

Attachment 7

Bushfire Memorandum

Leigh Buckton
Living Choice Australia Ltd - Queensland
10 Marco Way
Parrearra QLD 4575

Ref/Job No: 16HNG_5131

18 May 2017

Dear Leigh,

RE: Bushfire Site Capability Statement - Glenhaven Retirement Village Expansion

Introduction

ELA has undertaken various site inspections at Glenhaven Retirement Village, 15 Old Glenhaven Road Glenhaven (the study area) during the final quarter of 2016. The aim of these site inspections were to undertake bushfire assessment and identify constraints within the study area, identify current management and opportunities for further bushfire mitigation as required.

This memo provides a brief summary of the main findings during the initial site inspections / hazard assessment.

Prior to the site inspection and review of the following data sources was undertaken:

- Aerial photographs (Google Earth, Near Map);
- Existing Hills Shire vegetation mapping;
- Existing OEH vegetation mapping;
- The Hills Local Environment Plan 2012; and
- The Hills Development Control Plan 2012.

The implementation of Special Fire Protection Purpose (SFPP) or 'high risk / vulnerability' development requirements, would be required should the footprint of the retirement village be expanded. These APZ requirements have been determined in accordance with Table A2.6 of *Planning for Bush Fire Protection 2006*.

The subject land is identified as being bushfire prone land on The Hills Shire Council Bushfire Prone Land Map.

As the development involves habitable dwellings within a Special Fire Protection Purpose (SFPP) development, the proposed development is to be assessed by Council under the provisions of Section 91 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), which includes the consideration of the NSW Rural Fire Service (RFS) document *Planning for Bush Fire Protection 2006* (NSW RFS 2006), referred to within this report as 'PBP'.

The following detailed assessment is strictly based on the methodology and requirements of PBP and supporting RFS policy.

Bushfire Hazard / APZ Assessment

Vegetation types

In accordance with PBP the predominant vegetation class has been determined for a distance of at least 140 m out from the proposed development.

The hazard lies to the north, north east and east of the proposed development footprints. The vegetation is categorised under PBP as 'Forest'.

The lands to other aspects of the site are currently managed grassland, or existing development and infrastructure.

Table 1 (below) on the following page lists the vegetation assessment.

Effective slope

In accordance with PBP the slope that would most significantly influence fire behaviour was determined over a distance of 100 m out from the proposed development where the vegetation was found.

The slope underneath the Forest vegetation to the north, north east and east is within the PBP slope category of 'Downslope 15-18 degrees' (15-20 degree category is utilised within AS3959-2009). The slope has been measured where the majority of the vegetation is currently positioned.

APZ Outcome

A minimum APZ of 100 m is provided between the proposed building and the bushfire prone vegetation to the north, north east and east. PBP provides for specific APZ distances for the type of development proposed (PBP Appendix 2, Table A2.6) - the APZ proposed is compliant with the PBP acceptable solutions for residential development as shown in **Table 1** (below).

The majority of hazard areas (both within and outside the subject site) are currently vegetated and, therefore, further vegetation clearance and / or formal easement arrangements may be necessary to establish the APZ in perpetuity. This requires further discussion with Council and Rural Fire Service (RFS).

This information was used to produce a Bushfire Hazard Assessment (constraints map) (**Figure 1**) to inform future direction, and for further discussions with council and the NSW Rural Fire Service (RFS).

Table 1: Asset Protection Zone and Bushfire Attack Level (BAL)

Direction ¹	Slope ²	Vegetation ³	SFPP APZ ⁴	Proposed APZ	AS3959 Bushfire Attack Level (BAL) ⁵	Comment
Part North, North east, Part East	Downslope 15-20°	Forest	100 m (10 kW/m ² radiant heat loads)	100 m	BAL-12.5	Further clearing is required within the subject land. Should further implementation of APZs be proposed on adjoining lands, a formal easement arrangement would be required to ensure management in perpetuity. Implementation of APZs on land greater than 18-20 degs should be avoided, or put appropriate measures in place to manage environmental impacts / erosion, etc.
All other directions	Managed lands / Non-hazard – no further requirements					

¹ Direction of assessment from proposed development.

² Effective slope assessed over 100 m from proposed development where the bushfire hazard occurs.

³ Predominant vegetation classification over 140 m from proposed development.

⁴ Minimum APZ required by PBP acceptable solution for Special Fire Protection Purpose (SFPP) development.

⁵ Bushfire Attack Level (BAL) corresponding to construction requirements under AS 3959-2009 'Construction of buildings in bushfire-prone areas'.

Preliminary Outcomes

The proposed development and subject lands are affected by Forest-structured bushfire hazard within steep topography. The potential bushfire behaviour and radiant heat generated in such an environment will require the implementation of APZs in the order of 100m (to achieve a maximum radiant heat loading of 10kW/m² for residents and fire fighters moving in and around the proposed development areas (i.e. especially entry and exit points of proposed buildings).

The findings are generally conservative (i.e. they will not increase further), however, there is scope for further refinement and possible reduction in the required APZs when more detailed site analysis of the entire interface is able to be undertaken.

The overall expansion area is constrained, however, there are development opportunities in the southern and western portions of the expansion lots. It is important to note that should further vegetation be able to be managed either within the site or the immediately adjoining properties to the north east, the required APZs may have an opportunity to shift further towards the north and east, creating expanded developable lands.

Bushfire Protection Measures

Bushfire protection is achieved most effectively in bushfire-prone environments, where various mitigation measures are implemented in combination, providing a cumulative and comprehensive outcome to lower bushfire risk. Therefore, in addition to the abovementioned Asset Protection Zone requirements for the proposed development, a satisfactory bushfire protection outcome for the proposed buildings and future occupants is achieved with the implementation mitigation measures including the following:

- a) Construction standards – upgraded materials and design for buildings
- b) Water supplies – reticulated hydrants networks and Static Water Storage
- c) Access arrangements – internal roads and fire trails
- d) Landscape management – site management to ensure minimal hazards within the site
- e) Evacuation and emergency management – pre-planning to ensure effective management during an bushfire event

All of the above measures will be considered and implemented for the proposed development as per the requirements of *Planning for Bush Fire Protection 2006* (NSW Rural Fire Service), and Australian Standard AS3959-2009 *Construction of buildings in bushfire prone areas*.

Conclusion

The inspection of the site identified areas appropriate and capable to support future development, as shown in **Figure 1**. This letter has discussed the constraints associated with achieving approval from the NSW Rural Fire Service for new development within the existing retirement village.

Should you wish to discuss any aspect of this letter or the proposed development, please contact me on (02) 4302 1220.

Yours sincerely,



Daniel Copland

Senior Bushfire Consultant

FPAAS BPAD Certified Practitioner No. BPAD28853-L3



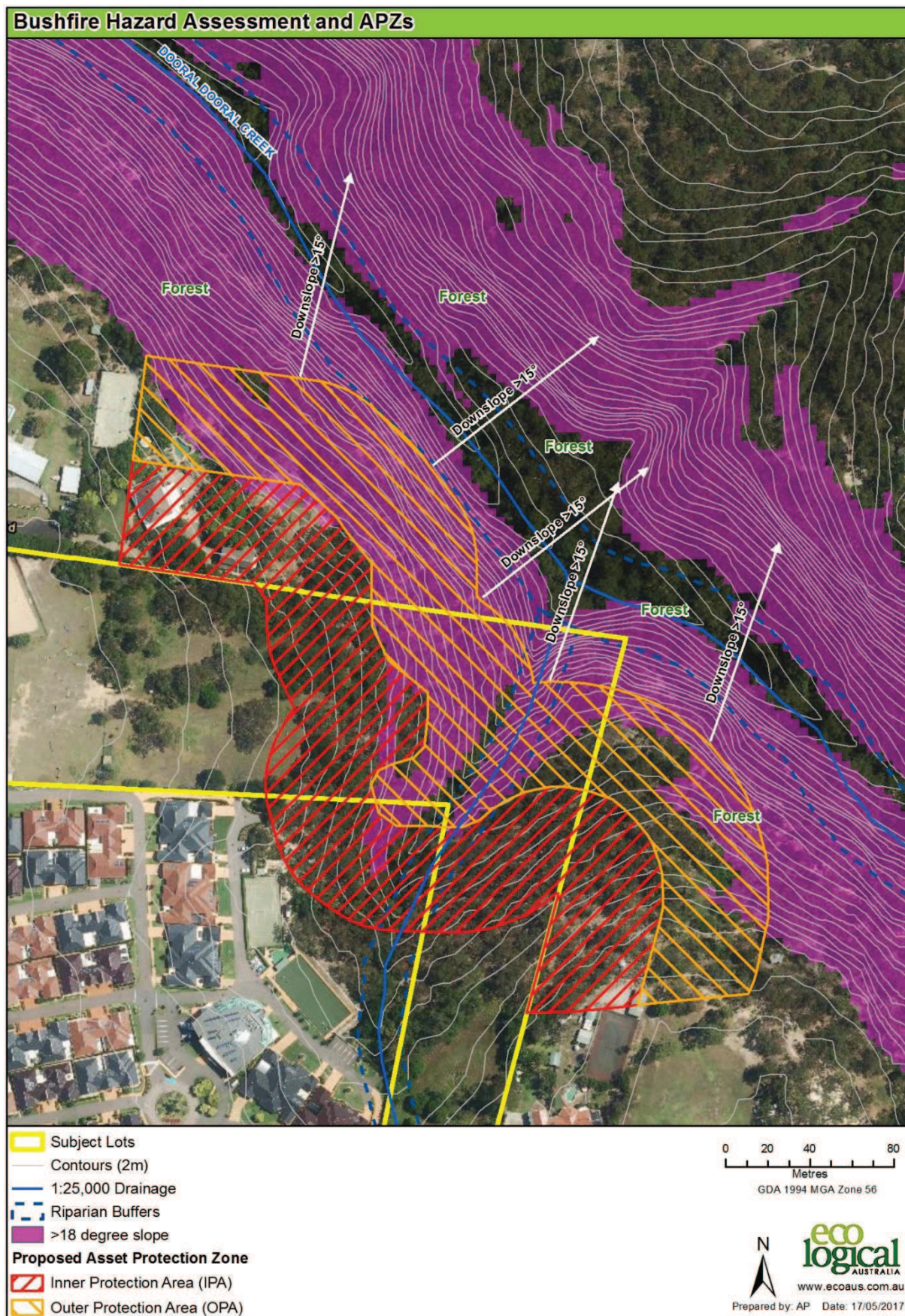


Figure 1 - Map of APZ Constraints for proposed development (Inner Protection Area positioned outside of steep slope areas, Outer Protection Area within steep lands)