April 2025

Taronga Zoo Sky Safari

Appendix EE
Construction Management Plan (CMP)
RTS Revision 2

PREPARED BY

TETRA TECH

rps

PREPARED FOR

TARONGA

CONSERVATION SOCIETY AUSTRALIA

For the Wild

Our ref: SSD-46807985

Level 13
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Date: 16 April 2025

Dear Anna,

Sky Safari – SSD-46807958
Response to Submissions
Construction Management Plan

The exhibition for the development application for the Taronga Zoo Sky Safari (SSD-46807958) by the Department of Planning, Housing and Infrastructure (DPHI) ended on 21 October 2024. Following the public exhibition of the proposal, the Construction Management Plan (CMP) supporting the project has been updated to incorporate the following:

- Changes to the project description (see page 1 of report);
- Feedback from:
  - Mosman Council
  - Heritage NSW
  - Public Submissions
  - Transport for NSW
  - EPA

Please see table below for changes to the report and our responses to these agencies and stakeholders.

Agency	Comment	Response
Council	**Construction traffic management** It is acknowledged that the construction impacts will include disruptions to public transport options but these should be minimised as much as possible and Council would appreciate on-going consultation specifically where existing buses or ferries are impacted. It is understood shuttle buses are already being used, and council recommends these being further utilised and available at no cost to residents and visitors affected by any temporary bus route changes or truncations.	Taronga Zoo continues to work with Transport for NSW to minimise any impacts to the transport network to the zoo and surrounding area. The project team will ensure Council is involved in all discussions as they arise. Disruptions to the local transport network will be confirmed once the details of construction are known, such as site set out, vehicle movements, deliveries and construction methodology. A preliminary Construction Pedestrian Traffic Management Plan (CPTMP) has been included as part of the Traffic Impact Assessment and would be further developed once the specific details of construction are known. Disruptions to the road network will be minimised as far as possible

		and Taronga Zoo will continue to consult with Council and the community in regards to any temporary disruptions to public transport services. Taronga Zoo currently utilises shuttle buses during busy periods to assist local buses in ferrying visitors to the zoo entrance. Taronga Zoo will work with Transport for NSW to discuss how shuttle buses can assist in reliving disruption to the network during construction works.
	On-going communication Council requests that the Zoo undertake on-going communication with affected residents, the community and the Council regarding the progress of the Sky Safari project.	Taronga Zoo's Communication Team is well versed in working with the Capital Works team to ensure there is ongoing communication with local as well as affected residents. This includes website updates, dedicated email updates, and letter box drops. A Communication Plan will be adopted prior to construction commencing to ensure key updates are provided to residents.
Heritage NSW	A Construction Management Plan for the project should specifically address the protection of the zoo's heritage fabric and elements during demolition and construction. It should consider both direct and indirect (e.g. vibration) impacts, and methodologies to minimise risks related to the removal and erection of oversized items such as pylons.	Taronga Zoo is happy to accept this as a condition of consent. Taronga Zoo will work with the chosen contractors, in collaboration with both Urbis and their internal heritage specialist, to ensure a suitable methodology is developed.
	A heritage specialist should provide advice to inform the Construction Management Plan, including clear identification of fabric/items of heritage significance and recommendations for exclusion zones.	As above
Public submissions	Recommend ongoing engagement during construction.	As above
	Ban truck and heavy equipment movements at night and avoid residential streets.	The TIA includes a Preliminary Construction Pedestrian Traffic Management Plan (CPTMP) which details that trucks would minimise the use of local streets for access to the construction site. Mitigation measures to avoid disruptions to residential streets from construction vehicle movements would be further developed as part of a detailed CPTMP which would be prepared prior to the commencement of construction

		and can be secured by a condition of consent.
	Ensure the Bondi to Manly walk remains open during construction, with phased construction to allow continued access.	Taronga Zoo will need to close the coastal path to minimise any safety impacts on the public during demolition and construction due to its close proximity to the site – noting some portions of the path are underneath the existing station. The length of impact to the walk will be determined prior to the commencement of construction works, once the methodology for demolishing and constructing the bottom station is confirmed. Disruptions will be minimised as far as possible. Taronga Zoo will work with Mosman Council and local residents to find suitable alternatives and ensure communication is provided throughout the construction process. Taronga Zoo has recently worked with Mosman Council on section upgrades of the coastal path with success and are confident the same can be achieved in any future works.
Transport for NSW	Based on the documentation provided, the construction methodology for the proposed development, includes using the existing cul-de-sac on Athol Wharf Road adjacent the lower Sky Safari station for construction vehicles only and closing this section of the road to all general traffic including TfNSW run bus services (utilising standard 12.5 metre sized buses from the fleet) with a proposal to replace these existing bus services with minibuses. TfNSW advises that the Agency does not have any minibuses in the fleet and the cul-de-sac is also used by charter buses that utilise this existing cul-de-sac as a safe U-turn facility on Athol Wharf Road. As such, as part of any construction zone, TfNSW requires at a minimum that sufficient space is provided in the above cul-de-sac to enable a standard sized bus to always undertake a 3-point turn safely and efficiently under traffic control. As part of the above requirement for standard sized buses (12.5m) to perform a three-point turn adjacent the construction zone on Athol Wharf Road, the Applicant provided a swept path plan (**TAB B**) that indicates that buses will mount the kerb and hang over the footway adjacent the above-cul-de-sac.	An updated Traffic Impact Assessment (TIA) has been provided which provides a swept path analysis confirming that the 238 bus service would be maintained during construction, including the existing bus stop on Athol Wharf Road adjacent to the ferry wharf. The works zone on Athol Wharf Road is proposed to be configured to allow a standard 12.5m long bus to undertake a three-point turn to maintain this existing public transport service. This will be enabled by the temporary demolition of a small section of the existing kerb and footpath which would be subject to a local development application with Council. The applicant attended a pre-lodgement meeting with Mosman Council on 17 February 2025 to discuss this application and no concerns were raised by Council.

	As such, as part of the construction phase of the proposed development, it is likely that the cul-de-sac may require temporary localised widening and adjustment of the kerb to enable a standard sized bus to undertake a three-point turn safely and efficiently under traffic control. TfNSW advises that Athol Wharf Road is a classified regional road under the care and control of Council as the relevant road authority. As such, any road works required on Athol Wharf Road to facilitate standard sized buses to undertake a three-point turn will need to be designed and constructed to the satisfaction of Council as the relevant road authority.	
EPA	Recommend further information about dust suppression and planned controls during site preparation, demolition, excavation and construction phases.	The CMP has been updated to provide an overview of dust suppression and planned controls to be implemented during construction works – see Section 8. Further details of dust control measures will be detailed in a future Construction Environmental Management Plan (CEMP) which can be secured through a condition of consent.

Yours sincerely,
for RPS AAP Consulting Pty Ltd

Rebecca White
Practice Lead
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CONSTRUCTION MANAGEMENT PLAN

State Significant Development Application
Taronga Zoo Sky Safari

Sky Safari
RTS Revision 2
April 2025

rpsgroup.com

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
V1	Draft	RW	SW/ED	SW	
V2	Final	RW	SW	SW	22/07/2024
V3	RTS	RW	BEM	BEM	05/03/2025
V4	RTS Revision 2	GM	BEM	BEM	14/04/2025

Approval for issue

Ben Ellis MacMahon	14/04/2025

20 July 2023

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Contents

1 INTRODUCTION

1.1 OVERVIEW

In developing the Construction Management Plan (CMP) for the Taronga Sky Safari Taronga Conservation Society Australia confirms its commitment to ensuring a safe work site for its employees, contractors, suppliers, subcontractors, visitors, pedestrians and the travelling public.

This Plan allows for reasonable disruption (e.g., noise, dust, vibration) for the respective contractors during the construction of the Sky Safari. However, provides guidance to ensure this is appropriate managed throughout with minimum disruption to staff, visitors and the wider community.

This Plan ensures that the Works Contractors understand:

- Scope of works
- The Construction Phasing;
- Site establishment;
- General management of the site;
- Waste management plan;
- Access Plan;
- Communication Plan;
- Record keeping; and
- Emergency procedure.

This Plan shall be revised to consider altered or unexpected site conditions. In such instances, an addendum to the Plan will be issued to all copy holders to reflect such changes.

1.2 PURPOSE

This Construction Management Plan Report accompanies a SSDA outlining the approach to be taken for managing the following construction works:

- Site establishment works including removal of the existing Sky Safari;
- Installation of a new 916m Sky Safari cable car system including:
    - Construction of six (6) new pylons and structures within the Zoo ranging in height between 5.9m (P1) to 36.5m (P5)
    - Construction of two new stations at both the upper and lower entrances within the Zoo grounds.
    - Public facilities including accessible queueing areas, ticket booths and public amenities.
    - Associated mechanical plant, servicing and storage areas for ongoing maintenance.
- Landscaping works, including new accessible pathways, planting, shade structures and seating areas and wayfinding signage. Taronga has implemented a tree replacement ratio of 2:1 for all trees removed as part of this development.
- Excavation, site preparation works and tree removal/pruning to allow the works to occur.
- Increased hours of operation

Please note that the installation of the pylon structures, station structures and housing, and installation and commissioning of the cable car system is to be installed by an international cable car supplier. Once they are awarded the contract a more detailed CMP can be provided. This will likely be provided as part of a condition to submit a Construction Environmental Management Plan.

This CMP ensures that possible impacts that may arise from the works have been appropriately identified, managed and minimised.

1.3 BACKGROUND

1.3.1 Existing System

The Sky Safari was an ageing asset within the Zoo and was retired on 31 January 2023. The former Sky Safari route is a lineal route of 450 metres with each one-way journey taking approximately 4 minutes.

Access to the retired Sky Safari was open to all Zoo visitors generally between the hours of 9.30am – 4.15pm as well as on special occasions such as VIVID or to transport guest to conference facilities. Most trips were one way from the Lower Station near the Taronga Zoo Ferry Wharf as they entered the Zoo or from the Top Station near the Top Plaza (Main Entrance) as they exited the Zoo.

The former Sky Safari cable cars had a maximum capacity of six guests and could accommodate wheelchairs up to a width of 610mm, but prams or wheelchairs which did not fold could not be transported given the size restraints.

1.3.2 Proposed System

The reimagined cable car experience introduces 20 - 30 new cable cars that are accessible to visitors with prams and larger wheelchairs, to ensure all visitors to the zoo have a safe and dignified experience in utilising the Sky Safari. The new cable cars are also larger in capacity than existing cable cars to meet current and future visitor demand to visit the Zoo.

The infrastructure associated with the cable cars will incorporate approximately 6 pylon towers ranging in height from 5.9m to 36.5m. The route itself has been carefully located to minimise impact on remnant bushland, existing trees and the archaeological and built heritage as well as scenic values of the Zoo.

Overall, the new route maintains the existing footprint of the Sky Safari, however, will require the cable car corridor to increase from 9m to 12.5m.

1.4 CURRENT PROJECTS AT TARONGA ZOO

1.4.1 Taronga Zoo Masterplan, 2025 – 2050

Taronga Zoo is currently in the process of updating its masterplan for the zoo. The masterplan will be from 2025 – 2050.

The Sky Safari route has been considered as part of the masterplan process and it was considered the existing route best to maintain the existing masterplan but also allow for maximum development opportunities in future.

1.4.2 Upper Australia Precinct

Construction has completed on the Upper Australia Precinct with the koala, macropod, dingo and koala habitats opened to the public in 2023, Nguwing Nura (Nocturnal Country) opened at the end of September 2023.

1.4.3 Reptile and Amphibian Conservation Centre

The new Reptile and Amphibian Conservation Centre, housing both an exhibition and animal care facility improves operational efficiencies and safety for employees and the visiting public.

The project consists of two main components:

- Construction of the new Reptile and Amphibian Conservation Centre; and
- External landscaping works.

The project opened to the public in June 2024.

1.4.4 The Taronga Wildlife Hospital, Sydney

The Taronga Wildlife Hospital, Sydney will replace existing buildings at the end of their useful life with the new state-of-the-art Wildlife Hospital. The wildlife hospital will provide dedicated and purpose-built spaces for the husbandry, treatment, diagnostics and education specifically related to the care of wildlife. The spaces include rehabilitation facilities (including wildlife intensive care and marine turtle facilities), surgeries, necropsy room/s, pathology labs, medical equipment and supplies storage, and a range of medical equipment. The new facility will also incorporate upgraded animal quarantine facilities to assist in the management of Taronga Zoo's animals and to support the conservation partnerships and animal management with other zoos. The new Wildlife Hospital will also include upgraded clinical diagnostic facilities that will assist in the forensic activities of the Taronga's clinical team and the Australian Registry of Wildlife Health. The new facilities will ensure the safety and welfare of wildlife in care but also for Taronga's staff.

The SSDA has been approved (SSD-33211326). The tender has been awarded and work started in late 2024.

There will be a six month overlap between the Wildlife Hospital finishing in 2025 and Sky Safari starting.

1.4.5 Nutrition Centre

The Nutrition Centre is currently on hold and no timeframe is known for this project.

2 DESCRIPTION OF WORKS

2.1 Sky Safari

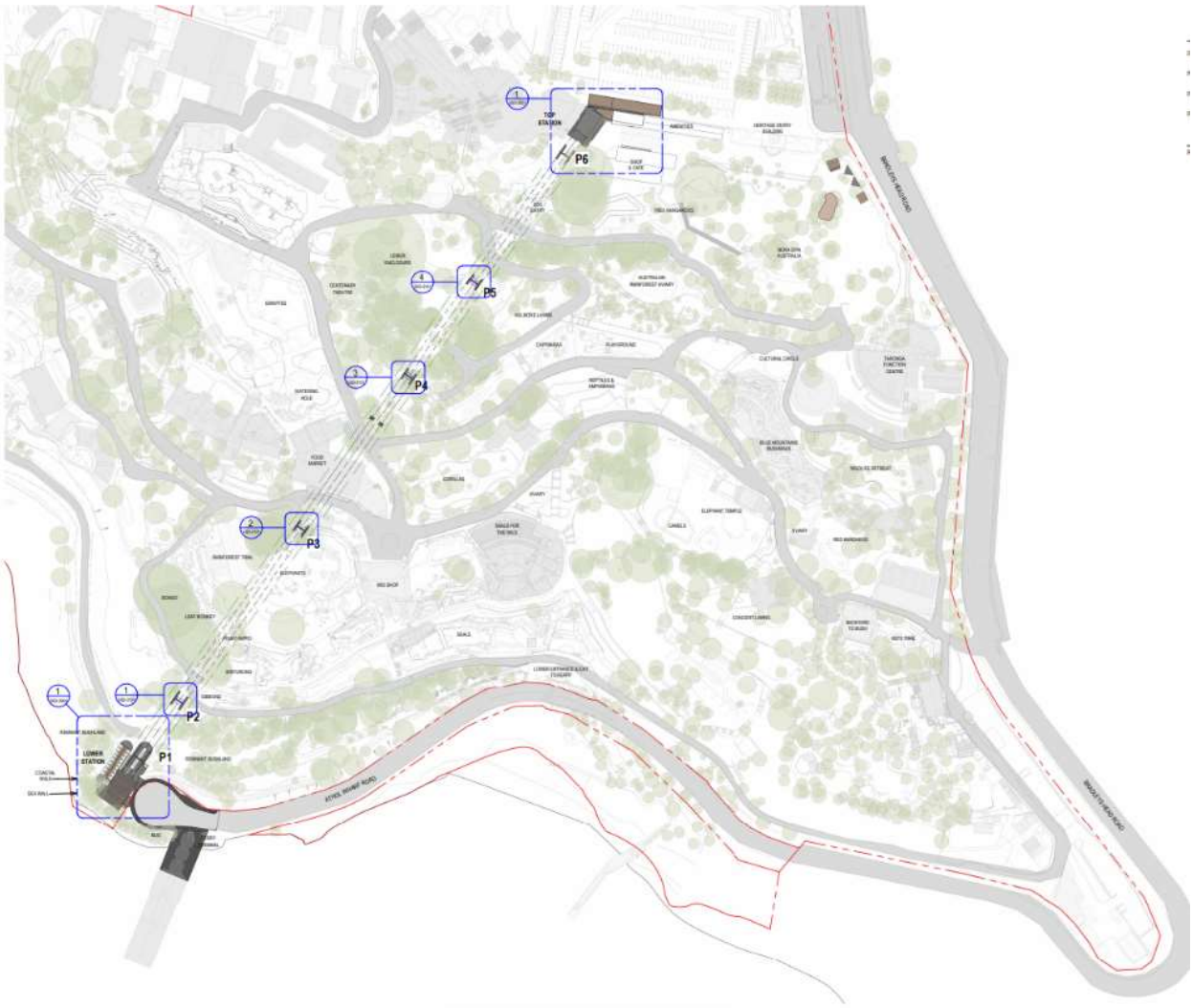
The Sky Safari SSDA development (works) will include the construction of a new Sky Safari cable car system.

Development consent is specifically sought for:

- Site establishment works including removal of the existing Sky Safari;
- Installation of a new 916m Sky Safari cable car system including:
  - Construction of six (6) new pylons and structures within the Zoo ranging in height between 5.9m (P1) to 36.5m (P5)
  - Construction of two new stations at both the upper and lower entrances within the Zoo grounds.
  - Public facilities including accessible queueing areas, ticket booths and public amenities.
  - Associated mechanical plant, servicing and storage areas for ongoing maintenance.
- Landscaping works, including new accessible pathways, planting, shade structures and seating areas and wayfinding signage. Taronga has implemented a tree replacement ratio of 2:1 for all trees removed as part of this development.
- Excavation, site preparation works and tree removal/pruning to allow the works to occur.
- Increased hours of operation

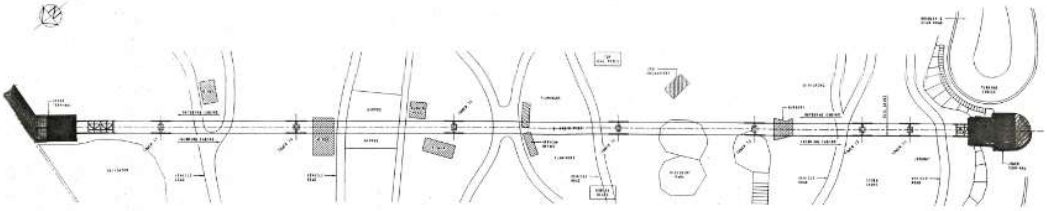
The Proposed Site Plan is shown on drawing prepared by Studio SC (formerly known as Scott Carver).

Figure 6: Proposed Site Plan

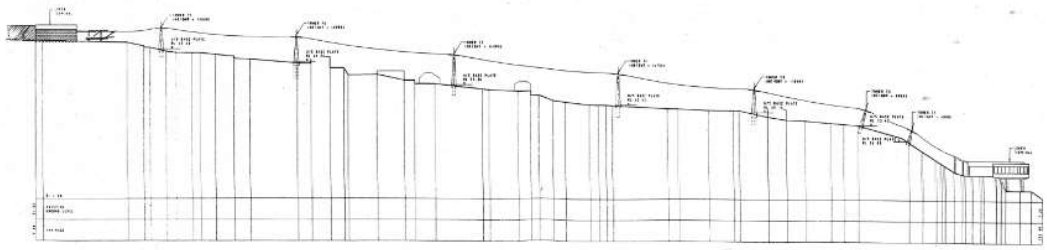


2.2 Decommissioning of former Sky Safari

As part of the Sky Safari project Taronga Zoo will be required to decommission and remove the former Sky Safari from site. The existing Sky Safari goes between the top and lower station. There are 9 pylons (labelled T1 – T9). Their locations are shown on the map below:



PLAN VIEW ALONG EXISTING CABIN RIDE



LONGITUDINAL SECTION ALONG EXISTING CABIN RIDE CENTRELINE

The work will involve:

- Removal of the existing cable (haul rope);
- Unbolting of the existing pylons from their concrete footings;
- Disassembling the existing pylons (in 3-4 parts);
- Removal from site;
- Packing the existing Sky Safari into shipping containers; and
- Temporary storage on site until shipping / haulage is arranged (in overflow car park) by interested parties.

Works not included:

- Demolition of the concrete footings for the existing pylons (these will remain);
- Demolition of the existing stations at the top or lower (included in SSDA);
- Demolition of the existing ramping at the lower station (included in SSDA); and
- Removal of the existing cable cars (already in storage).

Taronga Zoo is currently in discussions with interested parties to buy portions of the current system, install and commission as a working cable car system in keeping with its sustainability commitments. We are in the very early stages of discussions however in the absence of a buyer, Taronga's key priority is ensuring the system is sustainably reused for parts or recycled. Please note that this work will be required to be undertaken regardless of progress with an interested buyer as we need to prepare the site for installation in 2024.

2.3 Sky Safari Stations

A new station is proposed at each end of the new cable car route allowing for visitors to enter and exit at both the top and bottom of the Zoo site.

Top Station is proposed to replace the existing storage facility adjacent to the Main Entrance Plaza. The new station will provide Zoo guests with direct access to the Sky Safari via the existing Main Entrance plaza. The station provides covered queuing within the heritage building and associated landscaping and shading provided in the plaza space.

Lower Station is proposed to replace the existing lower station near the Taronga Ferry Wharf. The station aims to improve existing queuing on site by incorporating fully equitable queuing areas with shade and amenity in order to enhance the visitor's arrival experience. The Lower Station will have improved accessibility through the new ramping system up to the station which will make the station easily accessible for those in wheelchairs and with prams. In addition, level access into the station when re-queuing to use the cable car to go back to the Top Station, removing the existing stairs. A lift will also be provided to access the platform if required by guests. The station will also be supplemented with toilet amenities and a ticketing booth.

2.4 Sky Safari Pylons

There are six pylons, one located at each station (top and lower) and four within zoo. There are no pylons outside of the Zoo grounds.

- Pylon 1 (5.9m)– located in close proximity to the existing and proposed Lower station;
- Pylon 2 (10.12m) – located by existing Pylon 2;
- Pylon 3 (26.2m) – located by the Food Court;
- Pylon 4 (35.7m) – in front of the Savannah toilet facilities;
- Pylon 5 (36.5m) – located to the north of the Helmore lawns; and
- Pylon 6 (6.5m) – located in close proximity to the existing and proposed Top station.

3 SITE LOCATION AND ACCESS

3.1 TARONGA ZOO

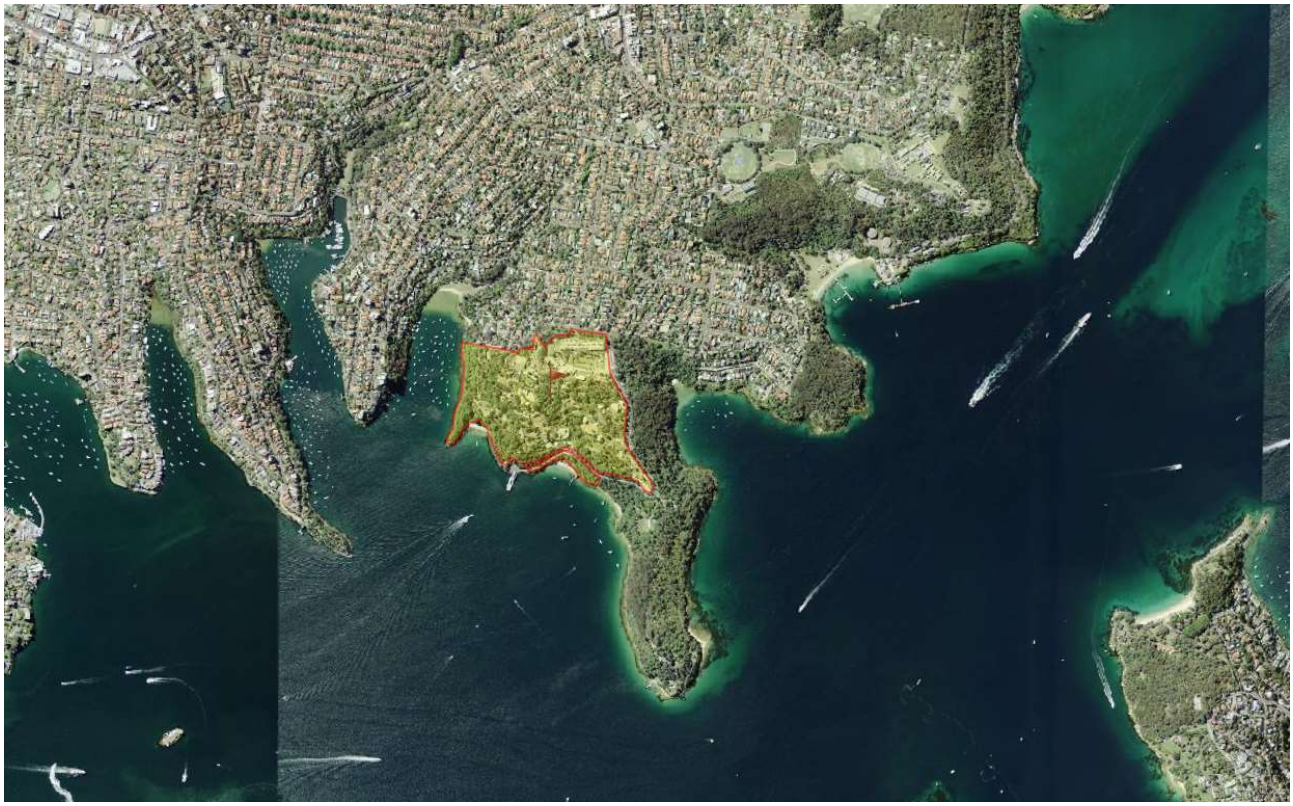
Taronga Zoo is located at Bradleys Head Road at the southern end of Mosman on the Bradleys Head Peninsula. The zoo is approximately 28 ha and is legally described as Lott 22 in DP 843294.

The zoo is located within the Mosman Local Government Area.

The site is bounded by:

- Whiting Beach Road to the north.
- Bradleys Head Road to the east;
- Athol Wharf Road and Sydney Harbour to the south; and
- Little Sirius Cove to the west.

Figure 1: Map of site



Access is from Bradleys Head Road which extends alongside the entire eastern boundary of the zoo grounds.

3.2 ACCESS

Taronga Zoo is located on Bradley's Head Road, and is easily accessible by various modes of transport:

3.2.1 PUBLIC TRANSPORT

Ferry

- Taronga Zoo Sydney is 12 minutes from Circular Quay by ferry. Sydney Ferries services depart Circular Quay every 30 minutes.

Bus

- The 100 Bus travels to Taronga Zoo Sydney every 10 - 15 minutes from Town Hall and Wynyard train stations;
- Northern suburb bus routes can change at either Spit Junction or Mosman Junction to join the 100 or 238 to the Zoo; and
- The 238 bus route travels between Balmoral Beach, the Taronga Zoo Sydney main entrance and the Taronga ferry wharf on the water's edge for passengers arriving or leaving by ferry.

Train

- Passengers can change at Circular Quay train station and join the ferry to Taronga Zoo Sydney.

3.2.2 PRIVATE TRANSPORT

Parking is available at Taronga Zoo Sydney, entry from Bradleys Head Road.

4 HERITAGE ITEMS

Given the proposed system utilises the existing route there is only one heritage item impacted by the Sky Safari.

The stone boundary wall is listed on the Taronga heritage and conservation register as a heritage item of exceptional heritage value. The wall forms part of the site wall between the maintenance and storage facility and the top station.

The wall is due to be retained and integrated into the design. This approach has been agreed with the zoo Heritage consultant. Please refer to the Heritage Impact Assessment for further information on the stone boundary wall.

During construction the contractor will ensure work is completed in line with the suggestions of the Heritage Assessment and will utilise heritage specialist contractors if required.

5 DEMOLITION AND CONSTRUCTION PHASING

The following section provides an indication of the likely demolition and construction phasing required for the works outlined in the previous sections.

Please note that the following is indicative and will be confirmed and agreed with the head contractor once the contract is awarded. There may be changes once the head contractor is able to discuss the works with the awarded cable car contractor. In addition, there is a one-year design period during which Taronga will work with the cable car contractor to develop the design of the system further. This may lead to changes to the construction phasing.

Table 1: Demolition and Construction phasing

Sky Safari					
Phase No.	**Phase**	**Works required**	**Timing**	**Duration**	**Notes**
Site Establishment					
SE1	**Site Establishment**	- Head contractor to install site compound - Head contractor to install required fencing - Head contractor to undertake site surveys	**Early 2026**	**1 month**	
Enabling Works					
EW 1	Enabling Works Stage 1 Removal of existing cable car system	- Decommissioning of the existing system - Removal of existing station equipment - Removal of existing pylons - Placing equipment into storage containers and transporting off site Note: no demolition work is included within the removal of the system. The existing concrete footings will remain in situ.	Early 2026 **Note:** timing dependent on approval of SSDA	2 months	
EW 2	Enabling Works Stage 2 Demolition of the existing stations and tree removal	- Removal of small area of heritage wall from top station boundary to create access - Demolition of the existing top station structure and storage area - Demolition of the existing lower station structure -	Early 2026 **Note:** timing dependent on approval of SSDA, and concurrently with EW1	2 months	
EW 3	Enabling Works Stage 3 Excavation at lower station	Excavation into rock at lower station to allow for new route	Mid 2026	4 months	Cannot start until lower station is demolished.
EW 4	Enabling Works Stage 4	- Construction of 6 pylon footings	Mid 2026	4 months	

	Construction of pylon and station footings					
Construction Works – Cable Car Contractor Works						
Construction Works – Head Contractor Works						
CC1	Cable Car Contractor Stage 1 Pylon installation	-	Installation of pylons in 6 locations	Mid 2027	1 month	Covered by separate CMP prepared cable car contractor
CC2	Cable Car Contractor Stage 2 Top Eastern Station	-	Installation of Top Station Infrastructure - Installation of storage infrastructure	Mid 2027	5 months	Covered by separate CMP prepared cable car contractor
CC3	Cable Car Contractor Stage 3 Lower Station	-	Installation of lower Station Infrastructure	Mid 2027	5 months Concurrently with CC2	Covered by separate CMP prepared cable car contractor
HC1	Head Contractor Works Stage 1 Top Station and Storage	-	Construction of top station including structure, platforms, piles etc - Completion of station infrastructure at lower station including shade cover, balustrading, flooring, walls and other fitout requirements - Completion of landscaping - Installation of queuing infrastructure - Installation of public art and signage	Late 2027	7 months	
HC2	Head Contractor Works Stage 2 Lower Station	-	Construction of infrastructure at lower station including: ○ Construction of structure ○ Construction of ramping, lifts, stairs	Late 2027	7 months Concurrently as HC 1	
Commissioning and Handover Works						
CHW1	Commissioning and Handover Works	-	Commissioning of system - Handover of system to the zoo - Training of zoo staff	Late 2027	2 months	

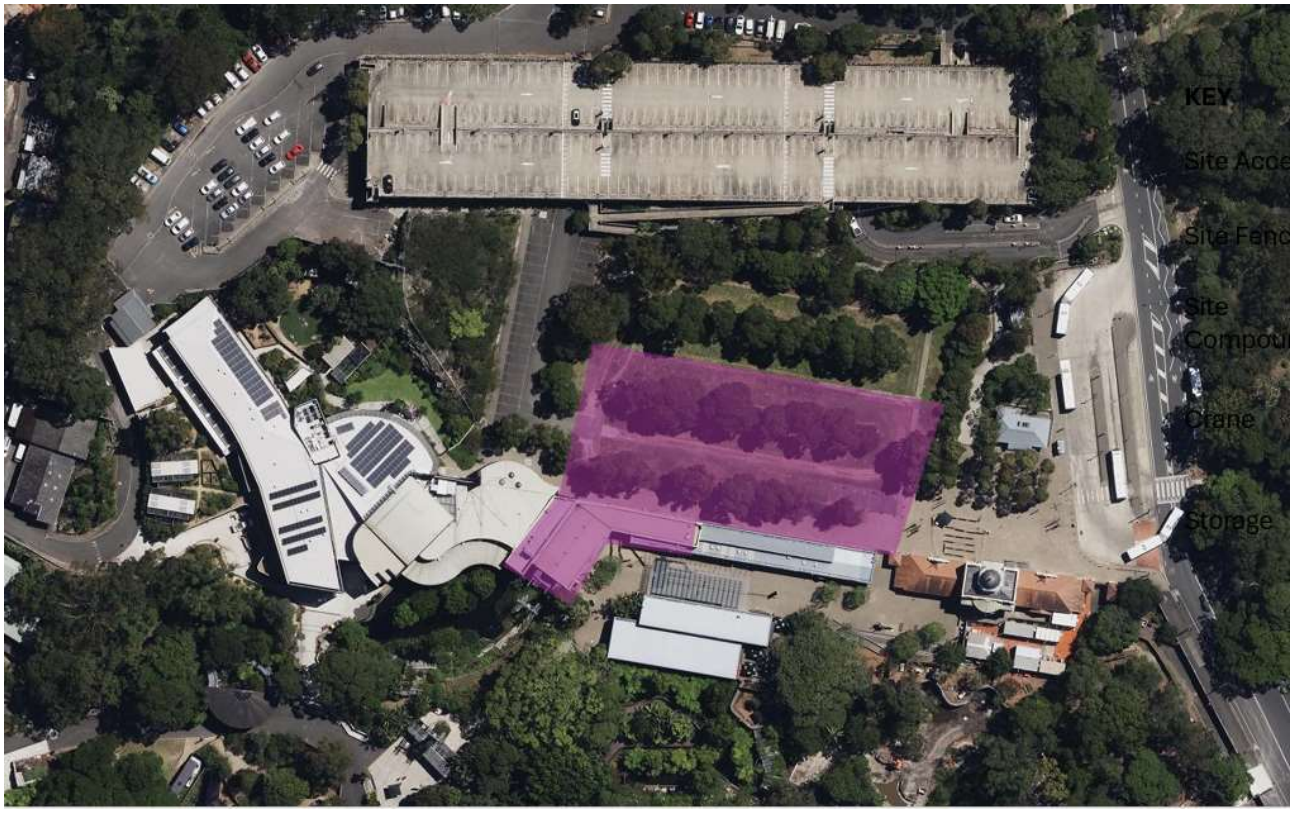
6 SITE ESTABLISHMENT

6.1 MAIN COMPOUND (TOP STATION)

The main compound will be utilised by both the head contractor and the cable car contractor.

Both contractors have yet to be confirmed and therefore there may be changes to the location of the main compound before construction commences.

Currently the general compound / construction zone location is shown on the map below:



This is the overflow car park for the zoo which is utilised predominately in school holidays and mega peak periods (e.g. Christmas and New Year).

The main compound will likely provide:

- Office space for contractors
- Lunch and kitchen facilities for contractors
- Perimeter fencing with access port for daily signing in
- Site storage
- Waste storage
- Delivery and vehicular access

  This is to be worked through post contract award with the Head Contractor in early 2025.

6.1.1 ACCESS

Access to the main compound will be via Bradleys Head Road.

There will be traffic management throughout construction to ensure any conflict between buses and other vehicles are managed. This will be further discussed with TfNSW. The bus station will remain operational during this time.

6.1.2 DELIVERIES

All deliveries during site establishment will be stored in this centralised area for dissemination around the site.

Deliveries will be organised at times which cause minimum disruption to the local roads and transport network. The number of deliveries and frequencies cannot currently be confirmed until a Head Contractor and Cable car contractor is engaged.

6.1.3 VEHICLES

Vehicles required may include:

- Up to 5m long work / utility trucks;
- 6.5m, 9m and 11m long flatbed / work trucks;
- 7.3m long concrete trucks carrying 6m3 of concrete;
- 8m long mobile concrete trucks carrying 7.4m3 of concrete;
- 9.5m long concrete pump;
- 11m long 200 tonne crane (may be required); and
- 19m long truck and trailer combination – may be required for final excavation works.

6.1.4 WORKFORCE

It is anticipated there could be between 20-30 contractors in this compound (for the upper station) and will have key project management teams from both the managing contractor and cable car contractor.

Parking for the current zoo staff will not be impacted during the works. Suitable parking for contractors will be provided on site.

6.1.5 FENCING

There will be standard construction fencing around each compound to separate the compounds from the live zoo environment.

The fencing will have banners to prevent visibility into the site. This will also assist with safety, noise and dust mitigation measures.

6.1.6 SITE STORAGE

Within the main compound there will be central storage area. This will mainly be for the arrival of cable car equipment which arrives in storage containers. It is anticipated there would be around 60-100 shipping containers. Each storage container will be stacked within the main compound. The compound will have 24 hour security.

6.1.7 WASTE STORAGE

With the main compound there will be a waste storage area for centralised separation of waste into general waste, recycling, plant products etc.

The types of waste generation is noted below. It is noted the volume of waste cannot be confirmed until detailed design and post engagement of the contractor. This will be confirmed within the Construction Environmental Management Plan.

Activity	Waste Generated	Recycling Method	Estimated Quantity	Disposal Method
Pre-Construction Works	Redundant furniture	Separated into recycling and general waste	TBC	General Taronga contractors
Demolition and excavation Works	Demolition	All material to be separated into contaminated or VENM Bricks to be stored for reuse	TBC	Reuse VENM on site for levelling ground
Excavation	Excavation	All material to be separated into contaminated or VENM	TBC	Reuse VENM on site for levelling ground
Construction	Excess material from construction	Recycle and reuse where possible.	TBC	Contractor to estimate appropriately the material required so excess material does not need to be disposed of. Recycle and reuse where possible
Post Construction Works	Waste generated as a result of cleaning the site	Recycle where possible	TBC	General rubbish will be disposed of at licensed landfill.

Please refer to the Operational Waste Management Plan for further information on waste storage during construction.

6.1.8 CONSTRUCTION METHODOLOGY

The construction methodology will be agreed with the head contractor and cable car contractor when the contract is awarded. However it is anticipated that the following machinery will be required:

- Excavator;
- Dozer;
- Pulverizer; and
- Crane – to be confirmed if tower crane for length of construction or temporary crane as required.

6.2 SECONDARY COMPOUND (LOWER STATION)

A secondary compound will be required for the works required at the lower station, the general boundary of the construction works is shown on the plan below, however at this time the final compound cannot be confirmed.

The project team has been working with TfNSW to understand the operational constraints at the lower station which include the requirement to keep the bus and ferry terminal operational during the demolition and construction works. Prior to submission of the SSDA two meetings have been held to discuss the proposal and TfNSW has provided commentary as part of the RTS process.

TfNSW has highlighted that a standard sized bus must be able to perform a three point turn adjacent to the construction zone. This is shown below and can be achieved through temporary road works. This discussion will be ongoing during the SSDA assessment period and will continue with the submission of the Construction Traffic Management Plan which we expect to be included as a standard condition.

This process will be ongoing during the SSDA assessment period and will continue with the submission of the Construction Environmental Management Plan which we expect to be included as a standard condition.

In the meantime, Taronga Zoo is working with Mosman Council to prepare a development application for the removal of 5-6 stairs at the bottom of the ramp, and temporary kerb and local road works, in order to facilitate this three point turn at the start of construction.

In the coming months the project team will be working with both the Head Contractor and cable car contractor to understand how they plan to construct this station including potential crane, compound, delivery and storage locations and dimensions. This cannot be clarified currently as the tender for these two contractors has yet to be released to the market.

6.2.1 ACCESS

Access to the main compound will be via Athol Wharf Road.

There will be traffic management throughout construction to ensure any conflict between buses and other vehicles are managed.

There is ongoing discussions with TfNSW on the best way to manage bus and ferry movement during construction. TfNSW has requested traffic management dedicated to access and vehicle controls throughout which will be adhered to. The potential vehicle movements in this area cannot be confirmed until a head contractor / cable car contractor is engaged. Once known the project team will inform TfNSW to work collaboratively on methods for construction and access.

During demolition and construction there will be a requirement to close the coastal path for some period of time, due to its proximity to building works which will cause work health and safety conflicts. It is noted some parts of the coastal path are underneath the existing station. The length of time will not be known until a head contractor is awarded. Alternative routes will be worked through with Mosman Council and appropriately sign posted and advertised.

6.2.2 DELIVERIES

Deliveries will be managed to ensure impact on the local transport network is reduced. This may include timing deliveries around ferry and bus arrivals, and during busy visitor or commuter hours. Again, this cannot be confirmed until a construction methodology has been discussed and agreed with the Head Contractor and Cable Car contractor.

6.2.3 VEHICLES

Vehicles required may include (yet to be confirmed with Contractors):

- Up to 5m long work / utility trucks;
- 6.5m, 9m and 11m long flatbed / work trucks;
- 7.3m long concrete trucks carrying 6m3 of concrete;
- 8m long mobile concrete trucks carrying 7.4m3 of concrete;
- 9.5m long concrete pump;
- 11m long 200 tonne crane (may be required); and
- 19m long truck and trailer combination – may be required for final excavation works.

6.2.4 WORKFORCE

It is anticipated there could be up to 20-30 contractors on site.

6.2.5 FENCING

There will be standard construction fencing around each compound to separate the compounds from the live zoo environment.

The fencing will have banners to prevent visibility into the site. This will also assist with safety, noise and dust mitigation measures.

6.2.6 SITE STORAGE

Within the secondary compound there will also be a storage area. This will mainly be for equipment to be used on site and materials as required, moved from the main compound.

6.2.7 WASTE STORAGE

The types of waste generation is noted below. It is noted the volume of waste cannot be confirmed until detailed design and post engagement of the contractor. This will be confirmed within the Construction Environmental Management Plan.

Activity	Waste Generated	Recycling Method	Estimated Quantity	Disposal Method
Pre-Construction Works	Redundant furniture	Separated into recycling and general waste	TBC	General Taronga contractors
Demolition and excavation Works	Demolition	All material to be separated into contaminated or VENM	TBC	Reuse VENM on site for levelling ground

		Bricks to be stored for reuse		
Excavation	Excavation	All material to be separated into contaminated or VENM	TBC	Reuse VENM on site for levelling ground
Construction	Excess material from construction	Recycle and reuse where possible.	TBC	Contractor to estimate appropriately the material required so excess material does not need to be disposed of. Recycle and reuse where possible
Post Construction Works	Waste generated as a result of cleaning the site	Recycle where possible	TBC	General rubbish will be disposed of at licensed landfill.

Please refer to the Operational Waste Management Plan for further information on waste storage during construction.

6.2.8 CONSTRUCTION METHODOLOGY

The construction methodology will be agreed with the head contractor and cable car contractor when the contract is awarded. However it is anticipated that the following machinery will be required:

- Excavator;
- Dozer;
- Pulverizer; and
- Crane – to be confirmed if tower crane for length of construction or temporary crane as required.

7 GENERAL MANAGEMENT

7.1 SITE ESTABLISHMENT

Taronga will ensure suitable and safe access, including any applicable social distancing precautions, is maintained at all times around the site for staff, and visitors by the Contractor, including but not limited to the preparation of, and consultation regarding, the maintenance of an Access Plan which, shall incorporate:

- Temporary signage around the site at key locations accessible to visitors (indicatively shown with a 'S' on the plan below);
- Temporary pedestrian crossing, paths and ramps (if required);
- Hoardings and protective screens and covers (as shown in indicatively in red and blue on the plan below); and
- Temporary lighting.

The above measures will be installed by the Contractor prior to the commencement of works.

7.2 SITE SIGNAGE

Shade cloth to site fences, hoardings and any permanent fencing that forms part of the site boundary. Contractors are not allowed use their company branding on Taronga construction sites.

Details of the proposed cover covering the extent and design is to be developed by Taronga and will be placed at key locations at the normal entrances and pedestrian routes.

7.3 SITE SECURITY

The Contractor will secure the boundaries of the site for the duration of works. The external area will be fenced off using temporary fence panels 1.8m to 2.4m in height. Banner mesh (shade cloth – 90% shade factor) will be placed on the site screens and hoarding to help minimise dust and present a clean and well managed site.

All temporary hoarding with banner mesh installed at the site shall be constructed to eliminate risk of a fence blowing away due to high winds. Mitigation while installation is carried out by the Contractors will include:

- Install additional bracing every second panel instead of the standard every third panel;
- Install additional counterweights to the bracing;
- Limiting the length of straight runs in the layout of the hoarding, i.e., corners add additional bracing; and
- Check hoarding regularly for stability and compliance with safety regulations.

Appropriate site safety signage will be displayed at all access points to the site warning staff, visitors and the general public that an area which is fenced and/or hoarded off is a construction site.

All access points allowing entry to the demolition and construction site will always be locked. The Contractors will consult with Taronga to determine an appropriate employee to be authorised to allow access to the construction site in emergency situations by emergency services teams only.

An Emergency Site Access procedure will be implemented and will be issued to the Contractor for use after normal hours. Where Taronga allows access to the construction site by emergency services teams for an emergency, Taronga must notify the Contractors immediately, and thereafter provide in writing the date and time they have entered the site and an explanation of the emergency.

Taronga staff will not be able to access the construction site unless prior arrangements have been made with the Contractor. If access is granted for Taronga staff, the staff member must be accompanied by the Contractor and/or be inducted. It is also recommended that Taronga staff wishing to gain access to the construction site during the project, undertake the Building Industry Induction Course and obtain a white card.

7.4 DAILY TASKS

7.4.1 Prior to Work Commencing

The Contractor's Supervisor will always carry out the following operations to ensure acceptable safety prior to the commencement of work each day:

1. Induct any new contractors;
2. Daily prestart toolbox talks with Subcontractors;
3. Check qualifications, licences and tickets where required; and
4. Review Safe Work Method Statement (SWMS) for sub contractors.
5. Inspect all signs and devices, note any signs out of place or damaged overnight and rectify as soon as possible;
6. Inspect all emergency and pedestrian egress paths and ensure that they are clear of construction plant and materials;
7. Make the programmed adjustments to the site management provisions for the day. Check for safety and effectiveness by an inspection around the job; and
8. Maintain, regularly clean and repair or replace signs and devices as necessary.

7.4.2 During Hours of Work

The Contractor's Supervisor will:

1. Attend to problems as they occur;
2. Where there are hazards to staff and public, the Contractor's staff will ensure these are attended to immediately;
3. Reposition barriers and signs as necessary; and
4. Co-ordinate maintenance of access paths, footpaths with other job operations.

7.5 TARONGA INDUCTION

Contractors, key employees and subcontractors where appropriate must attend an induction process at Taronga conducted by the Principal's Representative at the beginning of the Contract.

In addition, the Contractor must conduct an induction process for all employees and Subcontractors not previously inducted. All work must always be supervised by an inducted person.

7.6 HOURS OF WORK

Contractors must make prior arrangements with the appropriate Taronga personnel for themselves, their employees, subcontractors and suppliers to enter the zoo grounds.

Contractors, employees, subcontractors and suppliers must report to the Taronga Security Officer at the booth in the Goods and Services Entrance at the intersection of Prince Albert Street and Whiting Beach Road. Once construction work is underway, this will remain as the entrance to the site and location of the contractor's site office.

Contractors are advised to not use the visitors or other entrances to the zoo, except with the prior approval of the Principal's Representative.

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.

However, this may be subject to change following receipt of the SSDA approval for these works.

The Principal's Representative may authorise variations outside those hours at such times and under such conditions as the Principal's Representative sees fit.

Out of hours work will be considered for special applications only when it becomes necessary. Relevant authority approvals will be obtained by the Contractor prior to any work being performed outside the approved development consent working hours.

Working outside these hours will only be considered by the Contractor where:

- It is an emergency;
- A situation that would create hazardous conditions;
- Plant breakdowns have delayed an activity that cannot be stopped; and
- The extended working hours will not impact on Taronga operations.

The Contractor will ensure that the Taronga representative and the relevant government authority are notified of this work with the details and the reasons for performing outside the designated hours. No work will proceed outside of hours without the prior approval of Taronga.

The following criteria are set up for the project to ensure the hours of operation remain appropriate throughout the works:

Table 9: Hours of Operation

Parameter	Measurement	Criteria/KPI
Construction noise	Monday to Friday 7am – 5pm Saturday 8am – 1pm Boundary with nearest Users	No breaches.
Complaints	Surrounding community	No public complaints of noise.

7.7 SAFETY EQUIPMENT

Contractors are always required to wear hard personal protective equipment on site including hard hats, appropriate PPE clothing and steel toe boots.

Contractors, employees and subcontractors must have suitable identification such as company cards/tags which should be clearly visible or produced on demand, or wear company clothing.

Contractors must maintain all tools, plant and equipment in safe working condition. There is a requirement to ensure all electrical equipment is checked and tagged monthly before use on site.

7.8 HOT WORK

Before Contractors undertake any hot work on site, they must obtain Hot Work Permits, as required by Australian Standard AS 1674.1 1997 "Safety in welding and allied process - Fire precaution". Hot Works will be detailed in the Contractors "Safe Work Method Statement".

7.9 NO SMOKING POLICY

Taronga is a smoke free workplace. Smoking in not permitted within the site except where the Principal's Representative has approved a "Designated Smoking Area", which is to be clearly sign posted. This area is to be located away from flammable materials, visitors and animals and will be outside the site boundary of the zoo.

Contractors will comply will Taronga's Policy and ensure there is no smoking on site including site offices and subcontractor facilities.

7.10 FIRST AID

The Contractor is required to provide a regularly serviced First Aid kit and register. A First Aider must always be on site.

Taronga will provide Occupational First Aid assistance if required. The number for emergencies is 9969 2777 (Zoo Main Switchboard). Switchboard will coordinate any emergency First Aid requirement, including Ambulance and Security guidance.

7.11 CONFINED SPACES

The Contractor is required to comply with the requirements of Taronga Confined Space Entry Procedures.

A competent person will be authorised by Taronga management as responsible for the safe execution of the work. They must be qualified by training, education, practical experience and technical knowledge of working in confined spaces. They will be responsible for the safe execution of the work in deemed confined spaces at Taronga.

A standby person with the appropriate training must also be in attendance.

All personnel working inside deemed confined spaces at Taronga must attend an induction and receive instructions which include covering emergency procedures, entry/exit procedures and requirements of the above Procedures.

The Contractor is required to obtain a Taronga “Permit of Entry to a Confined Space” before any work commences.

7.12 UTILITIES

For work involving utilities such as gas, electricity, communications, potable water, stormwater, treated water and firefighting services, the Contractor must make prior arrangements through the Principal’s Representative for appropriate Taronga personnel to be in attendance to provide advice and information about the systems. This will ensure that work is carried out safely and timely advice is given of any possible disruption to Taronga activities.

7.13 SOIL EROSION AND SEDIMENTATION

Contractors will be required to submit an Erosion/Sedimentation Control Plan prior to commencement of works. The control plan will address the risk of sediment and pollutants from the site entering the stormwater drainage system.

7.14 HAZARDOUS MATERIAL REMOVAL

All removal of hazardous material from buildings and structures identified for demolition will be in accordance with statutory requirements.

Timings will be identified to remove hazardous material outside of operational hours, where staff and the public will not be impacted.

7.15 DELIVERIES

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.

The deliveries will be made to the Taronga staff car park from Whiting Beach Road. An area will be allocated here for a site compound and area to store materials. This will be made available to the contractor from appointment to allow for advance ordering of materials. The frequency and timing of deliveries will not be understood until a Head contractor and cable car contractor is onboard. Taronga Zoo will monitor deliveries and the impact on local roads, with the aim to reduce deliveries during peak travel hours.

Only some deliveries will be made directly into the site, and this will be managed carefully to ensure this does not impact operations in the staff areas.

This area of the site is not subject to restricted site access however deliveries will still be scheduled and coordinates relevant sub-contractors and suppliers. Deliveries will aim to be taken in the early morning with consideration of key zoo operation times, e.g., coach arrivals, staff starts and finishes, general traffic movements in the local area.

Agreement on the delivery times will be finalized in consultation with Taronga and in accordance with the Preliminary Traffic Management Plan. All material movements shall be carried out in accordance with Contractor's material handling procedures and Construction Traffic Management Plan (TMP).

8 GENERAL NOISE, VIBRATION AND DUST MANAGEMENT

8.1.1 DUST

Dust control measures will be implemented during construction are outlined below.

Further details of dust controls measures will be detailed in a future Construction Environmental Management Plan (CEMP). The Applicant is willing to accept a condition of consent requiring the CEMP to be prepared prior to the commencement of works and to provide dust suppression measures in accordance with the advice from the EPA. In addition SWMS will be provided for individual activities detailing the controls required to mitigate dust including the appropriate PPE and equipment to perform the tasks.

General Dust Controls

The following controls will be put in place to prevent dust generated by site activities:

- Soil must be protected to prevent scour and erosion or moisten with water sprayers and carts
- Stockpiles to be removed as soon as practicable
- Install sufficient water outlets to suppress works that generate dust e.g. Concrete and masonry cutting
- Large areas of unsealed surfaces to be kept moist by using water carts
- Work practices should be used to minimise dust generation
- Work areas to be swept regularly to remove saw dust etc.
- Shade cloth to be attached to site fencing to minimise dust impacting on neighbouring properties
- Demolition work must not be carried out during high winds (winds exceeding 50km per hour) , which may cause dust to spread beyond the boundaries of the site.

To mitigate dust caused by plant and vehicle movements the following controls will be completed:

- Stabilise roads and set down areas using road base
- Cover loads prior to leaving site
- Shade cloth to be attached to site fencing to minimise dust impacting on neighbouring properties
- Install shaker device or similar at site exit points

Asbestos

The removal of less than 10 square metres of non-friable asbestos containing material (ACM), or removal of asbestos-contaminated dust or debris (ACD) associated with that work, does not require an Asbestos Removal Control Plan, however a High Risk Construction Work (HRCW) SWMS is required and must be documented.

All work requiring the removal of hazardous materials e.g. Asbestos and Lead debris to be controlled by encapsulating areas in accordance with the removal of hazardous materials. Dust suppression measures will be put in place and appropriate PPE should be worn.

Monitoring of air to be conducted by hygienist and reports provided whilst undertaking asbestos removal/lead removal works

Crystalline Silica Dust

A potential dust generator may be from work to drelating to Crystalline Silica. In this case a number of control measures should be put in place.

Processing of a CSS is controlled if:

- control measures to eliminate or minimise risks arising from the processing are implemented sofar as is reasonably practicable; and
- at least one of the following measures are used during the processing

- the isolation of a person from dust exposure
- a fully enclosed operator cabin fitted with a high efficiency air filtration system
- an effective wet dust suppression method
- an effective on-tool extraction system
- an effective local exhaust ventilation system; and
- a person still at risk of being exposed to respirable crystalline silica after one or more of the measures above are used:
- is provided with respiratory protective equipment (respiratory protective equipment); and
- wears the respiratory protective equipment while the work is carried out.

When respirable crystalline silica (RCS) is made or generated in the workplace, it can settle on floors, plant, equipment and workers' clothing. From there, it can easily get into the air and get breathed in.

It is important to do a regular clean up (or housekeeping) to effectively manage the risk of exposure to CSS in the workplace.

Good housekeeping can eliminate or reduce exposure, even after work has stopped.

Developing written rules and policies including a Silica Control Plan will be required by the contractor to implement housekeeping as an administrative control, and training people in appropriate cleaning methods.

The following housekeeping measures will be put in place for Crystalline silica dust,

- use a low-pressure water, wet sweeping or an M or H class rated vacuum cleaner to clean dust floors, walls, other surfaces, and equipment,
- always follow the vacuum manufacturers operator manuals and instructions for changing dust bags and filters
- Dust shall be double bagged before placing in skip bins.
- The respiratory protective equipment (RPE) for workers exposed to crystalline silica must incorporate a particulate filter (P1, P2 or P3 - dependent on the type of respiratory protective equipment selected and the level of airborne contamination present).
- This includes workers working in the same area as workers cutting, drilling or grinding crystalline silica containing materials where there is a dust hazard.

MDF

MDF is another dust generating material which should be monitored and controlled. When utilising MDF as a material the following standards will be expected:

- All equipment used to cut or drill MDF must be fitted with vacuum dust extraction.
- Safety glasses and a P2 mask must be worn during cutting and exposure to MDF dust.
- MDF Dust to be double bagged and disposed of in skip.
- MDF to be stored in a shaded area and away from heat to inhibit any release of any Formaldehyde vapour.
- The plastic packaging on the MDF should be maintained during storage on site.

Chemical Dust

For chemical dust the following controls will be in place:

- Environment to be adequately ventilated
- Dust control measures to be put in place such as extraction units or vacuum units fitted to power tools
- Dust emitting processes must be isolated to prevent ingress to other work areas

8.1.2 NOISE AND VIBRATION

The Construction Noise and Vibration Management Plan details how noise and vibration sources will be identified and managed on this project. Compliance with the Environmental Protection Act (EPA) is required.

Special reference is also made to controls identified in:

- Environmental Protection Regulation;
- Environment Noise – Environment Protection Policy;
- AS2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites;
- Development Consent Conditions; and
- Noise and Vibration Report for SSDA prepared by Acoustic Studio.

8.1.3 SOURCES OF NOISE AND VIBRATION

The Contractor will identify the sources of noise on the project and determine the acceptable noise levels based on the criteria set out in the management plan with special regard to statutory, project specific requirements, the Noise and Vibration Report prepared by Acoustic Studio and in consultation with Taronga.

8.1.4 NOISE AND VIBRATION LEVELS

8.1.4.1 Noise

The Contractor is to identify indicative sound power levels for specific items of plant and equipment used, to estimate noise impacts in accordance with the relevant guidelines. The Contractor is to reference the appropriate noise levels as identified in the Acoustic Report prepared by Acoustic Studio.

8.1.4.2 Vibration

Given the location of the site, some exceedance of daytime vibration limits may be expected in terms of either the potential for building damage or in terms of exceedance of human comfort levels, and operational limits of equipment from any construction activities. The Contractor is to reference the appropriate vibration levels as identified in the Acoustic Report prepared by Acoustic Studio.

8.1.5 PROCEDURE FOR MITIGATION OF IMPACTS

Where elimination and prevention are not feasible options, the reduction of the noise at the source and the control of transmission path between the construction site and the receiver are the preferred options for noise minimisation through engineering and or administration controls. Providing treatments at the affected residences or other sensitive land uses would only be implemented as a last resort.

The table below outlines mitigation procedures to reduce or eliminate the impact of construction works. In addition, the Contractor will implement strategies in line with those provided in the Acoustic Report prepared by Acoustic Studio.

Provided the recommendations detailed in this report are correctly implemented, it is anticipated that the construction works will have no adverse noise impact at the nearest residential receivers.

Table 10: Mitigation of Impacts

Control Measures	Responsibility	Timing / Frequency
General and Construction Hours		
Implement this Noise and Vibration Control Plan.	Contractor	Throughout works.

Ensure that construction work is restricted to the stated normal working hours unless otherwise approved: Work outside these hours will only be considered where: It is an emergency; A situation that would create hazardous conditions; Plant breakdowns have delayed an activity that cannot be stopped (e.g., concrete pour); The extended working hours will not impact on surrounding users/buildings.	Contractor	Daily.
Ensure the relevant government authority approval is obtained for any work occurring outside normal working hours.	Contractor	Prior to works outside normal working hours.
Train site personnel in noise and vibration impacts and management, including techniques to minimise noise and vibration emissions to residences.	Contractor	Prior to on-site construction commencing.
Noise		
Inform surrounding neighbours and stakeholders of intended scope of works regarding noise.	Contractor	Prior to on-site construction commencing.
Where practical, construct earth mounds or screening in sensitive locations, to act as acoustical barriers and to minimize noise emissions.	Contractor	Prior to on-site construction commencing.
Select and use the quietest available plant and equipment. Minimise the use of 2 stroke engines.	Contractor	Prior to on-site construction commencing.
Monitor individual vehicles, plant and equipment for noise generation.	Contractor	When first brought onto site & every 3 months throughout the project.
Regularly maintain vehicles, plant and equipment and fit engine exhaust systems with properly maintained noise suppression devices such as mufflers, silencers and enclosures in accordance with manufacturer's recommendations.	Contractor	Prior to on-site construction commencing and ongoing.
As far as practicable, locate compounds, parking areas and activities located in positions away from noise sensitive locations.	Contractor	At all times.
Minimize noise-intensive activities as far as possible.	Contractor	At all times.
Where possible, face engines of large plant and equipment away from neighboring properties.	Contractor	At all times.
Notify client and other relevant authorities and surrounding neighbors prior to predicted noisy or vibration-intensive activities	Contractor	Prior to noisy activities commencing.
Notify client, the relevant government authority and adjacent neighbors of any works undertaken outside normal working hours, which could result in noise impacts.	Contractor	Prior to works outside normal working hours.
Record and action all noise complaints.	Contractor	When required.
Monitor general noise levels during working hours.	Contractor	Throughout construction period.
Compare noise levels to the KPI's. If greater than KPI's or background, raise a non-conformance report and implement further noise control strategies.	Contractor	Throughout construction period.
Vibration		
Evaluate likely vibration impacts on nearby structures, sewer mains, and pipelines and develop mitigation measures as appropriate with Taronga Zoo.	Contractor	Prior to on-site construction commencing.

Implement a weekly / daily communication process with stakeholders to inform of construction activities, particularly any excavation in rock, that may cause vibration issue with adjacent buildings. Works to stop immediately if vibration from construction works interfere with neighboring properties.	Contractor	Prior to commencing any construction activities that may cause vibration issues with equipment.
Monitoring		
The Contractor shall monitor noise and vibration objectively of plant and sensitive receptors. The results of these tests shall be recorded on a regular basis.	Contractor	Regularly.
Physical monitoring (using Sound Level Meters or vibration meters) shall be performed in accordance with the relevant Australian Standards or other prescribed standards. Short term attended noise and vibration monitoring shall be performed at locations nominated at the commencement of works.	Contractor	When required.
Recording		
Observations shall be noted in weekly Site Inspection Report.	Contractor	Weekly.

8.1.6 GENERAL

The Contractor will ensure that 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.

The Contractors shall notify Taronga in advance of work which may require additional dust protection.

Jack hammers and other noisy equipment including hand-held tools used in the performance of the work will be fitted with effective silencers of a type recommended by the manufacturers.

Compressor sets and motors used in the performance of the work will be fitted with effective acoustic canopies and special engine exhaust silencers of a type recommended by the compressor manufacturer. Where possible the Contractor is to undertake all noisy works between 7.00am to 9.00am Monday to Saturday.

Portable radios and CD players will not be permitted on site. The Contractor shall ensure that all structural borne noise will be kept at a minimum to avoid disruption for the users and occupiers of neighbouring properties for periods outside the agreed noisy works periods. The Contractor will use “best practice” methods of work to obviate any generated noise.

9 GENERAL WASTE MANAGEMENT

9.1 OBJECTIVES

The objective of the Waste Management Plan is to ensure the maximum amount of waste material resulting from demolition and construction activities are reused and/or recycled to reduce the environmental impact of waste disposal. This can be achieved by:

- Minimise waste generation;
- Ensure appropriate storage, separation and collection of waste;
- Avoid illegal dumping; and
- Promote improved project management and implementation of the WMP.

9.2 INITIATIVES

The provisions to achieve the objectives are to be identified by Contractor in a detailed Waste Management Plan (WMP) incorporating waste minimisation strategies prior to commencing construction works. The WMP will be developed in accordance with the Contractor's Environmental Management System to ensure optimum waste management initiatives are implemented.

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; and
- Implement measures to prevent damage from the elements, odours, health risks and windborne litter.

9.3 IMPLEMENTATION

The Contractors are to discuss waste management strategies for the project with material suppliers and waste handling facilities prior to their engagement. The Main Contractor for each stage is to outline waste management plan objectives during site inductions and toolbox talks to ensure all Subcontractors are aware of the legal requirements for disposing of waste.

In carrying out the works, footpaths, public reserves, street gutters are not to be used to store or manage waste materials of any kind with SSDA approval. Material moved offsite is to be transported in accordance with requirements of the EPA and relevant WHS legislation administered by WorkCover NSW.

Subcontractors and suppliers are to be encouraged to:

- Estimate actuate volumes of material to be used in the works;
- Identify potential reuse and recycling opportunities of excess construction material;
- Incorporate the use of prefabricated components and recycled materials when appropriate;
- Arrange for the delivery of materials so that materials are delivered 'as needed' to prevent the degradation of material through weathering and moister damage;
- Organise with suppliers or manufactures the return of excess material; and
- Clearly sign post the purpose and waste stream content of the separate collection bins or areas for residual waste.

During the construction phases there will be different waste produced at different times, the below table will identify the waste generated, recycling options and segregation methods.

All quantities are estimates only and sources of recycling centres or land fill will be confirmed once the building contractor has been appointed.

Imported materials will use exact quantities to reduce waste generation and if possible, reused in the works or taken away for reuse on other projects.

9.4 RUBBISH REMOVALS

Each construction zone compound has its own rubbish bins with bigger compounds having two bins. Refer to site establishment plans for a markup of proposed rubbish bin locations for each construction zone compound.

The Contractor shall remove from site rubbish resulting from the works. Rubbish shall be handled in a manner to confine the material completely and to minimise dust emissions and disposed of in accordance with Contractor's Environmental Plan.

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 specialist 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.

It will be recommended to the Contractor that the large bins are stored near the site compound in the staff car park, to allow for easy collections.

The work is to be undertaken in accordance with the Waste Management Plan detailed in this CMP and will be furthered detailed by the chosen contractor.

10 GENERAL ACCESS PLAN

10.1 OVERVIEW

The overall traffic impact during the construction period is expected to be nominal within the Taronga site and the adjacent roads expected to accommodate the peak construction traffic generation.

Pedestrian impact during the construction period is also expected to the nominal, with the assigned Contractor minimising the requirement for full pathway closure where safe to do so.

A detailed Construction Traffic Management Plan will be developed by the appointed Contractor prior to the commencement of any construction works.

10.2 OCCUPIED PREMISES

The Principal or persons authorised by the Principal will continue in possession and occupancy of all areas of Taronga.

The zoo will always remain fully functional during construction works.

Contractors to Taronga shall be deemed to be authorised by the Principal to access all public areas of the zoo normally open to visitors and at the times the zoo is normally open to visitors except as otherwise provided in the Contract or advised by the Principal's Representative.

10.3 VEHICLE ACCESS

10.3.1 CONSTRUCTION ACCESS

The designated truck routes to/ from the arterial road network includes the use of Military Road and Bradleys Head Road. The approach and departure routes on the external road network are shown below.

All construction vehicles accessing the site would do so in full compliance with the required clearway and parking restrictions. No queuing of trucks would be permitted on public roads. Truck arrivals would be coordinated to ensure incoming trucks are not required to wait for a truck space to be available on-site.

Access to the main site by construction vehicles will be via Bradleys Head Road near the bus stop. Access to the lower station will be via Athol Wharf Road.

This access has been chosen due to its proximity to the site, to minimise disruption from construction vehicles through the zoo. Disruption will also be mitigated by the requirement of deliveries to be made prior to 9:30am.

10.3.2 CONSTRUCTION TRAFFIC

When the construction site is operational, staff and construction traffic will utilise the entrance into the site from the Security Entrance.

Traffic Management will be in place to manage vehicle movements in this location.

10.3.3 TARONGA VEHICLE POLICY

Taronga operates a strict vehicle policy within the site:

1. Restrict movements of vehicles to the minimum requirements for executing the Works. Do not drive private vehicles into the zoo grounds.
2. Do not exceed 10 kilometres per hour.
3. Do not drive vehicles including suppliers' delivery vehicles within the public areas of the zoo between the hours of 9:00am to 5:00pm during school holidays and weekends, and 10:00am to 3:00pm at other times.

4. Between 6:00am and 9:00am and between 5:00pm and 6:00pm during school holidays and between 6:00am and 10:00am and between 3:00pm and 6:00pm at other times, up to 10 vehicle movements are permitted per day in the public areas. Escort larger vehicles to the construction site.
5. Movements of vehicles in other areas of the zoo are restricted to between the hours of 6:00am to 6:00pm subject to the approval of the zoo's management.
6. Roads within the zoo may not have a heavy-duty pavement. The roads may not be suitable for articulated or long wheelbase vehicles. Some of the roads are unsealed and may not be suitable for use in wet weather.
7. Roads within the zoo may have limited width and headroom. Check the access before organising vehicular transport.
8. Use a route as directed by zoo staff and notified prior to start and use service roads where possible.
9. Limit movement of heavy vehicles to be used in removing spoil or other materials from the Taronga Zoo to between the hours of 7.30am to 4.30pm on Monday to Friday and between 7.30am to 1:00pm on Saturday, or as required by Mosman Council, subject to restrictions in item 3 above for vehicle movements within the zoo.
10. Take responsibility for any damage caused by vehicles, including those of subcontractors and suppliers, using the roads and repair any such damage at no cost to the Principal.
11. Keep access roads and adjacent footpaths, gutters and drains clear of construction waste, debris and mud, clean as required and remove waste, debris and mud from the zoo, all at the Contractor's cost.
12. Comply with the physical limitations on the height of vehicles using zoo roads.
13. Where it is necessary to remove fences within the zoo to enable access to be gained to work areas, keep the areas secure at all times and reinstate the fences as soon as practical.
14. Do not ride in/ on back of vehicles; and ride in seat with seat belt fastened.
15. Fuelling of vehicle at or near public areas is not permitted.
16. Park vehicles on site within the site compound or at locations as directed by zoo staff.
17. The zoo is a pedestrian park and pedestrians have right of way.

As listed above, the construction vehicles accessing the zoo grounds are restricted to occur outside of the busy zoo operating period. Vehicle access within the zoo grounds would generally be limited to 6:00am to 10:00am and 3:00pm to 6:00pm.

10.3.4 GOODS AND CONSTRUCTION EQUIPMENT MOVEMENT THROUGH ZOO GROUNDS

The following policy applies to include all goods and construction equipment movement through the zoo grounds:

1. Must be in line with the appropriate “Safe Work Method Statement” and complete a “Risk Assessment” for each task prior to commencement;
2. For larger trucks transporting goods and construction cranes have a person walk the vehicle through the grounds;
3. Take extreme care with cranes in the vicinity of the remaining high robes course;
4. Notify the Principal’s Representative before these vehicles enter the zoo ground; and
5. Ensure that these movements occur within an agreed time frame which has been predetermined in consultation with the Principal’s Representative and if necessary, also with Taronga Zoo’s CW&I Division.

10.3.5 CONSTRUCTION VEHICLES

The type and size of the construction vehicles are likely to be as follows:

- Up to 5m long work / utility trucks;
- 6.5m, 9m and 11m long flatbed / work trucks;
- 7.3m long concrete trucks carrying 6m3 of concrete;
- 8m long mobile concrete trucks carrying 7.4m3 of concrete;
- 9.5m long concrete pump;
- 11m long 200 tonne crane (may be required); and
- 19m long truck and trailer combination – may be required for final excavation works.

Concrete trucks have been allowed for all levels based on carrying 6m3 each and will be able to enter and exit site with all concrete pumped from within site.

No parking is required on the local roads around the entrance on Whiting Beach Road.

All traffic movements will be in strict accordance with the pending Traffic Management Plan.

10.3.6 CRANAGE AND TRUCK MOVEMENTS ONSITE

Traffic management measures will be used to control access into and exiting the site.

Depending on construction methods and the ability to get materials onto site a crane may be for these works. Appropriate traffic management will be in place on Whiting Beach Road, and from the access point to the site, to ensure there is no disruption to vehicular or pedestrian movements.

Contractors must note there is a height restriction in certain areas of Taronga due to the Sky Safari Cable Car until demolition works are complete.

10.3.1 USE OF TARONGA WHARF

There may be a requirement to utilise the wharf for barge deliveries, however this cannot be confirmed until a head contractor and cable car contractor contract is awarded. If required Taronga Zoo will have discussions with TfNSW with significant notice.

10.3.2 USE OF HELICOPTERS

There may be a requirement to utilise helicopters to decommission and commission pylons, however this cannot be confirmed until a head contractor and cable car contractor contract is awarded. If required Taronga Zoo will have discussions with CASA with significant notice.

10.3.3 ACCESS FOR EMERGENCY VEHICLES

Construction works will not affect the access for emergency vehicles and personnel during the project, however in the event of a construction activity affecting the access path:

- Taronga and the Contractor shall ensure suitable access is always maintained by the Contractors for emergency vehicles and the general public on and off the site; and
- All construction traffic to and from the site will be appropriately managed.

10.3.4 PARKING

Contractors and subcontractors personnel will be permitted to park vehicles in the Taronga staff carpark unless otherwise notified by Taronga. Eight spaces will be provided within the staff parking compound. Other parking facilities are available in public space on surrounding streets and Bradley's Head Road.

All Contractors are always to keep Whiting Beach Road and Athol Whalf Road clear to allow road users unobstructed access in and out of the area.

The Contractors shall ensure that all persons inducted on the project are advised of the traffic and parking policy for this project for the proposed parking areas on site for construction workers.

10.4 PEDESTRIANS

10.4.1 ACCESS FOR VISITORS

Access for Taronga staff and visitors to the operational part of the site will be maintained however alterations will be made to suit the staging and sequence of the construction activities. The final access arrangement will be agreed with the Contractor prior to the commencement of the works. This will be demarked with agreed barrier, hoarding and signs.

Taronga shall ensure suitable and safe access is always maintained around the site for staff, visitors and general public. The Contractor will be responsible for the implementation and management of access plans during construction. The Contractor will consult with Taronga and develop access plans that will be incorporated within the Contractor's Site Management Plan.

The plans will include:

- Exact location of temporary signage around the site;
- Exact location of temporary pedestrian crossings and access points;
- Exact location of temporary paths and ramps; and
- Exact location of hoardings and site fencing.

It is noted there is a requirement to close the coastal walk during the works due to its proximity to the lower station demolition and construction works. TCSA will work with Mosman Council to mitigate these impacts by providing alternative routes around the area which is clear demarked and signed.

10.4.2 ACCESS FOR CONSTRUCTION PERSONNEL

Contractors must make prior arrangements with the appropriate Taronga personnel for themselves, their employees, subcontractors and suppliers to enter zoo grounds.

Subcontractors and suppliers must report to the Taronga Security Officer at the booth in the Goods and Services Entrance at the intersection of Prince Albert Street and Whiting Beach Road.

Figure 12: Security Access

All demolition and construction personnel will be advised of the requirements of access as part of the site inductions prior to commencing work on site.

General circulation from the Contractor's site establishment area and the site will be in accordance with the site establishment plan.

11 COMMUNICATION

11.1 STAKEHOLDERS

Taronga will coordinate with the Contractors and principal consultants working on the project.

In planning and implementation of the works on site, including access to, from and around the site, Taronga shall consult and coordinate with the Contractors and all relevant stakeholders, authorities and agencies including:

- Taronga staff;
- NSW Fire Brigade;
- NSW Police;
- NSW Department Planning & Environment;
- NSW Department of Primary Industries;
- NSW Rural Fire Service;
- NSW Environment, Energy and Science Group;
- Heritage Council of NSW;
- NSW Aboriginal Land Council;
- Environmental Protection Agency (EPA);
- Mosman Council;
- NSW Roads & Maritime Services (RMS);
- National Broadband Network Ltd;
- Ausgrid;
- Transport for NSW; and
- Sydney Water.

11.2 STAKEHOLDER COMMUNICATION

11.2.1 Regular Meeting

Stakeholder communication meetings will be established to keep all key staff informed on key milestones and develop both staff and visitor access/circulation plans, including any applicable social distancing requirements.

11.2.2 Contact List

This contact list will be prepared by the Contractor upon engagement and made available to all parties.

12 RECORD KEEPING

12.1 SITE QUALITY ASSURANCE AND DAILY RECORDS

Contractor's representative will keep adequate records of daily activities and any significant departures or additions in the Project Diary. An Inspection and Test Plan (ITP) shall be completed ensuring compliance with the management plans.

12.2 INCIDIENT / ACCIDENT MANAGEMENT AND REPORTING

12.2.1 Incident Management

The objective of the incident plan is to minimise such disruptions and provide a clear and simple guideline for disruptive events. Contractor's Incident Management Plans are to be implemented on the project upon award of the Contractor.

12.2.2 Accident Management

The Contractors shall promptly notify Taronga of the occurrence and furnish a written report of the following incidents and accidents:

- Accident involving death or personal injury;
- Accident involving lost time; and
- Incidents with accident potential such as equipment failure, slides, cave ins, and the like.

In the case of accidents either witnessed or reported, involving Taronga staff, public or contractors from which legal proceedings might arise:

- Record the actual type, size and location of signs and devices in use at the time of the accident;
- Notify Taronga as soon as possible; and
- Take photographs of the arrangement for subsequent reporting.

13 EMERGENCY PROCEDURE

In the event of any emergency arising during the contract, including:

- Emergency evacuation;
- Fire;
- Flooding and water damage;
- Gas leak;
- Mains power failure;
- Explosion;
- Bomb threat;
- Chemical Spill;
- Construction accident;
- Medical Emergency;
- Theft of Collection items; and
- Criminal or accidental damage.

Taronga will instigate the appropriate procedure for the remainder of the site depending on the emergency present. Trained zoo staff will coordinate all emergencies.

Taronga expects all staff to take Emergency Drills seriously and follow Taronga staff instructions in the event of an emergency.

A constant beeping sound over the Public Address System would indicate an emergency with a Dangerous Animal. Seek refuge in the nearest lockable building on hearing this sound. Report any unannounced emergency to the zoo telephone switchboard (9969 2777).

The Contractor responsible for the demolition and construction work site will be responsible to ensure that all construction personnel associated with the works are evacuated from the work site in accordance with the Contractor's procedures. On evacuation of the work site the Contractor's representative will notify Taronga and advise the status of the site and await any further instructions.

The Contractors should ensure that Taronga Evacuation Plans are displayed within the worksite and the Contractor's site establishment to assist construction personnel evacuating Taronga in the event of an emergency.

Taronga shall ensure emergency procedures are incorporated into the Contractor's plans and incorporated during inductions of workers and include the specific requirements of Taronga in the event of an emergency.

In the event of any emergency the following project team personnel will be contactable during all hours of the day:

Emergency contact table to be completed on award of Contractor:

No.	Position	Name	Telephone Number
1	Site Foreman	TBC	TBC
2	Site Manager	TBC	TBC
3	Contractors, Project Manager	TBC	TBC
4	Taronga, Project Manager	TBC	TBC

The number designates the order of precedence, which may depend on availability at a particular time of day or period of construction.