AUGUST 2024

Taronga Zoo Sky Safari

Appendix F
Design Report

PREPARED BY

Studio.SC

PREPARED FOR

TARONGA
CONSERVATION SOCIETY AUSTRALIA
For the Wild

Taronga Sky Safari

SSDA DESIGN REPORT

Sky Safari - Taronga Zoo

TARONGA

scott carver

Acknowledgement of Country

We acknowledge the Cammeraigal people, their Country, spirit and traditions as customary owners of the lands upon which Taronga Zoo Sydney stands.

We pay our respect to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples.

PREPARED FOR

TARONGA ZOO
BRADLEYS HEAD ROAD, MOSMAN NSW 2088

PREPARED BY

Scott Carver Pty Ltd
Level One,
One Chifley Square,
Sydney NSW 2000
+61 2 9957 3988

www.scottcarver.com.au

Nom. Architect
Doug Southwell 7362

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1.0 Executive Summary and SEARS Requirements

1.1
Executive Summary

This Architectural Design Report has been prepared by Scott Carver to accompany a detailed State Significant Development Application (SSDA) for the redevelopment of the Sky Safari at Taronga Zoo. The site is legally described as Lot 22 on Deposited Plan 843294 and is Crown Land managed by the Taronga Conservation Society Australia (TSCA).

Taronga Conservation Society Australia is a a statutory body representing the Crown. The Minister for Planning and Public Spaces, or their delegate, is the consent authority for the SSDA and this application is lodged with the NSW Department of Planning, Housing and Infrastructure (DPHI) for assessment as the works are located within the Taronga Zoo site and have an estimated development cost that exceeds the $10 million threshold pursuant to Clause 2(h) of Schedule 2 of the State Environmental Planning Policy (Planning Systems) 2021.
Scott Carver has been commissioned by Taronga Conservation Society Australia to provide Architectural design services in support of a State Significant Development Application (SSDA) project to facilitate the construction and operation of the new Sky Safari.

The design of the new Sky Safari has been undertaken in collaboration with a broad range of both design consultants and specialist technical consultants. It has involved engagement with the Taronga Zoo TAAG presenting First Nations commitments; and included early engagement with Elders via FCAD during the initial stages of Concept Design.

During concept development of the scheme, the design team attended three (3) State Design Review presentations and discussions, which has been considered in the submitted SSDA scheme.

Taronga Zoo is a unique environment, both in natural and built form. As the project developed, changes in the route and station design have adopted to a range of stakeholder and user group feedback, including but not limited to zoological needs, heritage and conservation, landscape and ecology and consideration of input from Mosman Council and neighbourhood needs.

The resultant Sky Safari cable car takes the route of the existing cable car including the location of the two stations. The Bottom Station includes cable car infrastructure with an architectural overlay that creates shade, shelter and equitable access. The top station has been identified by Taronga as the Nature Station and sits adjoining the existing entrance plaza. In the main, it is the base infrastructure with addition of landscaping and screening elements. A lightweight storage facility provides both maintenance and storage at the top, that is currently undersized in the existing facility.

SEARS Requirements

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 11 August 2022 and issued for the SSD-46807958. Specifically, this report has been prepared to respond to the SEARs requirement issued below.

\ **Design Quality.** The design rational and design quality are outlined throughout this design report (Sections 3,4,5) which includes key design concepts and then evidence on how this has been adopted in the design resolution of the Sky Safari. This report summarises Better Placed design considerations (Section 13) and provides a high level commentary on how we have responded to the SDRP minutes and feedback (Section 8). We note that the scheme has been simplified considerably during concept design in response to stakeholder feedback including client needs and to ensure alignment with the pragmatics of public funding allowances.

\ **Built form and Urban Design** is outlined within this Design Report in Sections 10 and 11 .

\ **Environmental Amenity** is outlined within this Design Report, in Sections 10 and 11 where the station design including shade and shelter is defined. We also refer you to the Sustainability Report accompanying the SSDA submission.

1.2
Site Description

Taronga Zoo is located at Bradleys Head Road, Mosman and is situated in the Mosman Local Government area (LGA) and on Cammeraigal Country. 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). Taronga Zoo has been subject to numerous upgrades and redevelopment schemes over time, to stay compliant with contemporary regulations, meet contemporary animal welfare and contemporary visitor experience expectations.

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 1.8 million visitors annually.

Project Description

Taronga Zoo is one of Australia's most popular attractions, and together with Taronga Western Plains Zoo hosts more than 1.8 million visitors annually. 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.
Within Taronga Zoo, the Sky Safari is one of Taronga's most loved experiences and has transported more than 20 million passengers since it was first installed in 1987 and upgraded in 2000. The former Sky Safari was an ageing asset and was formally retired in January 2023. The redevelopment of the existing Sky Safari will allow the Zoo to update the now obsolete infrastructure on site and provide new facilities which improve accessibility, ease increased demand and assist the public in moving around the Zoo.

Upgraded Experience

The infrastructure associated with the cable cars will incorporate approximately 6 pylon towers (previously 9 pylon towers with the retired Sky Safari) ranging in height from 4.3m 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 route of the upgraded Sky Safari maintains the existing footprint of the Sky Safari, however, will require the cable car corridor to increase from 9m to 12.5m in width due to the increased cable cars and clearance requirements.

Cable Car 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.

A 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.

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 (4.3m)– located in close proximity to the existing and proposed Lower station with Pylon 4.3m above adjoining station level
- Pylon 2 (9.7m) – located by existing Pylon 2.
- Pylon 3 (26.2m) – located by the existing Food Court.
- Pylon 4 (35.7m) – in front of the existing 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 with Pylon 4.3m above adjoining station level

Summary

Overall, the revitalised Sky Safari will:

- Feature additional, larger cable cars that are more accessible, dramatically improving the guest experience journey for all visitors.
- Connect to recent upgrades underway to the Taronga Zoo Wharf under the SW Government's Transport Access Program.
- Increase the Sky Safari's former capacity, allowing for a more seamless flow of guests around the Zoo, while also enhancing opportunities for educating guests on Taronga's conservation efforts.
- Encourage guests off the roads and onto public transport as they explore the harbour on route to the Zoo.
- Provide unique, affordable, family-focused sightseeing tourism infrastructure that provides comfortable all-season experiences to support year-round growth in visitation to the Zoo. This will assist in securing the financial future of the Zoo to ensure that it can continue to undertake a range of conservation and education projects.
- Consider the heritage significance of local heritage items within the Zoo grounds and the strong historical presence of Taronga.
- Enhance opportunities for educating the community on TCSA's conservation efforts.

2.0 Taronga Zoo Offering

2.1
Taronga Zoo Vision

The following diagram and text represents the core vision and purpose of Taronga Zoo.

ENVIRONMENTAL LEADERSHIP

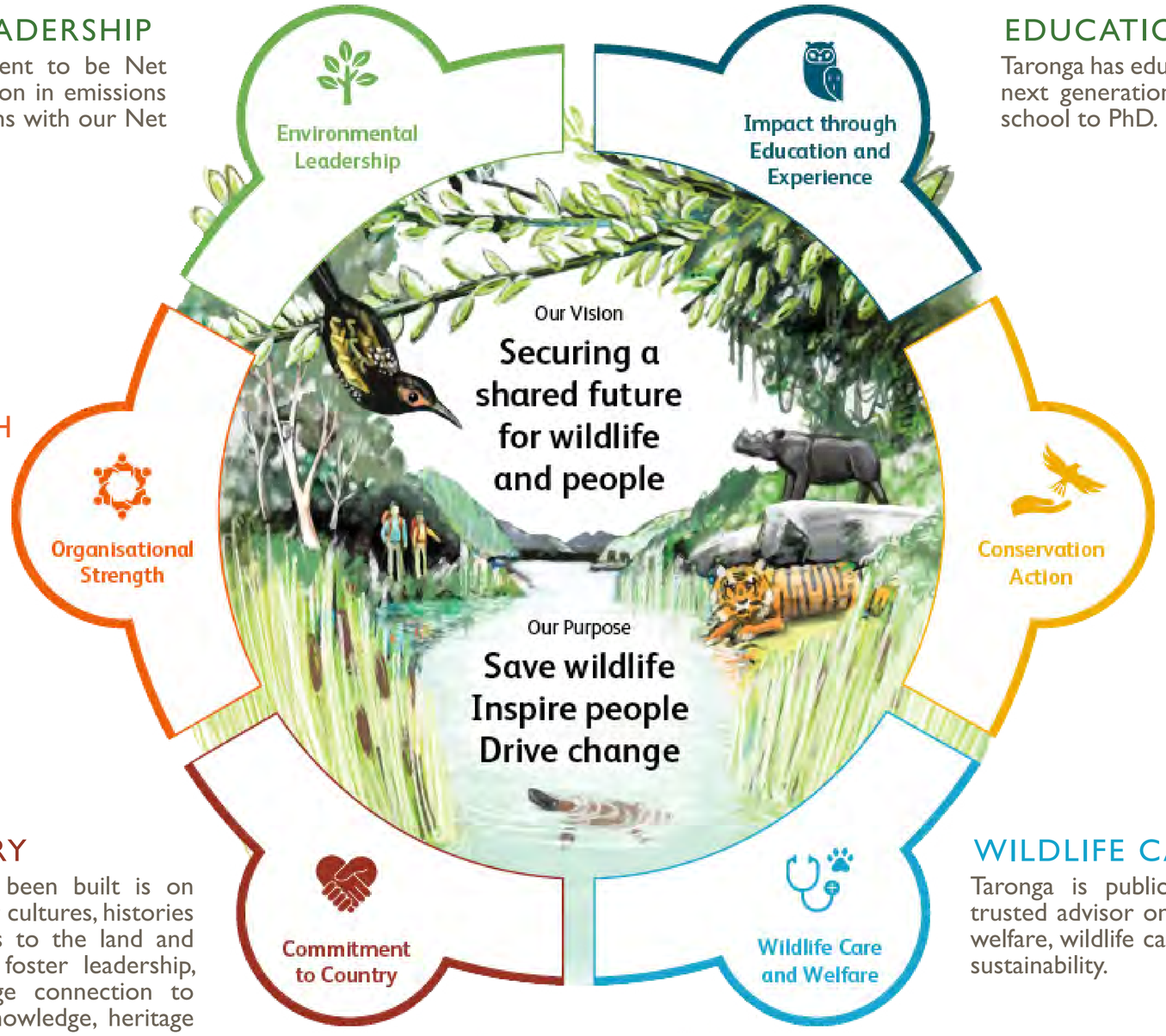
Taronga has made a commitment to be Net Zero by 2030 with 70% reduction in emissions and the upgraded Sky Safari aligns with our Net Zero Target.

ORGANISATIONAL STRENGTH

Taronga is widely recognised as a trusted organisation that inspires community support, positive sentiment and action to improve conservation outcomes.

COMMITMENT TO COUNTRY

The site on which Taronga has now been built is on Cammeraigal Country. We recognise their cultures, histories and ongoing relationship and obligations to the land and waterways. Taronga's cultural programs foster leadership, mentoring and outreach. We encourage connection to culture through programs that share knowledge, heritage and practice.



EDUCATION

Taronga has educational programs that foster the next generation of conservationists, from pre-school to PhD.

CONSERVATION

Taronga has a deep commitment to conservation science, with the largest zoo-based wildlife science team in the southern hemisphere, 60 conservation and breed-for-release programs, regionally and globally and operates two wildlife hospitals that treat and rehabilitate more than 1500 cases of injured native wildlife each year.

WILDLIFE CARE & WELFARE

Taronga is publicly recognised as a trusted advisor on matters of wildlife welfare, wildlife care, conservation and sustainability.

2.2
Taronga Zoo
CULTURAL SIGNIFICANCE

For millennia, the Saltwater People occupied and managed the lands in and around Sydney Harbour, the bays, foreshores, coves, headlands, rivers, and tributaries. Their journeys, which dot along these natural highways, reveal an interesting study of life, migration, trail and campsite management, returning time and time again to sustain families and community.

Many Saltwater clans came together along the harbour to carry songlines and responsibilities in partnership, and many pathways sustained mutually beneficial relationships including marriage and trade. This powerful bond with community, the coast and its waterways had a strong social and spiritual significance to Aboriginal Peoples.

The Cammeraigal clan, on which their Country Taronga sits, was one of the largest and most influential of these clans in the Sydney coastal region. As an example of this, Barrangaroo, who we celebrate today, was a Cammeraigal women, and was one of the powerful figures in Sydney's early history, she had knowledge of law, teaching and women's rituals, including formidable fishing skills.

The Cammeraigal clan had strong Nawi (bark canoe) Culture. Saltwater was their Country, as much as land was their Country. The Nawi was an efficient watercraft and allowed travel around the harbour and rivers quickly and easily. Nawi making knowledge belonged to men, whilst Nawi and Garradjun (line fishing) knowledge belonged to women.

It is this idea of connection, community and reciprocity that introduced us to the concept of the Vessel, both from a philosophical, - a vessel of culture (Intangible), and the physical, - a vessel to connect (Tangible).

A Vessel – to Carry, to Hold, to Share, to Shelter, to Shield, to Cleanse and to Protect.
To Carry – as canoe travel
To Hold – hold young ones, hold food
To Share – share stories, hold stories
To Shelter – from the weather
To Shield – to protect against enemy
To Cleanse – as a way of holding smoking for ceremony
To Protect – protecting culture

The Vessel presents a unique narrative that underpins our built form narrative for the bottom station. Built form that speaks of different layers and creates a story that is grounded in Country, culture, and place.





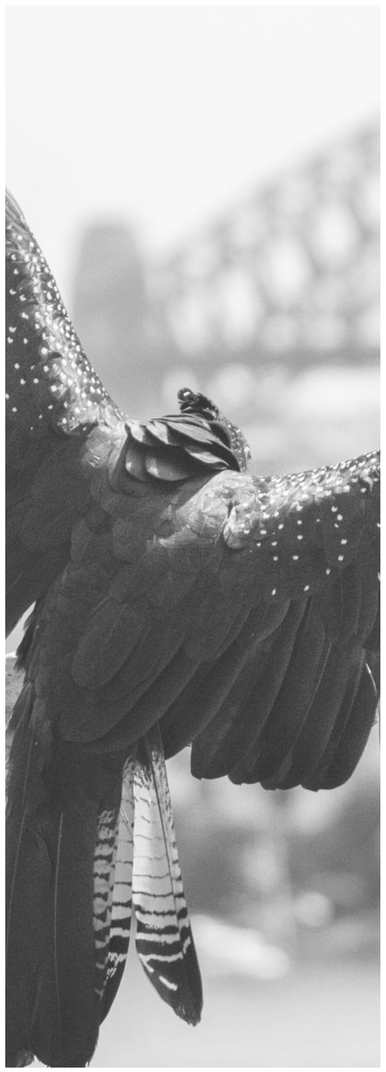












2.3
Geographical Significance

TOURISM

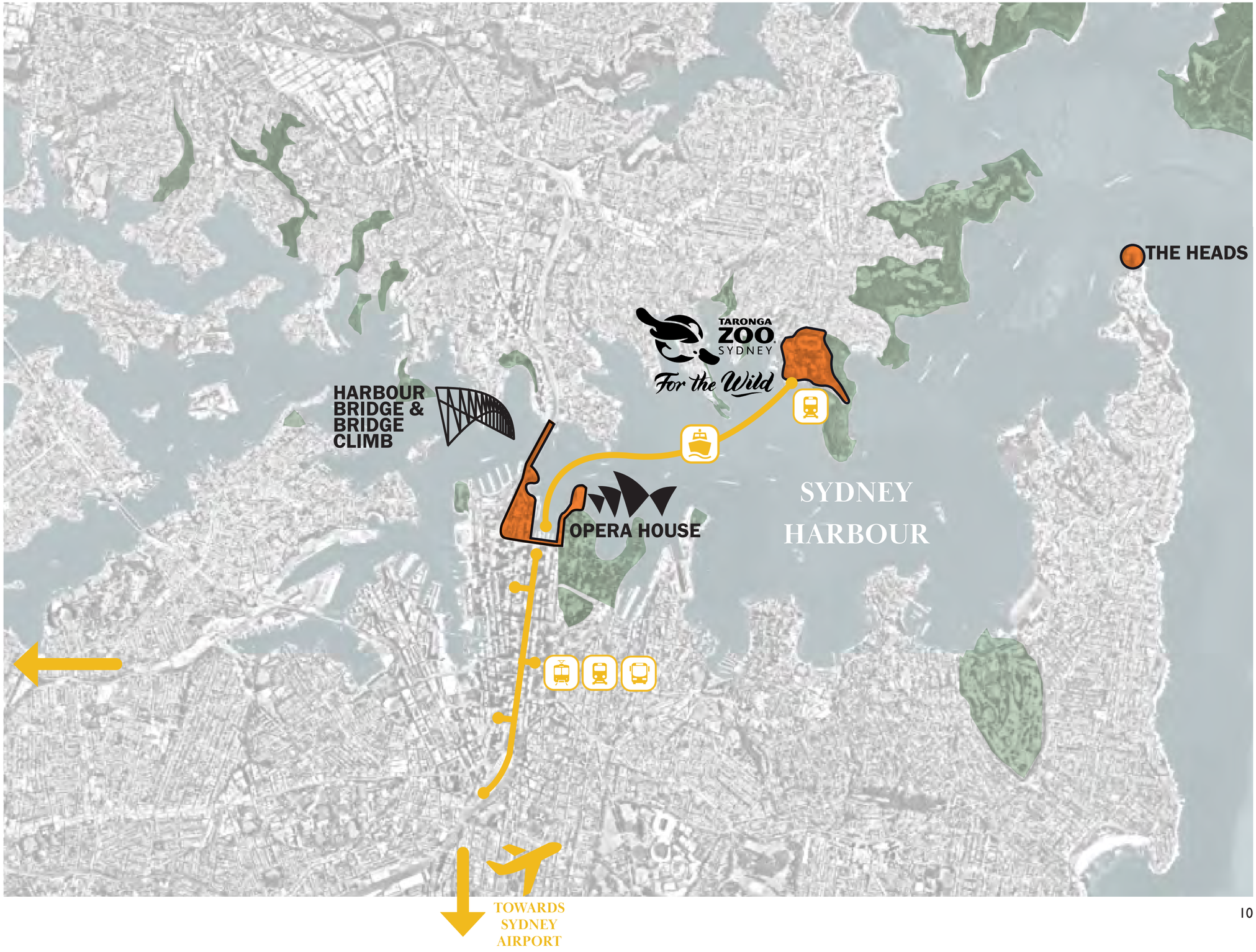
Taronga is a marquee tourism destination in Sydney. The upgrade provides a new way to experience Sydney Harbour, its National Parks and support the Sydney Visitor Economy. It also activates the northern side of Sydney Harbour.

STORYTELLING

Taronga plays an important role in connecting people with wildlife. This experience provides a new way to engage guests in conservation. Through visual storytelling, it will provide our guests a way to connect with conservation work off site and increases their understanding of Cammeraigal Country

CONSERVATION

Taronga is a not-for-profit organisation. The new experience will attract more guests, and in doing so support our conservation work.



2.4
Why the upgrade is needed

ACCESSIBILITY

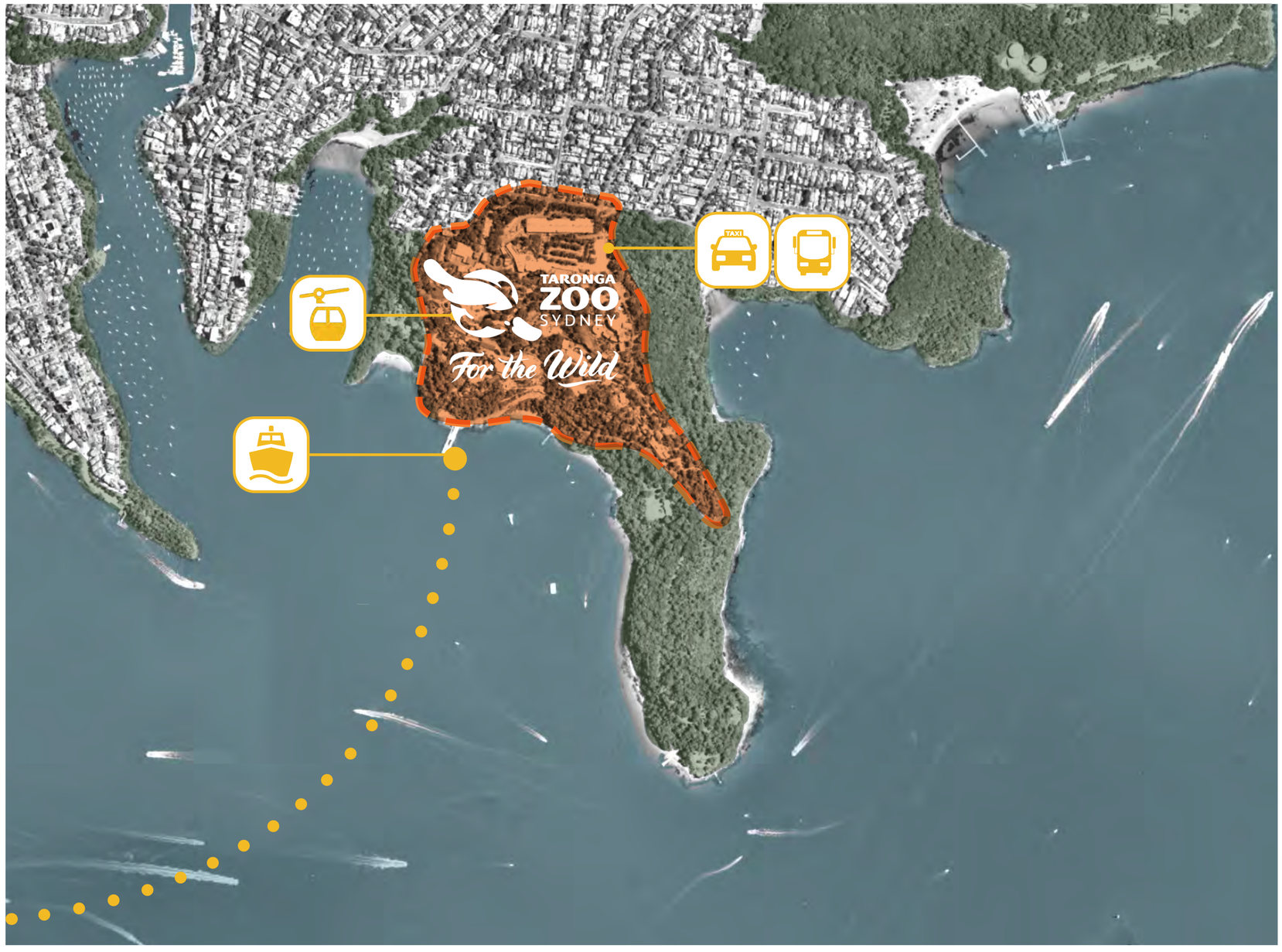
Taronga Zoo is spread across 28 hectares. Its location is iconic, but the site has accessibility challenges. The former Sky Safari gondolas are unable to accommodate guests in larger wheelchairs & prams due to its design. The new Sky Safari will be a spectacular and accessible experience connecting the harbour arrival to the zoo, with the top entrance plaza to the zoo.

AGING ASSET

The Sky Safari has been a fixture Taronga Zoo since 1987. The former model, introduced in 2000, has now reached the end of its workable life and has now retired.

VISITOR EXPERIENCE

The visiting user experience isn't well set up to support our guests. There are long queue times entering from the ferry wharf. During peak times, these queues can be upwards of 60 mins.



EDUCATION + CONSERVATION

Impact through Education & Experience. Taronga is a not-for-profit organisation. The new experience will attract more guests, and in doing so support our conservation work.

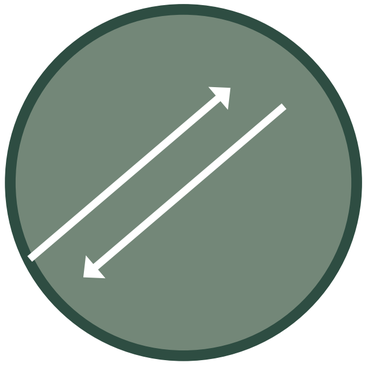
TRANSPORT MODE

Enjoyable transport option & improved connection to ferry.

ICONIC SYDNEY ATTRACTION

Existing views / vantage points are maintained, offering views of Cammeraigal Country, Sydney Harbour (Blue Mountains to the Heads) and animals.

2.5
The Revitalised Sky Safari Offer



ACCESSIBILITY

The new system will replace an aging asset with improved accessibility



GONDOLAS

Increase in gondola numbers that are larger and more accessible for prams, wheelchairs and guests with mobility challenges



SPEED

Similar speed to the retired Sky Safari with the capacity to vary the speed as needed. Increased capacity of guests per hour



PUBLIC TRANSPORT

Connection to an upgraded Taronga Zoo Wharf, and encourages modal shift from private cars to public transport



EXPERIENCE

Showcase Sydney Harbour and experience, conservation at work through connection with Cammeraigal Country



PYLONS

Pylons ranging from 4.3m above station platforms, to 36.5 high in order to follow the terrain and rise over, to preserve and allow for projected tree canopy growth.

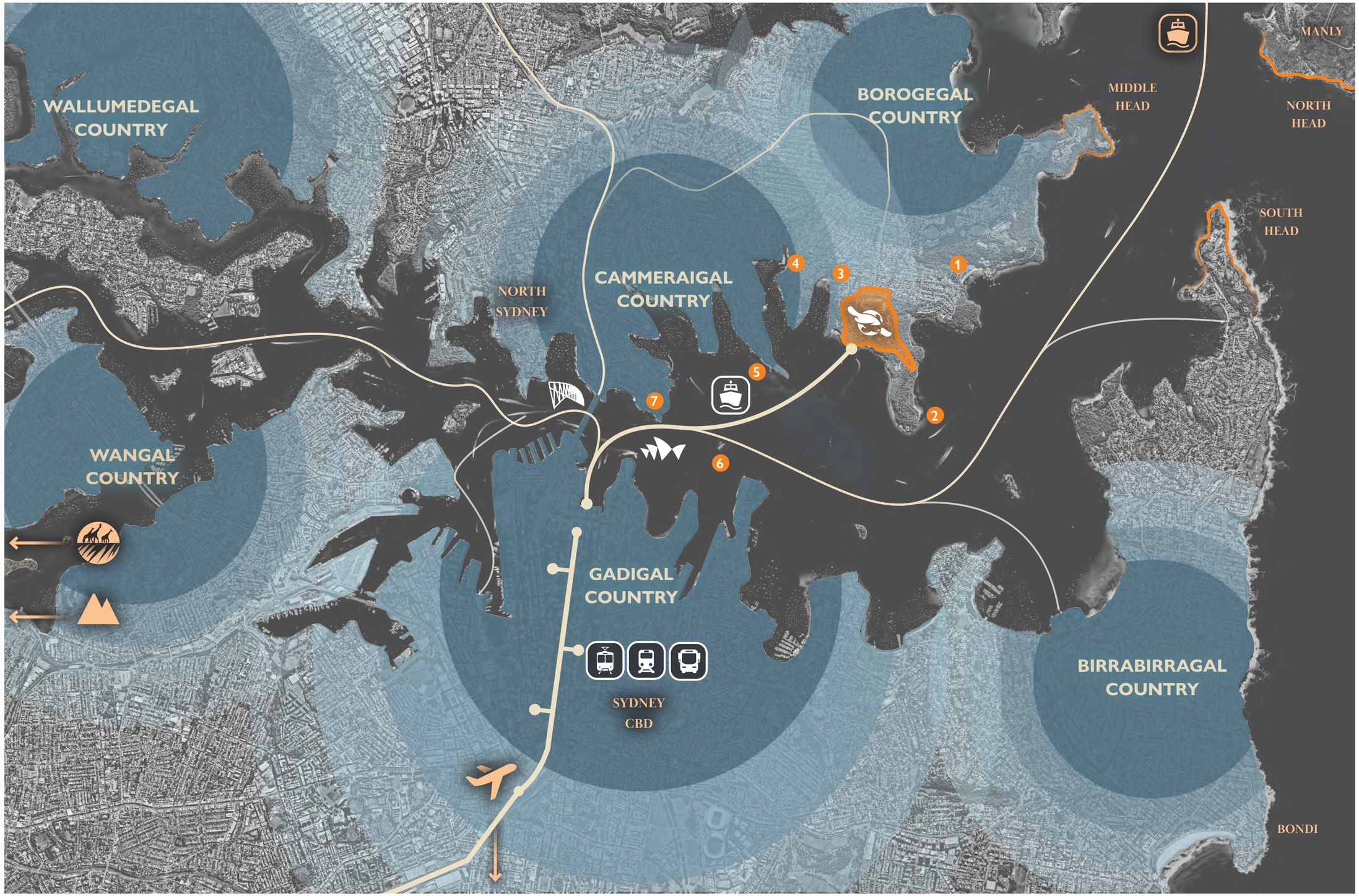
THE PROJECT VISION

At the outset of the project, the Client team established the following key vision for the project.

To elevate the Zoo experience while not adversely impacting the zoo guest experience, maximise iconic views of Sydney Harbour and Connection to Cammeraigal Country, and create an exciting new globally recognised attraction for Taronga Zoo.

3.0 Conceptual Analysis

3.1
Sydney Context

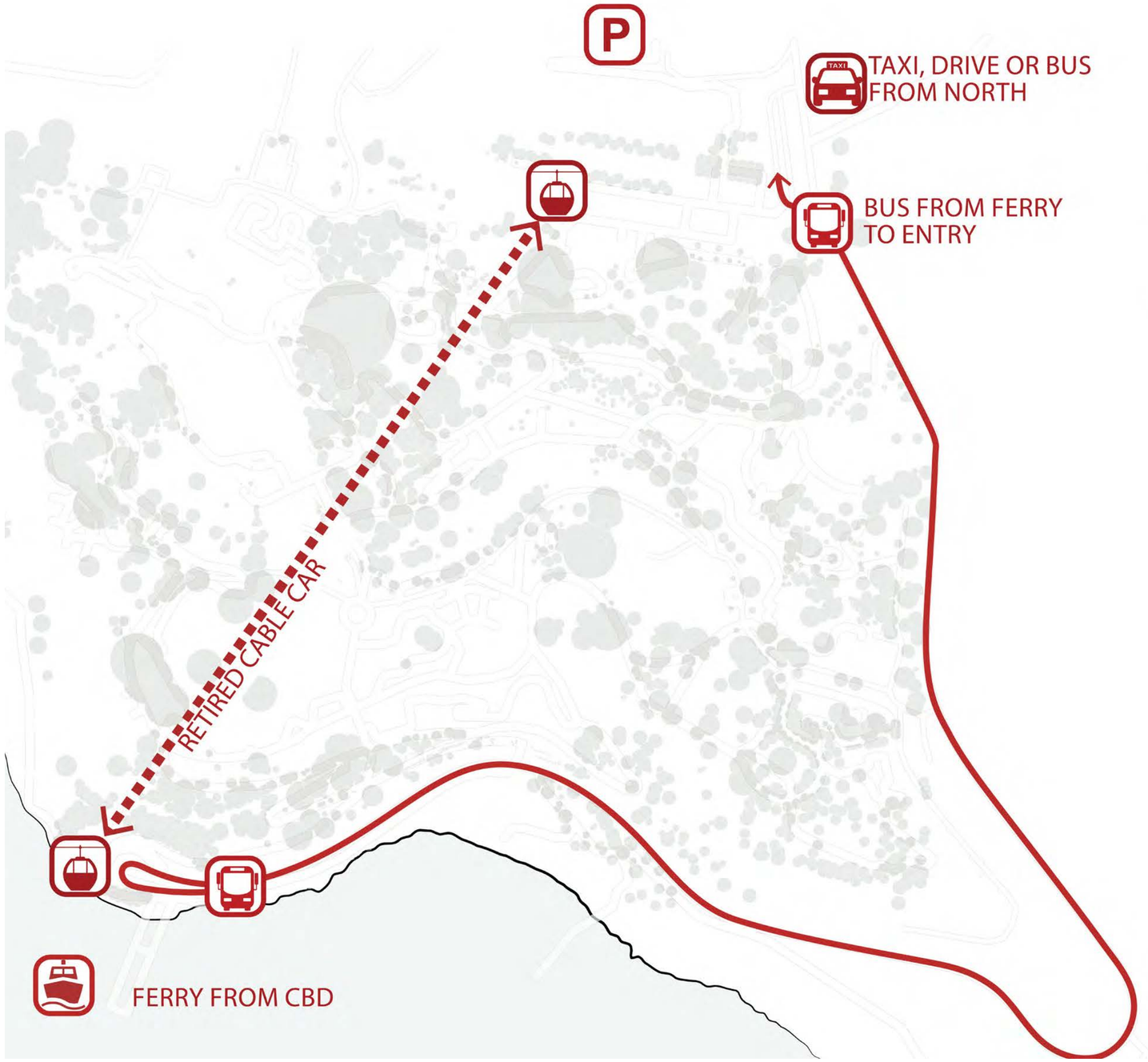


3.2
Taronga Zoo Context



3.3
Site Condition

ACCESS





LEGEND

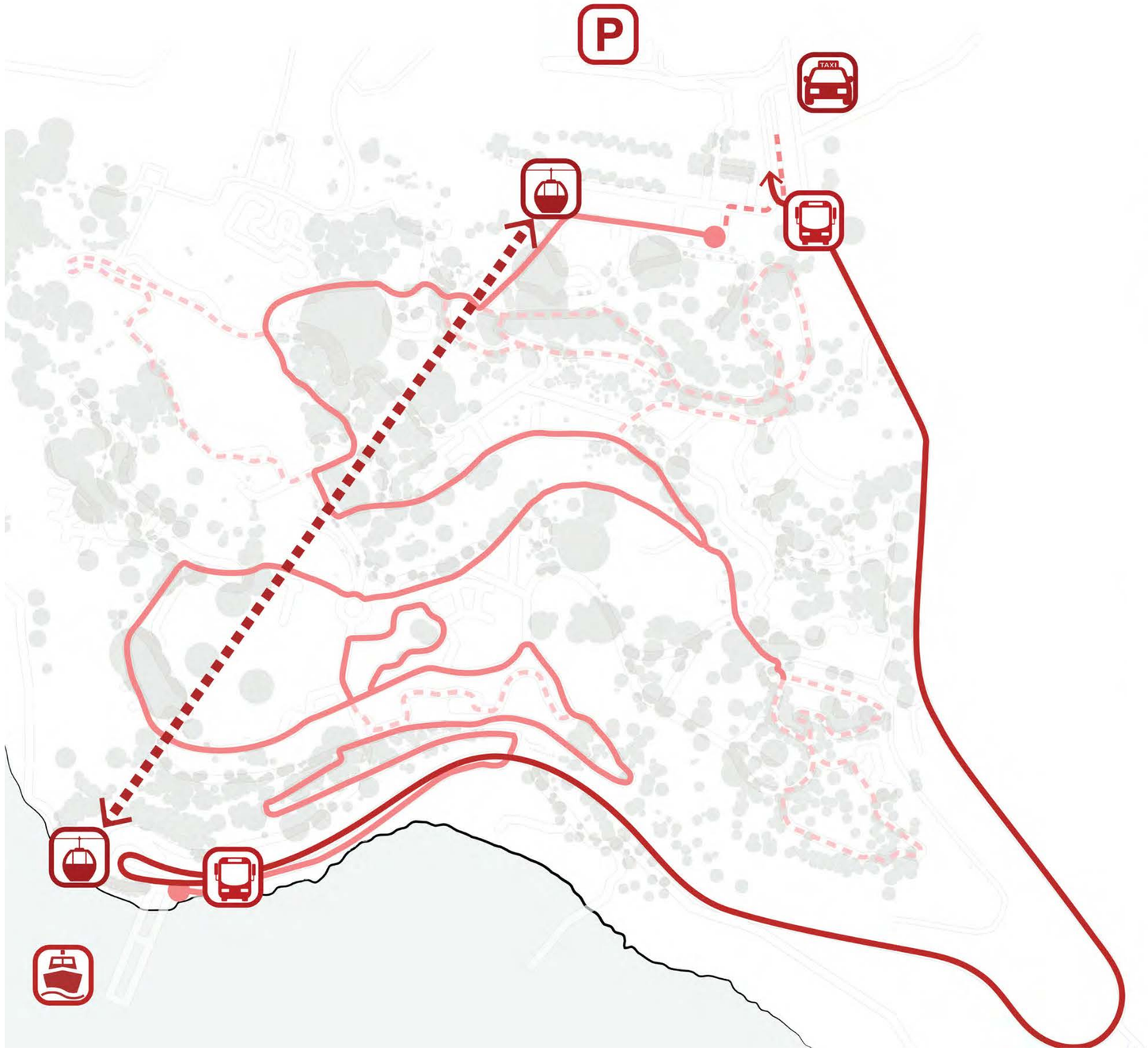
VEHICULAR ACCESS TO TARONGA ENTRY

CABLE CAR ACCESS TO TARONGA ENTRY

/ Access to the Zoo is both via Ferry at the Southern Harbour boundary and Bus/Car at the Northern boundary. The Sky Safari links to top to bottom.

3.4
Site Condition

CIRCULATION





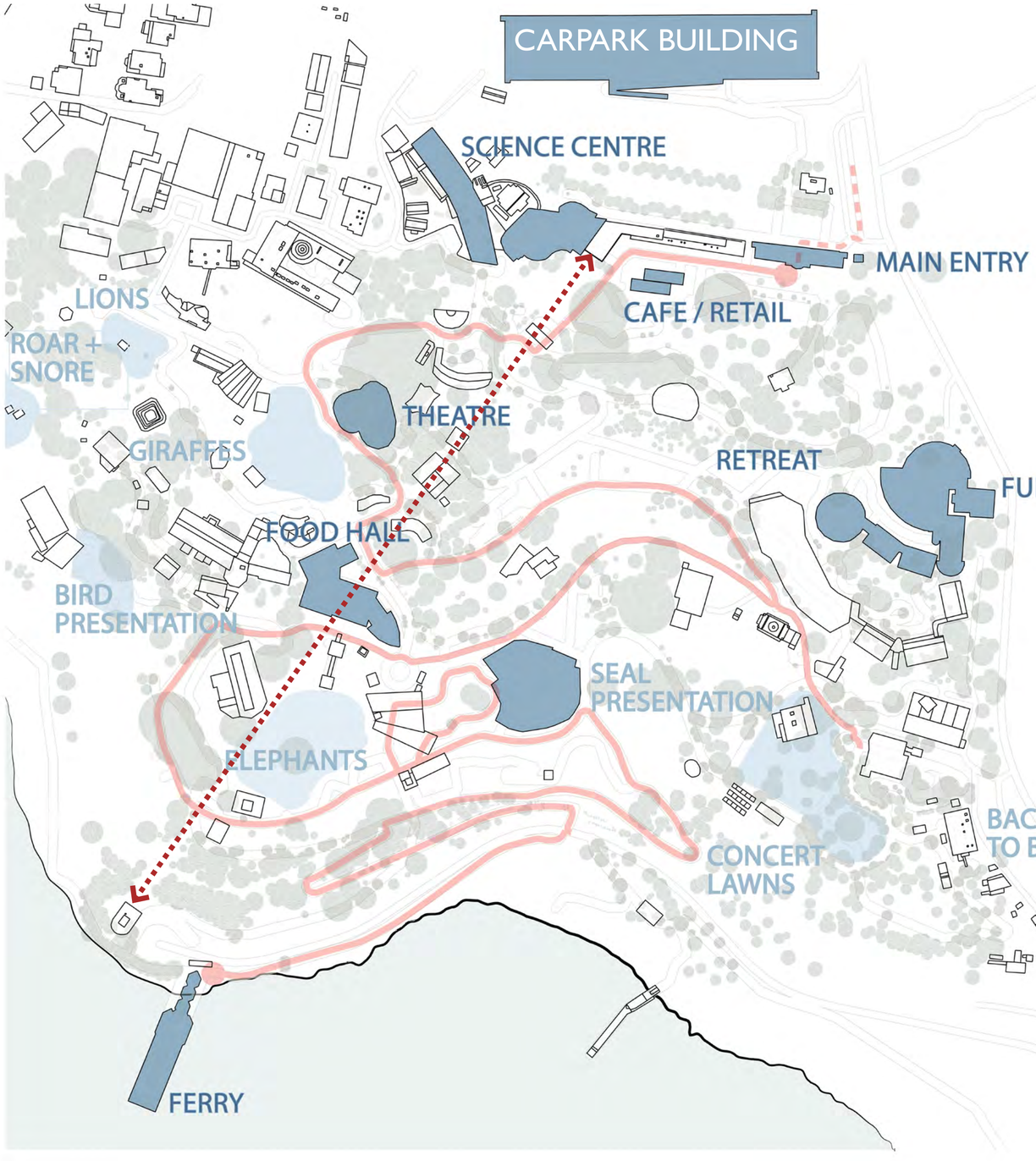
LEGEND

- PRIMARY PEDESTRIAN CIRCULATION PATH
- SECONDARY FOOTPATHS
- VEHICULAR ACCESS TO TARONGA ENTRY
- CABLE CAR ACCESS TO TARONGA ENTRY

/ Circulation through the Zoo is an existing meandering path that defines a route via the key zoological exhibits from top to bottom, requiring re-entry to the Sky Safari from within the zoo.

3.5
Site Condition

MAIN FACILITIES + ATTRACTIONS





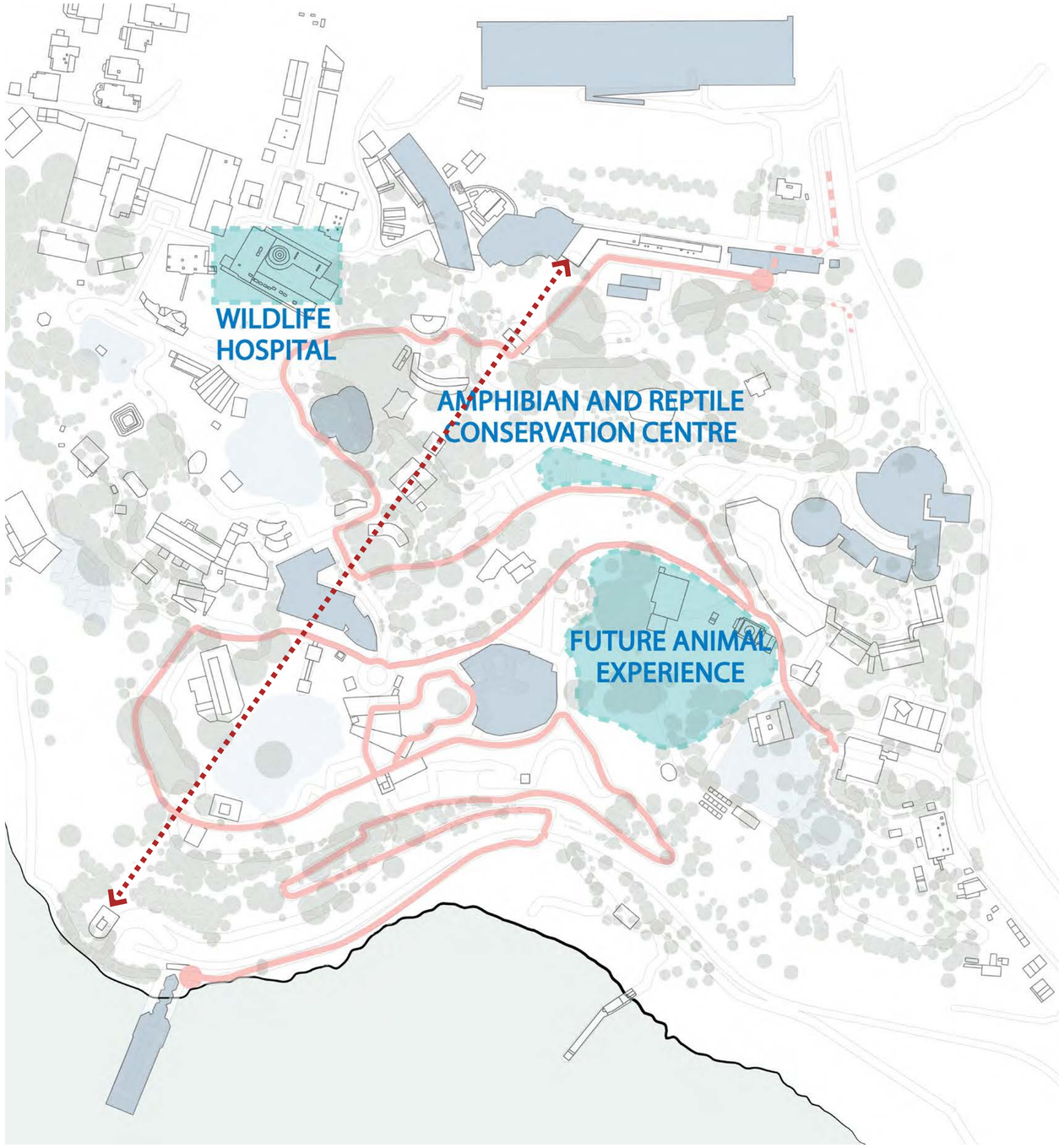


LEGEND

- MAIN FACILITIES
- ATTRACTIONS
- CIRCULATORY PATH

3.6
Site Condition

FUTURE ATTRACTIONS





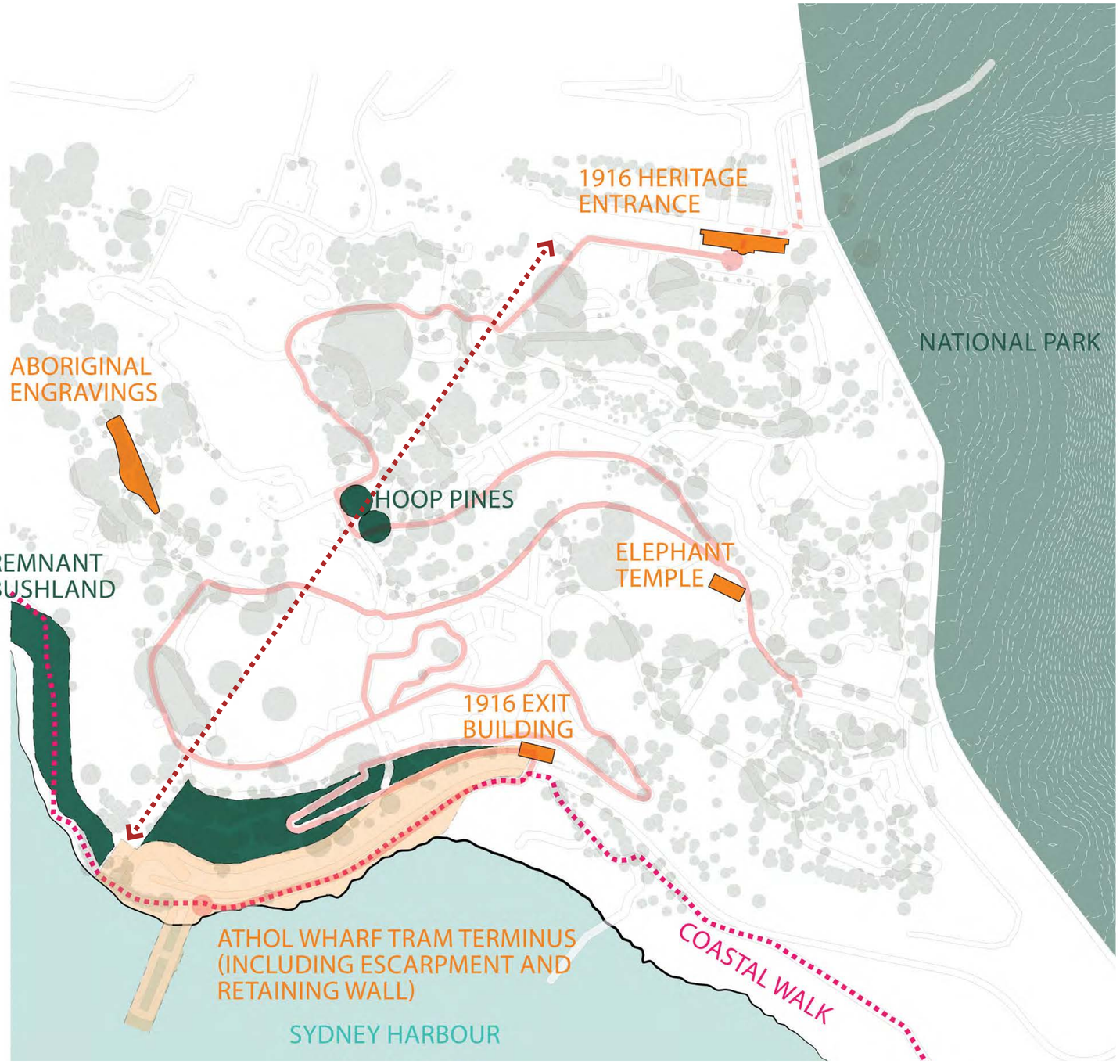
LEGEND

- MAIN FACILITIES
- FUTURE ATTRACTIONS
- MAIN CIRCULATORY PATH

/ The Sky Safari must allow for both planned and future masterplanning adaptations to the Zoo's zoological exhibits over time.

3.7
Site Condition

HERITAGE + ENVIRONMENT





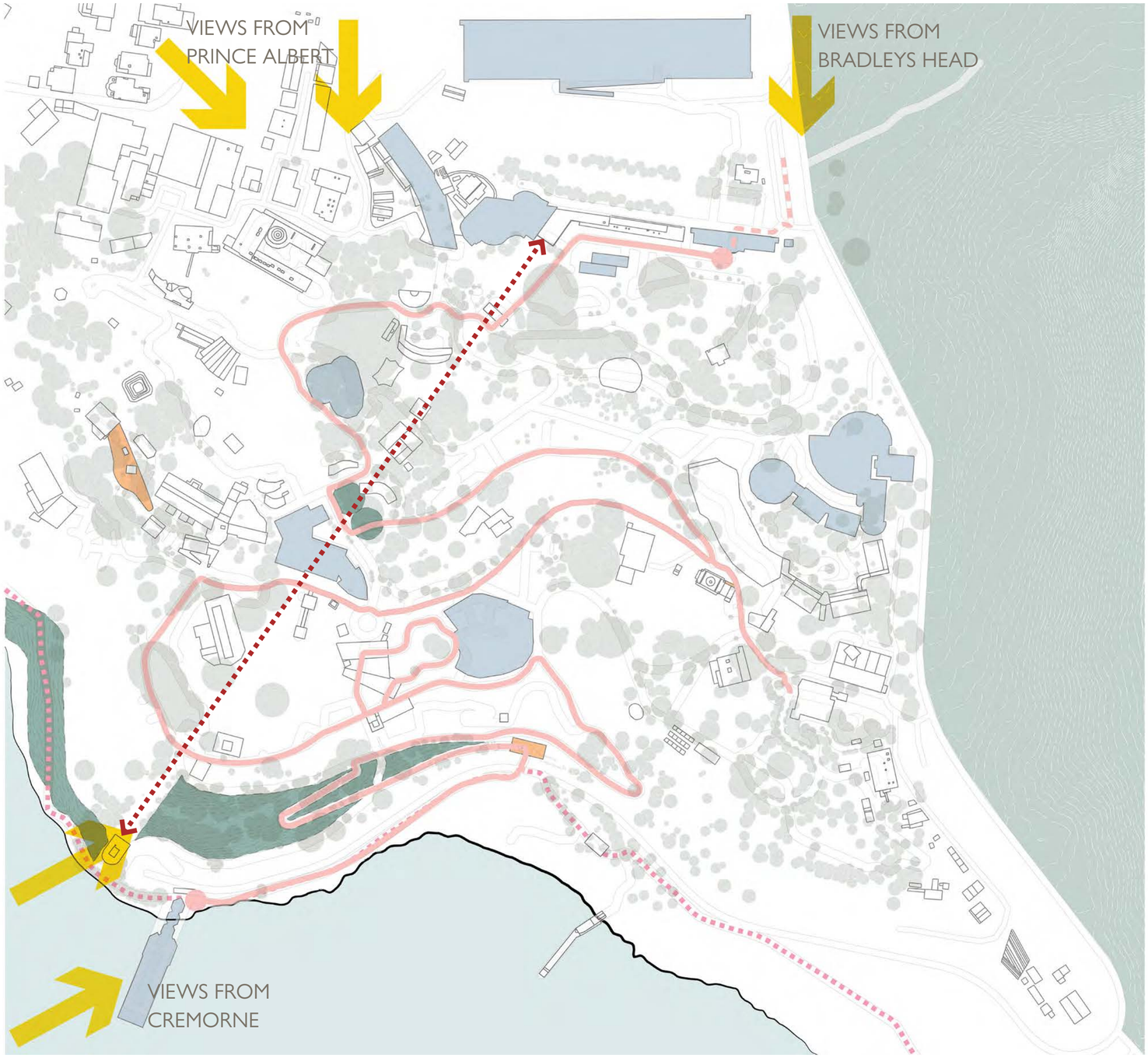
LEGEND

- SIGNIFICANT LANDSCAPE
- HERITAGE ENTITIES
- MAIN CIRCULATORY PATH

/ Heritage existing in both natural form within the landscape and through European built form.

3.8
Site Condition

SIGNIFICANT VIEWS IN





LEGEND

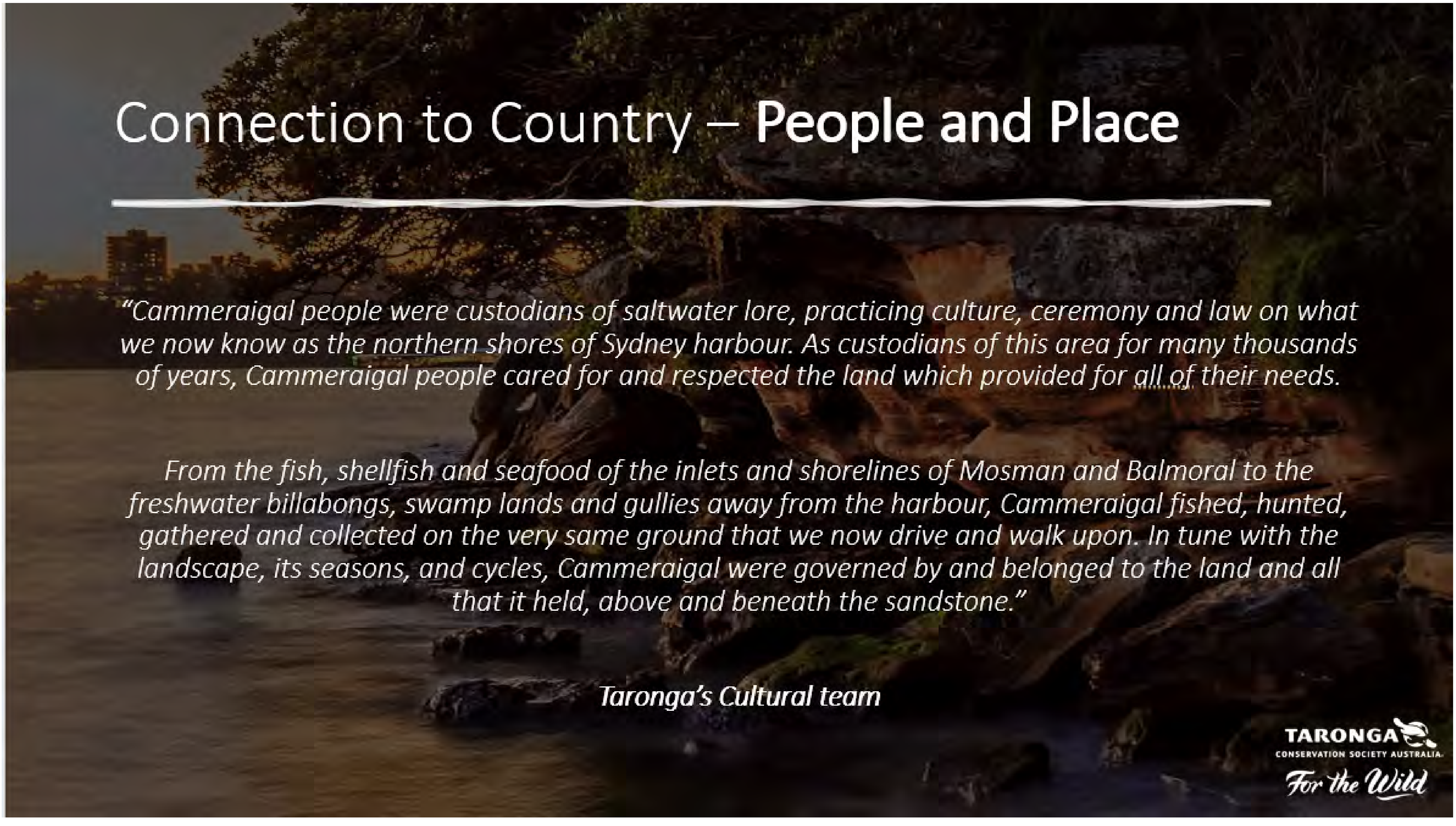
SIGNIFICANT VIEWS

/ Taronga Zoo has well established view corridors both externally and internally to the zoo.

4.0 Connection to Country

4.1
Connection to Country Commitments

The following represents Taronga Zoo's Connection to Country commitments:



4.2
Indigenous Consultation

The following consultation occured during initial Concept Design. Following SDRP2, the applicant has managed stakeholder engagement. The document within outlines future Connection to Country engagement.

FCAD
Fellingham Consultancy and Design



4.3
Key First Nations Engagement

ESTABLISHED AT PROJECT OUTSET

/ Partner with Accredited businesses assured by the Peak governing bodies of Australia, Supply Nation and FAICC / NSWICC

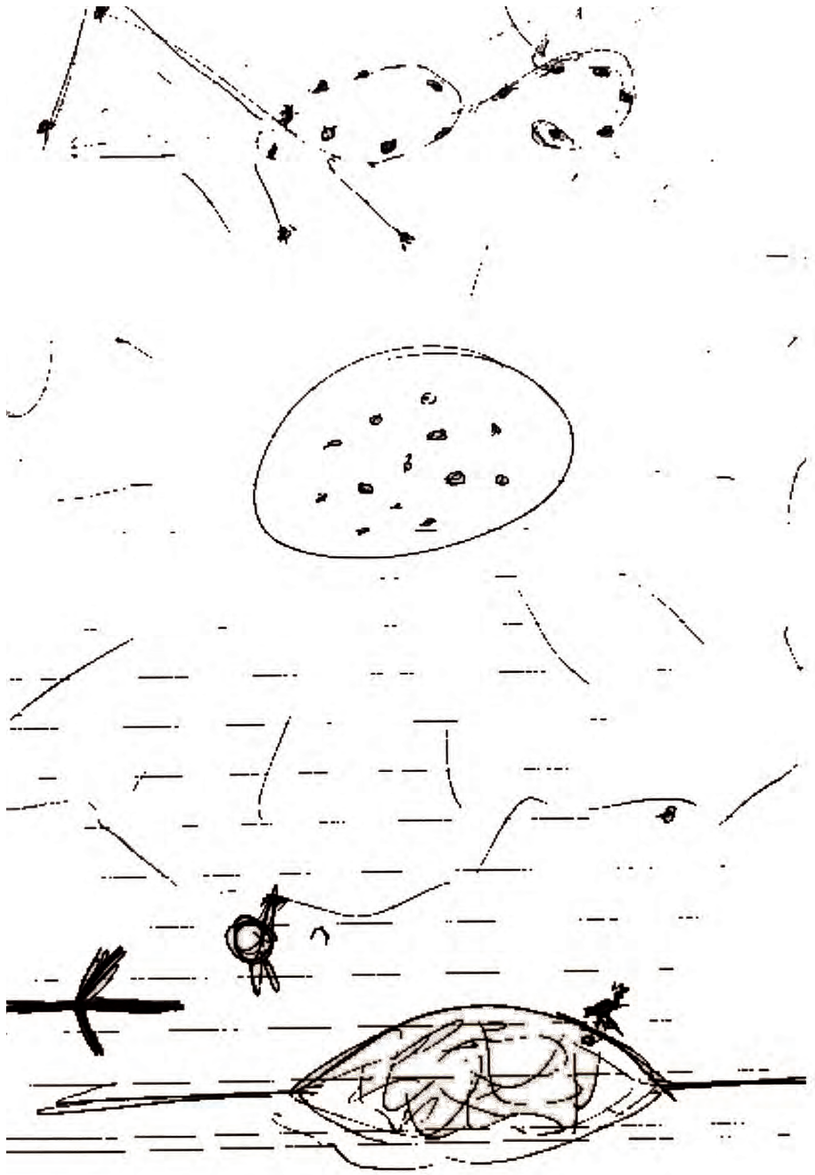
/ Ensure that the Aboriginal Participation in Construction Policy (APIC)

/ Work with local Indigenous suppliers of Sydney coastal endemic flora

/ Share Creation stories of Bidjigal Elders

/ Tell the Zoo's Conservation Story, with an Indigenous focus on the Dreaming Story of Creation and the alignment of the footprint with the Sky Safari route

/ Collaborate with Indigenous Artists to establish a integrated wayfinding strategy



Sketch by Uncle Shane Smithers







4.4

Designing with Country Approach

COUNTRY, CULTURE + HISTORY





Photo used with permission from Uncle Dean Kelly (for SDRP1) - Nawi in Sydney Harbour

The Taronga Conservation Society recognises that the Cammeraigal people were custodians of saltwater lore, practicing culture, ceremony and law on what we now know as the northern shores of Sydney harbour. As custodians of this area for many thousands of years, Cammeraigal people cared for and respected the land which provided for all of their needs. From the fish, shellfish and seafood of the inlets and shorelines of Mosman and Balmoral to the freshwater billabongs, swamp lands and gullies away from the harbour, Cammeraigal fished, hunted, gathered and collected on the very same ground that we now drive and walk upon. In tune with the landscape, its seasons, and cycles, Cammeraigal were governed by and belonged to the land and all that it held, above and beneath the sandstone.

Through engagement with First Nations elders and design consultation, this project is an opportunity to create a connected journey from the saltwater of Sydney Harbour to the sky, showcasing Cammeraigal Country. Concurrently, the journey is the opportunity to celebrate and witness the amazing wildlife of Taronga Zoo and the natural setting of the Zoo on one of the great natural harbours of the world.

Taronga's commitment to Country ensures meaningful and ongoing consultation with First Nations Peoples throughout all stages of the project's design and construction. This approach supports best practices in embedding and understanding cultural commitments and protocols across the organisation.

In listening and exploring the opportunities for the project, the design team including FCAD (First Nations Design Consultant), Scott Carver, and Newscape (Landscape Architects) consulted and engaged with :

/ Taronga Indigenous staff and Community & Cultural Team, Cammeraigal & Wiradjuri Country.

/ Taronga Aboriginal Advisory Group (TAAG), Cammeraigal Country

/ First Nations knowledge and IP through Matt Fellingham (FCAD) initial community consultation (harnessing relevant Elders and Land Council members)

Through this process, the project has adopted three primary design strategies to connect the Sky Safari to Cammeraigal Country:

/ Integration of the 'Nawi' story from Saltwater to Sky into the design across the Bottom Station, Top Station and Gondolas.

/ Architectural and interpretive design elements that will provide immersion, play, education, connection and celebration (examples: AV / Public Artworks / Rock carving / weaving / sculpture / signage).

/ Increasing connection between the built and natural forms (examples: audio, planting, colour palettes).

Following SDRP2, Taronga Zoo is managing the consultation process including engagement outlined in the Aboriginal Cultural Heritage Assessment Report submitted with the SSDA

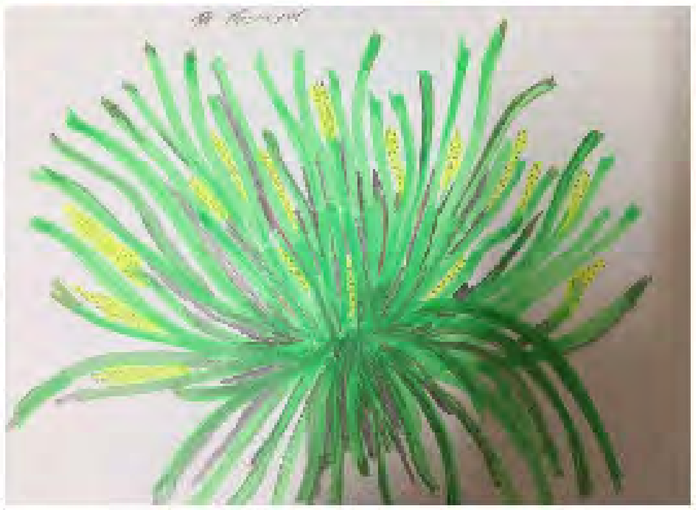
4.5

Designing with Country Approach

LANDSCAPE / FROM SALTWATER TO SKY







/ Meaningful conversations and engagement with Elders has occured during initial concept design to inform interpretation elements.

/ Interpretative design elements will be provided within the architecture and public domain, through active and passive signage and wayfinding and art overlays that will provide immersion, education, connection and celebration.

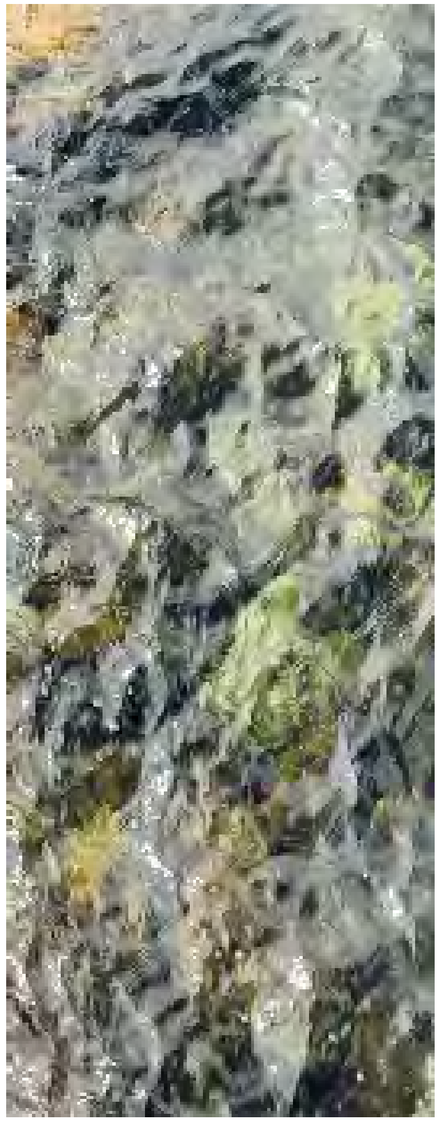
/ The architectural documentation identifies nominal locations of the art, wayfinding and signage for future design in accordance with the accompanying Connection to Country and Interpreation Report. Elements such as balustrading screens, soffit treatments, treatment to the sandstone cutting and the like, afford the opportunity for an artist reponses that creates a deep immersion into both First Nations history of the site and the zoological convservation of the Zoo.

4.6

Designing with Country Approach

LOWER STATION / FROM SALTWATER TO SKY











/ The lower station is informed by both the ‘Nawi’ in terms of architectural language and the storytelling ‘platforms’ for messaging on the natural setting and Taronga Zoo’s conservation work.

4.7

Designing with Country Approach

NATURE (TOP) STATION / FROM SALTWATER TO SKY









/ The Nature Station will encompass interpretation through landscape, materials and messaging.

/ Colours of angophora

/ Sharing of stories on care of native species such as the Regent honeyeater and koalas.

4.8
Next Steps

FIRST NATIONS ENGAGEMENT BY TARONGA ZOO

(The following has been provided by Taronga Zoo)

Taronga's Commitment to Country ensures meaningful consultation with First Nation Peoples as an ongoing process that will continue throughout all elements of design and construction of the project, supporting best practice in embedding and understanding cultural commitments and protocols across the organisation.

The Sky Safari Public Art Strategy scope for First Nations Artist contributions includes;

/ Gondola Art
/ Bottom Station Ramping Design Artwork
/ Sandstone Artwork
/ Top Station Screen Design Artwork
/ Top Station Public Art Internal
/ Gondola Soundscape
/ Underside of Station Public Art
/ Project Visual Identity Package (Look Book)
/ Top Station Public Art External
/ Immersive Queuing Content

FIRST NATIONS ENGAGEMENT

/ Ongoing consultation with Taronga Indigenous staff, Community & Cultural Team and Taronga Aboriginal Advisory Group, Cammeraigal Country throughout project. This will include Saltwater to Sky workshops to guide the detailed design.

/ Engagement framework and expression of interest process created in consultation with TAAG and Community to increase creative opportunities for First Nations Artists.

/ Development of embedded process around, procurement and contract to increase and support positive First Nations opportunities throughout all stages of the project.

/ Ensuring deep level of engagement in Aboriginal Participation within tender process.

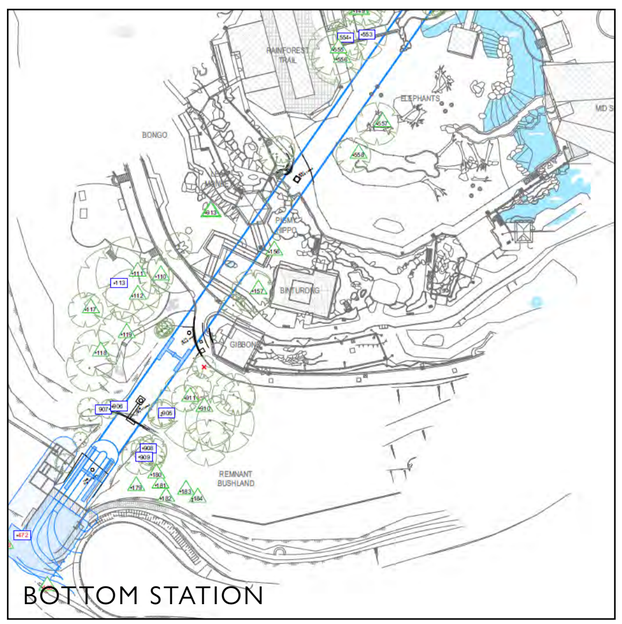
/ Developing in consultation Taronga's Cultural Ways of Working Framework which is currently under development and will inform our future approach.

5.0 Design Justification

5.1
Stations Locations



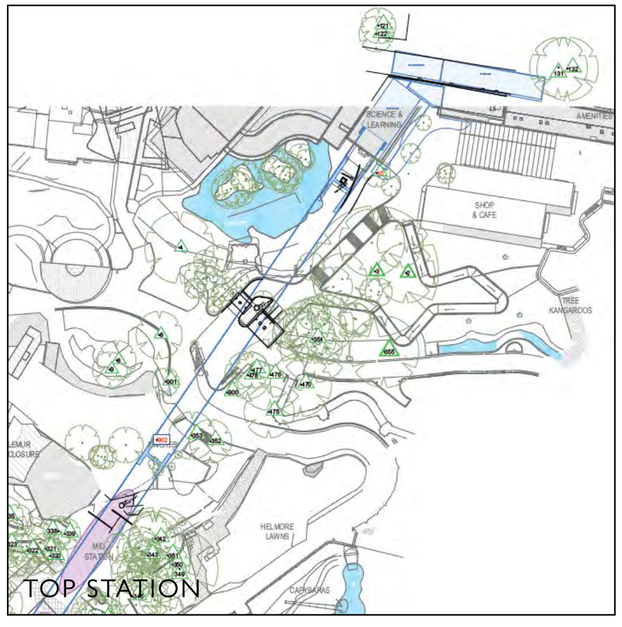
5.2
Tree Canopy + Corridor Impact
TREE MANAGEMENT



BOTTOM STATION



MID POINT



TOP STATION

LEGEND

- 01 Category AA / 01 Category A — Trees worthy of being a constraint
- 01 Category Z / 01 Category ZZ — Trees not worthy of being a constraint
- Existing layout
- Proposed layout
- Tree protection zone (TPZ) boundaries
- Protective fencing and TPZ area within
- TPZ where ground protection must be installed. Retain all existing levels.
- General pruning of tip branches to accomodate new sky safari
- 01 Tree to be retained & protected
- 01 Tree to be removed
- Tree no longer on site

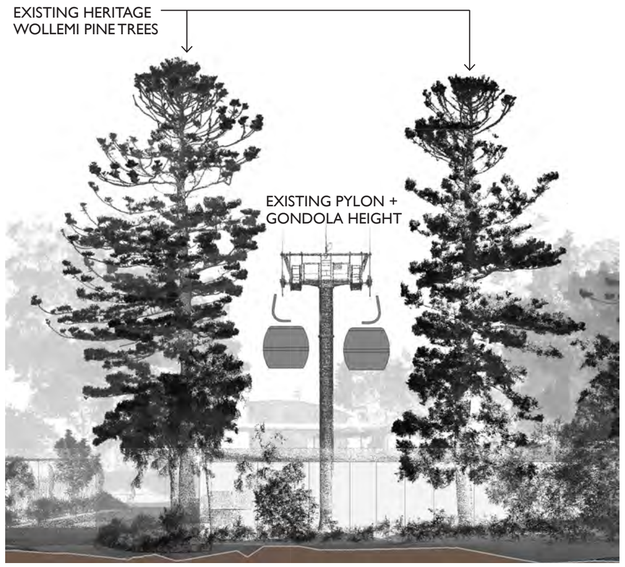
Extracts of the Arborist Report identifying the works to be undertaken regarding landscaping and trees along the cable car route.

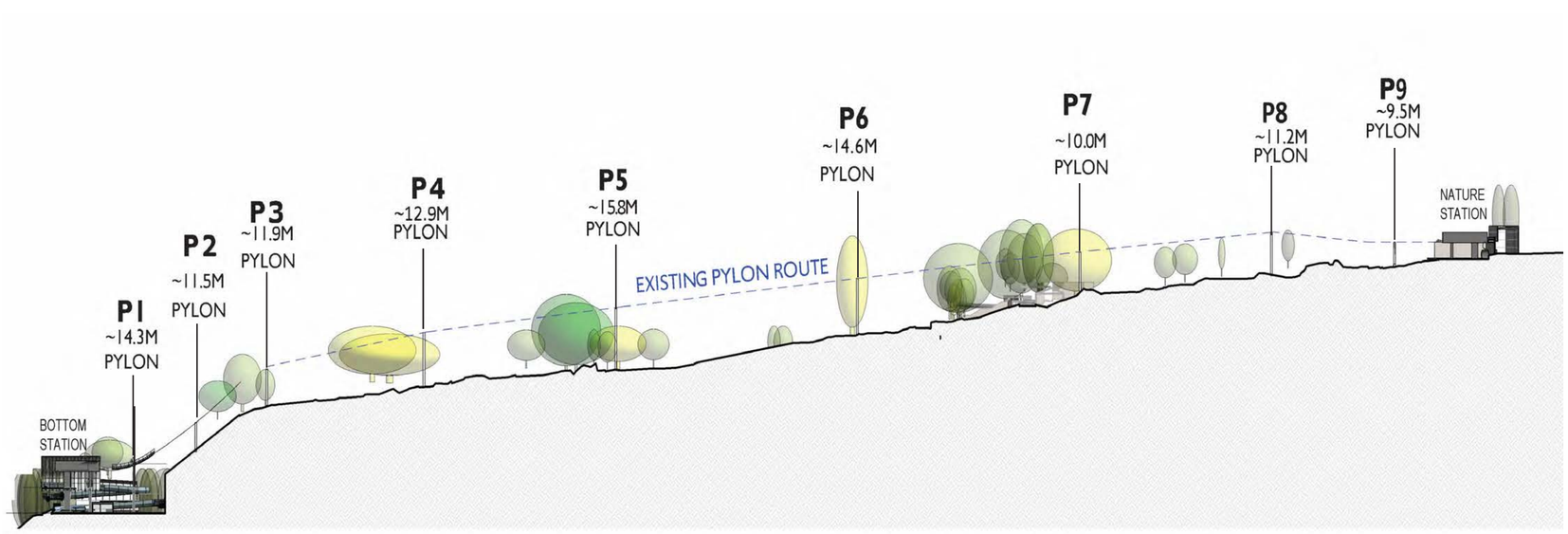
Refer Arborist report submitted with SSDA

5.3
Pylons

The following compares the existing corridor and pylon heights to the proposed. With increased gondolas car sizes (for wheelchair and pram access), the width of the cable car route is wider than the existing. As a result, and in consideration of future tree growth, coupled with current compliance and clearance zones, the cable car rises above historic and key trees, in addition to providing key views of Sydney Harbour and the heads.

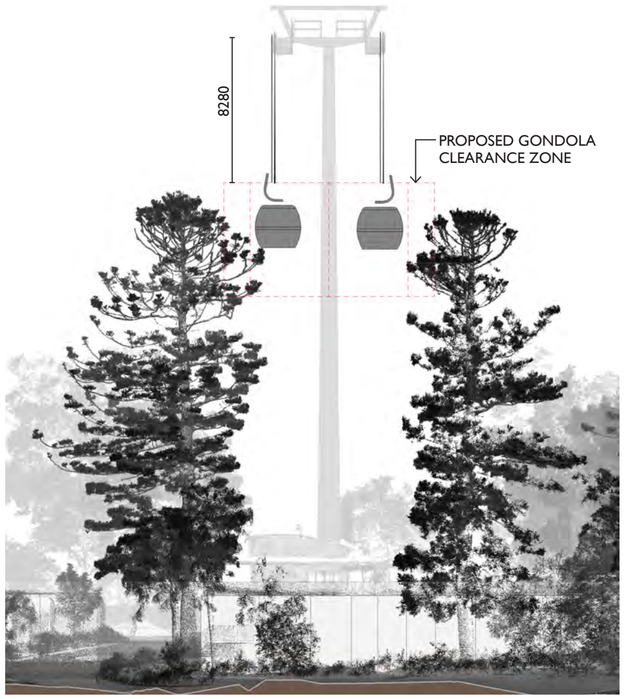
EXISTING GONDOLAS CORRIDOR WIDTH

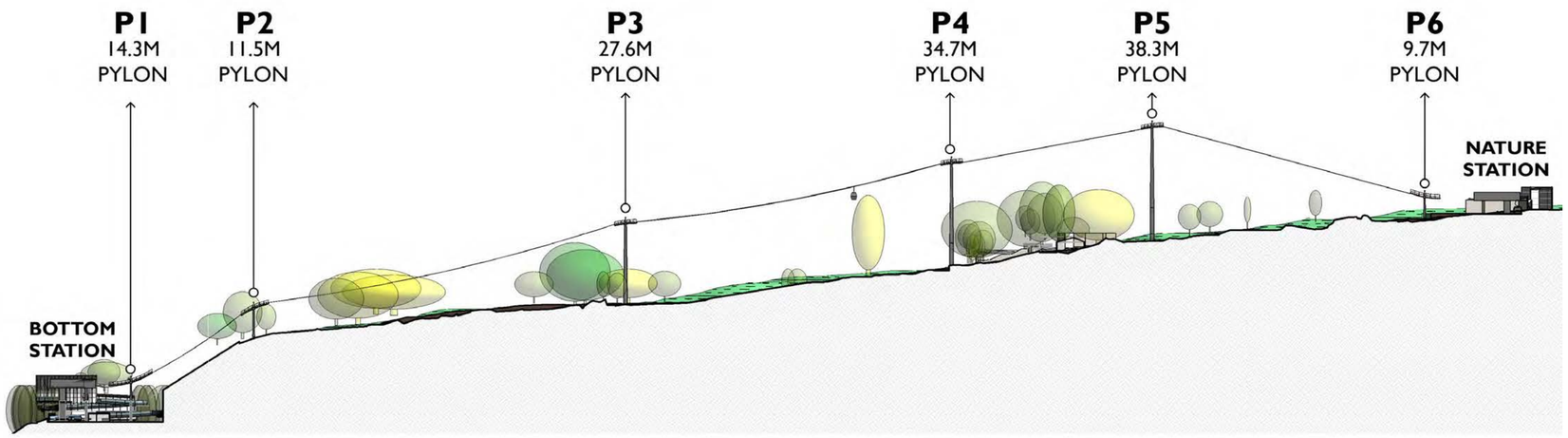




EXISTING GONDOLAS CORRIDOR HEIGHTS

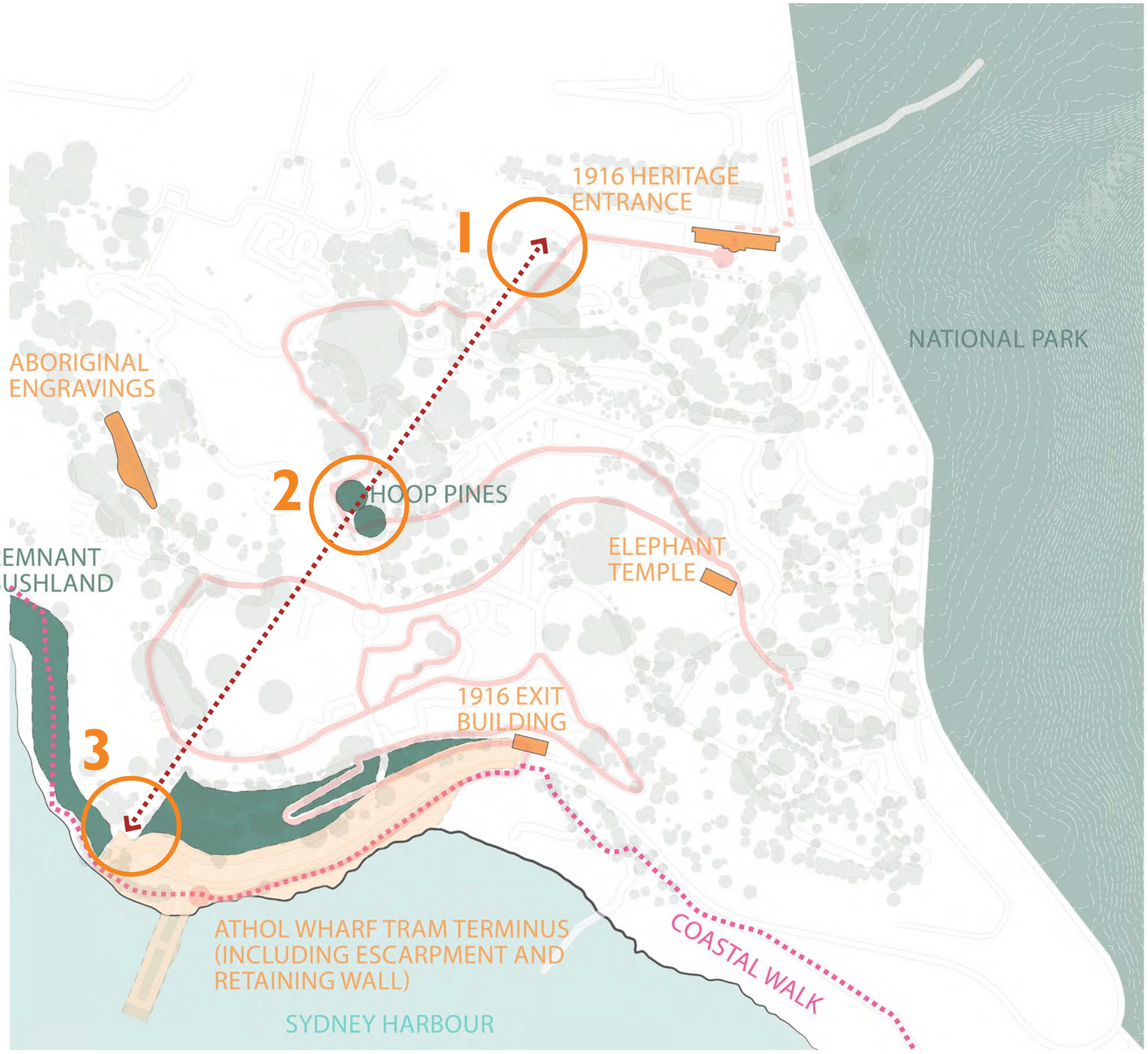
PROPOSED GONDOLA CORRIDOR





PROPOSED ROUTE AND PYLON HEIGHT. REDUCED QUANTUM OF PYLONS (33% REDUCTION)

5.4
Minimising Heritage Impacts



1/ At the top, the station is integrated into an existing built form location. Whilst it interfaces with a low heritage wall, the built form adjoining is lightweight in nature and intends to preserve the historic wall with a small opening as outlined within the heritage report.

2/ The site includes heritage listed trees within the existing and proposed cable car route. Due to the increased corridor width of the infrastructure (by virtue of providing wider gondolas cars) the cable car route passes over the crown of the trees.

3/ The station to the bottom has been located within the footprint of the existing station. Ramping and circulation occurs predominantly under the station platform with a minimal extent located to the west of the station, parallel in nature in order to minimise impact on the remnant bushland along the harbours edge.

4/ The reduction in pylons from 9 to 6 results in a reduced impact to the ground plane and the landscape within Taronga Zoo, improving long-term masterplan flexibility of the Zoo.

5.5
Sky Safari Functional Brief

At the outset of the project, Taronga Zoo established the following six key objectives of the Sky Safari:

1. Provide for improved accessibility for people of all ages, abilities and for people with prams
2. Create an enjoyable transport option to move people particularly from the wharf to the main entrance
3. Improve the guest experience offering views of Cammeraigal Country, Sydney Harbour, Sydney (Blue Mountains to the Headlands) and the animals
4. Offer an iconic Sydney attraction and sought-after experience to attract new visitors to the Sky Safari
5. Improving the public transport experience in order to encourage a reduction of private veicular traffic on the local Mosman Roads
6. Supporting Taronga's Sustainability and a Net Zero (by 2030) committment.

Other fundamental considerations included:

/ The attraction must be a positive overall integrated zoo experience – the structure should not jeopardise the 1.8 million guests a year and detract from the pedestrian experience of the Zoo

/ Need to maintain the aesthetic and experience of the Zoo's iconic precincts.

/ Existing view/vantage points in the Zoo must be enhanced versus replaced.

/ Deliver project outcomes within the time and cost parameters outlined in the approved project business case.

/ Future proofing the revitalised Sky Safari to align with the long-term strategic needs of Taronga and future master plan flexibility.

In support of this, the key functional requirements of the cable car include:

/ **Decommissioning/removal of existing cable car system**

The current cable car system will need to be decommissioned and either be sold as a whole, partially sold or recycled

/ **Cable car system**

A new turn-key cable car system as a D&C (Design & Construct) model including all components/ mechanics to run the cable car

/ **Bottom Station**

The existing lower station will be demolished, and a new terminal will be built including:

- o Station platform for loading and unloading of guests
- o Staff control point/booth
- o Weather protection to the station platform
- o Connection to the existing Zoo re-entry paths
- o DDA compliance queuing with protection from the elements.
- o Public amenities including DDA and unisex WC's
- o Small facility for staff including amenities, locker facilities and staff room.
- o Wildlife protection (fox control) where the station connects external and internal zoo perimeter zones.
- o Self-service ticketing machines

/ **Top Station**

A new terminal will be built at the entrance to the Zoo in the existing location, integrated into the existing plaza area. It is to include:

- o Station platform for loading and unloading.
- o Staff control point / booth.
- o Queuing with quality protection from the elements, including shade through indoor area or covered external area.
- o Applicable security control points.

/ **Workshop/maintenance shop**

An associated back of house area for gondola storage and maintenance area will be built in the location of the existing upper terminal. This shall include:

- o Cable car storage
- o Cable car maintenance and operational support areas including the capacity to raise and lower equipment
- o Storage for maintenance equipment including but not limited to PPE, first aid, spill kit, spare parts, oils, lubricants and electrical components.
- o Environmental protection such as bunding.
- o Maintenance office, staff locker area and applicable first aid.

/ **Associated infrastructure**

Associated infrastructure such as services, soft and hard landscaping, FF&E (fixtures, furniture & equipment), theming, food and beverages kiosk, shade, interpretation, and signage.

6.0 Infrastructure

6.1
Station Technical Requirements

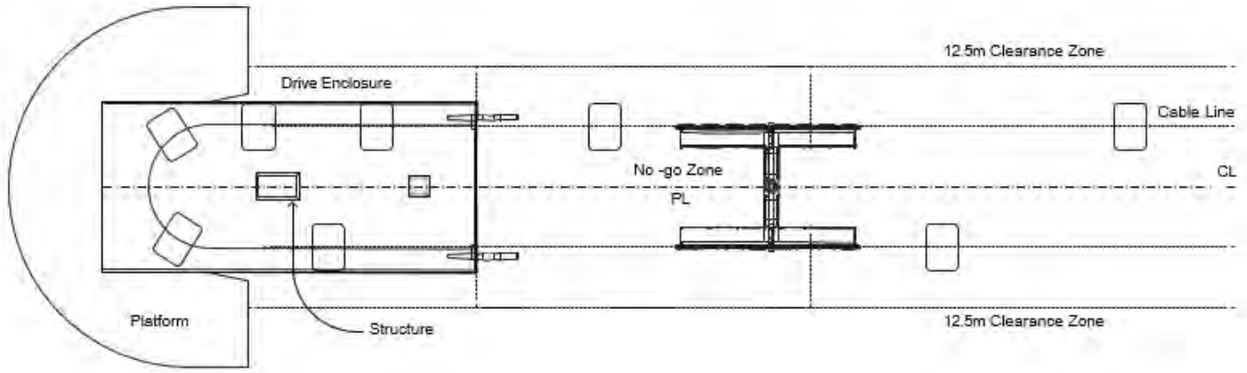
The Sky Safari is a complex piece of infrastructure with specific requirements around structure, clearances, and capacity. Combined with the steep topography and natural setting of the Zoo, it makes for a challenging integration.

The existing Sky Safari, now decommissioned, had a 400m up-down route. The proposed enhanced Sky Safari retains this route with a new bottom and top station.

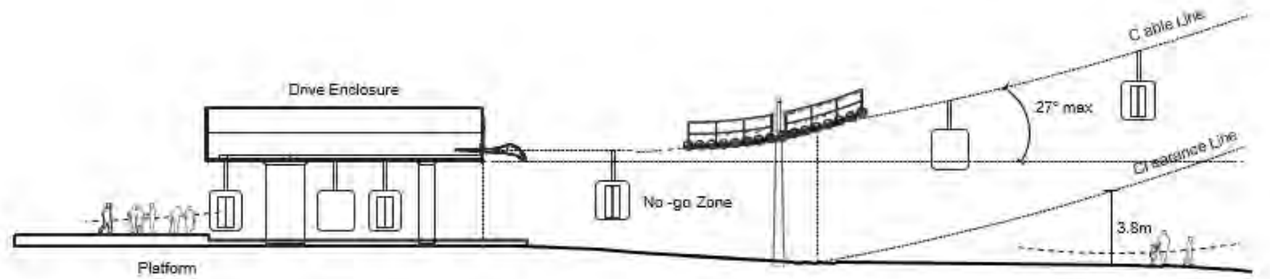
As a transportation system, cable cars are an extremely energy efficient and quiet method of moving people. The system is known as a monocable, circulating gondola cableway, where vehicles attach and detach from the continuously moving cable in the stations, and the cabins spaced equally along the line. In this system, we will have large 10 person cabins with foldable opposing seating; and capacity to a accept wheelchairs and double prams.

The system consists of a relatively simple electric motor that drives a circa 35mm diameter cable tensioned at the stations. The cable turns continuously around the full circuit at the nominated speed (in this case a peak of 3m/s). A bullwheel sits at each turn at the stations and holds the cable in tension and allows the cable to decouple from the cabins The cabins then connect to an overhead conveyor system slowing right down to allow passengers to embark and disembark the cabins. Operators can also stop the cabins for prams and wheelchairs, or for emergencies.

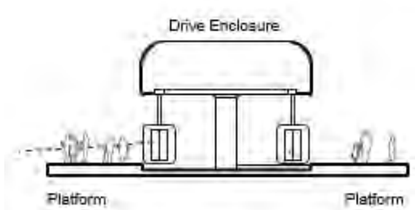
Away from the stations, the cable car rises and falls around the route, defined by:
/ The angle of incline and decline, with maximum 27 degrees for occupant comfort.
/ Location of line towers with cross arms and sheeves guiding the cables in both directions
/ Clearance to significant trees and preservation of tree growth.
/ And span of cable with an engineered extent of sag and compliant clearances under cable cars to buildings, people and in this case, animals.
Each line tower has been carefully located within the zoo around both existing and future exhibit needs, and in consideration of natural and built form heritage. The tallest towers have a circa 2m diameter base with all footings and structure below ground and landscaped around.



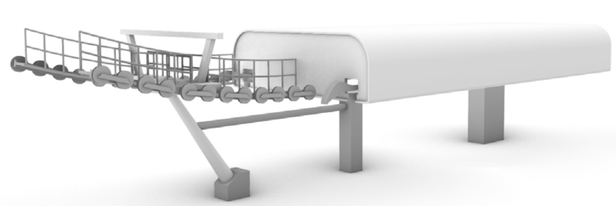
TYPICAL STATION PLAN + EQUIPMENT ENCLOSURE



TYPICAL LONG SECTION

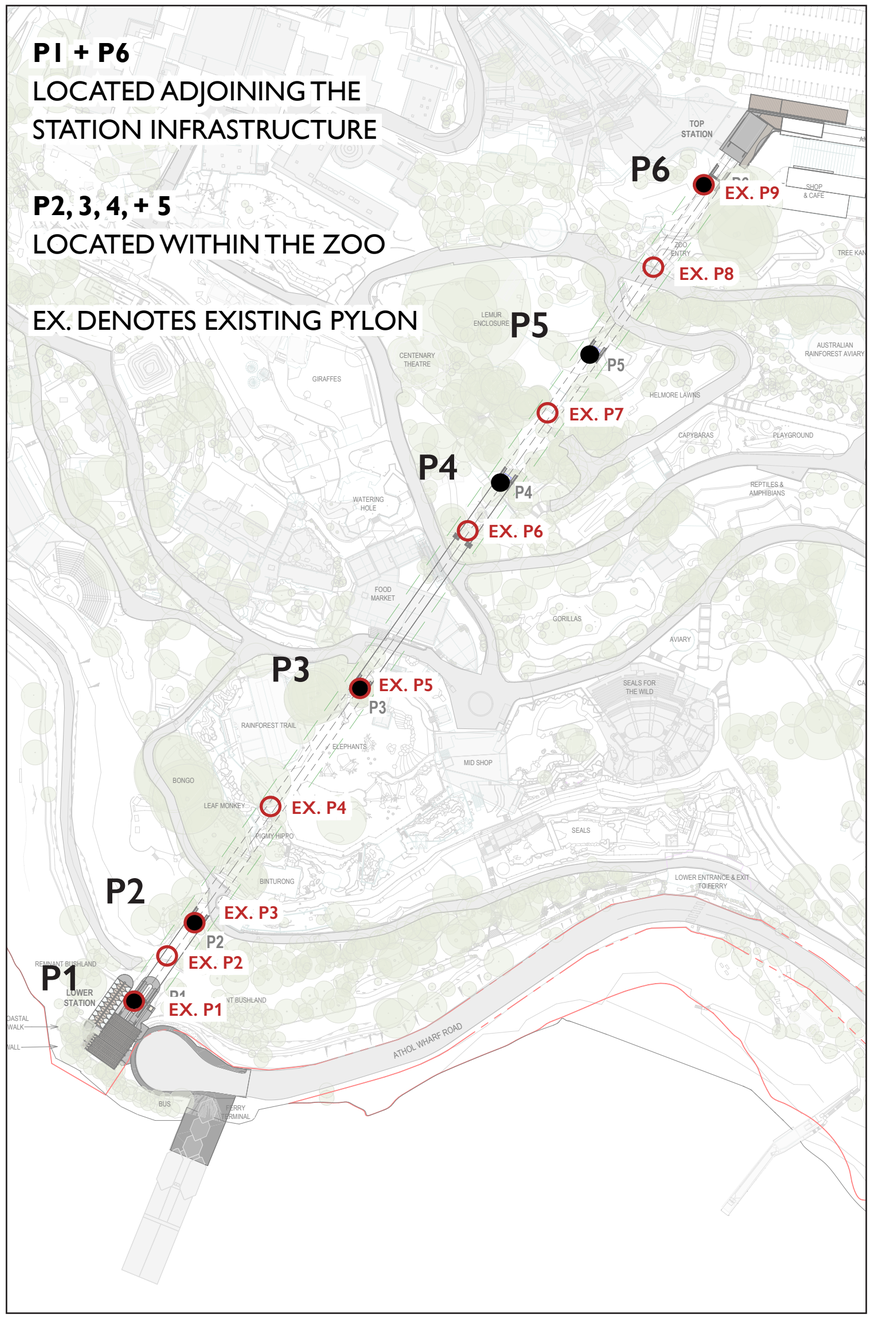


TYPICAL CROSS SECTION

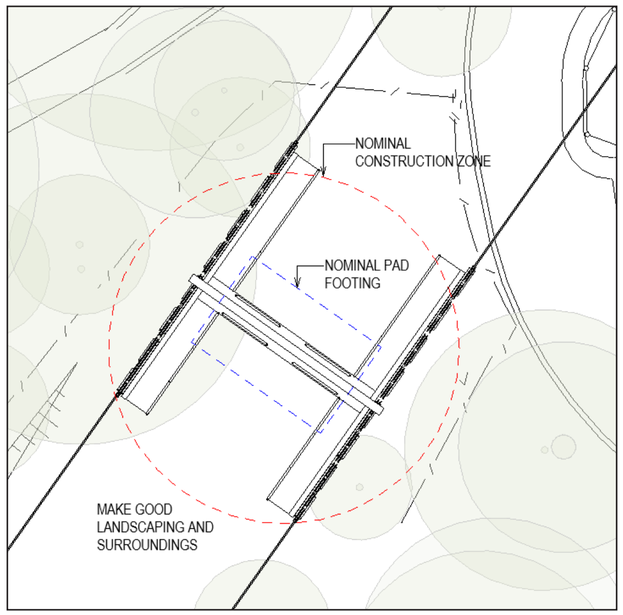


3D OF ENCLOSURE AND INFRASTRUCTURE

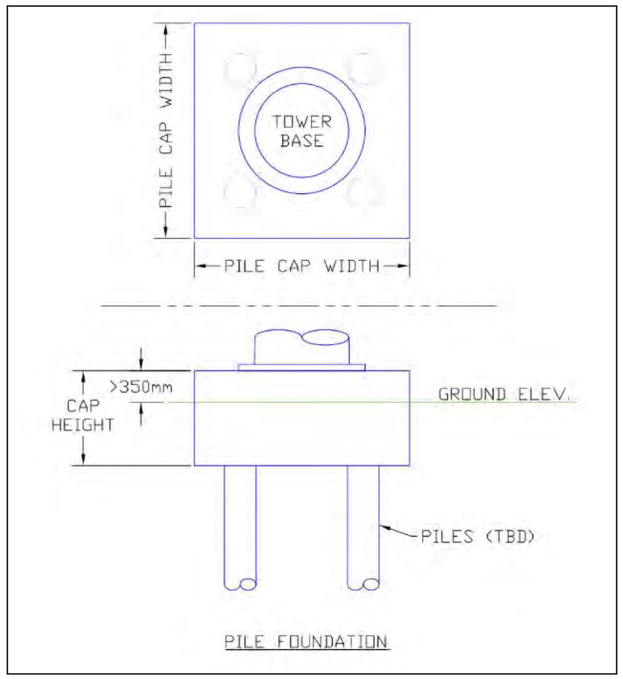
6.2
Pylon Requirements



OVERALL PYLON LOCATIONS ON ROUTE



TYPICAL PYLON PLAN



TYPICAL PYLON FOOTING PLAN

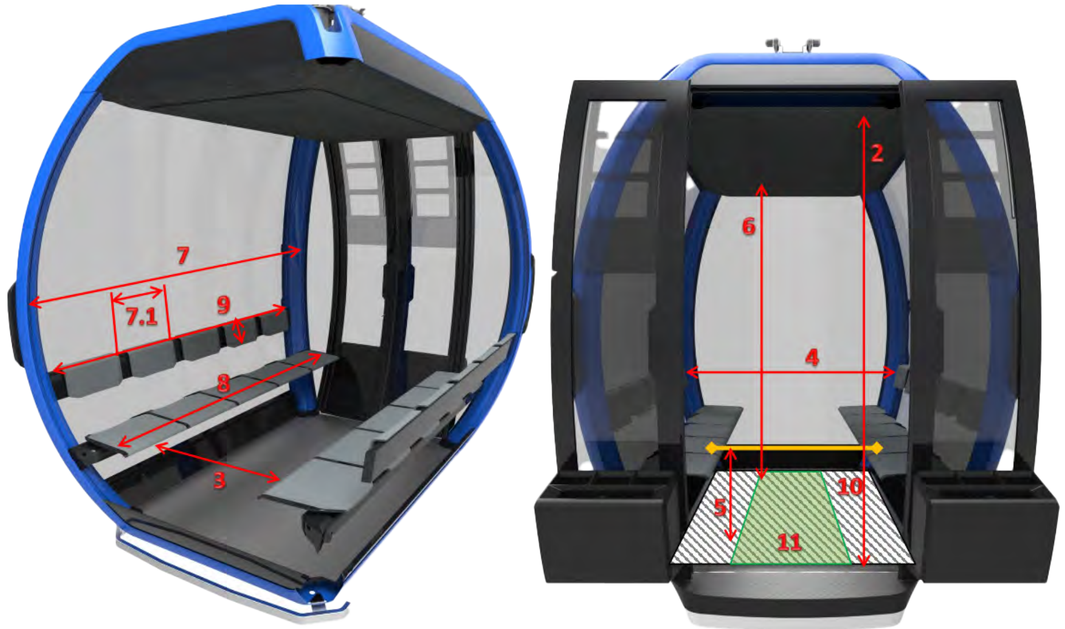


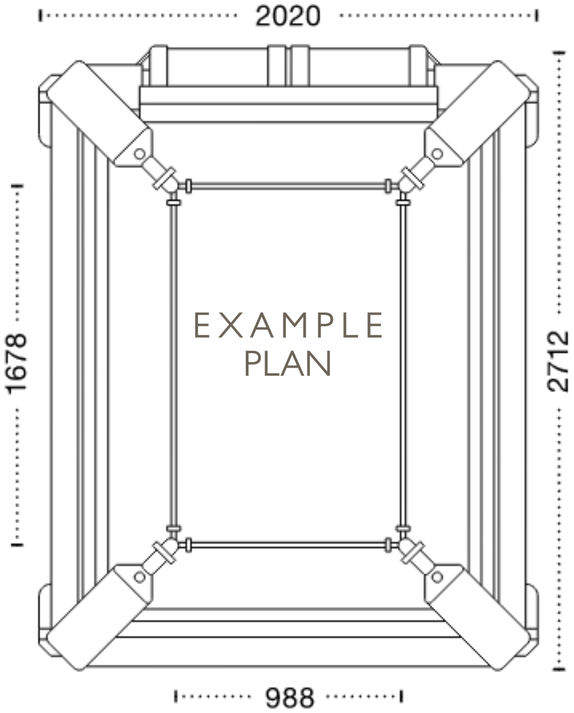
INDICATIVE 3D VISUALISATION OF PYLON
HEIGHT AND SCALE VARIES

6.3

Gondola Requirements

Indicative Gondola Car Examples for Information Purposes Only





EXAMPLE GONDOLA MODEL ONLY

NOT TO SCALE

1/ DDA COMPLIANT ENTRY WIDTH
2/ 2M+ HEIGHT OF ENTRY POINT FROM CEILING TO FLOOR
3/ DDA COMPLIANT ACCESS WIDTH FROM BOTH SEAT EDGES
4/ GENEROUS LENGTH BETWEEN BACKSEATS FOR COMFORT
5/ AS COMPLIANT SEAT HEIGHT FOR USER ERGONOMICS
6/ 2M+ INTERNAL HEIGHT OF GONDOLA
7/ 2.5M+ GONDOLA WIDTH, SEATING 5 PATRONS COMFORTABLY
8/ 0.5M+ WIDTH OF SEATBENCH SHOULDER ROOM PER PATRON
9/ 2.3M+ SEATBENCH WIDTH
10/ SPACIOUS SEATING ZONE FOR FACING PATRONS
11/ (EMPTY) FLOOR AREA OF 2.4M^2
(FULL CAPACITY) FLOOR AREA OF 0.28M^2





INDICATIVE OPPORTUNITIES FOR ARTIST OVERLAY

Taronga Zoo has begun to consider indicative gondala wrapping. It is proposed the bottom section of the gondola would be wrapped in vinyl and that the wrap design is a Public Art opportunity to connect to the Saltwater to Sky narrative. The Zoo logo is indicative of the integration of a Corporate Partner.

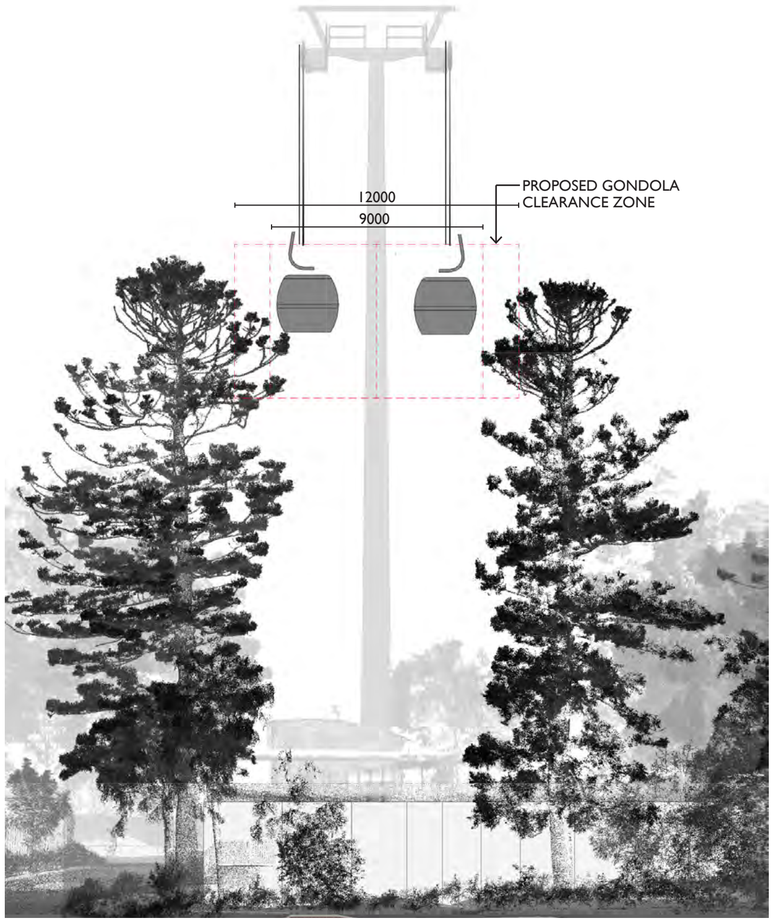
Taronga Zoo works regularly with Aboriginal artists and one of the placeholder wraps included is a licensed artwork Burrul Warrambool (milky way) by Lucy Simpson.

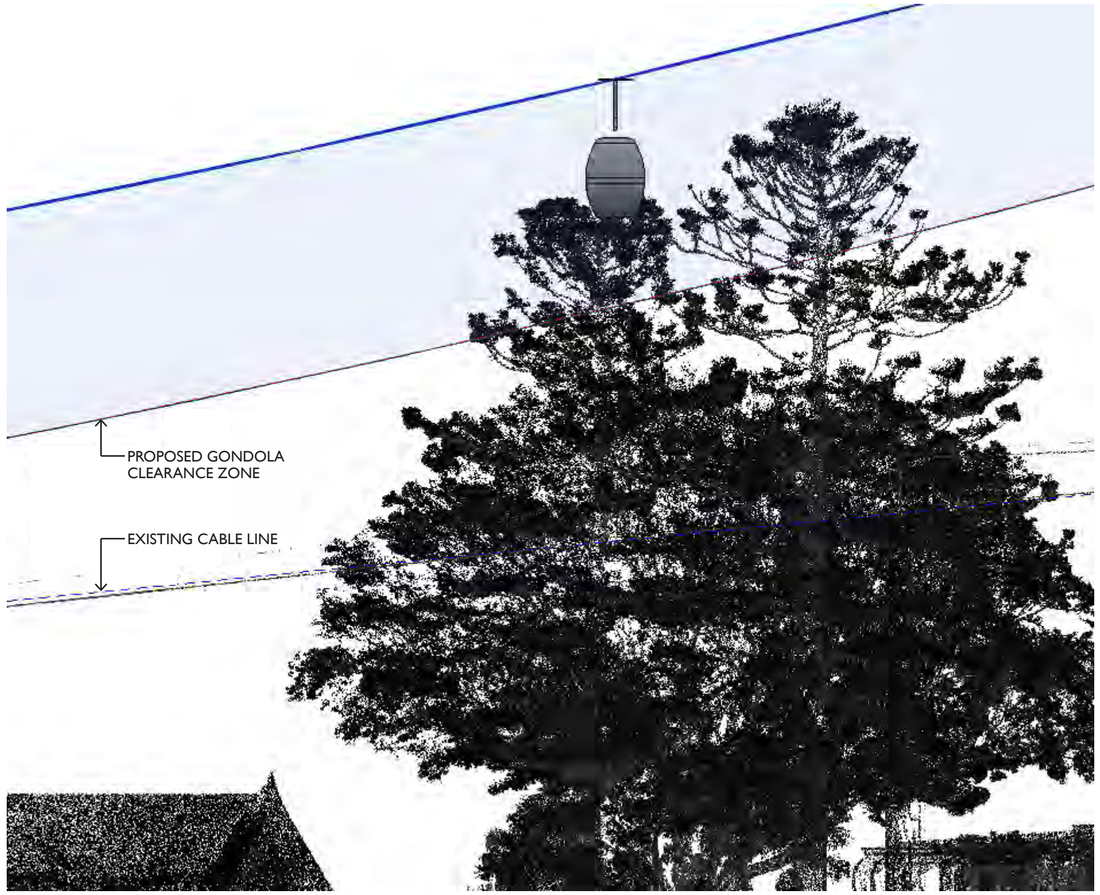
*The design and colour is indicative only.

6.4

Gondola Section

TYPICAL GONDOLAS SECTION SHOWING DUAL CARRIAGEWAY AND CLEARANCE ZONES





Diagrams indicate the required carriageway zone for the dual gondola lines, including clearance zones and sag extent

7.0 Route

7.1

Route Plan

OVERALL ROUTE



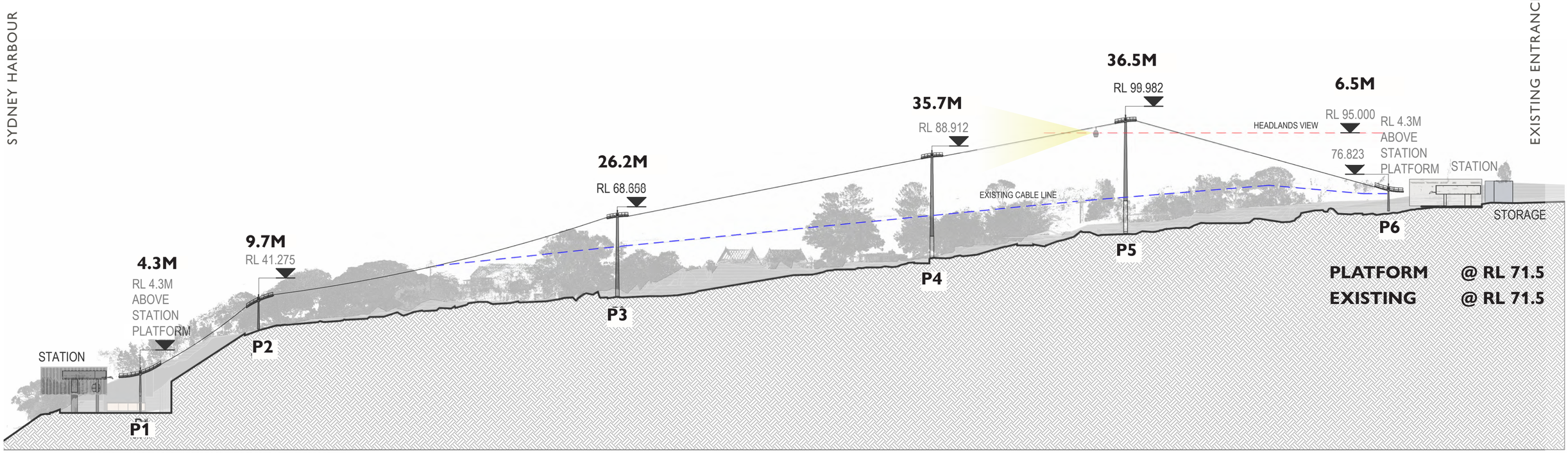
ZONE 1:
Cable Car rises from Pylon P1 (existing bottom station) rising to P2 up over the sandstone cutting (that includes existing and additional excavation to suit maximum cable car incline.
P2 is a circa 10m high pylon.

ZONE 2:
Pylon 2 to Pylon 3, the cable car rises with the terrain, gently increasing in height towards Pylon 3, in order to clear existing tree canopies.

ZONE 3:
Steady incline from Pylon 3 to Pylon 5 over the Hoop Pines in order to preserve tree canopy and provide the key view of the Harbour and Sydney North and South Heads.

ZONE 4:
Steep decline from Pylon 5 to Pylon 6 at the top station.

7.2
Route Long Section



LONG SECTION ALONG LINE

/ This long section shows the proposed cable car line connecting the bottom station at RL 11.5 to the top station at RL71.5. The section then indicate the overall height of the pylon and the nominal relative level of the high point as the cable crosses over the pylon. The height of the cable allows for passing over future tree grwoth within allowance for cable sag (Greater than existing due to the large gondola cars).

8.0 SDRP Feedback

8.1
SDRP1

TARONGA SKY SAFARI SDRP 1 - Comments and Design Response

The following represents high level commentary in response to the SDRP Minutes received during Concept Design development prior to SSDA Lodgement

SDRP	Item	SDRP Comment	Design Response / Comment
Clarification from the Panel			
SDRP1	Item 1.1	TSCA have prepared a comprehensive engagement plan – we have spoken with the TAAG and various stakeholder groups including the Bidjigal Elders – sharing the harbour Indigenous staff and TAAG were engaged from the beginning Decisions around the route – relationship with Connection to Country Consider : - Station locations – how do we minimise impact, particularly on remnant bushland and Upper Australia Precinct (Nura Diya) - Analysis of the route and pylons with TAAG	Throughout the course of the concept design phase, the Zoo has undertaken ongoing engagement with the TAAG. The station locations from SDRP1 have been refined, with locations aligned with existing station location and as a result a significant reduction in impact to Nura Diya and remnant bushland.
SDRP1	Item 1.2	Very transformative project, tension between views and visual impact. Is this going to be more visually impactful than the existing route? How many people does a gondola hold? Current route is not DDA compliant? Do we improve this?	The extent of the cable car has been significantly reduced since SDRP1 with a reduced route and a reduction of pylons. Whilst there are pylons higher than the existing, the height allows for long term tree canopy growth and views of the harbour in response to the business case commitments. Car Sizes have been increased from 8 to 10 persons with increase capacity and DDA compliance of the cars for wheelchairs and prams. DDA Compliance is now provided to the bottom station through ramping and a lift.
SDRP1	Item 1.3	Tree protection and removal is an important issue Have we mapped to route or the whole site? View lines important from a landscape and cultural perspective	Extensive tree mapping has occurred with ongoing engagement with the Arborist. The tree mapping has included laser survey work to map tree canopies in detail.
SDRP1	Item 1.4	Trees and preservation – is there a discussion on regeneration of planting?	The Zoo manages an extensive precinct and has multiple opportunities for regeneration planting associated with long term master planning of the Zoo.
Comments from the Panel			
SDRP1	Item 1.5	Zoo has made it clear in previous consultation to start with Gymarigal people– need to talk to them and speak with neighbours. The Zoo is on women's country and stories should be shared by women	Advice at the time in response: We are working with Aboriginal women. Working in collaboration with archaeology team to do GPR works Framework provides representation of sky story imbedded into the design
SDRP1	Item 1.6	Consider principles we can 'measure against' - Accessibility as a core principle – need a plain English response - Visual impact as a principle - Purpose of the new infrastructure Route : What's the purpose of it and getting the balance right - Suggest having a bypass to remove need to take people to the Congo stop	The core purpose of the proposal is for: - improved accessibility and DDA Compliance - connection to place and zoological experience, - conduit for conservation messaging
SDRP1	Item 1.7	Transformative project from a cultural and landscape perspective Consider - Opportunities for DDA compliance across the site - Measuring DDA compliance against current situation - Heat mapping of the Zoo – transform the canopy - Views from the fifth elevation – view from above is very important (roofs and paving) - Angophora trees – dynamic colour within the canopy	Since this initial SDRP, the scope of the project has reduced and a singular route up and down the hill has been developed. DDA improvements have been provided at the stations and through the provision of larger gondolas. Long term DDA improvements around the zoo will be undertaken through their long-term master planning. The view from above has been considered around the bottom station and the 'wrapping' roof form, important as the built form is viewed from the zoo's re-entry pathways 'above' the station. Additionally, the underside of the platform and built form has been considered with regard to the opportunity for public art overlay. Angophora trees have been proposed for the top station.
SDRP1	Item 1.8	The movement of people near the heritage upper entrance needs to be investigated. Introduce shading/amenity/respite to the upper plaza. SDRP want further information on the technology associated with the cable car.	The upper station has been relocated since SDRP1 and is no longer adjoining the heritage building. Shading for queuing is provided by virtue of entering via the adjoining-built form. Elements of the technology are included in this design report.
SDRP1	Item 1.9	The project provides a significant opportunity to improve accessibility, visitor experience, moving people around the site/connecting key Zoo attractions and connection with country. However, this opportunity needs to be carefully balanced with the existing landscape character and visual impacts associated with the proposal.	Noted

8.2
SDRP2

TARONGA SKY SAFARI SDRP 2 - Comments and Design Response

The following represents high level commentary in response to the SDRP Minutes received during Concept Design development prior to SSDA Lodgement

SDRP	Item	SDRP Comment	Design Response / Comment
Clarification from the Panel			
SDRP2	Item 2.1	In addition to the items listed in the previous advice letter, the following elements of the proposal are supported: - the continuing engagement with local Aboriginal Knowledge holders and Taronga Aboriginal Advisory Group (TAAG) and the reference to the wealth of stories that have been shared of place - inclusion of Newscape in the project team to support Landscape design - engagement with Mosman Council - the Nawi concept to reflect the idea of the vessel - aspiration to create a distinct identity for each station.	Noted
Connection to Country			
SDRP2	Item 2.2	Refer to the final Connecting with Country Framework on the GANSW website, released in August this year, which includes guidance on Designing with Country	Noted
SDRP2	Item 2.3	It is noted that the station locations have the approval of the local Aboriginal community.	Station locations have been refined since SDRP2 with the provision of only 2 stations now.
SDRP2	Item 2.4	Continue to synthesise the deep learnings that have emerged from the engagement with the local Aboriginal Knowledge Holders and look for opportunities to meaningfully translate the stories into the landscape and architectural design. Consider the following: a. develop a material palette by using the stories to inform the materiality of the stations b. utilise the gondola/car as a canvass not just the stations c. integrate and enable the important cultural practices for Aboriginal community d. continue to improve and develop the way cultural stories are manifested within the ramp structures	The development of the project has been refined in terms of the architecture of the stations, with the bottom station prioritised in terms of architectural envelope. Within this, screens, balustrades and surfaces have an opportunity for storytelling that will be developed by the Zoo following the SSDA. This interpretations overlay will also occur to the top station. The gondolas have the opportunity for a subtle overlay of interpretation external with audio overlay within.
SDRP2	Item 2.5	The Zoo has important Aboriginal and Colonial Heritage elements. Integrate both within the design and explain the approach when in discussions with the heritage approvals committee and at any future SDRP presentations.	Refer Heritage Report enclosed with the SSDA
SDRP2	Item 2.6	Consider obtaining additional indigenous spatial design expertise within the team to assist in translating the deep time stories into built form.	To be developed further by the Zoo as part of their broader Connection to Country commitments
Site Strategy and Landscape			
SDRP2	Item 2.7	The Zoo is noted as one of SydneyЯ top three tourism attractions with huge visitor numbers which creates a key focus on arrival, gathering and movement. The integration of built form and landscape is of critical importance in this context.	Noted
SDRP2	Item 2.8	Provide clear and simple scaled drawings including people and plants to explain the relationship of built form, landscape and site.	Refer to SSDA Drawings attached to the submission for both Architecture and Landscape
SDRP2	Item 2.9	Consider how lowering the stations and cable car using a kCorridorЯwould assist in minimising visual impact. Provide a comprehensive view analysis pack to illustrate this.	Lowering the cable route was considered. However, as the corridor is wider than the existing (to accommodate broader and larger cars), lowering the cable route would result in significant loss of trees including two heritage listed trees. The bottom station is retained at the existing level. Lowering the station would result in extensive additional excavation as the rate of incline is at the maximum for guest comfort.
SDRP2	Item 2.10	Provide detailed drawings and representations that clearly illustrate the aspiration to use planting to tell Country stories.	Refer Landscape Architect drawings
SDRP2	Item 2.11	Provide further detail on the ramp locations by mapping them out clearly on the drawings in conjunction with the existing landscape.	Refer Architectural Drawings
SDRP2	Item 2.12	Test and clarify how the extended operational hours if any, will impact on the surroundings due to light spill.	Refer NDY Lighting – Lighting Concept submitted with the SSDA. In addition to this, light spill is assessed as part of the VIA
SDRP2	Item 2.13	Use real photo backgrounds in 3D montage views to clearly illustrate the visual relationship of the proposal to the context.	A detailed Visual Impact Assessment is submitted with the SSDA showing the contextual relationship of the proposed works using real photos from pre-established viewpoints around the Harbour and from within the zoo.

8.2
SDRP2

SDRP2	Item 2.14	Undertake detailed mapping and analysis of existing root zones, canopies and trees along the proposed cable car route and wider campus identifying impacts to existing vegetation.	Refer Arborist Report submitted with SSDA
SDRP2	Item 2.15	Provide an Arborist study for the site that clarifies root and tree protection zones and the impact of the pylons on existing vegetation.	Refer Arborist Report submitted with SSDA
SDRP2	Item 2.16	Consider regeneration of existing bushland and how this is achieved in line with Connecting with Country principles, including exploring the potential for living cultural practices to occur on site.	We note that landscape works is proposed within the subject zone of the cable car stations and pylons. At this stage there is not the scope provided by way of public funding to extend be project scope; noting that the Zoo undertakes periodic landscape works.
Architecture			
SDRP2	Item 2.17	Further development of the architecture and built form is required to create a lighter visual footprint in order to be in harmony with the Taronga Zoo landscape.	The bottom station has been significantly reduced in scale between SDRP2 and 3. Refer section 10 of the Design Report
SDRP2	Item 2.18	The Nawi concept for the stations has potential. Consider how to extend this idea to the moving cars/gondolas to become a canvass to share culture and stories of sky and water by testing if the gondolas could be more visually permeable and not fully enclosed.	The cars are an off the shelf item. There are unable to be a bespoke item in terms of car design due to the supply options in the market. However, the zoo has proposed to provide vinyl wrap artwork to elements of the car as part of their public art and interpretation strategy. Please note, cars need to be enclosed for safety in design considerations as the cars pass over zoological exhibits.
SDRP2	Item 2.19	Rigorously test how the structure of the stations can be less monolithic and integrated within the existing natural landscape of the Zoo through a lighter more skeletal approach.	The bottom station includes a skeletal frame and roof structure. The top station is the base infrastructure only to minimise the massing impact in a location that already has a range of architectural elements at the western end of the entrance plaza
SDRP2	Item 2.20	Explore alternative means of vertical transport to improve accessibility - such as through the use of lifts as opposed to ramps within the site.	Ramping is required to successfully move such large quantum of guests. A lift is provided for those with challenging accessibility issues. The ramps include numerous landings and pause points.
SDRP2	Item 2.21	Ensure provision of shading at the stations to improve visitor experience and amenity beyond its primary functional purpose. Give particular focus to the Top station adjacent the Heritage entry.	Extensive shading is provided to the bottom station. Shading to the top station is provided by the internal queuing zone and the external queuing under existing shade elements to the entrance plaza
SDRP2	Item 2.22	Provide a series of sections, elevations and 3D views that illustrate the spatial arrangement of the proposal including but not limited to: a. how the pylons, gondolas and stations sit within the overall context of the Zoo b. views and site lines from above and from ground level c. interface between the Top Station and the heritage entrance.	Refer Architectural Drawings and the Visual Impact Assessment submitted with this SSDA
SDRP2	Item 2.23	Visual impact is a critical consideration. Demonstrate how this proposed route and stations will minimise visual impacts from the harbour.	Refer Visual Impact Assessment submitted with this SSDA
SDRP2	Item 2.24	Explore view lines from a landscape and cultural perspective by selecting and analysing key views, and relating findings to Country blland, water, sky.	Visual Impact Assessment submitted with this SSDA
Sustainability and Climate Change			
SDRP2	Item 2.25	Setting an ambitious benchmark for sustainability is crucial for public projects. Refer to NSW, DPE, Net Zero Plan, Stage 1:2020-2030for further information.	Refer Environmental Performance Report submitted with this SSDA

8.3

SDRP3

TARONGA SKY SAFARI SDRP 3 - Comments and Design Response

The following represents high level commentary in response to the SDRP Minutes received during Concept Design development prior to SSDA Lodgement

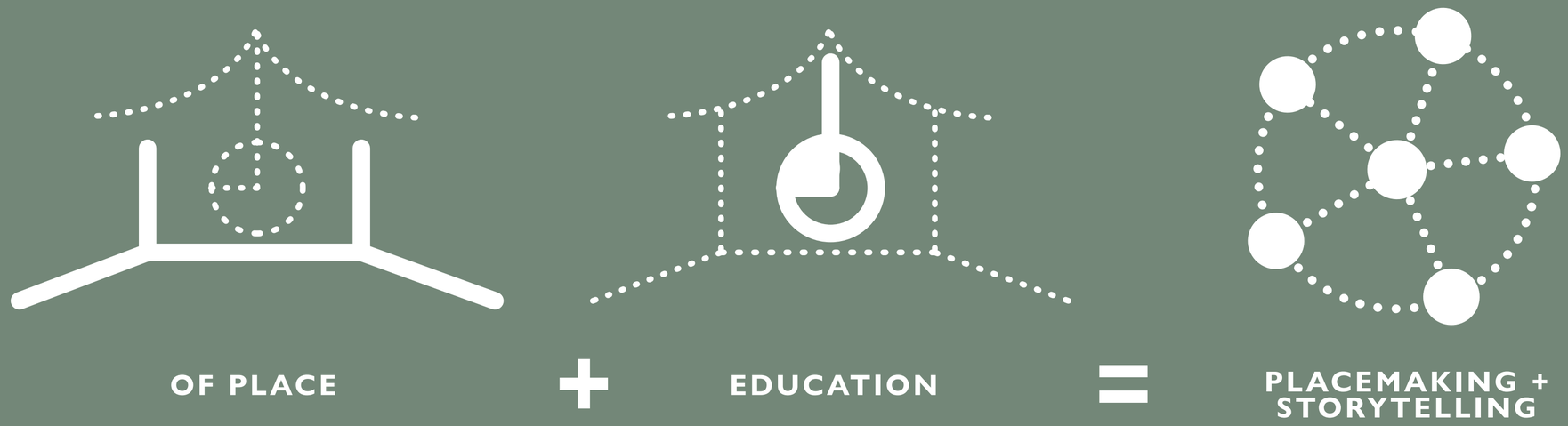
SDRP	Item	SDRP Comment	Design Response / Comment
Clarification from the Panel			
SDRP3	Item 3.1	Thank you for the opportunity to review the above project a third time. Please find below a summary of advice and recommendations arising from the design review session held on 2nd May 2024. We thank the team for a clear presentation and note the reduction in scope since the previous design review sessions. The integration of built form and landscape is a critical component of this project. In addition to the items listed in the previous advice letter, the following elements of the proposal are supported: ж The continuing engagement with local Aboriginal Knowledge holders, Elders and (TAAG) ж The Saltwater (sea) to Sky narrative and the aspiration to embed this within the design ж The reduced scope and footprint for the cable car route ж The revised and reduced massing of the lower station structure. The following commentary provides advice and recommendations for the project and should be read in conjunction with the previous advice letters:	Noted
Connection to Country			
SDRP3	Item 3.2	Leverage the insights provided by the Elders and Local Knowledge Holders particularly in regard to Aboriginal heritage within the sandstone and Angophoras and incorporate these into the design and implementation process to preserve the physical and cultural heritage and natural beauty of this area.	Aboriginal Cultural heritage assessment has been undertaken by Urbis which included site investigation and assessment with members of the Metropolitan Local Aboriginal Land Council. Refer report submitted with the SSDA. The report identifies unintended exposure processes and is supported by the proposed art and interpretations overlay to be managed by the Zoo post SSDA.
SDRP3	Item 3.3	Embrace and utilise the 6Saltwater to Skyв narrative to enrich the designЯ connection to this significant place and Country and further promote an impactful visitor experience. Pay particular attention to the design development of the upper station by highlighting the importance of Sky Country through spatial and material strategies.	The upper station has been pared back to the simple infrastructure with a landscape and screen element only; in order to ensure budget alignment. The overlay of First Nations storey telling is proposed to be provided within the queuing and station area as part of the future interpretations overlay.
SDRP3	Item 3.4	Assess any potential impact the development can have on the sandstone particularly where cutting/excavation is required. Implement measures to protect and preserve material of significance to Aboriginal Cultural Heritage. Instate strategies to landscape and naturalise disturbed ground after site works are completed.	Refer Aboriginal Cultural heritage assessment submitted with the SSDA. The Scheme proposes to reuse sandstone excavated on site for seating / wall elements. Refer Architectural Drawings
SDRP3	Item 3.5	Revisit and respond to previous advice to integrate both Aboriginal and Colonial heritage within the design and engage with the Heritage approvals committee.	Refer Aboriginal Cultural heritage assessment submitted with the SSDA and the Heritage Report
Site Strategy and Landscape			
SDRP3	Item 3.6	Canopy preservation is a key priority for this site. The drawings provided have not clearly articulated the relationship of site, landscape, and people.	Refer SSDA Drawings
SDRP3	Item 3.7	Incorporate the revegetation strategy and illustrate how the landscape can evolve over time and maintain a natural and less manicured appearance and character.	Refer Landscape Architects drawings for the extent of landscape works proposed
SDRP3	Item 3.8	Prioritise Angophora preservation throughout all locations of the proposed development, noting their significance to local Aboriginal people.	The Angophora is proposed for the Upper station. Refer Landscape Architects drawings
SDRP3	Item 3.9	Interrogate the height and canopy growth of the proposed trees along the route. Provide drawings to illustrate present and projected canopy growth over time, ensuring the stationsЯheight accommodates the natural development of trees particularly around the lower station.	Refer Arborist Report submitted with SSDA
SDRP3	Item 3.10	Undertake detailed mapping and analysis of existing root zones, canopies and tree locations along the proposed cable car route and wider campus identifying impacts to existing vegetation.	Refer Arborist Report submitted with SSDA
SDRP3	Item 3.11	Provide an Arborist study for the site that clarifies root and tree protection zones and the impact of the pylons on existing and proposed vegetation.	Refer Arborist Report submitted with SSDA
Architecture			
SDRP3	Item 3.12	Integration of built form and landscape is critical to this project as noted previously.	Noted

8.3
SDRP3

SDRP3	Item 3.13	Refine the design of the upper station to create a more considered and less utilitarian appearance. Consider options to make the station narrower, more slender, and better integrated with the surrounding landscape and Saltwater to Sky narrative.	The scale of the upper station including the station breadth is defined by the base infrastructure available for the cable car technology. It is unable to be reduced in size. In its' location at the end of the existing plaza, there is varied built form existing. As such the intent is to retain the infrastructure as base works with landscaping and a screen element in front. This solution aligns with budget allowances under the public funding allowances.
SDRP3	Item 3.14	Ensure the gondolas are not used as a surface for corporate branding. This would pose significant concerns given the extra height and visibility of the proposed design and would compromise the Connecting with Country narrative as presented.	This matter is outside of the design teams role to comment on.
SDRP3	Item 3.15	Conduct further analysis in regard to the height of the pylons and their visibility above the existing canopy. Consider: a. material, colour, and size of pylons b. future canopy growth c. reduced number of pylons extending above canopy to provide a varied spatial experience along the route.	The pylons and cable run have been designed to ensure future canopy growth is considered. The current design minimises the pylons. Whilst there are 6 pylons in total, 2 are at the station interface. As such there are only 4 pylons along the route spaced as required by the cable car technology and defined by the incline and decent. The pylons will be mid grey in colour that is indicated in the Visual Impact Assessment images.
SDRP3	Item 3.16	Explain and illustrate the proposed storage areas ancillary to the top station with particular regard to their appearance and impact on the heritage entrance.	The storage building is light weight in nature and timber clad to match the existing timber clad buildings that exist within the existing entrance Plaza. These existing timber buildings already exist adjoining the heritage building and as such we believe minimising alternate architectural forms is important.
SDRP3	Item 3.17	Provide sufficient drawings including sections, elevations, and 3D views to clearly illustrate the spatial arrangement of the proposal and relating to: a. how the pylons, gondolas and stations sit within the overall context of the Zoo b. how the proposal sits within the locality of the harbour slopes and Bradleys Head.	Refer Architectural Drawings and Design Report
Sustainability and Climate Change			
SDRP3	Item 3.18	Setting an ambitious benchmark for sustainability is crucial for public projects. Refer to NSW, DPE, Net Zero Plan, Stage 1:2020-2030 for further information.	Refer Environmental Performance Report submitted with this SSDA

9.0 Architectural Strategy

9.1
Architectural Strategy





Each station is unique in its location within the zoo. The walls, platform, ramping and surrounding public domain will address localised understanding of place as well as tell the conservation and Indigenous story.



The gondola presents the unique opportunity as a moving vantage point that views various experiences across the zoo, from exhibits, iconic views across Sydney Harbour, with the potential to overlay AV with conservation and Indigenous messaging.



Through the architectural, way finding, interpretation and audio visual aspects of the cable car system there are many opportunities to convey the conservation messaging of the zoo and the Indigenous story of place.

10.0 Architectural Design

[BOTTOM STATION]

10.1 Site Influence

[BOTTOM STATION]

10.1.1

Existing Site

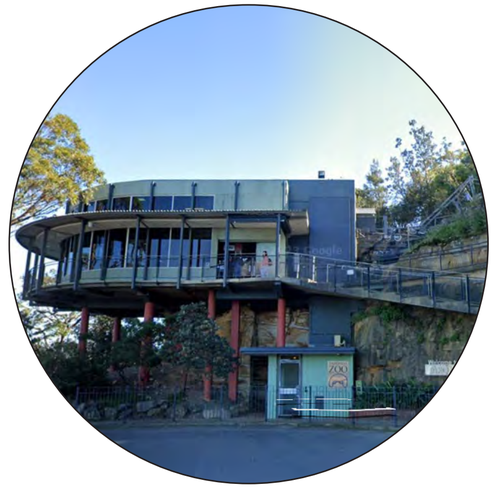
/ The Lower Station is located adjacent to the ferry wharf. This area is set within remnant bushland to either side of the station and very much part of the Sydney foreshore experience. The station will respond to the need to provide accessible and shaded queueing to guests whilst enjoying the vistas of Sydney Harbour all within a bushland setting.

/ The red linework below denotes the existing queing path from ferry to existing station, noting stair access only.



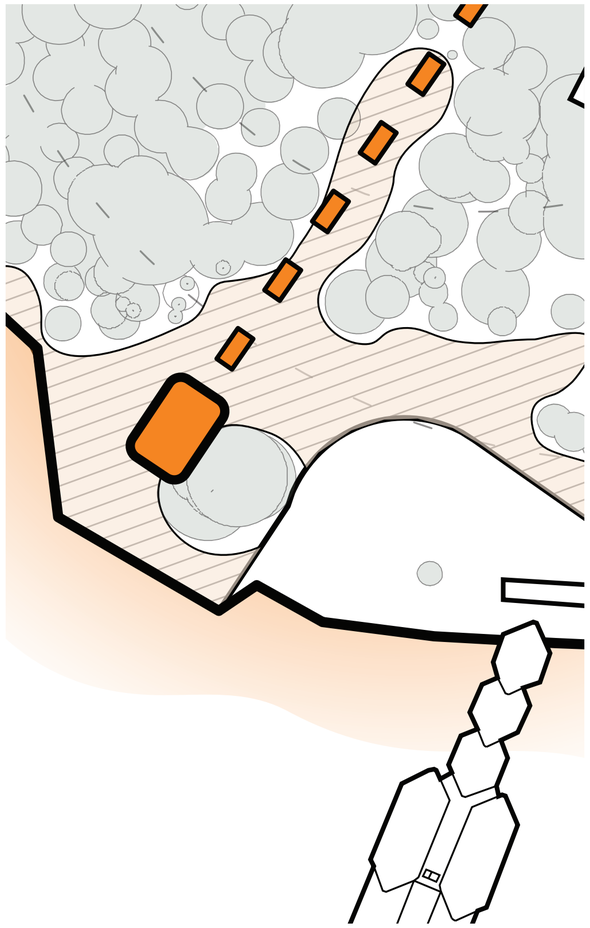




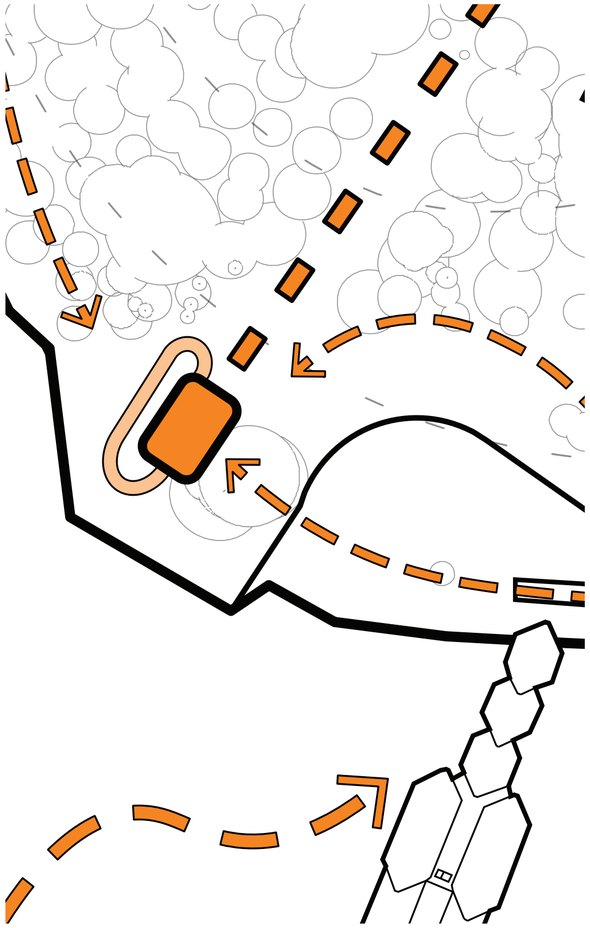


10.1.2
Bottom Station

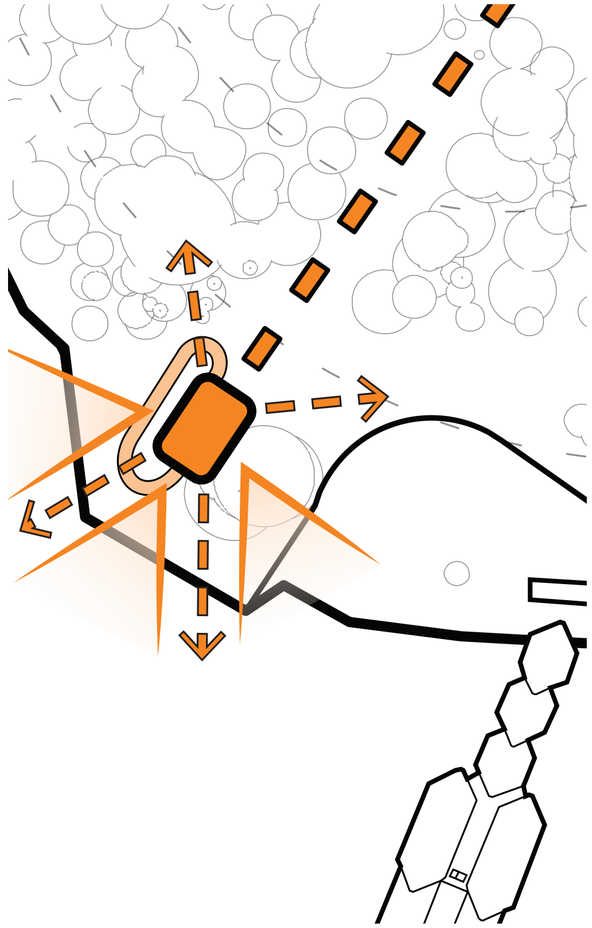
PRECINCT ARTICULATION



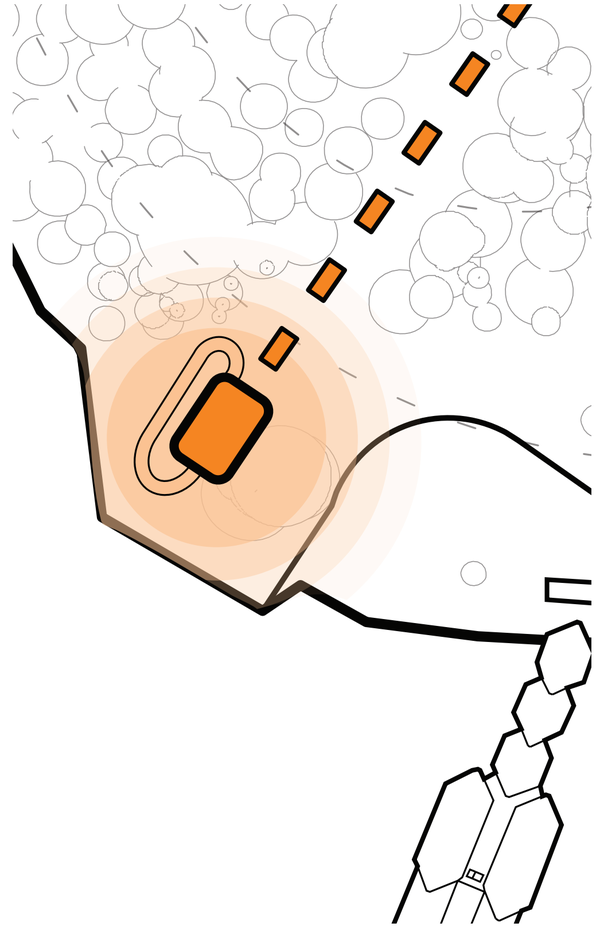
PROTECTION + IMPACT



JOURNEY + ACCESSIBILITY

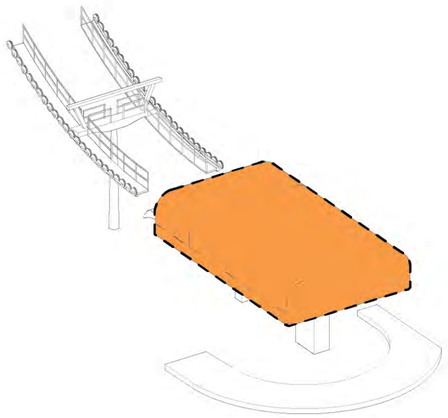


VISTA + CONNECTION

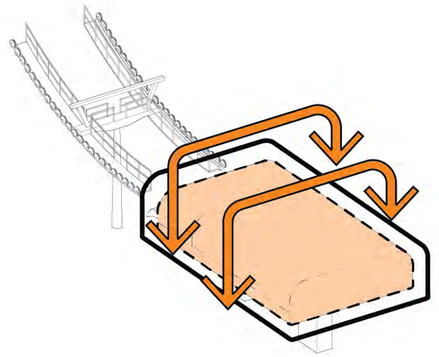


PUBLIC DOMAIN + PLACEMAKING

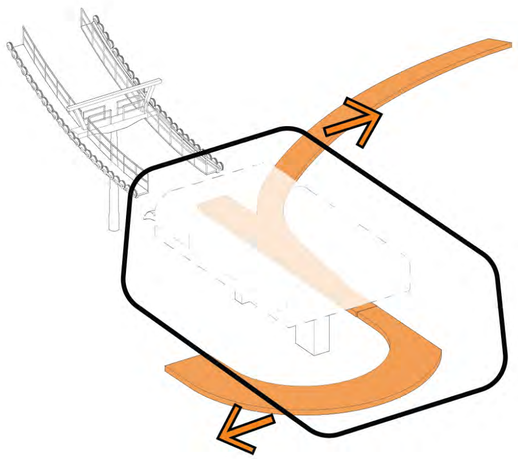
10.1.3
Massing Articulation



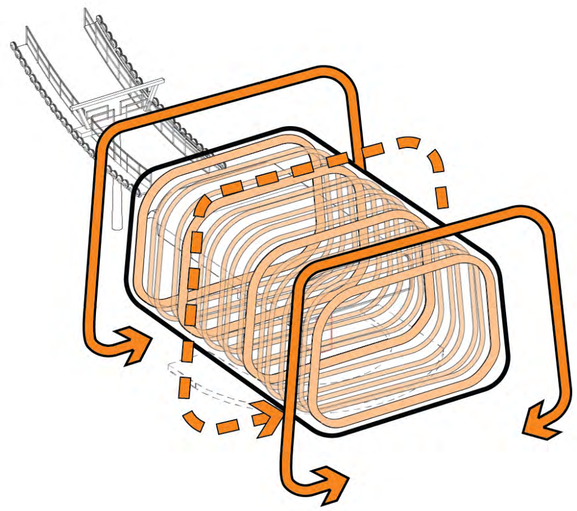
01
CABLE CAR INFASTRUCTURE



02
SIMPLE FORM

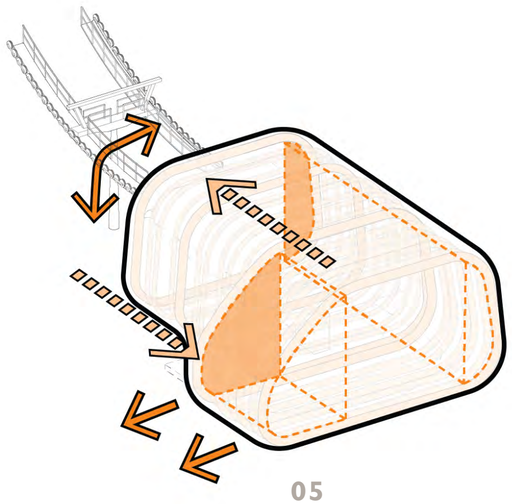


03
ENCOMPASS PLATFORMS

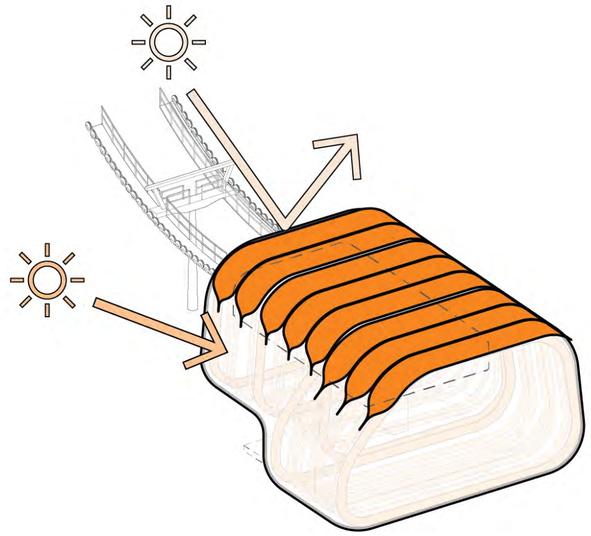


04
PRIMARY + SECONDARY
STRUCTURAL OVERLAY

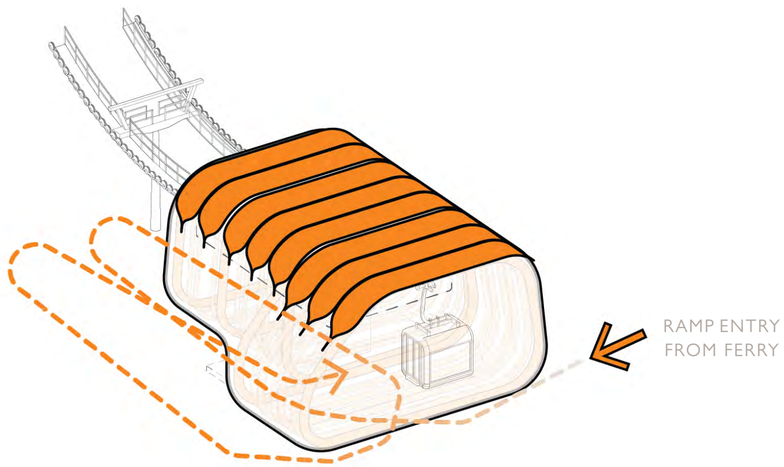
10.1.3
Massing Articulation



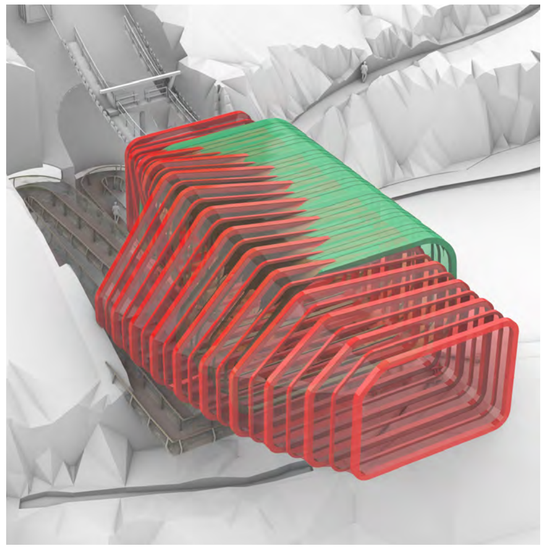
05
EXPRESS ENTRY + EXIT



06
CLIMATIC CONSIDERATIONS



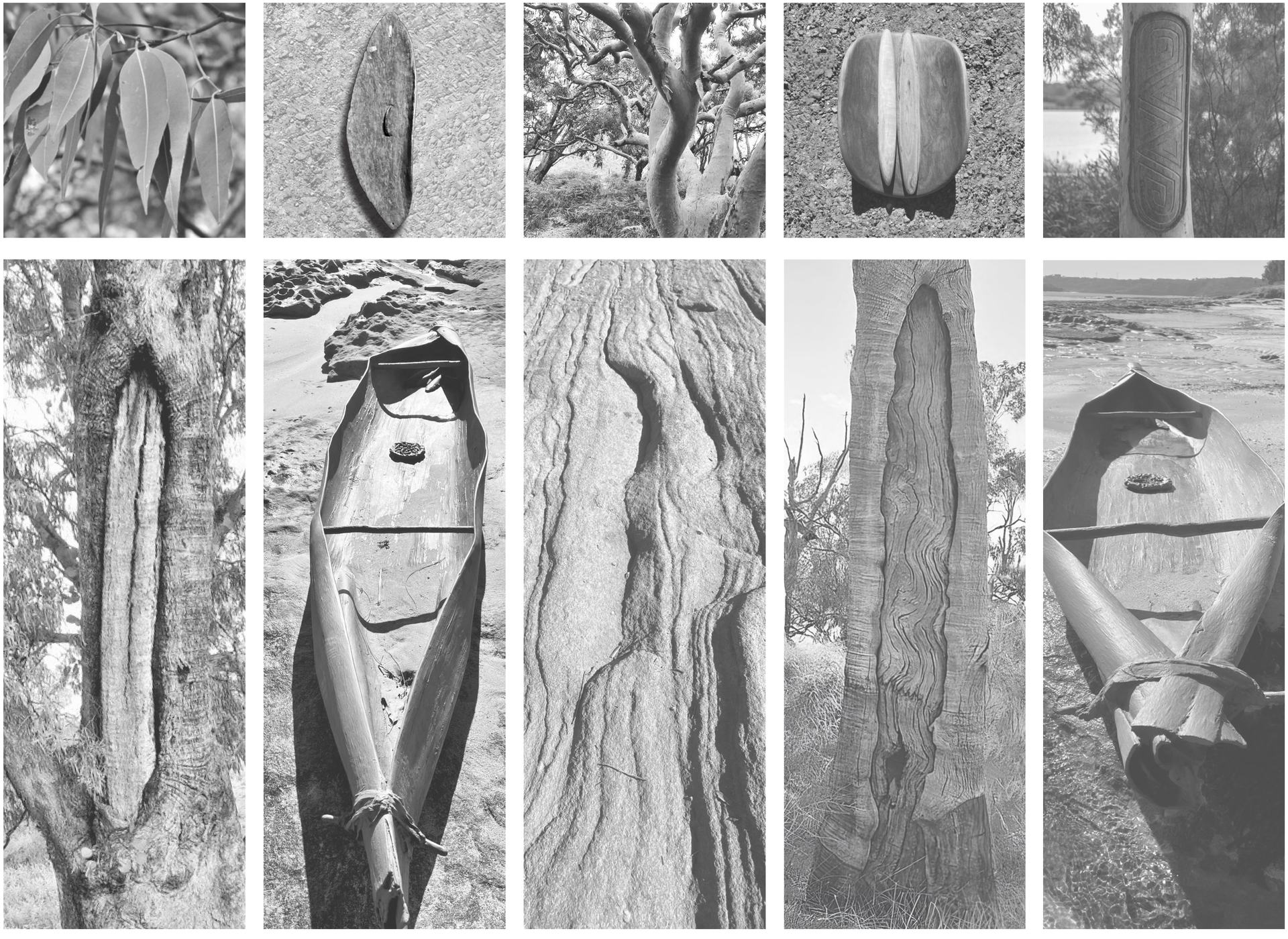
07
EXPERIENCE + STORYTELLING
[BOARDING JOURNEY]



08
REDUCED BULK AND SCALE
CONCEPT VOLUME
PROPOSED VOLUME

10.1.4
Facade Articulation

SCAR TREE + NAWI + COOLAMON INSPIRATION

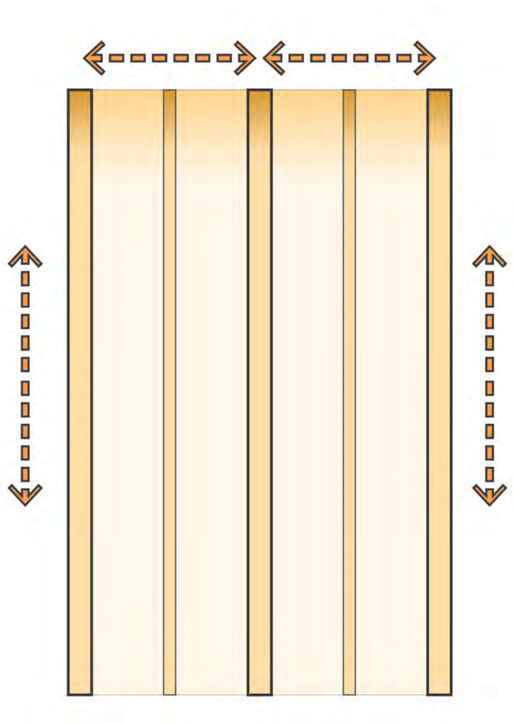


10.1.5
Facade Articulation

INTERPRETATION - FOLD + COLLECT

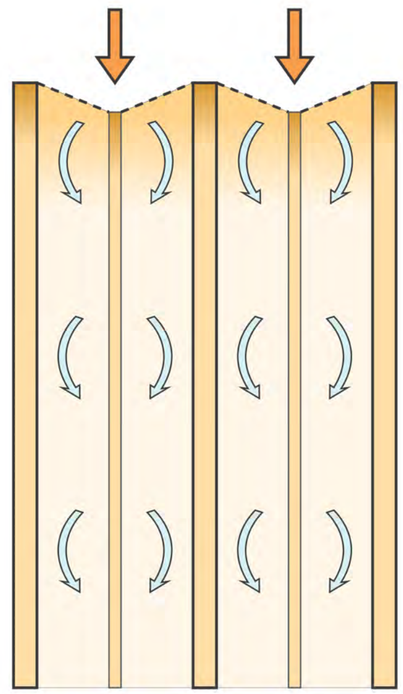
Informed by the Nawi Narrative

Concept Ideas for the facade development.



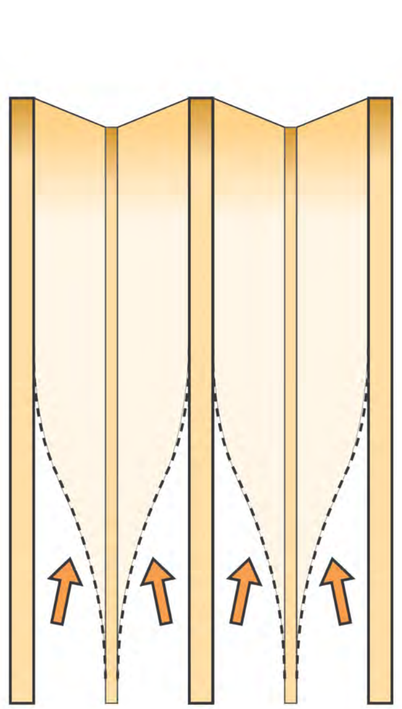
STEP 01

/ Span façade skin between primary structure and wrap entire station form



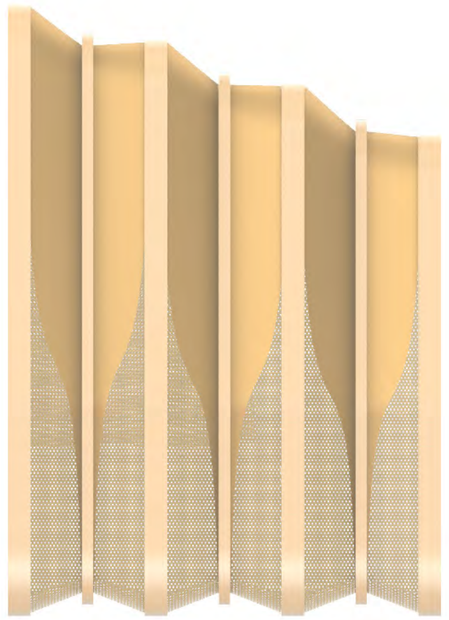
STEP 02

/ Adjust secondary structure and facade skin to provide valley forms for water management and run-off, and create an undulating rhythmic form for the overall station



STEP 03

/ Inspired by the Nawi making techniques and Scar Tree forms, the facade skin is shaped and peeled to reveal internal activation, connect with the external environment and vistas, and enhance the station form through a rhythmic play of patterns



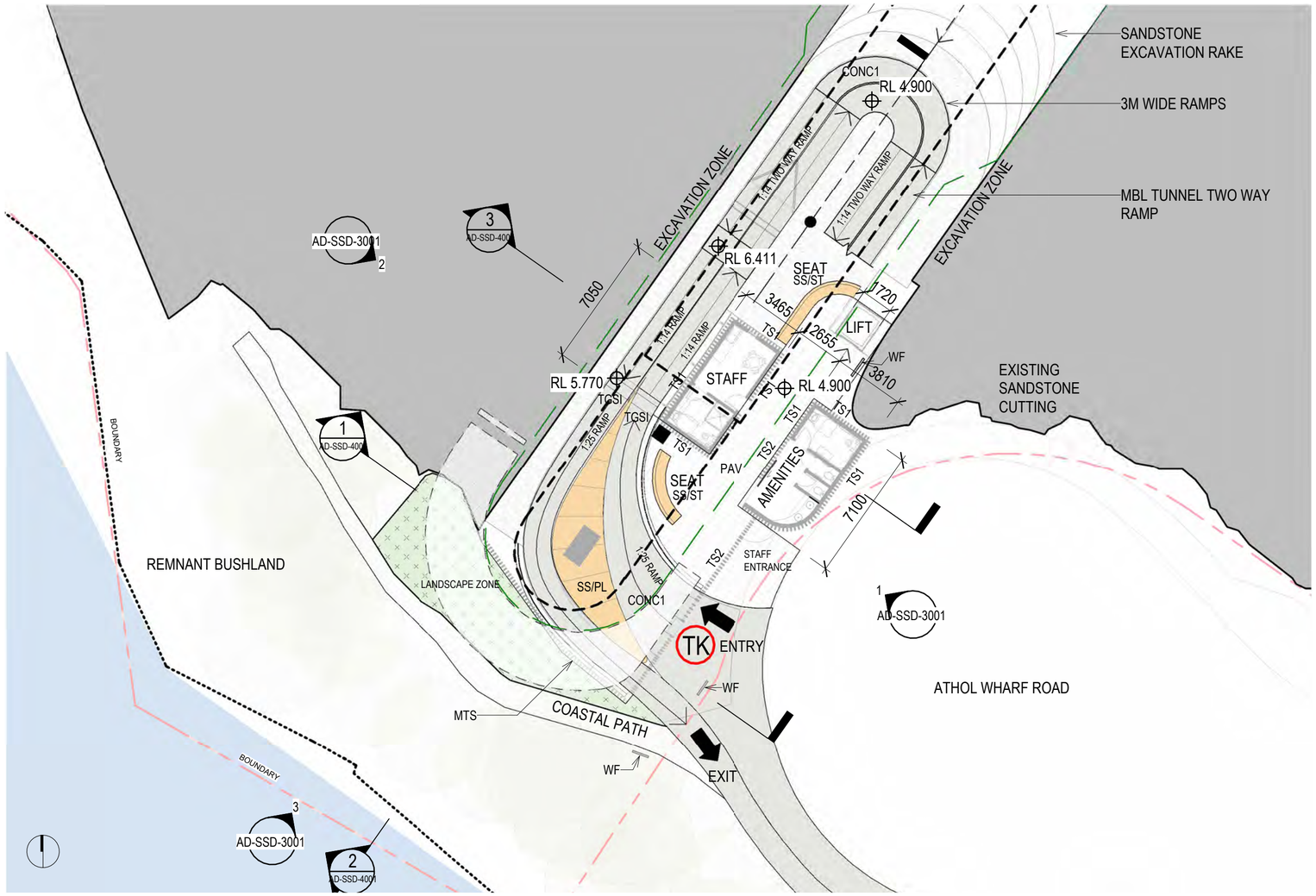
FINAL FORM

10.2 Station Planning

[BOTTOM STATION]

10.2.1
Ground Floor Plan

BOTTOM STATION



NOT TO SCALE. REFER OVERALL ARCHITECTURAL DRAWINGS

GROUND FLOOR PLAN

/The ground level arrival plaza connects via pedestrian pathway from the Ferry Station

/On approach, the left retains the existing foreshore public harbour pathway. To the centre there is a broad ramp that ascends to the platform. This ramp is a minimum of 3m wide, providing half each way for guests entering and guests exiting the platform.

/ To the right of the ramp is a forecourt or plaza area that includes:

- Unisex Public Amenities including DDA WC (with baby change) and individual cubicles.
- Staff facilities that includes a DDA WC, small kitchenette and break area
- Sandstone seating elements providing a place to rest and 'arrange' children after the Ferry Ride
- Access to a DDA lift that provides an alternate route to the platform.

/ Landscaping is integrated between the plaza and the existing foreshore path.

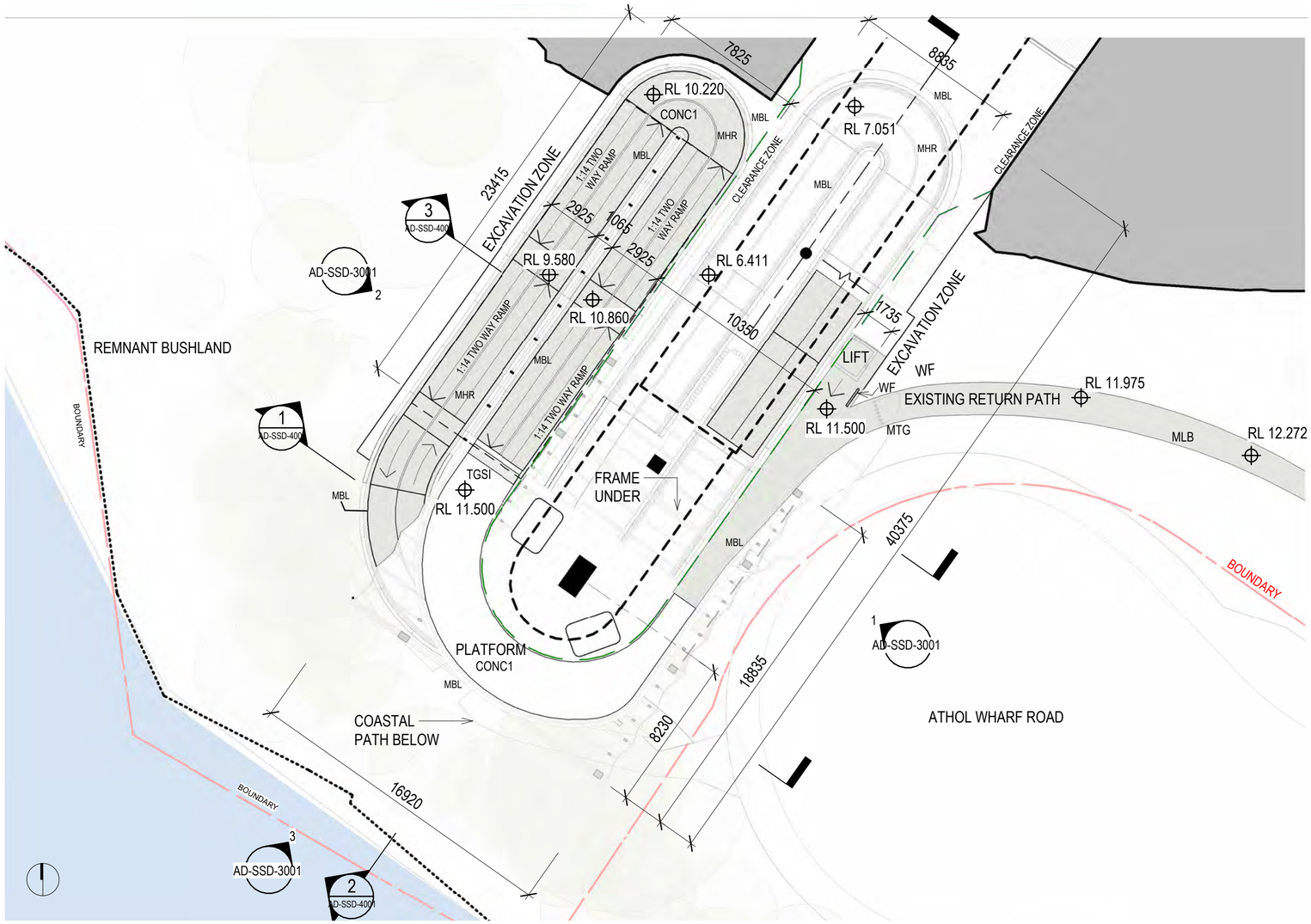
/ The sandstone cutting created through the excavation creates both a dynamic 'natural' facade and a platform for visual engagement with the history of the place.

/ Security is required to close off the plaza and ramp out of hours. It is proposed to provide simple screening and gates.

/The architecture of the amenities is deliberately paired back and incorporates timber batten elements similar to the existing buildings within the zoo including to the existing entrance plaza area.

10.2.2
Platform Plan

BOTTOM STATION



NOT TO SCALE. REFER OVERALL ARCHITECTURAL DRAWINGS

PLATFORM LEVEL PLAN

/ Arrival at the platform is via the ramping from the ground level that initial wraps under the platform structure and then folds out into the landscape and sandstone cutting.

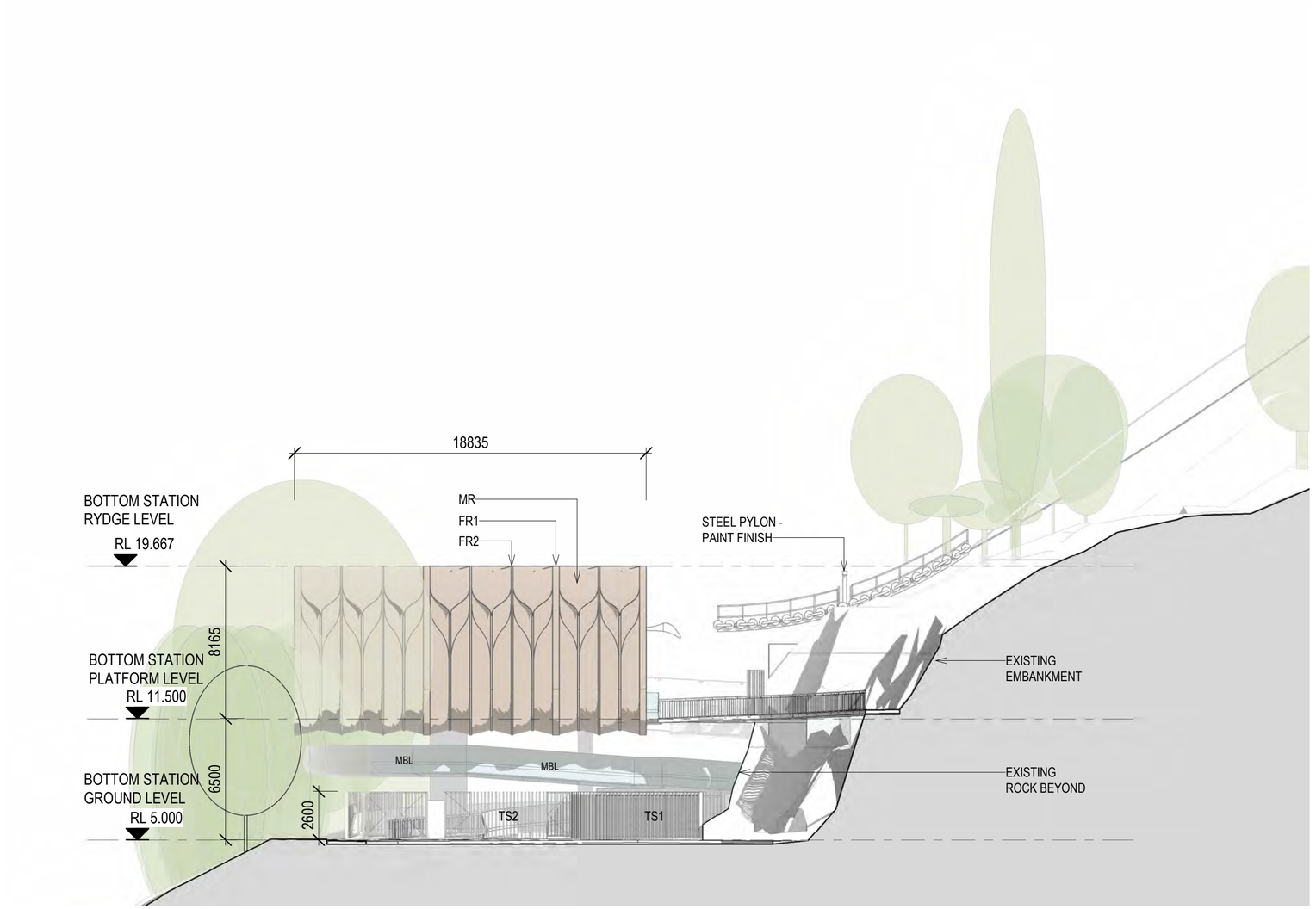
/ The platform is to the southern end of the infastructure, whereby guests view Sydney Harbour on boarding and alighting from the gondolas.

/ The 'standard' infrastructure of the gondolas occurs above the platform zone enclosed with an architectural skeletal roof element. A similar roof form provides weather protection to the ramp outside of the station enclosure.

/ The lift connects the platform to the ground plane that also serves guests leaving the existing top pathway from the Zoo. This pathway is the route that those from within the zoo take to re-enter the cable car.

10.2.3
Elevation

BOTTOM STATION



NOT TO SCALE. REFER OVERALL ARCHITECTURAL DRAWINGS

ELEVATION

/ Primary and Secondary structure enclose the platform infrastructure with an inlaid mesh pattern and facade skin.

/ Wrapping under the platform is the balustrade to the ramping that creates a canvas for future art overlay to the mesh infill panel.

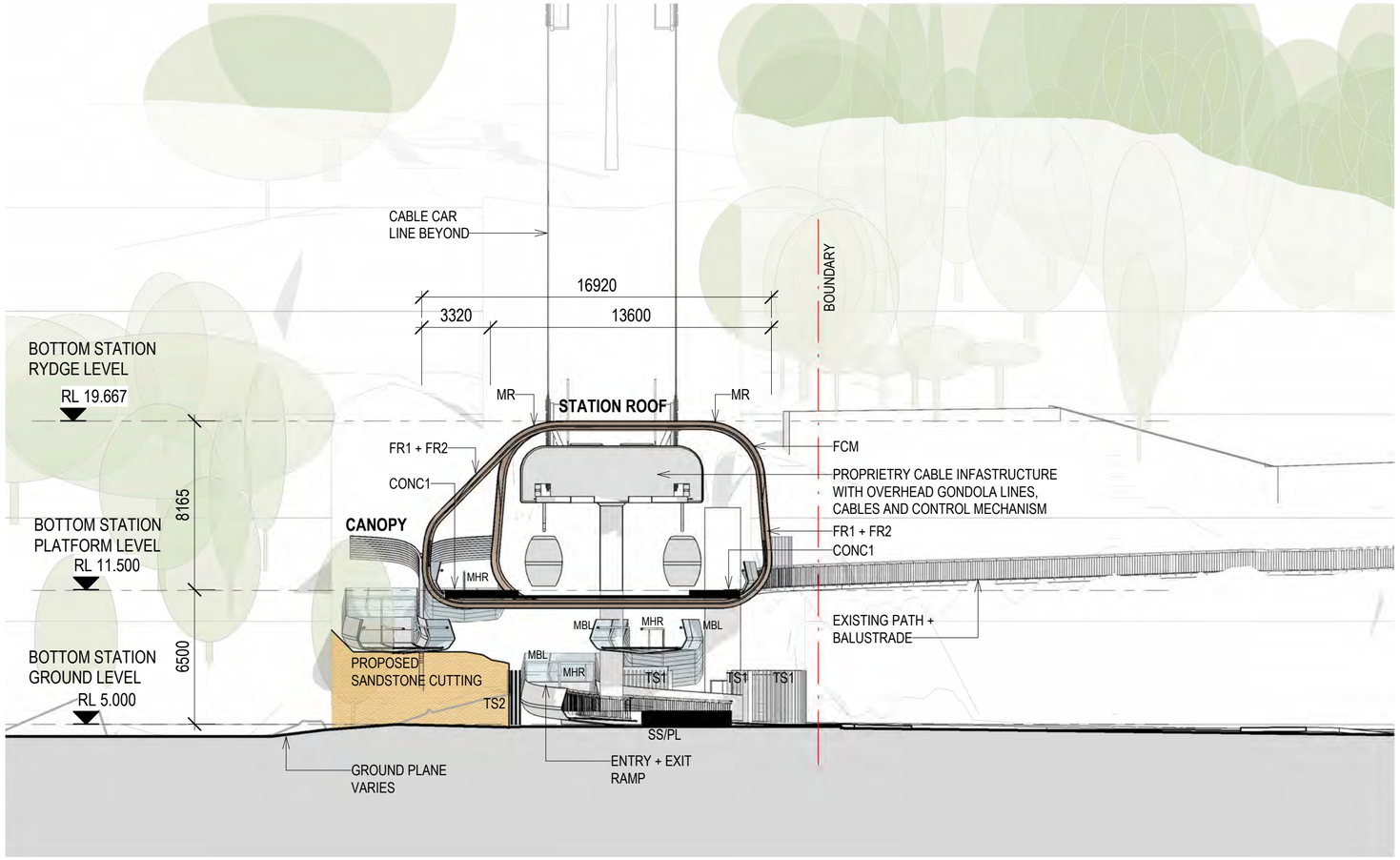
/ Vertical screens define enclosure and security

/ Timber screens define the amenities

/ Signage, wayfinding and art overlays are defined through a seperate Art Strategy

10.2.4
Section

BOTTOM STATION



NOT TO SCALE. REFER OVERALL ARCHITECTURAL DRAWINGS

SECTION

/ The base infrastructure is enclosed by an architectural roof and wall that wraps the platform and provides shade and shelter for the guests

/ Ramping commences under the station and then wraps out to the west adjoining the platform

/ Below the station sits the public amenities and staff facilities

10.3 Visitor Experience and Queuing

[BOTTOM STATION]

10.3.1
Signage and Wayfinding
BOTTOM STATION



0 2 4 6 8 10 m

LEGEND

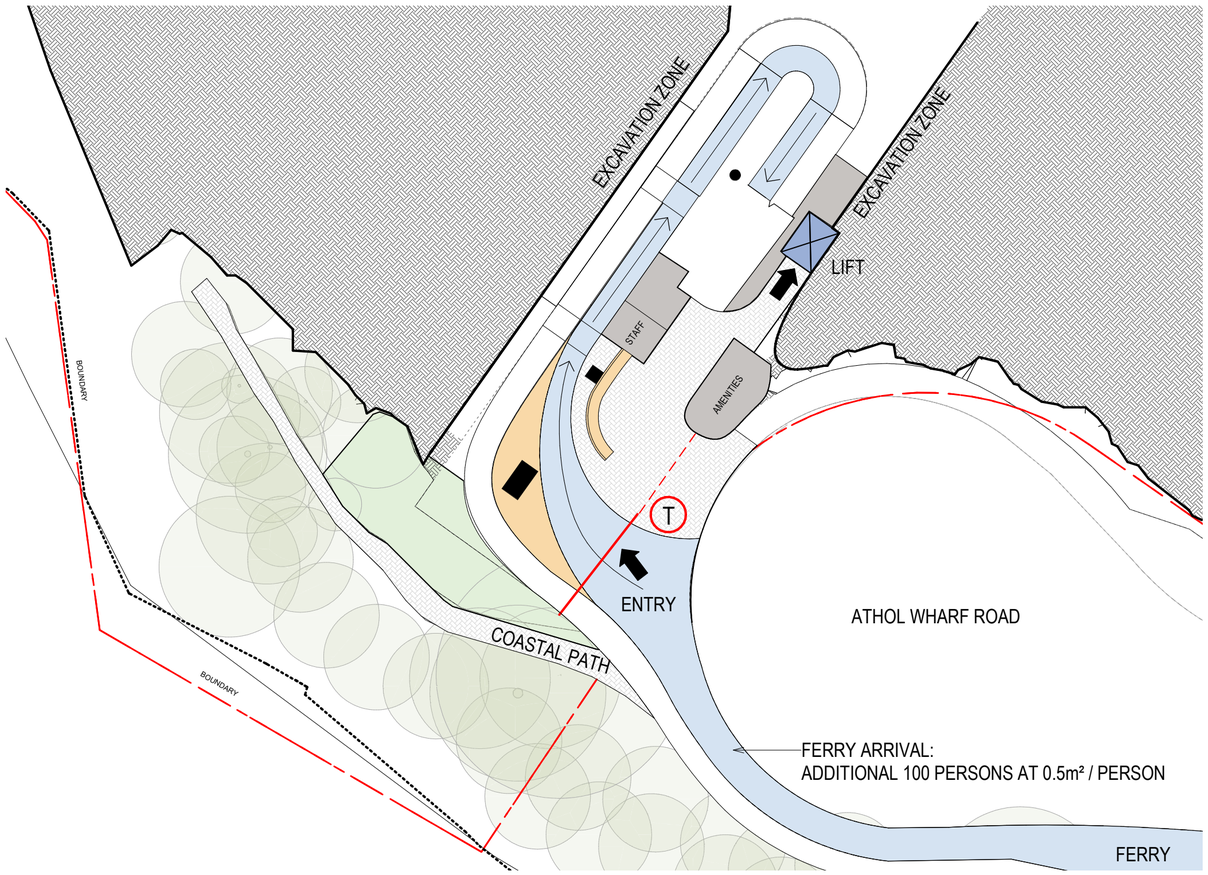
WF — INDICATIVE LOCATION OF WAYFINDING
(WITH ADDITIONAL ELEMENTS TO BE CONFIRMED)

S — INDICATIVE LOCATION OF SIGNAGE ZONE

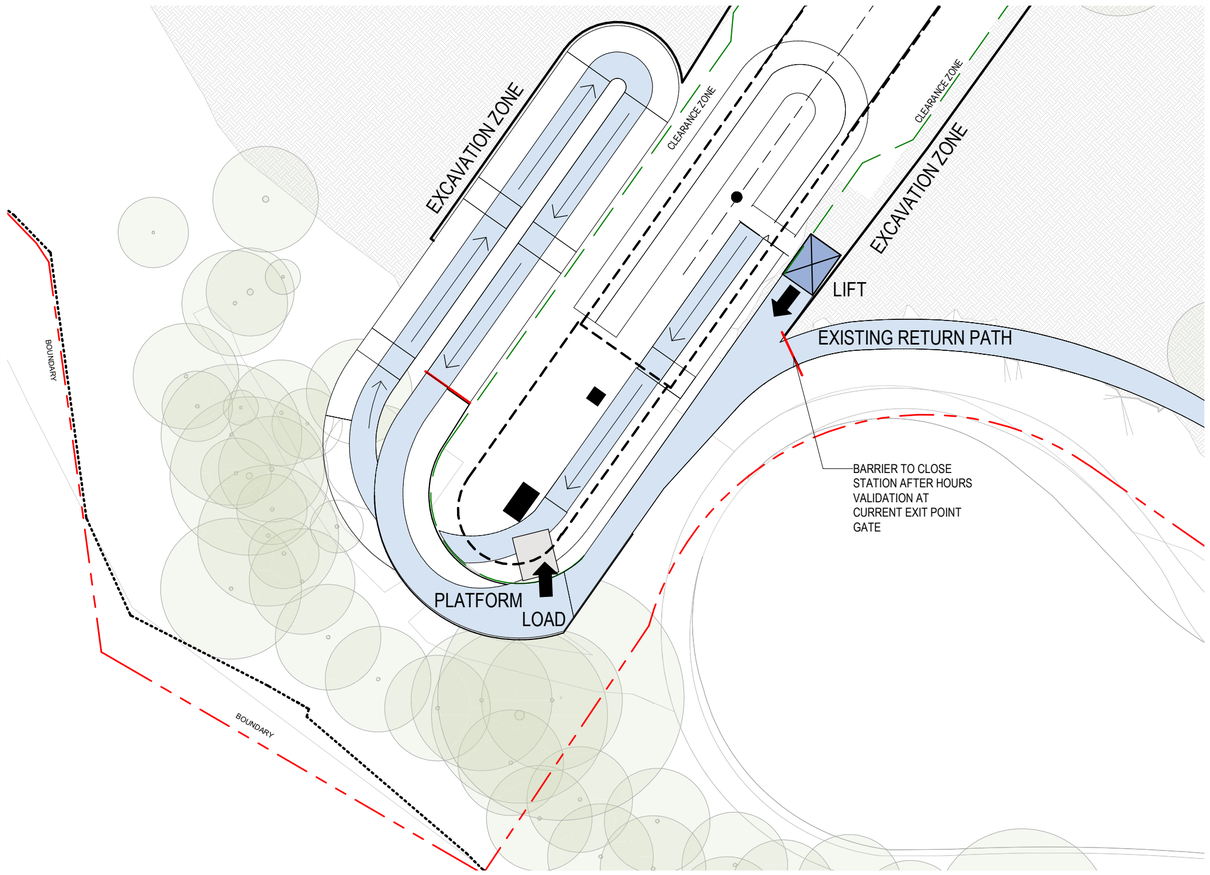
REFER TO INTERPS DESIGN REPORT
STRATEGY FOR MORE DETAIL

10.3.2
Queuing & Ramping: Entry

BOTTOM STATION



Lower Station - Entry Queue - Ground Floor Level



Lower Station - Entry Queue - Platform Level

0 2 4 6 8 10m

125 m

Proposed Ramp Length to AS1428.1

/ vs Existing 30m Steps

250 People

Queuing Capacity

/ vs Existing 60 People
/ Based on 0.5m² Per Person

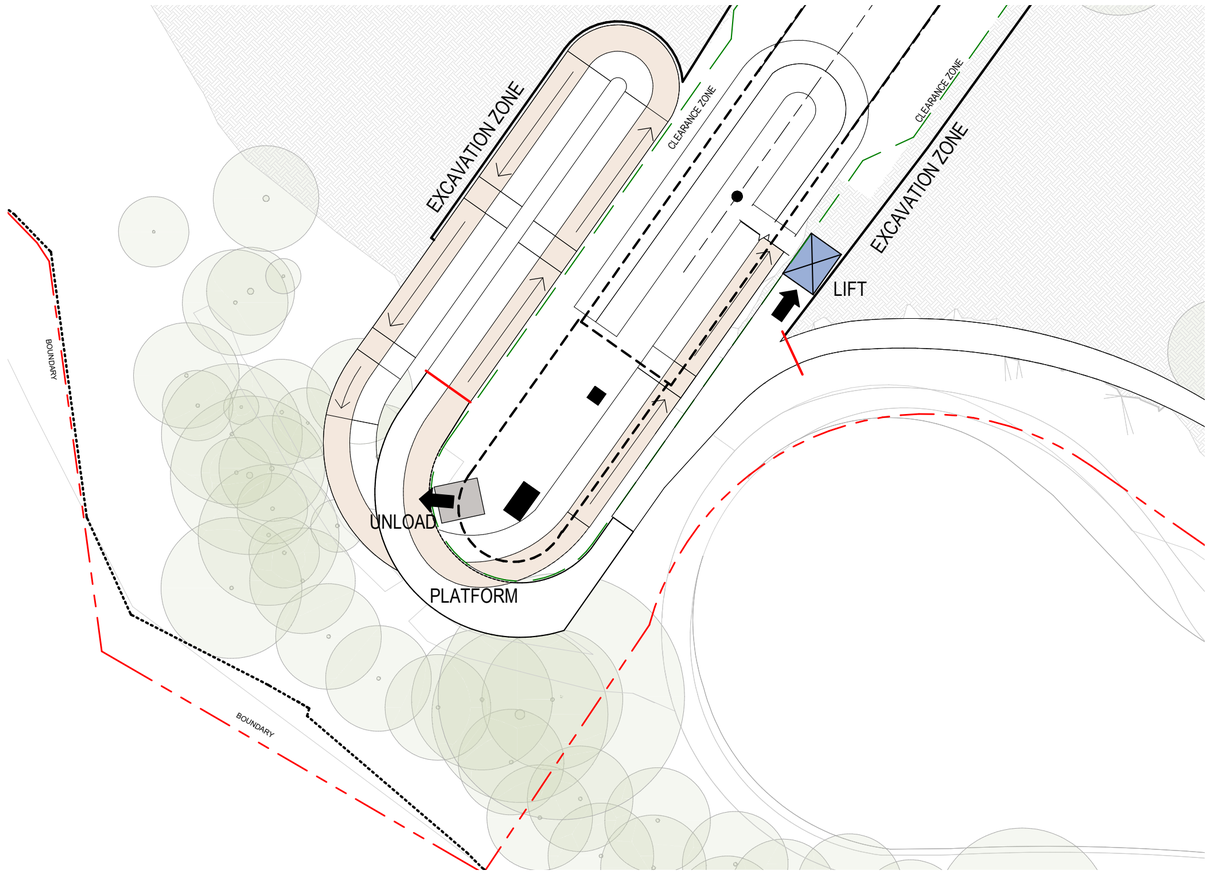
100m

Undercover 80% of queuing

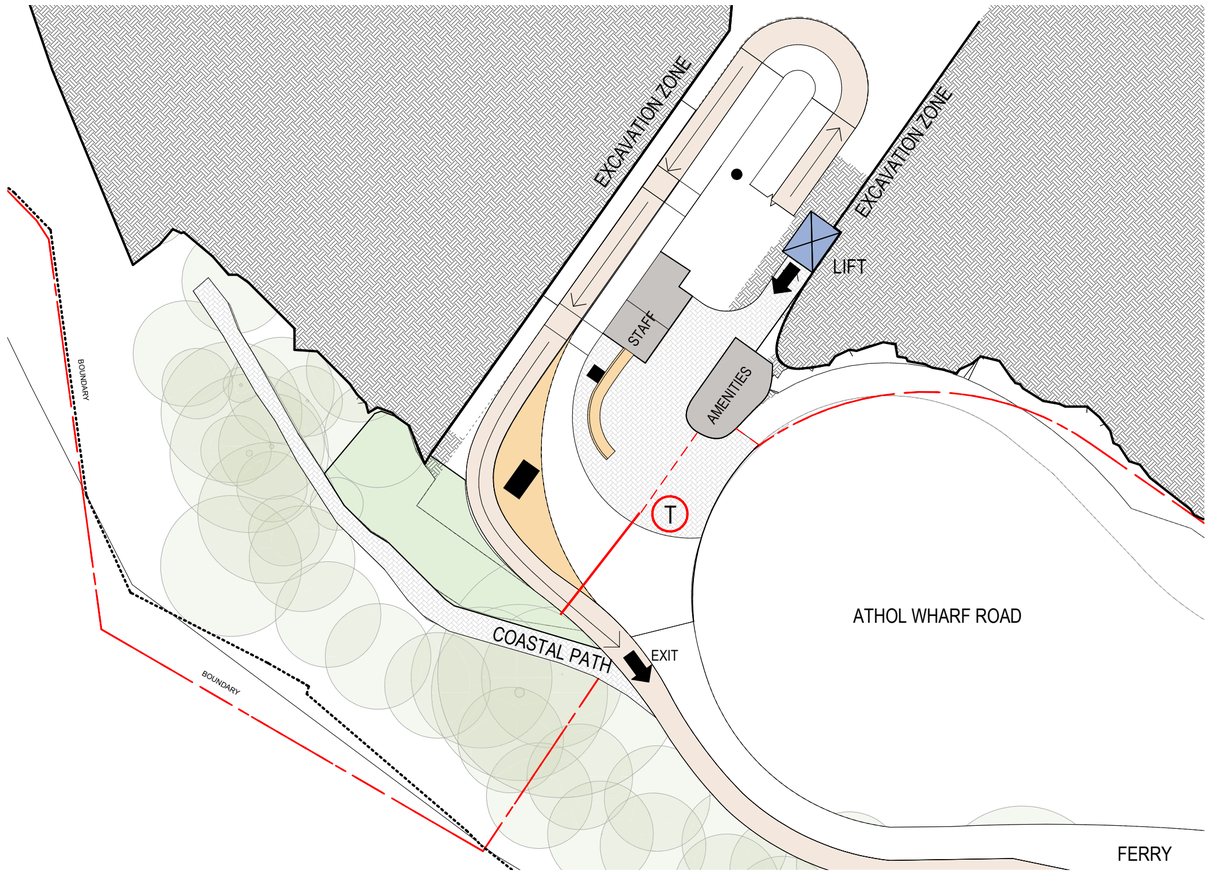
/ vs Existing All Exposed

10.3.3
Queuing & Ramping: Exit

BOTTOM STATION



Lower Station - Exit Queue - Platform Level



Lower Station - Exit Queue - Ground Floor Level

10.4 Concept Visualisation

[BOTTOM STATION]

10.4.1
3D Visualisation - Bottom Station

VIEW FROM FERRY PLATFORM



CONCEPT IMAGE ONLY. REFER TO VIA REPORT FOR PHOTOMONTAGES

10.4.2

3D Visualisation - Bottom Station

VIEW ON RAMP LOOKING SOUTH TOWARDS LOADING



CONCEPT IMAGE ONLY. REFER TO VIA REPORT FOR PHOTOMONTAGES

11.0 Architectural Design

[NATURE STATION]

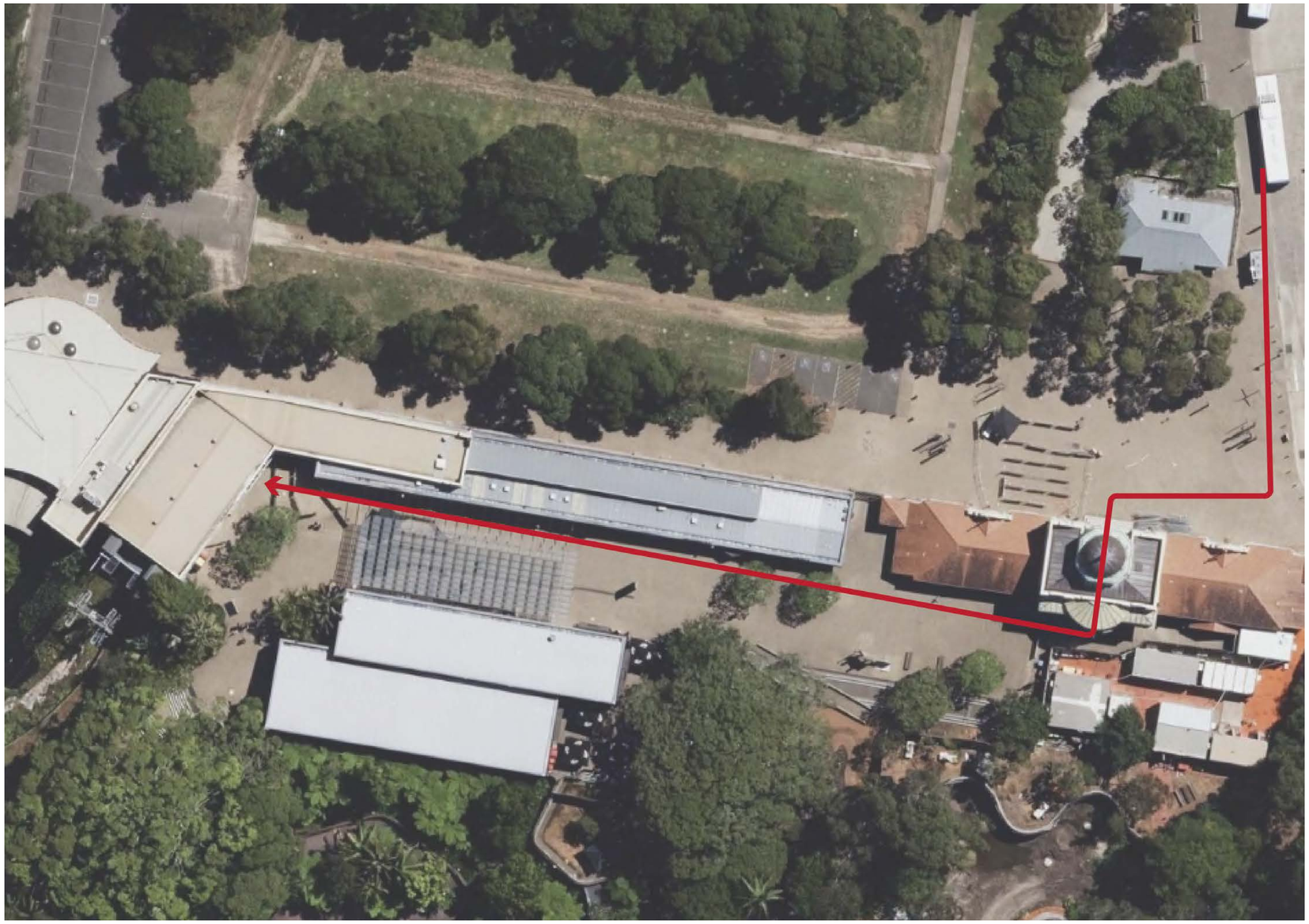
11.1 Site Influence

[NATURE STATION]

11.1.1

Existing Site

/ The existing station is located at the western end of the entrance plaza.
/ Access is immediately off the plaza with little queing and shade capacity.
/ It is proposed to utilise the existing location for a new station but provide indoor queing and shade, to the north of the main entrance route into the Zoo
/ The red linework below denotes the existing queing path from the vehicular drop off zone to the existing station, via the main entry.







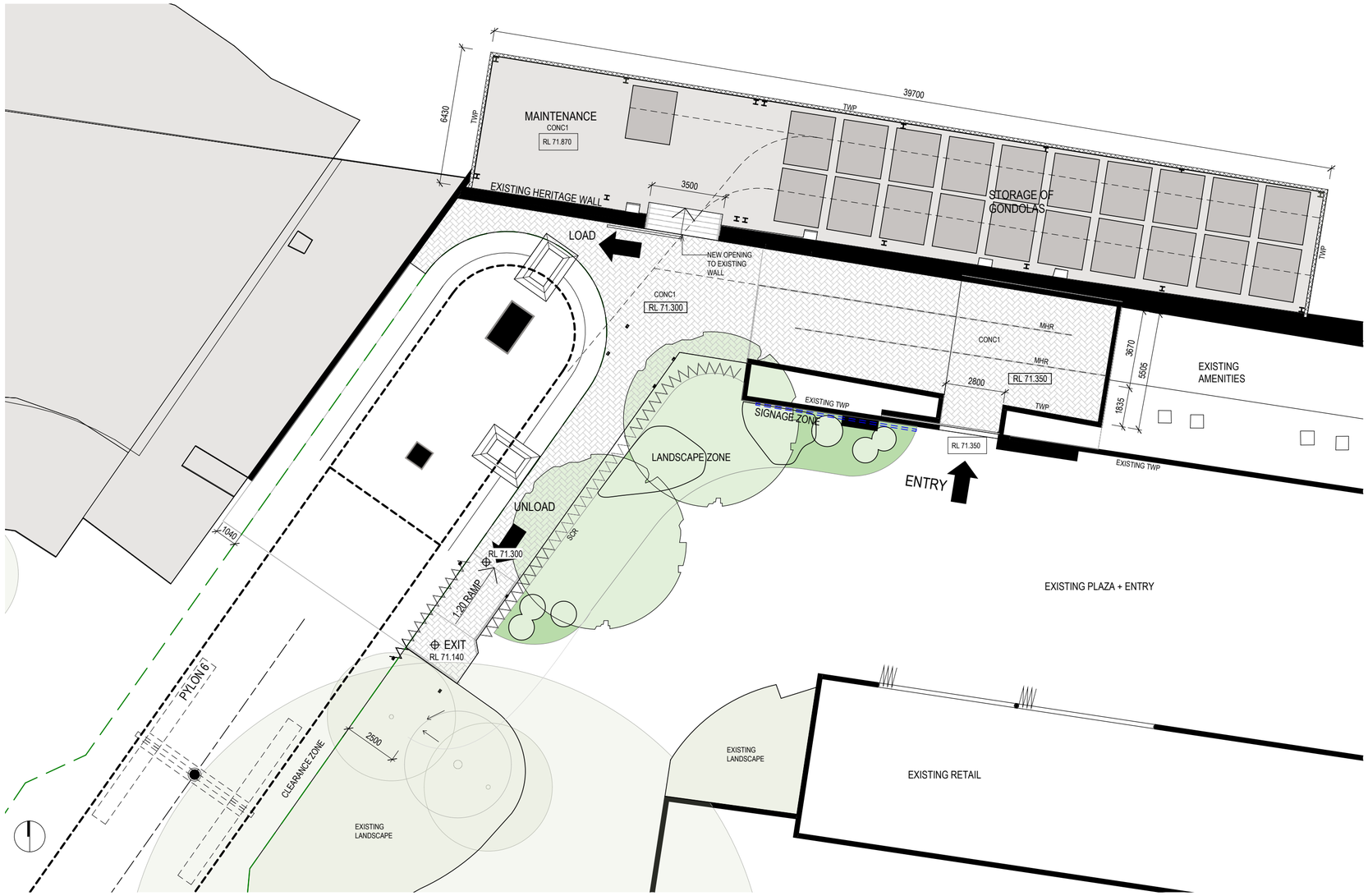


11.2 Station Planning

[NATURE STATION]

11.2.1
Platform Level Plan

NATURE STATION



NOT TO SCALE. REFER OVERALL ARCHITECTURAL DRAWINGS

PLATFORM LEVEL PLAN

/ Entry to the station is via an opening in the existing timber clad wall that extends the length of the entry plaza

/ Within, there is an internal space for queuing that creates a palette for visitor immersion in cultural stories and education associate with both First Nations history and the zoological conservation of Taronga Zoo

/ Loading is located to the north of the platform with unloading on the east

/ Exit to the Zoo from the unloading is via an exist ramp with timber clad canopy over

/ The western end of the entry plaza is architecturally busy - surrounded by numerous existing buildings, the station itself needs to be simple. It is standard infastructure with landscaping and screening in front. The screening provides a canvas for future art and interpretation overlay.

/ To the rear of the platform is a new storage building. Storage is a requirement for not only all weather storage of the gondolas but also maintenance facilities. Whilst this is located on the outside of the existing heritage wall, it is deliberately a lightweight structure clad in the same timber as the existing pavilion buildings of the entry plaza, that includes ticketing, amenities and the retail offer.

11.2.2
Roof Plan

NATURE STATION



NOT TO SCALE. REFER OVERALL ARCHITECTURAL DRAWINGS

ROOF PLAN

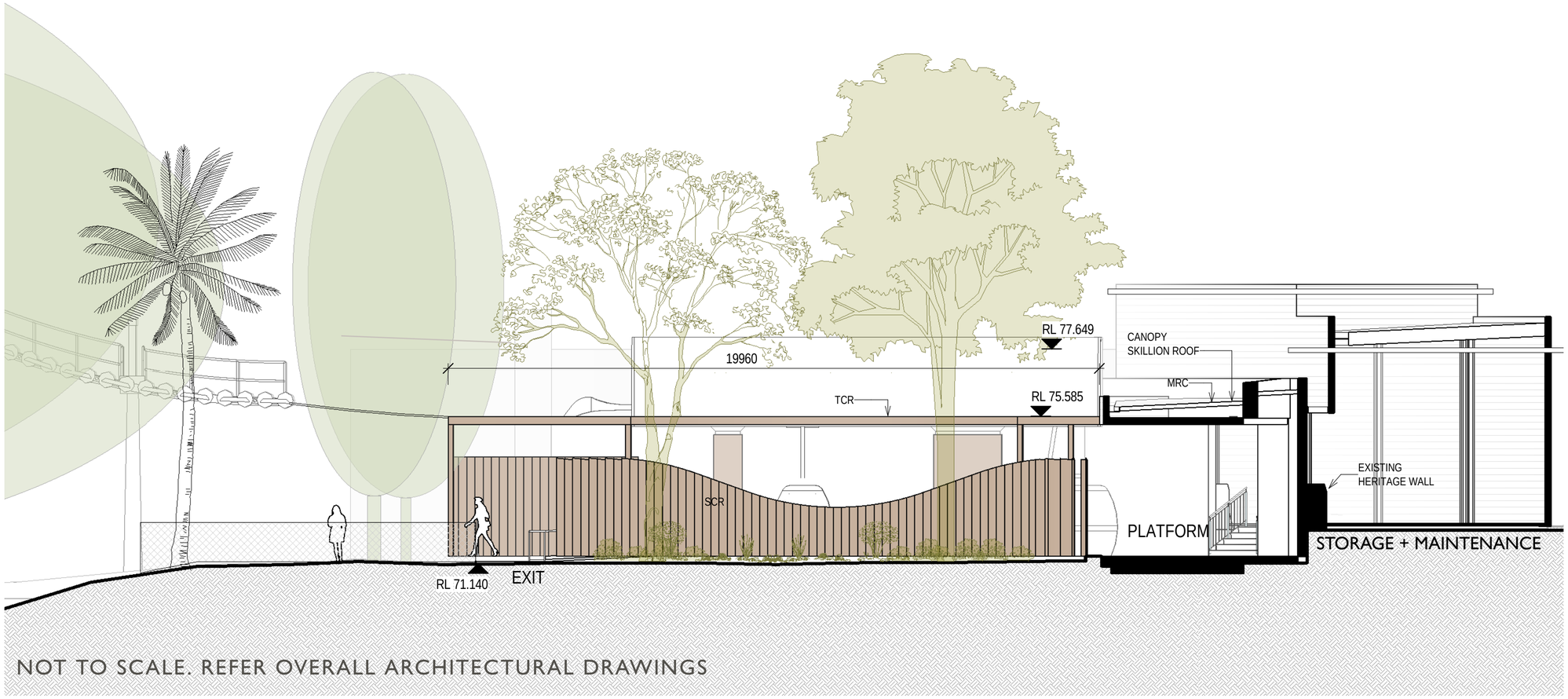
/ A new skillion roof extends from the existing roof to cover the guest queuing and loading area.

/ A low level awning element frames the exit ramp

/ The storage and maintenance roof are a skillion roof behind the clad parapet, to match the existing timber clad building

11.2.3
Elevational Section

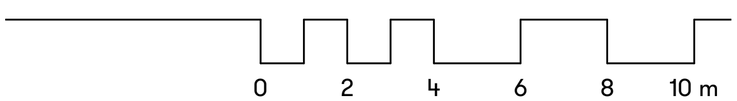
NATURE STATION

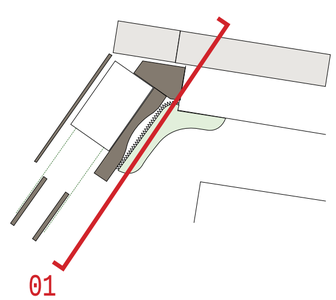


NOT TO SCALE. REFER OVERALL ARCHITECTURAL DRAWINGS

SECTION 01

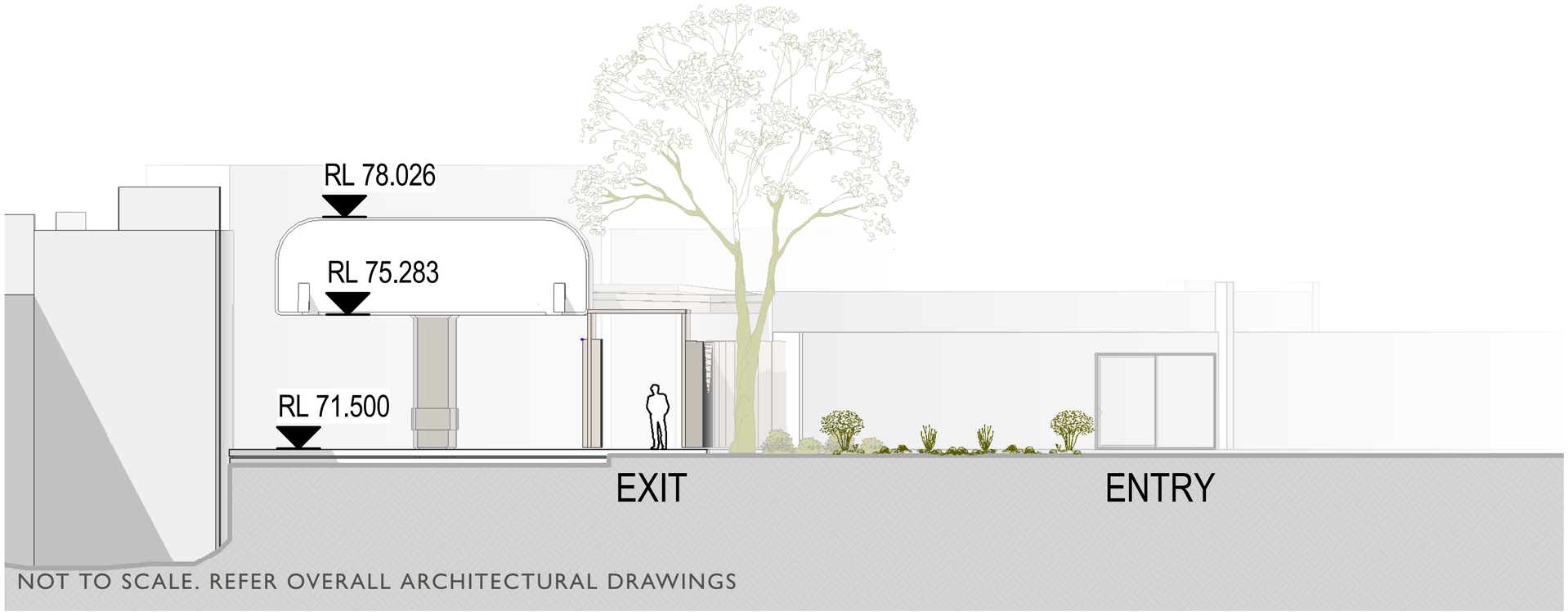
/ A new decorative screen and landscape define the western end of the arrival plaza
/ Base infrastructure sits beyond with a neutral roof over the station.
/ The screen is a canvas for future art overlay





11.2.4
Sections

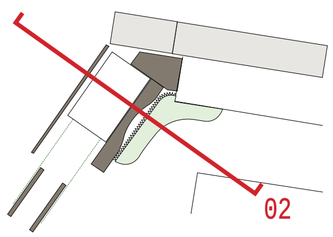
NATURE STATION

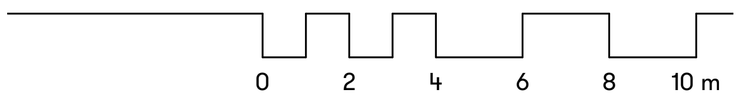


NOT TO SCALE. REFER OVERALL ARCHITECTURAL DRAWINGS

SECTION 02

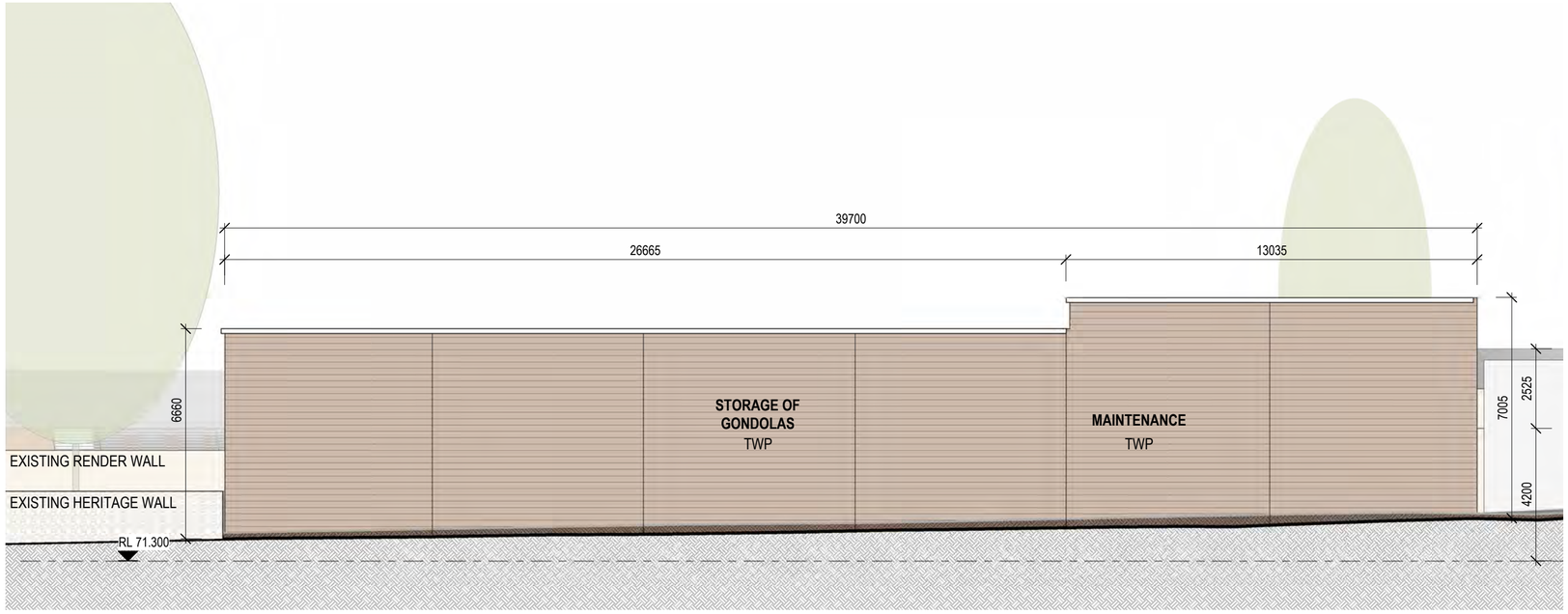
/ The screen to plaza includes a timber clad canopy over.
/ Base infrastructure sits beyond with a neutral roof over the station
/ The screen is a canvas for future art overlay



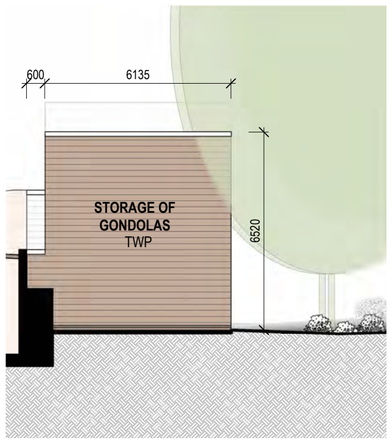


11.2.5
Storage Elevations + Section

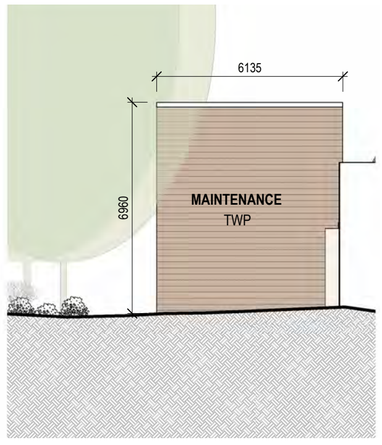
NATURE STATION



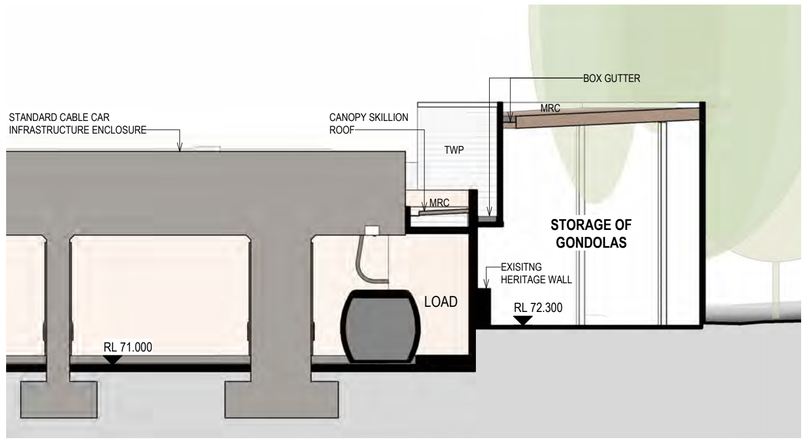
01 NORTH ELEVATION



02 EAST ELEVATION



03 WEST ELEVATION



04 SECTION

NOT TO SCALE. REFER OVERALL ARCHITECTURAL DRAWINGS

NATURE STATION STORAGE

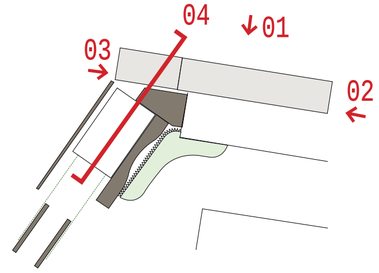
/ The required gondola storage + maintenance facilities will be adjacent to the existing rear heritage wall behind the Nature Station.

/ To keep the architectural language of the existing buildings consistent and non-disruptive, the storage building is to be a lightweight structure, clad with the same timber panels as the neighbouring pavilion of the entry plaza.

/ The roof profile was kept simplistic, utilising a skillion roof with a gentle slope for rainwater drainage system which continues downwards onto the box gutter on the canopy skillion roof.

/ With the storage of gondolas and the maintenance facilities being under one roof, the floor level varies accordingly to ensure the gondola can enter the storage space safely above the heritage wall.

/ The gondola storage unit can safely accommodate ~ 20 gondolas when at full capacity. Additionally, a maintenance zone with required clearances around the cars was accounted for.



11.3 Visitor Experience and Queuing [NATURE STATION]

11.3.1
Signage and Wayfinding

NATURE STATION



LEGEND

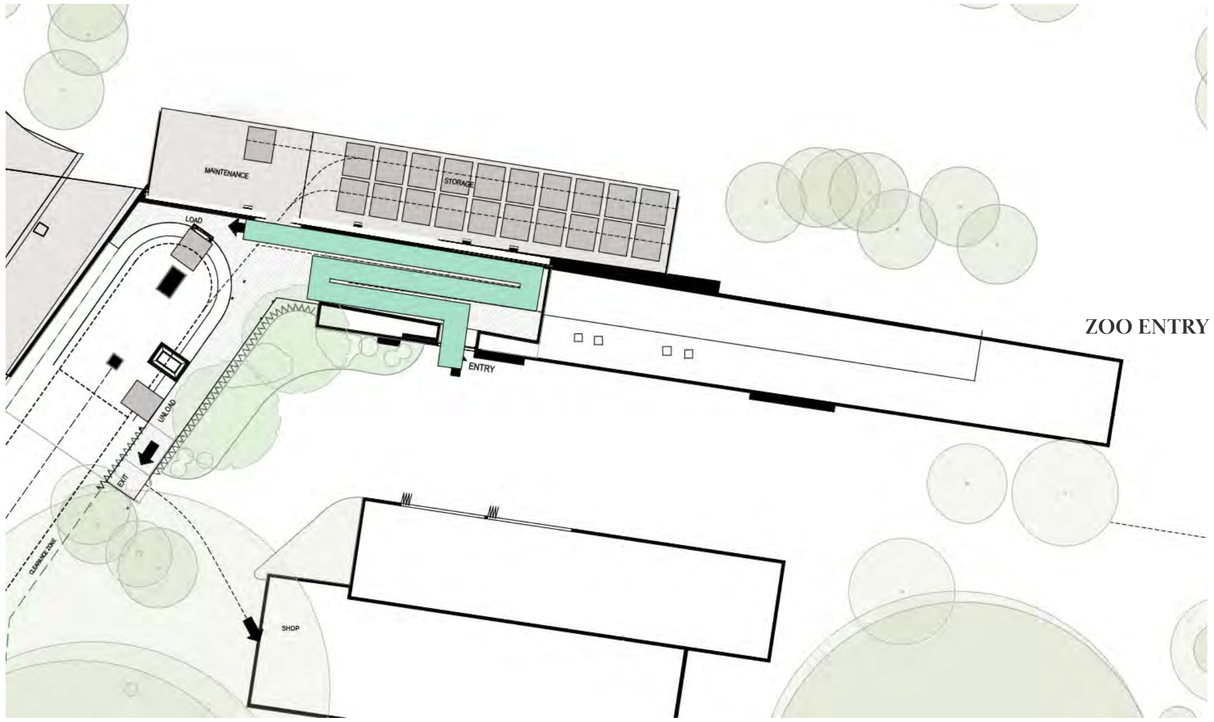
WF — INDICATIVE LOCATION OF WAYFINDING
(WITH ADDITIONAL ELEMENTS TO BE CONFIRMED)

S — INDICATIVE LOCATION OF SIGNAGE ZONE

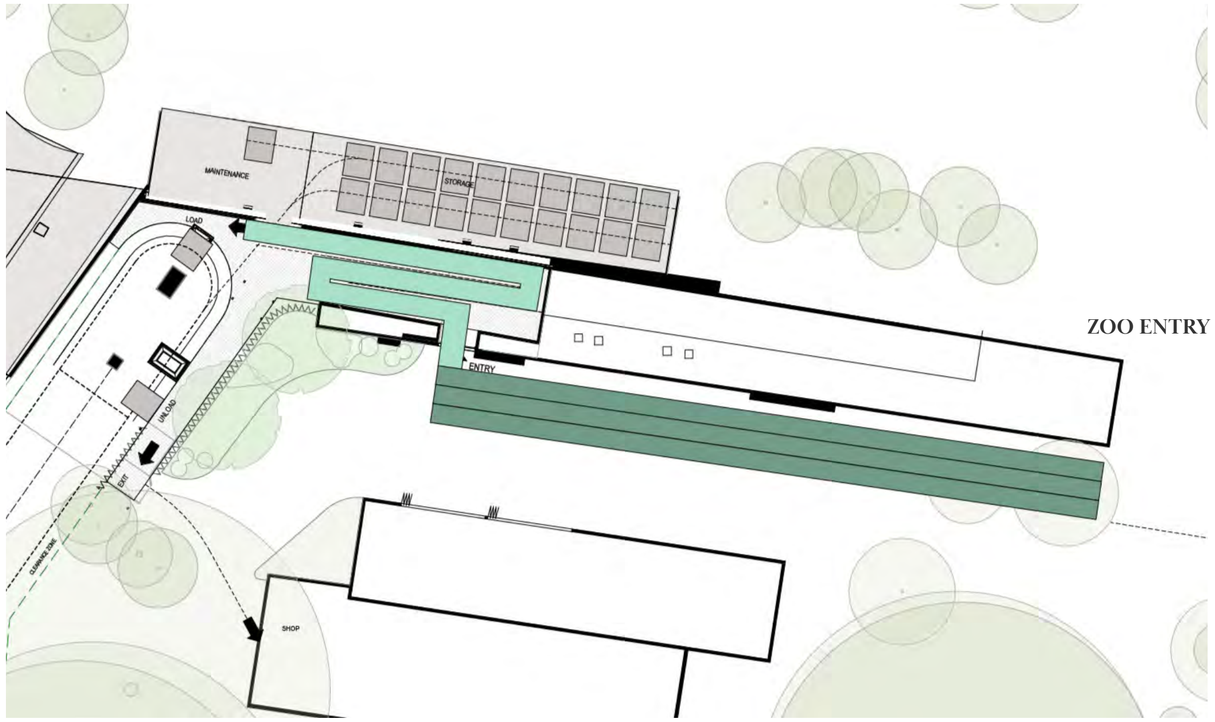
REFER TO INTERPS DESIGN REPORT
STRATEGY FOR MORE DETAIL

11.3.2
Queuing Plan: Entry

NATURE STATION



Nature Station - Entry Queue - Ground Floor Level (Non-Peak)



Nature Station - Entry Queue - Ground Floor Level (Peak)

36m

Proposed Queue Length [Non Peak]

183m

Proposed Queue Length [Peak]

360 people

Queuing Capacity (Peak)

/ Based on 0.5m² Per Person

36m

Undercover [Non Peak]

11.4 Concept Visualisation

[NATURE STATION]

11.4.1

3D Visualisation - Nature Station

VIEW FROM ARRIVAL CONCOURSE



11.4.2

3D Visualisation - Nature Station

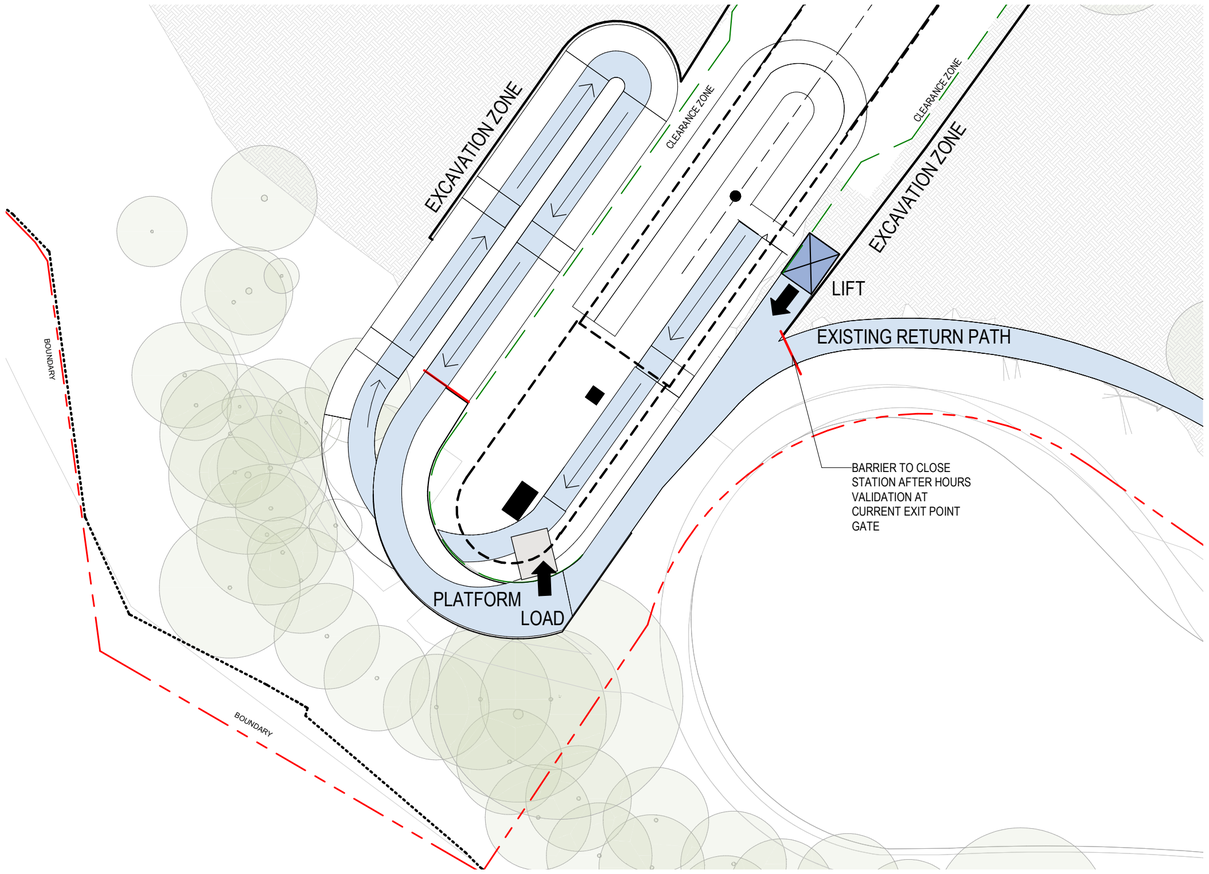
VIEW FROM LOADING PLATFORM



12.0 Public Art Strategy

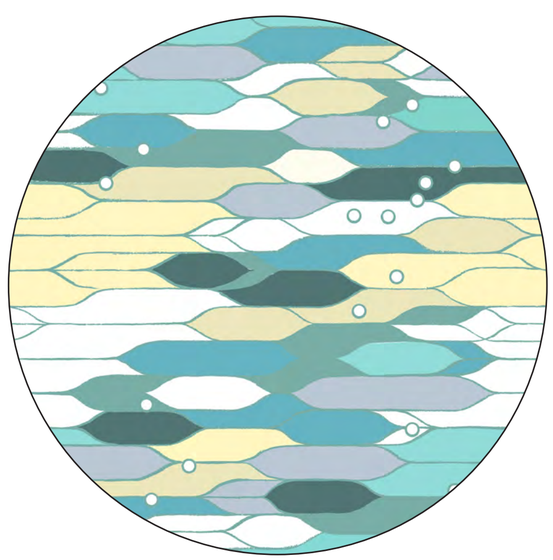
12.1
Nominal Public Art Locations

BOTTOM STATION // RAMPING BALUSTRADE



LOWER STATION - ENTRY QUEUE - GROUND FLOOR LEVEL





*Indicative ramp balustrade design above, as placeholder for artist overlay to balustrade mesh and infill

Taronga Zoo will undertake an EOI process to procure an Indigenous designer to assist in finalising a pattern which will be included within the ramping at the bottom station.

It is envisaged the colours and design will utilise the story of the Nawi and the harbour.

12.2
Nominal Public Art Locations

BOTTOM STATION // SOFFIT OF CABLE INFRASTRUCTURE



LEGEND

ART — INDICATIVE LOCATION OF ART OPPORTUNITY

ART — INDICATIVE LOCATION OF ART ON UNDERSIDE OF RAMPING



THE CANOPY BY JAKE NASH
PIER STREET UNDERPASS,
DARLING SQUARE



AMPLE PROJECTS,
TARONGA ZOO VIVID 2016

The images above are **indicative**

And have been provided by Taronga Zoo Interps team as an example of the type of element that may be procured.

Refer to separate Appendix by Taronga Zoo enclosed with SSDA submission

12.4
Nominal Public Art Locations

NATURE STATION



LEGEND

ART — INDICATIVE LOCATION OF ART OPPORTUNITY

ART — INDICATIVE LOCATION OF THE PROVISION OF AV IMMERSIVE EXPERIENCE (WALL OR PROJECTION)



NEST BY LEILA JEFFREY'S VIVID SYDNEY 2024



COUNTRY II BY JACOB NASH 477 ON PITT STREET

The images above are **indicative**

And have been provided by Taronga Zoo Interps team as an example of the type of element that may be procured.

Refer to separate Appendix by Taronga Zoo enclosed with SSDA submission

12.5
Nominal Public Art Locations

NATURE STATION // EXTERNAL

Taronga Zoo will undertake an EOI process to procure an Indigenous designer to assist in finalising the pattern which will be included within the station screen. As well as a separate public art installation as part of the landscaping at the entrance to the top station as an entry statement and connect to the Saltwater to Sky nature.

Taronga Zoo has included precedent references to the intent of this Public Artwork opportunity.



LEGEND

ART INDICATIVE LOCATION OF ART
OPPORTUNITY ON STATION SCREEN

ART INDICATIVE LOCATION OF ART
INSTALLATION AS PART OF LANDSCAPING



GOODJA BA NGOONII
KOORNDAAM BY JARNI MCGUIRE
PERTH



TIM MORIARTY
TARONGA ZOO



SECOND NATURE BY JADE
OAKLEY MELTON



TOUCHSTONES BY JANE
CAVANOUGH BANKSTOWN

The images above are **indicative**
And have been provided by Taronga Zoo Interps team as an example of the type of element that may be procured.

Refer to separate Appendix by Taronga Zoo enclosed with SSDA submission

12.6
Nominal Public Art Locations

NATURE STATION // INTERNAL

Taronga Zoo will also investigate wrapping the internal columns of the stations with Indigenous artwork which assist in telling the Salt Water to Sky narrative at the top station. The Zoo logo is indicative of the integration of a Corporate Partner.



The image above are **indicative**

And have been provided by Taronga Zoo Interps team as an example of the type of element that may be procured.

Refer to separate Appendix by Taronga Zoo enclosed with SSDA submission

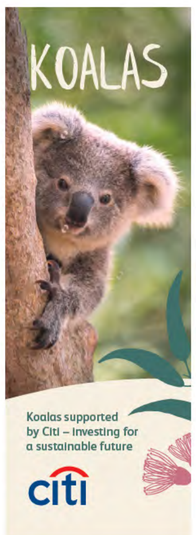
12.7
Precedent Images of Zoo Partnerships

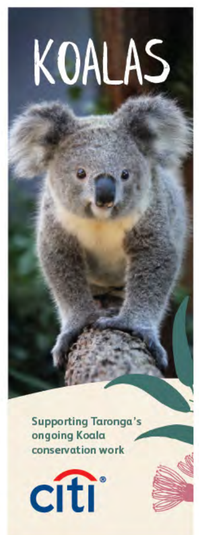
As with other Zoo activations Taronga Zoo Sky Safari may be supported by a Corporate Partner. Precedent images are noted below that show meaningful and integrated partnerships and installation designs that exist around the zoo currently has part of the general approach the Zoo takes with combining both education with subtle corporate branding. All images have been provided by the Zoo.











920





13.0 Better Placed Design Response

13.1
Better Placed Design

Better Fit: Better fit contextual, local and of its place

/ Whilst the project is an infrastructure item, connection and transportation around the zoo is a key element of engaging with the location, setting and character of the zoo, as a location that balances built form with a natural environment.

/ The proposed cable car replaces an existing route with stations in a similar location and level above ground.

/ In the design of the new stations, we have adopted a range of design responses relating to the local context and location. First Nations engagement and connection to Country informed the bottom station whereby architectural built form elements encapsulate the infrastructure. At the top station, timber clad built forms adjoining the station reflect existing buildings to the zoo and landscape and screen elements present the station to the existing plaza.

/ We have worked with aborists and landscape architects on preserving and responding to the local landscape characteristics of the site, recognising that the bottom station does include an element of excavation and tree removal in order to support an improved and accessible cable car experience.

Better Performance is sustainable, adaptable and durable

/ Cable cars are a sustainable transport method of moving large quantum of people, through being a full electric and low energy use system.

/ We are utilising the existing route for the new cable car and general locations of the stations in order to minimise the impact to the environments.

/ From a sustainability perspective:

- Stations are naturally ventilated with good shade provision for the public.
- The architectural language, whilst purpose built will be constructed from durable materials.
- We have identified a number of elements (such as the balustrading screens) to incorporate artwork overlays as part of the story telling and engagement the zoo will provide for the visitors. This ensures that an element that would ordinarily be an ancillary material, becomes dual purposes and engages with the public on their journey and circulation.

/ A ESD consultant has been involved in the project from the outset to help inform and assess specific measures.

Better for community is inclusive, connected and diverse

/ The new cable car will provide a universal accessible solution for those in wheelchairs, with prams and other needs. It will be inclusive for all, and rectifies the existing cable car condition which is not equitable and accessible through virtue of stairs at the lower station and gondolas that do not accommodate wheelchairs and large prams.

/ The increased frequency of gondolas, and improved queuing will provide ongoing ease of connection for the public.

/ Through the First Nations storytelling as part of the project it will connect to the first inhabitants of the land the zoo sits upon.

13.2
Better Placed Design

Better for people is safe, comfortable and liveable

/ The new cable car focuses on safety, through people movement. Station design has progressed through a robust safety in design process, working with a cable car consultant on exclusion zones and safe work zones; with stations staffed by trained personnel.

/ New infrastructure will be world class and current in terms of safety in design.

/ A faster moving cable car reduces queuing in the elements

/ New shade provide comfort and amenity whilst the public is queuing.

/ New amenities are provided to the bottom station, which is somewhat removed from the Zoo's existing public amenities

Better working is functional, efficient and fit for purpose

/ As the cable car is a bespoke design, it will be fit for purpose and remain well utilised by a large quantum of zoo visitors.

/ It has been designed to be able to accommodate the projected growth of tourism numbers

/ The stations include fit for purpose queuing, ticketing and amenities.

Better value is creating and adding value

/ The cable car offers connections for both zoo visitors, and those utilising other elements of the zoo precinct, including the conferencing and event spaces, by virtue of the capacity to also operate outside of normal zoo hours.

/ Through First Nations story telling, it will create a community connection to the history of place and allow education on how the area was cared for by our nations first inhabitants.

Better look and feel

/ The cable car stations will be welcoming and aesthetically pleasing. The design has been informed by a broad engagement and design collaboration.

/ They will balance built form with landscape solutions informed by local context.

Combine Green infrastructure with urban development and grey infrastructure

/ This project is all about integrating infrastructure with an established green (landscaped) environment, that balances historically significant landscape and a natural setting with historical built form.

/ *Connectivity* – Interconnected network of green spaces

/ No impact to existing green spaces throughout the existing zoo.

13.3
Better Placed Design

Deliver multiple ecosystems services simultaneously

/ No impact to existing green spaces that are well connected within the zoo via existing pathways. Noting, that there are ongoing upgrades to the zoo and considerations around wayfinding.

Involve stakeholders in development and implementation

/ The project has had deep stakeholder engagement, including

/ Zoo staff and volunteers

/ Mosman Council

/ Mosman Resident Groups and immediate neighbours

/ DPE

/ GANSW via SDRP pathway.

/ Zoo management

Thank you