



Travers

bushfire & ecology

bushfire protection assessment

Section 96 application

Extension of community centre building
Lot 806 DP 752038
8 Lady Penrhyn Drive, Beacon Hill

Under Section 100B of the Rural Fires Act (1997)

August 2018
(REF: 18VM03/A17032CEE)



Bushfire Protection Assessment Section 96 application

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Lot 806 DP 752038
8 Lady Penrhyn Drive, Beacon Hill

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GLOSSARY OF TERMS

AHIMS	Aboriginal Heritage Information System
APZ	asset protection zone
AS1596	<i>Australian Standard – The storage and handling of LP Gas</i>
AS2419	<i>Australian Standard – Fire hydrant installations</i>
AS3745	<i>Australian Standard – Planning for emergencies in facilities</i>
AS3959	<i>Australian Standard – Construction of buildings in bushfire-prone areas 2009</i>
BAL	<i>bushfire attack level</i>
BCA	<i>Building Code of Australia</i>
BSA	bushfire safety authority
EP&A Act	<i>Environmental Planning & Assessment Act 1979</i>
FDI	fire danger index
IPA	inner protection area
LEP	Local Environmental Plan
OPA	outer protection area
PBP	<i>Planning for Bush Fire Protection 2006</i>
RF Act	<i>Rural Fires Act 1997</i>
RFS	NSW Rural Fire Service
SFPP	special fire protection purpose

EXECUTIVE SUMMARY

A bushfire protection assessment report was prepared for the Section 96 application to amend the dwelling footprint of the community centre in February 2018. Consequently the NSW RFS issued a letter on 16/4/2018 (NSW RFS ref: D18/1051) stating the following:

The NSW RFS has reviewed the proposed modification and based upon an assessment of the information provided advises that the required asset protection zones to the northern property boundary have previously been determined to be 60 metres. The NSW RFS does not support any further erosion to the setback requirements.

As a consequence this report has been updated based on the revised community centre floor plans. Whilst the proposed building footprint remains the same the internal layout of the building has been amended to ensure all building walls, doors and openable windows are located over 60m from the northern boundary of the site (i.e. exposed to $<10\text{kW/m}^2$) to ensure the safety of residents and fire fighters.

The balcony (ground floor) and bowling green (outdoor rooftop) will encroach within the asset protection zone. The proposed swimming pool (lower ground floor) is a Class 10 use under the BCA and will also encroach within the APZ area. The swimming pool will be enclosed by fixed glazing screen with metal frame (compliant with BAL 19 construction).

In addition to the changes above the internal road network has also been amended, with a turning head provided adjacent to Buildings A1 & B1.

The community centre (Class 9 building) is considered an 'assembly area' under the Building Code of Australia (BCA). Whilst the building is not a special fire protection purpose (SFPP) development, *Planning for Bushfire Protection (2006)* states that it should be considered as if it is. As a result the subsequent extent of bushfire attack that can potentially impact an assembly building (entry and exit points) should not exceed a radiant heat flux of 10kW/m^2 . This rating assists in determining the size of the asset protection zone (APZ) to provide the necessary defendable space between hazardous vegetation and a building.

The assessment found that bushfire can potentially affect the proposed building from the existing tall heath vegetation located to the north-east and south-east and the forest vegetation located to the north and north-west resulting in possible ember and radiant heat attack.

The bushfire risk posed to the development can however be effectively mitigated as appropriate bushfire protection measures have been put in place and will be maintained in perpetuity.

The assessment has concluded that the proposed development will continue to provide compliance with *PBP* to ensure radiant heat levels of $>10\text{kW/m}^2$ will not be experienced by people entering or exiting the building.

The following table confirms the proposals compliance with the NSW Bushfire Safety Authority identified above.

NSW RFS BSA	Compliance statement
At the commencement of building works and in perpetuity the entire property shall be managed as an inner protection area (IPA) as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.	Complies. The entire site is currently managed as an inner protection area.
A minimum 60 metre asset protection zone (APZ) setback is to be provided from the northern boundary of the subject site to proposed units A1, B1 and A2. In accordance with section 88B of the 'Conveyancing Act 1919' a restriction to the land use shall be placed on the property requiring the provision of this APZ which shall be maintained as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'. This restriction can be extinguished upon commencement of any future proposed development within the adjoining lots to the north, but only if the hazard is entirely removed or managed as part of the proposal.	This condition applies to the buildings west of the community centre (directly south of the forest vegetation). The building, walls, doors and openable windows of the community centre are provided with a setback of 60m to the forest vegetation in the north & north-west (<10kW/m2).
A minimum 45 metre asset protection zone (APZ) setback is to be provided from the northern boundary of the subject site to proposed unit B2. In accordance with section 88B of the 'Conveyancing Act 1919' a restriction to the land use shall be placed on the property requiring the provision of this APZ which shall be maintained as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'. This restriction can be extinguished upon commencement of any future proposed development within the adjoining lots to the north, but only if the hazard is entirely removed or managed as part of the proposal.	This condition applies to the buildings east of the community centre (directly south of the tall heath vegetation). The proposed doors and openable windows of the community centre are provided with a setback of >60m to the tall heath vegetation in the north-east (<10kW/m2).
A minimum 20 metre asset protection zone (APZ) setback is to be provided along the entire length of the south eastern, southern and south western property boundaries of the subject site, particularly to proposed units A1, B2, B3, B4 and C1. In accordance with section 88B of the 'Conveyancing Act 1919' a restriction to the land use shall be placed on the property requiring the provision of this APZ which shall be maintained as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'. This restriction can be extinguished upon commencement of any future proposed development within the adjoining lots, but only if the hazard is entirely removed or managed as part of the proposal.	Complies.

NSW RFS BSA	Compliance statement
A fire management plan is to be prepared that addresses the following requirements: a) Contact person / department and details; and b) Schedule and description of works for the construction of asset protection zones and their continued maintenance.	<i>TBE</i> prepared a fuel management plan (FMP) which address item a) and b). This plan has been prepared taking into consideration the conditions granted on 30 December 2010 by the NSW Land and Environment Court for Appeal No. 10973 of 2009.
At the commencement of building works and in perpetuity the entire property surrounding the existing dwelling shall be managed as an inner protection area (IPA) as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.	Complies. The entire site is currently managed as an inner protection area.
Water, electricity and gas are to comply with section 4.1.3 and 4.2.7 of 'Planning for Bush Fire Protection 2006'	Complies. Water, electricity and gas services have been installed in accordance with this condition.
Property access roads shall comply with sections 4.1.3(2) and 4.2.7 of 'Planning for Bush Fire Protection 2006'.	N/A. There are no property access roads proposed to the community centre.
Internal roads shall comply with section 4.2.7 of 'Planning for Bush Fire Protection 2006'.	Complies. The road has a carriageway width of 6.5m in compliance with this condition. This application includes a proposed amendment to the internal road layout. This revised layout complies with this condition.
Arrangements for emergency and evacuation are to comply with section 4.2.7 of 'Planning for Bush Fire Protection 2006'. An Emergency/Evacuation Plan is to be prepared detailing the following: 1) under what circumstances will the complex be evacuated; 2) where will occupants be evacuated to; 3) roles and responsibilities of persons co-ordinating the evacuation; 4) roles and responsibilities of persons remaining with the complex after evacuation; and 5) a procedure to contact the NSW Rural Fire Service District Office / NSW Fire Brigade and inform them of the evacuation and where they will be evacuated to.	Complies. A bushfire emergency evacuation plan was prepared by this firm in October 2014. This plan outlines the evacuation triggers and procedures for either sheltering in place or evacuation off site. It is recommended that the evacuation plan is updated to reflect the amended development design.
New construction shall comply with Australian Standard AS3959-1999 'Construction of buildings in bush fire-prone areas' Level 1.	The community centre is to comply with BAL 19 as outlined in AS3959 (2009)

NSW RFS BSA	Compliance statement
Roller doors, tilt-a-doors and other such doors shall be sealed to prevent the entry of embers into the building.	Roller doors are to comply with this condition.
Roofing shall be gutterless or guttering and valleys are to be screened to prevent the build-up of flammable material. Any materials used shall have a Flammability Index of no greater than 5 when tested in accordance with Australian Standard AS1530.2-1993 'Methods for Fire Tests on Building Materials, Components and Structures - Test for Flammability of Materials'.	The community centre is to comply with this condition.
The existing dwelling is required to be upgraded to improve ember protection. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen. Where applicable, this includes any sub floor areas, openable windows, doors, vents, weepholes and eaves.	N/A.

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REFERENCES

SCHEDULE 1 – Bushfire Protection Measures



Introduction

1

Travers bushfire & ecology has been requested to undertake a bushfire protection assessment for the Section 96 application to amend the proposed community centre footprint at the approved senior's facility at Lot 806 DP 752038, 8 Lady Penrhyn Drive, Beacon Hill. This report also includes an assessment of the proposed amendment to the internal road layout.

The property is located on land that is mapped by Northern Beaches Council as being bushfire prone. This triggers a formal assessment by Council in respect of the NSW Rural Fire Service (RFS) policy against the provisions of *Planning for Bush Fire Protection 2006 (PBP)*.

1.1 Aims of the assessment

The aims of the bushfire protection assessment are to:

- Review the bushfire threat to the landscape
- Undertake a bushfire attack assessment in accordance with *PBP*
- Provide advice on mitigation measures, including the provision of asset protection zones (APZs), construction standards and other specific fire management issues
- Review the potential to carry out hazard management over the landscape

1.2 Project synopsis

The current development consent for the seniors living facility was issued in 2010 – Court Appeal no. 10973 of 2009. The RFS issued their general terms of approval on the 4th of February, 2010.

The proposed changes subject to this new assessment include:

- Amendment to the road layout to provide for a turning 'T' head adjacent to Building A1 & B1 (refer Figure 1.1)
- Amendment to the dwelling footprint for community centre (refer Figures 1.1 – 1.3)

Whilst the building footprint has been amended, radiant heat levels of $>10\text{kW/m}^2$ will not be experienced by people entering or exiting the building.

The proposed pool (lower ground floor), balcony (ground floor) and bowling green (outdoor rooftop) is located within the 10kW/m^2 zone. However all doors and openable windows are located to ensure the safety of residents and fire fighters (i.e. subject to $<10\text{kW/m}^2$).

The revised proposal provides for a 42m setback to the north measured from the balcony / pool. The setback provided to the building doors / openable windows is 60m.

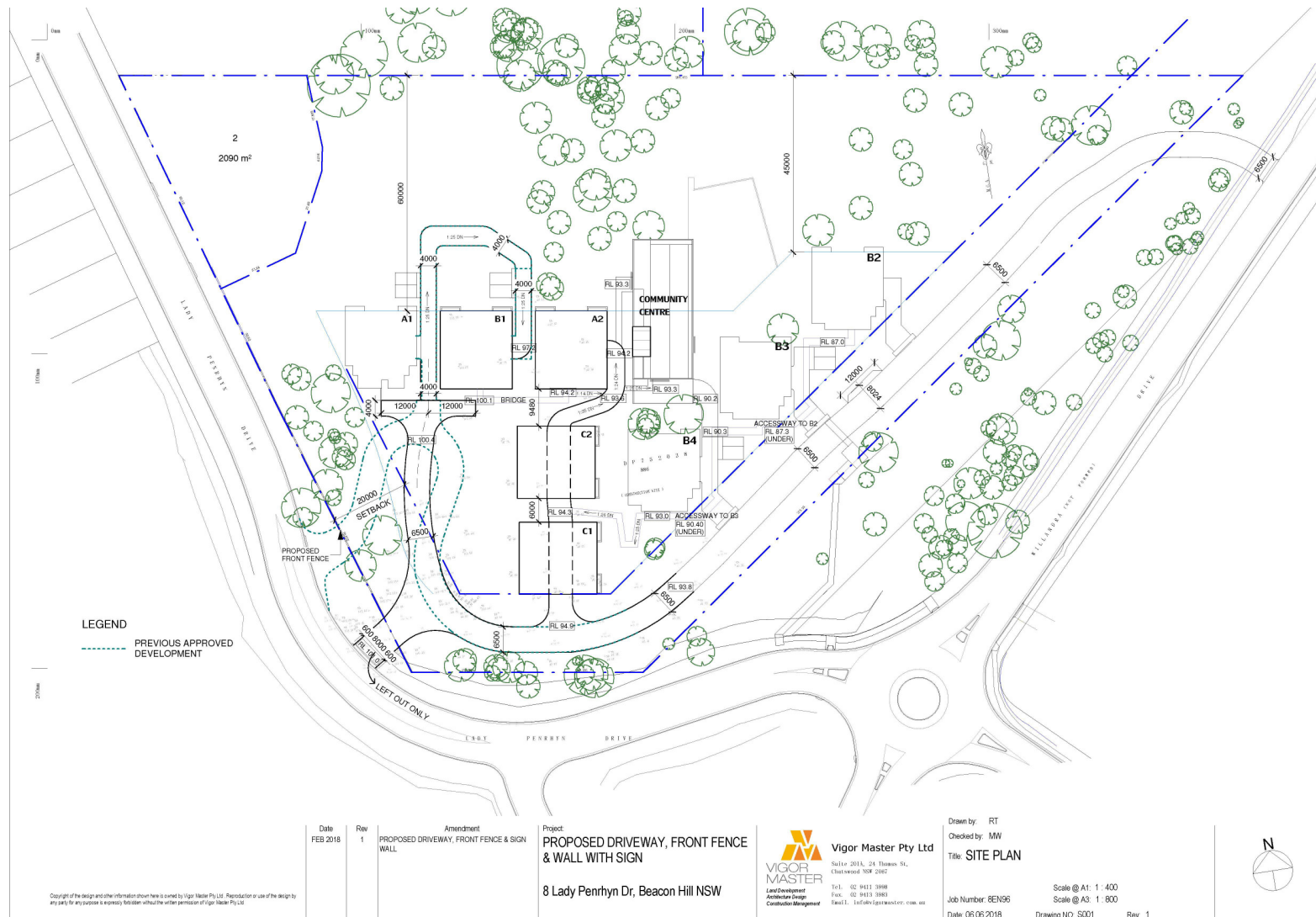


Figure 1.1 – Site plan

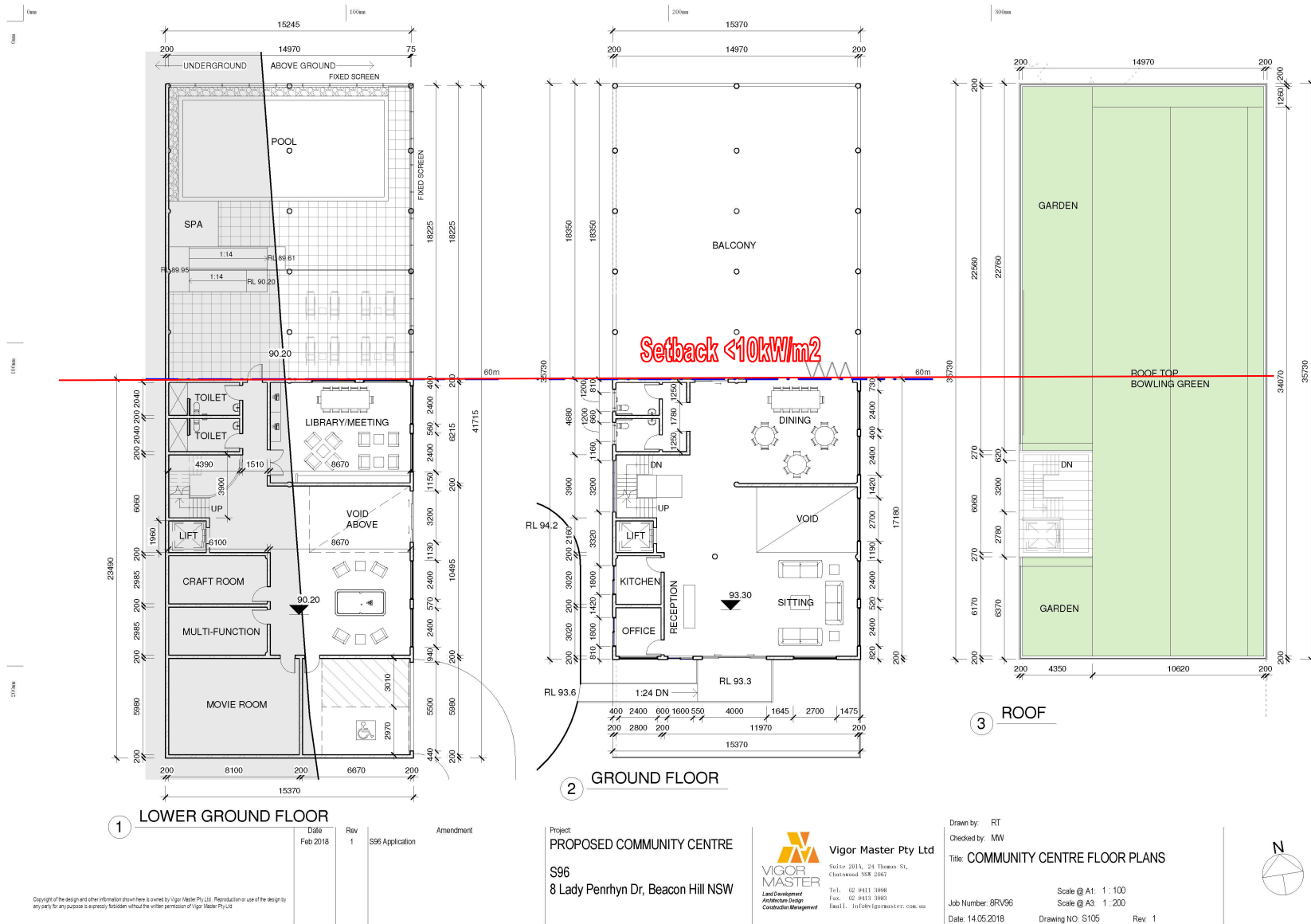


Figure 1.2 – Floor plan

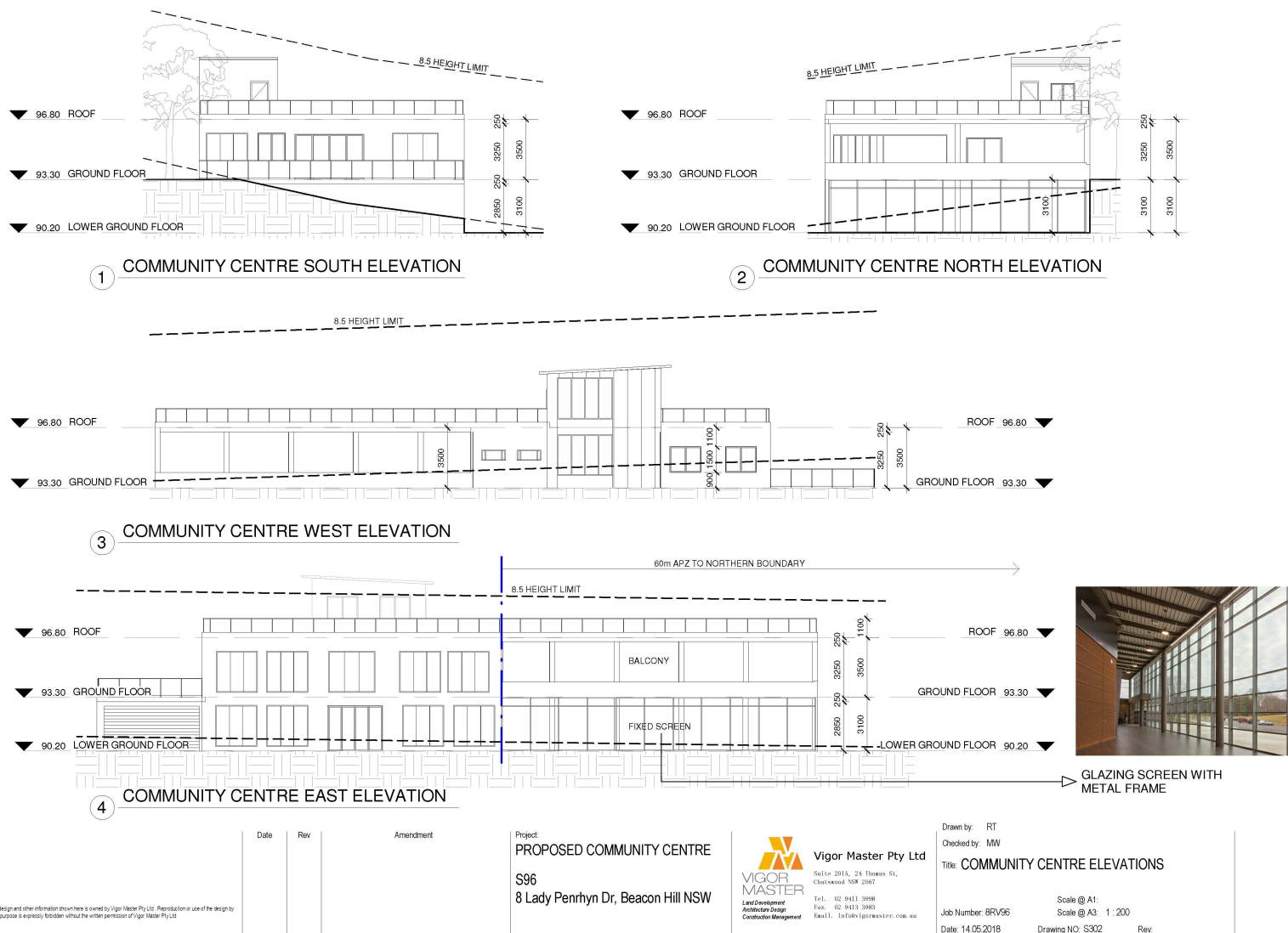


Figure 1.3 – Elevation plans

1.3 Information collation

To achieve the aims of this report, a review of the information relevant to the property was undertaken prior to the initiation of field surveys. Information sources reviewed include the following:

- Site, floor and elevation plans prepared by *Vigormaster Pty Ltd*, dated 14.05.2018
- *Google* aerial photography
- Topographical maps DLPI of NSW 1:25,000
- Australian Standard 3959 *Construction of buildings in bushfire-prone areas*
- *Planning for bush fire protection 2006 (NSW RFS)*.

An inspection of the proposed development site and surrounds was undertaken by John Travers in January 2018 to assess the topography, slopes, aspect, drainage, vegetation and adjoining land use. The identification of existing bushfire measures and a visual appraisal of bushfire hazard and risk were also undertaken.

1.4 Site description

The aged care facility is located to the east of Lady Penrhyn Drive, Beacon Hill within the local government area (LGA) of the Northern Beaches.

The site is adjoined by Lady Penrhyn Drive in the west and south and Willandra Road in the east (refer Figure 1.4). The land adjacent to the sites northern boundary supports open forest and tall heath vegetation whilst the land to the south-east and beyond Lady Penrhyn Drive to south-west supports tall heath vegetation.



Figure 1.4 – Aerial appraisal

1.5 Legislation and Planning Instruments

Is the site mapped as bushfire prone?	Yes
Proposed development type	Seniors living development (Section 96 application)
Is the development considered integrated for the purposes of Section 100B of the <i>Rural Fires Act 1997</i>	Yes – referral and approval by the NSW RFS is required
Is the proposal located in an Urban Release Area as defined under Clause 273 of the EP&A Regulations?	No
Significant environmental features	No
Details of any Aboriginal heritage	No
Does the proposal rely on an alternative solution	Yes – Turning ‘T’ head for truck turning and reduced APZ for pool and deck area.



Bushfire Threat Assessment

2

To assess the bushfire threat and to determine the required width of an APZ for a development, a review of the elements that comprise the overall threat needs to be completed.

PBP provides a methodology to determine the size of any APZ that may be required to offset possible bushfire attack.

These elements include the potential hazardous landscape that may affect the site and the effective slope within that hazardous vegetation.

2.1 Hazardous fuels

PBP guidelines require the identification of the predominant vegetation formation in accordance with David Keith (2004) to determine APZ distances.

The hazardous vegetation within 140m of the proposed community centre includes the:

- Dry sclerophyll forest vegetation located to the north & north-west beyond the sites boundary
- Tall heath associated with the bushland located to the north-east of the sites boundary
- Narrow strip of remnant tall heath external to the sites south-eastern boundary

The remaining land, within 140m of the dwellings, is not considered a bushfire threat as it consists of a managed landscape.

2.2 Effective Slope

The effective slope is assessed for a distance 100m external to a building facade.

Effective slope refers to that slope which provides the most effect upon likely fire behaviour. A mean average slope may not in all cases provide sufficient information such that an appropriate assessment can be determined.

The effective slope within the hazardous vegetation is:

- Level to upslope within the forest to the north & north-west
- 0-5 degrees downslope within the tall heath to the north-east
- 0-5 degrees downslope within the remnant tall heath vegetation to the south-east

2.3 Bushfire Attack Assessment

A fire danger index (FDI) of 100 has been used to calculate bushfire behaviour on the site using forest vegetation located within the Greater Sydney region. Table 2.1 provides a summary of the bushfire attack assessment using a deemed to satisfy (DTS) approach (Method 1 of AS3959 (2009)).

Column 5 identifies the APZ setbacks and radiant heat exposure to the building entry and exit points. Column 6 identifies the APZs provided to the building footprint (to include the balcony and pool area) and to determine the building construction standard required to be applied.

Table 2.1 – Bushfire Attack Assessment – SFPP buildings

Aspect	Vegetation within 140m of development	Effective slope of land	APZ required Appendix 2 of PBP (metres)	APZ / radiant heat exposure to building entry / exit points (metres)	APZ/radiant heat exposure to pool and balcony area	Building Construction standard
North	Forest	Level to upslope	60	60 <10kW/m ²	42	BAL 19
North & north-east	Tall heath	0-5 ^{0D}	50	60 <10kW/m ²	50 <10kW/m ²	As above
South-west and west	Managed land	N/A	N/A	>100m <10kW/m ²		As above
South & south-east	Remnant / short heath (refer Note 1)	0-5 ^{0D}	40	40m <10kW/m ²		As above

Notes: * Slope is either 'U' meaning upslope or 'C' meaning cross slope or 'D' meaning downslope

Note 1: PBP describes remnant vegetation as a parcel of vegetation with a size of less than 1ha or a shape that provides a potential fire run directly towards a building not exceeding 50m. The vegetation to the south-east exhibits these qualities and therefore the threat posed is considered low and APZ setbacks for this aspect are the same as for the rainforest category outlined in PBP.

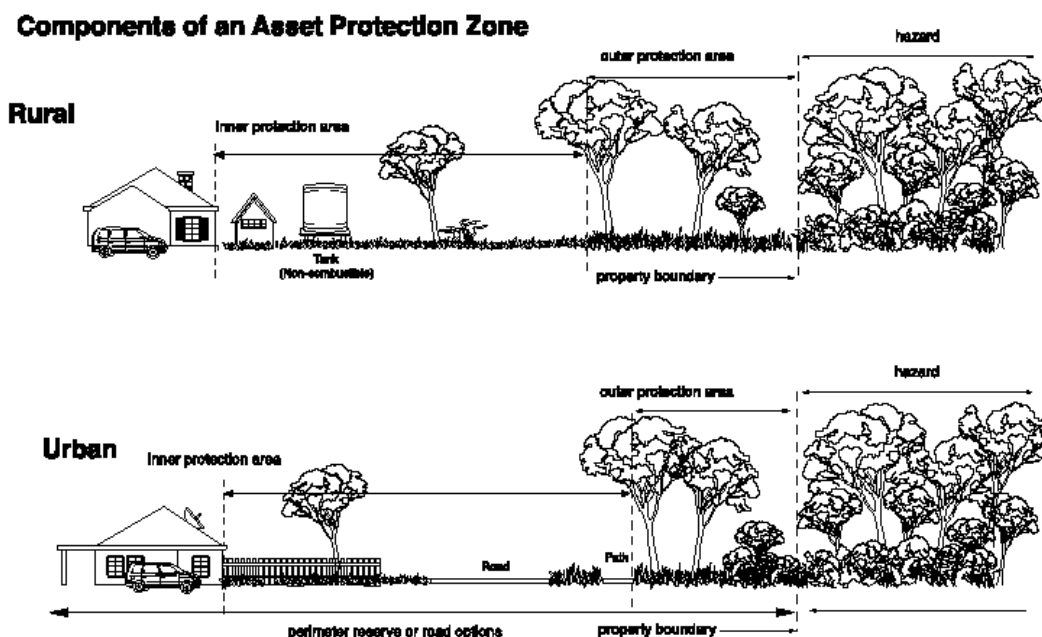


Specific Protection Issues

3

3.1 Asset protection zones

APZs are areas of defensible space separating hazardous vegetation from buildings. The APZ generally consists of two subordinate areas, an *inner protection area* (IPA) and an *outer protection area* (OPA). The OPA is closest to the bush and the IPA is closest to the dwellings. The IPA cannot be used for habitable dwellings but can be used for all external non habitable structures such as pools, sheds, non-attached garages, cabanas, etc. A typical APZ and therefore defensible space is graphically represented below:



Source: RFS, 2006

Note: Vegetation management as shown is for illustrative purposes only. Specific advice is to be sought in regard to vegetation removal and retention from a qualified and experienced expert to ensure APZs comply with the RFS performance criteria.

PBP dictates that the subsequent extent of bushfire attack that can potentially emanate from a bushfire must not exceed a radiant heat flux of 10kW/m^2 for SFPP developments.

These ratings assist in determining the size of the APZ in compliance with Appendix 2 of *PBP* to provide the necessary defensible space between hazardous vegetation and a building. Table 3.1 outlines the proposed community building compliance with the performance criteria for APZs.

Table 3.1 – Performance Criteria for Asset Protection Zones (SFPP) (*PBP* guidelines pg. 19)

Performance Criteria as determined by RFS in PBP	Acceptable Solutions as required by RFS in PBP	Compliance statement with the acceptable solutions.
Radiant heat levels of greater than 10kW/m ² will not be experienced by occupants or emergency services workers entering or exiting a building.	An APZ is provided in accordance with the relevant tables and figures in Appendix 2 of <i>PBP</i>. Exits are located away from the hazard side of the building. The APZ is wholly within the boundaries of the development.	Non-compliance. The APZs provided to the north do comply with Appendix 2 of <i>PBP</i> 2006. However as outlined in Section 2.3 above an alternative solution approach has been undertaken to confirm that radiant heat levels of greater than 10kW/m² will not be experienced by occupants or emergency services workers entering or exiting a building. This complies with the performance criteria. Exits to the building are located to the south and south-east of the building, with a third exit located on the western elevation (outside of areas exposed to >10kW/m²). The enclosed pool area, balcony and roof top bowling green are located within the APZ.
Applicant demonstrates that issues relating to slope are addressed: maintenance is practical, soil stability is not compromised and the potential for crown fire is negated.	Mechanisms are in place to provide for the maintenance of the APZ over the life of the development. The APZ is not located on land with a slope exceeding 18 degrees.	Complies
APZs are managed and maintained to prevent the spread of a fire towards the building.	In accordance with the requirements of <i>Standards for Asset Protection Zones</i> (RFS 2005).	Complies

3.2 Building protection

The construction classification system is based on six (6) bushfire attack levels (BAL). These are BAL – Flame Zone (FZ), BAL 40, BAL 29, BAL 19, BAL 12.5 and BAL LOW. The lowest level, BAL 12.5, has the longest APZ distance while BAL – FZ has the shortest APZ distance. These allow for varying levels of building design and use of appropriate materials.

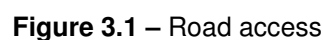
The proposed swimming pool (lower ground floor) is a Class 10 use under the BCA and will also encroach within the APZ area. The swimming pool will be enclosed by fixed glazing screen with metal frame (compliant with BAL 19 construction).

The proposed community centre (including the enclosed pool area) should comply with BAL 19 building construction standards as outlined in *AS3959 Construction of buildings in*

As outlined in Table 2.1 a portion of the building (i.e. balcony and pool area) is exposed to a radiant heat level of 19 kW/m². This figure is greater than 12.5 and as a result BAL 19 construction standards will apply to the entire building.

As per previous consent conditions the owner of the lot will be required to manage the entire property as an inner protection area in accordance with RFS guidelines *Standards for Asset Protection Zones* (RFS, 2005) with landscaping to comply with Appendix 5 of *PBP*.

Access to the site is provided via an approved 6.5m wide road extending from Willandra Road in the east to Lady Penryn Drive in the west. The proposed amendment to internal road layout is highlighted in Figure 3.1 below. As depicted, a 50m long dead end road is proposed to extend from the internal road network to access Building A1 & B2. A turning 'T' head within access handles of 12m long and 4m wide will be provided in compliance with the performance criteria of *PBP*.



3.5 Water supplies

Fire hydrants have been installed and are not located in the road carriageway. It is recommended that a hydraulic consultant provides confirmation that the water supply complies with AS2419.1 – 2005 in terms of spacing, sizing and pressure and that access points for reticulated water supply incorporates a ring main system for all internal roads.

3.6 Gas

Table 3.4 outlines the required performance criteria for the proposals gas supply.

Table 3.4 – Performance Criteria for Gas Supplies

Performance criteria	Acceptable Solutions	Complies
Location of gas services will not lead to the ignition of surrounding bushland land or the fabric of buildings	Reticulated or bottled gas bottles are to be installed and maintained in accordance with AS 1596 – 2002 and the requirements of relevant authorities. Metal piping is to be used. All fixed gas cylinders are to be kept clear of flammable materials and located on the non-hazard side of the development. If gas cylinders are to be kept close to the building the release valves must be directed away from the building and away from any combustible material, so that they do not act as a catalyst to combustion. . Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used	Complies - can be made a condition of consent.

3.7 Emergency and evacuation planning

Table 3.5 outlines the required performance criteria for the proposals emergency procedures

Table 3.5 – Performance Criteria for Emergency and Evacuation Planning

Performance criteria	Acceptable Solutions	Complies
An Emergency and Evacuation Management Plan is approved by the relevant fire authority for the area.	An emergency / evacuation plan is prepared consistent with the RFS Guidelines for the Preparation of Emergency / Evacuation Plan. <i>Note: The applicant should provide a copy of the above document to the local Bush Fire Management Committee for their information prior to the occupation of any accommodation of a SFPP.</i>	Complies - can be made a condition of consent. (refer Note 1)
Suitable management arrangements are established for consultation and implementation of the emergency and evacuation plan.	An Emergency Planning Committee is established to consult with staff in developing and implementing and Emergency Procedures Manual. Detailed plans of all Emergency Assembly Areas including on site and off site arrangements as stated within AS3745 are clearly displayed, and an annual trial emergency evacuation is conducted.	Complies - can be made a condition of consent.

Note 1: A bushfire emergency evacuation plan was prepared by this firm in October 2014. This plan outlines the evacuation triggers and procedures for either sheltering in place or evacuation off site.

It is recommended that the evacuation plan is updated to reflect the amended development design. This plan should show feasible alternate route/s of exit/s through the southern part of the building which can be utilised in an emergency situation should a bush fire threaten from the north. A suitable resident pickup point should also be shown on the plan.



Conclusion & Recommendations

4

4.1 Conclusion

The proposed changes subject to this new Section 96 application includes:

- Amendment to the dwelling footprint for community centre
- Amendment to the road design to provide for a turning 'T' head adjacent to Buildings A1 & B1.

The assessment found that bushfire can potentially affect the proposed community building from the existing tall heath vegetation located to the north-east and south-east and the forest vegetation located to the north and north-west resulting in possible ember and radiant heat attack.

The bushfire risk posed to the development can however be effectively mitigated as appropriate bushfire protection measures have been put in place and will be maintained in perpetuity.

The assessment has concluded that the proposed development will continue to provide compliance with *PBP* to ensure radiant heat levels of $>10\text{kW/m}^2$ will not be experienced by people entering or exiting the building.

The following recommendations are provided to ensure that the development is in accord or greater than the requirements of *PBP*.

4.2 Recommendations

Recommendation 1 - The development is as generally indicated on the attached Schedule 1 – Plan of Bushfire Protection Measures.

Recommendation 2 - APZs are to be provided to the proposed development as nominated in Table 2.1 and also as generally depicted in Schedule 1.

Recommendation 3 – A turning 'T' head is to be provided adjacent to buildings A1 & B1 in accordance with Section 3.4 of this report.

Recommendation 4 - The community centre is to comply with BAL 19 as outlined within Australian Standard AS3959 *Construction of buildings in bushfire prone areas (2009;)* with additional construction requirements as listed within Section A3.7 of Addendum Appendix 3 (*Planning for Bush Fire Protection, 2006*).

Recommendation 5 - Roofing shall be gutterless or guttering and valleys are to be screened to prevent the build-up of flammable material. Any materials used shall have a Flammability Index of no greater than 5 when tested in accordance with Australian Standard

AS1530.2-1993 'Methods for Fire Tests on Building Materials, Components and Structures - Test for Flammability of Materials'.

Recommendation 6 – Roller doors, tilt-a-doors and other such doors shall be sealed to prevent the entry of embers into the building.

Recommendation 7 – Gas supply is to comply with Section 4.2.7 of *PBP*.

Recommendation 8 – It is recommended that the existing evacuation plan is updated to be consistent with the RFS *Guidelines for the Preparation of Emergency / Evacuation Plan* and to reflect the amended development design. This plan should show feasible alternate route/s of exit/s through the southern part of the building which can be utilised in an emergency situation should a bush fire threaten from the north. A suitable resident pickup point should also be shown on the plan.

Recommendation 9 - The landowner / manager is to be made aware of their liability to manage the development lands for the ongoing protection of themselves and their neighbours (refer Section 63(2) *RF Act*)

Recommendation 10 - Landowners living in bushfire prone areas should familiarise themselves with publications published by the RFS. These are located on the RFS web site www.rfs.nsw.gov.au under 'Publications'.

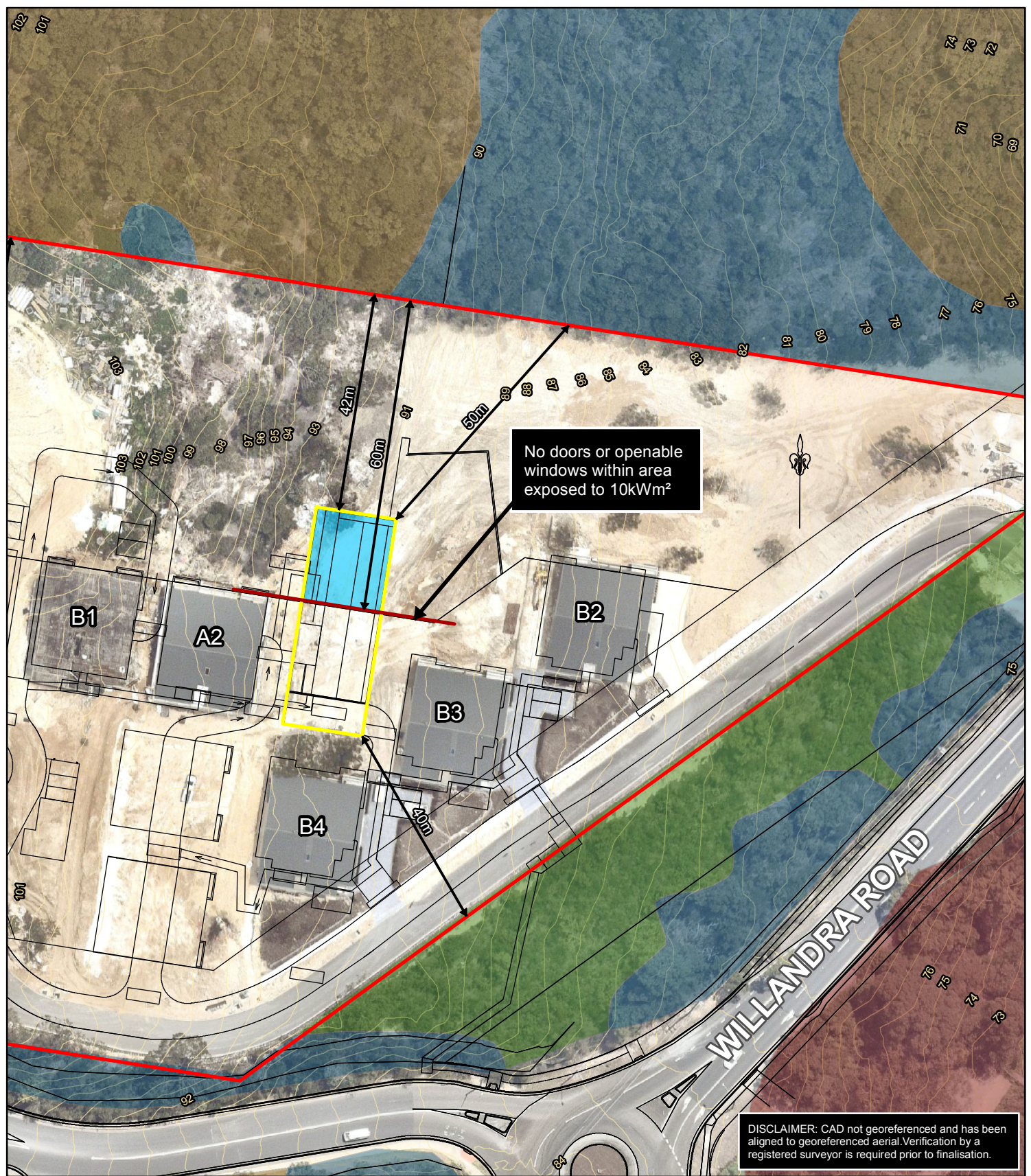
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Plan of Bushfire Protection Measures

S1



Legend

- | | |
|--|---|
| Lot Boundary (source: CAD) | Vegetation Communities |
| Contours -1m (source: LiDAR) | Tall heath |
| Pool/balcony | Short heath |
| Extent of 10kW/m² | Open forest |
| | Remnant forest with weed infected understorey |

Bushfire Construction Standards

AS3959 (2009)*

BAL 19

* Please refer to additional construction requirements for BAL levels which are contained in Addendum Appendix 3 of 'Planning for Bushfire Protection' (2006).

Aerial source: Nearmap



PROJECT & MXD REFERENCE
Lady Penryhn Dr, Beacon Hill
18VM03_BF001

DATE & ISSUE
6/08/2018
Issue 1

SCALE & COORDINATE SYSTEM
1:1,000 @ A4
GDA 1994 MGA Zone 56

TITLE

Schedule 1 - Bushfire Protection Measures

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0 10 20 m

Disclaimer: The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.