

Bushfire Hazard Assessment Report

Proposed Multi Unit Residential Development

At

Avon Beechworth and Arilla
Roads, Pymble NSW

For:

Mr Jim Neale

Reference Number: 90417B
October 2010



Prepared By:
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List of Abbreviations

APZ	Asset Protection Zone
BCA	Building Code of Australia
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Kuring gai Council
DA	Development Application
EP&A Act	Environmental Planning and Assessment Act 1979
ESD	Ecologically Sustainable Development
IPA	Inner Protection Area
NSWFB	NSW Fire Brigades
OPA	Outer Protection Area
PLC	Pymble Ladies College
PBP	Planning for Bushfire Protection - 2006
RF Act	Rural Fires Act 1997
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

1.0 Introduction

The proposed development relates to the construction of several multi unit residential apartment buildings at 1, 1A & 5 Avon Road, 4 & 8 Beechworth Road and 1 Arilla Road Pymble (the subject site). The subject site abuts the north shore rail corridor to the east and is surrounded by Avon Road, Arilla Road Beechworth Road and residential allotments to the remaining three aspects.

Under Kuring gai Councils Bushfire Prone Land Map the sites are identified as being within the 100 metre buffer zone of a Category 1 Vegetation, which is located within Pymble Ladies College to the southeast of the subject sites. There is also another corridor of Category 1 Vegetation within private residential allotment to the southwest and although this vegetation may be marginally within 100 metres of the access drive to number 1 Arilla Road (or just touch the site boundary) it is greater than 140 metres from any proposed works. It is questionable whether this hazard needs to be formally addressed within this report however, as a margin of safety, it has been included in this assessment.

As the property is identified as Bushfire Prone Land the application of Planning for Bushfire Protection - 2006 (PBP) is applicable in this instance.

2.0 Purpose of Report

The purpose of this Bushfire Hazard Assessment Report is to provide an independent bushfire hazard determination together with appropriate recommendations for future strata subdivision, building construction and other bushfire mitigation measures considered necessary having regard to development within a designated 'bushfire prone' area.

This report is intended to address the Director Generals Requirements Application Number MP 08 – 0207, 11/2/09, Clause 9 and provide the information set out in Clause 44 of the Rural Fires Regulations 2008 and section A4.2 of Appendix 4 of Planning for Bushfire Protection 2006.

The recommendations contained within this report may assist in forming the basis of any specific constructional conditions and/or bushfire mitigation measures that NSW Government - Department of Planning and/or the NSW Rural Fire Service may elect to place within any consent conditions issued for the subject Development Application.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire hazard assessment and recommendations for the subject site. Where reference has been made to the surrounding lands we have assessed those lands and have considered likely bushfire impact and/or progression through those lands and possible bushfire impact to the subject site.

Where a bushfire risk is associated with surrounding private lands or lands owned by an authority, Council could seek to issue notice under Section 66 of the Rural Fires Act on any or all surrounding properties for the purposes of reducing and maintaining safe levels of vegetation and thus reducing the possibility of bushfire impact to the subject property and any adjoining properties.

4.0 Referenced Documents and Persons

Comments provided are based on the requirements of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act), the Rural Fires Act 1997, the Rural Fires Regulations 2008, the RFS document known as 'Planning for Bushfire Protection – 2006' for the purposes of bushfire hazard and impact determination and Australian Standard AS3959 – 2009 titled 'Construction of buildings in bushfire-prone areas' as amended for building/structural provisions.

Company representatives have made several site inspections of the subject property and the surrounding area.

Referred documents:

- Kuring gai Council Bushfire Prone Land Map.
- NSW Dept Planning Director Generals requirements – MA 08-0207 (Y09/283)
- Urban Tree Management Arboriculture Assessment Report Ref 4191 22/4/2002 and Doc 11183.loc.1, 12 May 2009.
- Flora and Fauna Assessment Report AES Environmental Consultancy March 2002 Revised June 09
- Vegetation Management Plan – Urban & Rural Design November 2009

A BCBHS company representative has made a single site visit to the subject site and the surrounding area.

5.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bushfire Protection – 2006*.

	South West	South
Vegetation Structure	Remnant (Riparian Corridor)	Remnant (< 1 ha)
Hazard Slope	4 Degrees Down slope	4 Degrees Down slope
Asset Protection Zone	> 100 Metres	> 100 Metres
Significant environmental features	Arilla Road and maintained residential allotments	Avon Road
Threatened Species and / or Endangered Ecological Communities	None Identified Report Attached	None Identified Report Attached
Aboriginal Relics	APZ Existing	APZ Existing
Bushfire Attack Level	Low	Low
Required construction Level	N/A	N/A

Asset Protection Zones Compliance

As the project relates to multi unit residential apartments compliance with the requirements for integrated residential development as defined under s100B of the Rural Fires Act 1997 and Appendix 2 and 3 of PBP 2006 is required. The proposed development is located at such a distance from any bushfire hazard interface the required Asset Protection Zones Table A2.4 can be exceeded, and consequently the Bushfire Impact determination and corresponding construction requirements can be made from Table A3.3 PBP 2006. The APZ was measured to be >50 metres from the remnant hazard within PLC to the southeast and >140 metres from the hazard to the southwest

Construction Level Compliance

With the above mentioned APZ's the highest Bushfire Attack Level to the proposed works was determined to be 'Low' requiring no minimum construction provisions under AS3959 - 2009.

Guideline Ref.	Proposed Development Determinations	Compliance
Property Access	The subject site has street access to Avon Road, Beechworth Road and Arilla Road. Attending fire services can access the south-eastern hazard via Pymble Ladies College and the south-western hazard via residential allotments on Linden Close, Allawah Road and Avon Road without the need to enter the subject site. Internal access drives will need to comply with Table 4.1 PBP 2006 / Public Access Requirements. A detailed list of these requirements will be included in the recommendations of this report.	Yes
Water Supply	Existing hydrants were found to be available for the replenishment of attending fire services along Avon Road, Allawah Road, Beechworth Road, and are also located within the Pymble Ladies College grounds. Further to this the proposed apartments must comply with the requirements of Part E 'Fire Fighting Equipment' of the Building Code of Australia and AS2419.	Yes
Emergency Management	Evacuation is possible by utilising existing and proposed road infrastructure.	Yes
Electrical Supply	New supply will be extended to connect to the proposed buildings.	Yes
Other	N/A	N/A

6.0 Aerial view of the subject allotment

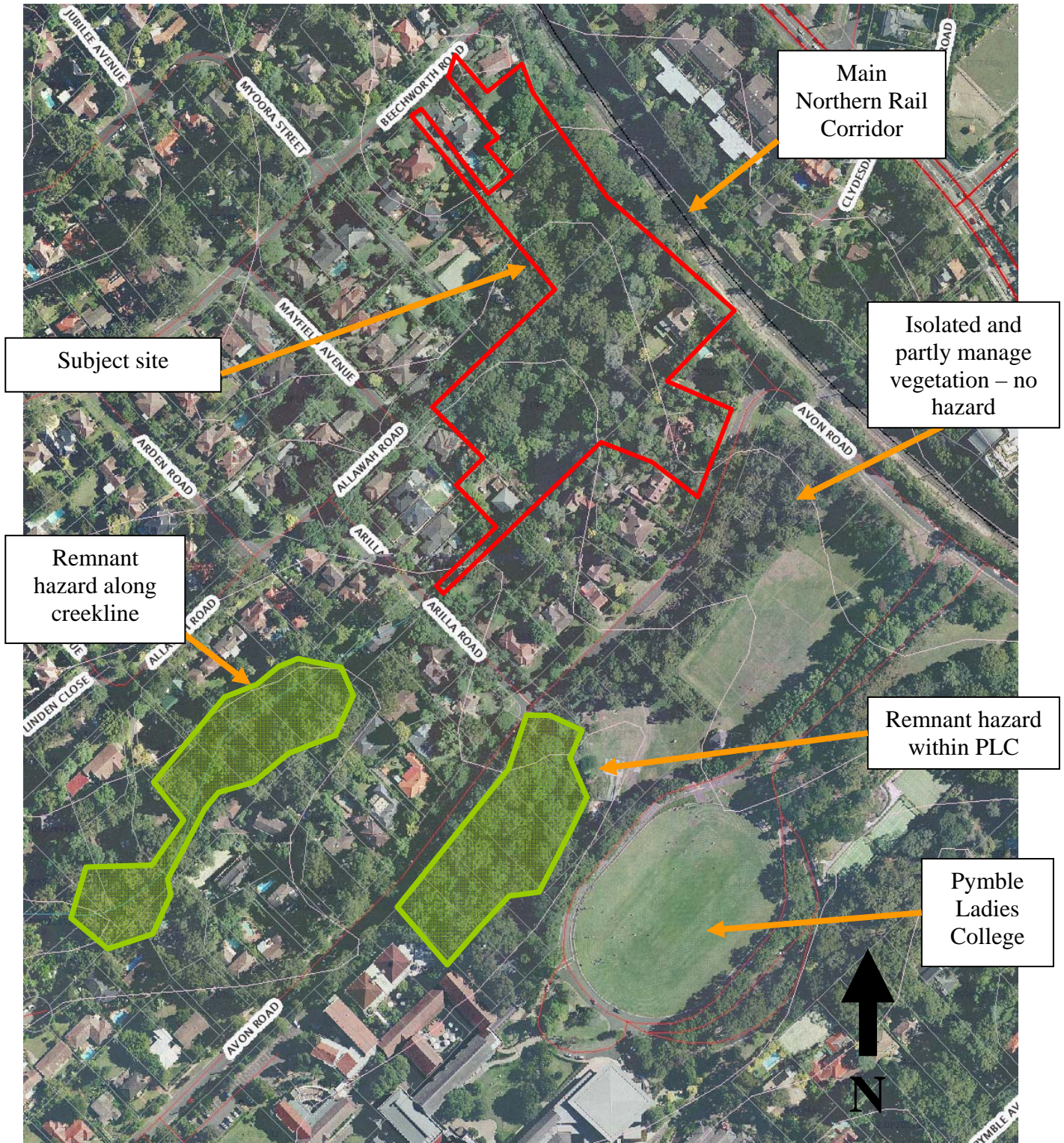


Image 01: Aerial view of the subject site

7.0 Bushfire Hazard Assessment

7.01 Preface

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service. All property development within affected areas is subject to the conditions detailed in the document 'Planning for Bushfire Protection - 2006' (PBP). Set back distances for the purpose of creating Asset Protection Zones (APZ's) must be applied and any buildings must then conform to corresponding regulations detailed in Australian Standard 3959 – 2009 'Construction of buildings in bushfire prone areas'.

Planning for Bushfire Protection – 2006, (PBP) formally adopted on the 1st March 2007 provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

The thrust of the document is to ensure that developers of new properties or subdivisions include the constraints associated with the construction of buildings in bushfire prone areas within their proposed development sites. PBP is applicable to proposed development inside a determined Category 1 or 2 areas and also inside a buffer zone radius of 100m from a Category 1 bushfire area or 30m from a Category 2 bushfire area.

The proposed development relates to the construction of a residential apartment block and is considered infill development (s79BA application). PBP does however state "*where a Class 2 building has been assessed under s79BA of the EP&A Act, a proposal for strata title subdivision will not require a bush fire safety authority under section 100B of the RF Act*" at this time, however this report extends to cover the future strata title subdivision of the apartment block. We have therefore assessed the project as if it were a s100B application.

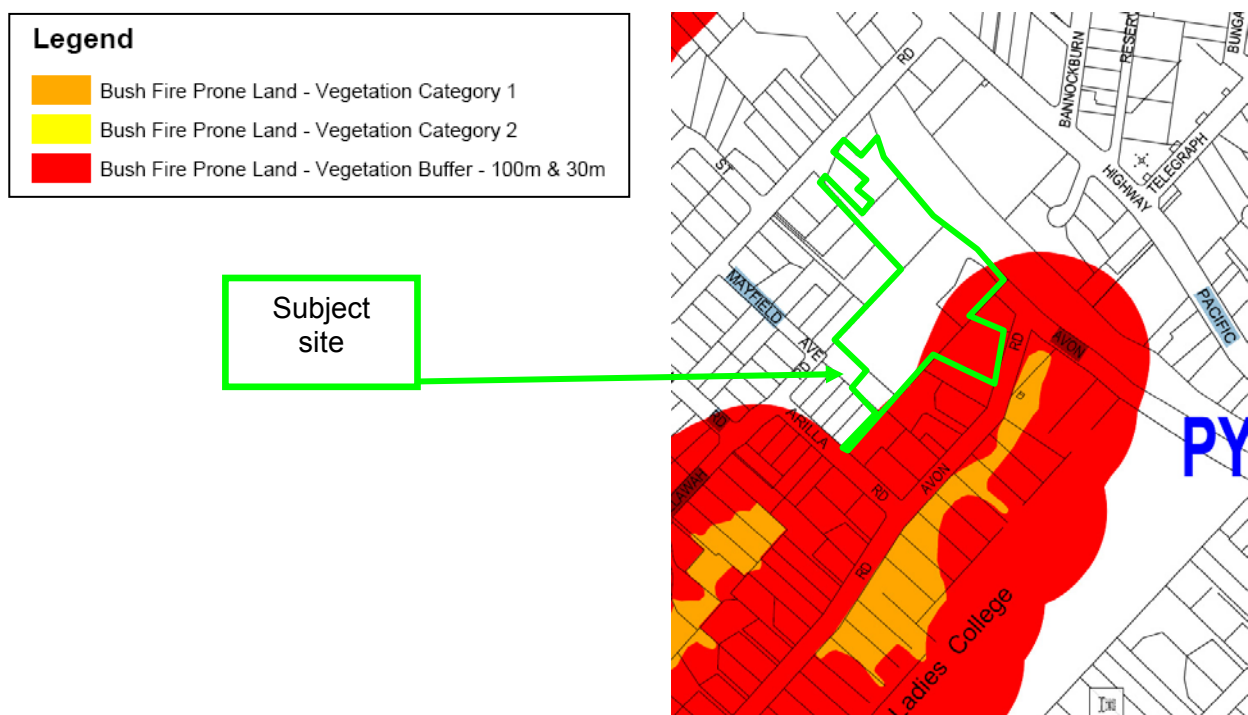


Image 02: Extract from Council's Bushfire Prone Land Map.

7.02 Location

The subject site includes 1, 1A & 5 Avon Road, 4 & 8 Beechworth Road and 1 Arilla Road Pymble (Lots 1 & 2 DP 583803, Lot 2 DP 205504, Lot 7 DP 15541 and Lots 1 & 2 DP 403072). The subject site abuts the north shore rail corridor to the east and is surrounded by Avon Road, Arilla Road Beechworth Road and residential allotments to the remaining three aspects.

The land identified as being within the Category 1 Vegetation is located south within Pymble Ladies College and southwest within private residential allotments.



Photograph 01: View east from the access to 1 and 1A Avon Road

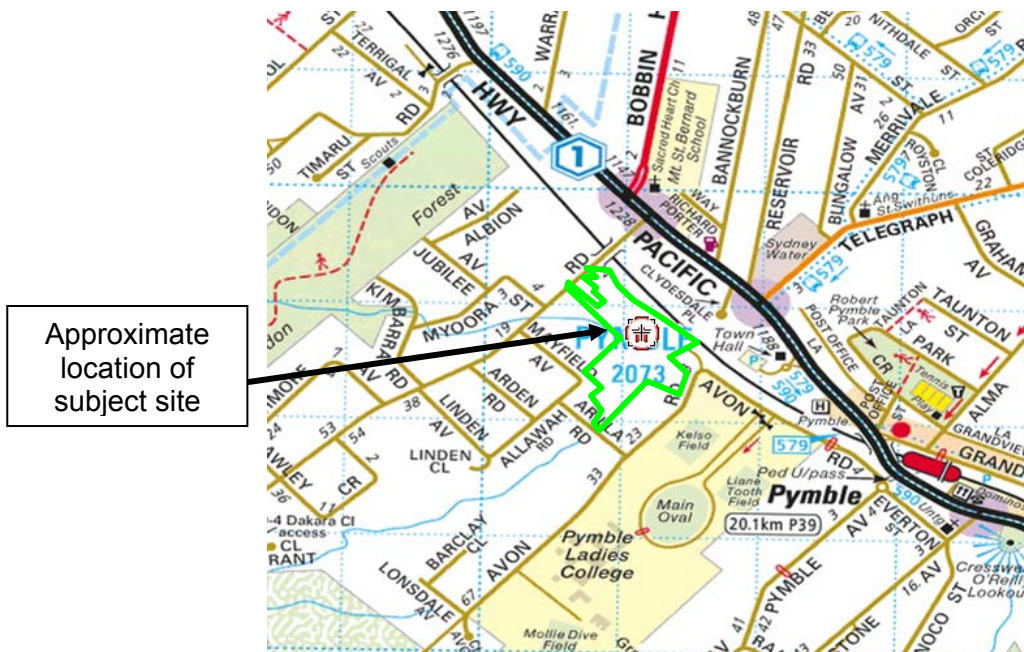


Image 03: Extract from street-directory.com.au

7.03 Slope and Topography

The slope that would most significantly affect fire behaviour must be assessed for at least 100 metres from the closest point of the proposed building footprints. The subject site was found to slope inward from the west and east flanks down to a central drainage corridor that runs downslope from the railway line in the north in a southerly direction.

Any fire impacting the property would be travelling on a 4 degree upslope from within the neighbouring allotment through the riparian corridor (external to the site) or upslope within the retained remnant vegetation within PLC (Note: The slope increases to 6 degrees outside the 100 metre assessment area). For the purpose of determining Bushfire Attack Category from PBP the slope that would **most significantly** influence bushfire impact to was determined to be:

- 4 degrees down slope to the southeast and south

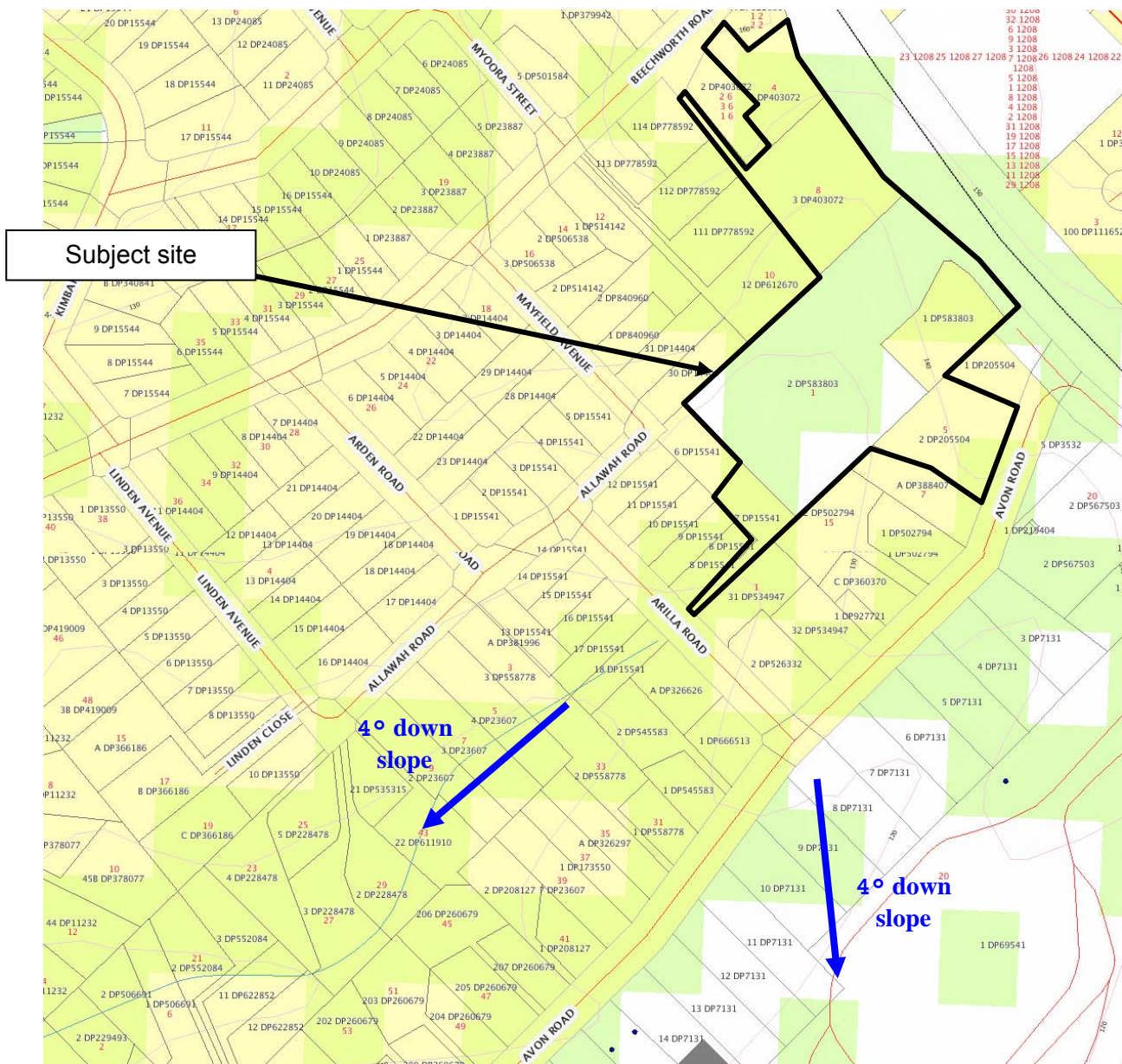


Image 04: Extract from the Department of Lands SixViewer database



Photograph 02: View north along Avon Road

7.04 Vegetation

The subject site currently consists of weed infestation, exotic planing and retained mature gum trees. There are areas of mown lawns and maintained gardens around some of the existing dwellings onsite.

The vegetation within Pymble Ladies College (PLC) immediately to the east of 1 and 5 Avon Road is a very narrow corridor of privacy screen planting adjacent the sports oval and is broken by a built structure (appears to be a pump house – possibly for sewerage works) which is also under closed circuit TV surveillance. This area appears to be subject to periodic maintenance and lawns encroach beneath the tree canopy. This vegetation is not of sufficient size / shape / nor contains sufficient canopy to constitute a serious bushfire hazard. No building is proposed within 20 metres of this privacy screen. This vegetation is separated from a larger remnant (approximately 0.7 ha) by a service road and cricket nets, located over 100 metres south of the nearest point of Lot 5 Avon Road.

The vegetation posing a hazard to the proposed development was found to consist of trees 10—30 metres in height, with a 30-70% foliage cover and an understorey of small trees and shrubs. The vegetation within PLC and southwest of the site was found to be less than one (1) hectare in size and the vegetation to the southwest is associated with a riparian corridor.

Appendix 2.3 of Planning for Bushfire Protection 2006 states that:

“Riparian Areas are those areas of vegetation which are no greater than 20 metres in width and are found on either bank of a river, creek or stream identified on a bush fire prone land map, and are treated the same as rainforests.”

The **Remnant Vegetation** principle has been applied to both aspects in accordance with Appendix 2.3 of Planning for Bushfire Protection. For the purpose of assessment under PBP the vegetation can therefore be treated as a “Rainforest” structure.



Photograph 03: View east from Avon Road near HN 5 Avon Road.



Photograph 04: View north from within PLC of the existing planting south of the subject site, note this is the main break between the privacy screen and the remnant vegetation

7.05 Asset Protection Zones

Asset Protection Zones are determined from Table A2.4 of PBP 2006 or the online Asset Protection Zone Calculator. With a 4 degree down slope from Remnant the proposed development requires a minimum 10 metre Asset Protection Zone to the south west and south east. The proposed development exceeds these minimum requirements and I note that the nearest point of any hazard interface is greater than 100 metres from any proposed structure.

The Asset Protection Zones will consist of maintained land within the subject site and adjoining residential properties and hard surfaced road infrastructure.

The site has no identified 'creek' on the Lands Department topographical map by the Department of Lands. There is no "creek" shown on the Hornsby Topographical Map 1:25000. For the purposes of this report specific advice to me is that the drainage line on the survey will not be named as riparian.

There are no known endangered Flora and Fauna species onsite and no identified Endangered Ecological Communities that inhibit the ability to maintain the site and maintain safe levels of vegetation fuel throughout the site. Reference is made to the ecological report as quoted in the VMP that concludes that;

"the stand of existing Sydney Blue Gums and associated Eucalypts does not qualify as the critically endangered ecological community Blue Gum High Forest (under the Environment Protection and Biodiversity Conservation Act 1999).

Under the Threatened Species Conservation Act "The subject stand of Sydney Blue Gums and associated Eucalypts at the subject site qualifies as Blue Gum High Forest despite the remnant being unlikely to be viable in the long term"

Further, the report concluded that no threatened flora species were found on the site during the survey. Of the species that are listed as endangered it is considered that none is likely to persist in the soil seedbank due to the site's long history of disturbance and weed invasion.

the site does not contain Blue Gum High Forest.

The proposal allows for the retention of the Blue Gum trees above a central managed garden of indigenous species. The garden will be managed to achieve the objectives of the VMP produced by Urban and Rural Design Noiv 09 in such a way that it does not pose a bushfire risk onsite and indeed the whole site will be maintained in accordance with Appendix 5 of Planning for Bushfire Protection 2006 specifically:





- Do not use ground covers or combustible mulch in the planting adjacent any structure.
- Do not plant a shrub garden against low level glazing on any structure.
- Prune trees to not overhang within 2 – 5 metres (vertically or horizontally) of any structure.
- Concentrate clusters of shrub planting within the BGHF Garden or drainage corridor aiming to achieve a 20 % cover over the entire APZ.

- Retain and plant trees as necessary to include interlocking tree canopies within the BGHF Garden or drainage corridor between. Crown lift trees as necessary to separate crown and shrub layers by at least 2 metres and ensure a vertical clearance of 4 metres is provide from and access drive.
- Separate tree crowns achieving a break of at least 2 – 5 metres at locations within the Asset Protection Zone to ensure there is no continuos interconnection from the structure through to the BGHF Garden or drainage corridor.

As detailed within the *Rural Fires Act - 1997* it is “the duty of the owner or occupier of land to take the notified steps (if any) and any other practicable steps to prevent the occurrence of bush fires on, and to minimise the danger of the spread of bush fires on or from” any land vested in or under its control or management. It is important to note that this site has neighbouring assets (occupied dwellings) and any planting must be done so as not to add to or increase the bushfire threat to the existing neighbouring properties.

The grounds should be managed on a routine basis. Particular attention to pruning, crown lifting and removal of dead fuels is made prior to the commencement of the bushfire danger period (1st October to 31st March) and at least once during the bushfire danger period.

Yearly Schedule

Time	Elevated Fuels	Surface Fuels
August		
November		
February		

All clearing is to be undertaken by hand and / or mechanical means. The use of hand held machine tools is acceptable including chainsaws. Mulching should be undertaken well before the summer months however mulch should not be applied to any garden adjacent any building, as these will be stone, crushed porcelain or similar non combustible material. Raking up of fine ground fuels is also acceptable as a general method of vegetation removal however any large quantities of collected vegetation should be manually moved away from any buildings and not allowed to “Stockpile”.



Photograph 05: View south along the existing walking/cycling path of the existing APZ



Photograph 05: View southwest from the existing viewing platform of the existing APZ

7.06 Fire Fighting Water Supply

In ground Fire Hydrants are located throughout the surrounding road network and are readily available for the replenishment of attending fire services. Further to this the proposed apartments must comply with the requirements of Part E 'Fire Fighting Equipment' of the Building Code of Australia which infers compliance with AS2419.

This water supply would be considered suitable for the replenishment of Fire Service vehicles and first attack fire fighting.

7.07 Property Access – Fire Services & Evacuation

The proposed development includes street access to Avon Road to the east and Beechworth Road to the West. The most distant external point of the proposed residential apartment will be > 70 metres of either Avon Road or Beechworth Road and therefore the Property Access requirements detailed within section 4.1.3(2) are applicable in this instance.

Internal access drives will need to comply with Table 4.1 PBP 2006 / Public Access Requirements however specific detail is not available at the time of writing this report. A detailed list of these requirements will be included in the recommendations of this report.

Attending fire services can access the hazard interface via the surrounding roads and other private allotments or via internal roads within Pymble Ladies College for hazard reduction or fire suppression activities.

Access for Fire Service's and occupant evacuation is considered satisfactory.

7.08 Fire Service Response

The NSW Fire Brigade will be the responsible agency for property protection in this region. The NSW Rural Fire Service is the support agency and they will assist NSW Fire Brigades as needs be. The following lists the location of the nearest fire stations in this area and distances given are direct line of sight.

GORDON (PYMBLE) Ku-ring-gai Pymble 2073, Pymble, NSW	Radius 1.17 km from your location
NORTH WAHROONGA Ku-ring-gai North Wahroonga 2076, North Wahroonga, NSW	Radius 4.45 km from your location
DAVIDSON Warringah Davidson 2085, Davidson, NSW	Radius 5.59 km from your location
BEECROFT Hornsby Beecroft 2119, Beecroft, NSW	Radius 6.15 km from your location
HORNSBY Hornsby Hornsby 2077, Hornsby, NSW	Radius 6.73 km from your location
WESTLEIGH Hornsby Westleigh 2120, Westleigh, NSW	Radius 6.83 km from your location

This Fire service coverage is considered acceptable for this region.

8.0 Site & Bushfire Hazard Determination

8.01 Planning for Bushfire Protection - 2006

'Planning for Bushfire Protection – 2006' (PBP) is applicable to those lands determined as being within a 'bushfire prone area' in accordance with a local Bush Fire Prone Land Map as provided by the Rural Fire Service and Council.

The most appropriate method of determining site bushfire hazard under the terms of PBP is to consider the site in a singular form. In doing so it is noted that reference is made to the determination of bushfire prone areas where it states;

Bushfire prone areas are defined as those areas;

- *within or within 100m of high or medium bushfire hazards; or*
- *within or within 30m of low bushfire hazards.*

In this instance the subject property was determined to be bushfire prone under Council's Bushfire Prone Land Map. It is therefore appropriate to apply PBP as follows:

Southern Aspect:

- a) Vegetation Structure Remnant (Forest < 1 ha)
- b) Slope 4 degrees down slope within the hazard
- c) Minimum Asset Protection Zone required 10 metres
- d) A minimum Asset Protection Zone of >50 metres is provided.

Southwestern Aspect:

- e) Vegetation Structure Remnant (Forest < 1 ha and riparian)
- f) Slope 4 degrees down slope within the hazard
- g) Minimum Asset Protection Zone required 10 metres
- h) A minimum Asset Protection Zone of >50 metres is provided.

8.02 Australian Standard AS 3959 – 2009 'Construction of buildings in bushfire –prone areas'

Australian Standard 3959 – 2009 'Construction of buildings in bushfire-prone areas' provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ. The Australian Standard 3959 specifies construction standards for buildings within various Bushfire Attack Levels as determined by the Planning for Bushfire Protection – 2006 document. The NSW Rural Fire Service will not accept deemed to satisfy provisions for BAL Flame Zone and therefore have a NSW variation to the listed standard provisions of BAL FZ under AS3959 - 2009.

8.03 Correlation between bushfire impact and AS3959

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction under AS3959-2009
Low		No special construction requirements
12.5	≤12.5	BAL - 12.5
19	12.6 to 19.0	BAL - 19
29	19.1 to 29.0	BAL - 29
40	29.1 to 40.0	BAL - 40
Flame Zone	>40.0	BAL FZ No deemed to satisfy provisions

8.04 Site Specific Bushfire Hazard Determination

The proposed development of at 1, 1A & 5 Avon Road, 4 & 8 Beechworth Road and 1 Arilla Road Pymble can meet all requirements of PBP. We have assessed the property noting the following.

- a) Available land for the APZ exceeds the requirements of PBP 2006.
- b) The proposed units must comply with the requirements of Part E 'Fire Fighting Equipment' of the Building Code of Australia.
- c) Access can comply with the requirements of PBP 2006.
- d) A vegetation management plan will need to be established to ensure the ongoing maintenance of the landscaped central garden area.

8.05 Viable Construction Method

The objectives of Planning for Bushfire Protection – 2006 are for the protection of life including fire fighters. Provided these objectives can be met the construction of buildings is feasible and both the Rural Fire Service and Council should be in a position to consider such applications.

The highest Bushfire Attack Level to the proposed residential apartment block was determined to be 'Low' requiring no minimum construction Level AS 3959 – 2009 'Construction of buildings in bushfire-prone areas'.

9.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bushfire Protection – 2006 and AS3959 - 2009. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

9.01 Asset Protection Zones

1. That all grounds within the subject site not built upon be maintained in accordance with Appendix 5 'Landscaping and Property Maintenance' of Planning for Bushfire Protection 2006. A Vegetation Management Plan has been prepared by Rural and Urban Design Nov 09 to ensure the ongoing maintenance of the subject site with the specific detail included in this report.

9.02 Construction

2. That the proposed units have gutter guards fitted having a flammability index of <5.

9.03 Access

- 7 Roads are 6.5 metre wide two way all weather roads.
- 10 Traffic management devices are constructed to facilitate access by emergency services vehicles.
- 11 Roads have a cross fall not exceeding 3 degrees.
- 12 There is a minimum vertical clearance to a height of four metres above the road at all times.
- 13 The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicate load rating.
- 14 Roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression.
- 15 Parking bays are a minimum of 2.6 metres wide from kerb edge to road pavement. No services or hydrants are located within the parking bays.

9.04 Electricity

- 16 Where practicable, electrical transmission lines are underground.
- 17 Where overhead electrical transmission lines are proposed: - lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and - no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).

9.05 Gas

- 18 Reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities. Metal piping is to be used.
- 19 All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.
- 20 If gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal.
- 21 Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.

9.06 Fencing

- 22 That no brushwood fencing be installed within the subject site.

10.0 Conclusion

Given that the property is deemed a bushfire prone property under Kuring gai Council's Bushfire Prone Land Map any proposed development including the buildings would need to meet the requirements and the intent of Planning for Bushfire Protection – 2006 and of the construction requirements of AS3959 – 2009 'Construction of buildings in bushfire-prone areas'. The determination of any bushfire hazard must be made on a site-specific basis that includes an assessment of the local bushland area and its possible impact to the subject property.

The subject site includes 1, 1A & 5 Avon Road, 4 & 8 Beechworth Road and 1 Arilla Road Pymble (Lots 1 & 2 DP 583803, Lot 2 DP 205504, Lot 7 DP 15541 and Lots 1 & 2 DP 403072). The subject site abuts the north shore rail corridor to the northeast and is surrounded by Avon Road, Arilla Road Beechworth Road and residential allotments to the remaining three aspects.

The land identified as being within the Category 1 Vegetation is located south within Pymble Ladies College and southwest within private residential allotments. The hazard was determined to be Remnant to both aspects in accordance with PBP 2006.

The required Asset Protection Zones from Remnant vegetation with a 4 degree down slope is 10 metres. The location of the proposed buildings is such that a >50 metre Asset Protection Zone is provided utilizing maintained land within the subject site, surrounding developed residential allotments and hard surfaced road infrastructure.

The highest Bushfire Attack Level to the proposed residential buildings was determined to be 'Low' requiring no minimum construction Level under AS 3959 – 2009 'Construction of buildings in bushfire-prone areas'.

In accordance with the bushfire safety measures contained in this report, and consideration of the site specific bushfire risk assessment it is my opinion that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development. I am therefore in support the proposed development.

If you have any questions regarding this assessment please contact me directly.

Building Code & Bushfire Hazard Solutions P/L



Wayne Tucker

G I Fire E

G. D. Design in Bushfire Prone Areas.

Certificate IV Fire Technology

Ass Dip Applied Science

Fire Protection Association of Australia BPAD – A Certified Practitioner Certification number – BPD – PA-09399

Disclaimer:

Quote from Planning for Bushfire Protection 2006, 'Any representation, statement opinion, or advice expressed or implied in this publication is made in good faith on the basis that the State of New South Wales, the NSW Rural Fire Service, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement or advice referred to above.'

Similarly the interpretations and opinions provided by Building Code and Bushfire Hazard Solutions in regard to bushfire protection are also given in the same good faith.

11.0 Annexure 01

List of Referenced Documents

- a) Environmental Planning and Assessment Act 1979
- b) Rural Fires Act 1997 as amended
- c) "Planning for Bushfire Protection" - NSW Rural Fire Services 2006
- d) "Construction of buildings in bushfire prone areas" - A.S. 3959 – 2009 (as amended)
- e) "Kuring gai Council's Bushfire Prone Land Map"
- f) Acknowledgements to:

UBD Directories
 SixViewer © Department of Lands
street-directory.com.au
- g) Kuring gai Council Bushfire Prone Land Map.
- h) NSW Dept Planning Director Generals requirements – MA 08-0207 (Y09/283)
- i) Urban Tree Management Arboriculture Assessment Report Ref 4191 22/4/2002 and Doc 11183.loc.1, 12 May 2009.
- j) Flora and Fauna Assessment Report AES Environmental Consultancy March 2002 Revised June 09
- k) Vegetation Management Plan – Urban & Rural Design November 2009

Attachments

Nil Attachments