Bushfire Protection Assessment

Proposed Alterations/Additions - Flower Power Garden Centre

277 Mona Vale Road, Terrey Hills

Statewide Project Management

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LIMITATIONS

The bushfire protection measures recommended in this report do not completely remove the risk to life and property, and they do not guarantee that a development will not be impacted by a bushfire event. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions.

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Abbreviations

Abbreviation	Description
AS 3959	Australian Standard 3959-2018 'Construction of buildings in bushfire-prone areas'
APZ	Asset Protection Zone
BAL	Bushfire Attack Level
BFPL	Bush fire prone land
BPM	Bushfire Protection Measures
DA	Development Application
DPIE	NSW Department of Planning, Industry and Environment
EP&A Act	*Environmental Planning and Assessment Act 1979*
FDI	Fire Danger Index
IPA	Inner Protection Area
NASH	National Association of Steel-framed Housing
NCC	National Construction Code
OEH	Office of Environment and Heritage
OPA	Outer Protection Area
PBP	'Planning for Bush fire Protection 2019'
RFS	NSW Rural Fire Service
SA	Standards Australia

1. Property and proposal

Table 1 identifies the subject property and outlines the type of development proposed.

Table 1: Subject site and development proposal summary

Street address:	277 Mona Vale Road
Postcode:	2084
Lot/DP no:	Lot 4/DP737411
Local Government Area:	Northern Beaches Council
Fire Danger Index (FDI)	100
Current land zoning:	RU4-Primary Production Small Lots
Type of development proposed:	Commercial Buildings

1.1 Description of proposal

The proposal is for the redevelopment of the current Flower Power Garden Centre – incorporating construction of a new garden centre, nursery, café, children's play area, shops, staff and visitor amenities and storage spaces. The development also includes on grade and underground carparking. Under the building classification system within the NCC, class 5- 8 buildings include offices, shops, factories, warehouses, public car parks and other commercial and industrial facilities (PBP 2019). The proposed development types are considered to be classified as Class 6, 7 and 8 buildings under the NCC. (see Figure 1). The development entails a total enclosed floor area of approx. 6600 m2 at various locations around the site.

The proposed development is located on land classified as bush fire prone on the Northern Beaches Council Bush Fire Prone Land (BFPL) map[1].

1.2 Assessment process

The proposal was assessed in accord with Section 4.14 of the *Environmental Planning and Assessment Act 1979* and *Planning for Bush Fire Protection* (RFS 2019), herein referred to as PBP.

The proposal is for commercial development and has been assessed in accordance with the aims and objectives of PBP. Chapter 7 of PBP has been utilised as a guide in developing the relevant bushfire protection measures (BPM) commensurate with the bushfire risk to the site.

This assessment is based on the following information sources:

- Background documentation provided by Statewide Project Management;
- Information contained within the site plans from Leffler Simes Architects (4932 DWG No SK01 Rev C JUL 21, and 4932 DWG No SK01 REV F JUL21, and 4932 DWG DA15 REV 10 NOV21);
- GIS analysis including online spatial resources (i.e. Google Earth, SIX Maps, Nearmap and the NSW Government Planning Portal); and

[1] https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

- Site inspection undertaken on 3 December 2021.

Table 2 identifies the bushfire protection measures assessed and whether an acceptable or performance solution is being proposed.

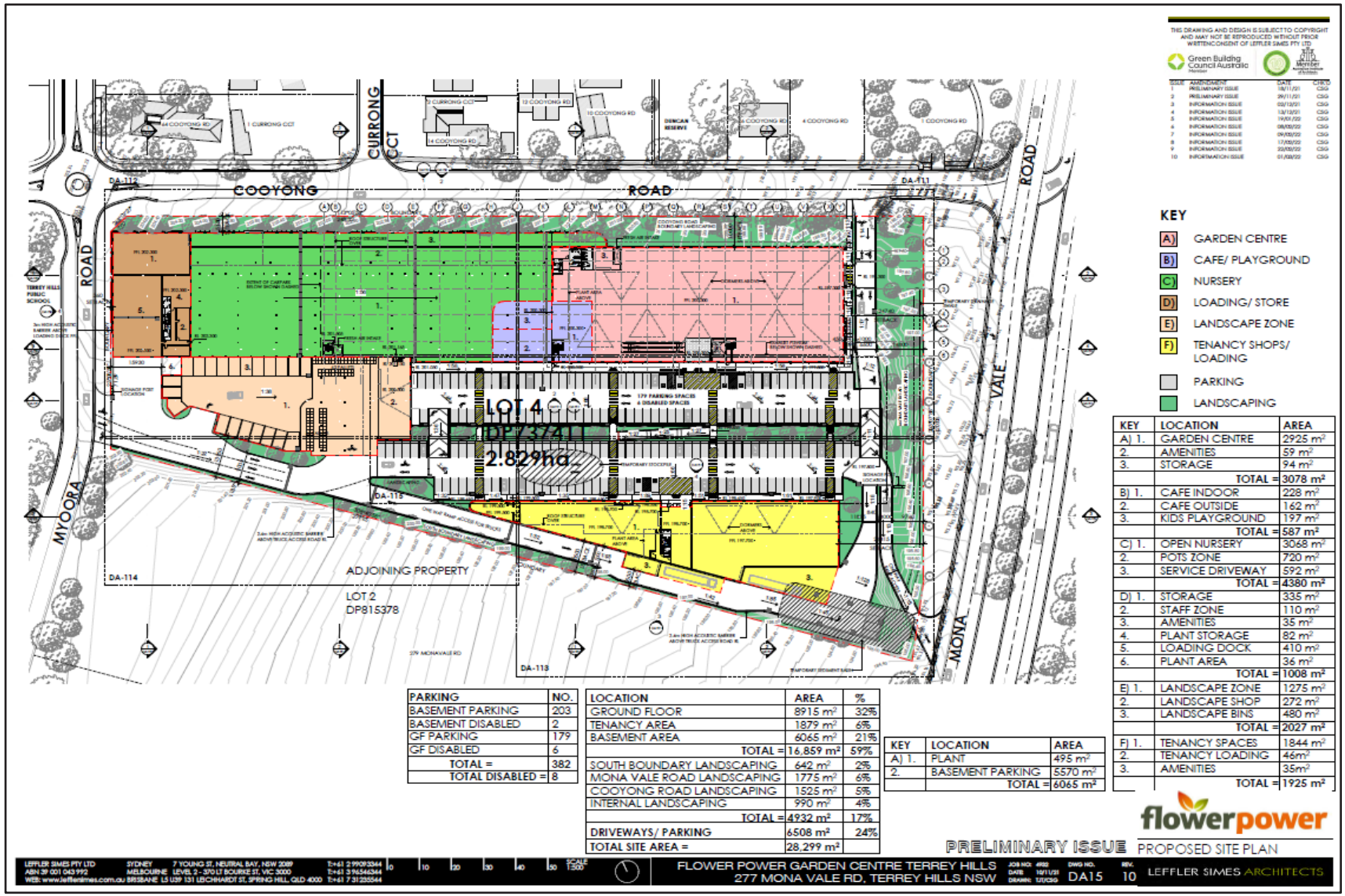
Table 2: Summary of bushfire protection measures assessed

Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	☑	☑	3.3
Access	☐	☑	3.4
Water supplies	☐	☑	3.5
Electricity services	☐	☑	3.6
Gas services	☐	☑	3.7
Construction standards	☐	☑	3.8
Landscaping	☐	☑	3.9

1.3 Significant environmental features

An assessment of significant environmental features, threatened species, populations or ecological communities under the *Biodiversity Conservation Act 2016* that may potentially be affected by the proposed bushfire protection measures has not been undertaken in this report as it is covered by other parts of the Development Application (DA) process.

The impact footprint of the bushfire protection measures (e.g. Asset Protection Zone (APZ)) is clearly identified within this report and therefore capable of being assessed by suitably qualified people as required. Northern Beaches Council is the determining authority for this development; they will assess more thoroughly any potential environmental issues.



KEY	LOCATION	AREA
A) 1.	GARDEN CENTRE	2925 m²
2.	AMENITIES	59 m²
3.	STORAGE	94 m²
	TOTAL =	3078 m²
B) 1.	CAFE INDOOR	228 m²
2.	CAFE OUTSIDE	162 m²
3.	KIDS PLAYGROUND	197 m²
	TOTAL =	587 m²
C) 1.	OPEN NURSERY	3068 m²
2.	POTS ZONE	720 m²
3.	SERVICE DRIVEWAY	592 m²
	TOTAL =	4380 m²
D) 1.	STORAGE	335 m²
2.	STAFF ZONE	110 m²
3.	AMENITIES	35 m²
4.	PLANT STORAGE	82 m²
5.	LOADING DOCK	410 m²
6.	PLANT AREA	36 m²
	TOTAL =	1008 m²
E) 1.	LANDSCAPE ZONE	1275 m²
2.	LANDSCAPE SHOP	272 m²
3.	LANDSCAPE BINS	480 m²
	TOTAL =	2027 m²
F) 1.	TENANCY SPACES	1844 m²
2.	TENANCY LOADING	46m²
3.	AMENITIES	35m²
	TOTAL =	1925 m²

PARKING	NO.
BASEMENT PARKING	203
BASEMENT DISABLED	2
GF PARKING	179
GF DISABLED	6
TOTAL =	382
TOTAL DISABLED =	8

LOCATION	AREA	%
GROUND FLOOR	8915 m²	32%
TENANCY AREA	1879 m²	6%
BASEMENT AREA	6065 m²	21%
TOTAL =	16,859 m²	59%
SOUTH BOUNDARY LANDSCAPING	642 m²	2%
MONA VALE ROAD LANDSCAPING	1775 m²	6%
COOYONG ROAD LANDSCAPING	1525 m²	5%
INTERNAL LANDSCAPING	990 m²	4%
TOTAL =	4932 m²	17%
DRIVEWAYS/ PARKING	6508 m²	24%
TOTAL SITE AREA =	28,299 m²	

KEY	LOCATION	AREA
A) 1.	PLANT	495 m²
2.	BASEMENT PARKING	5570 m²
	TOTAL =	6065 m²

Figure 1: Site plan

2. Bushfire hazard assessment

2.1 Process

The site assessment methodology set out in Appendix 1 of PBP has been utilised in this assessment to determine the required APZ and construction requirements.

Figure 2 and Table 3 show the effective slope and predominant vegetation representing the highest bushfire threat potentially posed to the proposed development from various directions.

2.2 Vegetation assessment

In accordance with PBP, the predominant vegetation formation has been assessed for a distance of at least 140 m from the subject land in all directions.

The predominant vegetation has been determined from the Sydney Metro Area VIS data vegetation maps (OEH 2016) and revised by site assessment (3 December 2021).

2.3 Slope assessment

In accordance with PBP, the slope that would most significantly influence fire behaviour was determined over a distance of 100 m from the boundary of the proposed development under the classified vegetation.

The effective slope has been determined from 2 m contour data.

2.4 Summary of assessment

Figure 2 shows the effective slope and predominant vegetation representing the highest bushfire threat from various directions.

Bushfire prone vegetation affecting the proposed development is present to the east and north-east of the site.

This vegetation is mapped as Red Bloodwood- Silvertop Ash-stringybark open forest on ironstone in the Sydney region, and Sydney Peppermint - Smooth-barked Apple Red Bloodwood shrubby open forest on slopes of moist sandstone gullies, eastern Sydney Basin Bioregion, both of which are classified as Dry Sclerophyll Forest (Keith 2006) and falls under 'Forest' in PBP.

The extent of the bushfire hazard to the north-east was identified by aerial imagery as being further away from the proposed development than current vegetation mapping indicated, (OEH 2016) and this was confirmed from site inspection 3 December 2021.

Public roads are present between the proposed development site and identified bushfire hazard vegetation to the east and north-east.

In all other directions there are managed lands within existing development.

Table 3: Bushfire hazard assessment, APZ requirements and BALs

Transect #	Slope	Vegetation Formation	Required APZ	Proposed APZ	Bushfire Attack Level (BAL)	Comments
1	>15° - 20° downslope	Forest	56 m	≥67 m	BAL-29	APZ is provided within site by property access roads, carparking and landscaping. The remainder is within the public road to the east.
2	All upslopes and flat land	Forest	24 m	≥57 m	BAL-12.5	APZ is provided within site and the remainder within the public road to the north and managed land.
All other directions				Managed land		

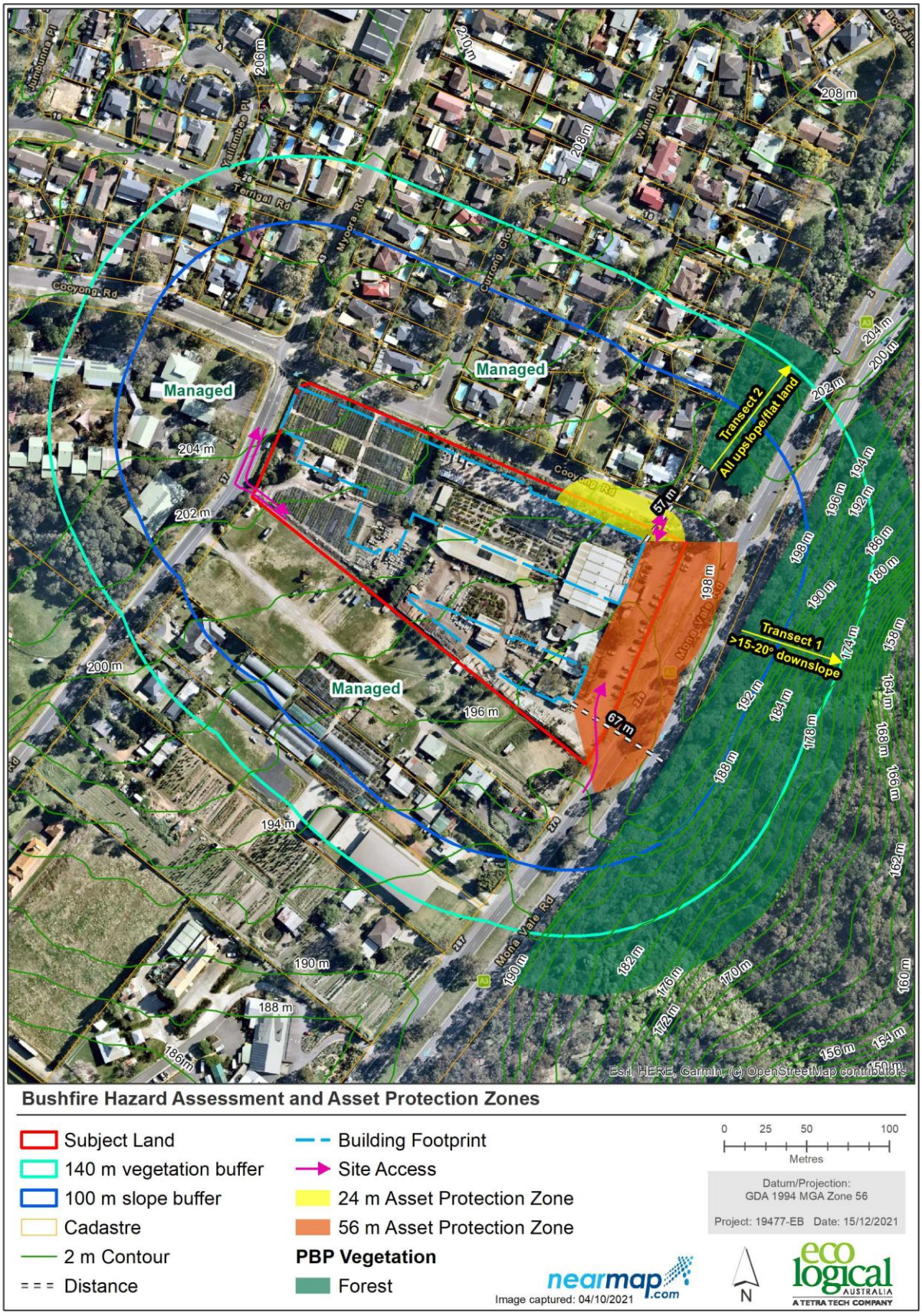


Figure 2: Bushfire hazard assessment and Asset Protection Zones

3. Bushfire protection measures

3.1 Specific aim and objectives for Industrial/commercial development

Below is the Aim of PBP and the Specific Objectives for industrial/commercial development and a comment on how they are achieved. As directed in section 8.3.10 of PBP, the BPM identified in Chapter 7 (of PBP) have been used as the baseline (where applicable), and either the acceptable solution or performance criteria has been achieved:

- **Aim** - The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.
    - The proposed development complies with the aim of PBP by achieving the specific objectives for industrial/commercial development identified below.

- **Specific Objective 1 -** *afford buildings and their occupants protection from exposure to a bush fire*;
    - The development provides protection from exposure by way of defendable space with adequate APZ and perimeter access as shown in Figure 1 and Figure 2. Internal road access is linked to the public road network to the south-east, north and west and complies with Section 7 of PBP providing safe evacuation routes for future occupants. Construction standards will also support this objective.

- **Specific Objective 2 -** *provide for a defendable space to be located around buildings*;
    - The site provides for a defendable space by way of perimeter access/roads, and APZ as shown in Figure 2.

- **Specific Objective 3 -** *provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;*
    - The development design provides suitable defendable space between the hazard and buildings which is further supported by existing public access roads. Perimeter access to the east and south provides emergency services an adequate operational area for prevention of fire spread. A 3 m service path is proposed from the loading dock in the north-west corner of the site towards the east of the development between the proposed landscaping and buildings.

- **Specific Objective 4 -** *ensure that appropriate operational access and egress for emergency service personnel and occupants is available*;
    - The development includes access via public roads, affording safe operational access/egress to emergency services as shown in Figure 1 and demonstrated further in Section 3.4.

- **Specific Objective 5 -** *provide for ongoing management and maintenance of BPM; and*

- The entire development site can provide for the ongoing management of BPM by implementing the APZ specifications outlined in Appendix A.

- **Specific Objective 6 -** *ensure that utility services are adequate to meet the needs of firefighters*.
  - The development is capable of complying with the acceptable solutions for utilities under Section 7 of PBP and specific objectives outlined in Section 3.4 and 3.7 of this report.

3.2 Specific objectives for Class 5-8 Buildings

Below are the Specific Objectives for Class 5-8 buildings and a comment on how they are achieved.

- **Specific Objective 1** - provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation.
  - As shown in Figure 2 and demonstrated further in Section 3.4 of this report, the proposed development has direct access to the public road system providing safe access/egress for both firefighters and occupants.
- **Specific Objective 2** - provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development.
  - An emergency plan meeting requirements of the Work Health safety Regulation 2017 and relevant legislation is to be prepared for the building prior to Occupation Certificate.
- **Specific Objective 3** - provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.
  - The proposed development will be serviced by reticulated water. Electricity to the development is underground and complies with PBP. Supply of gas (if any) will be installed and maintained in accordance with Section 3.6 of this report.
  - Additional hydrants will be located within the site.
- **Specific Objective 4** - provide for the storage of hazardous materials away from the hazard wherever possible.
  - The building will be required to store any hazardous materials (if any) in accordance with the relevant safety guidelines and safety data sheets.

3.3 Asset Protection Zones

Table 3 shows the dimensions of the required APZ and where relevant, information on how the APZ is to be provided is included. The footprint of the APZ is also shown on Figure 2.

The compliance of the proposed APZ with regards to Section 7.4 of PBP, is detailed in Table 4.

Table 4: APZ requirements and compliance (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
APZs are provided commensurate with the construction of the building; and A defendable space is provided.	An APZ is provided in accordance with Table A1.12.2 in Appendix 1.	**Complies** APZ provided in accordance with Table A1.12.2 as shown in Table 3 and Figure 2.
APZs are managed and maintained to prevent the spread of a fire to the building	APZs are managed in accordance with the requirements of Appendix 4 of PBP.	**To comply** APZ to be managed in accordance with PBP. Fuel management specifications provided in Appendix A.
The APZ is provided in perpetuity. APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are wholly within the boundaries of the development site.	**Satisfies performance criterion** APZ located partially within development site and the remainder over existing public roads to the east and north-east.
	APZ are located on lands with a slope less than 18 degrees.	**Complies** APZ is not located on slopes greater than 18°.

3.4 Access

No additional public roads are proposed as access to the proposed development will be via property access roads off Mona Vale Rd (one way entry only), Cooyong Rd (two way access and egress) and Myoora Rd (two way access and egress). All entry roads allow for through access to alternate egress points to the public road network.

The compliance of the proposed property access with Section 7.4 of PBP is detailed in Table 5.

Table 5: Property access requirements (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solutions	Compliance notes
The intent may be achieved where:		
Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	**Complies** Property will be accessed by multiple paved access roads from three locations providing all weather access to all structures.
The capacity of access roads is adequate for firefighting vehicles	The capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes), bridges andcauseways are to clearly indicate load rating.	**Can comply** The advice of a relevant authority or suitably qualified professional should be sought, for certification of design and installation in accordance with relevant legislation, Australian Standards and Table 7.4a of PBP.
There is appropriate access to water supply.	Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005 [SA 2005a]; There is suitable access for a Category 1 fire appliance to within 4 m of the static water supply where no reticulated supply is available.	**Can comply** **Not applicable**
Firefighting vehicles can access the dwelling and exit the property safely.	Minimum 4 m carriageway width;	**Complies** All carriageway widths exceed the minimum of 4 m.
	In forest, woodland and heath situations, rural property access roads have passing bays every 200 m that are 20 m long by 2 m wide, making a minimum trafficable width of 6 m at the passing bay;	**Not applicable**
	A minimum vertical clearance of 4 m to any overhanging obstructions, including tree branches;	**Can comply** Landscaping to comply with specifications of PBP
	Provide a suitable turning area in accordance with Appendix 3 of PBP;	**Can comply** PBP compliant turning areas are addressed in Appendix 3

Performance Criteria	Acceptable Solutions	Compliance notes
	Curves have a minimum inner radius of 6 m and are minimal in number to allow for rapid access and egress;	**Can comply** The advice of a relevant authority or suitably qualified professional should be sought, for certification of design and installation in accordance with relevant legislation, Australian Standards and Table 7.4a of PBP.
	The minimum distance between inner and outer curves is 6 m;	
	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;	

3.5 Water supplies

The compliance of the proposed water supply with Section 7.4 of PBP is detailed in Table 6.

Table 6: Water supply requirements (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solution	Compliance Notes
An adequate water supply is providedfor firefighting purposes.	• Reticulated water is to be provided to the development, where available; • A static water supply is provided where no reticulated water is available.	**Complies** Development will be serviced by a reticulated water supply.
Water supplies are located at regular intervals; and the water supply is accessible and reliable for firefighting operations	• Fire hydrant spacing, design and sizing comply with the Australian Standard AS 2419.1 (2005a); • Hydrants are not located within any road carriageway; and • Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	**Can comply** The advice of a relevant authority or suitably qualified professional should be sought, for certification of design and installation in accordance with relevant legislation, Australian Standards and Table 7.4a of PBP.
Flows and pressure are appropriate	• Fire hydrant flows and pressures comply with AS 2419.1.	
The integrity of the water supply is maintained	• All above-ground water service pipes are metal, including and up to any taps.	

3.6 Electricity services

The compliance of the proposed supply of electricity services with Section 7.4 of PBP is detailed in Table 7.

Table 7: Requirements for the supply of electricity services (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solution	Compliance Notes
Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	Where practicable, electrical transmission lines are underground; and Where overhead, electrical transmission lines are proposed as follows: • Lines are installed with short pole spacing (30 m), 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 'ISSC3 Guide for the Management of Vegetation in the Vicinity of Electricity Assets' (ISSC3 2016).	**Complies** Electricity services to the development will be located underground. **Not applicable** .

3.7 Gas services

The compliance of the proposed supply of gas services (reticulated or bottle gas) with Section 7.4 of PBP is detailed in Table 8.

Table 8: Requirements for the supply of gas services (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solution	Compliance Notes
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	• Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 'The storage and handling of LP gas', the requirements of relevant authorities, and metal piping is used (SA 2014); • All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 m and shielded on the hazard side; • Connections to and from gas cylinders are metal; • Polymer-sheathed flexible gas supply lines are not used; and • Above-ground gas service pipes are metal, including and up to any outlets.	**Can comply** The advice of a relevant authority or suitably qualified professional should be sought, for certification of design and installation in accordance with relevant legislation, Australian Standards and Table 7.4a of PBP.

3.8 Construction standards

The building construction standard is generally based on the determination of the Bushfire Attack Level (BAL) in accordance with Appendix 1 of PBP. The BAL is based on the known vegetation type, effective slope and managed separation distance between the development and the bushfire hazard.

The compliance of the proposed construction with Section 7.4 of PBP is detailed in Table 9.

Table 9: Construction requirements (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
The proposed building can withstand bush fire attack in the form of embers, radiant heat and flame contact.	BAL is determined in accordance with Tables A1.12.5 to A1.12.6 of PBP; and	**Complies** BAL determined using Table A1.12.5 of PBP.
	Construction provided in accordance with the NCC and as modified by Section 7.5 of PBP.	**Complies with performance criterion** No specific requirements for bushfire related construction under the NCC for this building class. See Section 3.8.2 for further detail.
Proposed fences and gates are designed to minimise the spread of bush fire.	Fencing and gates are constructed in accordance with Section 7.6 of PBP.	**Can comply** Specification detailed in Section 3.8.4 of this report.
Proposed Class 10a buildings are designed to minimise the spread of bush fire.	Class 10a buildings are constructed in accordance with Section 8.3.2 of PBP.	**Not applicable** No Class 10a buildings proposed.

3.8.1 Bushfire Attack Level (BAL)

The proposed development is exposed to BAL-29 to the east and BAL 12.5 to the north-east as identified in Table 3.

3.8.2 Construction requirements

As stated within Section 8.3.1 of PBP, National Construction Code (NCC) Class 5 to 8 buildings (which include offices, factories, warehouses and other commercial or industrial facilities) do not have specific bushfire performance requirements under the NCC and as such building construction standards under AS *3959:2018* (SA 2018) or the NASH standard (NASH 2014) do not apply as a set of deemed to satisfy provisions.

New construction shall be in accordance with the general fire safety provisions of the NCC and incorporate the additional ember protection measures listed in Section 3.8.2 below.

3.8.3 Ember Protection Measures

The additional ember protection measures based on the requirements of AS 3959 are as follows:

- The roof/wall junctions are to be sealed/screened with aluminium, steel or bronze mesh with a minimum aperture size of 2 mm;
- All openable portions of windows to be screened with aluminium, steel or bronze mesh with a minimum aperture size of 2 mm;
- The base of side-hung external doors shall be fitted with draught excluders/draught seals/weather strips;
- Gutters should be fitted with non-combustible gutter guard to prevent the build-up of combustible material;
- The rollers doors shall be protected with suitable weather strips/draught excluders/draught seals or brushes (Figure 2). If fitted with guide tracks no edge gap protection required; and
- Roller shutter doors with ventilation slots shall be protected with non-combustible mesh with 2 mm aperture.

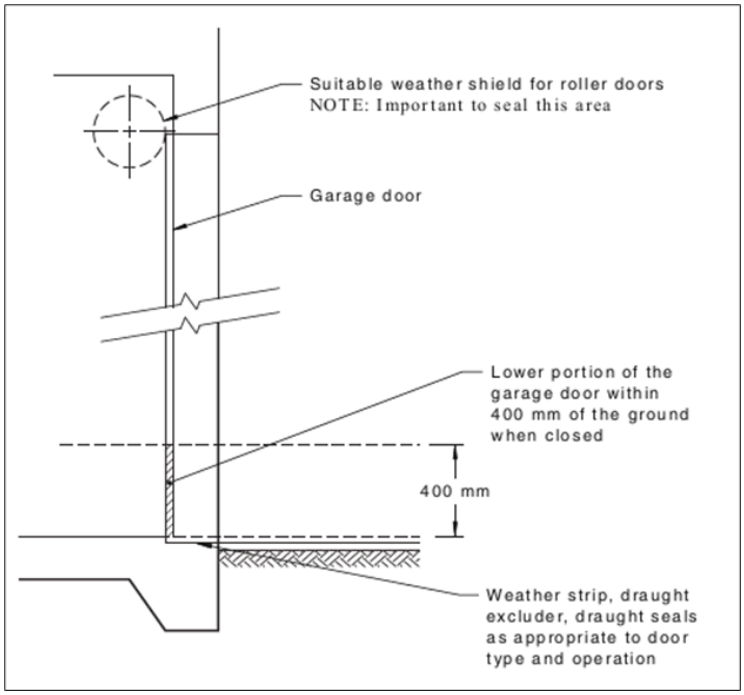


Figure 3: Roller shutter door installation (SA 2018)

3.8.4 Fences and gates

To comply with Section 7.6 of PBP, all fencing and gates are to be constructed of hardwood or non-combustible material. Where fencing connects directly to any proposed dwelling(s) or in areas of BAL-29 or greater, they should be made of non-combustible material.

3.9 Landscaping

The compliance of the proposed landscaping with Section 7.4 of PBP is detailed in Table 10.

Table 10: Landscaping requirements and compliance (adopted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions.	Compliance with the NSW RFS 'Asset Protection Zone Standards' (Appendix 4 of PBP); A clear area of low-cut lawn or pavement is maintained adjacent to the house;	**To comply** To be managed in accordance with PBP as detailed in Section 7. Fuel management specifications provided in Appendix A.
	Fencing is constructed in accordance with Section 7.6 of PBP.	**To comply** Specifications detailed in Section 3.8.4 of this report.
	Trees and shrubs are planted such that: • the branches will not overhang the roof; • the tree canopy is not continuous; and • any proposed windbreak is located on the elevation from which fires are likely to approach.	**To comply** APZ / Landscaping is to be managed in accordance with PBP. Landscaping specifications provided in Section 3.9.

4. Conclusion

The proposed development meets the specific objectives of *Planning for Bush Fire Protection 2019*, as outlined in Table 11 below.

Table 11: Development bushfire protection measures and recommendations

Bushfire Protection Measures	Recommendations	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	This assessment indicates the proposed development will comply with the PBP APZ performance criteria (Figure 2).	☐	☑	3.3
Access	Access to meet specific objectives as per Section 3.4 of this report.	☐	☑	3.4
Water supplies	Reticulated water supply to meet PBP acceptable solution specifications	☐	☑	3.5
Electricity supply	Electricity supply located underground.	☐	☑	3.6
Gas services	Gas services are to be installed and maintained in accordance with AS/NZS 1596:2014.	☐	☑	3.7
Construction standard	The development is to be constructed in accordance with the general fire safety provisions of the NCC and incorporate the additional ember protection measures listed in Section 3.8.2.	☐	☑	3.8
Landscaping	Any future landscaping to meet the requirements of PBP listed in Section 3.9.	☐	☑	3.9

5. Recommendations

It is recommended that the proposed development be approved with consent conditions based on the findings in Table 11.

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6. References

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Appendix A - Asset protection zone and landscaping standards

The following APZ management specifications in Table 12 only apply to that portion of the APZs specified in Table 3 and shown in Figure 2 that is contained within the subject lands. These APZ management specifications should be considered for any landscaping and ongoing management within the subject land.

The APZs within the subject land, identified in Table 3 are to be maintained in perpetuity and management undertaken on an annual basis (as a minimum) and prior to the commencement of the fire season.

Further details on APZ implementation and management can be found on the NSW RFS website (https://www.rfs.nsw.gov.au/resources/publications).

Table 12: APZ management specifications

Vegetation Strata	Inner Protection Area (IPA)	Outer Protection Area (OPA)
Trees	• Tree canopy cover should be less than 15% at maturity; • Trees (at maturity) should not touch or overhang the building; • Lower limbs should be removed up to a height of 2 m above ground; • Canopies should be separated by 2 to 5 m; and • Preference should be given to smooth barked and evergreen trees.	• Tree canopy cover should be less than 30%; and • Canopies should be separated by 2 to 5 m.
Shrubs	• Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided; • 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 a distance of at least twice the height of the vegetation.	• Shrubs should not form a continuous canopy; and • Shrubs should form no more than 20% of ground cover.
Grass	• Should be kept mown (as a guide grass should be kept to no more than 100 mm in height); and • Leaves and vegetation debris should be removed.	• Should be kept mown to a height less than 100 mm; and • Leaf and other debris should be removed.

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