessed the central portion of the Precinct to have high potential for structural remains of the OTC transmission station. GML (2007: 42) also note the extant concrete bases of transmission towers within the south eastern portion of the Precinct.

OTC records and aerial photographs from 1956 and 1970 show the location of station infrastructure. A road led from the entrance on the Great Western Highway to the main station building. Austral (2000) prepared an archaeological assessment of the OTC transmission station prior to its demolition in 2001. Austral (2000: 52) noted that the site consisted of the OTC building and associated structures, as well as visible debris. Although the site was assessed as ‘unlikely to yield further archaeological material other than what is visible’, Austral noted that the area ‘may have low archaeological potential to yield subsurface material associated with early use of this land such as 1826 land boundary markers, and/or OTC related infrastructure not presently visible due to both poor ground surface visibility and OTC practice of removed disused buildings/structures’ (Austral 2000: 52).

Austral (2000: 59) recommended that the OTC transmission station buildings should be subject to archival recorded prior to removal. Austral (2000: 59) additionally recommended that archaeological monitoring should be conducted during removal of the OTC transmission station buildings.

The entrance gates are extant on the Great Western Highway and the concrete pads for two former transmission towers were observed during the site inspection.

Following removal of the OTC transmission station buildings in 2001, GML (2007: 32) assessed the OTC transmission station building sites as demonstrating high archaeological potential. This was based on ‘the low level of any subsequent disturbance and impacts following their demolition, footings

for these buildings are very likely to survive on site, in addition to artefacts and other material cultural associated with their usage' (GML 2007: 32).

The OTC transmission station site demonstrates moderate-high archaeological potential based on the presence of building footings (outside the study area) and other remains beneath the ground surface. However, based on the comprehensive archival recording and monitoring during removal of the structures in 2001 (Austral 2000: 59), the OTC transmission station site and associated concrete tower footings in the current study area no longer demonstrate research potential and no further archaeological investigation of the site should take place.

There is nil-low potential for the study area to contain relics associated with the OTC transmission station.

6.4 Overview of archaeological potential

The study area has been assessed as demonstrating nil to low potential to contain relics due to the fact that the majority of the study area was initially used for grazing purposes and there is no evidence that homesteads were built in the vicinity of the study area.

Buildings associated with the early use of the Bungaribee area such as the post office and forge indicated in the wider Bungaribee Precinct are located outside the current study area and to the south of the current alignment of the Great Western Highway. Therefore these items and area of potential are unlikely to be impacted by the proposed works.

The remains of the OTC transmission station represent the sole recorded land use with development present within the study area. Those remains no longer demonstrate research potential.

7.0 ASSESSMENT OF SIGNIFICANCE

7.1 Assessment methodology

Determining the significance of archaeological items or items of heritage significance is carried out by utilising a system of assessment centred on the *Burra Charter* of Australia ICOMOS. The principles of the charter are relevant to the assessment, conservation and management of sites and relics. The assessment of significance is outlined through legislation in the Heritage Act and implemented through the NSW Heritage Manual and the Archaeological Assessment Guidelines.¹ If an item meets one of the seven heritage criteria, and retains the integrity of its key attributes, it can be considered to have significance. The significance of an item or potential archaeological site can then be assessed as being of local or state significance, based on a series of criteria that have been developed for assessing significance relating to archaeological sites and their associated 'relics'. The criteria identify a series of questions that could be asked in relation to the item to assist in the identification of the appropriate level of significance to be applied.

- 'State heritage significance', in relation to a place, building, work, relic, moveable object or precinct, means significance to the state in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item
- 'Local heritage significance', in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.²

The heritage significance assessment criteria are outlined in Table 2.

Table 2: NSW heritage assessment criteria

Criteria	Description
A – Historical Significance	An item is important in the course or pattern of the local area's cultural or natural history.
B – Associative Significance	An item has strong or special associations with the life or works of a person, or group of persons, of importance in the local area's cultural or natural history.
C – Aesthetic Significance	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in the local area.
D – Social Significance	An item has strong or special association with a particular community or cultural group in the local area for social, cultural or spiritual reasons.
E – Research Potential	An item has potential to yield information that will contribute to an understanding of the local area's cultural or natural history.
F – Rarity	An item possesses uncommon, rare or endangered aspects of the local area's cultural or natural history.

¹ NSW Heritage Office 1996: 25-27

² This section is an extract based on the Heritage Office Assessing Significance for Historical Archaeological Sites and Relics 2009:6.

Criteria	Description
G – Representative	An item is important in demonstrating the principal characteristics of a class of NSWs (or the local area's): <ul style="list-style-type: none"> - cultural or natural places; or - cultural or natural environments.

The NSW Heritage Office publication 'Assessing Heritage Significance' (2001) has outlined standard grades of significance for items of heritage significance (though not for archaeological relics). These are outlined in Table 3. Items to be impacted by the proposal have been assessed using these criteria.

Table 3: Standard grades of significance.

Grading	Justification	Status
Exceptional (E)	Rare or outstanding element directly contributing to an item's local and State significance.	Fulfils criteria for Local or State listing.
High (H)	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for Local or State listing.
Moderate (M)	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item	Fulfils criteria for Local or State listing.
Little (L)	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for Local or State listing.
Intrusive (I)	Damaging to the item's heritage significance.	Does not fulfil criteria for Local or State listing.

The following sections will outline the heritage significance of those heritage items that may be impacted by the proposal, and will provide a statement of heritage significance of the potential archaeological resources.

7.2 OTC Transmission Station

7.2.1 History

The OTC transmission station provided a number of important telecommunication services including international radio telegraph between Australia and the United Kingdom, the United States of America, Canada, China and New Zealand from the late 1940s to the 1990s. It also provided maritime radiotelegraph services between Australian and British ships and coastal services to Lord Howe and Macquarie Islands and New Guinea. The station was important in the development and use of telecommunications in Australia.

7.2.2 Assessment of overall significance

The heritage significance of the OTC transmission station has previously been assessed by Artefact Heritage (2014) against the NSW heritage significance criteria. The assessment is included in Table 5 below.

Table 4: Significance assessment of OTC Transmission Station/ Towers

Criteria	Significance assessment
A – Historical Significance	The OTC station, including associated towers and entrance gates, is likely to meet the local significance threshold for historical significance.
C – Aesthetic Significance	The OTC transmission station buildings were removed in 2001. The site no longer demonstrates aesthetic significance.
D – Social Significance	The OTC transmission station is likely to meet the local significance threshold for social significance for its association with former employees and the local community.
E – Research Potential	The OTC transmission station does not demonstrate research potential. Further information in Section 7.2.2 below.
G – Representative	The OTC transmission station buildings were removed in 2001. The site no longer demonstrates representative significance.

7.2.3 Archaeological significance (E – Research Potential)

The OTC transmission station has been assessed as not demonstrating research potential due to the archival recording prior to demolition recommended by Austral (2001). The site has since been demolished and no longer demonstrates research potential.

There are unlikely to be archaeological remains of local or state significance associated with the OTC transmission station within the study area.

7.2.4 Overall statement of significance

Due to the demolition of the OTC transmission station, including removal of the former towers within the current study area, Artefact Heritage (2014) determined that the OTC transmission station site no longer demonstrated aesthetic significance, research potential or representativeness.

There is nil-low potential for the study area to contain relics associated with the OTC transmission station.

The Bungarribee Precinct has heritage significance as the site of a post WWII OTC transmission station. The OTC transmission station provided a number of important telecommunication services including international radio telegraph between Australia and countries including the United Kingdom, the United States of America, Canada, China and New Zealand. It also provided maritime radiotelegraph services between Australian and British ships and coastal services to Lord Howe and Macquarie Islands and Papua New Guinea.

There are extant and potential archaeological remains of the OTC transmission within the Bungarribee Precinct. These include the extant entrance to the OTC transmission station on the Great Western Highway and the concrete bases of transmission towers as well as potential structural remains of station buildings. The extant and potential remains are representative of radio

transmission technologies surpassed in the 1990s. These items demonstrate historical significance. Following the removal of remaining structures in 2001, these items no longer demonstrate representative significance.

7.3 Bungarribee Estate

7.3.1 History

The homestead has a strong association with settler John Campbell who arrived in the colony in 1821 seeking to increase his fortunes. Bungarribee is a reflection of the ambition of Campbell, but also of other settlers who desired a new and prosperous life (OEH 2016). Following Campbell’s death, the estate became a horse stud and passed through multiple hands before being sold to the East India Company, who used it as a remount depot for horses purchased in NSW to be shipped to India for the British cavalry. After brief stints of multiple early colonial settlers owning the land, it was resumed by the OTC in 1949. During World War II (WWII), the current area occupied by Bungarribee Precinct was resumed for use as a RAAF dispersal area. The Bungarribee Precinct was resumed by the OTC again in 1954. A transmission station was built on the site and a series of aerials were erected across the land holding for transmitting radio signals.

7.3.2 Assessment of overall significance

The heritage significance of the Bungarribee Estate has previously been assessed by Artefact Heritage (2014) against the NSW heritage significance criteria. The assessment is included in Table 5 below.

Table 5: Significance assessment of the Bungarribee Estate

Criteria	Significance assessment
<p>A – Historical Significance (evolution)</p>	<p>The Bungarribee Precinct has historic significance as part of the Bungarribee Estate granted to Campbell in 1882. The Estate comprised a homestead, convict barracks, barns, stables and a blacksmiths and carpenters shop. The Estate became a landmark for travellers on the Great Western Road, the homestead positioned on the highest point of Bungarribee Hill. The Estate passed through a number of hands and was used as a horse stud in the 1830s and 1840s. The Estate is significant in the development of thoroughbred racing in NSW with a number of champion racehorses having being bred at Bungarribee.</p> <p>It’s later, albeit brief use of the site as a remount depot by the East India Company for horse purchased in NSW to be shipped to India for the British cavalry. The Estate is therefore significant for its association with British expansion in and colonisation of India.</p> <p>In the late 1840s and 1850s the homestead, then owned by Benjamin Boyd, was used to accommodate Islander labourers from the Pacific. The use of indentured labourers following the end of transportation later known as the Kanaka trade came to dominate Queensland politics in the 1860s and 1870s.</p> <p>The Bungarribee Estate is likely to meet the state significance threshold for historical significance.</p>

Criteria	Significance assessment
B – Historic Significance (association)	<p>The Bungarribee Estate has historic significance for its association with prominent colonial figures associated with the Bungarribee Estate. Among these is John Campbell to whom the Estate was first granted. Campbell was appointed Commissioner of Crown Lands which afforded him significant influence in western Sydney.</p> <p>The Estate is also associated with Thomas Icely and Thomas Smith under whose occupancies the Estate was used as a horse stud. Both Icely and Smith were key contributors to the development of thoroughbred racing in Australia.</p> <p>In the late 1840s and 1850s the Estate was associated with entrepreneur Benjamin Boyd who accommodated Islander labourers in the Estate’s barracks.</p> <p>The Estate also has significance for its association with the East India Company who used the Estate as a remount depot for horses to be shipped to India for use by the British cavalry.</p> <p>The Bungarribee Estate is likely to meet the state significance threshold for historical significance.</p>
C – Aesthetic Significance	<p>The Bungarribee Precinct is important in demonstrating the aesthetic significance of a pastoral landscape. From 1822 the Bungarribee Precinct continued to be cleared of native vegetation to create open grasslands for grazing. The retention of this landscape through the nineteenth and twentieth centuries was characteristic of the area. Much of the area has now been developed.</p> <p>The Bungarribee Estate is likely to meet the local significance threshold for aesthetic significance.</p>
D – Social Significance	<p>Once part of the Bungarribee Estate the Bungarribee Precinct has some social significance. The Bungarribee Estate has been assessed to be of significance to a number of locals who have childhood memories of stories told to them by family and friends about the Bungarribee homestead. Its large verandah and large barn east of the homestead were among the features mentioned in such recollections. The Bungarribee Estate also has social significance as a place that provided employment within the local area.</p> <p>The Bungarribee Estate is likely to meet the local significance threshold for aesthetic significance.</p>

7.3.3 Overall statement of significance

The Bungarribee Estate was granted to John Campbell in 1822. Campbell built his homestead on the western slope of Bungarribee Hill, to the north east of the Bungarribee Precinct. Campbell also erected a number of outbuildings including a barracks to accommodate his convict workforce, a large barn, stables and a blacksmiths and carpenters shop. The Estate became a landmark for travellers on the Great Western Road with the homestead positioned at the highest point of Bungarribee Hill. The Estate has retained its social significance as a feature in the recollections of locals.

The Estate passed through a number of hands and was used as a horse stud under Thomas Icely and Thomas Smith in the 1830s and 1840s during which time a number of champion racehorses were bred at Bungarribee. The Estate was later used as a remount depot by the East India Company for horses purchased in NSW to be shipped to India for the British cavalry. In the late 1840s and 1850s the Estate, then owned by Benjamin Boyd, was used to accommodate Islander labourers from the Pacific.

The initial grant to Campbell remained as a single Estate until its resumption as a RAAF dispersal area in the 1940s. the Bungarribee Precinct is important in demonstrating the pastoral landscape of the past given much of the area has now been developed.

Given the minimal archaeological footprint that would have been left behind from pastoral activities conducted within the Bungarrabee Precinct and the levels of disturbance within the Precinct the potential for archaeological remains associated with the Bungarrabee Estate has been assessed as low although there is some potential for remains of the entrance gates and drive to the Bungarrabee homestead to be located. Such remains would be of State heritage significance.

8.0 IMPACT ASSESSMENT

8.1 Proposal

The proposal involves the construction of a zoo, including all associated access and drainage infrastructure, services, and landscaping for construction of animal enclosures.

The proposal will involve large-scale excavation and landform modification. The only portion of the study area that will remain intact is the strip of vegetation covering the floodplain area bordering Eastern Creek (see Figure 2).

8.2 Heritage Impact Assessment

The proposed works are considered to have no heritage impacts on Bungarrabee Estate, the OTC Transmission Station, the Post Office/ School or the beehive well. The heritage impact assessment for Sydney Zoo is summarised in Table 6.

Table 6: Summary of items in the Bungarrabee/Doonside Region

Item	Type of impact	Potential for impact
Bungarrabee Estate	Nil	There is no evidence of any built items associated with Bungarrabee Estate being located within the study area. No works have been proposed in the vicinity of the SHR curtilage for Bungarrabee Estate, which is located approximately 1 km north of the study area.
Site of the former OTC Transmission Station buildings	Nil	The site of the former OTC transmission station buildings is to the north of the study area. The buildings were demolished by 2001 after an archival recording was completed for the site.
OTC Transmission station towers	Negligible	The footings of former OTC transmission station towers are evident within the study area. Given that the remains have already been impacted and are located in a highly disturbed context; any further impacts would be negligible.

The site of the former Eastern Creek post office and the beehive well structure are not located in the vicinity of the study area and will not be impacted.

9.0 MITIGATION MEASURES

Overall, Sydney Zoo will have negligible impact on non-Aboriginal heritage. The following measures provide a framework for further investigations and interpretation of non-Aboriginal heritage.

9.1 Heritage Interpretation Plan (HIP)

A Heritage Interpretation Plan (HIP) should be prepared for Sydney Zoo. This plan will focus on the heritage features within Bungarribee Precinct as a whole and provide direction for how interpretation will be incorporated in the proposed recreational facilities.

9.2 Re-use of OTC entrance gates

The former OTC entrance gates are not located within the Sydney Zoo study area. Additionally, WSPT proposes to construct a new access way into Bungarribee Precinct off the Great Western Highway adjacent to the former OTC entrance gates.

Although not within the scope of Sydney Zoo works, there is potential for consultation between Sydney Zoo and WSPT on possible re-use strategies for the former OTC entrance gates. This may include refurbishment and appropriate signage, subject to a separate SoHI.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 It was found that

- There are no listed heritage items within the study area.
- There is nil-low potential for archaeological relics associated with the Rooty Hill Government Farm to be present within the study area.
- There is nil-low potential for archaeological relics associated with the Bungarribee Estate to be present within the study area.
- There is nil-low potential for archaeological relics associated with the OTC transmission station within the study area.

10.2 It is therefore recommended that

- A HIP should be prepared for the study area. The study area will focus on the heritage features of Bungarribee Precinct as a whole and provide direction for how interpretation might be incorporated into the Zoo development.
- If unexpected archaeological finds are discovered during the proposed works, a heritage consultant should be engaged to assess the find and the NSW Heritage Division would be notified of the discovery of a relic in accordance with Section 146 of the NSW *Heritage Act 1977*.
- A heritage induction would be provided to workers before construction begins informing them of the location of heritage items outside the study area, including the extant gate entrance for the former OTC transmission station, and guidelines to follow if unanticipated heritage items or deposits are located during works.

11.0 REFERENCES

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