

PO Box 34 FORSTER NSW 2428

Level 1 Building Q – Head Street Car Park
Head Street Forster 2428

Phone (02) 6555 5522

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Taronga Conservation Society Australia
Taronga Zoo
Bradleys Head Road
Mosman NSW 2088

Attention: Kristine Marshall
Senior Project Manager

Our Ref: 20115

Email: kmarshall@zoo.nsw.gov.au

Dear Kristine,

Upper Australia Habitat Redevelopment Submission in relation to modification of SSDA Conditions (Bushfire)

I refer to our discussions in relation to the above matter.

This submission has been prepared to support a request to modify a range of SSDA conditions relating to bushfire protection matters. The conditions proposed to be modified are:

- Conditions B16 and B17 under the sub-heading 'Fire Safety' in the SSDA conditions;
- Condition D3 under the sub-heading 'Emergency Management Plan' in the SSDA conditions; and
- Conditions D22 and D23 under the sub-heading 'Tree Planting and Landscape Works' in the SSDA conditions.

The table at the Annexure to this letter sets out the proposed changes to the above conditions.

By way of context, we prepared a Bushfire Assessment Report for the proposed redevelopment of the Upper Australia exhibit at Taronga Zoo in June 2020. Importantly, the June 2020 Bushfire Assessment Report noted that:

- *The intent for the redevelopment of the Upper Australia exhibit is to update the existing exhibit and to create a new exhibit that reflects the Australian bushland environment by recreating habitat elements of the animals that will be housed in the exhibit.*
- *Planting of the area as required, and retention of as many existing trees as possible, is proposed to create this environment.*
- *The types of building materials proposed for use will be variable and will include materials that are typical of the character sought to be achieved by the exhibit. With respect to bushfire matters, this will include timber boardwalks and a tree house.*

- *In relation to bushfire and/or emergency evacuation issues:*
 - *The Taronga Zoo site is subject to a range of emergency management procedures. The existing emergency management procedures for the Zoo, which also include a range of potential events unrelated to bushfire, include measures for the evacuation and relocation of patrons within the Zoo generally, and these include those patrons visiting any of the exhibits.*
 - *The Upper Australia exhibit is one of several exhibits within the Zoo and is only accessible by the public during the hours that the Zoo is open to the public. In circumstances where it is deemed unsafe to open the Zoo to the public for whatever reason, then the exhibit will be inaccessible. In the event of a bushfire impacting on the Zoo, emergency procedures will apply to ensure the safety of any patrons present in the Upper Australia exhibit, and patrons present within the overall Zoo site.*
 - *If evacuation of patrons was necessary during the times that the Zoo was open to the public, because of bushfire or any other relevant trigger, then the existing emergency management procedures establish how and where those patrons would be evacuated to. If a bushfire event occurred outside opening hours, then the Zoo would remain closed to the public meaning that access would not be available to the Zoo grounds and/or exhibits be prevented for the duration of the emergency event.*
 - *Where appropriate, the procedures should be updated at the relevant time to consider the redeveloped Upper Australia exhibit so that the proposal is integrated into the emergency and evacuation procedures for the overall site.*

The Bushfire Assessment Report included recommendations (in Section 8) following consideration of the proposal in relation to the objectives of *Planning for Bush Fire Protection 2019*. Those recommendations reflected the outcomes of the assessment and considered the above comments from the Bushfire Assessment Report.

Recommendation A of the Bushfire Assessment Report was imposed as Condition B15 of the SSDA conditions. There is no proposal to change that condition.

Recommendation B of the Bushfire Assessment Report was formulated in terms of the Upper Australia exhibit being one (relatively small) exhibit within the much larger Zoo complex and was intended to ensure that the redeveloped exhibit could be integrated into the emergency and evacuation procedures for the overall site. Instead, the wording of SSDA condition D3 appears to contemplate full revision of the emergency management procedures for the entire Zoo complex. It is proposed to change that condition.

I confirm that I spoke with Rohini Belapurkar of the RFS on 15 March 2021 about the proposed changes to the above SSDA conditions. The purpose of the discussion was to request an on-site meeting with the RFS to discuss issues with those existing SSDA conditions imposed by the RFS and to discuss proposed changes to those conditions (now set out in this submission).

I explained that my instructions were that DPIE had requested that a meeting be arranged with the RFS to discuss the changes. Ms Belapurkar referred to past assessments for projects within the Zoo and I explained that this was a relatively small exhibit within the overall complex (and subject to overarching management/emergency management procedures). This was an issue that I had previously alluded to when Ms Belapurkar called me prior to the consent conditions being issued.

There was no agreement reached for any on-site meeting from the RFS' point of view during my discussions with Ms Belapurkar. Towards the end of our discussions, Ms Belapurkar advised me that she would need to check with her team leader as to whether they (the RFS) would be able to meet.

Conclusion

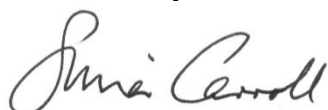
It is considered that the proposed changes to the conditions, as set out in the table at the Annexure to this letter are consistent with the outcomes of our Bushfire Assessment Report as well as the main issues raised by the NSW Rural Fire Service (RFS).

The changes to the conditions do not alter the main objectives of the RFS in terms of their conditions imposed via the SSDA, they simply rationalise the various requirements in terms of the relationship of the redevelopment of the Upper Australia exhibit and the overall Zoo complex at Taronga Zoo.

In other words, the Upper Australia exhibit is one exhibit within the much larger Zoo complex, and the requested changes to the conditions recognise that fact.

If there is to be any meeting with the RFS in relation to the changes to the SSDA conditions outlined in this submission, my view is that such meeting should be held on-site.

Yours faithfully,



SIMON CARROLL

***Graduate Diploma in Design for Bushfire Prone Areas
Graduate Diploma in Building Fire Safety & Risk Engineering
Bushfire Planning and Design Accredited Practitioner Level 3 – NSW
Accreditation Number BPAD9326***

ANNEXURE

Existing Condition		Response
	FIRE SAFETY	
B16	<p><i>The design and construction of the buildings and landscaping must be consistent with the recommendations detailed in the Bushfire Assessment, prepared by Australian Bushfire Assessment Consultants, dated June 2020. Details confirming compliance with this condition must be submitted to the Certifier prior to the commencement of works.</i></p>	<p>It is proposed that this condition be deleted. Condition B16 appears to be unnecessary.</p> <p>The design and construction aspect are dealt with via existing Condition B15, which is the same as Recommendation A of the Bushfire Assessment Report.</p> <p>There are no recommendations in the Bushfire Assessment Report with respect to landscaping.</p>
B17	<p><i>The provision of water, electricity and gas must comply the following in accordance with Table 5.3c of Planning for Bush Fire Protection 2019:</i></p> <ul style="list-style-type: none"> • <i>reticulated water is to be provided to the development where available;</i> • <i>fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS2419.1:2005;</i> • <i>hydrants are not located within any road carriageway;</i> • <i>all above-ground water service pipes are metal, including and up to any taps;</i> • <i>where practicable, electrical transmission lines are underground;</i> • <i>where overhead, electrical transmission lines are proposed as follows:</i> • <i>lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas;</i> • <i>no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines.</i> 	<p>It is proposed that this condition be deleted as the proposed redevelopment of the existing exhibit would utilise existing water and electricity infrastructure.</p> <p>Several aspects of Condition B17, as worded, are not relevant to the proposal.</p>

Existing Condition	Response
<p>EMERGENCY MANAGEMENT PLAN</p>	
<p>D3</p> <p><i>The Taronga Zoo Emergency Response Plan shall be updated to incorporate the development as per the recommendations of the Bushfire Assessment Report prepared by Australian Bushfire Assessment Consultants, dated June 2020 and shall include, but not be limited to, the following matters in respect to Bushfire Emergencies:</i></p> <ul style="list-style-type: none"> a) <i>identify the trigger points for implementing the emergency evacuation/relocation of occupants and clearly state what these triggers are;</i> b) <i>provide for specific evacuation measures as per the Building Code of Australia;</i> c) <i>compliance with AS 3745 2010 Planning for Emergencies in Facilities;</i> d) <i>reassessment of the bushfire risk rating considering the Mosman North Sydney Willoughby Bushfire Management Committee Bushfire Risk Management Plan 2017-2022 assesses the likelihood of a bushfire as Likely and the consequence Catastrophic;</i> e) <i>foreseeable on-site and off-site fire events and other emergency incidents or potential hazmat incidents;</i> f) <i>appropriate risk control measures that would need to be implemented to safely mitigate potential risks to the health and safety of firefighters and other first responders. Such measures will include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures to be instigated and minimum evacuation zone distances;</i> g) <i>Emphasis that evacuation routes are to be into the zoo site toward the west (away from the bushfire hazard outside the</i> 	<p>With respect to this condition, the most important aspect is that persons are <u>initially</u> evacuated away from the bushfire hazard outside the eastern boundary of the site.</p> <p>The relevant recommendation of the Bushfire Assessment was that the evacuation routes be into the Zoo site towards the west, obviously because this is the opposite direction to the east. There is no apparent issue with eventual evacuation to the overflow carpark to the north, especially if this would facilitate the ability for persons to safely leave the site altogether.</p> <p>Most of the wording of existing Condition D3 appears unnecessary in relation to the specific development being considered (redevelopment of an existing Zoo exhibit) and may unnecessarily complicate the existing emergency response procedures for the Zoo.</p> <p>It is proposed that the entire <u>condition D3 be replaced with:</u></p> <p><i>The Taronga Zoo Emergency Response Plan shall be updated to incorporate the development. The update to the plan should include provisions so that evacuation routes from the Upper Australia Precinct are to be away from the bushfire hazard outside the eastern boundary of the site.</i></p> <p><i>Two copies of the updated Emergency Response Plan must be stored in a prominent ‘Emergency Information Cabinet’ located in a position directly adjacent to the site’s main entry point/s.</i></p> <p>An amended Condition D3 such as this would remain consistent with the relevant Bushfire Assessment recommendation.</p>

Existing Condition		Response
	<p>eastern boundary of the site) and not to the overflow carpark to the north;</p> <p>h) Consideration should be given to planned closure of the zoo based on specific triggers such as extreme and/or catastrophic fire danger rating forecasts;</p> <p>i) other risk control measures that may need to be implemented in a fire emergency (due to any unique hazards specific to the site).</p> <p>The bushfire specific elements of the updated Emergency Response Plan shall be prepared by a suitably qualified bushfire consultant and demonstrate compliance with the above requirements. The updated plan shall be submitted to RFS, FRNSW, The Planning Secretary, the Certifier and the Local Emergency Management Committee prior to the commencement of the use.</p> <p>Two copies of the Emergency Response Plan must be stored in a prominent 'Emergency Information Cabinet' located in a position directly adjacent to the site's main entry point/s.</p>	
TREE PLANTING AND LANDSCAPE WORKS		
D22	<p>The Zoo's Vegetation Management Plan is to be updated to include the approved development and associated landscaping, including a proposed schedule of maintenance to ensure the provisions of fire and asset protection management zones as an Outer Protection Area (OPA) in accordance with Appendix 4 of Planning for Bushfire Protection 2019. When establishing and maintaining an OPA the following requirements apply:</p> <p>a) tree canopy cover should be less than 30%;</p> <p>b) canopies should be separated by 2-5 metres;</p> <p>c) shrubs should not form a continuous canopy;</p> <p>d) shrubs should form no more than 20% of ground cover;</p>	<p>The current requirements of Condition D22 as worded are not achievable and will impact on animal welfare within the Upper Australia Precinct. It is proposed that the entire <u>condition D22</u> be replaced with:</p> <p>The Zoo's Vegetation Management Plan is to be updated to include the plan required by Condition D23.</p> <p>A copy of the updated plan shall be submitted to RFS, FRNSW and the Planning Secretary.</p>

Existing Condition	Response
<p>e) grass should be cover mown to a height of less than 100mm; and</p> <p>f) leaf and other debris should be removed.</p> <p>A copy of the updated plan demonstrating compliance with the above requirements shall be submitted to RFS, FRNSW and the Planning Secretary.</p>	
<p>D23</p> <p>The landscaping and revegetation within the proposed exhibit should incorporate the principles of Appendix 4 of Planning for Bushfire Protection 2019, including:</p> <p>(a) A species list of all plantings including estimated size at maturity and a preference for species with low flammability;</p> <p>(b) a maintenance regime that provides for ongoing adequate canopy separation between trees i.e thinning and regular pruning to avoid adjoining canopies, and provides for ongoing pruning of lower limbs of trees;</p> <p>(c) adequate spacing between plantings to avoid continuous vegetation pathways resulting in the creation of fire paths toward vulnerable buildings;</p> <p>(d) regular removal of fine fuels to maintain a fuel reduced landscape;</p> <p>(e) suitable impervious areas are provided immediately surrounding the building such as pathways;</p> <p>(f) grassed areas, mowed lawns or ground cover plantings are provided in close proximity to the building;</p> <p>(g) species are avoided that have rough fibrous bark, or which keep flash shed bark in long strips or retain dead material in their canopies;</p> <p>(h) smooth barks species of trees are chosen which generally do not carry fire up the bark into the crown; and</p>	<p>The current requirements are not achievable on site and will impact on animal welfare within the Upper Australia Precinct.</p> <p>It is proposed that the entire <u>condition D23</u> be replaced with:</p> <p>A plan for landscaping and revegetation within the proposed exhibit should be prepared in consultation with an accredited bushfire consultant and should address (in order of priority):</p> <p>a) compatibility with animal welfare, creation of habitat within the exhibit and containment requirements; and</p> <p>b) Taronga Zoo's own horticulture and public safety requirements.</p> <p>The plan required by the Condition is to form part of the updated Vegetation Management Plan as per Condition D22.</p>

Existing Condition	Response
<p><i>(i) planting of deciduous species are avoided which may increase fuel at surface/ground level.</i></p> <p><i>A copy of the updated plan demonstrating compliance with the above requirements shall be submitted to RFS, FRNSW and the Planning Secretary.</i></p>	