



Bushfire Management Statement

for the development of a
Childcare centre
at 1A Gear Avenue
Mount Evelyn VIC 3796

August 2022

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Cover image: Vegetation within the nearby Warburton Rail Trail.

Version Control

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1 Introduction

This Bushfire Management Statement (BMS) has [REDACTED] to show how the development of a childcare centre at 1A Gear Avenue, Mount Evelyn VIC 3796 can comply with the Victorian planning and building controls that relate to bushfire, specifically the requirements of Clause 13.02-1S *Bushfire Planning*, Clause 44.06 *Bushfire Management Overlay* (BMO) and associated Clause 53.02 *Bushfire Planning* in the Yarra Ranges Planning Scheme.

The site is in the Low Density Residential Zone (LDRZ). The development proposal is to develop a childcare centre on the site. Accordingly, this report follows the BMO pathway 2, to demonstrate how the development responds to the relevant objectives of Clause 53.02-4 (Yarra Ranges Planning Scheme, 2020).

The site is within a declared Bushfire Prone Area (BPA) and is covered by the BMO. In accordance with the application requirements of Clause 44.06 (Yarra Ranges Planning Scheme, 2018a), this report includes:

- A *Bushfire hazard site assessment*, including a plan that describes the bushfire hazard within 150m of the site in accordance with the site assessment methodology of AS 3959-2018 *Construction of buildings in bushfire-prone areas* and Clause 44.06;
- A *Bushfire hazard landscape assessment*, including a plan that describes the bushfire hazard of the general locality more than 150m from the site; and
- A *BMO compliance* section, detailing how the development responds to the bushfire risk and the requirements and objectives of Clauses 44.06 and 53.02.

This report also includes a Bushfire Management Plan (BMP) consistent with the responsible fire authority's standard permit conditions and BMP guidance (CFA, 2017).

This report has been prepared consistent with guidance provided in the technical guide *Planning Permit Applications – Bushfire Management Overlay* (DELWP, 2017).

1.1 Property details

Address:	1A Gear Avenue, Mount Evelyn VIC 3796
Property size:	1,388m ²
Local Government Area:	Yarra Ranges Shire Council
Zone/s	Low Density Residential Zone and Schedule (LDRZ)
Overlay/s	Bushfire Management - Schedule 2 (BMO2) Design and Development Overlay – Schedule 2 (DDO2) Significant Landscape Overlay – Schedule 22 (SLO22)
Directory reference:	Melway 120 B1
Site assessment date:	11/08/2022
Assessed by:	Jon Boura, Liam Dowsett-Clark and Brittany Taylor



Map 1 - Site location and overview.

2 Bushfire hazard site assessment

2.1 Classified vegetation

Vegetation within the 150m assessment zone around the proposed childcare centre has been classified in accordance with the BMO/AS 3959 methodology. Classified vegetation is vegetation that is deemed hazardous from a bushfire perspective.

The classification system is not directly analogous to Ecological Vegetation Classes (EVCs) but uses a generalised description of vegetation based on the AUSLIG (Australian Natural Resources Atlas: No. 7 - Native Vegetation) classification system. The classification is based on the mature state of the vegetation and the likely fire behaviour that it will generate.

2.1.1 Modified vegetation

'Modified vegetation is vegetation that doesn't fit into the vegetation classifications in AS 3959-2018 (sic) Construction of buildings in bushfire prone areas (the standard) because it:

- *has been modified, altered or is managed due to urban development, or gardening,*
- *has different fuel loads from those assumed in the standard,*
- *has limited or no understorey vegetation, or*
- *is not low-threat or low-risk vegetation as defined in the standard' (Yarra Ranges Planning Scheme, 2018b).*

Modified vegetation may occur where fuel loads are higher than typical residential gardens and therefore the vegetation cannot be excluded as low threat. However, because of the amount of disturbance and modification that has occurred (e.g. reduced or no understorey or surface vegetation) and/or the pattern and configuration of the vegetation (e.g. small, fragmented patches), the fuel load and anticipated fire behaviour is likely to be different from that presumed in the BMO/AS 3959 methodology.

This type of vegetation may not produce a 100m wide fire front moving at a quasi-steady state rate of forward spread, as presumed in the BMO/AS 3959 methodology, but may generate radiant heat and localised flame contact that needs to be fully considered (DELWP, 2017).

The vegetation to the east and north-east of the property, along the Warburton Rail Trail (see Map 2) is considered to be Modified vegetation due to the narrowness of the reserve, with the vegetation further broken up by the path and deep cutting along the Warburton Rail Trail. The vegetation also contains a semi-managed understory in some areas, and bushy shrublike vegetation in others.

2.2 Excluded vegetation and non-vegetated areas

Areas of low threat vegetation and non-vegetated areas can be excluded from classification in accordance with Section 2.2.3.2 of AS 3959-2018, if they meet one or more of the following criteria:

- (a) *Vegetation of any type that is more than 100m¹ from the site.*
- (b) *Single areas of vegetation less than 1 ha in area and not within 100m of other areas of vegetation being classified vegetation.*
- (c) *Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other, or of other areas of vegetation being classified vegetation.*
- (d) *Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified vegetation.*
- (e) *Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.*
- (f) *Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition², mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks' (Standards Australia, 2020).*

For the purposes of this report, it is assumed that all vegetation on the site will be managed in a low threat state (i.e. as non-classified vegetation), therefore Map 1 does not show any classified vegetation on the site.

Low-threat areas excluded from classification include the managed gardens of the surrounding residential properties, managed roadside vegetation and trees within public carparks north of York Road. Non-vegetated areas include the roads, driveways, carparks and structures within the 150m site assessment zone (see Map 2).

2.3 Topography

The BMO/AS 3959 methodology requires that the 'effective slope' be identified to determine the BAL and applicable defendable space or vegetation setback distances. This is the slope of land under the classified vegetation that will most significantly influence the bushfire attack on a building. Two broad types apply:

- Flat and/or Upslope - land that is flat or on which a bushfire will be burning downhill in relation to the development. Fires burning downhill (i.e. on an upslope) will generally be moving more slowly with a reduced intensity.
- Downslope - land under the classified vegetation on which a bushfire will be burning uphill in relation to the development. As the rate of spread of a bushfire burning on a downslope (i.e. burning uphill towards a development) is significantly influenced by

¹ This distance extends to 150m in BMO areas.

² Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack, recognisable as short-cropped grass for example, to a nominal height of 100mm (Standards Australia, 2020).

increases in slope, downslopes are grouped into five classes in 5° increments from 0° up to 20°.

The topography on and around the site within the 150m assessment zone has a gradual downslope in all directions, as the site sits atop a small ridge. The steepest downslopes are north-east towards York Road and south-west along Gear Avenue. The Warburton Rail Trail runs parallel to the site and sits within a cutting roughly 10m lower in elevation than its surrounding topography at its deepest point.

As the only classified vegetation is 'Modified', for the purposes of determining the BAL and defensible space, the applicable slope class is 'All slopes' (see Map 1).



Map 2 – Bushfire Hazard Site Assessment Plan.



Figure 1 – Looking north across the Warburton Rail Trail at Modified vegetation.

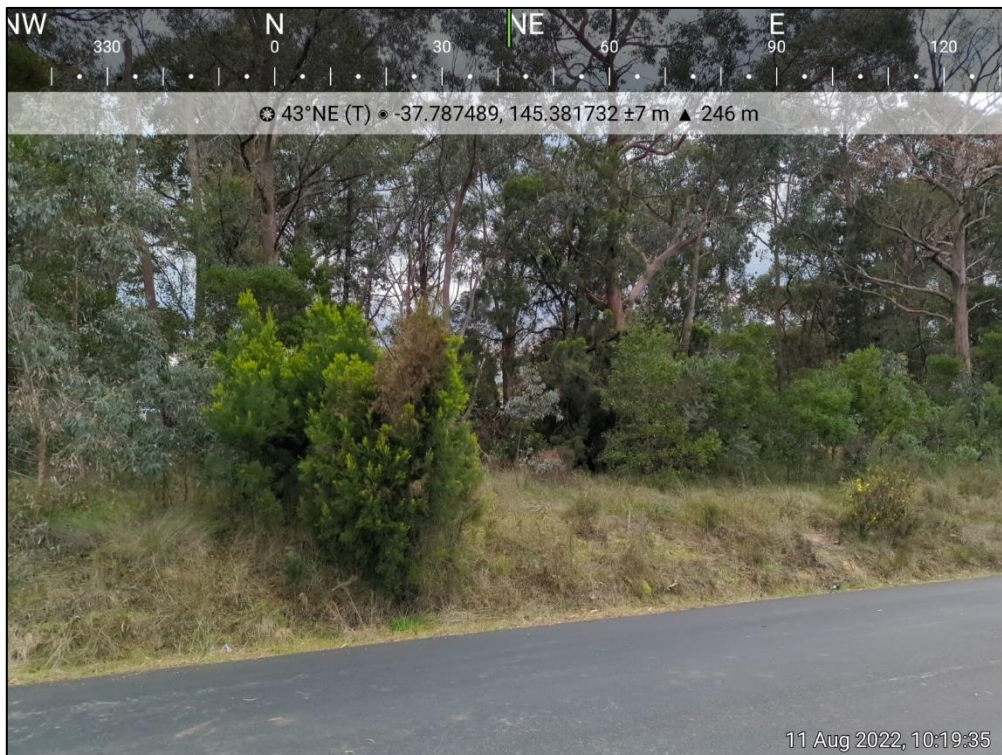


Figure 2 – Looking north-east at Modified vegetation.



Figure 3 – Looking south-west at non-vegetated areas within the centre of Mount Evelyn.

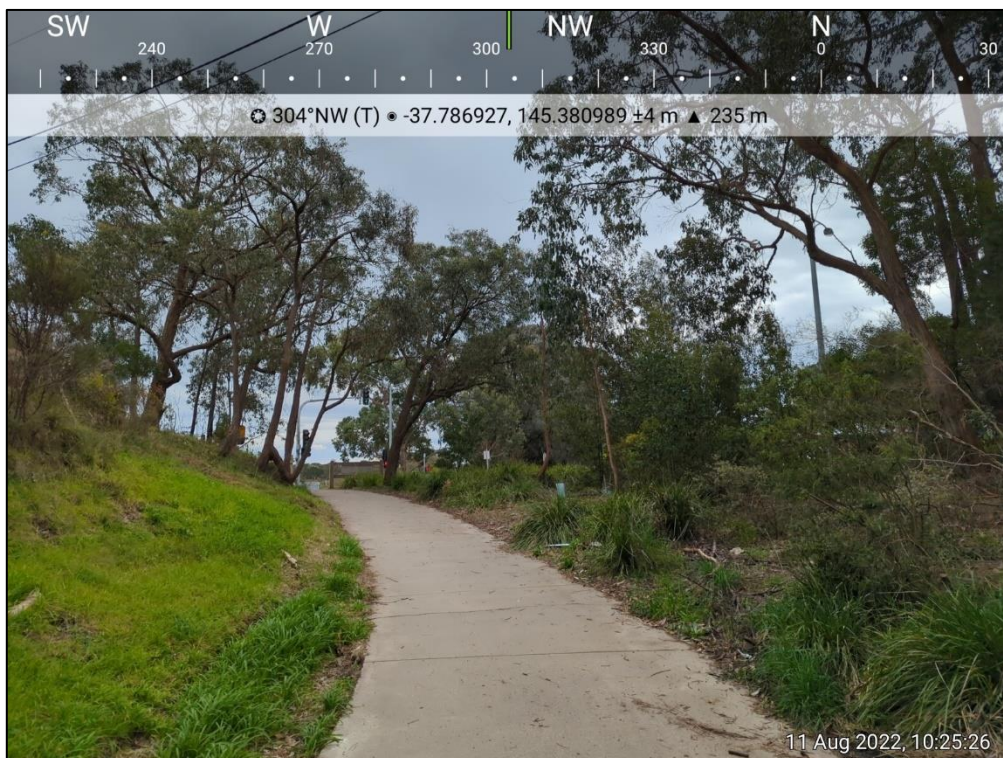


Figure 4 – Looking north-west at the conclusion of the Warburton Rail Trail, with Modified vegetation either side.



Figure 5 – Looking north-west at the property from the edge of the Warburton Rail Trail.

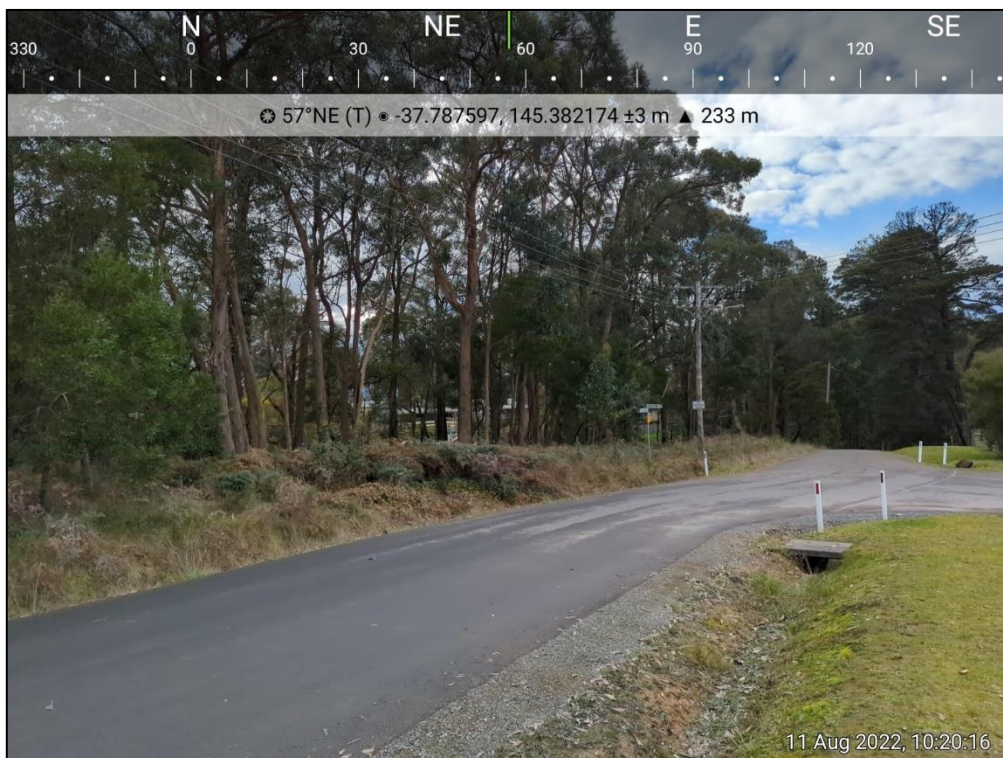


Figure 6 – Looking north-east along Gear Avenue, with Modified vegetation to the left of frame.

3 Bushfire Hazard Landscape Assessment

3.1 Location description

The site is set amongst the treed peri-urban environment of Mount Evelyn, at the northern foot of Mt Dandenong. The property is on the southern fringe of the commercial centre of Mount Evelyn. Being a highly populated and well-developed area, there are multiple potential routes for access and egress. The nearest Neighbourhood Safer Place is 2.1km north of the site, and there are another three within 5km of the site. The commercial centre immediately north of York Road provides a substantial low threat area, that provides a viable informal place of shelter if required in the event of a small fire in the Warburton Rail Trail reserve.

3.2 Landscape risk

Clause 13.02-1S of the Planning Policy Framework prioritises the protection of human life over all other policy considerations. Clause 13.02-1S stipulates that development must properly assess bushfire risk, including consideration of the hazard (and the resultant risk) beyond the site level (Yarra Ranges Planning Scheme, 2018c). BMO applications under Clause 53-02-4 must also have regard to the nature of the bushfire risk arising from the surrounding landscape (Yarra Ranges Planning Scheme, 2020).

To assist in defining the risk beyond the site scale, four 'broader landscape types' are described in the DELWP technical guide *Planning Applications Bushfire Management Overlay*. They represent different landscape risk levels and are intended to streamline decision-making and support more consistent decisions based on the landscape risk (DELWP, 2017).

The four types range from low risk landscapes where there is little hazardous vegetation beyond 150m of the site and extreme bushfire behaviour is not credible, to extreme risk landscapes with limited or no evacuation options and where fire behaviour could exceed BMO presumptions.

The most likely bushfire scenarios for a large landscape fire in Victoria are an approach from those directions typically associated with the direction of the wind on severe or higher fire danger days i.e. approach of bushfire from the north, north-west, west or south-west (Long, 2006).

The site is in a moderate bushfire risk landscape, with the surrounding landscape best according with Broader Landscape Type 2 with some elements of Type 3. The site could theoretically be approached by a large fire directly in the northern foothills of the Dandenong Ranges to the south, but spread towards the site is very unlikely under the typical wind conditions associated with elevated fire danger. Low threat but treed residential properties interrupt the vegetation runs towards the site.

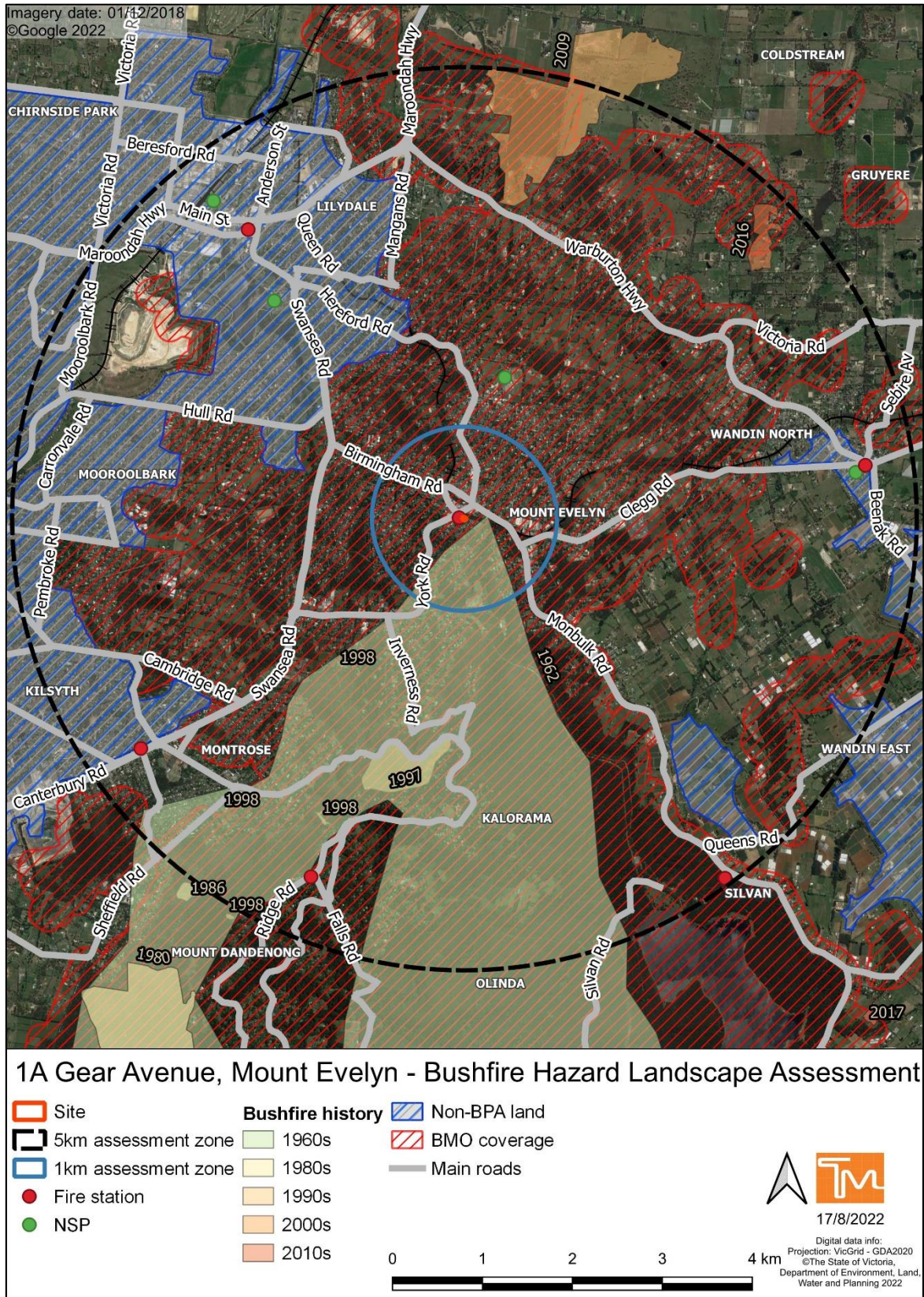
Small fires are possible in the patches of remnant bushland that occur along Fuller Road Drain to the north. Some spotting and ember attack is possible, given the prevalence of stringybark species, but the site is substantially buffered by low threat commercial and residential areas.

The recent bushfire history of the area includes moderate-sized fires in 1997 and 2009. Historically, the Dandong Ranges have experienced significant bushfire losses including January 1962 which destroyed 450 homes and took eight lives (AIDR, 2011).

Due to the residential nature of the area, there are many possible routes away from the Dandenong Ranges to nearby towns such as Lilydale and Mooroolbark.

Table 1 - Landscape risk typologies (from DELWP, 2017).

Broader Landscape Type 1	Broader Landscape Type 2	Broader Landscape Type 3	Broader Landscape Type 4
<ul style="list-style-type: none"> • There is little vegetation beyond 150 metres of the site (except grasslands and low-threat vegetation). • Extreme bushfire behaviour is not possible. • The type and extent of vegetation is unlikely to result in neighbourhood-scale destruction of property. • Immediate access is available to a place that provides shelter from bushfire. 	<ul style="list-style-type: none"> • The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site. • Bushfire can only approach from one aspect and the site is located in a suburban, township or urban area managed in a minimum fuel condition. • Access is readily available to a place that provides shelter from bushfire. This will often be the surrounding developed area. 	<ul style="list-style-type: none"> • The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site. • Bushfire can approach from more than one aspect. • The site is located in an area that is not managed in a minimum fuel condition. • Access to an appropriate place that provides shelter from bushfire is not certain. 	<ul style="list-style-type: none"> • The broader landscape presents an extreme risk. • Fires have hours or days to grow and develop before impacting. • Evacuation options are limited or not available.
			



Map 1 - Bushfire Hazard Landscape Assessment Plan.

4 BMO compliance

This section identifies how the proposed development responds to the bushfire risk and the requirements of Clause 44.06 and associated Clause 53.02 of the Yarra Ranges Planning Scheme.

4.1 Landscape, siting and design objectives

'Development is appropriate having regard to the nature of the bushfire risk arising from the surrounding landscape.'

Development is sited to minimise the risk from bushfire.

Development is sited to provide safe access for vehicles, including emergency vehicles.

Building design minimises vulnerability to bushfire attack' (Yarra Ranges Planning Scheme, 2020).

Compliance with these objectives at Clause 53.02-4.1 can be achieved via the following approved measures.

4.1.1 Approved measure 2.1 – Landscape

'The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level' (Yarra Ranges Planning Scheme, 2020).

As identified in Section 3, the landscape risk is moderate. Bushfire behaviour is likely to be within BMO expectations and design parameters.

Accordingly, it is proposed that the risk can be mitigated to an acceptable level by a combination of approved and alternative measures to meet the BMO objectives.

4.1.2 Approved measure 2.2 - Siting

'A building is sited to ensure the site best achieves the following:

- *The maximum separation distance between the building and the bushfire hazard.*
- *The building is in close proximity to a public road.*
- *Access can be provided to the building for emergency service vehicles'* (Yarra Ranges Planning Scheme, 2020).

The siting of the childcare centre maximises the setback from the hazard (i.e. unmanaged vegetation) as far as practicable and achieves compliance with the BMO setback requirements for defensible space (see Map 3).

The relatively small size of the site is a significant siting constraint that precludes viable alternative siting options.

The proposed development is close to the road and access and egress can comply with the requirements for emergency vehicles.

4.1.3 Approved measure 2.3 Design

'A building is designed to be responsive to the landscape risk and reduce the impact of bushfire on the building' (Yarra Ranges Planning Scheme, 2020).

It is noted that all BAL standards above BAL-Low, are 'deemed to satisfy' the National Construction Code requirement that applicable buildings be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the:

- (a) *'potential for ignition caused by burning embers, radiant heat or fame generated by a bushfire; and*
- (b) *intensity of the bushfire attack on the building'* (ABCB, 2020).

The development proposed comprises of a two-storey childcare centre, with the upper storey including a balcony over the car park of 21 spaces. The balcony provides an outdoor play area for children, while the remainder of the building contains multiple rooms for childcare.

4.2 Defendable space and construction objective

'Defendable space and building construction mitigate the effect of flame contact, radiant heat and embers on buildings' (Yarra Ranges Planning Scheme, 2020).

The childcare centre cannot provide Table 3 defendable space in accordance with approved measure 3.2. Consequently, this objective will be met by alternative measure 3.6.

4.2.1 Alternative measure 3.6

A building used for accommodation (other than a dwelling or dependent person's unit), child care centre, education centre, hospital, leisure and recreation or place of assembly may provide defendable space in accordance with Table 2 Columns A, B or C and Table 6 to Clause 53.02-5 where it can be demonstrated that:

- *An integrated approach to risk management has been adopted that considers:*
 - *The characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency.*
 - *The intended frequency and nature of occupation.*
 - *The effectiveness of proposed emergency management arrangements, including a mechanism to secure implementation.*
- *Less defendable space and a higher construction standard is appropriate having regard to the bushfire hazard landscape assessment.*

The development will achieve defendable space that responds to the Modified Vegetation in accordance with Table 2 to Clause 53.02-5, which equates to a BAL-29 construction standard and defendable space to the property boundary in all directions. It should be noted that the 18m

setback of the childcare centre from the Modified vegetation in the Warburton Rail Trail comprises reliably low threat or non-vegetated area of Gear Avenue and the mown nature strips.

A Bushfire Emergency Management Plan can be developed to the satisfaction of CFA to provide an integrated approach to risk management if required.

The low-moderate landscape hazard means that a BAL-29 construction standard with less defensible space is appropriate to the risk. The site is covered by Schedule 2 to the BMO and, whilst this does not apply to the development of a childcare centre, we note that for a single dwelling BMO2 stipulates BAL-29 construction and defensible space for 30m or the property boundary, whichever is the lesser distance.

Table 2 – Applied BAL construction standard and defensible space distance (from Table 2 to Clause 53.02-5).

Vegetation	Slope class	BAL construction standard	Defensible space distance (m)
Modified	'All slopes'	BAL-29	50m or property boundary whichever is the lesser distance

The applicable defensible space is stipulated in Table 1 above and the extent of this area is shown in Map 3.

The defensible space on the property can meet the vegetation management requirements stipulated in Table 6 at Clause 53.02-5, as detailed in Appendix A of this report. This is detailed in the Bushfire Management Plan provided as Map 3.

4.3 Water supply and access objectives

'A static water supply is provided to assist in protecting the property.

Vehicle access is designed and constructed to enhance safety in the event of a bushfire' (Yarra Ranges Planning Scheme, 2020).

These objectives can be met via approved measure 4.2

4.3.1 Approved measure 4.2

A building used for accommodation (other than a dwelling or dependent person's unit), childcare centre, education centre, hospital, leisure and recreation or place of assembly is provided with:

- A static water supply for fire fighting and property protection purposes of 10,000 litres per 1,500 square metres of floor space up to 40,000 litres.*
- Vehicle access that is designed and constructed as specified in Table 5 to Clause 53.02-5.*

- *An integrated approach to risk management that ensures the water supply and access arrangements will be effective based on the characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency.*

The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for fire fighting water supplies.’ (Yarra Ranges Planning Scheme, 2020).

Water

As the building floor space is 351m² on the ground floor and 725m² on the first floor, including the outdoor play area (1,076m² total), there must be a minimum of 10,000L of static water supply as per Approved measure 4.2.

The tank/s will be located within 60m of the outer edge of the building and will be provided with a compliant fire authority outlet). The tank and outlet location shown in Map 3 is indicative only and can be varied, provided it complies with all the applicable specifications for signage, fittings and access as detailed in Appendix B of this report.

Access

The driveway will be less than 30m long, but as access to the static water supply is required, specific design and construction requirements apply.

The driveway and water outlet access will, therefore, need to be designed and constructed in accordance with the specifications provided in Table 5 to Clause 53.02-5 and detailed in Appendix C of this report.

4.4 Bushfire Management Plan

Map 3 comprises a Bushfire Management Plan (BMP) detailing the required bushfire protection measures for the development, consistent with the fire authority’s standard permit conditions and BMP guidance (CFA, 2017).



Map 3 – Bushfire management plan.

Construction Standard

The childcare centre must be designed and constructed to a minimum BAL-29 standard.

Water Supply

A minimum 10,000L of effective water supply for fire fighting purposes must be provided in accordance with the following requirements:

- Be stored in an above ground water tank/s constructed of concrete or metal.
- Have all fixed above-ground water pipes and fittings required for fire fighting purposes made of corrosive resistant metal.
- Include a separate outlet for site occupant use.
- Be readily identifiable from the building or appropriate identification signage to the satisfaction of the CFA.
- Be located within 60 metres of the outer edge of the approved building.
- The outlet/s of the water tank/s must be within 4m of the accessway and unobstructed.
- Incorporate a separate ball or gate valve (British Standard Pipe (BSP) 65mm) and coupling (64 mm CFA 3 thread per inch male fitting).
- Any pipework and fittings must be a minimum of 65 mm (excluding the CFA coupling).

Defendable Space Management

Defendable space must be provided for a distance of 50m around the childcare centre (or to the property boundary, whichever is the lesser distance) and be managed in accordance with the following requirements:

- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10 centimetres in height must not be placed within 3m of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5m² in area and must be separated by at least 5m.
- Trees must not overhang or touch any elements of the building.
- The canopy of trees must be separated by at least 5m.
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.

5 Conclusion

The proposed development of childcare centre at 1A Gear Avenue, Mount Evelyn VIC 3796 was assessed for compliance with Clause 44.06 and Clause 53.02 of the Yarra Ranges Planning Scheme. The site is in the Low Density Residential Zone (LDRZ). Accordingly, this report followed the BMO pathway 2 to demonstrate how the development responds to the relevant objectives of Clause 53.02-4 (Yarra Ranges Planning Scheme, 2020).

The development is exposed to Modified vegetation to the east.

The proposed siting maximises the setback from the classified vegetation as far as is practicable, resulting in an 18m fuel free setback. The development can provide defensible space to the property boundary in all directions, commensurate with the proposed BAL-29 construction standard in response to Modified vegetation.

All vegetation within the defensible space on the property, will be managed in accordance with Table 6 to Clause 53.02-5 as detailed in Appendix A of this report.

Water supply and access will meet BMO requirements, including a tank of 10,000L with compliant fire authority access and fittings.

As the landscape risk is not extreme, the bushfire protection measures detailed in this report can be deemed to provide acceptable safety, as they comply with BMO requirements. Accordingly, it is considered that the objective of Clause 13.02-1S *Bushfire Planning*, which is to strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life (Yarra Ranges Planning Scheme, 2018c), has also been met.

Please note: The bushfire *protection measures proposed in this document do not guarantee survival of the building or the occupants in the event of a bushfire. The client is strongly encouraged to develop and practice a bushfire survival plan including determining triggers for leaving early on days of severe or higher, fire danger. Information and assistance including a template for a Bushfire Survival Plan is provided on the CFA website at <<http://www.cfa.vic.gov.au/plan-prepare/>*

6 Appendices

6.1 Appendix A: Vegetation management requirements

As per Table 6 to Clause 53.02-5:

'Defendable space is provided and is managed in accordance with the following requirements:

- *Grass must be short cropped and maintained during the declared fire danger period.*
- *All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.*
- *Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.*
- *Plants greater than 10 centimetres in height must not be placed within 3m of a window or glass feature of the building.*
- *Shrubs must not be located under the canopy of trees.*
- *Individual and clumps of shrubs must not exceed 5 sq. metres in area and must be separated by at least 5 metres.*
- *Trees must not overhang or touch any elements of the building.*
- *The canopy of trees must be separated by at least 5 metres.*
- *There must be a clearance of at least 2 metres between the lowest tree branches and ground level*

Unless specified in a schedule or otherwise agreed in writing to the satisfaction of the relevant fire authority' (Yarra Ranges Planning Scheme, 2018b).

6.2 Appendix B: Water supply requirements

Table 4 from Clause 53.02-5 - Capacity, fittings and access (Yarra Ranges Planning Scheme, 2018b).

Capacity, fittings and access			
Lot sizes (square meters)	Hydrant available	Capacity (litres)	Fire authority fittings and access required
Less than 500	Not applicable	2,500	No
500-1,000	Yes	5,000	No
500-1,000	No	10,000	Yes
1,001 and above	Not applicable	10,000	Yes

Note 1: A hydrant is available if it is located within 120 metres of the rear of the building

Fire Authority Requirements

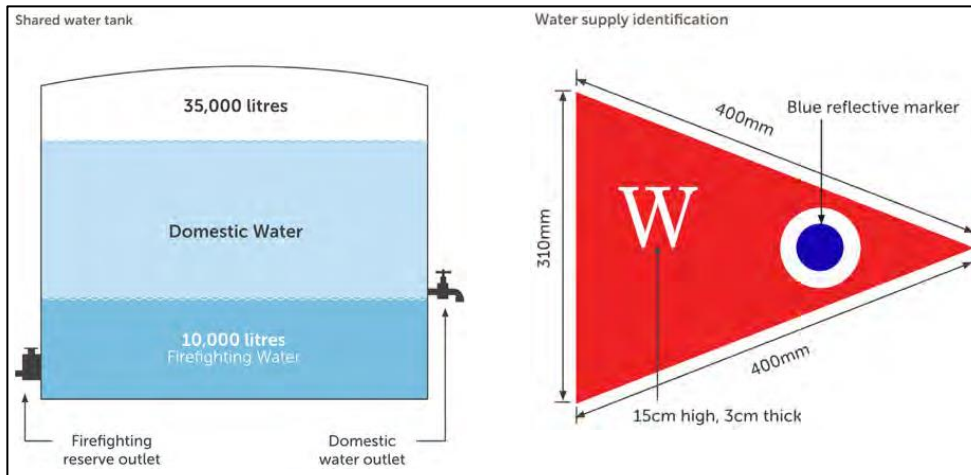
'Unless otherwise agreed in writing by the relevant fire authority, the water supply must:

- *Be stored in an above ground water tank constructed of concrete or metal.*
- *Have all fixed above ground water pipes and fittings required for firefighting purposes made of corrosive resistant metal.*
- *Include a separate outlet for occupant use.*

Where a 10,000 litre water supply is required, fire authority fittings and access must be provided as follows:

- *Be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant fire authority.*
- *Be located within 60 metres of the outer edge of the approved building.*
- *The outlet/s of the water tank must be within 4 metres of the accessway and unobstructed.*
- *Incorporate a separate ball or gate valve (British Standard Pipe (BSP 65 millimetre) and coupling (64 millimetre CFA 3 thread per inch male fitting).*
- *Any pipework and fittings must be a minimum of 65 millimetres (excluding the CFA coupling)'* (Yarra Ranges Planning Scheme, 2018b).

The water supply may be provided in the same water tank as other water supplies, provided they are separated with different outlets. See figure below illustrating signage and an example of outlets where fire fighting water will be in the same tank as water for other use.



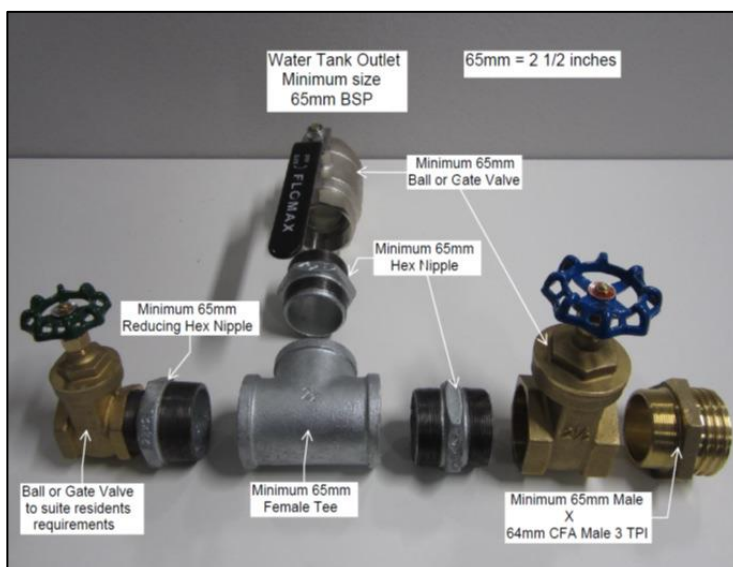
(DELWP, 2017).

CFA Fittings

'If specified within Table 4 to Clause 53.02-5 (if fire brigade access to your water supply is required), CFA's standard BMO permit conditions require the pipe work, fittings and tank outlet to be a minimum size of 64 mm.

65 mm BSP (British Standard Pipe) is the most common size available. A 65 mm fitting is equivalent to the old 2 1/2 inch. A 65 mm BSP (2 1/2 inch) fitting exceeds CFA's requirements and will therefore comply with CFA's standard permit conditions for the BMO.

The diagram below shows some common tank fittings available at most plumbing suppliers which meet the connection requirements. It includes a 65 mm tank outlet, two 65 mm ball or gate valves with a 65 mm male to 64 mm CFA 3 threads per inch male coupling. This is a special fitting which allows the CFA fire truck to connect to the water supply. An additional ball or gate valve will provide access to the water supply for the resident of the dwelling' (CFA, 2014).



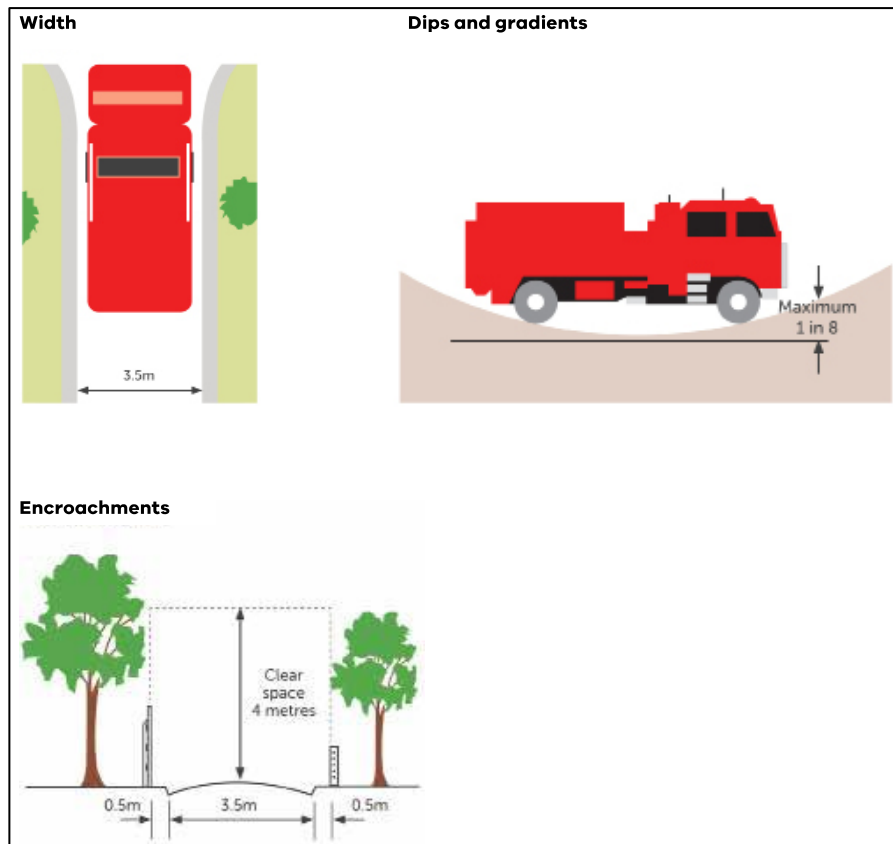
6.3 Appendix C: Access requirements

Driveways less than 30m long have no specific requirements unless access to the water supply outlet is required, in which case the following apply as appropriate.

Access between 30m and 100m in length

Where the length of access is greater than 30 metres the following design and construction requirements apply (*the length of access should be measured from a public road to either the building or the water supply outlet, whichever is longer* (Yarra Ranges Planning Scheme, 2018b)):

- Curves must have a minimum inner radius of 10 metres.
- The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.
- Dips must have no more than a 1 in 8 (12.5%) (7.1°) entry and exit angle.
- A load limit of at least 15 tonnes and be of all-weather construction.
- Provide a minimum trafficable width of 3.5 metres.
- Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.
- A cleared area of 0.5 metres is required to allow for the opening of vehicle doors along driveways.
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

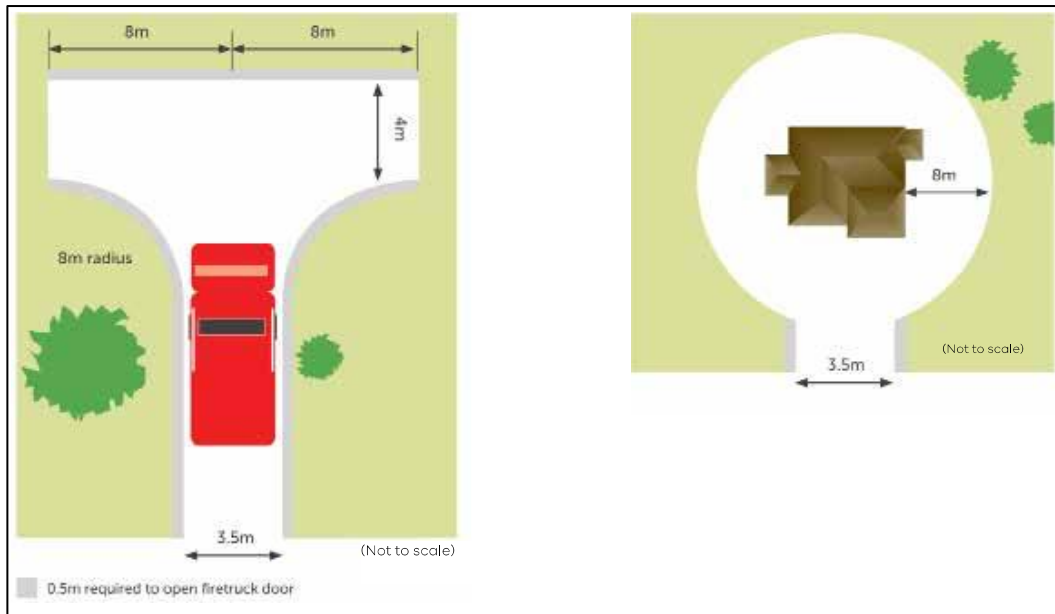


(DELWP, 2017).

Access between 100m and 200m in length

In addition to the 30m-100m requirements above, a turning area for fire fighting vehicles must be provided close to the building by one of the following:

- a turning circle with a minimum radius of 8 metres
- a driveway encircling the dwelling
- other vehicle turning heads such as a T or Y head which meet the specification of Austroad Design for an 8.8 metre service vehicle.

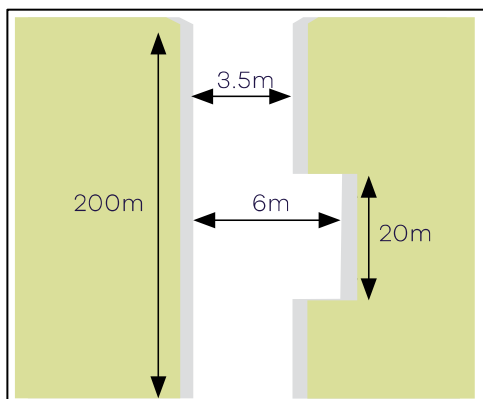


(DELWP, 2017).

Access greater than 200m in length

In addition to the requirements above, passing bays are required at least every 200 metres that are:

- a minimum of 20 metres long
- with a minimum trafficable width of 6 metres.



(DELWP, 2017).

7 References

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Yarra Ranges Planning Scheme (2020) *Clause 53.02-4 Bushfire Protection Objectives*. Available at <<https://planning-schemes.app.planning.vic.gov.au/Yarra%20Ranges/ordinance/53.02>>.