Proposed Extension to the Fire Management Zone – Catalina Milne Bay. Environmental Impact Assessment

By Ecological Consultants Australia Pty Ltd

For RSL LifeCare PTY LTD.

April 2016

About this document

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Statement of Authorship

This study and report was undertaken by Ecological Consultants Australia for the Client. The author of the report is Mia Dalby-Ball Hons 1, majoring in Ecology and over 20 years' experience in ecological assessment and management.

Limitations Statement

Information presented in this report is based on an objective study undertaken in response to the brief provided by the client. Any opinions expressed in this report are the professional, objective opinions of the authors and are not intended to advocate any particular proposal or pre-determined position.

Data from mapping lot boundaries and fire management zone line have been relied upon as accurate.

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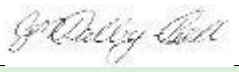
Signed:	
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Signed: Mia Dalby-Ball – Director of Ecological Consultants Australia 

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1 Executive Summary

- A balcony extension is proposed. This will take the building 3m closer to the bushland 'hazard'. As such the APZ needs to extend 3m into the bushland in line with the balcony extension. The area of impact is ~3m x 20m = 60m^2 maximum.
- No trees require removal or pruning.
- The area is within an already managed APZ (inner and outer) that is described in the BMP for this area.
- The 3m extension will see little change to the on-ground works in this area. Much of it is within She-Oaks and ground fuels and shrubs are suppressed by needles. Other parts are wet sclerophyll with cabbage tree palms.
- Regular Bush Regeneration works are already occurring in the APZ and neighbouring bushland. Works are monitored by an ecologist and aim to maximise diversity and sustainability of bushland while fulfilling APZ requirements.
- Native plant cover and weed removal targets are set out in the Biodiversity Management Plan for this area (Dalby-Ball 2014) and can be achieved within the proposed expanded APZ.
- Threatened species habitat is not being removed.

2 Introduction

PURPOSE OF THIS REPORT

To provide advice regarding the proposal to increase the Asset Protection Zone (APZ) within bushland. This advice is to accompany a S96 mod and associated RFS referral. The general location is shown in Figure 1.

Figure 1: Aerial showing general site overview and vicinity of proposed works – yellow ring.

Image Source: Six maps Sourced Dec 2015.

The area is already covered by a BMP which outlines methods for the monitoring of progress towards stated rehabilitation targets.

2.1 The site

The study area is the Catalina and Milne Bay precinct of the RSL Anzac Village (The Village), located on Veterans Parade, Narrabeen, in the Warringah Local Government Area. The balcony is on the northern side adjoining the bushland. More information on the site and its environments are contained within Dalby-Ball and McDougall (2014). The baseline study divided the Catalina Bushland into six management zones, which will be used through this and all future monitoring. The management zones are outlined in Figure 2. The proposed APZ extension is between red and green shaded areas.

Figure 2 – management zones within the Catalina Bushland.

Field Inspections

Field inspections were made in April 2016 and measurements made from the outer edge of proposed balcony into the bushland zone to measure the 25m and up to 36m for secondary protection zone. The proposed APZ extension extends into existing vegetation 3m further than the existing APZ for a length of 15m.

2.2 FINDINGS - Environmental Assets and Considerations

The Bushland in this area is described in detail in other reports (see original Bushland management plan and subsequent reports by Dalby-Ball *et al* for 6 monthly monitoring). Also environmental attributes of this area in general in Dalby-Ball et al 2013 related the development application at Catalina and Milne Bay. It adjoins land that was burnt in 2015 and is regenerating. Plate 1 shows the burn.

The summary of the environmental values are:

2.2.1 Vegetation

The remnant here (in the proposed APZ) has floristics more common to Angophora Woodland with Forest-Oak understorey. A recent broad area burn has resulted in the ground / shrub layer being removed in the APZ.

2.2.2 Fauna

Fauna in this area is described in (Dalby-Ball 2013 Waterway Impact Statement Catalina and Milne Bay). Key listed species are Owls, Gliders, Microbats and Glossy Black Cockatoo. The bushland also has values for other, non-listed, species as discussed in previous reports.

Impacts: reduction in shrub cover and disconnecting of the canopy will open and dry out the ground area. Low growing native plants should be encouraged in these areas

to maintain diversity and asset protection requirements. No hollows will be removed. No 7-part test were required as the area 10 x 3m will not remove habitat for listed species.

2.2.2.1 Background Reports

Reports on the ecology of the wider area (background to the Dardanelles Development) were read as was the Bushland Works Manual, including a list of relevant ecological management reports that were used to create the Bushland Management Plan for the site (GIS Environmental Consulting). Dragonfly Environmental has been undertaking 6 monthly monitoring at the site with comprehensive flora surveys and observations of fauna for the past 4 years. This data was also taken into account.

Other Relevant Reports

- Flora and Fauna Impact Assessment (Dragonfly Environmental June 2013)
- Ecology Reports by GIS Consulting written for the adjoining Dardanelles development
- Monitoring Reports Dardanelles Dragonfly Environment (2009-2013)
- Atlas / Bionet Data base
- Warringah Council website and Plans of Management for nearby Reserves.
- Narrabeen Lagoon Fauna Surveys – Warringah Council

Background data was read and plans examined. Earlier studies have done comprehensive flora and fauna assessments of surrounding bushland. These were used as background information, as were records from NPWS Atlas Data base.

2.2.2.2 Field-work

The site was assessed in April 2016 (and the area is known to the ecologists so information has been drawn upon from other visits covering all seasons). The authors of the Report are familiar with the site and surrounding bushland. All areas of proposed APZ were assessed. A general assessment was done of the surrounding areas. Field work was focused in the APZ extension areas and surrounding bushland.

Methods included: Location tracks, scats, hollows and other traces of fauna and fauna habitat – in particular tree hollows. Field work was brief for this particular project however Mia knows this site very well having monitored it for over 5 years.

2.3 Ecological Values – planning and zonings

2.3.1.1 Warringah Councils identification and zoning of ecological values for this part of the site include the following:

- E2 Prescribed Vegetation
- E4 Wildlife Corridors
- E5 Native Vegetation
- E6 Retaining Unique Environmental Features

Following are the zonings and how they relate to the site and proposed development.

2.3.1.2 E2 Prescribed Vegetation

Applies to Land

This control applies to all land shown on the Warringah Local Environmental Plan 2011 – Land Application Map other than land that is shown as 'Deferred matter'.

Objectives

• To preserve and enhance the area's amenity, whilst protecting human life and property.

• To improve air quality, prevent soil erosion, assist in improving water quality, carbon sequestration, storm water retention, energy conservation and noise reduction.

• To provide habitat for local wildlife, generate shade for residents and provide psychological & social benefits.

• To protect and promote the recovery of threatened species, populations and endangered ecological communities.

• To protect and enhance the habitat of plants, animals and vegetation communities with high conservation significance.

• To retain and enhance native vegetation communities and the ecological functions of wildlife corridors.

• To reconstruct habitat in non-vegetated areas of wildlife corridors that will sustain the ecological functions of a wildlife corridor and that, as far as possible, represents the combination of plant species and vegetation structure of the original 1750 community.

• Promote the retention of native vegetation in parcels of a size, condition and configuration which will as far as possible enable plant and animal communities to survive in the long-term.

Requirements

1. The following is prescribed for the purposes of clause 5.9(2) of the WLEP: All native vegetation identified on: a) DCP Map Threatened and High Conservation Habitat b) DCP Map Wildlife Corridors c) DCP Map Native Vegetation

d) known or potential habitat for threatened species, populations or ecological communities as listed under the NSW *Threatened Species Conservation Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

2. Development is to be situated and designed to minimise the impact on prescribed vegetation, including remnant canopy trees, understorey vegetation, and ground cover species.

Comment from this Assessment:

While the balcony extension is within the existing development zone (situated to minimise impact) the location of the APZ is set by the outer most structure and hence pushes the required APZ 3m further into the bushland downslope in the area immediately in front of the proposed balcony.
Currently the APZs are:

- *A minimum 32 metre APZ shall be provided to the north and northwest;*
- *A minimum 25metre APZ shall be provided to the south east, and*
  Are being managed as outlined within Appendices 2 & 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.

Recommendations for management to reduce impacts are provided in this report.

2.3.1.3 E4 Wildlife Corridors

Applies to Land

This control applies to land identified on DCP Map Wildlife Corridors.

Objectives

• To preserve and enhance the area's amenity, whilst protecting human life and property.

• To improve air quality, prevent soil erosion, assist in improving water quality, carbon sequestration, storm water retention, energy conservation and noise reduction.

• To provide natural habitat for local wildlife, maintain natural shade profiles and provide psychological & social benefits.

• To retain and enhance native vegetation and the ecological functions of wildlife corridors.

• To reconstruct habitat in non-vegetated areas of wildlife corridors that will sustain the ecological function of a wildlife corridor and that, as far as possible, represents the combination of plant species and vegetation structure of the original 1750 community. See *Warringah Natural Area Survey, August 2005*.

Requirements

1. For modification of native vegetation where the area of land supporting the vegetation to be modified is greater than 50m^2 or the land supporting the vegetation to be modified forms part of an allotment where vegetation has been modified in the last five years:

i. The applicant must demonstrate that the objectives have been achieved through a Flora and Fauna Assessment prepared in accordance with Council guidelines; and

ii. The applicant must demonstrate that the objectives have been achieved through a Biodiversity Management Plan prepared in accordance with Council guidelines that will protect, manage and enhance wildlife corridors, and where appropriate reconstruct wildlife corridor areas on the subject property.

2. For modification of native vegetation in all other cases, the applicant must demonstrate that the objectives have been achieved.

Comment from Assessment: The proposed APZ extension is within the blue mapped areas – that is they are identified as part of the Priority 2 corridor. It is noted also that since the 2005 mapping clearing associate with approved development of Dardanelles has occurred with this corridor and resulted in vegetation removal so the corridor is no longer the patch of continuous vegetation that is shown on the mapping. The proposed APZ expansion further reduces the quality of the patch as habitat and corridor value.

No additional tree removals are required and the canopy separation that will occur is due to he existing development and is not altered by the 3m balcony extension.

Mitigation

While there is no replacement to equal original bushland in its natural condition some measures can be taken to put-back habitat features that will be lost / reduced as a result of the proposed APZ works.

These are already in place for this area. In addition the area is undergoing bush regeneration which is improving the condition of the bushland.

Local Corridors are where the greatest impact could occur. For example the APZ extension in the vegetation to the south east will reduce the width of this patch. Animals currently using this area include Swamp Wallabies and a diversity of small birds. Increasing habitat of these species in other areas of the site – include on public land above the riparian zone could assist with mitigating the overall reduction of habitat area. The 3m extension in the one area will have a low level impact requiring the thinning of ground shrubs and disconnecting vines that link ground and canopy.

Shrub management in this area must ensure the soil remains covered. Soil here is dispersive and prone to erosion when exposed. Any edges with bare soil must be either planted out with non-invasive native vegetation or an adequate alternative cover put in place.

Mitigation

While there is no replacement to equal original bushland in its natural condition some measures can be taken to put-back habitat features that will be lost / reduced as a result of the proposed APZ works. These have been discussed elsewhere in the report and cover

- Retention – careful selection of branches to be removed and species selection to ensure long-term Forest Oaks abundance in the area and hollow bearing trees. Plus mix of species to ensure year-long food resources (flowering).
- Replacement - installation and monitoring of nest boxes, tree planting outside the APZ and Bush regeneration within and outside the APZ.

Local Corridors the APZ extension in the vegetation will reduce the quality of this patch. Animals currently using this area include Swamp Wallabies and a diversity of small birds. Increasing habitat of these species in other areas of the site – include on public land above the riparian zone could assist with mitigating the overall reduction of habitat area.
Existing diversity of ground covers and herbaceous species can remain and be encouraged

E5 Native Vegetation
Applies to Land

This control applies to land identified on DCP Map Native Vegetation.

Objectives

• To preserve and enhance the area's amenity, whilst protecting human life and property.

• To improve air quality, prevent soil erosion, assist in improving water quality, carbon sequestration, storm water retention, energy conservation and noise reduction.

• To provide natural habitat for local wildlife, maintain natural shade profiles and provide psychological & social benefits.

• Promote the retention of native vegetation in parcels of a size, condition and configuration which will as far as possible enable plant and animal communities to survive in the long term.

Requirements

1. For modification of native vegetation where the area of land supporting the vegetation to be modified is more than 100m^2 or the land supporting the vegetation to be modified forms part of an allotment where vegetation has been modified in the last five years:

i. The applicant must demonstrate that the objectives have been achieved through a Flora and Fauna Assessment prepared in accordance with Council guidelines; and

ii. The applicant must demonstrate that the objectives have been achieved through a Biodiversity Management Plan prepared in accordance with Council guidelines that will protect native vegetation on the subject property.

2. For modification of native vegetation in all other cases, the applicant must demonstrate that the objectives have been achieved.

2.3.1.4 Comment from Assessment:

The objectives have been achieved in that Objective 1 *"To preserve and enhance the area's amenity, whilst protecting human life and property."* The APZ requirements are proposed to be managed to maintain biodiversity as far as practical while achieving the APZ requirements which aim to protect human life and property. Bush regeneration is recommended with the aim of meeting the other objectives of E5. The area to be modified due to the balcony extension is ~30m^2. There is no requirement for tree removals.

3 Flora

This zone consists primarily of Angophora Woodland upslope of the creek, mostly separated from it by a steep drop.

Significant clearing of lantana has occurred in parts of the north and west of this Zone, which appears to have had a positive effect on the vegetation communities. While a full strata of native vegetation has not yet had time to develop seedlings of native species of a range of habits, including grasses, trees, shrubs and vines, are emerging in the cleared areas, which over time will allow structurally complex native vegetation to reclaim the area.

Table 1 Typical plants in the vicinity of the proposed APZ extension

Native species name	Common Names
Trees	
Allocasuarina torsula	Forest She-Oak
Angophora costata	Sydney Red Gum
Euroschinus falcata	Ribbonwood
Glochidion ferdinandi	Cheese Tree
Homalanthus populifolius	Bleeding Heart
Shrubs	
Macrozamia communis	Burrawang
Trema tomentosa var. viridis	Poison Peach
Groundcovers	
Commelina cyanea	Commelina
Dichondra repens	Kidney Weed
Entolasia stricta	Wiry Panic Grass
Microlaena stipoides	Weeping Grass
Oplismenus aemulus	Basket Grass
Pseuderanthemum variabile	
Schelhammera undulata	Lilac Lilly
Veronica plebeia	
Vines	
Cayratia clematideaf	Native Grape
Eustrephus latifolius	Wombat Berry

Native species name	Common Names
Glycine microphylla	
Stephania japonica	Pearl Vine

The existing inner APZ has been burnt early 2016 and native species are regenerating here. Annual weeds are also growing on the Stormwater lines and being managed in the bushland areas by contractors. Weeds are listed below in Table 2.

Exotic species	Common name
Asparagus aethiopicus	Asparagus Fern
Bidens pilosa	Cobblers Peg
Conyza bonariensis	Fleabane
Hypochaeris radicata	Flatweed
Paspalum quadrifarum	Tussock Paspalum
Passiflora suberosa	Corky Passionfruit
Plantago sp.	Plantain
Tripholium repens	White Clove
Tripholium sp.	Yellow Clover

4 Fauna

Fauna and fauna habitat, in this area of Catalina Milne Bay, has been described in detail the BMP (Dalby-Ball et al 2014). For the purpose of the proposed balcony expansion the potential impacts on Glossy Black Cockatoos has been considered.

Assessment of Significance for Glossy Black-Cockatoo (*Calyptorhynchus lathami*) at RSL Retirement Village Narrabeen Lakes in areas directly and indirectly impacted by the proposed works

The Glossy Black-Cockatoo inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of Sheoak occur. Black Sheoak (*Allocasuarina littoralis*) and Forest Sheoak (*A. torulosa*) are important foods. This species feeds almost exclusively on the seeds of several species of she-oak (*Casuarina* and *Allocasuarina* species), shredding the cones with the massive bill. It is dependent on large hollow-bearing eucalypts for nest sites. A single egg is laid between March and May.

Glossy Black-Cockatoos have been observed on the War Vets site. Generally they fly from a patch of She-Oaks is the existing asset protection zone and adjacent bushland.

in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

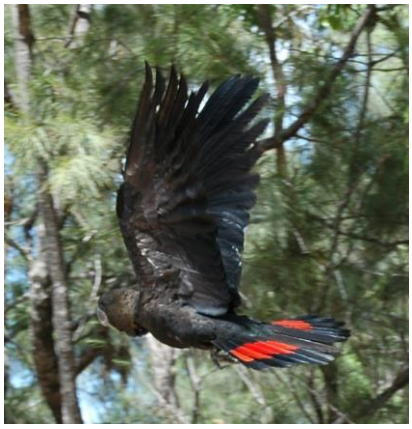
Proposed APZ works will not result in the removal of She Oaks. In future however seedlings may be removed if they exceed the density requirements of the APZ or if they grow directly under canopy trees and link ground and canopy vegetation. Currently, there are no She Oaks within the proposed APZ extention.

No hollow-bearing trees, or hollows, will removed due to the proposal.

Glossy Black-Cockatoos frequently utilise the bushland within the site near the APZ. Adults and young have been seen multiple time (50+) between 2011 and 2014, 2015 and in May 2016.

Approximately 60 square metres of bushland will be modified for the proposed APZ expansion, none of which currently contains She Oaks or hollow-bearing trees. Therefore, the proposal will not adversely affect the life cycle of the Glossy Black-Cockatoo population within the locality.

A clear statement of appropriate methods for APZ maintenance is recommended – stating what features should be left – such as hollows and She Oak trees.



in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

Glossy Black-Cockatoos in Warringah are not part of an endangered population.

c) in the case of an Population or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Glossy-Black Cockatoos in Warringah are not part of an endangered population.

d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, an

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,

(i) Approximately 400 square metres of bushland will be cleared due to the proposed APZ. None of this bushland is considered suitable for the Glossy Black-Cockatoo as there are no She Oaks (for foraging) or hollow-bearing trees (for nesting) within the area to be cleared.

(ii) no areas of habitat will become fragmented or isolated from other areas of habitat as a result of the proposed action, and

(iii) Although the Glossy Black-Cockatoo is known to utilise the site for foraging and nesting, the area of bushland to be cleared is not considered important as it does not contain any She Oaks or hollow-bearing trees for foraging or nesting purposes.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

Critical habitat has not yet been defined for this species in this area.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

Priority Action Statements have been written for Glossy-Black Cockatoos. The proposed APZ does not inhibit any of the recovery actions occurring. Actions plans state to retain habitat and the proposal will not include the removal of habitat.

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

The proposed APZ involves the clearing of native vegetation which is a key threatening process. However, the vegetation to be cleared is not considered suitable for the Glossy Black-Cockatoo

Conclusion:

The proposed APZ will not result in the removal of known habitat for the Glossy Black-Cockatoo – therefore, no significant impact will occur for this species.

5 Ongoing Management Recommendations

5.1 Vegetation Management

Fire protection areas are dynamic especially as plants grow. All APZs require a fire management plan to ensure the hazard is kept in an appropriate fuel reduced state. Management of this site falls within the existing arrangement of bush regeneration and 6 monthly monitoring and reporting by suitably experienced ecologists. Requirements in the BMP (2014) and contracts will see the zone managed appropriately. The BMP for this site will be updated in July 2016 and include any updates to the boundary of management of the APZ.

A few specific points for managing this area of APZ are:

1) Remove weed species as the priority.
2) Retain She-Oaks as food for Glossy Black Cockatoos
3) Include this area into the existing ecological works ion-site.
4) Ecologist meet with Bush Regenerators to set out works area and actions. NB this can be included into the existing maintenance regime and in this area and included in 6 monthly reporting.
5) Prior to major work (such as are expected in 10+ years (if not burnt again) a fire consultant or equivalent and ecologist already meet and determine what shrubs have to be removed and/or trees pruned. This will also assist in the management of this site.
6) Boundary APZ points to be marked on-site with fire-resistant poles (such as start pickets or fire retardant recycled plastic. Locations are to be GPS for on-going accuracy of the management zone. Also to ensure the APZ management can be on-going without extending into other bushland. Those required for the existing APZ will be moved to follow the new alignment taking the extra 3m into the APZ.

5.2 Phytophthora Control

Six monthly visual inspections of the bushland area should be undertaken as part of ongoing reporting to check for any potential *Phytophthora cinnamomi* or Myrtle Rust Fungus issues. No evidence of *Phytophthora cinnamomi* or Myrtle Rust has thus been found through regular inspections. All bush regenerators and other workers within the bushland area should comply with Phytophthora controls as set out in Royal Botanic Gardens guidelines. The extended APZ will not increase the likelihood of these pathogens spreading.

Qualifications of Author

Employee & Position	Qualifications	Experience
Mia Dalby-Ball	BSc (Hons I) Majoring in Ecology Member of Ecological Consultants Association of NSW.	Mia extensive local ecology knowledge is gained from working and living on the Northern Beaches for over 30 years. Mia has a broad knowledge of Laws and Regulations relating to Environmental Matters and was Environmental Manager at Pittwater Council for over 8 years.

6 References

Dalby-Ball 2015: *Bushland and Waterway Management Plans for the proposed renovations at Catalina Milne Bay Report to RSL Anzac Village.*

Dalby-Ball and Olson 2013: *Biodiversity Management Plan and APZ Expansion and Maintenance Report to RSL Anzac Village.*

NSW Department of Environment and Heritage: *Bionet, the Atlas of NSW Wildlife.* http://www.bionet.nsw.gov.au/

NSW Scientific Committee: *Pimelea curviflora (a small shrub) - vulnerable species listing.* http://www.environment.nsw.gov.au/determinations/PimeleaCurvifloraVulSpListing.htm

Smith and Smith 2008: *Native Vegetation Communities of Upper Hornsby Shire.*

Warringah Council 2004: *Warringah Creek Management Study.*