

BUSHFIRE ATTACK LEVEL

FOR FUTURE DWELLINGS AT STAGES 5 AND 6 BRUSH CREEK EDGEWORTH NSW 2285

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Disclaimer

Not withstanding the precautions adopted within this report, it should always be remembered that bushfires burn under a wide range of conditions. An element of risk, no matter how small always remains, and although the standard is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.



Executive Summary

This report provides an assessment of the Bushfire Attack Level (BAL) at Stage 5 and 6, Brush Creek, Edgeworth in accordance with AS3959 (2018) *Construction of Buildings in Bushfire Prone Areas* Appendix A - Method 1.

This report and mapping are not to be used to place wholesale restrictions on lots reflecting the resulting BAL mapping presented within. Future development of surrounding stages may result in lower BALs than detailed in this report.

This BAL report has shown that any future dwellings within the site will be able to meet the requirements of both AS3959-2018 and the PBP 2019 (NSW Rural Fire Service NSW).



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Disclaimer:

The BALs as depicted within this report and mapping have been determined by management of vegetation to the east and west where land will be cleared for future stages. It should be noted that conditions may change over time that may result in different BALs for the lots.

Although every care has been taken in the preparation of this BAL Report, McCloy Group and the author accept no responsibility in errors in this report or damaged resulting from the information. It should be noted that upon lodgement of a Development Application (DA) with Council or Rural Fires Service they may recommend additional construction requirements (BALs).



Terms & Abbreviations

Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419-2017	Australian Standard – Fire Hydrant Installations
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BPL Map	Bush Fire Prone Land Map
BPMs	Bush Fire Protection Measures
EPA Act	NSW Environmental Planning and Assessment Act 1979
FFDI	Forest Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection 2019
LMCC	Lake Macquarie City Council
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation



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I INTRODUCTION

Firebird ecoSultants Pty Ltd has been engaged by McCloy Group Pty Ltd to undertake a Bushfire Attack Level (BAL) report for Stage 5 and 6, Brush Creek, Edgeworth, hereafter referred to as the "site". Refer to Appendix A for Sales Plan.

This BAL report assesses the application of Australian Standard AS3959-2018 'Construction of Buildings on Bushfire Prone Land' and Appendix 1 of Planning for Bushfire Protection 2019 (PBP, 2019). AS3959 (2018) Appendix A – Method 1 has been used in this assessment.

This report has been prepared to provide guidance to prospective purchasers of what Bushfire Attack Levels (BALs) may be required for future dwellings within the site.

I.I Site Particulars

Locality:	Stages 5 and 6, Brush Creek, Edgeworth, NSW 2285
LGA:	Lake Macquarie City Council (LMC)
Forest Danger Index:	100
Current Land Use:	Approved subdivision



2 METHODOLOGY

The Australian Standard for assessing the BAL and providing the detailed requirements for construction has been reviewed and amended with the latest version being adopted for use in bushfire prone areas of NSW in March 2020. This version is titled AS 3959-2018 'Construction of Buildings in Bushfire Prone Areas' (standards Australia 2018, was used in this assessment.

In addition, the NSW method of determining the bushfire attack level, found in Appendix 1 of the document 'Planning for Bushfire Protection 2019' (NSW Rural Fire Service 2019) has also been reviewed and amended to come into line with the process within AS 3959. Therefore, in NSW the methodology with AS 3959 is to be used to determine the bushfire attack level. AS3959 (2018) Appendix A – Method 1 has been used in this BAL assessment.

2.1 Vegetation Assessment

Vegetation surveys and vegetation mapping carried out on the site has been undertaken as follows:

- Aerial Photograph Interpretation to map vegetation cover and extent.
- Confirmation of the vegetation assemblage typology present via a site inspection.

2.2 Slope Assessment

Slope assessment has been undertaken as follows:

- Aerial Photograph Interpretation in conjunction with analysis of electronic contour maps with a contour interval of 2m.
- On site confirmation of slope measurements.



3 SITE ASSESSMENT

A site inspection was undertaken on the site. The following assessment has been undertaken in accordance with the requirements of PBP (RFS, 2019) and AS3959-2018.

3.1 Vegetation and Slope Assessment

An assessment of the slope affecting the bushfire behaviour was undertaken for a distance of 100m from the edge of the lot boundaries in the direction of the bushfire hazard. The slopes leading away from the site have been evaluated to identify both the average slope and by identifying the maximum slope present. These values help determine the level of gradient which will most significantly influence the fire behaviour of the site. Refer to Table 1 for Vegetation and Slope Assessment.

Direction from Site	Vegetation Classification	Effective Slope ¹
North	Forest Vegetation	Upslope
East	Forest Vegetation	Cross slope
South	Forest Vegetation	Downslope (0-5°)
West	Forest Vegetation	Downslope (0-5°)

Table 3-1: Vegetation & Slope Assessment

¹ The effective slope is based on the average slope over 100m as per PBP 2019.



4 BUSHFIRE ATTACK ASSESSMENT

4.1 Bushfire Attack Assessment

To determine the bush fire attack and required Bushfire Attack Level (BAL) for the proposed subdivision the following steps were followed:

- 1. Determination of the vegetation types within 100m of the site, as assessed in section 3 of this report.
- 2. Determination of the distance between the vegetation and future dwellings has been assessed in section 4.2 of this report.
- 3. Determination of the effective slope as assessed in section 3 of this report.
- 4. A FFDI of 100 was determined for LMC LGA.

4.2 Determination of Bushfire Attack Levels

The results from the above steps were used to calculate the required BAL in accordance with Method 1 of AS 3959 (2018).

Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section
	Forest – East and South-West	Cross-Slope to the east	22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			29 -< 40	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
501			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the south-west	22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			29 -< 40	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.

Table 4-1: Stage 5 Bushfire Attack Level Assessment



Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Cross-Slope	29 -< 40	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		to the East	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
502	Forest – East and		54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
502	South-West	Downslope 0- 5° to the South-West	22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			29 -< 40	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
		Cross-slope to the East orest – East and South-West	22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			29 -< 40	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
503	Forest – East and South-West		54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the South-West	29 -< 40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.



Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
504	Forest – North	Cross-	29 -< 40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
504	and East	slope/upslope	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
	Forest – North and East		22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
505			29 -< 40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
505			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
506	Forest – North and East		29 -< 40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
506			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
		Cross	22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
507	Forest – North, East and South	Cross- Slope/Upslope to the North	29 -< 40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
		and East	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.



Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section
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			22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the	29 -< 40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
		South	40-<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
	08 Forest – East and South		22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Cross-Slope to the East	29 -< 40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40-<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
508			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
506		Downslope 0- 5° to the South	22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			29 -< 40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40-<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
509	Forest – East and South	Cross-Slope to the East	29 -< 40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
				40-<54	BAL19



Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section
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			22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
		South	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
	510 Forest – East and South	Cross-Slope to the East rest – East and	22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
510			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
510		Downslope 0- 5° to the South	22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22-<29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
511	Forest – East and South	Cross-Slope to the East	29-<40	BAL-40	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-29	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.



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			22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
		South	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
	South	Cross-Slope to the East	22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
512			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
512		Downslope 0- 5° to the South	22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22 -< 29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
513	Forest – East and South	nd Cross-Slope to the East	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
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			22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
		South	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
	Forest – South and West		22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
514			29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
514			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Cross-Slope	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
		to the East	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
515	Forest – East, South and West		54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
		Downslope 0	22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the South and West	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.



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			22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Cross-Slope	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
		to the East	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
516	Forest – East and		54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
510	South	Downslope 0- 5° to the South	22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Cross- Slope/Upslope	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
		to the North and East	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
517	Forest – North, East and South		54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the South	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.



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			22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
518	Forest – North	Cross-	40<54	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
510	and East	Slope/Upslope	24-<33	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
	Forest – North Cross- and East Slope/Upslope	22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.	
519			29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
519			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Unalone	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
		Upslope	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
520	Forest – North and West		54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5°	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
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			22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Upslope to the	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
		North	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
521	Forest – North, West and South		54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
521		Downslope 0- 5° to the South and West	22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
500	Forest – South	Downslope 0-	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
522	and West	5°	40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
			22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
523	Forest – South and West	Downslope 0- 5°	29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.



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			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.
		Downslope 0-	22-<29	BAL-40	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
524	Forest – South		29-<40	BAL-29	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
524	and West	5°	40-<54	BAL-19	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 6 of AS3959 and Sect 7.5 of PBP.

*To Note: The construction requirements for the next lower BAL than that determined for the site may be applied to an elevation of the building where the elevation is not exposed to the source of the bushfire attack. An elevation is deemed to be not exposed to the source of bushfire attack if all the straight lines between that elevation and the source of bushfire attack are obstructed by another part of the building. However, this does not apply to BAL-12.5.

This report and mapping are not to be used to place wholesale restrictions on lots reflecting the resulting BAL mapping presented within. Building location and design will influence the application of the required BALs. For example, a lot indicated as being affected by BAL-29 may have those facades that are not exposed to the bushfire threat constructed to a lower BAL (i.e. BAL-19), reducing the costs of construction and providing more flexibility in choice of external building materials. Refer to Appendix B for Additional Building Requirements.



	Table 4-2. Stage & Dustille Attack Level Assessment						
Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section		
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.		
601	Forest – South and West	Downslope 0- 5°	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.		
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.		
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.		
602	Forest – South and West	Downslope 0- 5°	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.		
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.		
	Forest – South and West		29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.		
603			40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.		
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.		
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.		
604	Forest – South and West	Downslope 0- 5°	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.		
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.		
605	Forest – North, South and West	Downslope 0- 5°	54<100	BAL-12.5	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.		
606	Forest – North and West	Upslope to the North	29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.		

Table 4-2: Stage 6 Bushfire Attack Level Assessment



Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section
			40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the West	40>54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
	Forest – North and West		29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Upslope to the North	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
607			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
607		Downslope 0- 5° to the West	29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Upslope to the North	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
608	Forest – North and West		54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
		Downslope 0-	29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		5° to the West	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.



Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Upslope to the North	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
600	Forest – North		54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
609	and West		29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the West	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
	Forest – North	Upslope to the North	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
C10			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
610	and West		29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the West	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
611	Forest – North and West		40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.



Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the West	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Upslope to the North	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
612	Forest – North and West		54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
012		nd West Downslope 0- 5° to the West	29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
		Upslope to the North	29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
640	Forest – North		54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
613	and West		29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the West	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
614	Forest – North, South and West	Upslope to the North	29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.



Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section
			40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Downslope 0- 5° to the South and West	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
	Forest – North and West		29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Upslope to the North	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
645			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
615		Downslope 0- 5° to the West	29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
			40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		Upslope to the North	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
616	Forest – North and West		54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
		Downslope 0-	29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
		5° to the West	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.



Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
617	Forest – North	Upslope	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
618	Forest – North and East	Cross- slope/Upslope	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
	Forest – North and East		29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
619			40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
620	Forest – North and East	Upslope	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
621	Forest – North and East		40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.



Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation (m)	Bushfire Attack Level (BAL)	Construction Section
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
622	Forest – North and East	Upslope/Cross- Slope	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
623	Forest – North and East	Upslope/Cross- Slope	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
	Forest – North and East	th Upslope/Cross- Slope	29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
524			40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
525	Forest – North and East	Upslope/Cross- Slope	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.
			29	BAL-29	Sect 3 & 9 of AS3959 and Sect 7.5 of PBP.
526	Forest – North and East	- 1 1	40<54	BAL-19	Sect 3 & 8 of AS3959 and Sect 7.5 of PBP.
			54<100	BAL-12.5	Sect 3 & 7 of AS3959 and Sect 7.5 of PBP.

*To Note: The construction requirements for the next lower BAL than that determined for the site may be applied to an elevation of the building where the elevation is not exposed to the source of the bushfire attack. An elevation is deemed to be not exposed to the source of bushfire attack if all the straight lines between that elevation and the source of bushfire attack are obstructed by another part of the building. However, this does not apply to BAL-12.5.



This report and mapping are not to be used to place wholesale restrictions on lots reflecting the resulting BAL mapping presented within. Building location and design will influence the application of the required BALs. For example, a lot indicated as being affected by BAL-29 may have those facades that are not exposed to the bushfire threat constructed to a lower BAL (i.e. BAL-19), reducing the costs of construction and providing more flexibility in choice of external building materials. Refer to Appendix B for Additional Building Requirements.

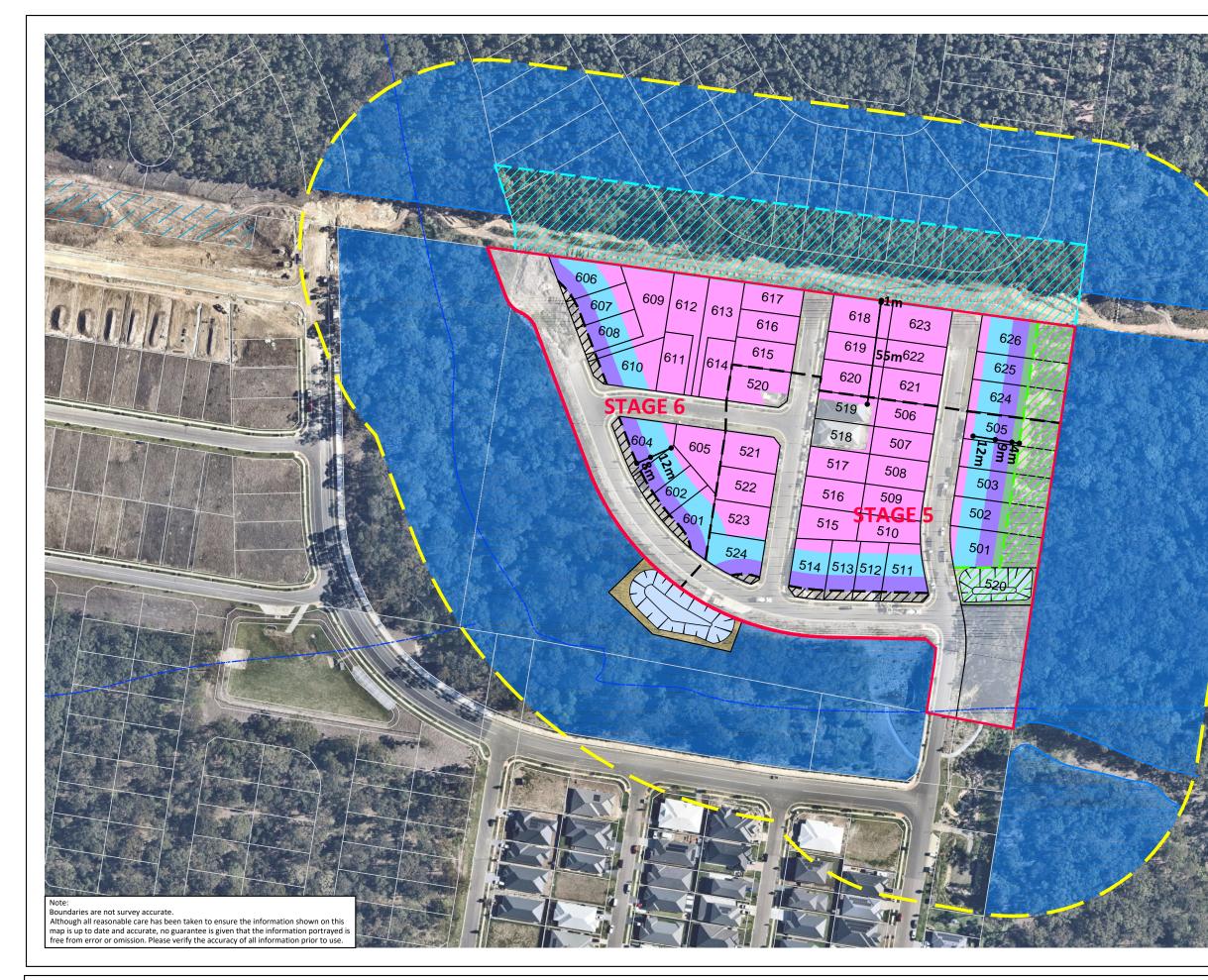
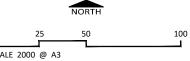


FIGURE 4-1:BAL MAP

CLIENT	Client
SITE DETAILS	Stages 5 & 6 Transfield Avenue Edgeworth
DATE	8 February 2022





Level 1, 146 Hunter Street, Newcastle NSW 2300

SCALE 2000 @ A3

Disclaimer

The BALS as depicted on this map have been determined by vegetation within 100m of Stage 5 & 6 at the time of the assessment in February 2022. It should be noted that conditions may change over time, that may result in different BALs for the site. Although every care has been taken in the preparation of this map the author accepts no responsibility for any misprints, errors, omissions, inaccuracies in these maps or damages resulting from the use of this information.



	Subject Site
	Stage Boundary
	100m Buffer
e ⁄2 ·	44m APZ
e/2 :	20m APZ
E⁄2	5m APZ
	Open Forest
	Managed Land
	BAL 40
	BAL 29
	BAL 19
	BAL 12.5
	Drainage

Firebird ecoSultants Pty Ltd ABN - 16 105 985 993 P O Box 354 Newcastle NSW 2300



Ref No 2550 C

for which it was supplied and in accord the terms of engagement for the com



5 CONCLUSION

This report provides an assessment of the Bushfire Attack Level (BAL) in accordance with AS3959-2018 Construction of Buildings in Bushfire Prone Areas for Stage 5 and 6, Brush Creek, Edgeworth.

This BAL report assesses the application of Australian Standard AS3959-2018 'Construction of Buildings in Bushfire Prone Land' and Appendix 1 of Planning for Bushfire Protection 2019 (PBP, 2019).

This report and mapping are not to be used to place wholesale restrictions on lots reflecting the resulting BAL mapping presented within. Future development of surrounding stages may result in lower BALs than detailed in this report.

This BAL report has shown that any future dwellings within the site will be able to meet the requirements of both AS3959-2018.



Sarah Jones Ecologist / Bushfire Planner FPA BPAD-A Certified Practitioner (BPD-PA-26512) B.Env.Sc. G.Dip.DBPA (Design for Bushfire Prone Areas)

Disclaimer:

The BALs as depicted within this report and mapping have been determined by vegetation within 100m of Stage 5 and 6 at the time of the assessment March 2022. It should be noted that conditions may change over time that may result in different BALs for the lots.



6 **BIBLIOGRAPHY**

- NSW Rural Fire Service (RFS) 2019. Planning for Bushfire Protection: A guide for Councils, Planners, Fire Authorities, Developers and Home Owners. Australian Government Publishing Service, Canberra.
- Standards Australia. 2018. Construction of buildings in bushfire-prone Ares, AS3959, Fourth Edition 2018, Standards Australia International Ltd Sydney



APPENDIX A SALE PLAN







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(A) - ASSET PROTECTION ZONE (APZ) (KA) - EASEMENT TO DRAIN WATER 2 WIDE

(KB) - RESTRICTION ON THE USE OF LAND 0.9 WIDE

DIMENSIONS AND AREAS ARE SUBJECT TO FINAL SURVEY

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FINAL STAGES STAGE 6 The Wildflower Release





- (KB) RESTRICTION ON THE USE OF LAND 0.9 WIDE
- (KF) EASEMENT FOR ASSET PROTECTION ZONE (D.P.1271663)
- (LB) RESTRICTION ON THE USE OF LAND 0.9 WIDE (D.P.1274794)
- (MA) EASEMENT TO DRAIN WATER 2 WIDE
- (MB) RESTRICTION ON THE USE OF LAND 0.9 WIDE
- (MC) RIGHT OF ACCESS VARIABLE WIDTH GENERAL RESTRICTIONS ON THE USE OF LAND EFFECTS ALL LOTS.
- ALL AREAS, DIMENSIONS & EASEMENTS ARE SUBJECT TO FINAL SURVEY.

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