# BMS21007

*41 Monbulk Road Mount Evelyn*

*14-Feb-2022*

*Rev B*

# BMS21007

# BUSHFIRE MANAGEMENT STATEMENT

*Information Table*

| | |
|---|---|
| *Application Pathway* | Pathway 2 Bushfire Protection Objectives |
| *Document ID* | **BMS21007** |
| *Property Address* | 41 Monbulk Road Mount Evelyn 3796 |
| *Lot & Plan Number* | Lot 2 PS603099 |
| *Area* | 4350sqm |
| *Council* | YARRA RANGES |
| ***Applicant*** | |
| *Name* | |
| *Phone* | |
| *Email* | |
| *Address* | |
| ***Agent*** | |
| | |
| | |
| | |
| | |
| | |
| ***Fireguard*** | |
| | |
| | |
| | |
| | |

| *Revision* | *Date* | *Details* |
|---|---|---|
| A | 29-Oct-2020 | First Issue |
| B | 14-Feb-2022 | Reduced Siting to 41 and adjusted Layout. Revised BMP & BMS accordingly |

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

FPA AUSTRALIA SILVER MEMBER Fire Protection Association Australia

 

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# *Bushfire Management Statement (BMS)*

## 1. Introduction

This Bushfire Management Statement has been prepared in response to the requirements of Clause 44.06-2 – Bushfire Management Overlay, and in accordance with the application requirements of Clause 53.02 – Bushfire Planning

This is a Pathway 2 application - Bushfire Protection Objectives.

### 1.1 Preparation of this report

### 1.2 Notes pertaining to the compilation of this report

| | |
|---|---|
| The site assessment was conducted on: | 16th October 2020 |
| The owner was: | not at the site. |

## 2. Project Outline

### 2.1 Project Description

A new commercial petrol station with a centrally located control building with a main canopy to the North and a truck canopy to the East.

## 3. Site Details

### 3.1 Council Details

| | | |
|---|---|---|
| *Name* | YARRA RANGES | |
| *Postal* | Po Box 105, Lilydale 3140 | |
| *Address* | 15 Anderson St, Lilydale | |
| *Telephone* | 9294 6905 | |
| *Email* | mail@yarraranges.vic.gov.au | |

### 3.2 Zoning Details

| | |
|---|---|
| *Note* | In addition to the Bushfire Management Overlay (BMO) this site is subject to the following planning zone: |
| *Overlay and Zone Classification* | **INDUSTRIAL3 (IN3Z)**<br>**ENVIRONMENTAL SIGNIFICANCE OVERLAY** |
| *Special Condition* | Designated Bushfire Prone Areas |

## 4. Project Proposal Drawings

The Client has provided: 1 Plan drawings of the proposed construction.
The Client has provided: 1 Plan drawings of the site.

### 4.1 Drawing Register

| Title | Date | Revision |
|---|---|---|
| JN1399.1sk01 Site Plan PRELIMINARY 20220208.pdf | 08-Feb-22 | |
| JN1399.1 sk02 elevations 01.pdf | | |
| JN1399.1 sk03 elevations 02.pdf | | |
| | | |

## 5. Reference VPPs

Clause 44.06 Bushfire Management Overlay

Clause 53.02 Bushfire Planning

## 6. Application Pathway and relevant Clause 53.02 objectives and measures

For the purposes of addressing clause 53.02, clause 53.02-2 applies which is for all other applications where:

The checklist below identifies those objective and approved measures that have been addressed, and are applicable to the Bushfire Management Statement for this proposal.

This is a Pathway 2 application - Bushfire Protection Objectives

| Approved Measure/ Alternative Measure | Applicable | Relevant Table and Clause |
|---|---|---|
| **Cl 53.02 -4.1: Landscape siting and design objectives** | | |
| AM 2.1 Bushfire risk to the development | YES | NIL |
| AM 2.2 Siting of Building | YES | maximum separation, public road proximity & Access by emergency services |
| AM 2.3 Design of Building | YES | NIL |
| **Cl 53.02 -4.2: Defendable space and construction objective** | | |
| AM 3.1 Defendable space for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office or retail premises | YES | Column A, B, C, or if siting constraints, D of Table 2 of cl 53.02-5 |
| AM3.2 Defendable space for accommodation other than a Dwelling | NO | Table 3 of cl 53.02-5 |
| **Alternative Measures** | | |
| AltM 3.3 Defendable space includes adjoining land | YES | Table 2 of cl 53.02-5 |
| AltM 3.4 Method 2 of AS3959 | NO | AS3959: 2009 |
| AltM 3.5 A dwelling assessed to be high Risk site &/or FZ | NO | Table 2 of cl 53.02-5 Only applies if AM3.1 cannot be met |
| AltM 3.6 Accommodation & integrated Fire Management | NO | Table 3 of cl 53.02-5 |

| Approved Measure/ Alternative Measure (Continued) | Applicable | Relevant Table and Clause |
|---|---|---|
| **Cl 53.02 -4.3: Water supply and access objectives** | | |
| AM 4.1 : Water and access for Dwelling | YES | Water - Table 4; Access - Table 5 of cl 53.02-5 |
| AM 4.2: Water, access & risk management for accommodation | NO | Water - cl 53.02-4 : AM4.2; Access- Table 5 of cl 53.02-5 |
| **7. Information Required for Application Submission** | | |
| **In consideration of the BMO and Clause 53.02, the report comprises of 2 parts;** | | |
| **BMS Bushfire Managment Statement, including** | | |
| Appendix 1: Bushfire Management Plan | | |
| BHSA: Bushfire Hazard Site Assessment | | |
| Appendix 2: Client Proposal Development Drawings | | |
| NIL | | |
| NIL | | |

## 8. Clause 53.02-4: Bushfire protection objectives

### 8.1 Clause 53.02-4.1: Landscape, siting and design objectives

#### 8.1.1 Approved Measure - AM2.1 Landscape bushfire risk

**Clause 53.02 -4.1: Landscape, siting and design objectives**

| | |
|---|---|
| Objective | Development is appropriate having regard to the nature of the Bushfire risk arising from the surrounding landscape.<br>Development is sited to minimise the risk of bushfire.<br>Development is sited to provide safe access for vehicles, including emergency vehicles.<br>Building design minimises vulnerability to bushfire attack. |

**Approved Measure - AM2.1 Landscape bushfire risk**

| | |
|---|---|
| Requirements | The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level. |
| Response | The landscape has an extreme bushfire risk and there is the potential for bushfires that can damage the locality - particularly with ember attack.<br><br>The risk to the development is mitigated to an acceptable level by;<br><br>* Building to a BAL that mitigates against ember attack.<br><br>* The proximity of urban development and towns which provide for safety.<br><br>* The proximity of fire fighting resources in the region,<br><br>* The main road is of good quality and provides access, mainly north, south and east to safety.<br><br>The development in consideration of the risk mitigation is appropriate. |

**Conclusion**

Satisfies Approved Measure.

| 8.1.2 Approved Measure - AM2.2 Siting of Building | |
|---|---|
| **Clause 53.02 -4.1: Landscape, siting and design objectives** | |
| **Approved Measure - AM2.2 Siting of Building** | |
| Requirements | A building is sited to ensure the site best achieves the following;<br><br>• The maximum separation distance between the building and the bushfire hazard.<br>• The building is in close proximity to a public road.<br>• Access can be provided to the building for emergency service vehicles. |
| Response | In the proposed location the separation distance is adequate from hazards to the west.<br><br>Refer to the site plan on the next page 20.<br><br>The location abuts the passing main road in the area.<br><br>Access is available for emergency services vehicles.<br><br>The siting best achieves the siting objectives. |
| **Conclusion** | |
| Satisfies Approved Measure. | |

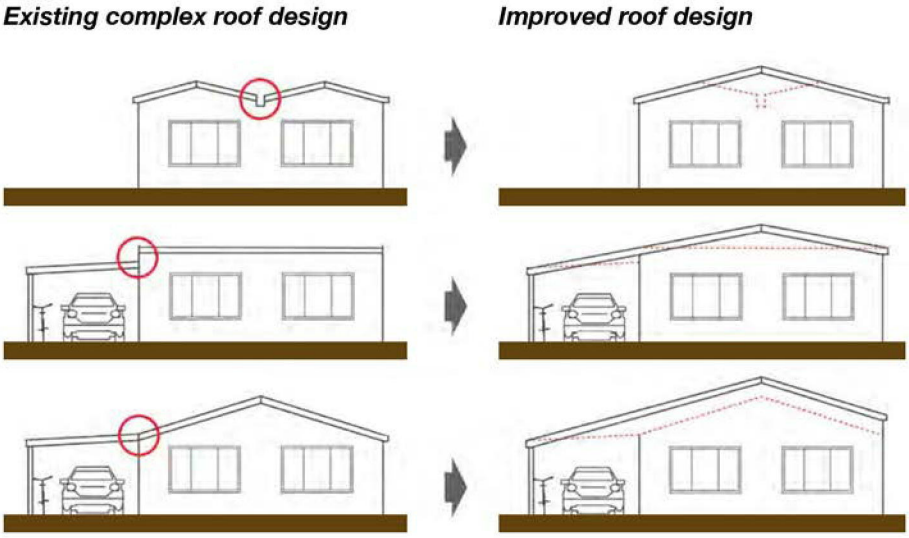
 

## 8.1.3 Approved Measure - AM2.3 Building Design

## Clause 53.02 -4.1: Landscape, siting and design objectives

## Approved Measure - AM2.3 Building Design

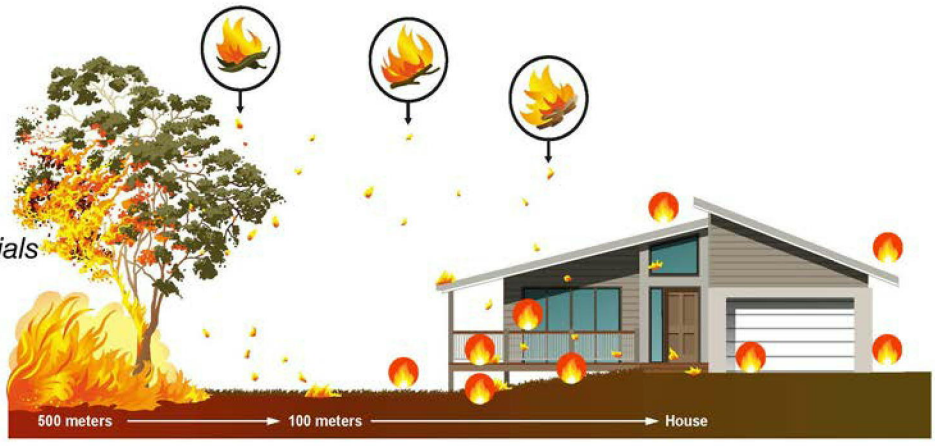
| | |
|---|---|
| Requirements | A building is designed to be responsive to the landscape risk and reduce the impact of bushfire on the building. |
| Response | The building is to be designed where possible to minimise ember entry - i.e. avoid re-entrant corners, complex roof lines.<br>Refer to diagrams below: |




***Roof Design Considerations***

*Central gutters*
*Open ended gables*
*Junction points*

***Building Design should minimise ember hazards released from surrounding Landscape during Busjfire attack***




***Ember Hazards***

*Re-entrant corners*
*Complex roof lines*
*Gaps between building materials*
*Unclosed unerfloor space*

## Conclusion

Satisfies Approved Measure.

| 8.2.1 Approved Measure - AM3.1 Defendable space | |
|---|---|
| **Clause 53.02 -4.2: Defendable space and construction objective** | |
| Objective | Defendable space and building construction mitigate the effect of flame contact, radiant heat and embers on buildings. |
| **Approved Measure - AM3.1 Defendable space** | |
| Requirements | A building used for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office or retail premises is provided with defendable space in accordance with:<br>• Table 2 Columns A, B or C and Table 6 to Clause 53.02-4 wholly within the title boundaries of the land; or<br>• If there are significant siting constraints, Table 2 Column D and Table 6 to Clause 53.02-5.<br>The building is constructed to the bushfire attack level that corresponds to the defendable space provided in accordance with Table 2 to Clause 53.02-5. |
| Response | The defendable space is in accordance to Table 2 and Table 6 to clause 53.02-4.<br><br>The defendable space is not wholly within the title boundaries.<br><br>The defendable space includes adjoining land to the north, west and south of the site where there is a reasonable assurance that the land will remain or continue to be managed in that condition as part of the defendable space. Refer AltM3.3 on page 15<br><br>Refer to BAL calculations on pages 13 and 14 and to the Defendable Space Workings Diagram on page 20.<br><br>The defendable space is 32m or to the site boundaries, whichever is to be the lesser.<br><br>To cover the far eastern corner of the property, defendabe space has been extended to 50m or to the site boundaries, whichever is to be the lesser.<br><br>(All Slopes Low threat in all directions could not be applied to due to the vegetation between property and forest to the east)<br><br>The BAL construction rating is BAL29 that is required to mitigate against the risk of ember attack. |

| **Conclusion** |
|---|
| Satisfies Approved Measure. |

| 8.2.2 BAL Calculations: Method 1 - Defendable Space & Construction Rating | | | | |
|---|---|---|---|---|
| **METHOD 1** | | | | |
| **Step 1** | **Determine the assessment area and the defendable space standard that applies.** | | | |
| **Note** | **The assessment area comprises an area of 150 metres around the selected site. The site refers to the proposed building envelop or works.** | | | |
| **Step 2** | **Classify the vegetation, distance and slope.** | | | |
| **Step 3** | Determine your defendable space and corresponding BAL. | | | |
| | **North** | **West** | **South** | **East** |
| Vegetation Type A | Low threat vegetatior | Low threat vegetatior | Low threat vegetatior | Woodland |
| Exclusions | | | | |
| Distance from the site boundary to vegetation | **5m** | **5m** | **4m** | **73m** |
| Flat/Upslope or Downslope | >0-5° | Flat/Upslope | Upslope | >0-5° |
| Vegetation Type B | - | Forest | - | Forest |
| Exclusions | | | | |
| Distance from the site boundary to vegetation | | **63m** | | **82** |
| Flat/Upslope or Downslope | - | >0-5° | - | >0-5° |
| Vegetation Type C | - | - | - | - |
| Exclusions | | | | |
| Distance from the site boundary to vegetation | | | | |
| Flat/Upslope or Downslope | - | - | - | - |
| **Combined** | **North** | **West** | **South** | **East** |
| BAL | **12.5** | **12.5** | **12.5** | **12.5** |

The highest BAL and associated defendable space is recorded below:

## METHOD 1

| | | |
|---|---|---|
| **BAL** | **29** | |
| **Defendable Zone** | **50m** | **Metres** |

## Summary

The BAL calculations indicate a 12.5 however due to the extreme bushfire risk of the locality, and the presence of forest to the north-west, south and east it is appropriate to build to an higher construction rating.

Defendable space is 50m or to the site boundaries, whichever is to be the lesser.

The BAL level is to be 29 to mitigate the Ember Attack threat in the area and the connecting vegetation to forest from the East and South East.

Refer to the Defendable Space Working Diagram on page 20

| 8.2.3 Approved Measure - AM3.2 Defendable space | |
|---|---|
| **Clause 53.02 -4.2: Defendable space and construction objective** | |
| **Approved Measure - AM3.2 Defendable space** | |
| Requirements | A building used for accommodation (other than a dwelling or dependent person's unit), a child care centre, an education centre, a hospital, leisure and recreation or a place of assembly is:<br>• Provided with defendable space in accordance with Table 3 and Table 6 to Clause 53.02-5 wholly within the title boundaries of the land.<br>• Constructed to a bushfire attack level of BAL12.5. |
| Response | Not applicable to this submission. |
| **Conclusion** | |
| Satisfies Approved Measure. | |

| 8.2.4 Alternative Measure - AltM 3.3 Defendable space on adjoining land | |
|---|---|
| **Clause 53.02 -4.2: Defendable space and construction objective** | |
| **Alternative Measures - AltM 3.3 Defendable space on adjoining land** | |
| Requirements | Adjoining land may be included as defendable space where there is a reasonable assurance that the land will remain or continue to be managed in that condition as part of the defendable space. |
| Response | Land to the north, west and south is used as defendable space where there is a reasonable assurance that the land will remain or continue to be managed in that condition as part of the defendable space. |
| **Conclusion** | |
| Satisfies Approved Measure. | |

| 8.2.5 Alternative Measure - AltM 3.4 Method 2, AS 3959 for Defendable Space & BAL | |
|---|---|
| **Clause 53.02 -4.2: Defendable space and construction objective** | |
| **Alternative Measures - AltM 3.4 Method 2 - Defendable space & BAL** | |
| Requirements | A Defendable space and the bushfire attack level is determined using Method 2 of AS3959:2009 Construction of buildings in bushfire prone areas (Standards Australia) subject to any guidance published by the relevant fire authority. |
| Response | Not used in this submission. Pages 16 - 18 not applicable. |
| **Conclusion** | |
| Satisfies Approved Measure. | |

## 8.2.6 Calculations: Method 2 - Defendable Space & Construction BAL Rating

## METHOD 2 - Detailed Scientific Procedure (Refer AS3959-2009 Appendix B)

| | | | | |
|---|---|---|---|---|
| **Step 1** | **The relevant FDI or windspeed in accordance with Paragraph B2.** | | | |
| *Re Cl 2.2.2* | *Table 2.1* | *Measured Vegetation Type 1* | *FDI* | |
| | | *Measured Vegetation Type 2* | *FDI* | |
| **Step 2** | **The vegetation classification, fuel loads and vegetation height in accordance with Paragraph B3.** | | | |
| *Re Table 2.3* | *Type 1 Vegetation is:* | | *Type 2 Vegetation is:* | |
| | *Type 1 Surface fuel load (w)* | | *Type 2 Surface fuel load (w)* | |
| | *Type 1 Overall fuel load (w)* | | *Type 2 Overall fuel load (w)* | |
| | *Type 1 Vegetation height (m)* | | *Type 2 Vegetation height (m)* | |

| | North | West | South | East |
|---|---|---|---|---|
| **Step 3 - Type 1 Effective slope under the classified vegetation** | | | | |
| **Step 3 - Type 2 Effective slope under the classified vegetation** | | | | |
| **Step 4 - Type 1 Slope of the land between the site and the classified vegetation** | | | | |
| **Step 4 - Type 2 Slope of the land between the site and the classified vegetation** | | | | |
| **Step 5 - Type 1 Distance from the site boundary to vegetation** | | | | |
| **Step 5 - Type 2 Distance from the site boundary to vegetation** | | | | |

## Method 2 BAL Calculator introduction notes

1. Using the above figures, the Method 2 BAL Calculator uses algorithms generated from appendix B of AS3959-2009. See next page.
2. The results are the quantification for Heat Flux and subsequent BAL rating for the given parameters.

## 8.2.7 Calculations: Method 2 - Defendable Space & Construction BAL Rating

## METHOD 2 - BAL Calculator

| | Measured Vegetation & Slope Type 1 | Measured Vegetation & Slope Type 2 |
|---|---|---|
| FDI | | |
| Vegetation Classification | | |
| Surface Fuel Load (t/ha) | | |
| Overall Fuel Load (t/ha) | | |
| Effective slope under the classified vegetation (degrees) | | |
| Slope between the site and classified vegetation | | |
| Distance of the site from classified vegetation (m) | | |
| Flame Width (m) | | |
| Flame Temperature (K) | | |
| Flame Emissivity | | |
| Ambient Temperature (K) | | |
| Relative humidity | | |
| Direction | | |
| Rate of spread | | |
| Slope ROS | | |
| Flame angle | | |
| View Factor | | |
| Height of Receiver | | |
| Path length | | |
| Atmospheric Transmissivity | | |
| Radiant heat flux | | |
| Bushfire Attack Level | | |

*These calculations determine the following Defendable Space requirements at the planned location:*

**Defendable Space requirements:**

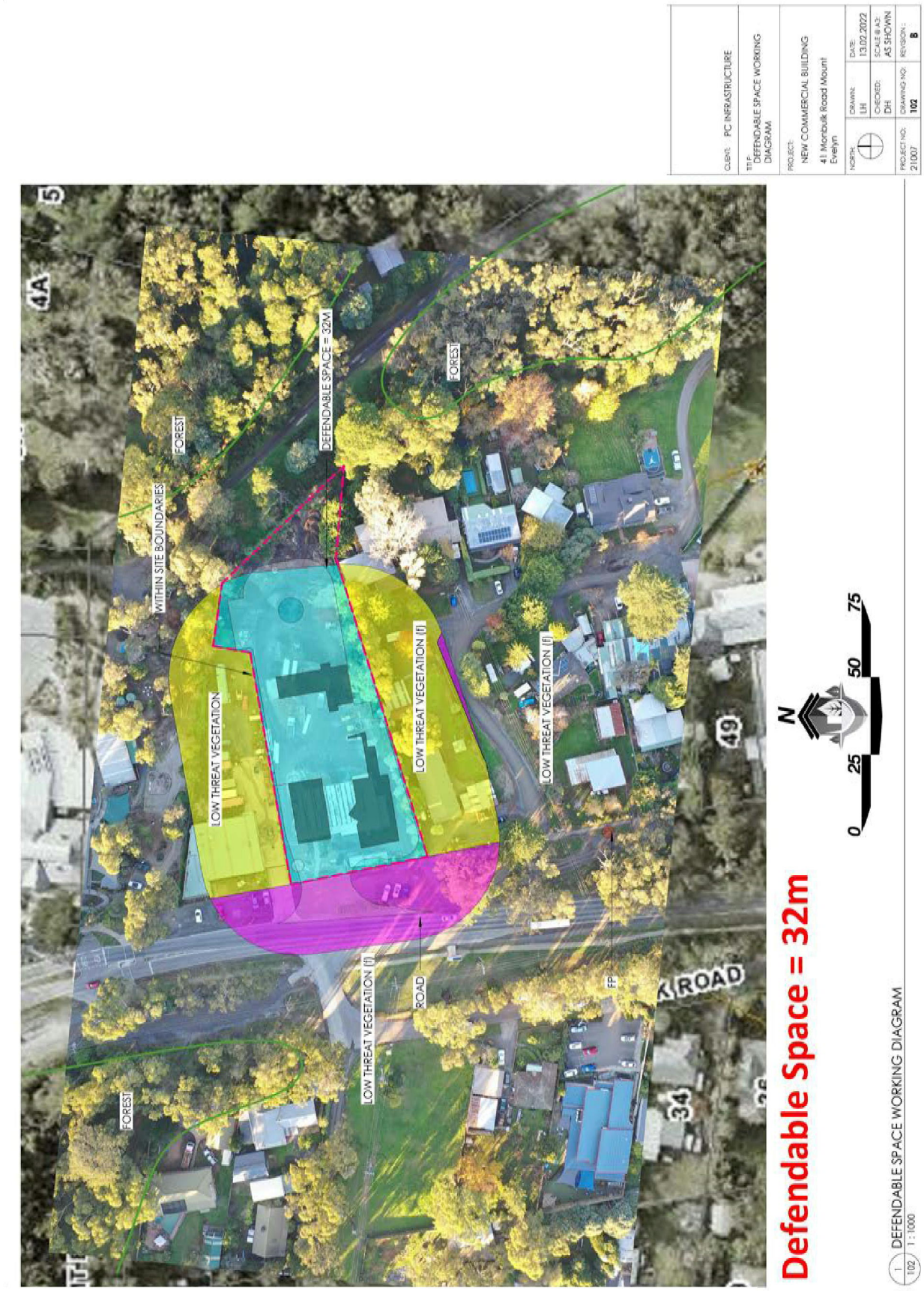
| BAL rating | Inner Zone | Outer Zone |
|---|---|---|
| | | |
| | | |

**Summary**

| 8.2.8 Alternative Measure - AltM 3.5 Defendable space to site boundary and BAL of FZ | |
|---|---|
| **Clause 53.02 -4.2: Defendable space and construction objective** | |
| **Alternative Measures - AltM 3.5 Defendable space to site boundary and BAL of FZ** | |
| Requirements | A building used for a dwelling (including an extension or alteration to a dwelling) may provide defendable space to the property boundary where it can be demonstrated that:<br>• The lot has access to urban, township or other areas where:<br>- Protection can be provided from the impact of extreme bushfire behaviour.<br>- Fuel is managed in a minimum fuel condition.<br>- There is sufficient distance or shielding to protect people from direct flame contact or harmful levels of radiant heat.<br>• Less defendable space and a higher construction standard is appropriate having regard to the bushfire hazard landscape assessment.<br>• The dwelling is constructed to a bushfire attack level of BAL FZ.<br><br>This alternative measure only applies where the requirements of AM 3.1 cannot be met. |
| Response | Not applicable to this submission |
| **Conclusion** | |
| Satisfies Approved Measure. | |

## 8.2.9 Assessment of Defendable Space Working Diagram

## Defendable Space Working Diagram



| 8.2.10 Alternative Measure - AltM 3.6 Integrated Risk Management | |
|---|---|
| **Clause 53.02 -4.2: Defendable space and construction objective** | |
| **Alternative Measures - AltM 3.6 Integrated Risk Management** | |
| Requirements | A building used for a dwelling (including an extension or alteration to a 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:<br>• An integrated approach to risk management has been adopted that considers:<br>- The characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency.<br>- The intended frequency and nature of occupation.<br>- The effectiveness of proposed emergency management arrangements, including a mechanism to secure implementation.<br>• Less defendable space and a higher construction standard is appropriate having regard to the bushfire hazard landscape assessment. |
| Response | Not applicable to this submission |
| **Conclusion** | |
| Satisfies Approved Measure. | |

## 8.3.1 Approved Measures - AM4.1 Water Supply (as specified in Table 4 to clause 53.02-5) and Access Objectives

### Clause 53.02 -4.3: Water supply and access objectives

### Approved Measure - AM4.1 Water supply & access objectives

Response: Table 4 Water supply requirements for proposed Dwelling

| Lot Sizes (Square metres) | Hydrant available | Capacity (litres) | Fire authority fittings and access required |
|---|---|---|---|
| 1,001 and above | Not applicable | 10,000 | Yes |

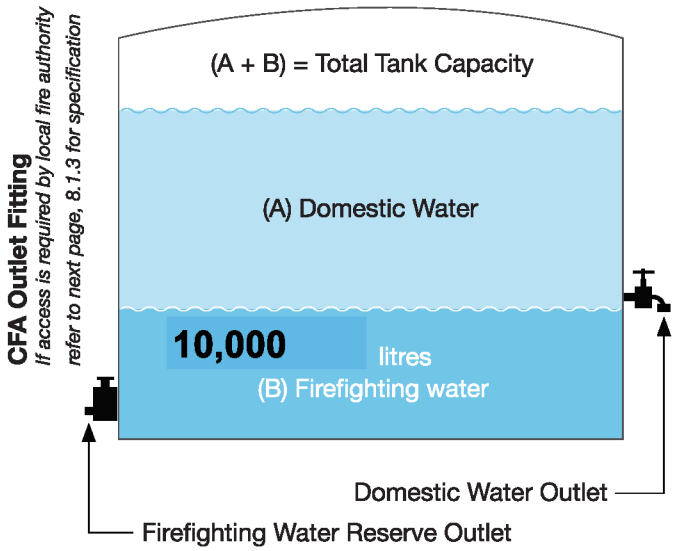
### Water Supply Requirement Details & Diagram

*The water supply if required should be identified with a marker flag;*

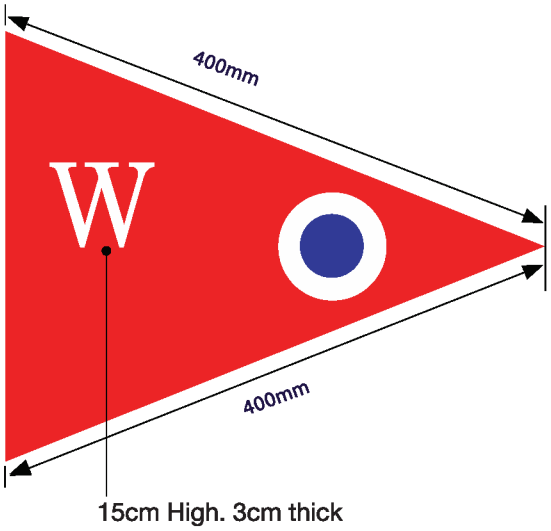
The lot size is 4350sqm

**Shared water tank**

*Specific Fire authority connection specifications only nessessary when access is required.*




**Water supply identification is nessessary only when direct access is required by the local fire authority**




For all water tank capacities the following requirements apply:

- 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 material, and
- include a separate outlet for occupant use.
- the water supply must be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant fire authority.

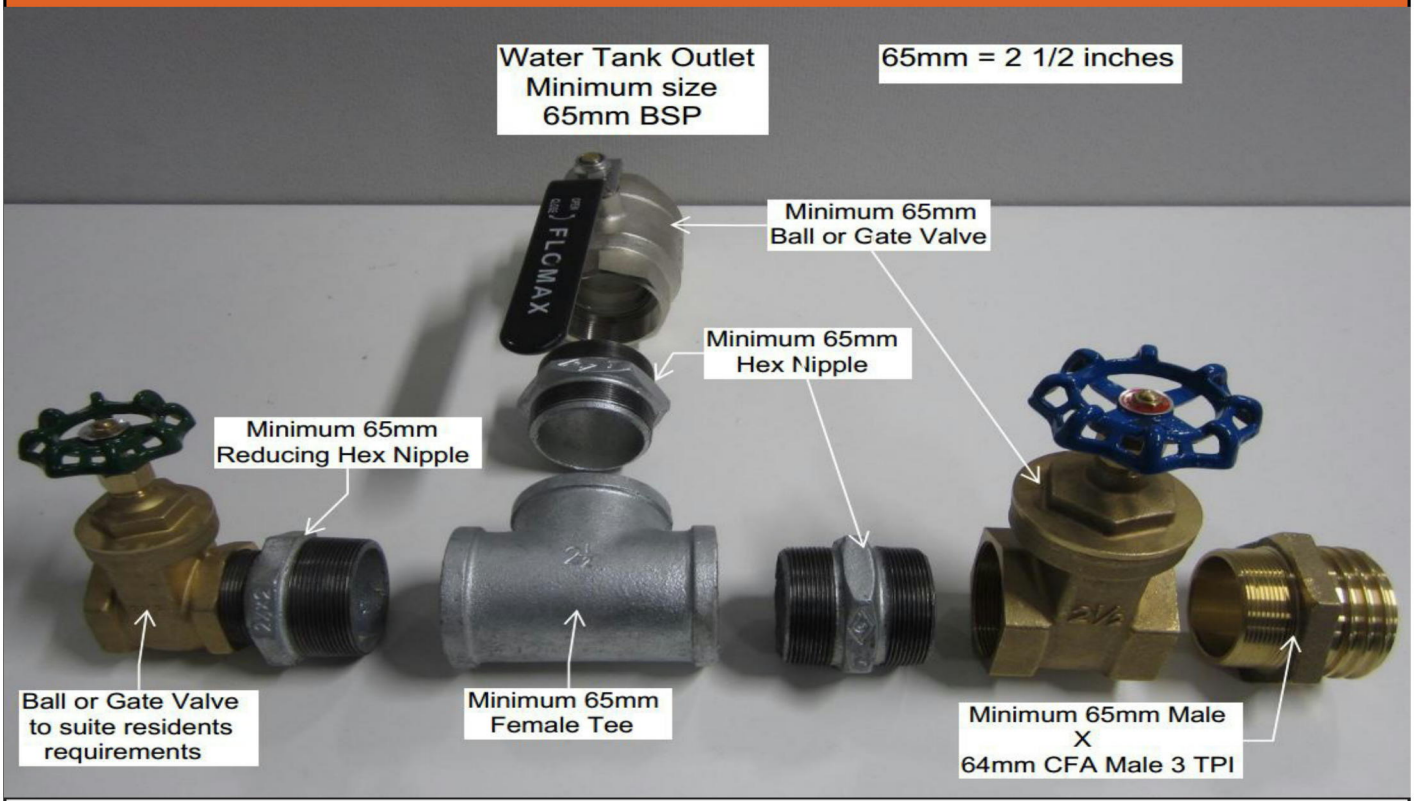
## 8.3.2 Approved Measures - AM4.1 Water Supply (as specified in Table 4 to clause 53.02-5) and Access objectives

### Clause 53.02 -4.3: Water supply and access objectives

### Approved Measure - AM4.1 Water supply and access objectives

| | |
|---|---|
| Requirements | Tank size at or greater than 10,000L - requirements below ARE APPLICABLE<br><br>Where a 10,000 & greater litre water supply is required the following fire authority fittings apply:<br>• The water supply must be located within 60 metres of the outer edge of the approved building.<br>• The outlet/s of the water tank must be within 4 metres of the access-way and unobstructed.<br>• The water supply must incorporate a separate ball or gate valve British Standard Pipe (BSP 65 millimetre) and coupling (64 millimetre CFA 3 thread per inch male fitting).<br>• Any pipework and fittings must be a minimum of 65 millimetres (excluding the CFA coupling). |

### Requirement Diagram - Fittings.




### If access is required, what is the length of access?

Access is required - length of access is **<**30m to Static Water but **>**30m to Rear Truck Canopy

## 8.3.3 Approved Measures - AM4.1 Vehicle Access as specified in Table 5 to clause 53.02-5.

## Clause 53.02 -4.3: Water supply and access objectives

## Approved Measure - AM4.1 Water supply and access objectives

| | |
|---|---|
| Requirements | • Vehicle access that is designed and constructed as specified in Table 5 to clause 53.02-5<br>• Fire authority access to the water supply required? Yes. Refer below |

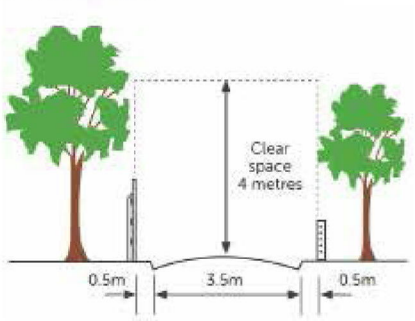
**If access is required, the following Design and Construction requirements apply:**

*1. All-weather construction.*
*2. A load limit of at least 15 tonnes.*
*3. Provide a minimum trafficable width of 3.5 metres.*
*4. Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.*
*5. Curves must have a minimum inner radius of 10 metres.*
*6. The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.*
*7. Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.*

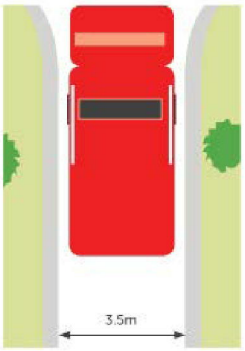
## Diagram requirement samples from Table 5 to clause 53.02-5

*Refer to the BMP for more detail*

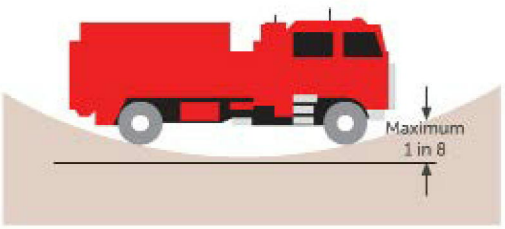
Encroachments for >30m

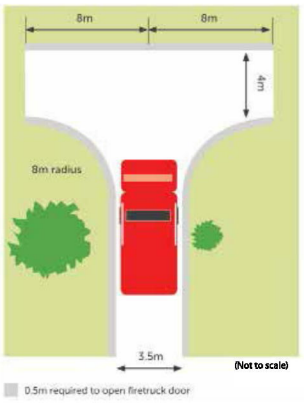



Width for >30m

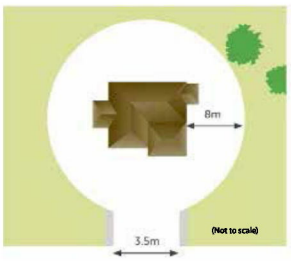



Dips & Gradients >30m

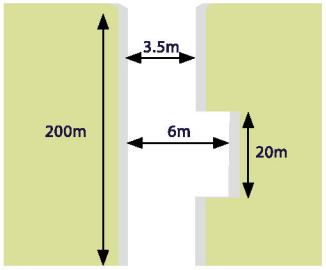



For >100m




For >100m




For >200m

## Conclusion

Satisfies Approved Measure.

| 8.3.4 Approved Measures - AM4.2 Water supply and access objectives | |
|---|---|
| **Clause 53.02 -4.3: Water supply and access objectives** | |
| **Approved Measure - AM4.2 Water supply and access objectives** | |
| Requirements | 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 is provided with: The lot has access to urban, township or other areas where:<br>- 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.<br>- Vehicle access that is designed and constructed as specified in Table 5 to Clause 53.02-5.<br>- 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.<br><br>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. |
| Response | Not applicable to this submission. |
| **Conclusion** | |
| Satisfies Approved Measure. | |

## 9. Conclusions

### 9.1 Main Conclusion

| | |
|---|---|
| 1. Analysis | The development can proceed as the high bushfire risk can be mitigated to an acceptable level by the implementation of the bushfire protection measures, the proximity of towns and fire fighting resources in the region, and the ability to evacuate to safety. |
| 2. BAL rating | The BAL rating for the proposal is **29** |
| 3. Defendable Space | The Defendable Space is **50m** or to the site boundary whichever is the lesser. |
| 4. Water Tank Requirements | A 10,000L Water Tank made of non-combustible material is required to be installed onsite and maybe provided in the same water tank as other supplies provided they are separated with different outlets. The tank is to be fitted with CFA fittings and the CFA require access to within 4m of the tank outlets. It is to be identified with markings. |
| 5. Access Requirements | Access to the site is required to enable access to the water tank outlet. The length of access is less than 30m in length. There are design and construction requirements. |
| 6. Activity Requirements | Particular activities need to be undertaken in order for the building to meet the objectives of cl. 44.06 and cl 53.02. These address the;<br>• Implementation of defendable space,<br>• construction of the building,<br>• installation of the water supplies,<br>• and access. |

**Refer to the BUSHFIRE MANAGEMNT PLAN for details on all these items.**

| | |
|---|---|
| Note | • This report is based on information supplied by the client<br>• Other...<br>None |

# 10. Appendix 1.0: Bushfire Management Plan

**Note: Reduced BMP Only. Please refer to the Full-size A3 Copy**


**Bushfire Mitigation Measures - Mandatory Condition**
The bushfire protection measures forming part of this permit or shown on the endorsed plans, including those relating to construction standards, defendable space, water supply and access, must be maintained to the satisfaction of the responsible authority on a continuing basis. This condition continues to have force and effect after the development authorised by this permit has been completed.

**a) Defendable Space**
Defendable space is provided for a distance of **50 metres** around the building or to the property boundary whichever is the lesser and managed in accordance with the following:
- 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.

**b) Construction Standard**
Dwelling designed and constructed to a minimum Bushfire Attack Level of **BA129**

**c) Water Supply**
A static water tank dedicated solely for firefighting must be provided and must meet the following requirements:
- An effective capacity of **10,000 Litres**
- 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.

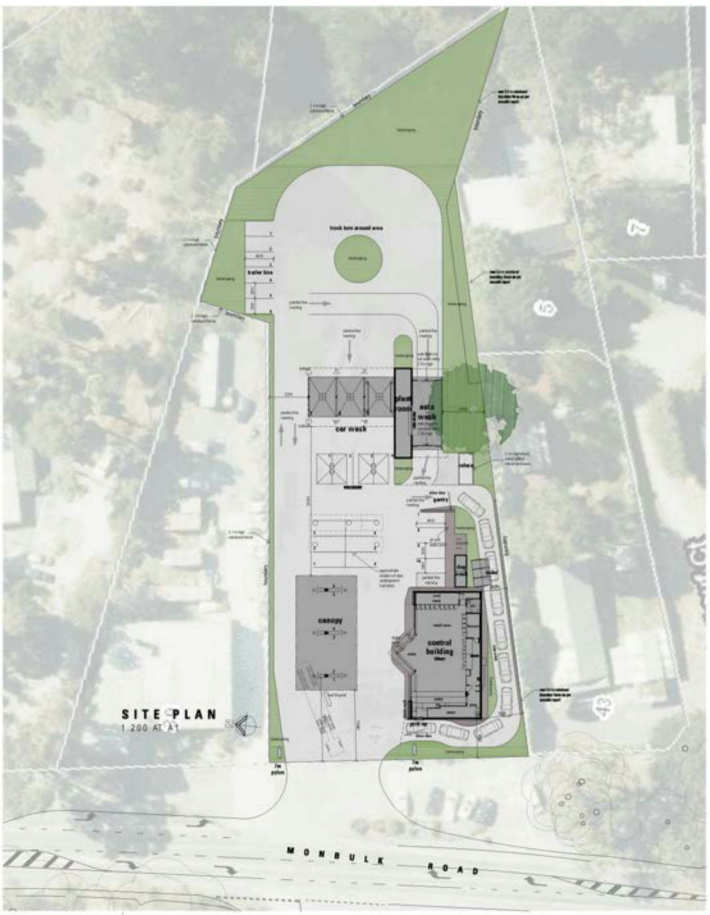
A 10,000 litre water supply is required. Therefore the following fire authority fittings and access must be provided:
- Be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant fire authority.
- Be located within 60 metres of the outer edge of 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).

**d) Access**
Access Required: **Yes**. The following design and construction requirements apply:
- All-weather construction.
- A load limit of at least 15 tonnes.
- 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.
- 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 grade 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%) (7.1than 050 metres.) entry and exit angle.

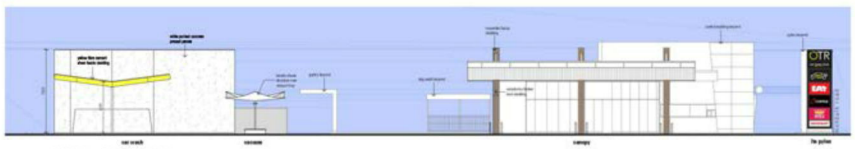
CLIENT: PC INFRASTRUCTURE
TITLE: BUSHFIRE MANAGEMENT PLAN
PROJECT: NEW COMMERCIAL BUILDING 41 Monbulk Road Mount Evelyn
NORTH:
DRAWN: LH
DATE: 13.02.2022
CHECKED: DH
SCALE @ A3: AS SHOWN
PROJECT NO: 21007
DRAWING NO: 101
REVISION: B

# 11. Appendix 2.0: Client's proposed development drawings

Note: Refer to 4. Project Proposed Drawing & the associated 4.1 Drawing Register on page 6




OTR MOUNT EVELYN
41 MONBULK ROAD, MOUNT EVELYN VIC 3796
PRELIMINARY
ADS Architects



OTR MOUNT EVELYN
41 MONBULK ROAD, MOUNT EVELYN VIC 3796
PLANNING PERMIT
ADS Architects

# *Bushfire Hazard Site Assessment (BHSA)*

## 1. Site Assessment Area

### 1.1 Description of Site

The site is an irregular polygon with direct access to the main road. There are some existing buildings in the centre of the site which will be demolished. The land is undulating and variable in places, with a predominate east aspect downslope. Most of the site adjoins low threat maintained property except to the east and south east with tall modified vegetation. To the north are a combination of commercial blocks with sections of modified forest merging into forest to the east & South east, west are houses low treat >500m

### 1.2 Site Aerial

| | |
|---|---|
| 1.3 Site Dimensions | The site is an irregular polygon and has an area of 4350sqm |
| 1.4 Existing Vehicle Access | Access is about 30m in length and generally flat in approach to the existing main building. |
| 1.5 Nearest Fire Hydrant | Not applicable |

| 1.6 Features relevant to bushfire | |
|---|---|
| 1. Analysis | The main bushfire hazard is the Dandenong Ranges National Park in which Mt Evelyn sits and the landscape has an extreme bushfire risk due to the forest and undulating topography with winding roads in the area. |
| 2. CFA Brigade Locations within: | • **Mt Evelyn**<br>• **Silvan**<br>• **Montrose**<br>• **Lilydale** |

## Relevant Features to Bushfire Diagram

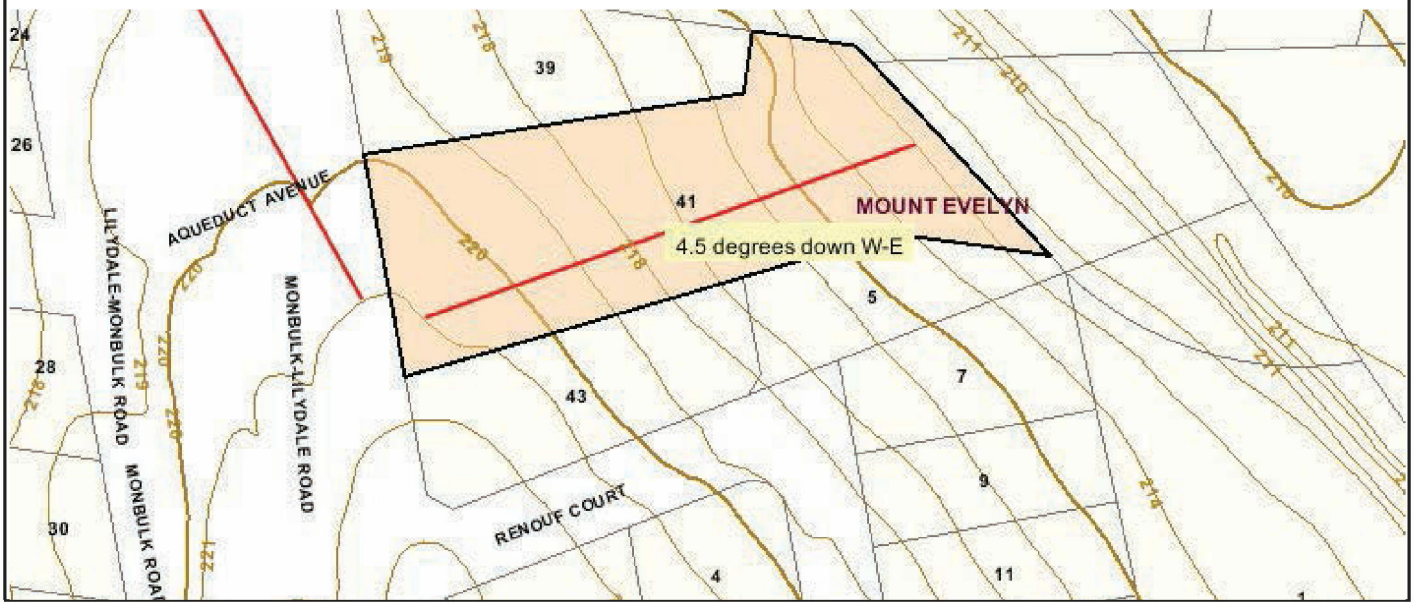
The adjoining land to the east is abuts thick forest.

To the south is the Dandenong Ranges National Park, a source of embers during a fire event.

Land to the north is a combination of commercial properties and low threat residential development, similarly to the west over the passing road the land is covered in residential housing.

The land around the planned location generally slopes down west to east at around 2- 5 degrees.

The roads in the area are winding and dangerous to travel on during a bushfire. There are 2 Neighbourhood Safer Places but these are some distance to the north - one at Morrison Reserve in Mt Evelyn and the other at Lilydale Lake Reserve.



# 2. Directional Site Assessment Photographs: Vegetation & Topography

## 2.1 North of Site

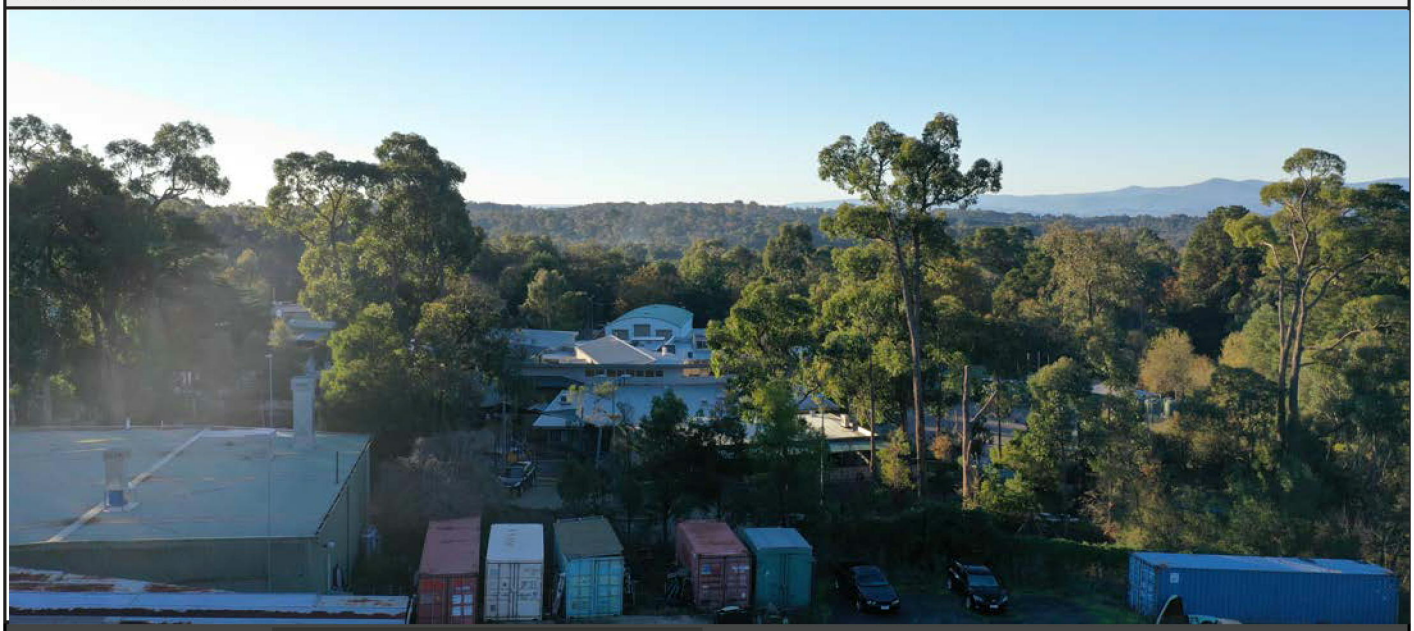


**Figure 1 North** Low threat vegetation **View Position** Elevated

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

Slope is 3 deg down and distance at 65m to row of trees before Industrial area that extends beyond 150m. All land in this direction can be excluded as low threat. To the NE is Forest at 80m and with a slope of 0 -5 deg down

**Figure 1.1 North** Low threat vegetation **View Position** 80m above ground

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

The extent of industrial and residential development across the north vista is evident. Clegg Road traverses across this area.

## 2.2 West of Site


**Figure 2 West** Low threat vegetation **View Position** Drone

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

Flat to 1 degree upslope to Road. Beyond the road is a patch of forest at about 72m distant on land sloping downwards at 2 degrees.

**Figure 2.1 West** Low threat vegetation **View Position** Drone

Above Figure relevant to 'Vegetation Type B' within the BAL Assessment Report Table on page 13

Due west is land at 3-5 degree Downslope over low threat residential land over road, >45m in distance to beyond 150m from the site. All excluded.

## 2.3 South of Site

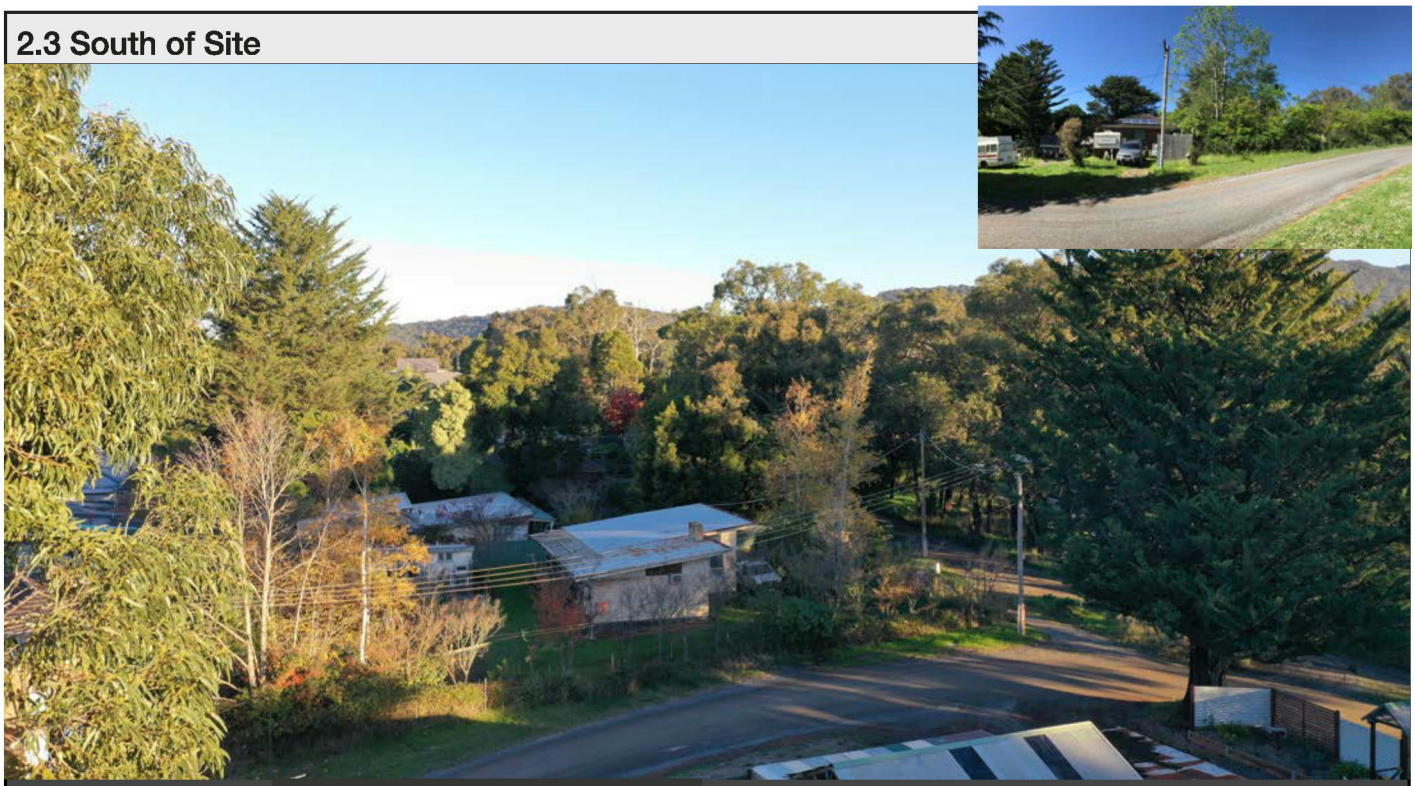


**Figure 3 South** Low threat vegetation **View Position** Drone

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

For at least 150m to the south there is residential development and cultivated gardens - all the land in this direction is low threat and can be excluded.

**Figure 3.1 South** Low threat vegetation **View Position** Drone

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

Due south <150m the land contains residential building and cultivated gardens. Beyond there is increased density of Modified vegetation. Dwelling immediately south is low threat

## 2.4 East of Site

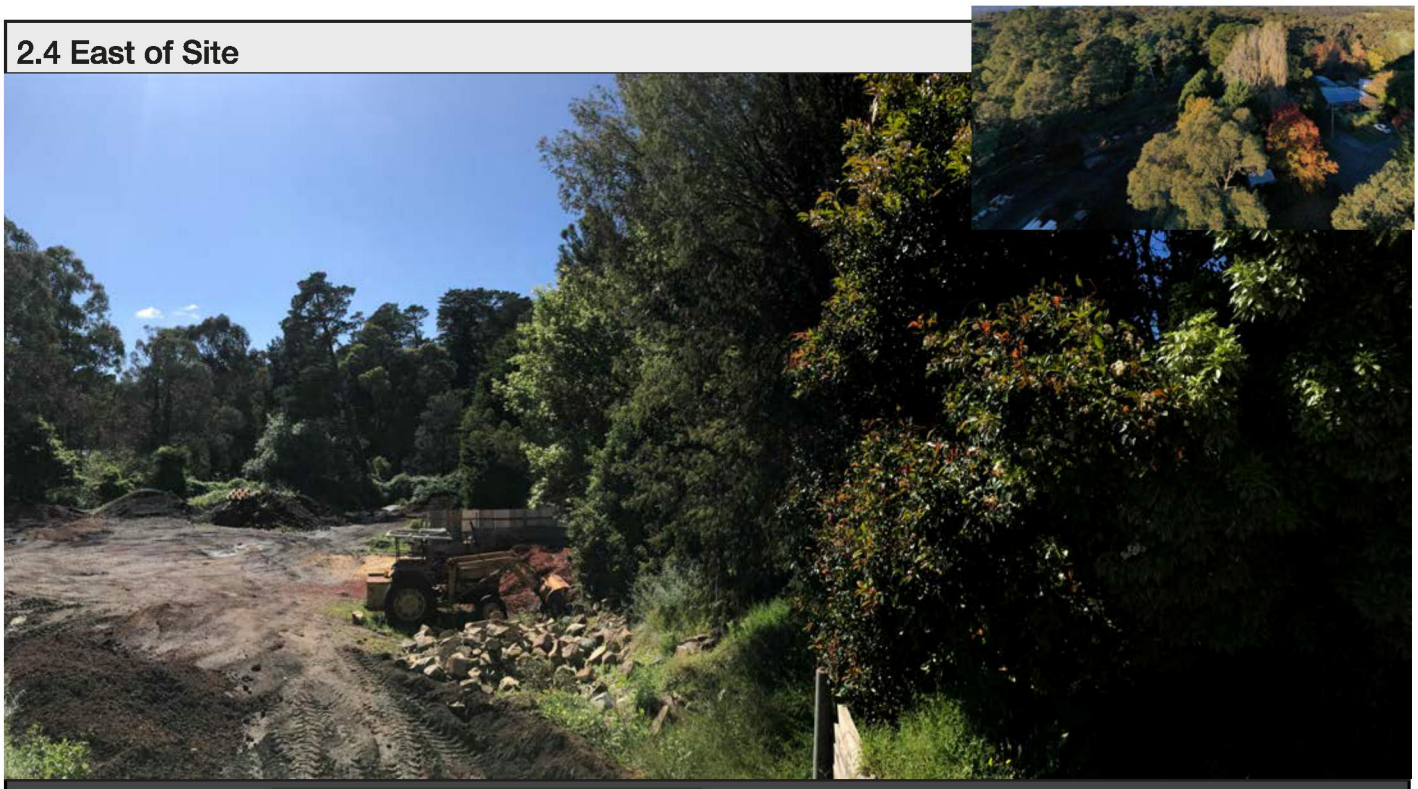


**Figure 4 East** Forest **View Position** Drone

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

Residential block immediately to east which can be excluded as low threat. At 80m Forest at 0 -5 deg down

**Figure 4.1 East** Forest **View Position** Drone

Above Figure relevant to 'Vegetation Type A' within the BAL Assessment Report Table on page 13

Approximately 80m away is forest that leads to the south east. Between the site and this vegetation the land contains housing and cultivated gardens with trees spread across the lots.

## 2.5 Access of Site

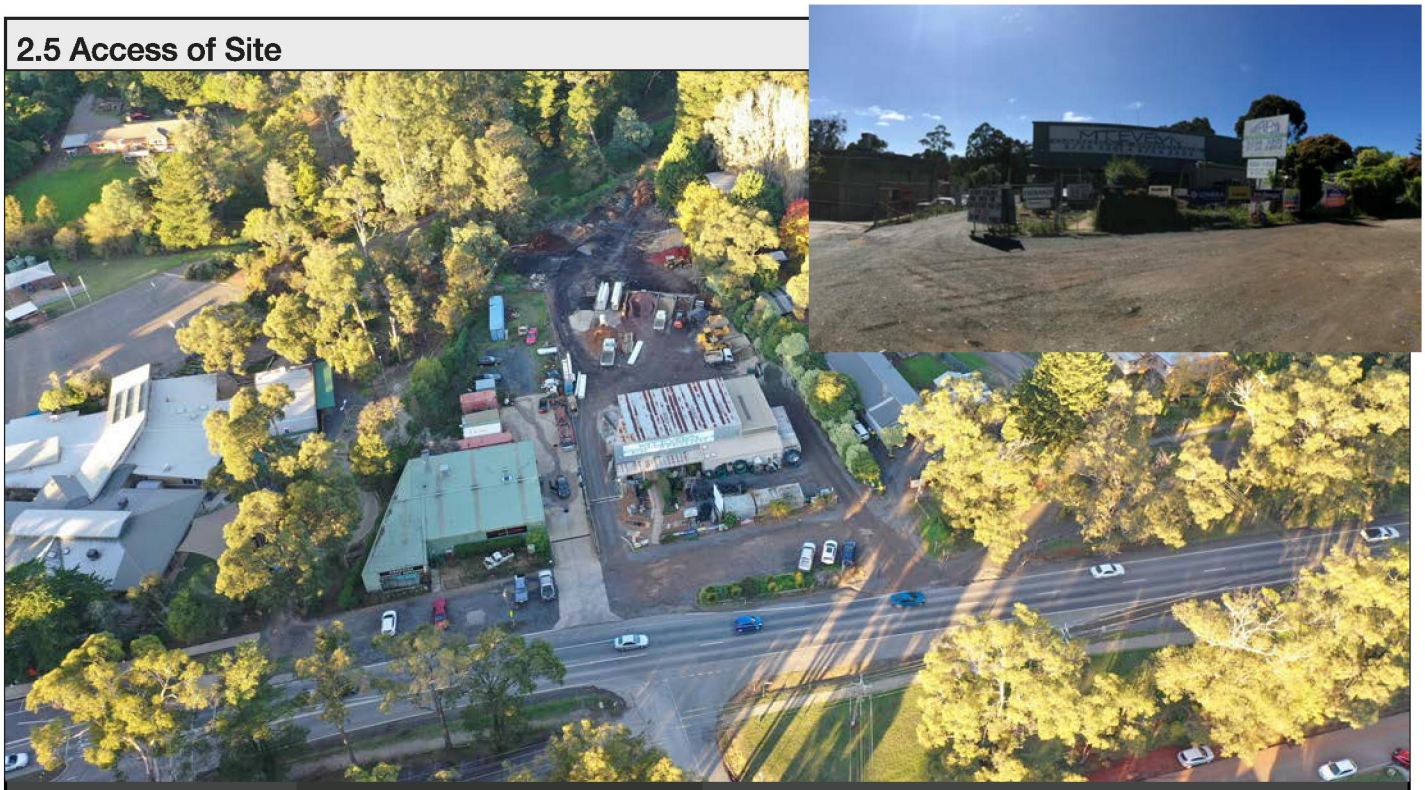


**Figure 5 Access** - **View Position**

-

Access from the road is relatively flat, gentle 1 degree downslope for approximately 30m to proposed building

**Figure 5.1 Main Threat** Forest **View Position** Drone - South East

Above Figure relevant to 'Vegetation Type B' within the BAL Assessment Report Table on page 13

The forest to the east and south of the site. Similarly to the north east forest covers significant parts of the landscape.

## 3. Vegetation Exclusions

**AS3959-2009 cl 2.2.3.2 - Determining the Bushfire Attack Level (BAL)**
**Low threat Vegetation and non-vegetation areas**

| Vegetation Classification | Direction from Building | Separation Distance (m) | Description |
|---|---|---|---|
| (f) | north | from boundary at 9m | Residential development and cultivated gardens, industrial sites. |
| (e)(f) | west | From boundary at 18m and extending beyond 150m | Residential development and cultivated gardens. |
| (f) | south | From Southern boundary and extending partially beyond 150m. | Residential development and cultivated gardens. |
| (f) | east | From boundary at 5m and extending for 80m | Residential development and cultivated gardens. |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## 3.1 Modified Vegetation

Not used in this submission

## 3.2 Vegetation Detail - Method 2 Calculation

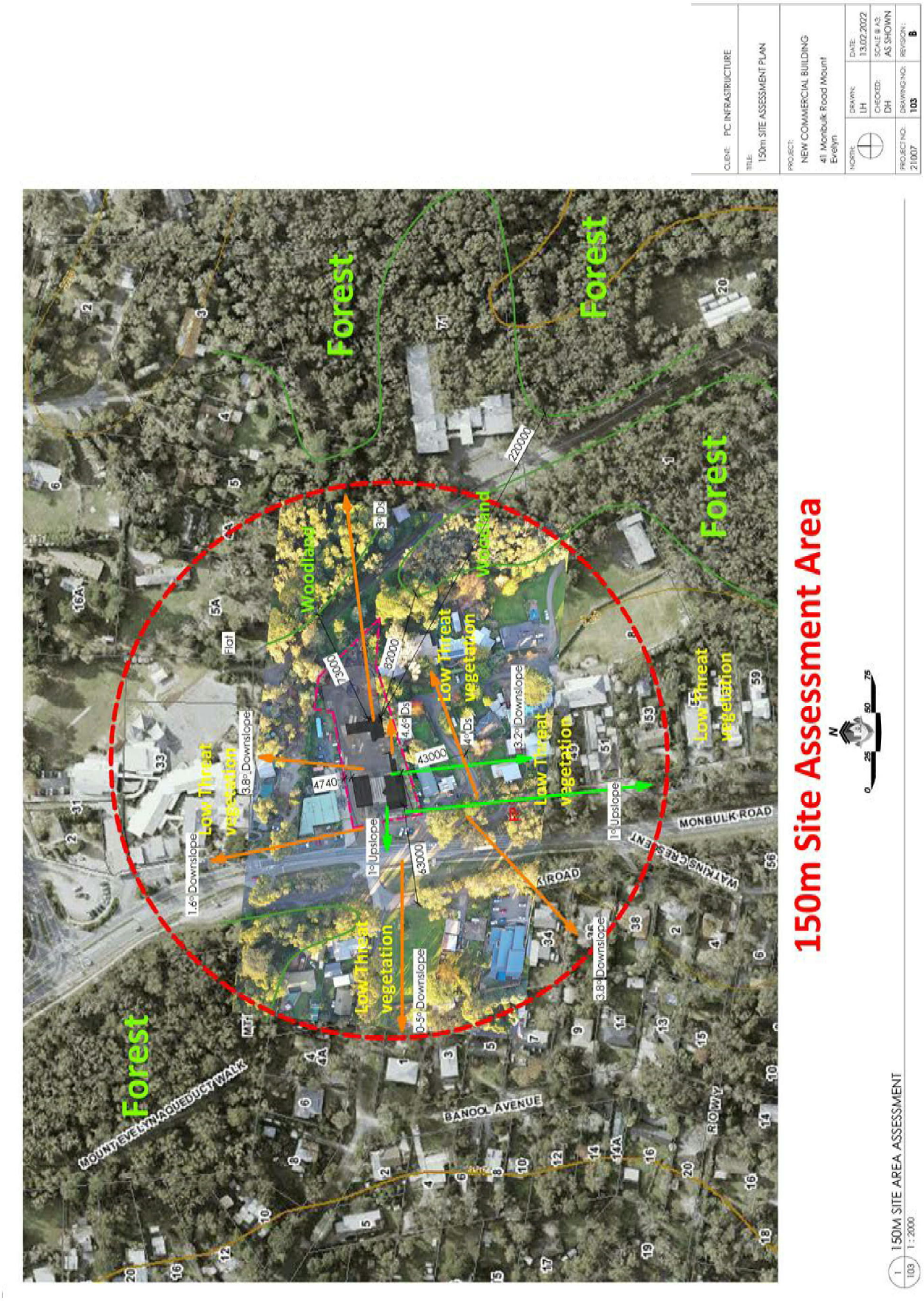
Not used in this submission

## 3.2 Vegetation Detail - Method 2 Calculation - Continued

Not used in this submission

## 4. 150m Site Assessment Plan (SAP)

Refer to scale on diagram



# *Bushfire Hazard Landscape Assessment (BHLA)*

## 1. Reason for Site requiring a BHLA

Reference to Cl 53.02: Bushfire Planning - Application 2 applies as the zoning and/or type of construction are outside those defined as applying to Cl 53.02

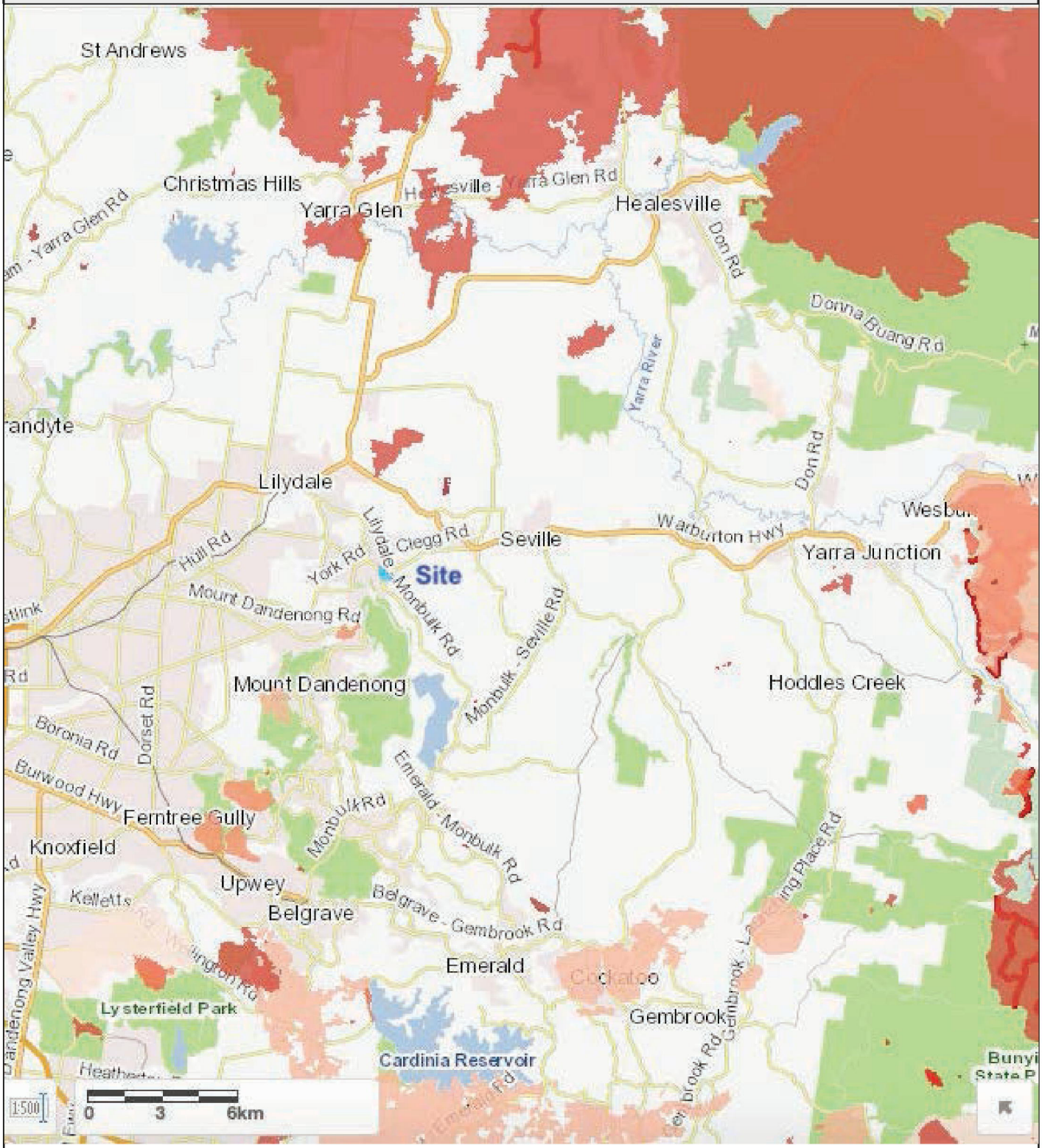
## 2. Landscape Around Site

### 2.1 Locality Map


The locality has an extreme bushfire risk due to the combination of hilly terrain and areas of forest with residential areas immersed within. The site is near the Dandenong Ranges National Park which is covered in forest with high fuel loads. The major fire risk is with a SW wind which will generate embers across Mt Evelyn.

# 3. Bushfire History

## 3.1 Past Bushfire Events




The Mt Evelyn locality has experienced many fires. The red shading indicates some bushfires of recent history.

### 3.2 Possible Direction of Bushfire

The prevailing winds come from either the NW or SW and the most likely a fire might approach the site is from these directions. However, fire can come from any direction due to the undulating terrain and the widespread distribution of forest.

History has recorded that many fires are to the SW of the site.

### 3.3 Likely Bushfire scenarios

The high fuel load and undulating landscape can cause the development of bushfires with extreme destructive power. Such bushfires are almost impossible to control.

## 4. Local Prevention and Bushfire Management

### 4.1 Fire Authority Locations

There are Emergency Fire Stations at:
* Montrose
* Mooroolbark
* Kalorama
* The Basin
* Mt Evelyn
* Silvan

### 4.2 Proximity to urban areas and towns and other areas of protection

The nearest towns from the site are:

| | | | |
|---|---|---|---|
| * Mt Evelyn | 1.5Km to the NNW | * Kalorama | 3.5km to the SW |
| * Kilsyth | 8.0km to the west | * Mt Dandenong | 4.7km to the SW |
| * Wandin North | 4.0km to the NE | * Silvan | 4.0km to the SE |
| * Lilydale | 6.0km to the NW | | |

### 4.3 Other Measures

Evacuation to the towns in the area is the best response to the probability or in the event of bushfire.

## 5. Features relevant to bushfire protection

### 5.1 Adjoining Land

The adjoining land around the site is covered by residential development or industrial areas that can be excluded as low threat. Land beyond these areas is covered in forest or forest modified by the presence of residential development, particularly to the south

### 5.2 Access to Areas of safety

Silvan Road is the major access to safety - either north (Lilydale) or south (Silvan) depending on the location of any fire. Clegg road, just north of the site leads east to Wandin North.

### 5.3 Constraints on implementation of appropriate Defendable space

The planned location of the building is near the centre of the site. The land on all boundaries is residential low threat and will not prevent any contraints.

## 6. Landscape Typology

### 6.1 Landscape Type

The landscape type is type 4. Of this landscape the following can be stated:
* The type of vegetation, and the topography of the land may result in neighbourhood destruction in the event of a major fire
* Bushfire can approach from more than one direction
* There is a history of recurring major bushfire events in the area.

The bushfire risk from such a landscape is extreme.

### 6.2 Recommendations for Safety and proceeding with development

The development proposal can proceed due to the close proximity of towns around the site and the availability of fire fighting resources. plan and prepare for bushfire and monitor the situation with a commitment to leave early.