

BUSHFIRE ASSESSMENT REPORT

ADDITIONS AND ALTERATIONS SKI CLUB OF AUSTRALIA BUCKWONG PLACE, THREDBO ALPINE RESORT



AUGUST 2017

Project: 36-17

Dabyne Planning Pty Ltd

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GLOSSARY

| | |
|-------------------------|--|
| APZ | Asset Protection Zone |
| AS 3959-2009 | Australian Standard 3959-2009: 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 |
| 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 at Ski Club of Australia, located on the corner of Buckwong Place and Diggings Terrace, Thredbo. The property is legally described as Lot 745 DP 1119757.

The report has been prepared in accordance with Section 91A 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 2006 Guidelines (PBP).

1.2 Site Description & Proposal

The subject site is known as the Ski Club of Australia, located at 1 Buckwong Place, Thredbo Village. The property is legally described as Lot 754 DP 1119757.

The building is located adjacent to Athol Lodge and Ramshead Ski Club.

The existing property is licensed to contain a maximum of forty-two (42) beds for the purpose of tourist accommodation. The property is directly accessible from Buckwong Place.

The proposal seeks consent to undertake additions and alterations to improve the amenity of the lodge by creating a larger living area with improved views of the ski slopes and reconfigured deck. This will result in the lodge being increased in size, with the additions concentrated at the front north-east corner and overall improvement to the building.

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

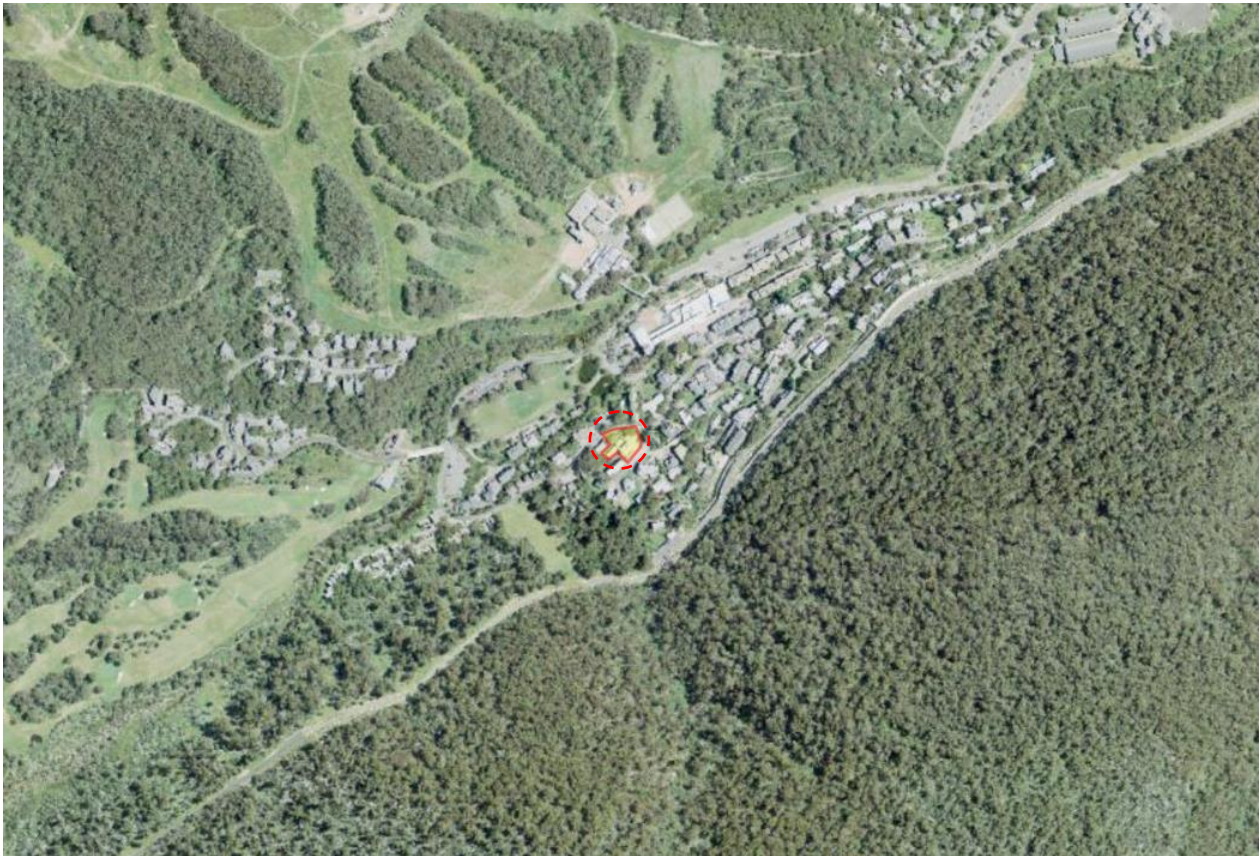


Figure 1: Aerial view of the subject site in context of the locality



Figure: 2 Aerial view of the subject site

The following photos identify the existing lodge and surrounding environment:



Figure 3: Photo of the north-eastern side of the lodge



Figure 4: Photo of the front northern corner of the lodge and location of proposed additions



Figure 5: Photo of the front north-west side of the lodge and location of the proposed additions



Figure 6 : Photo of the fire hydrant on the road adjacent



Figure 7 : Photo of the existing deck to be reconfigured



Figure 8: Photo of the existing side deck to be removed and location of proposed additions



Figure 9: Photo of the disturbed land below and adjacent to the additions



Figure 10: Photo of the two-wheel all-weather road

1.3 Bushfire Prone Land

The subject site is located within the buffer area to bushfire prone land located to the north as extracted from the NSW Department of Planning & Environment Planning Portal website as shown in figure 11 below. The development is therefore subject to S.100B of the NSW Rural Fires Act, 1997.



Figure 11: Bushfire Prone Land map for Ski Club of Australia, Thredbo

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.91 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 46 of the Rural Fires Regulation 2002 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 46(1)(g) of the Rural Fires Regulation 2002 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 2006

The NSW Rural Fire Service 'Planning for Bushfire Protection, 2006: A Guide for Councils, Planners, Fire Authorities and Developers' applies to the proposed development including the recently adopted Appendix 3 Addendum.

The subject site is located within Thredbo Alpine Resort, which is located within the NSW Alpine Resorts as discussed on page 31 of PBP.

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

3. METHODOLOGY

3.1 Site Inspection

A site inspection was undertaken by Dabyne Planning Pty Ltd in July 2017, 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 Classification

The predominant vegetation formation in all directions around the resort and within the wider locality is Sub-alpine Woodland, which is classified under *Keith, 2004* as Grassy woodlands (Woodlands) formation.

The AUSLIG [1990] Pictorial Analysis confirms that the vegetation on site is Woodlands as also converted from Keith below:

| David Keith's <i>Ocean Shores to Desert Dunes</i> | AUSLIG (1990) Pictorial Analysis (AS3959-2009) |
|---|--|
| Forests (Wet & Dry Sclerophyll) | Forest |
| Pine Plantations | |
| Forested Wetlands | Woodland |
| Woodlands (Grassy, Semi-Arid) | |
| Tall Heath (Scrub) | Scrub |
| Freshwater Wetlands | |
| Short Heath (Open Scrub) | Shrubland |
| Arid Shrubland | Mallee/Mulga |
| Alpine Complex (Sedgeland) | Tussock Moorland |
| Rainforest | Rainforest |
| Grassland | Grassland |

The vegetation to the north as illustrated in figure 12 below is considered to have the most influence in the event of a bushfire, due to the topography, wind direction and existing built environment around the village. This is supported by the bushfire prone land mapping (see figure 11 above) which confirms the bushfire prone vegetation is located to the north.



Figure 12: Aerial view demonstrating the location of the vegetation that would have the most influence in the event of a bushfire

Although the vegetation to the north would have the most influence in the event of a bushfire and this vegetation is located adjacent to Thredbo River, located upslope and over 100m from the location of the proposed additions, the vegetation also located upslope to the south-west is closer at approximately 90m as illustrated in figure 13 below.



Figure 13: Aerial view demonstrating the distance to other vegetation that would have the most influence in the event of a bushfire

Located within this setback are existing buildings and individual Eucalypt trees with scattered ground cover (Sub-alpine Woodland) however they do not form a continuous canopy.

4.2 Slope Assessment

The effective slope, being the slope that will have the greatest influence on the bushfire behaviour (where the vegetation is located as depicted in figure 13 above) is upslope.

5. SIGNIFICANT ENVIRONMENTAL FEATURES

The proposed additions and external alterations are located within highly disturbed areas with no 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. Furthermore an assessment of Aboriginal heritage is also not warranted.

6. BUSHFIRE ASSESSMENT

6.1 Special Fire Protection Purpose Developments

As stated above, the proposed development consists of additions and alterations to an existing lodge used for short-term tourist accommodation, primarily in winter with variable summer visitation.

6.1.1 Specific Objectives for Special Fire Protection Purpose Developments

The specific objectives for special fire protection purpose developments are to:

- *provide for the special characteristics and needs of occupants. Unlike residential subdivisions, which can be built to a construction standard to withstand the fire event, enabling occupants and firefighters to provide property protection after the passage of fire, occupants of SFPP developments may not be able to assist in property protection. They are more likely to be adversely affected by smoke or heat while being evacuated.*
- *provide for safe emergency evacuation procedures. SFPP Developments are highly dependent on suitable emergency evacuation arrangements, which require greater separation from bush fire threats. During emergencies, the risk to firefighters and other emergency services personnel can be high through prolonged exposure, where door-to-door warnings are being given and exposure to the bush fire is imminent.*

Fortunately, the normal fire season within the Kosciuszko National Park extends for a short period from January to March (PBP). This coincides when there are fewer visitors to the lodge, as the building is primarily used in winter from June through to October of each year. Although, it is acknowledged that the chalet is used in summer, however generally well below peak capacity.

These objectives have been considered and addressed below.

6.1.2 SFPPs as infill (Alpine Resorts)

An assessment of the proposal in accordance with the performance criteria and acceptable solutions contained within section 4.3.5 of PBP have been provided below.

| Performance Criteria | Acceptable Solutions | Can Comply? | Comments |
|--|---|-------------|------------------------------|
| The intent may be achieved where: | | | |
| in relation to Asset Protection Zones: <ul style="list-style-type: none"> • a defensible space is provided onsite. • an asset protection zone is provided and maintained for the life of the development. | <ul style="list-style-type: none"> • APZ determined in accordance with Appendix 2. | ✓ | <i>See discussion below.</i> |

| | | | |
|--|--|---|---|
| <p>in relation to siting and design:</p> <ul style="list-style-type: none"> • buildings are sited and designed to minimise the risk of bush fire attack. | <ul style="list-style-type: none"> • buildings are designed and sited in accordance with the siting and design principles in this section (see also figure 4.7). | ✓ | <p><i>The proposed additions and alterations will not alter the siting or overall design of the lodge.</i></p> |
| <p>in relation to construction standards:</p> <ul style="list-style-type: none"> • it is demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact. | <ul style="list-style-type: none"> • construction determined in accordance with Appendix 3 and the Requirements for attached garages and others structures in this section. <p><i>Note: provisions in relation to Class 10a buildings may also apply.</i></p> | ✓ | <p><i>The proposed additions and external alterations are required to be constructed in accordance with BAL-12.5 construction under AS3959-2009.</i></p> |
| <p>in relation to access requirements:</p> <ul style="list-style-type: none"> • safe, operational access is provided (and maintained) for emergency services personnel in suppressing a bush fire while residents are seeking to relocate, in advance of a bush fire, (satisfying the intent and performance criteria for access roads in sections 4.1.3 and 4.2.7). | <ul style="list-style-type: none"> • compliance with section 4.1.3 for property access roads. • compliance with section 4.2.7 for access standards for internal roads. | ✓ | <p><i>The existing access comprises of a sealed, two-way all-weather road that is easily accessible for two-wheel drive vehicles.</i></p> |
| <p>in relation to water and utility services:</p> <ul style="list-style-type: none"> • adequate water and electricity services are provided for firefighting operations • gas and electricity services are located so as not to contribute to the risk of fire to a building. | <ul style="list-style-type: none"> • compliance with section 4.1.3 for services - water, electricity and gas. | ✓ | <p><i>Reticulated water supply with fire hydrants are provided throughout Thredbo Village.</i></p> <p><i>Electricity and gas supply is provided underground throughout Thredbo Village.</i></p> |
| <p>in relation to landscaping:</p> <ul style="list-style-type: none"> • it is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions. | <ul style="list-style-type: none"> • compliance with Appendix 5. | ✓ | <p><i>The proposed additions and external alterations will not affect the existing landscaping on the site.</i></p> |

Asset Protection Zones (APZs)

An Asset Protection Zone (APZ) is to be provided in accordance with the relevant tables provided in Appendix 2 of PBP.

The minimum specifications for APZs for Special Fire Protection Purposes in bushfire prone areas are set out in Table A2.6 in Appendix 2 of PBP. The table specifies that the Alpine Resorts does not contain any minimum specifications and refers to Table A3.5. As Appendix 3 within PBP has been replaced by the new Appendix 3 (2010 Addendum) the new Appendix 3 refers to Table A2.4.4 in AS3959-2009. This is provided below:

| Vegetation classification | Bushfire Attack Levels (BALs) | | | | |
|---|--|--------|--------|--------|----------|
| | BAL—FZ | BAL—40 | BAL—29 | BAL—19 | BAL—12.5 |
| | Distance (m) of the site from the predominant vegetation class | | | | |
| All upslopes and flat land (0 degrees) | | | | | |
| A. Forest | <12 | 12—<16 | 16—<23 | 23—<32 | 32—<100 |
| B. Woodland | <7 | 7—<10 | 10—<15 | 15—<22 | 22—<100 |
| C. Shrubland | <7 | 7—<9 | 9—<13 | 13—<19 | 19—<100 |
| D. Scrub | <10 | 10—<13 | 13—<19 | 19—<27 | 27—<100 |
| E. Mallee/Mulga | <6 | 6—<8 | 8—<12 | 12—<17 | 17—<100 |
| F. Rainforest | <5 | 5—<6 | 6—<9 | 9—<14 | 14—<100 |
| G. Tussock Moorland | <7 | 7—<9 | 9—<14 | 14—<20 | 20—<100 |
| Downslope >0 to 5 degrees | | | | | |
| A. Forest | <14 | 14—<19 | 19—<27 | 27—<38 | 38—<100 |
| B. Woodland | <9 | 9—<12 | 12—<18 | 18—<26 | 26—<100 |
| C. Shrubland | <7 | 7—<10 | 10—<15 | 15—<22 | 22—<100 |
| D. Scrub | <11 | 11—<15 | 15—<22 | 22—<31 | 31—<100 |
| E. Mallee/Mulga | <7 | 7—<9 | 9—<13 | 13—<20 | 20—<100 |
| F. Rainforest | <6 | 6—<8 | 8—<12 | 12—<17 | 17—<100 |
| G. Tussock Moorland | <8 | 8—<10 | 10—<16 | 16—<23 | 23—<100 |
| Downslope >5 to 10 degrees | | | | | |
| A. Forest | <18 | 18—<24 | 24—<34 | 34—<46 | 46—<100 |
| B. Woodland | <11 | 11—<15 | 15—<23 | 23—<32 | 32—<100 |
| C. Shrubland | <8 | 8—<11 | 11—<17 | 17—<25 | 25—<100 |
| D. Scrub | <12 | 12—<17 | 17—<24 | 24—<35 | 35—<100 |
| E. Mallee/Mulga | <7 | 7—<10 | 10—<15 | 15—<23 | 23—<100 |
| F. Rainforest | <7 | 7—<10 | 10—<15 | 15—<22 | 22—<100 |
| G. Tussock Moorland | <9 | 9—<12 | 12—<18 | 18—<26 | 26—<100 |
| Downslope >10 to 15 degrees | | | | | |
| A. Forest | <22 | 22—<30 | 30—<41 | 41—<56 | 56—<100 |
| B. Woodland | <14 | 14—<19 | 19—<28 | 28—<40 | 40—<100 |
| C. Shrubland | <9 | 9—<13 | 13—<19 | 19—<28 | 28—<100 |
| D. Scrub | <14 | 14—<19 | 19—<28 | 28—<39 | 39—<100 |
| E. Mallee/Mulga | <8 | 8—<11 | 11—<18 | 18—<26 | 26—<100 |
| F. Rainforest | <9 | 9—<13 | 13—<19 | 19—<28 | 28—<100 |
| G. Tussock Moorland | <10 | 10—<13 | 13—<20 | 20—<29 | 29—<100 |
| Downslope >15 to 20 degrees | | | | | |
| A. Forest | <28 | 28—<37 | 37—<51 | 51—<67 | 67—<100 |
| B. Woodland | <18 | 18—<25 | 25—<36 | 36—<48 | 48—<100 |
| C. Shrubland | <10 | 10—<15 | 15—<22 | 22—<31 | 31—<100 |
| D. Scrub | <15 | 15—<21 | 21—<31 | 31—<43 | 43—<100 |
| E. Mallee/Mulga | <9 | 9—<13 | 13—<20 | 20—<29 | 29—<100 |
| F. Rainforest | <12 | 12—<17 | 17—<25 | 25—<35 | 35—<100 |
| G. Tussock Moorland | <11 | 11—<15 | 15—<23 | 23—<33 | 33—<100 |

Based on the slope, distance of the site to the predominant vegetation class, being 90m to Woodlands (with a continuous canopy), located upslope; the category of Bushfire Attack in accordance with Table A2.4.4 in AS3959-2009 is 'BAL-12.5'.

Therefore the proposed additions and external alterations are required to be constructed to BAL-12.5 in accordance with AS 3959-2009.

7. CONCLUSION

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

With the proposed new external additions and alterations to be constructed in accordance with construction level BAL 12.5 under AS3959-2009, the proposed development can achieve an improved bushfire risk outcome.

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