

BUSHFIRE ASSESSMENT REPORT

S.4.55 MODIFICATION TO DA 9781
APARTMENT 6, SQUATTERS RUN APARTMENTS
LOT 792, DIGGINGS TCE
THREDBO ALPINE RESORT

NOVEMBER 2020

Project: 54-18

Dabyne Planning Pty Ltd

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CONTENTS

Glossary

1	Introduction	3
1.1	Purpose	3
1.2	Site Description	3
1.3	Bushfire Prone Land	4
2	Legislation	5
2.1	NSW Environmental Planning and Assessment Act 1979 and Rural Fires Act 1997	5
2.2	Planning for Bushfire Protection 2019	5
3	Methodology	6
3.1	Site Inspection	6
3.2	Vegetation Communities	6
3.3	Slope	6
4	Vegetation Classification and Slope Assessment	7
4.1	Vegetation & Slope Classification	7
5	Significant Environmental Features	8
6	Bushfire Assessment	9
6.1	Special Fire Protection Purpose Developments	9
6.1.1	Minor Developments in SFPP Developments	9
6.1.2	Alpine Resorts	9
6.2	Standards for Bush Fire Protection Measures for Special Fire Protection Purpose Developments	10
6.2.1	Asset Protection Zones (APZs) and building construction	10
6.2.2	Access	11
6.2.3	Services – Water, gas & electricity	12
6.2.4	Emergency Management Planning	15
7	Conclusion	17

GLOSSARY

APZ	Asset Protection Zone
AS 3959-2009	Australian Standard 3959-2018: Construction of buildings in bushfire prone areas
BCA	Building Code of Australia
BFSA	Bush Fire Safety Authority
CC	Construction Certificate
DA	Development Application
EP&A Act	Environmental Planning Assessment Act, 1979
IPA	Inner Protection Area
KNP	Kosciuszko National Park
kW/m ²	kilowatts per square metre (being a measure of radiant heat)
PBP	Planning for Bushfire Protection 2019
RF Act	Rural Fires Act 1997
RFS	NSW Rural Fire Service
SFPP	Special Fire Protection Purpose

1. INTRODUCTION

1.1 Purpose

Dabyne Planning Pty Ltd has been engaged to undertake a Bushfire Assessment Report to accompany a S.4.55 Modification Application to DA 9781 for Alterations to Apartment 6, Squatters Run Apartments, Thredbo.

The modifications involve the relocation of a chimney flue.

The report has been prepared in accordance with Section 4.14 of the Environmental Planning and Assessment Act, 1979 (EP&A Act, 1979) and Planning for Bushfire Protection 2019 Guidelines (PBP).

1.2 Site Description

The subject site is located at Lot 792, Diggings Terrace, comprising of the Squatters Run Apartments. The apartments are located above Mowamba Place and below Diggings Terrace within the core of Thredbo Village.

Apartment 6 is a two-bedroom apartment located at the western end of the apartments, accessed directly from Diggings Terrace.

The apartment is licensed to contain a maximum of four (4) beds for the purpose of tourist accommodation.

The site is identified in Figure's 1 & 2 below:



Figure 1: Aerial view of the subject building in context of the locality



Figure 2: Topographic map of the subject site

1.3 Bushfire Prone Land

The subject site is located wholly within a buffer area to the bushfire prone vegetation as extracted from the NSW Department of Planning, Industry & Environment Planning Portal website as shown in figure 3 below.



Figure 3: Bushfire Prone Land map for the subject site

2. LEGISLATION

2.1 Rural Fires Act 1997 & Rural Fires Regulation 2013

As identified above, the subject site is located within a designated bushfire-prone area.

The modified works are however considered a 'development of a minor nature that relates to an existing building that is for special fire protection purpose' and therefore are exempt from the requirements of a Bushfire Safety Authority from the NSW Rural Fire Service under the exemption afforded under clause 45(1)(o) of the Rural Fires Regulation 2013.

Accordingly, the modified development is not an Integrated Development under the Environmental Planning and Assessment Act, 1979.

Furthermore, as the modified works comply with PBP, 2019, referral to the NSW Rural Fire Service under S.4.14 of the EP&A Act, 1979 is not required.

2.2 Planning for Bushfire Protection 2019

The NSW Rural Fire Service 'Planning for Bushfire Protection, 2019: A Guide for Councils, Planners, Fire Authorities and Developers' applies to the modified development as it was adopted on the 1 March 2020.

The subject site is located within the Thredbo Alpine Resort, which is located within the NSW Alpine Resorts as discussed on page 53 of PBP.

Under PBP, a 1:50 fire weather scenario has been determined for the Alpine Resorts, being FFDI 50.

3. METHODOLOGY

3.1 Site Inspection

A site inspection was undertaken by Dabyne Planning Pty Ltd, to determine the potential bushfire risks associated with the site. The guidelines for bushfire risk assessment as set out in PBP were used to determine these potential bushfire risks.

3.2 Vegetation Communities

The vegetation and plant communities within 140m of the site were determined by undertaking a site inspection and consulting PBP and the vegetation types identified in *'Ocean Shores to Desert Dunes'*, by Kieth (2004).

The classification under David Keith's *'Ocean Shores to Desert Dunes'* (used in PBP) were then converted to the 'Sprect' classifications using Table A3.5.1 in the Appendix 3 Addendum.

3.3 Slope

The slope assessment has been based on the topographical contour lines sourced from the Department of Lands mapping and on-site assessment.

Slope over a distance of at least 100m from the building footprint on the development site towards the vegetation communities that constitute the predominant hazard has been considered.

The gradient that will most significantly influence the fire behaviour will be used for the bush fire attack assessment.

4. VEGETATION CLASSIFICATION & SLOPE ASSESSMENT

4.1 Vegetation & Slope Classification

The vegetation formation to the west is considered to have the most influence in the event of a bushfire, as illustrated in figure 4 below. This is categorised as 'Forest' vegetation.



Figure 4: Aerial view showing the surrounding vegetation

The distance of the closest unmanaged vegetation to the modified works is over 100m, with that vegetation located above the opposite side of Thredbo River, therefore being upslope.

5. SIGNIFICANT ENVIRONMENTAL FEATURES

The modified works are located within the existing building footprint with no impact on native vegetation and therefore an assessment in respect to threatened species, populations, endangered ecological communities or critical habitat is not required to be undertaken. Furthermore, an assessment of Aboriginal heritage is also not warranted.

6. BUSHFIRE ASSESSMENT

6.1 Special Fire Protection Purpose Developments

6.1.1 Minor Development in SFPP Facilities

In accordance with Section 6.5 of PBP, minor works '*do not have any influence on potential bush fire impacts and the bush fire protection of the building. For this reason, the NSW RFS does not consider that a BFSA is necessary for the development types listed above. Wherever applicable, the building elements concerned will need to comply with the requirements of AS 3959 or NASH Standard under the NCC.*

The modified works are therefore exempt from the requirements of a Bushfire Safety Authority from the NSW Rural Fire Service under the exemption afforded under clause 45(1)(o) of the Rural Fires Regulation 2013.

Accordingly, the modified development is not an Integrated Development under the Environmental Planning and Assessment Act, 1979.

6.1.2 Alpine Resorts

The specific objectives that apply to SFPP infill development in the alpine resort areas are as follows:

- *provide an appropriate defensible space;*
- *provide a better bush fire protection outcome for existing structures (e.g. via ember protection measures);*
- *ensure new building work complies with the construction standards set out in AS 3959;*
- *to ensure ongoing management and maintenance responsibilities are in place where APZs are proposed outside of the sub lease or leasehold area;*
- *written consent from the land managers is provided for all proposed works outside of the sub lease or leasehold area;*
- *proposed APZs outside of the sub lease or leasehold area are supported by a suitable legal mechanism to ensure APZs are managed under a binding legal agreement in perpetuity;*
- *ensure building design and construction standards enhance the chances of occupant and building survival; and*
- *provide safe emergency evacuation procedures.*

Any additional construction requirements should be commensurate with the following:

- *the scope of the proposed works, including any increase in size and footprint of the building;*
- *any additional capacity for the accommodation of guests and/or staff on site; and*
- *the cost associated with the proposed upgrade of any building.*

The NSW RFS has an expectation that a better bush fire outcome is achieved where new development is proposed in association with existing facilities.

The modifications involve the replacement of a flue in a different location. The modification therefore does not alter the bushfire risk outcome for the building.

6.2 Standards for Bush Fire Protection Measures for Special Fire Protection Purpose Developments

6.2.1 Asset Protection Zones (APZs) and building construction

Intent of measures: to provide sufficient space for fire fighters and other emergency services personnel, ensuring radiant heat levels permit operations under critical conditions of radiant heat, smoke and embers, while supporting or evacuating occupants.

An assessment of the proposal in accordance with the performance criteria and acceptable solutions for APZs and construction for SFPP development in accordance with Table 6.8a has been provided below.

APZs:			
Performance Criteria	Acceptable Solutions	Can Comply?	Comments
The intent may be achieved where:			
➤ radiant heat levels of greater than 10kW/ m ² (calculated at 1200K) will not be experienced on any part of the building.	➤ the building is provided with an APZ in accordance with Table A1.12.1 in Appendix 1.	✓	Complies.
➤ APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	➤ APZs are located on lands with a slope less than 18 degrees.	✓	Complies.
➤ APZs are managed and maintained to prevent the spread of fire to the building. ➤ the APZ is provided in perpetuity.	➤ The APZ is managed in accordance with the requirements of Appendix 4 of this document, and is wholly within the boundaries of the development site;	N/A	See discussion below.
	➤ APZ are wholly within the boundaries of the development site; and	N/A	See discussion below.
	➤ other structures located within the APZ need to be located further than 6m from the refuge building.	N/A	No other structure proposed.
VARIATIONS:			No variations have been afforded to the Alpine Resorts.
Landscaping:			
➤ landscaping is designed and managed to minimise flame	➤ landscaping is in accordance with Appendix 4; and	N/A	Not applicable.

contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	➤ fencing is constructed in accordance with section 7.6.	N/A	No fencing is proposed.
Construction Standards:			
➤ the proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	➤ a construction level of BAL-12.5 under AS 3959 or NASH Standard and section 7.5 of PBP is applied.	N/A	The proposal does not comprise of a new building or any new additions which would warrant compliance with a Bushfire Attack Level under AS 3959. The proposal is for modification works to the roof of an apartment located over 100m away from the closest unmanaged vegetation.

APZ:

The minimum APZ for Forest vegetation with an effective downslope of upslope is 67m.

This is in accordance with Table A1.12.1 in PBP, 2019, as provided below:

Table A1.12.1

Minimum distances for APZs – SFPP developments (≤10kW/m², 1200K)

KEITH VEGETATION FORMATION	EFFECTIVE SLOPE				
	Up slopes and flat	>0°-5°	>5°-10°	>10°-15°	>15°-20°
	Distance (m) from the asset to the predominant vegetation formation				
Rainforest	38	47	57	69	81
Forest (wet and dry sclerophyll) including Coastal Swamp Forest, Pine Plantations and Sub-Alpine Woodland	67	79	93	100	100
Grassy and Semi-Arid Woodland (including Mallee)	42	50	60	72	85
Forested Wetland (excluding Coastal Swamp Forest)	34	42	51	62	73
Tall Heath	50	56	61	67	72
Short Heath	33	37	41	45	49
Arid-Shrublands (acacia and chenopod)	24	27	30	34	37
Freshwater Wetlands	19	22	25	28	30
Grassland	36	40	45	50	55

The proposed modification works are located more than 67m to the closest unmanaged vegetation within an urban village and therefore can comply with Table A1.12.1.

The modifications involve the replacement of a flue in a different location. The modification therefore does not alter the bushfire risk outcome for the building.

6.2.2 Access

Intent of measures: to provide safe operational access for emergency services personnel in suppressing a bush fire, while residents are accessing or egressing an area.

An assessment of the proposal in accordance with the performance criteria and acceptable solutions for APZs and construction for SFPP development in accordance with Table 6.8b has been provided below.

Access:			
Performance Criteria	Acceptable Solutions	Can Comply?	Comments
The intent may be achieved where:			
➤ firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	➤ SFPP access roads are two-wheel drive, all-weather roads;	✓	Access road is two-wheel drive and all-weather.
	➤ access is provided to all structures;	N/A	Not relevant to the modified works.
	➤ traffic management devices are constructed to not prohibit access by emergency services vehicles;	N/A	Not relevant to the modified works.
	➤ access roads must provide suitable turning areas in accordance with Appendix 3; and	N/A	Not relevant to the modified works.
	➤ one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.	N/A	Not relevant to the modified works.
➤ 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 and causeways are to clearly indicate load rating.	N/A	Not relevant to the modified works.
➤ there is appropriate access to water supply.	➤ hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;	N/A	Not relevant to the modified works.
	➤ hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005; and	N/A	Not relevant to the modified works.
	➤ there is suitable access for a Category 1 fire appliances to within 4m of the static water supply where no reticulated supply is available.	N/A	Not relevant to the modified works.

6.2.3 Services – Water, gas & electricity

Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

An assessment of the proposal in accordance with the performance criteria and acceptable solutions for APZs and construction for SFPP development in accordance with Table 6.8c has been provided below.

Water Supply:			
Performance Criteria The intent may be achieved where:	Acceptable Solutions	Can Comply?	Comments
➤ an adequate water supply for firefighting purposes is installed and maintained.	➤ reticulated water is to be provided to the development, where available; or	✓	Reticulated water is available.
	➤ a 10,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available.	N/A	Not applicable.
➤ water supplies are located at regular intervals. ➤ the water supply is accessible and reliable for firefighting operations.	➤ fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005;	N/A	Not relevant to the modified works.
	➤ hydrants are not located within any road carriageway; and	N/A	Not relevant to the modified works
	➤ reticulated water supply to SFPPs uses a ring main system for areas with perimeter roads.	N/A	Not relevant to the modified works
➤ flows and pressure are appropriate.	➤ fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005	N/A	Not relevant to the modified works
➤ the integrity of the water supply is maintained.	➤ all above-ground water service pipes external to the building are metal, including and up to any taps.	N/A	Not relevant to the modified works
➤ water supplies are adequate in areas where reticulated water is not available.	➤ a connection for firefighting purposes is located within the IPA or non hazard side and away from the structure; a 65mm Storz outlet with a ball valve is fitted to the outlet;	N/A	Not applicable.
	➤ ball valve and pipes are adequate for water flow and are metal;	N/A	Not applicable.
	➤ supply pipes from tank to ball valve have the same bore size to ensure flow volume;	N/A	Not applicable.
	➤ underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank;	N/A	Not applicable.
	➤ a hardened ground surface for truck access is supplied within 4m of the access hole;	N/A	Not applicable.

	<ul style="list-style-type: none"> ➤ above-ground tanks are manufactured from concrete or metal; 	N/A	Not applicable.
	<ul style="list-style-type: none"> ➤ raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber [see Appendix F AS 3959]; 	N/A	Not applicable.
	<ul style="list-style-type: none"> ➤ unobstructed access is provided at all times; 	N/A	Not applicable.
	<ul style="list-style-type: none"> ➤ tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters; and 	N/A	Not applicable.
	<ul style="list-style-type: none"> ➤ underground tanks are clearly marked, 	N/A	Not applicable.
	<ul style="list-style-type: none"> ➤ all exposed water pipes external to the building are metal, including any fittings; 	N/A	Not applicable.
	<ul style="list-style-type: none"> ➤ where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack; Any hose and reel for firefighting connected to the pump shall be 19mm internal diameter; and 	N/A	Not applicable.
	<ul style="list-style-type: none"> ➤ fire hose reels are constructed in accordance with AS/NZS 1221:1997 <i>Fire hose reels</i>, and installed in accordance with the relevant clauses of AS 2441:2005 <i>Installation of fire hose reels</i>. 	N/A	Not applicable.
Electricity Services:			
<ul style="list-style-type: none"> ➤ location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings. 	<ul style="list-style-type: none"> ➤ where practicable, electrical transmission lines are underground; 	✓	Electricity supply is provided underground.
	<ul style="list-style-type: none"> ➤ where overhead, electrical transmission lines are modified as follow: <ul style="list-style-type: none"> - lines are installed with short pole spacing (30m), 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 ISSC3 <i>Guideline for Managing Vegetation Near Power Lines</i>. 	N/A	Not applicable.
Gas Services:			

➤ 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 and the requirements of relevant authorities, and metal piping is used;	N/A	Not relevant to the modified works
	➤ all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;	N/A	Not relevant to the modified works
	➤ connections to and from gas cylinders are metal;	N/A	Not relevant to the modified works
	➤ if gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion;	N/A	Not relevant to the modified works
	➤ polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used; and	N/A	Not relevant to the modified works
	➤ above-ground gas service pipes external to the building are metal, including and up to any outlets.	N/A	Not relevant to the modified works

6.2.4 Emergency Management Planning

Intent of measures: to provide suitable emergency and evacuation arrangements for occupants of SFPP developments.

Emergency Management:			
Performance Criteria	Acceptable Solutions	Can Comply?	Comments
The intent may be achieved where:			

<p>➤ a Bush Fire Emergency Management and Evacuation Plan is prepared.</p>	<p>➤ Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the:</p> <ul style="list-style-type: none"> - The NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan; - NSW RFS Schools Program Guide; - Australian Standard AS 3745:2010 Planning for emergencies in facilities; and - Australian Standard AS 4083:2010 Planning for emergencies – Health care facilities (where applicable). 	<p>✓</p>	<p>Thredbo Alpine Resort has a village wide Bush Fire Emergency Management and Evacuation Plan</p>
<p>➤ appropriate and adequate management arrangements are established for consultation and implementation of the Bush Fire Emergency Management and Evacuation Plan.</p>	<p>➤ the Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants.</p>		
<p>➤ appropriate and adequate management arrangements are established for consultation and implementation of the Bush Fire Emergency Management and Evacuation Plan.</p>	<p>➤ an Emergency Planning Committee is established to consult with residents (and their families in the case of aged care accommodation and schools) and staff in developing and implementing an Emergency Procedures Manual; and</p>	<p>N/A</p>	<p>Not relevant to the modified works</p>
	<p>➤ detailed plans of all emergency assembly areas including on site and off-site arrangements as stated in AS 3745:2010 are clearly displayed, and an annually emergency evacuation is conducted.</p>	<p>N/A</p>	<p>Not relevant to the modified works</p>

7. CONCLUSION

As identified above, the modified development comprises of minor external works to the roof associated with a fireplace flue.

According to PBP, 2019 minor works do not have any influence on potential bush fire impacts and the bush fire protection of the building. For this reason, the NSW RFS does not consider that a BFSA is necessary for this type of development and therefore this is exempt under clause 45 of the Rural Fires Regulations, 2013. Therefore, a BFSA is not required under S.100B of the Rural Fires Act, 1997.

In accordance with the specific provisions for the Alpine Resorts, the NSW RFS has an expectation that a better bush fire outcome is achieved where new development is proposed in association with existing facilities.

The modifications involve the replacement of a flue in a different location. The modification therefore does not alter the bushfire risk outcome for the building.

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