BACKGROUND REPORT ON BUSHFIRE PLANNING ISSUES

Rezoning Investigations

Fera Property, Mt Pleasant

Prepared for

Cardno on behalf of Mr A Fera

24 November 2010

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Executive Summary

The aim of this study was to review a previous investigation pertaining to bushfire planning issues associated with the proposal to rezone lands known as the 'Fera Property' on the escarpment west of Mt Ousley Road (Mt Pleasant), in order to identify gaps in the information provided by the previous study, specifically in relation to the effects of more recent changes to relevant statutes, and assess whether these changes or gaps significantly affect the nature of the rezoning proposal (as they pertain to bushfire planning issues) and to guide further studies if required.

This study was confined to a desktop analysis relying on previous information gathered and supplied (e.g. GIS layers such as contours, land use features, constraints and biophysical characteristics, and aerial photography) and the local experience and expertise of the authors.

An overview and appreciation of the bushfire planning legislation applying to the previous study completed in 1993 (Graham Mitchell Planning) was provided, including a comparison with contemporary legislation. Legislation pertaining to planning development in bushfire prone areas has changed considerably since 1993. Although the principles behind the bushfire protection measures are essentially the same, the requirement to assess a development application, methodology to formulate bushfire protection measures, and terms and significance of particular parameters have altered significantly.

The summary of outcomes from the previous study shows that, although not dissimilar, the guidelines for planning for bushfire protection today are more developed and comprehensive. An analysis of bushfire protection measures under the current guidelines for two proposed dwelling sites (to be contained within new individual allotments) provided discussion on how the planning of these areas may be affected by the current guidelines. This was based on a gap analysis between the previous study and the outcomes of the desktop analysis within this report.

It was highlighted, that although Asset Protection Zones and access, in particular, would change, this change would not alter the capability of these lands to be rezoned as proposed.

Under the current bushfire planning legislation, the study area can support rezoning for two additional dwellings within allotments. The previous study also reached this conclusion. The change in legislation does not compromise the ability of the site to be rezoned as previously applied.

1 Introduction

1.1 BACKGROUND

This report has been prepared by Bushfire and Environmental Services (BES) at the request of Cardno Forbes Rigby Pty Ltd, on behalf of Mr A. Fera, to review a previous investigation pertaining to bushfire planning issues associated with a rezoning proposal at the 'Fera Property', Mt Pleasant, and to identify gaps in the information provided by the previous study, specifically in relation to the effects of changes to relevant statutes following the publication of the study.

The study is the 'Proposed Rezoning - Fera Property', prepared by Graham Mitchell Planning Pty Ltd (1993).

Bushfire & Environmental Services (BES) originally prepared a review of Graham Mitchell Planning (1993) in July 2006 before the adoption of 'Planning for Bushfire Protection 2006'. This report updates the BES review in line with the current 2006 version of 'Planning for Bushfire Protection 2006' (adopted in March 2007).

1.2 THE STUDY AREA AND LOCALITY

The study area for the purposes of this report is the whole 'Fera Property' which comprises two contiguous land parcels described as Lot 61 and Part Lot 54 in DP 751301 Mt Ousley Road, Mt Pleasant.

1.3 AIMS AND OBJECTIVES

The aim of this study was to review the previous investigation pertaining to bushfire planning issues associated with a rezoning proposal within the study area, and to identify gaps in the information provided by the previous study, specifically in relation to the effects of changes to relevant statutes following the publication of the study.

The objectives of this study, in the context of a review of previous studies and a desktop analysis, were to:

a) Communicate the effect of change in bushfire related legislation on the previous bushfire hazard assessment;

b) Identify gaps between the old and new legislation that may require further assessment;

c) Provide the necessary information on asset protection zones, access, water supply and building construction standards in relation to constraints and opportunities of the rezoning proposal to guide further detailed assessment and rezoning planning; and

d) Provide information on the impact of the rezoning proposal to the bushfire risk on nearby existing residential development.

2 Methodology

2.1 REVIEW OF EXISTING DATA

The preparation of this report has involved reviewing available literature and other relevant studies pertaining to the study area (Graham Mitchell Planning 1993), legislation, environmental planning instruments, topographic maps, and aerial photographs of the study area.

The data gathered were analysed to provide the basis for the review and recommendations detailed in this report.

2.2 DESKTOP ANALYSIS

The findings, recommendations and outcomes of this report have relied on a desktop analysis only, using the data listed in Section 2.1.

2.3 EXPERT KNOWLEDGE

The findings, recommendations and outcomes of this assessment were combined with the local experience and expert knowledge of the authors to provide bushfire planning requirements and design principles applicable to the study area.

3 Overview of Previous Studies and Legislation

The previous bushfire hazard assessment within Graham Mitchell Planning (1993) was very brief (four paragraphs) and made reference to 'numerous publications' by the Bushfire Council of NSW. The one reference made in regards to Asset Protection Zone width shows that the assessment had considered the planning requirements of the time, namely the NSW Department of Urban Affairs and Planning 'Circular No. C10 Planning in Fire Prone Areas', and NSW Department of Bushfire Services document titled 'Planning for Bushfire Protection'.

Prior to August 2002, recommended bushfire protection measures for proposed development in 'bushland' areas were based on the Ministerial Direction G20 under Section 117 of the *Environmental Planning and Assessment Act 1979* and the NSW Department of Bushfire Services document titled 'Planning for Bushfire Protection' (NSW DBS, 1991). The trigger to require consent authorities to consider the document for new development wasn't formalised until 1994 by an amendment to the *EP&A Act* (Clause 65). Even then, it was still debateable to the extent of what areas, parcels of land or types of development the document was to be considered.

Prior to consideration of bushfire protection measures under NSW DBS (1991), a hazard assessment was undertaken using the methodology in the NSW Department of Urban Affairs and Planning 'Circular No. C10 Planning in Fire Prone Areas'. The outcomes of the hazard assessment (e.g. high, medium or low hazard) influenced the extent to which particular bushfire protections measures from NSW DBS (1991) were applied to a development.

The study makes no reference to a hazard assessment in accordance with Circular C10, and it can only be inferred that NSW DBS (1991) was consulted by the reference made to a particular Asset Protection Zone width around proposed dwelling sites.

The study concludes that the developable area represents a low hazard due to this area being at the base of the escarpment vegetation. It recommends an Asset Protection Zone of 40 m surrounding residential development, and notes that the existing access and static water supply are adequate.

4 Current Legislation

Since the completion of the previous study and rezoning application, the legislation pertaining to planning development in bushfire prone areas has changed considerably. Although the principles behind the bushfire protection measures are essentially the same, the requirement to assess a development application, methodology to formulate bushfire protection measures, and terms and significance of particular parameters have altered significantly.

When investigating the capability of lands for future rezoning or preparing a draft Local Environment Plan (LEP) for land identified as Bush Fire Prone Land, the Minister for Planning (under Section 117 ministerial directions) requests councils to consult the Commissioner of the RFS under Section 62 of the *Environmental Planning and Assessment Act 1979* and have regard to the planning principles within 'Planning for Bushfire Protection' (RFS 2006) hereafter referred to as 'PBP'.

The fundamental changes in the assessment of bushfire protection measures for a development are:

- All development within land mapped as Bushfire Prone Land (i.e. land within 100 m of bushland) is to be assessed using PBP, a revised and more comprehensive version of NSW DBS (1991);
- Certain terms have been replaced (such as Fire Protection Zone by Asset Protection Zone);
- The assessment of Asset Protection Zones is based on a worst-case scenario, or 1:50 year fire event, and is no longer influenced by hazard mapping (or similar threat or risk assessment) or aspect;
- Asset Protection Zone dimensions have changed depending on the type of vegetation and the slopes on which the vegetation is found;
- There is now different Asset Protection Zone dimensions for different types of development, i.e. residential development and special fire protection purpose development (e.g. tourist accommodation, retirement villages, schools etc), with the dimensions for the special fire protection development being much larger than for residential development;
- The determination of building construction standard is now based on the revised AS 3959-2009; and
- Access and water supply provisions have been revised in greater detail, and PBP places greater emphasis on design and construction standards for all road types, and access/egress options.

A brief 'gap analysis' of the previous study and outcomes of this report as they pertain to each type of bushfire protection measure (e.g. Asset Protection Zone, access etc) is provided in the next section.

5 Bushfire Protection Measures

This section provides a desktop analysis of bushfire protection measures potentially required for the study area based on current requirements. A brief gap analysis between the previous study and the current requirements is also provided, along with the identification of any planning issues that may require further assessment. This analysis is divided into the two potential dwelling sites as applied for in the rezoning application (to be contained in separate allotments); the 'eastern site' (adjacent to the north of the existing shed surrounding the 268 m contour line), and the 'western site' (within the cleared area west of the creek surrounding the 268 and 270 m contour line).

5.1 PROPOSED EASTERN DWELLING SITE

5.1.1 Asset Protection Zones (APZ)

Graham Mitchell Planning (1993) recommended a 40 m Asset Protection Zone (APZ) around a dwelling at this site. Under PBP, this APZ would be variable ranging from 20 m to the west and south (due to steep upslope) to 35 m to the east and 50 m to the north (due to moderate downslopes in this direction). For the most part, and with the exception of some minor understorey management to the south, this APZ is largely in place today (requiring maintenance).

5.1.2 Access

Graham Mitchell Planning (1993) noted that access was adequate as 'safe access routes were available'. Although this is true, a more detailed assessment of access is required. PBP has more developed access provisions relating to private property access roads and fire trails, including positions and policy on access/egress.

Property access roads are to be designed and constructed in accordance with the specifications in Table 1. It is important to note that the access road will be over 200 m in length (approximately 430 m from Mt Ousley Road to the proposed dwelling site) and the dwelling site will not have an alternative egress. It will also contain at least one pinch over 15 degrees at the existing elbow off Mt Ousley Road. However, this should not preclude development for the following reasons:

- There is a lower bushfire threat (hazard) at the base of the foothills, so egress will be made away from a slow moving fire front descending steep slopes of the upper escarpment (which is predominantly rainforest);
- Although greater than 400 m in length, over half of this distance traverses managed land (cleared pasture) which offers a reduced threat to evacuees and emergency personnel;
- The first 200 m off Mt Ousley Road traverses only weeds and exotics, Acacia scrub and scattered Eucalypts within a band of vegetation approximately 100 m in width parallel to Mt Ousley Road; and

- If an alternative access route were available, it would also have to lead east towards Mt Ousley Road, as does the existing road within the site, as this is the only egress point from this section of Mt Pleasant.

The existing property access road should be sufficient in providing access and egress to the dwelling site should the edges of the road be fuel reduced to create an access corridor of 20 m for safer access/egress (for example).

Perimeter access is also required in some form or another (i.e. pedestrian or vehicular), however a perimeter fire trail around the rear of the eastern site, across the creek and linked to the western site (in the form of a loop road) should assist in compensating for the length of the access road. This fire trail would be constructed in accordance with the design principles in Table 1.

Table 1: Design and construction for property access roads

Performance Criteria	Acceptable Solutions
The intent may be achieved where:	
▪ access to properties is provided in recognition of the risk to fire fighters and / or evacuating occupants	▪ at least one alternative property access road is provided for individual dwelling (or groups of dwellings) that are located more than 200 metres from a public through road
▪ the capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles ▪ all weather access is provided	▪ bridges clearly indicate load rating and pavements and bridges are capable of carrying a load of 15 tonnes ▪ roads do not traverse a wetland or other land potentially subject to periodic inundation (other than a flood or storm surge)

Performance Criteria	Acceptable Solutions
▪ road widths and design enable safe access for vehicles	▪ a minimum carriageway width of four metres for rural-residential areas, rural landholdings or urban areas with a distance of greater than 70 metres from the nearest hydrant point to the most external part of a proposed building (or footprint) *Note: No specific access requirements apply in a urban area where a 70 metres unobstructed path can be demonstrated between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles (i.e. a hydrant or water supply.* ▪ in forest, woodland and heath situations, rural property access roads have passing bays every 200 metres that are 20 metres long by two metres wide, making a minimum trafficable width of six metres at the passing bay ▪ a minimum vertical clearance of four metres to any overhanging obstructions, including tree branches ▪ internal roads for rural properties provide a loop road around any dwelling or incorporate a turning circle with a minimum 12 metre outer radius ▪ curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress ▪ the minimum distance between inner and outer curves is six metres ▪ the crossfall is not more than 10 degrees ▪ maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads *Note: Some short constrictions in the access may be accepted where they are not less than the minimum (3.5m), extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above* ▪ access to a development comprising more than three dwellings have formalised access by dedication of a road and not by right of way

Source: *Planning for Bushfire Protection (NSW RFS 2006; page 23)*

5.1.3 Water Supply

Graham Mitchell Planning (1993) noted rainwater tanks might be necessary for fire fighting purposes.

In the absence of reticulated water supply, a static water supply specifically reserved for fire fighting purposes would be required. The dwelling should have its own static water supply in the form of above or underground tanks made available to fire fighting appliances. Dams and pools can also be used for static water supply, but should not substitute a reserved tank in this case. A tank volume of 20,000 L is required by PBP.

5.1.4 Building Construction Standard

Graham Mitchell Planning (1993) did not mention the requirement for building construction standards, however the determination of building construction standard is not required until the development application stage for a new dwelling/building once rezoning and subdivision has occurred.

The requirement of a particular level of building construction standard under AS 3959 (1999) 'Construction of Buildings in Bushfire Prone Areas' is based on the determination of the Bushfire Attack Level (BAL) following AS 3959-2009 Method 1.

Based on the minimum Asset Protection Zones stated in Section 5.1.1, a dwelling at this site would most likely require a BAL-40 construction standard.

5.1.5 Summary of Eastern Dwelling Site Analysis

Under the current bushfire planning legislative parameters, the proposed eastern dwelling site can support a single dwelling. This was also concluded within Graham Mitchell Planning (1993). The change in legislation does not compromise the ability of the site to be rezoned as previously applied. This analysis also identified the following:

- Recommended variable APZ ranging from 20 upslope to 50 m downslope;
- Recommended fuel management around the existing access road;
- Recommended perimeter fire trail linking both dwelling sites;
- Water supply volume to be made available for fire fighting is recommended to be minimum 20,000 L.

5.2 PROPOSED WESTERN DWELLING SITE

5.2.1 Asset Protection Zones (APZ)

Graham Mitchell Planning (1993) recommended a 40 m Asset Protection Zone (APZ) around a dwelling at this site. In accordance with PBP, this APZ would be variable ranging from 20 m to the west (due to steep upslope), to 25 m to the north and south, to a minimum 10 m APZ to the east.

The APZ to the east, even though on downslopes, need only be a minimum of 10 m if the vegetation in this direction is contained within a riparian corridor between the APZ associated with the dwelling site, and the land management occurring further east along the access road. The vegetation within the

riparian corridor should be contained by surrounding managed land (in order to allow a minimum 10 m APZ) at least up to the crossing of the recommended perimeter fire trail over the creek.

5.2.2 Access, Water Supply and Building Construction Standard

The findings for these three bushfire protection measures are the same for the eastern dwelling site as detailed in Section 5.1.2, 5.1.3 and 5.1.4 respectively.

5.2.3 Summary of Western Dwelling Site Analysis

Under the current bushfire planning legislative parameters, the proposed western dwelling site can support a single dwelling. This was also concluded within Graham Mitchell Planning (1993). The change in legislation does not compromise the ability of the site to be rezoned as previously applied. This analysis also identified the following:

- Recommended variable APZ ranging from 20m to 25 m relying on the careful management around a riparian corridor if proposed for the creek to the immediate east;
- Recommended fuel management around the existing access road;
- Recommended perimeter fire trail linking both dwelling sites;
- Water supply volume to be made available for fire fighting is recommended to be minimum 20,000 L.

6 APZs and Environmentally Sensitive Areas

APZs can me managed in a manner so as not to cause significant impact to certain environmental assets. Careful planning of APZs in bushland and riparian areas can achieve both development and environmental objectives. APZs and bushland management objectives are not necessarily mutually exclusive.

APZs are not areas devoid of vegetation. They can, and should (for radiant heat shielding and ember filtering purposes) contain mature trees with a discontinuous canopy between the bushland and the development. They can also contain managed scattered shrubs and saplings within the understorey, and managed ground fuels. With care, APZs can be implemented in areas of geotechnical instability.

In some cases, a riparian area, or part there of, can act as an APZ by careful management of the vegetation and fuels. The combining of riparian zones and APZs is not usually recognised by government agencies and Eco Logical Australia as best practice for areas of significant vegetation or significant geomorphic function, as conservation objectives compete with fuel management objectives required for APZs. However, it is considered reasonable to combine the two in minor riparian areas of high disturbance and minor bushfire risk. Careful planning of such riparian corridors may reduce the size of APZs and risk to adjoining development.

Depending on the species, an APZ can be implemented and maintained within an area containing threatened species by way of careful management (e.g. survey and tagging plants before fuel reduction, or reducing fuels in times outside of breeding seasons for threatened avifauna). Some APZs invoke germination of many threatened flora taxa.

The implementation of APZs also involves the removal of exotic species, which tend to be a major contributor to the fuel loads (e.g. lantana). Replacing weeds with local mesic species not only reduces the fire risk to neighbouring development, but achieves the objective of bush regeneration as well.

7 Impacts of Rezoning on Bushfire Protection of Surrounding Existing Development

The existing dwelling within the Fera Property currently has a level of bushfire risk. This has been assessed and categorised by the 'Wollongong Bushfire Asset Protection Zone Risk Management Study' (BES 2003), which was adopted by Wollongong City Council and the Wollongong Bushfire Management Committee, into five relative risk classes (1 being the highest risk and 5 being the lowest risk) resulting in the dwelling having a level 2 bushfire risk.

The rezoning proposal would reduce this level of bushfire risk to the existing dwelling in two ways:

Reducing local fuel loads

In the simplest form of bushfire hazard reduction, new development will remove areas traditionally available to fuel, creating a greater buffer between existing development and the bushland.

Additional strategic benefits

New development often includes additional strategic qualities such as a better water supply, access (e.g. recommended fire trail) or fire fighter response to certain areas.

8 Conclusions

This report reviews the previous bushfire planning study pertaining to the Rezoning Application for the Fera Property in the context of current legislation and accepted practices. An analysis of the capability of the lands and the rezoning proposal to account for more recent legislative changes was made.

Under the current bushfire planning legislation, the study area can support rezoning for two new dwelling sites within individual allotments as proposed. The previous bushfire assessment within Graham Mitchell Planning (1993) also reached this conclusion. The change in legislation does not compromise the ability of the site to be rezoned as previously applied. This analysis identifies some gaps and changes which will require further, detailed assessment at later stages of the planning hierarchy. Such assessments should include a revised Asset Protection Zone (APZ) assessment and access design.

9 References

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