BAL Assessment and Management Statement: Lot 12 Jarrahdale Road, Jarrahdale

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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:	Lot 12 Jarrahdale Road
Suburb:	Jarrahdale
Local Government Area	Shire of Serpentine Jarrahdale
State:	Western Australia
Description of Building Works	Single Class 1 Dwelling

Report Details			
Report / Job Number:	2006-99	**Report Version**	1.0
Assessment Date:	11/5/2020	**Report Date**	13/6/2020

Assessor Details	
Name:	Rohan Carboon
Accredited Practitioner	Rohan Carboon 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.

Not withstanding 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.

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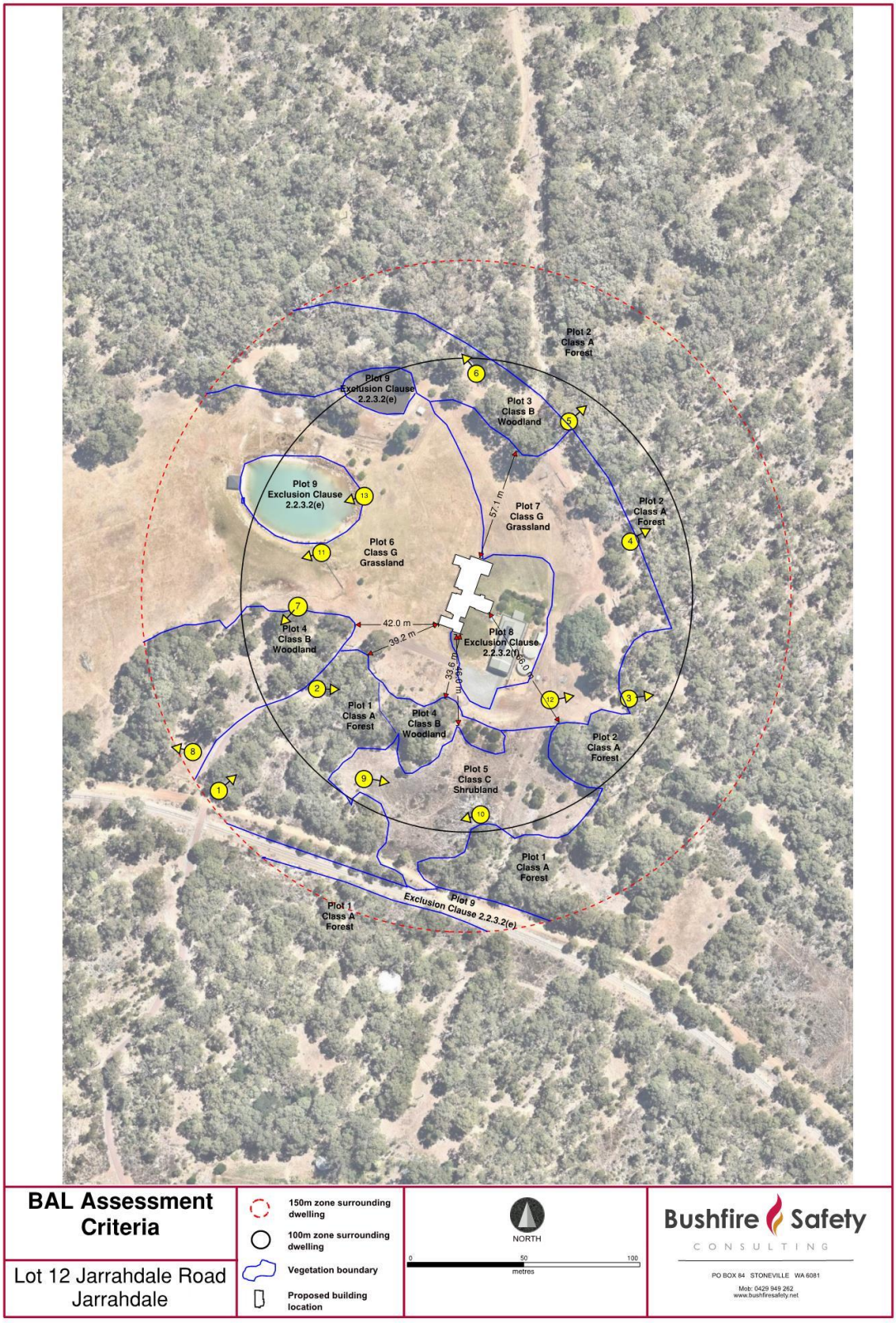
Site Assessment and Site Plans

The assessment of this development was undertaken on 15/04/2020 by Bushfire Safety Consulting Pty Ltd for the purposes of determining the Bushfire Attack Level in accordance with AS 3959 – 2018 Simplified Procedure (Method 1).



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Vegetation Classification

All vegetation within 150m of the proposed dwelling was classified in accordance with Clause 2.2.3 of AS 3959-2018. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below:

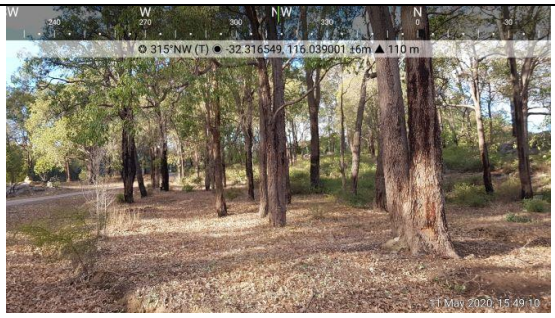
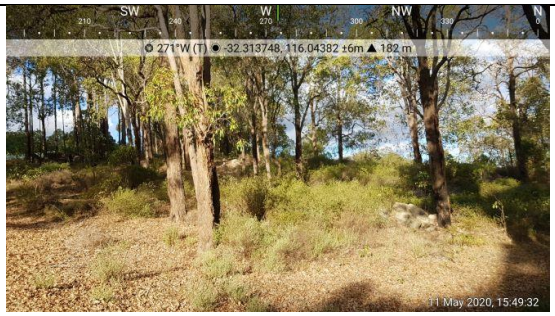
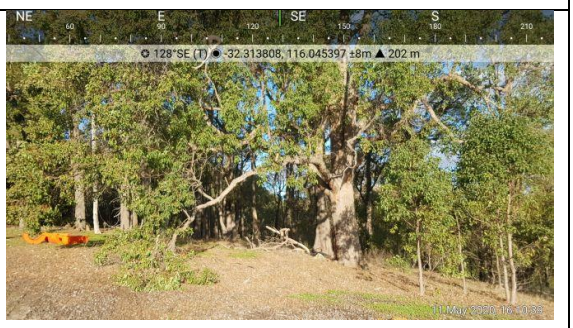
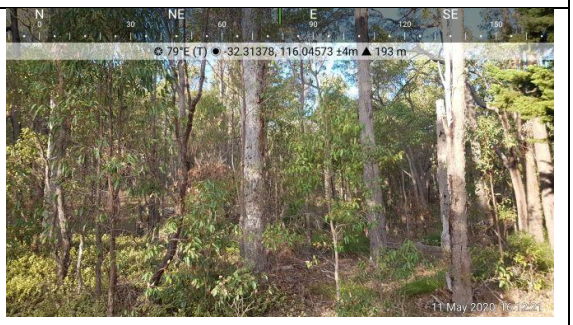
Photo ID: 1 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class A Forest **Description/justification of classification:** Marri and Jarrah forest with minimal middlestorey, but accumulated litter fuels	
Photo ID: 2 **Plot Number:**1 **Vegetation classification or exclusion clause:** Class A Forest **Description/justification of classification:** Marri and Jarrah forest with intact middlestorey and understorey	
Photo ID: 3 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class A Forest **Description/justification of classification:** Marri and Jarrah forest with intact middlestorey and understorey	
Photo ID: 4 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class A Forest **Description/justification of classification:** Marri and Jarrah forest with intact understorey and accumulated leaf litter.	
Photo ID: 5 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class A Forest **Description/justification of classification:** Marri and Jarrah forest with intact understorey and accumulated leaf litter.	

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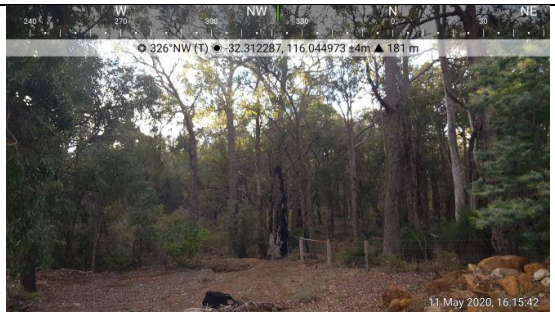
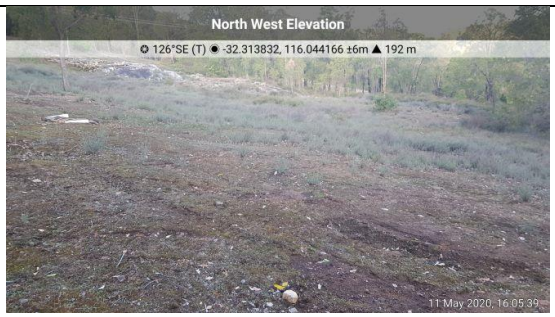
Photo ID: 6 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification:** Marri and Jarrah forest with intact middlestorey and understorey	
Photo ID: 7 **Plot Number:** 4 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification:** Open canopy of Marri and Jarrah forest no middlestorey but leaf litter fuels	
Photo ID: 8 **Plot Number:** 4 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification:** Open canopy of Marri and Jarrah forest no middlestorey but leaf litter fuels	
Photo ID: 9 **Plot Number:** 5 **Vegetation classification or exclusion clause:** Class C Shrubland **Description/justification of classification:** Low shrubland south of the dwelling with grasses	
Photo ID: 10 **Plot Number:** 5 **Vegetation classification or exclusion clause:** Class C Shrubland **Description/justification of classification:** Low shrubland south of the dwelling with grasses	

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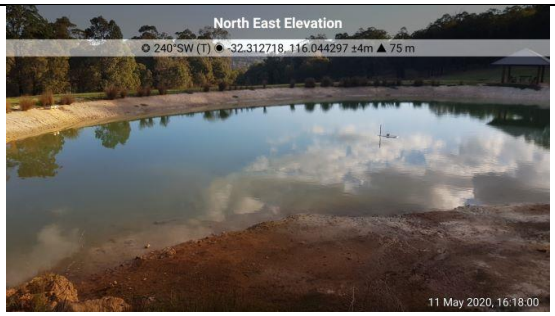
Photo ID: 11 **Plot Number:** 6 **Vegetation classification or exclusion clause:** Glass G Grassland **Description/justification of classification:** Very low grass fuels downslope of the dwelling	
Photo ID: 12 **Plot Number:** 7 **Vegetation classification or exclusion clause:** Glass G Grassland **Description/justification of classification:** Very low grass fuels upslope of the dwelling	
Photo ID: 13 **Plot Number:** 5 **Vegetation classification or exclusion clause:** Exclusion Clause 23.2.3.2e **Description/justification of classification:** Dam filled with water	

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	2.4.3

Potential Bushfire Impacts

The potential bushfire impact to the dwelling from the assessment is outlined below (Table 1).

Table 1: BAL Analysis

Plot	Vegetation Classification	Effective Slope	Separation (m)	BAL
1	Class A Forest	Downslope 9	39.2	BAL-29
	Class A Forest With compliant APZ as outlined in Management Statement		46	BAL-19
2	Class A Forest	Flat / upslope	66	BAL-21.5
3	Class B Woodland	Flat / upslope	57.1	BAL-12.5
4	Class B Woodland	Downslope 9	42	BAL-19
5	Class c Shrubland	Downslope 11°	46	BAL-12.5
6	Class G Grassland	Downslope 6	0	BAL-FZ
7	Class G Grassland	upslope	0	BAL-FZ

Determined Bushfire Attack Level

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

Determined Bushfire Attack Level in existing condition:	**BAL-FZ**
Determined Bushfire Attack Level with compliant APZ as identified in Bushfire Management Statement	**BAL-19**

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Appendix 1: Site Plan

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Appendix 2: 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 *AS3959-2009 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

AS3959-2009 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;

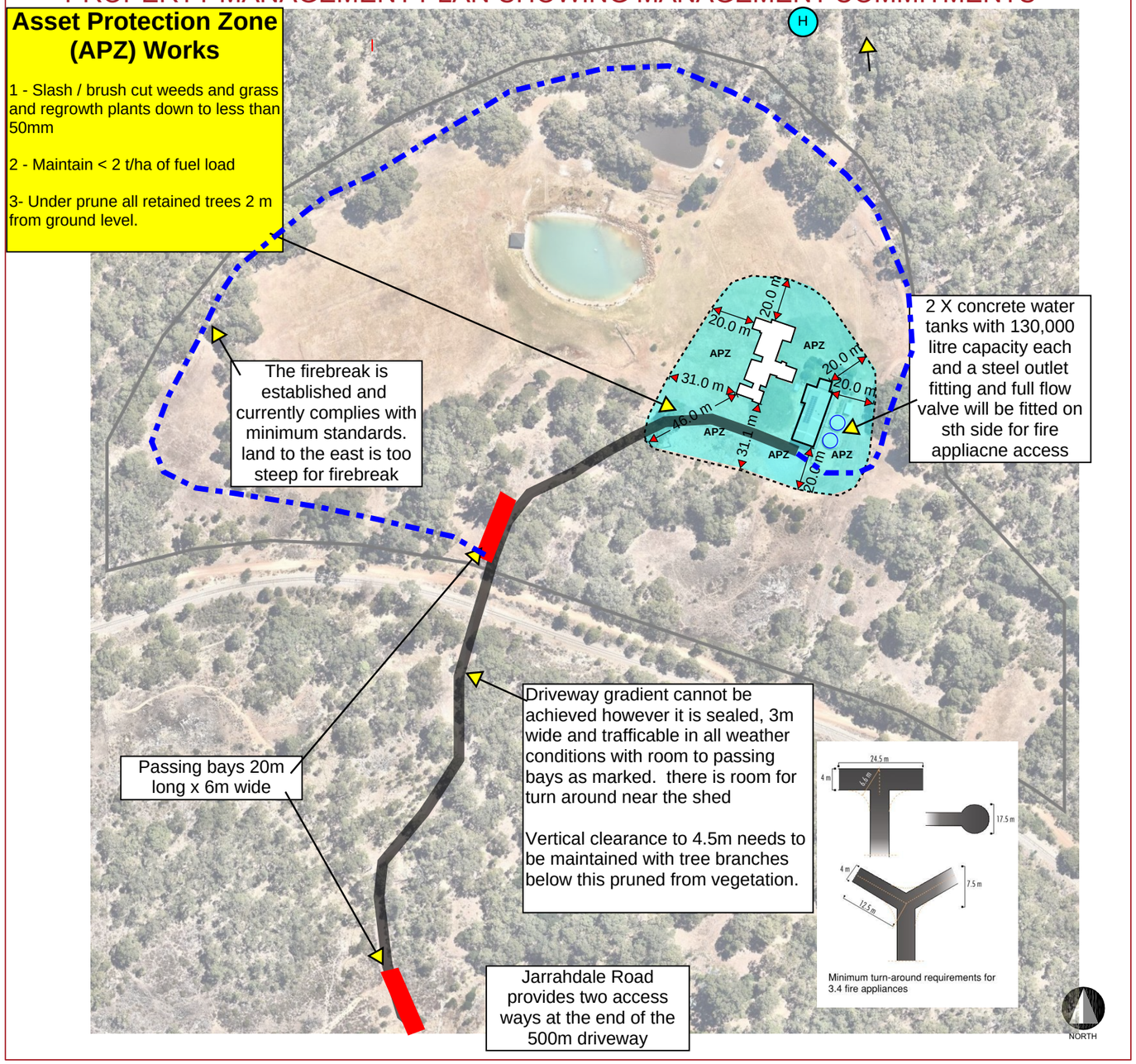
Bushfire Attack Level (BAL)	Classified Vegetation within 100m of the site and heat flux exposure thresholds	Description of predicted bushfire attack and levels of exposure	Construction Sections (within AS3959)
BAL-LOW	See Clause 2.2.3.2	There is insufficient risk to warrant specific construction requirements	4
BAL-12.5	≤12.5kW/m²	Ember attack	3 & 5
BAL-19	>12.5kW/m² to ≤19kW/m²	Increasing levels of ember attack and burning debris ignited by windbourne embers together with increasing heat flux	3 & 6
BAL-29	>19kW/m² to ≤29kW/m²	Increasing levels of ember attack and burning debris ignited by windbourne embers together with increasing heat flux	3 & 7
BAL-40	>29kW/m² to ≤40kW/m²	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	>40kW/m²	Direct exposure to flames from fire front in addition to heat flux and ember attack	3 & 9

Bushfire Management Statement

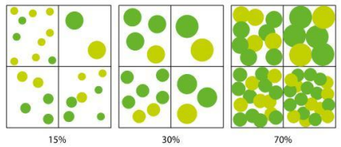
prepared in accordance with the Guidelines for Planning in Bushfire Prone Areas V1.3 (December 2017)

PROPERTY:	Lot 12 Jarrahdale Road, Jarrahdale
LAND OWNER:	Wells
DWELLING:	Class 1a Dwelling

PROPERTY MANAGEMENT PLAN SHOWING MANAGEMENT COMMITMENTS



BUSHFIRE RISK MITIGATION ELEMENTS

Responses to the Guidelines for Planning in Bushfire Prone Areas V1.3 (2017)			
Element	Acceptable Solutions	Responsibilty to implement	Compliance
Element 1: Location	A1.1. Development Location	Lot owner to establish APZ	✓ dwelling can achieve BAL-19
Element 2: Siting and Design of Development	A2.1. Asset Protection Zone (APZ) The dwelling will be surrounded by an Asset Protection Zone (APZ), depicted in the diagram, which will meet the following requirements. • **Fences:** within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used. • **Objects:** within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors. • **Fine Fuel load:** combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare. • **Trees (> 5 metres in height):** trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy. **Figure 18:** Tree canopy cover – ranging from 15 to 70 per cent at maturity  • **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees. • **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs. • **Grass:** should be managed to maintain a height of 100 millimetres or less.	Lot owner to establish APZ	✓ dwelling can achieve BAL-19
Element 3: Vehicular Access	A3.1. Two Access Routes Jarrahdale Road provides two access ways on the public road system	Shire of Serpentine	✓
	A3.2. Public Road Jarrahdale Road complies with minimum standards	Shire of Serpentine	✓
	A3.3. Cul-de-sac Not applicable	Not Applicable	Not Applicable
	A3.4. Battle-axe Not applicable	Not Applicable	Not Applicable
	A3.5. Private Driveways longer than 50 metres Driveway is 500 m long and turn around standards can be achieved as outlined in the diagram.	Lot owner	✓
	A3.6. Emergency access way Not applicable	Not Applicable	Not Applicable
	A3.7. Fire service access routes (perimeter roads) Not applicable	Not Applicable	Not Applicable
	A3.8. Firebreak width - A trafficable firebreak is achieved around the most accessible sections of the perimeter	Lot owner	✓
Element 4: Water	A4.1. Reticulated areas Not applicable	Not Applicable	Not Applicable
	A4.2. Non-reticulated area Not applicable	Not Applicable	Not Applicable
	A4.3. Individual lot within non-reticulated area yes and lot contains a 130Kl tank which will have a 50mm male camlock fitting installed that fire trucks can access to within 3m.	Lot owner	✓

BUSHFIRE CONSULTANT:	Rohan Carboon (BPAD Level 3 - 23160)
DATE:	12/6/2020
SIGNATURE:	

This Bushfire Management Statement forms part of the terms of the planning approval as stamped and outlines the land owners ongoing land management responsibilities to minimise bushfire risk and ensure compliance with the WA Planning for Bushfire Protection Guidelines and the Shire's Annual Firebreak and Fuel Load Notice

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