

BUSHFIRE ASSESSMENT REPORT

ADDITIONS & ALTERATIONS
AUSTRALIAN GOLF CLUB SKI LODGE
PORCUPINE ROAD, PERISHER VALLEY
KOSCIUSZKO NATIONAL PARK



JULY 2021

Project: 17-19

Dabyne Planning Pty Ltd

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GLOSSARY

APZ	Asset Protection Zone
AS 3959-2018	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/m²	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 Development Application for additions and alterations to an existing lodge used for tourist accommodation.

The report has been prepared in accordance with Section 4.47 of the Environmental Planning and Assessment Act, 1979 [EP&A Act, 1979], and Section 100B of the NSW Rural Fires Act, 1997 [RF Act, 1997] and based on the published Planning for Bushfire Protection 2019 Guidelines [PBP].

1.2 Site Description & Proposal

The application relates to the Australian Golf Club Ski Lodge, a club lodge located at 25 Porcupine Road, Perisher Valley. The property is legally described as Lot 605 DP 1158020.

The proposal seeks consent to undertake additions and alterations to the lodge, including a small infill addition under the existing roof line to provide an improved entrance, seating area, ski room and drying room as well as internal alterations to improve the managers residence quarters within the lodge.

The proposed infill additions will increase the floor area by 8m², however they are located within the building line (curtilage) and do not extend further out than the current building footprint and are located over a highly disturbed area.

The subject site is illustrated in context with the locality in figures 1 & 2 below:



Figure 1: Context of the site within the locality



Figure 2: Location of the subject site in relation to the immediate locality

The following photos identify the existing lodge and surrounding environment:



Figure 3: Photo of the front north-west corner of the lodge



Figure 4: Photo of the north-west corner and entrance to the lodge



Figure 5: Photo of the staircase entry

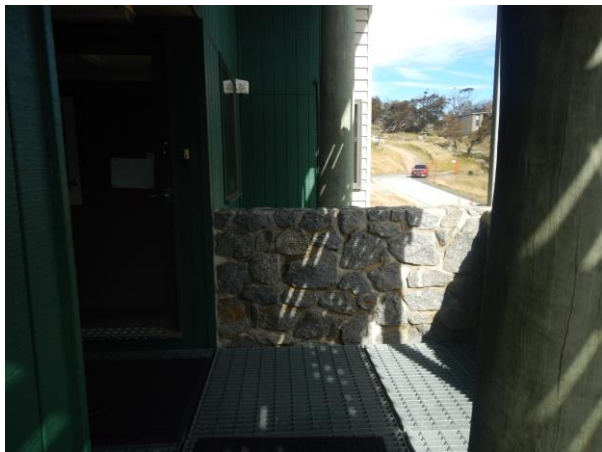


Figure 6: Photo of the area to be filled in with enclosed floor area



Figure 7: Photo of the western side of the lodge



Figure 8: Photo of the lodge from the south and road



Figure 9: Photo of the disturbed vegetation and trees to the north



Figure 10: Photo of the rear (eastern) side of the lodge



Figure 11: Photo of the disturbed vegetation and trees to the north



Figure 12: Photo of the unmanaged vegetation to the north and north-east of the lodge

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 13 below. The development is therefore subject to S.100B of the NSW Rural Fires Act, 1997.



Figure 13: Bushfire Prone Land map with the subject site highlighted

2. LEGISLATION

2.1 NSW Environmental Planning and Assessment Act 1979 and Rural Fires Act 1997

As identified above, the subject site is located within a designated bushfire-prone area and as the development is for the purpose of 'tourist accommodation', the development is classed as being for a 'Special Fire Protection Purpose'.

The development application is therefore categorised as an Integrated Development under S.4.46 of the EP&A Act, 1979 and therefore requires a Bushfire Safety Authority from the NSW Rural Fire Service under S.100B of the RF Act, 1997.

Clause 44 of the Rural Fires Regulation 2013 sets out the matters that must be assessed in an application for a Bush Fire Safety Authority including a description of the property, classification of the vegetation, slope assessment, identification of significant environmental features, and details of threatened species and Aboriginal relic or place.

Clause 44(1)(g) of the Rural Fires Regulation 2013 specifies that a bushfire assessment for a proposed development must address the following matters:

- (i) the extent to which the development is to provide for setbacks, including asset protection zones,*
- (ii) the siting and adequacy of water supplies for fire fighting,*
- (iii) the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency,*
- (iv) whether or not public roads in the vicinity that link with the fire trail network have two-way access,*
- (v) the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response,*
- (vi) the adequacy of bush fire maintenance plans and fire emergency procedures for the development site,*
- (vii) the construction standards to be used for building elements in the development, and*
- (viii) the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development.'*

This Bushfire Assessment Report has been undertaken in accordance with the requirements stipulated above, where considered relevant in context of the proposed development.

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 proposed development as it was adopted on the 1 March 2020.

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

Under PBP, a different 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 in May 2020, 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 formations within 140m of the development 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].

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 Classification

The lodge is surrounded by disturbed vegetation to its north, east and south with the road located to its west.

The disturbed vegetation mostly comprises of exotic grasses.

This is shown in the photos provided above.

The closest unmanaged native vegetation located to the north of the proposed development work is located to the east [rear] of Gunyah Ski Club. This is categorised as 'Heath with Eucalypts', therefore a 'Sub-Alpine Woodland' vegetation, which is now considered a 'Forest' vegetation community under PBP, 2019.

The closest unmanaged vegetation located to the south-west of the proposed development work is located below the road, adjacent to the Salzburg Apartments. This is categorised as 'Valley Bog Complex', therefore an 'Alpine Complex' vegetation under PBP, 2019.

An extract of the Vegetation communities map by Ecology Australia, 2002 is provided below.



Figure 14: Vegetation plan showing the location of vegetation communities in relation to the existing building (map source: NSW Dept of Planning)

In relation the proposed infill additions, the unmanaged native vegetation to the north and south-west is identified below in figure 15.



Figure 15: Location of the proposed additions in relation to the unmanaged native vegetation

4.2 Slope Classification

The surrounding area around the lodge slopes from the east down to the west, below the road towards Rock Creek, as shown in figure 16 below.



Figure 16: Slope associated with the subject site

The following slope categories are relevant to the closest unmanaged native vegetation:

North: Uphill
South-west: Downhill 5-10 degrees

5. SIGNIFICANT ENVIRONMENTAL FEATURES

The proposed additions and alterations are located within highly disturbed areas with minimal impacts 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.

6. BUSHFIRE ASSESSMENT

6.1 Special Fire Protection Purpose Developments

6.1.1 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 proposed development can achieve the above relevant objectives as follows:

- The infill additions are located within the building curtilage and roof line and therefore are not located closer than the existing building to the unmanaged vegetation and associated bushfire risk.
- Proposed infill addition to comply with the recommended BAL-29 under AS 3959.

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 The intent may be achieved where:	Acceptable Solutions	Can Comply?	Comments
➤ 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.	See discussion below.	
➤ 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.		
➤ APZs are managed and maintained to prevent the spread of fire to the building.	➤ 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;		
➤ the APZ is provided in perpetuity.	➤ APZ are wholly within the boundaries of the development site; and ➤ other structures located within the APZ need to be located further than 6m from the refuge building.		
<u>VARIATIONS:</u>			No variations have been afforded to the Alpine Resorts.
Landscaping:			
➤ landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	➤ landscaping is in accordance with Appendix 4; and	✓	Complies.
	➤ 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.	✓	The proposed infill additions are recommended to achieve compliance with BAL-29, as discussed below.

The proposed development is for an in-fill development to an existing SFPP building within the Alpine Resorts.

Accordingly, the requirement for an APZ that would apply to a new SFPP standalone building within freehold land is not appropriate for an existing SFPP building located within a resort, with a lease within a National Park.

The proposed development includes a small infill addition which is located within the building curtilage and under the building roof line, therefore it is not located any closer than the existing building from the unmanaged vegetation and associated bushfire risk.

In accordance with Table A1.12.7, the distance to the unmanaged vegetation (identified in figure 14 above) and the recommended Bushfire Attack Level (BAL) is provided below.

North: Upslope @ 17m with Forest Vegetation: BAL-29
 South-west: Downslope 5-10 degrees @41m with Alpine Complex Vegetation: BAL-12.5

Accordingly, a Bushfire Attack Level (BAL) of 29 is recommended for construction of the external works.

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 The intent may be achieved where:	Acceptable Solutions	Can Comply?	Comments
➤ 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 (outside of winter, when it is snowbound).
	➤ access is provided to all structures;	N/A	Not relevant to the proposed works.
	➤ traffic management devices are constructed to not prohibit access by emergency services vehicles;	N/A	Not relevant to the proposed works.
	➤ access roads must provide suitable turning areas in accordance with Appendix 3; and	N/A	Not relevant to the proposed 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 proposed 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 proposed 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 proposed works.
	➤ hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005; and	N/A	Not relevant to the proposed 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 proposed 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.	➤ fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005;	N/A	Not relevant to the proposed works.
➤ the water supply is accessible and reliable for firefighting operations.	➤ hydrants are not located within any road carriageway; and	N/A	Not relevant to the proposed works
	➤ reticulated water supply to SFPPs uses a ring main system for areas with perimeter roads.	N/A	Not relevant to the proposed 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 proposed 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 proposed 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.
	➤ above-ground tanks are manufactured from concrete or metal;	N/A	Not applicable.
	➤ raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F AS 3959);	N/A	Not applicable.
	➤ unobstructed access is provided at all times;	N/A	Not applicable.
	➤ tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters; and	N/A	Not applicable.
	➤ underground tanks are clearly marked,	N/A	Not applicable.
	➤ all exposed water pipes external to the building are metal, including any fittings;	N/A	Not applicable.
	➤ 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.

	➤ 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:			
➤ 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;	✓	Electricity supply is provided underground.
	➤ where overhead, electrical transmission lines are proposed as follow: - 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;	✓	Can comply if relevant, to be conditioned.
	➤ all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;	✓	Can comply if relevant, to be conditioned.
	➤ connections to and from gas cylinders are metal;	✓	Can comply if relevant, to be conditioned.
	➤ 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;	✓	Can comply if relevant, to be conditioned.
	➤ polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used; and	✓	Can comply if relevant, to be conditioned.
	➤ above-ground gas service pipes external to the building are metal, including and up to any outlets.	✓	Can comply if relevant, to be conditioned.

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 The intent may be achieved where:	Acceptable Solutions	Can Comply?	Comments
➤ a Bush Fire Emergency Management and Evacuation Plan is prepared.	➤ Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the: <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). 	N/A	Individual Bush Fire Emergency Management and Evacuation Plans for each lodge is not a practical or a logical requirement. To have over 150 lodges having individual evacuation plans, with occupants going to all different locations is not considered appropriate. Resort or locality based Evacuation Plans prepared/implemented by NPWS would be a much more practical and safer outcome.
	➤ the Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants.		
➤ appropriate and adequate management arrangements are established for consultation and implementation of the Bush Fire Emergency Management and Evacuation Plan.	➤ 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	N/A	Not relevant to the proposed works
	➤ 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.	N/A	Not relevant to the proposed works

7. CONCLUSION

The proposed development is for an in-fill development to an existing SFPP within the Alpine Resorts.

The proposed infill additions are located within the existing building curtilage and roof line and therefore are not located closer than the existing building to the unmanaged vegetation and associated bushfire risk.

As identified above, the proposed development can achieve compliance with the relevant performance criteria standards set out in PBP for a special fire protection purpose that is a form of 'infill' development located within the Alpine Resorts.

Given the distance of the proposed additions to the Forest vegetation located upslope to the north and north-west, the level of construction for the proposed additions is recommended to be BAL-29 under AS 3959-2018.

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