BUSHFIRE ATTACK LEVEL

FOR
FUTURE DWELLINGS

AT STAGE 9
BILLY'S LOOKOUT
TERALBA

Prepared by:

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Site Details:	Stage 9 at Billy's Lookout, Teralba
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Prepared for:	McCloy Teralba
Reference No.	Teralba - McCloy
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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 9 within Billy's Lookout, Teralba in accordance with AS3959 (2009) *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 AS3959-2009 and the addendum to Appendix 3 of Planning PBP 2006 (NSW Rural Fire Service NSW).

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Disclaimer:

The BALs as depicted within this report and mapping have been determined by vegetation within 100m of Stage 9 at the time of the assessment November 2017. 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 Teralba 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 -2005	Australian Standard – Fire Hydrant Installations
AS3959-2009	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*
FDI	Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LMCC	Lake Macquarie City Council
LGA	Local Government Area
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection 2006
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation

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TABLES

FIGURES

1 INTRODUCTION

Firebird ecoSultants Pty Ltd has been engaged by Teralba McCloys Pty Ltd to undertake a Bushfire Attack Level (BAL) report for Stage 9 at Billy's Lookout, Teralba hereafter referred to as the "site". Refer to Appendix A for Sales Plan.

This BAL report assesses the application of Australian Standard AS3959-2009 'Construction of Buildings on Bushfire Prone Land' and Appendix 3 of Planning for Bushfire Protection 2006 (PBP, 2006).

AS3959 (2009) Appendix A – Method 1 and Appendix B - Detailed Method 2 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.

1.1 Site Particulars

Locality:	Stage 9 at Billy's Lookout, Teralba
LGA:	Lake Macquarie City Council (LMCC)
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 May 2010. This version is titled AS 3959-2009 'Construction of Buildings in Bushfire Prone Areas' (standards Australia 2009, incorporating amendment 1 (November 2009) and amendment 2 (February 2011), with amendment 2 being used in this assessment.

In addition, the NSW method of determining the bushfire attack level, found in Appendix 3 of the document 'Planning for Bushfire Protection 2006' (NSW Rural Fire Service 2006) 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 (2009) Appendix A – Method 1 has been used in this BAL assessment. 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 10m.
- 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, 2006) and AS3959-2009.

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.

Table 1 –Vegetation & Slope Assessment

Direction from Site	Vegetation Classification	Effective Slope
North	Land managed as an APZ until such time that development occurs	N/A
East	Land managed as an APZ until such time that development occurs	N/A
South	Vegetation classified as open forest occurs greater than 73 m away from the site	Downslope 0-5 degrees
West	Land managed as an APZ until such time that development occurs	N/A

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 FDI of 100 was determined for LMCC 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 – 2009.

The results from this bush fire attack assessment are detailed below in Table 4-1– Bushfire Attack Level (BAL) Assessment and Figure 4-1 Bushfire Attack Level Map.

Table 4-1: Bushfire Attack Level Assessment

Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation	Bushfire Attack Level (BAL)	Construction Section
Lot 501	Open Forest to the South	Downslope 0-5 degrees	57-<100m	BAL-12.5	Sect 3 & 7 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
			≥100m	BAL-LOW	No requirements
Lot 502	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements

Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation	Bushfire Attack Level (BAL)	Construction Section
Lot 503	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 504	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 505	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 506	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 507	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 508	Open Forest to the South	Downslope 0-5 degrees	57-<100m	BAL-12.5	Sect 3 & 7 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
			≥100m	BAL-LOW	No requirements
Lot 509	Open Forest to the South	Downslope 0-5 degrees	57-<100m	BAL-12.5	Sect 3 & 7 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
			≥100m	BAL-LOW	No requirements
Lot 510	Open Forest to the South	Downslope 0-5 degrees	57-<100m	BAL-12.5	Sect 3 & 7 of AS3959 and Sect A3.7 of PBP Addendum Appendix

Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation	Bushfire Attack Level (BAL)	Construction Section
					3
			≥100m	BAL-LOW	No requirements
Lot 511	Open Forest to the South	Downslope 0-5 degrees	57-<100m	BAL-12.5	Sect 3 & 7 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
			≥100m	BAL-LOW	No requirements
Lot 512	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 513	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 514	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 515	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 516	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 517	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 518	No vegetation considered a bushfire hazard	N/A	≥100m	BAL-LOW	No requirements

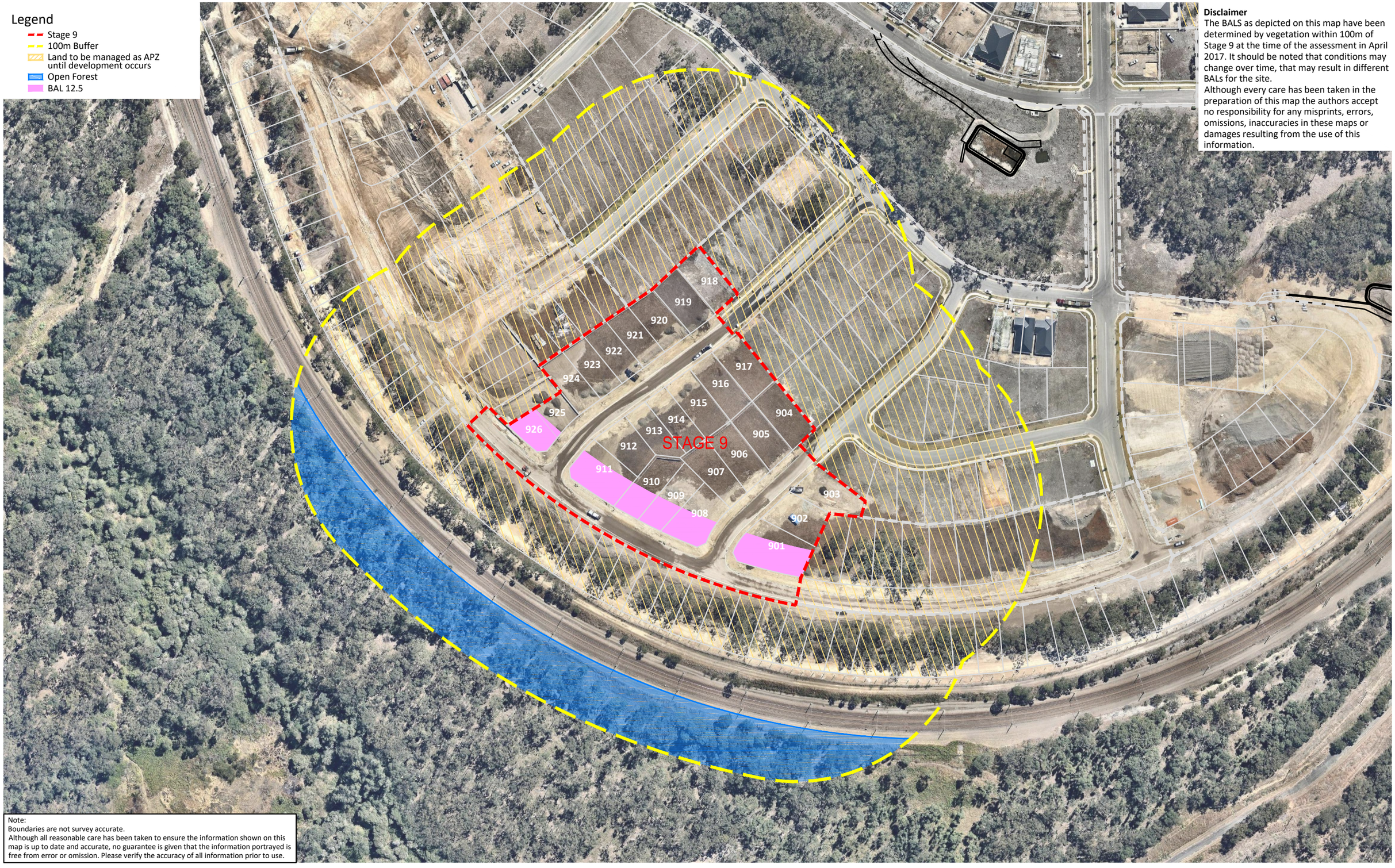
Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation	Bushfire Attack Level (BAL)	Construction Section
	occurs within 100 m				
Lot 519	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 520	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 521	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 522	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 523	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 524	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 525	No vegetation considered a bushfire hazard occurs within 100 m	N/A	≥100m	BAL-LOW	No requirements
Lot 526	Open Forest to the South	Downslope 0-5 degrees	57-<100m	BAL-12.5	Sect 3 & 7 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3

Lot Number	Vegetation Type within 100m & Direction from future dwellings	Average Slope of Land (degrees)	Separation Distance from Identified Vegetation	Bushfire Attack Level (BAL)	Construction Section
			≥100m	BAL-LOW	No requirements

*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.

No BALs applies to any future dwelling built greater than 100m from the Open Forest.

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 Summary of AS3959-2009 Construction Standards and Appendix C for Additional Building Requirements.



Disclaimer
The BALS as depicted on this map have been determined by vegetation within 100m of Stage 9 at the time of the assessment in April 2017. 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 authors accept no responsibility for any misprints, errors, omissions, inaccuracies in these maps or damages resulting from the use of this information.

Note:
Boundaries are not survey accurate.
Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

FIGURE 4-1: BUSHFIRE ATTACK LEVELS MAP

Ref No 1880

CLIENT	McCloys Pty Ltd
SITE DETAILS	Stage 9 Pitt Street & Myrtle Street Teralba
DATE	1 November 2017

NORTH

0 25 50 100

SCALE 2000 @ A3

PIXELDRAFTING

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5 CONCLUSION

This report provides an assessment of the Bushfire Attack Level (BAL) in accordance with AS3959-2009 Construction of Buildings in Bushfire Prone Areas for Stage 9 at Billy's Lookout, Teralba.

This BAL report assesses the application of Australian Standard AS3959-2009 'Construction of Buildings in Bushfire Prone Land' and Appendix 3 of Planning for Bushfire Protection 2006 (PBP, 2006).

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 AS3959-2009 and the addendum to Appendix 3 of Planning PBP 2006 (NSW Rural Fire Service NSW).

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6 BIBLIOGRAPHY

NSW Rural Fire Service (RFS) 2006. Planning for Bushfire Protection: A guide for Councils, Planners, Fire Authorities, Developers and Home Owners. Australian Government Publishing Service, Canberra.

Standards Australia. 2009. Construction of buildings in bushfire-prone Ares, AS3959, Third Edition 2009, Incorporating Amendment 1, Standards Australia International Ltd Sydney