Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Planning and Property Information

Approx. Land size: each lot is <500m2

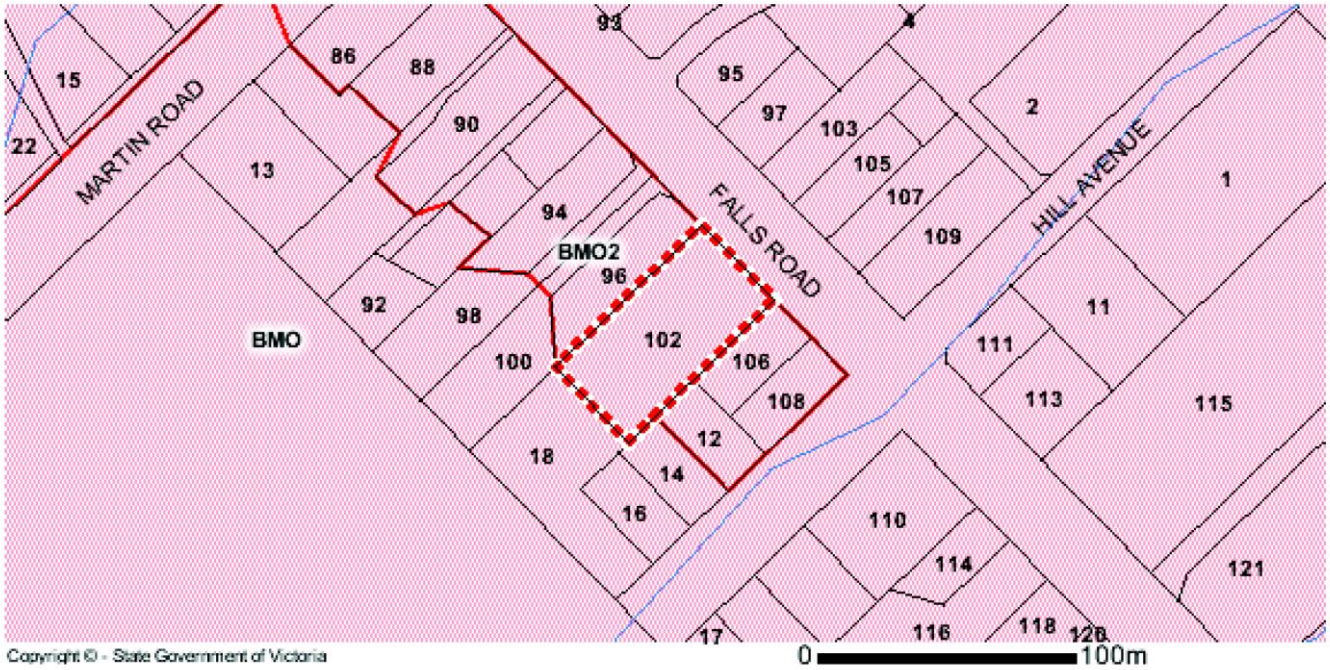
Address: 102 FALLS ROAD MARYSVILLE 3779
Lot and Plan Number: Lot 1 TP135028
Standard Parcel Identifier (SPI): 1\TP135028
Local Government (Council): MURRINDINDI **Council Property Number:** 3336
Directory Reference: VicRoads 680 J11

Planning Zone Summary

Planning Zone: GENERAL RESIDENTIAL ZONE (GRZ)
GENERAL RESIDENTIAL ZONE - SCHEDULE 1 (GRZ1)

Planning Overlays: BUSHFIRE MANAGEMENT OVERLAY (BMO)
BUSHFIRE MANAGEMENT OVERLAY - SCHEDULE 2 (BMO2)
VEGETATION PROTECTION OVERLAY (VPO)
VEGETATION PROTECTION OVERLAY - SCHEDULE 1 (VPO1)

BUSHFIRE MANAGEMENT OVERLAY (BMO)
BUSHFIRE MANAGEMENT OVERLAY - SCHEDULE 2 (BMO2)



Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Management Statement

Pursuant to the *Bushfire Management Overlay; clause 53.02* of the Victorian Planning provisions requires that development is only permitted if the risk to life, property and community infrastructure can be reduced to and acceptable level. Clause 53.02 contains various Objectives, Approved Measure (AM), Alternative Measures (AltM) and Decisions Guidelines.

The following table demonstrates how the requirements have been achieved and complied with:

REQUIREMENTS	*COMPLIANCE*
53.02-3 Dwellings in Existing Settlements – Bushfire Protection objective	
To specify bushfire design and construction measures for a single dwelling or alteration and extension to an existing dwelling that reduces the risk to life and property to an acceptable level.	*Not Applicable*
Approved Measure 1.1	
A building is sited to ensure the site best achieves the following: • The maximum separation distance between the building and the bushfire hazard. • The building is in close proximity to a public road. • Access can be provided to the building for emergency service vehicles.	*Not Applicable* *Not Applicable* *Not Applicable*
Approved Measure 1.2	
A building provides the defendable space in accordance with Columns A, B, C, D or E of Table 1 and Table 6 to Clause 53.02-5. Adjoining land may be included as defendable space where there is a reasonable assurance that the land will remain or continue to be managed in that condition as part of the defendable space. A building is constructed to the bushfire attack level: • That corresponds to the defendable space provided in accordance with Table 1 to Clause 53.02-5, or • The next lower bushfire attack level that corresponds to the defendable space provided in accordance with Table 1 to Clause 53.02-5where all of the following apply: ▪ A private bushfire shelter (a Class 10c building within the meaning of the Building Regulations 2006) is constructed on the same land as the dwelling. ▪ A minimum bushfire attack level of BAL12.5 is provided in all circumstances.	*Not Applicable* *Not Applicable* *Not Applicable*

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Management Statement

Approved Measure 1.3	
A building is provided with: • A static water supply for fire fighting and property protection purposes specified in Table 4 to Clause 52.47-3. The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for fire fighting water supplies. • Vehicle access that is designed and constructed as specified in Table 5 to Clause 52.47-3.	*Not Applicable* *Not Applicable*
53.02-4 Bushfire Protection objectives	
53.02-4.1 Landscape, Siting and Design objectives	
Development is appropriate having regard to the nature of the bushfire risk arising from the surrounding landscape. Development is sited to minimise the risk from bushfire. Development is sited to provide safe access for vehicles, including emergency vehicles. Building design minimises vulnerability to bushfire attack.	*As demonstrated by the compliance with all applicable Approved Measures and/or Alternative Measure it has been shown that this development will reduce the Bushfire risk to an acceptable level.*
Approved Measure 2.1	
The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level.	*It is considered that the fire risk from the wider landscape is no greater than that assumed by AS3959 and therefore adequately dealt with by the VPP defendable space tables* *- Refer to BHLA*
Approved Measure 2.2	
A building is sited to ensure the site best achieves the following: • The maximum separation distance between the building and the bushfire hazard. • The building is in close proximity to a public road. • Access can be provided to the building for emergency service vehicles.	*The site does meet the Defendable Space requirements of the "BMO" when calculated with the relevant VPP Table* *Alternative siting of the buildings would not improve fire protection.* *The buildings are accessible from the road.* *This application will comply with the requirement as contained in* Table 5 to Clause 52.47-3.
Approved Measure 2.3	
A building is designed to be responsive to the landscape risk and reduce the impact of bushfire on the building.	*The building(s) is designed to reduce the accumulation of debris and entry of embers.* *The design of the building to the appropriate BAL level will reduce the risk of entry of embers as far as practical.* *Gutter leaf guards must be fitted to the roof*

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Management Statement

53.02-4.2 Defendable space and construction objectives	
Defendable space and building construction mitigate the effect of flame contact, radiant heat and embers on buildings	*As demonstrated by the compliance with all applicable Approved Measures and/or Alternative Measure it has been shown that this development will reduce the Bushfire risk to an acceptable level.*
Approved Measure 3.1	
A building used for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office or retail premises is provided with defendable space in accordance with: • Table 2 Columns A, B or C and Table 6 to Clause 53.02-5wholly within the title boundaries of the land; or • If there are significant siting constraints, Table 2 Column D and Table 6 to Clause 52.47-3. The building is constructed to the bushfire attack level that corresponds to the defendable space provided in accordance with Table 2 to Clause 52.47-3.	*The site does meet the Defendable Space requirements of the "BMO" when calculated with the relevant VPP Table* *The building(s) will be constructed to* ***BAL-29***
Approved Measure 3.2	
A building used for accommodation (other than a dwelling or dependent person's unit), a child care centre, an education centre, a hospital, leisure and recreation or a place of assembly is: • Provided with defendable space in accordance with Table 3 and Table 6 to Clause 53.02-5wholly within the title boundaries of the land. • Constructed to a bushfire attack level of BAL12.5.	*Not Applicable*
Alternative Measure 3.3	
Adjoining land may be included as defendable space where there is a reasonable assurance that the land will remain or continue to be managed in that condition as part of the defendable space.	*The site does meet the Defendable Space requirements of the "BMO" when calculated with the relevant VPP Table and taking into account the defendable space provided by the local cleared residential area and adjacent roads.* *As a highly cleared residential area there is reasonable assurance that the adjoining land will remain or continue to be managed as a low threat environment*
Alternative Measure 3.4	
Defendable space and the bushfire attack level is determined using Method 2 of AS3959:2009 Construction of buildings in bushfire prone areas (Standards Australia) subject to any guidance published by the relevant fire authority.	*Not Applicable*

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Management Statement

Alternative Measure 3.5	
A building used for a dwelling (including an extension or alteration to a dwelling) may provide defendable space to the property boundary where it can be demonstrated that: • The lot has access to urban, township or other areas where: ▪ Protection can be provided from the impact of extreme bushfire behaviour. ▪ Fuel is managed in a minimum fuel condition. ▪ There is sufficient distance or shielding to protect people from direct flame contact or harmful levels of radiant heat. • Less defendable space and a higher construction standard is appropriate having regard to the bushfire hazard landscape assessment. • The dwelling is constructed to a bushfire attack level of BAL FZ. This alternative measure only applies where the requirements of AM 3.1 cannot be met.	*Not Applicable*
Alternative Measure 3.6	
A building used for accommodation (other than a dwelling or dependent person's unit), child care centre, education centre, hospital, leisure and recreation or place of assembly may provide defendable space in accordance with Table 2 Columns A, B or C and Table 6 to Clause 53.02-5where it can be demonstrated that: • An integrated approach to risk management has been adopted that considers: ▪ The characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency. ▪ The intended frequency and nature of occupation. ▪ The effectiveness of proposed emergency management arrangements, including a mechanism to secure implementation. • Less defendable space and a higher construction standard is appropriate having regard to the bushfire hazard landscape assessment.	*Not Applicable*
Other unspecified Alternative Measures	
	Not Applicable

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Management Statement

53.02-4.3 Water supply and access objectives	
A static water supply is provided to assist in protecting property. Vehicle access is designed and constructed to enhance safety in the event of a bushfire.	*As demonstrated by the compliance with all applicable Approved Measures and/or Alternative Measure it has been shown that this development will reduce the Bushfire risk to an acceptable level.*
Approved Measure 4.1	
A building used for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office or retail premises is provided with: • A static water supply for fire fighting and property protection purposes specified in Table 4 to Clause 52.47-3. • Vehicle access that is designed and constructed as specified in Table 5 to Clause 52.47-3. The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for fire fighting water supplies.	*This application will comply with the requirement as contained in* Table 4 to Clause 52.47-3. *A 2,500L (minimum) water tank is position next to each unit for fire fighting purposes.* *This application will comply with the requirement as contained in* Table 5 to Clause 52.47-3. *.*
Approved Measure 4.2	
A building used for accommodation (other than a dwelling or dependent person's unit), child care centre, education centre, hospital, leisure and recreation or place of assembly is provided with: • A static water supply for fire fighting and property protection purposes of 10,000 litres per 1,500 square metres of floor space up to 40,000 litres. • Vehicle access that is designed and constructed as specified in Table 5 to Clause 52.47-3. • An integrated approach to risk management that ensures the water supply and access arrangements will be effective based on the characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency. The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for fire fighting water supplies.	*Not Applicable*
Other unspecified Alternative Measures	
	In regards to Water Supply the site is midway between two street hydrants and therefore does not have a hydrant available within 120m of the rear lot. As an Unspecified Alternative Measure we will create our own mains pressure compliant hydrant with a CFA fitting onsite. Therefore each lot being less than 500m2 will have a 2,500 litre steel fire fighting water tank.

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Management Statement

53.02-4.4 Subdivision objectives	
To provide lots that are capable of being developed in accordance with the objectives of Clause 53.02. To specify at the subdivision stage bushfire protection measures to develop a lot with a single dwelling on land zoned for residential or rural residential purposes	*Not Applicable*
Approved Measure 5.1	
An application to subdivide land, other than where AM 5.2 applies, demonstrates that each proposed lot is capable of meeting: • The defendable space in accordance with Table 2 Columns A, B or C and Table 6 to Clause 52.47-3. • The approved measures in Clause 52.47-2.1 and Clause 52.47-2.3.	*Not Applicable*
Approved Measure 5.2	
An application to subdivide land zoned for residential or rural residential purposes must be accompanied by a plan that shows: • Each Lot satisfies the approved measure in AM 2.1 • A building envelope for a single dwelling on each lot that complies with AM 2.2 and provides defendable space in accordance with: ▪ Columns A or B of Table 2 to Clause 53.02-5for a subdivision that creates 10 or more lots; or ▪ Columns A, B or C of Table 2 to Clause 53.02-5for a subdivision that creates less than 10 lots. • The bushfire attack level that corresponds to the defendable space provided in accordance with Table 2 to Clause 53.02-5must be noted on the building envelope • Defendable space wholly contained within the boundaries of the proposed subdivision. Defendable space may be shared between lots within the subdivision. Defendable space for a lot may utilse communal areas, such as roads, where that land can meet the requirements for defendable space. • Vegetation management requirements in accordance with Table 6 to implement and maintain the defendable space required under this approved measure. • Water supply and vehicle access that complies with AM 4.1.	*Not Applicable*

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Management Statement

Approved Measure 5.3	
An application to subdivide land to create 10 or more lots provides a perimeter road adjoining the hazardous vegetation to support fire fighting.	*Not Applicable*
Approved Measure 5.4	
A subdivision manages the bushfire risk to future development from existing or proposed landscaping, public open space and communal areas.	*Not Applicable*
Alternative Measure 5.5	
A building envelope for a subdivision that creates 10 or more lots required under AM 5.2 may show defendable space in accordance with Table 2 Column C and Table 6 to Clause 53.02-5where it can be demonstrated that: • All other requirements of AM 5.2 have been met. • Less defendable space and a higher construction standard is appropriate having regard to the bushfire hazard landscape assessment.	*Not Applicable*
Other unspecified Alternative Measures	
	Not Applicable

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Site Photographs

≈ North-East of proposed works

≈ South-East of proposed works

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Site Photographs

≈ South-West of proposed works

≈ North-West of proposed works

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Site Photographs

≈ South-West of proposed works

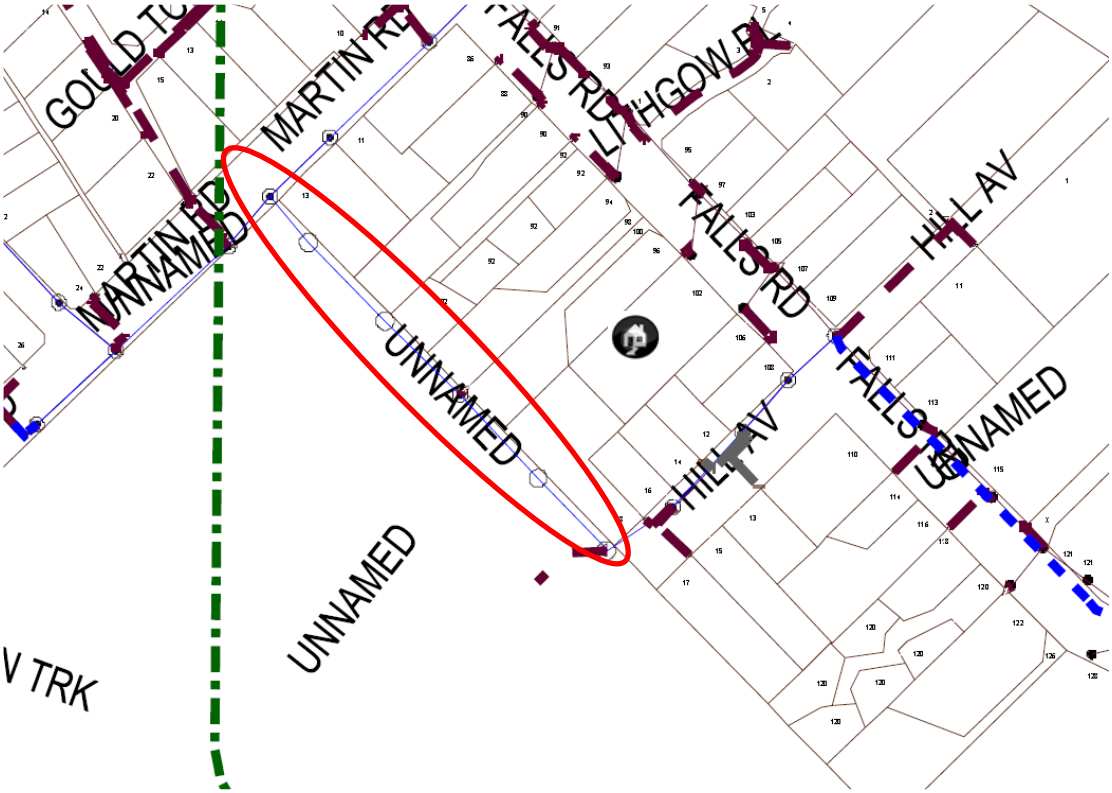
Powerline Easement ≈ South-West of proposed works

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Site Photographs

Powerline Easement ≈ South-West of proposed works

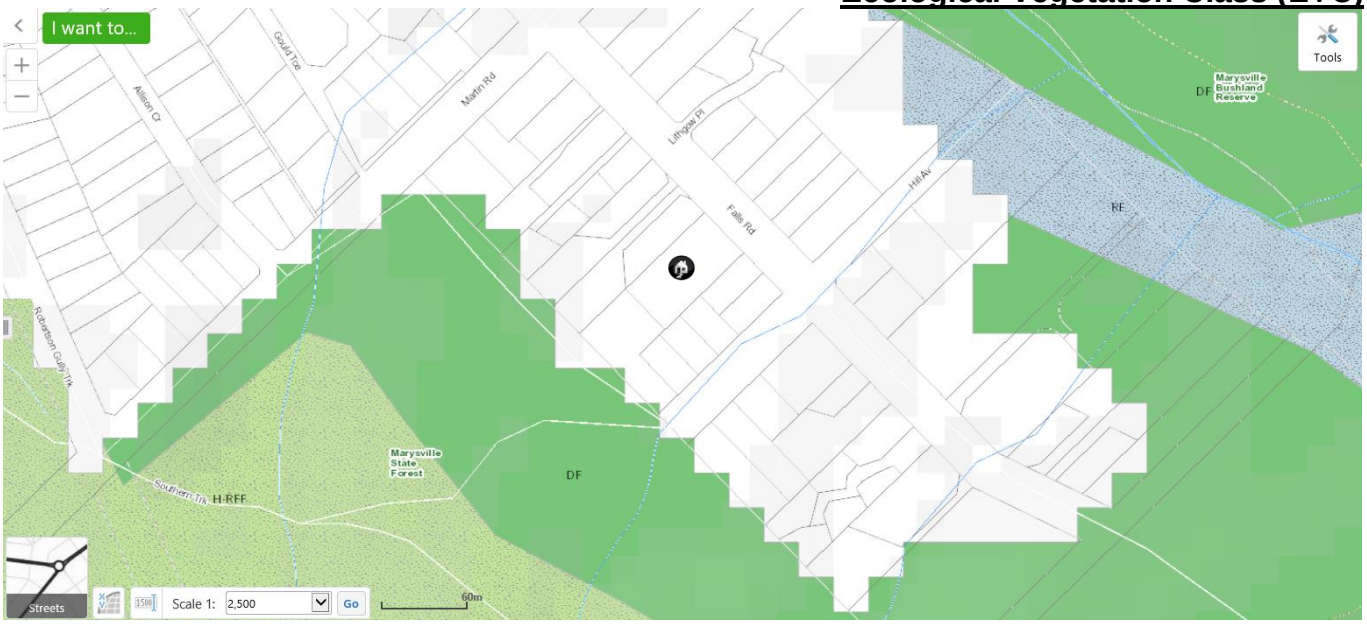
Powerline Easement ≈ South-West of proposed works



Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

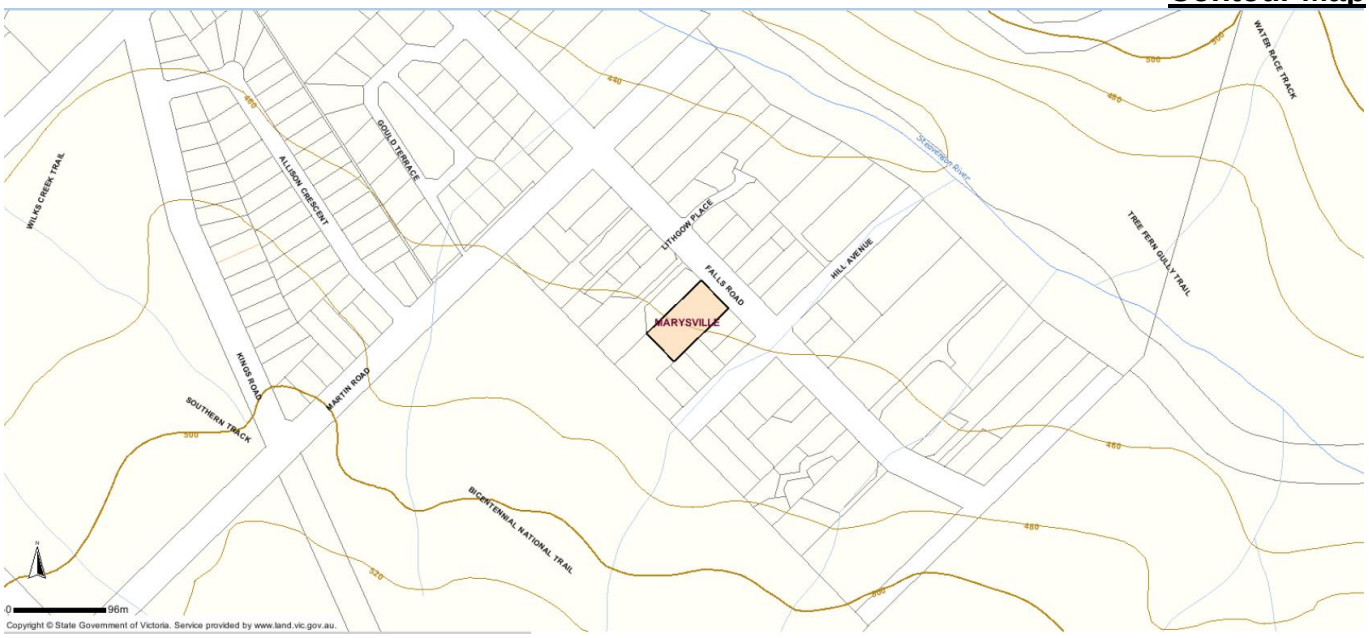
Site Maps

Ecological Vegetation Class (EVC)



DF = EVC 29, Damp Forest (EVC Benchmarks: Trees to 30m, 40% canopy cover)
H-RFF = EVC 23, Herb-rich Foothill Forest (EVC Benchmarks: Trees to 25m, 40% canopy cover)
RF = EVC 18, Riparian Forest (EVC Benchmarks: Trees to 30m, 40% canopy cover)

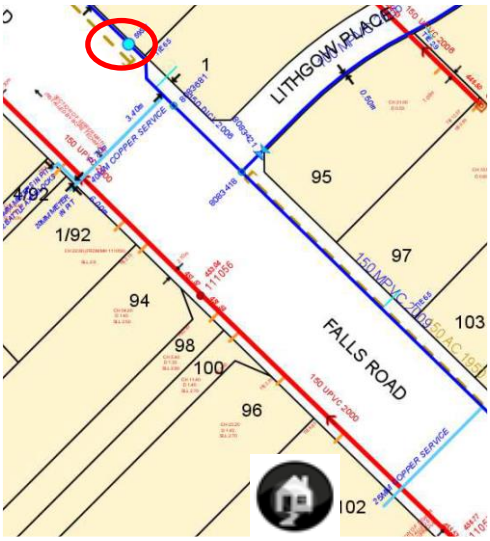
Contour Map



Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Water Supply

Location of Hydrants

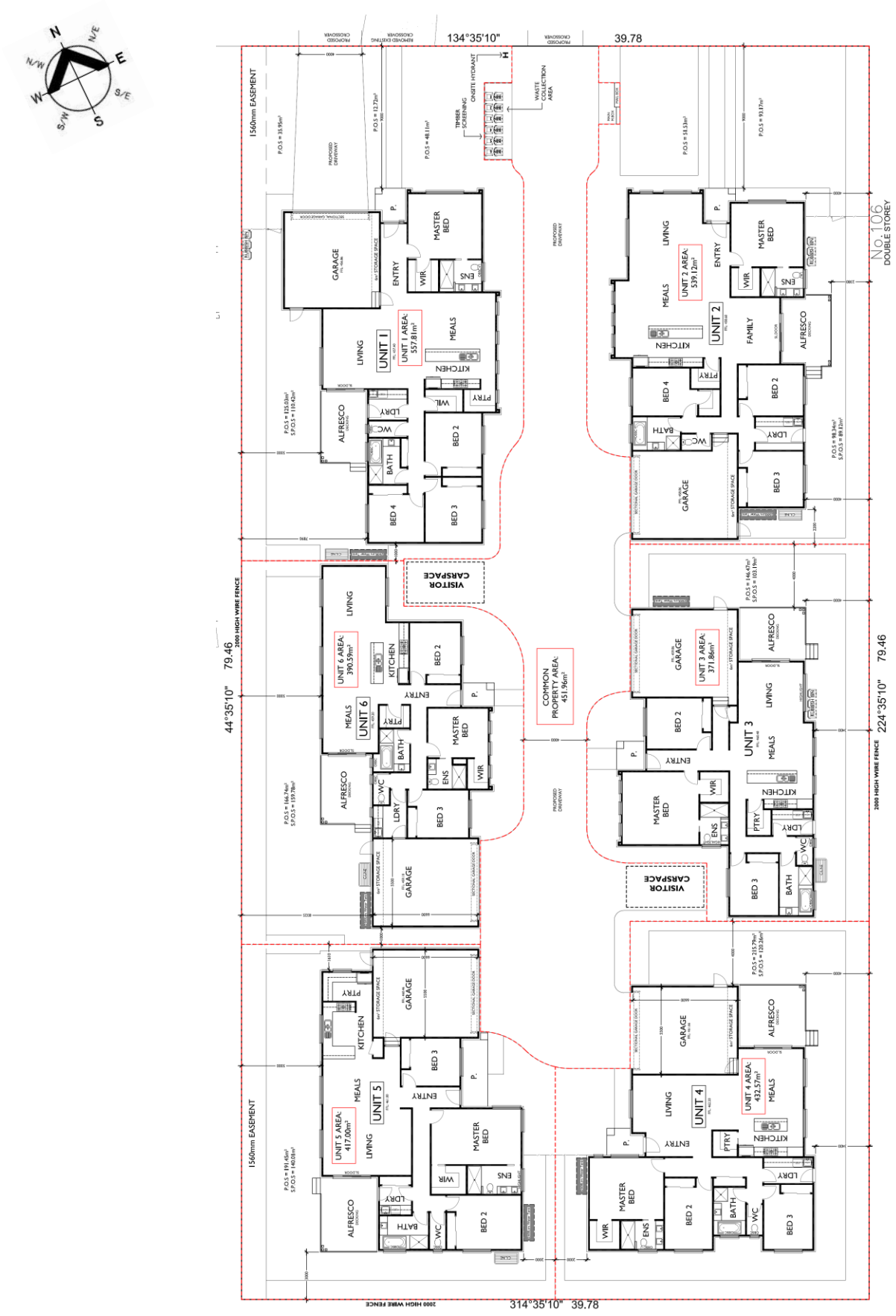


Onsite Hydrant

Minimum of 300mm above ground
Maximum of 600mm above ground

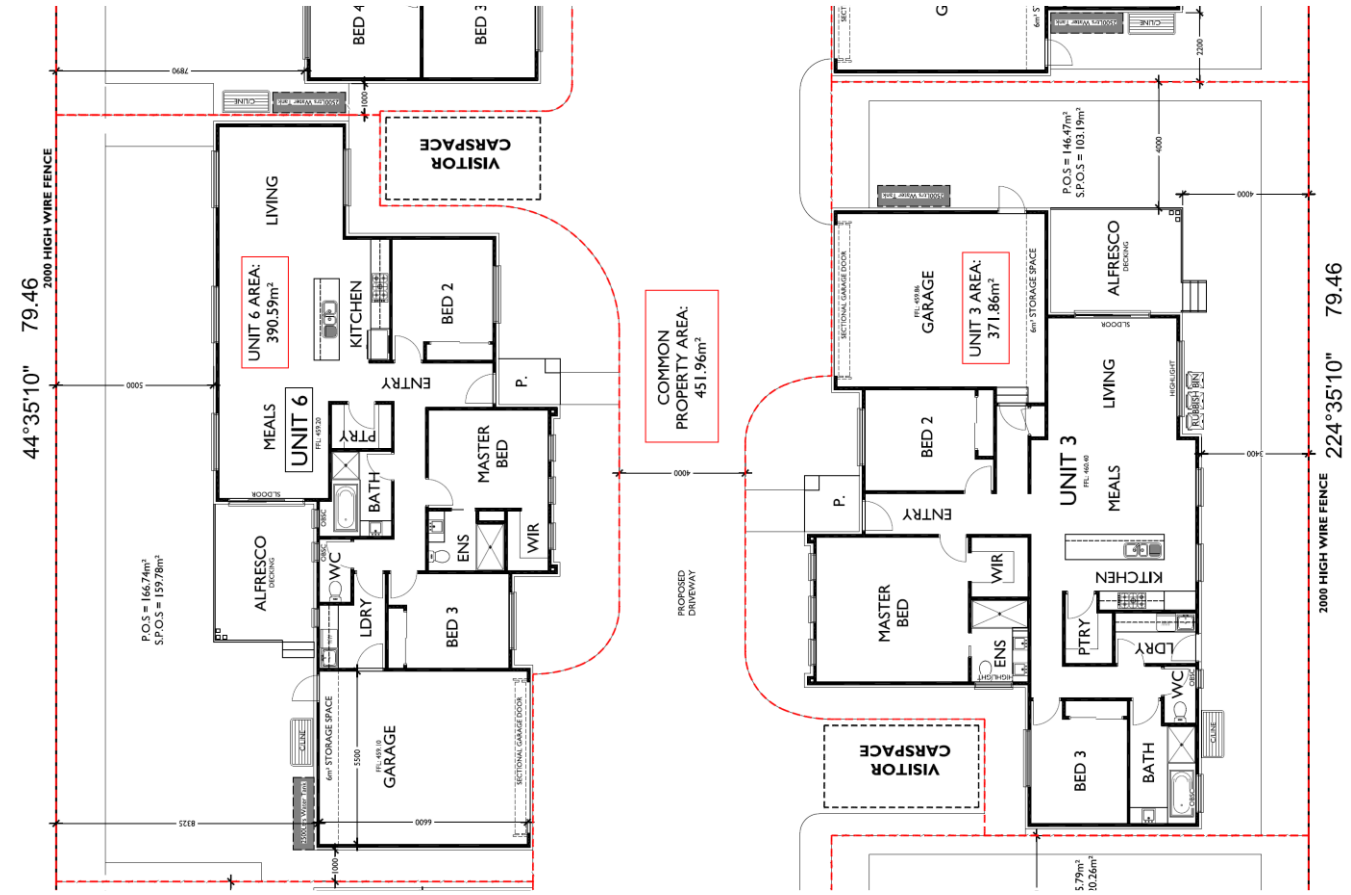
Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Site Layout



Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Site Layout – Typical units

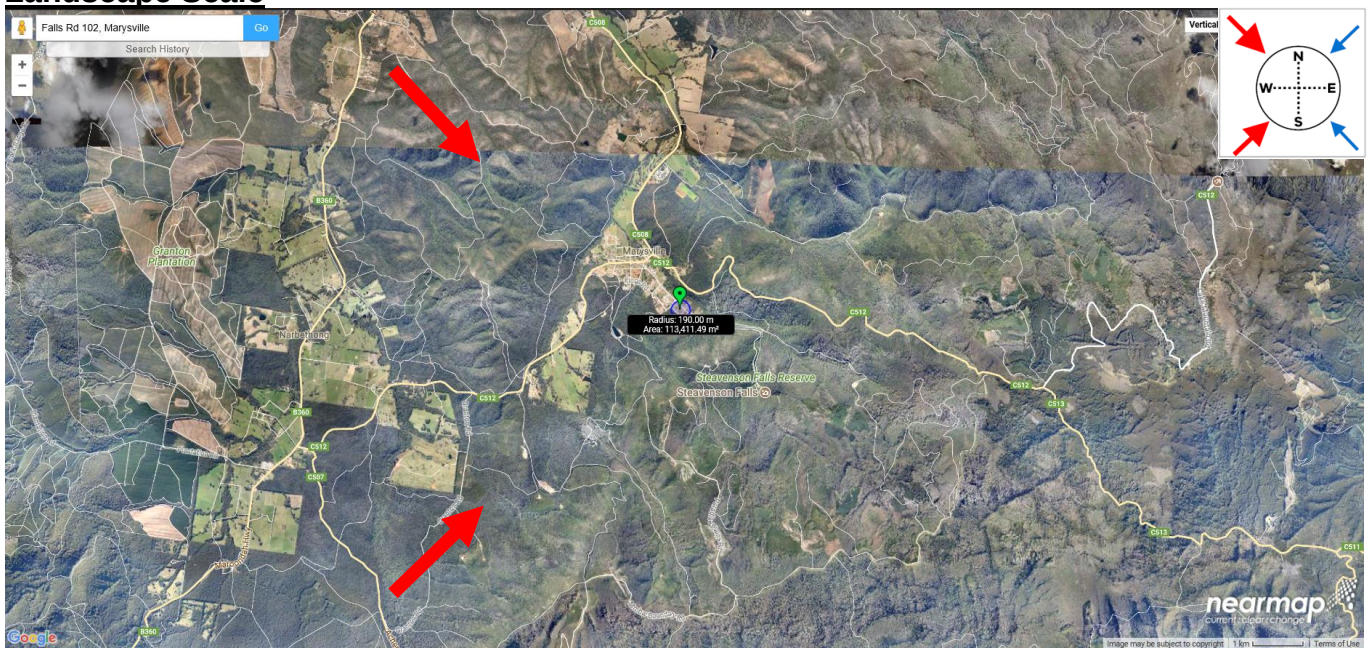


Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

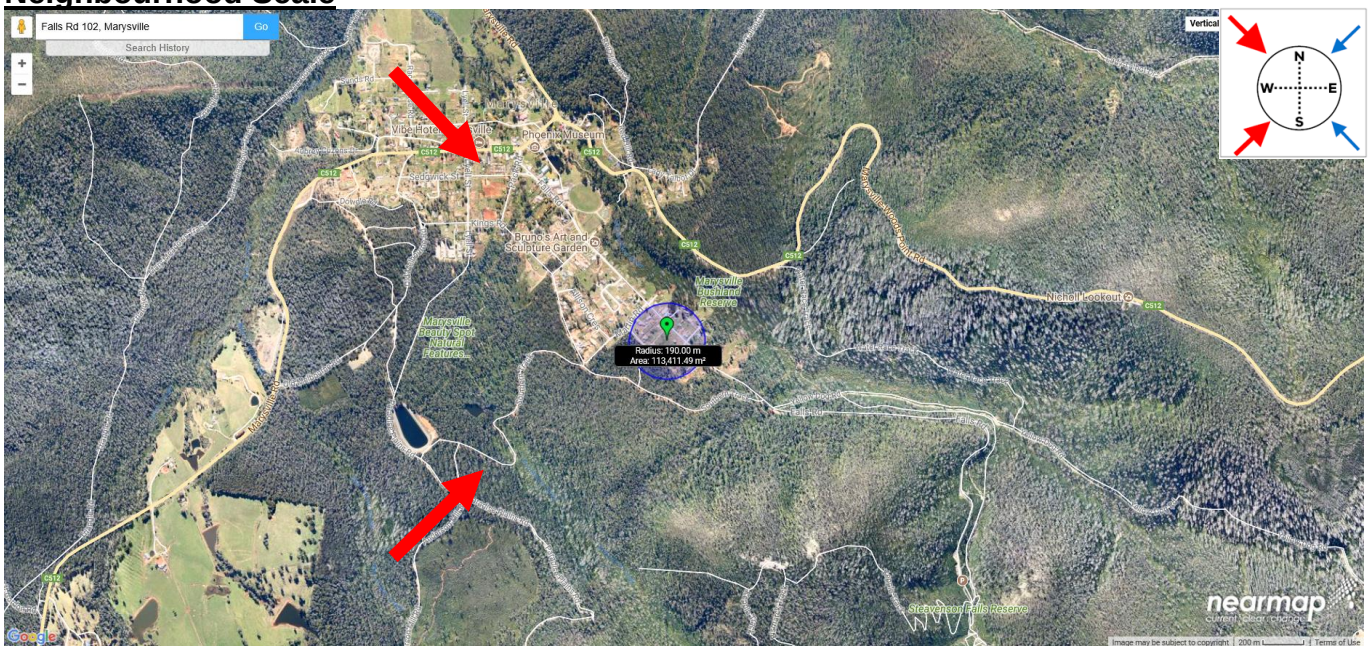
Bushfire Hazard Landscape Assessment

(radius circle on aerial photo has been adjust to show 150m from the NE-SW perimeter of property)

Landscape Scale



Neighbourhood Scale



Normally we would suggest that it is considered that the fire risk from the wider landscape is no greater than that assumed by AS3959 and therefore adequately dealt with by the AS3959/VPP defendable space tables and building construction controls. However the experience of the Black Saturday fires of 2009 has shown us that this may not be the case at Marysville? To answer this question we need to look at the mechanism of how the fire took hold of the township.

Today though the town is vastly different to the town of 2009. On the negative side there are still minimal attempts at fuel breaks around the town perimeter. Today within the town perimeter itself it is virtually free of fuel and substantially all the housing stock is built to the current AS3959 building construction controls compared to the densely vegetated village with very old housing stock of pre 2009.

Possibly one of the biggest factors at Marysville was the massive and sustained ember attack on the susceptible old housing stock creating spot fires and then the subsequent house to house structural fires that enveloped the town. Today unfortunately the massive ember attack is still possible however the new housing stock built to the current AS3959 building construction controls should be better placed to withstand another ember attack.

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Hazard Landscape Assessment

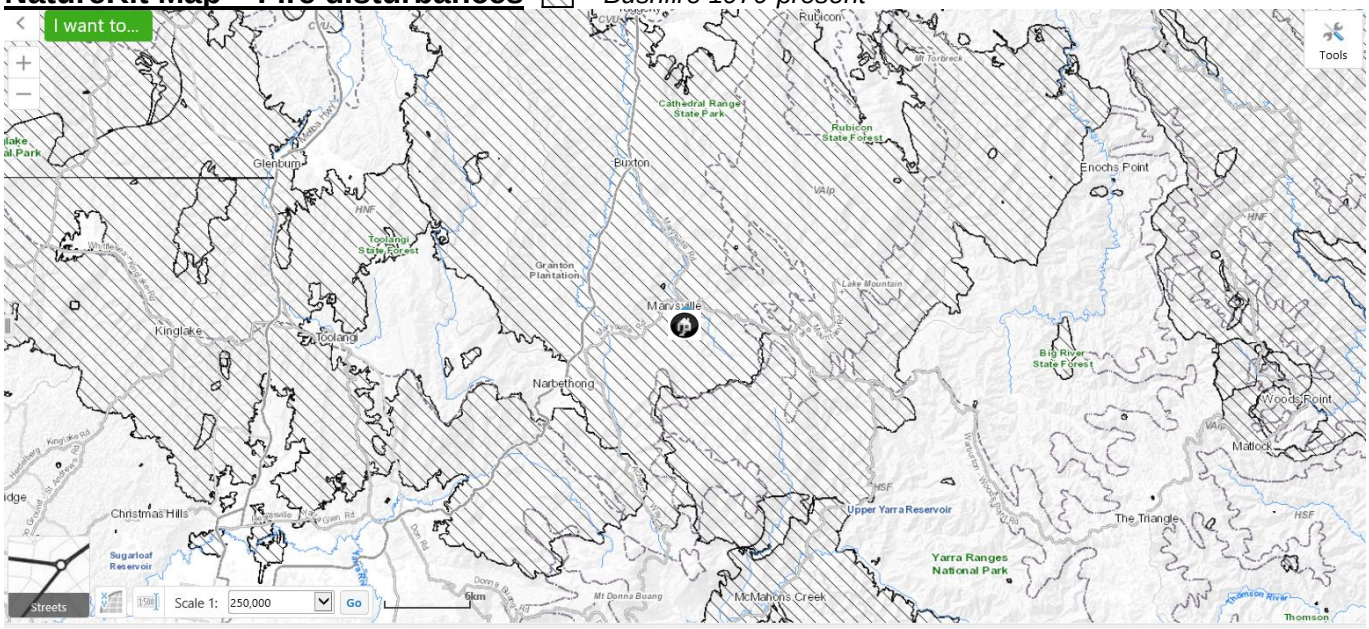
Our conclusion, very much open for debate, is that with the clean out of vegetation within the township, any building approval post 3 Oct 2017 having the BMO vegetation management controls as a condition on their permit and the building of the current housing stock to the AS3959 building construction controls, the township should be better placed to survive another extreme bushfire event.

The main fire weather comes from the North-West followed by the South-West (*Long, M (2006) A climatology of extreme fire weather days in Victoria*). In this case fire could also come from the East flank generally although this is a lower risk weather direction (*Long, M (2006)).*

In accordance with the DELWP Technical Guide *(Planning Permit Applications Bushfire Management Overlay, September 2017)* we believe this site is situated in a "Broader Landscape Type 3 bordering on Type 4" area in that fire can approach from multiple aspects however good egress is available along Buxton-Maryville Rd to a place that provides shelter

With the required measures in place development is appropriate.

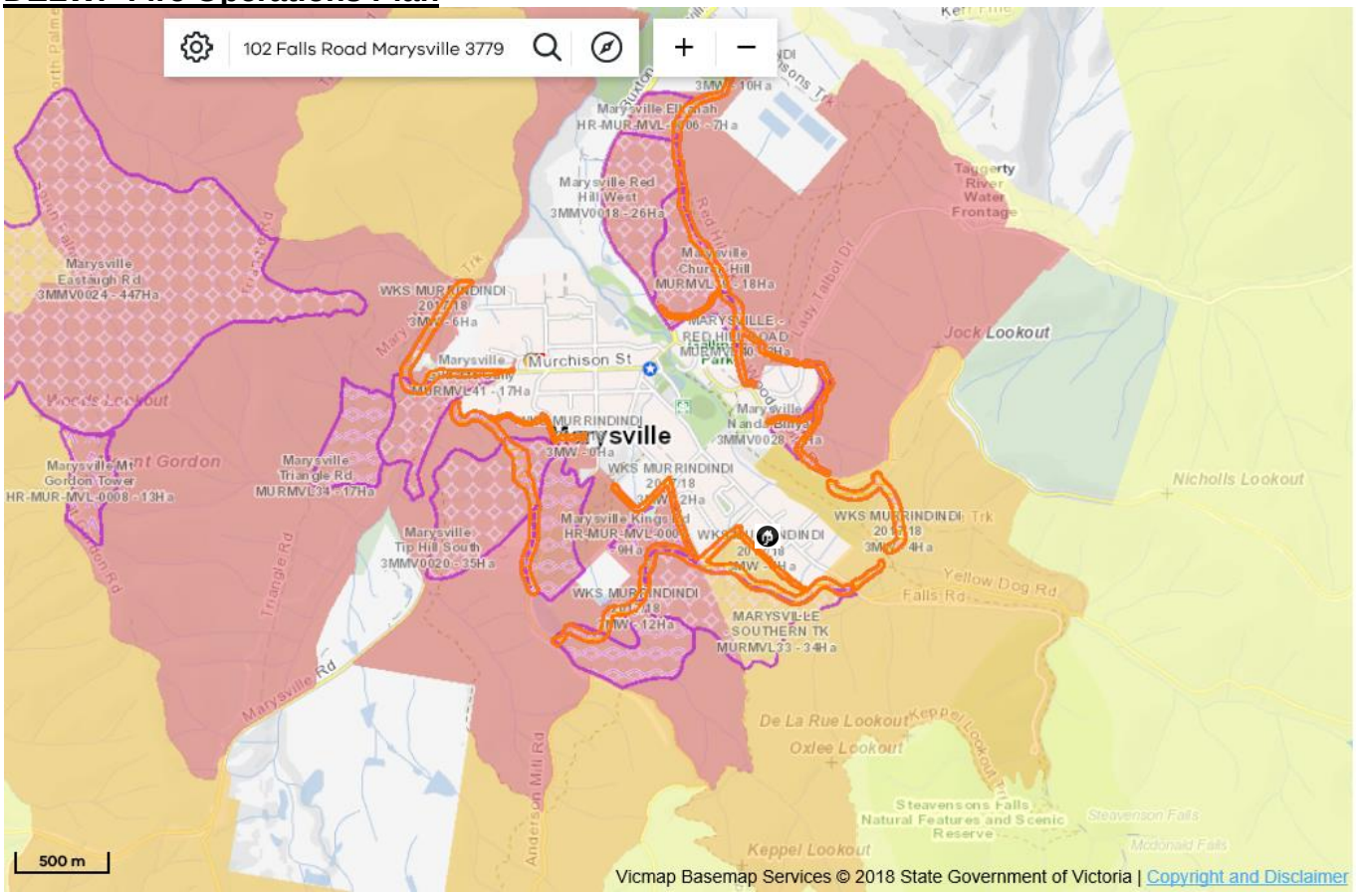
NatureKit Map – Fire disturbances = *Bushfire 1970-present*



Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Hazard Landscape Assessment

DELWP Fire Operations Plan



Fire Operations Plan

Burn Year
- 2017/2018
- 2018/2019
- 2019/2020

Category
- Fire History - Last 5 Years
- Mechanical Works

Fire Management Zones
- 1 - Asset Protection
- 2 - Bushfire Moderation
- 3 - Landscape Management
- 4 - Planned Burn Exclusion

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Hazard Landscape Assessment

Bushfire Place of Last Resort

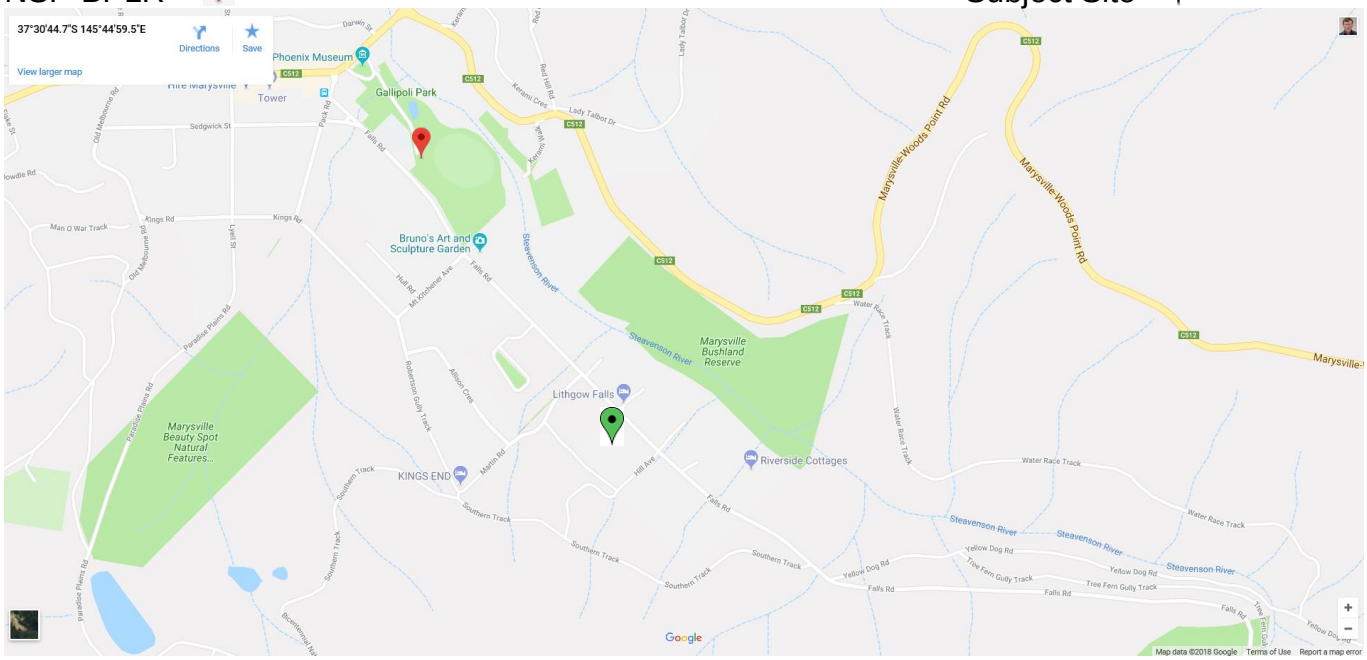
A 'Neighbourhood Safer Place' also known as a 'Bushfire Place of Last Resort' (NSP-BPLR) is a place of last resort when all other bushfire plans have failed.

http://www.saferplaces.cfa.vic.gov.au/cfa/search/default.htm

These NSP-BPLRs have been formally designated by Council.

Neighbourhood Safer Place - Bushfire Place of Last Resort within MARYSVILLE		
Township	**Location**	**Address**
MARYSVILLE	Marysville Community Centre Located in Gallipoli Park	Falls Road Marysville 3779.

NSP-BPLR = Subject Site =



These NSP-BPLRs have been formally designated by Council.

Neighbourhood Safer Place - Bushfire Place of Last Resort within Alexandra		
Township	**Location**	**Address**
ALEXANDRA	Leckie Park Cricket Oval	Station Street (opposite Lamont Street) Alexandra 3714.

BAL Assessments

www.BAL.net.au
John Burke
0417 885 747

In accordance with Australian Standard AS3959

Site Address:	**Falls Rd 102, Marysville**	Lat. South:	37.51898S,
		Long. East:	145.75564E
Name:		email:	
		Phone:	

(radius circle on aerial photo has been adjust to show 150m from the NE-SW perimeter of property)

Bushfire Hazard Site Assessment:

(B2) **FDI**: 100 = Location of proposed works

	(B3) **Vegetation Class** *(01 to 28 Fig. 2.3)*	*(B5)* **Slope θ to Veg. (+/-)**	*(B6)* **Distance to Veg.**	*(B4)* **Slope θ UNDER Veg. (+/-)**	*(B8)* **Veg. Width (W_f)**	*(TB2)* Veg. Ht (Class 10 to 15)	*(FB1)* Ht (*h*) of Receiver	**BAL**
≈*NE*	*1 Managed Low-Threat	<-5 θ	>150m	n/a	n/a	n/a	≈3m	**12.5**
≈*SE*	*1 Managed Low-Threat	Upslope	>150m	n/a	n/a	n/a	≈3m	**12.5**
≈*SW*	Forest	Upslope	60m From SW most units	Upslope	100m	n/a	≈3m	**12.5**
≈*NW*	*1 Managed Low-Threat	<-5 θ	>150m	n/a	n/a	n/a	≈3m	**12.5**

*1 Vegetation within 150m excluded under AS3959 Clause 2.2.3.2.f
*2 Grassland greater than 50m excluded under AS3959 Table 2.4
Notes:
#We note that we only require 48m of defendable space for Forest on an upslope for a BAL-12.5 and we have 60m of defendable space. However in negotiations with the client in order to obtain an orderly approval the client has elected to accept a **BAL-29** rating as a condition on a Planning Permit.

To the South-West there is 16m of defendable space on an unnamed road as a powerline easement and as access for 18 Hill Ave.

Site BAL: 29#

Assessor(s): John Burke Signed: *John Burke* Date: 21 / 07 / 2018

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Table 2 Defendable space and construction - *ALL DIRECTION EXCEPT SOUTH-WEST*

Slope	Vegetation type	Defendable space distance from building facade (metres)			
		Column A	Column B	Column C	Column D
All upslopes and flat land (0 degrees)	Forest	48	35	25	19
	Woodland	33	24	16	12
	Scrub	27	19	13	10
	Shrubland	19	13	9	7
	Mallee/Mulga	17	12	8	6
	Rainforest	23	16	11	8
	Grassland	19	13	9	6
Downslope >0 to 5 degrees	Forest	57	43	32	24
	Woodland	41	29	21	15
	Scrub	31	22	15	11
	Shrubland	22	15	10	7
	Mallee/Mulga	20	13	9	7
	Rainforest	29	20	14	10
	Grassland	22	15	10	7
Downslope >5 to 10 degrees	Forest	69	53	39	31
	Woodland	50	37	26	20
	Scrub	35	24	17	12
	Shrubland	25	17	11	8
	Mallee/Mulga	23	15	10	7
	Rainforest	36	26	18	13
	Grassland	25	17	11	8
Downslope >10 to 15 degrees	Forest	82	64	49	39
	Woodland	60	45	33	25
	Scrub	39	28	19	14
	Shrubland	28	19	13	9
	Mallee/Mulga	26	18	11	8
	Rainforest	45	33	23	17
	Grassland	28	20	13	9
Downslope >15 to 20 degrees	Forest	98	78	61	50
	Woodland	73	56	41	32
	Scrub	43	31	21	15
	Shrubland	31	22	15	10
	Mallee/Mulga	29	20	13	9
	Rainforest	56	42	29	22
	Grassland	32	23	15	11
Downslope >20 degrees	All Vegetation	Per AS 3959 Method 2	Per AS 3959 Method 2	Per AS 3959 Method 2	Per AS 3959 Method 2
All slopes	Low threat vegetation	**50 or PB**	Not applicable	Not applicable	Not applicable
All slopes	Modified vegetation	Not applicable	Not applicable	50 or PB	50 or PB
		BAL12.5	**BAL19**	**BAL29**	**BAL40**

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Table 2 Defendable space and construction – *SOUTH-WEST*

Slope	Vegetation type	Defendable space distance from building facade (metres)			
		Column A	Column B	Column C	Column D
All upslopes and flat land (0 degrees)	Forest	48	35	25	19
	Woodland	33	24	16	12
	Scrub	27	19	13	10
	Shrubland	19	13	9	7
	Mallee/Mulga	17	12	8	6
	Rainforest	23	16	11	8
	Grassland	19	13	9	6
Downslope >0 to 5 degrees	Forest	57	43	32	24
	Woodland	41	29	21	15
	Scrub	31	22	15	11
	Shrubland	22	15	10	7
	Mallee/Mulga	20	13	9	7
	Rainforest	29	20	14	10
	Grassland	22	15	10	7
Downslope >5 to 10 degrees	Forest	69	53	39	31
	Woodland	50	37	26	20
	Scrub	35	24	17	12
	Shrubland	25	17	11	8
	Mallee/Mulga	23	15	10	7
	Rainforest	36	26	18	13
	Grassland	25	17	11	8
Downslope >10 to 15 degrees	Forest	82	64	49	39
	Woodland	60	45	33	25
	Scrub	39	28	19	14
	Shrubland	28	19	13	9
	Mallee/Mulga	26	18	11	8
	Rainforest	45	33	23	17
	Grassland	28	20	13	9
Downslope >15 to 20 degrees	Forest	98	78	61	50
	Woodland	73	56	41	32
	Scrub	43	31	21	15
	Shrubland	31	22	15	10
	Mallee/Mulga	29	20	13	9
	Rainforest	56	42	29	22
	Grassland	32	23	15	11
Downslope >20 degrees	All Vegetation	Per AS 3959 Method 2	Per AS 3959 Method 2	Per AS 3959 Method 2	Per AS 3959 Method 2
All slopes	Low threat vegetation	50 or PB	Not applicable	Not applicable	Not applicable
All slopes	Modified vegetation	Not applicable	Not applicable	50 or PB	50 or PB
		BAL12.5	BAL19	BAL29	BAL40

#We note that we only require 48m of defendable space for Forest on an upslope for a BAL-12.5 and we have 60m of defendable space. However in negotiations with the client in order to obtain an orderly approval the client has elected to accept a **BAL-29** rating as a condition on a Planning Permit.

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

BAL-29

(a basic summary extracted from AS 3959-2018)

For BAL-29 the risk is considered to be 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.
The construction elements are expected to be exposed to a heat flux not greater than 29 kW/m2

Appropriate Construction Requirements for BAL 29

Subfloor Supports
Enclosure by non combustible or naturally fire resistant timber wall external wall or by steel, bronze or aluminum mesh or a combination. Where the subfloor is unenclosed there shall be non-combustible supports or naturally fire resistant timber.

Floors
Concrete slab on ground or enclosure by external wall, metal mesh as above or flooring less than 400 mm above ground level to be non-combustible, naturally fire resistant timber or protected on the underside with sarking or mineral wool insulation.

External Walls
Non-combustible material (masonry, brick veneer, mud brick, aerated concrete, concrete), timber framed, steel framed walls sarked on the outside and clad with 6 mm fibre cement sheeting or steel sheeting or bushfire resistant timber.

External Windows
5 mm toughened glass with openable portion screened and frame of metal or metal reinforced PVC-U, or bushfire resisting timber and portion within 400 mm of ground, deck etc screened.

External Doors
Protected by bushfire shutter, or screened with steel, bronze or aluminium mesh or noncombustible, or 35 mm solid timber for 400 mm above threshold or 6 mm toughened glass. Metal or bushfire resisting timber framed tight-fitting with weather strips at base.

Roofs
Non-combustible covering. Roof/wall junction sealed. Openings fitted with non-combustible ember guards. **Roof to be fully sarked**, on a sheet roof a foil-backed insulation blanket maybe installed over the roof battens.

Verandas Decks etc
Enclosed sub-floor space or non-combustible or bushfire resistant timber supports. Decking to be non-combustible or bush-fire resistant timber.

Bushfire Resistant Timber – Tested Species:

Standard Trade Name	Botanical Name
Ash, Silvertop	Eucalyptus sieberi
Blackbutt	Eucalyptus pilularis
Gum, Red, River	Eucalyptus camaldulensis
Gum, Spotted	Corymbia maculata
	Corymbia henryi
	Corymbia citriodora
Ironbark, Red	Eucalyptus sideroxylon
Kwila (Merbau)	Intsia bijuga
Turpentine	Syncarpia glomulifera

Or a timber with a density of 750kg/m3 or greater (refer AS3959 Appendix E)

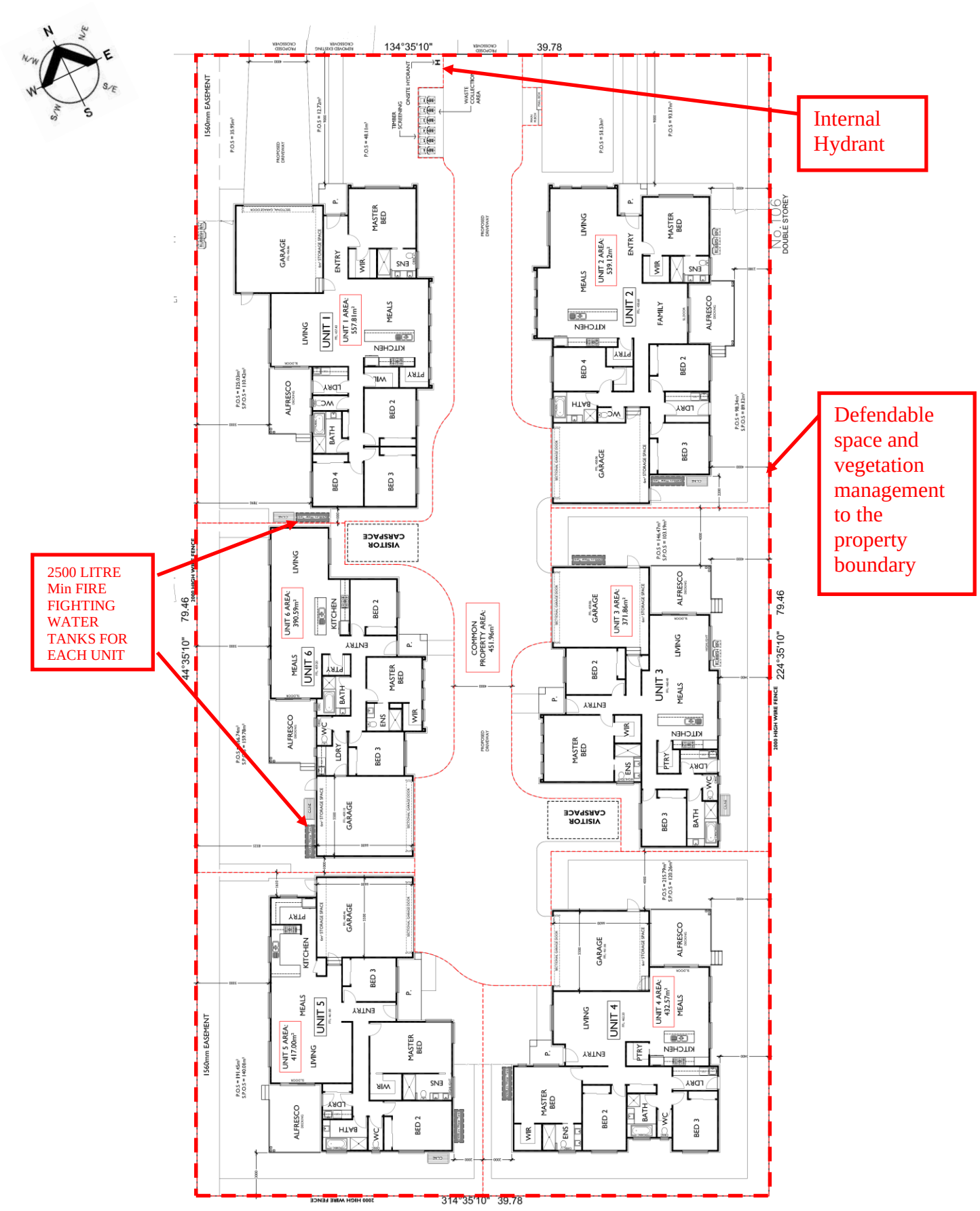
Foreword from AS 3959-2018
"It should be borne in mind that the measures contained in this Standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature and behavior of fire, and extreme weather conditions."

Specialist advice should be obtained regarding complying with all BAL levels and the requirements of the construction elements.
The above is for general information only and should not be used for design or construction. Please refer to AS3959-2018 for full details.

Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Management Plan

The building(s) will be designed and constructed to BAL-29



Bushfire Management Overlay Assessment: Falls Rd 102, Marysville

Bushfire Management Plan

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

1. Defendable Space

Defendable space *to a distance of the property boundary around the proposed buildings* is provided and is managed in accordance with the following requirements:

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

2. Construction standards

The buildings shall be designed and constructed to BAL-29.

3. Water Supply

2,500 litres of effective water supply at each unit for fire fighting purposes which meets the following requirements:

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

4. Access

Access for fire fighting purposes which meets the following requirements:

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