



BUSHFIRE ASSESSMENT REPORT

ADDITIONS AND ALTERATIONS ALTITUDE LODGE, SMIGGIN HOLES



FEBRUARY 2020
Project: 44-19

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 to an existing lodge.

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 2006 Guidelines (PBP).

1.2 Site Description & Proposal

The application relates to 'Altitude - The Lodge' (Altitude Lodge) a commercial lodge located on Plum Pine Road, Smiggin Holes. The property is legally described as Lot 1 DP 1195135.

The proposed development comprises:

- Installation of two (2) additional angled hard stand parking spaces along the front western side of the lodge, adjacent to the driveway and other parking spaces.

Repair & Replacement Works:

- Replace the existing first floor timber deck on the front western side of the lodge. Upon replacement, the deck will be enlarged by being extended by 1.5m outwards (approx. 11.5m²) to allow for new external fire exit stairs to be provided. The new deck will be constructed on a steel frame with expanded mesh.
- Replacement of fire doors on the ground and first floors.
- Replacement of three floor to ceiling windows (2100mm high) with smaller picture windows (1200mm high).
- Replacement of timber cladding with Colorbond Corrugated metal below all ground floor windows on northern elevation (up to the window seal).
- Install additional cement topping to an existing concrete area to improve drainage re-direct water away from the building.
- Boxing out of eaves along the northern elevation.

The proposed works are in response to the need to improve the weather protection and longevity of the external components of the lodge from UV, wind, ice and snow.

The works also allow for improved fire safety and egress as well as bushfire protection with the use of non-combustible materials where possible.

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 site, lodge and location of proposed works:



Figure 3: Photo of the timber deck to be replaced and enlarged with a steel deck, with external steel fire stairs



Figure 4: Photo of the floor to ceiling windows to be replaced with smaller windows



Figure 5: Photo of the deck to be replaced and enlarged, with external fire stairs



Figure 6: Photo of the northern elevation and bedroom wing - location of replacement cladding on the ground floor (below windows) and boxing of the eaves



Figure 7: Photo of the managed land to the south-west of the lodge



Figure 8: Photo of the managed land to the north of the lodge



Figure 9: Photo of the managed land to the north-west of the lodge



Figure 10: Photo of the unmanaged vegetation to the east of the lodge

1.3 Bushfire Prone Land

The subject site is located within an area mapped as bushfire prone land as extracted from the NSW Department of Planning, Industry & 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.

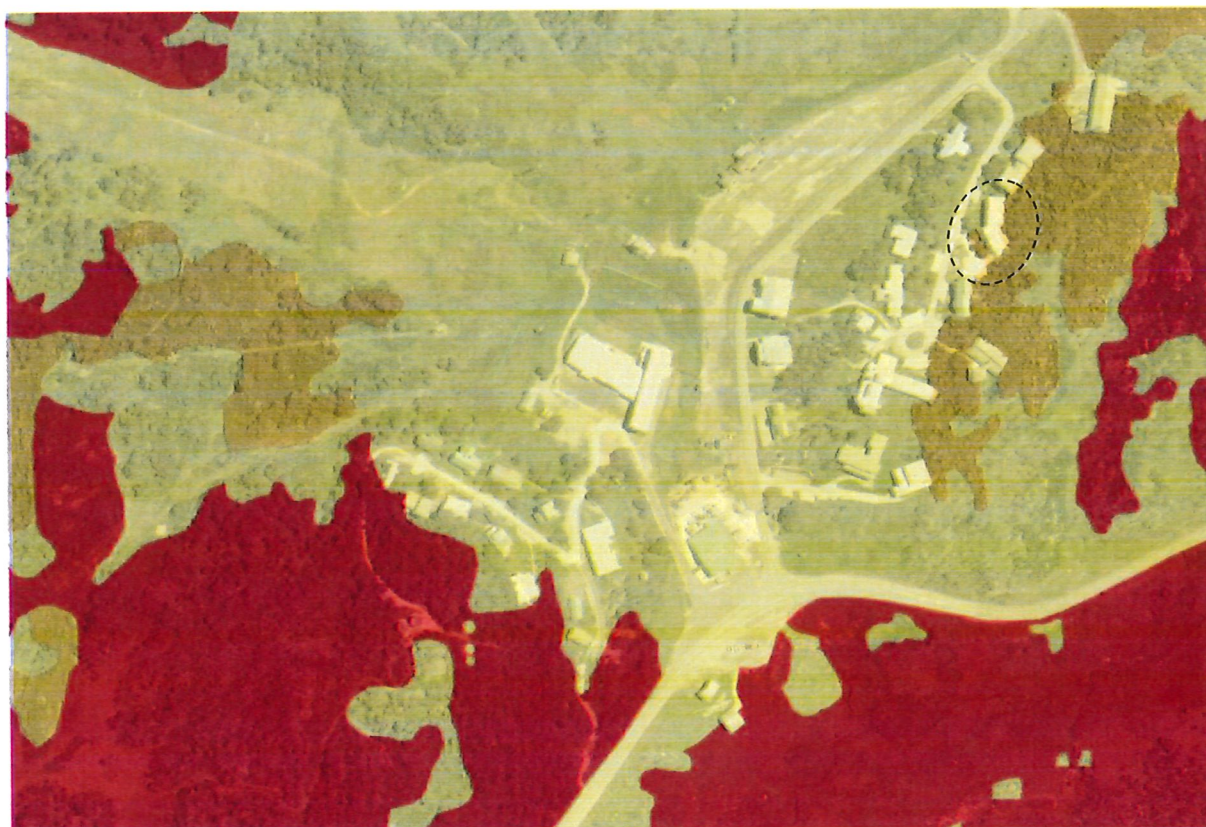


Figure 11: Bushfire Prone Land map for Altitude Lodge

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 a lodge (ie 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 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 the Perisher Range Resorts, which is located within the NSW Alpine Resorts as discussed on page 31 of PBP.

Under PBP, a different 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 November 2019, 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.

This vegetation classification was also informed by consulting the plant community maps identified in the *Kosciuszko Resorts Vegetation Assessment 2002*, prepared by Ecology Australia, in association with NGH Environmental, for Planning NSW (now Department of Planning, Industry & Environment).

Regarding measuring the distance to the vegetation communities, this distance is measured from the 'development', being the proposed building works as required under AS 3959.

NOTES:

1 The measurement of distance A to B is measured in plan (i.e., horizontally) and is taken to the external wall of the proposed building, or for parts of the building that do not have external walls (including carports, verandas, decks, landings, steps and ramps), to the supporting posts or columns. The following parts of the building are excluded when determining the distance A to B:

- (a) Eaves and roof overhangs.
- (b) Rainwater and domestic fuel tanks.
- (c) Chimneys, pipes, cooling or heating appliances or other services.
- (d) Unroofed pergolas.
- (e) Sun blinds.
- (f) Landings, terraces, steps and ramps, not more than 1 m in height.

The measurement is therefore not taken from the closest part of the existing building which is not subject to the 'development', being the proposed works.

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 proposed building works 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 predominant vegetation in and around the subject site and wider resort 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 | |
| Woodlands (Grassy, Semi-Arid) | Woodland |
| Tall Heath (Scrub) | Scrub |
| Freshwater Wetlands | |
| Short Heath (Open Scrub) | Shrubland |
| Arid Shrubland | Mallee/Mulga |
| Alpine Complex (Sedgelands) | Tussock Moorland |
| Rainforest | Rainforest |
| Grassland | Grassland |

This is further supported by the vegetation mapping undertaken by Ecology Australia in 2002, which confirms that the vegetation to the east of the lodge is Tall Alpine Heath with Eucalypts, a Sub-alpine Woodland vegetation community.

The unmanaged native vegetation to the east as illustrated in figure 12 below is considered to have the most influence in the event of a bushfire, and this comprises the closest unmanaged vegetation on the site and beyond.



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

The vegetation to the east is located 17m from the repairs and replacement works on the western elevation of the lodge and 19m to the replacement deck and windows on the south-west corner of the lodge as illustrated in figure 13 below.



Figure 13: Aerial view demonstrating the distance to the closest unmanaged vegetation

5. SIGNIFICANT ENVIRONMENTAL FEATURES

The proposed additions & alterations are located within disturbed areas with minimal 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.

6. BUSHFIRE ASSESSMENT

6.1 Special Fire Protection Purpose Developments

As the proposed additions and alterations are proposed for an existing SFPP Development approved prior to the 1st August 2002, the proposal is considered an 'infill development' in accordance with 4.2.5 of PBP.

An appropriate combination of bushfire protection measures and compliance with the intent and performance criteria of each measure within section 4.3.5 of PBP is required.

However PBP acknowledges that existing circumstances may make the preferred standards difficult to achieve and in such cases, the specific objectives in Section 4.2.3 are to be followed.

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.*

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.

6.1.1 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 | 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> |
| in relation to siting and design: <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]. | ✓ | <i>The proposed works will not alter the siting or overall design of the building.</i> |

| | | | |
|--|--|----------|---|
| <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>✓</p> | <p><i>The proposed works ordinarily be recommended to be constructed in accordance with BAL-19 construction under AS3959-2009.</i></p> <p><i>However the proposed external works comprise of 'repairs and replacement' which result in an improved bushfire risk outcome.</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>✓</p> | <p><i>The existing access comprises of a two-way all-weather road that is easily accessible for two-wheel drive vehicles outside of winter.</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>✓</p> | <p><i>Reticulated water supply with fire hydrants are provided throughout Smiggin Holes.</i></p> <p><i>Electricity supply is provided underground throughout Smiggin Holes.</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>✓</p> | <p><i>The proposed additions and 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:

**TABLE 2.4.4
DETERMINATION OF BUSHFIRE ATTACK LEVEL (BAL)—FDI 50 (1090 K)**

| 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 closest unmanaged vegetation, being 16m 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-19'.

However, the proposed external works comprise of 'repairs and replacement' works and result in mostly replacing combustible material with non-combustible materials.

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.

Other than the proposed car parking hard stand places, the proposed works comprise of repairs and replacement of external building elements. The proposed repairs and replacement works seek to remove an existing timber deck with an enlarged steel frame and expanded mesh deck and fire stairs, replace timber cladding with metal cladding, replace larger windows with smaller windows, replace fire doors and box out the eaves with metal cladding. The proposed works therefore generally replace existing combustible materials with non-combustible materials to reduce maintenance and extend the longevity of the building.

These works all result in an improved bushfire protection outcome for the building.

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