

## Subdivision in Bush Fire Prone Areas

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### Bushfire Hazard Assessment Report

Ref No. 25.04.113

Planning Proposal  
Redbank Expansion Area (Kemsley Park)  
322 Grose Vale Road  
Grose Vale NSW 2753

For Redbank Communities

The site was inspected on 30<sup>th</sup> April 2024

#### Report Preparation

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## 1.0 Introduction

This Bushfire Hazard Assessment Report has been prepared by Craig Burley on behalf of Redbank Communities in support of a Planning Proposal which is for the rezoning of the subject allotment that is currently RU4 being principally rural living purposes, to be R2 being lands mainly comprised of low density housing and R5 being large lot residential.

Ultimately the proponent is seeking to undertake a subdivision of the development site to provide for an estimated 300-350 residential parcels, construction of public roads together with open space areas and necessary infrastructure to support this development.



Figure 1; Extract of Concept Subdivision Development ex Orion

The purpose and objective of this report is to identify if the proposed development can confirm to the requirements of *Planning for Bush Fire Protection 2019* and therefore provide guidance as to the suitability of the site for rezoning from the bushfire regulatory perspective.

The site is bushfire prone land and therefore at the time of actual development application for subdivision require will referral to the NSW Rural Fire Service in accordance with s100B of the *Rural Fires Act 1997*.

## 2.0 Site and Adjacent Developments

The following seeks to describe the site, the adjoining lands and land uses effective upon the development proposal.

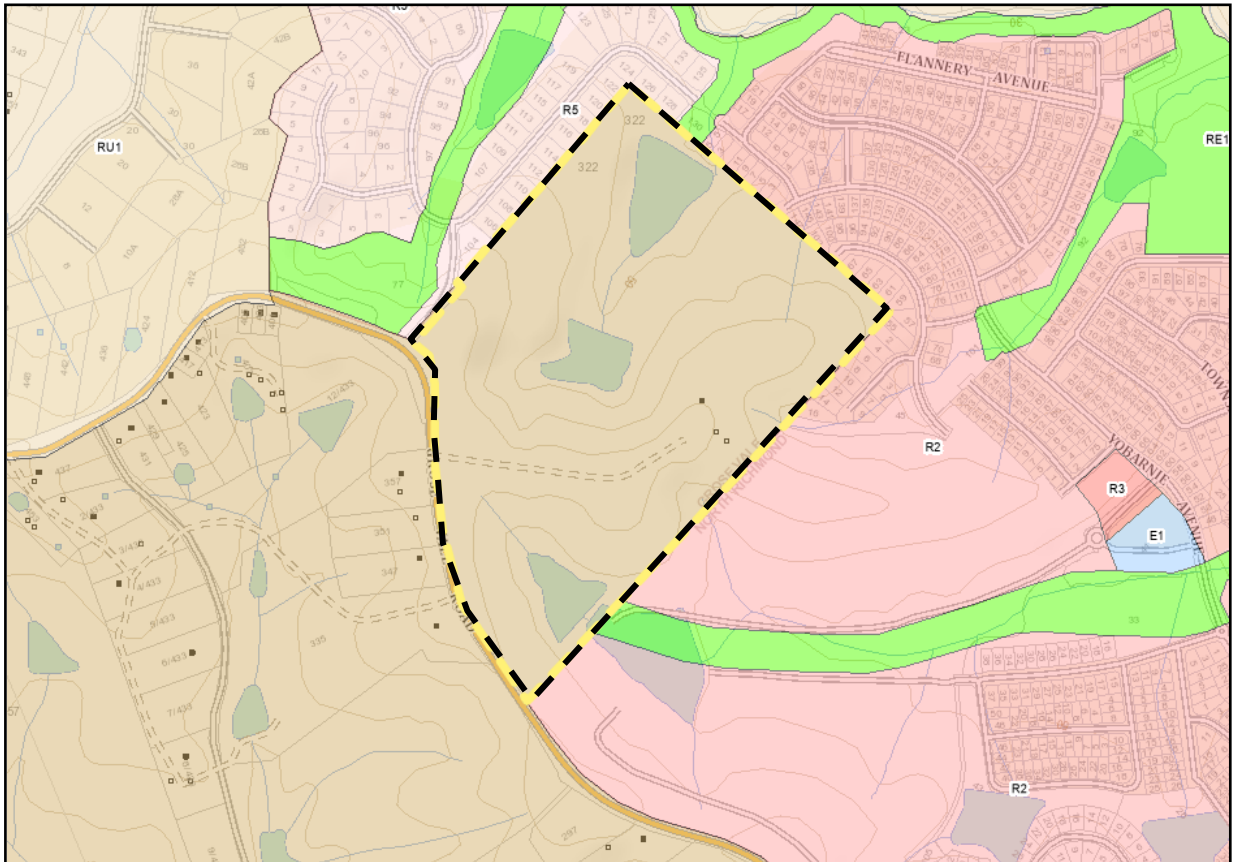
### 2.1 Site Description

The site is identified as; Lot 260 DP 1237271

322 Grose Vale Road

Grose Vale NSW 2753

LGA Hawkesbury City Council



**Figure 2; Address validation and current Zoning ex NSW Planning Portal**

The proposed rezoning site is located within an area broadly identified as the Kemsley Park to the southeast and southwest of existing section of the Redbank Estate and to the northwest of an area under construction for similar purposes as being development by Redbank Communities.

The development site subject to this rezoning application is a total of approximately 35.4 hectares located on the eastern side of Grose Vale Road.



At present the overall topography of the site would be best described as generally open grassland grazing paddocks with scattered shade trees on undulating terrain.



**Figure 3; Aerial image of development site ex Nearmap**

The concept subdivisional plan indicates that the bushfire hazardous vegetation will be restricted to be located on the adjoining lands to the west within a small occluded section of Redbank Estate and mostly beyond Grose Vale Road to the west.

The current Hawkesbury Bush Fire Prone Land Map (see over) has identified that almost the entire area of the rezoning site is considered to be bushfire prone. The mapping indicates that apart from a very limited section being an existing dam is category 3 vegetation and the site inspection can confirm that this is an accurate depiction.

Additionally, the Bush Fire Prone Land Map has identified adjacent lands as being a combination of category 1 vegetation and category 3 vegetation. However, the site inspection can confirm that significant section of the adjoining lands should not be

considered as bushfire prone by virtue of existing managed lands on residential and rural lifestyle developments.

These areas are shown to be a combination of category 1 vegetation buffer (shown yellow) in the south western corner and category 3 vegetation buffer zone (shown yellow) adjacent to the north western and southern boundaries of the development site.

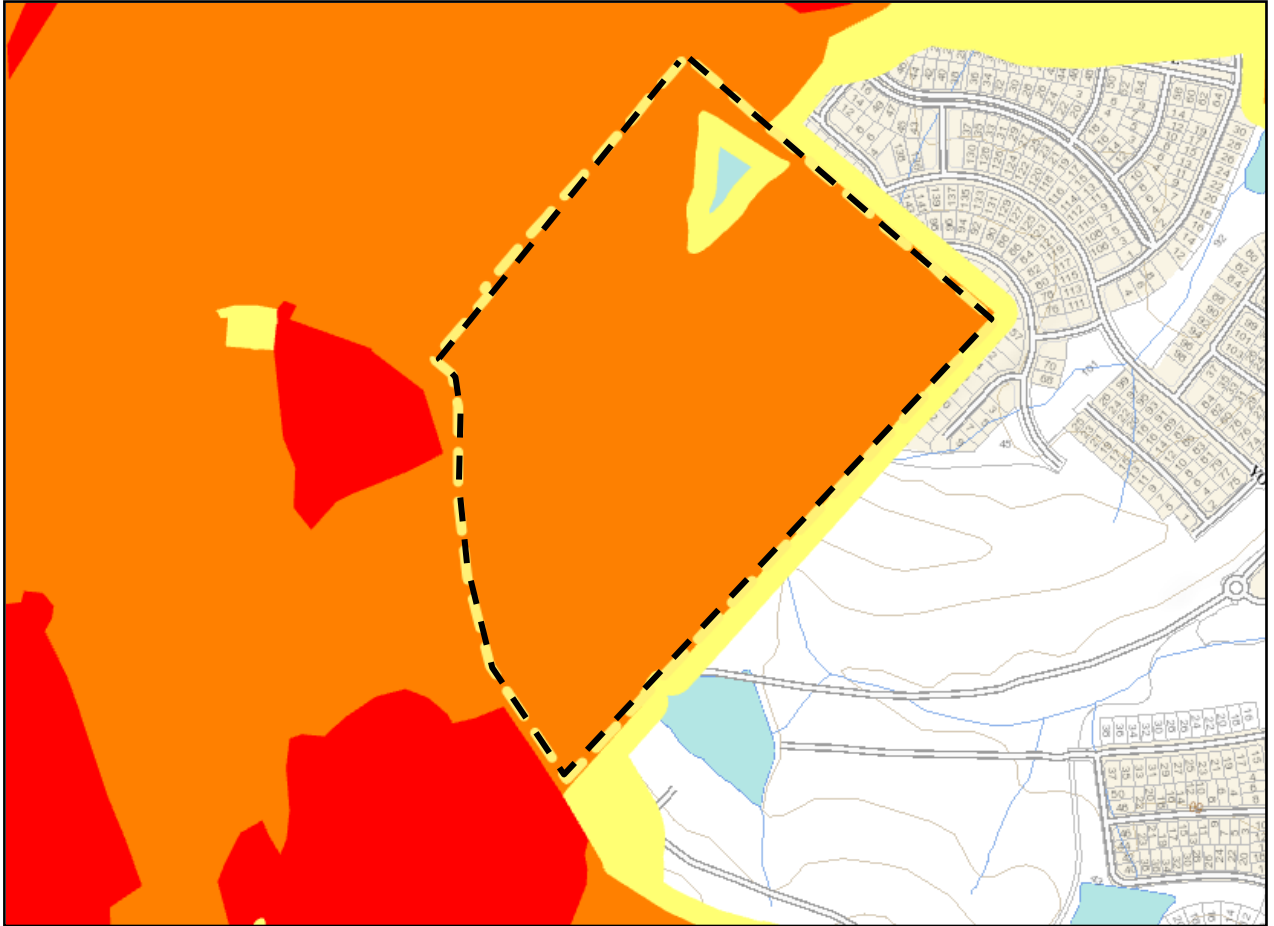


Figure 4; Section Hawkesbury LGA Bushfire Prone Land Map



## 2.2 Description of Adjoining Lands

To the northeast of the rezoning site is existing residential development within Redbank Estate.

To the southeast of the rezoning site is a small area of residential development within the Redbank Estate and lands that currently being constructed to provide for approved residential subdivision within an area of Redbank Estate referred to as Southern Valley.

To the southwest of the rezoning site is the carriageway of Grose Vale Road and beyond this is a combination of two areas of forest vegetation and managed lands associated with rural lifestyle allotments.

To the northwest of the rezoning site is the carriageway of Promontory Road and beyond this is the only other section of forest vegetation hazard identified as being effective on the development site. Further to the northwest adjacent to the rezoning site is existing residential development.



Figure 5; Adjoining lands to Rezoning Site



### 2.3 Classification of Vegetation Effective on the Proposed Development

The vegetation was assessed for a distance of 140 metres from the proposed development site in each relevant direction.



Figure 5: Vegetation study area - Image ex Nearmap

The following areas of vegetation are considered to be the sections of vegetation hazard that would be effective upon the proposed development;

- Area A – Forest vegetation to the northwest;
- Area B – Forest vegetation to the west;
- Area C – Forest vegetation to the south.

Whilst having reference to the NSW Sharing and Enabling Environmental Data the vegetation to the west is shown to be areas of Coastal Valley Grassy Woodland. However, the site inspection noted that the vegetation from a structural perspective is more indicative of a forest community due to the noticeable and continuous amount of elevated fuels stratum. Therefore, forest formation has been assumed for the purposes of this report.



## 2.4 Slope Assessment

The effective slope of the land, out to a distance of 100 metres from the proposed scope of works (that is, the slope of the land most likely to influence bushfire behaviour for the purposes of calculating the Category of Bushfire Attack and Asset Protection Zones, has been assessed (using a clinometer) and digital desktop analysis.



Figure 6; Slope/contour image ex Geoscience Australia

Transect A1 – Forest – Downslope > 5 to 10 degrees (assumed) (elevation 11.59 met / dist. 77.13 met = 8.55)

Transect A2 – Forest – Downslope degrees (assumed) (elevation 18.45 met / dist. 122.81 met = 8.54)





Figure 7; Slope/contour image ex Geoscience Australia

Transect B1 – Forest – Downslope > 10 to 15 degrees (assumed) (elevation 13.89 met / dist. 63.44 met = 12.35)

Transect B2 – Forest – Downslope > 10 to 15 degrees (assumed) (elevation 15.61 met / dist. 86.59 met = 10.22)





Figure 8; Slope/contour image ex Geoscience Australia

Transect C1 – Forest – Downslope > 10 to 15 degrees (assumed) (elevation 14.69 met / dist. 78.26 met = 10.63)

Transect C2 – Forest – Downslope > 10 to 15 degrees (assumed) (elevation 13.67 met / dist. 70.97 met = 10.90)



## **2.5 Environmental Considerations**

Consultation with the project management team has not indicated that there are any significant environmental features, any Endangered Ecological Communities (EEC) or cultural/heritage sections on the development site.

### 3.0 Bushfire Assessment

#### 3.1 The extent to which the development is to provide for setbacks, including Asset Protection Zones

The proposed development can fully provide suitable asset protection zones within the site boundaries and by consideration of clearly managed lands on adjoining allotments.

The site is located within the Hawkesbury local government area and is subject to a Fire Danger Index (FDI) rating of 100.

Based upon the provisions of *Planning for Bush Fire Protection* 2019 Table A1.12.2 the asset protection zones required to be provided between any proposed dwelling building footprints of subdivision and the areas of identified vegetation hazard can be fully accommodated within the site or by utilization of existing roads.

The objective of *Planning for Bush Fire Protection* 2019 asset protection zones is to not have any potential building envelop exposed to greater than 29kW/m<sup>2</sup> of radiant heat and this can be easily achieved across the proposed subdivision as demonstrated within figures 9 and 10 below.



Figure 10; BAL 29 Threshold from the adjacent sections of vegetation - - - - -

BAL 29 separation distance of 36 metres can be provided from the Area A and 45 metres from Area B by the adjacent road widths and within the subject site as noted above.





Figure 11; BAL 29 Threshold from the adjacent sections of vegetation - - - - -

BAL 29 separation distance of 45 metres can be provided from the Area C within a combination of the subject site as noted above and the carriageway of Grose Vale Road.

It is proposed that the entire rezoning area shall be maintained to satisfy the requirements of *Planning for Bush Fire Protection* 2019 and the NSW RFS document “Standards for asset protection zones” for an inner protection area.

A restriction of use should be established to not permit construction of habitable buildings within the sections of the rezoning site identified as being greater than BAL 29 at the time of future subdivision.

The following are the requirements for asset protection zone inner protection areas as described within the documents *Planning for Bush Fire Protection* 2019 and NSW RFS Standards for Asset Protection Zones.

### **Inner Protection Area**

The IPA is the area closest to the building and creates a fuel management area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defensible space. Vegetation within the IPA should be kept to a minimum level.

Litter fuels within the IPA should be kept below 1cm in height and be discontinuous. In practical terms the IPA is typically the curtilage around the building consisting of a mown lawn and well-maintained gardens.

When establishing and maintaining in IPA the following requirements apply;

#### Trees

- tree canopy cover should be listed 15% at maturity;
- trees at maturity should not touch or overhang the building;
- lower limbs should be removed to a height of two metres above the ground;
- preference should be given to smooth bark and Evergreen trees

#### Shrubs

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards the buildings;
- shrubs should not be located under trees;
- shrubs should not form more than 10% ground cover; and
- clumps of shrubs should be separated from exposed windows and doors by distance of at least twice the height of the vegetation.

#### Grass

- grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- leaves vegetation debris should be removed

## **3.2 Fire Fighting Water Supply and other Services**

### **3.2.1 Water**

This section of Grose Vale is currently not serviced by mains reticulated water supply although it is intended that as a part of the future subdivision an extension of the mains supply will be undertaken into the Kemsley Park section of the estate.

This report will recommend that the layout and design of the mains reticulated water supply must be in compliance with section 5.3.3 of *Planning for Bush Fire Protection* 2019.

### **3.2.2 Electricity**

The objective of *Planning for Bush Fire Protection* 2019 with regards to the supply of electricity is to ensure that the infrastructure for this service does not contribute to the risk of fire to buildings.



The development site is to be provided with electricity by underground infrastructure from the existing electricity supply within the estate and this will satisfy the provisions of section 5.3.3 of *Planning for Bush Fire Protection 2019*.

### **3.2.3 Gas**

The objective of *Planning for Bush Fire Protection 2019* with regards to the supply of gas is to ensure that the infrastructure for this service does not contribute to the risk of fire to buildings.

With respect to subdivisions section 5.3.3 of *Planning for Bush Fire Protection 2019* sets out the performance criteria and acceptable solutions.

The detail of any gas supply installation was not available at the time of formulating this report however this document will recommend that any gas supply installation must be such as to satisfy section 5.3.3 of *Planning for Bush Fire Protection 2019*.

### **3.3 Public Road Capacity to Handle Increased Traffic Volume**

The objective of *Planning for Bush Fire Protection 2019* with regards the provision of public roads is to ensure safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.

Perusal of the concept subdivision plan indicates that construction public roads is proposed, and a study of the concept subdivision plan indicates that the proposed public roads will satisfy the intent of measures as contained within *Planning for Bush Fire Protection 2019*.

It must be noted that road widths, curvatures and grades must be further detailed at the time of subdivision construction certificate to establish compliance to section 5.3.2 Access of *Planning for Bush Fire Protection 2019*.

Consideration has been given to the requirement of *Planning for Bush Fire Protection 2019* to provide perimeter roads where there is an interface with bushfire hazardous vegetation. This is already provided by Grose Vale Road that extends along the entire length of the south western boundary and by Promontory Road to the north western boundary where there are sections of forest vegetation interface.

### **3.4 Public Road Links to Fire Trail Network and Two Way Access**

In this instance there is no system of fire trails shown on the subdivision plans or required given the provision for asset protection zones and the existing system of public roads.

### **3.5 Adequacy of Access and Egress from the Development Site for Emergency Response**

The proposed development is located approximately 4.0 kilometre (by road) to the northeast of the NSW RFS Grose Wold Brigade Station.

The system of public roads to the site should be adequate under most conditions to allow for access and egress for the site for emergency service vehicles.

### **3.6 Adequacy of Bushfire Maintenance Plans and Fire Emergency Procedures for the Development Site**

No detail of any bushfire maintenance plan or fire emergency procedures has been provided by the proponents with respect of these matters.

### **3.7 Construction Standards for Building Elements in the Development**

This proposal does not include any construction of dwellings although it is noted that the maximum level of exposure to BAL 29 for any future dwelling envelop is clearly achievable to the provisions of *Planning for Bush Fire Protection* 2019.

### **3.8 Adequacy of Sprinkler Systems and other Fire Protection Measures to be Incorporated**

No additional bushfire protection measures or external bushfire sprinkler systems are recommended for this development apart from those previously nominated in this report and listed within the recommendations section of this report.



#### **4.0 Assessment of the extent to which the development conforms or deviates from Chapter 5 of *Planning for Bush Fire Protection* 2019**

The details provided in Section 4 of this assessment outline the relationship between the proposed new subdivision and the specifications set out in Chapter 5 of *Planning for Bush Fire Protection* 2019.

##### **4.1 Asset Protection Zones**

The asset protection zones will satisfy the acceptable solutions of *Planning for Bush Fire Protection* 2019 with the incorporation of the recommendations of this report.

##### **4.2 Access**

The access to the subject development site is by a system of existing public roads which in conjunction with the proposed new system of public roads satisfies the acceptable solutions and performance criteria of *Planning for Bush Fire Protection* 2019.

##### **4.3 Water supply, electricity and gas**

The supply of electricity, water and gas can satisfy the acceptable solutions of *Planning for Bush Fire Protection* 2019.

## 6.0 Conclusion

Based upon the Bushfire Hazard Assessment for the Rezoning of the development site allotment, this report concludes that scope of works as described by the concept subdivision plans prepared by Orion and by consultation with the project management team, this development can comply to the requirements of *Planning for Bush Fire Protection* 2019 as required under section 100b of the *Rural Fires Act 1997*.

Therefore, on the basis the current bushfire regulatory process it is my considered opinion that the Planning Proposal for Rezoning of the development site for residential purposes should gain support from the consent authorities for a future subdivision.



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### Caveat

Quote from Planning for Bushfire Protection 2001, *'notwithstanding the precautions adopted, it should always be remembered that bushfire burn under a wide range of conditions and an element of risk, no matter how small always remains.'*

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Quote from Standards Australia, *'Although the standard is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.'*

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## References

Planning for Bushfire Protection 2019 Planning NSW in conjunction with NSW Rural Fire Service

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