



AS3959 Bushfire Attack Level Assessment Report

This report has been prepared using the Simplified Procedure (Method 1) as detailed in Section 2 of AS3959-2018.

Site Details	
Address:	Stage 1, Lot 705 & 707 Armadale Road
Suburb:	Treeby WA 6164
Local Government Area	City of Cockburn
State:	Western Australia
Description of Building Works	Residential lots for Class 1 Dwellings

Report Details			
Report / Job Number:	2109-09	Report Version	2
Assessment Date:	20/02/2023	Report Date	21/02/2023
Assessor Details			
Name:	Rohan Carboon		
Accredited Practitioner	Rohan Carboon Level 3 - BPAD 23160		

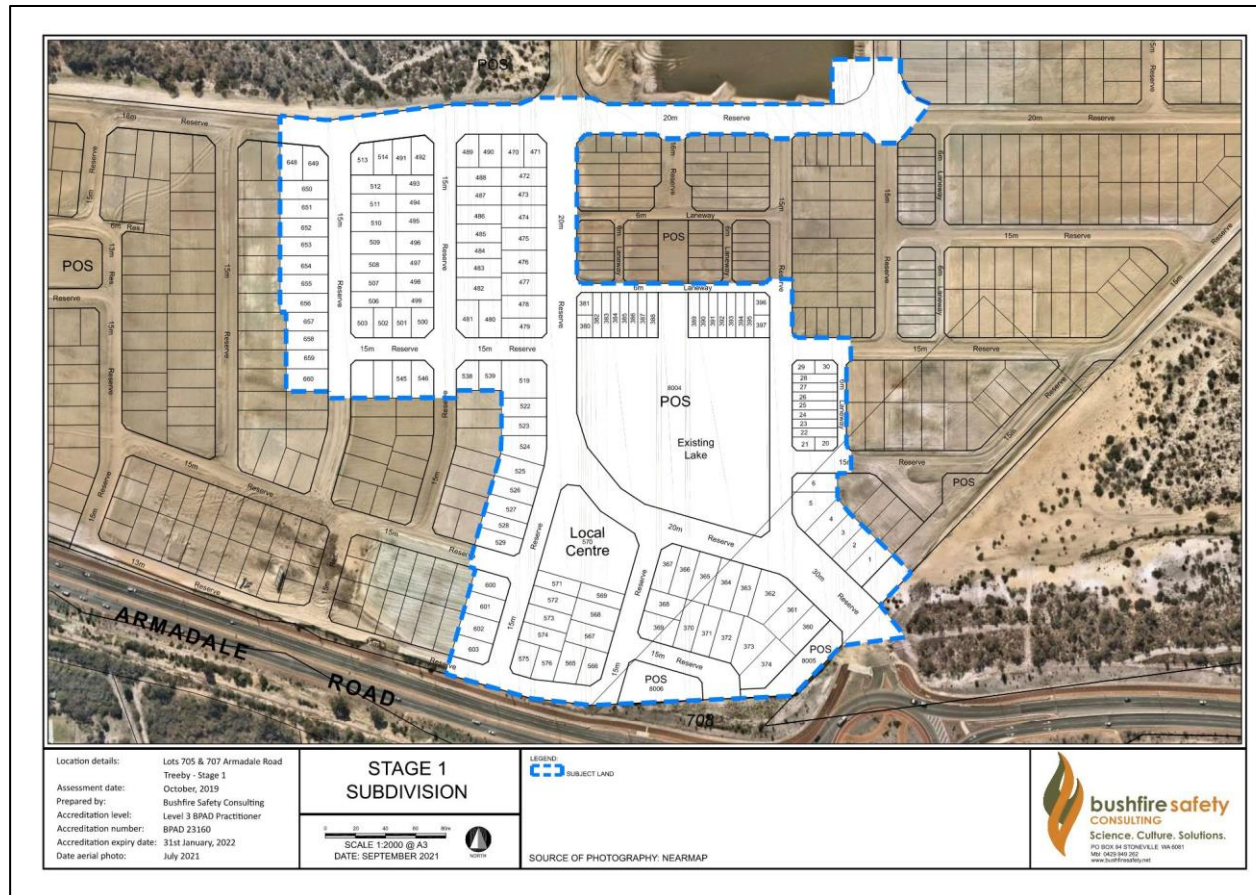
Disclaimer:

This report has been prepared in good faith and is derived from sources believed to be reliable and accurate at the time of publication. Nevertheless, this publication is distributed on the terms and understanding that the author is not responsible for results of any actions taken based on information in this publication or for any error in or omission from this publication.

Notwithstanding the precautions adopted in 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. The objective of the standard (AS 3959:2018) is 'to prescribe particular construction details for buildings to reduce the risk of ignition from a bushfire while the front passes' (Standards Australia, 2018). Building to the standard (AS 3959:2018) does not guarantee a building will survive a bushfire.

Site Assessment and Site Plans

The assessment of this development was undertaken on 20/02/2023 by Bushfire Safety Consulting Pty Ltd for the purposes of determining the Bushfire Attack Level for each lot and dwelling in accordance with AS 3959 – 2018 Simplified Procedure (Method 1). The Stage 1 subdivision development creates 137 urban residential lots and internal roads with future stages cleared to the west and east of the site. This assessment has been undertaken to provide BAL ratings for each lot and dwelling in the subdivision stage (below) as outlined in the vegetation classification map.








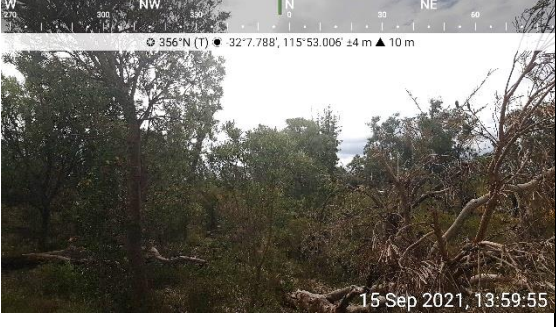



Vegetation Classification






All vegetation within 150m of the subdivision stage was classified in accordance with Clause 2.2.3 of AS 3959-2018. There is no vegetation on the lots, the entire area has been cleared, roads and lots are constructed. Classified vegetation within 100 metres occurs to the north of the subdivision and south of Armadale Road.

There are Public Open Spaces proposed in the subdivision and within 100 metres, most of which have been cleared ready for landscaping works. One POS area north of Lot 490 will be cleared as part of civil works during future construction works on the subdivision.

Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below and outlined in the Vegetation Classification Plan.



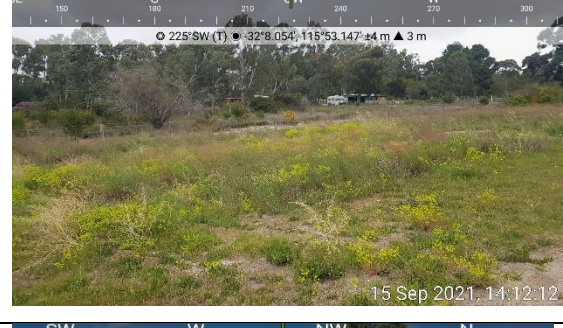


<p>Photo ID: 1</p> <p>Plot Number: 1</p> <p>Vegetation classification or exclusion clause:</p> <p>Class A Forest</p> <p>Description/justification of classification:</p> <p>Middle storey of scrub vegetation including Acacia and woollybush with overstorey of eucalypts, melaleuca trees and tall banksia trees</p>	
<p>Photo ID: 2</p> <p>Plot Number: 1</p> <p>Class A Forest</p> <p>Description/justification of classification:</p> <p>Middle storey of scrub vegetation including Acacia and woollybush with overstorey of eucalypts, melaleuca trees and tall banksia trees</p>	
<p>Photo ID: 3</p> <p>Plot Number: 1</p> <p>Vegetation classification or exclusion clause:</p> <p>Class A Forest</p> <p>Description/justification of classification:</p> <p>Middle storey of scrub vegetation including Acacia and woollybush with overstorey of tall eucalypts.</p>	
<p>Photo ID: 4</p> <p>Plot Number: 1</p> <p>Vegetation classification or exclusion clause:</p> <p>Class A Forest</p> <p>Description/justification of classification:</p> <p>Middle storey of scrub vegetation including Acacia and woollybush with overstorey of tall eucalypts.</p>	

<p>Photo ID: 5</p> <p>Plot Number: 2</p> <p>Vegetation classification or exclusion clause: Class B Woodland</p> <p>Description/justification of classification: Banksia trees > 6m tall with open canopy and low shrubland.</p>	
<p>Photo ID: 6</p> <p>Plot Number: 2</p> <p>Vegetation classification or exclusion clause: Class B Woodland</p> <p>Description/justification of classification: Banksia trees > 6m tall with open canopy and low shrubland.</p>	
<p>Photo ID: 7</p> <p>Plot Number: 2</p> <p>Vegetation classification or exclusion clause: Class B Woodland</p> <p>Description/justification of classification: Banksia trees > 6m tall with open canopy and low shrubland.</p>	
<p>Photo ID: 8</p> <p>Plot Number: 3</p> <p>Vegetation classification or exclusion clause: Class B Woodland</p> <p>Description/justification of classification: revegetation area with scattered overstorey trees and low shrubland vegetation.</p>	
<p>Photo ID: 9</p> <p>Plot Number: 3</p> <p>Vegetation classification or exclusion clause: Class B Woodland</p> <p>Description/justification of classification: revegetation area with scattered overstorey trees and low shrubland vegetation.</p>	

<p>Photo ID: 10</p> <p>Plot Number: 4</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: revegetation area adjacent to Armadale road, revegetation plans confirm vegetation matures 2-6 m in height</p>	
<p>Photo ID: 11</p> <p>Plot Number: 4</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: revegetation area adjacent to Armadale road, revegetation plans confirm vegetation matures 2-6 m in height</p>	
<p>Photo ID: 12</p> <p>Plot Number: 4</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: Scrub vegetation up to 3 m high south of Armadale Road.</p>	
<p>Photo ID: 13</p> <p>Plot Number: 4</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: revegetation area adjacent to Armadale Road, revegetation plans confirm vegetation matures 2-6 m in height</p>	
<p>Photo ID: 14</p> <p>Plot Number: 4</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: revegetation area adjacent to Armadale Road, revegetation plans confirm vegetation matures 2-6 m in height</p>	

<p>Photo ID: 15</p> <p>Plot Number: 4</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: Vegetation dominated by woollybush and low shrubs that matures 2-6 m in height.</p>	
<p>Photo ID: 16</p> <p>Plot Number: 4</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: Vegetation dominated by woollybush and low shrubs that matures 2-6 m in height.</p>	
<p>Photo ID: 17</p> <p>Plot Number: 4</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: Vegetation dominated by woollybush and low shrubs that matures 2-6 m in height.</p>	
<p>Photo ID: 18</p> <p>Plot Number: 5</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: Low Banksia scrub Vegetation dominated by low banksia trees that mature 2-6 m in height.</p>	
<p>Photo ID: 19</p> <p>Plot Number: 5</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: Low Banksia scrub Vegetation dominated by low banksia trees that mature 2-6 m in height.</p>	

<p>Photo ID: 20</p> <p>Plot Number: 5</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: Degraded land which is currently being re-vegetated</p>	
<p>Photo ID: 21</p> <p>Plot Number: 6</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification: Degraded land, but proposed for low shrubland revegetation according to approved revegetation plans</p>	
<p>Photo ID: 22</p> <p>Plot Number: 6</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification: Mature vegetation dominated by low shrubland 0.5 – 1m in height.</p>	
<p>Photo ID: 23</p> <p>Plot Number: 6</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification: Mature vegetation dominated by low shrubland 0.5 – 1m in height.</p>	
<p>Photo ID: 24</p> <p>Plot Number: 6</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification: Mature vegetation dominated by low shrubland 0.5 – 1m in height.</p>	

<p>Photo ID: 25</p> <p>Plot Number: 6</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification Mature vegetation dominated by low shrubland 0.5 – 1m in height.</p>	
<p>Photo ID: 26</p> <p>Plot Number: 7</p> <p>Vegetation classification or exclusion clause: Class G Grassland</p> <p>Description/justification of classification Grass and weeds in open area.</p>	
<p>Photo ID: 27</p> <p>Plot Number: 7</p> <p>Vegetation classification or exclusion clause: Class G Grassland</p> <p>Description/justification of classification Grass and weeds in open area.</p>	
<p>Photo ID: 28</p> <p>Plot Number: 8</p> <p>Vegetation classification or exclusion clause: Exclusion Clause 2.2.3.2(f)</p> <p>Description/justification of classification Revegetation area in Public Open Space areas</p>	
<p>Photo ID: 29</p> <p>Plot Number: 8</p> <p>Vegetation classification or exclusion clause: Exclusion Clause 2.2.3.2(f)</p> <p>Description/justification of classification Revegetation area in Public Open Space areas</p>	

<p>Photo ID: 30</p> <p>Plot Number: 8</p> <p>Vegetation classification or exclusion clause: Exclusion Clause 2.2.3.2(f)</p> <p>Description/justification of classification Cleared development area – future residential lots</p>	
<p>Photo ID: 31</p> <p>Plot Number: 9</p> <p>Vegetation classification or exclusion clause: Exclusion Clause 2.2.3.2(e)</p> <p>Description/justification of classification Cleared development area – future residential lots and public roads.</p>	
<p>Photo ID: 32</p> <p>Plot Number: 9</p> <p>Vegetation classification or exclusion clause: Exclusion Clause 2.2.3.2(e)</p> <p>Description/justification of classification Cleared development area – future residential lots.</p>	
<p>Photo ID: 33</p> <p>Plot Number: 9</p> <p>Vegetation classification or exclusion clause: Exclusion Clause 2.2.3.2(e)</p> <p>Description/justification of classification Cleared development area – future residential lots and public roads.</p>	
<p>Photo ID: 34</p> <p>Plot Number: 9</p> <p>Vegetation classification or exclusion clause: Exclusion Clause 2.2.3.2(e)</p> <p>Description/justification of classification Cleared development area – future residential lots and public roads.</p>	

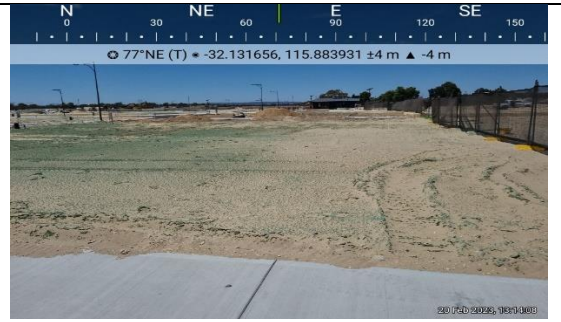
Photo ID: 35

Plot Number: 9

Vegetation classification or exclusion clause:

Exclusion Clause 2.2.3.2(e)

Description/justification of classification Cleared development area – future residential lots.



Relevant Fire Danger Index

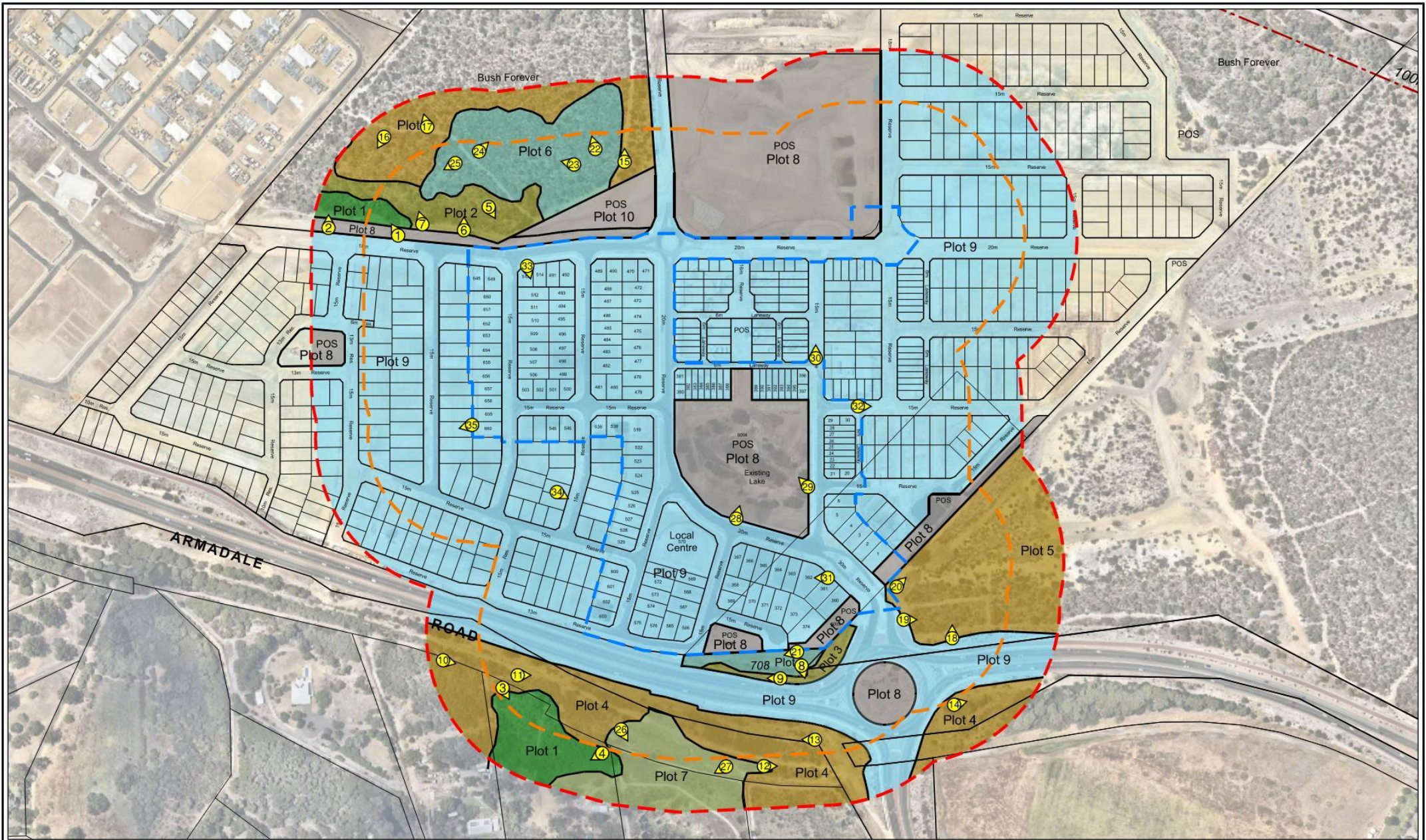
The fire danger index for this site has been determined in accordance with Table 2.1 in AS3959–2018.

Fire Danger Index:	Table
FDI : 80	2.5

Effective Slope

The effective slope under the classified vegetation is outlined in the following table.

Plot No.	Classified Vegetation	Effective slope
1	Class A Forest	Flat/upslope
2	Class B Woodland	Flat/upslope
3	Class B Woodland	Downslope 0-5
4	Class D Scrub	Downslope 0-5
5	Class D Scrub	Flat/upslope
6	Class C Shrubland	Flat/upslope
7	Class G Grassland	Flat/upslope
8	Exclusion Clause 2.2.3.2 (f)	Flat/upslope
9	Exclusion Clause 2.2.3.2 (f)	N/A
10	Exclusion Clause 2.2.3.2 (e)	N/A
11	Exclusion Clause 2.2.3.2 (f)	N/A
12	Exclusion Clause 2.2.3.2 (f)	N/A



Location details: Lots 705 & 707 Armadale Road
 Treeby - Stage 1
 Assessment date: October, 2019
 Prepared by: Bushfire Safety Consulting
 Accreditation level: Level 3 BPAD Practitioner
 Accreditation number: BPAD 23160
 Accreditation expiry date: 31st January, 2024
 Date aerial photo: January 2023

VEGETATION CLASSIFICATION MAP (BAL CONTOUR MAP)

0 20 40 60 80 100 120 140m

NOT TO SCALE @ A3
 DATE: FEBRUARY 2023



LEGEND:
 SUBJECT LAND
 ASSESSMENT AREA (150m) FROM THE
 EXTERNAL BOUNDARY OF THE SUBJECT SITE
 ASSESSMENT AREA (100m) FROM THE
 EXTERNAL BOUNDARY OF THE SUBJECT SITE

SOURCE OF PHOTOGRAPHY: NEARMAP

PLOT 1 - CLASS A FOREST - FLAT/UPSLOPE
 PLOT 2 - CLASS B WOODLAND - FLAT/UPSLOPE
 PLOT 3 - CLASS B WOODLAND - DOWNSLOPE 0-5
 PLOT 4 - CLASS D SCRUB - DOWNSLOPE 0-5
 PLOT 5 - CLASS D SCRUB - FLAT/UPSLOPE
 PLOT 6 - CLASS C SHRUBLAND - FLAT/UPSLOPE
 PLOT 7 - CLASS G GRASSLAND - FLAT/UPSLOPE
 PLOT 8 - EXCLUSION CLAUSE 2.2.3.2(f)
 PLOT 9 - EXCLUSION CLAUSE 2.2.3.2(e) Class D Scrub
 P11T-10 EXCLUSION CLAUSE 2.2.3.2(f) (currently Class B Woodland)

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Determined Bushfire Attack Level

The determined Bushfire Attack Level (highest BAL) for the lots and future dwellings has been determined in accordance with clause 2.2.6 of AS3959-2018 using the above analysis.

Potential Bushfire Impacts

The predicted radiant heat flux levels into the site from the assessment are outlined below in Table 1 and the BAL Contour Plan.

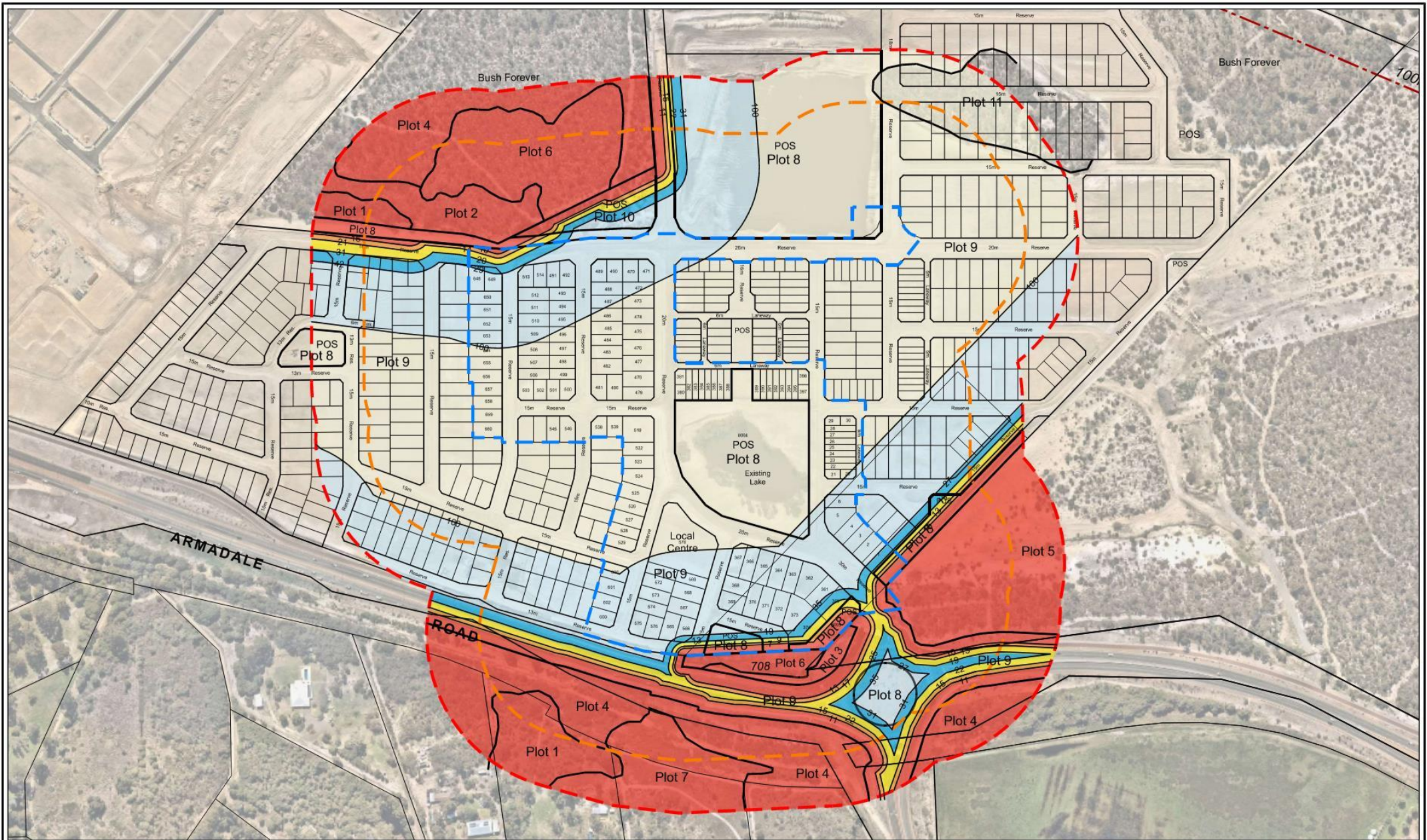
Table 1: BAL Inputs and BAL Ratings

Lots	Vegetation Class	Plot No.	Slope	Setback Distance		BAL Rating
				External	Internal	
1	Class D Scrub	5	Flat/Upslope	17 metres	0	BAL-29
2	Class D Scrub	5	Flat/Upslope	32 metres	0	BAL-12.5
3	Class D Scrub	5	Flat/Upslope	44.5 metres	0	BAL-12.5
4	Class D Scrub	5	Flat/Upslope	57 metres	0	BAL-12.5
5	Class D Scrub	5	Flat/Upslope	69.5 metres	0	BAL-12.5
6	Class D Scrub	5	Flat/Upslope	83 metres	0	BAL-12.5
20	Class D Scrub	5	Flat/Upslope	93.5 metres	0	BAL-12.5
21 & 23 - 30	Class D Scrub	5	Flat/Upslope	>100 metres	0	BAL-LOW
22	Class D Scrub	5	Flat/Upslope	97.9 metres	0	BAL-12.5
380 -397	Class C Shrubland	6	Flat/Upslope	>100 metres	0	BAL-LOW
474 - 485	Class D Scrub	5	Flat/Upslope	>100 metres	0	BAL-LOW
470	Class C Shrubland	6	Flat/Upslope	66.7 metres	0	BAL-12.5
471	Class C Shrubland	6	Flat/Upslope	72.4 metres	0	BAL-12.5
472	Class C Shrubland	6	Flat/Upslope	85.3 metres	0	BAL-12.5
473	Class C Shrubland	6	Flat/Upslope	97 metres	0	BAL-12.5
486	Class B Woodland	2	Flat/Upslope	95.5 metres	0	BAL-12.5
487	Class B Woodland	2	Flat/Upslope	83.5 metres	0	BAL-12.5
488	Class C Shrubland	6	Flat/Upslope	72.9 metres	0	BAL-12.5
489	Class C Shrubland	6	Flat/Upslope	55.4 metres	0	BAL-12.5
490	Class C Shrubland	6	Flat/Upslope	59.2 metres	0	BAL-12.5
491	Class B Woodland	2	Flat/Upslope	36.6 metres	0	BAL-12.5
492	Class B Woodland	2	Flat/Upslope	41.5 metres	0	BAL-12.5
493	Class B Woodland	2	Flat/Upslope	60 metres	0	BAL-12.5
494	Class B Woodland	2	Flat/Upslope	70.6 metres	0	BAL-12.5
495	Class B Woodland	2	Flat/Upslope	81 metres	0	BAL-12.5
496	Class B Woodland	2	Flat/Upslope	93 metres	0	BAL-12.5
508	Class B Woodland	2	Flat/Upslope	96.5 metres	0	BAL-12.5
509	Class B Woodland	2	Flat/Upslope	82 metres	0	BAL-12.5
510	Class B Woodland	2	Flat/Upslope	70 metres	0	BAL-12.5
511	Class B Woodland	2	Flat/Upslope	58 metres	0	BAL-12.5
512	Class B Woodland	2	Flat/Upslope	46 metres	0	BAL-12.5
513	Class B Woodland	2	Flat/Upslope	30 metres	0	BAL-12.5

Address	Vegetation Class	Wind Speed	Slope	Distance	Wind Speed	BAL Rating
514	Class B Woodland	2	Flat/Upslope	32.9 metres	0	BAL-12.5
497 - 503	Class B Woodland	2	Flat/Upslope	>100 metres	0	BAL-LOW
506 - 507	Class B Woodland	2	Flat/Upslope	>100 metres	0	BAL-LOW
648	Class B Woodland	2	Flat/Upslope	25.5 metres	0	BAL-19
649	Class B Woodland	2	Flat/Upslope	23.5 metres	0	BAL-19
650	Class B Woodland	2	Flat/Upslope	46 metres	0	BAL-12.5
651	Class B Woodland	2	Flat/Upslope	58.5 metres	0	BAL-12.5
652	Class B Woodland	2	Flat/Upslope	71 metres	0	BAL-12.5
653	Class B Woodland	2	Flat/Upslope	83.5 metres	0	BAL-12.5
654	Class B Woodland	2	Flat/Upslope	96 metres	0	BAL-12.5
655 - 660	Class B Woodland	2	Flat/Upslope	>100 metres	0	BAL-LOW
560 -561	Class B Woodland	2	Flat/Upslope	>100 metres	0	BAL-LOW
545 -546	Class B Woodland	2	Flat/Upslope	>100 metres	0	BAL-LOW
538 - 539	Class B Woodland	2	Flat/Upslope	>100 metres	0	BAL-LOW
519	Class B Woodland	2	Flat/Upslope	>100 metres	0	BAL-LOW
522 - 529	Class B Woodland	2	Down 0-5°	>100 metres	0	BAL-LOW
600	Class D Scrub	4	Down 0-5°	93.7 metres	0	BAL-12.5
601	Class D Scrub	4	Down 0-5°	78 metres	0	BAL-12.5
602	Class D Scrub	4	Down 0-5°	63.5 metres	0	BAL-12.5
603	Class D Scrub	4	Down 0-5°	48 metres	0	BAL-12.5
565	Class C Shrubland	6	Flat/Upslope	17 metres	0	BAL-19
566	Class C Shrubland	6	Flat/Upslope	13.5 metres	0	BAL-19
567	Class C Shrubland	6	Flat/Upslope	34 metres	0	BAL-12.5
568	Class C Shrubland	6	Flat/Upslope	48 metres	0	BAL-12.5
569	Class C Shrubland	6	Flat/Upslope	62.5 metres	0	BAL-12.5
570	Class C Shrubland	6	Flat/Upslope	71.8 metres	0	BAL-12.5
571	Class C Shrubland	6	Flat/Upslope	72 metres	0	BAL-12.5
572	Class C Shrubland	6	Flat/Upslope	61 metres	0	BAL-12.5
573	Class C Shrubland	6	Flat/Upslope	50 metres	0	BAL-12.5
574	Class C Shrubland	6	Flat/Upslope	40.5 metres	0	BAL-12.5
575	Class C Shrubland	6	Flat/Upslope	43 metres	0	BAL-12.5
576	Class C Shrubland	6	Flat/Upslope	29.5 metres	0	BAL-12.5
360	Class B Woodland	3	Down 0-5°	17 metres	0	BAL-29

Table 1: BAL Inputs and BAL Ratings

361	Class B Woodland	3	Down 0-5°	31.6 metres	0	BAL-19
362	Class B Woodland	3	Down 0-5°	47.2 metres	0	BAL-12.5
363	Class B Woodland	3	Down 0-5°	58.2 metres	0	BAL-12.5
364	Class C Shrub	6	Flat/Upslope	57.3 metres	0	BAL-12.5
365	Class C Shrub	6	Flat/Upslope	62.5 metres	0	BAL-12.5
366	Class C Shrub	6	Flat/Upslope	67.5 metres	0	BAL-12.5
367	Class C Shrub	6	Flat/Upslope	71.2 metres	0	BAL-12.5
368	Class C Shrub	6	Flat/Upslope	53.5 metres	0	BAL-12.5
369	Class C Shrub	6	Flat/Upslope	35.3 metres	0	BAL-12.5
370	Class C Shrub	6	Flat/Upslope	32.4 metres	0	BAL-12.5
371	Class C Shrub	6	Flat/Upslope	28 metres	0	BAL-12.5
372	Class C Shrub	6	Flat/Upslope	25.1 metres	0	BAL-12.5
373	Class C Shrub	6	Flat/Upslope	15.1 metres	0	BAL-19
374	Class C Shrub	6	Flat/Upslope	6 metres	3	BAL-29






Location details: Lots 705 & 707 Armadale Road
 Treeby - Stage 1
 Assessment date: October, 2019
 Prepared by: Bushfire Safety Consulting
 Accreditation level: Level 3 BPAD Practitioner
 Accreditation number: BPAD 23160
 Accreditation expiry date: 31st January, 2022
 Date aerial photo: July 2021

BAL CONTOUR PLAN

0 20 40 60 80 100 120 140m
 NOT TO SCALE @ A3
 DATE: SEPTEMBER 2021



LEGEND:
 SUBJECT LAND
 ASSESSMENT AREA (150m) FROM THE EXTERNAL BOUNDARY OF THE SUBJECT SITE
 ASSESSMENT AREA (100m) FROM THE EXTERNAL BOUNDARY OF THE SUBJECT SITE

SOURCE OF PHOTOGRAPHY: NEARMAP

INDICATIVE BUSHFIRE ATTACK LEVELS

 BAL LOW
 BAL 12.5
 BAL 19
 BAL 29
 BAL 40
 BAL FLAME ZONE



Appendix 1: Additional Information / Advisory Notes

A Bushfire Attack Level (BAL) Assessment is a means of measuring the severity of a buildings potential exposure to ember attack, radiant heat and direct flame contact from a bushfire event, and thereby determining the construction measures required for the dwelling.

The method used to determination of the BAL rating, and subsequent building construction standards, are directly referenced from Australian Standard *AS3959-2018 Construction of buildings in bushfire prone areas*.

The BAL rating is determined through the identification and assessment of the following parameters:

- Fire danger Index (FDI) rating; assumed to be FDI-80 for Western Australia
- All classified vegetation **within 100m** of the subject building
- Separation distance between the building and the classified vegetation
- Slope of the land under the classified vegetation

AS3959-2018 has six (6) levels of BAL, based on the radiant heat flux exposure to the building, and also identifies the relevant sections for building construction as detailed below;

Bushfire Attack Level (BAL)	Classified Vegetation within 100m of the site and heat flux exposure thresholds	Description of predicted bushfire attack and levels of exposure	Construction Sections (within AS3959)
BAL-LOW	See Clause 2.2.3.2	There is insufficient risk to warrant specific construction requirements	4
BAL-12.5	$\leq 12.5 \text{ kW/m}^2$	Ember attack	3 & 5
BAL-19	$> 12.5 \text{ kW/m}^2$ to $\leq 19 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windbourne embers together with increasing heat flux	3 & 6
BAL-29	$> 19 \text{ kW/m}^2$ to $\leq 29 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windbourne embers together with increasing heat flux	3 & 7
BAL-40	$> 29 \text{ kW/m}^2$ to $\leq 40 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windbourne embers together with increasing heat flux with the increased likelihood of exposure to flames	3 & 8
BAL-FZ	$> 40 \text{ kW/m}^2$	Direct exposure to flames from fire front in addition to heat flux and ember attack	3 & 9