TARONGA ZOO REPTILE AND AMPHIBIAN CONSERVATION CENTRE

Environmental Impact Statement

Prepared for

TARONGA CONSERVATION SOCIETY AUSTRALIA

JULY 2021

URBIS

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Sarah Horsfield
Consultant	Brigitte Bradley
Consultant	Joseph Arnott
Project Code	P00031519
Report Number	1

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SIGNED CERTIFICATION

This Environmental Impact Statement has been prepared in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.*

Environmental Impact Statement prepared by:

Names:	Sarah Horsfield Master of Environmental Law (USyd) Bachelor of Town Planning (UNSW)	Brigitte Bradley Bachelor of Planning (UNSW)	Joseph Arnott Master of Planning (UNSW) Bachelor of International and Global Studies (USyd)
Address:	Urbis Pty Ltd Level 8, Angel Place, 123 Pitt Street Sydney NSW 2000		
In respect of:	Taronga Zoo, Sydney		

Applicant and Land Details:

Applicant:	**Taronga Conservation Society Australia c/- Urbis Pty Ltd**
Applicant Address:	Level 8 Angel Place 123 Pitt Street Sydney NSW 2000
Land subject to application:	Taronga Zoo, Sydney
Lot and DP:	Lot 22 in DP843294
Project:	Taronga Reptile and Amphibian Conservation Centre

Declaration:

We certify that the content of the Environmental Assessment, to the best of our knowledge, has been prepared as follows:

- In accordance with the requirements of the *Environmental Planning and Assessment Act 1979 (EP&A Act) and Environmental Planning and Assessment Regulation 2000* (EP&A Regulation);
- The information contained in this report is true in all material particulars and is not misleading.

Name	Sarah Horsfield, Director	Brigitte Bradley, Consultant	Joseph Arnott, Consultant
Signature:			
Date:	14 July 2021	14 July 2021	14 July 2021

EXECUTIVE SUMMARY

This Environmental Impact Statement (**EIS**) has been prepared on behalf of the Taronga Conservation Society Australia (**TSCA**) in support of a State Significant Development Application (**SSDA**) for a Reptile and Amphibian Conservation Centre (**RACC**) at Taronga Zoo (**the site**).

This EIS has been prepared in response to Secretary's Environmental Assessment Requirements (SEARs) issued on 30 April 2021. This EIS contains an assessment of the proposal against the relevant considerations under section 4.15 of the *Environmental Planning and Assessment Act* 1979 (the Act).

Pursuant to Schedule 2 Clause 4 of the *State Environmental Planning Policy (State and Regional Development)* 2011 (**SRD SEPP**), the proposed development is considered State Significant Development (**SSD**), as the proposal will have a Capital Investment Value (**CIV**) greater than $10 million.

The Site

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 in DP843294 and is Crown Land managed by the TCSA (**the Zoological Park Board**).

Taronga Zoo has evolved over time from a Zoo that simply provides the traditional visitor experience of viewing animals in exhibits, to a Zoo that focusses on wildlife conservation, animal welfare and providing a range of visitor learning experiences. Taronga Zoo is one of Australia's most popular attractions, and together with Taronga Western Plains Zoo hosts more than 1.5 million visitors annually and contributes an estimated $249 million per annum to the NSW economy. Taronga Zoo is a significant tourism attractor to the Mosman area and plays an important role in Mosman LGA, providing employment opportunities and contributing to the local economy.

The proposed RACC site is located within the eastern portion of the Zoo grounds, within the area of the former seal theatre and penguin pond. The north-western component of the site consists of terraced gardens contained behind gabion walls with a grassed area immediately to the south. The eastern component of the site contains a Meerkat enclosure which contains an artificial slope and corresponding landscape elements.

Proposed Development

The NSW Government is investing $40 million with an additional $40 million being funded by private donations over the next four years for new facilities at Taronga Zoo Sydney and Western Plains Zoo Dubbo including the new Reptile and Amphibian Conservation Centre (RACC).

The current Reptile World, known as the Serpentaria at the Taronga Zoo Sydney site has reached the end of its useful life and a new facility is required. The RACC project will provide a world-class reptile and amphibian exhibition and animal care facility, achieving operational efficiencies and safety improvements.

The relocation of the Serpentaria will also ensure that the Zoo can increase and improve the current Wildlife Hospital facilities on site. This will form part of a separate SSDA to be lodged shortly with DPIE.

Existing reptiles and amphibians will be relocated from their current location to a newly developed and purpose built exhibit. The new Centre will provide a partially two to three storey development which provides two levels of animal exhibits as well as dedicated areas for BOH and staff facilities.

The new facility will:

- Provide contemporary messages and call to action related to Reptile and Amphibian conservation.
- Incorporate new guest experiences, keeper talks, encounters and tours to reflect the Zoo's reputation as an innovative leader in animal education and conservation.
- Improve positive animal welfare outcomes and reflect best practice principles for animal care.
- Showcase Taronga's relevant conservation recovery programs.
- Highlight culture and Indigenous communities and the role these animals play to these communities.
- Develop a built asset that considers sustainability and mature asset management principles.

Consultation

Community and stakeholder engagement has been undertaken by TCSA, Urbis and the SSDA project team in preparation of the SSDA. This includes direct engagement and consultation with:

- Adjoining landowners and occupants; and
- Government, agency and utility stakeholders listed within the SEARs.

Whilst community consultation was undertaken during the preparation of the EIS, no comments on the design were received by the general public prior to lodgement of the EIS. Further, comments back from the relevant stakeholders did not request any changes to the overall design of the Precinct.

Planning Framework and Assessment

This EIS assesses the development as proposed with regard to relevant planning instruments and policies, and outlines the mitigation measures to ensure the proposed development does not result in unreasonable or adverse environmental effects. Additionally, the proposed development satisfies the SEARs as demonstrated in the EIS.

Impact Assessment

The key issues for all components of the project identified in the SEARs have been assessed in detail, with specialist reports underpinning the key findings and recommendations identified in the Assessment of Environmental Impacts in **Section 6**. It has been demonstrated that for each of the likely impacts identified in the assessment of the key issues will either be positive or can be appropriately mitigated. In many cases, the environmental management controls and operational protocols inherent to operation of the Zoo adequately manage and/or mitigate the potential impacts. The proposal represents a positive development outcome for the site and surrounding area for the following reasons:

The proposal is consistent with state and local strategic planning policies:

The proposal has been designed to be consistent with the relevant goals and strategies contained in:

- NSW Premier and State Priorities
- Greater Sydney Region Plan
- Zoo 2000 – 'The View to the Future' Master Plan
- Taronga Zoo Centenary Master Plan 2015
- Mosman Development Control Plan 2012
- North District Plan 2018
- Mosman Local Strategic Planning Statement 2020

The proposal satisfies the applicable local and state development controls:

The proposal satisfies the objectives of all relevant planning controls and achieves a high level of planning policy compliance including the relevant controls of *State Environmental Planning Policy (State and Regional Development)* 2011, *Sydney Regional Environmental Plan (Sydney Harbour Catchment)* 2005 and *Mosman Local Environmental Plan* 2012.

The design positively responds to the site conditions:

- The overall design has considered the steep topography of the site and aims to 'sit within' the existing tree canopy to ensure that the works will not have any significant detrimental impact on the scenic, visual and natural bushland setting of Sydney Harbour.
- The proposed works will not have any adverse heritage impacts and will facilitate the continued use of the Zoo site for animal exhibits, as well as improved opportunities for visitor interactions with exhibit spaces to improve visitor experience and educate visitors on animal welfare and conservation. Further, the retention of any heritage fabric needs to be balanced with the need for Taronga Zoo to meet contemporary animal welfare and visitor experience expectations. The proposal for an immersive exhibit is consistent with zoo best practice and the mitigation measures proposed, including archival recording are appropriate and proportional to the degree of any impact.

- An intrinsic feature of the Taronga Zoo landscape from a historic and also Aboriginal cultural perspective is the layered embedded sandstone benching and intermittent outcropping throughout the Zoo. Sandstone located within the site area has been integrated into the overall landscape design to provide interpretive elements to reflect the original custodians of the site.
- The minimum number of trees possible have been removed to accommodate the new exhibits and wherever possible the exhibit has been designed around the existing landscaping. A large number of heritage/high retention trees are proposed for relocation on site. Further, none of the trees to be removed are listed on the Section 170 Register or identified to be of high retention value.

The proposal provides a superior development outcome for the site:

- The RACC will inspire excitement, encourage visitation, provide opportunities for connection and reflection, and facilitate learning experiences to think about our everyday lives and behaviours that impact the conservation of wildlife.
- The proposal will improve the standard of animal care on site and provide improved opportunities for visitor interactions within exhibit spaces and ensure the presentation and care of the Zoo's reptile and amphibian collections are consistent with their overall animal strategy, conservation and education strategy and zoo vision.

The proposal is highly suitable for the site:

- The proposal continues the permitted use of the site as a *Zoological Garden* and will allow for the development of a new and improved animal exhibit, which is permissible with consent and consistent with the SP1 Special Activities (Zoological Gardens) Zone objectives. Further, there are no significant environmental constraints that would limit the proposal from being developed at the site.

The proposal is in the public's best interest:

- This application will facilitate a new and improved animal exhibit at the Zoo that the public will be able to enjoy.
- The proposal will have minimal environmental impacts upon nearby residential as the proposed construction works will be located away from residential land. Subject to the various mitigation measures recommended by the specialist consultants, the proposal does not have any unreasonable impacts on adjoining properties or the public domain in terms of views, traffic, acoustic impacts during construction and ongoing operation.

It can be concluded that on balance, the benefits of the development outweigh any adverse impacts and as such, the development is in the public interest.

In view of the above, it is considered that this SSD Application has significant merit and should be approved by DPIE and the Minister for Planning and Public Spaces.

1. INTRODUCTION

1.1. PURPOSE OF THE REPORT

This Environmental Impact Statement (**EIS**) has been prepared on behalf of Taronga Conservation Society Australia (**TCSA, the Proponent**) in support of a State Significant Development application (**SSDA**) for the construction of a new Reptile and Amphibian Centre (**RACC, the project**) at Taronga Zoo (**the site**).

This EIS has been prepared in response to Secretary's Environmental Assessment Requirements (**SEARs**) issued on 30 April 2021.

This report includes assessment of compliance with the statutory and strategic planning framework, and all other potential environmental impacts identified through the preparation of this SSDA. Further, this report has been prepared with consideration of the *draft Environmental Impact Assessment Guidance Series* released in June 2017 and the *Preparing an Environmental Impact Statement* Exhibition Draft released in December 2020. This EIS also provides an assessment of the proposal against the relevant considerations under Section 4.15 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act).

This EIS is structured in the following manner:

- An introduction to the project, including project objectives, project background and analysis of feasible alternatives;
- Identification of the strategic context of the site, including:
  - Analysis of the site and its surrounding context;
  - Identification of key strategic policies;
  - Analysis of cumulative impacts;
  - Identification of planning agreements associated with the project.
- A detailed description of the project;
- Identification of statutory planning policies relevant to the assessment and evaluation of the project;
- A summary of community engagement activities;
- Consideration of key planning issues relating to the proposed development, including a response to issues identified in the SEARs; and
- A comprehensive evaluation of the project.

This EIS should be read in conjunction with all supporting documentation appended to this report at **Appendix A – Appendix BB.**

1.2. APPLICANT DETAILS

Applicant details are identified in the following table.

Table 1 – Applicant Details

Parameter	**Proponent**
Company	Taronga Conservation Society Australia
ABN	41 733 619 876
Primary Principal	Cameron Kerr, Chief Executive

1.2.1. Overview Of Taronga Conservation Society Australia

The Zoological Parks Board Act 1973 (**Zoological Act**) is the Act that governs Taronga and Taronga Western Plains Zoos. A corporation named the "Zoological Parks Board of New South Wales" (**the Board**) is constituted under the Zoological Act. The Board may also be called the Taronga Conservation Society Australia and the use of that name has the same effect for all purposes as the use of its corporate name.

Under Clause 5(2)(b) of the Zoological Act the Board shall, for the purposes of any Act, be deemed to be a statutory body representing the Crown.

Taronga Conservation Society Australia has a formal mandate, as defined in Section 15 of the Zoological Parks Board Act 1973, to:

> *(a) carry out research and breeding programs for the preservation of endangered species;*
>
> *(b) carry out research programs for the conservation and management of other species;*
>
> *(c) conduct public education and awareness programs about species conservation and management; and*
>
> *(d) display animals for educational, cultural and recreational purposes.*

The RACC clearly meets these objectives, as it will display animals for educational, cultural and recreational purposes.

The zoo's animal management activities will ensure the presentation and care of the Zoo's reptile and amphibian collections are consistent with their overall animal strategy, conservation and education strategy and zoo vision.

1.3. PROJECT OBJECTIVES

Taronga Zoo is one of Australia's most popular attractions, and together with Taronga Western Plains Zoo hosts more than 1.5 million visitors annually and contributes an estimated $249 million per annum to the NSW economy. The Zoo has evolved over time from a Zoo that simply provides the traditional visitor experience of viewing animals in exhibits, to a Zoo that focusses on wildlife conservation, animal welfare and providing a range of visitor learning experiences.

The current Reptile World at the Taronga Zoo Sydney site has reached the end of its useful life and a new facility is required. The RACC project will be a world-class reptile and amphibian exhibition and animal care facility, achieving operational efficiencies and safety improvements. This project will cement Taronga Zoo as a global leader in wildlife conservation for future generations.

Overall, the project objectives are provided below:

- Provide contemporary messages and call to action related to Reptile and Amphibian conservation.
- Incorporate new guest experiences, keeper talks, encounters and tours to reflect the Zoo's reputation as an innovative leader in animal education and conservation.
- Improve positive animal welfare outcomes and reflect best practice principles for animal care.
- Showcase Taronga's relevant conservation recovery programs.
- Highlight culture and Indigenous communities and the role these animals play to these communities.
- Develop a built asset that considers sustainability and mature asset management principles.

Figure 1 – Regional Context

Source: Urbis

1.4. PROJECT BACKGROUND

1.4.1. Relevant History

In November 2020, the NSW Treasurer Dominic Perrottet and Environment Minister Matt Kean announced that TSCA will receive $40 million from the NSW Government as part of the 2021-22 budget to help build two brand-new Wildlife Hospitals – one at Taronga Zoo Sydney and one at Taronga Western Plains Zoo in Dubbo.

In addition, the investment will also help to fund the state-of-the-art Reptile and Amphibian Conservation Centre (RACC) proposed in this SSDA. The stimulus package will ensure the preservation of important species, such as Corroborree Frogs, are protected for future generations to come and replace the current Serpentaria which will be demolished to facilitate the new Wildlife Hospital (via a separate SSDA).

The project will deliver genuine economic benefits in these challenging times as a result of the COVID pandemic, with the intention to provide approximately 520 jobs including design, project management and construction over the 30- month design development and construction period. Now more than ever, it is critical that the project is delivered in time for when the economy does bounce back, and international tourists start returning to Taronga, Sydney and Australia.

1.4.2. Preliminary Consultation

Prior to SEARs being issued by DPIE, the following consultation was undertaken for the project. Further community and stakeholder engagement undertaken during the preparation of the EIS is outlined in **Section 5.**

Scoping Meeting with DPIE

In accordance with the Department of Planning, Industry and Environment's (**DPIE**) protocol of conducting 'scoping meetings' prior to formal lodgement of SEARs, a meeting was held on 25 March 2021 via teleconference between the members of the project team and members of the Key Sites team at DPIE including:

- Cameron Sargeant, DPIE
- Minoshi Weerasinghe, DPIE
- Karl Fetterplace, DPIE
- Matthew Spooner, TCSA
- Paul De Alwis, TSCA
- Sarah Horsfield, Urbis
- Brigitte Bradley, Urbis

The key areas of discussion included the following:

- Project brief of the proposed development and the Wildlife Hospital which will be subject to a separate SSDA.
- Urgency of the proposed works to TCSA.
- Timeframes of the project from initial scoping with the intention for lodgement by July 2021.
- Consultation requirements.
- Confirmation that the NSW Government Architects will not consider this SSDA due to the unique design requirements for animals and their enclosures.
- Confirmation that a separate Social Impact Assessment and Visual Impact Assessment is not required and can be incorporated into Urbis' assessment within the EIS.

Consultation with Mosman Council

A meeting with Mosman Council was held at Council offices on 30 March with TSCA representatives and Urbis to discuss current projects being undertaken at Taronga Zoo including the Taronga Wildlife Hospital and RACC projects. The key areas of discussion included the following:

- Council was generally supportive of the overall redevelopment of the RACC and Wildlife Hospital.
- Council identified the importance of providing assessment of the cumulative impacts of any construction traffic and relevant mitigation measures.
- Council will be notified of the proposed development during public exhibition of the EIS.

We trust that this initial consultation will assist to understand the scope of works proposed to be assessed by Council and DPIE.

Consultation with Registered Aboriginal Parties

Consultation has also begun with Registered Aboriginal Parties (RAPs) to ensure that the proposed design has no impacts on items of aboriginal significances on the site. Within the RACC investigation area, no areas of significance have been identified during the preliminary investigation stage.

1.4.3. Scheme Development and Analysis of Feasible Alternatives

Under the provisions of *Environmental Planning and Assessment Regulation 2000*, Schedule 2, Clause 7 there is a requirement to analyse any feasible alternatives to the proposed manner of carrying out the development, including the consequences of not carrying out the development. TSCA identified project alternatives which were considered in respect to the identified need for the proposal. Each of these options is listed and discussed in the following table.

Table 2 – Project Alternatives

Option	Assessment
Do Nothing	The NSW Government is investing $40 million with an additional $40 million being funded by donations for expanded Wildlife Hospital facilities at Taronga Zoo Sydney and Western Plains Zoo Dubbo to increase capability to support emergency responses to wildlife crises, wildlife conservation efforts and education facilities. In addition, the investment will also help to fund the new Reptile and Amphibian Conservation Centre (RACC) subject to this SSDA. Keeping reptiles and amphibians in their current location poses numerous constraints as the reptile exhibit building, while 'purpose built' at the time, no longer meets today's best practice standards for animal care. In addition, Taronga's capacity to manage conservation and rehabilitation is compromised in the current facility. If the existing reptile exhibit stays in its current location (which is located in the proposed location of the future expansion of the Taronga Wildlife Hospital), the separate Wildlife Hospital SSD project will not be able to proceed which would impact Taronga's capacity to increase wildlife rehabilitation. Further, the existing reptile facility will remain an outdated attraction, with a number of unresolved operational issues.
Alternative Location	As part of the planning for the new reptile exhibit, consideration was given to locating the RACC in various locations on the site. However, the proposed location has been selected with consideration from a sitewide planning perspective to ensure the development integrates into the overall strategy for the Zoo. Other options posed numerous constraints such as mature vegetation on site, guest flow and relocation of animals, which outweighed the benefits of other locations.
Alternative Design	The overall design has been proposed to reflect the topography of the site and 'sit within' the existing tree canopy. The proposed development has been built to reflect changing animal welfare needs and the vision of the Zoo to highlight conservation and provide education of animals. An alternative design in this location would require consideration of the existing topography of the site and visual impacts from Sydney Harbour as well as animal welfare requirements. To meet these requirements significant cut and fill would be required to mitigate the impacts of a new design and meet access requirements.
The Proposal (preferred option)	It is considered that the relocation of the existing exhibits to a new, contemporary, purpose built facility on site presents as the most strategically viable of all the options. The proposal will result in: ▪ New purpose-built facilities which will provide modern enclosures, which allow for functional, best-practice and safer day-to-day operations and management. ▪ Innovative animal and visitor experiences and interactions and the ongoing viability of Taronga Zoo. ▪ Improved visitor access, including satisfying BCA and access requirements.

2. STRATEGIC CONTEXT

2.1. PROJECT 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 zoo is largely divided into geographical sections under the Zoo 2000 'The View to the Future' Master Plan. Animals from the same region are grouped together and the design of the environment in these areas is intended to simulate the native environment of the animals where possible. The Australian Precinct is the closest geographical zone to the Zoo entrance.

Taronga Zoo has been subject to numerous upgrade and redevelopment schemes over time, to stay compliant with contemporary regulations, meet contemporary animal welfare and visitor experience expectations.

The proposed location for the RACC is within the middle of the site adjacent to a range of animal exhibits including camels, capybaras and gorillas and the forest adventure playground. Two structures historically used as aviaries are located along the eastern site boundary.

The site previously housed the 1970s 'Seal Show' structure amphitheatre and is now largely cleared with astroturf and replanted vegetation and provides picnic facilities for Zoo guests. A temporary meerkat exhibition is also located within the site which will be demolished and the meerkats relocated into the approved African Savannah Precinct shortly. These works will be undertaken as exempt development as per Schedule 2 of Mosman LEP 2012 as they have a Capital Investment Value (**CIV**) of less than $1 million and satisfy the requirements of Schedule 2.

A Site Location Map is provided below.

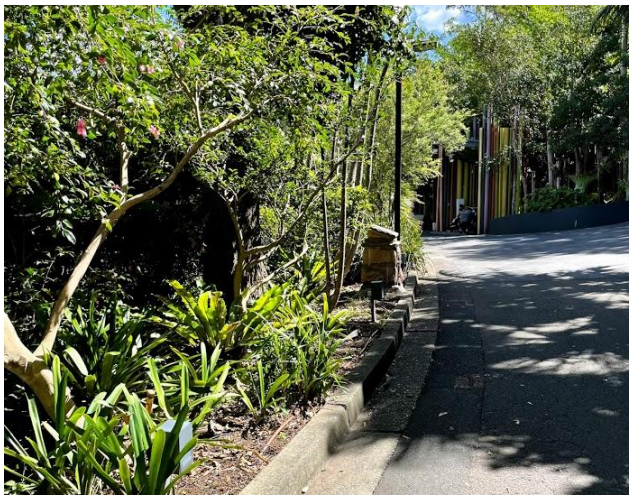
Figure 2 – Site Location Map

Source: DWP

Figure 3 – Site Photographs

Picture 1 – Subject site facing west

Picture 2 – Subject site facing north



Picture 3 – Subject site from northern walkway

Picture 4 – Temporary Meerkat Exhibition

2.1.1. Heritage

The Zoo was constructed on the current site between 1913-1916, with the official opening date Saturday 7 October 1916. Taronga Zoo has been modified extensively over time, reflecting social and cultural changes on approaches to animals in captivity.

The site is a locally listed heritage item (Item 34) within the *Mosman Local Environmental Plan* 2012 (MLEP) as shown in **Figure 4**. The item is identified as the '"Rainforest Aviary", "Elephant House", "bus shelter and office, floral clock and upper and lower entrance gates". None of the identified items are located within the RACC site area but both the floral clock and Elephant House are within close proximity to the site.

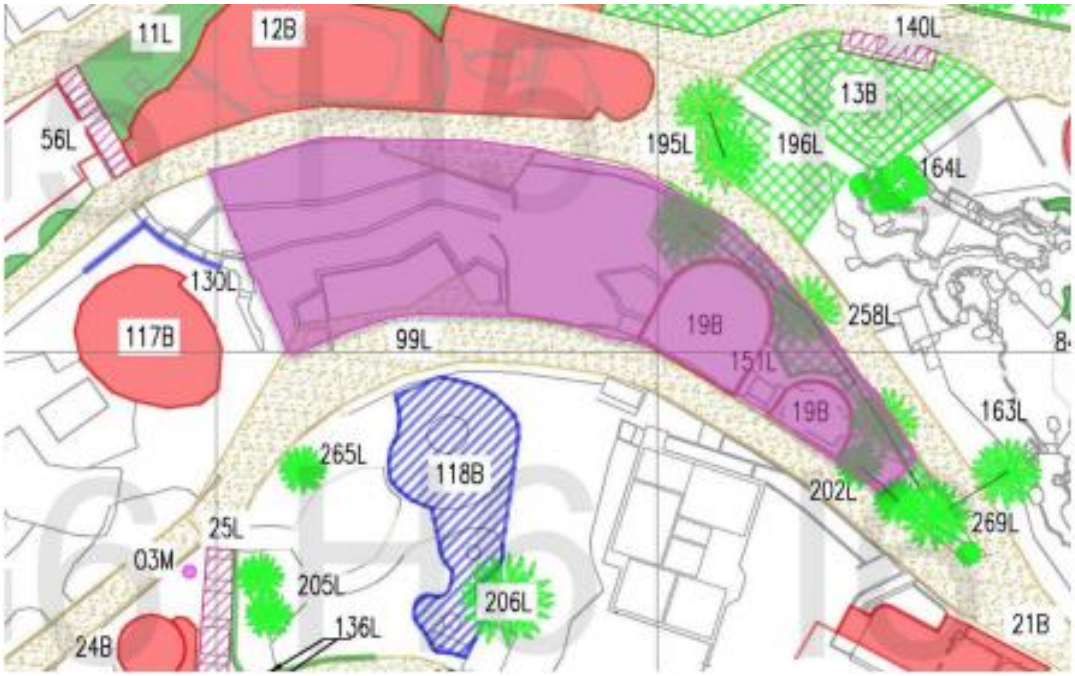
Although Taronga Zoo is not listed on the State Heritage Register, as a crown authority, a database of heritage assets called a Section 170 Heritage and Conservation Register is required. The Register identifies over 250 individual built and landscape heritage items within Taronga Zoo. The proposal will directly affect the following Section 170 register items, shown in **Figure 7**:

- Item 19B (Former Parrot/Cockatoo/Macaw/New Guinea aviaries – original superstructures removed 2009 leaving the rough-cast masonry perimeter walls with inset decorative panels – partial restoration 2012/2013).
- Unlisted Item – Natural Hawkesbury sandstone rock outcropping.
- Item 163L (Avenue of *Waterhousea floribunda* – 5 trees along path between Floral Clock and Elephant House)
- Item 202L – Interwar period Cabbage palm (*Livistona australis*) amongst Waterhousea Avenue (163L).

Figure 4 – Mosman Local Environmental Plan 2012 – Heritage Map

Source: Mosman Local Environmental Plan 2012, HER_003

Figure 5 – Excerpt of Taronga Zoo Section 170 register



Source: TCSA

The following Section 170-listed items are located in close proximity to the subject site and will be considered as part of the overall heritage assessment:

- Item 99L (Original zoo – 1913-1914 period - path layout).
- Item 151L – Stone garden walls, c. 1920s-1940s near former parrot aviaries (19B).
- Item 12B (Formerly original 1915 upper seal pools then redeveloped for Lemur Forest Enclosure 2012/2013 though now no longer for Lemurs but a playground and Capybaras)
- Item 13B (Floral clock 1928 – including open brick balustrade with rough-cast finish) – this also forms part of the local heritage listing
- 19B 'D-shaped' Aviaries (perimeter walls) - Aviary mesh and internal structures & superstructures removed 2009.
- Item 21B – Elephant House (Indian Elephant Temple), 1915 – restored 2006. – this also forms part of the local heritage listing
- Item 56L – 1914-1916 concrete stair flights restored/partially rebuilt as part of Lemur Forest precinct redevelopment 2012/2013
- Item 75L Natural Stone Features - Several rock outcrops behind the current temporary Meerkat area..
- Item 99L – Original & Early Paths - Alignments of upper and lower roads and western path partially intact as at early 2021.
- Item 116M Hallstrom Memorial Tablet replica - Moved to study site in 2019.
- Item 117B – Originally an elliptical aviary (1910s) then adapted as De Brazza's Guenon enclosure (c. 1990s) then space incorporated into current Gorilla enclosure.
- Item 118B – Original 1916 water ponds (modified c. 1980s), currently Tamarins (upper pond) and Saltwater Crocodile (lower pond).
- tem 130L (Remnants of Interwar period pipe rail fencing components – previously salvaged for installation elsewhere at zoo)
- Item 151L – Stone garden walls, c. 1920s-1940s near former parrot aviaries (19B).

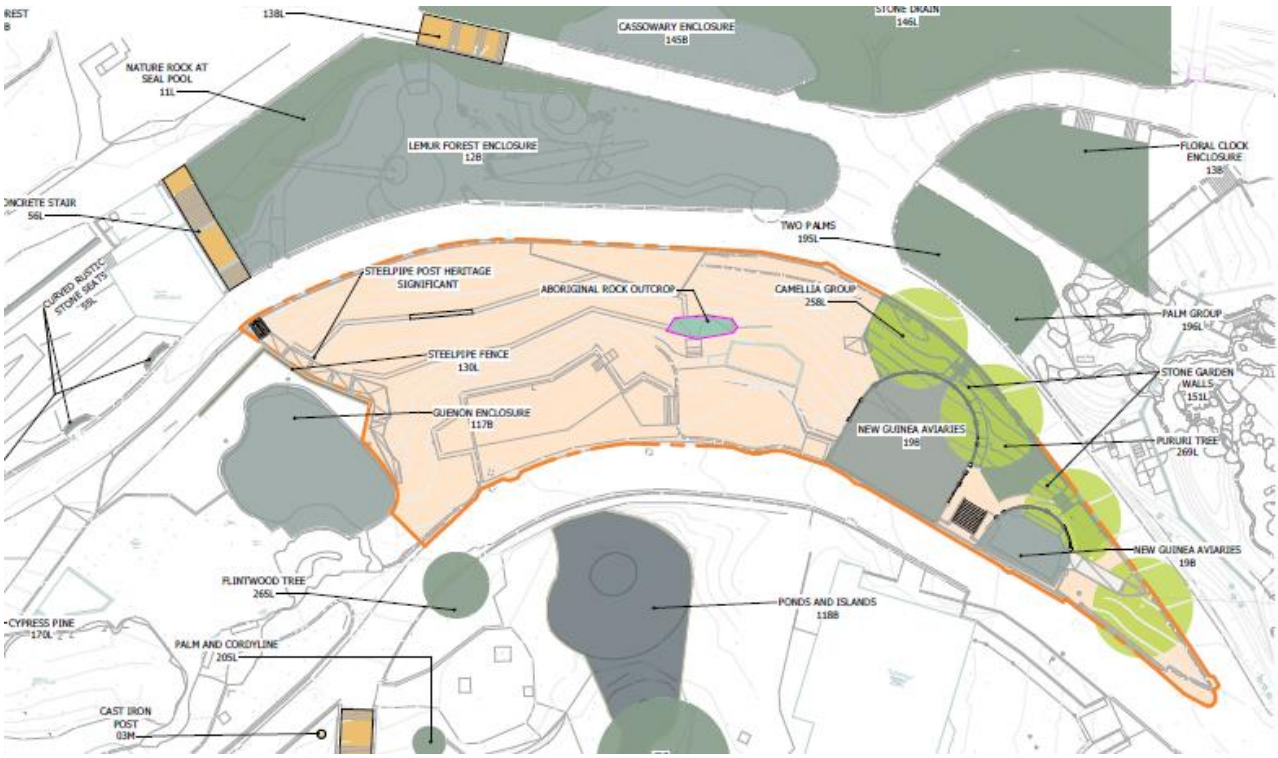
The following Section 170-listed trees will be retained as part of the proposal:

- Item 163L (Avenue of *Waterhousea floribunda* – 5 trees along path between Floral Clock and Elephant House)
- Item 202L – Interwar period Cabbage palm (*Livistona australis*) amongst Waterhousea Avenue (163L).

An intrinsic feature of the Taronga Zoo landscape is the sandstone found intermittently found across the site. The characteristic Hawkesbury sandstone has been used as a feature in many zoo exhibits providing both in situ quarried stone faces of varying scale and worked stone blocks.

Within the RACC site area, there are few major areas of rock outcropping though several outcrops appear to remain intact within the upper central area above the present Meerkat enclosure. Elsewhere throughout the site smaller sandstone boulders are visible but it is not clear if these are in situ local stone or loose stone arranged on site. These outcroppings are also considered to have Aboriginal significance.

Figure 6 – Heritage site analysis



Source: DWP

2.1.2. Topography

The overall Zoo comprises an overall gentle slope with a generally shallow thickness soil profile (characteristically of sand and gravel filling) typically less than 1.5 metres deep, overlying low and medium strength sandstone bedrock.

The RACC site has significant topographic features with a height difference of 7.1 metres from the northern and southern pathways which bound the site area. The site is flanked by a significant amount of re-vegetated landscape, including a variety of native and introduced species and also includes a series of gabian retaining walls which have been implemented to ensure the ongoing viability of existing vegetation. The site does not contain any natural watercourses or areas of geological significance, such as caves, cliffs or crevices.

2.1.3. Flora and Fauna

A Biodiversity Development Assessment Report (**BDAR**) has been prepared by Narla Environmental (**Appendix X**). Vegetation within the RACC site area is largely comprised of planted vegetation that is subject to landscaping, regular maintenance and has been historically cleared following the demolition of previous animal enclosures, including the 1970s 'Seal Show' structure which was demolished in the early 2000s.

No native Plant Community types (**PCTs**) were historically mapped within the RACC site area but the following PCT was historically mapped within the Zoo grounds adjacent to the Precinct:

- PCT 1778 - Smooth-barked Apple - Coast Banksia / Cheese Tree open forest on sandstone slopes on the foreshores of the drowned river valleys of Sydney

Only one species, *Myotis macropus* (Southern Myotis), has been historically recorded within the broader Taronga Zoo, with the RACC investigation area containing known habitat (vegetation within 200m from waterbodies) for this species.

A total of 23 threatened fauna specified and 3 threatened flora species were identified by DPIE's *Biodiversity Assessment Method Calculator* as potential species within the RACC site area. Only one of the flora species (Neilsen Park She-Oak) was surveyed within the RACC site with none of the species located during the site inspection by Narla Environmental.

2.1.4. Existing Road Network

Bradleys Head Road functions as a local collector road and is aligned in a north-south direction linking the area with Military Road and Spit Junction in the heart of Mosman. At the entrance of the zoo, it is a two-way road configured with a two-lane, nine-metre wide carriageway, including a right turn lane to access the Taronga Zoo multistorey and at-grade car parks. Kerbside parking is permitted north of the site entrance and angled parking spaces are marked south of entrance.

Whiting Beach Road is a local road and near the site is aligned in an east-west direction. It is a two-way road configured with a two-lane, eight-metre wide carriageway. Whiting Beach Road provides staff and delivery access to Taronga Zoo car parking and the back-of-house area of the zoo via the northern access. Unrestricted kerbside parking is permitted on the northern side of the road.

2.1.5. Parking

The site currently accommodates 846 car parking spaces within the multistorey car park on site and an overflow parking area on site. Bus bays are also located on site for school excursions and other large groups that arrive by coach.

2.1.6. Public and Active Transport

The Zoo is well serviced by local public and active transport services and is accessible by bus and ferry. Bus stops are located at the main entrance off Bradleys Head Road and the Taronga Zoo ferry wharf is located at southern entrance of the Zoo. All services are available at least every 30 minutes during peak hours.

Based on available information and historical data from the zoo, approximately 60 per cent of zoo visitors travel to and from the zoo by ferry or bus, with the remaining 40 per cent using private vehicles.

The nearest cycle route in vicinity of the site runs along the Bradleys Head Road-Athol Wharf Road.

2.1.7. Services

The site currently contains and is connected to all necessary services including electricity, water, drainage and sewage. Required, relocation, upgrades and augmentation of these services and infrastructure will occur as required subject to detailed design and construction.

2.2. STRATEGIC POLICY FRAMEWORK

The following table provides an overview of the consistency of the proposed development with the relevant strategic plans.

Table 3 – Overview of the Strategic Policy Framework

Strategy	Comment
NSW Premier's Priorities	The relocation of reptiles and amphibians into a new purpose built facility at Taronga Zoo will remain consistent with a key Premier priority to maintain a strong economy via the creation of 800 jobs including design, project management and construction over the 18-month design development and construction period as well as ongoing operational jobs (when zoo visitation returns to normal). The new animal exhibit will also ensure TCSA and Taronga Zoo, Mosman maintains its international reputation as a world class zoo, with immersive and educational animal exhibits.
Greater Sydney Region Plan: A Metropolis of Three Cities	The RACC will continue to improve and enhance the existing zoo facilities and is generally consistent with the various objectives of the Greater Sydney Region Plan. In particular, the project will: ▪ Modernise an important attraction within Taronga Zoo, strengthening Sydney's tourism sector; ▪ Strengthen Sydney's competitive economy by providing economic benefits and contributing to job creation; and ▪ Protect Sydney Harbour and its foreshore through sensitive design and landscaping.
NSW Visitor Economy Strategy 2030	The RACC is expected to attract tourists from target markets identified within the plan, including intrastate, interstate and international regions such as the Asia-Pacific (once we emerge from current COVID restrictions). This will positively contributing to the domestic and international tourism industry of Sydney and NSW. Whilst the tourism and events industry (particularly those relying on international visitors) is currently challenged by the global COVID pandemic, the proposed RACC facility is consistent with the vision for strengthening the NSW brand and providing internationally renowned animal welfare and educational facilities within the Zoo.
Zoo 2000 – 'The View To The Future' Master Plan	The project aims to ensure that amphibians and reptile are being cared for under the best practice principles of animal welfare to align with the Master Plan. The exhibit will remain within existing areas of the Zoo previously identified for exhibition space, notably within the "Heart of the Zoo" zoo geographic precinct. The overall design provides better opportunities through the new exhibits to experience and learn about wildlife immersed in the Zoo's landscape.

Strategy	Comment
	Notably the proposal will to: ▪ Provide for the continued use of the site as a Zoological Garden, with this precinct housing a variety of reptiles and amphibians including native Australian species; ▪ Preserve the unique topography of the site; ▪ Not impact on significant views within and from the site; and ▪ Promote the evolution of enclosure design with the proposed new RACC exhibit improving animal conditions in accordance with best-practice principles.
Taronga Zoo Master Plan Urban Design Principles and Visual Analysis (UDAS Guidelines) – May 2001	The RACC will support the ongoing operation of the site as a Zoological Park. The proposed design has considered and achieved pedestrian and emergency circulation access within the site area without impacting on animal safety. The RACC integrates with the original and early pathways on site. The project will not materially impact on the present view of 'green vegetation' from the harbour as illustrated in the photomontage contained with the package of Architectural drawings in **Appendix E**. The proposed built form scale and appearance is compatible with the characteristics of the zoo and will not be readily visible when viewed from the Harbour as it remains below the existing tree canopy. External finishes have been selected to provide additional greenery and reflect patterns found in reptiles and amphibians. Overall, the design reflects the natural colours of the vegetation and landforms of the Zoo. ESD measures will be incorporated as further discussed in **Section 6.5**.
Taronga Zoo Conservation Strategy – July 2002	The development proposal for the RACC is generally consistent with the policies relating to conservation, cultural landscape values, adaptive reuse, access and interpretation contained within the 2002 Conservation Strategy for Taronga Zoo. Notably the proposal: ▪ Provides for the continues use of the site as a Zoological Garden, with this precinct housing a variety of reptiles and amphibians; ▪ Preserves the unique topography of the site with built form proposed to sit within the ▪ Retains significant trees and relocates significant trees where necessary; ▪ Does not impact on significant views within and from the site; and ▪ Promotes the evolution of enclosure design with the exhibits improving animal conditions in accordance with best-practice.

Strategy	Comment
	In accordance with the Conservation Strategy, a Statement of Heritage Impact has been prepared for the proposal and is included at **Appendix I** and discussed further in **Section 6.2**.
Taronga Zoo Centenary Master Plan 2015	The proposed development will result in the completion of a government funded project which reflects the intentions of the Centenary Master Plan 2015.
Our Greater Sydney 2056: North District Plan 2018	The RACC aligns with the relevant objectives of the District Plan by: ▪ Supporting the growth of an internationally recognised tourism destination. ▪ Providing upgraded facilities to meet changing needs of visitors and contribute to the ongoing operation of a historically significant facility. ▪ Providing continued job opportunities within the North District.
Mosman Local Strategic Planning Statement 2020	Taronga Zoo is a significant tourism attractor to the Mosman area and plays an important role in Mosman LGA, providing employment opportunities and contributing to the local economy. In particular, the project will continue to: ▪ Provide improved facilities to meet community needs, and foster a culturally rich, creative and socially connected Mosman community. ▪ Protect, conserve and enhance Mosman's urban tree canopy, landform, waterways and bushland setting. ▪ Protect, conserve and enhance the natural, visual, environmental and heritage qualities of Mosman's foreshore scenic area, and significant views to and from foreshore slopes. ▪ Upgrade zoo facilities, which provides a unique combination of recreational, cultural, tourism and amenity benefits to Mosman LGA. ▪ Provides opportunities for local employment during construction.

2.3. CUMULATIVE IMPACTS

2.3.1. Upper Australia Precinct

Approval was granted on 21 December 2020 for the redevelopment of the Upper Australia Precinct, located within the north-east portion of the Zoo and identified in green in **Figure 7**. These works will complete the entire Australian precinct, including key attractions such as the Nocturnal House, Macropod walk and the commercial Koala Encounters venue.

Early works have begun on site including demolition and tree removal. It is expected the works will be nearing completion by the time works begin on the RACC Facility.

2.3.2. Taronga Wildlife Hospital

A separate SSDA is currently in the preliminary design phase for the construction of the Taronga Wildlife Hospital, Sydney, identified in purple in **Figure 7**. The project will include a new Wildlife Hospital and Nutrition Centre to replace existing facilities thereby enabling Taronga to respond to an emerging wildlife crisis and provide new experiences to Taronga Zoo's guests.

The location of the proposed Wildlife Hospital will result in the demolition of existing reptile facility. Two separate SSDAs are being sought by the Zoo to ensure that the assessment and construction of the works can be undertaken independently to assist with animal relocations between the old and new reptile facilities.

2.3.3. Exempt Works

As noted in **Section 2.1**, a temporary meerkat exhibition is also located within the site which will be demolished and the meerkats relocated into the approved African Savannah Precinct shortly. These works will be undertaken as exempt development as per Schedule 2 of Mosman LEP 2012 as they have a Capital Investment Value (**CIV**) of less than $1 million and satisfy the requirements of Schedule 2. Works have been incorporated into the Construction Management Plan prepared by RPS (**Appendix R**) to ensure that all works are undertaken with minimal impacts on animals, staff and neighbours.

Figure 7 – Map of Current and Future Projects at Taronga Zoo

Source: Urbis

3. PROJECT DESCRIPTION

3.1. PROJECT SUMMARY

The proposed works will provide a new animal exhibit known as the Reptile and Amphibian Conservation Centre (**RACC**). The existing reptiles and amphibians will be relocated from their current location to a newly developed and purpose built exhibit for Taronga Zoo's guests. The new Centre will inspire excitement, encourage visitation, provide opportunities for connection and reflection, and facilitate learning experiences to think about our everyday lives and behaviours that impact the conservation of wildlife.

Specifically, the SSDA seeks consent for:

- Site establishment works including demolition of gabion rock walls and concrete hardstand on site and temporary signage and hoardings.
- Construction of a part two-part three storey exhibit including:
  - BOH and staff facilities;
  - Animal exhibit areas and holding facilities; and
  - Toilets and associated amenities for staff and visitors.
- Other supporting infrastructure and walkways including:
  - Upgrades to the existing pathways and stairs on site to improve visibility and access to the proposed entrance and egress points for the RACC; and
  - Introduction of a new walkway through the aviaries located on the eastern boundary of the subject site to create the eastern entrance portal.
- Augmentation and extension of existing electrical, mechanical, hydraulic, stormwater and dry fire systems.
- Landscaping works, including the removal of 50 trees and relocation of 6 highly significant trees on site.

An overview of the proposed development is outlined in **Table 4** and a photomontage from the southern pathway is shown in **Figure 8**. Architectural Plans of the proposed development prepared by DWP are provided in **Appendix E**.

Figure 8 – Photomontage of RACC

Table 4 – Overview of the Proposed Development

Project element	**Summary of the project**
Project site area	2,390sqm (approximately)
Site description	Lot 22 in DP 843294
Gross Floor Area	Total: 1,264sqm ▪ Ground Floor: 402sqm ▪ Level 1: 672sqm ▪ Level 2: 190sqm
Maximum building height	12.52 metres (from existing ground at the southern site boundary to the roof of the indoor/outdoor exhibit)
Parking	No changes are proposed to existing parking and loading arrangements for the Zoo.
Signage	The proposed development scheme does incorporate wayfinding and building identification signage for the RACC.. These works will be undertaken as exempt development in accordance with Clause 1(f) of Schedule 2, Taronga Zoo works of Mosman LEP 2012.
Construction hours	The proposal will operate within the standard hours of construction for the zoo. Access to the Site and normal working hours are limited to the hours of: ▪ 7.00am to 5.00pm on Monday to Friday; and ▪ 8.00am to 1.00pm on Saturday.
Operational hours	The proposal will operate within the existing hours of operation for the zoo. The seasonal hours remain as 9.30am to 4.30 pm from June 1 until August 31 and 9.30 am until 5pm from 1 September to 31 May. The proposal seeks to redevelop existing zoo facilities and exhibits and will employ approximately 12 full time staff with additional casual staff. The proposal is anticipated to generate approximately 800 jobs including design, project management and construction over the 18-month design development and construction period. The EIS will be accompanied by a Plan of Management relating to the care of animals and procedures for the daily operation of the Precinct.
Capital investment value	$14,401,278

3.2. PROJECT DESCRIPTION

3.2.1. Design Principles

An Architectural Design Statement has been prepared by DWP (**Appendix H**). The visitor experience for the RACC will be focused around education, inviting visitors to engage with the landscape and animals. Some key strategies to achieve this are:

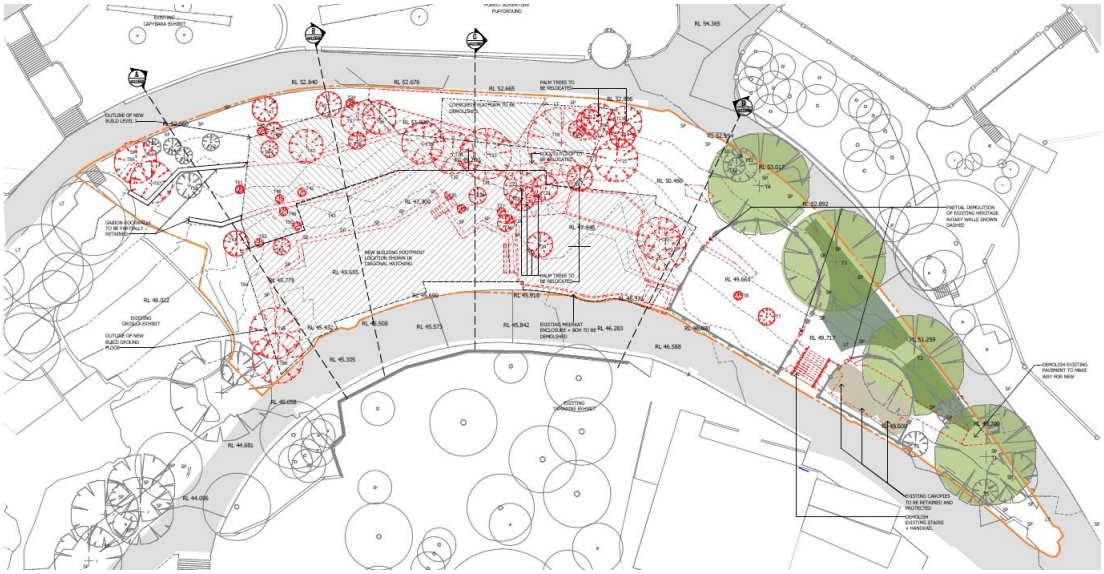
- **Animal Presentation** – Develop a world class and immersive animal exhibition that provides a opportunities for innovation in zoo exhibit presentation;
- **Animal Welfare** – Provide a new facility that meets best practice principles for animal welfare and husbandry to reflect the Zoo's position as a world class conservation and educational facility;
- **Commercial** – Development of an innovative facility resulting in an improved commercial offer within the Zoo to maintain competitiveness and entice ongoing Zoo visitation;
- **Guest Experience** – Provide guest engagement through educational and interactive exhibits and improvements to the public realm to ensure DDA compliant site access and overall improvements to accessibility within the Zoo.
- **Health, Safety & Efficiency** – Considers sustainability, mature asset management principles and integrated asset systems e.g. fire, heating, ventilation, and air conditioning to ensure sustainable maintenance outcomes for asset lifecycle.
- **Connecting to Country** – Integrate the culture of Aboriginal Australians and their connections to wildlife, landscape and conservation and the ability to inform local and international visitors to the site of this element of Australian culture.

3.2.2. Demolition

Previous works on site included the complete demolition and removal of the 1970s 'Seal Show' structure with areas of the site reorganised as rest/picnic spaces and the main sloping area was revegetated with fast-growing native plant species. As the site is generally cleared, demolition will incorporate tree removal as well as the removal of gabion rock walls and the concrete platform to rear of site. Where possible, highly significant trees requiring removal will be relocated on site.

Prior to works beginning on site, a temporary meerkat exhibition, which is currently located within the site, will be demolished and the meerkats relocated into the completed African Savannah Precinct. These works will be undertaken as exempt development as per Clause 1(a) of Schedule 2 of Mosman LEP 2012 as works will have a Capital Investment Value (CIV) of less than $1 million.

Figure 9 – Proposed Demolition Plan



Source: DWP

3.2.3. Physical Layout and Site Design

The RACC is a part two, part three-storey building provide a range of animal exhibits and back of house (BOH) facilities for Taronga staff.

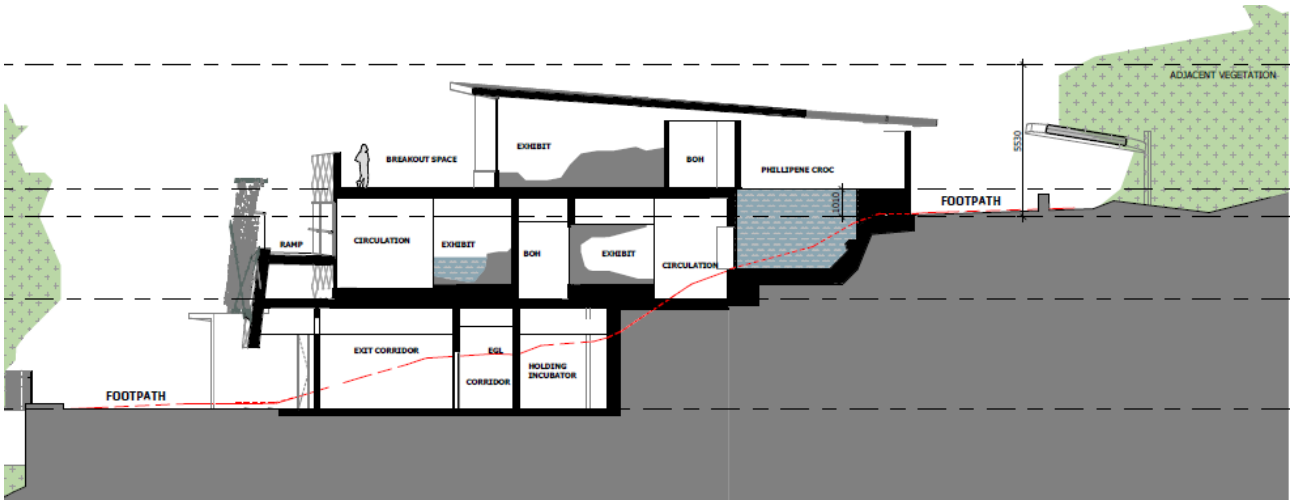
Ground floor provides BOH facilities for staff use including break rooms, holding facilities and storage areas. This level is accessible by staff only via a separated access point on the southern footpath. Existing heritage stairs are to be retained along the western boundary of the site but will remain for staff use only. As guests approach the RACC from the southern pathway, three conservation rooms are visible through viewing windows on the ground floor. The rooms are shrouded in a white awning hood, to emphasise and draw guests towards the viewing area which will showcase a range of Taronga's conservation recovery programs.

Level 1 contains the majority of animal exhibits including pythons, frilled neck lizards and yellow spotted bell frogs. The level is accessed by Zoo guests via the pedestrian at-grade pathway through the remnant "D-shaped" aviaries to the east of the RACC building. Sympathetic planting will be established within the aviary leading to the new entrance portal. The proposed new entry portal structure is located at the eastern pathway entrance, and is intended as an entry marker to help guide and herald to guests to enter the RACC building.

Level 2 contains four animal exhibits including Komodo dragons, a popular exhibit with the Zoo. Surrounding the exhibits is an open air trafficable roof area, which will provide areas for group gatherings and keeper talks. The roof form is intended to appear to hover over the exhibit and promote views and connectivity to the southern vistas toward the harbour. The roof elements also provide necessary shading and temperature control to the exhibits. This level is accessed via a ramp from the level below, running along the southern facade. Guests exit the building at this level to the north of the RACC building adjacent to the Forest Playground.

Figure 10 – Proposed built form

Picture 5 – Southern Elevation (Green Façade)



Picture 6 – Section showing uses on each level

Source: DWP

Figure 11 – Photomontages

Picture 8 – RACC from southern pathway facing west

Picture 7 – Photomontage of new eastern portal entrance

Source: DWP

3.2.4. Materials and Finishes

To ensure the built form nestles into the existing natural site context, the building façades have been designed to mimic and correspond to both the natural and physical environment surrounding the site. The forms also provide a visual cue to the reptile and amphibian animal species contained within the building.

The southern elevation is the most visually prominent element of the site. A two-storey slanted green wall screen structure is used to camouflage the built forms of the building and ramps beyond. A diagonal structure, derived from the pattern of reptile skin, envelopes the building. Within this structure is a series of diagonal wire-trellis frames, to provide the opportunity for the growth of vine climbing plants. Over time, the vegetation will grow and thicken, providing a constantly evolving facade. This green wall structure can be enjoyed and experienced by guests within the building as they circulate within the building and up the ramp to Level 2.

Aside from the green façade, other materiality and finishes of RACC has been derived and informed from the surrounding zoo context to ensure that the building and surrounds complement the existing built form language and history of the zoo. The proposed materiality, finishes and colours of RACC include:

- The main building cladding consists of a diagonal scribed patterned prefinished cladding, in a matte grey finish to reflect the patterns found in reptiles;
- Accent cladding to the awning over the conservation rooms is a zinc look cladding to provide visual interest and draw guests towards the viewing areas;
- Screening devices consist of timber look vertical battens, tying in with the existing timber materiality found across the zoo;
- Roofing finishes of Level 1 consists of a mixture light grey metal sheet roofing and ETFE finish (a high performance, transparent, high light and UVB transmission material) to provide shade and weather protection for animals; and
- Hardscape paving treatments and retaining wall elements are intended to be natural earth-toned coloured elements to sit within the natural landscape setting of the Zoo.

3.2.5. Landscape and Planting

To ensure that the proposed built form allows for the retention of heritage and highly significant trees, a Landscape Concept Plan has been prepared by Context Landscape Architecture. The proposed landscape structure plan identifies three distinct landscape precincts:

The Forest Walk will be the main entrance to the east of the site and provide an entry point for visitors that arrive at the RACC. Fern planting will be located around the pathway with decorative sawcuts integrated into the pathway to provide an interpretation of reptilian scales into the design.

The new pathway will retain existing heritage elements including concrete steps and the aviary structure. Minor modifications will occur to heritage elements to accommodate the new accessible pathway. Heritage trees which require relocation due to the building footprint will be relocated into the forest walk including a large palm trees and Blunt-leafed forest figs, which are highly unique to the Zoo. The existing rock outcrop on site will also be relocated into the Forest Walk and will be re-interpreted as three pieces.

New concrete terrace seating is proposed at edge of shared path to tie in with existing seating to east of the site and provide an additional rest area for Zoo guests.

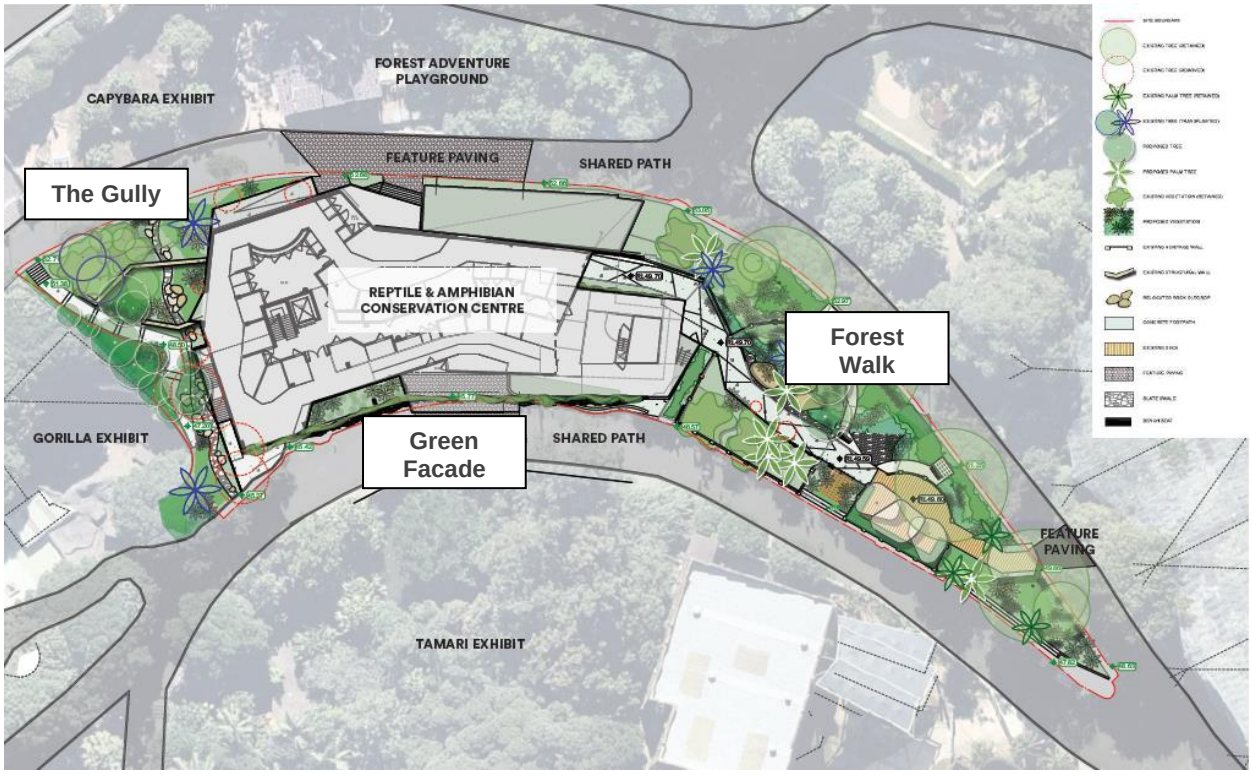
The Gully provides a landscaped edge to the western boundary of the site and reinterprets the former dry creek bed as a gully landscape. The design provides a mix of rocks and boulders as well as screen planting to create an informal boundary between exhibits within the Zoo. The Gully also provides another area for tree retention and possible relocation with the RACC site.

The Southern Façade provides additional planting along a key design feature of the building. Climbing plants will be planted at base of mesh fixed to building to grow up tensioned wire cables. Planting to be irrigated with sub-soil drainage system with moisture sensors to ensure the ongoing health of the green façade.

Additional landscaping elements have been integrated into the overall design including:

- Planter boxes located within the building to provide additional green elements.
- Updates to existing paving on the shared pathways to identify entrances and exit points to the RACC.

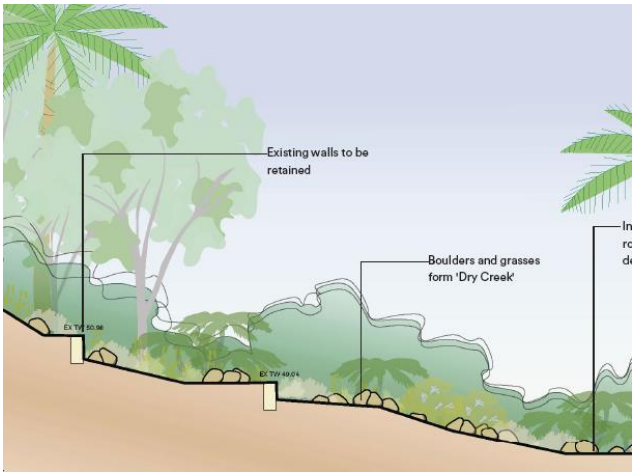
Figure 12 – Landscape Concept Plan



Source: Context Landscape Architecture

Figure 13 – Landscape illustrative diagrams

Picture 9 – Forest Walk



Picture 10 – The Gully

Source: Context Landscape Architecture

3.2.6. Connecting with Country

As the SEARs were received following the commencement of the project, the formal process of Connecting with Country has not been undertaken as per the requirements of the draft *Connecting with Country Framework* published (Government Architect 2020). This is an emerging aspect of design development that was not anticipated at the start of the design process to form part of the SEARs. However, the ethos of the Connecting with Country Framework is something that Taronga is already doing on all their projects and has been for a number of years as referenced in a statement prepared by the Zoo enclosed in **Appendix H2**.

It is the policy of TSCA that design development incorporate consultation with the Taronga Aboriginal Advisory Group (TAAG) which has been ongoing throughout the course of the RACC project. There is also a whole-of-Zoo approach to Aboriginal cultural heritage interpretation. Furthermore, the consultation undertaken as part of the Aboriginal Cultural Heritage Assessment (ACHA) for this project has facilitated the development of an understanding of cultural heritage values across the site, and Registered Aboriginal Parties (RAPs) for this ACHA have been consulted on design development. Further details of RAP consultation is outlined in **Section 6.2.3** of this report.

The outcome of these informal consultation processes has been a conscious decision to incorporate interpretation of Country through the retention and re-use of the sandstone boulder on the site in landscape design. This design solution has been developed in coordination with RAPs and the TAAG to ensure it is appropriate. The re-use of the boulder as a landscape element in the design adheres to the advice received from RAPs and the TAAG, and the whole of Zoo policy, that what is on Country should remain so and be reused wherever possible in preference to introducing new elements to the site. The re-use of the boulder as a landscape element in the design also interprets the original sandstone landscape of the Bradley's Head Peninsula and evokes a connection to Country through the retention and interpretation of original landscape elements.

3.2.7. Pedestrian Access

Pedestrian access to Taronga Zoo will remain unchanged as a result of the proposal. The primary zoo entry is located to the north of the subject site. Taronga have advised that their future master planning for the Taronga site will encourage primary guest circulation along the southern side of the site, and then up along the eastern boundary so that guests move on to the Upper Australia exhibit to the north-east. The southern footpath is heavily used by guests accessing the Seals for the Wild exhibit, particularly at peak times during show times (11.00am and 2.00pm). The northern footpath is used by guests gaining access to the Forest Adventure Playground but is not as frequented as the southern footpath and as such, is considered a secondary circulation route. Zoo Staff also gain access to the back-of-house Gorilla exhibit from the southern footpath.

Access has been considered with regard to providing compliant access throughout the new exhibits. Access within the exhibit areas and back-of-house has been considered to ensure safe egress for staff and visitors. As noted above, there is one path of travel for all guests from an at-grade path from the existing Zoo

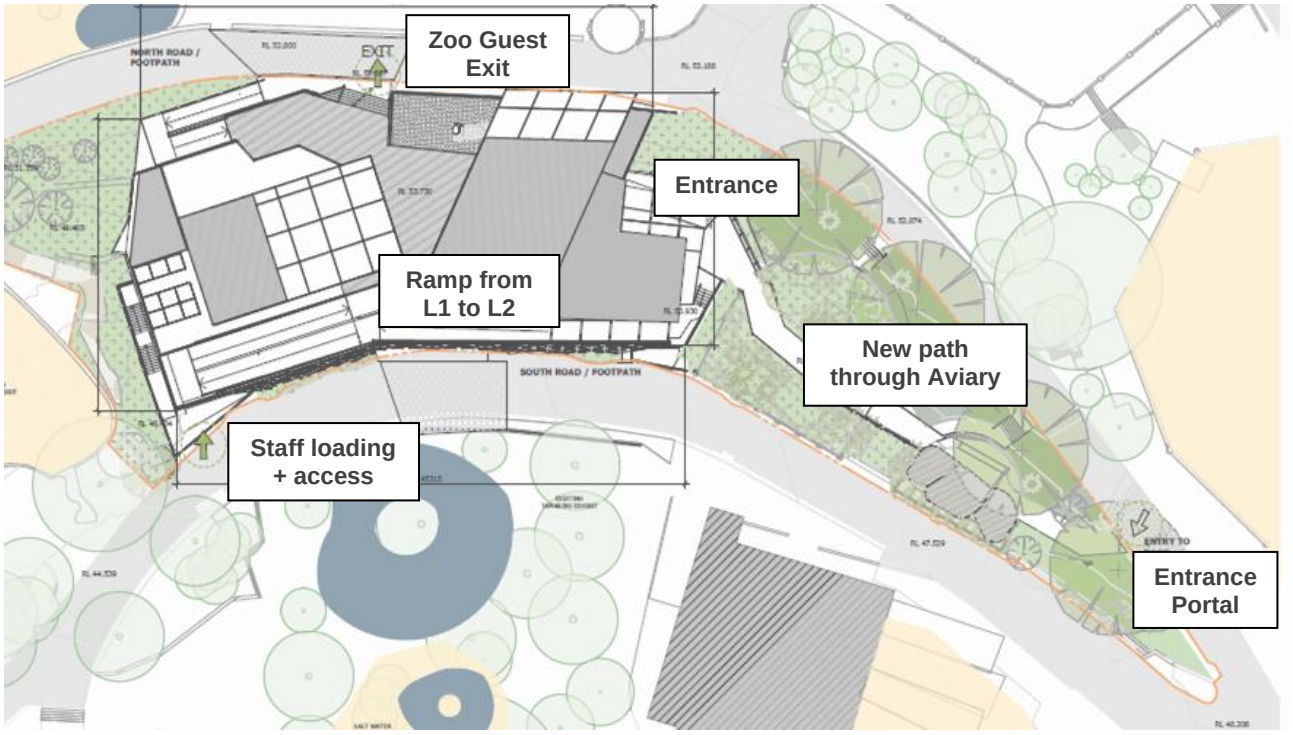
walkway through the aviaries to the east leading to an entrance portal. Access within the building is available via ramps with egress for Zoo guests leading to the northern pathway.

A review of the proposed plans has been undertaken by DLA Group (refer to **Appendix P**) which confirms that the design of the exhibits, both built form and circulation pathways can comply with the requirements, subject to detailed design.

Due to a significant height difference of approximately seven (7) metres that falls from the northern to the southern part of the project site area, providing reasonable access provisions for people with disability and/or access needs has required specific design consideration. The design of the new development has provided an appropriate design response and access strategy within the project site constraints as follows:

- Using the existing main circulation paths located at the south, east and northern sides of the project site to separate the Staff/BOH and Visitor entrance and exit points to the new building.
- Locating staff access areas at ground level, with a separate staff only entry from the south side.
- Locating all visitor exhibition areas at Levels 1 and 2, with the main visitor entry access from the east and the main visitor exit at north side.
- Using the natural sloping site to provide visitors with a unique one-way journey through a series of building and landscape exhibition spaces that are connected by wide access walkways that are gradual and an integral part of the design and guest/user experience.
- The various walkways and ramps will meet AS1428.1:2009, and include generous level landings with regular rest areas, seating, viewing, and break-out interpretation spaces for guest comfort.
- An additional compliant passenger lift and communication stairs are provided for vertical circulation within Back of House areas for staff use. These facilities will also be made available for staff managed/operational use for visitors during BOH guided tours.

Figure 14 – Site Plan identifying key access design elements



Source: DWP

It is noted, that Taronga Zoo as a whole is consistent with the following guidelines:

- *Planning Guidelines for Walking and Cycling*;
- *Sydney's Cycling Future 2013*; and
- *Sydney's Walking Future 2013*.

3.2.8. Vehicular Access and Parking

Public vehicle access and parking will remain unchanged as a result of the proposal.

Access to the site by construction vehicles will be via Bradleys Head Road from an existing driveway. Vehicles will be required to use the bus turning circle at Taronga Zoo Wharf before returning up Bradleys Head Road and accessing the site on their left. An existing access point, approximately 7m wide, is located between the Kids Trail and Australian Walkabout which will allow appropriately sized construction vehicles to access the site. All construction access will align with the Zoo's current vehicle policy.

3.2.9. Development Timing

It is anticipated early works and site preparation will begin in second half of 2021 (pending timely development approval) with main works beginning early 2022 based on a 30 month construction and design program.

4. STATUTORY CONTEXT

4.1. STATUTORY OVERVIEW

Table 5 – Identification of statutory requirements for the project

Matter	Guidance
Power to grant consent	The *Zoological Parks Board Act* 1973 (**Zoological Act**) is the Act that governs Taronga and Taronga Western Plains Zoos. A corporation named the "Zoological Parks Board of New South Wales" (**the Board**) is constituted under the Zoological Parks Board Act. The Board may also be called the Taronga Conservation Society Australia and the use of that name has the same effect for all purposes as the use of its corporate name. Under Clause 5(2)(b) of the Zoological Act the Board shall, for the purposes of any Act, be deemed to be a statutory body representing the Crown. Taronga Conservation Society Australia has a formal mandate, as defined in Section 15 of the Zoological Parks Board Act 1973, to: *(a) carry out research and breeding programs for the preservation of endangered species;* *(b) carry out research programs for the conservation and management of other species;* *(c) conduct public education and awareness programs about species conservation and management; and* *(d) display animals for educational, cultural and recreational purposes.* The RACC clearly meets these objectives, as it will display animals for educational, cultural and recreational purposes. The zoo's animal management activities will ensure the presentation and care of the Zoo's reptile and amphibian collections are consistent with their overall animal strategy, conservation and education strategy and zoo vision.
Permissibility	Under MLEP, the site is zoned 'SP1 Special Activities' under MLEP 2012 and is identified on the zoning map as "Zoological Gardens". "Zoological Gardens" is not defined in any NSW legislation. The Macquarie Dictionary defines a "zoo" as follows: "*park or other large enclosure in which live animals are kept for public exhibition; a zoological garden.*" The only uses permitted on the site with development consent is for the purpose shown on the Land Zoning Map including any development that is ordinarily incidental or ancillary to development for that purpose. The proposed animal exhibit is clearly permitted with development consent and is consistent with the SP1 zone objectives in that the proposal will provide state of the art facilities for the purpose of the displaying of animals.
Other approvals	**Exhibited Animals Protection Act 1986** (Animal Protection Act) The *Animal Protection Act* 1986 identifies the need for approvals to be given for the Zoo to exhibit animals, with certain animals requiring specific permits. TSCA sees animal welfare as being of paramount importance. Its enclosure designs will exceed the

Matter	Guidance
	minimum specified standards by a considerable margin. The proposed exhibit designs seek to deliver high quality environments contributing to animal welfare.
	NSW Roads Act 1973 (Roads Act) Any works proposed to a public road as part of the proposed development would require the consent of TfNSW. No works are proposed to a public road. However, we understand TfNSW may be notified of the SSDA including construction management
	NSW Rural Fires Act 1997 (Rural Fires Act) The site is identified as bushfire prone land. Pursuant to section 4.41 of the EP&A Act, SSD is exempt from the need for a bushfire safety authority under Section 100B of the Rural Fires Act. However, RFS may be notified of the SSDA.
Pre-condition to exercising the power to grant approval	**SEPP No. 55 – Remediation of Land** (SEPP 55) SEPP 55 requires the consent authority to consider whether the subject land of any rezoning or development application is contaminated. If the land requires remediation to ensure that it is made suitable for a proposed use or zoning, the consent authority must be satisfied that the land can and will be remediated before the land is used for that purpose. Given the site is currently being used for zoo exhibits, and the use is proposed to continue, contamination is an unlikely issue. However, contamination has been considered in **Section 6.6** of this report and has concluded the site is suitable for the proposed use.
Mandatory matters for consideration	**NSW Native Vegetation Act 1997** (NV Act) Pursuant to section 4.41 of the EP&A Act, SSD is exempt from the need for an authorisation under section 12 of the Native Vegetation Act 2003 to clear native vegetation.
	NSW National Parks and Wildlife Act 1974 (NPW Act) Pursuant to Section 4.41 of the EP&A Act, SSD is exempt from the need for a section 90 permit for the removal of items of Aboriginal heritage. Due to the site's location in close proximity to known archaeological items, an Aboriginal Cultural Heritage and Archaeology (ACHA) has formed part of the EIS and supporting documents. It is discussed at Section ###.
	NSW Heritage Act 1977 (Heritage Act) Pursuant to Section 4.46 of the EP&A Act, SSDA does not constitute Integrated Development as the site is not a State Heritage listed item under Part 3A of the Heritage Act. Pursuant to Section 170 of the Heritage Act all state government agencies including Taronga Zoo must keep and administer a database of heritage assets called a Section 170 Heritage and Conservation Register.

Matter	Guidance
	The proposal will result in some works to items identified on the Section 170 register as noted in **Section 2.1.1** of this report**.** The whole site is also identified under the Mosman LEP as a local heritage item. None of the identified local items will be impacted by the proposal.
	SEPP (Infrastructure) 2007 (ISEPP) ISEPP identifies the environmental assessment category into which different types of infrastructure and services development are classified. The ISEPP requires certain traffic generating developments to be referred to Transport for NSW (**TfNSW**). Whilst this proposal will not result in any significant traffic impacts as it simply replaces an existing animal exhibit, the SSDA may be referred to TfNSW due to the existing high level of traffic associated with the existing use of the Zoo as a well-known tourist facility. The SSDA may also be referred to the relevant utility service providers to confirm that the siting and layout of the proposed development will not impact on relevant easements and/or infrastructure corridors. As this application is essentially for the development of animal enclosures within an existing part of the Zoo it is unlikely to result in any impacts of utility services.
	State Environmental Planning Policy (Koala Habitat Protection) 2021 Pursuant to Schedule 1 of the SEPP, the SEPP does not apply as the subject site is not located in a listed LGA.
	State Environmental Planning Policy No 19—Bushland in Urban Areas Pursuant to Schedule 1 of the SEPP, the SEPP does not apply as the subject site does not adjoin land zoned or reserved for public open space.
	State Environmental Planning Policy (Coastal Management) 2018 The site is located within a 'Coastal Environment Area' and 'Coastal Use Area', however, this clause does not apply to land within the Foreshores and Waterways Area within the meaning of Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005. As such, this SEPP is not triggered by the proposed development.
	State Environmental Planning Policy No.64 – Advertising and Signage The SEARs identifies the requirement for assessment of *State Environmental Planning Policy No.64 – Advertising and Signage* (SEPP 64). There is no new or additional signage or advertising proposed as part of this development application. All signage included within the architectural plans will be undertaken as exempt development in accordance with Schedule 2 of the Mosman LEP.

4.2. IDENTIFICATION OF APPLICABLE STATUTORY REQUIREMENTS

4.2.1. Environmental Planning and Assessment Act 1979 (NSW)

The *Environmental Planning & Assessment Act 1979* (**EP&A Act**) provides the principal legislative framework for environmental planning in NSW and include provisions to ensure that proposals that have the potential to impact the environment are subject to detailed assessment and provide opportunity for public involvement.

The proposed development has been assessed in accordance with the matters of consideration listed in Section 4.15 of the EP&A Act as outlined in the Mandatory Considerations Table provided at **Appendix B**.

4.2.2. Environmental Planning and Assessment Regulation 2000

Section 4.12(8) of the Act requires that all development applications for SSD be accompanied by an EIS prepared by or on behalf of the applicant in the form prescribed by the *Environmental Planning and Assessment Regulation 2000* (**EP&A Regulation**).

Schedule 2 of the EP&A Reg provides that environmental assessment requirements will be issued by the Secretary with respect to the proposed EIS. This EIS has been prepared to address the requirements of Schedule 2 of the EP&A Reg and the SEARs.

4.2.3. State Environmental Planning Policies

State Environmental Planning Policy (State & Regional Development) 2011

State Environmental Planning Policy (State and Regional Development) 2011 (**SEPP SRD**) was gazetted on 1 October 2011, identifying various types of development and particular sites upon which certain development is defined as SSD).

Schedule 2 of the SRD SEPP lists specific sites that where development has a capital investment value of more than $10 million; works on those sites are state significant. Clause 2 of Schedule 2 identifies Taronga Zoo as a specific site. As the proposal has a CIV greater than $10 million, it is assessed as an SSD.

The Taronga Conservation Society Australia is a statutory body representing the Crown pursuant to clause 5(2)(b) of the *Zoological Parks Board Act 1973* (**Zoological Act**), therefore the Minister for Planning (or his delegate) is the determining authority for the SSD.

Sydney Harbour Catchment Regional Environmental Plan 2005

Sydney Harbour Catchment Regional Environmental Plan 2005 (SHREP 2005) is a deemed SEPP and applies to Sydney Harbour and the surrounding foreshores and catchment. The planning instrument provides planning principles to guide future development and a range of matters when considering DAs within the foreshores and waterways of Sydney Harbour, including planning controls for strategic foreshore sites.

Under SHREP 2005 the site is identified within the Foreshores and Waterways Area, listed as a “Strategic Foreshore Site”. The site does not have any heritage listing under SHREP 2005. Development listed in Schedule 2 of the SHREP 2005 is required to be referred to the Foreshores and Waterways Planning and Development Advisory Committee (Foreshore Committee) prior to determination. The proposed zoological exhibits fall within the definition of a ‘flora and fauna enclosure’. As such, the proposal may require referral to the Foreshore Committee.

Given the proposed ‘flora and fauna enclosure’ will replace existing facilities and its location, materiality and built form of proposed structures will integrate with the landscape and sit below the tree canopy, it is not envisaged the proposal will result in any visual, scenic or environmental impacts on Sydney Harbour and its foreshore. A visual impact assessment from the foreshore or harbour will not be required to support this SSDA.

Development consent must not be granted for development on the site, being a strategic foreshore site unless there is a master plan for the site and consideration has been made to this master plan. The Taronga Zoo has an approved master plan “Zoo 2000 – The view to the future” which has been considered in **Section 2.2** of this report.

4.2.4. Local Environmental Plan

Mosman Local Environmental Plan 2012 (**Mosman LEP**) is the primary environmental planning instrument applying to the site and the proposed development. The relevant MLEP 2012 provisions applicable to the SSD are reviewed in the **Table 6** below. The proposal is consistent with the relevant objectives and provisions of MLEP 2012.

Table 6 – Mosman LEP Compliance Table

Provision	Comment
Aims of MLEP 2012	The proposed works reflects the various aims of the MLEP 2012 by: ▪ Enhancing an existing recreational and tourist facility for local and international visitors; ▪ Adopting a design that will preserve the natural, visual, environmental and heritage qualities of Mosman and Sydney Harbour including items of European and Aboriginal heritage items on the site; ▪ Maintains views from public streets and private properties towards Sydney Harbour; and ▪ Advocating the importance of ecological sustainability through the overall design of the proposed exhibit and adopting sustainable building materials and construction methods.
Zoning and Land Use (Clause 2.3)	The site is zoned 'SP1 Special Activities' under MLEP 2012 and is identified on the zoning map as "Zoological Gardens". The only uses permitted on the site with development consent is for the purpose shown on the Land Zoning Map including any development that is ordinarily incidental or ancillary to development for that purpose. The proposed redevelopment of an animal exhibit is clearly permitted with development consent and is consistent with the SP1 zone objectives in that it will: ▪ Preserve the special use of the site as the dominant purpose; ▪ Protect the natural characteristics of the site; and ▪ Minimises any adverse impacts on surrounding land.
Building Height (Clause 4.3)	No maximum building height applies to the site.
Floor Space Ratio (Clause 4.4)	No maximum floor space ratio applies to the site.
Heritage Conservation (Clause 5.10)	Taronga Zoo site contains several locally listed heritage items, identified as Item I34 being the "Rainforest Aviary", "Elephant House", "bus shelter and office", "floral clock" and "upper and lower entrance gates". None of these items are located within the RACC subject site. Both the Elephant House and Floral Clock are located in close proximity to the RACC site and have been considered as part of the heritage assessment in **Section 6.2** of this report. Taronga Zoo and its surrounds also contains a number of archaeological items listed in MLEP 2012 including: ▪ Item A494 "Sites of Curlew and Mia Mia Camps" at Sirius Cove Road on Bushland between Little Sirius Cove and Whiting Beach. This item is situated on Lot 22 DP 843294 but is located outside of the Zoo's perimeter fence line.

Provision	Comment
	▪ Item A482 “Former Athol Wharf Tram Terminus, including escarpment and retaining walls” on Athol Wharf Road and is described as “Road Reserve adjacent to Taronga Zoo Ferry Wharf”. ▪ Item A483 “Site of first wharf serving Taronga Zoo” on Athol Wharf Road and is described as the Taronga Zoo Ferry Wharf. None of these items are located in or directly adjacent to the RACC subject site. Notwithstanding, the impact on archaeological items are addressed in **Section 6.2** of this report.
Scenic Protection (Clause 6.4)	Pursuant to clause 6.4 of MLEP 2012, the site is identified as a “Scenic Protection Area”. Development consent must not be granted to any development on land in a Scenic Protection Area unless the consent authority is satisfied that: ▪ Measures will be taken, including in relation to the location and design of the proposed development, to minimise the visual impact of the development to and from Sydney Harbour, and ▪ The development will maintain the existing natural landscape and landform. ▪ The proposed works will remain below the existing tree canopy of the precinct and will not be visible from Sydney Harbour or the foreshore. Further, the proposed works will not impact upon existing view corridors. Additionally, Clause 6.4 requires consideration of the preservation and protection of existing natural landscape and landforms, as well as the clearing of vegetation to make way for the new exhibits. The proposal includes the removal of various trees to accommodate the new exhibit. An Arboricultural Report has been prepared by Sydney Arbor Trees and is enclosed in **Appendix Y**, which assesses the impact of the proposed tree removal and highlight tree protection, and vegetation replacement measures. An assessment of the impacts of tree removal within the RACC subject site is included in **Section 6.14** of this report.

4.2.5. Development Control Plan

Clause 11 of the State and Regional Development SEPP states that development control plans (whether made before or after the commencement of this Policy) do not apply to State significant development. As such, there is no requirement for assessment of the proposal against the *Mosman Development Control Plan* 2012 (Mosman DCP) for this SSDA. Notwithstanding, the Mandatory Considerations Table provided at **Appendix B** provides an assessment of the proposal against the relevant controls of the Mosman DCP and demonstrates the proposal is consistent with the objectives of the DCP.

5. ENGAGEMENT

Community and stakeholder engagement has been undertaken by Urbis and TSCA in the preparation of the SSDA. This included direct engagement and consultation with:

- Adjoining landowners and occupants
- Government, agency and utility stakeholders listed within the SEARs

The community and stakeholder engagement undertaken has sought to address the requirements of the SEARs and includes:

- Stakeholder briefings
- High level Engagement and Communication Plan
- Project fact sheet
- Social Media Advertisements
- Letterbox drop
- Community information session
- Project Website
- Dedicated 1800 number and email feedback channels.

Details of the outcomes of the community and stakeholder engagement is contained in the Engagement and Communication Outcomes Report prepared by Urbis and provided in **Appendix AA**.

5.1. COMMUNITY FEEDBACK

At the time of writing the EIS, no feedback has been submitted through the Urbis Engagement enquiry line or email address. Social media advertisements and the project website both received over 500 clicks or views.

With approximately 440 individual fact sheets provided to the local catchment for proposal information and feedback requests, it is unusual to have no contact from the local community and stakeholders or attendance at a community information session.

However, given this proposal is minimally invasive to the local community and prior projects have been completed within the Taronga Zoo precinct that were more complex and invasive in nature, it is appropriate to assume the fact sheet provided adequate information regarding the new proposal. The feedback email and phone line will remain open until determination of the SSDA is completed should feedback and/or issues management be requested.

5.2. GOVERNMENT STAKEHOLDER CONSULTATION

Consultation with Mosman Council and DPIE has taken place in advance of the request for SEARs. Further consultation has taken place with some these agencies following the issue of SEARs to ensure that the EIS responds positively to the key assessment matters. TSCA has also been consulting with the Department of Primary Industries in respect of containment of animals.

Notification of the development was also sent via email to the following government agencies:

- Environment Protection Authority
- Transport for NSW
- NSW Environment, Energy and Science Group
- Heritage Council of NSW
- NSW Rural Fire Service
- NSW Department of Primary Industries; and
- NSW Aboriginal Land Council.

In accordance with the Regulations, the EIS will be placed on formal public exhibition once DPIE review the document as being ‘adequate’ for this purpose.

Following this exhibition period, the applicant will respond to any matters raised by notified parties.

5.3. ONGOING CONSULTATION

The Zoo welcomes feedback on the proposal and will continue to keep stakeholders and the community informed of the project approval process through the exhibition and determination phases by:

- Continuing to engage with the community about the project, its impacts, and the approval process
- Providing information on how the community's views have been addressed in the EIS on the project website and through a letterbox drop
- Enabling the community to seek clarification about the project through the two-way communication channels.

6. ASSESSMENT OF ENVIRONMENTAL IMPACT

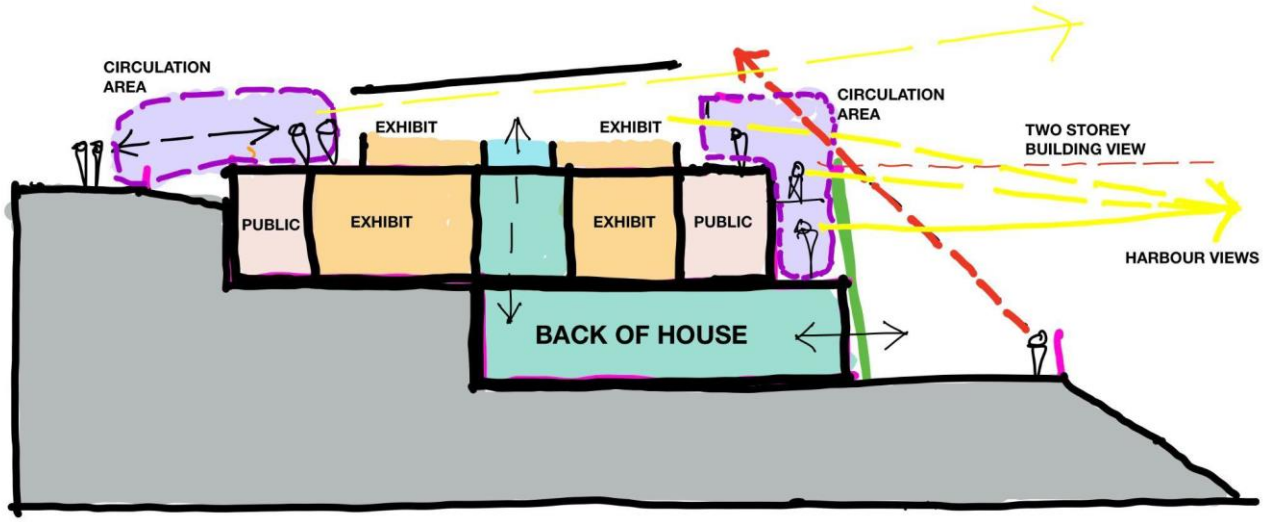
This section of the report assesses and responds to the environmental impacts of the proposed DA, in response to the matters for consideration outlined within the SEARs (refer to **Appendix A**).

6.1. BUILT FORM AND URBAN DESIGN

DWP have prepared an Architectural Design Report, enclosed in **Appendix H** that provides background and rationale to the design of the new exhibit.

Figure 15 illustrates the sectional relationship between the part two/part three levels of the new exhibit, including the distinction between public areas, animal exhibits and back of house areas. The figure also illustrates how the building is positioned to take advantage of views and vistas out of the site towards the vegetated landscape, with limited glimpses of the harbour from the top level.

Figure 15 – Concept Plan



Source: DWP

6.1.1. Height, bulk and scale

The RACC is designed to sit within the existing landscape and topography of the site, to create an immersive guest experience, and to reflect the existing context of the site. The building is nestled into the site, to lessen the overall bulk and scale of the built form.

The overall height to the very topmost roof element is RL 58.22. This is approximately 12.52 metres above the southern footpath and only 5.53 metres above the northern footpath.

The built form is designed to cascade down the site to reflect the existing gabion wall, reduce cut and fill and decrease the perceived bulk and scale from the south. Roof structures on the upper level are setback to the middle of the roof form to reduce visibility. The intention of this purposeful design is to limit the visual height, bulk and scale so that the new exhibit will appear as a two-storey built form as viewed from the from the southern footpath and beyond to the south.

6.1.2. Visual Impacts

Visual impacts have been illustrated by DWP in the architectural plans enclosed in **Appendix E.** The proposed buildings and structures are designed to sit within the landscape. The proposed exhibit sit below a dense tree canopy and new structures will not be visible from Sydney Harbour or from lower down the hill of Taronga Zoo, as illustrated in **Figure 16**Error! Reference source not found..

The following is a summary of the views and vistas both toward and from the site:

- The site has a southerly aspect towards Sydney Harbour, looking onto the natural vegetated landscapes on the downslope to the harbour. **Figure 16** identifies the general location of the precinct as viewed from Sydney Harbour. When viewing the site from the three nominated key vantage points in the harbour

including the Sydney Harbour ferry route, Curraghbeena Point and Cremorne Point, the proposed structures of the RACC site will not be visible as they will be obscured from view by existing tree canopies and dense vegetation. The green wall along the southern elevation will also reduce the overall visibility of the proposed development from Sydney Harbour.

- There are limited physical views of the harbour water from the site. Partial water glimpse views are likely to be achieved from the roof level.

Figure 16 – View Impact Assessment

Picture 11 – View from Curraghbeena Point

Picture 12 – View from Sydney Harbour

Source: DWP

6.1.3. Environmental Conditions

The design has considered the existing environmental conditions experienced on the site as follows:

- Solar access to the site is quite limited, as the project site is a south facing site, with heavy vegetation located to the north. Only Level 2 of the site will be able to take full advantage of northern solar access. Focus has been placed on locating species that require high levels of natural light and UVB on Level 2, to maximise solar gains for these animals.
- Prevailing winter winds are expected to come from the south-east. Consideration has been given to minimise impacts of these harsh winter winds, by nestling the building into the topography and limiting openings to this direction.
- Prevailing summer winds are expected to come from the west. The site is considerably sheltered from this direction due to the existing topography and vegetation, and there is no expected impacts to animals, staff or visitors.

6.1.4. Building Code of Australia

An assessment of the proposed works within RACC relative to the relevant provisions of the *National Construction Code 2019 Amendment 1, Volume 1, Building Code of Australia, BCA Class 2 to 9 Buildings* (BCA) has been undertaken by DLA Group and is attached in **Appendix O**. The proposed building is classified as both Class 9b (Public Assembly) and Class 7b (Storage).

The assessment has found the proposed development is capable of achieving compliance by a combination of compliance with the Deemed-to-Satisfy (DTS) provisions and the provision/documentation of performance solutions in accordance with Clause A5.2 of the BCA by a suitably qualified consultant/s to achieve compliance with the performance provisions of the BCA. The provision and assessment of these reports/documents will occur prior to the issue of Crown Building Certification under Section 6.28 of the *Environmental Planning & Assessment Act* 1979.

6.1.5. Access

Due to a significant height difference of approximately seven (7) metres that falls from the northern to the southern part of the project site area, providing reasonable access provisions for people with disability and/or

access needs has required specific design consideration. An assessment of the proposed works relative to the relevant access provisions of *the Disability (Access to Premises – Buildings) Amendment* 2020 *Standards, Building Code of Australia* 2019 (BCA) relating to accessibility has been prepared by DLA Group and is attached in **Appendix P.**

The assessment confirmed that through ongoing development and detailing of the proposed new works, the proposed design is capable of compliance with the relevant statutory accessibility legislation and can provide reasonable access for people with disability to and within the proposed development. This will be achieved through a combination of compliance with the deemed to satisfy (DTS) provisions and/or the Performance Requirements of the BCA, as required, including the following areas that will be addressed prior to the issue of Crown Building Certification:

- Some required accessible doors in staff areas at ground level require minor review to comply with the door circulation requirements of AS1428.1:2009. This is readily achievable and will be addressed by the design team during design development stage.
- The accessible sanitary facilities in the required accessible staff areas at ground level require spatial and layout review to comply with the circulation requirements of AS1428.1:2009. This is readily achievable and will be addressed by the design team during design development stage.
- A feasible performance based solution will be developed for some Back of House staff doors on Levels 1 and 2 that due to the functional and operational requirements of the facility cannot satisfy the door circulation area requirements of AS1428.1:2009. This is justifiable to the degree necessary to meet the BCA performance requirements.

6.2. HERITAGE

Comprehensive heritage and archaeological studies and management plans apply to Taronga Zoo which has been considered as part of the heritage impact assessment of the proposal. These are the Heritage Council endorsed *Taronga Zoo Conservation Strategy, July 2002* (TZCS); and the *Archaeological Management Plan 2004* (AMP). The following sections address Built Heritage, Archaeological matters and Aboriginal archaeology contained in the SEARs.

6.2.1. Built Heritage

6.2.1.1. Overview and Methodology

A Statement of Heritage Impact (**Appendix I**) has been prepared by Geoffrey Britton in accordance with the NSW Heritage Division guidelines 'Assessing Heritage Significance', and 'Statements of Heritage Impact' and the MLEP 2012. There is no Conservation Management Plan relevant to the works. However, the following reports have been considered in the preparation of this document. The proposal has been assessed against these reports:

- Conservation Strategy, GML, 2002
- Landscape Management Plan, Design 5 Architects, 2006
- Section 170 Heritage and Conservation Register, 1998 (DPWS and as subsequently amended to the present)
- Taronga Zoo Archaeological Management Plan, GML, 2004
- Taronga Zoo African Precinct, Strategic Heritage Advice, GML, 2006

6.2.1.2. Assessment

While the proposed works will result in the partial/total loss of some Section 170 Register items the overall development retains the heritage significance of the site by providing a new animal exhibit within the Zoo. The following positive heritage impacts will occur as a result of the proposed development:

- No major sections of the original 1910s circulation network (upper and lower access roads) are proposed to be altered.
- The compact nature of the development will allow the eastern part of the site to remain largely as it is, including its tree canopy, under plantings (especially camellias) and remnant layout;

- Substantial retention of existing built and landscape elements is proposed in the eastern half of the site including listed s170 Items 151L (Rustic walling), 163L (Satinash avenue), 201L (Piccabeen palm), 202L (Cabbage palms) and 258L (Camellia group);
- Substantial retention of the 1915 aviary remnants (Item 19B) is proposed with minor modifications proposed;
- Retention of the upper and lower access roads as well as the former western stepped path section that is still intact (Item 99L) is proposed along with its associated Edwardian metal balustrading (Item 130L);
- The proposed development intends to salvage and reuse on site various other plantings such as palms (including Items 201L and part 202L) and uncommon fig trees of cultural value;
- Potential recovery of significant views out to the harbour and beyond from the upper level of the new RACC building; and
- Potential recovery or transplant and reuse other existing plantings is also proposed.

The assessment outlines that the following aspects of the proposal are deemed to have a neutral impact on the heritage significance:

- Salvage and reuse of the more substantial sandstone outcropping (part Item 75L);
- Continued closure to the public (for security and operational reasons) of the western stepped pathway and its intact balustrading (part Item 99L and Item 130L); and
- 'Moth-balling' of the rustic stone edging (Item 151L) with the proposed discontinuation of use of the pathways behind the aviaries.

The assessment outlines the following negative impacts that may result from the proposal. It is noted that the assessment qualifies these statements by outlining that the matters raised are broadly subjective and are the result of the additional of new building which has taken appropriate steps to mitigate these potential impacts through architectural design and materiality. The potential impacts identified include:

- Potential to register the development as a substantial transformation of the previously landscape-dominated precinct of the zoo to a dominant urban landscape character;
- Potential loss of the ability to appreciate the natural topographic character of the site as a sloping landform featuring a part of the Zoo's main creek line; and
- Potential visibility of the upper level pavilions of the exhibit from Sydney Harbour and beyond.

Despite the assessment outlining these potential impacts, it also confirms that the size and scale of the proposed development, fits with the site. It is confirmed that the positive impacts are greater than the potential negative impacts identified, as the majority of those items of exceptional or high cultural significance can be retained, relocated or benefit from the proposed development.

Overall, it is considered that all works are respectful of the significance of the place (in conjunction with the mitigation measures set out below).

6.2.1.3. Management Recommendations and Mitigation Measures

The following management recommendations and mitigation measures are recommended to reduce the perceived heritage impacts on the precinct. It is noted that a number of these recommendations have been considered in the architectural and landscape design and can be further considered during detailed design or through conservation measures.

- 'D-shaped' Aviaries:
  - Ensure the original layout of the wall elements (including walls, engaged piers and gate openings) is recorded in a lasting, distinctive and appropriate way on the ground plane in order to interpret the original structures.
  - Ensure the design of the proposed entry pathway on the eastern side of the new building remains visually subordinate and is consistent landscape setting.
  - Continue ongoing, cyclical conservation works to the remaining fabric of the former 'D shaped' aviaries.

  - Include as part of an interpretation program, information about this study site area that enables visitors to understand that the remnant ‘D-shaped’ aviaries were some of the first structures to be built at the Zoo.
  - Ensure future planting within the larger ‘D-shaped’ aviary that enables a clear appreciation of its original spatial scale and remnant walling.
- Architectural Design:
  - Consider the ‘cumulative’ effect of any future new entry portal structure at the eastern end of the long pathway in relation to its context where there are already various architectural forms and styles including the former Indian Elephant Temple and the ‘cloud’ shelter structure within the smaller ‘D-shaped’ aviary.
  - Ensure potential views of the proposed development from Sydney Harbour are minimised through materials, colours and relative reflectivity of exposed/prominent surfaces.
  - Consider the provision for deep soil planters to enable the inclusion of spreading canopy trees to soften the outline of the new building and reinforce the canopied context of the broader site setting.
- Landscaping:
  - Ensure the peripheral on-grade spaces to the northwest and northeast of the new building are planted out with suitable large canopy trees to assist in integrating the new building into the existing landscape setting.
  - Apart from those plantings already intended to be relocated, ensure the careful removal and transplanting of all other palms and plantings readily capable of transplanting for reuse elsewhere.
- Updating the s170 Register
  - Update the Taronga Zoo s170 register to reflect those items that have been relocated or at not in the location specified in the Register.
- Construction:
  - Ensure appropriate protection for all built and landscape elements proposed for retention in proximity to any building works as part of the construction phase.
  - Before building works commence on site, ensure appropriate archival recording of the large rock outcrops (Item 75L) proposed for salvage and relocation.
  - Ensure qualified arboricultural advice is sought before excavating within the canopies/ root zone of the Waterhousea Avenue for footings or road surface replacement.

6.2.1.4. Summary

The recommendations outlined above will be further assessed and ensured during detailed design. It is also noted that the proposal has adopted a number of recommendations illustrated in the Architectural Plans at **Appendix E**. The following considerations have been made:

- The proposed new entry portal structure is located at the eastern pathway entrance, and is intended as an entry marker to help guide and herald to guests to start the entry journey to the RACC building.
- There are no substantial view impacts from Sydney Harbour as demonstrated in the view analysis. The proposed building design and materiality ensures only partial glimpses will be viewed from Sydney Harbour with existing tree canopies and dense vegetation minimising this impact.
- The use of the path associated with the “D-shaped” aviaries will be maintained for continued staff access only. No guest access allowed for safety and security purposes.
- The intended purpose of the remnant "D-shaped" aviaries is to be purely used as a functional purpose as an access transition zone, from the entry portal on the east to the building forecourt entrance. Guests will move through the aviaries as part of the journey. There is an at-grade pathway that runs through the second "D-shaped" aviary, with sympathetic landscaping either side. This is further illustrated in the Architectural Plans at **Appendix E** and the Landscape Plans at **Appendix F**.

In summary, any potential heritage impacts can or have been appropriately mitigated, with the positive impacts outweighing any perceived negative heritage impacts.

6.2.2. Archaeological Assessment

6.2.2.1. Overview and Methodology

A Historical Archaeological Assessment has been prepared by Urbis to analyse the potential impacts on the historical archaeological (non-Aboriginal) items (**Appendix J**). This assessment 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.

The standard for assessment, *Assessing Significance for Historical Archaeological Sites and Relics*, was used for the assessment of significance of the site. Historical photographs and plans were also used to assess the significance of the site. A site inspection was undertaken as part of the assessment and a comprehensive historical account of the site previously prepared was reviewed.

6.2.2.2. Assessment

This HAA has identified both the archaeological potential and archaeological significance as a means of assessing the potential impacts of the proposal on the non-Indigenous archaeological values of the subject area. Prior to the establishment of the Zoo, the subject area consisted of native bushland, similar to the bushland observed to the east of Bradleys Head Road within Sydney Harbour National Park. The construction of the Zoo has resulted in significant disturbance and clearance of vegetation. It is considered unlikely that historical archaeological features associated with land uses prior to the Zoo would have survived the early construction of the zoo.

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. 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 potential for the survival of historical archaeological relics across the Taronga Zoo site, including within disturbed profiles.

This HAA has established that:

- The greatest surface disturbance associated with the proposal relates to the proposed excavation works for the ground floor of the RACC, which is located within the footprint of the former 'Seal Show' structure and Penguin Pond in this location. These features do not meet the threshold for local significance as they reflect a recent and well-documented period of the Zoo's development.
- Landscaping is proposed within the footprint of the former Platypus (and later Coypu) enclosure (1939) and stepped path along the western boundary (c.1915). No significant earthworks are proposed in this location and disturbance of these early features is considered unlikely.
- Landscaping works are proposed for the eastern portion of the subject area. The interior of the larger aviary will be landscaped and the smaller aviary will be repurposed into a footpath providing equitable access into the RACC. There is some potential for these works to disturb the subsurface footings and foundations of the former aviaries which were dismantled in 2009. The demolition of a portion of the former aviary walls also presents as a minor impact, however, not one which would significantly compromise the interpretation of these early features.

6.2.2.3. Management Recommendations and Mitigation Measures

Based on the above conclusions, the following recommendations are provided:

- For proposed surface disturbance within the south-western portion of the subject area and interior of the extant aviary walls, close monitoring should be undertaken by a suitably qualified archaeologist. In general, archaeological monitoring should adhere to the following:
  - Demolition should be undertaken in such a way as to minimise impacts to foundations and subsurface structures. The archaeologist should initially be consulted about the proposed demolition methodology.
  - An archaeologist should be present at all times during the lifting of current hard surfaces, excavation and/or other activities that result in ground disturbance.
  - Where a mechanical excavator is used, it must have a flat or mud bucket, rather than a toothed bucket, to ensure a level ground surface.
  - All machinery should work backwards from a slab surface in order to avoid damage to any exposed archaeological relics.
  - Fills should be removed sequentially in reverse order of deposition, starting with any imported fill and overburden, which reflect the archaeological stratigraphy and as instructed by the archaeologist.
  - If archaeological relics are identified by the monitoring archaeologist, work must stop immediately.
- For proposed surface disturbance, including excavation for the RACC and landscaping works throughout the remainder of the subject area, a Chance Finds Procedure should be implemented.
- Although considered highly unlikely, should any Aboriginal objects, archaeological deposits be uncovered during any site works, a Chance Find Procedure must be implemented.
- In the unlikely event that human remains are uncovered during any site works, a Human Remains Procedure must be implemented.

6.2.3. Aboriginal Archaeology

6.2.3.1. Overview and Methodology

An Interim Aboriginal Cultural Heritage Assessment (**ACHA**) been prepared by Urbis to analyse the potential impacts on items of Aboriginal significance (**Appendix K**). A Full Aboriginal Cultural Heritage Assessment will be completed prior to the determination of the SSDA in response to the requirements of the SEARs. This assessment has been carried out in accordance with the following guidelines:

- *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (Department of Environment, Climate Change and Water (DECCW), 2010) (the Consultation Guidelines).
- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in* NSW (Office of Environment and Heritage 2011) (the Assessment Guidelines).
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010) (the Code of Practice).

As part of the ACHA, contact was made with the Taronga Aboriginal Advisory Group (TAAG) and relevant Registered Aboriginal Parties (RAPs) to identify, notify and register Aboriginal people who hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places in the subject area. During the design development process, the TAAG and various RAPs were invited to comment on draft plans and attend site inspections to discuss the site and the project. This process provided the opportunity for comments regarding cultural heritage to be heard and received.

6.2.3.2. Assessment

While there are a number of Aboriginal archaeological sites, within the wider regional context, no Aboriginal objects and/or places are registered on the Aboriginal Heritage Information Management System (AHIMS) within or in close proximity to the subject area. The subject area is upon the Bradley's Head Peninsula which

is identified by RAPs as culturally significant, with generally high cultural significance identified for the whole Zoo site. No specific cultural heritage values have been identified as associated with the subject area.

During site investigations, an outcrop of sandstone was identified in the revegetated area north of the current meerkat enclosure. This sandstone boulder has been investigated to establish any potential cultural significance associated with it. It is noted in the ACHA, that the sandstone appears to be modified and not in-situ, with evidence of interference in the form of vertical drill marks on the western and northern side of the boulder and a pole which has been drilled through it. The boulder was likely broken from its original location, assumed to be to the north of the current subject site, and relocated downhill through pushing or natural erosion following detachment. It is unknown at what time this occurred, as no photos or plans showing the boulder were identified. No Aboriginal art was identified on the boulder.

This sandstone boulder is proposed to remain on site and will be relocated within the landscaped area to the east of the RACC entrance. During on site discussions with RAPs, the sandstone boulder was mentioned and it was confirmed that the removal of the boulder and re-use in landscape design for the new development was appropriate.

The subject area is located within Zones 4 and 5 of the Taronga Zoo CMP prepared by GML in 2004. These areas are described as ‘Areas which has previously been excavated down to bedrock, or culturally sterile soil profiles’ and ‘Areas heavily modified by European development’. The site is identified as containing low-medium potential in areas zoned 4 and nil potential in areas zoned 5.

Overall, the subject area has experienced high to extreme levels of disturbance associated with the clearance of vegetation, the construction and demolition of Zoo facilities, including the 1970s ‘Seal Show’ structure and the penguin pond, road and path construction, and the bulk excavation of the site and introduction of fill to create the terraced profile. Existing facilities including the meerkat enclosure will also have resulted in considerable disturbance. Where disturbance is high, particularly across the wider Taronga Zoo grounds, Aboriginal archaeological potential is generally diminished.

In summary, the archaeological potential of the subject area have been determined to be generally low.

6.2.3.3. Management Recommendations and Mitigation Measures

Based on the above conclusions, the following recommendations have been provided:

- Due to the identified presence of sandy deposit below the sandstone boulder present within the subject area there is low-moderate Aboriginal archaeological potential in this area. The removal of the boulder should therefore be subject to archaeological monitoring in consultation with Registered Aboriginal Parties (RAPs).
- Should the sandy deposits on the boulder be identified as extensive, test excavation should occur in this area to identify the presence/absence of artefactual deposit. Should intact deposit be found, an Archaeological Research Design and Excavation methodology should be prepared to inform the archaeological excavation.
- It is recommended that induction materials be prepared in consultation with the RAPs for inclusion in the construction management plan and site inductions for any contractors working at the subject area. The induction material should include an overview of the types of sites and artefacts to be aware of (i.e. stone tools, concentrations of shells that could be middens and rock engravings and grinding grooves), under the NPW Act, and the requirements of an ‘archaeological chance find procedure’ (refer below). This should be prepared for the project and included in any site management plans.
- Although considered highly unlikely, should any Aboriginal objects, archaeological deposits be uncovered during any site works, a Chance Find Procedure must be implemented.
- In the unlikely event that human remains are uncovered during any site works, a Human Remains Procedure must be implemented.

6.3. TRANSPORT, TRAFFIC, PARKING AND ACCESS

6.3.1. Overview

A Traffic Impact Assessment (**TIA**) has been prepared by GTA Consultants, enclosed in **Appendix L** to assess the anticipated transport implications of the proposal during operational and construction stages.

6.3.2. Parking

6.3.2.1. Existing

The site currently accommodates 846 car parking spaces within the multistorey car park on site and an overflow parking area on site. The results of the parking analysis undertaken by GTA based on date from TCSA indicate that the historical 85th percentile peak parking occupancy was 618 spaces with minimum of 216 available car parking spaces. The number of days which the parking demand exceeded the capacity was in average of five to six days over a one-year period.

Mosman Council's DCP does not specify a car parking rate for zoos or similar uses. Similarly, the RMS *Guide to Traffic Generating Developments* does not specify a parking rate for the proposed uses. The proposed works involve the redevelopment of an existing exhibit of the zoo. Further, the site area for the zoo will not increase and the proposal is essentially a replacement of an existing exhibit, and therefore the proposal would not intensify the existing visitation numbers.

6.3.2.2. Proposed

The RACC is not expected to generate any increase in parking demand over the long term. The existing multistorey car park would have sufficient capacity to accommodate the anticipated 85th percentile additional peak parking demand of 62 spaces associated with the temporary increase in parking demand associated with the initial opening weeks visitation surge. The proposed reptile and amphibian exhibit is not expected to generate any increase in parking demand over the long term, as the animals that will inhibit the RACC are already present in the zoo's existing exhibit. While, the proposal involves redeveloping and relocating existing animal exhibits, the zoo is not increasing in size.

Therefore, the proposal will not be required to provide any additional onsite car parking with additional capacity to accommodate a temporary increase in expected parking demand during the initial weeks following the opening of the redeveloped exhibit and as such it is not anticipated that mitigation measures are necessary.

6.3.3. Traffic Generation

The average site peak hour traffic generation of the zoo has historically been approximately 250 and 310 vehicles during the peak period between 1:00pm and 2:00pm on weekdays and weekends, respectively. The temporary increase in traffic generation is then expected to be some 38 to 43 additional vehicles per hour during the site peak hours. This equates to less than one additional vehicle per minute.

Further analysis has been undertaken to assess any temporary changes in traffic generation caused by an initial surge in visitation and the reopening of the Wildlife Retreat during morning and afternoon commuter peak. During these road network peak hours, the additional traffic generation is expected to be some 21 to 39 vehicles per hour during the typical site peak hour. For this temporary period, this equates to less than one additional vehicle every two to three minutes. It is expected that the local traffic conditions near the site would not be affected by this temporary increase and as such it is not anticipated that mitigation measures are necessary.

The operation of the key intersections of Bradleys Head Road and Whiting Beach Road have been assessed using the SIDRA model to identify any impacts on traffic generation post-development. Based on the assumption that 80% of additional traffic would use Bradleys Head Road and 20 per cent via Whiting Beach Road in either direction, the Level of Service remains at a Level A LOS for these intersections and local traffic can operate satisfactorily without any mitigation measures.

It should be noted that due to the current COVID-19 pandemic, the majority of recent visitors to Taronga Zoo have travelled via private vehicles rather than public transport due to social distancing requirements. It is expected that the local traffic conditions near the site would not be affected by this increase in private vehicles as numbers are far below peak capacity for the Zoo.

6.3.4. Green Travel Plan

A Green Travel Plan is a package of measures aimed at promoting sustainable travel and reducing reliance on the private car for staff and visitors to the zoo.

A Green Travel Plan and Transport Access Guide (**TAG**) have been prepared for previous SSDAs on site including the Taronga Institute of Science and Learning which outlines travel modes for staff and visitors and set targets and measures to increase use of public transport and carpooling for the new facility. The redeveloped RACC exhibit is not expected to increase trips to Taronga Zoo in the long term or have the capability to change travel patterns to and from Taronga Zoo. Furthermore, the proposal will not increase staff numbers at the Zoo, with only a 10 per cent increase in visitation expected in the first few weeks after exhibit opening before returning to regular traffic generation.

The TIA recommends that the current TAG and Green Travel Plan are updated to account for any changes once operation and staff numbers are normalised based on a new travel mode and staff residence survey. This survey will allow for TCSA to review the modes of transport into the zoo and adjust strategies and transport initiatives accordingly. numbers are normalised following the current health situation based on a new travel mode and staff residence survey to reset mode share targets and adjust strategies and transport initiatives accordingly.

6.3.5. Pedestrian and Cyclist Safety

Pedestrian and cyclist access to the Zoo will remain the same as current arrangements during both construction and operation of the RACC. It is anticipated that proposal may attract some additional walking and cycling trips during the first few weeks after the opening of the redeveloped exhibit. However, the additional trips will not impact on the existing pedestrian and cycling facilities in the area.

The impact of the additional vehicular traffic arising from the development during construction and first few weeks of the RACC opening would have minimal impact on existing walking and cycling on the surrounding road network.

Similarly, the proposal would generate some additional trips utilising the existing public transport system. It is expected that these trips would be modest and are unlikely to result in any additional capacity stress on current public transport systems in the area.

6.4. NOISE AND VIBRATION

6.4.1. Overview

An Acoustic Assessment has been prepared by Acoustic Studio (**Appendix M**) assessing the potential noise impacts associated with the proposed development. The nearest residential premises are located along Bradleys Head Road, with the nearest residences approximately 200 metres from the site at 1 Bradleys Head Road and 2 Whiting Road. Only receivers outside the Taronga Zoo grounds have been considered within this report.

6.4.2. Methodology

In order to assess ambient and background noise levels at the site, Acoustic Studio have undertaken noise surveys within the site and at the nearest noise sensitive receivers, from May 2021 to supplement data obtained previously in April and May 2017. The noise logger data was processed according to the *Noise Policy for Industry* (NPfI). In addition, Noise emissions from patrons and sound systems utilised the City of Sydney Standard Conditions of Development Consent. It is noted that the 2017 and 2021 data were generally consistent with the additional data from May 2021.

Acoustic Studio have also utilised, *the EPA Interim Construction Noise Guideline* (ICNG, 2009) to assess construction noise and provide mitigation measures. The methodology for construction noise impacts included:

- Noise predictions at receiver boundaries have been carried out for each piece of equipment that may be used during major works.
- Each piece of equipment is modelled as a point noise source.

- To provide a worst case Leq (15min) prediction, it is assumed that equipment is used continuously over the assessment period.
- It is assumed that works activities in various parts of the site may be carried out simultaneously.
- In accordance with the proposed work hours, noise predictions are to be compared with weekday Day-time, Saturday 6-7am, and Saturday 7am to 1pm noise management levels.
- Vibration risks have been assessed at a high level, based on measurements taken at other construction sites.

6.4.3. Operational Noise

Acoustic Studio provided an operational noise assessment associated with the following potential noise sources:

- Patron Noise
- Mechanical and Services Noise
- Public Address System Noise
- Traffic Noise

Acoustic Studio confirm that given that the nearest residential receivers are over 200 metres away, noise from these sources would be inaudible at all residential receivers located outside the Zoo premises. The minor increase in traffic when the exhibit opens and is in operation would not result in perceivable noise impacts. As the proposal involves redevelopment of an existing animal precinct, there is no perceived impacts to surrounding sensitive noise receivers above the day to day operational expectations of the Zoo.

6.4.4. Construction Noise and Vibration

The dominant noise sources for each phase of construction identified in the Acoustic Assessment are outlined below:

- **Site preparation and set up, including site amenities** – Generators, Trucks, Hammers, Hand tools.
- **Excavation and Piling** – Rock breaker, Excavator, Concrete saws, Piling, vibratory, Truck, Jackhammer, Hammer / Percussive drill, Removal of building waste, Compactor.
- **Construction of new buildings and enclosures** – Truck, Crane, Hand tools, Removal of building, waste
- **Landscaping -** Truck (tipping fill), Compactor, Crane, Diggers, excavators, Hand tools, Asphalt paver

All works will be conducted over 200 metres distant from the nearest residential receivers. There is no risk of structure-borne noise at the nearest residential receivers due to the distance attenuation through ground between works and receiver buildings.

In relation to construction traffic noise, this would be undertaken in accordance with the approved hours. Acoustic Studio confirm, that based on a minimum attenuation of 10 dB(A) with windows open, the short-term external noises of 60 to 65 dB(A) are unlikely to cause awakening reactions. In addition, external levels of 75 to 80 dB(A) are unlikely to affect health and wellbeing significantly, provided that these events occur no more than twice in one night.

While there is potential for some exceedances in relation to construction noise and vibration, Acoustic Studio confirm that exceeding the Noise Management Levels (NML) is not considered a “non-compliance”, but rather leads to the requirement to consider reasonable and feasible mitigation. When applying key mitigation measures (including hoarding) the resulting noise levels may be up to 3dB above the NML at the nearest residential receiver. This is considered to be a marginal impact. Further mitigation measures are discussed below.

6.4.4.1. Management Recommendations and Mitigation Measures

To minimise impacts on surrounding noise sensitive receivers, the following recommendations are outlined in the Acoustic Assessment prepared by Acoustic Studio (**Appendix M**) and the Construction Management Plan prepared by RPS (**Appendix V**):

- Noise emissions from general maintenance and cleaning activities may need management controls such as time restrictions particularly for external area maintenance activities.
- Truck access should be limited to designated time periods and site access gates should be as far as possible from sensitive enclosures and well-used walkways.
- Provide information to affected neighbours and zoo patrons before and during construction as required.
- Maintain good communication between the community and project staff.
- Have a documented complaints process and keep register of any complaints.
- Hoarding around the work site, and local enclosures of noisy plant or activities. Constructing upper storeys of the building, enclosed swing stages on scaffolding should be used. These will also provide noise control for animal exhibits such as the adjacent Gorilla enclosure.
- Selection of quieter plant, including a commitment to use petrol rather than diesel generators if generators are required.
- Use of electric rather than pneumatic or petrol hand tools where possible.
- Selection of quieter methods where possible and appropriate, particularly for piling and jackhammering
- Selection of low vibration work methods where possible and appropriate.
- Vibration monitoring and management controls for historic and heritage structures.

Acoustic Studio have confirmed that provided these recommendations are adhered to it is anticipated that the RACC construction and operations will have no adverse noise impact at the nearest residential receivers.

6.5. ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT AND CLIMATE CHANGE

The *Environmental Planning and Assessment Regulation Act* 1979 (EP&A Act) adopts the definition of ecologically sustainable development (ESD) from section 6(2) of the *Protection of the Environment Administration Act* 1991. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

(a) The precautionary principle
(b) Intergenerational Equity
(c) Conservation of biological diversity and ecological integrity
(d) Improved valuation, pricing and incentive mechanisms

An Environmentally Sustainable Development (ESD) Report has been prepared by LCI Consultants (**Appendix N**) for the proposed works, in response to SEARs. The report identifies the design initiatives and features of the proposed development that hold the potential to reduce the overall environmental impact.

6.5.1. Methodology

The RACC has utilised the Green Star Design and As-built V1.3 rating tool as a framework to guide the project in aligning with ‘Australian Best Practice’ and targeting initiatives that exceed relevant sustainability performance standards, such as the National Construction Code 2019 Section J Energy Efficiency Provisions.

The Green Star Design and As-built rating system provides a framework to assess how a building reduces its impact on the environment while meeting the economic and social needs for its occupants and surrounding communities. Green Star's goal is to "lead the sustainable transformation of the built environment", by encouraging practices that:

- Reduce the impact of climate change.
- Enhance the health and quality of life of inhabitants and the sustainability of the built environment.
- Restore and protect the planet's biodiversity and ecosystems.
- Ensure the ongoing optimum operational performance of buildings.

- Contribute to market transformation and a sustainable economy.

6.5.2. Assessment

Sustainability and ESD forms a core part of the Zoo operations and is key to their current and future strategic plan. The current strategic plan commits the Zoo as a leader in conservation, protecting wildlife and empowering people to secure a sustainable future for the planet. Key sustainability objectives and initiatives under the current strategy include:

- 90% waste diversion from landfill and 20% reduction in energy use
- Reduction in water use
- Meaningful engagement with the supply chain
- Support for the United Nations Sustainable Development Goal – Particularly Quality Education, Life Below Water, Life on Land, Climate Action, Sustainable Communities and Responsible Consumption
- Retaining carbon neutral status
- Climate change resilience

6.5.3. Mitigation Measures

Specific ESD initiatives and strategies which have been considered during the design development of RACC to maximise sustainable design opportunities from project design through to construction and operation are outlined below:

- Establish environmental performance targets for energy and water conservation, and reporting and tracking of consumption.
- Incorporating low-impact materials, locally sourced materials, and recycled materials into the project's design to reduce overall emissions and improve the overall life cycle of the project.
- Implement indoor environment quality strategies to improve occupant comfort and wellbeing. The strategies seek to address visual comfort, thermal comfort, indoor air quality and acoustic comfort including:
  - Design and installation of mechanical services in line with best practice design to reduce pollutants from sources and dust/particulates during installation. Provision of increased outdoor air to appropriate spaces and exhaust of indoor pollutants / procurement of low emitting printers and photocopiers.
  - Specification of low VOC paints, adhesives, sealants and carpets (where appropriate). Specification of low formaldehyde engineered wood products.
  - Design of building fabric to assist with improved thermal comfort, through appropriate window to wall ratios, insulation level, window U-values and solar control performance.
  - Implement electrolysed water (E-water) dispenser to reduce chemical footprint for animal food prep areas.
- The RACC has adopted the hierarchy approach in reducing energy and water use. The hierarchy approach seeks to:
  - Systematically targeting building energy use through passive means first, then supported by efficient active systems and renewable energy.
  - Reduce potable water demand, then supported by efficient distribution systems and recycled water / non-potable water sources.
- The following materials and construction waste strategies have been considered for the RACC to increase the uptake of environmentally preferable materials with a focus on reuse and recycle content, reduced embodied energy, greater transparency, and reduction of waste to landfill.

Combining the design initiatives and strategies noted in the ESD Report, the proposal can reduce its environmental impact, providing a suitable sustainability outcome aligning with the strategic plan for the Zoo.

6.6. CONTAMINATION

6.6.1. Overview

Douglas Partners were engaged to prepare a Preliminary Site Investigation at **Appendix T**. The Preliminary Site Investigation was undertaken to:

- Assess the previous land uses and likely subsurface conditions to determine the potential for soil and groundwater contamination on the site.
- Provide a preliminary assessment of the suitability of the site for the proposed development.
- Provide recommendations for additional investigation, if required.

6.6.2. Methodology

The Preliminary Site Investigation has been prepared using a methodology to address the requirements of State Environmental Planning Policy No 55 – Remediation of Land. The overall approach for the Preliminary Site Investigation included:

- Review various historical documents including aerial photographs, historical title deeds, the EPA Contaminated Land register and groundwater bore licences to determine the nature of previous activities that may have occurred on the site.
- Undertake a site inspection.
- Drill four boreholes, collect soil samples and undertake laboratory analysis for a range of common contaminants.
- Provide a Preliminary Site Investigation report which comments on the historical uses of the site, the potential for soil and groundwater contamination to be present, and provides recommendations for follow up action (if required)

6.6.3. Assessment

Douglas Partners confirm that there are no clear indicators of contaminating activities on the site other than imported fill and in the later years demolition of buildings that may have contained asbestos-containing material. Obvious sources of contamination were not identified during the inspection and site testing.

Testing results indicate the contaminant concentrations in the soil samples analysed were all within the adopted site assessment criteria, in particular health-based and ecological based screening levels. Only two samples recorded exceedances. Douglas Partners outline that these two samples had B.TEQ exceedances and were located outside the site area. The most likely cause of this exceedance was trace ash contamination.

If these exceedances were encountered within the site, remediation would be required.

Asbestos was not encountered in the current soil samples, however, asbestos is known to be present in areas within the zoo.

6.6.4. Mitigation Measures

Measures to mitigate the impact of the environmental impact of removal of any potential contaminating materials are as follows:

- Any materials encountered that are deemed unsuitable will need to be removed as part of the construction process. It is suggested that a further five sample points be tested in accordance with relevant guidelines. This could be undertaken following demolition and removal of pavements from the site.
- An Asbestos and Unexpected Finds Protocol should be incorporated into the Environmental Management Plan for the project so that procedures are in place for handling asbestos and any suspected ash contamination if encountered during construction.

- The natural rock below the fill can be described as virgin excavated natural material (VENM) upon excavation, providing they are not cross-contaminated during excavation works. VENM can be transported to a site for use as filling rather than requiring disposal at landfill.
- All materials requiring removal from the site will need to be classified in accordance with Waste Classification Guidelines (NSW EPA, 2014). The demolition contractor should ensure that the demolition works are undertaken in an appropriate manner and that cross-contamination of the site does not occur.

6.6.5. Summary

On the basis of the results of this Preliminary Site Investigation, Douglas Partners confirm there is little evidence that previous activities have occurred that have a high potential for causing soil and groundwater. Nevertheless, any existing fill that is present on the site will need to be assessed for the presence of asbestos materials during construction.

Douglas Partners confirm that the site can be made suitable for the proposed development. However, further investigation would be required to fully characterise the site and assist in waste classification. This will be undertaken following demolition and removal of materials from the site. Any materials encountered that are deemed unsuitable will need to be removed as part of the construction process.

6.7. FLOODING

6.7.1. Overview and Assessment

A Flood Impact Assessment has been prepared by Meinhardt Bonacci at **Appendix R**. The Flood Impact Assessment identifies seven upper catchments within the Taronga Zoo site. Based on these catchments and analysis of existing topographic contours and levels on site, the contributing overland flows on site were found to have no impacts on the RACC site. The assessment concludes that the RACC site should be found free from flooding due to the northern footpath which will convey runoff from a major storm event to further west of site.

In summary, the RACC site has little to no flood affectation due to the sloping nature of the site towards Sydney Harbour.

6.7.2. Mitigation Measures

Based on the low amount of risk relating to flood impacts, no additional mitigation measures are proposed in relation to flooding. Flooding will be generally managed as part of the overall stormwater management for the site, as identified in **Section 6.8** of this report.

6.8. STORMWATER DRAINAGE AND WATER QUALITY

6.8.1. Overview

A Stormwater Management Plan has been prepared by Meinhardt Bonacci at **Appendix R**. The report outlines the proposed stormwater drainage system and WSUD strategy for the proposed development. The following design features were assessed in the report:

- Stormwater Management System Design
- Stormwater Treatment System
- Soil and Erosion Management

6.8.2. Methodology

Meinhardt Bonacci in undertaking the assessment, undertook a desktop review and site inspection to determine the drainage infrastructure and overland flow paths within the site. This revealed the following elements of the existing stormwater infrastructure:

- The existing site slopes diagonally from northeast to southwest at an average fall of approximately 8%.
- There is a network of existing inground stormwater pits and pipes primarily around the perimeter of the site.

- The existing stormwater drainage connects into the existing grated pit located to the southwest corner of the site.
- The existing stormwater networks reticulate the captured stormwater to the existing stormwater treatment plant.

Mosman Council's general design parameters for stormwater drainage and Best Practice Environmental Management Guidelines (BPMEG) for pollution reduction targets have also been adopted in preparing the Stormwater Management Plan.

6.8.3. Assessment

6.8.3.1. Proposed Stormwater Drainage

Meinhardt Bonacci have outlined the following drainage system is proposed as part of the development:

- The proposed Level 1, Level 2 and roof catchment will be captured by downpipes that will transition through the building to the proposed inground stormwater drainage on ground floor.
- The ground floor drainage will be retained along the northern perimeter of the proposed building.
- All proposed stormwater drainage for the site will be captured by a network of inground pits and pipes connecting to existing downstream internal stormwater drainage of the zoo and discharge via gravity.
- The existing stormwater pits along the northern title boundary will be relocated as they are within the proposed building layout.
- The existing drainage to be relocated will be shifted to the abutting bitumen road to the north of the proposed title boundary.

6.8.3.2. Post Development Site Discharge

Meinhardt Bonacci outline the increase in post development discharge is approximately 30%. Nevertheless, consultation has occurred with Mosman Council's drainage engineers which confirmed, in principle, that Council has no objections to the proposed drainage strategy as the drainage connection is to private internal drainage, with no impact on Council assets.

6.8.3.3. Water Sensitive Urban Design (WSUD)

The proposal will meet the following pollution targets in accordance with Best Practice Environmental Management Guidelines (BPMEG):

- Total Suspended Solids 80%
- Total Phosphorous 45%
- Total Nitrogen 45%
- Litter 70%

Taronga Zoo has an existing Wastewater Treatment Plant (WWTP) where the proposed stormwater drainage will be treated. This is located to the south west corner of the zoo and meets these WSUD requirements (**Figure 18**). All stormwater drainage is treated in the above mentioned treatment plant before being discharged into Sydney Harbour. There are no stormwater connections into Mosman Council drainage assets.

Figure 17 – Existing Waste Water Treatment Plant

Source: Meinhardt Bonacci

6.8.4. Mitigation Measures

6.8.4.1. Erosion and Sediment Control

Erosion and Sediment Control Plans have been provided within the Stormwater Management Plan. All sediment control measures to be installed in accordance with *Landcom Managing Urban Stormwater ''Blue Book*'', mitigation measures have been provided and are not limited to:

- The site access for construction vehicles will be provided from the roads adjacent to the site area, from north and south through temporary construction vehicle shaker ramps with a cattle grid.
- All exposed earth areas where it may be possible for runoff to transport silt down slope shall be protected with a sediment and erosion control silt fence generally installed along the boundaries of the site.
- Site runoff within the zones of the excavation will be drained into a central holding well within the excavation.
- It will be the responsibility of the contractor to ensure sediment and erosion control devices on site are maintained. The devices shall be checked daily, and the appropriate maintenance undertaken as necessary.

6.9. GROUND CONDITIONS

6.9.1. Overview

Douglas Partners have prepared a Geotechnical Investigation at **Appendix S**. The geotechnical investigation was undertaken to provide information on subsurface conditions on the site and included the drilling of four cored boreholes and five dynamic cone penetration tests (DCPs), as well as laboratory testing and engineering analysis.

6.9.2. Methodology

Four cored boreholes were drilled to depths of between 5.5 m and 12.0 m. The boreholes were created using solid flight augers to drill through the soil to the top of rock. When this rock was encountered, core drilling equipment for 50mm diameter continuous samples of the rock were obtained for identification and strength testing purposes.

In addition, five dynamic cone penetration tests (DCPs) were carried out at depths of between 0.3m and 2.4m in the sloping area that was inaccessible to the drilling equipment.

6.9.3. Assessment

Douglas Partners conclude that the site is underlain by varying depths of fill overlying sandstone bedrock. The bedrock was generally medium strength or high strength. More specifically, the boreholes encountered:

- Typically, concrete was found over sandy fill to depths of about 2.1 m in the upper boreholes, synthetic grass or pavers over gravelly or clayey sand and clay fill to depths of about 1.1 m in the lower boreholes.
- Sandstone bedrock from depths of between 1.1 m to 2.1 m to the base of the bores at 5.5 m to 12.0 m depth. The rock was generally medium and high strength.

Douglas Partners note that natural soils were not encountered in the boreholes. Groundwater was also not observed whilst preparing boreholes. The groundwater table is likely to be well below the bedrock surface.

Based on this assessment, excavation in the fill and any soil or very low and low strength sandstone encountered should be readily achievable using a hydraulic excavator with bucket attachment. However, Douglas Partners outline excavation in medium and high strength sandstone will require ripping, hammering and/or sawing.

6.9.4. Mitigation Measures

The following recommendations and mitigation measures are proposed during excavation and construction:

- Areas of the site that require filling to raise site levels should be stripped of vegetation and existing fill materials prior to proof-rolling with a minimum 10 tonne steel smooth drum roller.
- Any areas exhibiting significant heaving should be assessed by a geotechnical engineer to determine any rectification measures that may be required.
- Proof-rolling will not be required if the subgrade is low, medium or high strength sandstone bedrock.
- Density testing should be undertaken in accordance with the Australian Standard on earthworks for commercial and residential developments.
- It is expected that shallow footings or short piles or both would be required to bear on bedrock.
- All new footings should be inspected by an experienced geotechnical professional to check the suitability of the foundation material, and in the case of bored piles the socket roughness and the base cleanliness.

6.10. SOCIAL AND ECONOMIC IMPACTS

The proposed development will result in the redevelopment of an existing animal precinct within Taronga Zoo. The proposed works aim to continue the work of the Zoo to educate and provide world class animal care and exhibits.

6.10.1. Social Impacts

The RACC Facility will ensure that Taronga Zoo can continue to provide world class animal welfare and education programs for both domestic and international visitors. The proposed works will result in a new and improved animal exhibit at the Zoo that the public will be able to enjoy. Overall, the project will improve the visitor experience with superior engagement between visitors and animals as well as innovation in animal welfare.

The current Reptile World, known as the Serpentaria at the Taronga Zoo Sydney site has reached the end of its useful life and a new facility is required. The relocation of the Serpentaria will also ensure that the Zoo can increase and improve the current Wildlife Hospital facilities on site. This will form part of a separate SSDA to be lodged shortly with DPIE.

6.10.2. Economic Impacts

The RACC Project has been fast-tracked by TCSA as a priority project as a result of the unforeseen COVID-19 pandemic, which has significantly impacted Zoo visitation and revenue in 2020/21.

The RACC has been partially funded as part of the NSW 2021-22 budget to ensure that NSW's tourism industry can continue to recover from COVID-19. The project will deliver genuine economic benefits in these challenging times, particularly in creating full-time jobs during construction, and will sustain direct and indirect jobs during its ongoing operation.

6.11. WASTE AND SERVICING

TSCA is committed to ensuring its waste is managed in an environmentally responsible manner and in accordance with legislative requirements, increased resource recovery and minimising environmental impact. All waste generated from the RACC exhibit will be managed in accordance with TCSA's waste management policies and the Zoo's Operational Waste Management Plan enclosed in **Appendix U.**

6.11.1. Demolition and Construction Phase Waste Management

A Construction Waste Management Plan (**CPTMP**) forms part of the Construction Management Plan prepared by RPS (**Appendix V**). The report outlines mitigation measures to ensure the maximum amount of waste material resulting from demolition and early works construction activities are reused and/or recycled to reduce the environmental impact of waste disposal.

The Contractor will be encouraged to implement the following initiatives to ensure waste minimisation:

- Special attention in design and the estimating of materials to minimise waste on-site in off-site fabrication of components for the building.
- Separate building waste from other stockpiled materials in an allocated area on site.
- Separate waste streams on site and place into clearly labelled collection bins for each waste stream.
- Minimise site disturbance and limit unnecessary excavation.
- Implement measures to prevent damage from the elements, odours, health risks and windborne litter.

The appointed contractor shall remove from site rubbish resulting from the works. Rubbish shall be handled in a manner to cover the material and to minimise dust emissions and disposed of in accordance with management plans. The Contractors will ensure facilities, grounds and adjacent properties or public areas are not used for the disposal of rubbish from site.

The Contractors will engage a waste removal consultant to manage and recycle all waste that leaves the project. To encourage recycling, bins will be located close to areas of work and in a position where access for removal by trucks is possible.

6.11.2. Operational Waste Management

An Operational Waste Management Plan has been prepared by Taronga Conservation Society Australia (**Appendix U**). The report outlines that SUEZ Australia have been engaged as the waste operators for the overall Zoo to increase the amount of waste diverted from landfill via processing through alternative waste

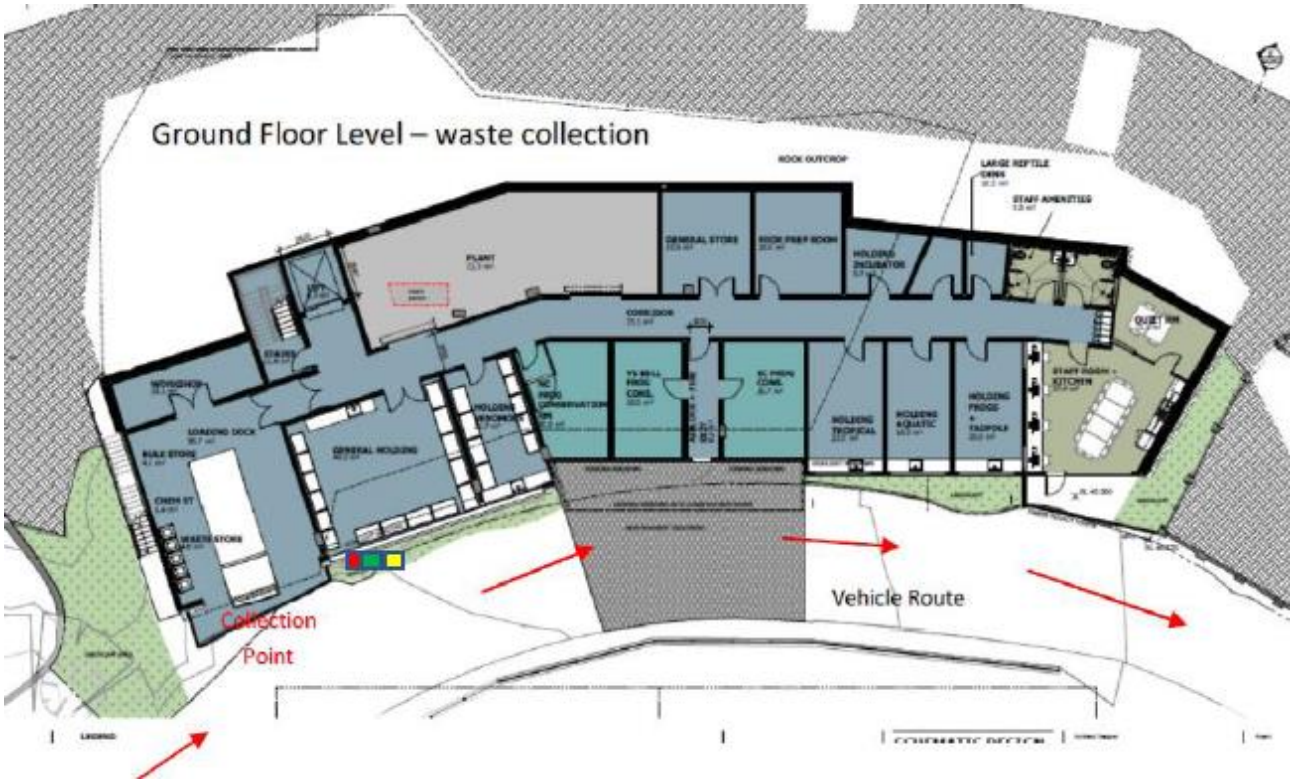
recycling and treatment facilities. All waste and recycling activities are carried out in accordance with the guidelines and laws of the NSW EPA. In all cases only lawful and approved waste facilities are utilised.

Bin collection procedures will not change on site and collection will occur daily at both bin collection areas located along the northern and southern footpath bounding the RACC illustrated in **Figure 19**. **Table 7** provides an outline of general waste types and quantities across the precinct including back of house (BoH) animal care facilities and publicly accessible areas.

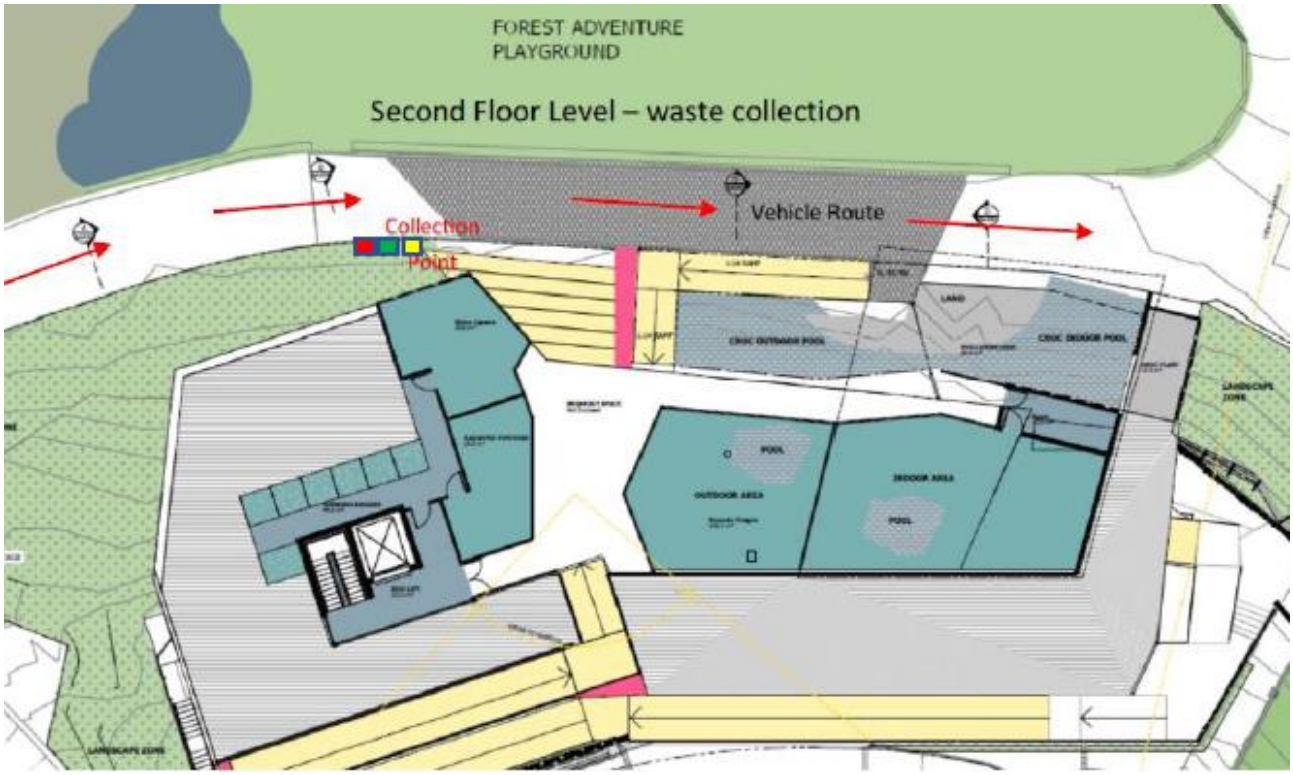
Table 7 – Operational Waste Collection details

Workspace	**Waste type**	**Bin Size**	**Collection frequency**	**Estimated quantity per week**
Animal Exhibits	▪ General waste ▪ Comingled recyclables ▪ Animal waste ▪ Organics	240 litre (120L for food organics)	Weekly/on call	50-100 kgs
Public viewing and circulation	▪ General waste ▪ Comingled recyclables ▪ Compostable packaging	240 litre / type	Daily	175 kgs
Staff areas	▪ General waste ▪ Comingled recyclables ▪ Animal waste ▪ Organics	240 litre / type (120L for food organics)	Daily	50-100 kgs
Ground Floor Animal Holding Rooms	▪ General waste ▪ Comingled Recyclables ▪ Compostable packaging ▪ Anatomical waste ▪ Clinical waste and sharps	240 litre / type + 5 litre container for sharps	Daily (monthly for clinical waste)	100-175 kgs
Food Preparation Areas (for animals)	▪ General waste ▪ Comingled Recyclables ▪ Organics	240 litre / type (120L for food organics + 10L for meat or anatomical waste)	Daily	175 kgs

Figure 18 – Waste Collection Points



Picture 13 – Ground Floor Waste Collection Area



Picture 14 – Second Floor Waste Collection Area

Source: TSCA

6.12. INFRASTRUCTURE AND UTILITIES

CNF & Associates have prepared a Building Services Infrastructure Report at **Appendix W**. The following services have been provided.

6.12.1. Electrical Services

The RACC will be supplied with electrical power from the existing zoo power distribution system's substation Four, located to the south of the proposed development. The total maximum demand is 186.95kW and can be provided via a new submain feeder. It is confirmed that Substation Four has adequate capacity.

6.12.2. Mechanical Services

RACC will be serviced with its own Heating, Ventilation and Air Conditioning (HVAC) systems. The HVAC systems will provide ventilation for the Plant Room and other Back of House (BOH) areas and air conditioning for staff areas in the Back of House as well as all animal exhibit areas and rooms.

The animal exhibit rooms have a wide range of temperature and humidity requirements which differ significantly from the BOH areas which are air conditioned. In response, the design has adopted a segmented approach with six separate air conditioning systems installed in the plant room and ducted to the required areas. Heating and cooling calculations were undertaken for all air-conditioned spaces and each space allocated to an air conditioning unit selected to deliver the required load optimally.

Additionally, to provide adequate ventilation, the design will provide total of 18 wall-mounted fans will be required to provide 12 air changes per hour for all enclosed areas. The air volume that is moved mechanically throughout the facility will be 3.86m3/s.

The facility's new HVAC services will operate as a stand-alone system, so no connection to any existing mechanical services is required.

6.12.3. Hydraulic Services

Three water systems are required and will be provided, these include:

- Potable Water
- Dechlorinated Water
- Reverse Osmosis Water

An existing potable water mains line has been identified running to the south-west corner of the new facility.

The main potable water line feeding the new centre will need to provide source water for the Dechlorinated Water and RO Water systems installed in the plant room. A single 100mm diameter potable water service will provide adequate capacity to the facility (operating at a flow velocity of under 2.5m/s).

As normal operations will include regular draining and washdown/hose down of the exhibit pools, a 150mm drain manifold will be provided to run adjacent to all exhibit rooms. Floor drains and pool overflow connections will also be connected to the drain manifold but will not be able to be isolated.

6.13. BIODIVERSITY

6.13.1. Overview

A Biodiversity Development Assessment Report (**BDAR**) has been prepared by Narla Environmental (**Appendix X**) to identify the potential impacts of the proposed development on biodiversity values.

6.13.2. Methodology

The BDAR was produced using the 'Streamlined Assessment Module' as it does not exceed the area clearing threshold for small area developments as outlined in the *Biodiversity Assessment* (2017).

A thorough literature review was undertaken to gain an insight into the ecology and applicable legislation within the locality and the Mosman LGA. Relevant data and literature reviewed in preparation of this report included:

- Relevant State and Commonwealth Databases & Datasets including NSW Wildlife Atlas BioNet (DPIE) and NSW Government Spatial Services: Six Maps Clip & Ship (NSW Government Spatial Services 2021)
- Vegetation and Soil Mapping:
  - The Native Vegetation of the Sydney Metropolitan Area and Vegetation Information System (VIS) 3.1 (OEH 2016)
  - Soil Landscapes of the Sydney 1:100 000 Sheet (Chapman and Murphy 2009).
- NSW State Guidelines:
  - Biodiversity Assessment Method (DPIE 2020a);
  - Guidance to assist a decision-maker to determine a serious and irreversible impact (DPIE 2019a);
  - Biodiversity Assessment Method Calculator Version 1.3.0.00 (DPIE 2021d);
  - Biodiversity Offsets and Agreement Management System (BOAMS);
  - Surveying threatened plants and their habitats - NSW survey guide for the Biodiversity Assessment Method (DPIE 2020b); and
  - Threatened Species Survey and Assessment: Guidelines for developments and activities. Working Draft (DEC 2004)
- Council Documents:
  - Mosman Local Environmental Plan (LEP) 2013
  - Mosman Development Control Plan (DCP) 2013
  - Weeds Declared in the Greater Sydney Region (DPI 2021)

These sources were used to gain an understanding of the natural environment and ecology of the Subject Land and its surrounds. Searches using NSW Wildlife Atlas (BioNet) were conducted to identify current threatened flora and fauna records within and surrounding the Subject Land. This data was used to assist in establishing the presence or likelihood of any biodiversity values as occurring on, or adjacent to, the Subject Land, and helped inform our Ecologist on what to look for during the site assessment.

6.13.3. Assessment

Vegetation within the RACC site area is largely comprised of planted vegetation that is subject to landscaping, regular maintenance and has been historically cleared when the original ‘Seal Show’ structure and penguin ponds were removed. The *Native Vegetation of the Sydney Metropolitan Area* (OEH 2016a) indicated the presence of one (1) vegetation type within the Zoo - Weeds and Exotics.

No native Plant Community types (**PCTs**) were historically mapped within the RACC subject site but the following PCT was historically mapped within the broader Zoo grounds immediately adjacent to the RACC site area:

- PCT 1778 - Smooth-barked Apple - Coast Banksia / Cheese Tree open forest on sandstone slopes on the foreshores of the drowned river valleys of Sydney.

A total of 21 threatened fauna specified and 3 threatened flora species were identified by DPIE’s *Biodiversity Assessment Method Calculator* as potential species within the RACC investigation area. Only one of the flora species (Neilsen Park She-Oak) was surveyed within the site area and must be offset accordingly.

Only one of the fauna species (Southern Myotis or microbat) has been historically recorded with the broader Taronga Zoo. As the RACC investigation area is located within 200 metre of suitable habitat of the Southern Myotis, the species is assumed to be present within the RACC investigation area and offset accordingly. While there is the potential that microbat species use human-made structures (in particular, roof cavities) the proposal does not result in the removal of any major structures and ample suitable roosting/breeding habitats are located in close proximity of the site.

The proposed development will result in impacts to vegetation within historically modified areas that current consists of planted native vegetation, exotic lawn and existing hard stand and has been strategically

positioned to minimise impacts on native vegetation and habitats where possible. A total of four (4) ecosystem credits are required to offset the biodiversity impacts of the proposed development.

6.13.4. Management Recommendations and Mitigation Measures

The BDAR provides recommendations to be implemented before, during and post construction to avoid and minimise the impacts of the project. These mitigation measures should be incorporated into the final Construction Management Plan and the Contractor advised of them. Prior to any construction works or vegetation clearing, the following tasks should be completed by an Ecologist:

- Undertake any required targeted searches for threatened flora prior to vegetation clearing.
- Undertake an extensive pre-clearing survey; delineating habitat-bearing trees and shrubs to be retained/removed.
- Supervise the clearance of trees and shrubs (native and exotic) in order to capture, treat and/or relocate any displaced fauna.

Prior to construction, a Construction Environmental Management Plan (**CEMP**) with relevant mitigation measures must be prepared to ameliorate potential impacts to biodiversity values outside of the development area. The CEMP should include but not limited to sediment and erosion control, tree protection, storage and stockpiling of soil and materials and stormwater management. Other key mitigation measures would should be implemented during construction and operation include:

- any temporary structures required for construction works should be located within hardstand and cleared areas that have minimal biodiversity values; and
- any woody debris (fallen trees and logs) within the Subject Land are to be relocated to areas of native vegetation elsewhere with the Zoo.

6.14. LANDSCAPING AND TREE REMOVAL

6.14.1. Overview

An Arboricultural Impact Assessment report has been prepared by Sydney Arbor Trees (**Appendix Y**) to review the impacts of the proposed tree removal on site and provide mitigation measures to minimise the impact on native vegetation. The minimum number of trees possible have been removed to accommodate the new built form and wherever possible the exhibit has been designed to minimise impacts on native vegetation and heritage listed trees.

6.14.2. Methodology

A Visual Tree Assessment (**VTA**) and site inspection was conducted on the 27th May 2021 with the supplied plans to determine the impact of the proposed development on tree species. A total of 73 trees were assessed by Sydney Arbor Trees during their site visit with a total of 50 trees to be removed to facilitate the development of the RACC Precinct.

The retention values of each tree was determined using the *Retention Value Priority Matrix* of the Institute of the *Australia Consulting Arboriculturists (IACA) Significance of a Tree Assessment Rating System* (STARS) (IACA 2010). The rating relates to the significance and estimated life expectancy of the tree prior to the start of any development.

6.14.3. Assessment

Based on STARS, of the 50 trees to be removed to facilitate the development of the RACC Precinct the trees have the following retention value:

- Nine (9) high significance trees,
- Four (4) medium significance trees and
- Thirty-seven (37) low significance trees.

While 9 highly significant trees are proposed for removal, retention of trees with high significance and cultural value to the Zoo have been prioritised. Overall, 12 highly significant trees will be retained on site. Six of these trees are identified on the Section 170 Heritage Register and will be maintained in their current

location. An additional six highly significant trees have been identified as a priority for retention and will be transplanted within the RACC site, pending a feasibility study by an appropriately qualified expert experienced in tree transplanting.

While it is noted that the proposed development will result in the removal of highly significant trees on site, a comprehensive landscaping scheme is proposed by Context Landscape Architects which includes locally indigenous trees to be planted in prominent locations. The new trees will have the potential to reach a significant height without excessive inconvenience and be sustainable in the long term, significantly improving the potential of the site to contribute to local amenity and character.

Further potential for retaining and transplanting six highly significant trees will reduce the impact on amenity and support future growth. Through complying with the recommended mitigation measures, as set out below, the proposal is not expected to have any direct impact to a further six (6) high significance trees and eleven (11) low significance trees retained within the development.

6.14.4. Management Recommendations and Mitigation Measures

While the retention value of the proposed trees is low-moderate, Sydney Arbor Trees have outlined specific mitigation measures to protect the remaining trees within and around the development area:

- A site-specific tree protection plan should form part of the final Construction Management Plan detailing the location of tree protection fencing, inspection and reporting protocols and any areas where ground protection will be required. This plan should also outline specific requirements to ensure the viability of tree relocation on site.
- All pruning must be conducted in accordance with AS4373-2007- The Pruning of Amenity Trees.
- No underground services are to be located within the TPZ or SRZ of any tree to be retained.
- All tree protection measures must be undertaken in accordance with the relevant Australian Standards.

6.15. ENVIRONMENTAL AMENITY

A Construction Management Plan (**CMP**) has been prepared by RPS (**Appendix V**). Demolition and construction will be undertaken in manner to minimise impacts on neighbours and Zoo visitors and staff. The total duration for the construction program is approximately 52 weeks and is subject to weather conditions and standard stoppages at Easter and Christmas. The Zoo will remain fully functional during construction works. The follow measures will be undertaken during demolition, excavation and construction to ensure environmental amenity is retained where possible:

- Keep staff and visitors informed with flyers and notice board.
- Provide alternative routes for pedestrians.
- Environmental impact measures to be employed (dust suppression for concrete items). This includes ensuring any dust caused by the works is reduced to a minimum. Areas worked in by Contractors will be adequately screened to prevent dust spreading to neighbouring buildings via the installation of pre filters.
- Limit use of heavy breakers with respite periods.
- Traffic management to be used to handle large amounts of trucks. Vehicle access established into site and traffic to be managed as vehicles required access. Once material is on site, minor vehicle movement around Taronga Zoo.
- All works carried out in daytime work hours.
- Deliveries to the site will be carried out in accordance with the work hours as approved by the development consent approvals and Traffic Management Plan.

Further mitigation measures have been provided in Section 6.4.4 Construction Noise and Vibration of this report.

6.16. BUSHFIRE AND SAFETY

6.16.1. Overview

Australian Bushfire Assessment Consultants (ABAC) have prepared a Bushfire Assessment at **Appendix Z**. The land within the site and surrounds are mapped as bushfire prone land for the purposes of EP&A Act. The NSW Rural Fire Service guideline, *Planning for Bushfire Protection 2019*, is applicable to all development on bushfire prone land. The Bushfire Assessment notes that there are no specific controls applicable for the purposes the Guideline. However, ABAC Australian Bushfire Assessment Consultants has undertaken an assessment against the Planning for Bushfire Protection 2019 guidelines.

6.16.2. Assessment

Land within the Zoo grounds around the proposed development is considered as managed land, with any retained areas of vegetation being maintained subject to vegetation management measures. There is no unmanaged vegetation within 140 metres, the nearest unmanaged vegetation is 200 metres to the east of the RACC.

The building is not an occupied building, rather patrons will pass through. The constructed roadway in Bradleys Head Road and footpath along the eastern side of the road provides a defendable space for emergency services to undertake property protection after the passage of a bushfire. Internally, the zoo has its own capability to undertake fire suppression activities.

6.16.3. Mitigation Measures

The following mitigation measures have been identified by ABAC, to ensure safety of all staff and visitors:

- Objectives of Taronga Zoo Emergency Response Plan (**Appendix BB**) will equip Taronga Zoo staff with the knowledge and skills to control and coordinate an emergency event until the arrival of emergency services.
- A focus will be on safe evacuation of workers and visitors.
- Comply with Work Health and Safety Legislation.

6.16.4. Summary

Despite these mitigation measures, ABAC outline the exhibit will be closed to the public when the zoo is deemed unsafe. The RACC will not accommodate a large number of people for long period of time, rather people will pass through while attending the broader zoo. The RACC will be subject to a range of emergency management procedures that apply to the overall zoo. The Zoo will be closed when there is a broader threat of bushfire.

6.17. STAGING

The RACC is proposed to be delivered in two stages:

Stage	Indicative Timing
1. Exempt Works subject to Schedule 2 of Mosman LEP	End of 2021
2. SSDA Works	It is anticipated works will begin in second half of 2021 (pending timely development approval) based on a 30 month construction and design program.

6.18. DEVELOPMENT CONTRIBUTIONS AND PUBLIC BENEFIT

Mosman Contributions Plan 2018 is the Contributions Plan which covers the Mosman LGA and authorises the Council to collect contributions of money towards the provision of public amenities and services. The plan was prepared in reference to Section 7.12 of the EP&A Act. It is noted that the Mosman Contributions

Plan 2018 specifically does not incorporate the Zoo and contributions are not required for works within the Zoo grounds.

7. EVALUATION OF THE PROJECT

This EIS has been prepared in support of SSD-17483577 to assess the environmental, social and economic impacts of the Reptile and Amphibian Conservation Centre for Taronga Zoo. The EIS has addressed the issues identified in the SEARs and has been prepared in accordance with Schedule 2 of the EP&A Regulation. For the reasons outlined in this EIS, the site is suitable for the proposed development for the following reasons:

The proposed development has been assessed with regard to the matters for consideration under section 4.15 of the EP&A Act and the SEARs issued by the Secretary of DPIE. We conclude that the proposed development can be supported for the following reasons:

- The site is zoned SP1 'Special Activities (Zoological Gardens)' under the MLEP 2012. The works will facilitate the continued use of the site as a Zoo, and the animal exhibit is clearly permissible with consent and consistent with the zone objectives. Further, there are no significant environmental constraints that would limit the proposal from being developed at the site.
- The design positively responds to the site conditions and existing landscape character of the locality.
- The proposed works are respectful of the heritage significance of the Zoo and will provide activation within a currently underutilised portion of the Zoo.
- The works will not have any significant detrimental impact on the scenic, visual and natural bushland setting of Sydney Harbour.
- The proposal has been prepared having regard to State and Council planning policies and complies with the aims and objectives of the controls for the site.
- Subject to the various mitigation measures recommended by the specialist consultants, the proposal does not have any unreasonable impacts on adjoining properties or the public domain in terms of views, traffic, acoustic and environmental impacts.

The proposal is in the public interest for the following reasons:

- The site is well serviced by public transport and various walking and cycling routes. Further, the proposal greatly encourages the use of non-private vehicle options to access the site.
- Taronga is a highly-revered institution within Sydney's social fabric, and is internationally recognised as a leading centre of biodiversity conservation and for Taronga Zoo's educational focus. The proposed development will assisting in retaining the Zoo's global reputation.
- The project will deliver genuine economic benefits in these challenging times, particularly in creating full-time jobs during construction, and will sustain direct and indirect jobs during its ongoing operation.

This project is fully funded and 'shovel ready' for commencement of construction as soon as possible next year. Given the site is suitable for the development and the proposal has minimal environmental impacts and is in the public interest, this application should be subject to a fast-tracked approval by the Minister or his delegates.

DISCLAIMER

This report is dated 8 July 2021 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd **(Urbis)** opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Taronga **(Instructing Party)** for the purpose of State Significant Development Application **(Purpose)** and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

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All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

APPENDIX A SEARS REFERENCE TABLE

APPENDIX B MANDATORY CONSIDERATIONS TABLE

APPENDIX C QS REPORT

APPENDIX D MITIGATION MEASURES TABLE

APPENDIX E ARCHITECTURAL PLANS

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APPENDIX N ECOLOGICALLY SUSTAINABLE DEVELOPMENT REPORT

APPENDIX O BCA REPORT

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APPENDIX R STORMWATER, FLOODING & UTILITY IMPACT ASSESSMENT

APPENDIX S GEOTECHNICAL INVESTIGATION

APPENDIX T CONTAMINATION REPORT

APPENDIX U OPERATIONAL WASTE MANAGEMENT PLAN

APPENDIX V CONSTRUCTION MANAGEMENT PLAN

APPENDIX W BUILDING SERVICES INFRASTRUCTURE AND CONCEPT DESIGN

APPENDIX X BIODIVERSITY DEVELOPMENT ASSESSMENT REPORT

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