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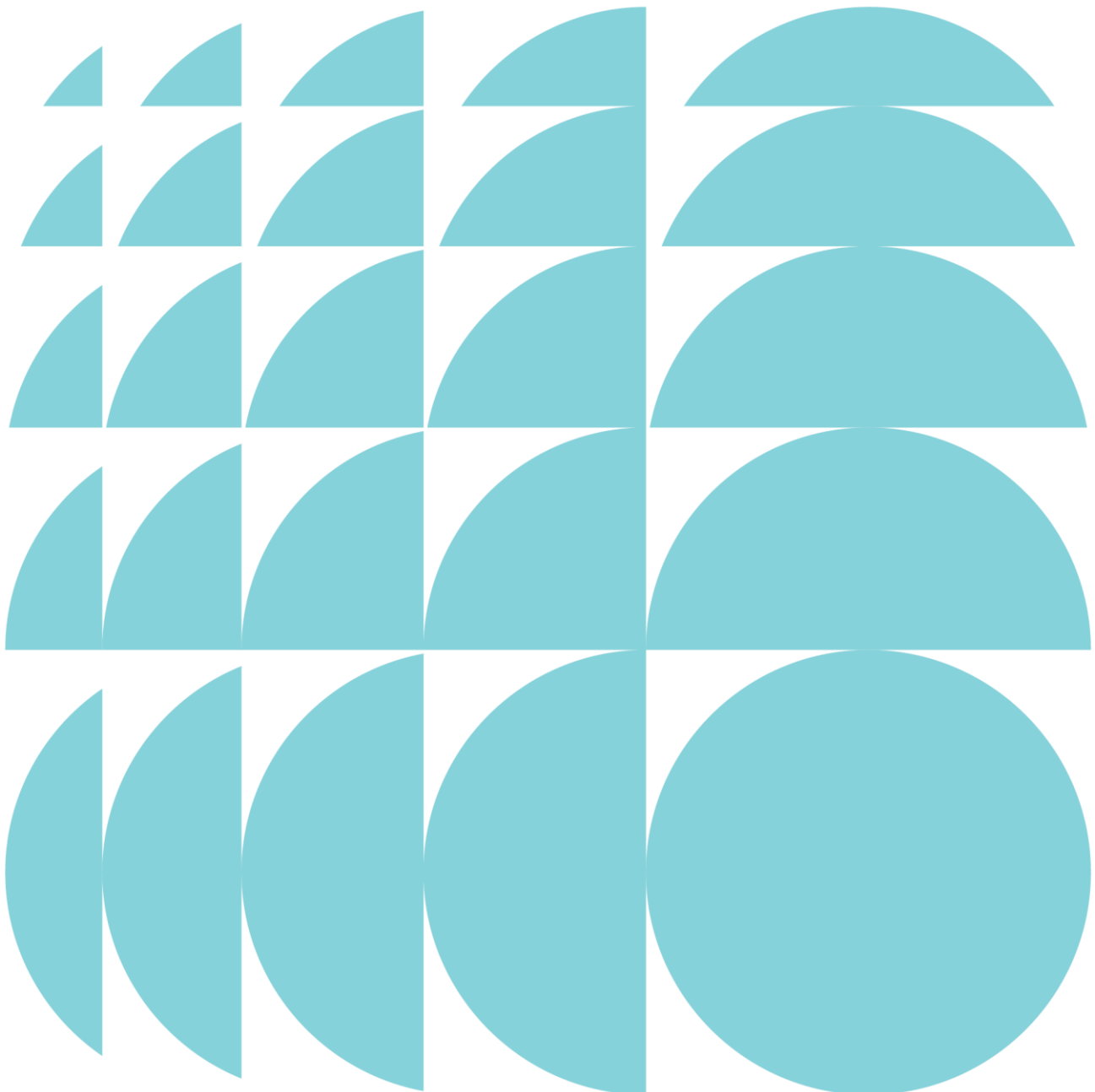
State Significant Development Application 8008

Visual Impact Statement

Taronga Zoo, Sydney
African Savannah and Congo Forest Exhibits

Submitted to Department of Planning and
Environment
On behalf of Taronga Zoo Conservation Society
Australia

10 November 2017 | 16527



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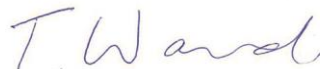
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- A** Location Plan of Significant Views - Internal
TZG/ Ethos Urban

1.0 Introduction

This Visual Impact Statement (VIS) has been prepared by Ethos Urban on behalf the Taronga Conservation Society Australia (TCSA) to support a State Significant Development Application (SSDA 8008) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The application relates to the development of two new animal exhibits, known as the African Savannah and Congo Forest Exhibits within Taronga Zoo, Sydney.

The VIS has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) dated 2 November 2016 and the Department of Planning and Environment's (DPE) Response to Submissions (RtS) letter dated 14 September 2017. It builds on the Landscape Character and Visual Impact analysis included within the Environmental Impact Statement (EIS) dated July 2017 and should be read in conjunction with the following documents:

- Response to Submissions Report prepared by Ethos Urban and dated November 2017;
- Revised Architectural Drawings prepared by TZG and dated November 2017;
- Revised Landscape Drawings prepared by GDA and dated November 2017;
- Addendum Heritage Impact Assessment prepared by Geoffrey Britton and dated October 2017; and
- Heritage Impact Assessment prepared by Geoffrey Britton and dated June 2017.

A visual impact analysis has been undertaken to assess potential impacts of the proposed development on significant views to, from and within the zoo and Sydney Harbour in accordance with the SEARs and DPE RtS letter. Specifically, the VIS is required to:

- Demonstrate how the development would affect views to and from heritage places in the vicinity and especially the unique visual qualities of Sydney Harbour and from Harbour vantage points, including Curraghbeena Point and Cremorne Point. If impact is likely, appropriate mitigation measures are to be identified commensurate with the significance of the views.
- Demonstrate and consider significant views/ key view corridors identified in the Taronga Zoo Conservation Management Strategy 2002 and the Urban Design Principles and Visual Analysis and from key vantage points around Sydney Harbour, Cremorne Point and Curraghbeena Point. The VIS should include mitigation measures if adverse view impacts are likely.

The report is structured as follows:

- **Introduction** – provides an overview of the purpose and structure of this report
- **Background** – provides a background history of the proposal and SSDA
- **The Site** – outlines the site and its landscape and visual setting
- **Assessment Methodology** – identifies the relevant views to be assessed as outlined within the SEARs and RtS letter
- **Visual Assessment** – identifies the key views to, from and within the site and undertakes an assessment of the visual impact of the proposal on affected views
- **Conclusion and Recommendations** – based on the findings of the visual impact assessment determines the appropriateness of the proposal and provides measures to mitigate potential impacts of the proposal

2.0 Background to the Project

Taronga Zoo is one of Australia's most popular attractions and has a world class reputation in education and the immersion of people with wildlife. The proposed development results from a 10-year \$164.5 million capital works program focused on transforming zoo facilities and improving animal welfare and visitor experiences. The program is co-funded by the NSW Government and will deliver eight major wildlife exhibits at Taronga Zoo, including the African Savannah and Congo Forest Exhibits, and nine exhibit upgrades at Taronga Western Plains Zoo.

Original proposal and SSDA

A State Significant Development Application (SSDA) was lodged with the DPE in July 2017 and was publicly exhibited between 4 August 2017 and 4 September 2017.

The DA, as exhibited, sought approval for the following key components:

- Partial demolition of the existing African Safari Exhibit, including the removal of:
 - Giraffe House (1940) and back-of-house;
 - Zebra back-of-house;
 - Meerkat exhibit, back-of-house and yards;
 - Octagonal Shelter (northern);
 - Public amenities; and
 - Paths, steps, ramps, fencing, garden beds and kerbs.
- Partial demolition of the existing Orangutan Rainforest Exhibit and aviaries; including the removal of:
 - Orangutan Exhibit, enclosure and back-of-house;
 - Turner House; and
 - Paths, bitumen road, steps, ramps, fencing, garden beds and kerbs.
- Construction of a new African Savannah exhibit for Giraffe, Zebra, Lion, Ostrich Meerkat and Fennec Fox species. The new exhibit will include:
 - 2,881m² Giraffe and Zebra Exhibit;
 - 2,821m² Lion Exhibit;
 - 394m² Meerkat/ Fennec Fox Exhibit;
 - Holding dens and back-of-house facilities;
 - Animal food preparation area / equipment store;
 - Animal management infrastructure;
 - Containment fences;
 - Themed landscaping;
 - Public viewing, milling and seating areas; and
 - Visitor and staff circulation and access paths.
- Construction of a new Congo Forest Exhibit for, Eastern Lowland Gorillas and Okapi. The new exhibit will include:
 - 2,726m² Gorilla Exhibit;
 - 929m² Okapi Exhibit;
 - Holding dens and back-of-house facilities;
 - Animal food preparation area / equipment store;
 - Animal management infrastructure;

- Containment fences;
- Themed landscaping;
- Public viewing, milling and seating areas;
- Visitor and staff circulation and access paths.
- Cliff Edge Village visitor amenities;
- Interpretative and directional signage; and
- Relocation, upgrade and augmentation of services as required.

During exhibition, a total of seven submissions were received from government agencies. No public submissions were received. These submissions, including the request for Response to Submissions (RtS) from the DPE, raised a number of key issues. Of particular importance, was the request for the preparation of a specific VIS to clearly demonstrate and consider significant views/key view corridors and the potential impact of the proposal. This VIS has been prepared to satisfy this requirement.

Revised proposal and SSDA

In response to the issues raised within the submissions, a number of amendments have been made to the proposed development. The amendments relate primarily to exhibit size, layout and built form elements within the African Savannah and African Waterhole precincts and can be summarised as follows:

- Reduction of Giraffe back of house and viewing area footprint including:
 - Consolidation of Giraffe house and indoor yard;
 - Reduction of Giraffe House roof canopy in size and height; and
 - Separation of proposed Giraffe House from existing heritage Giraffe House.
- Relocation of Ostrich shelter;
- Minor reduction of the number of African Savannah huts and entry structures;
- Relocation of and internal consolidation of Lion back of house including the reduction of lion dens from ten to six;
- Reconfiguration of Lion viewing area and introduction of Lion keeper talk area;
- Reduction in Lion Exhibit from two to one area;
- Revised visitor circulation through Lion Exhibit including removal of existing raised boardwalk and proposed canopy structure;
- Removal of Cliff Village structures;
- Minor design modifications to Zebra viewing structure;
- Design modifications to Meerkat back of house structure;
- Minor internal modifications to Meerkat back of house;
- Minor internal modifications to Fennec Fox back of house;
- Consolidation of Africa Place viewing structures;
- Reconfiguration of public amenities; and
- Revised exhibit landscaping.

The proposed modifications are further detailed within the Response to Submissions Report prepared by Ethos Urban and dated November 2017. The Landscape Plan (as amended) is shown at **Figure 1**.

The revised proposal has been assessed in this VIS.



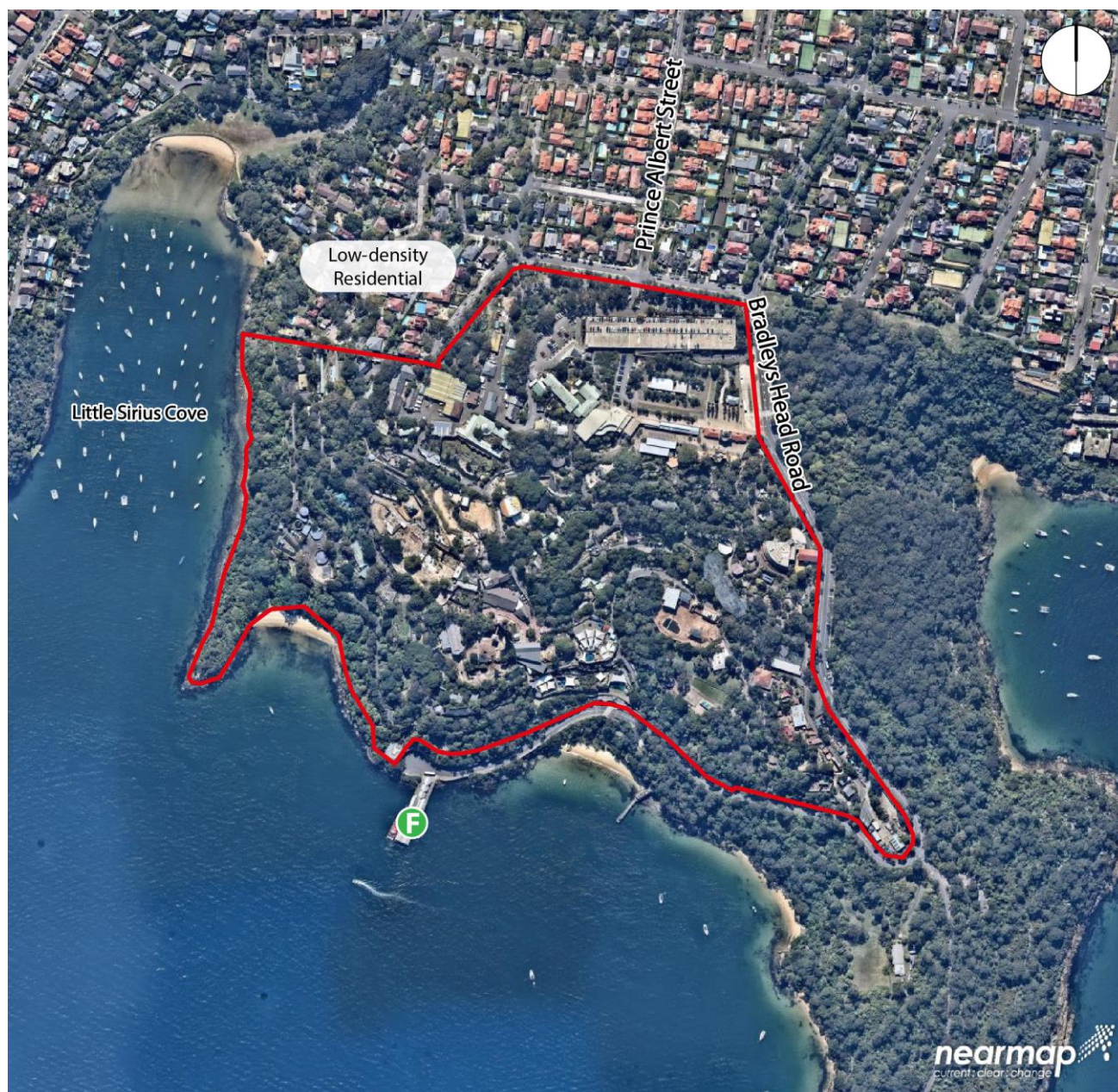
Figure 1 – Proposed Landscape Plan (as amended)

Source: GDA

3.0 The Site

3.1 Site Location and Context

Taronga Zoo is located approximately four kilometres north of the Sydney Central Business District (CBD), on the northern shore of Sydney Harbour within the Mosman Council (LGA). Irregular in shape, the zoo is bound 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. The zoo is divided into eight zoo-geographic regions, over 21 hectares and is home to over 4,000 animals and 340 species. The site's locational context is shown at **Figure 1**.



Taronga Zoo

Figure 2 – Aerial context map

Source: Ethos Urban/ NearMap

The proposed African Savannah and Congo Forest Exhibit sites are located within the central area of Taronga Zoo. The African Savannah Exhibit area will replace the existing African Safari exhibits, including the Giraffe Encounter, Zebras, Himalayan Tahr, Barbary Sheep, Fennec Fox and Meerkats and is located on the western side of the zoo towards Little Sirius Cove. The Congo Forest Exhibit area will replace the existing Gorilla and Orangutan Facility exhibit. The two areas will be joined by the African Waterhole. It is located to the east of the African Savannah Exhibit, centrally to the zoo site, approximately 175 metres south of the main entrance. The location of the new exhibit sites relative to the overall Taronga Zoo grounds is shown in **Figure 2** below.



Figure 3 – Location of the African Savannah and Congo Forest exhibit sites within the Taronga Zoo grounds

Source: TZG/ Ethos Urban

3.2 Landscape and Visual Setting

Located on Bradleys Head, the Taronga Zoo site grades steeply from the ridge at its entrances in the north down to the southern boundary adjacent Sydney Harbour. The location and overall positioning of the zoo affords various scenic view prospects across Sydney Harbour, arguably one of the world's greatest natural harbours, and its enveloping urban cultural scenery, including the Sydney CBD, Opera House and Harbour Bridge. The iconicity of this setting underpins the scenery of individual exhibits and areas within the zoo.

The Taronga Zoo Landscape Management Plan (LMP 2006) notes, "Taronga Zoo has one of the most dramatic sites of any zoo in the world. Its views over Sydney Harbour to the city beyond contribute greatly to the visitor's experience of the place, the startling juxtaposition of exotic animals against Sydney's iconic harbourside scenery being one of the zoo's greatest assets"¹. Such iconic views include:

- From the main entry path over the Giraffe enclosure towards Sydney Harbour, Opera House, Harbour Bridge, Garden Island, Fort Denison, the Botanic Gardens and CBD.
- From Serpentine Path above the [former] seal [pools] towards Sydney Harbour and CBD.
- From the pathway above Tahr Mountain towards Sydney Harbour, Opera House, Harbour Bridge and CBD.

Views played an important role in the original planning of the zoo and its landscape, coinciding with key public spaces and major pathways, assisting with wayfinding. Many of the key views are concentrated along the north-south gullies through the zoo. These views can be experienced from the pathways that follow along the east-west contours, cutting across the gullies².

The zoo is located at Sydney Harbour's widest point, with the result that when the zoo is viewed from the southern foreshore of the harbour, built elements within the zoo are largely obscured by vegetation, with the zoo overall not appearing distinctly different from the adjacent Sydney Harbour National Park with the exception of different plant species. Currently, visible structures, when viewed from Sydney Harbour and foreshore areas include:

- The Taronga Zoo Sky Safari;
- Bird Show Amphitheatre;
- Condor Exhibit;
- Seal Show;
- Taronga Food Market; and
- Taronga Concert Lawn.

Due to the topography of the Zoo, it is noted that none of these existing buildings or structures are prominent in relation to the skyline of Bradleys Head ridgeline when viewed from the Harbour and its foreshores.

As outlined within the LMP 2006, "the existing views out from the zoo site across Sydney Harbour should be retained, respected and managed to enhance the zoo's sense of place... Views of the harbour should continue to be exploited in the development of new areas within the zoo site..."³ As such, identification and protection of views remain a key consideration in the development of the African Savannah and Congo Forest Exhibits.

Notwithstanding, it is noted that most of the original views from the upper portions of the site have now been lost or highly modified, generally due to the growth and increased density of vegetation and varied periods of expansion of zoo facilities since the 1970s.

¹ Design 5 Architects *et al.* 2006, Taronga Zoo Landscape Management Plan, p.98

² Urban Design Advisory Service. 2001, Taronga Zoo Master Plan Urban design principles and visual analysis', p.21

³ Design 5 Architects *et al.* 2006, Taronga Zoo Landscape Management Plan, p.117

4.0 Assessment Methodology

4.1 Scope and Methodology

The VIS has been prepared to assess potential impacts on significant views to, from and within Taronga Zoo and Sydney Harbour as a result of the proposed African Savannah and Congo Forest Exhibits. The following methodology was adopted in the preparation of the VIS:

- Describe the existing zoo landscape and visual setting (refer to **Section 3.2**);
- Review existing information relevant to the visual environment, including existing landform, vegetation, landscape character and significant views (refer to **Section 4.2**);
- Identify the significant views and view corridors to, from and within the proposed exhibit areas internally and externally of the zoo (refer to **Section 4.3**);
- Outline method of visual assessment (refer to **Section 4.4**);
- Identify affected views, their significance grading and sensitivity and evaluate the magnitude of change on the significant view, to assess visual impact (refer to **Section 5.1** and **Section 5.2**);
- Consider the overall visual impacts and whether the proposal will result in an acceptable visual impact outcome (refer to **Section 5.3**); and
- Propose mitigation strategies (refer to **Section 6.2**).

4.2 Guiding Documents

The VIS has been prepared with reference to the following:

- Taronga Zoo Landscape Management Plan 2006 (LMP 2006);
- Taronga Zoo Conservation Strategy 2002 (CS 2002);
- Taronga Zoo Master Plan Urban Design Principles and Visual Analysis 2001 (Master Plan); and
- *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* (SHREP 2005).

These documents informed the identification of significant views to, from and within the proposed exhibit areas. The objectives, guidelines and principles of these documents subsequently formed part of the assessment criteria against which a determination of the appropriateness of the visual impact of the proposal was undertaken.

4.2.1 Taronga Zoo Landscape Management Plan 2006

The Taronga Zoo Landscape Management Plan (LMP 2006) represents the most current and comprehensive document dealing with the detailed landscape elements, including significant views within Taronga Zoo. In addition to recording the zoo's history, features and assessing their relative significance, condition and integrity, the LMP 2006 provides various policies to guide future development at the zoo.

Of particular importance is Section 4.10 of the LMP 2006, which documents significant views to, from and within the zoo. The views, categorised by type, are shown at **Figure 4** to **Figure 7** below. **Table 1** provides a description of each view type identified within the LMP 2006. Appendix D of the LMP 2006 tables each identified view by type, provides a description of the view and assigns a significance ranking. The significance ranking is further discussed at **Section 4.3**.

It is noted that the LMP 2006 was prepared in accordance with the conservation planning policies of the Taronga Zoo Conservation Strategy (CS 2002), which was endorsed by the NSW Heritage Council in 2002, and is a supporting document to the LMP 2006. For the purposes of this assessment it is considered that the LMP 2006 supersedes the CMP with regard to views. This approach has also been taken in the preparation of the Taronga Zoo Section 170 Heritage Register.

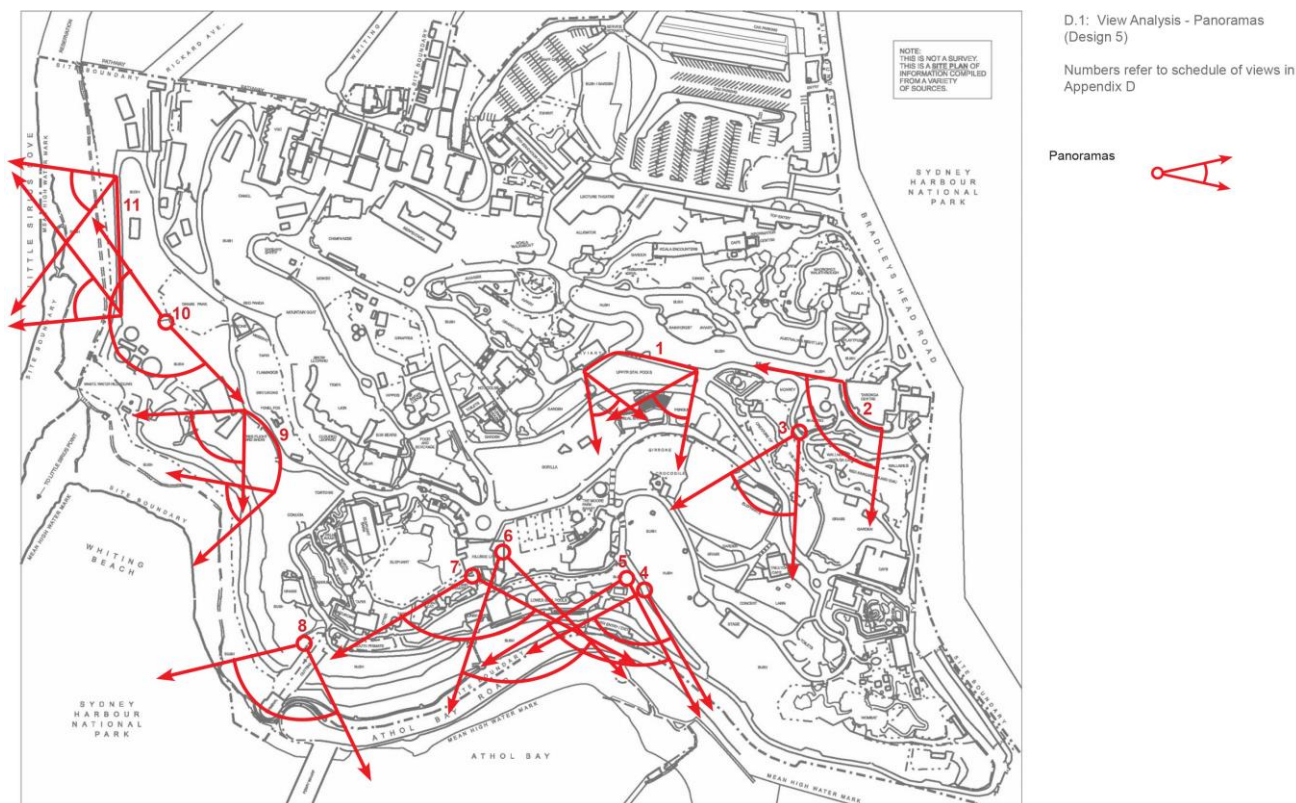


Figure 4 – View analysis – Panoramas

Source: Taronga Zoo Landscape Management Plan, 2006

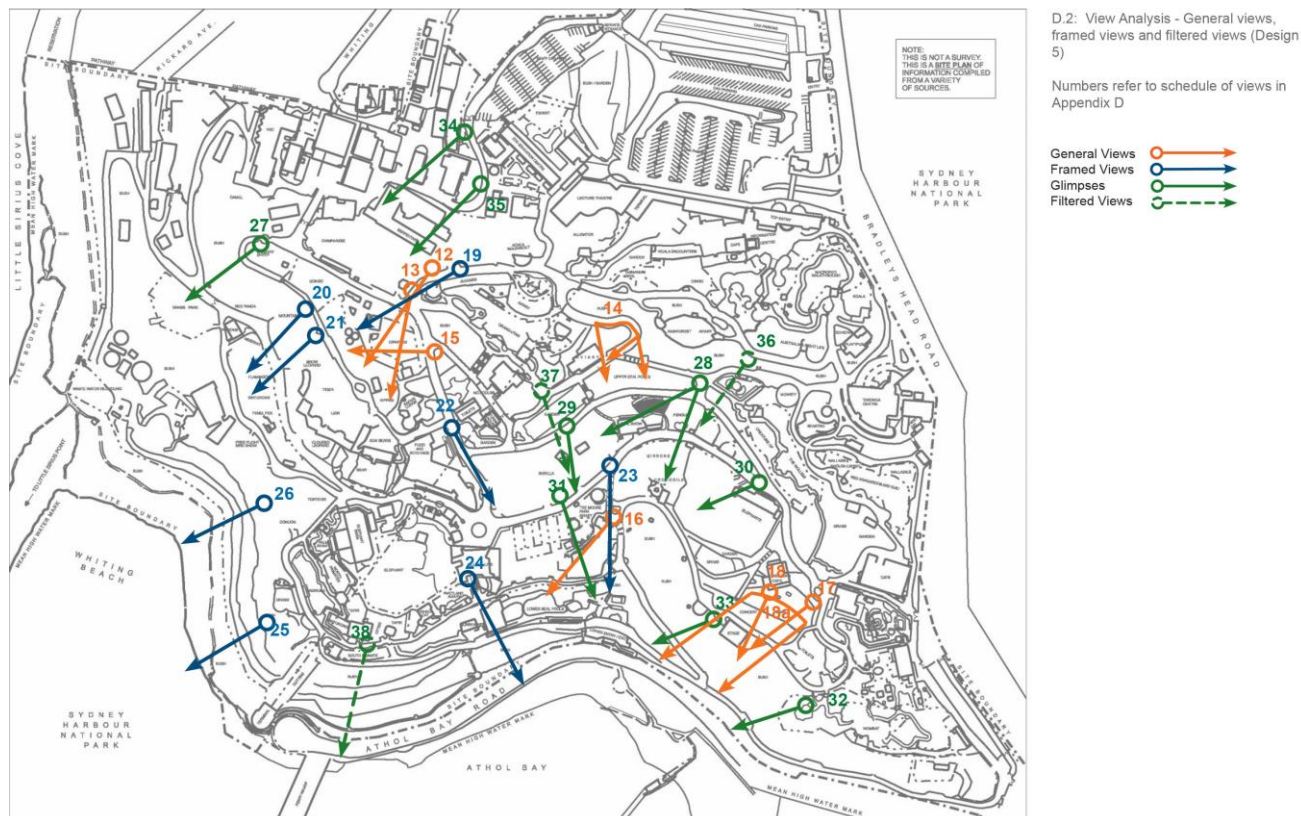


Figure 5 – View analysis – General views, framed views and filtered views

Source: Taronga Zoo Landscape Management Plan, 2006

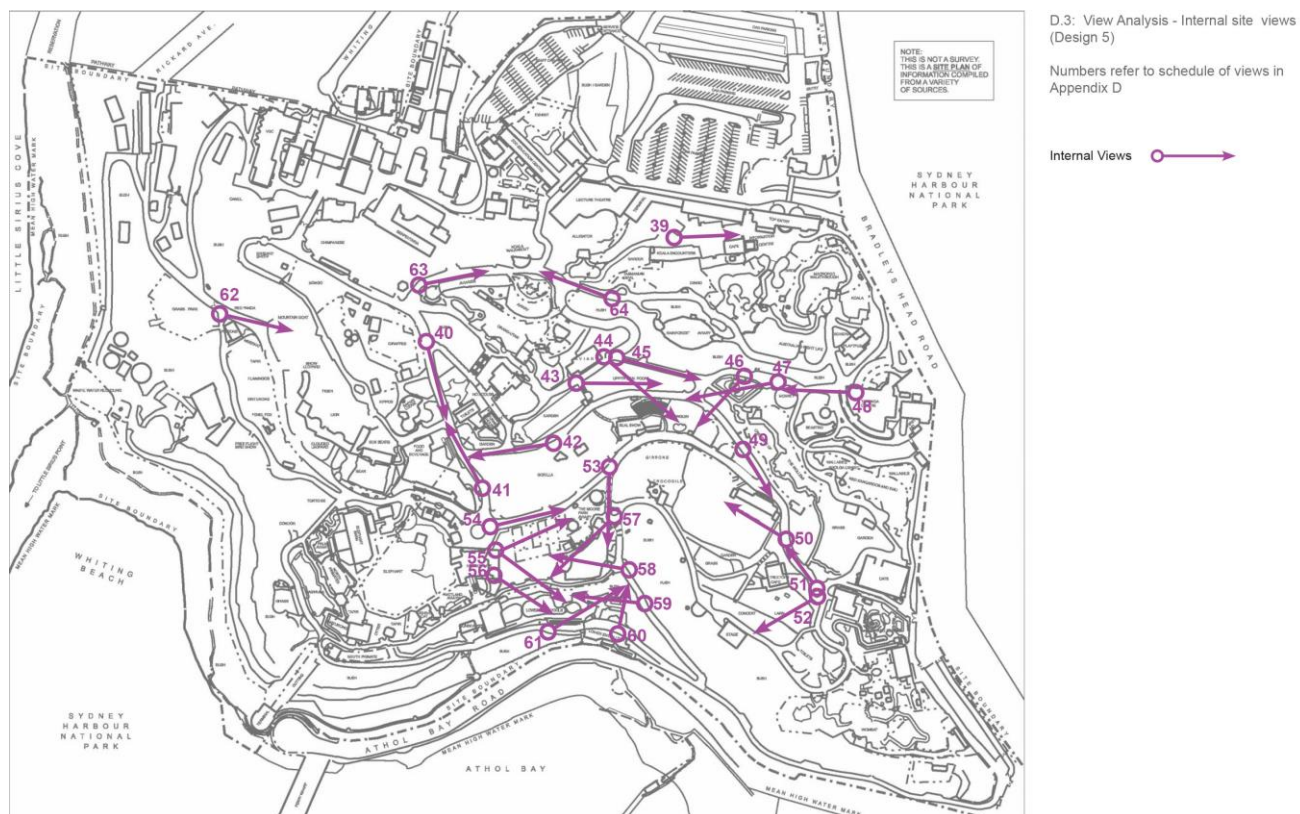


Figure 6 – View analysis – Internal site views

Source: Taronga Zoo Landscape Management Plan, 2006

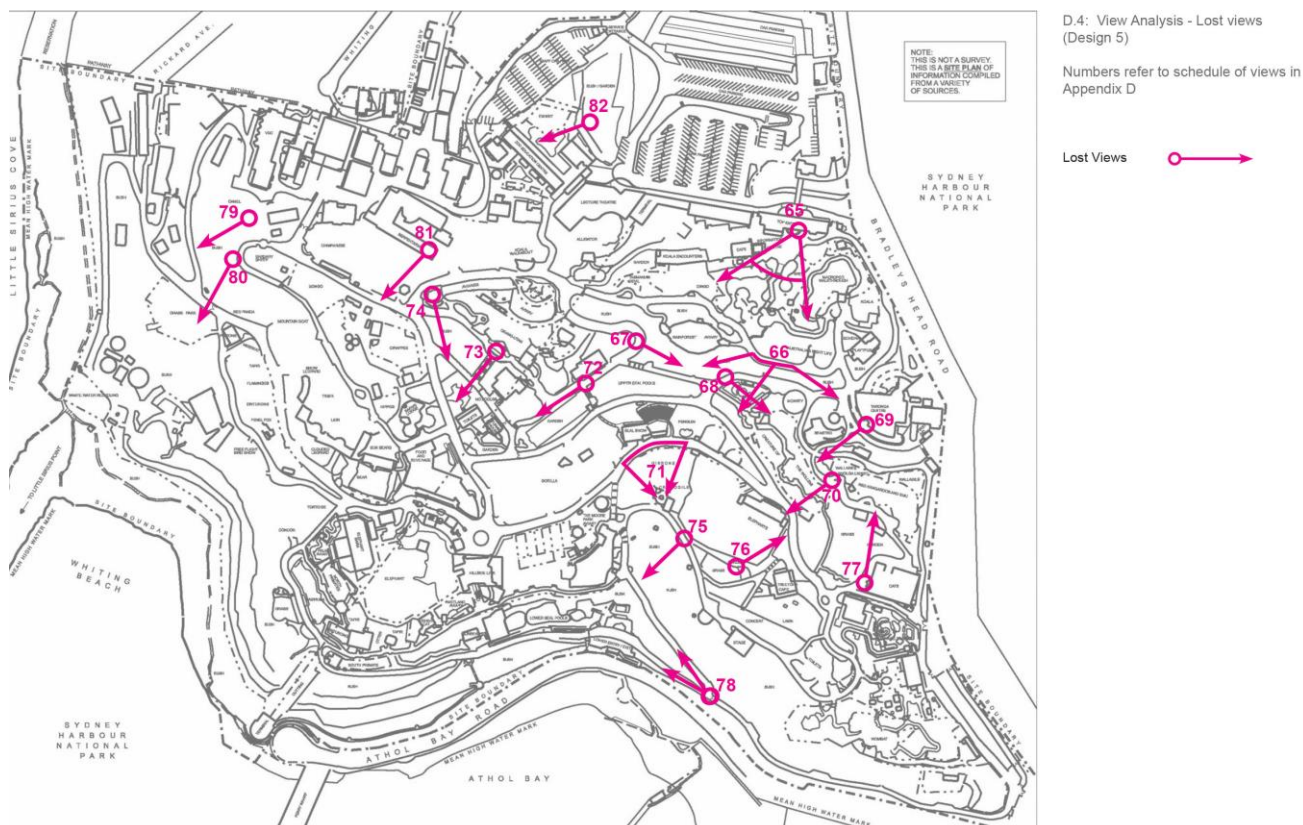


Figure 7 – View analysis – Lost views

Source: Taronga Zoo Landscape Management Plan, 2006

Table 1 – Categorisation and description of significant views

View	Description
Panoramic	Panoramic views allow for expansive views of Sydney Harbour, CBD, Bradleys Head and the eastern suburbs, generally from a single location.
General	General views are views out from the zoo towards the harbour and Sydney CBD, however as less panoramic. The most notable is the view over the Giraffe enclosure.
Framed	Framed views are those that generally have a single focus point and are framed by surrounding vegetation or structures.
Glimpses	Glimpses are views gained through or between exhibits. These are not dramatic views, but they allow the visitor to appreciate the contextual setting of the zoo.
Filtered	Filtered views are views between trees and through exhibit foliage which also contribute to the appreciation of the zoo's contextual setting.
Internal	Internal views are views within the site gained from one ridge line to another, across and between exhibits and along key view corridors such as the existing pathways.
Lost	Lost views are historical views that no longer exist or have been substantially modified over time. It is noted that a number of 'lost views' have been identified for the purpose of this assessment as the opportunity to reopen some of these views may arise as a result of the proposed development.

Source: Taronga Zoo Landscape Management Plan, 2006

4.2.2 Taronga Zoo Conservation Strategy 2002

As a first of the comprehensive site assessment studies, the Taronga Zoo Conservation Strategy 2002 (CS 2002) set the benchmark by describing the Taronga Zoo site as having national cultural significance for Australia as an urban zoo. The strategy provides an integrated, multidisciplinary framework for the future management of the heritage resources at Taronga Zoo.

In a similar, albeit less detailed manner when compared to the LMP 2006, the CS 2002 identifies significant views within and from Taronga Zoo, assessing the relative significance of these views⁴. It is noted that all fifteen views documented (refer to **Figure 8**) are given a 'high' significance ranking.

The views identified within the CS 2002 generally align with the views identified within the LMP 2006. For example View V15 (LMP 2006) and 12V (CS 2002) are situated at the fork of the existing pathways looking west over the Giraffe Exhibit. However, as outlined above, the LMP 2006 provides a more comprehensive analysis of existing views and as such for the purpose of this assessment it is considered that the LMP 2006 supersedes the CS 2002.

⁴ Godden Mackay Logan, 2002. Taronga Zoo Conservation Strategy, p.145

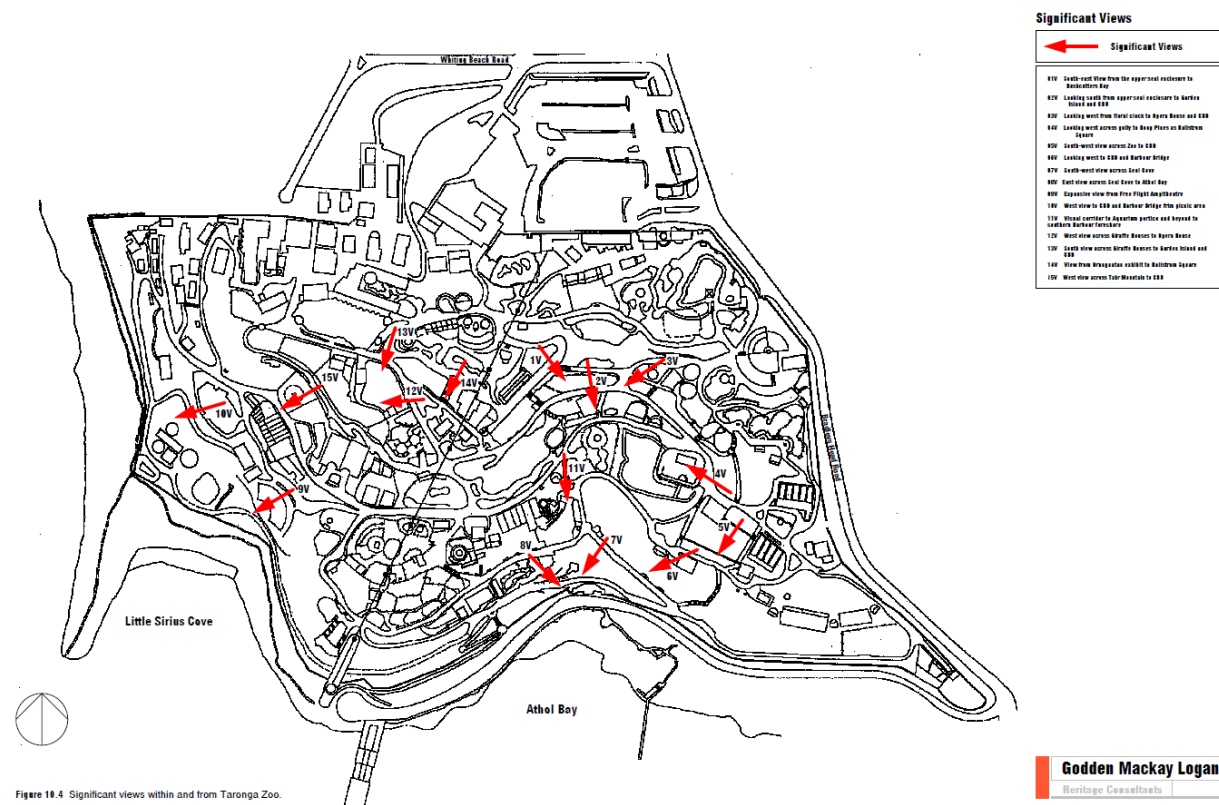


Figure 8 – Significant views

Source: Taronga Zoo Conservation Strategy, 2002

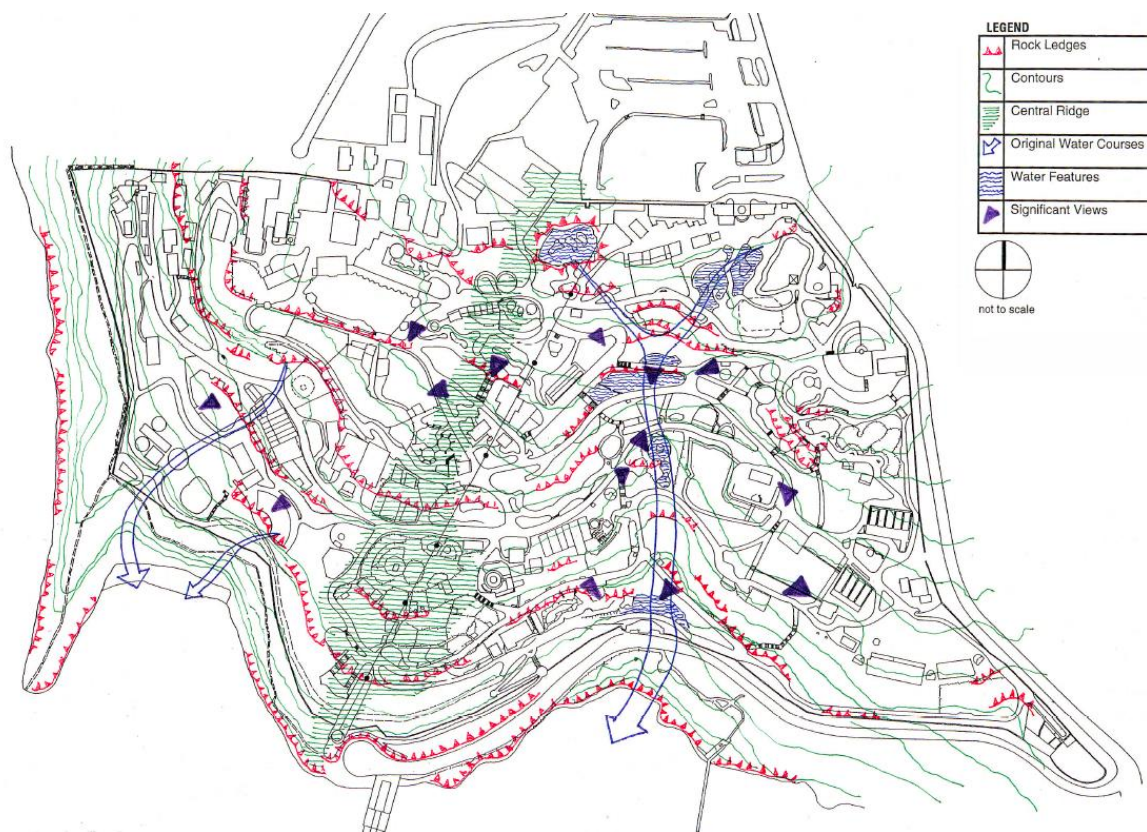


Figure 9 – Natural features and important view corridors

Source: Taronga Zoo Conservation Strategy, 2002

4.2.3 Taronga Zoo Master Plan Urban Design Principles and Visual Analysis 2001

The Taronga Zoo Master Plan Urban Design Principles and Visual Analysis 2001 (UDAS Guidelines) was prepared to accompany the Taronga Zoo Master Plan 'Zoo 2000 'The View to the Future'. The UDAS Guidelines seek to provide the framework to guide development within Taronga Zoo.

A key objective of the Guidelines is the "protection of the unique visual qualities of the harbour, and local context", in accordance with clause 7(g) of *State Environmental Planning Policy No 56 – Sydney Harbour Foreshores and Tributaries* (SEPP 56). It is noted that SEPP 56 has since been repealed. Specifically, the Guidelines aim to:

- "Protect views to the zoo from the harbour: to minimise visual intrusions on the typically "well vegetated view" [the predominant tree canopy] of the zoo, as viewed from the harbour.
- Protect views to the harbour from the zoo: to maintain cross zoo views to the harbour, typically concentrated in the south-east and north-west gullies; and retain the important cultural views of animals with the unique harbour and city backdrops"⁵

The UDAS Guidelines include guidelines which suggest appropriate ways in which the objectives may be achieved. The following guidelines relate to the protection of views:

- "Views to the zoo from the harbour:
 - preserve the present view of "green vegetation" from the harbour, through minimising built form protrusions through the tree canopy, particularly on the prominent or exposed ridges;
 - preserve the natural bushland character of the foreshore, responding to specifically to the characters of the three different foreshore bushland areas:
 - the area between Athol Wharf Road and the Whaling Station beach;
 - the area between the Zoo Wharf and Little Sirius Point, extending south down to Whiting Beach, and defined to the north by the defined Taronga Zoological Gardens wall; and
 - the area between Little Sirius Point and the Rickard Avenue steps, addressing the contained Little Sirius Cove.
- Views to the harbour from the zoo:
 - maintain views to the harbour, particularly as concentrated through the two primary gullies, through minimising intrusions to these view corridors, and where appropriate, define these views through vegetation, and low built form elements [lower than the predominant tree canopy];
 - maintain the ridge-point panoramic views to the harbour through retaining low vegetation and minimising built form intrusions; and
 - continue to concentrate views at key public open spaces.
- Views to the zoo from the surrounding locality, and views from the surrounding locality to the zoo:
 - ensure that development at the edge of the zoo addresses public streets, and reflects the character of the local built form, particularly in terms of height and setback;
 - provide clear views to zoo entry points; and
 - minimise views to carparking associated with the zoo from public streets.
- Staging of development is to be managed such that impact on the visual appearance of the zoo, particularly as viewed from the harbour, is minimised"⁶.

⁵ Urban Design Advisory Service. 2001, Taronga Zoo Master Plan Urban design principles and visual analysis', p.21

⁶ Urban Design Advisory Service. 2001, Taronga Zoo Master Plan Urban design principles and visual analysis', p.21-22

Views to the zoo from the harbour

The UDAS Guidelines identify three types of views when viewing the zoo from the harbour:

1. Immediate views – from Little Sirius Cove and Athol Bay
2. Local views – from between the headlands of Curraghbeena Point, Sirius Cove and Bradleys Head
3. Distant views – from Sydney Harbour

Figure 10 and **Figure 11** identify the key exposed view lines from the harbour to the zoo and key view locations. Photographs from each location are provided within the Guidelines.



Figure 2.4.2

Key exposed view lines from the harbour to the zoo: the ridgeline, and the gullies

Figure 10 – Key exposed view lines from the harbour to the zoo

Source: Taronga Zoo urban design principles and visual analysis, 2001

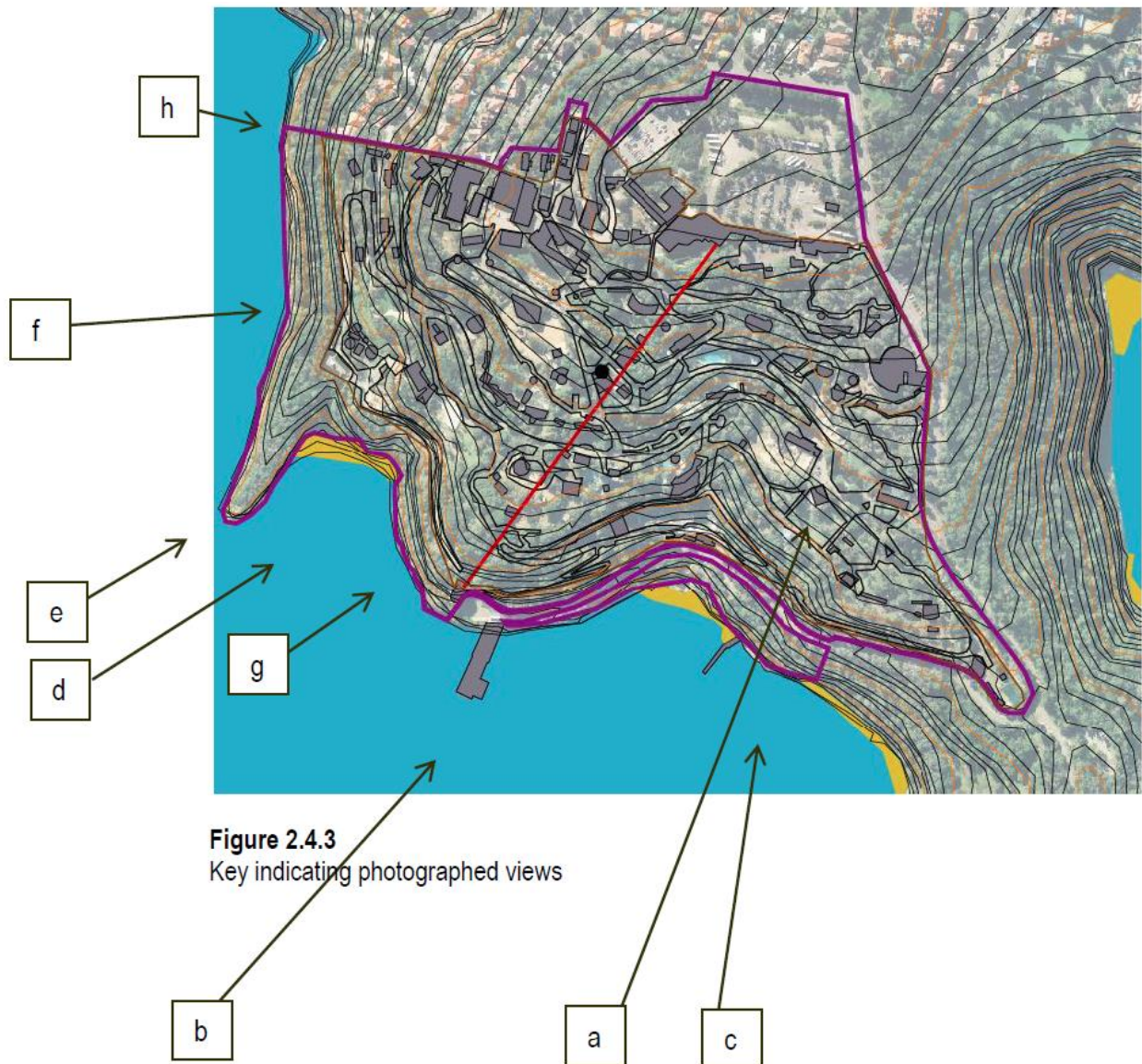


Figure 11 – Key views to the zoo

Source: *Taronga Zoo urban design principles and visual analysis, 2001*



a – view to former Sarina's Restaurant, Athol Beach in foreground



b – view to Cable Car route along the north-south ridge, ferry wharf in foreground



d – View to Whiting Beach



f – Little Sirius Point, view to waste water treatment and boundary wall

Figure 12 – Photos of key views to the zoo

Source: Taronga Zoo urban design principles and visual analysis, 2001

The UDAS Guidelines provide the most current and comprehensive documentation of significant views 'to' Taronga Zoo. As such, the above view types and key locations have informed the identification of significant views and assessment of the visual impacts of the proposal.

Views to the harbour from the zoo

The UDAS Guidelines identify four key view corridors within the zoo to the harbour. These view corridors generally correspond with the north-south gullies through the zoo. **Figure 13**, **Figure 14** and **Figure 15** identify the key exposed view lines from the harbour to the zoo and key view locations. Photographs from each identified location are provided within the Guidelines.

Notably, the UDAS Guidelines identify a limited number of specific views from the zoo. View i is identified as the views over the Giraffe enclosure, which is similar to view V12 (LMP 2006) and view 13V (CS 2002). However, the view location appears to have been mapped incorrectly.

As such, it is considered that the relevance of the UDAS Guidelines in the assessment of significant views from the zoo to the harbour is limited. The LMP 2006 provides a more comprehensive and current analysis of existing views and as such for the purpose of this assessment it is considered that the LMP 2006 supersedes the UDAS Guidelines when considering and assessing the impact of the proposal on significant views from the zoo.

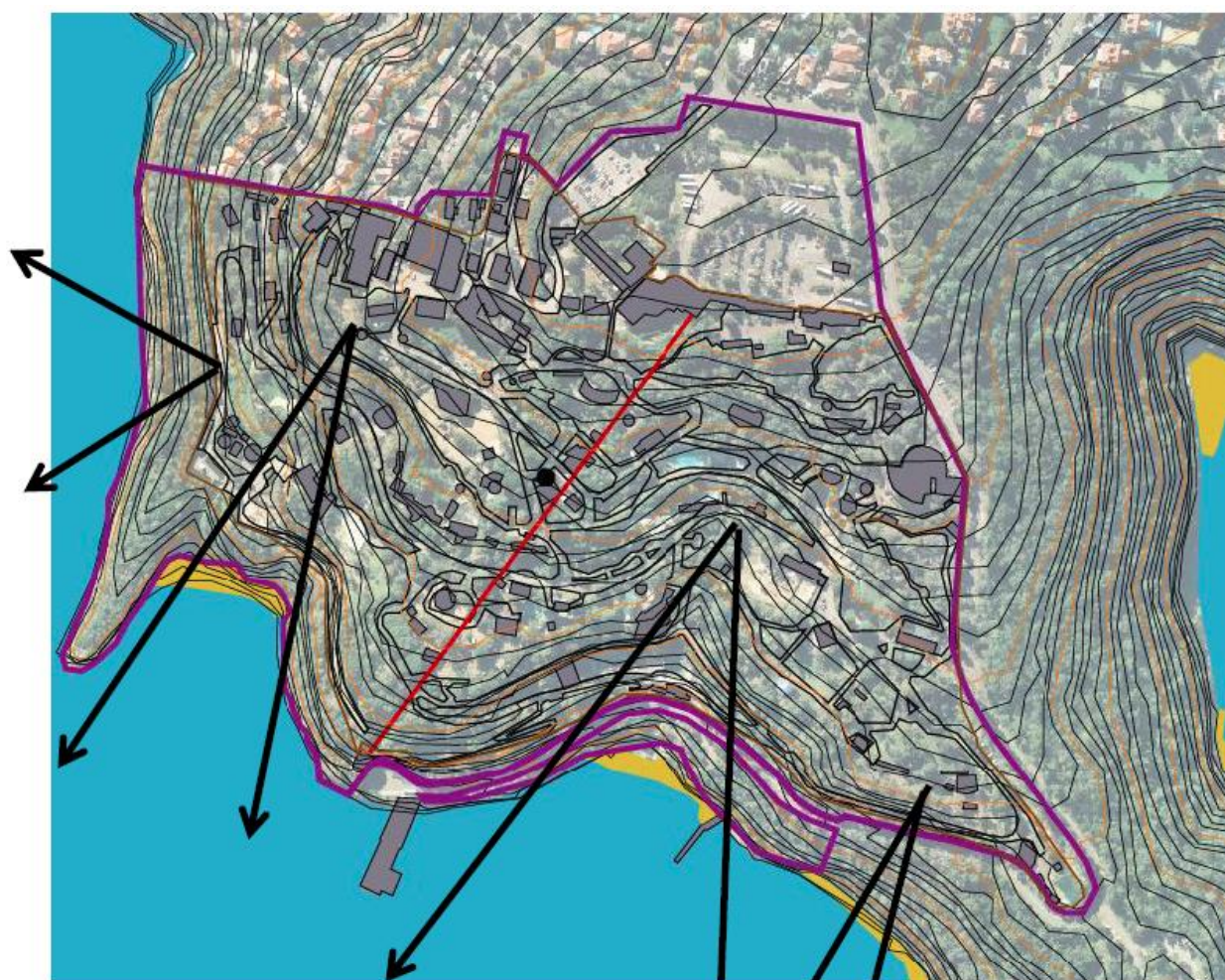


Figure 13 – Location of view corridors within the zoo to the harbour

Source: *Taronga Zoo urban design principles and visual analysis, 2001*

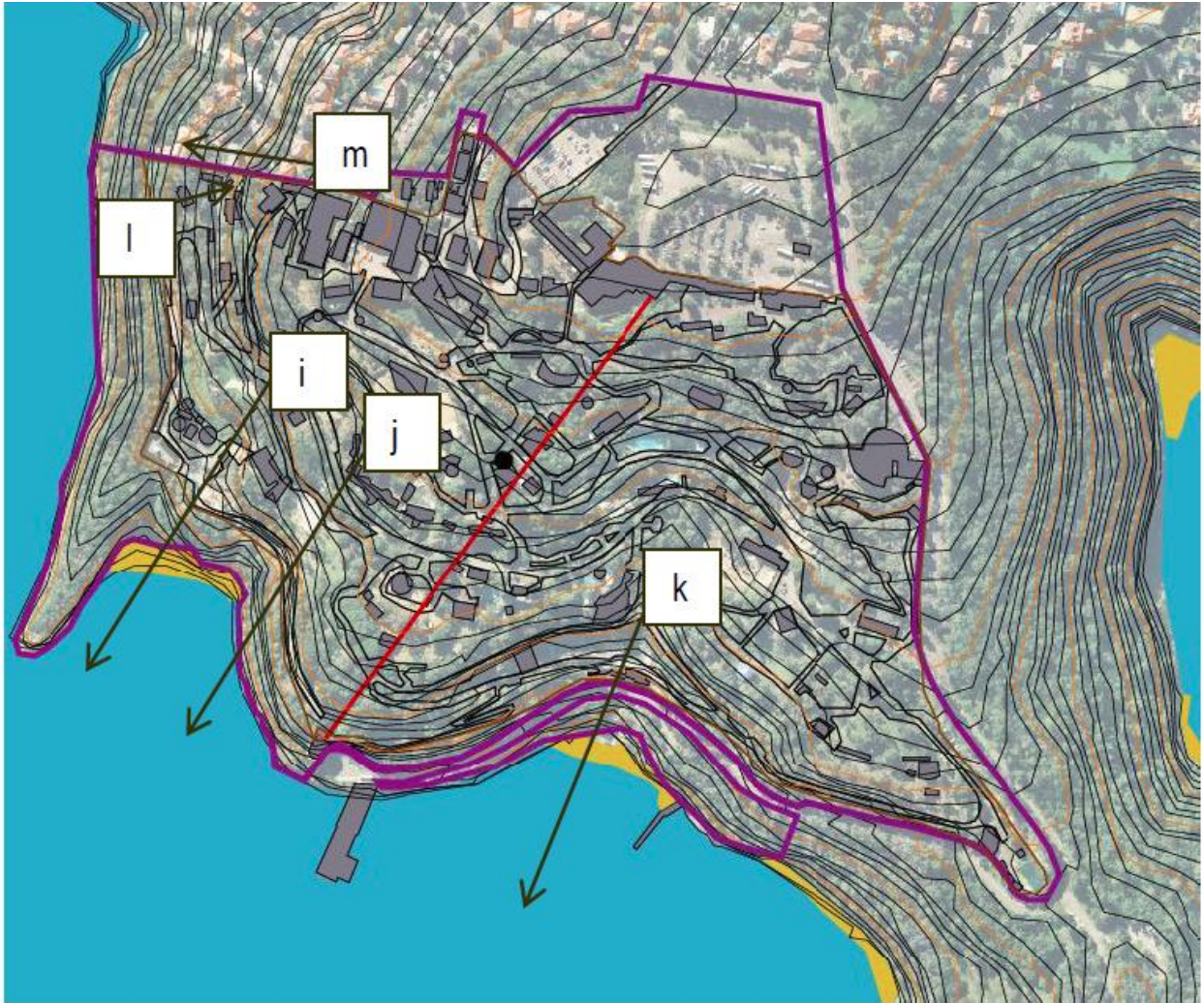


Figure 14 – Key views from the zoo

Source: Taronga Zoo urban design principles and visual analysis, 2001

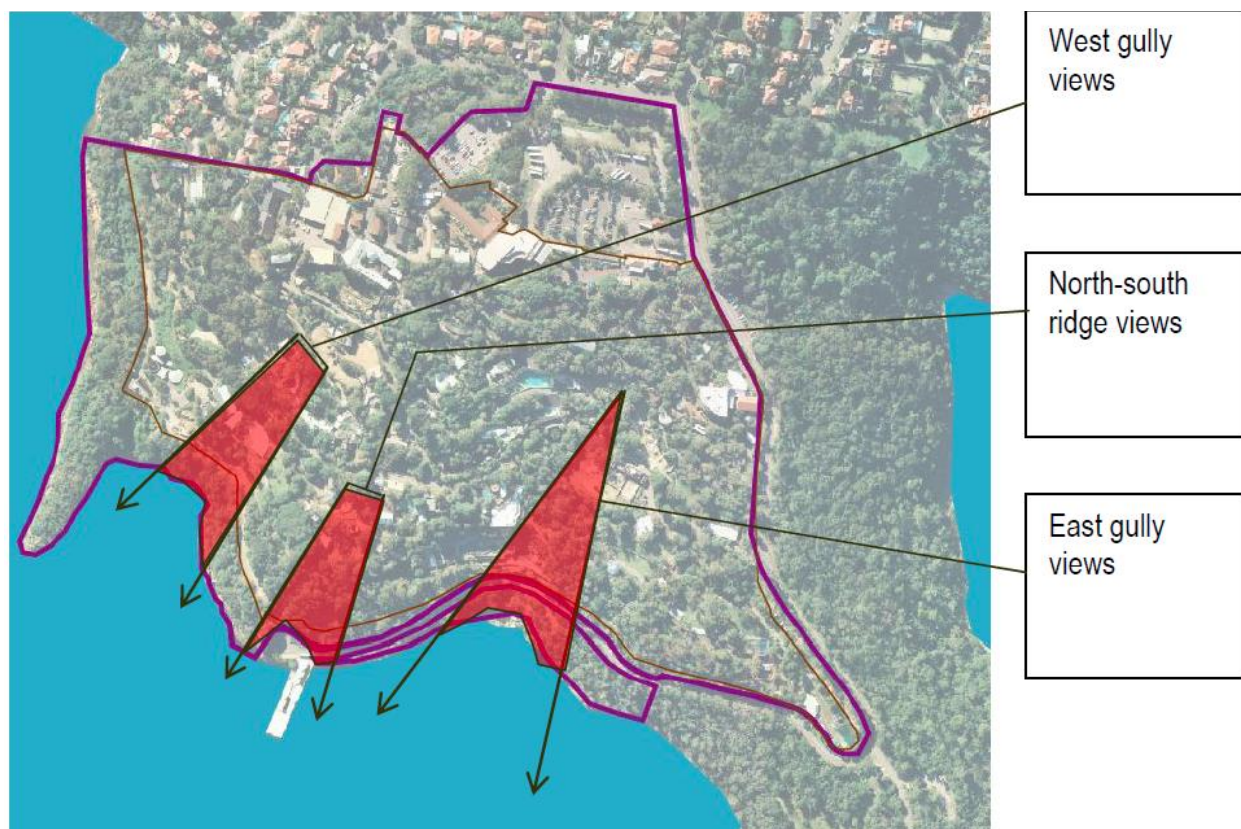


Figure 15 – Sensitive view corridors

Source: *Taronga Zoo urban design principles and visual analysis, 2001*

4.2.4 Sydney Regional Environmental Plan (Sydney Catchment) 2005

The Sydney Harbour Catchment Regional Environmental Plan 2005 (SHREP 2005) is a deemed SEPP and applies to Sydney Harbour its foreshores and wider catchment. SHREP 2005 provides planning principles to guide future development and a range of matters when considering development applications within the foreshores and waterways of Sydney Harbour, including planning controls for strategic foreshore sites. Under SHREP 2005 the site is identified within the Foreshores and Waterways Area, listed as a —'Strategic Foreshore Site'.

Of specific relevance to the assessment of potential view impacts is Division 2 'Matters for consideration', clause 25 'Foreshore and waterways scenic quality' and clause 26 'Maintenance, protection and enhancement of views'.

Clause 25 'Foreshore and waterways scenic quality' states:

The matters to be taken into consideration in relation to the maintenance, protection and enhancement of the scenic quality of foreshores and waterways are as follows:

- (a) the scale, form, design and siting of any building should be based on an analysis of:
 - (i) the land on which it is to be erected, and
 - (ii) the adjoining land, and
 - (iii) the likely future character of the locality,
- (b) development should maintain, protect and enhance the unique visual qualities of Sydney Harbour and its islands, foreshores and tributaries,
- (c) the cumulative impact of water-based development should not detract from the character of the waterways and adjoining foreshores.

Clause 26 'Maintenance, protection and enhancement of views' states:

The matters to be taken into consideration in relation to the maintenance, protection and enhancement of views are as follows:

- (a) development should maintain, protect and enhance views (including night views) to and from Sydney Harbour,
- (b) development should minimise any adverse impacts on views and vistas to and from public places, landmarks and heritage items,
- (c) the cumulative impact of development on views should be minimised.

Sydney Harbour Foreshores and Waterways Area Development Control Plan 2005

The Sydney Harbour Foreshores and Waterways Area Development Control Plan 2005 (DCP 2005) supports SREP 2005 through the provision of performance based criteria and guidelines. In general the DCP states that:

All development should aim to:

- minimise any significant impact on views and vistas from and to:
 - public places,
 - landmarks identified on the maps accompanying the DCP, and
 - heritage items;
- ensure it complements the scenic character of the area;
- protect the integrity of foreshores with rock outcrops, dramatic topography or distinctive visual features;
- provide a high quality of built and landscape design; and
- contribute to the diverse character of the landscape.

The above has formed part of the assessment criteria against which a determination of the appropriateness of the visual impact of the proposal is to be undertaken. It is noted that Cremorne Point Lighthouse has been identified as a landmark within the DCP. As such, views from Cremorne Point have been assessed as part of this VIS.

4.3 Identification of Significant Views

The documents outlined in **Section 4.2** informed the identification of significant views to, from and within the proposed exhibit areas. Specifically, the LMP 2006 was used as the basis for the identification of internal views to, from and within the zoo. The UDAS Guidelines informed the identification of external views to the zoo.

4.3.1 Significant Views – Internal

The identification of significant internal views was based on the following criteria:

- Views from the exhibit area;
- Views to the exhibit area;
- Views within the exhibit area.

Any view located outside the new exhibit areas and unaffected by the proposal has not been assessed. A total of 26 views to, from and within the proposed exhibit areas were identified from the comprehensive list of views in the LMP 2006. **Figure 16** provides the location of each of the identified views, with a current photograph of each view provided at **Figure 17**. The location plan is also provided at **Attachment A**. It is noted that the view labels e.g. V1, V12 etc. corresponds with the LMP 2006 system and has been adopted to ensure consistency.

Table 5 in **Section 5.1** documents each of these views including a brief description of the view, type, significance ranking and an overview of whether the proposed works are likely to impact of the view. Where the potential for the proposed works to impact on the significant view has been identified an assessment of the impact has been undertaken.

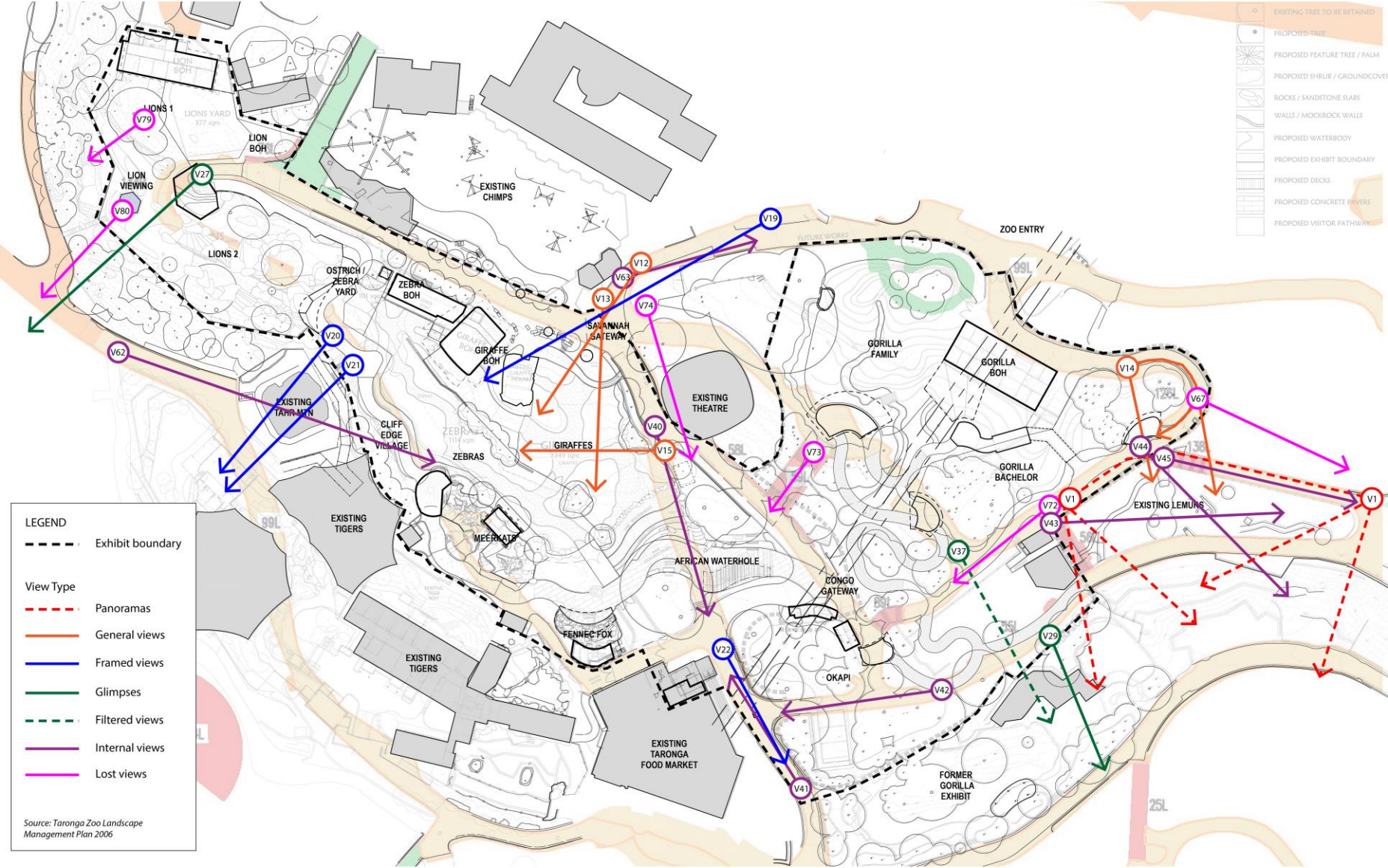
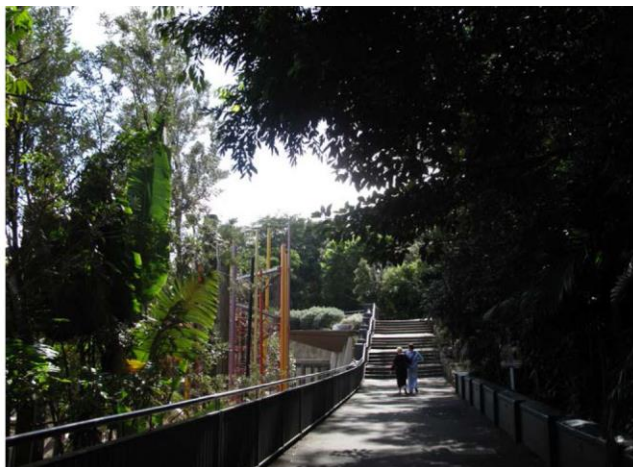


Figure 16 – Location plan of significant views – internal

Source: Ethos Urban/ TZG



V1 - View from main path above lemur exhibit (taking in Serpentine Path)



V12 - View from main path to CBD



V13 - View from main path to CBD



V14 - View from Serpentine Path to harbour ('serial' view)



V15 - View from main path to CBD over giraffe exhibit



V19 - View from main entry path to harbour, CBD & Bridge over giraffe exhibit



V20 - View from path above Tahr Mountain to harbour, CBD and Harbour Bridge



V21 - View from path above Tahr Mountain to harbour, CBD and Harbour Bridge



V22 - View along main north-south path to harbour



V27 - Glimpse of harbour over barbary sheep exhibit



V29 - Glimpses of eastern skyline and harbour over fence line



V37 - View through trees at former orangutan exhibit



V40 - View along existing path east of giraffe exhibit



V41 - View along Spinal Path to Hallstrom Square (Taronga Food Market on left)



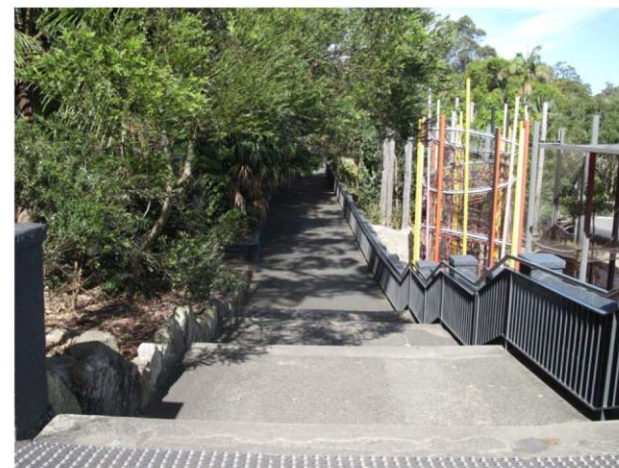
V42 - View towards Taronga Food Market between Hoop Pines



V43 - View from Serpentine Path over lemur exhibit



V44 - View from Serpentine Path over lemur exhibit



V45 - View from Serpentine Path along pathway adjacent lemur exhibit



V62 - View from lower path to Tahr Mountain



V63 - View from main path along avairies to Koala House



V67 - View from Serpentine Path



V72 - View from Serpentine Path (lower) to harbour and CBD



V73 - View from Grand Staircase



V74 - View from former shelter to Hoop Pines and Hallstrom Square



V79 - View from the former Steven's Lookout



V80 - View from Octagonal Shelter to harbour and Opera House

Figure 17 – Current photos of significant views - internal

Source: TZG

4.3.2 Significant Views – External

The UDAS Guidelines identified 3 significant view lines (refer to **Figure 10**) and 8 significant view locations (refer to **Figure 11**) from Sydney Harbour and surrounding locations. In addition, the SEARs and RtS letter identify Cremorne Point and Curraghbeena Point as significant locations from which to assess visual impact.

For the purposes of this VIS three significant views were chosen (refer to **Figure 18**). These being:

1. View from Athol Bay – immediate view
2. View from Curraghbeena Point Lookout (adjacent 1A Raglan Street, Mosman) – local view
3. View from Cremorne Point – distant view



Figure 18 – Location plan of significant views – external

Source: Nearmap/ Ethos Urban

These views were selected to align with the view types and the key view locations outlined within the UDAS Guidelines as shown in **Figure 18**. The chosen views represent the most comprehensive and readily accessible view points to the public. Furthermore, Cremorne Point Lighthouse is identified as a significant landmark within the Sydney Harbour Foreshores and Waterways Area DCP 2005 and has therefore been identified as a significant viewing location. Consideration was given to views from private properties however access was not available and that the publicly accessible areas at these locations provides a representative view of the zoo in the context of the nearby properties. An assessment of the degree and appropriateness of the visual impact is provided at **Section 5.2**.

4.4 Assessment of Impact – Internal Views

A qualitative assessment of the overall impact on the proposal on affected significant internal views to, from and within the exhibit was undertaken. The overall impact has been evaluated using a combination of significance/sensitivity grading of and the magnitude of change proposed to a view. Professional judgement was employed to consider whether the proposal would result in an acceptable visual impact outcome.

4.4.1 Significance Gradings of Views

The LMP 2006 applies a significance grading to each of the key views identified within the Zoo. The significance grading is primarily based on aesthetic quality, but also takes into consideration social attachment and public accessibility⁷. The gradings are defined in **Table 2** below. Each significance grading has a corresponding visual sensitivity rating. The greater a views significance, the greater its sensitivity to change.

Table 2 – Significance gradings of views and associated sensitivity to change

Significance Grading	Description	Visual Sensitivity
Exceptional	<ul style="list-style-type: none"> Expansive views across Sydney Harbour. Essential to contributing to the zoo's sense of place on the harbour. Prime view corridors in the early landscape design for the Zoo. 	Very high
High	<ul style="list-style-type: none"> Good views out across Sydney Harbour, however less expansive. Contribute highly to the zoo's sense of place on the harbour. Key to historic built elements within the zoo, which provide orientation points for visitors. 	High
Moderate	<ul style="list-style-type: none"> Contribute to the zoo's sense of place on the harbour, however more restricted. Better quality filtered views and glimpses. 	Moderate
Low	<ul style="list-style-type: none"> Minor contribution to the zoo's sense of place on the harbour, rather internal focused. Modified or lost. 	Low

Source: Taronga Zoo Landscape Management Plan, 2006

It is noted that where a view has been given two significance gradings within the LMP 2006, for example exceptional/ high, a conservative approach has been taken and the more significant grading adopted for the purpose of this visual assessment.

Whilst the LMP 2006 does not identify negligible views, for the purpose this assessment a negligible sensitivity rating has been introduced to the visual impact rating matrix (refer to **Table 4**). A negligible sensitivity rating has been adopted where no significance rating has been provided by the LMP 2006 i.e. for 'lost views'.

⁷ Design 5 Architects *et al.* 2006, Taronga Zoo Landscape Management Plan – Appendix D, p.D1

4.4.2 Magnitude of change

The 'magnitude of change' refers to the type and scale of the change that would occur to a view as a direct result of the proposed development, through the introduction of new elements or loss/ modification of existing elements. The 'magnitude of change' considers the extent to which the change (modification, removal and/or addition) alters the existing view;

- The extent of area from which the change is evident;
- The duration of the change (short/medium/long term, permanent/ temporary)
- The existing characteristics and significance of the view;
- The capacity for the view to absorb the change; and
- The effectiveness of any proposed mitigation.

The levels of change used in the assessment are detailed in **Table 3**.

Table 3 – Magnitude of change

Magnitude of Change	Description
Very High	<ul style="list-style-type: none"> • Irreconcilable change due to the total loss of and/or change to a significant view. • Permanent loss of the view.
High	<ul style="list-style-type: none"> • Discernible change to the partial loss of, or change to a significant view. • Change likely to impact the long-term integrity/ value of the view.
Moderate	<ul style="list-style-type: none"> • Minor loss of or change to a significant view. • Change likely to impact medium/short-term integrity/ value of the view.
Low	<ul style="list-style-type: none"> • Very minor loss of or change to a significant view. • Change likely to impact short-term integrity/ value of the view.
Negligible	<ul style="list-style-type: none"> • Imperceptible or no change to a significant view.

Source: Landscape Institute and Institute for Environmental Management and Assessment, 2002

4.4.3 Visual Impact Rating

The sensitivity rating of and the magnitude of change proposed to a view are combined to produce overall visual impact rating. The visual impact rating matrix adopted in this assessment is included at **Table 4**.

Table 4 – Visual impact rating matrix

		Magnitude of Change				
Sensitivity		Very High	High	Moderate	Low	Negligible
	Very High	Very High	Very High/High	High	High/ Moderate	Moderate
	High	Very High/ High	High	High/ Moderate	Moderate	Moderate/ Low
	Moderate	High	High/ Moderate	Moderate	Moderate/ Low	Low
	Low	High/ Moderate	Moderate	Moderate/low	Low	Low/Negligible
	Negligible	Moderate	Moderate/low	Low	Low/Negligible	Negligible

4.5 Assessment of Impact – External Views

The NSW planning framework includes regulation of the location and nature of development to avoid adverse impact on the visual quality of an area. The protection of visual quality has been informed by judgements in the Land and Environment Court on two key occasions. The first dealt with view loss from the private domain in *Tenacity Consulting v Warringah [2004] NSWLEC 140 - Principles of view sharing: the impact on neighbours* (Tenacity). The second dealt with view loss from the public domain in *Rose Bay Marina Pty Limited v Woollahra Municipal Council and anor. [2013] NSWLEC 1046* (Rose Bay). These cases established a series of principles to guide decisions on whether the visual impact of development was appropriate. In relation to the proposed Taronga

Zoo development, the planning principles for public domain views established in Rose Bay Marina are the most relevant, and are summarised below.

The steps for determining the acceptability of the impact on views from the public domain should be carried out in two key stages:

- The first stage involves identifying the nature and scope of the existing views from the public domain to be assessed, including the locations in the public domain from which the potentially interrupted view is enjoyed, the extent of any obstruction of the view, the intensity of public use of those locations where that enjoyment will be obscured, and whether any document that identifies the importance of the view to be assessed.

These parts of the visual impact assessment are set out in **Section 4.3.2**, based on an analysis of the key guiding documents described in detail in **Section 4.2**. It is highlighted that whilst the general importance of the views towards the zoo from Sydney Harbour and its foreshore areas are identified in the guiding documents, there are no prescribed gradings of significance for the views.

- The second stage involves analysis of the impacts, comprising a quantitative assessment of the extent of the present view, the compositional elements within it and the extent to which the view will be obstructed by or have new elements inserted into it by the proposed development, as well as a qualitative assessment of the aesthetic and other elements of the view. The analysis includes two key elements:
 - A visual effect analysis to understand the nature of the existing visual environment, considering constant and variable factors such as visual character, and viewing period, and determining the visual effect of the proposal on this environment.
 - A visual impact analysis to evaluate the significance of the visual effect on the existing visual environment, and therefore the overall visual impact, in the context of the relevant principles and/or assessment criteria set out in key guiding documents described in detail in Section 4.2.

The visual effect analysis is undertaken in **Section 5.2** of this VIS, with the assessment of overall visual impact for external views (i.e. towards the zoo) provided in **Section 5.3.2**.

4.6 Limitations

There are the following limitations associated with this assessment:

- There is limited consistency in the identification of significant views across all reference documents outlined in **Section 4.2**. For significant internal views the LMP 2006 is determined to be the most comprehensive and recent document. For significant external views professional judgement has been employed to determine view locations informed by UDAS Guidelines, SEARs and DPE RtS letter.
- There is no specific guidance on the assessment of landscape and visual impacts in New South Wales planning practice. Reference has been made to past project examples, international precedent and the Sydney Harbour Foreshores and Waterways Area DCP 2005 guidelines for a visual impact assessment for marinas.
- This VIS aims to be objective and describe any impacts factually with the assistance of architecturally prepared photomontages. Potential changes as a result of the proposal have been defined. However, the significance of these changes requires qualitative (subjective) judgements to be made. The conclusions to this assessment therefore combine objective measurement and subjective professional interpretation. This assessment has attempted to be objective, however it is recognised that visual assessment can be highly subjective and individuals are likely to associate different visual experiences to the study areas.

5.0 Visual Assessment

5.1 Assessment of Significant Views – Internal

Table 5 below documents each of these views including a brief description of the view, type, significance ranking and an overview of whether the proposed works are likely to impact of the view. Where the proposed works to impact on the significant view has been identified additional assessment of the impact has been undertaken below in accordance with the method identified in **Section 4.4**.

Table 5 – Summary of significant views - internal

View				Overview of Visual Impact		Additional Assessment Required
Description	LMP 2006 Ref.	Type	Significance Ranking	Proposed Works	Potential Impact	Y/N
1 – View from main path above lemur exhibit (taking in Serpentine Path)	V1	Panoramic View	High/ Exceptional	No works proposed.	View retained and unchanged. Public access maintained along path length. No impact from proposed works. It is noted that the LMP 2006 documents the view at the time when the seal pools were in this location.	N
2 – View from main path to CBD over giraffe exhibit	V12	General view	High	Construction of African Savannah.	View retained however modified. Theatre balustrade visible, Giraffe House roof is largely hidden behind Chimps roof and vegetation. Exhibit changes are visible including to a small extent, the heritage log house. No obstructions to the line towards the harbour.	Y Refer to Section 5.1.1.
3 – View from main path to CBD	V13	General view	Exceptional	Construction of African Savannah.	View retained however modified. Giraffe House roof is hidden behind existing Chimp wall and Chimp vegetation. Removal of heritage log house is visible as change to this view line. No obstructions in the line to the harbour.	Y Refer to Section 5.1.2.
4 – View from Serpentine Path to harbour	V14	General view	High	Construction of Congo Exhibit and closure of upper Serpentine Path.	View retained however no longer publicly accessible due to consolidation of zoo circulation and restriction of public access. Whilst the view is no longer publicly accessible no changes are proposed which will maintain the view	N

View				Overview of Visual Impact		Additional Assessment Required
					should the pathway be reopened.	
5 – View from main path to CBD	V15	General view	High	Construction of African Savannah.	View retained. No impact due to topography and position of Giraffe House. Very Minor impact from slight rise of new giraffe house roof to the right side of the view toward the CBD– It is noted that this has been minimised due to lowering of Giraffe House roof. There is no impact on direct line to the CBD. The view of the exhibit in view line has been modified slightly however there are no excessive obstructions within the landscape.	Y Refer to Section 5.1.3.
6 – View from main entry path to harbour, CBD and Harbour Bridge over giraffe exhibit	V19	Framed view	High	Construction of African Savannah.	View retained. Giraffe House roof is not visible. No impact from proposed works. It is noted that the LMP 2006 documents a view prior to the removal of the aviaries.	N
7 – View from path above Tahr Mountain to harbour, CBD and Harbour Bridge	V20	Framed view	Moderate/ High	Construction of African Savannah Cliff Village.	View retained. No impact from proposed works, view modified by existing Tiger Exhibit.	N
8 - From path above Tahr Mountain to harbour, CBD and Harbour Bridge	V21	Framed view	High	Construction of African Savannah Cliff Village.	View retained. Scale of Cliff Village greatly reduced during design modifications. No impact from proposed works.	N
9 – View along main north-south path to harbour	V22	Framed view internal	High	No works proposed.	View retained (similar to V40 below). No impact from proposed works.	N
10 - Glimpse of Harbour over Barbary Sheep exhibit	V27	Glimpse	Moderate	Construction of African Savannah Lion Exhibit.	View retained however modified due to construction of lion viewing area. Enhanced viewing opportunities for a similar view from the new terrace adjacent the Taronga Theatre. Note: This location is approximately where the new Lion Viewing Shelter will be situated. Therefore this view is still available to the public as a 'glimpse' of the harbour in the background. It is noted that the LMP 2006 documents a view prior to the reconfiguration of the exhibit and construction of the existing pathway.	Y Refer to Section 5.1.4.

View				Overview of Visual Impact		Additional Assessment Required
11- Glimpses of eastern skyline and harbour over fence line	V29	Glimpse	Low-moderate	Construction of Congo Exhibit.	View retained. New pathways in similar location. It is noted that the LMP 2006 documents a view which is now primarily obscured by vegetation. However, as a result of the proposal this view may be reopened during to vegetation clearing and replanting behind the zebra back of house.	N
12 - View through trees at former orangutan exhibit	V37	Filtered view	Moderate	Construction of Congo Exhibit.	View retained as the new pathway is in the same location. Slight changes may result pending the final landscaping for the Congo Forest Exhibit.	N
13 – View from existing path east of giraffe exhibit	V40	Internal view	High	Construction of African Savannah Giraffe Exhibit.	View will be lost due to the removal of the Spinal Path. View is available, past the Africa Place structure which is located to the left of the view corridor. The fig tree exclusion zone means no structures can be built within this view line.	Y Refer to Section 5.1.5.
14 - View along Spinal Path to Hallstrom Square (Taronga Food Market on left)	V41	Internal view	High	Construction of African Savannah and Congo Exhibits.	View retained however modified due to construction of the shelter structures at the waterhole viewing area. Impact of viewing structure at Africa Place is largely obstructed by the existing Hoop pine trees, the slope of the hill, the existing heritage listed fig tree.	Y Refer to Section 5.1.6.
15 - View towards Taronga Food Market between Hoop Pines	V42	Internal view	Moderate/ High	Construction of Congo Exhibit.	View between the Hoop Pines retained, however modified due to removal of existing pathway and construction of new exhibit pathway. View looking into the exhibit and the 'framing' element will be lost. Vegetation will replace the existing pathway. The built form of the Okapi back of house will be obscured from view by vegetation.	N
16 - View from Serpentine Path over lemur exhibit	V43	Internal view	Exceptional	Construction of Congo Exhibit.	View retained. Public access maintained to pathway section. No impact from proposed works. It is noted that the LMP 2006 documents a view which includes the Seal pools which are no longer	N

View				Overview of Visual Impact		Additional Assessment Required
					located within this view.	
17 - View from Serpentine Path over lemur exhibit	V44	Internal view	High	Construction of Congo Exhibit.	View retained. Public access maintained to pathway section. No impact from proposed works. It is noted that the LMP 2006 documents a view which includes the Seal pools which are no longer located within this view.	N
18 - View from Serpentine Path over lemur exhibit	V45	Internal view	High	Construction of Congo Exhibit.	View retained. Public access maintained to pathway section. No impact from proposed works. It is noted that the LMP 2006 documents a view which includes the Seal pools which are no longer located within this view.	N
19 – View from lower path to Tahr Mountain	V62	Internal view	High	Outside exhibit area. No works proposed.	View retained as existing. No impacts from proposal. However, path no longer in use following Sumatran Tiger Exhibit construction. Noted that screens/fences at upper path are at a low height therefore no difference to view line. Also noted that Tigers modified view and use of path such that the area is now back of house only and no access to public.	N
20 – View from main path along aviaries to Koala House	V63	Internal view	Moderate/ High	Construction of Congo Exhibit and relocation of Aviaries.	View of Koala House retained however modified due to new exhibit boundary and previous removal of aviaries. Exhibit boundary will provide consist of vegetation abutting current grassed open space area.	N
21 - View from Serpentine Path	V67	Lost view	NA	Construction of Congo Exhibit.	View retained, however currently limited due to vegetation growth. Location no longer publicly accessible due to closure of Serpentine Path (north).	N
22 - View from Serpentine Path (lower) to harbour and CBD	V72	Lost view	NA	Construction of Congo Exhibit.	V72 is identified as a 'lost view' within the LMP 2006 presumably due to the growth of vegetation which now obscures any view towards the Harbour or CBD. The	N

View				Overview of Visual Impact		Additional Assessment Required
					proposal will result in the reconfiguration of the pathway and introduction of a fence (Congo Exhibit) at this location. However, the possibility for the reopening up of the 'lost view', should clearing of vegetation occur, remains and will not be inhibited by the proposal.	
23 - View from Grand Staircase	V73	Lost view	NA	Construction of Congo Exhibit.	View retained however identified as a 'lost view' in the LMP 2006 presumably due to the view being obscured by vegetation. New structures are visible on the ground plane – Africa Place and Fennec Fox, plus the existing Taronga Food Market.	Y Refer to Section 5.1.7.
24 - View from former shelter to Hoop Pines and Hallstrom Square	V74	Lost view	NA	Outside exhibit area. No works proposed.	No impacts from proposed works. View modified/ partially lost due to the recent construction of Taronga Theatre. However, a new viewing experience at this location has been created from an elevated terrace over Giraffe exhibit with views to the Harbour and CBD.	N
25 - View from Steven's Lookout	V79	Lost view	NA	Construction of African Savannah Lion Exhibit.	Steven's Lookout shelter no longer exists and area is currently inaccessible to the public due to the redundant, unused cassowary yard, to be demolished for the Lion BOH and Lion yard. View retained however will remain inaccessible due to location in lion yard. No impact from the proposed works.	N
26 - Octagonal shelter to harbour and Opera House	V80	Framed view (previously lost view)	NA	Construction of African Savannah Lion Exhibit.	Design modifications to the proposed lion exhibit means that the Octagonal Shelter is no longer enveloped in the large mesh structure. However, due to the modifications the shelter is no longer publicly accessible. While traditional views from the structure would no longer be possible for the general public, the structure would remain intact with the potential to be 'reactivated' as a public lookout/shelter accessible to	N

View					Overview of Visual Impact	Additional Assessment Required
					visitors in the future. Further, the introduction of the new raised viewing platform adjacent the Taronga Theatre provides new viewing opportunities that are comparable, albeit not framed by a structure, to those achieved from the Octagonal Shelter. As such, it is considered that this impact is acceptable in order to achieve the key design objectives whilst preserving this key heritage item.	

Seven significant internal views were identified in **Table 5** as requiring further assessment due to being affected to some degree by the proposal. These views are:

1. V12 – View from main path to CBD over Giraffe Exhibit
2. V13 – View from main path to CBD
3. V15 – View from main path to CBD
4. V27 – Glimpse of Harbour over Barbary Sheep Exhibit
5. V40 – View from existing path east of Giraffe Exhibit
6. V41 – View along Spinal Path to Hallstrom Square (Taronga Food Market on left)
7. V73 – View from Grand Staircase

An assessment of each view in accordance with the method described in **Section 4.4** is provided below.

5.1.1 V12 – View from main path to CBD over giraffe exhibit

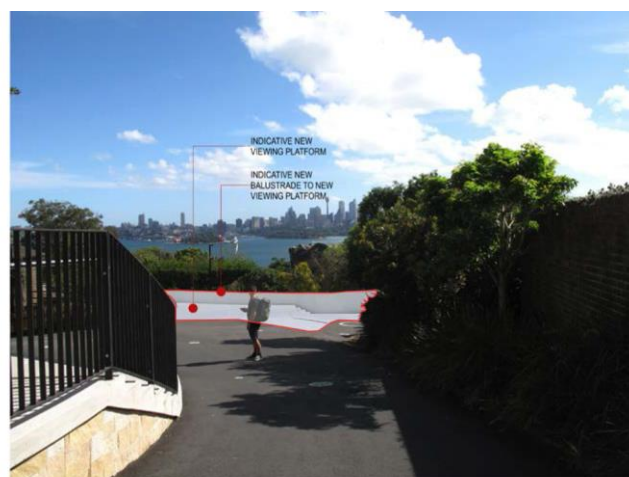
Sensitivity: High

Magnitude of change: Low

Visual impact rating: Moderate



V12 - Existing view from main path to CBD



V12 - Proposed view from main path to CBD

Figure 19 – View comparison – V12 view from main path to CBD over giraffe exhibit

Source: TZG

As shown in **Figure 19** the proposal will result in the addition of a new viewing platform and balustrade as part of the new Giraffe Exhibit. These elements are positioned at ground level and will replace existing fencing, seating and signage. It is considered that these elements will result in a very minor (low) change to the existing view, however due to the sensitivity of view V12 the visual impact of the proposal will be moderate. However, as the proposed structures do not protrude above the existing tree canopy no negative impact will result to the existing heritage views over the Giraffe Exhibit to Sydney Harbour.

Notably, the revised design of the new Giraffe House (roof height and structure) and its relocation further to the west means it will no longer feature in this view or protrude over the existing 1924 Giraffe House seen in this view. However, the view will be modified due to the removal of the 1940s heritage giraffe log house (visible through the existing balustrade). This balustrade forms part of a new raised viewing platform immediately east of this view location constructed as part of the Taronga Theatre project. Expansive views (at a raised height) are available from this new platform over the Giraffe Exhibit to the Harbour and CBD. It is concluded that the proposal will result in an acceptable visual impact on this view.

5.1.2 V13 – View from main path to CBD

Sensitivity: Very high

Magnitude of change: low

Visual impact rating: High/ moderate



V13 - Existing view from main path to CBD



V13 - Proposed view from main path to CBD

Figure 20 – View comparison – V13 view from main path to CBD

Source: TZG

As shown in **Figure 20** the proposal will result in the addition of a new viewing platform and balustrade as part of the new Giraffe Exhibit. These elements are positioned at ground level and will replace existing fencing, seating and signage. It is considered that these elements will result in a very minor (low) change to the existing view, however due to the very high sensitivity of view V13 the visual impact of the proposal will be high/moderate.

The outlook to the existing exhibit will be modified as a result of internal configurations and the removal of the 1940s heritage giraffe log house (visible to the left of the view). Removal of this structure is required and justified as it no longer meets modern animal welfare practices and the proposed Giraffe House will provide new enclosures.

The proposed structures will not protrude above the existing tree canopy no negative impact will result to the existing heritage views over the Giraffe Exhibit to Sydney Harbour. Notably, the revised design of the new Giraffe House (roof height and structure) and its relocation further to the west means it will no longer feature in this view or protrude over the existing 1924 Giraffe House seen in this view. Additionally, the consistent treatment of the balustrade across the view will reduce visual clutter and distraction. Mitigation measures including the selection of compatible materials will further reduce the impact on this view.

In addition, as noted above, the introduction of the new Theatre viewing platform provides additional viewing opportunities at this locality. Views from a raising height are available across the Giraffe Exhibit to Sydney Harbour and CBD. As such, the visual impacts from the addition of the new Giraffe shelter are considered minor and have been offset by new viewing opportunities within the zoo.

It is therefore concluded that the proposal will result in an acceptable visual impact on this view.

5.1.3 V15 – View from main path to CBD

Sensitivity: Moderate

Magnitude of change: Moderate

Visual impact rating: Moderate



V15 - Existing view from main path to CBD over giraffe exhibit



V15 - Proposed view from main path to CBD over giraffe exhibit

Figure 21 – View comparison – V15 view from main path to CBD

Source: TZG

As shown in **Figure 21** the proposal will result in the addition of a new balustrade, partial demolition of the existing 1924 Giraffe House and introduction of new Giraffe House roof, as part of the new Giraffe Exhibit. It is considered that these elements will result in a minor (moderate) change to the existing view, which has a visual sensitivity of moderate. This is likely due to the number of built structures within the view. In combination, the proposed works will have a moderate visual impact.

Notwithstanding, the proposed balustrade is positioned at ground level and is consistent with the height of existing fencing. As such, it does not protrude above the existing view line or inhibit views out across the exhibit. The partial removal of the 1924 Giraffe House will result in the removal of built form and the opening up for the view through the exhibit. However, it is likely that existing vegetation will obstruct any clear views to the north of the Harbour Bridge. The proposed Giraffe House roof (pictured to the left of the proposed image) will reduce views of existing vegetation and the sky only. The materiality of these elements has been considered to further mitigate visual impact.

As such, it is concluded that the proposal will result in an acceptable visual impact.

5.1.4 V27 – Glimpse of Harbour over Barbary Sheep Exhibit

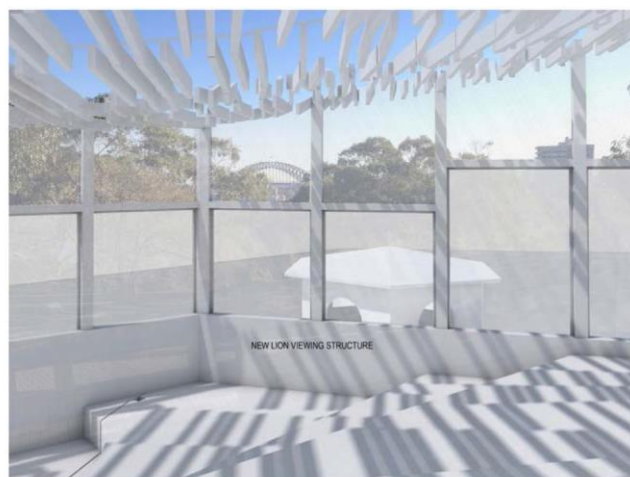
Sensitivity: Moderate

Magnitude of change: High

Visual impact rating: High/ moderate



V27 - Existing glimpse of harbour over barbary sheep exhibit



V27 - Proposed glimpse of harbour over barbary sheep exhibit

Figure 22 – View comparison – V27 glimpse of harbour over barbary sheep exhibit

Source: TZG

The view over the Barbary Sheep Exhibit to the Harbour has been modified since it was first identified in the LMP 2006 following the construction of a new raised pedestrian pathway and growth of vegetation. However, notably the view through the Harbour Bridge remains.

As shown in **Figure 22** the proposal will result in the construction of the new lion viewing and keeper talk area substantially altering the existing viewing experience. Whilst the foreground viewing experience will be substantially altered the view of the Harbour Bridge will be retained. Due to the scale and dominance of the proposed structure on the view it is considered that the proposal will result in a high magnitude of change, resulting in a high/moderate visual impact rating.

Notwithstanding, it is considered that the proposed lion viewing and keeper talk area will provide the opportunity for visitors to pause and take in the view, whereas currently it is easy just to keep moving along the existing pathway past the view. The area will define a key viewing and congregation area. The design of the structure has been developed with consideration of this view and has been positioned to further frame and accentuate the view of the Harbour Bridge. Arguably, adding overall value to the view. Additionally, due to its height the new Theatre viewing platform provides enhanced viewing opportunities of the Harbour and CBD.

As such, it is considered that the introduction of the lion viewing and keeper talk area will have an acceptable visual impact, creating a defined viewing and congregation opportunity at this location.

5.1.5 V40 – View from existing path east of Giraffe Exhibit

Sensitivity: High

Magnitude of change: Very High

Visual impact rating: Very High/ High



V40 - Existing view along existing path east of giraffe exhibit



V40 - Proposed view along existing path east of giraffe exhibit

Figure 23 – View comparison – V40 view along existing path east of giraffe exhibit

Source: TZG

As shown in **Figure 23** the proposal will result in the irreconcilable (very high) change to V40 looking south-east along the original pathway east of the Giraffe Exhibit. The proposal seeks the removal of this section of the Spinal Path to accommodate the expansion of the Giraffe Exhibit and African Waterhole. Pedestrian circulation will be directed along the existing path (to the left of the photomontage) adjacent the Theatre and Grand Staircase. Distant views of the Taronga Food Market will be further obscured by vegetation and landscaping elements associated with Africa Place. As such, it is considered that the proposal will have very high/ high visual impact.

However, positively, the expansion of the exhibits will contribute to improved animal welfare and care, redirection of visitor circulation will ensure DDA compliance and result in the reactivation of the Grand Stair case and the proposed works relate primarily to landscaping as opposed to large built form maintaining glimpses of the existing view. Furthermore, it is noted that the fig tree exclusion zone means no structures can be built within this view line.

Due to the high sensitivity rating of the view it is considered that the proposal will result in an unacceptable visual impact. However, for the reasons identified above, modification of the view is required to achieve the key project objectives, being:

- Maintain a high standard of animal welfare and care;
- Provide an enhanced visitor experience;
- Ensure DDA compliant site access for all throughout new exhibit areas;
- Protect items of heritage and cultural significance;
- Capitalise on existing topography, vegetation landscape features within the proposal; and
- Address operational and attendance issues to ensure ongoing viability of the zoo.

5.1.6 V41 – View along Spinal Path to Hallstrom Square

Sensitivity: High

Magnitude of change: Low

Visual impact rating: Moderate



V41 - Existing view along Spinal Path to Hallstrom Square (Taronga Food Market on left)



V41 - Proposed view along Spinal Path to Hallstrom Square (Taronga Food Market on left)

Figure 24 – View comparison – V41 view along Spinal Path to Hallstrom Square

Source: TZG

As shown in **Figure 24** the proposal will result in very minor (low) additions to the existing view including a new retaining wall and modification to the Taronga Food Market building. The viewing structures proposed for Africa Place are largely obstructed by the existing Hoop Pine trees, the slope of the hill and the existing heritage listed fig tree.

Whilst the view has a high sensitivity rating, the proposed additions will not change the integrity or significance of the view and are therefore considered to have a moderate visual impact. During detailed design the materiality of these elements will be explored to ensure integration with existing structures.

As such, it is concluded that the proposal will result in an acceptable visual impact.

5.1.7 V73 – View from Grand Staircase

Sensitivity: Negligible (lost view)

Magnitude of change: Moderate

Visual impact rating: Low



Figure 25 – View comparison – V73 view from Grand Staircase

Source:

The view looking south down the Grand Staircase is recorded as a 'lost view' within the LMP 2006. This is presumably due to the growth of vegetation over time. However, the stairs are identified as a key heritage feature of the zoo and as such an assessment of the proposals impact has been undertaken.

Whilst the views sensitivity is negligible due to it being identified as a 'lost view' the proposal will result in the introduction of a viewing shelter at the base of the stairs. The Staircase and its integral 'scaloped' seating would form an important component of the strategic public space proposed as Africa Place – a nexus between the African Savannah/Waterhole and Congo Precincts. While the detail design of Africa Place is yet to be undertaken, TCSA and design team are committed to ensuring that the new landscape elements convincingly engage with the Park Guell-inspired area that comprises the Staircase, flanking seating and palms. Further, the revised scheme provides for a link at the top of the Grand Staircase that desirably connects the public circulation with the Centenary Theatre plaza.

This proposal will result in a low visual impact on the current view. However, it is considered that this is an acceptable impact given that the proposal will result in the reactivation and prominence of the staircase.

5.2 Assessment of Significant Views – External

5.2.1 Photomontages

As outlined in **Section 4.3.2** three significant views to the zoo were identified. Photomontages have been prepared to assess the visual effect of the proposal on these views:

1. View from Athol Bay (refer to **Figure 26**)
2. View from Curraghbeena Point Lookout (refer to **Figure 27**)
3. View from Cremorne Point (refer to **Figure 28**)

As shown in the photomontages the proposed Giraffe House, lion back of house and Congo viewing shelter are partially visible when viewed from these locations. The visual effect of the proposed development is assessed below.

5.2.2 Visual Catchment

As documented in **Section 3.2**, the site has high visual exposure from parts of Sydney Harbour between Bradleys Head and the Harbour Bridge, particularly including Athol Bay and Little Sirius Cove. It is also visible from a number of harbour foreshore areas and associated headlands, including Cremorne Point and Curraghbeena Point on the northern side of the harbour, as well as to varying degrees from area on the southern side of the harbour, including Sydney Bennelong Point, Mrs Macquarie's Chair, Garden Island, Elizabeth Bay and Darling Point.

Whilst parts of the zoo generally are visible from the residential areas of Mosman around Bradleys Head Road, due to the nature of the topography and the location of the proposed new exhibits in the middle the zoo site, they are not able to be seen from these immediately adjacent residential areas.

The proposal will not result in any change to the visual catchment of the zoo.

5.2.3 Visual Sensitivity

The zoo is of high visual sensitivity, as it can be seen from numerous publicly accessible vantage points on and around the harbour, from locations that are used extensively by locals and tourists alike. Whilst prominent and used at a high level of frequency and intensity, the public use around Sydney Harbour and its foreshores occurs is temporary in nature. There are also no locations where the proposal can be seen from a close sensitivity range (e.g. within approximately 100m).

Due to local topography and its location on the harbour foreshore, limited visibility to the middle of the zoo site is available from private property and buildings. However, some eastern orientated multi-storey buildings at Cremorne Point and Curraghbeena Point have direct views onto the zoo, and some taller buildings in the CBD and eastern suburbs would be able to see the zoo in their northern aspect. There are therefore limited ways in which the proposal could have any tangible negative or significant effect on private views, such as view blocking.

5.2.4 Visual Character

The visual setting of the zoo is described in detail in **Section 3.2**.

The zoo is extensively vegetated and the visual character of the zoo as seen from Sydney Harbour and its associated foreshore areas on, is that it contributes to the natural bushland character of Bradleys Head, effectively extending the bushland character from Bradleys Head to Little Sirius Cove. There are no buildings or structures that protrude to any significant degree above the Bradleys Head ridgeline. The ridgeline therefore presents as a continuous tree canopy.



Location Key

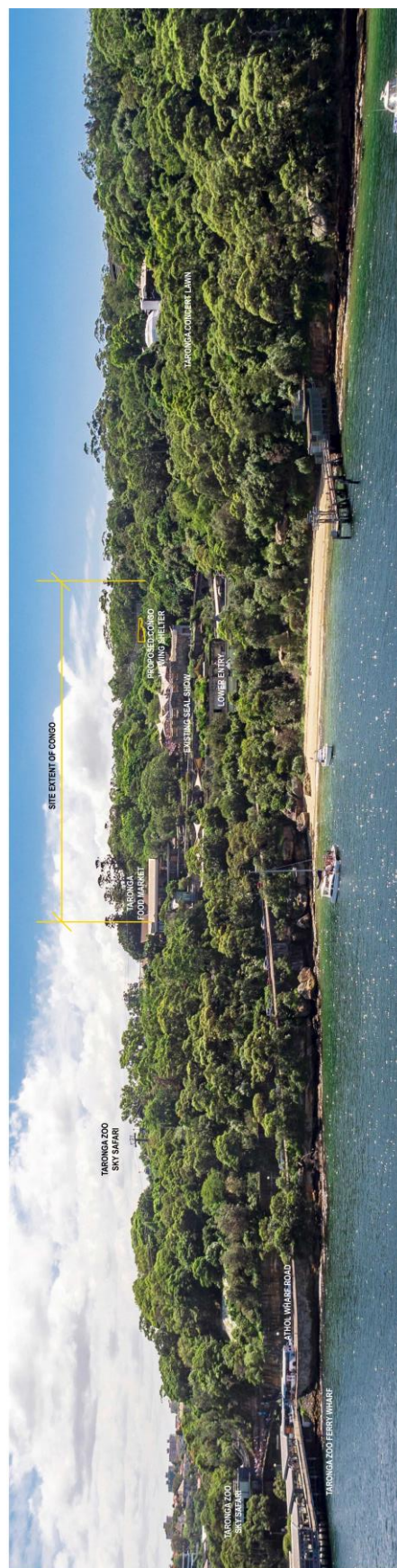


Figure 26 – Proposed view from Athol Bay to zoo
Source: TZG

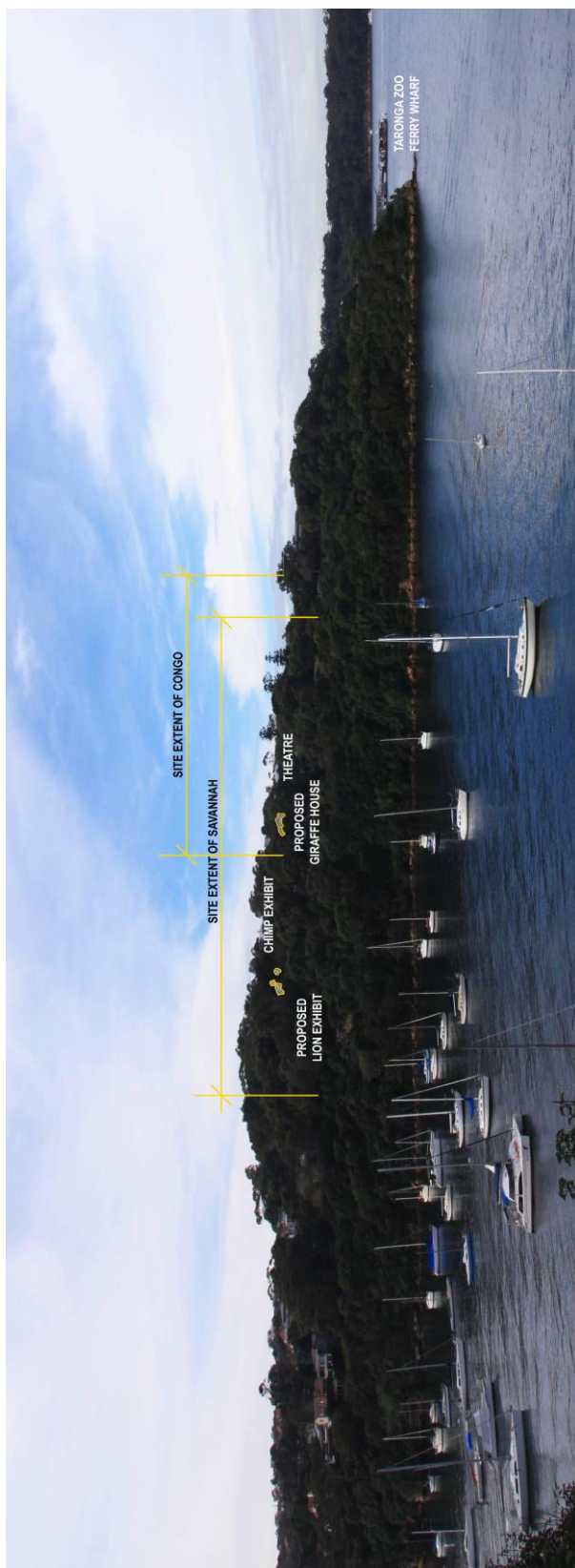


Figure 27 – Proposed view from Curraghbeena Point to zoo

Source: TZG

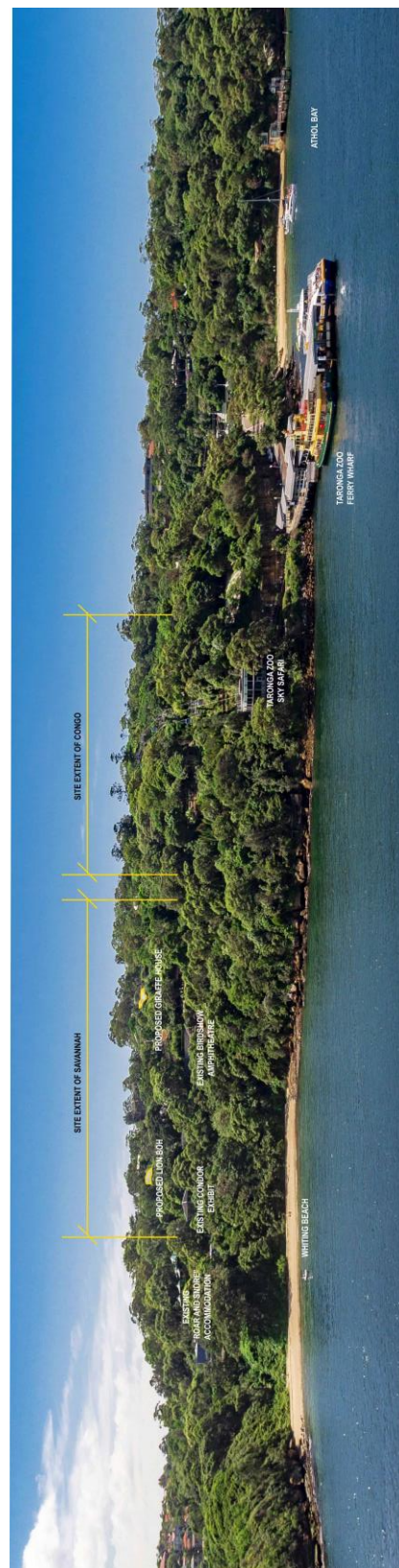


Figure 28 – Proposed view from Cremorne Point to zoo

Source: TZG

Views are commonly distant within the external visual catchment, and due to the distance across the harbour and extensive vegetation at the zoo and its surrounding areas, little detail of building and structures at the zoo is evident. From closer in views, existing buildings and structures are visible and discernible, including

- The Taronga Zoo Sky Safari;
- Bird Show Amphitheatre;
- Condor Exhibit;
- Seal Show;
- Taronga Food Market; and
- Taronga Concert Lawn.

These buildings and structures are framed by the Taronga Zoo Ferry Wharf at water level.

The potentially visible structures have been positioned to integrate with the existing landscape and to not protrude above the ridgeline of Bradleys Head. Notably, the bulk and scale of these new structures is generally consistent with, if not smaller than, the existing visible built form within the zoo when viewed from the harbour and surrounding vantage points. As such, the visual character of the site will not be significantly altered by the proposal.

Whilst, the proposal has been designed to minimise the loss of vegetation at the site and to replace removed trees, there will be a temporary effect on the visual character of the site as vegetation is removed for construction works, and prior to the establishment of replacement vegetation. As the proposed exhibit vegetation matures, the structures will be further obscured from view, and the effect on the visual character will be reduced.

5.2.5 Design Response

In response to the issues raised within agency submissions, a number of amendments have been made to the proposed development relating primarily to exhibit size, layout and built form elements to further mitigate potential impacts of these visible structures. The following design amendments have been made:

- The Giraffe House:
 - The Giraffe House footprint has been reduced by approximately 34% (approximately 238m²) (upper and lower ground areas combined).
 - The Giraffe House roof area has been reduced by approximately 49% (325m²) and lowered in height by approximately 2 metres to RL 62.755 AHD.
 - The roof materials have been chosen to complement the nature character of the zoo. Any portion of the roof that is visible post construction is expected to recede from the foreground and dominate views from the harbour.
- Lion Exhibit:
 - The lion back of house has been relocated which results in greater visibility of the structure from Curraghbeena Point and Sirius Cove. However, where visible natural materials or colour palette are proposed to assist the new structure blend in with its surroundings.
 - The viewing enclosure has been designed using lightweight transparent wire mesh as animal containment, which recedes into the existing bushland when viewed from the harbour and key vantage points.
- Congo Shelter:
 - The Proposed Shelter at the Congo Exhibit is visible from Athol Bay. The proposal includes a landscaped roof to assist the architectural forms to recede into the tree lined setting. Any impact from built form in this area will therefore be minimal. Considerations will be made to suitable planting that blends in with the existing landscape character. Any fences visible from the Harbour will recede due to a neutral colour and the semi-transparent nature of the perforated mesh to be installed at fencing.

- The proposal seeks to redevelop existing exhibits within the zoo site. As such, the proposed lighting will be reflective of existing light sources. The location and direction of exhibit lighting (including the use of exhibit lights at night for animal welfare purposes) will be designed to ensure the proposal does not result in a negative visual impact for surrounding properties and when viewed from the harbour.

5.2.6 Visual Effect

Whilst the proposed development will be visible from public places and private residences, it will not change the visual catchment of the site, and will not result in a significant change to the visual character of the site in the long term – once replacement vegetation has established. Short term visual effects will arise during the construction works when tree removal may result in a temporary reduction of the bushland visual character – however, this temporary effect will be localised, contained and minimised.

No views will be lost, impeded, obscured or obstructed – the zoo will remain as a highly visible site from Sydney Harbour and its associated foreshores and headlands, and will continue to contribute positively to the bushland character of the site and its surroundings.

With consideration of the above, the visual effects arising from the proposed development are considered to be low.

During construction of the proposed exhibits, there would be a temporary impact on the visual character of the zoo when viewed from Sydney Harbour and relevant vantage points, due to the undertaking of earthwork activities and the presence of construction equipment. This would introduce a short-term minor negative visual effect into the landscape.

5.3 Visual Impact Analysis

5.3.1 Significant views – Internal

Table 6 provides a summary of the proposal impacts on the 26 identified internal significant views to, from and within the proposed exhibit areas.

Table 6 – Summary of impact on significant views - internal

Impact	Number of Views
No impact	10 (38%)
View retained –no longer accessible	3 (12%)
Very minor impact	5 (19%)
Minor impact	4 (15%)
Moderate impact	3 (12%)
High impact	1 (4%)
Total	26

Cumulatively, the proposal will result in a minor visual impact on internal views to, from and within the proposed exhibit areas. It is considered that the identified impacts are acceptable in that:

- The proposal seeks to balance the protection of views with key project objectives being:
 - Maintain a high standard of animal welfare and care;
 - Provide an enhanced visitor experience;
 - Ensure DDA compliant site access for all throughout new exhibit areas;
 - Protect items of heritage and cultural significance;
 - Capitalise on existing topography, vegetation landscape features within the proposal; and
 - Address operational and attendance issues to ensure ongoing viability of the zoo.

- The integration of iconic views with animal exhibits is a major attraction of the zoo, and has been retained as a key design principle;
- The proposal is consistent with the objectives and guidelines of the UDAS Guidelines in that:
 - The proposal aims to protect views to the harbour from the zoo and retain the important cultural views of animals, specifically the giraffes, with the unique harbour and city backdrops;
 - No works are proposed within the key view corridors and sensitive areas (refer to **Figure 15**), with views being protected across these gullies from Cliff Village above Tahr Mountain;
 - The proposal minimises built form intrusions within significant views providing low vegetation and low built form elements such as fencing;
 - The proposal will maintain views at key public open spaces, and contribute to the creation of new viewing opportunities at the proposed lion viewing and keeper talk area; and
 - Development will be staged to manage the impact on the visual appearance of the zoo.

It is therefore concluded that the cumulative visual impact of the proposal in relation to internal views to, from and within the proposed exhibit areas is acceptable.

5.3.2 Significant views – External

As outlined in **Section 5.2** the proposal will result in the addition of minor built form elements to the existing landscape, resulting in a low visual effect on views to the zoo from Sydney Harbour and key vantage points. However, the overall significance of a visual impact does not automatically derive from the level of visual effect. The significance of visual impact can also be influenced by consideration of physical absorption capacity of the landscape and the compatibility of the proposal with existing urban and natural features.

The physical absorption capacity is the extent to which the existing visual environment can reduce or eliminate the perception of the visibility of a proposal. It is impacted by factors such as prominence in the landscape, the ability of existing elements such as buildings to screen a proposal or the scale, character and design of a proposal enabling it to blend with or reduce contrast to other features. The higher the physical absorption capacity of the site and its surrounding, the lower the visual impact of the proposed visual effect. Compatibility means that the proposal will not unacceptably change the intrinsic scenic character of the locality – in this case the scenic character is defined by the urban and natural features at the site and its surroundings.

Due to views towards the site either being distant or obscured by on-site vegetation, the detail of the proposal is not likely to be significantly noticeable and would not be prominent or dominant aspect of the landscape. On this basis, for most medium or longer distance views from Sydney Harbour and its southern foreshore areas the environment has a high physical absorption capacity and the proposal would have a high degree of compatibility with the existing urban and natural features.

For views from residential areas around Cremorne Point, the proposal may result in more obvious temporary changes during construction as well as permanent visual changes to their easterly views. These views are therefore more sensitive to matters such as the siting, scale and design of proposed development.

The proposed exhibits have been designed to integrate with the existing zoo landscape, being of a scale and bulk that is consistent with surrounding built form and located so not to protrude above the ridgeline. The proposal maintains the visual connection between Taronga Zoo and Sydney Harbour without becoming overly dominant. The structures have been designed to a scale that with integrate with the existing natural landscape. Additionally, natural landform features have been used in the design of the exhibits.

Materials have been selected for new buildings and structures that are non-reflective and neutral in terms of their colour schemes, minimising the visual impact of the buildings from off-site viewers. Where possible, materials will be natural products (e.g. timber) that complement the adjacent bushland, or are of a semi-transparent nature further minimising the visual impact of buildings and structures.

Night time lighting will be similar in form and function to existing light sources. The location and direction of exhibit lighting (including the use of exhibit lights at night for animal welfare purposes) will be designed to ensure the

proposal does not result in a negative visual impact for surrounding properties and when viewed from the harbour and its foreshore areas.

In relation to external views towards the zoo, it is considered that the proposal remains consistent with the objectives and guidelines of the UDAS Guidelines, SREP 2005 and Sydney Harbour Foreshores and Waterways Area DCP 2005 in that it:

- The proposal seeks to protect views to the zoo from the harbour, integrating built form within the landscape and includes substantial landscaping to minimise visual intrusions on and contribute to the “well vegetated view”;
- The proposed built form is consistent with the locality and existing built form within the zoo complementing the scenic character of the area;
- The proposed built form does not protrude above the existing tree canopy or prominent ridgelines of Bradleys Head and the zoo; and
- The proposal seeks to reduce the cumulative impact of built form on views to the zoo.

It is therefore concluded, that the proposal will have an acceptable cumulative visual impact when viewed from Sydney Harbour and key surrounding vantage points.

6.0 Conclusion and Recommendations

6.1 Conclusion

The proposed African Savannah and Congo Forest Exhibits will provide new modern exhibits which meet best practice in animal welfare, access and circulation and visitor experience, contributing to Taronga Zoo's world class reputation in animal care, education and the immersion of people with wildlife. The proposal aims to achieve the key project objectives whilst balancing the need to maintain and protect significant views.

The proposed exhibits built form and landscaping has been designed to maintain significant views to, from and within Taronga including the iconic view to the Harbour and CBD over the giraffe enclosure, whilst also seeking opportunities for new viewing locations and experiences, such as views to the Harbour from Cliff Village and the lion viewing and keeper talk area. Substantial design modifications undertaken as part of the RtS stage has further contributed to reducing the proposal's impact on significant views to, from and within the zoo.

On this basis, and having regard to the conclusions of **Section 5.3**, the overall visual impact of the proposal is minor and acceptable. Due to this, should development consent be granted, it is not recommended that extensive conditions be imposed to mitigate visual impact.

6.2 Recommendations

A number of recommendations have been made to further mitigate the proposals impact on significant views to, from and within the zoo.

Table 7 – Visual impact safeguards and management measures

Impact	Environmental Safeguard	Responsibility	Timing
Management of the construction works to minimise their visual impacts internally and externally to the zoo	<ul style="list-style-type: none"> Consider non-reflective materials and equipment Consider screening methods to reduce the visual impact of the work site 	Taronga Zoo/ Construction contractor	Pre-construction/ Construction
Design exhibits to prevent intrusive built form	<ul style="list-style-type: none"> Consider non-reflective materials New trees to be planted from tube stock and managed to ensure they grow as quickly as possible. Consider planting semi-mature trees where appropriate 	Taronga Zoo	Detailed design/ pre-construction
Design exhibits to integrate with surroundings	<ul style="list-style-type: none"> Consider natural materials and colour palette Consider non-reflective materials Consider integrating signage into proposed built form 	Taronga Zoo	Detailed design/ pre-construction
Light spill impacts during construction across the proposal footprint	<ul style="list-style-type: none"> Screen, shield and cut-off all temporary site lighting to prevent light spill where possible Use directional light sources where possible to reduce lateral light spill Use low luminescence lighting lights where feasible to reduce the lateral light spill Shield the top of all site lighting to prevent any upward light glare 	Construction contractor	Construction
Operational light spill impacts on adjacent properties	<ul style="list-style-type: none"> Follow the lighting design specification that aims to ensure any the height and direction of any lighting pole would not introduce sky glow or impacts on neighbouring residential properties or road users of the Great Western Highway Use directional lighting fixtures with cut-offs and filters as required 	Construction contractor/ Taronga Zoo	Detailed design/ Pre-construction

Appendix A. Location Plan of Significant Views - Internal