



## Bushfire Protection Assessment

---

### Proposed Lodge Recladding and Window Replacement

### Kosciuszko Alpine Club Lodge – 2 Guthrie Place, Charlotte Pass

---



Department of Planning  
and Environment

*Issued under the Environmental Planning and Assessment Act 1979*

Approved Application No 21/18285

Granted on the 19 December 2023

Signed S Butler

Sheet No 4 of 13

## DOCUMENT TRACKING

<b>Project Name</b>	Bushfire Protection Assessment: Proposed Recladding and Window Replacement, Kosciuszko Alpine Club Lodge – 2 Guthrie Place, Charlotte Pass
<b>Project Number</b>	23HUS5459
<b>Client Name</b>	Kosciuszko Alpine Club
<b>Project Manager</b>	Susan Courtney
<b>Prepared by</b>	Susan Courtney
<b>Reviewed by</b>	Bruce Horkings FPAA BPAD Accredited Practitioner No. BPAD29962-L3
<b>Approved by</b>	Bruce Horkings FPAA BPAD Accredited Practitioner No. BPAD29962-L3
<b>Status</b>	Final
<b>Version Number</b>	v1
<b>Last saved on</b>	27 June 2023

This report should be cited as 'Eco Logical Australia. 2023. *Bushfire Protection Assessment: Proposed Recladding and Window Replacement, Kosciuszko Alpine Club Lodge – 2 Guthrie Place, Charlotte Pass* . Prepared for Kosciuszko Alpine Club.

## ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd in conjunction with Mammoth Projects Pty Ltd.

## LIMITATIONS

The bushfire protection measures recommended in this report do not completely remove the risk to life and property, and they do not guarantee that a development will not be impacted by a bushfire event. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions.

### Disclaimer

*This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Logical Australia Pty Ltd and Kosciuszko Alpine Club. The scope of services was defined in consultation with Kosciuszko Alpine Club, by time and budgetary constraints imposed by the client, and the availability of reports and other data on the subject area. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up to date information. Eco Logical Australia Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.*

## Contents

<b>1. Property and proposal .....</b>	<b>1</b>
1.1 Description of proposal .....	1
1.2 Assessment process.....	1
1.3 Significant environmental features.....	2
<b>2. Bushfire hazard assessment .....</b>	<b>6</b>
2.1 Process.....	6
2.2 Vegetation assessment.....	6
2.3 Slope assessment.....	6
2.4 Summary of assessment .....	6
<b>3. PBP Objectives .....</b>	<b>8</b>
3.1 PBP objectives for existing SFPP facilities .....	8
3.2 Alpine resorts.....	10
<b>4. Recommendations.....</b>	<b>12</b>
<b>5. Conclusion .....</b>	<b>13</b>
<b>6. References.....</b>	<b>14</b>
<b>Appendix A - Asset Protection Zone and Landscaping Standards .....</b>	<b>15</b>

## List of Figures

Figure 1: East and north elevations showing cladding replacement (W and WG) and window replacements.....	3
Figure 2: West and south elevations showing cladding replacement (W and WG) and window replacements.....	4
Figure 3: Site plan/bushfire hazard assessment /APZ/BAL figure.....	5

## List of Tables

Table 1: Subject site and development proposal summary.....	1
Table 2: Bushfire hazard assessment, APZ requirements and BALs .....	7
Table 3: PBP objectives for existing SFPP facilities (adapted from Section 6.4 of PBP) .....	8
Table 4: PBP objectives for alpine resorts (adapted from Section 6.6 of PBP) .....	10
Table 5: APZ management specifications .....	15

## Abbreviations

Abbreviation	Description
AS 3959	Australian Standard 3959:2018 ‘Construction of buildings in bushfire prone areas’
APZ	Asset Protection Zone
BAL	Bushfire Attack Level
BFPL	Bush fire prone land
DA	Development Application
DPE	NSW Department of Planning and Environment
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
FDI	Fire Danger Index
IPA	Inner Protection Area
KAC	Kosciuszko Alpine Club
NASH	National Association of Steel-framed Housing
NPWS	NSW National Parks and Wildlife Service
PBP	‘Planning for Bush fire Protection 2019’ and ‘Planning for Bush Fire Protection Addendum November 2022’
RFS	NSW Rural Fire Service
SA	Standards Australia

## 1. Property and proposal

Table 1 identifies the subject property and outlines the type of development proposed.

**Table 1: Subject site and development proposal summary**

Street address:	2 Guthrie Place, Charlotte Pass
Postcode:	2624
Lot/DP no:	Lot 112 DP 1242013
Local Government Area:	Alpine Resort - DPE
Fire Danger Index (FDI)	50
Current land zoning:	C1 – National Parks and Nature Reserves
Type of development proposed:	Alterations

### 1.1 Description of proposal

The proposal is to replace the external cladding and windows of the Kosciuszko Alpine Club (KAC) Lodge at 2 Guthrie Street, Charlotte Pass (herein referred to as the 'subject land') as shown in the elevation plans in Figure 2 and Figure 2.

The proposed development is located on land classified as bush fire prone land (BFPL) on the NSW Planning Portal Spatial View Bushfire Prone Land layer<sup>1</sup> and is located within an existing 'Special fire protection purpose' (SFPP) development within the alpine resort of Charlotte Pass.

### 1.2 Assessment process

The proposal was assessed in accord with 'Planning for Bush Fire Protection 2019' (RFS 2019) and 'Planning for Bush Fire Protection Addendum November 2022' (RFS 2022), herein collectively referred to as 'PBP'.

Under Section 6.5 of PBP, minor 'non-structural' external building alterations including replacement of non-structural wall cladding and replacement of external windows are classified as 'Minor development in SFPP facilities'. Minor development in SFPP facilities does not require a Bush Fire Safety Authority (BFSa) from the NSW Rural Fire Service (RFS) as it does not influence potential bushfire impacts or the bushfire protection of buildings.

Building elements concerned will need to comply with the requirements of Australian Standard (AS) 3959-2018 'Construction of buildings in bushfire-prone areas' (SA 2018) or the National Association of Steel-framed Housing (NASH) Standard 'Steel Framed Construction in Bushfire Areas (NASH 2014) under the National Construction Code (NCC), wherever applicable.

In the case of the proposed development, the NSW Department of Planning and Environment is the consent authority for the development and they consider that the current extensively weathered condition of the KAC Lodge means that the proposed works are likely to entail additional structural works that fall outside the 'minor development in SFPP facilities' provisions within PBP.

<sup>1</sup> <https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address>

Consequently, the assessment herein will demonstrate that the proposed alterations to KAC Lodge will satisfy the special fire protection purpose (SFPP) objectives of Section 6.4 ‘Development of existing SFPP facilities’ and the specific objectives applicable to SFPP development in alpine resorts outlined in Section 6.6 of PBP.

This assessment is based on the following information sources:

- Background documentation provided by Mammoth Projects Pty Ltd and KAC Lodge Managers;
- Information contained within the Kosciuszko Alpine Club (KAC) Charlotte Pass Proposed Reclad 2021-2022 Drawings Dated 3 June 2021 (Sheets A0A-B and A01-A06); and
- GIS analysis including online spatial resources (i.e. Google Earth (including Street View), SIX Maps, Nearmap and the NSW Government Planning Portal).

### 1.3 Significant environmental features

An assessment of significant environmental features, threatened species, populations or ecological communities under the *Biodiversity Conservation Act 2016* that may potentially be affected by the proposed bushfire protection measures has not been undertaken in this report as it is covered by other parts of the development application process.

In the case of the proposed recladding and window replacement, it is proposed to be located within an existing managed portion of the Charlotte Pass Alpine Resort and no additional APZ establishment and/or encroachment onto surrounding NSW National Parks and Wildlife (NPWS) estate will be required to support the proposed development. DPE is the determining authority for this development; they will assess more thoroughly any potential environmental issues.



Figure 1: East and north elevations showing cladding replacement (W and WG) and window replacements



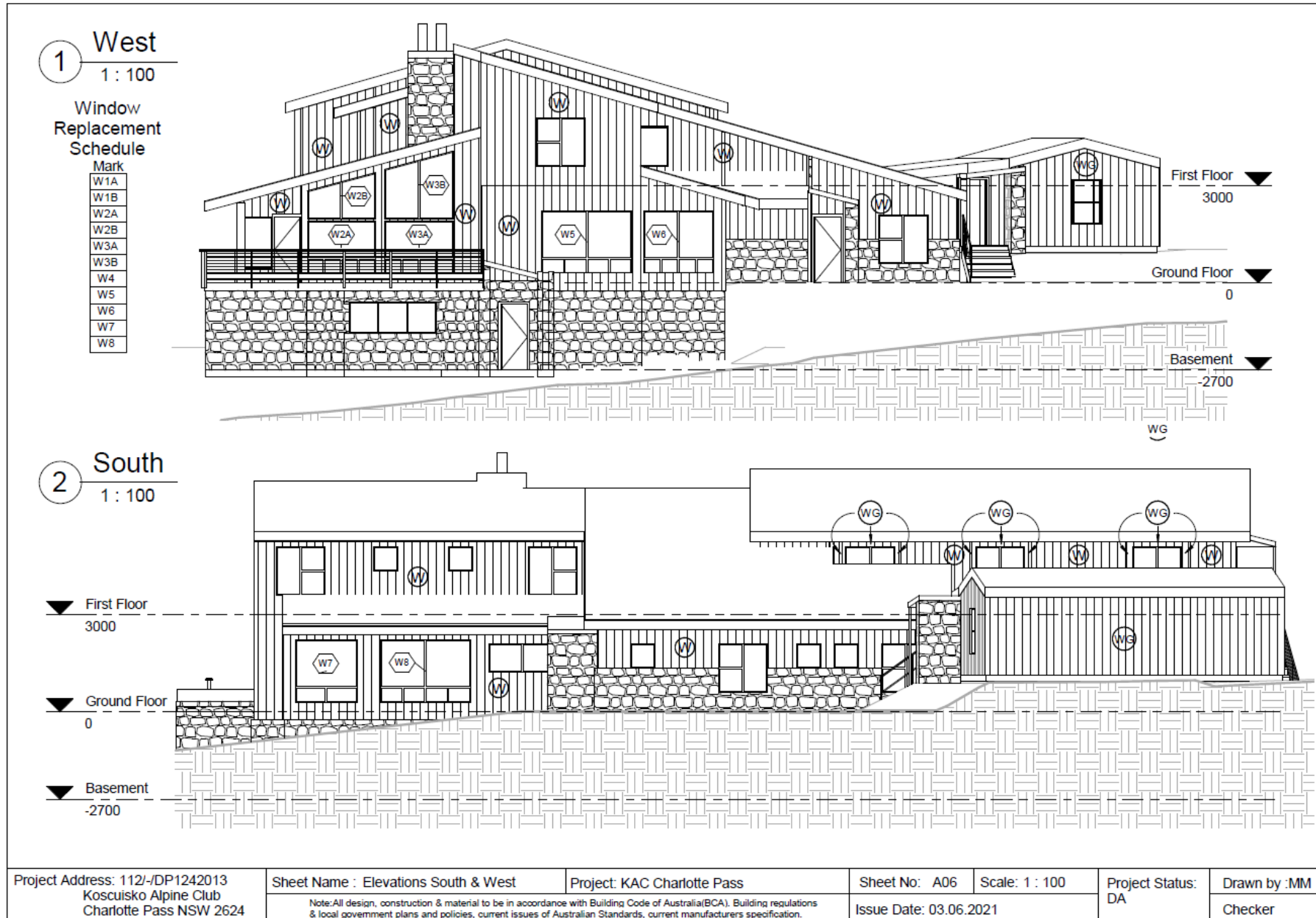


Figure 2: West and south elevations showing cladding replacement (W and WG) and window replacements

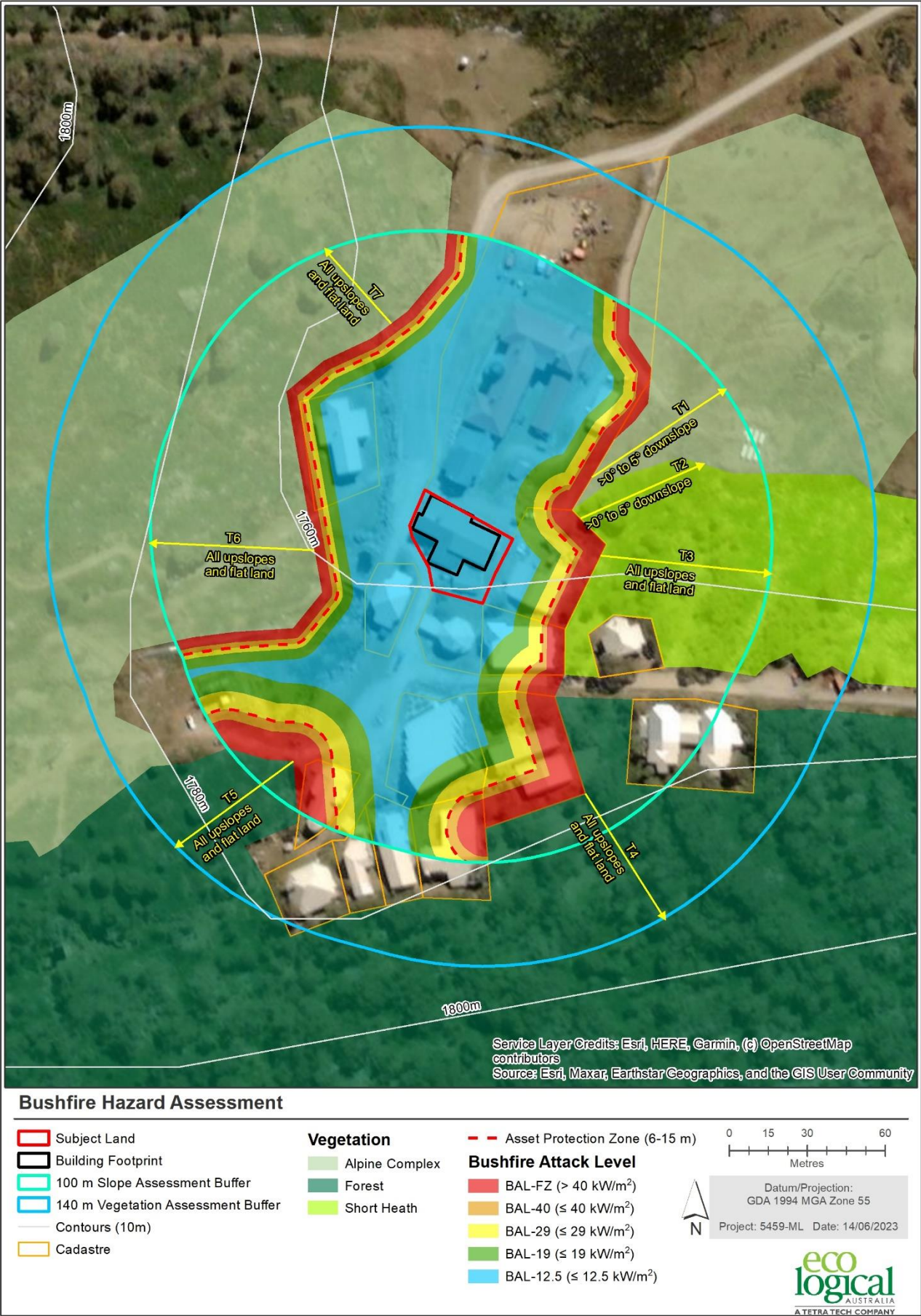


Figure 3: Site plan/bushfire hazard assessment /APZ/BAL figure

## 2. Bushfire hazard assessment

### 2.1 Process

The site assessment methodology set out in Appendix 1 of PBP has been utilised in this assessment to determine the required APZ and construction requirements.

Figure 3 and Table 2 show the effective slope and predominant vegetation representing the highest bushfire threat potentially posed to the proposed development from various directions.

### 2.2 Vegetation assessment

In accordance with PBP, the predominant vegetation formation has been assessed for a distance of at least 140 m from the subject land in all directions.

The predominant vegetation has been determined from a combination of the State Vegetation Type Map (SVTM; DPE 2023) and Google Streetview imagery.

### 2.3 Slope assessment

In accordance with PBP, the slope that would most significantly influence fire behaviour was determined over a distance of 100 m from the boundary of the existing KAC lodge under the classified vegetation.

The effective slope has been determined from 10 m contour data and revised where required by site assessment.

### 2.4 Summary of assessment

The vegetation within 140 m of KAC Lodge consists of three primary vegetation types. To the west, north and north-east of the Lodge is 'Kosciuszko Alpine Wet Heath' which falls within the 'Alpine Bogs and Fens' vegetation class (Keith 2004) and is classified as 'Alpine Complex' by PBP. The Alpine Complex to the north-east is on slight downslopes in the PBP slope category 'Downslope >0-5 degrees' while that to the west and north-west is on upslopes in the PBP slope category 'All upslopes and flat land'.

To the east-north-east (ENE) and east of the KAC Lodge, there is 'Kosciuszko High Plateau Grassy Open Heath' which falls within the 'Alpine Heaths' Keith vegetation class and is classified as 'Short Heath' by PBP. The Short Heath to the ENE of the Lodge is on slight downslopes in the PBP slope category 'Downslope >0-5 degrees' while that to east is on flat ground in the PBP slope category 'All upslopes and flat land'.

To the south-east and south-west of the Lodge, there is 'Kosciuszko-Namadgi Alpine Ash Moist Grassy Forest' which falls within the 'Montane Wet Sclerophyll Forests' Keith vegetation class and is classified as 'Forest' by PBP. This vegetation is on upslopes that fall into the PBP slope category 'All upslopes and flat land'.

In all other directions, there are managed lands in the form of other alpine lodges/leases, the Kosciuszko Chalet, Bella Vista Staff Lodge and Charlotte Pass Ski Centre along with ski lift and road infrastructure.

Table 2: Bushfire hazard assessment, APZ requirements and BALs

Transect #	Slope	Vegetation Formation	Recommended minimum APZ*	Existing APZ	Bushfire Attack Level (BAL)	Comments
1 North-east	>0° to 5° downslope	Alpine Complex	≥14 m	≥22 m	BAL-12.5	
2 North-north-east	>0° to 5° downslope	Short Heath	≥22 m	≥29 m	BAL-12.5	
3 East	All upslopes and flat land	Short Heath	≥20 m	≥25 m	BAL-12.5	APZ in place within the KAC Lodge lease and the surrounding Charlotte Pass resort within existing leases and road/ski lift infrastructure
4 South-east	All upslopes and flat land	Forest	≥30 m	≥46 m	BAL-12.5	
5 South-west	All upslopes and flat land	Forest	≥30 m	≥88 m	BAL-12.5	
6 West	All upslopes and flat land	Alpine Complex	≥14 m	≥30 m	BAL-12.5	
7 North-west	All upslopes and flat land	Alpine Complex	≥14 m	≥50 m	BAL-12.5	
All other directions	Managed land within resort including other lodges/leases, retail outlets, staff accommodation and ski lift/road infrastructure.					

\*PBP does not provide dimensions for minimum SFPP APZs in alpine resort areas and therefore an APZ commensurate with BAL-12.5 has been applied.



### 3. PBP Objectives

#### 3.1 PBP objectives for existing SFPP facilities

Table 3 below outlines how the proposed alterations to the KAC Lodge will satisfy the objectives of Section 6.4 of PBP for development of existing SFPP facilities.

**Table 3: PBP objectives for existing SFPP facilities (adapted from Section 6.4 of PBP)**

No.	Objective	Compliance of proposed development	Objective Satisfied
1	Provide an appropriate defensible space.	<ul style="list-style-type: none"> <li>KAC Lodge is surrounded by an APZ commensurate with BAL-12.5 construction.</li> </ul>	Yes
2	Site the building in a location which ensures appropriate separation from the hazard to minimise potential for material ignition.	<ul style="list-style-type: none"> <li>No new buildings proposed</li> <li>KAC Lodge surrounded by BAL-12.5 commensurate APZ.</li> </ul>	Yes
3	Provide a better bushfire outcome for existing buildings.	<ul style="list-style-type: none"> <li>Existing building is not constructed to any specific bushfire construction level.</li> <li>All new works are to be constructed to <b>BAL-12.5</b> in accord with AS 3959:2018 'Construction of buildings in bushfire-prone areas' (SA 2018) and as modified in Section 7.5.2 of PBP.</li> <li>Entire building (excluding new works that are to be BAL-12.5 compliant) is to implement the following ember protection upgrades as follows:               <ul style="list-style-type: none"> <li>Screen sub-floor spaces, chimneys/flues (aside from those for gas appliances or that service enclosed slow combustion heaters), HVAC vents/intakes, eave vents, vents/weepholes and openable windows with aluminium, bronze or corrosion-resistant stainless steel mesh of no greater than 2 mm aperture; and</li> <li>Weather strips/draft excluders to be fitted to all side hung external doors.</li> </ul> </li> </ul>	Yes
4	New buildings should be located as far from the hazard as possible and should not be extended towards or situated closer to the hazard than the existing buildings (unless they can comply with Section 6.8).	<ul style="list-style-type: none"> <li>No new buildings proposed.</li> <li>Existing building is surrounded by BAL-12.5 sized APZ.</li> </ul>	Yes
5	Ensure there is no increase in bushfire management and maintenance responsibility on adjoining land owners without their written confirmation.	<ul style="list-style-type: none"> <li>APZs surrounding KAC Lodge are already in place within managed portion of Charlotte Pass Alpine Resort.</li> <li>There is no increase in bushfire management and maintenance for adjoining land holders.</li> </ul>	Yes
6	Ensure building design and construction enhances the chances of occupant and building survival.	<ul style="list-style-type: none"> <li>New works to be constructed to BAL-12.5 as outlined in Objective 3 (above).</li> <li>Ember protection upgrades outlined in Objective 3 (above) will improve bushfire protection level of KAC Lodge.</li> <li>KAC Lodge is protected by a network of internal fire hose reels and extinguishers supported by 3 external fire hydrants located within 10 m of the Lodge.</li> </ul>	Yes

No.	Objective	Compliance of proposed development	Objective Satisfied
7	Provide for safe emergency evacuation procedures including capacity of existing infrastructure (such as roads).	<ul style="list-style-type: none"> <li>• A Bushfire Emergency Management and Evacuation Plan (BEMEP) is to be prepared for the KAC Lodge consistent with:               <ul style="list-style-type: none"> <li>○ The NSW RFS document: 'A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan'; and</li> <li>○ Australian Standard AS 3745:2010 'Planning for emergencies in facilities'.</li> </ul> </li> <li>• The BEMEP should include planning for the early relocation of occupants.</li> <li>• The BEMEP needs to consider any requirements or measures in place for the broader Charlotte Pass resort, Kosciuszko National Park or NPWS directives.</li> <li>• An Emergency Planning Committee is established to develop/implement an Emergency Procedures Manual.</li> <li>• Detailed plans of all emergency assembly areas (onsite and offsite) as stated in AS 3745:2010 are clearly displayed, and an annual emergency evacuation is to be conducted.</li> </ul>	Yes

### 3.2 Alpine resorts

Section 6.6 of PBP outlines specific objectives that apply to alpine resort areas and details of how the proposed alterations to the KAC Lodge satisfies these are outlined in Table 4.

**Table 4: PBP objectives for alpine resorts (adapted from Section 6.6 of PBP)**

No.	Objective	Compliance of proposed development	Objective Satisfied
1	Provide an appropriate defensible space.	<ul style="list-style-type: none"> <li>KAC Lodge is surrounded by an APZ commensurate with BAL-12.5 construction.</li> </ul>	Yes
2	Provide a better bushfire outcome for existing structures.	<ul style="list-style-type: none"> <li>Existing building is not constructed to any specific bushfire construction level.</li> <li>All new works are to be constructed to <b>BAL-12.5</b> in accord with AS 3959:2018 'Construction of buildings in bushfire-prone areas' (SA 2018) and as modified in Section 7.5.2 of PBP.</li> <li>Entire building (excluding new works that are to be BAL-12.5 compliant) is to implement the following ember protection upgrades as follows:               <ul style="list-style-type: none"> <li>Screen sub-floor spaces, chimneys/flues (aside from those for gas appliances or that service enclosed slow combustion heaters), HVAC vents/intakes, eave vents, vents/weepholes and openable windows with aluminium, bronze or corrosion-resistant stainless steel mesh of no greater than 2 mm aperture; and</li> <li>Weather strips/draft excluders to be fitted to all side hung external doors.</li> </ul> </li> </ul>	Yes
3	Ensure new building work complies with the construction standards set out in AS 3959.	<ul style="list-style-type: none"> <li>New building work to comply with BAL-12.5 of AS 3959:2018 as modified in Section 7.5.2 of PBP and the additional ember protection provisions as identified in Objective 2.</li> </ul>	Yes
4	Ensure ongoing management and maintenance responsibilities are in place where APZs are proposed outside of the sub lease or leasehold area.	<ul style="list-style-type: none"> <li>APZs surrounding KAC Lodge are already in place within managed portion of Charlotte Pass Alpine Resort managed by a combination of lessees and NPWS.</li> <li>There is no increase in bushfire management and maintenance for adjoining land holders.</li> </ul>	Yes
5	Written consent from the land manager is provided for all proposed works outside of the sub lease or leasehold area.	<ul style="list-style-type: none"> <li>No works proposed outside of sub lease/leasehold area.</li> </ul>	Not applicable

No.	Objective	Compliance of proposed development	Objective Satisfied
6	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.	<ul style="list-style-type: none"> <li>• No APZs proposed outside of the existing sub lease/leasehold area already managed by lessees and NPWS.</li> </ul>	Yes
7	Ensure building design and construction enhances the chances of occupant and building survival.	<ul style="list-style-type: none"> <li>• New works to be constructed to BAL-12.5 as outlined in Objective 2 (above).</li> <li>• Upgrades (including ember protection) will enhance the bushfire protection level of KAC Lodge.</li> <li>• KAC Lodge is protected by a network of internal fire hose reels and extinguishers supported by 3 external fire hydrants located within 10 m of the Lodge.</li> </ul>	Yes
8	Provide for safe emergency evacuation procedures.	<ul style="list-style-type: none"> <li>• A Bushfire Emergency Management and Evacuation Plan (BEMEP) is to be prepared for the KAC Lodge consistent with: <ul style="list-style-type: none"> <li>○ The NSW RFS document: 'A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan'; and</li> <li>○ Australian Standard AS 3745:2010 'Planning for emergencies in facilities'.</li> </ul> </li> <li>• The BEMEP should include planning for the early relocation of occupants.</li> <li>• The BEMEP needs to consider any requirements or measures in place for the broader Charlotte Pass resort, Kosciuszko National Park or NPWS directives.</li> <li>• An Emergency Planning Committee is established to develop/implement an Emergency Procedures Manual.</li> <li>• Detailed plans of all emergency assembly areas (onsite and offsite) as stated in AS 3745:2010 are clearly displayed, and an annual emergency evacuation is to be conducted.</li> </ul>	Yes



## 4. Recommendations

As demonstrated in Table 3 and Table 4, the proposed recladding/window replacement development of Kosciuszko Alpine Club (KAC) Lodge satisfies the applicable objectives of PBP in relation to development of an existing SFPP facility within alpine resort environs providing that the following recommended bushfire protection measures are implemented:

- i Asset Protection Zones and Landscaping
  - APZ to be maintained as existing to lease boundary in accord with the specifications for an Inner Protection Area (IPA) as outlined in Appendix A;
- ii Bushfire Construction Standards
  - All new construction to be in accord with **BAL-12.5** requirements of AS 3959:2018 (Chapters 3 and 5) and as modified by Section 7.5.2 of PBP;
  - Entire building (excluding new works that are to be BAL-12.5 compliant) is to implement the following ember protection upgrades:
    - Screen sub-floor spaces, chimneys/flues (aside from those for gas appliances or that service enclosed slow combustion heaters), HVAC vents/intakes, eave vents, vents/weepholes and openable windows with aluminium, bronze or corrosion-resistant stainless steel mesh of no greater than 2 mm aperture; and
    - Weather strips/draft excluders to be fitted to all side hung external doors.
- iii Emergency Management
  - A Bushfire Emergency Management and Evacuation Plan (BEMEP) is to be prepared for the KAC Lodge consistent with:
    - The NSW RFS document: 'A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan'; and
    - Australian Standard AS 3745:2010 'Planning for emergencies in facilities'.
  - The BEMEP should include planning for the early relocation of occupants. The BEMEP needs to consider any requirements or measures in place for the broader Charlotte Pass resort, Kosciuszko National Park or NPWS directives.
  - An Emergency Planning Committee is established to develop/implement an Emergency Procedures Manual.
  - Detailed plans of all emergency assembly areas (onsite and offsite) as stated in AS 3745:2010 are clearly displayed, and an annual emergency evacuation is to be conducted.

## 5. Conclusion

The proposed recladding and window replacement alterations to the KAC Lodge have been assessed against the relevant objectives in 'Planning for Bush Fire Protection 2019' for existing SFPP/alpine resort developments.

It is recommended that the proposed development is approved with the suite of bushfire protection measures (BPM) outlined in Section 4 of this report.



Susan Courtney

**Senior Bushfire Planner**



Bruce Horkings

**Senior Bushfire Consultant**

FPAA BPAD Accredited Practitioner No. BPAD29962-L3



## 6. References

Australian Building Codes Board (ABCB). 2019. *National Construction Code*. ABCB, Canberra.

Eco Logical Australia (ELA). 2019. Eco Logical Australia December 2019. *Bushfire Protection Assessment, Proposed Staff Accommodation and Classroom, 2 Guthrie Place, Charlotte Pass*. ELA, Huskisson.

Keith, D. 2004. *Ocean Shores to Desert Dunes*. Department of Environment and Conservation, Sydney.

National Association of Steel Framed Housing Inc. (NASH). 2014. *Steel Framed Construction in Bushfire Areas 2014*. NASH, Melbourne.

NSW Rural Fire Service (RFS). 2019. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners - issued December 2019*. RFS, Sydney.

NSW Rural Fire Service (RFS). 2022. *Planning for Bush Fire Protection Addendum November 2022*. RFS, Sydney.

Standards Australia (SA). 2018. *Construction of buildings in bushfire-prone areas, AS 3959:2018*. SAI Global, Sydney.

## Appendix A - Asset Protection Zone and Landscaping Standards

The Inner Protection Area (IPA) APZ management specifications in Table 5 apply to the Lodge lease. The subject land is to be maintained in perpetuity and management undertaken as required.

These APZ management specifications should be considered for any future landscaping within and maintenance of the subject land.

Further details on APZ implementation and management can be found on the NSW RFS website (<https://www.rfs.nsw.gov.au/resources/publications>).

**Table 5: APZ management specifications**

Vegetation Strata	Inner Protection Area (IPA)
Trees	<ul style="list-style-type: none"> <li>• Tree canopy cover should be less than 15% at maturity;</li> <li>• Trees (at maturity) should not touch or overhang the building;</li> <li>• Lower limbs should be removed up to a height of 2 m above ground;</li> <li>• Canopies should be separated by 2 to 5 m; and</li> <li>• Preference should be given to smooth barked and evergreen trees.</li> </ul>
Shrubs	<ul style="list-style-type: none"> <li>• Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;</li> <li>• Shrubs should not be located under trees;</li> <li>• Shrubs should not form more than 10% ground cover; and</li> <li>• Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.</li> </ul>
Grass	<ul style="list-style-type: none"> <li>• Should be kept mown (as a guide grass should be kept to no more than 100 mm in height); and</li> <li>• Leaves and vegetation debris should be removed.</li> </ul>

