

Land Use Planning Guideline

OUR COMMUNITY • OUR CFA



Applying the Bushfire Hazard Landscape Assessment in a Bushfire Management Overlay

OUR COMMUNITY • OUR CFA

Cover image courtesy of Marc Burton-Walter.
Taken at Buchan VIC, January 2020.

Published December 2022, Version 4.0

All material in this publication is provided under a Creative Commons Attribution 4.0 international licence, with the exception of any images, photographs or branding, including CFA and government logos. In some cases, a third party may hold copyright on material in this publication and their permission may be required to use the material.

See creativecommons.org/licenses/by/4.0. Material obtained from this publication is to be attributed as © State of Victoria (Country Fire Authority) 2022.

Every effort has been made to ensure the information contained in this publication is free from error and / or omissions. No responsibility can be accepted by Country Fire Authority for any claims that may arise from a person acting on information contained herein.

Purpose

The purpose of this guideline is to provide advice to practitioners on how the potential fire behaviour arising from broader landscape should be considered and how the Bushfire Hazard Landscape Assessment (as required by clause 53.02 of planning schemes) should be applied to development in the Bushfire Management Overlay (**BMO**).

Application

This guideline has relevance to all applications within the BMO. However, it is most relevant to applications under clause 53.02-4 Pathway 2 (buildings and works); and Pathway 3 (subdivisions) applications where the Bushfire Hazard Landscape Assessment has determined the proposal is within a type Three or Four landscape.

Background

As explained in *Planning Permit Applications Bushfire Management Overlay Technical Guide (Technical Guide)*, (DELWP, September 2017), considering bushfire from the perspective of the broader landscape is important as it affects the level of bushfire risk that development and its future occupants will be exposed to.

The defensible space and construction requirements in the BMO and clause 53.02 are established based on the standard requirements of *AS 3959 Construction of buildings in bushfire-prone areas (AS 3959)*. To determine these requirements AS-3959 models radiant heat from a potential fire front based on specified inputs and assumptions. This is often referred to as the 'design fire'. The accuracy of the design fire in reflecting the level of exposure to bushfire at a site varies. It is dependent on the potential size or scale to which a bushfire can grow before impacting.

The broader landscape and the potential scale and size of a bushfire are important considerations in the assessment of a planning application. Planning policy dictates that certain applications, namely those that are submitted under Pathways 2 and 3 must consider the wider bushfire landscape.

However, all applications should have some regard to the broader landscape when considering the objectives of the Planning Policy Framework.

To consider the suitability and adequacy of the standard design fire of AS 3959, judging the size to which a fire can grow and develop before impacting the site is crucial. This is because the scale of a bushfire and therefore its destructive power is driven by the characteristics of the broader landscape, rather than those assessed immediately around the site (i.e. within the 150m assessment area). The site based assessment however, remains an important aspect to applying the requirement of the BMO and clause 53.02. Hence, there is generally a need to undertake both a landscape and a site-based assessment.

(Note: While clause 53.02-3 (Pathway 1) does not require applications to undertake a Bushfire Hazard Landscape Assessment, it is advisable that practitioners consider the landscape bushfire risk in all instances, as the zoning of land may not reflect the true risk)

According to the Technical Guide, the purpose of the landscape assessment is not to predict the outcome of a bushfire event but to provide information that builds a better understanding of the bushfire risk in a location.

The Planning Policy Framework at clause 13.02 requires a 'precautionary' or cautious approach to decision making in the BMO. The likely size and scale of a bushfire should directly inform how 'cautiously' the bushfire provisions should be applied.

Considerations

The Technical Guide identifies four landscape typologies (page 13 – 16). These seek to support more consistent decision-making based on the bushfire risk beyond the 150m site assessment area.

Where the landscape has been defined as either type One or Two, it is considered that the:

- Approved Measures under clause 53.02-4 for 'buildings and works' should mitigate the bushfire risk from the broader landscape to an acceptable level for a development application.
- Approved Measures under clause 53.02-4.4 for subdivision will most likely reduce the bushfire risk to an acceptable level.

Where 'buildings and works' are proposed in landscape types Three or Four, it may be necessary to further enhance safety through additional bushfire protection measures. Alternative Measures that seek to reduce the standard requirements of clause 53.02 are unlikely to be suitable. Subdivisions creating new lots should be carefully considered and may not be appropriate in these areas.

The Technical Guide provides images and points to consider when assessing the landscape risk. Many of these images however, do not show scale or provide advice on the type of vegetation or significance of the topography on fire behaviour. These will also be important considerations when undertaking or considering the Bushfire Hazard Landscape Assessment.

Classifying Vegetation & Slope

Once a bushfire is large, the weather and the interaction of the fire with itself becomes the dominant driver of fire behaviour. Variation in fuel and topography become less relevant as large bushfires tend to 'smooth' these out. This should be remembered when classifying vegetation and determining slope in landscape types Three or Four and the assessment of these factors should be made with due caution. This will include:

- Choosing the more conservative fuel type in situations where the classifiable vegetation does not fit neatly into a specific vegetation class. For example, in situations where the fuel load is closer to woodland but the structure is closer to a forest the more conservative 'forest' classification should be used. For 'modified' vegetation to be considered a valid classification, the level of modification and the distance the fire has to travel through these modified fuels must be significant. In most instances it will not be appropriate to classify fuels as modified in landscape types Three or Four. Similarly, fuels must be significantly managed and clearly meet defendable space prescriptions before they can be classified as 'low threat'.
- Considering the influence of slope on fire behaviour beyond the 150m assessment area as well as within.

- Determining effective slope on worst case rather than an average.

Defendable Space & Construction (BAL)

In a lower risk landscape, the need to maintain defendable space is closely aligned to the buildings construction level (Bushfire Attack Level or BAL) and managing the risk to the asset. As the landscape risk intensifies the need for defendable space as a 'safety zone' around the building to better protect life increases. If the building fails during the passage of the fire front, the amount of defendable space becomes the critical factor for survival. The greater the distance between the building and residual burning, the quicker radiant heat levels in the area around the house become survivable.

The rate at which a structure loses tenability is strongly influenced by the bushfire attack mechanisms (ember attack, radiant heat or direct flame contact) most seriously impacting the building. For example, a building ignited by ember attack will likely start as a small smouldering fire which will then take time to develop into a fire large enough to threaten the structure. However, a building lost to high levels of radiant heat or direct flame contact will most likely lose tenability very quickly and before the environment outside is survivable. For developments provided with BAL 40 or BAL FZ defendable space and with no opportunity during a fire to move into a sufficiently cleared and maintained area, occupant survival relies totally on the building surviving for a period well beyond the passage of the fire front.

In landscape types Three or Four, it is important that defendable space provides an adequate safety zone. To appropriately meet the State's bushfire planning objectives in the higher risk landscapes defendable space should be provided based on worst case, to all aspects of the building and any or all of the following may also be necessary:

- Increase the level of defendable space beyond that required by clause 53.02.
- Enhance the level of construction through bushfire sensitive design.
- Enhance the building's resistance to strong winds.
- Build to a higher BAL.
- Determine flame length and avoid direct flame contact.
- Enhanced vegetation management prescriptions. For example, a greater level of management for surface, elevated or canopy fuels.
- Be cautious in accepting reasonable assurance for offsite defendable space.
- Method 2 of AS 3959 should not be used to reduce the defendable space or construction requirements of clause 53.02.
- Carefully consider the appropriateness of BAL 40 defendable space and avoid flame zone in type Three landscapes. In type Four landscapes, both BAL 40 and BAL FZ defendable space should be avoided.

Siting and Building Design

Building design and siting can play a significant role in the likelihood of a building surviving a bushfire event. clause 53.02 provides requirements with regard to siting development and building design. These include:

- Maximising the separation distance between the building and the hazard
- Building in close proximity to a road
- Providing access to the building for emergency service vehicles
- A building is designed to be responsive to the landscape risk and reduce the impact of bushfire on the building

In higher risk landscapes careful use and consideration of landform to enhance building protection when choosing a site and designing the building will be important. Landform can either be naturally occurring such as hills, ridges and gullies or constructed such as earth mounds, cut-and-fill terracing, and excavation into the ground. These features and techniques should be used to limit the exposure of the building to bushfire and fire induced winds.

As the future building design is not normally known at the time of subdivision, lot layout and the siting of building envelopes requires particularly careful consideration. Subdivisions should be designed so that the location of building envelopes minimises the potential exposure of future buildings to bushfire and provide maximum separation to the hazard. Where the vegetation has been classified as 'modified', building envelopes should be set back a minimum of 10m from boundaries.

Clause 53.02 requires that construction be to a BAL in accordance with AS 3959-2018 or the NASH Standard – Steel Framed Construction in Bushfire Area (National Association of Steel Framed Housing Incorporated). These basic requirements can be enhanced. In the higher risk landscapes, the following should be considered:

- The building should be on a concrete slab or under floor spaces fully enclosed
- For BAL 12.5 and BAL19, decks, eaves and fascia's should be constructed to comply with BAL 29
- Fire induced winds should be considered. This means constructing to lower cyclone levels
- External materials attached to the building should be non-combustible.
- This includes decks and other structures
- Building should be of simple design with minimal re-entrant corners and basic roof lines
- A compliant private bushfire shelter might also be considered

Access

On days such as Black Saturday and Ash Wednesday when a bushfire grows large it no longer moves through the landscape as a definable fire front. The 'fire front' can be better described as an 'area of fire', likely to be impacting over many square kilometres rather than a fire with any definite edge. The larger the bushfire, the larger this area or impact zone.

With regard to access and egress from a property the potential scale of the fire and the size of its impact zone will be important to consider. Access roads through landscape types Three and Four are more likely to be blocked by spot fires. This could occur well before the main fire impacts the property and travelling even short distances can be problematic. In these landscapes, the access requirements of clause 53.02 are important for egress well before any fires start and the ability for emergency services to attend as soon as possible after the fire has passed. The design response on the Site itself will need to respond to the fact it will not be safe to leave the property once fire is in the area.

Application requirements

For applications in landscape types Three and Four it would be expected that the Bushfire Management Statement clearly articulates and explains the landscape fire behaviour and provides mitigation measures that reduce the bushfire risk to an acceptable level. The level of detail required for these types of applications is best prepared by a suitably qualified and experienced bushfire safety consultant.

CFA recommends using a Fire Protection Association Australia (FPA Australia) accredited bushfire practitioner to support the preparation of these applications. A list of these consultants can be found on the FPA Australia website on the Bushfire Prone and Design (BPAD) practitioner's page (<http://www.fpaa.com.au/bpad.aspx>).

Further Information

For further information please contact:

In person:

*Country Fire Authority
Fire Risk, Research & Community Preparedness
8 Lakeside Drive, Burwood East*

Mail: PO Box 701, Mt Waverley VIC, 3149

Email: firesafetyreferrals@cfa.vic.gov.au

Phone: (03) 9262 8444