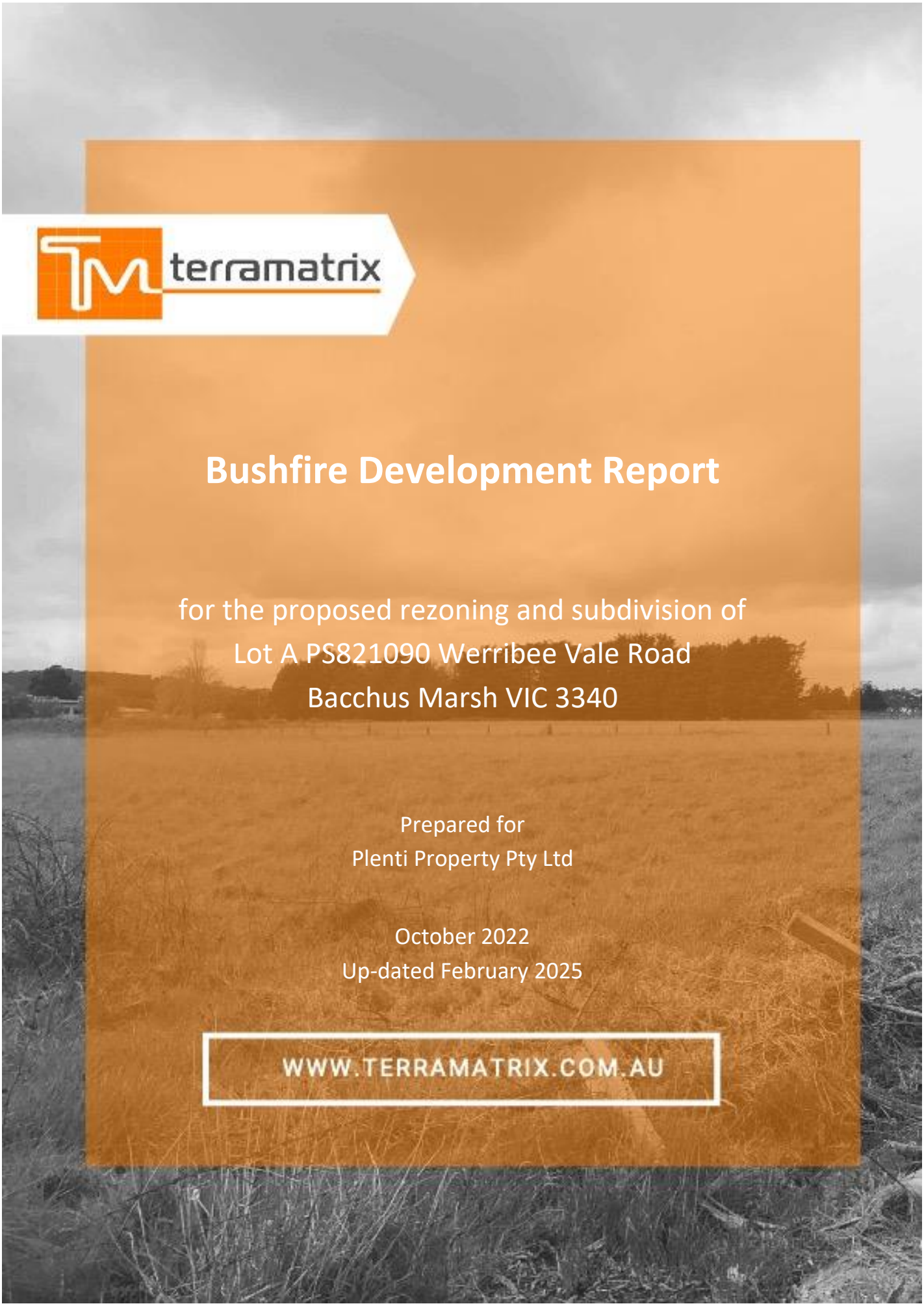

Bushfire Development Report

for the proposed rezoning and subdivision of
Lot A PS821090 Werribee Vale Road
Bacchus Marsh VIC 3340

Prepared for
Plenti Property Pty Ltd

October 2022
Up-dated February 2025

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Terramatrix project: PlentiPropertyPtyLtd-2022-01 Cl1302_BPA-BacchusMarsh
Cover image: Looking east across the site within Lot A PS821090 Werribee Vale Road.

Accountability

Stage	Date completed	Name	Title
Analysis & report preparation	11-10-2022	John Eastwood	Senior Analyst
Peer review	11-10-2022	Jon Boura	Managing Director

Version Control

Version	Date issued	Comments	Issued by
1.0	11-10-2022	Bushfire Development Report (BDR) to client	John Eastwood
1.1	12-07-2023	Draft removed	John Eastwood
1.2	24-07-2023	Updated site plan	John Eastwood
1.3	28-05-2024	Updated in response to CFA RFI	John Eastwood
1.4	04-02-2025	Minor update	John Eastwood

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1 Introduction

This Bushfire Development Report (BDR) has been prepared on behalf of Plenti Property Pty Ltd, to show how the proposed rezoning of Lot A PS821090 Werribee Vale Road, Bacchus Marsh VIC 3340 can comply with the applicable planning and building controls that relate to bushfire, specifically the requirements of Clauses 13.02-1S *Bushfire Planning* and 21.02-5 *Bushfire* in the Moorabool Planning Scheme.

The proposal is to rezone and subdivide the land for subsequent development. Lot A PS821090 Werribee Vale Road ('the site') will be rezoned from Farming Zone (FZ) to Neighbourhood Residential Zone (NRZ) (Supplied plans: Indicative Subdivision Plan – Halletts Way, Beveridge Williams 31-05-2023). The proposed rezoning and subdivision have been the subject of Council comments (17/08/2022 Ref: S96A Amendment Halletts Way, Underbank), which identify the NRZ as the most suitable zoning and call for bushfire risk to be addressed and to give effect to the strategies of Clause 13.02-1S.

This report assesses the bushfire risk and demonstrates how the proposed development can respond to the objective and strategies for bushfire safety at Clauses 13.02-1S (Moorabool Planning Scheme) and Clause 21.02-5 (Moorabool Planning Scheme) in the Planning Policy Framework (PPF).

The western parcels of the site are partially, and the eastern parcel wholly, within a designated Bushfire Prone Area (BPA). BPAs are those areas subject to or likely to be subject to bushfires, as determined by the Minister for Planning. Land around the site has been progressively removed from the BPA as urban development has progressed and the hazardous vegetation removed.

Higher hazard land within a BPA, that may be subject to extreme bushfire behaviour, is covered by the Bushfire Management Overlay (BMO); however, no part of the site is affected by the BMO and the closest BMO areas are approximately 4.3km to the west.

This report assesses the bushfire hazard and identifies how development of the site can appropriately mitigate the bushfire risk and comply with the applicable bushfire planning and building controls. It has been prepared in accordance with applicable guidance for the assessment of, and response to, bushfire risk provided in:

- *Bushfire State Planning Policy Amendment VC140*, Planning Advisory Note 68 (DELWP, 2018);
- *AS 3959-2018 Construction of buildings in bushfire prone areas* (Standards Australia, 2020);
- *Local planning for bushfire protection, Planning Practice Note 64* (DELWP, 2015a);
- *Design guidelines for settlement planning at the bushfire interface* (DELWP, 2020); and
- *Planning Permit Applications Bushfire Management Overlay* Technical Guide (DELWP, 2017).

This report has been updated (May 2023 v1.3) following a review of the planning application by the CFA (*Preliminary Advice_S96A_Werribee Vale Road Bacchus Marsh*, 20-03-2024 CFA Ref: 15000-81134-134142) that identifies that Lot A will be developed as a child care centre, a Class 9b building. The CFA advice states:
'The proposal includes a medical centre and child care centre, however this aspect of the proposal has not been addressed within the Bushfire Report. It is noted that these are vulnerable uses, and should be captured as part of a bushfire assessment.'

As discussed as Section 2.6, Class 9b buildings in the BPA are identified as requiring specific design and construction standards, with further requirements arising following the adoption of NCC 2022 in May 2023. These matters as they relate to the Werribee Vale Road site are documented at Section 2.6.1

1.1 Site summary

Address:	Lot A PS821090 Werribee Vale Road, Bacchus Marsh VIC 3340
Property size:	2.6ha
Local Government Area:	Moorabool Shire Council
Zone/s	Farming Zone and Schedule (FZ)
Overlay/s	Design and Development Overlay – Schedule 2 (DDO2) Environmental Significance Overlay – Schedules 2 and 8 (ESO2 and ESO8) Land Subject to Inundation Overlay – Schedule (LSIO)
Directory reference:	Melway 333 E8
Site assessment date:	30/09/2022
Assessed by:	John Eastwood, Senior Analyst

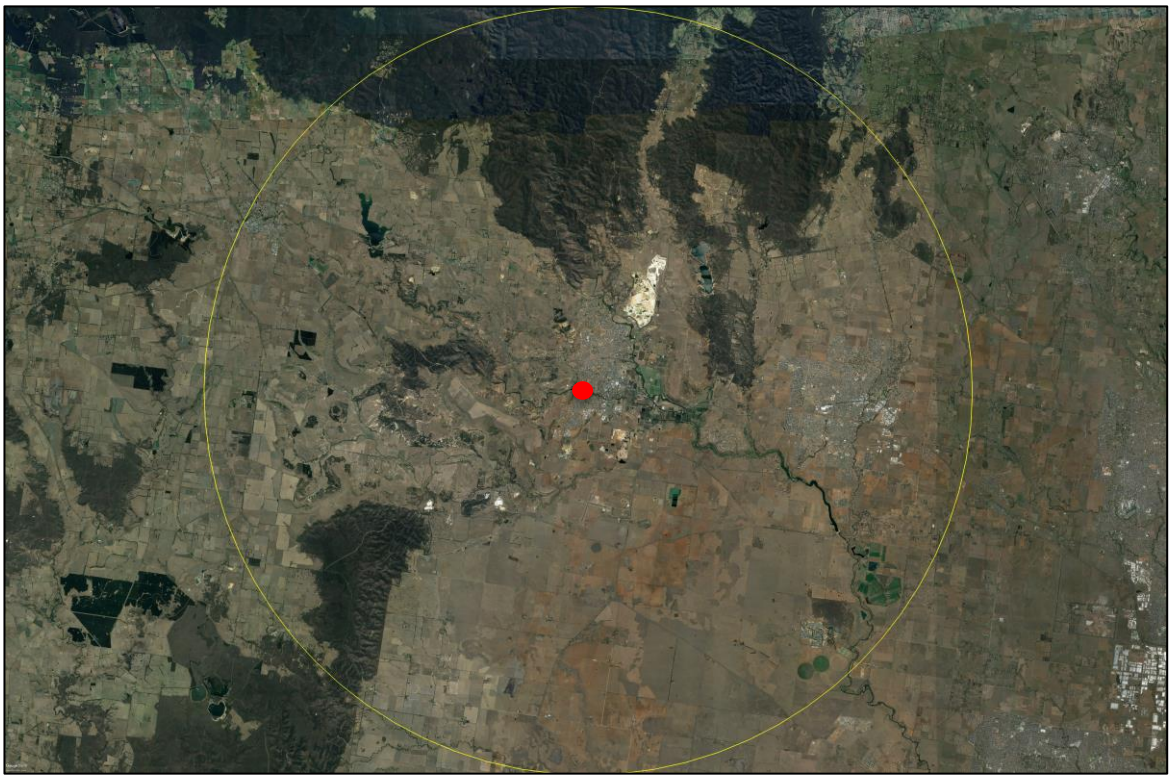

Figure 1 - Site location (approximate site location shown in red filled circle, 20km buffer of site in yellow circle outline; Google Earth imagery 28/08/2021).

2 Bushfire planning and building controls

This section summarises the applicable planning and building controls that relate to bushfire.

2.1 Clause 13 Environmental Risks and Amenity

This clause in the Planning Policy Framework (PPF) has two provisions pertinent to bushfire.

2.2 Clause 13.01-1S Natural Hazards and Climate Change

The objective of this Clause is to minimise the impacts of natural hazards and adapt to the impacts of climate change through risk-based planning. Specified strategies to achieve the objective are:

- *'Respond to the risks associated with climate change in planning and management decision making processes.*
- *Identify at risk areas using the best available data and climate change science.*
- *Integrate strategic land use planning with emergency management decision making.*
- *Direct population growth and development to low risk locations.*

- *Develop adaptation response strategies for existing settlements in risk areas to accommodate change over time.*
- *Ensure planning controls allow for risk mitigation or risk adaptation strategies to be implemented.*
- *Site and design development to minimise risk to life, health, property, the natural environment and community infrastructure from natural hazards'* (Moorabool Planning Scheme).

2.3 Clause 13.02-1S Bushfire Planning

Clause 13.02-1S has the objective '*To strengthen the resilience of settlements and communities to bushfire through risk based planning that prioritises the protection of human life*' (Moorabool Planning Scheme). The policy must be applied to all planning and decision making under the Planning and Environment Act 1987, relating to land which is:

- Within a designated BPA;
- Subject to a BMO; or
- Proposed to be used or developed in a way that may create a bushfire hazard.

Priority must be given to the protection of human life by:

- *'Prioritising the protection of human life over all other policy considerations.*
- *Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.*
- *Reducing the vulnerability of communities to bushfire through consideration of bushfire risk in decision-making at all stages of the planning process'* (Moorabool Planning Scheme).

Key strategies are stipulated that require strategic planning documents, planning scheme amendments and development plan approvals to properly assess bushfire risk and include appropriate bushfire protection measures. This also applies to planning permit applications for:

- Subdivisions of more than 10 lots;
- Accommodation;
- Child care centres;
- Education centres;
- Emergency services facilities;
- Hospitals;
- Indoor recreation facilities;
- Major sports and recreation facilities;
- Places of assembly; and
- Any application for development that will result in people congregating in large numbers.

Development should not be approved where '*…a landowner or proponent has not satisfactorily demonstrated that the relevant policies have been addressed, performance measures satisfied or bushfire protection measures can be adequately implemented*' (Moorabool Planning Scheme).

This report assesses the hazard and identifies the bushfire protection measures that will be required for future development on the site. Analysis of how future development can respond to the applicable strategies in Clause 13.02-1S is provided in Section 7.

2.4 Clause 21 Municipal Strategic Statement

2.4.1 Clause 21.02-5 Bushfire

This clause supports the purpose of the Moorabool Fire Management Plan (see Section 3.3).

The Clause has the objective:

- *To minimise risk of bushfire damage* (Moorabool Planning Scheme).

A single strategy applies:

- *Apply the Moorabool Fire Management Plan* (Moorabool Planning Scheme).

2.5 Clause 71.02-3 Integrated Decision Making

Clause 71.02-3 states that planning and responsible authorities should endeavour to integrate policies and balance conflicting objectives in favour of net community benefit and sustainable development. However, in bushfire affected areas, the protection of human life must be prioritised over all other policy considerations (Moorabool Planning Scheme).

2.6 Bushfire Prone Area (BPA)

The site is in a designated Bushfire Prone Area (BPA). BPAs are those areas subject to or likely to be subject to bushfire, as determined by the Minister for Planning. Those areas of highest bushfire risk within the BPA are designated as BMO areas (see Figure 2).

In a BPA, the Building Act 1993 and associated Building Regulations 2018, through application of the National Construction Code 2022 (NCC), require specific design and construction standards

for Class 1, 2 and 3[1] buildings, certain Class 9 and 4 buildings[2], and Class 10A buildings[3] or decks adjacent to, or connected with, these classes of buildings.

For Class 1 buildings (dwellings) and associated Class 10A buildings or decks, the applicable performance requirement in the NCC is:

'A Class 1 building or a Class 10a building or deck associated with a Class 1 building that is constructed in a designated bushfire prone area must be designed and constructed to—

(a) reduce the risk of ignition from a design bushfire with an annual exceedance probability not more than 1:50 years; and

(b) take account of the assessed duration and intensity of the fire actions of the design bushfire; and

(c) be designed to prevent internal ignition of the building and its contents; and

(d) maintain the structural integrity of the building for the duration of the design bushfire (ABCB, 2022).

The performance requirement for Class 1, 2 and 3 buildings and associated Class 10a buildings and decks, is deemed to be satisfied by design and construction in accordance with AS 3959-2018 *Construction of buildings in bushfire prone areas* and, for Class 1 buildings and associated decks, the NASH Standard – *Steel Framed Construction in Bushfire Areas* (NASH, 2021).

The Victorian Building Regulations (2018) require that applicable buildings be constructed to a minimum Bushfire Attack Level (BAL)-12.5, or higher as determined by a site assessment or planning scheme requirement. A BAL is a means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact. There are six BALs defined in AS 3959-2018, ranging from BAL-LOW, which has no bushfire construction requirements, to BAL-FZ (Flame Zone) where flame contact with a building is expected (see Table 1).

There are no obstacles to future development of the site complying with the building regulations invoked by the BPA coverage.

[1] Class 1, 2 and 3 buildings are defined in the NCC and are generally those used for residential accommodation, including houses and other dwellings, apartments, hotels and other buildings with a similar function or use.

[2] Applicable Class 9 buildings are Class 9a health-care buildings, Class 9b early childhood centres, primary and secondary schools, Class 9c residential care buildings, and any Class 4 parts of a building associated with these Class 9 buildings.

[3] Class 10a buildings are defined in the NCC as non-habitable buildings including sheds, carports, and private garages.

2.6.1 Vulnerable uses

CFA has provided preliminary advice that identifies that Lot A will be developed as a child care centre, a Class 9b building, considered to be a 'vulnerable use'.

Class 9b child care buildings must satisfy the applicable bushfire performance requirements of the National Construction Code (NCC) 2022. These include:

VIC G5P1

1) Reduce the risk of ignition from a design bushfire with an annual exceedance probability not more than 1:100 years, or 1:200 years for a Class 9 building.
2) Take account of the assessed duration and intensity of the fire actions of the design bushfire.
3) Be designed to prevent internal ignition of the building and its contents.
4) Maintain the structural integrity of the building for the duration of the design bushfire.

VIC G5P2

1) Reduce the risk of an untenable indoor environment for occupants during a bushfire event.
2) Be provided with vehicular access to the site to enable firefighting and emergency personnel to defend or evacuate the building.
3) Have access to a sufficient supply of water for firefighting purposes on the site.
4) Provide safe access within the site to the building (including carparking areas), as well as safe egress after the bushfire event.

Specification 43 applies as a deemed-to-satisfy compliance pathway. The measures include a minimum building setback from hazardous vegetation; Bushfire Attack Level (BAL) construction standard; setback from other buildings, property boundaries and car parks; water supply and emergency service access.

Expansion of existing facilities or smaller greenfield sites may find it impracticable to comply with this Specification, in which case a performance solution would be required for building approval. It is likely that the development of Lot A of the Werribee Vale Road site as a child care centre will require the adoption of a performance solution for compliance, however, it is noted that this arises largely from proximity to other buildings rather than the bushfire hazard which is constrained to Grassland to the north.

There are no identified bushfire risks arising from the landscape and site bushfire hazards as assessed and identified in this report that would preclude the development of a Class 9b building (child care centre) on Lot A.

2.6.2 Excision

DELWP review and excise areas from the BPA approximately every 6 months. Land becomes eligible for excision if it satisfies state-wide hazard mapping criteria, including that the land needs to be:

- At least 300m from areas of classified vegetation (except grassland) larger than 4ha in size; and
- At least 150m from areas of classified vegetation (except grassland) 2 to 4ha in size; and
- At least 60m from areas of unmanaged grassland more than 2ha in size (DELWP, 2015b).

For isolated areas of vegetation greater than 1ha but less than 2ha, the shape of the area and connectivity to any other hazardous vegetation is a further consideration (DELWP, 2015b). Land around the site that is not in the BPA (i.e. BAL-LOW areas) is shown in Figure 2, Map 2 and Map 3.

The eastern parcel of the site is unlikely to become eligible for excision due to the presence of the nearby vegetated waterway and escarpment to the north. Parts of the western parcels may become eligible for excision once other areas of the site have been rendered low threat through development.

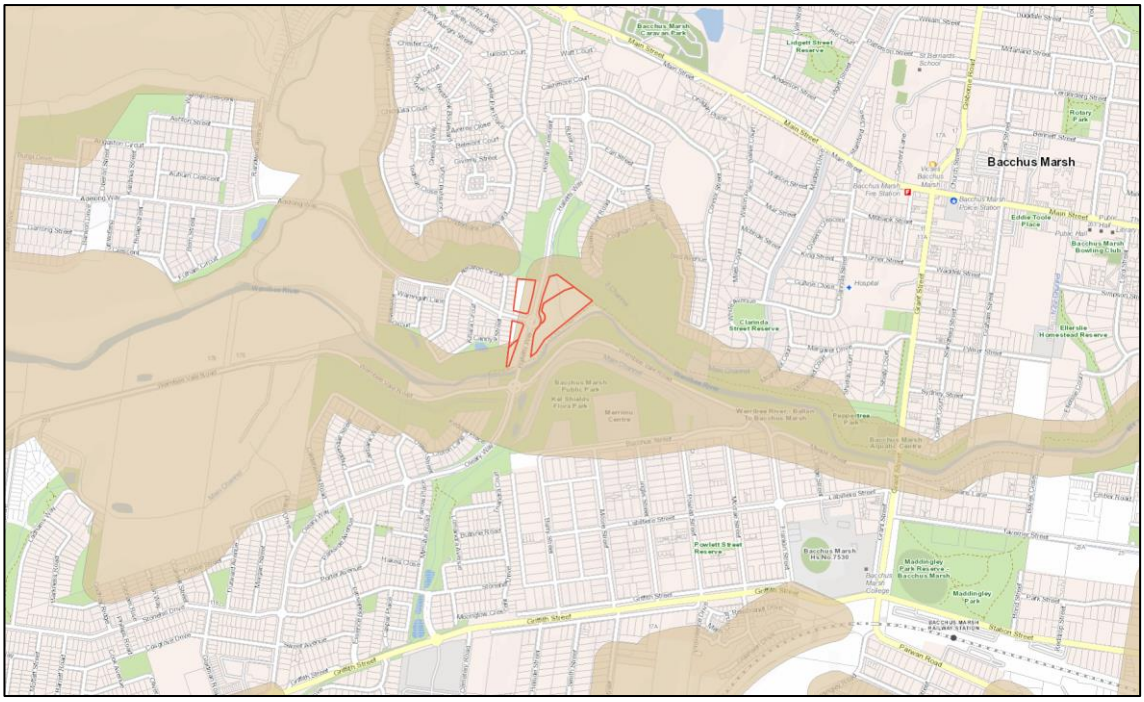

Figure 2 - BPA coverage (brown shading) of site (in red outline) (VicPlan, 2024).

Table 1 - BALs (Standards Australia, 2020).

Bushfire Attack Level (BAL)	Risk Level	Construction elements are expected to be exposed to…	Comment
BAL-Low	VERY LOW: There is insufficient risk to warrant any specific construction requirements but there is still some risk.	No specification.	At 4kW/m^2 pain to humans after 10 to 20 seconds exposure. Critical conditions at 10kW/m^2 and pain to humans after 3 seconds. Considered to be life threatening after 1 minute exposure in protective equipment.
BAL-12.5	LOW: There is risk of ember attack.	A radiant heat flux not greater than 12.5 kW/m^2	At 12.5kW/m^2 standard float glass could fail and some timbers can ignite with prolonged exposure and piloted ignition.
BAL-19	MODERATE: There is a risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to radiant heat.	A radiant heat flux not greater than 19 kW/m^2	At 19kW/m^2 screened float glass could fail.
BAL-29	HIGH: There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level of radiant heat.	A radiant heat flux not greater than 29 kW/m^2	At 29kW/m^2 ignition of most timbers without piloted ignition after 3 minutes exposure. Toughened glass could fail.
BAL-40	VERY HIGH: There is a much increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front.	A radiant heat flux not greater than 40 kW/m^2	At 42kW/m^2 ignition of cotton fabric after 5 seconds exposure (without piloted ignition).
BAL- FZ (i.e. Flame Zone)	EXTREME: There is an extremely high risk of ember attack and a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front.	A radiant heat flux greater than 40 kW/m^2	At 45kW/m^2 ignition of timber in 20 seconds (without piloted ignition).

2.7 Other planning controls

2.7.1 Zoning

Neither the existing FZ nor the proposed NRZ have implications for bushfire safety and compliance, although the proposed NRZ will result in an intensification of use in a BPA.

2.7.2 Overlays

The overlays applying to the site have no reference or relevance to bushfire, other than the LSIO imposing a significant site constraint that exacerbates the impact of setbacks required in response to the bushfire hazard. The nearest BMO coverage is 4.3km to the north.

3 Regional bushfire risk assessments and plans

3.1 Safer Together – Strategic Bushfire Management Planning

Strategic bushfire management planning is jointly delivered by Forest Fire Management Victoria (FFMVic), Country Fire Authority (CFA), Emergency Management Victoria (EMV) and local government in consultation with communities (DELWP, 2020). A key output is a Bushfire Management Strategy for each of the six planning regions. Each strategy informs more detailed operational-level planning, including municipal fire prevention planning, the CFA and FFMVic Joint Fuel Management Program, and readiness and response planning. Region-specific strategies are applied in response to the identified bushfire risk (see Figure 3 and Figure 4). The Werribee Vale Road site is in the Metropolitan region.

The Bacchus Marsh area is not in a Bushfire Risk Engagement Area, which are areas in which managing bushfire fuels is most effective in reducing risk. The low-intermediate risk bushfire risk to the site identified (see Figure 3) contributes to development of the site being appropriate.

The limited fuel management of the surrounding landscape (see Figure 4), can reflect this low risk, but may also reflect the limited extent of public land that can be managed for bushfire protection.

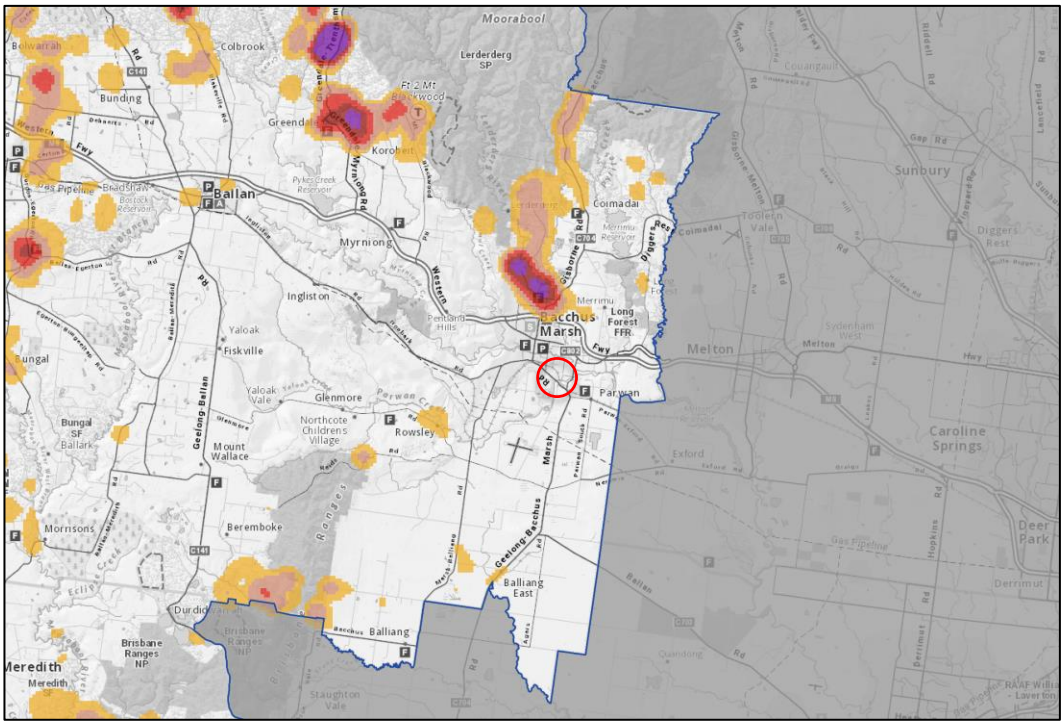

Figure 3 – Risk of house loss (orange is low-intermediate risk, purple the highest risk) (FFMV, 2022) with the site area indicated by red circle.

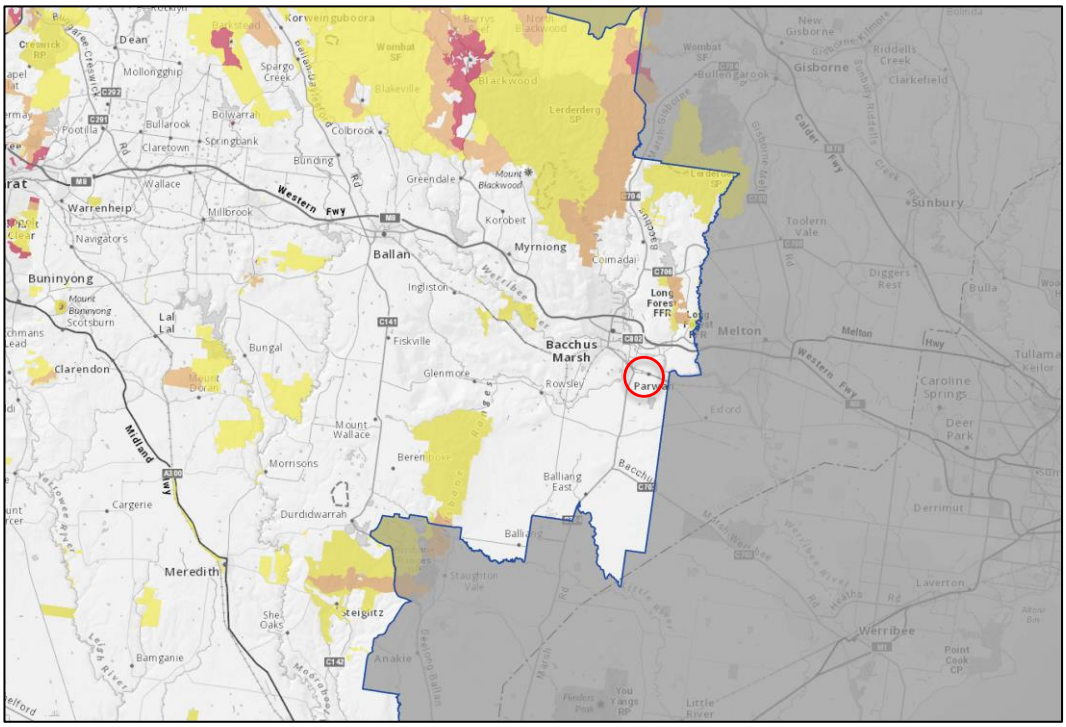

Figure 4 – FFMV fuel management strategy in the Bacchus Marsh area (see Table 2) (FFMV, 2022) with the site area indicated by red circle.

Table 2 – Legend to Figure 4.

Fire Management Zone	Legend colour	Aim
Asset Protection Zone (APZ)		To provide the highest level of localised protection to human life, property, critical infrastructure, the economy and high value community assets. Reduces radiant heat and ember attack through planned burning, mowing slashing or vegetation removal.
Bushfire Moderation Zone (BMZ)		To develop fuel- reduced areas of sufficient width and continuity to reduce the speed and intensity of bushfires. BMZ also aims to provide areas which assist in making bushfire suppression safer and more effective and in improving access and egress. Reduces speed and intensity of bushfires. Supports APZs and protects nearby assets, particularly from ember spotting.
Landscape Management Zone (LMZ)		Management objectives are varied and include fuel reduction and ecological outcomes. Hazard reduction may be undertaken to supplement APZ and BMZ activities, only where deemed necessary by a risk-based approach. Treatments may be undertaken for the active management of ecosystem function and for the management of flora and fauna species. Burning (or absence of burning) will be used to ecosystem resilience across the landscape. Planned burning will be used to reduce overall fuel and bushfire hazard, ecological resilience and particular landscape values.

3.2 Regional Bushfire Planning Assessment (RBPA) Metropolitan Region

As part of the response to the 2009 Victorian Bushfires Royal Commission, Regional Bushfire Planning Assessments (RBPAs) were undertaken across six regions that covered the whole of Victoria. The RBPAs provide information about 'identified areas' where a range of land use planning matters intersect with a bushfire hazard to influence the level of risk to life and property from bushfire. The RBPAs state that '*This information should be addressed as part of strategic land use and settlement planning at the regional, municipal and local levels'* (DPCD, 2012).

The *Regional Bushfire Planning Assessment – Grampians Region* covers the Moorabool LGA. No bushfire related issues were identified south of Bacchus Marsh. The more significant bushfire threat to the north is highlighted, however this has limited relevance to the site and the lack of identified bushfire issues in Bacchus Marsh is indicative of the lower bushfire threat in the area (DPCD, 2012).

3.3 Moorabool Shire Municipal Fire Management Plan (MFMP)

The MFMP recognises Bacchus Marsh as a major population centre that will see increased residential growth. It does not provide a risk rating for specific assets or localities, and the site and immediate area are not mentioned in the MFMP.

4 Bushfire hazard site assessment

4.1 Classified vegetation

Vegetation within the 100m assessment zone around the subdivision boundary has been classified in accordance with the 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.

4.1.1 Woodland

Treed vegetation within the river corridor on the south-eastern boundary of the eastern parcel and to the south-west of the south-western parcel, best accords with the Woodland group of AS 3959-2018. Woodland vegetation comprises areas with trees up to 30m tall, 10–30% foliage cover dominated by eucalypts (and/or callitris) with a prominent grassy understorey, may contain isolated shrubs (Standards Australia, 2020).

The riparian vegetation associated with Werribee River to the south and south-east includes a mix of native and exotic shrubs, grasses and trees. The width of this vegetation exceeds 20m in places and is often less than 20m from other classified vegetation, thus making it ineligible for exclusion from classification under the AS 3959-2018.

The nature, level of disturbance, modification, orientation, fuel load and fragmentation of the riparian vegetation preclude the possibility of a bushfire within the creek corridor achieving the scale and intensity envisioned by the AS 3959-2018 model. However, despite this, these areas have been classified as Woodland as a precautionary assessment.

4.1.2 Scrub

Vegetation on the escarpment to the north and north-east of the eastern parcel best accords with the Scrub group of AS 3959-2018. Scrub comprises areas with shrubs that have an average height of more than 2m, with 10% to more than 30% foliage cover. Typical of coastal areas and tall heaths up to 6 metres in height. May be dominated by Banksia, Melaleuca or Leptospermum with heights of up to 6 metres (Standards Australia, 2020).

The vegetation on the escarpment immediately above the eastern parcel comprises sparse trees, that increase in density to the east along the escarpment. The trees are characterised by canopies extending from ground level and structurally resemble Scrub. The alternative classification of Woodland would overstate the fuel load present on the escarpment.

4.1.3 Grassland

Vegetation on the escarpment to the north and scattered throughout the other areas of classified vegetation, matches the AS 3959-2018 classification of Grassland, which is defined as '*all forms of vegetation (except Tussock Moorlands) including situations with shrubs and trees, if overstorey foliage cover is less than 10%. Includes pasture and cropland*' (Standards Australia, 2020).

Grassland is considered hazardous, and therefore classifiable, when it is not managed in a minimal fuel condition. Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (e.g. short-cropped grass, to a nominal height of 100 mm) (Standards Australia, 2020).

Grassland areas are assumed to be unmanaged and classifiable unless there is 'reasonable assurance' that they will be managed in perpetuity, in a low threat state, no more than 100mm high.

The few scattered trees in the northern part of the site assessment zone are consistent with the classification as Grassland.

4.1.4 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 100m 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 0.25ha in area and not within 20m of the site, or each other, or of other areas of vegetation being classified vegetation.

(d) Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m 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 condition, 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 classified vegetation on any of the parcels. It is reasonable to assume that all parts of the subdivision will become low threat and excludable as the development is completed.

Low-threat areas excluded from classification include the managed gardens of the nearby dwellings, a single row of trees to the south excluded as a 'windbreak' the landscaped reserves to the south-west and minor areas of roadside vegetation. Non-vegetated areas include the roads and driveways within the 100m site assessment zone (see Map 1).

4.2 Topography

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

The site is located at the base of the escarpment, adjacent to the Werribee River, with land in all directions rising away from the site. Consequently, for the purposes of determining BALs and defendable space, the applicable slope class is 'All upslopes and flat land' under the classified vegetation (see Map 1).

Map 1 - Bushfire hazard site assessment plan.

Figure 5 – Looking north, across the north-eastern parcel, at Grassland on the escarpment.

Figure 6 – Looking east at treed vegetation, classified as Scrub, on the escarpment to the north of the eastern parcel.

Figure 7 – Looking south-west at the north-western and south-western parcels, with existing development to the west and the Werribee River to the south.

Figure 8 – Looking south-east across the eastern parcel at the riparian vegetation along the Werribee River and the south-eastern boundary.

Figure 9 – Looking east at riparian vegetation along the south-eastern boundary of the eastern parcel.

Figure 10 – Looking north-east along the Werribee River showing riparian vegetation closest to the site boundary.

4.3 Fire weather

The recently introduced Australian Fire Danger Rating System establishes four fire danger rating categories and a numerical Fire Behaviour Index (FBI) that applies to all fuel types across the country. The Victorian planning and building systems, however, still use the previous Forest Fire Danger Index (FFDI) and the Grassland Fire Danger Index (GFDI) to represent the level of bushfire threat based on weather (and fuel) conditions. An FFDI 100/GFDI 130 (equivalent to a Catastrophic fire danger rating under the new system) is applied in non-alpine areas of Victoria, to establish building setback distances from classified vegetation in accordance with AS 3959-2018. The potential fire behaviour and impact for Grassland under a Catastrophic fire danger rating is summarised in Table 3.

Note that the benchmark of an FFDI 100 represents a 'one size fits all' model of extreme fire weather conditions for the state, but which has been exceeded during some significant fire events, including in Victoria on 'Black Saturday' 2009. Therefore, it is important to note that this is not necessarily the *worst-case* conditions for any location, including the study area.

In southern Australia, since the 1950s there has been an increase in the length of the fire weather season and an increase in extreme fire weather. It is projected that there will be further increase in the number of dangerous fire weather days and a longer fire season for southern and eastern Australia (CSIRO/BOM, 2022). There is a 'high confidence' that climate change will result in a harsher fire weather climate for the Southern Slopes Victoria West sub-region that the study area is in, with 'high' or 'very high' confidence that there will be more hot days and warm spells and less rainfall (CSIRO/BMO, 2023).

Currently the CFA and DELWP have no published policy on FFDI/GFDI recurrence intervals. There is, therefore, no compelling rationale for applying a different FFDI/GFDI from the 'default' FFDI 100/GFDI 130 threshold currently used throughout non-Alpine areas of Victoria in the planning and building system.

Table 3 – Fire Danger Ratings (Victoria State Government, 2022; BOM 2022).

Forest Behaviour Index	Fire Danger Rating (FDR)	Fire Behaviour	Action
>=100	Catastrophic	If a fire starts and takes hold, lives are likely to be lost.	○ These are the most dangerous conditions for a fire. ○ Your life may depend on the decisions on you make, even before there is a fire. ○ For your survival, do not be in bushfire risk areas. ○ Stay safe by going to a safer location early in the morning or the night before. ○ If a fire starts and takes hold, lives and properties are likely to be lost. ○ Homes cannot withstand fires in these conditions. You may not be able to leave and help may not be available.

50-99	Extreme	Fires will spread quickly and be extremely dangerous.	○ These are dangerous fire conditions. ○ Check your bushfire plan and that your property is fire ready. ○ If a fire starts, take immediate action. If you and your property are not prepared to the highest level, go to a safer location well before the fire impacts. ○ Reconsider travel through bushfire risk areas. ○ Expect hot, dry and windy conditions. ○ Leaving bushfire risk areas early in the day is your safest option.
24-49	High	Fires can be dangerous.	○ There is a heightened risk. Be alert for fires in your area. ○ Decide what you will do if a fire starts. ○ If a fire starts, your life and property may be at risk. The safest option is to avoid bushfire risk areas.
12-23	Moderate	Most fires can be controlled.	○ Stay up to date and be ready to act if there is a fire.

5 Bushfire hazard landscape assessment

One of the bushfire hazard identification and assessment strategies in Clause 13.02-1S is to use the best available science to identify the hazard posed by vegetation, topographic and climatic conditions. The basis for the hazard assessment should be:

- *'Landscape conditions - meaning the conditions in the landscape within 20 kilometres and potentially up to 75 kilometres from a site;*
- *Local conditions - meaning conditions in the area within approximately 1 kilometre from a site;*
- *Neighbourhood conditions - meaning conditions in the area within 400 metres of a site; and*
- *The site for the development'* (Moorabool Planning Scheme).

This section considers the hazard beyond the site level.

5.1 Landscape – to 20km

The Werribee Vale Road site is located in Pentland Hills on the south-western fringe of Bacchus Marsh. Development of the site comprises infill development of an established urban area. Urban development and the existing horticultural land to the west separates the site from any large areas of bushfire hazard, with the predominant exposure comprising the riparian vegetation of the Werribee River corridor and the unmanaged vegetation of the associated escarpments. The site is immediately adjacent to Werribee Vale Road and Halletts Way, providing ready access to the wider road network and the established lower threat areas of Bacchus Marsh.

Within 20km, significant areas of treed vegetation include the Lerderderg State Park to the north, the Werribee Gorge State Park to the west and the Brisbane Ranges to the south-west. The land between these areas and the urban areas around the site predominantly comprises pasture over undulating terrain with occasional steep escarpments north of the Werribee River. South of the river, the land is generally flatter to the east of the Brisbane Ranges. Scattered trees in paddocks, along fence lines and creeks, and small areas of plantation form the balance of the vegetation in the landscape.

The designated BPA covers the majority of the 20km landscape assessment zone, except for the urban areas. The BMO covers any large areas of trees, with the closest BMO coverage being approximately 4.3km to the west of the site.

There is a significant fire history within 10km, predominantly in the larger areas of forest to the north (see Map 2). Smaller, but still locally significant, fires occurred to the west in 2020-21.

The current bushfire threat from all directions is low-moderate. The site could be affected by ember attack and smoke from a fire in the forest to the north of Bacchus Marsh, although any immediate approach by bushfire would be along the narrow, winding vegetated corridor of the Werribee River and the associated escarpments in the immediate vicinity of the site. A fire burning through these areas is unlikely to achieve the scale and intensity envisioned by the AS 3959-2018 model.

A comprehensive local road network provides ready access to lower threat areas, including areas immediately to the north, south and west, that are not in the BPA (see Figure 2, Map 2 and Map 3).

To assist in defining the risk beyond the site scale, four 'broader landscape types', representing different landscape risk levels, are described in the DELWP technical guide *Planning Applications Bushfire Management Overlay*. These are intended to streamline decision-making and support more consistent decisions based on the landscape risk (DELWP, 2017). Although the site is not in the BMO, these provide a useful guide to assessing landscape risk.

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, where fire behaviour could exceed AS 3959-2018 presumptions (see Table 1).

The site comprises infill development in an established urban area with limited exposure to the bushfire hazard. Consequently, the development site and immediately surrounding landscape accords with Broader Landscape Type 2 (see Table 4).

Table 4 - Landscape risk typologies (from DELWP, 2017).

Broader Landscape Type 1	Broader Landscape Type 2	Broader Landscape Type 3	Broader Landscape Type 4
• *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.*	• *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.*	• *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.*	• *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.*
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5.2 Local – to 1km

Within the 1km local assessment zone, much of the land is outside of the BPA (see Map 3) and consists of established urban areas. The Werribee River corridor and the associated escarpments create a narrow wedge of BPA, extending from the west, within which the site is located. The orientation, varied directions and narrowness of this corridor means that there are no credible scenarios in which a large landscape scale bushfire can approach the site. Local ignition and spread is possible, either as a result of embers from a fire further away or through an isolated local incident.

5.3 Neighbourhood – to 400m

Within 400m, the neighbourhood scale bushfire risk to the site is largely consistent with that for

1km, although a greater proportion of land comprises non-BPA areas and public land. Much of the non-BPA land within 400m is unlikely to be developed or excised from the BPA, with the result that the current distribution of hazardous vegetation is likely to remain. This is reflected in the Bushfire Hazard Site Assessment (see Map 1).

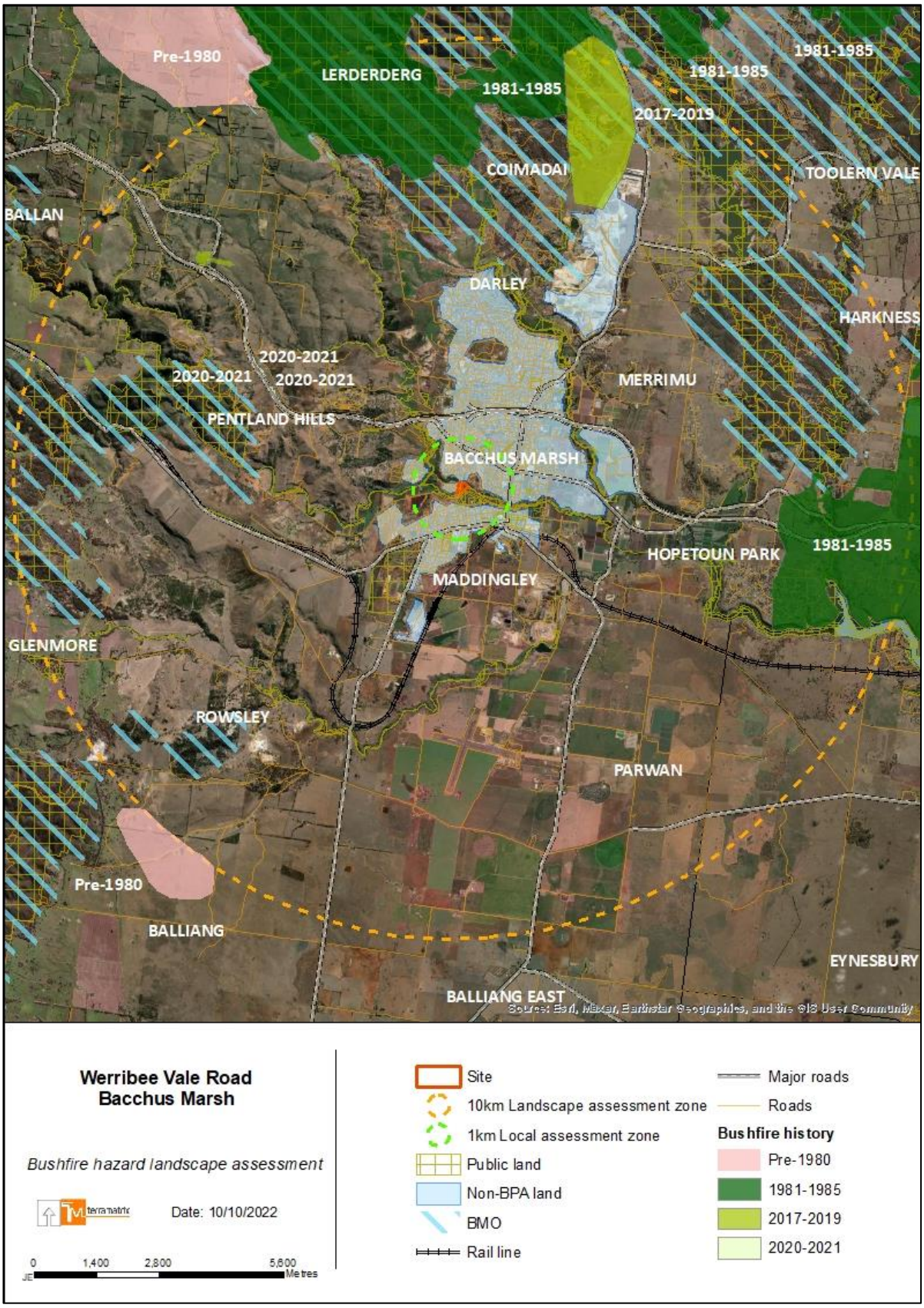
Halletts Way and Werribee Vale Road site provide ready access to the lower threat areas to the north and south, and to the wider road network.

5.4 Credible bushfire scenarios

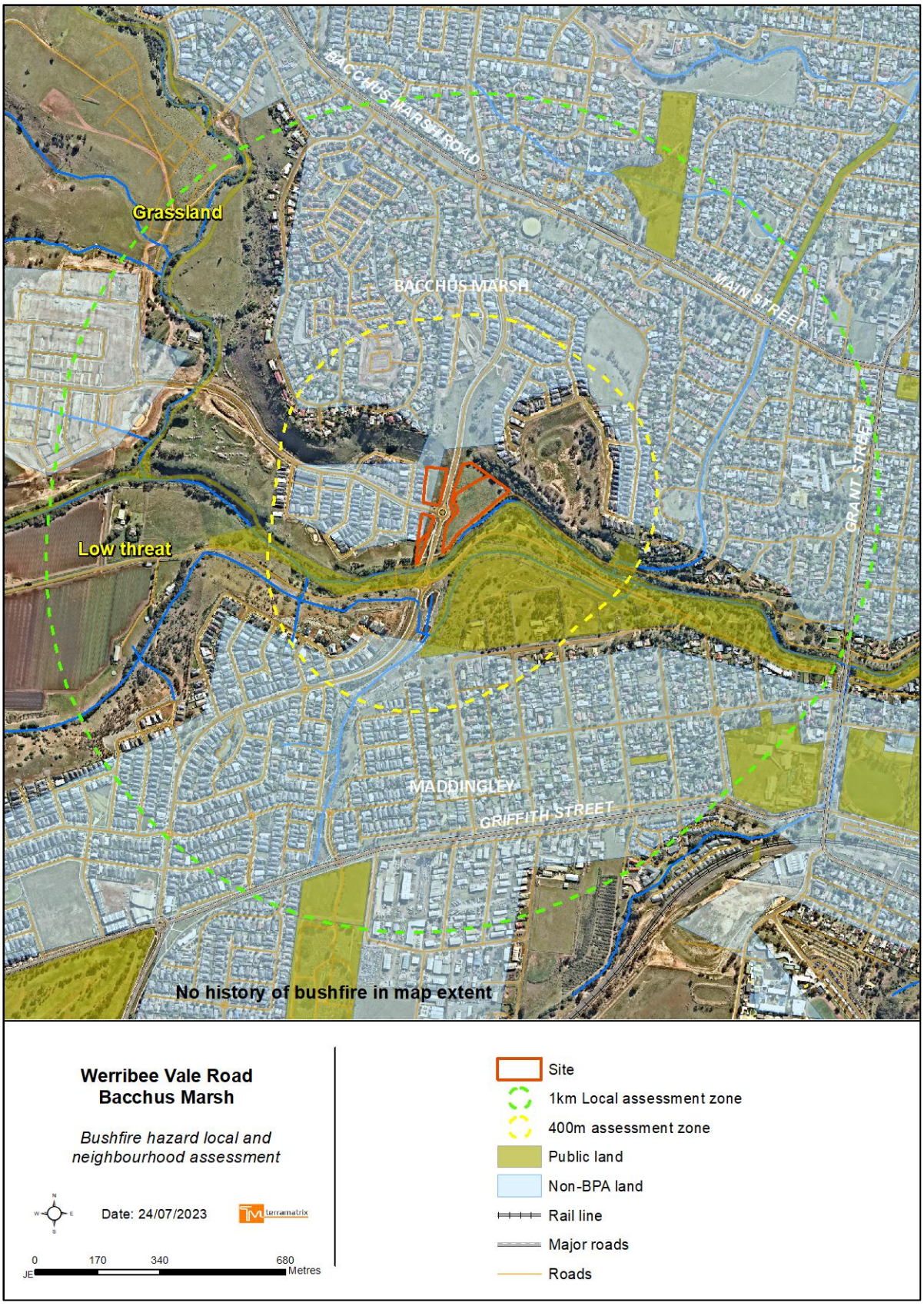
The most likely bushfire scenarios for a large landscape fire in Victoria, are an approach from those directions typically associated with the direction of the wind on severe or higher, fire danger days, i.e. from the north, north-west, west or south-west (Long, 2006).

As noted, the orientation, varied directions and narrowness of the Werribee River corridor means that there are no credible scenarios in which a large landscape scale bushfire can approach the site. Local ignition and spread is possible, either as a result of embers from a fire further away or through an isolated local incident.

Urban development in the surrounding area precludes long fire runs from other directions.



Map 2 - Bushfire hazard landscape assessment plan.



Map 3 - Bushfire hazard local and neighbourhood landscape assessment.

6 Planning and design response

This section identifies how future development can respond to the bushfire risk, including the requirements of Clause 13.02-1S, published CFA guidance and the building regulations applicable to construction in a BPA.

6.1 BAL construction standards

To satisfy key settlement planning strategies of Clause 13.02-1S, the future dwellings on the site, and other buildings requiring a BAL (see Section 2.6), should be sufficiently setback from classified vegetation to enable a BAL-12.5.

Building setbacks are measured from the edge of the classified vegetation to the external wall of a building, excluding eaves, roof overhangs and some other building appurtenances[4] (Standards Australia, 2020) (see Figure 5).

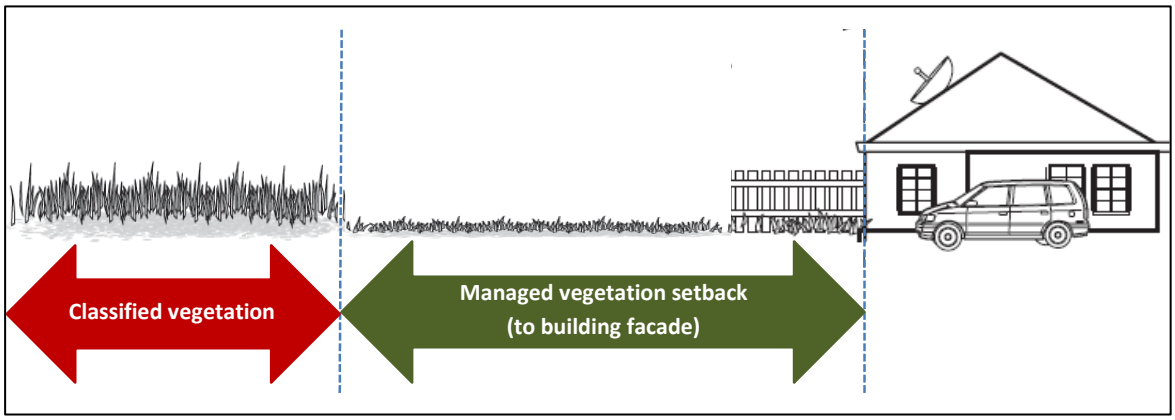


Figure 5 - Example of building-classified vegetation setback (adapted from CFA, 2013).

The setbacks required in response to the various vegetation types, based on the hazard assessment in Section 4 and determined using the simple Method 1 procedure of AS 3959-2018, are shown in Table 5 below.

The site is exposed to various vegetation types in multiple directions within the Werribee Vale Road valley. Note that a BAL construction standard is only required for class 1, 2 and 3 buildings,

[4] The setback distance is measured from the edge of the classified vegetation to the external wall of the building, or for parts of the building that do not have external walls (including carports, verandas, decks, landings, steps and ramps), to the supporting posts or columns. The following parts of a building are excluded:

a) Eaves and roof overhangs.
b) Rainwater and domestic fuel tanks.
c) Chimneys, pipes, cooling or heating appliances or other services.
d) Unroofed pergolas.
e) Sun blinds (Standards Australia, 2020).

certain Class 9 and 4 buildings and associated class 10A buildings as documented at Section 2.6. Other classes of buildings – as determined by the relevant building surveyor – may not require a BAL and may not have to respond to the setbacks shown on Map 4.

Table 5 - Building setbacks.

BAL construction standard	Slope class	Vegetation	Vegetation setback distance
BAL-12.5	All upslopes and flat land	Grassland	19m
		Scrub	27m
		Woodland	33m

The arrangement and location of vegetation around the site is not anticipated to alter significantly, and the need for setbacks will likely remain in perpetuity.

Development on the balance of the site, beyond the setbacks shown on Map 4, can achieve a BAL-12.5 construction standard without issue. All dwellings and buildings requiring a BAL will need to be built to a minimum BAL-12.5 construction standard.

The child care centre proposed for Lot A is exposed only to the lower hazard vegetation of Grassland, and a 19 m setback of the buildings from the northern boundary can be provided. It is noted that this Class 9b building will require a BAL-19 construction standard in accordance with Specification 43 of the NCC 2022.

Map 4 – Setbacks required for BAL-12.5 and development options.

7 Response to Clause 13.02-1S Bushfire Planning

The applicable strategies at Clause 13.02-1S are detailed in the following sub-sections, and a summary is provided about how the proposed development responds to the strategies.

7.1 Protection of human life strategies

Priority must be given to the protection of human life.

Prioritising the protection of human life over all other policy considerations

As identified in Section 5, the site is in a low-moderate bushfire risk location. Accordingly, the protection of human life can be prioritised by adopting the measures recommended in this report and through application of the existing planning and building regulations for construction in a BPA, including ensuring future dwellings and other buildings that require a BAL are located where a minimum BAL-12.5 construction standard can be achieved (i.e. achieving setbacks for future buildings from unmanaged vegetation, such that radiant heat can be expected to be below 12.5kW/m^2). Class 9b buildings, identified as a vulnerable use, can comply with Specification 43 of NCC 2022 with appropriate siting.

Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.

The site is in a low-moderate risk location and has ready access to even lower threat locations to the north, south and west (see Map 3).

The nearest *lowest* risk locations are considered to be the urban-residential and township areas of Bacchus Marsh that are not in the BPA and are therefore BAL-LOW areas (see Map 3). Currently, these are readily accessible to the north, south and west.

Once development of the surrounding area has occurred, some small reliably low threat urban areas within the site will likely become eligible for excision from the BPA if they satisfy the exclusion criteria (see Section 2.6).

Reducing the vulnerability of communities to bushfire through consideration of bushfire risk in decision-making at all stages of the planning process

This report provides the basis for incorporating bushfire risk into decision-making associated with development of the site.

The CFA consider that community resilience to bushfire will be strengthened (and hence, presumably, vulnerability to bushfire will be reduced) when a strategic planning proposal demonstrates that Clause 13.02-1S strategies have been applied, and where a proposal

takes advantage of existing settlement patterns so that new development will not expose the community to increased risk from bushfire.

The CFA provide principles to respond to Clause 13.02-1S including that settlement planning decisions should:

- *'Direct development to locations of lower bushfire risk.*
- *Carefully consider development in locations where there is significant bushfire risk that cannot be avoided.*
- *Avoid development in locations of extreme bushfire risk.*
- *Avoid development in areas where planned bushfire protection measures may be incompatible with other environmental objectives'* (CFA, 2015).

It is considered that the development can appropriately implement the applicable strategies in Clause 13.02-1S that aim to prioritise protection of human life and will, therefore, meet the CFA strategic planning principles for bushfire. The site is in a low-moderate bushfire risk location, is not affected by the BMO and is close to an existing lower threat township area outside of the BPA. The bushfire risk to the site is such that there are no identified bushfire risks arising from the landscape and site bushfire hazards as assessed and identified in this report that would preclude the development of Class 9 buildings on the site with appropriate siting. Some small areas of the site will become eligible for excision from the BPA upon development.

7.2 Bushfire hazard identification and assessment strategies

The bushfire hazard must be identified, and an appropriate risk assessment be undertaken.

Applying the best available science to identify vegetation, topographic and climatic conditions that create a bushfire hazard.

This report identifies the hazard in accordance with the commonly accepted methodologies of AS 3959-2018 and, as appropriate, additional guidance provided in and *Planning Advisory Note 68 Bushfire State Planning Policy Amendment VC140* (DEWLP, 2018).

The type and extent of (hazardous) vegetation within, and up to 100m around the site, has been identified and classified into the AS 3959 vegetation groups. Classification was based on the anticipated long-term state of the vegetation, EVC mapping, aerial imagery, site assessment, published guidance on vegetation assessment for bushfire purposes and experience with the fuel hazard posed by the vegetation types that occur within the region.

Geographic Information System analysis of publicly available contour data for the area was undertaken and effective slopes determined.

In relation to climatic conditions and fire weather, the AS 3959 default FFDI 100/GFDI 130 benchmark used in the Victorian planning and building system, has been applied as discussed in Section 4.3.

Considering the best available information about bushfire hazard including the map of designated bushfire prone areas prepared under the Building Act 1993 or regulations made under that Act.

The extent of BPA coverage has been considered and the nearby non-BPA land is shown in Figure 2, Map 2 and Map 3. This is based on the most recent BPA mapping for the area.

Applying the Bushfire Management Overlay in planning schemes to areas where the extent of vegetation can create an extreme bushfire hazard.

None of the site is covered by the BMO (see Map 2 and Map 3), with the nearest coverage approximately 4.3km to the west. This is considered appropriate and reflects state-wide BMO mapping introduced into the Moorabool Planning Scheme on 3rd October 2017.

Considering and assessing the bushfire hazard on the basis of:

- ***Landscape conditions - meaning the conditions in the landscape within 20 kilometres and potentially up to 75 kilometres from a site;***
- ***Local conditions - meaning conditions in the area within approximately 1 kilometre from a site;***
- ***Neighbourhood conditions - meaning conditions in the area within 400 metres of a site; and***
- ***The site for the development.***

The hazard has been assessed and described at a range of scales (see Sections 4 and 5 and Maps 1-3).

At the site scale, the assessment follows the AS 3959-2018 methodology of classifying vegetation and topography within 100m of the site.

At the neighbourhood, local and broader landscape scale, the risk has been considered within 400m and 1km of the site and extending out beyond 20km in accordance with guidance provided in Planning Advisory Note 68 (DELWP, 2018) and the BMO Technical Guide (DELWP, 2017).

Consulting with emergency management agencies and the relevant fire authority early in the process to receive their recommendations and implement appropriate bushfire protection measures.

This report has been updated (May 2023 v1.3) following a review of the planning application by the CFA (*Preliminary Advice_S96A_Werribee Vale Road Bacchus Marsh*, 20-03-2024 CFA Ref: 15000-81134-134142). The advice is generally supportive of the bushfire assessment and the proposed development, however, it also identifies that Lot A will be developed as a child care centre, a Class 9b building. The CFA advice states:
'The proposal includes a medical centre and child care centre, however this aspect of the proposal has not been addressed within the Bushfire Report. It is noted that these are vulnerable uses, and should be captured as part of a bushfire assessment.'

This updated report addresses the vulnerable use of Lot A and has demonstrated that the development can comply with the applicable controls.

Ensuring that strategic planning documents, planning scheme amendments, planning permit applications and development plan approvals properly assess bushfire risk and include appropriate bushfire protection measures.

DELWP advisory and practice notes, Clause 13.02-1S, and the building regulations invoked by the BPA coverage, specify the general requirements and standards for assessing the risk. These have been used in this report as appropriate and bushfire protection measures have been identified commensurate with the risk.

Not approving development where a landowner or proponent has not satisfactorily demonstrated that the relevant policies have been addressed, performance measures satisfied, or bushfire protection measures can be adequately implemented.

It is considered that if the provisions of the Building Act 1993 and associated Building Regulations 2018, through application of the National Construction Code (NCC), are complied with and the objectives and applicable strategies of Clause 13.02-1S are successfully implemented, as discussed in this report, then the risk can be deemed to be acceptably mitigated such that development can proceed.

The CFA specify that areas where development should not proceed could include:

- *'Isolated settlements where the size and/or configuration of the settlements will be insufficient to modify fire behaviour and provide protection from a bushfire.*
- *Where bushfire protection measures will not reduce the risk to an acceptable level.*
- *Where evacuation (access) is severely restricted.*

- *Where the extent and potential impact of required bushfire protection measures may be incompatible with other environmental objectives or issues, e.g. vegetation protection, land subject to erosion or landslip'* (CFA, 2015).

These criteria are not applicable to the site.

7.3 Settlement planning strategies

As the site comprises a small site within the wider established urban area, the Settlement Planning strategies of Clause 13.02-1S are not considered applicable. The strategies are listed here but not responded to, although it should be noted that the site can (if required) achieve a BAL-12.5 construction standard throughout the development area in accordance with these strategies.

Directing population growth and development to low risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).

Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.

Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.

Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reduce bushfire risk overall.

Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction.

Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.

Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under AS 3959-2009'.

7.4 Areas of high biodiversity conservation value

Ensure settlement growth and development approvals can implement bushfire protection measures without unacceptable biodiversity impacts by discouraging settlement growth and development in bushfire affected areas that are of high biodiversity conservation value.

Terramatrix is not aware of any biodiversity impacts associated with the proposal. The site has a history of agricultural use with limited remnant vegetation and there is significant weed infestation present.

7.5 Use and development control in a Bushfire Prone Area

Clause 13.02-1S requires that '*In a bushfire prone area designated in accordance with regulations made under the Building Act 1993, bushfire risk should be considered when assessing planning applications for the following uses and development:*

- *Subdivisions of more than 10 lots.*

- *Accommodation.*
- *Child care centres.*
- *Education centres.*
- *Emergency services facilities.*
- *Hospitals.*
- *Indoor recreation facilities.*
- *Major sports and recreation facilities.*
- *Places of assembly.*
- *Any application for development that will result in people congregating in large numbers'* (Moorabool Planning Scheme).

It further states that:
'When assessing a planning permit application for the above uses and development:

- *Consider the risk of bushfire to people, property and community infrastructure.*
- *Require the implementation of appropriate bushfire protection measures to address the identified bushfire risk.*
- *Ensure new development can implement bushfire protection measures without unacceptable biodiversity impacts'* (Moorabool Planning Scheme).

Future development applications should be able to achieve acceptable safety if:

- Appropriate setbacks for future development from classified vegetation are achieved to enable BAL-12.5 construction in the BPA;
- Class 9 buildings are developed in accordance with Specification 43 of the NCC 2022 as applicable;
- Adequate access and egress for emergency management vehicles is provided by a residential road network to assist property defence and fire fighting; and
- A reliable water supply for fire fighting is provided, via a conventional reticulated hydrant system, in accordance with the hydrant objective for residential subdivision (where applicable) at Clause 56.09-3.

8 Conclusion

The proposed development plan for the rezoning and subdivision at Lot A PS821090 Werribee Vale Road, Bacchus Marsh VIC 3340 was assessed for compliance with Clause 13.02-1S of the Moorabool Planning Scheme, the AS 3959-2018 methodology invoked by the Victorian building regulations, and additional guidance provided in *Planning Practice Note 64 Local planning for bushfire protection* (DEWLP, 2015), *Planning Advisory Note 68 Bushfire State Planning Policy Amendment VC140* (DEWLP, 2018a) and, in relation to the landscape hazard assessment, the DELWP technical guide *Planning Permit Applications Bushfire Management Overlay* (DELWP, 2017).

Most of the site is currently a designated BPA; however, no part of the site or land within 4.3km around it is covered by the BMO.

The type and extent of (hazardous) vegetation within, and up to 100m around the site, has been identified and classified into AS 3959-2018 vegetation groups, based on DELWP extant EVC mapping, aerial imagery and site investigation. The classification is based on the current state of the vegetation and identifies that the hazard is a mix of vegetation types largely associated with the Werribee River and the nearby escarpments, which is likely a permanent hazard as it will not be removed by future urban development.

The terrain in the site and the immediately surrounding landscape is benign from a bushfire perspective, being predominantly at the base of the Werribee Vale Road valley with land rising in all directions around it. For the purposes of determining BALs and vegetation setback distances for future buildings, the applicable slope class is 'All upslopes and flat land'.

The landscape is one of low-moderate bushfire risk, however the hazard is likely to remain in perpetuity and only parts of the site are likely to become eligible for excision from the BPA. Bushfire behaviour can reasonably be expected to be well within AS 3959-2018 presumptions and design parameters. Accordingly, it is considered that the risk can be mitigated to an acceptable level and the development can appropriately prioritise the protection of human life, if dwellings (and any other buildings that require a BAL, including Class 9 buildings that must respond to Specification 43 of the NCC 2022) are separated from hazardous vegetation to allow BAL-12.5 construction. This would require buildings to be setback the distances listed at Table 5 and shown on Map 4 for a BAL-12.5 construction standard.

Good access and egress for emergency management vehicles and residents, in the event of a bushfire, can be achieved via a conventional urban-residential road network. A reliable water supply for fire fighting can be provided via a conventional reticulated hydrant system in accordance with the hydrant objective for residential subdivision (where applicable).

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