BUSHFIRE RISK ASSESSMENT - RESPONSE TO CLAUSE 13.02-1S – 25 CRESSY ROAD, WINCHELSEA

REF: 2021-111

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South Coast Bushfire Consultants

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Requirements detailed in this document do not guarantee survival of the buildings or the occupants. The client is strongly encouraged to develop and practice a bushfire survival plan.

Information and assistance including a template for a Bushfire Survival Plan is provided as part of the 'Fire Ready Kit' available through the CFA website at http://www.cfa.vic.gov.au or through your local CFA Regional office.

Conditions of Use

Contents

DEFINITIONS, ABBREVIATIONS AND ACRONYMS 5

1. EXECUTIVE SUMMARY 6

2. SUMMARY 7

3. SCOPE OF THE REPORT 9

4. METHODOLOGY 9

5. LEGISLATIVE CONTROLS AFFECTING THE DEVELOPMENT 10
5.1 Planning controls 10
5.2 Building Controls 11

6. BUSHFIRE HAZARD IDENTIFICATION AND ASSESSMENT 12
6.1 Vegetation in the Surrounding Landscape 12
6.2 Potential Fire Runs 12
6.3 Mitigating Features within the surrounding landscape 12
6.4 Bushfire History of the Area 13
6.4.1 Map 3 – Bushfire History of the surrounding area 13
6.5 Potential Fire Behavior 14
6.6 Map 4 – Bushfire Hazard Landscape Assessment 16
6.7 Map 5 - Bushfire Hazard Site Assessment – 1km Assessment Zone 17
6.8 Map 6 – Bushfire Hazard Site Assessment – 400m Assessment Zone 18

7. BUSHFIRE HAZARD SITE ASSESSMENT 19
7.1 Site Details 19
7.2 Vegetation 20
7.3 Topography 23
7.3.1 Map 7 – Topography of the site. 23
7.4 Bushfire Attack Level (BAL) for the proposed developments 24
7.5 Map 8 – Bushfire Attack Level (BAL) Assessment – 100m Assessment Zone 25

8. RESPONSE TO CLAUSE 13.02-1S – BUSHFIRE PLANNING 26
8.1 Policy Application 26
8.2 Objective 26
8.3 Strategies: Protection of human life 26
8.4 Strategies: Bushfire Hazard Identification and Assessment 27
8.5 Strategies: Settlement Planning 28
8.6 Strategies: Areas of biodiversity conservation value 30
8.7 Use and development control in a Bushfire Prone Area 30
8.8 Policy Guidelines 31
8.9 Policy Documents 31

9. EMERGENCY MANAGEMENT PLANNING 32

10. REFERENCES 33

11. APPENDICES 34
11.1 Appendix 1 – The definition of 'Low Threat Vegetation'. 34

DEFINITIONS, ABBREVIATIONS AND ACRONYMS

AS 3959-2018	Australian Standard AS 3959 -2018 Construction of buildings in bushfire-prone areas
CFA	Country Fire Authority
Clause	A clause is a provision in the planning scheme
Clause 44.06	Bushfire Management Overlay
Clause 53.02	Planning for Bushfire
Clause 13.02-1S	Environmental Risk – Bushfire
DELWP	Department of Environment, Land, Water and Planning
BAL	Bushfire Attack Level
BPA	Bushfire Prone Area
BMO	Bushfire Management Overlay
BMS	Bushfire Management Statement
Method 1	refers to methodology in AS 3959-2018 for determining a BAL with a number of predetermined inputs
Method 2	refers to methodology in AS 3959-2018 for determining a site specific BAL
Pathway 1	refers to an application pathway in Clause 53.02 of the planning scheme
Pathway 2	refers to an application pathway in Clause 53.02 of the planning scheme
Planning Practice Note	a guide for using various sections of the planning scheme prepared by DELWP
RA	Responsible Authority
SCBC	South Coast Bushfire Consultants
Total Fire Ban Day	is declared by CFA on days when fires are likely to spread rapidly and could be difficult to control

Bushfire Risk Assessment - Response to Clause 13.02-1S – 25 Cressy Road, Winchelsea

1. EXECUTIVE SUMMARY

This report has been prepared to accompany a planning permit application at 25 Cressy Road, Winchelsea. The proposal seeks to rezone the existing Farming Zone (FZ) to Industrial 1 Zone (IN1Z) and subdivide the site for industrial lots.

The site is within a Bushfire Prone Area (BPA) of the state and as such all development needs to demonstrate that it meets the objective of *Clause 13.02-1S Bushfire Planning*. The objective of *Clause 13.02-1S* is 'to strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life'.

The proposed subdivision is within a landscape at a low risk from bushfire. The dominant bushfire hazard to the site is from grasslands on surrounding farming properties.

The industrial lots will not be used for accommodation; however, the lots are used as places of work and thus bushfire risk is required to be considered.

The proposed development is not within the Bushfire Management Overlay (BMO).

The bushfire hazards in the surrounding landscape can be managed and the intended use of the land for industrial subdivision is deemed appropriate given the surrounding bushfire hazards. The proposed development can mitigate the bushfire hazards and provide adequate separation from the surrounding hazards, meeting the life safety objectives detailed in Clause 13.02-1S.

2. SUMMARY

The following details the proposed development, the assessment methodology and the proposed bushfire mitigation measures.

Application	A combined planning scheme amendment to rezone and subdivide land at 25 Cressy Road, Winchelsea for an industrial estate.
Construction Standard	The National Construction Code (NCC) does not require commercial buildings to be constructed in accordance with AS 3959-2018.
Perimeter Fence – to the West	The western interface of the development is recognized as the most exposed aspect and a steel fence is proposed along the western aspect of the subdivision. The fence will add an increased mitigation measure to the proposed development. The steel fence will provide a radiant heat shield from the neighouring grassland.
Bushfire Landscape Risk	The broader landscape shows the dominant hazard in the surrounding landscape is grassland vegetation. Due to the benign topography, limited fuel (vegetation), adjacent railway line and the extent of roads within the surrounding landscape the bushfire landscape risk is low.
Government Road Reserves	The property has a government road reserve to the southern and western boundaries. The property owner has a current lease on the road reserves and thus can ensure that the land is continued to be managed to a low threat condition. A made road is proposed along the western interface of the development.
Assumptions	The BAL has been determined using a method 1 assessment from AS 3959-2018 that measures the radiant heat from unmanaged vegetation within a 100m assessment zone. In undertaking the assessment, the following assumptions have been made: 1. The land owner will continue to manage the government road reserves to a low threat condition in accordance with AS 3959-2018 (see appendix 11.1). 2. All vegetation within the site will be managed to a low threat condition in accordance with AS 3959-2018 (see appendix 11.1).
Bushfire Site Assessment (Bushfire Attack Level) BAL	The BAL for the site has been determined based on the distance from the property boundary to the unmanaged grassland vegetation in accordance with a method 1 assessment from AS 3959-2018. The site can meet setbacks for a BAL 12.5.

Protection of Human Life	The site can meet the objectives of Clause 13.02-1S in protection of human life.
Vegetation Management within the site	It is recommended that all landscaping within the site is managed as 'low threat vegetation' in accordance with AS 3959-2018 (see Appendix 11.1 for definition).
Setback Distances	The road reserves enable a 20m managed strip of vegetation to be managed to the southern and western boundaries. The northern boundary adjoins Cressy Road which also enables a setback distance of 20m. The surrounding topography is flat and a 20m setback to all aspects ensures that radiant heat exposures do not exceed 12.5kW/m^2, as per the objectives of Clause 13.02-1S.
Access	In accordance with the CFA recommendations the following access requirements can be met: • Roads must be constructed to a standard so that they are accessible in all weather conditions and capable of accommodating a vehicle of 15 tonnes for the trafficable road width. • The average grade must be no more than 1 in 7 (14.4%) (8.1 degrees) with a maximum of no more than 1 in 5 (20%) (11.3 degrees) for no more than 50 meters. Dips must have no more than a 1 in 8 (12%) (7.1 degree) entry and exit angle. • Curves must have a minimum inner radius of 10 metres. Have a minimum trafficable width of 3.5 metres and be clear of encroachments for at least 0.5 metres on each side and 4 metres above the access way. • Roads more than 60m in length from the nearest intersection must have a turning circle with a minimum radius of 8m (including roll-over kerbs if they are provided) T or Y heads of dimensions specified by CFA may be used as alternatives.
Hydrant	In accordance with the CFA the site must have Hydrants installed within the site that meet the following requirements: • Above or below ground operable hydrants must be provided. The maximum distance between these hydrants and the rear of all building envelopes (or in the absence of building envelopes, the rear of the lots) must be 90 metres and the hydrants must be no more than 120 metres apart. These distances must be measured around lot boundaries. • The hydrants must be identified with marker posts and road reflectors as applicable to the satisfaction of the Country Fire Authority.

3. SCOPE OF THE REPORT

This assessment has been prepared to demonstrate that the proposed development has regard for the surrounding bushfire hazards. The associated legislative requirements affecting the site have been identified and address.

The report considers the existing use of the site and how the proposed industrial subdivision can demonstrate compliance with the objectives of Clause 13.02-1S.

4. METHODOLOGY

The methodology used to prepare a holistic approach to assessing and mitigation the bushfire risk to the development includes the following:

- Legislative Controls Affecting the Development
- Bushfire Hazard Landscape Assessment
- Bushfire Hazard Site Assessment
- A Bushfire Attack Level (BAL) Assessment
- Vegetation Management within the site
- Response to Clause 13.02-1S

5. LEGISLATIVE CONTROLS AFFECTING THE DEVELOPMENT

The site is affected by planning, building and legislative controls.

5.1 Planning controls

Table 1 – Planning Clauses affecting the site

Clause Number	Name	Detail
State Planning Policy Framework		
13.02-1S	***Bushfire planning***	*Objective - To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.* *This policy must be applied to all planning and decision making relating to land which is:* • *Within a designated bushfire prone area;* • *Subject to a Bushfire Management Overlay; or* • *Proposed to be used or developed in a way that may create a bushfire hazard.* *The subject site is within a designated Bushfire Prone Area and therefore the policy applies.*
Existing Planning Zone:		
35.07	***Farming Zone (FZ)*** ***Schedule***	*To implement the Municipal Planning Strategy and the Planning Policy Framework. To provide for the use of land for agriculture.*
Proposed Planning Zone:		
33.01	***Industrial 1 Zone***	*To implement the Municipal Planning Strategy and the Planning Policy Framework. To provide for manufacturing industry, the storage and distribution of goods and associated uses in a manner which does not affect the safety and amenity of local communities.*
Planning Overlays:		
NIL		

5.2 Building Controls

All building work must comply with the Building Act 1993, Building Regulations 2006 and the

The NCC is a performance-based document and it sets out the minimum criteria which defines how buildings must perform to meet the objectives and functional statements. The NCC calls upon the *Australian Standard AS 3959–2018 Construction of Buildings in Bushfire Prone Areas* for Class1, 2 and 3 buildings and associated Class 10a (e.g. deck) building works.

The construction of a commercial building such as those within an industrial subdivision are not Class 1,2 or 3 buildings and are not required to be constructed in accordance with AS 3959-2018.

Although the buildings are not required to be construction in accordance with AS 3959-2018, commercial buildings are generally by default constructed from non-combustible materials such as steel sheds and concrete tilt panel construction.

6. BUSHFIRE HAZARD IDENTIFICATION AND ASSESSMENT

The landscape assessment is important to consider as it defines the context of site assessment. The Bushfire Hazard Landscape Assessment has identified risks in the surrounding landscape and has considered the assessment of bushfire hazards on the basis of:

- Landscape conditions – meaning conditions in the landscape up to 75 kilometers from a site;
- Local conditions – meaning conditions in the area within approximately 1km of a site;
- Neighbourhood conditions – meaning conditions in the area within 400m of a site; and
- The site for the development.

6.1 Vegetation in the Surrounding Landscape

The development site is located on the western edge of the Winchelsea township.

North, west and south of Cressy Road are large expanses of farmland that would enable grassland fire fronts. The surrounding landscape has a number of transecting roads throughout the farmland and the topography would not enhance a bushfires intensity in the surrounding landscape.

The Winchelsea township is located to the east of the proposed development and would mitigate impacts from the east.

South west of the site is the is the Winchelsea Golf Course and a combination of the low density and medium density residential development that would create a buffer from the south east.

The Barwon River runs through the middle of the township and is lined with trees. The trees do not have a density that would influence the intensity or severity of a landscape bushfire.

6.2 Potential Fire Runs

Long fire runs through grassland are possible in the surrounding landscape. The access roads throughout the landscape allow for a fire fighting response, however, under extreme conditions this will be limited.

6.3 Mitigating Features within the surrounding landscape

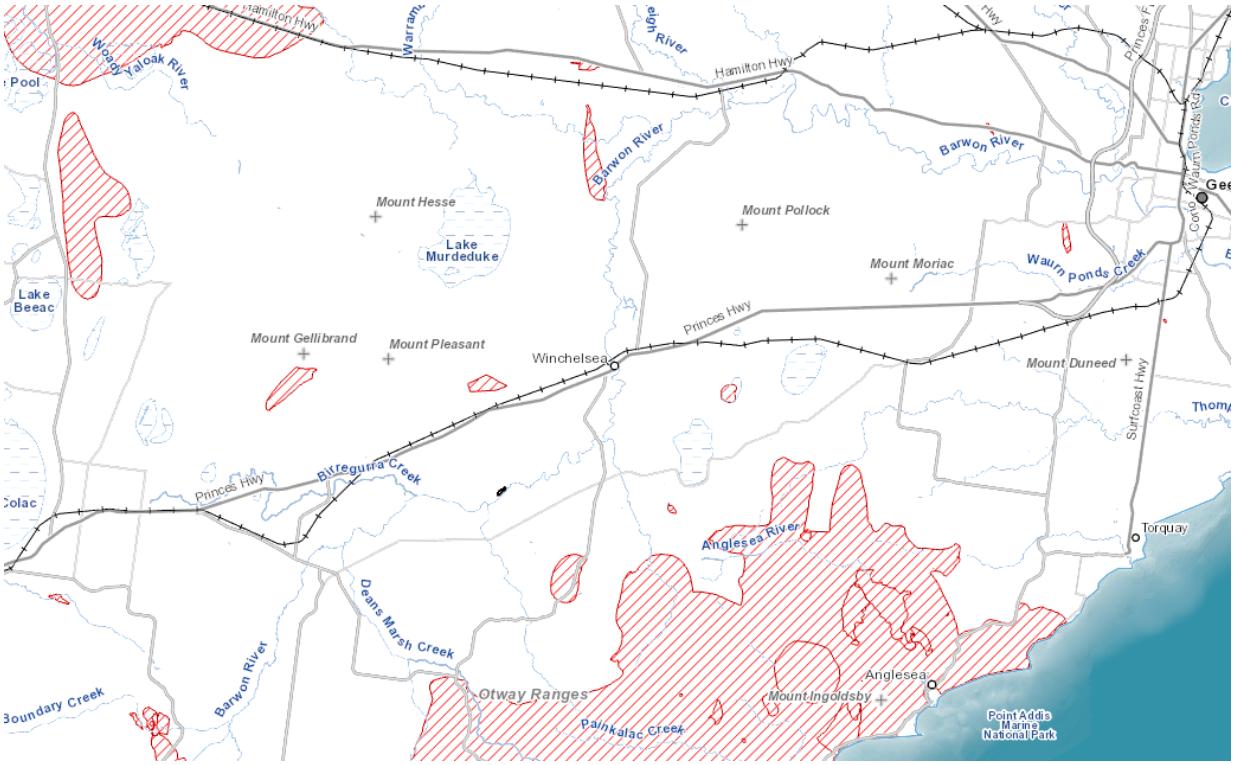
There are a number of features within the surrounding landscape that would aid in suppression of a landscape grassfire. They include the following:

- The surrounding landscape includes areas of high density and low-density residential development. These areas will have significantly modified areas of vegetation that should prevent a grassfire from spreading from the east and southeast.
- The network of roads with the surrounding landscape is excellent and would contribute positively to suppression efforts.
- The Princess Highway is located to the southwest and provides a large open area void of vegetation to enable suppression efforts.
- The rail line is located to the south of the site and there are requirements for the edges of the rail line to be maintained during the fire danger period.
- The site is surrounded by a road reserve and the landowner has a current license to manage the road reserves.
- West of the site is a grain storage facility. The facility has a current planning permit, and the site is managed to a low threat condition.

6.4 Bushfire History of the Area

The map below (Map 3) sourced from NatureKit shows bushfires within the surrounding landscape since 1970. This map shows a number of small fires in the surrounding grassland and the large Ash Wednesday Bushfire footprint to the south in the Otway Ranges.

6.4.1 Map 3 – Bushfire History of the surrounding area



6.5 Potential Fire Behavior

Bushfire behavior is influenced by three key factors; climate, topography and fuel availability. The landscape surrounding the site is dominated by grassland fuel loads and the topography of the landscape is undulating.

Table 3 – Bushfire attack mechanisms and appropriate inputs for models.

	Standard Assessment Inputs and Considerations	**Risk Based Assessment Inputs and Considerations**
Consideration of all bushfire mechanisms:	The AS 3959-2018 methodology assumes that distance to classification determines the radiant heat exposure and associated BAL. The BAL determines the construction standard. The higher the BAL the greater a developments resilience to bushfire. AS 3959-2018 does not have any regard for convective heat or bushfire induced winds.	Consider and assess each bushfire attack mechanism independently considering the unique specifics of the site. The bushfire attack mechanisms to be assessed include: • Radiant Heat Exposure • Convective Heat Exposure • Ember Attack • Bushfire Induced Winds.
Analysis of the bushfire model inputs:	**Forest Fire Danger Index (FFDI)** The FFDI is used nationally as a measure for fire weather. It uses the drought factor (seasonal dryness), relative humidity, temperature and wind speed to establish the fire weather severity. The BMO and AS 3959-2018 assumes an FFDI of 100.	The assessment has assumed an FFDI of 100 as it is the state-based assumption.
	Flame Temperature The BMO and AS 3959-2018 assumes a flame temperature of 1090K.	Use the state-based assumption.
	Fuel Loads In AS 3959-2018 assumes fuel loads within grasslands.	The assumed fuel loads within AS 3959-2018 are deemed appropriate.

Table 4 – Bushfire Attack Mechanisms

Attack Mechanism	Sites Risk and Response
Radiant Heat Exposure	The site will be managed to ensure radiant heat levels do not exceed 12.5 kW/m^2.
Convective Heat Exposure	The landscape does not have the topography or fuel loads to enable the formation of convection columns.
Ember Attack	Ember attack is not likely to have a large influence as there are a limited number of eucalypt tree species within the surrounding landscape.
Bushfire Induced Winds	The development is not likely to be impacted by bushfire induced winds due to the density of development surrounding the site and the surrounding topography.

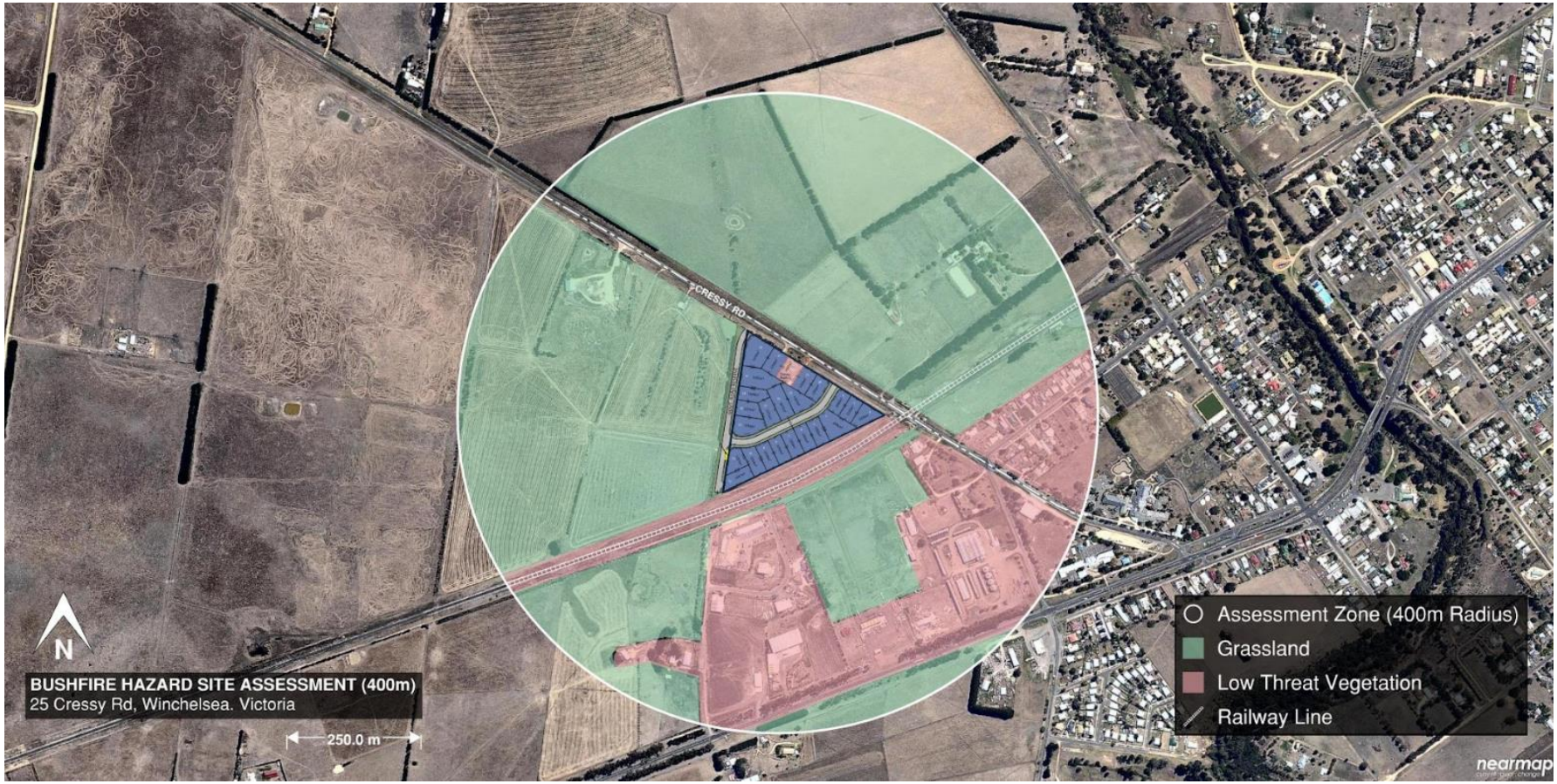
6.6 Map 4 – Bushfire Hazard Landscape Assessment

The broader landscape shows the dominant hazard in the surrounding landscape is grassland vegetation. The township area of Geelong is located to the north east. The map shows the site has significant separation from any large areas of unmanged forest vegetation.

6.7 Map 5 - Bushfire Hazard Site Assessment – 1km Assessment Zone

The 1km assessment zone shows the extent of development in the surrounding landscape. The proposed development site is surrounded by grassland hazards to the north, west and south.

6.8 Map 6 – Bushfire Hazard Site Assessment – 400m Assessment Zone



The 400m assessment zone shows the impact that the rail line to the south and Cressy Road to the north play in mitigating grassland hazards to the site. The land to the south is also proposed to be developed into a future industrial estate 'Growing Wichelsea Shaping Future Growth 2015'.

7. BUSHFIRE HAZARD SITE ASSESSMENT

The Bushfire Hazard Site Assessment includes a plan that describes the bushfire hazard within 150 meters of proposed development. The description of the hazard is prepared in accordance with AS 3959-2018 Construction of buildings in bushfire prone areas (Standards Australia) excluding paragraph (a) of section 2.2.3.2 (Vegetation Exclusions).

7.1 Site Details

Address:	25 Cressy Road, Winchelsea
Parcel	The property has 9 parcels
Council Property Number	187007
Municipality:	Greater Geelong
BMO Schedule:	N/A
Existing Dwellings:	Existing buildings on future lot number 14
	Existing dwelling on future lot number 20
Private Bushfire Shelter:	N/A
Melways Reference:	VicRoads 525 L2

7.2 Vegetation

The vegetation within the 100 metre assessment area was classified according to method 1 in AS 3959-2018 for the purposes of this assessment.

The method 1 assessment in AS 3959-2018 uses a generalised description of vegetation based on the AUSLIG (Australian Natural Resources Atlas: No.7 Native Vegetation) classification system. According to this method, vegetation can be classified into seven categories. Each category indicates a particular type of fire behavior and these categories or classifications are then used to determine bushfire intensity.

Table 6 – Vegetation Assessment

Vegetation Classification	Vegetation Type (AS 3959-2018 Description)	Site Description
Grassland	***Open Woodland/Low Open Woodland/Open Shrubland/Low Open Shrubland/Hummock Grassland/Closed Tussock Grassland/Tussock Grassland/Open Tussock/Sparse Open Tussock/Dense Sown Pasture/Sown Pasture/Open Herbfield/Spare Open Herbfield:*** *All forms (expect tussock, moorlands), including situations with shrubs and trees, if the overstorey foliage cover is less than 10%. Includes pasture and cropland.*	The farming land surrounding the site is classified as grassland. The hazard level of the surrounding farmland is dependent on the life stage of the crop and the extent of curing (dryness). Figure 1 – Grassland to the east of the site at the interface of the residential development. 

		Figure 2 – Grassland to the north in open farmland. 
Low Threat	*The following vegetation shall be excluded from a BAL assessment:* *(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.* *(c) Multiple areas of vegetation less than 0.25ha in area and not within 20m of the site, or each other of other areas of vegetation being classified vegetation.* *(d) Strips of vegetation less than 20m in width (measured perpendicular to the evaluation exposed to the strip of vegetation) regardless*	There is a significant amount of land to the south and east managed to a low threat condition. This includes land used for residential purposes and for industrial / farming purposes such as grain storage and machinery depots.

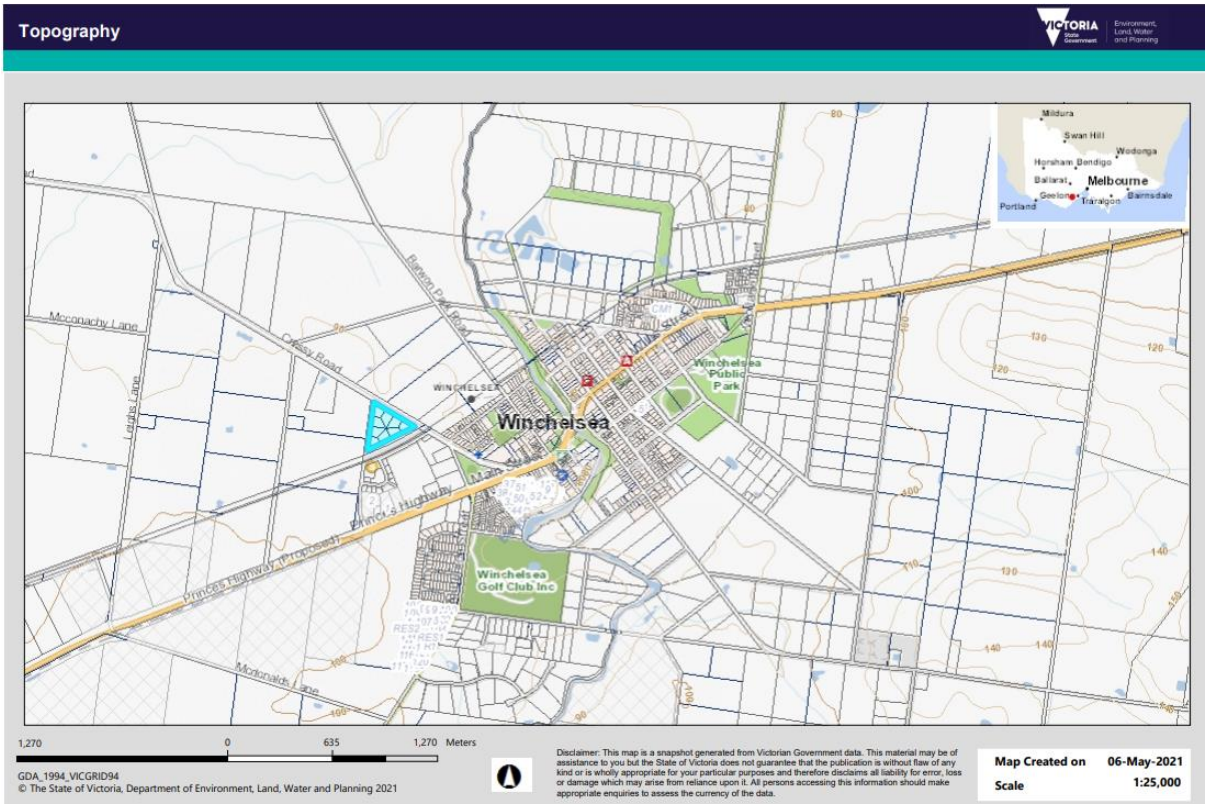
	of length and not within 20m of the site or each other, or other areas of vegetation being classified. *(e) Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.* *(f) Vegetation regarded as low threat due to factors such flammability, moisture content or fuel load. 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, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.*	

7.3 Topography

Topography of the land surrounding a site is particularly important as the topography influences the rate of spread and intensity of a fire. Fire burns faster uphill, as the slope increases so does the speed of the fire and its intensity. As a general rule for every increase 10˚ up a slope, the fire will double its speed and conversely down a slope. Fires tend to move more slowly as the slope decreases.

The topography of the surrounding landscape has gentle undulations and would not influence the intensity of a landscape bushfire.

7.3.1 Map 7 – Topography of the site.



7.4 Bushfire Attack Level (BAL) for the proposed developments

The bushfire attack level (BAL) is a means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kilowatts per meter squared, and the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire.

The BAL for this site has been calculated to assess the radiant heat exposure to the site. The BAL inputs include a 'Forest Fire Danger Index' (FFDI) of 100 and a Flame Temperature of 1090K.

The BAL assessment is inputs are detailed in Table 7 below and on Map 8.

The BAL has been undertaken based on the assumption that the government road reserves will be cropped to ensure fire hazards are managed to a low threat condition. This is reasonable to assume as the land owner has a current lease to manage the Government road reserves. The road reserves are approximately 20m in width and would enable setbacks for a BAL of 12.5 to all aspects.

It is important to note that the 'recommended' setbacks will provide future development with the assurance of a low radiant heat exposure. The recommended setback is consistent with the recommended setbacks for outbuildings from the Bushfire Management Overlay (BMO) Clause 44.06. A reduced setback would not increase the radiant heat exposure to the proposed development if the government road reserves are continued to be managed.

Table 7 – BAL for the development.

Orientation	Highest threat vegetation	Slope under classifiable vegetation	Distance to unmanaged vegetation from the property boundary.	Recommended Setback Distance (includes areas within the managed road reserves)	Bushfire Attack Level (BAL)
North	Grassland	Flat	32m	19m	12.5
East	Grassland	Flat	60m	19m	12.5
South	Grassland	Flat	20m	19m	12.5
West	Grassland	Flat	20m	19m	12.5

7.5 Map 8 – Bushfire Attack Level (BAL) Assessment – 100m Assessment Zone

8. RESPONSE TO CLAUSE 13.02-1S – BUSHFIRE PLANNING

8.1 Policy Application

Clause 13.02-1S must be applied to all planning and decision making under the Planning and Environment Act 1987 relating to land that is:

- *Within a designated bushfire prone area,*
- *Subject to a Bushfire Management Overlay, or*
- *Proposed to be used or developed in a way that may create a bushfire hazard.*

8.2 Objective

To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.

8.3 Strategies: Protection of human life

Give priority to the protection of human life by:

Strategy	Consideration
Prioritising the protection of human life over all other policy considerations.	The bushfire risks to the site have been considered at the re-zoning and subdivision stage of the development. The site is not in a landscape at a high risk from bushfire and central areas of the site can provide areas exposed to low levels of radiant heat.
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 proposed development is not associated with population growth. The proposed development will extend the existing township boundary and a number of bushfire mitigation measures have been proposed to mitigate the surrounding bushfire hazards. The mitigation measures include the management of the surrounding road reserves to a low threat condition and to install a boundary fence (constructed from steel) along the western boundary of the site. The bushfire risk to the site is considered low. The site is located in a growing township. Areas to the north, south and west are proposed to be used for non-residential use in accordance with the document 'Growing Winchelsea Shaping Future Growth 2015'.

	The proposed development can adequately mitigate the surrounding hazards to protect human life.
Reducing the vulnerability of communities to bushfire through the consideration of bushfire risk in decision making at all stages of the planning process.	The bushfire risk of the proposed site is being considered at the rezoning and permit stage. The appropriate development of this site will reduce the grassland hazards on the western interface of the township, ultimately reducing the vulnerability of the Winchelsea township from a grassfire attack from the west.

8.4 Strategies: Bushfire Hazard Identification and Assessment

Identify bushfire hazard and undertake appropriate risk assessment by:

Strategy	Consideration
Applying the best available science to identify vegetation, topographic and climatic conditions that create a bushfire hazard	The best available science has been applied to this application.
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 site is within the Bushfire Prone Area of the state.
Applying the Bushfire Management Overlay in planning schemes to areas where the extent of vegetation can create an extreme bushfire hazard	The BMO is not applied to the site.
Considering and assessing the bushfire hazard on the basis of: • ***Landscape conditions – meaning conditions in the landscape within 20 km (and potentially up to 75km) of a site.*** • ***Local conditions – meaning conditions in the area within approximately 1km of a site.*** • ***Neighbourhood conditions – meaning conditions in the area within 400m of a site.*** • ***The site for the development.***	Section 5, 6 and 7 of this report address the landscape, local and neighborhood conditions.

Consulting with emergency management agencies and the relevant fire authority early in the process to receive their recommendations and implement appropriate bushfire protection measures.	Emergency services have been consulted. The CFA raised concerns about the extension of the township boundary and the strategic fire breaks associated with the protection of the township. The site is at the northwestern interface of the township, there is a perimeter road to the northern and western aspect. The site is triangular and there is a government road reserve along the western and southern boundaries. Further to discussions with the CFA the applicant has been able to provide proof of current licenses that allow the management of these road reserves. The subdivision design now includes a managed road along the western boundary. The neighouring property to the west is currently used as a grain storage facility and has a current planning permit for this use. The property is managed to a low threat condition.
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.	The application includes appropriate bushfire protection measures, including: 1. The western interface will be a constructed road with managed road reserves between the road and the development. 2. The construction of a steel boundary fence to the western aspect. 3. Management of all vegetation within the subdivision to a low threat condition.
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.	The site is surrounded by grassland vegetation and the hazards can be appropriately managed. The bushfire risk to the site can be adequately implemented.

8.5 Strategies: Settlement Planning

Plan to strengthen the resilience of settlements and communities and prioritise protection of human life by:

Strategy	Consideration

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 3959-2018 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2018).	The development is not associated with population growth. The development will not be exposed to radiant heat levels that exceed 12.5kW/m^2 as demonstrated in the BAL assessment in section 6 of this report.
Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2018 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.	The central areas of the site greater than 50m from the grassland hazards are exposed to a BAL Low in accordance with AS 3959-2018.
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.	The proposed development will not increase the risk to future residence, property, or community infrastructure. The management of grassland within the site will enhance the protection of surrounding sites.
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 reducing bushfire risk overall.	There is a net decrease in risk associated with this development.
Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behavior it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction.	The bushfire hazards to the proposed site have been addressed through setback distances associated with AS 3959-2018 and through shielding associated with the construction of a steel boundary fence to the western aspect.
Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.	Not applicable.
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 3959-2018	The site is proposed to be used for industrial purposes. The subdivision is not for a residential development and is not in a landscape at a high risk from bushfire.

Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2018).	The buildings within the site will not be exposed to radiant heat loads greater than 12.5kW/m^2.

8.6 Strategies: Areas of biodiversity conservation value

Strategy	Consideration
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 important areas of biodiversity.	The site is currently used as a grain storage facility and the biodiversity impacts have not been considered as part of this report.

8.7 Use and development control in a Bushfire Prone Area

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 centre.*
- *Education centre.*
- *Emergency services facility.*
- *Hospital.*
- *Indoor recreation facility.*
- *Major sports and recreation facility.*
- *Place of assembly.*

Any application for development that will result in people congregating in large numbers. When assessing a planning permit application for the above uses and development:

Strategy	Consideration
Consider the risk of bushfire to people, property and community infrastructure.	The bushfire risk to people and property has been addressed as part of this application.
Require the implementation of appropriate bushfire protection measures to address the identified bushfire risk.	The proposal includes appropriate bushfire protection from the surrounding hazards.
Ensure new development can implement bushfire protection measures without unacceptable biodiversity impacts.	The biodiversity impacts have not been considered as part of this report.

8.8 Policy Guidelines

Consider as relevant:

- *Any applicable approved state, regional and municipal fire prevention plan.*

8.9 Policy Documents

Consider as relevant:

- *AS 3959-2018 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2018).*
- *Building in bushfire-prone areas – CSIRO and Standards Australia (SAA HB36-1993, 1993)*
- *An bushfire prone area map prepared under the Building Act 1993 or regulations made under the Act.*

9. EMERGENCY MANAGEMENT PLANNING

It is recommended that all future business owners develop individual Bushfire Emergency Management Plans that identify how their sites will be managed during the fire danger period. The plan should include the following:

1. Nominate the representative of the site that is responsible for the oversight of emergency management which includes Bushfire Emergency Management.
2. Site management, including the management of vegetation and the storage of flammable items during the declared fire danger period.
3. Occupancy of the site during Catastrophic and Extreme fire danger days. It is recommended that sites with high exposures to grassfires or bushfires should not be occupied during Catastrophic fire danger days.
4. During all other fire danger ratings occupants should continue to be vigilant regarding their risk to bushfire an it should be recommended that all business owners and staff have the Vic Emergency App downloaded on their phones.
5. Business owners should plan a number of exit routes from the subdivision and nominate an area to shelter in place if evacuation is not considered safe due to smoke impacts.
6. The report should include how management will train staff and when the Bushfire Emergency Management Plan will be tested.

10. REFERENCES

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11. APPENDICES

11.1 Appendix 1 – The definition of 'Low Threat Vegetation'.

There are two different definitions of 'Low Threat' vegetation. One is detailed within the planning scheme (Clause 53.02 Bushfire Planning) and another in AS 3959-2018.

Within the body of this report the surrounding vegetation is assessed in accordance with AS 3959-2018 and the recommended low threat vegetation management within the site is recommended to be managed in accordance with the definition from Clause 53.02 for defendable space.

Low threat vegetation – AS 3959-2018

The definition in AS 3959-2018 includes the following:

(g) *Multiple areas of vegetation less than 0.25ha in area and not within 20m of the site, or each other of other areas of vegetation being classified vegetation.*

(h) *Strips of vegetation less than 20m in width (measured perpendicular to the evaluation 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.*

(i) *Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.*

Vegetation regarded as low threat due to factors such 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, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.

Low threat vegetation (Defendable Space) – Clause 53.02

The definition of 'Low Threat' vegetation is detailed in Clause 53.02 for sites within the Bushfire Management Overlay (BMO). Clause 53.02 refers to areas of low fuel loads around buildings as areas of Defendable Space. The vegetation management criteria of defendable space include 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 3 metres 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 square 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.