

BUSHFIRE ASSESSMENT REPORT

EXTERNAL ALTERATIONS—CLADDING GUNUMA LODGE, PLUM PINE ROAD SMIGGIN HOLES KOSCIUSZKO NATIONAL PARK



Project: 02-13

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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 external alterations to all facades of the building by installing metal cladding over the existing timber cladding and having the existing window frames, external doors, fascia, deck support structure and balustrades re-painted.

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 application relates to Gunuma Lodge, a club lodge located on Plum Pine Road (formally known as Willow Road) which is accessed from Link Road within the eastern side of Smiggin Holes.

Smiggin Holes is located within the Perisher Range Resorts within the Kosciuszko National Park.

The lodge is located adjacent to Willow Lodge, The Lodge & Windarra Lodge.

The site is located between Link Road and the Smiggin Holes carpark adjacent to the west and Plum Pine Road to the east.

On the northern and southern side of the lodges are a few groups of trees with the understorey predominantly disturbed.

The vegetation beyond the lease boundaries is predominantly comprised of sub-alpine woodland with a mix of native and exotic grasses with limited heath coverage.

The proposed metal cladding to be used is 'Lysaght Easyclad' in a horizontal profile and the colour to be 'Deep Ocean' (a dark blue Colorbond colour) and will be overlaid on top of the existing timber cladding. The proposed repainting of the existing window frames, external doors, fascia, deck support structure and balustrades will be in 'Dune' (a light grey Colorbond colour)

All of the proposed works are external to the building and within the existing building footprint.

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

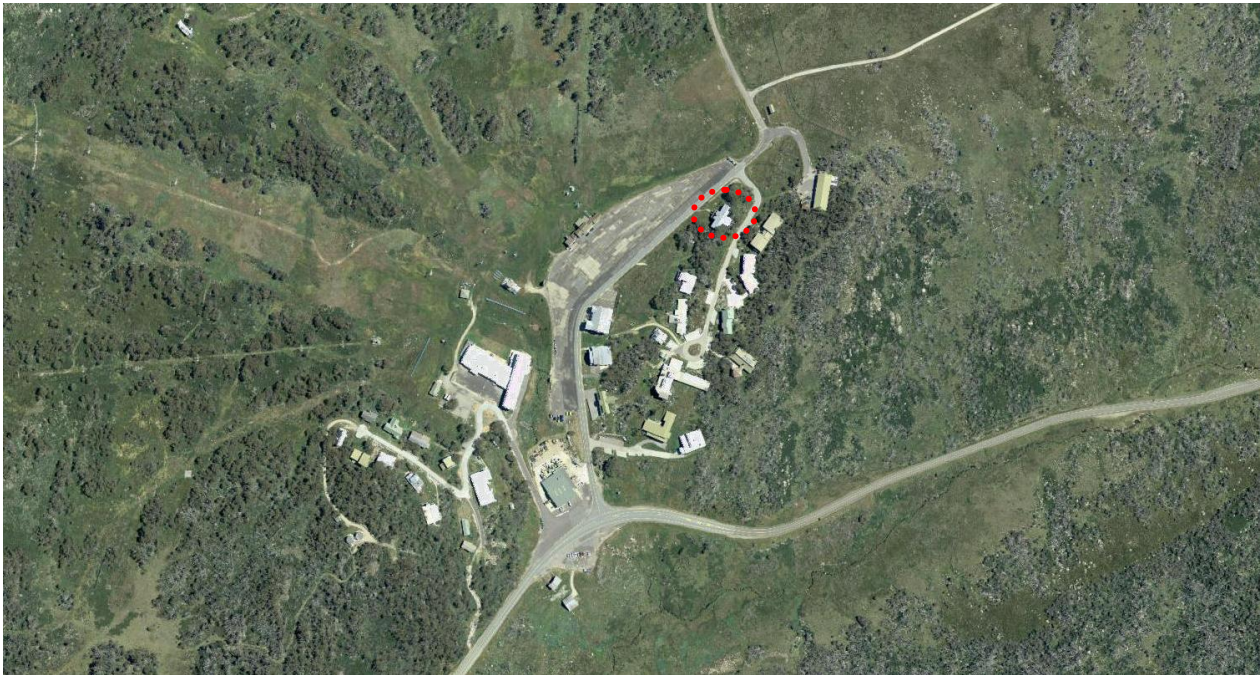


Figure 1: Context of the site within the locality



Figure 2: Location of the subject site in relation to the adjoining sub-lessees

The following photos identify the existing building and surrounding environment:



Figure 3: Photo of the western side of the lodge from the Link Road



Figure 4: Photo of the south-western corner of the lodge



Figure 5: Photo of the north-western corner of the lodge



Figure 6: Photo of the south-eastern corner of the lodge and tree required to be trimmed



Figure 7: Photo of the existing tree overhanging lodge on the south-eastern corner - recommended to be trimmed



Figure 8: Photo of the eastern side of the lodge



Figure 9: Photo of northern side of the lodge



Figure 10: Photo of the existing tree overhanging lodge on the north-eastern corner – recommended to be trimmed



Figure 11: Photo of Plum Pine Road – A sealed two way road



Figure 12: Photo of the Link Road & Car park – A sealed two way road



Figure 13: Photo of the fire hydrant on the eastern side of Plum Pine Road



Figure 14: Photo of the underground electricity adjacent to the lodge

1.3 Bushfire Prone Land

The NSW Department of Planning and Infrastructure has advised that the subject site is located within a designated bushfire prone area and is therefore subject to S.100B of the NSW Rural Fires Act, 1997.

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 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 on the 17 January 2013, 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 Keith (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	
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

Due to the extent of clearing associated with the ski slopes of Smiggin Holes to the west and the carpark adjacent, the vegetation to the south-east & east of the lodge is considered to have the most influence in the event of a bushfire as illustrated in figure 15 below.



Figure 15: Aerial view illustrating the vegetation that would have the most influence in the event of a bushfire

The vegetation located to the south-east and east of the lodge, being vegetation closest to the subject site, is upslope and located approximately 12m-15m from the building.

Located within this setback are individual Eucalypt trees (in small clusters) with scattered ground cover comprising of exotic and native grasses however they do not form a continuous canopy.

This is further illustrated in figure 16 below.



Figure 16: Aerial view demonstrating the vegetation that would have the most influence in the event of a bushfire

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 15 above) is flat to upslope.

5. SIGNIFICANT ENVIRONMENTAL FEATURES

The proposed external alterations are located within the existing building footprint with the only impact on native vegetation associated with the trimming of a couple of trees 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 the proposed external 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 external alterations will result in reducing the risk of bushfire attack due to overlaying the existing timber cladding with metal cladding.</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><i>The proposed external alterations are required to be constructed in accordance with BAL-29 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 (refer to figure's 11 & 12 above).</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 Smiggin Holes (refer to figure 13 above).</i></p> <p><i>Electricity and gas supply is provided underground throughout Smiggin Holes (refer to figure 14 above).</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 external alterations will not affect the existing landscaping on the site, in accordance with the recommendation for trees to be trimmed where they overhand the roof of the lodge.</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 predominant vegetation class, being approximately 12m-15m to Woodlands (with a continuous canopy), located flat-upslope; the category of Bushfire Attack in accordance with Table A2.4.4 in AS3959-2009 is 'BAL-29'.

Therefore the proposed external alterations are required to be constructed to BAL-29 in accordance with AS 3959-2009. As the external alterations only include the erection of metal cladding over existing timber cladding, the proposed alterations can comply with the BAL-29 construction level requirements.

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.

As the proposal will result in metal cladding being overlayed on the existing timber cladding, the proposed development will result in an improved bushfire risk outcome.

Furthermore the bushfire risk for the lodge should be further reduced by providing a minimum 2m separation between existing trees and the roof the lodge (in accordance with the PBP), which will require at least two trees to be trimmed where there branches overhang the lodge as depicted in figure's 7 and 10 above.

With the installation of metal cladding and trimming of trees, no further building upgrades are considered necessary.

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