

## Bushfire Attack Level (BAL) Assessment Report for Stage 4A Apsley Estate, Mandogalup

### Site Details

**Address:** Stage 4A Apsley Estate: (Lots 270-273, 280-283, 287-292 and 401-402)

**Suburb:** Mandogalup, 6167 **State:** Western Australia

**Local Government Area:** City of Kwinana

**Description of building works:** Residential development, future buildings

### Report details

<b>Report/Job number:</b>	20PER-16783	<b>Report version:</b>	v1
<b>Assessment date:</b>	1/06/2021	<b>Report date:</b>	2/06/2021
<b>Author:</b>	Stephen Moore and Daniel Panickar	<b>Review:</b>	Daniel Panickar (BPAD Level 3 – 37802)



### SITE ASSESSMENT AND SITE PLAN

The assessment of the 16 subject lots was undertaken on 1 June 2021 for the purpose of determining the Bushfire Attack Level (BAL) in accordance with *Australian Standard AS 3959: 2018 Construction of Buildings in Bushfire Prone Areas (SA 2018) Simplified Procedure (Method 1)*. An overview of the site is presented in Figure 1.

### VEGETATION CLASSIFICATION

All vegetation within 150 m of the 16 subject lots was classified in accordance with Clause 2.2.3 of AS 3959: 2018. Each distinguishable vegetation class with the potential to determine the BAL is identified below and presented in Figure 1.

It is currently assumed that areas of landscaped vegetation within the site and assessment area will be managed and maintained by QUBE Property Group (the developer) until replaced by residential dwellings and associated infrastructure or handed over to the City of Kwinana in the future.

A 27 m wide APZ has been established and is being maintained by the developer within the Western power easement to the southeast of the subject site. Portions of the Western Power Easement will be cleared and landscaped following the development, approval and implementation of a landscaping plan.

The intent of this landscaping plan is to maintain the entire easement adjacent to the subject site as low threat vegetation.

**Plot 1      Classification or Exclusion Clause      Class D Scrub**

**Photo Point 1**

Classified vegetation within this plot is comprised of shrubs >2 m high with greater than 30% foliage cover. Vegetation represents regrowing shrubs within a Western Power easement. Slope under the vegetation has been assessed as downslope >0 to 5°.



**Plot 2      Classification or Exclusion Clause      Class D Scrub**

**Photo Point 2**

Classified vegetation within this plot is comprised of shrubs >2 m high with greater than 30% foliage cover. Vegetation represents banksia woodlands in a scrub structure. Slope under the vegetation has been assessed as upslope/flat land.



**Plot 2      Classification or Exclusion Clause      Class D Scrub**

**Photo Point 3**

Classified vegetation within this plot is comprised of shrubs >2 m high with greater than 30% foliage cover. Vegetation represents banksia woodlands in a scrub structure within a conservation reserve. Slope under the vegetation has been assessed as upslope/flat land.





**Plot 3 Classification or Exclusion Clause Excluded – clause 2.2.3.2 (e) & (f)**

**Photo Point 4**

This plot has been excluded under Clause 2.2.3.2 (e) & (f) of AS 3959: 2018. This photo depicts land within the Western Power easement east of Apsley Estate that has been recently cleared for an Asset Protection Zone.



**Plot 3 Classification or Exclusion Clause Excluded – clause 2.2.3.2 (e) & (f)**

**Photo Point 5**

This plot has been excluded under Clause 2.2.3.2 (e) & (f) of AS 3959: 2018. This photo depicts land within the Western Power easement east of Apsley Estate that has been recently cleared for an Asset Protection Zone.



**Plot 3 Classification or Exclusion Clause Excluded – clause 2.2.3.2 (e) & (f)**

**Photo Point 6**

This plot has been excluded under Clause 2.2.3.2 (e) & (f) of AS 3959: 2018. This photo depicts land within Apsley Estate that has been recently cleared for development.



### RELEVANT FIRE DANGER INDEX

The Fire Danger Index (FDI) for this site has been determined in accordance with Table 2.1 of AS 3959: 2018. The FDI for WA is FDI 80.

### POTENTIAL BUSHFIRE IMPACTS

The potential bushfire impact to the site / proposed development from each of the identified vegetation plots are identified below, Table 1 and Figure 2.

**Table 1: BAL Analysis AS 3959: 2018**

Plot	Vegetation Classification	Effective Slope	Separation distances required				
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
1	Class D Scrub	Downslope >0 to 5°	<11	11-<15	15-<22	22-<31	31-<100
2	Class D Scrub	Upslope / flat land	<10	10-<13	13-<19	19-<27	27-<100
3	Excluded under Clause 2.2.3.2 (e) & (f)	N/A	No separation distances required – BAL-LOW				

### DETERMINED BUSHFIRE ATTACK LEVEL (BAL)

The determined Bushfire Attack Level (highest BAL) for the proposed works has been determined in accordance with Clause 2.2.6 of AS 3959: 2018 relevant data from the BAL assessment shown in Figure 2 and Table 2.

**Table 2: BAL assessment summary**

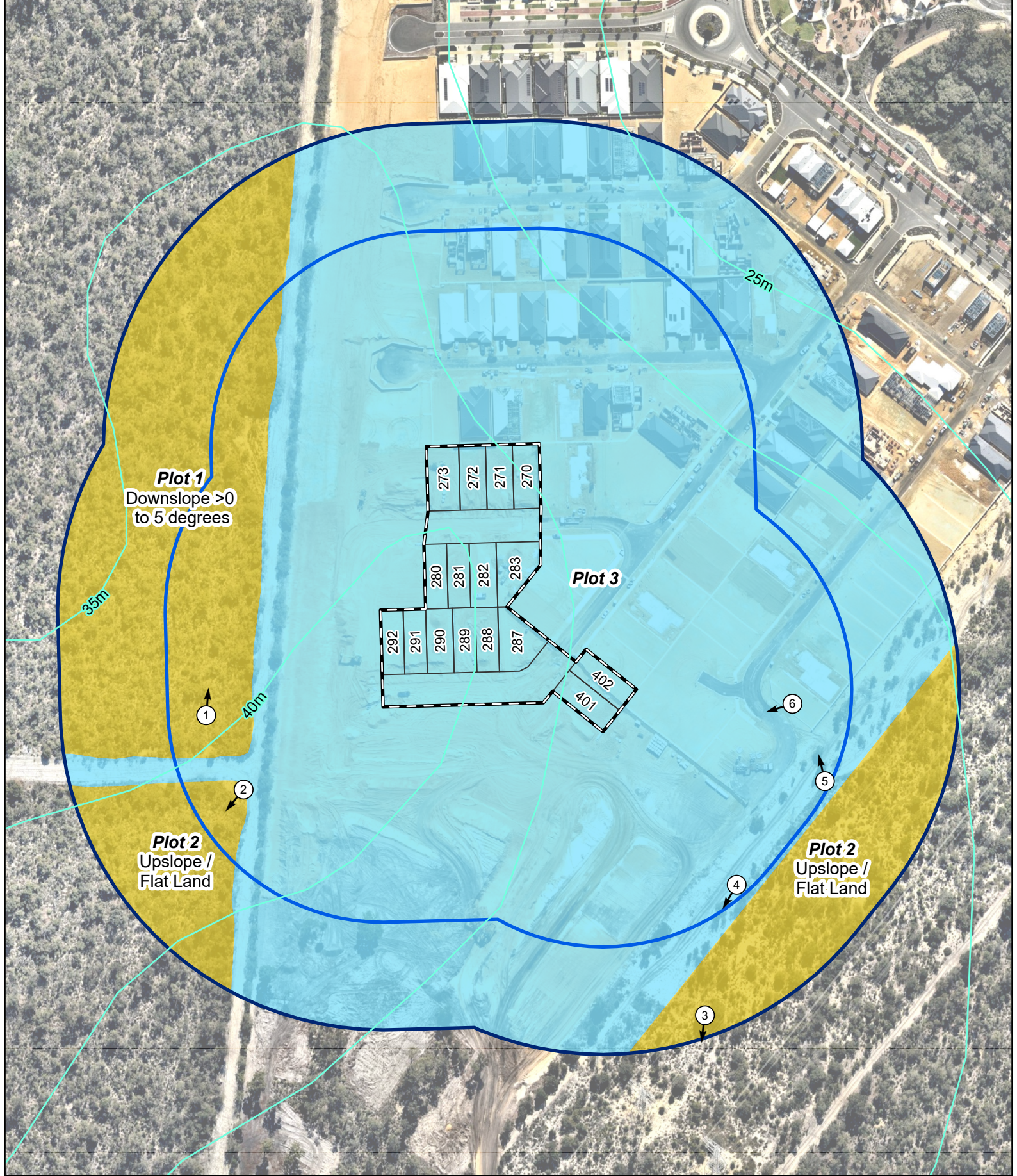
BAL	Affected lots	Construction sections to be consulted in AS 3959-2018
BAL-FZ	Nil	N/A
BAL-40	Nil	N/A
BAL-29	Nil	N/A
BAL-19	Nil	N/A
BAL-12.5	Determined Bushfire Attack Level for: Lots 272, 273, 280, 281, 282*, 288*, 289*, 290, 291 and 292.	3 and 5
BAL-LOW	Determined Bushfire Attack Level for: Lots 270, 271, 283, 287, 401 and 402.	3 and 4

\* INDICATES THAT A SETBACK MAY BE ABLE TO REDUCE THE BAL RATING FOR A FUTURE DWELLING.

This BAL rating is based on the information current at the date of this document and is valid for 12 months.



**Figure 1: Vegetation Classification**



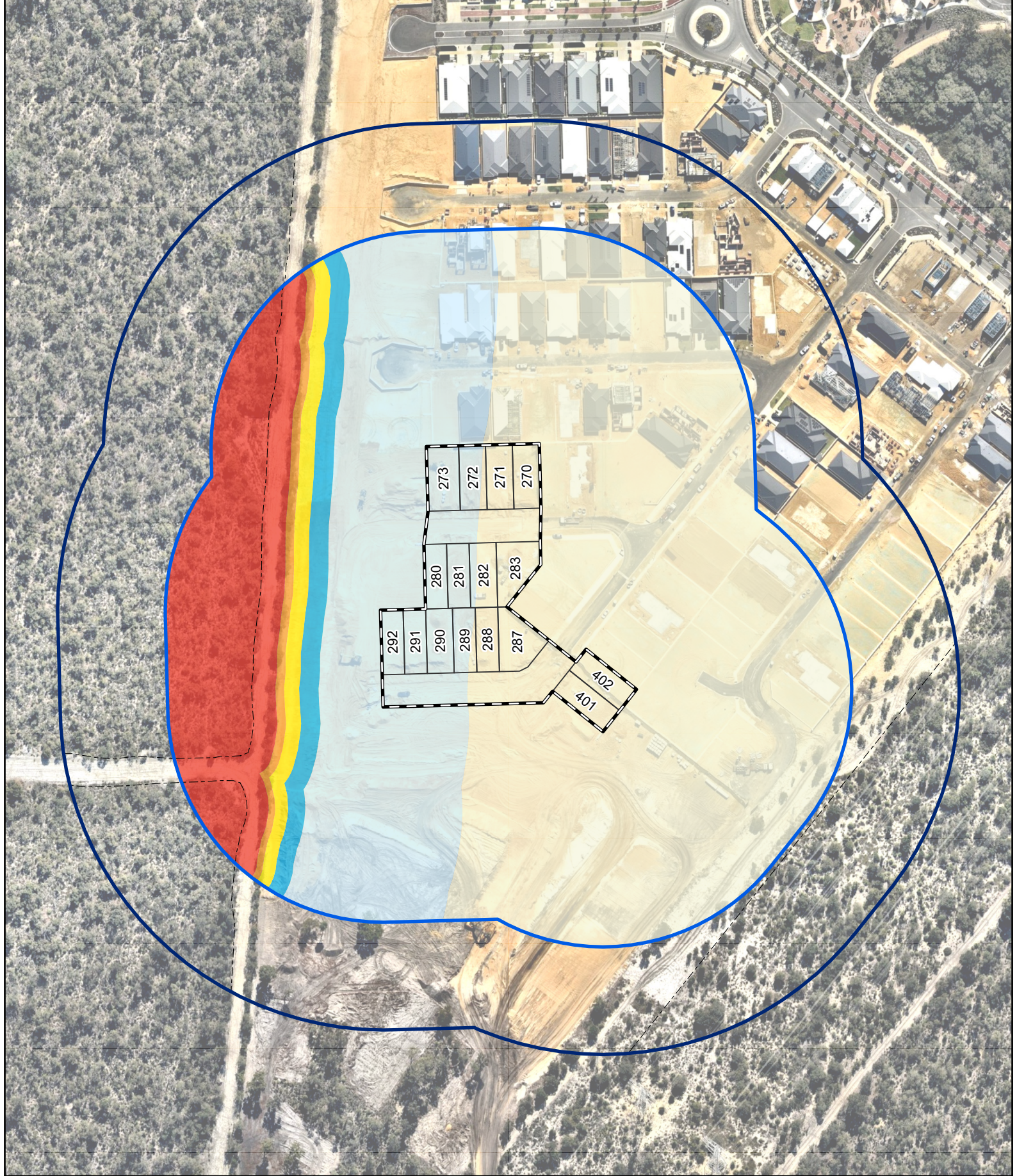
- Legend**
- Subject site
  - Lot boundary
  - 100m site assessment
  - 150m site assessment






- Contour (5m)
- Vegetation classification**
- Class D scrub
  - Excluded as per clause 2.2.3.2 (e) and (f)







0 15 30 60  
Metres  
Datum/Projection: GDA 1994 MGA Zone 50

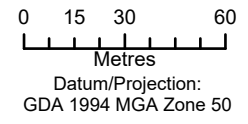


**Figure 2: Bushfire Attack Level (BAL) Contours**



- Legend**
-  Subject site
  -  Lot boundary
  -  100m site assessment
  -  150m site assessment
  -  Bushfire Hazard Interface

- Bushfire Attack Level (BAL)**
-  BAL - FZ
  -  BAL - 40
  -  BAL - 29
  -  BAL - 19
  -  BAL - 12.5
  -  BAL - LOW



Datum/Projection:  
GDA 1994 MGA Zone 50





## Appendix A – Additional Information / Advisory Notes

Bushfire Attack Level (BAL) as set out in the Australian Standard 3959 Construction of Buildings in Bushfire-Prone Areas (AS 3959), as referenced in the Building Code of Australia.

Bushfire Attack Level (BAL)	Classified vegetation within 100 m of the site and radiant heat flux exposure thresholds	Description of predicted bush fire attack and levels of exposure	Construction Section as per AS 3959
BAL-LOW		There is insufficient risk to warrant specific construction requirements.	4
BAL-12.5	$\leq 12.5 \text{ kW/m}^2$	Ember attack	3 and 5
BAL-19	$> 12.5 \text{ kW/m}^2 \leq 19 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux.	3 and 6
BAL-29	$> 19 \text{ kW/m}^2 \leq 29 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux	3 and 7
BAL-40	$> 29 \text{ kW/m}^2 \leq 40 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux with the increased likelihood of exposure to flames.	3 and 8
BAL-FZ	$> 40 \text{ kW/m}^2$	Direct exposure to flames from fire front in addition to radiant heat flux and ember attack	3 and 9

Source: “AS 3959: 2018 Construction of buildings in bushfire-prone areas” published by Standards Australia, Sydney