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20 October 2020

Ms Minoshi Weerasinghe
Planning Officer
Department of Planning, Industry & Environment
GPO Box 39 | Sydney NSW 2001

Dear Minoshi,

RESPONSE TO SUBMISSIONS - HISTORICAL ARCHAEOLOGICAL ASSESSMENT

Urbis received a letter (ref: DOC20/694003-10) from the Aboriginal Cultural Heritage Regulation – North, Heritage NSW in September 2020. The submission requested additional information in relation to the Aboriginal Cultural Heritage Assessment Report (ACHAR). **Error! Reference source not found.** below outlines the specific submissions and references the relevant sections of the ACHAR where additional information was provided as response to satisfy the submission.

Table 1 Details of the Response to Submissions

Subject of submission	Response
HNSW recommends the project includes a condition to manage historical archaeology through unexpected finds. A designated historical archaeological program is not recommended for this SSD.	Urbis has addressed this submission through including the recommendation for the development of an Unexpected Finds Procedure (UFP). Urbis has already recommended that the historical archaeological constraints are managed through monitoring and chance find procedure and no designated archaeological program such as excavation is needed. The changes are included in the Executive Summary and Section 9 under Recommendation 1.
Taronga Zoo as a State Government agency should have existing records at Start Archives to rely on to confirm these elements of the site. Consequently the current significance assessment attributed to the previous historical occupation dating from	Urbis have contacted Heritage NSW and in relation to this section they were not required any additional information. We are aware of the heritage archival records of the Zoo and we have been relying on those for the HAA. This was just a comment from HNSW and the only requirement they wanted us to clearly include was the unexpected finds procedure.



Subject of submission	Response
Taronga Zoo within the SSD boundary has not been demonstrated in the current assessment documents.	

If you have any questions, please don't hesitate to contact me at bhansel@urbis.com.au.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Balazs Hansel". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

Balazs Hansel
Associate Director
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The logo consists of the word "URBIS" in a bold, white, sans-serif font. To the right of the text is a white square frame that is partially open on the right side, with the text "URBIS" appearing to be inside it.

URBIS

HISTORICAL ARCHAEOLOGICAL ASSESSMENT

Upper Australia Precinct,
Taronga Zoo

Prepared for

TARONGA CONSERVATION SOCIETY AUSTRALIA

20 October 2020

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

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Project Code	P0022459
Report Number	FNL01

Urbis acknowledges the important contribution that Aboriginal and Torres Strait Islander people make in creating a strong and vibrant Australian society.

We acknowledge, in each of our offices the Traditional Owners on whose land we stand.

All information supplied to Urbis in order to conduct this research has been treated in the strictest confidence. It shall only be used in this context and shall not be made available to third parties without client authorisation. Confidential information has been stored securely and data provided by respondents, as well as their identity, has been treated in the strictest confidence and all assurance given to respondents have been and shall be fulfilled.

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EXECUTIVE SUMMARY

This report presents the findings of a Historical Archaeological Assessment (HAA) for the proposed redevelopment of facilities within the Upper Australia Precinct at Taronga Zoo, 2A Bradleys Head Road, NSW (hereafter referred to as the 'subject area') (see Figure 1 and Figure 2).

Urbis has been commissioned by Taronga Conservation Society Australia (the Proponent) to produce an HAA in accordance with the Secretary's Environmental Assessment Requirements (SEARs) for the State Significant Development (SSD 10456). This HAA will accompany an Environmental Impact Statement (EIS) for the proposed works.

This assessment has been prepared for the proposed development of Lot 22 DP 8432904 (partial), which is Crown Land managed by the TCSA (the Zoological Park Board). The proposed works will upgrade the existing Upper Australia Precinct, including a new exhibit design and layouts. This will include demolition of existing structures and some excavation works, while still remaining sympathetic to the design intent of the original 1970s exhibits. The Upper Australia Precinct will display critically endangered Australian animals that form part of Taronga's wildlife conservation and education programs and upgrade "star" attractions including kangaroo, koala, platypus, wombat and emu exhibits.

The proposal will incorporate the demolition of:

- road, associated kerbing and retaining wall for Heritage item 'Australian Sections 1 and 2 landscaping, including greybrown brick paths, gutters, raised brick edges, brush fencing' (123L);
- section of boundary wall associated with heritage item 'Sandstone Perimeter Wall' (07L);
- heritage item 'Bridge' (153L); and
- heritage item 'Platypus House' (93B) and associated ground slab and footings.

The proposal will incorporate excavation of:

- inside the wetland ponds (within vicinity of heritage items 08L & 107L), where base will be excavated and walls will remain intact; and
- conversion of footpaths to boardwalks, which will involve spot excavations for pylons within the Australian wildlife enclosure (123L) where a boardwalk will be installed to minimise surface footprint of the development.

The proposal will incorporate the following works:

- Refurbishment of the existing Nocturnal House;
- Construction of a new Koala encounter and canopy walk;
- Extension of the existing Macropod walkthrough;
- Creation of a new eastern plaza and western pavilion;
- Upgrades to back of house facilities for animal care;
- Additional toilets and amenities for staff and visitors;
- Other supporting infrastructure and walkways; and
- Modifications to the existing ropes course including a new entrance.

This assessment addresses the relevant requirements of the Department of Planning's Secretary's Environmental Assessment Requirements (SEARs) and has been carried out in accordance with the following guidelines:

- *Assessing Significance for Historical Archaeological Sites and 'Relics'* (NSW Office of Environment and Heritage (OEH) (2009).

- *Assessing Heritage Significance* (NSW Heritage Manual 2) (NSW Heritage Office 2001).
- *Historical Archaeology Code of Practice* (Heritage Council of NSW 2006).
- *Taronga Zoo Archaeological Management Plan*, 2004, GML
- Taronga Zoo Conservation Strategy, 2002, GML
- *Taronga Zoo Australian Section (Upper) Heritage Items at Site*, 2018, *Taronga Conservation Society*
- The philosophy and process adopted is that guided by the Australia ICOMOS *Burra Charter* 2013.

Historical sources indicate that by 1850 the subject area had been incorporated within Charles Jenkins and J. Holt land grant. The land was subsequently resumed for military purposes in the 1890s, gazetted as Commonwealth land (part of Ashton Park) in 1908 and rededicated as a zoological park in 1912. Following the establishment of the Zoo in 1912, the subject area underwent a number of changes under the directorships of La Souef (1912-1940), Hallstrom (1941-1967) and Strahan (1967-1974). The majority of extant features which make up the subject area today date to the period of Strahan's directorship.

Previous archaeological investigations in the vicinity of the subject area, with similar land use history or environmental conditions, have identified high levels of disturbance associated with later adaptations of the Zoo, with soil profiles consisting predominantly of imported fill. These investigations have, however, exposed a number of historical archaeological relics at varying states of preservation. These findings are consistent with the assertion of the Taronga Zoo AMP that there is various potentiality for the survival of historical archaeological relics across the Taronga Zoo site, including within disturbed soil profiles.

The site inspection confirmed the findings of the desktop assessment and also confirmed the high level of disturbance all across the subject area.

An assessment of archaeological potential has determined that:

- there is no available evidence which suggests that permanent structures were erected within the subject area in association with the period between 1788 - 1912, although remnant fencing, paths and casual finds may survive; and
- there is moderate-high potential for archaeological remains to be located within the subject area which reflect the establishment of the Zoo under the Directorship of La Souef (1912-1940) and subsequent changes under Hallstrom (1941-1967). However, there is only a low potential that those remains are located within areas of proposed excavation and surface disturbance.
- The subject area located within Zone 3(C) and Zone 4(D) of the Historical Archaeological Management Zones under the *Taronga Zoo Archaeological Management Plan* (GML, 2004) and considered having medium to low (Zone 3(C)), and no (Zone 4(D)) archaeological potential.

An assessment of archaeological significance determined that archaeological relics associated with earlier phases of the Zoo have the potential to be of State significance for:

- their ability to reflect the original layout of the Zoo and changes which were made throughout the early 20th century in response to shifts in its philosophical direction; and
- their ability to reflect changing attitudes towards the captivity of animals and the role of zoos as places of education, entertainment and conservation.

The proposed excavation works would be confined to the northern Wetland Ponds and north-eastern Australian Wildlife enclosure. There is some potential for remnant foundations of the northern Wetland Pond to be impacted by excavations. With the exception of remnant paths, no significant historical archaeological relics have been identified within north-eastern component of the subject area. There is some potential for these to be impacted by the proposed spot excavations and insertion of pylons in association with the new boardwalk. Other identified potential archaeological relics, including remnants of the former Baboon Pit, Anteater and Bandstand buildings, are located outside the footprint of the proposed surface disturbance and consequently will not be impacted by the proposal.

Based on the above conclusions, Urbis provides the following recommendations:

Recommendation 1

It is therefore recommended that in line with management measures detailed under *Section 7 – Archaeological Management Measures* of the *Taronga Zoo Archaeological Management Plan* (GML, 2004) the following procedure is undertaken:

- A short Archaeological Methodology should be prepared for the monitoring of site activities detailing research questions, objectives and details of the Unexpected Finds Procedure.
- For proposed surface disturbance, including excavation within Zone 3(C), close monitoring by an archaeologist would be required of any proposed excavation or disturbance and any identified potential relic, work or feature would be managed under an Unexpected Finds Procedure. The UFP should be developed before the construction commences.
- In the event that any archaeological feature be uncovered in Zone 3(C), work should cease immediately and the UFP should be applied. As part of the UFP an assessment of the archaeological feature might also need to be undertaken. In particular, consideration should be given to retaining archaeological features and works in situ. This should be done in consultation with the Proponent and potentially with Heritage NSW. The advice of a materials conservator may need to be sought if archaeological features are exposed. Archaeological features require archival recording and are to be located on a site plan.
- For proposed surface disturbance, including excavation within Zone 4(D), an archaeologist would only be called to the site if an archaeological feature is exposed. In the event of that any potential archaeological relics are uncovered, the UFP should be applied. The advice of a materials conservator may need to be sought if archaeological features are exposed. If uncovered, archaeological features would require archival recording and should be located on the site plan.

Recommendation 2

Should Aboriginal objects uncovered during surface disturbance, including excavation, all activities must stop and an appropriately qualified archaeologist consulted together with the relevant Aboriginal parties to assess the finds and provide management recommendations. The Aboriginal Cultural Heritage Regulation Branch of the Department of Premier and Cabinet should also be notified by the finds.

Recommendation 3

In the unlikely event that human remains are uncovered during any site works, the following must be undertaken:

- All works within the vicinity of the find immediately stop.
- Site supervisor or other nominated manager must notify the NSW Police and the Aboriginal Cultural Heritage Regulation Branch of the Department of Premier and Cabinet.
- The find must be assessed by the NSW Police, and may include the assistance of a qualified forensic anthropologist.
- Management recommendations are to be formulated and applied in consultation with the Police, The Aboriginal Cultural Heritage Regulation Branch of the Department of Premier and Cabinet and site representatives.
- Works are not to recommence until the find has been appropriately managed.

1. INTRODUCTION

This report presents the findings of a Historical Archaeological Assessment (HAA) for the proposed redevelopment of facilities within the Upper Australia Precinct at Taronga Zoo, 2A Bradleys Head Road, NSW (hereafter referred to as the 'subject area') (see Figure 1 and Figure 2).

Urbis has been commissioned by Taronga Conservation Society Australia (the Proponent) to produce an HAA in accordance with the Secretary's Environmental Assessment Requirements (SEARs) for the State Significant Development (SSD 10456). This HAA will accompany an Environmental Impact Statement (EIS) for the proposed works.

1.1. LOCATION AND DESCRIPTION OF THE SUBJECT AREA

Taronga Zoo is located at Bradleys Head Road, Mosman and is situated in the Mosman Local Government area (LGA). The site is bounded by Bradleys Head Road to the east, Athol Wharf Road and Sydney Harbour to the south, Little Sirius Cove to the west and Whiting Beach Road to the north.

Taronga Zoo is legally described as Lot 22 on DP843294 and is Crown Land managed by the TCSA (the Zoological Park Board).

The proposed Upper Australia Precinct is located at the north-eastern corner of the Taronga Zoo site as shown in Figures 1 and 2. The site is surrounded on three sides by existing zoo facilities and adjoins Bradleys Head Road near the northern main zoo entrance. On the opposite side of Bradleys Head Road to the east of the site is Sydney Harbour National Park. The nearest residential areas to the proposal site are approximately 200m to the north on Bradleys Head Road and Whiting Beach Road. These areas are separated from the project site by the national park and the zoo's car parking, forecourt and main entrance building.

Existing uses and facilities in the Upper Australia Precinct area include:

- Avian wetland.
- Wild ropes course.
- Nocturnal House.
- Macropod walk-through.
- Koala experience.
- Platypus house.

The existing facilities largely comprise open air exhibits, pathways, landscaping and associated infrastructure/servicing areas.



GDA 1994 MGA Zone 56

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1 KM

Project No: P0022459

Project Manager: Balazs Hansel

● Subject Area

REGIONAL LOCATION

Taronga Zoo (Upper Australia Precinct)
Taronga Conservation Society Australia

Figure 1 – Regional Location



GDA 1994 MGA Zone 56

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Project No:P0022459

Project Manager: Balazs Hansel

■ Subject Area
 — Contours
 ■ Hydrology

LOCATION OF THE SUBJECT AREA
 Taronga Zoo (Upper Australia Precinct)
 Taronga Conservation Society Australia

Figure 2 –Location of the subject area.

1.2. PROPOSED DEVELOPMENT

Taronga Zoo and will represent central and northern Australia with animal species and landscapes that reflect the central Australian deserts and top end wetlands.

The proposed works will upgrade the existing Upper Australia Precinct, including a new exhibit design and layouts. This will include demolition of existing structures and some excavation works, while still remaining sympathetic to the design intent of the original 1970s exhibits. The Upper Australia Precinct will display critically endangered Australian animals that form part of Taronga's wildlife conservation and education programs and upgrade “*star*” attractions including kangaroo, koala, platypus, wombat and emu exhibits.

The proposal will incorporate the demolition of:

- road, associated kerbing and retaining wall for Heritage item ‘Australian Sections 1 and 2 landscaping, including greybrown brick paths, gutters, raised brick edges, brush fencing’ (123L);
- section of boundary wall associated with heritage item ‘Sandstone Perimeter Wall’ (07L);
- heritage item ‘Bridge’ (153L); and
- heritage item ‘Platypus House’ (93B) and associated ground slab and footings.

The proposal will incorporate excavation of:

- The inside the wetland ponds (within vicinity of heritage items 08L & 107L), where base will be excavated and walls will remain intact.
- A small section of the western side of the existing entrance of the Nocturnal House.
- Conversion of footpaths to boardwalks, which will involve spot excavations for pylons within the Australian wildlife enclosure (12
- 3L) where a boardwalk will be installed to minimise surface footprint of the development.

The proposal will incorporate the following works:

- Refurbishment of the existing Nocturnal House.
- Construction of a new Koala encounter and canopy walk.
- Extension of the existing Macropod walkthrough.
- Creation of a new eastern plaza and western pavilion.
- Upgrades to back of house facilities for animal care.
- Additional toilets and amenities for staff and visitors.
- Other supporting infrastructure and walkways.,
- Modifications to the existing ropes course including a new entrance.

The proposed demolition works are detailed in Figure 3 and Figure 4 below.

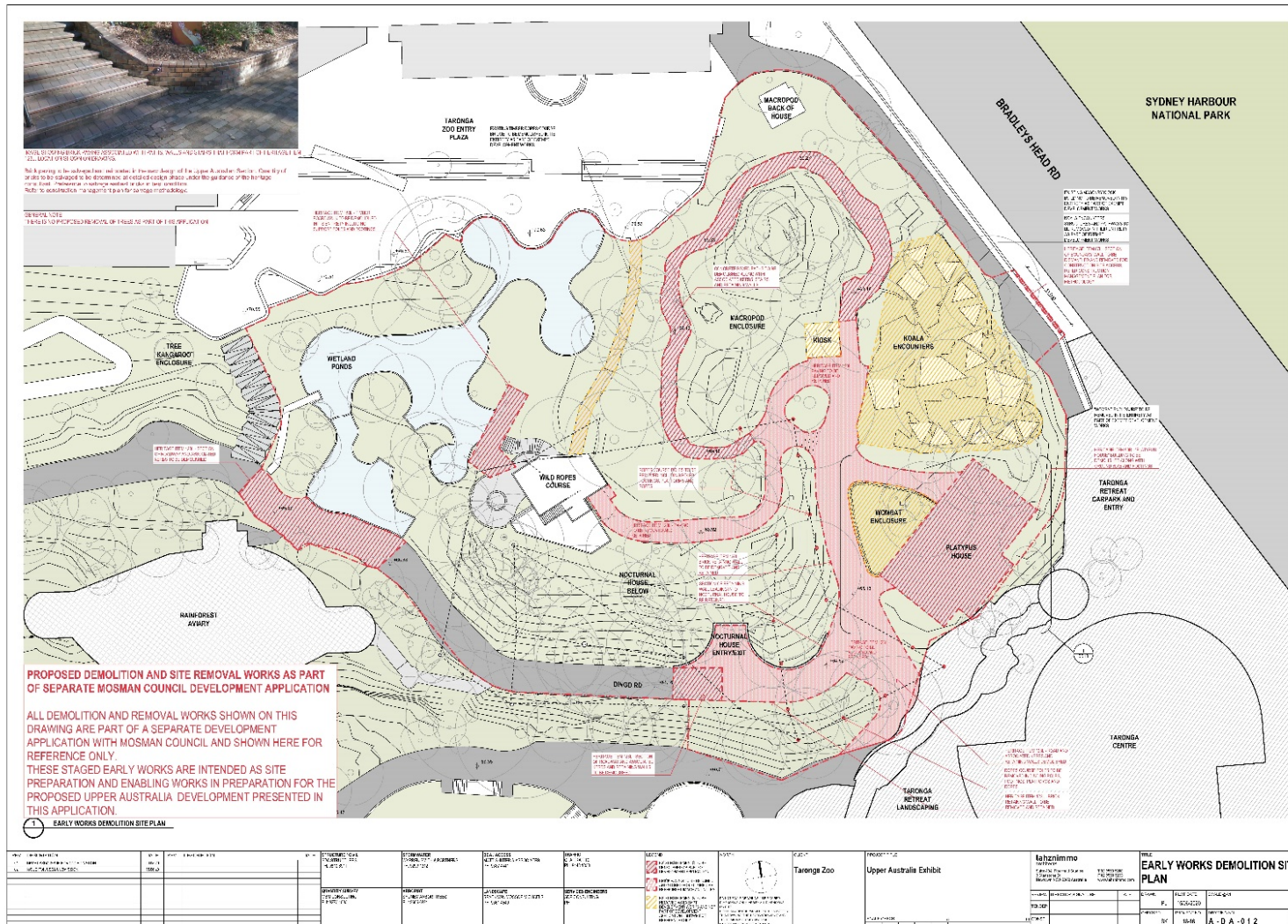


Figure 4 - Proposed demolition plan

Source: Lahznimmo Architects 2020

1.3. RESPONSE TO SEARS

The HAA is guided by the Secretary's Environmental Assessment Requirements (SEARs) for the State Significant Development (SSD 10456). Identifies the relevant SEARs and the corresponding sections of this ACHAR.

Table 1 – SEARs and relevant report sections

SEARs Item	Report Section
<i>3. If the SOHI identifies impact on potential historical archaeology, an historical archaeological assessment should be prepared by a suitably qualified archaeologist in accordance with the guidelines Archaeological Assessment (1996) and Assessing Significance for Historical Archaeological Sites and Relics (2009). This assessment should identify what relics, if any, are likely to be present, assess their significance and consider the impacts from the proposal on this potential archaeological resource. Where harm is likely to occur, it is recommended that the significance of the relics be considered in determining an appropriate mitigation strategy. If harm cannot be avoided in whole or part, an appropriate Research Design and Excavation Methodology should also be prepared to guide any proposed excavations or salvage program.</i>	<p>This HAA has been prepared in accordance with the guidelines as set out in the following publications:</p> <ul style="list-style-type: none">• Assessing Significance for Historical Archaeological Sites and 'Relics' (2009)• <i>Historical Archaeological Code of Practice</i> (2006) <p>This HAA has identified both the archaeological potential (Section 5) and archaeological significance (Section 6) as a means of assessing the potential impacts of the proposal on the non-Indigenous archaeological values of the subject area.</p>

1.4. AUTHOR IDENTIFICATION AND METHODOLOGY

This HAA has been prepared by Alexandra Ribeny (Urbis, Consultant), Andrew Crisp (Urbis, Senior Consultant) and Balazs Hansel (Urbis, Associate Director).

This HAA has been prepared with reference to the following guidelines and documents:

- *Assessing Significance for Historical Archaeological Sites and 'Relics'* (NSW Office of Environment and Heritage (OEH) (2009).
- *Assessing Heritage Significance* (NSW Heritage Manual 2) (NSW Heritage Office 2001).
- *Historical Archaeology Code of Practice* (Heritage Office of the Department of Planning NSW 2006).
- *Taronga Zoo Archaeological Management Plan*, 2004, GML
- *Taronga Zoo Conservation Strategy*, 2002, GML
- *Taronga Zoo Australian Section (Upper) Heritage Items at Site*, 2018, *Taronga Conservation Society*
- The philosophy and process adopted is that guided by the Australia ICOMOS *Burra Charter* 2013.

1.5. LIMITATIONS

This report is limited to a presentation and analysis of potential impacts on the historical archaeological (non-Aboriginal) potential only. The assessment of archaeological potential is limited specifically to the subject area as identified by the red polygon in Figure 2.

No intrusive archaeological methods including archaeological test excavation have been applied for the purposes of this report.

2. STATUTORY CONTEXT

2.1. NATIONAL LEGISLATION

Environment Protection and Biodiversity Conservation Act 1999

In 2004, a new Commonwealth heritage management system was introduced under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The National Heritage List (NHL) was established to protect places that have outstanding value to the nation. The Commonwealth Heritage List (CHL) was established to protect items and places owned or managed by Commonwealth agencies. The Australian Government Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) is responsible for the implementation of national policy, programs and legislation to protect and conserve Australia's environment and heritage and to promote Australian arts and culture. Approval from the Minister is required for controlled actions which will have a significant impact on items and places included on the NHL or CHL.

The subject area is not included on the NHL or the CHL, and no historic heritage items in or within the vicinity of the subject area are listed on the NHL or the CHL.

2.2. STATE LEGISLATION

NSW Heritage Act 1977

The NSW Heritage Act 1977 (the Heritage Act) provides protection to items of environmental heritage in NSW. This includes places, buildings, works, relics, moveable objects and precincts identified as significant based on historical, social, aesthetic, scientific, archaeological, architectural, cultural or natural 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 an item or affect its heritage significance.

State Heritage Register

The Heritage Act is administered by the Office of Environment and Heritage. The purpose of the Heritage Act 1977 is to ensure cultural heritage in NSW is adequately identified and conserved. Items of significance to the State of NSW are listed on the NSW State Heritage Register (SHR) under Section 60 of the Act.

Section 170 Heritage and Conservation Register

The Heritage Act also requires government agencies to identify and manage heritage assets in their ownership and control. Under Section 170 of the Heritage Act, Government agencies must keep a register which includes all local and State listed items or items which may be subject to an interim heritage order that are owned, occupied or managed by that Government body. Under Section 170A of the Heritage Act all government agencies must also ensure that items entered on its register are maintained with due diligence in accordance with State Owned Heritage Management Principles.

Historical Archaeology

Under Section 57(1) of the Heritage Act Heritage Council approval is required to move, damage, or destroy a relic listed in the State Heritage Register, or to excavate or disturb land which is listed on the SHR and there is reasonable knowledge or likelihood of relics being disturbed. The Act defines a 'relic' as:

Any deposit, object or material evidence

- (a) which relates to the settlement of the area that comprises New South Wales, not being an Aboriginal settlement, and;
- (b) which is 50 or more years old. A Section 60 application is required to disturb relics on an SHR listed site.

Under section 139 of the *Heritage Act*, an excavation permit is required to disturb or excavate land "*knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed*". This section of the Heritage Act identifies provisions for items /relics outside of those on the State Heritage Register or subject to an Interim Heritage Order (IHO).

2.3. THE AUSTRALIAN ICOMOS BURRA CHARTER

While not a statutory document, the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter) sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance including owners, managers, and custodians. The Burra Charter provides specific guidance for physical and procedural actions that should occur in relation to significant places, regardless of their legislative listing. The Burra Charter sets out a number of conservation principles for heritage places which are relevant to the project including use, setting, conservation, management and knowledge.

2.4. HERITAGE CONTEXT

The subject area is located within the curtilage of a local heritage item which is listed under Part 1 of Schedule 5 of the Mosman LEP 2012 as “Rainforest Aviary”, “Elephant House”, bus shelter and office, floral clock and upper and lower entrance gates’ (item no. I34). The subject area is also located within proximity of local heritage item ‘Ashton Park’ (item no. I458).

Taronga Zoo contains over 200 heritage items which are listed on the Heritage and Conservation Register for Taronga Zoo, prepared in accordance with Section 170 of the *Heritage Act 1977* (Figure 6). Those which are located within the subject area are listed in Table 2.

Table 2- S.170 heritage items located within the subject area

Item Name	Listing	Significance
Sandstone Perimeter Wall	07L	Local
Stonework and rock benches at Waterbird Lake	08L	Local
Dry rubble sandstone retaining wall opposite Floral Clock	14L	Local
Spider Monkey Enclosure	18B	Local
Platypus House	93B	Local
Nocturnal House	94B	Local
Australian Wetlands - ponds on three levels. Bluestone edges and beaches with wetlands vegetation.	107L	Local
Sandstone bird bath, inside Nocturnal House	112M	Local
Australian Sections 1 and 2 landscaping, including greybrown brick paths, gutters, raised brick edges, brush fencing	123L	Local
Bridge	153L	Local
<i>Eucalyptus Botryoides</i> (Bangalay)	173L	State
<i>Lophostemon confertus</i> (Brush Box)	192L	Local
<i>Lophostemon confertus</i> (Brush Box)	239L	Local
Grey Gum and Brush Box, <i>E. punctata</i> and <i>Lophostemon</i> remnants within and around Macropod enclosure	259L	Local
<i>Baloghia inophyllum</i> (Brush Bloodwood)	281L	Local
<i>Cryptocarya laevigata</i> var. <i>Bowiei</i> (Glossy Laurel)	282L	Local

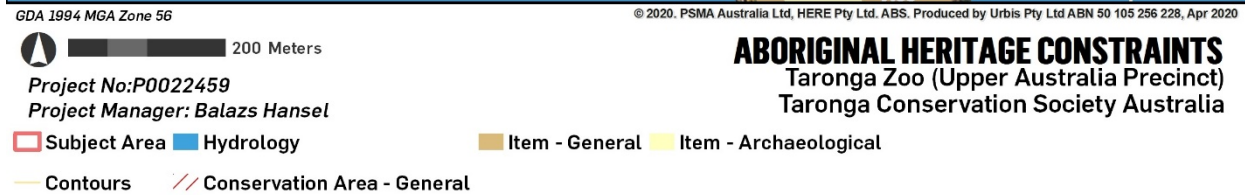


Figure 5 – Heritage constraints

- **Zone B:** Areas of extant original Zoo path layout
- **Zone C:** Areas where subsurface evidence of previous European activity has potential to remain
- **Zone D:** Areas where there is no potential for subsurface archaeological evidence to remain

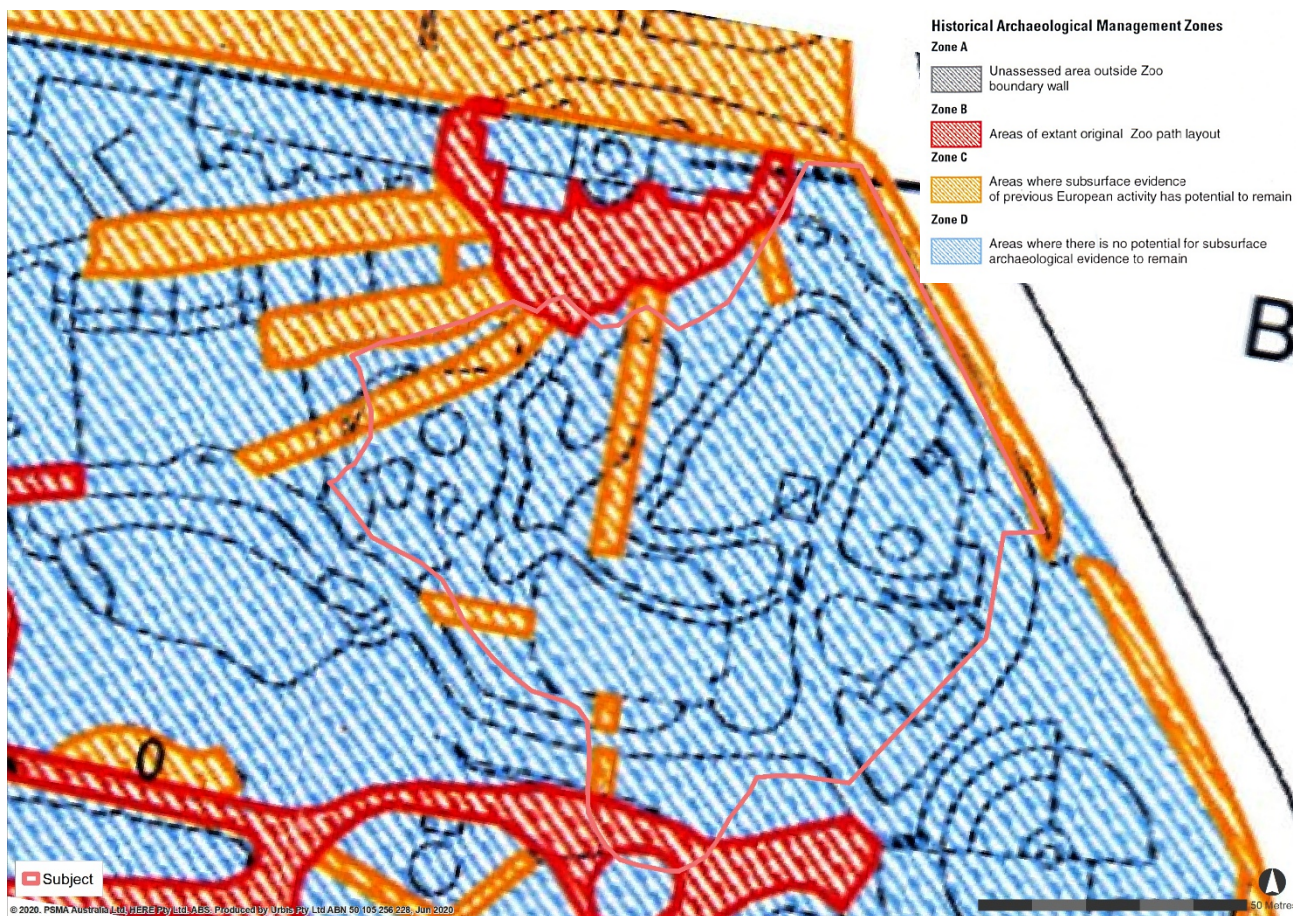


Figure 7 – Historical archaeological management zones

Taronga Zoo AMP 2004

3. HISTORICAL OVERVIEW

The following section is based upon a detailed desktop assessment and a literature review of the history of the subject area. This is reproduced from the Heritage Impact Statement prepared by Urbis (Urbis, 2020).

Early European Development (1788-1911)

Taronga Zoo is located within the County of Cumberland, Parish of Willoughby. In 1837 a stone house known as 'Athol' was erected to the south of the subject area. This was later developed as a leisure destination with a hotel and pleasure garden. A Parish Map dating to c.1850s show that the subject area had by this time been incorporated within a land parcel granted in four allotments to Charles Jenkins and J. Holt (see Figure 8). There is no evidence of structures being erected within the subject area in association with this period.

In 1879, a quarantine station for imported stock occupied a portion of the land to the south. By 1891 two stations were operational within the vicinity of the subject area; one near 'Athol' and another on the corner of Whiting Beach and Bradley's Head Road. A freight tramline was established from Athol Wharf to the stations, which was utilised during zoo construction (GML, 2001).

In the 1890s, large portions of the land surrounding Sydney Harbour were resumed for Military Purposes (Figure 9), including Bradley's Head and the animal quarantine facilities which operated upon it. There is no evidence which suggests that any structures were established within the subject area in association with this period. Following federation in 1901, the Military Reserves were given to the Commonwealth. In 1908, Ashton Park, comprising 142 acres of public park land, was gazetted (Figure 10).



Figure 8 – historic parish map of Willoughby, c. 1850s. Approximate location of the subject area indicated in red outline.
Source: HLRV

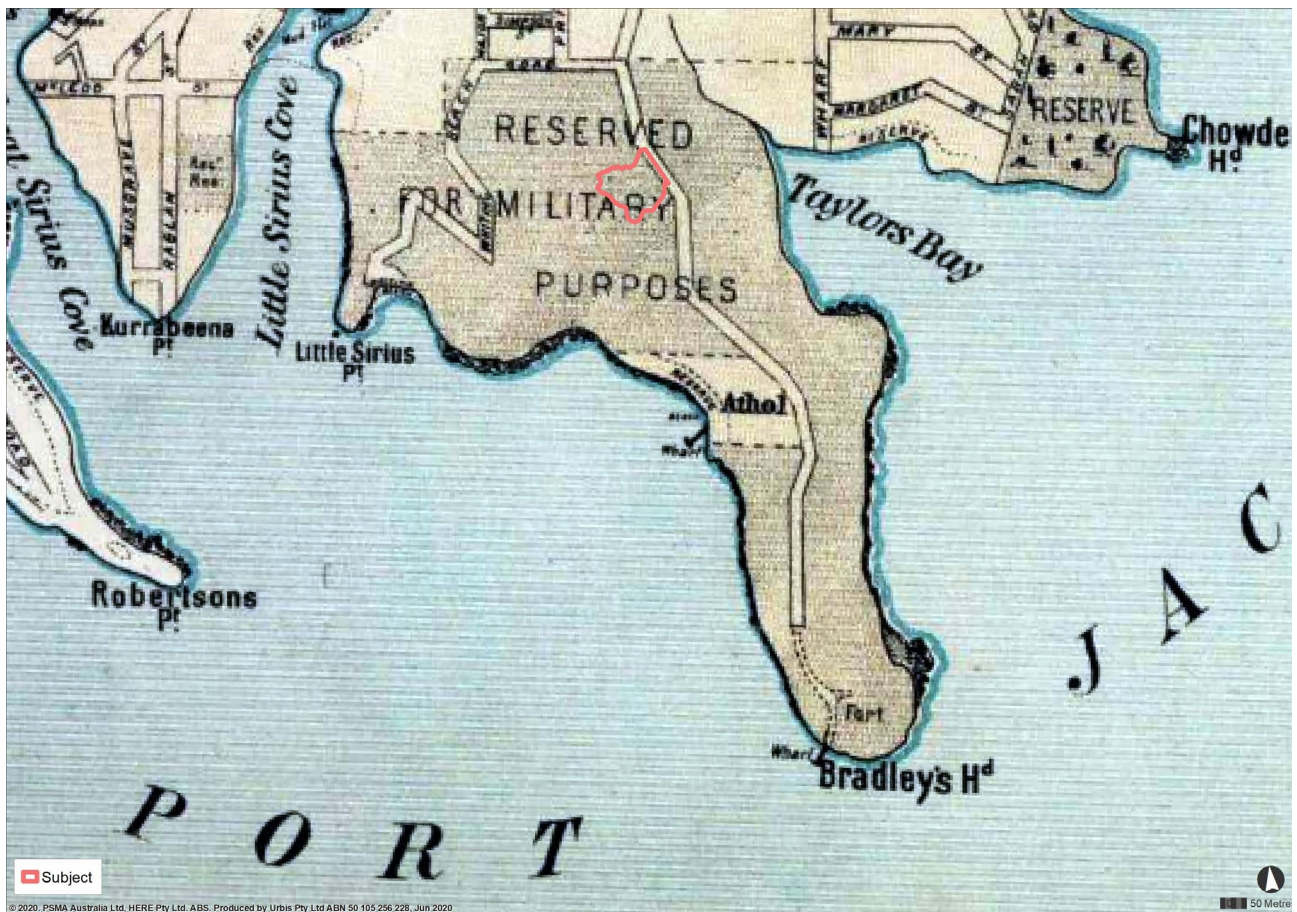


Figure 9 – 1893-94 Parish Map indicating resumption of land for military purposes. Approximate location of the subject area indicated in red outline.

Establishment of Taronga Zoo and La Souef's Directorship (1912–1940)

In April 1912 17 hectares of Crown Land within the north-western component of Ashton Park was rededicated as a zoological garden (Figure 10). Ground was broken on the site in October 1912 and continued until 1916. Prior to this much of the zoo lands was covered in natural Australian bushland. The Zoo officially opened on Saturday October 7th 1916 (The Sun, 1916).

Figure 11 demonstrates the Zoo in its original plan in 1916, with approximately 23 animal exhibits. The subject area contained a concreted and stark enclosure named the Baboon Pit, which had been deeply excavated with mounding in the centre for the Baboons to climb. A Monkey Pit was located to the south and Orangutan and Monkey Pit to the west. Excavation had also been undertaken within the northern section of the subject area for the purpose of establishing the Waterfowl Ponds. A path network had also been established which allowed access to these facilities.

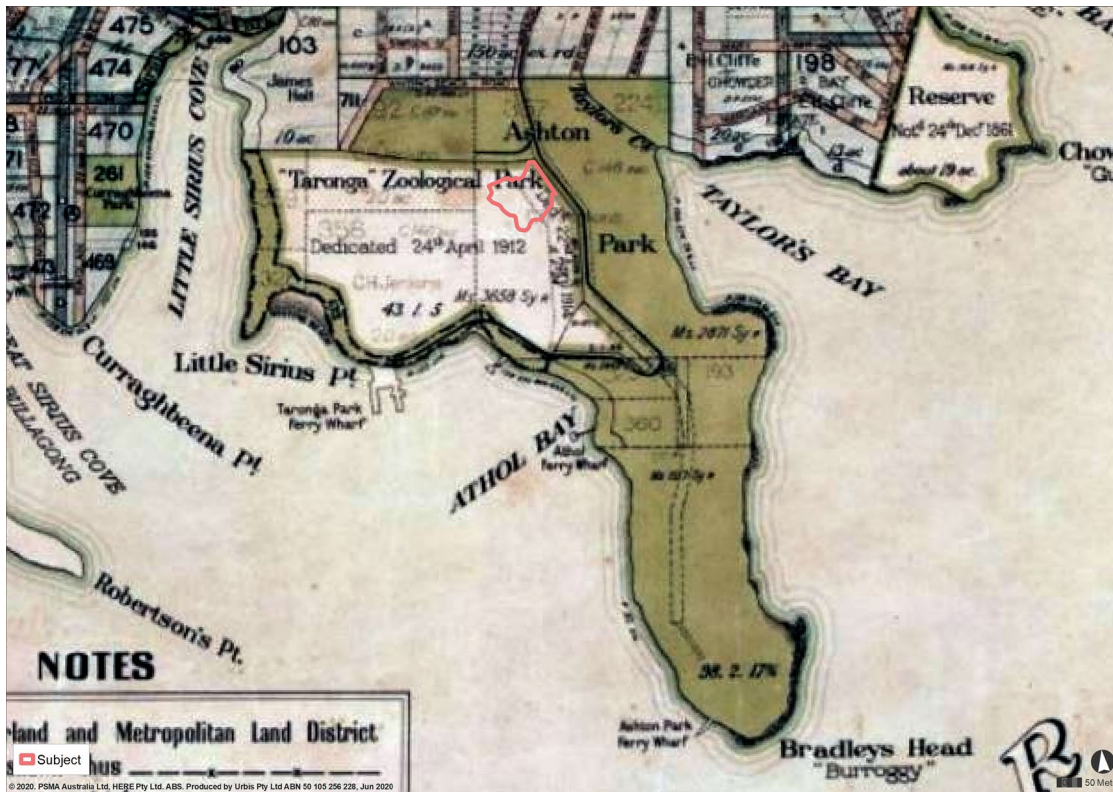


Figure 10 – 1917 Parish Map showing Crown Land, previously part of Ashton Park, which had been rededicated as a zoological park. Approximate location of the subject area indicated in red outline.

Source: Taronga Zoo Archives

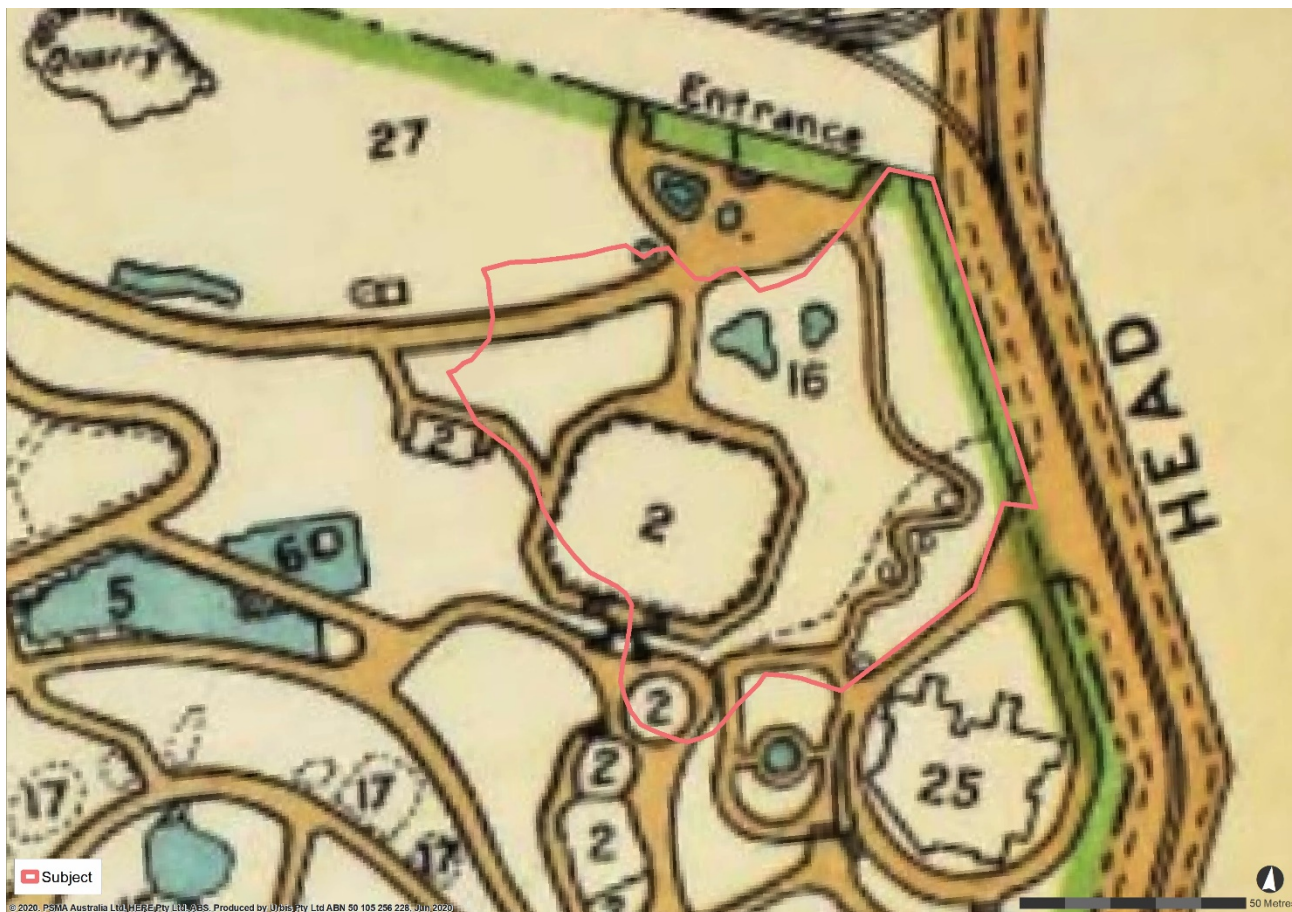


Figure 11 -1916 plan of Taronga Zoological Park, approximate location of the subject area is indicated in red outline. Structures within the subject area as follows: 2 (north) – Baboon Pit; 2 (south) – Monkey Pit; 2 (west) – Orangutan and Monkey Pit; 15 – Waterfowl Ponds;

Source: Taronga Zoo Archives.

Hallstrom's Directorship (1941–1967)

Following the departure of Le Souef in 1939, Taronga Zoo underwent a number of changes under the new director Sir Edward Hallstrom. Rather than the focus on barless exhibits with moats, the moats began to be filled in and chain and wire fences installed to allow visitors to get closer to the animals. Animal enclosures had concrete floors and walls installed (GML, 2006). Enclosures for swans, pelicans and tortoises had been established to the north and west of the Baboon Pit by this time and a Bandstand had been erected to the east. Some additional paths had also been established within the northern component of the subject area (Figure 12).

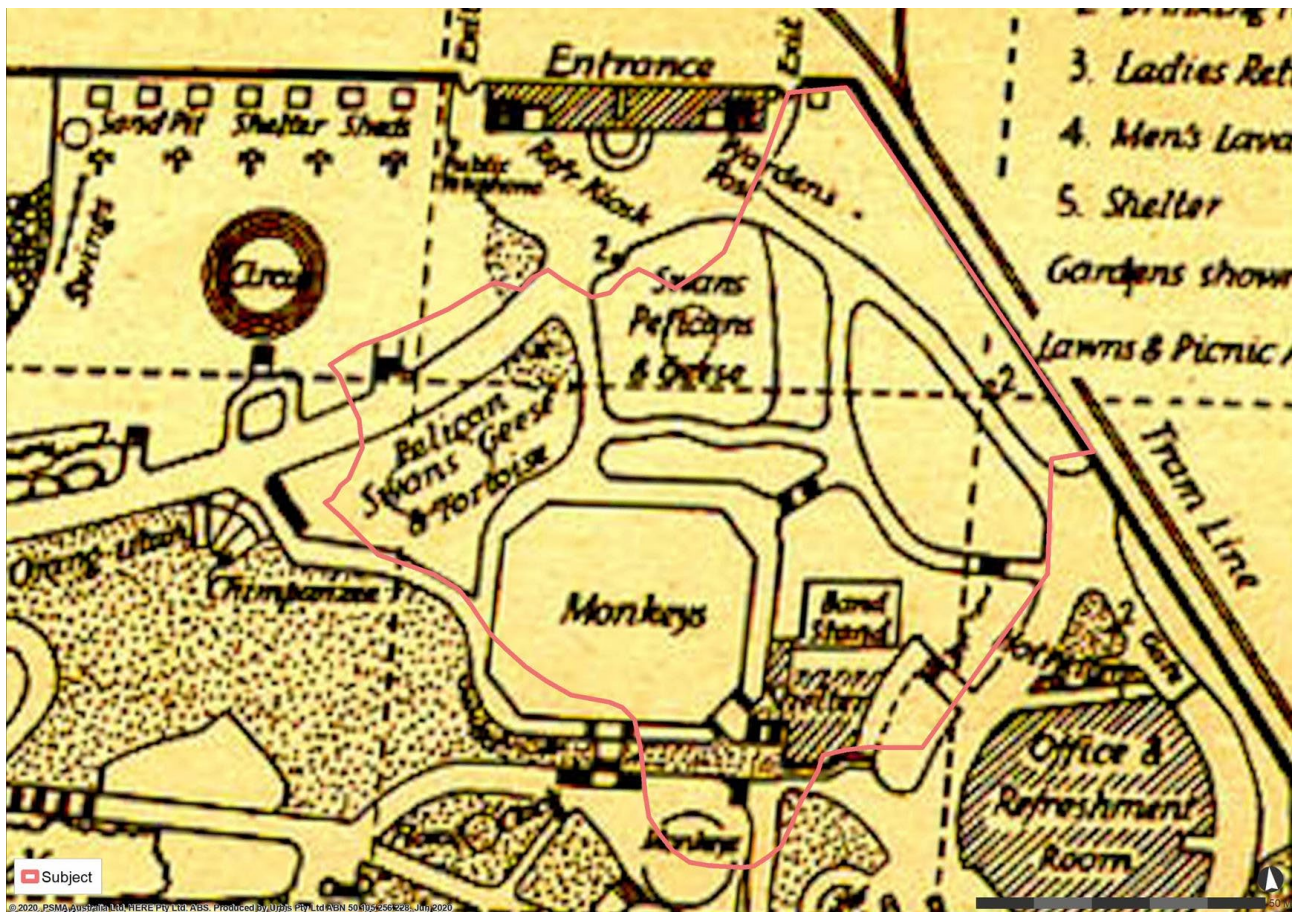


Figure 12 – 1940 Guidebook indicating changes to paths and configuration of enclosures as well as the erection of the Bandstand building to the east of the Baboon Pit. Approximate location of the subject area indicated in red outline.

Source: Taronga Zoo Archives

Strahan's Directorship (1967–1986)

Under Strahan's direction, the first exhibits to be upgraded were those in the Australian collection. The Nocturnal House, Platypus House, Koala Exhibit, Wetland Ponds and Rainforest Aviary were established within the subject area at this time.

Nocturnal House and Platypus House

One of the first facilities to be upgraded under Strahan's masterplan was the Platypus facilities, resulting in the construction of the Platypus house. A 1967 demolition plan (Figure 12) indicates the demolition of the Anteaters and Bandstand buildings to the east of the Baboon Pit to make way for the construction of Platypus House. The lower section of a staircase to the south of the Baboon Pit was also removed at this time.

Another significant development at this time was the partial removal of the Baboon Pit and its replacement with Nocturnal House. A 1969 demolition plan (Figure 14) shows the extent of demolition. The southern, western and eastern concrete perimeter walls were demolished, as well as the southern component of the floor and understructure. An entrance tunnel and concrete shed were also demolished within the south-eastern section of the Baboon Pit. A 1970 site plan (Figure 15) indicates where the Nocturnal House was constructed in the former location of the Baboon Pit. This structure incorporated a northern section of the floor and understructure of the former Baboon Pit as well as the concrete northern perimeter wall. The floor of the Nocturnal House thus follows the floor level of the former Baboon Pit.

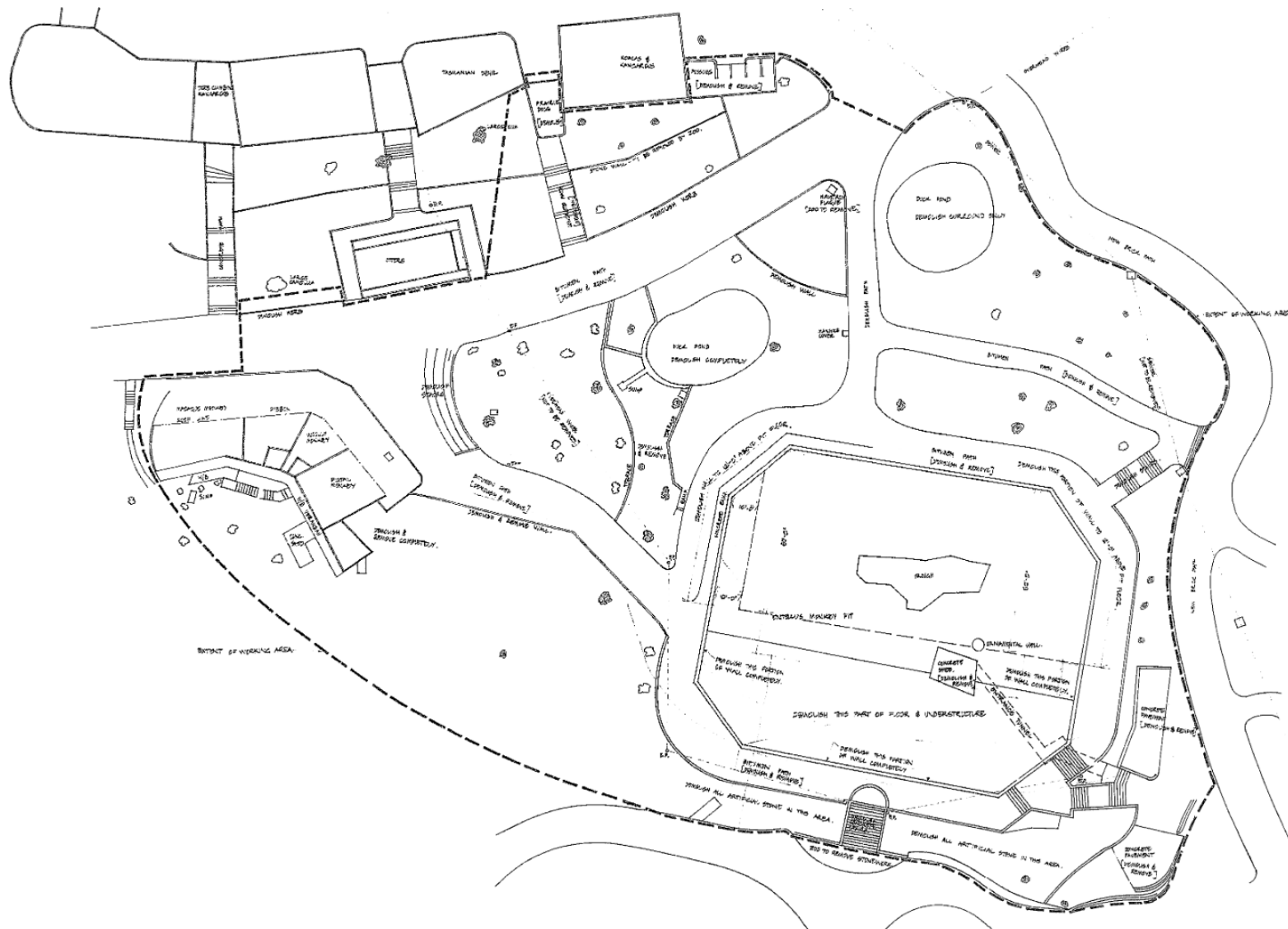


Figure 14 -1969 Demolition Plan indicating location of Duck Ponds and extent of demolition within Baboon Pit

Source: Taronga Zoo Archives

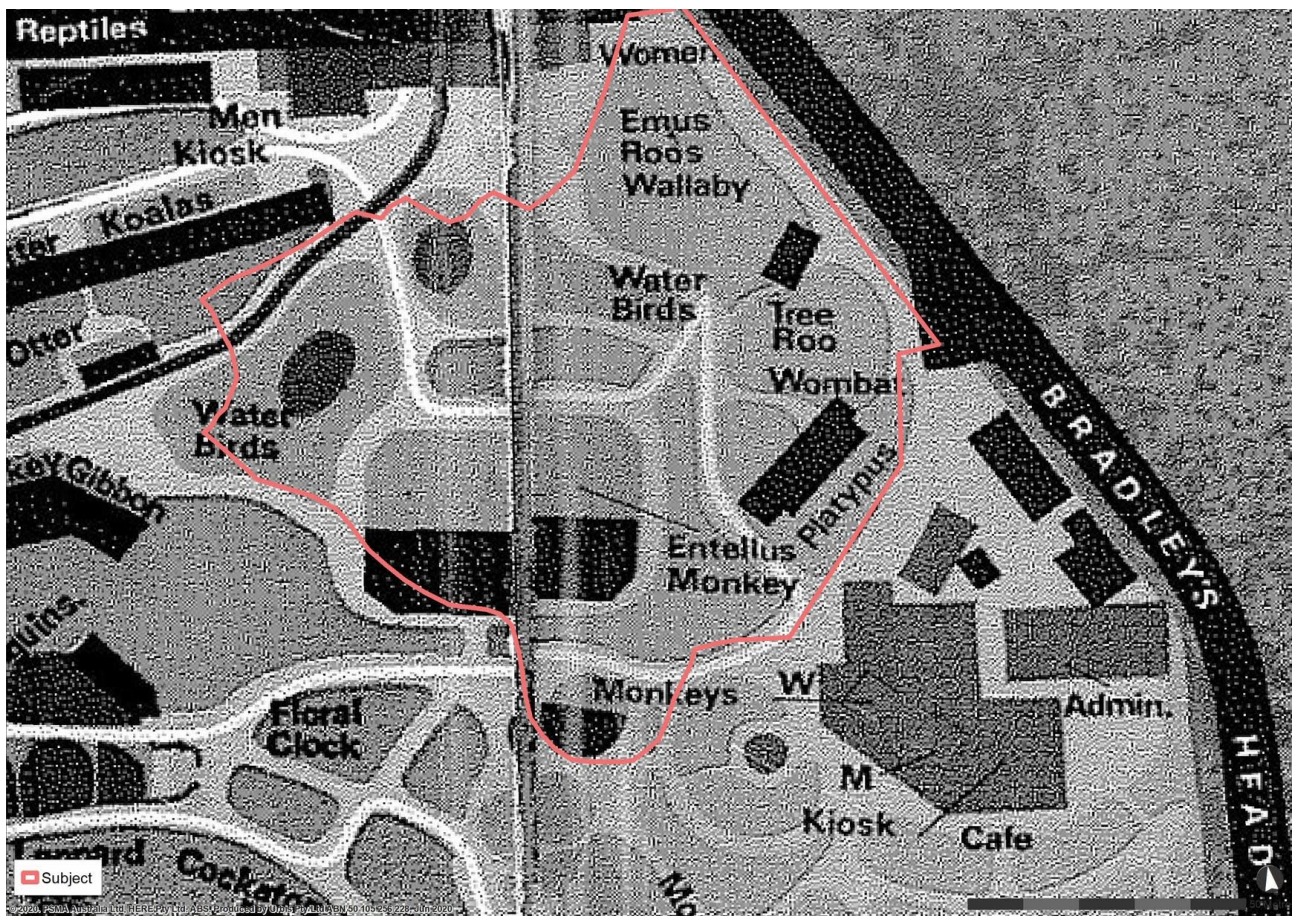


Figure 16 – Taronga Zoo plan, 1968. Approximate location of the subject area indicated in red polygon.
Source: Taronga Zoo Archives

Waterfowl / Wetlands Ponds

The Wetlands Ponds, originally known as Waterfowl Ponds, was the second area to be upgraded following under Ronald Strahan's upgrade initiatives across the zoo and was completed by 1972. The design was that of a series of connected pools and construction was underway by 1969 (Martyn, B. 1969). Prior to this, a waterfowl exhibit had existed in the area, however this was simply circular ponds (see Figure 11, Figure 18 and Figure 19).

The Waterfowl Ponds utilised part of the naturally occurring topography of Taronga, incorporating a projecting sandstone shelf. Other sections of the wetlands were artificially created, using granite blocks from Scotland. A wooden causeway was constructed which ran through the Wetlands Ponds (Strahan, 1991).

Figure 14 indicates the partial demolition of the northern Duck Pond, which was later incorporated within a 'boggy area' (Figure 17). The Duck Pond within the western section of the precinct (Figure 14) was removed completely and a larger pond excavated in this location. The outline of the western pond can still be made out in the 1969 concept plan (Figure 17). The footprint of the Waterfowl Ponds had thus significantly increased by this time, necessitating significant earthworks and disturbance within the north-western component of the subject area.

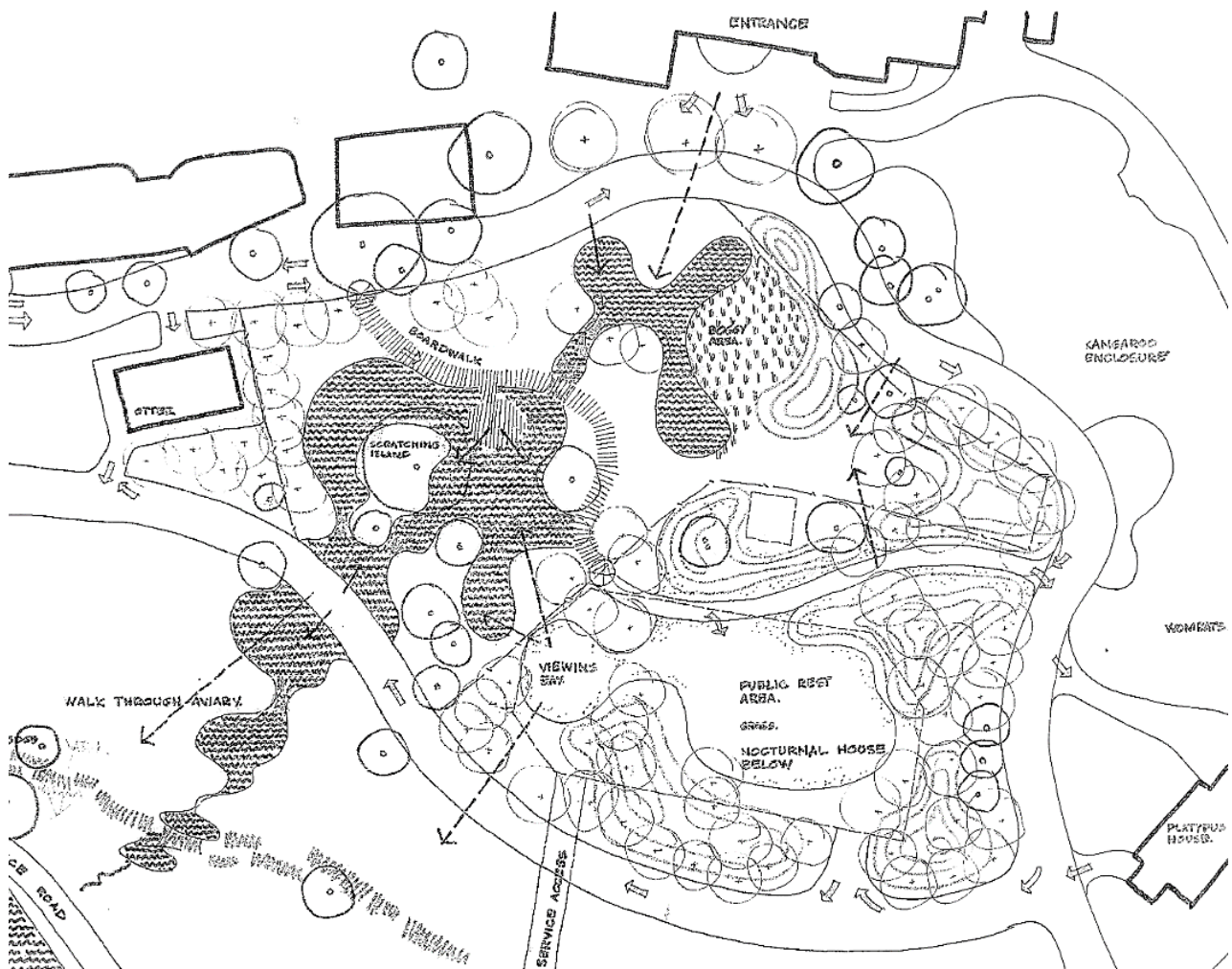


Figure 17 -1969 Waterfowl Enclosure concept plan indicating replacement of the northern and western Duck Ponds within expansive wetland exhibits

Source: Taronga Zoo Archives



Figure 18 – waterfowl exhibit prior to redevelopment, a series of circular ponds.

Source: Taronga Zoo Archives

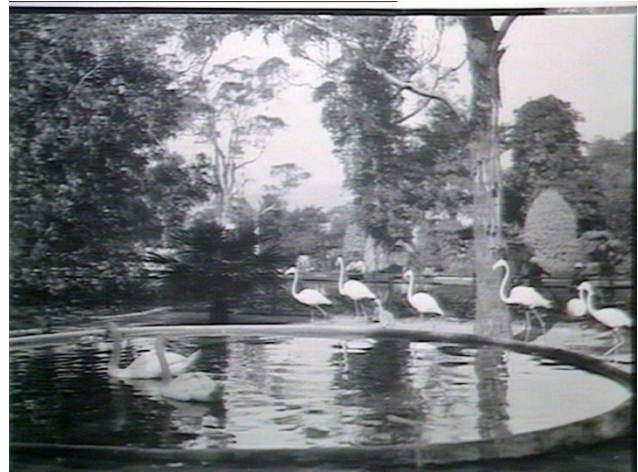


Figure 19 – waterfowl exhibit prior to redevelopment, a series of circular ponds.

Source: Taronga Zoo Archives



Figure 20 – bridge over the wetlands ponds section.

Source: Taronga Zoo Archives



Figure 21 – waterfowl section, 1970s.

Source: Taronga Zoo Archives

Kelly's Directorship to Present (1987-Present)

Under Dr John Kelly's directorship the Zoo underwent a significant capital works program. The majority of new structures which were erected were confined to parts of the Zoo outside of the subject area.

Works which were undertaken within the subject area during this period include the upgrade and extension of the Platypus House and removal of the majority of original paths.



Figure 22 - 2016 Guidebook indicating extent of Wetland Ponds and addition of koala, wombat and echidna enclosures within the eastern component of the site. Approximate location of the subject area indicated in red outline.

Source: Taronga Zoo Archives

4. LITERATURE REVIEW

The subject area has not been assessed under any previous archaeological projects.

The following section of the assessment provides an analysis of the results of pertinent archaeological investigations previously conducted in the vicinity of the subject area. These assessments were selected for their proximity to the subject area and similar land use across time. Each selected assessment has involved excavation and/or monitoring programs and the identification of archaeological materials.

4.1. PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Douglas Partners, 2000, Geotechnical Investigation, Backyard to Bush Precinct, Taronga Zoo, Mosman

In 2000 Douglas Partners was engaged to prepare a Geotechnical Investigation report for the proposed Backyard to Bush Precinct. 25 boreholes were drilled across the Zoo site, revealing a relatively uniform subsurface soil profile. The stratigraphy of the site was identified as consisting of:

- Upper layer of topsoil.
- Well-compacted brown sands and crushed sandstone at depths of 30cm – 1.5m.
- Sand and clayey sand overlaying weathered sandstone bedrock at depths of 70cm – 2m.

GML, 2004, Taronga Zoo Archaeological Management Plan

In respect of historical archaeological potential, the Taronga Zoo AMP considered the results of a series of geotechnical investigations, and test excavations and monitoring undertaken in association with a proposed 'Backyard to Bush Precinct' in the south-eastern part of the site, as a means of establishing the archaeological sensitivity of the site as a whole.

The AMP characterises the Zoo site as consisting of sloping sandstone topography which has been levelled through cutting and filling in association with the establishment of the Zoo in the early 20th century. Areas which have been excavated down to bedrock are thus identified as archaeologically sterile. Areas in which soil profiles survived, but which have been heavily disturbed by earthworks and construction, are identified as having medium – low potential. The AMP asserts that there is generally high potential for the survival of historical archaeological features associated with former Zoo structures across the site. This is based on the outcomes of test excavations, which uncovered a small intact sandstone wall. The Taronga Zoo AMP identifies the subject area within the following historical archaeological management zones (Figure 23):

Zone B

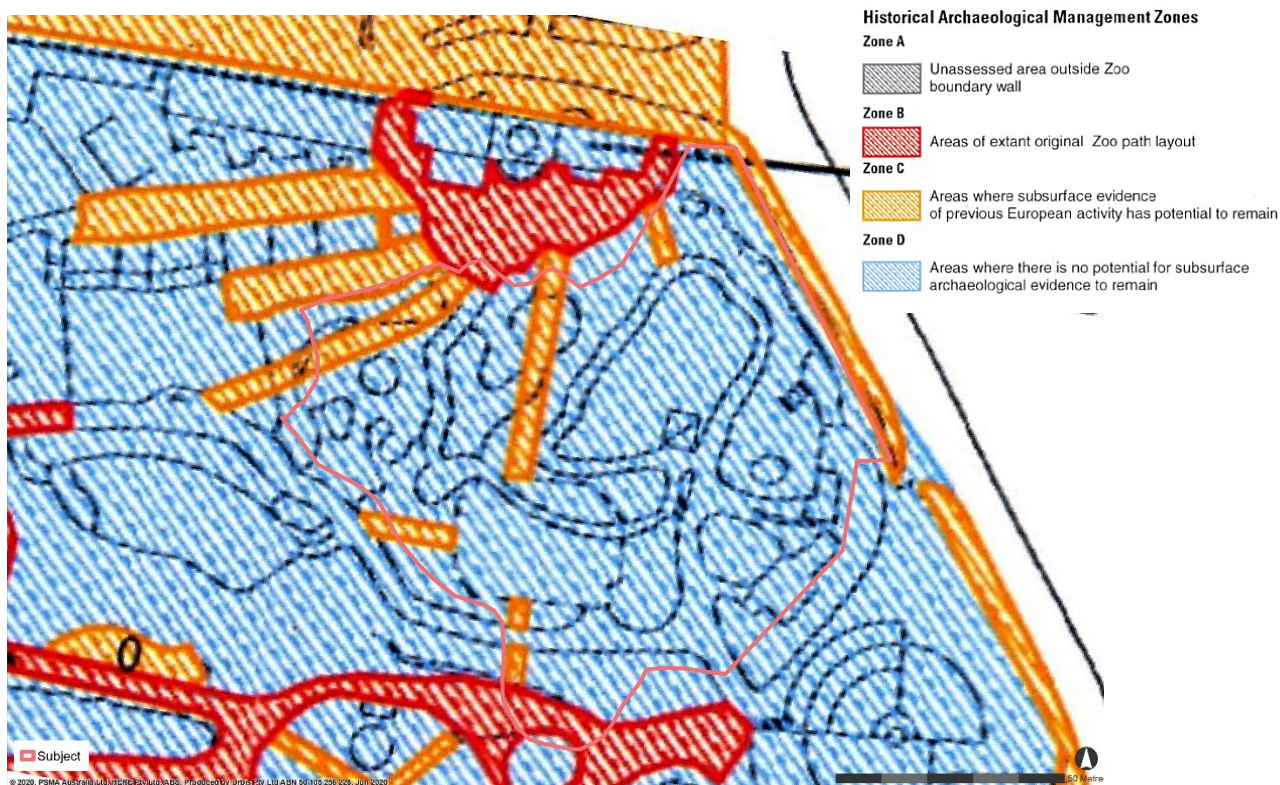
Zone B has been assessed as possessing High archaeological sensitivity in so far as it contains the original path layout which requires ongoing management and is of medium research potential.

Zone C:

Zone 3 encompasses the areas where the archaeological remains of the construction of Bradleys Head Road, the two former Quarantine Stations, and previous Zoo enclosures and associated structures are likely to exist. These areas have been subject to previous development. However, it is possible that archaeological resources remain in deep undisturbed deposits or redeposited fill layers. Therefore there is some potential for the archaeological resources related to the abovementioned structures to remain intact in these areas. The archaeological sensitivity of this zone is assessed as Medium to Low.

Zone D

This Historical Archaeological Management Zone encompasses the rest of the site, where excavations for the foundations of previous Zoo structures have reached down to bedrock or culturally sterile soil profiles, or where there has been little or insignificant historical development. Zone D is not expected to contain any historical material culture and is therefore assessed as having no archaeological sensitivity.



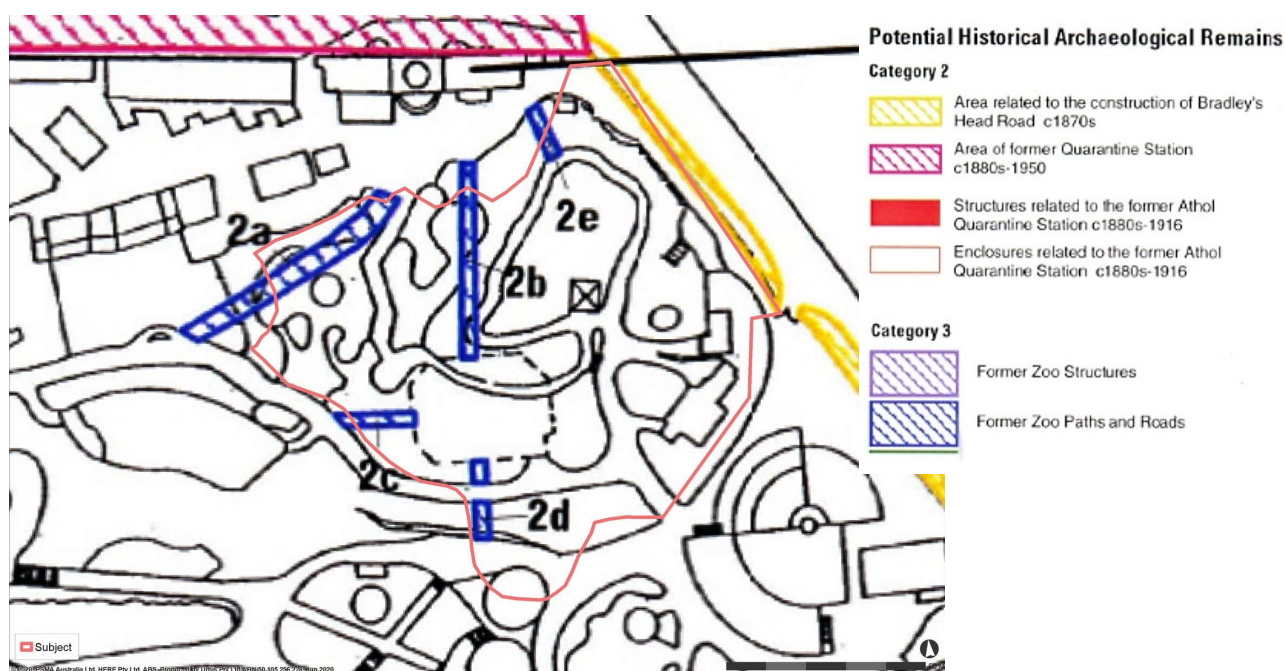


Figure 24 - Potential historical archaeological remains

Taronga Zoo AMP 2004

GML, 2006, Taronga Zoo, Australia Coastline Precinct, Archaeological Monitoring Report

In 2010 GML was commissioned by the ZPB NSW to monitor ground disturbance of works associated with the redevelopment of the 'Australian Coastline Precinct' (now known as the Great Southern Oceans Precinct), located approximately 100m south-west of the subject area.

The 2004 AMP had identified areas of historical archaeological potential within the proposed Australian Coastline Precinct (Figure 25). These included the following:

- **AF1 – former pathway / staircase:** constructed 1916 as part of the original path layout of the Zoo. Appeared on guide maps and other historical documentation until c. 1972.
- **AF2 – former animal enclosure:** designated for aviaries from the early phase of development of the Zoo. Date of construction unknown.

Archaeological monitoring was undertaken in two phases, as follows:

Phase 1 – AF1

Investigation revealed that this area had been subject to significant disturbance and that most evidence of this feature had been removed. A few sandstone blocks in an alignment at the top of the slope may have been related to this feature. No reinstatement or additional recordation of this feature was pursued, and it was determined that redevelopment of this area could proceed.

Phase 2 – AF2

Location of this feature had been subject to some disturbance in association with the construction of the adjacent aquarium building. The location of this feature was characterised by fill, which had been installed after the removal of the former animal enclosure. No evidence of this feature was uncovered besides a few remnant concrete footings. No additional conservation or recordation was undertaken for this feature.

The monitoring works exposed an early concrete path with associated kerbing and guttering to the south of AF2. It was determined that this path reflects the original path layout of the Zoo (1912-1916), although it had been resurfaced with concrete at a later date. With the exception of this feature, the monitoring yielded results which were consistent with the available historical information for the site although and revealed that only fragmentary evidence of these features survives.

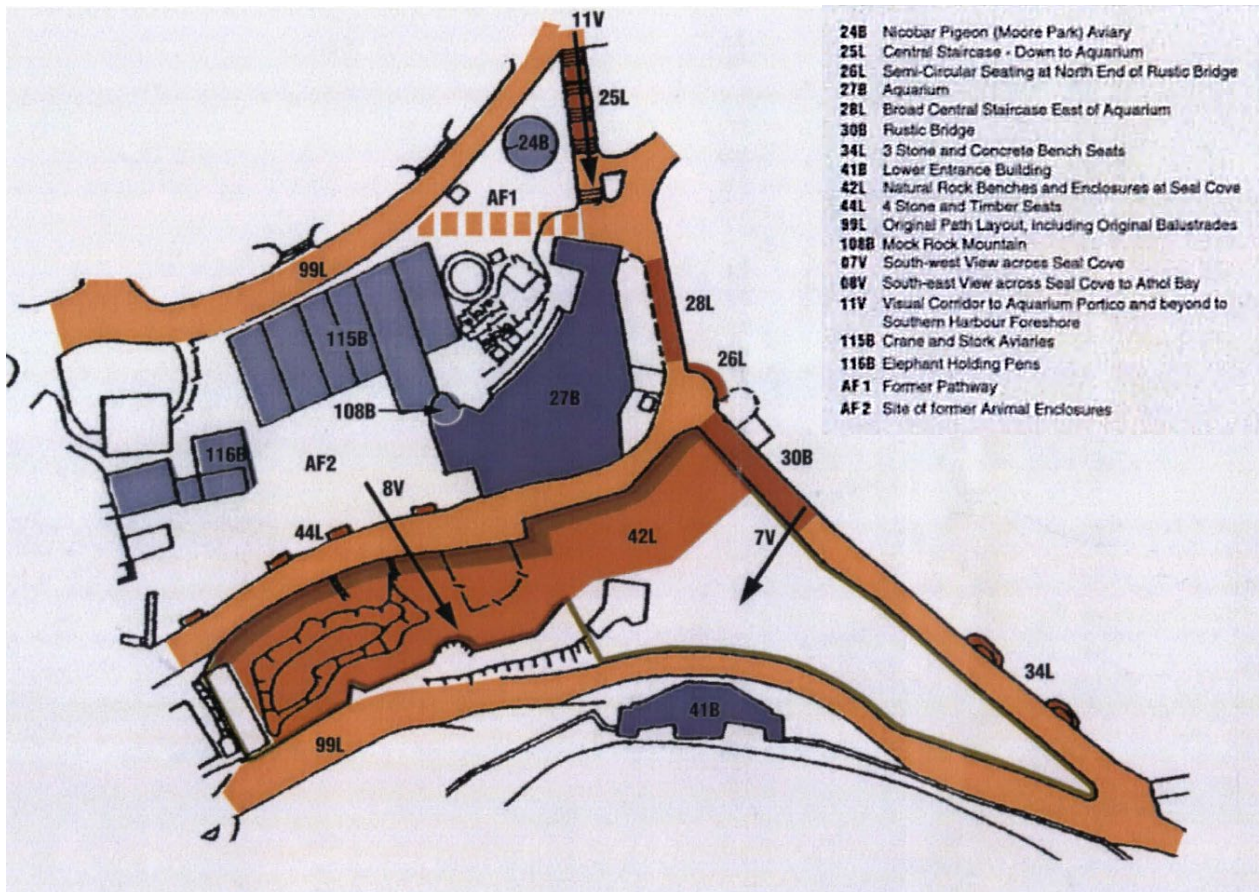


Figure 25 – Location of areas of archaeological potential in relation to the Australian Coastline Precinct

GML, 2010, Taronga Zoo, Upper Entrance Precinct, Archaeological Monitoring Report

In 2010 GML was engaged by Taronga Zoo to monitor ground disturbance of works associated with the redevelopment of the 'Taronga Zoo Upper Entrance Precinct' in preparation for the construction of a multi-storey carpark in the area. The Upper Entrance Precinct is located approximately 50m north of the subject area.

Report responded to the AMP and HIS for the Upper Entrance Precinct which identified the potential for a number of Historical archaeological resources, including:

- an animal quarantine station dating to the late 19th century;
- a tramline that operated late 19th – early 20th century; and
- historic roads, paths and landscaping.

Archaeological monitoring undertaken within the proposed Upper Entrance Precinct revealed a high degree of disturbance. The area in the vicinity of the garden beds consists of a 300-450m layer of introduced loam overlaying sandstone bedrock. Likewise, the main area carpark is comprised of an asphalt surface overlaying a shallow (300mm) layer of gravelly fill which, in turn, overlays sandstone bedrock. These modifications to the site date to the late 20th century.

GML, 2011, Taronga Zoo, Upper Entrance Precinct, Stage 2 Archaeological Monitoring Report

In 2011 GML was engaged by the ZPB NSW to undertake a second stage of monitoring in association with the redevelopment of the 'Taronga Zoo Upper Entrance Precinct'. The Upper Entrance Precinct is located approximately 50m north of the subject area.

The second stage of monitoring was undertaken in response to previous archaeological assessments which had indicated the potential for remains of the late-19th century animal quarantine station on the site. Although remnants of this feature were not located, a number of historical archaeological relics were exposed as part of the second stage of monitoring. These included:

- a railway ballast related to the tram line that ran to the zoo until 1959;
- concrete bases of shelter sheds in the former picnic area below the Reptile House;
- a concrete footing at the Upper Entrance Gateway; and
- a circular concrete turntable in the Western Wing of the Upper Entrance Building.

Upon assessment of the archaeological significance of these features, it was determined that they would not be retained in situ, with the exception of the concrete turntable.

4.2. SUMMARY OF PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

In summary, previous archaeological investigations in the vicinity of the current subject area, with similar land use history or environmental conditions, have identified high levels of disturbance associated with later adaptations of the Zoo, with soil profiles consisting predominantly of imported fill.

However, these investigations exposed a number of historical archaeological remains at varying states of preservation. These findings are consistent with the assertion of the Taronga Zoo AMP that there is high potentiality for the survival of historical archaeological relics across the Taronga Zoo site, including within disturbed profiles.

5. ARCHAEOLOGICAL POTENTIAL

Historical archaeological potential is defined as:

The degree of physical evidence present on an archaeological site, usually assessed on the basis of physical evaluation and historical research (Heritage Office and Department of Urban Affairs and Planning 1996).

Archaeological research potential of a site is the extent to which further study of relics likely to be found is expected to contribute to improved knowledge about NSW history which is not demonstrated by other sites, archaeological resources or available historical evidence. The potential for archaeological relics to survive in a particular place is significantly affected by later activities that may have caused ground disturbance. These processes include the physical development of the site (for example, phases of building construction) and the activities that occurred there. The archaeological potential of the subject area is assessed based on the background information presented in Section 3, and graded as per:

- **Nil Potential:** the land use history demonstrates that high levels of ground disturbance have occurred that would have completely destroyed any archaeological remains. Alternatively, archaeological excavation has already occurred, and removed any potential resource;
- **Low Potential:** the land use history suggests limited development or use, or there is likely to be quite high impacts in these areas, however deeper sub-surface features such as wells, cesspits and their artefact bearing deposits may survive;
- **Moderate Potential:** the land use history suggests limited phases of low to moderate development intensity, or that there are impacts in the area. A variety of archaeological remains is likely to survive, including building footings and shallower remains, as well as deeper sub-surface features;
- **High Potential:** substantially intact archaeological deposits could survive in these areas.

The potential for archaeological remains or 'relics' to survive in a particular place is significantly affected by land use activities that may have caused ground disturbance. These processes include the physical development of the site (for example, phases of building construction) and the activities that occurred there. The following definitions are used to consider the levels of disturbance:

- **Low Disturbance:** the area or feature has been subject to activities that may have had a minor effect on the integrity and survival of archaeological remains;
- **Moderate Disturbance:** the area or feature has been subject to activities that may have affected the integrity and survival of archaeological remains. Archaeological evidence may be present, however it may be disturbed;
- **High Disturbance:** the area or feature has been subject to activities that would have had a major effect on the integrity and survival of archaeological remains. Archaeological evidence may be greatly disturbed or destroyed.

5.1. HISTORIC AERIAL ANALYSIS

The development of facilities within the subject area has caused substantial levels of ground disturbance. This is demonstrated through the analysis of historic aerials. Historic aerial images from 1930, 1961, 1990 and 2020 were analysed to develop an understanding of disturbance (see Figure 26). A summary of this analysis is included in Table 3.

Table 3 – Analysis of historical aerials

Year	Observation
1930	Taronga zoo was established between 1912-1916. Prior to the establishment of the zoo, the subject area consisted of native bushland, such as that which can be observed to the east of Bradleys Head Road. By 1930 the subject area appears to have already undergone significant disturbance and clearance of vegetation. The network of paths reflect those observed in a 1916 map of the zoo (Figure 11). The Baboon Pit, which is described as a 'concrete and stark enclosure which had been deeply excavated with mounding in the centre for baboons to climb' is clearly visible at the centre of the subject area. The Anteater building is located to the east of the Baboon Pit. The path encircling the Monkey Pit to the south of the Baboon Pit is visible, however, the structure is not visible.
1961	The subject area does not appear to have undergone many significant changes between 1930-1961. The Bandstand and Anteater buildings had been constructed to the east of the Baboon Pit. The Monkey Pit is visible to the south of the Baboon Pit.
1990	The subject area appears more densely vegetated. The stark open concrete Baboon Pit had been partially removed and replaced with the Nocturnal House by this time. The Bandstand and Anteater buildings to the east of the Baboon Pit had been demolished and the Platypus House can be seen to the south-east of these. The extensive Waterfowl Ponds within the western component of the subject area are obstructed by vegetation. The reduced visibility of structures reflects Strahan's period of management (1967-1974) during which new exhibits were landscaped and moated, rather than fenced, and the erection of imposing structures avoided.
2020	There are no clear changes to the subject area in the years between 1990-2020.

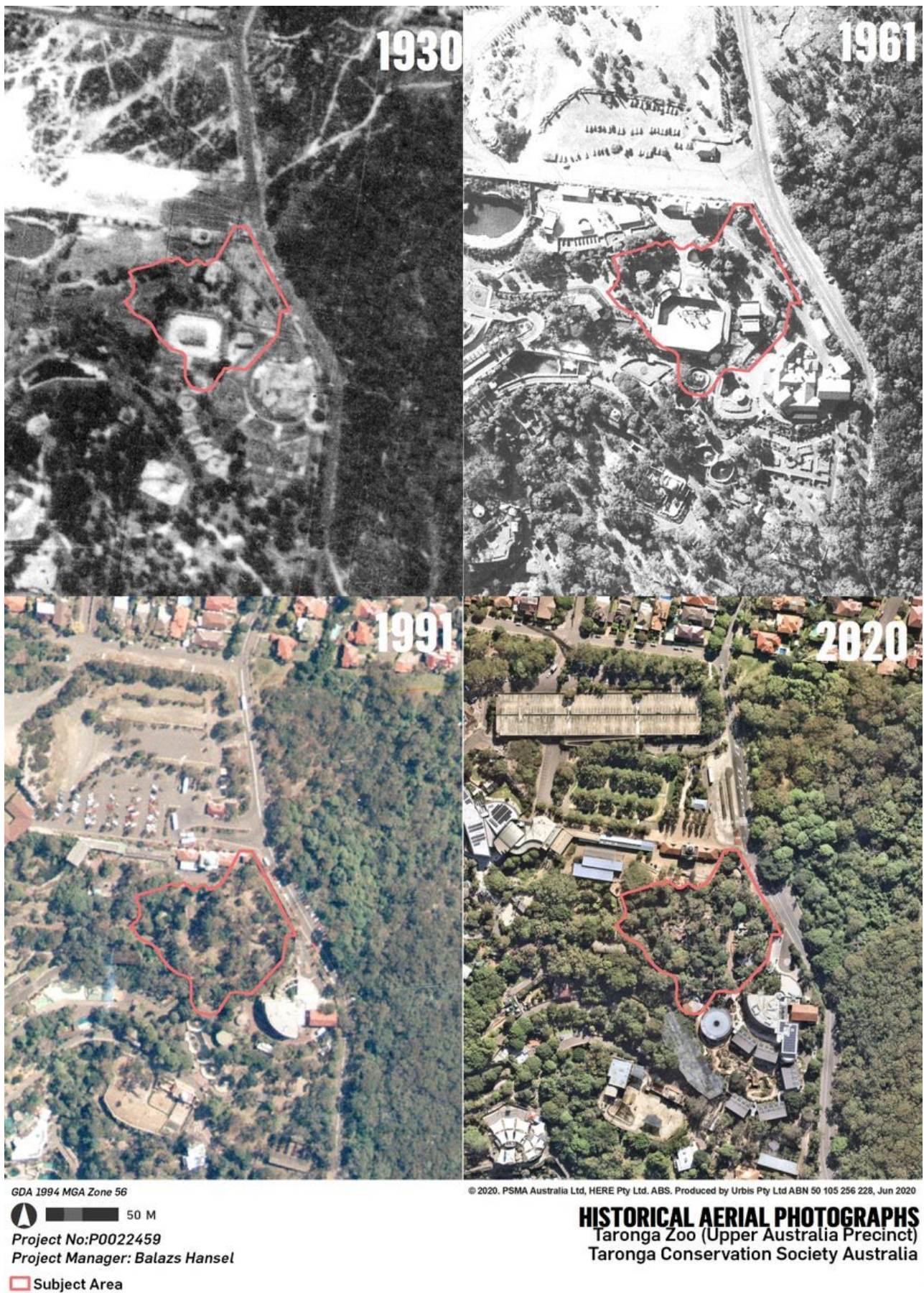


Figure 26 – Historic Aerials

5.2. ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL

The below table presents a summary of potential archaeological resource and condition of remains within the subject area.

Table 4 – Assessment of Archaeological Potential

Phase	Potential archaeological resource	Integrity of archaeological resource	Potential	Significance
Early European Development (1788-1911)	Rubbish dumps, discard items, remnant fencing and paths	It is considered unlikely that historical archaeological features associated with early land grants would survive within the subject area due to subsequent disturbance. Although animal quarantine facilities were located within the vicinity of the subject area, it is anticipated that these facilities would have been contained and would not have occupied the site. Likewise, there is no evidence which suggests that any permanent structures or modifications were made to the subject area in association with the resumption of the land for military purposes, with the construction of emplacements confined to the headland.	Low	High / State – if intact archaeological deposits from this phase of occupation are encountered, they are anticipated to be of State significance due to their association with the early European settlement of the Mosman area.
Establishment of Taronga Zoo and Directorship of La Souef (1912-1940)	Paths, former Baboon Pit and adjacent western Monkey Pit, former Waterfowl Ponds	The initial phase of the zoo's development saw a number of structures erected on the site. The Baboon Pit required significant excavation works and the construction of a tunnel and shed in the south-eastern component as well as concrete perimeter walls. The Baboon Pit was demolished in the late 20th century with the exception of the northern section of the floor and understructure as well as the northern perimeter wall which were incorporated into the Nocturnal House. These remnants of the former Baboon Pit therefore survive within the structure of the existing Nocturnal House.	Moderate - High	High / State – should intact archaeological materials remain, these may be of State significance for their association with the historical development of the Zoo

Phase	Potential archaeological resource	Integrity of archaeological resource	Potential	Significance
		<p>Rounded Monkey Pits were constructed to the south and west of the Baboon Pit. The western Monkey Pit was removed in 1970 and replaced with the Rainforest Aviary.</p> <p>A round Duck Pond was excavated within the northern component of the subject area. This was later partially removed and incorporated within a 'boggy area'. Remnant foundations and earthworks associated with this feature are therefore likely to survive.</p> <p>A network of paths was established throughout the subject area which were likely to have been constructed with earth or gravel with curved top kerbs of concrete. The path network was later upgraded and altered, particularly within the northern section of the subject area, and remnant paths and associated kerbing have been exposed through archaeological investigations. The survival of remnant paths is therefore considered likely.</p>		
Hallstrom's Directorship (1941-1966)	Remnant fences, concrete surfaces, Bandstand and Anteater building foundations and footings, remnant paths	<p>Fencing, concrete walls and floors were installed to enclosures and moats filled in. These features are likely to have been removed in association with Strahan's period of directorship (1967-1974). Where they have not been retained, they may survive in the form of concrete surfaces and footings.</p> <p>The Bandstand and Anteater buildings were erected to the east of the Baboon Pit. These structures were demolished in the late 20th century and replaced with a brick pathway. Apart from landscaping works, no significant disturbance has occurred at</p>	Moderate - High	High / State – should intact archaeological materials remain, these may be of State significance for their association with the historical development of the Zoo

Phase	Potential archaeological resource	Integrity of archaeological resource	Potential	Significance
		<p>this location and there is therefore potential for the survival of remnant footings and foundations associated with these former structures.</p> <p>The path network was modified during this period, particularly within the northern component of the subject area. The survival of remnant paths is considered likely.</p>		
Strahan's Directorship (1967-1986)	Remnant paths, original footprint of Platypus House	<p>The majority of changes to the Zoo during this period remain extant.</p> <p>The Anteater and Bandstand buildings to the east of the Baboon Pit were demolished. Platypus House was constructed further to the east and this structure remains extant.</p> <p>The southern, western and eastern concrete perimeter walls of the Baboon Pit were demolished, as well as the southern component of the floor and understructure. An entrance tunnel and concrete shed were also demolished within the south-eastern section of the pit and a concrete staircase further to the south. Nocturnal House was constructed in the same location and incorporated the northern section of the former Baboon Pit including the floor, understructure and northern concrete perimeter wall. The floor level of the Baboon Pit was also retained. Nocturnal House remains extant.</p> <p>The Wetland Ponds (or Waterfowl Ponds) were constructed during this period within the north-western section of the subject area. This involved significant excavation, earthworks and</p>	High	Moderate / Local – should intact archaeological materials remain, these may be of State significance for their association with the historical development of the Zoo.

Phase	Potential archaeological resource	Integrity of archaeological resource	Potential	Significance
		importation of sediment and granite rocks for the purpose of establishing a series of connected pools and associated landscaping. The northern Duck Pond was partially removed and incorporated within a 'boggy area'. The western Duck Pond was removed completely and a larger pond established in the same location. The Wetland Ponds (or Waterfowl Ponds) remain extant.		
Kelly's Directorship to Present (1987-Present)	Demolition rubble, rubbish dumps, discard items.	Historical research indicates that few significant changes were made to the subject area during this period. The Platypus House was extended and upgraded. The majority of original paths were removed from the subject area during this period.	Low	Moderate / Local – should intact archaeological materials remain, these may be of local significance for their association with the historical development of the Zoo.

5.3. STATEMENT OF ARCHAEOLOGICAL POTENTIAL

Historical sources indicate that by 1850 the subject area had been incorporated within Charles Jenkins and J. Holt land grant. The site was then resumed for military purposes in the 1890s, gazetted as Commonwealth land (part of Ashton Park) in 1908 and was rededicated as a zoological park in 1912. There is no available evidence which suggests that permanent structures were erected within the subject area in association with this early period, although early fencing, paths and casual finds may survive.

An initial phase of disturbance took place between 1912-1940 in association with the establishment of the zoo. Historical archaeological features which may survive from this period include the original path network, foundations of the northern Duck Pond and northern wall and foundations of the Baboon Pit which were later incorporated into the Nocturnal House.

The subsequent phase of development under Hallstrom's Directorship (1941-1966) saw changes to the path network and further containment of enclosures. Remnant paths, fencing and concrete surfaces may survive from this period. Structural foundations and footings associated with the former Anteater and Bandstand buildings, which were removed when Platypus House was constructed within the eastern component of the site, may also survive from this period.

The majority of extant features which make up the subject area today date to the period of Strahan's directorship (1967-1974). These include Nocturnal House, Platypus House and the Wetland Ponds system (or Waterfowl Ponds).

The steep sandstone topography of the subject area meant that sections had to be cut down to bedrock and fill imported for the purpose of creating level surfaces. Creation of the Wetland Ponds necessitated excavation, earthworks and importation of sediment and granite rocks, which would have removed evidence of earlier adaptations of the Zoo.

The Taronga Zoo Archaeological Management Plan (AMP) identifies the subject area as being heavily modified by European development. However, it identifies high potential for the survival of historical archaeological remains, even in disturbed soil profiles. Archaeological monitoring and test excavations undertaken within the vicinity of the subject area appear to support this assumption, having exposed a number of historical archaeological features.

The proposed excavation works would be confined to the northern Wetland Ponds and north-eastern Australian Wildlife enclosure. There is some potential for remnant foundations of the northern Wetland Pond to be impacted by excavations. With the exception of remnant paths, no significant historical archaeological relics have been identified within north-eastern component of the subject area. There is some potential for these to be impacted by the proposed spot excavations and insertion of pylons in association with the new boardwalk. Other identified potential archaeological relics, including remnants of the former Baboon Pit, Anteater and Bandstand buildings, are located outside the footprint of the proposal.

The archaeological potential of the subject area is therefore determined to be moderate-high overall.

6. ARCHAEOLOGICAL SIGNIFICANCE

Archaeological potential is distinct from the archaeological/heritage significance of these remains, should any exist. For example, there may be 'low potential' for certain relics to survive, but if they do, they may be assessed as being of 'high (State) significance'. It is worthwhile to note that Section 57 of *the Heritage Act* protects archaeological materials within a State Heritage Registered areal stating the following:

(1) When an interim heritage order or listing on the State Heritage Register applies to a place, building, work, relic, moveable object, precinct, or land, a person must not do any of the following things except in pursuance of an approval granted by the approval body under Subdivision 1 of Division 3:

- (a) demolish the building or work,*
- (b) damage or despoil the place, precinct or land, or any part of the place, precinct or land,*
- (c) move, damage or destroy the relic or moveable object,*
- (d) excavate any land for the purpose of exposing or moving the relic,*
- (e) carry out any development in relation to the land on which the building, work or relic is situated, the land that comprises the place, or land within the precinct,*
- (f) alter the building, work, relic or moveable object,*
- (g) display any notice or advertisement on the place, building, work, relic, moveable object or land, or in the precinct,*
- (h) damage or destroy any tree or other vegetation on or remove any tree or other vegetation from the place, precinct or land.*

Archaeological significance has long been accepted as linked directly to archaeological (or scientific) research potential: a site or resource is said to be scientifically significant when its further study may be expected to help answer questions. Whilst the research potential of an archaeological site is an essential consideration, it is one of a number of potential heritage values which a site or 'relic' may possess. Recent changes to the Heritage Act (Section 33(3) (a)) reflect this broader understanding of what constitutes archaeological significance by making it imperative that more than one criterion be considered.¹

6.1. ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

The following assessment of archaeological significance considers the criteria, as outlined in the NSW Heritage Branch publication *Assessing Significance for Historical Archaeological Sites and 'Relics'*. Sections which are extracted verbatim from this document are italicized in bold and sections of the significance assessment which have been extracted verbatim from the Taronga Zoo AMP are italicized in regular text.

Archaeological Research Potential (current NSW Heritage Criterion E).

Archaeological research potential is the ability of archaeological evidence, through analysis and interpretation, to provide information about a site that could not be derived from any other source and which contributes to the archaeological significance of that site and its 'relics'.

Taronga's archaeological resource has some potential to yield information that will contribute to an understanding of the development of the site. This includes information on nineteenth-century activities in the

¹ Assessing Significance for Historical Archaeological Sites and 'Relics', Heritage Branch, NSW Department of Planning, 2009, p.9

area; the construction of Bradleys Head Road; the two former quarantine stations and the evolution and changing zoological practices of the Zoo itself.

The archaeological record provides evidence that is different from and likely to supplement or contradict documentary sources. The research already undertaken at Taronga Zoo has included an evaluation of available documentary evidence. There are some aspects of this history that could only be revealed through archaeological evidence. The archaeological resource may provide a more accurate record of the settlement patterns of Aboriginal people in the area after contact; the exact dimensions, locations and date of original construction of the former quarantine stations; the ephemeral nineteenth century activities on the site; and the methods and dates of the construction of Bradleys Head Road, all of which do not appear in the historical records. The archaeological resource may also yield more specific information about the development of the Zoo and the evolution of former enclosures and facilities.

There is low potential for the survival of archaeological remains in the form of remnant paths, fencing or casual finds, which are associated with the earliest period of European settlement of the subject area. Should these survive, they would be of State significance for their ability to reveal information about the earliest European occupation of the Mosman area.

There is moderate-high potential for archaeological remains to be located within the Subject Area, including remnant paths and the foundations of the former Waterfowl Ponds, Baboon Pit and adjacent Monkey Pit, which reflect the establishment of the Zoo in 1912. These have the potential to be instructive about the original layout of the Zoo and the degree to which contemporary concept plans were realised. There is also moderate-high potential for the presence of remnant paths, fences, concrete surfaces and structural remains associated with the former Bandstand and Anteater buildings which date to the period of Hallstrom's Directorship (1941-1967). These may reveal information in relation to changes in the philosophical direction of the Zoo which took place in this period and a shift to increased containment of enclosures. Archaeological relics associated with these early phases of the Zoo's adaptation have the potential to be of State significance.

Associations with individuals, events or groups of historical importance (NSW Heritage Criteria A, B & D).

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

There is low potential for the survival of archaeological remains which are associated with the earliest period of European settlement of the subject area. Should these survive, they would be of State significance for their association with early colonial settlers, Charles Jenkins and J. Holt.

There is moderate-high potential for archaeological remains which reflect the period of La Souef's directorship (1912-1940) and Hallstrom's Directorship (1941-1967). These relics would have associative significance on a local level.

Aesthetic or technical significance (NSW Heritage Criterion C).

Whilst the technical value of archaeology is usually considered as 'research potential' aesthetic values are not usually considered to be relevant to archaeological sites. This is often because until a site has been excavated, its actual features and attributes may remain unknown. It is also because aesthetic is often interpreted to mean attractive, as opposed to the broader sense of sensory perception or 'feeling' as expressed in the Burra Charter. Nevertheless, archaeological excavations which reveal highly intact and legible remains in the form of aesthetically attractive artefacts, aged and worn fabric and remnant structures, may allow both professionals and the community to connect with the past through tangible physical evidence.

No potential archaeological relics within the subject area have been identified which possess either aesthetic or technical significance.

Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria A, C, F & G).

Archaeological remains have an ability to demonstrate how a site was used, what processes occurred, how work was undertaken and the scale of an industrial practice or other historic occupation. They can demonstrate the principal characteristics of a place or process that may be rare or common.

Archaeological relics which are associated with earlier adaptations to the Zoo can demonstrate how the Zoo evolved over a century in response to social and economic changes in NSW more generally. In addition, they have the potential to reflect shifting attitudes towards the captivity of animals and the role of zoos as places of education, entertainment and conservation. Archaeological relics associated with earlier periods of the Zoos evolution therefore have the potential to be of State significance.

6.2. STATEMENT OF ARCHAEOLOGICAL SIGNIFICANCE

The research potential of the historical archaeological resource of the site as a whole has been assessed as medium to high. There is a medium to low likelihood that archaeological evidence of nineteenth-century landuse will survive intact in some areas. However, there is a high likelihood that archaeological evidence associated with the development of the Zoo will remain intact across the site. This evidence has the potential to provide some additional information relating to these research themes.

There is low potential for the survival of archaeological remains in the form of remnant paths, fencing or casual finds, which are associated with the earliest period of European settlement of the subject area. Should these survive, they would be of State significance for their ability to reveal information about the earliest European occupation of the Mosman area and for their association with colonial settlers, Charles Jenkins and J. Holt.

There is moderate-high potential for archaeological remains to be located within the Subject Area, including remnant paths, fencing and structural foundations, which reflect the establishment of the Zoo under the Directorship of La Souef (1912-1940) and subsequent period of directorship under Hallstrom (1941-1967). These have the potential to be instructive about the original layout of the Zoo and changes which were made throughout the early 20th century in response to a shift in philosophical direction. They may also be instructive about the degree to which the adaptations to the Zoo which are illustrated in contemporary plans and historical sources were realised.

Archaeological relics which are associated with earlier adaptations to the Zoo may demonstrate how the Zoo evolved over a century in response to social and economic changes in NSW more generally. In addition, they have the potential to reflect shifting attitudes towards the captivity of animals and the role of zoos as places of education, entertainment and conservation. Archaeological relics associated with earlier periods of the Zoos evolution therefore have the potential to be of State significance.

7. SITE INSPECTION

An inspection of the site was undertaken on the 18 June 2020, with the participation of Kristine Marshall (Taronga Zoo Conservation Society - Senior Project Manager), Jean Rice (Project Manager, Heritage Specialist Property, Infrastructure and Operations) and Balazs Hansel (Urbis - Associate Director/Archaeologist). The visual inspection covered the entire subject area and the team discussed the various areas of proposed surface disturbance in detail. The aim was to ground-truth the findings of the desktop assessment and clarify the location of proposed excavations within the subject area. The inspection has confirmed the findings of the desktop assessment and concluded the following:

- The entire subject area has been the subject of high-level disturbance from historical land use practices and also from the latest developments of the Zoo.
- The locations of proposed surface disturbance, including excavation, will have only low potential of uncovering any archaeological resources including relics that are associated with previous footpaths of the Zoo.



Figure 27 – Location of wetland ponds that will be excavated within the existing stone walls and only impacting the base of the ponds. Photo facing north



Figure 28 – Location of proposed excavation of fill behind retaining wall. Photo facing north-east.



Figure 29 – Location of proposed removal existing brick footpath and consequent small scale of excavation. Photo facing east.



Figure 30 – Location of proposed spot-excavations within the Macropod Exhibit. Photo facing south.

8. ASSESSMENT OF ARCHAEOLOGICAL IMPACT

The proposed excavation works would be confined to the northern Wetland Ponds and north-eastern Australian Wildlife enclosure. There is some potential for remnant foundations of the northern Wetland Pond to be impacted by excavations. With the exception of remnant paths, no significant historical archaeological relics have been identified within north-eastern component of the subject area. There is some potential for these to be impacted by the proposed spot excavations and insertion of pylons in association with the new boardwalk. Other identified potential archaeological relics, including remnants of the former Baboon Pit, Anteater and Bandstand buildings, are located outside the footprint of the proposal and consequently will not be impacted by the activities under the proposal.

9. CONCLUSION AND RECOMMENDATIONS

This HAA was carried out to assess the historical archaeological potential and significance for the proposed redevelopment of facilities within the Upper Australia Precinct at Taronga Zoo, 2A Bradleys Head Road, NSW.

Historical sources indicate that by 1850 the subject area had been incorporated within Charles Jenkins and J. Holt land grant. The land was subsequently resumed for military purposes in the 1890s, gazetted as Commonwealth land (part of Ashton Park) in 1908 and rededicated as a zoological park in 1912. Following the establishment of the Zoo in 1912, the subject area underwent a number of changes under the directorships of La Souef (1912-1940), Hallstrom (1941-1967) and Strahan (1967-1974). The majority of extant features which make up the subject area today date to the period of Strahan's directorship.

Previous archaeological investigations in the vicinity of the subject area, with similar land use history or environmental conditions, have identified high levels of disturbance associated with later adaptations of the Zoo, with soil profiles consisting predominantly of imported fill. These investigations have, however, exposed a number of historical archaeological relics at varying states of preservation. These findings are consistent with the assertion of the Taronga Zoo AMP that there is high potentiality for the survival of historical archaeological relics across the Taronga Zoo site, including within disturbed soil profiles.

The site inspection confirmed the findings of the desktop assessment and also confirmed the high level of disturbance all across the subject area.

An assessment of archaeological potential has determined that:

- there is no available evidence which suggests that permanent structures were erected within the subject area in association with the period between 1788 - 1912, although remnant fencing, paths and casual finds may survive; and
- there is moderate-high potential for archaeological remains to be located within the subject area which reflect the establishment of the Zoo under the Directorship of La Souef (1912-1940) and subsequent changes under Hallstrom (1941-1967). However, there is only a low potential that those remains are located within areas of proposed excavation and surface disturbance.
- The subject area located within Zone 3(C) and Zone 4(D) of the Historical Archaeological Management Zones under the *Taronga Zoo Archaeological Management Plan* (GML, 2004) and considered having medium to low (Zone 3(C)), and no (Zone 4(D)) archaeological potential.

An assessment of archaeological significance determined that archaeological relics associated with earlier phases of the Zoo have the potential to be of State significance for:

- their ability to reflect the original layout of the Zoo and changes which were made throughout the early 20th century in response to shifts in its philosophical direction; and
- their ability to reflect changing attitudes towards the captivity of animals and the role of zoos as places of education, entertainment and conservation.

The proposed excavation works would be confined to the northern Wetland Ponds and north-eastern Australian Wildlife enclosure. There is some potential for remnant foundations of the northern Wetland Pond to be impacted by excavations. With the exception of remnant paths, no significant historical archaeological relics have been identified within north-eastern component of the subject area. There is some potential for these to be impacted by the proposed spot excavations and insertion of pylons in association with the new boardwalk. Other identified potential archaeological relics, including remnants of the former Baboon Pit, Anteater and Bandstand buildings, are located outside the footprint of the proposed surface disturbance and consequently will not be impacted by the proposal.

Based on the above conclusions, Urbis provides the following recommendations:

Recommendation 1

It is therefore recommended that in line with management measures detailed under *Section 7 – Archaeological Management Measures* of the *Taronga Zoo Archaeological Management Plan* (GML, 2004) the following procedure is undertaken:

- A short Archaeological Methodology should be prepared for the monitoring of site activities detailing research questions, objectives and details of the Unexpected Finds Procedure.
- For proposed surface disturbance, including excavation within Zone 3(C), close monitoring by an archaeologist would be required of any proposed excavation or disturbance and any identified potential relic, work or feature would be managed under an Unexpected Finds Procedure. The UFP should be developed before the construction commences.
- In the event that any archaeological feature be uncovered in Zone 3(C), work should cease immediately and the UFP should be applied. As part of the UFP an assessment of the archaeological feature might also need to be undertaken. In particular, consideration should be given to retaining archaeological features and works in situ. This should be done in consultation with the Proponent and potentially with Heritage NSW. The advice of a materials conservator may need to be sought if archaeological features are exposed. Archaeological features require archival recording and are to be located on a site plan.
- For proposed surface disturbance, including excavation within Zone 4(D), an archaeologist would only be called to the site if an archaeological feature is exposed. In the event of that any potential archaeological relics are uncovered, the UFP should be applied. The advice of a materials conservator may need to be sought if archaeological features are exposed. If uncovered, archaeological features would require archival recording and should be located on the site plan.

Recommendation 2

Should Aboriginal objects uncovered during surface disturbance, including excavation, all activities must stop and an appropriately qualified archaeologist consulted together with the relevant Aboriginal parties to assess the finds and provide management recommendations. The Aboriginal Cultural Heritage Regulation Branch of the Department of Premier and Cabinet should also be notified by the finds.

Recommendation 3

In the unlikely event that human remains are uncovered during any site works, the following must be undertaken:

- All works within the vicinity of the find immediately stop.
- Site supervisor or other nominated manager must notify the NSW Police and the Aboriginal Cultural Heritage Regulation Branch of the Department of Premier and Cabinet.
- The find must be assessed by the NSW Police, and may include the assistance of a qualified forensic anthropologist.
- Management recommendations are to be formulated and applied in consultation with the Police, The Aboriginal Cultural Heritage Regulation Branch of the Department of Premier and Cabinet and site representatives.
- Works are not to recommence until the find has been appropriately managed.

10. BIBLIOGRAPHY AND REFERENCES

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