



APPENDIX A  
BUSHFIRE MANEGMENT PLAN

# Bushfire Management Plan Coversheet

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

## Bushfire Management Plan and Site Details

**Site Address / Plan Reference:** Lots 52 & 2979 Illareen Road

**Suburb:** KATANNING

**State:**

**P/code:** 6317

**Local government area:** Shire of Katanning

**Description of the planning proposal:** Structure Plan for Subdivision - Large number of Lots

**BMP Plan / Reference Number:** 180032

**Version:** v1.1

**Date of Issue:** 21/06/2019

**Client / Business Name:** Landowner/Proponent - Cordite Investments Pty Ltd

Reason for referral to DFES	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the BPC elements)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Is the proposal any of the following special development types (see SPP 3.7 for definitions)?</b>		
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Minor development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If the development is a special development type as listed above, explain why the proposal is considered to be one of the above listed classifications (E.g. considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

N/A

**Note:** The decision maker (e.g. local government or the WAPC) should only refer the proposal to DFES for comment if one (or more) of the above answers are ticked "Yes".

## BPAD Accredited Practitioner Details and Declaration

<b>Name</b> Kathy Nastov	<b>Accreditation Level</b> Level 3	<b>Accreditation No.</b> BPAD 27794	<b>Accreditation Expiry</b> 01/08/2019
<b>Company</b> Bushfire Prone Planning		<b>Contact No.</b> 6477 1144	

I declare that the information provided within this bushfire management plan is to the best of my knowledge true and correct

Signature of Practitioner



Date

21/06/2019



# Bushfire Management Plan

## (Local Structure Planning)

---

Lot 52 & 2979 Illareen Road, Katanning

---

Shire of Katanning

Project Number: 180032

Assessment Date: 30 January 2018

Report Date: 26 February 2018

BPP Group Pty Ltd t/a Bushfire Prone Planning  
ABN: 39 166 551 784

Level 1, 159-161 James Street  
Guildford WA 6055

PO Box 388  
Guildford WA 6935

Ph: 08 6477 1144  
Email: [admin@bushfireprone.com.au](mailto:admin@bushfireprone.com.au)



---

**Copyright ©2019 BPP Group Pty Ltd**

All intellectual property rights, including copyright, in format and proprietary content contained in documents created by Bushfire Prone Planning, remain the property of BPP Group Pty Ltd. Any use made of such format or content without the prior written approval of Bushfire Prone Planning, will constitute an infringement on the rights of the Company which reserves all legal rights and remedies in respect of any such infringement.

**Disclaimer**

The measures contained in this Bushfire Management Plan are considered to be minimum standards and they do not guarantee that a building will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions. Additionally, the correct implementation of the required bushfire protection measures (and any associated response/evacuation plan if applicable) will depend, among other things, on the actions of the landowners or occupiers over which Bushfire Prone Planning has no control.

All surveys, forecasts, projections and recommendations made in this report associated with the project are made in good faith based on information available to Bushfire Prone Planning at the time.

All maps included herein are indicative in nature and are not to be used for accurate calculations.

Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents - arising out of the services provided by their consultants.

---

## Document Control

Version	Version Details	Date Submitted
1.0	Original BMP Document	2-Mar-18
1.1	Updated BMP	21-Jun-19
		-

Author	Bushfire Planning and Design (BPAD) Accreditation	Signature
Greg Dunstan	BPAD Level 1 - No.16382	
Co-author	Bushfire Planning and Design (BPAD) Accreditation	Signature
Jason Benson	BPAD Level 1 - No. 37893	
Reviewed/Approved	Bushfire Planning and Design (BPAD) Accreditation	Signature
Kathy Nastov	BPAD Level 3 - No. 27794	

### The Bushfire Management Plan

BPP commissioned by: Cordite Investments Pty Ltd

Purpose: To accompany a planning application

For Submission to: Shire of Katanning

#### Compliance Statement:

This Bushfire Management Plan (the Plan) provides the required information to address *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas* (SPP 3.7, December 2015), the associated *Guidelines for Planning in Bushfire Prone Areas* (WAPC 2017 v1.3 - the 'Guidelines') and any additional information as directed by the WA Department of Planning, Lands and Heritage.

Structure Plan / Subdivision BMP Template - v7.0

# Table of Contents

<b>DOCUMENT CONTROL</b> .....	<b>3</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>5</b>
<b>1 THE PROPOSAL</b> .....	<b>6</b>
1.1 DETAILS .....	6
1.2 EXISTING DOCUMENTATION RELEVANT TO THE CONSTRUCTION OF THIS PLAN .....	11
<b>2 ENVIRONMENTAL CONSIDERATIONS</b> .....	<b>12</b>
2.1 NATIVE VEGETATION – MODIFICATION AND CLEARING .....	12
2.2 RE-VEGETATION/ RETAINED VEGETATION / LANDSCAPE PLANS .....	14
<b>3 POTENTIAL BUSHFIRE IMPACT ASSESSMENT</b> .....	<b>15</b>
3.1 ASSESSMENT INPUT .....	15
3.1.1 Fire Danger Index (FDI) Applied .....	15
3.1.2 Existing Vegetation Identification and Classification .....	15
3.1.3 Effective Slope and Site Slope .....	21
3.1.4 Vegetation Separation Distance .....	22
3.2 ASSESSMENT OUTPUT .....	23
3.2.1 Indicative BAL Results Presented as a BAL Contour Map .....	23
3.3 ASSESSMENT SUMMARY .....	24
BAL Contour Map Summary - Indicative/Determined Bushfire Attack Levels (BAL's) .....	26
3.3.1 Identification of Specific Issues Arising from BAL Contour Map .....	27
<b>4 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA</b> .....	<b>28</b>
4.2 LOCAL GOVERNMENT VARIATIONS TO THE BUSHFIRE PROTECTION CRITERIA (BPC) .....	33
<b>5 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE REQD. BUSHFIRE MEASURES</b> .....	<b>34</b>
5.1 IMPLEMENTATION RESPONSIBILITIES ESTABLISHED BY THE BMP .....	34
5.2 MANAGEMENT RESPONSIBILITIES ESTABLISHED BY THE BMP .....	36
<b>6 APPENDIX 1 – ONSITE VEGETATION MANAGEMENT TECHNICAL REQUIREMENTS</b> .....	<b>37</b>
<b>APPENDIX 2 – VEHICULAR ACCESS TECHNICAL REQUIREMENTS</b> .....	<b>42</b>
<b>APPENDIX 3 – WATER TECHNICAL REQUIREMENTS</b> .....	<b>44</b>

## List of Figures

FIGURE 1.0: INDICATIVE STRUCTURE PLAN .....	7
FIGURE 1.1: PROPOSED DEVELOPMENT .....	8
FIGURE 1.2: MAP OF BUSHFIRE PRONE AREAS FOR THE SUBJECT SITE AND SURROUNDS .....	9
FIGURE 1.3: PROPOSED DEVELOPMENT SPATIAL CONTEXT MAP .....	10
FIGURE 3.1: TOPOGRAPHY & CLASSIFIED VEGETATION MAP .....	20
FIGURE 3.2: BAL CONTOUR MAP .....	25

## Executive Summary

---

This Bushfire Management Plan (the Plan) has been prepared to accompany the Structure Planning application for Lot 52 and 2979 Illareen Road, Katanning, within the Shire of Katanning.

The subdivision site comprising, Lots 50 - 52 and 2979, of approximately 211 Hectares (71 proposed Lots) is within a designated bushfire prone area and the proposal requires the application of State Planning Policy No. 3.7: Planning in Bushfire Prone Areas (SPP 3.7). The assessed bushfire risk is considered to be manageable and will be achieved by the identified stakeholders implementing and maintaining the bushfire risk management measures that are presented in this Plan. Assessment of the planned location, vegetation and consideration of existing infrastructure indicates that compliance is able to be achieved against all applicable bushfire related legislation, policy, standards and guidelines, including the Bushfire Protection Criteria.

Against the Bushfire Protection Criteria, the decision maker's assessment of this Proposal is to be on the basis of:

- For Element 1 'Location', the Proposal is able to achieve the acceptable solution (by being subject to BAL-29 or less);
- For Element 2 'Siting and Design' the Proposal is able to achieve the acceptable solution (by developing and maintaining an Asset Protection Zone compliant with a BAL Rating of BAL-29 or less);
- For Element 3 'Vehicular Access', the site is provided with suitable vehicle access and egress (provision of two access routes to different destinations);
- For Element 4 'Water', the Proposal is able to achieve the acceptable solution (it will be able to provide the specified water supply for fire-fighting operations).

The proposed development will have access to Illareen Road to the West and Prosser Street to the East, both of which are part of a public road network which will provide safe access and egress to two different destinations. As public roads constructed to the required standard, they are available to all residents and the public at all times and under all weather conditions.

The first stage of this subdivision is 8 proposed Lots, Indicative BAL ratings of BAL-29 or less are able to be achieved on all of these proposed Lots.

Future buildings within 100 metres of classified vegetation will be constructed to standards which correspond to the determined BAL's, as required by *AS 3959-2018 Construction of buildings in bushfire prone areas*. As this proposal does not identify the actual location of building works within each Lot, there may be a requirement to determine the BAL ratings for individual building works once a building site has been identified.

# 1 The Proposal

## 1.1 Details

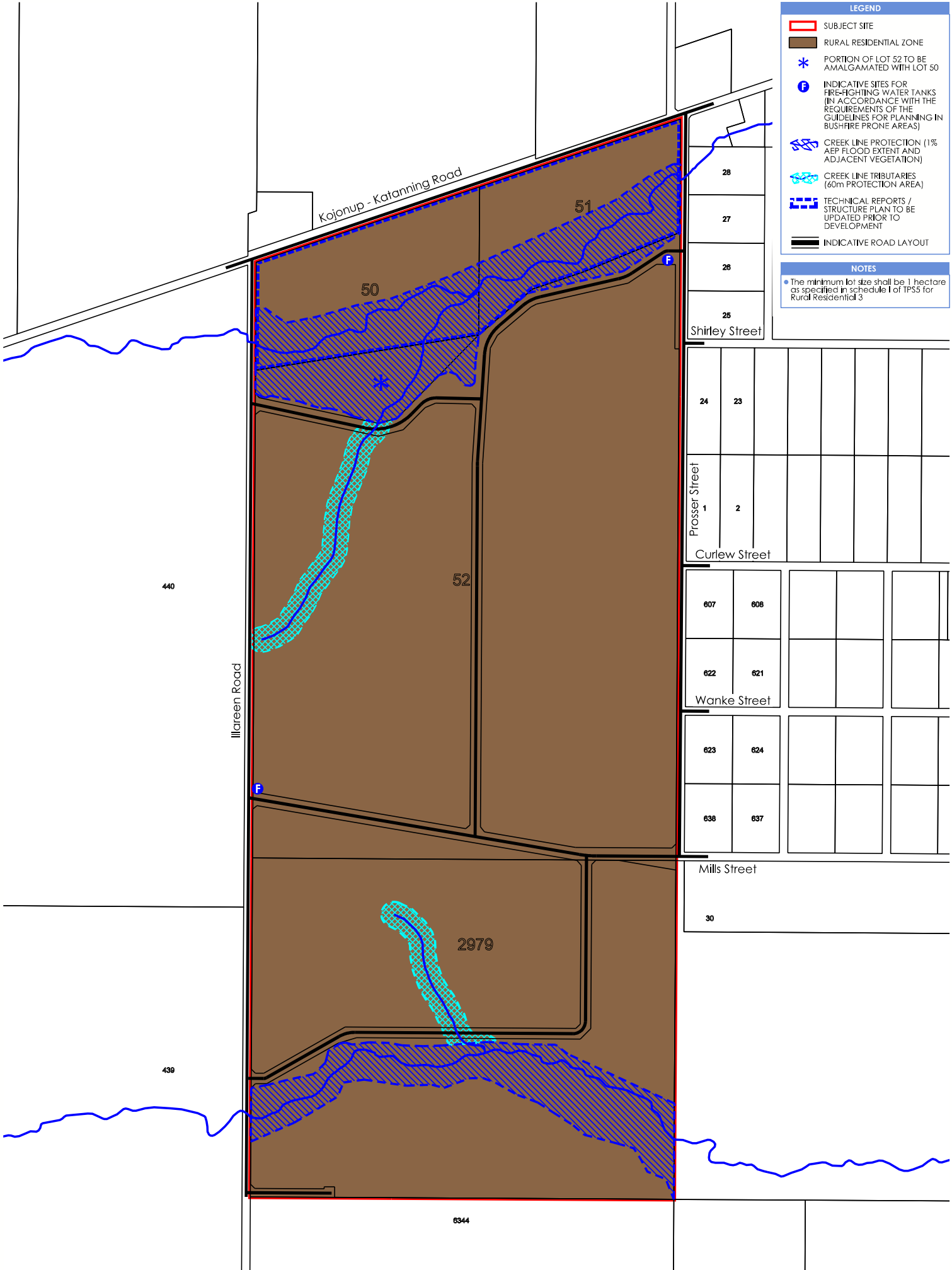
Landowner / Proponent:	Charlie Ball / Cordite Investments Pty Ltd
Site Address:	Lot 52 & 2979 Illareen Road, Katanning
Local Government:	Shire of Katanning
Site Area:	211ha
No. of Proposed Lots:	71 (Refer to Table 1.1)
Planning Stage:	Strategic - local structure plan
Project Type:	Subdivision - one Lot into a large number of Lots

Overview of the Proposal: Planning application of the original Lots 52 and 2979 into 71 smaller Lots ranging from 1ha to 16ha. Stage 1 of the development is lots 1 - 8 in Table 1.1.

Table 1.1: Details of proposed Lots

EXISTING LOTS: 52 & 2979		TOTAL AREA (HA): 211	
SUBDIVISION - PROPOSED LOTS (REFER CONCEPT PLAN)			
No. of Lots	Lot Area	No. of Lots	Lot Area
6	1.0ha	4	3.0ha
2	1.3ha	1	3.1ha
1	1.5ha	2	3.3ha
1	1.6ha	1	3.6ha
2	1.9ha	1	3.9ha
21	2.0ha	2	4.0ha
9	2.1ha	1	4.1ha
7	2.2ha	1	4.3ha
1	2.4ha	1	4.5ha
2	2.5ha	1	4.7ha
		1	7.5ha
		1	10.3ha
		1	16.3ha





**LEGEND**

- SUBJECT SITE
- RURAL RESIDENTIAL ZONE
- \* PORTION OF LOT 52 TO BE AMALGAMATED WITH LOT 50
- G INDICATIVE SITES FOR FIRE-FIGHTING WATER TANKS (IN ACCORDANCE WITH THE REQUIREMENTS OF THE GUIDELINES FOR PLANNING IN BUSHFIRE PRONE AREAS)
- ~ CREEK LINE PROTECTION (1% AEP FLOOD EXTENT AND ADJACENT VEGETATION)
- ~ CREEK LINE TRIBUTARIES (60m PROTECTION AREA)
- TECHNICAL REPORTS / STRUCTURE PLAN TO BE UPDATED PRIOR TO DEVELOPMENT
- INDICATIVE ROAD LAYOUT

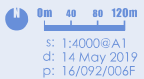
**NOTES**

- The minimum lot size shall be 1 hectare as specified in schedule 1 of TPSS for Rural Residential 3

24	23				
Prosser Street	1	2			
Curlew Street					
607	608				
622	621				
Wanke Street					
623	624				
638	637				
Mills Street					
30					

**STRUCTURE PLAN**

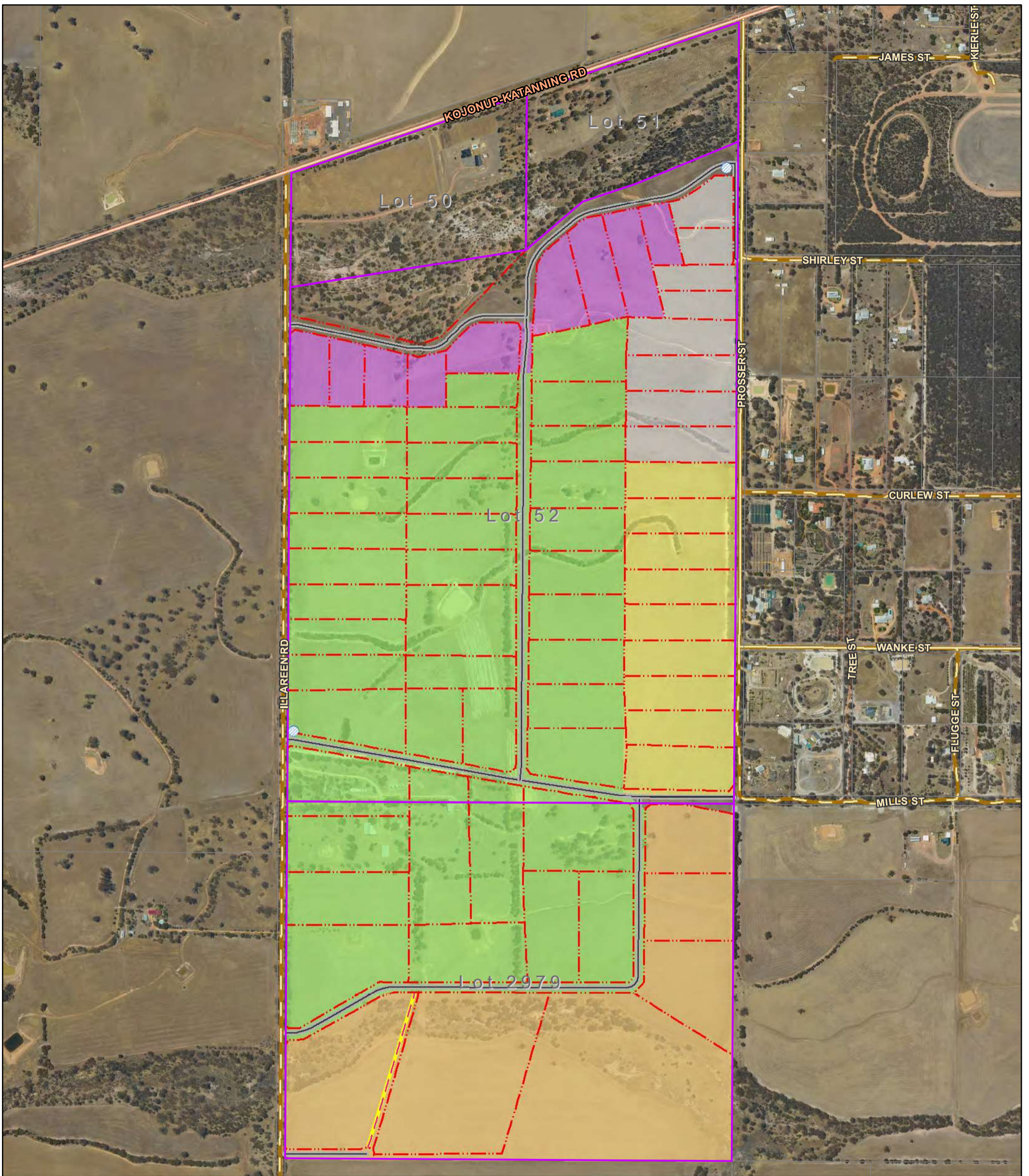
Lots 50 & 51 Kojonup- Katanning Road and  
 Lots 52 & 2979 Illareen Road, Katanning  
 An Elberton Property Project



**Taylor Burrell Barnett** Town Planning and Design  
 Level 7, 160 St Georges Terrace, Perth WA 6000  
 p: (08) 9226 4276 f: (08) 9322 7879  
 e: admin@tbbplanning.com.au



Copyright Taylor Burrell Barnett. All rights reserved. No part of this document may be reproduced or otherwise transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without prior written permission from Taylor Burrell Barnett. All areas and dimensions quoted are subject to cadastral survey.



**Figure 1.1**  
**Proposed Development**

Lots 50, 51, 52 on Plan 31146  
 Lot 2979 on Plan 227518  
 Illareen Road  
 KATANNING

**LEGEND**

Subject Area: Lot	<b>Indicative Development Stage</b>
Other Lots	Stage 1
Proposed Water Tank	Stage 2
Bushfire Emergency Access	Stage 3
Indicative Subdivision	Stage 4
Road Alignment	Stage 5



Aerial Imagery : Landgate/SLIP  
 Image Date : Jan 2019

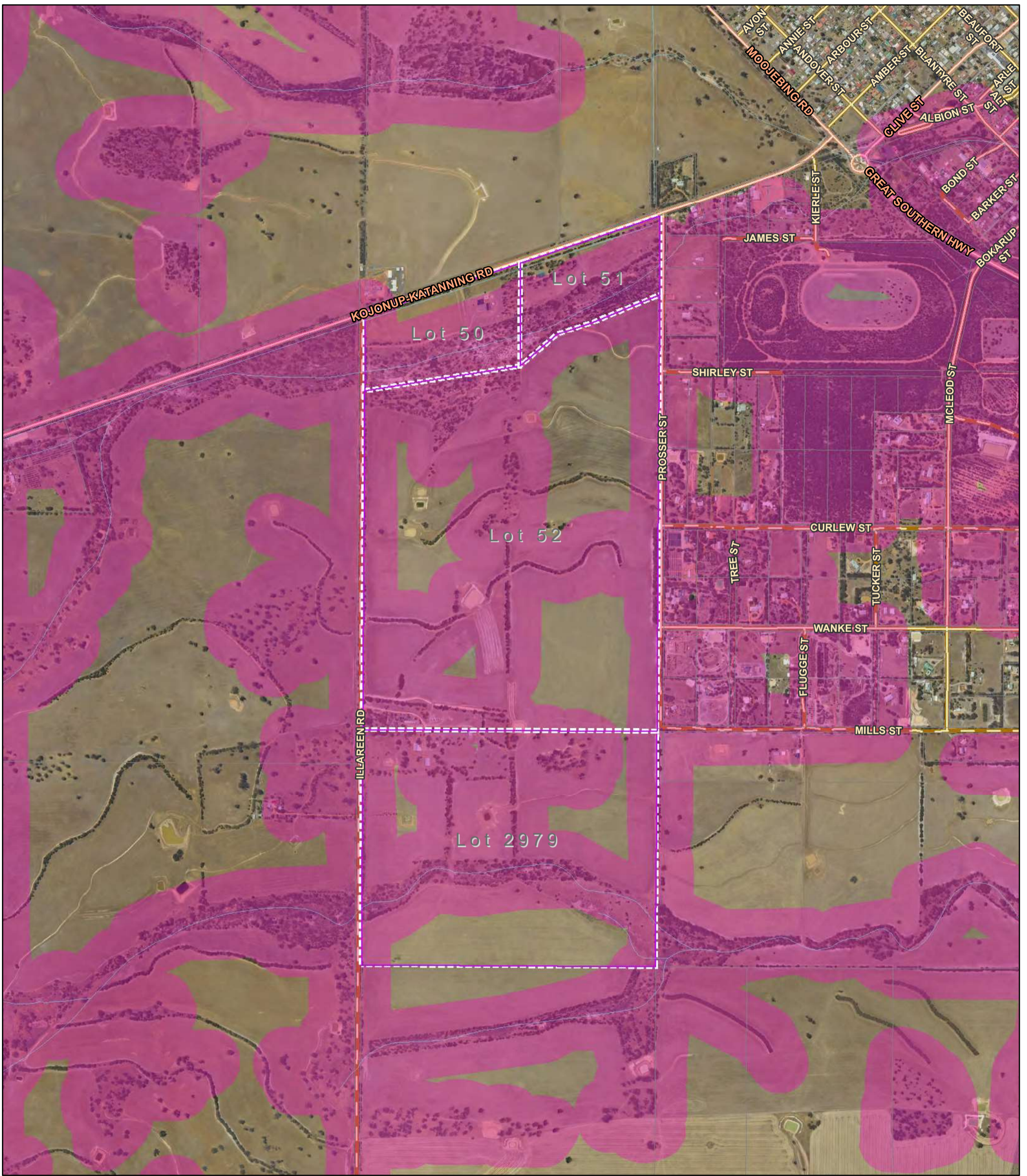
Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Universal Transverse Mercator Units: Metre



Map compiled by: Russell Wornes 23 Feb 2018  
 Map updated by: Russell Wornes 21 Jun 2019



Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.



**Figure 1.2**  
**Bushfire Prone Area**

Lots 50, 51, 52 on Plan 31146  
 Lot 2979 on Plan 227518  
 Illareen Road  
 KATANNING

**— LEGEND —**

- Subject Area: Lot
- Other Lots
- Bush Fire Prone Areas (2019)



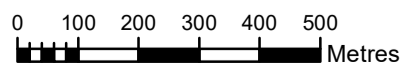
Aerial Imagery : Landgate/SLIP  
 Image Date : Jan 2019

Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Universal Transverse Mercator Units: Metre



Map compiled by: Russell Wornes 23 Feb 2018  
 Map updated by: Russell Wornes 21 Jun 2019

— SCALE (A3) —





Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.



Figure 1.3  
**Proposed Development**  
 (SPATIAL CONTEXT)

Lots 50, 51, 52 on Plan 34416  
 Lot 2979 on Plan 227518  
 Illareen Road  
 KATANNING

**LEGEND**

-  Subject Area: Lot
-  Other Lots



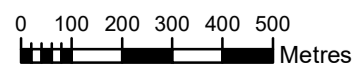
Aerial Imagery : Landgate/SLIP  
 Image Date : Feb 2017

Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Universal Transverse Mercator Units: Metre



Map compiled by: Russell Wornes  
 Date map compiled/updated: 23 Feb 2018

SCALE (A3)



**Disclaimer and Limitation:** This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

## 1.2 Existing Documentation Relevant to the Construction of this Plan

This section acknowledges any known reports or plans that have been prepared for previous planning stages, that refer to the subject area and that may or will impact upon the assessment of bushfire risk and/or the implementation of bushfire risk management measures and will be referenced in this Bushfire Management Plan.

### EXISTING RELEVANT REPORTS OR PLANS

Existing Document	Copy Provided by Client	Title
Structure Plan	Yes	Indicative Concept Plan – Lots 50 & 51 Kojonup Road & Lots 52 & 2979 Illareen Road, Katanning
Environmental Report	No	-
Landscaping (Revegetation) Plan	No	-
Bushfire Risk Assessments	N/A	-

Landscaping (revegetation) within the subdivision site requires consideration of the bushfire management plan requirements to ensure an increase in bushfire hazards does not occur, nor alter bushfire attack levels determined for the site. Where an environmental report or landscaping (revegetation) plan is required as a condition of subdivision, the bushfire management plan will require updating (amending) to address any bushfire impacts arising from these subsequent reports or plans.

## 2 Environmental Considerations

### 2.1 Native Vegetation – Modification and Clearing

**'Guidelines' s2.3:** "Many bushfire prone areas also have high biodiversity values. SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values." Existing conservation areas that are potentially affected by the development proposal are required to be identified. This may result in vegetation removal/modification prohibition or limitations. These areas include National Parks, Nature Reserves, Wetlands and Bush Forever sites.

**Environmental Protection Act 1986:** "Clearing of native vegetation in Western Australia requires a clearing permit under Part V, Division 2 of the Act unless clearing is for an exempt purpose. Exemptions from requiring a clearing permit are contained in Schedule 6 of the Act or are prescribed in the Environmental Protection Regulations" ('Guidelines' s2.3).

**The Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act):** This Act administered by the Australian Government Department of the Environment and Energy, provides a national scheme of environment and heritage protection and biodiversity conservation. Nationally threatened species and ecological communities can be classified as 'Matters of National Environmental Significance' and be protected under the EPBC Act.

Table 2.1: Existing or potential vegetation modification and clearing restrictions.

VEGETATION MODIFICATION AND CLEARING ASSESSMENT	
Will on-site clearing of native vegetation be required?	Yes
Does this have the potential to trigger environmental impact/referral requirements under State and Federal environmental legislation?	Yes
For the proposed development site, have any areas of native vegetation been identified as species that might result in the classification of the area as a Threatened Ecological Community (TEC)?	No
Potential TEC species identified:	N/A

The bushfire assessment and management strategies contained in the BMP, assume that environmental approval will be achieved or clearing permit exemptions will apply. It is advised that the proponent seek further advice from an Environmental Consultant or the WA Department of Parks and Wildlife for further information on the condition and species contained within the proposed development area and the requirement for referral of the proposal, where applicable.

## Development Design Options

Establishing development in bushfire prone areas can adversely affect the retention of native vegetation through clearing associated with the creation Lots and/or Asset Protection Zones. Where loss of vegetation is not acceptable or causes conflict with landscape or environmental objectives, it will be necessary to consider available design options to minimise the removal of native vegetation.

Table 2.2: Development design options.

<b>MINIMISING THE REMOVAL OF NATIVE VEGETATION</b>		
Design Option	Identified	Adopted
Reduction of Lot yield	No	No
Cluster development	No	No
Construct building to a standard corresponding to a higher BAL rating as per BCA (AS 3959-2018 and/or NASH Standard)	No	No
Modify the development location	No	No

Due to the large Lot sizes and the onsite classified vegetation predominantly being Class 'G' Grassland the proposed development will allow for the creation of asset protection zones without the clearing of large areas of significant vegetation.

## Impact on Adjoining Land

Table 2.3: Impact on adjoining land

Is this planning proposal able to implement the required bushfire measures within the boundaries of the land being developed so as not to impact on the bushfire and environmental management of neighbouring reserves, properties or conservation covenants?	Yes
---	-----

The proposed subdivision stages can achieve asset protection zone development and maintenance of vegetation on each Lot in a low threat state, which will ensure the bushfire risk will be reduced to the immediate surrounding properties due to the continued ongoing management of vegetation, on each newly created Lot.

Compliance is regulated via the bushfire management plan for the site and the Shire of Katanning annual Fire Management Requirements notice (Firebreak Notice). Bushfire management measures external to the site are not required as part of this proposal.

## 2.2 Re-vegetation/ Retained Vegetation / Landscape Plans

Riparian zones, wetland/foreshore buffers, road verges and public open space may have plans to re-vegetate or retain vegetation as part of the Proposal. Vegetation corridors may join offsite vegetation and provide a route for fire to enter a development area. When applicable, any such area will be identified in this Bushfire Management Plan and their impact on the assessment and future management accounted for.

Table 2.4: Re-vegetation/Retained vegetation/Landscape plans

Is re-vegetation of riparian zones and/or wetland or foreshore buffers and/or public open space a part of this Proposal?	Yes
Is the requirement for ongoing maintenance of existing vegetation in riparian zones and/or wetland or foreshore buffers and/or public open space a part of this Proposal?	No
Can the required BAL separation distance be maintained into the future?	Yes

Where, as part of the Proposal, revegetation of riparian zones and wetland or foreshore buffers is necessary for their protection or management, the bushfire management plan addressing the future staging of subdivision will assesses the ability and practicality of maintaining vegetation separation distances corresponding to determined BAL's.

As part of this proposal the Shire of Katanning has requested vegetation planting along the creek-lines to be undertaken as part of the Structure Plan requirements. These areas will be managed in the future by the individual landowners where located on their Lot.

All onsite landscape planting within asset protection zones is to be managed in a low threat state as per the criteria detailed in AS3959-2018 s2.2.3(f) "Low threat vegetation" and all other vegetation managed in accordance with the annual Shire of Katanning Fire Management Requirements notice (Firebreak Notice). This ensures BAL separation distances can be effectively maintained and bushfire hazards on-site are effectively reduced.



## 3 Potential Bushfire Impact Assessment

### 3.1 Assessment Input

AS 3959-2018 specifies the fire danger index values to apply for different regions as per Table 2.1 indicated in AS 3959-2018. The values used in the model calculations are for the Forest Fire Danger Index (FFDI) and for which equivalent representative values of the Grassland Fire Danger Index (GFDI) are applied as per 'Appendix B' of AS 3959-2018. The values can be refined if appropriately justified.

#### 3.1.1 Fire Danger Index (FDI) Applied

Table 3.1.1: Applied FDI Value

FDI VALUE			
Vegetation Area/s	As per AS 3959 - 2009 Table 2.1	As per DFES for the Location	Value Applied
1 - 7	80	N/A	80

#### 3.1.2 Existing Vegetation Identification and Classification

Vegetation identification and classification has been conducted in accordance with AS 3959-2018 s2.2.3 and the Visual Guide for Bushfire Risk Assessment in WA (DoP February 2016).

When more than one vegetation type is present, each type is identified separately with the worst-case scenario being applied as the classification. The predominant vegetation is not necessarily the worst-case scenario. The vegetation structure has been assessed as it will be in its mature state (rather than what might be observed on the day). Areas of modified vegetation are assessed as they will be in their natural unmodified state (unless maintained in a permanently low threat, minimal fuel condition, satisfying AS 3959-2018 s2.2.3.2(f)). Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its revegetated mature state.

When there is a significant change in ground slope under classified vegetation that will impact a site, the vegetation will be identified as a separate area to enable correct assessment (and construction of the BAL contour map).

Table 3.1.2: Vegetation identification and classification

ALL VEGETATION WITHIN 150 METRES OF THE PROPOSED DEVELOPMENT			
Vegetation Area	Identified Classification Types <sup>1</sup> or Description if 'Excluded'	Applied Classification <sup>2</sup>	Effective Slope Under Classified Vegetation (degrees)
1	Grassland G-26	Class G Grassland	Upslope – 0°
2	Woodland A-05	Class B Woodland	Upslope – 0°
3	Woodland A-05	Class B Woodland	Upslope – 0°
4	Woodland A-05	Class B Woodland	0-5
5	Grassland G-26	Class G Grassland	0-5
6	Grassland G-26	Class G Grassland	Upslope – 0°
7	Woodland A-05	Class B Woodland	Upslope – 0°

Representative photos of each vegetation area, descriptions and classification justification, are presented on the following pages. The areas of classified vegetation are defined and the photo locations identified on the topography and classified vegetation map, Figure 3.1.

Note<sup>1</sup>: As per AS 3959-2018 Table 2.3 and Figures 2.3 and 2.4 (A).

Note<sup>2</sup>: As per AS 3959-2018 Table 2.3.

**Vegetation Area 1**

**Classification Applied:** Class G Grassland

**Classification Justification:** On-site cropping land & grassland, tree foliage cover <10%.



**Photo ID: 1**



**Photo ID: 2**



**Photo ID: 6**



**Photo ID: 8**



**Photo ID: 11**



**Photo ID: 14**



**Photo ID: 20**



**Photo ID: 23**



**Photo ID: 24**

**Vegetation Area 2**

**Classification Applied:** Class B Woodland

**Classification Justification:** Mixed Eucalyptus Woodland, understory mainly consisting of grasses (Onsite).



**Photo ID: 18**



**Photo ID: 19**



**Photo ID: 21**

**Vegetation Area 3**

**Classification Applied:** Class B Woodland

**Classification Justification:** Mixed Eucalyptus Woodland, patchy understory mainly consisting of grasses.



**Photo ID: 4**



**Photo ID: 5**



**Photo ID: 7**

**Vegetation Area 3**

**Classification Applied:** Class B Woodland

**Classification Justification:** Mixed Eucalyptus Woodland, patchy understory mainly consisting of grasses.



**Photo ID: 9**

**Vegetation Area 5**

**Classification Applied:** Class G Grassland

**Classification Justification:** Off-site cropping land & grassland, tree foliage cover <10%.



**Photo ID: 22**

**Vegetation Area 6**

**Classification Applied:** Class G Grassland

**Classification Justification:** Off-site cropping land & grassland, tree foliage cover <10%.



**Photo ID: 12**



**Photo ID: 13**



**Photo ID: 15**

**Vegetation Area 7**

**Classification Applied:** Class B Woodland

**Classification Justification:** Mixed Eucalyptus Woodland, patchy understory mainly consisting of grasses.



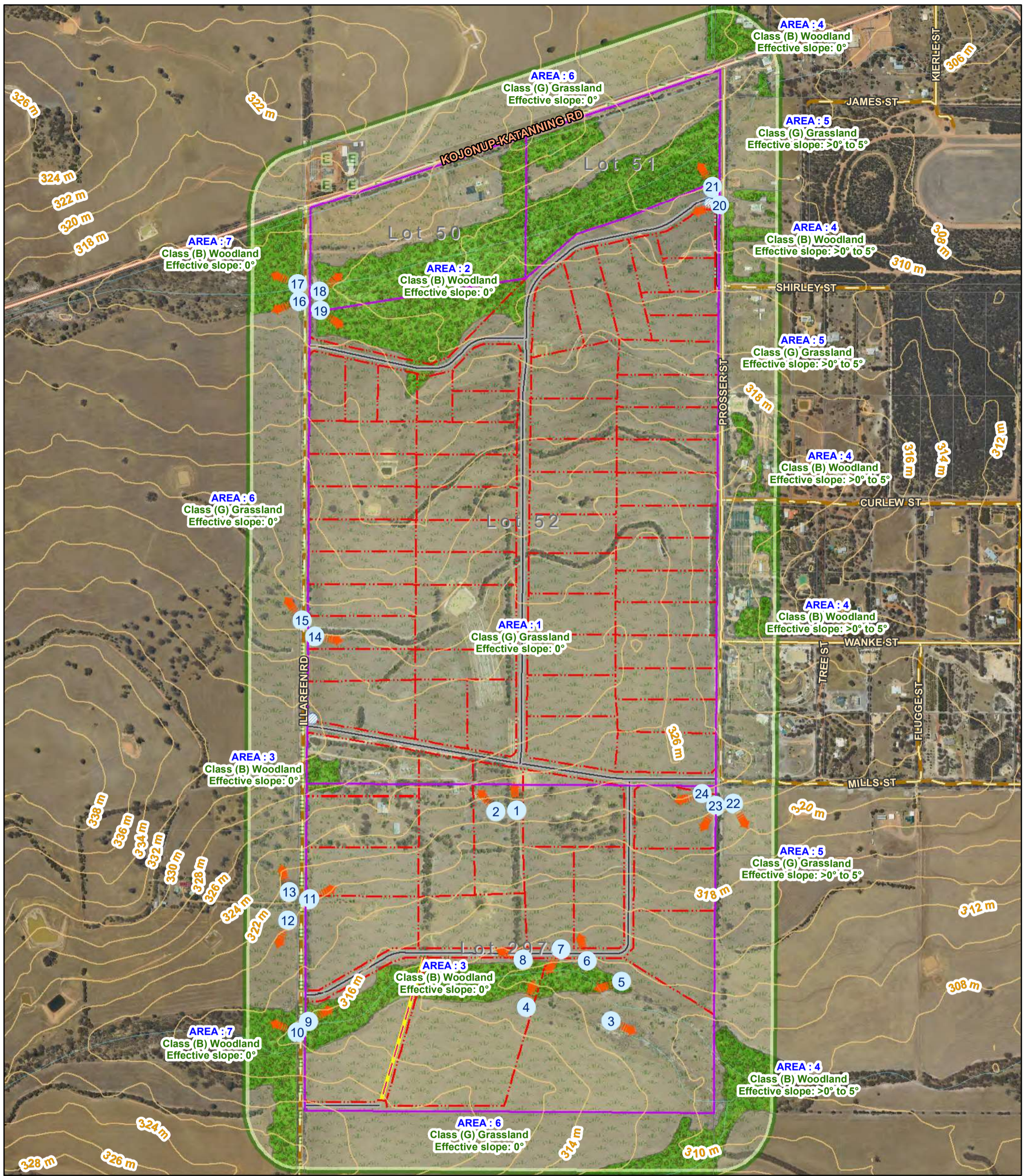
**Photo ID: 10**



**Photo ID: 16**



**Photo ID: 17**



**Figure 3.1**  
**Topography & Classified Vegetation**

Lots 50, 51, 52 on Plan 31146  
 Lot 2979 on Plan 227518  
 Illareen Road  
 KATANNING

Aerial Imagery : Landgate/SLIP  
 Image Date : Jan 2019

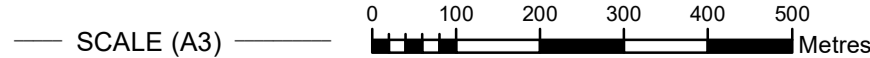
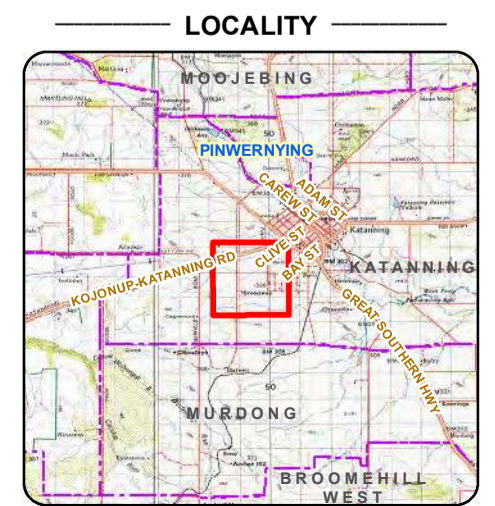
Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Universal Transverse Mercator Units: Metre



Map compiled by: Russell Wornes 23 Feb 2018  
 Map updated by: Russell Wornes 21 Jun 2019

**LEGEND**

Subject Area: Lot	Class (B) Woodland
Other Lots	Class (G) Grassland
Proposed Water Tank	Excluded s2.2.3.2
Bushfire Emergency Access	Elevation contour (m)
Indicative Subdivision	Photo no., location & direction
Road Alignment	
Assessment Area	
Vegetation - 150m	



Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

Document Path: C:\BPP\BPPJobGIS\Projects\Jobs 2018\180032 - Lots 52 and 2979 Illareen Road, Katanning (BMP)\180032 - (BMP SP updates) - May 2019\Mapping\MXD\180032\_Lot 50, 51, 52 & 2979, Illareen Road, Katanning (A3P).mxd

### 3.1.3 Effective Slope and Site Slope

**Effective Slope:** Is the ground slope under the classified vegetation and is determined for each area of classified vegetation. It is the measured or assessed slope which will most significantly influence the bushfire behaviour in that vegetation as it approaches a building or site. When there is a significant change in effective ground slope under an area of classified vegetation, that will cause a change in fire behaviour, separate vegetation areas will be identified, based on the change in effective slope, to enable the correct assessment and the construction of the BAL contour map.

**Site Slope:** Is the slope along the ground by line of sight between the site or building and the area of classified vegetation to which the assessment applies. AS 3959-2018 Method 1 assumes that site slope is the same as the effective slope while Method 2 allows input of the actual slope. The site slope is used to position a building relative to the potential fire for the correct calculation of bushfire impact.

Table 3.1.3: Effective slope and site slope values applied.

EFFECTIVE SLOPE AND SITE SLOPE ASSESSED VALUES (USING METHOD 1 AS 3959-2018)			
Vegetation Area	Vegetation Classification	Effective Slope (degrees)	Effective Slope Range (degrees)
1	Class G Grassland	Upslope – 0°	upslope or flat
2	Class B Woodland	Upslope – 0°	upslope or flat
3	Class B Woodland	Upslope – 0°	upslope or flat
4	Class B Woodland	0-5	downslope >0-5
5	Class G Grassland	0-5	downslope >0-5
6	Class G Grassland	Upslope – 0°	upslope or flat
7	Class B Woodland	Upslope – 0°	upslope or flat

### 3.1.4 Vegetation Separation Distance

**Vegetation Separation Distance:** Is the distance from the site or building to the area of classified vegetation and is measured in the horizontal plane.

In determining Bushfire Attack Level's (BAL's), the separation distance is either:

- A measured input variable to apply to calculations as per AS 3959-2018; or
- A range of distances (corresponding to BAL ratings) that is derived from the same calculations.

**Measured Separation Distance (m):** This is an actual measured distance, used as a calculation input to determine a BAL rating. Its use will apply when the actual location of a 'site' (building, envelope or Lot) has been defined (refer to the site plan), and the separation distance can be measured. In this situation, a BAL rating for the 'site' can be determined.

**Derived Separation Distance (m):** This is a result derived from calculations using all other required inputs. The derived range states the distance away from an area of classified vegetation that corresponds to each BAL rating. Use of this methodology will apply when:

- The actual location of a 'site' (building, envelope or lot) has not been defined and therefore an actual separation distance cannot be measured; or
- The use of a distance range that corresponds to a BAL rating is more appropriate to the assessment of the proposal; or
- The assessment requires the production of a BAL contour map to assess planning viability and provide indicative BAL ratings (and in certain circumstances, determined BAL ratings).

**BAL Contour Map:** Where a calculated separation distance range is used to construct a BAL Contour Map, the distances that have been determined as corresponding to each BAL rating for the subject site are presented in Section 3.2 'Assessment Output' rather than this assessment inputs section.

Table 3.1.4: Statement of the determination method applied and location of results.

VEGETATION AREA/S	METHOD APPLIED FOR DETERMINATION OF SEPARATION DISTANCE	LOCATION OF RESULTS IN THIS PLAN
1-7	Distance Range (m) - Method 1 Default Range	Table 3.5 in s3.2.1 'BAL Contour Map'



## 3.2 Assessment Output

### 3.2.1 Indicative BAL Results Presented as a BAL Contour Map

#### Interpretation of the Bushfire Attack Level (BAL) Contour Map

The contour map will present different coloured contour intervals constructed around the classified bushfire prone vegetation. These represent the different Bushfire Attack Levels that exist at varying distances away from the classified vegetation.

Each BAL represents a set range of radiant heat flux (as defined by AS 3959-2018) that can be generated by the bushfire in that vegetation at that location.

The width of each shaded contour (i.e. the distance interval) will vary and is determined by consideration of variables including vegetation type, fuel structure, ground slope, climatic conditions. They are unique to a site and can vary across a site. The width of each contour is a diagrammatic expression of the separation distances from the classified vegetation that apply for each BAL rating, for that site.

A building (or 'area') located within any given BAL contour will be subject to that BAL rating or multiple BAL ratings. The highest rating will be the one applied in most instances.

#### Separation Distances Measured and/or Calculated to Construct the BAL Contours

Table 3.2.1: Vegetation separation distances applied to construct the BAL contours.

DERIVED VEGETATION SEPARATION DISTANCES								
Vegetation Area	Vegetation Classification	Effective Slope (degrees)	BAL Assessment Method Applied <sup>1</sup>	BAL Rating and Corresponding Separation Distance <sup>1</sup> (metres)				
				BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
1	Class G Grassland	0°	Method 1	<6	6-<8	8-<12	12-<17	17-<50
2	Class B Woodland	0°	Method 1	<10	10-<14	14-<20	20-<29	29-<100
3	Class B Woodland	0°	Method 1	<10	10-<14	14-<20	20-<29	29-<100
4	Class B Woodland	0-5°	Method 1	<13	13-<17	17-<25	25-<35	35-<100
5	Class G Grassland	0-5°	Method 1	<7	7-<9	9-<14	14-<20	20-<50
6	Class G Grassland	0°	Method 1	<6	6-<8	8-<12	12-<17	17-<50
7	Class B Woodland	0°	Method 1	<10	10-<14	14-<20	20-<29	29-<100

### 3.3 Assessment Summary

Table 3.3: Indicative bushfire attack levels for the proposed Lot/s and Asset Protection Zone (APZ)

INDICATIVE BUSHFIRE ATTACK LEVELS FOR FUTURE BUILDINGS ON PROPOSED LOT					
Development Stage	Highest Indicative BAL Impacting the Lots	Relevant Vegetation Area <sup>1</sup>	BAL Determination Method Applied <sup>2</sup>	Required Building Setback (APZ) from Classified Vegetation (worst case scenario) to Achieve Stated BAL Rating	
				BAL Rating	Metres
1	BAL-12.5	4	Method 1	BAL-12.5	35
2	BAL-12.5	4	Method 1	BAL-12.5	35
3	BAL-FZ	2	Method 1	BAL-12.5	29
4	BAL-FZ	3	Method 1	BAL-12.5	29
5a	BAL-FZ	2	Method 1	BAL-12.5	29
5b	BAL-FZ	3	Method 1	BAL-12.5	29

<sup>1</sup> Determines the indicative BAL rating and the boundary or vegetation edge from which the stated building setback is to apply. More than one vegetation area may impact a site.

<sup>2</sup> As per AS 3959-2018 s2.2.6 and Table 2.5

The indicative Bushfire Attack Levels for the proposed Lots are stated in Table 3.3 and the corresponding required building setback for a future building/s to achieve the stated BAL rating. The building setback is the distance from the corresponding classified vegetation areas presenting the highest indicative BAL. This distance indicated in Table 3.3 is also the recommended asset protection zone extent for the BAL indicated. Once actual building locations are determined at the later planning stage, the BAL ratings for specific buildings or the building envelope may need to be determined by an onsite visit to confirm the proposed vegetation management has taken place and measure the separation distances as required.

The assessed BAL for each lot is stated as being 'indicative', this is because that 'area' is impacted by more than one BAL contour interval and/or classifiable vegetation remains on the Lot, that can influence a future building's BAL rating (and this vegetation may have been omitted from being contoured for planning purposes e.g. Grassland or when the assumption is made that onsite vegetation can be removed and/or modified to low threat criteria).

In this report, the indicative BAL is presented as the highest BAL impacting the 'area'. A lower BAL may be achievable. The BAL rating that will apply to any future building within that 'area' will be dependent on:

1. vegetation management onsite; and/or
2. vegetation remaining on adjacent Lots; and/or
3. the actual location of the future building within that 'area';
4. A BAL Certificate cannot be provided for future buildings within an 'area' with an indicative BAL until the location of any future building has been determined. A report confirming the location and BAL rating will be required and submitted with the BAL certificate.

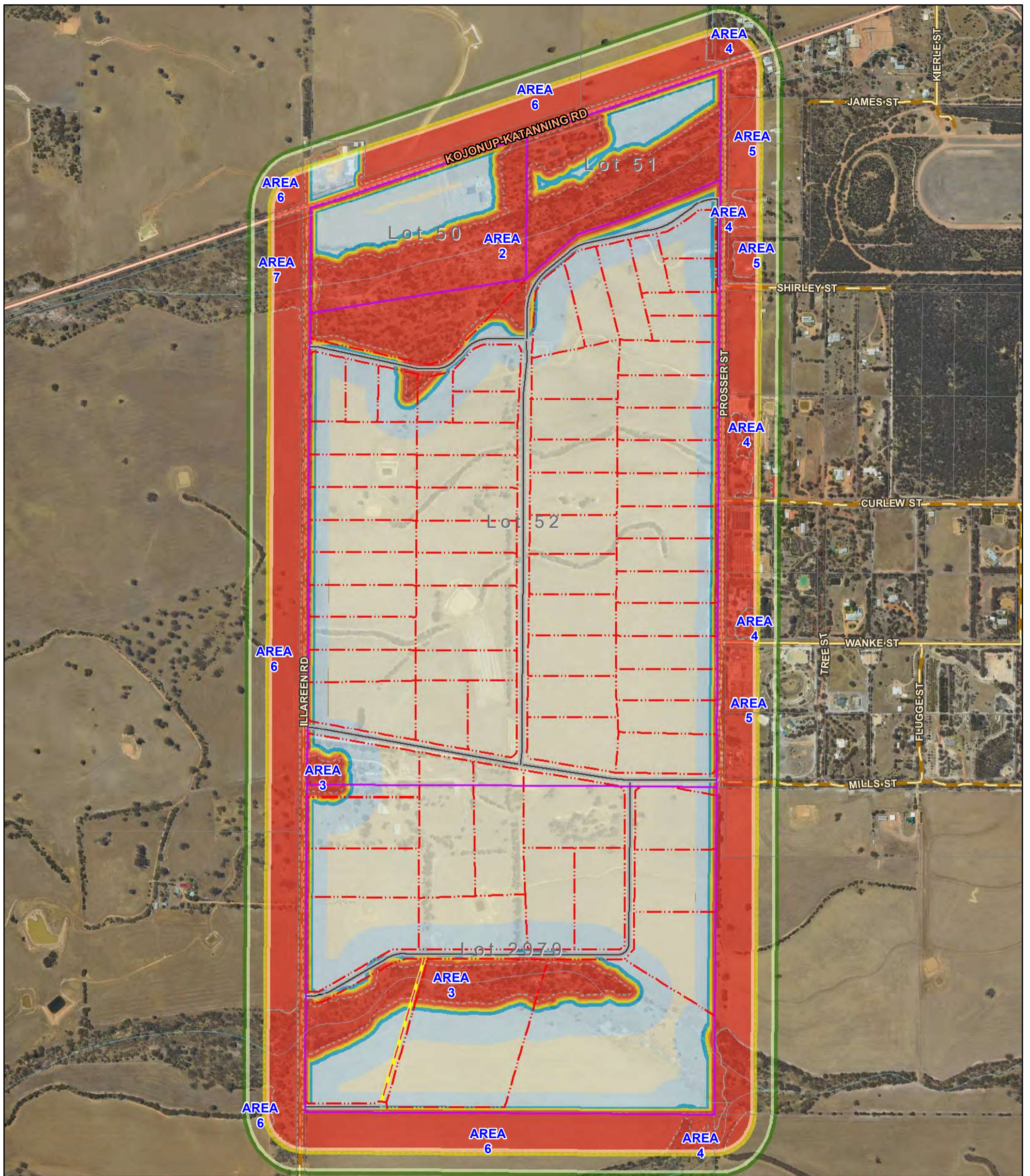


Figure 3.2  
BAL Contour Map

Lots 50, 51, 52 on Plan 31146  
Lot 2979 on Plan 227518  
Illareen Road  
KATANNING

Aerial Imagery : Landgate/SLIP  
Image Date : Jan 2019

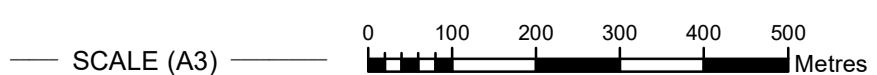
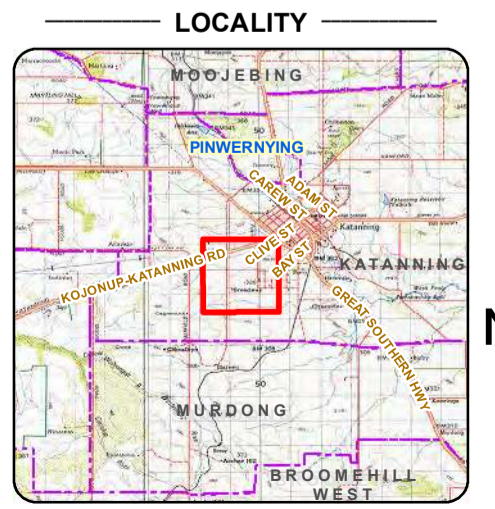
Coordinate System: GDA 1994 MGA Zone 50  
Projection: Universal Transverse Mercator Units: Metre



Map compiled by: Russell Wornes 23 Feb 2018  
Map updated by: Russell Wornes 21 Jun 2019

**LEGEND**

Subject Area: Lot	<b>Bushfire Attack Levels (Method 1)</b>
Other Lots	Vegetation edge (Indicative only)
Bushfire Emergency Access	BAL FZ (Indicative only)
Indicative Subdivision	BAL 40 (Indicative only)
Road Alignment	BAL 29 (Indicative only)
<b>Assessment Area</b>	BAL 19 (Indicative only)
Vegetation - 150m	BAL 12.5 (Indicative only)
BAL - 100m	BAL LOW (Indicative only)



Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.  
Document Path: C:\BPP\BPPJobGIS\Projects\Jobs 2018\180032 - Lots 52 and 2979 Illareen Road, Katanning (BMP)\180032 - (BMP SP updates) - May 2019\Mapping\MXD\180032\_Lot 50, 51, 52 & 2979, Illareen Road, Katanning (A3P).mxd

## BAL Contour Map Summary - Indicative/Determined Bushfire Attack Levels (BAL's)

### [Guidance Panel]

#### Understanding the Bushfire Assessment Results - Application of Bushfire Attack Levels (BAL)

The BAL rating has a different application in the building environment compared to the planning environment and the BAL assessment can result in a determined BAL or an indicative BAL which have different implications.

#### Building versus Planning Applications

In the building environment, a determined BAL rating is required (for the proposed building) at the building application stage. This is to inform approval considerations and establish the construction standards that are to apply if approved.

In the planning environment, assessing the ability of a proposed development site to achieve BAL-29 or less is the objective (although that is just one of the bushfire protection criteria being assessed). Therefore, a range of BAL ratings  $\leq$  BAL-29 is an acceptable outcome for that criteria, as established by SPP 3.7 and the associated Guidelines.

#### Determined BAL Ratings

A determined BAL rating is to apply to a building and not to a Lot. Its purpose is to state the potential radiant heat flux to which the building will be exposed.

A determined BAL cannot be given for a future building whose location, elevation design and footprint (on a given Lot) are unknown. It is not until these variables have been fixed that a BAL can be determined (typically at the development application or building application stage).

The one exception is when a building of **any dimension** can be **positioned anywhere** on a proposed Lot or within defined limits within the Lot (i.e. building setbacks or building envelope) and always remain subject to the same BAL rating. For this to be the case, there needs to be no classified vegetation either onsite or offsite that if retained could impact upon the determined BAL rating.

#### Indicative BAL Ratings

When this Plan presents a single indicative BAL rating for a building, this will be because the proposal is still subject to a building location being confirmed or a vegetation separation distance being achieved. That is, it will be conditional upon some factor being confirmed at a later stage.

For planning applications associated with proposed Lots, the building location, elevation design and footprint have typically not been established. Therefore, indicative rather than determined BAL rating/s will be presented for each Lot (with the exception as noted above under 'Determined BAL Ratings').

When this Plan presents a single indicative BAL rating for a Lot or building envelope (i.e. an 'area' that is not a located building footprint) it will represent the highest BAL rating affecting that 'area'. The BAL rating of a future building on that 'area' will be dependent on its eventual location.

Otherwise, this Plan will present all BAL ratings for each Lot and for each BAL rating the vegetation separation distances from each area of classified vegetation that are to apply. These distances will be presented as either:

1. Figures in a table; or
2. Presented as a BAL contour map.

From this indicative BAL information, it can be assessed if viable BAL ratings can be achieved for future buildings.

### 3.3.1 Identification of Specific Issues Arising from BAL Contour Map

#### **Onsite Vegetation**

Vegetation onsite is within the control of the subject site's landowner and therefore can potentially be removed or modified to lower the bushfire risk, subject to any approval being required by a local government.

#### **Offsite Vegetation**

Vegetation offsite is not within the control of the subject site's landowner and therefore the vegetation cannot be removed or modified by the landowner and as a result the assessed BAL's determined by this vegetation are unable to be reduced.

#### **Impact from Vegetation – As It Currently Exists**

The key assumption used to facilitate the determining of Indicative Bushfire Attack Levels on the Proposed Development site is that vegetation **onsite** is under the control of the landowner and therefore can be removed or modified to present a low bushfire threat (Note: any proposed vegetation removal may be subject to local government approval, dependent on the lot's specific situation with respect to identified environmental protection areas and the lot size).

(Area 1 Grassland has been excluded from BAL Contour mapping over the Lot as the vegetation is to be removed or modified to a low threat state).

## 4 Assessment Against the Bushfire Protection Criteria

### 4.1 Summary of the Assessment Outcomes

Summarised Outcome of the Assessment Against the Bushfire Protection Criteria (BPC)				
Element	Basis for the Assessment of Achieving the Intent of the Element			
	Achieves compliance with the Element through meeting Acceptable Solutions		Achieves compliance with the Element by application of a Performance Based Solution	Minor or Unavoidable Development
	Meets all relevant acceptable solutions	One or more relevant Acceptable Solutions are not <u>fully</u> met. A <u>variation</u> of the solution is provided and justified.	One or more applicable Acceptable Solutions are not met. A solution is developed with the summary presented in this Plan in Section 5.5. The supporting document presenting Bushfire Prone Planning's detailed methodology is submitted separately to the decision makers.	The required supporting statements are presented in this Plan.
Location	✓			N/A
Siting and Design of Development	✓			
Vehicular Access	✓			
Water	✓			

The subject site has been assessed against:

1. The requirements established in Appendix 4 of the Guidelines for Planning in Bushfire Prone Areas, WAPC 2017 v1.3 (the 'Guidelines'). The detail, including technical construction requirements, are found at <https://www.dplh.wa.gov.au/8194.aspx>. A summary of relevant information is provided in the appendices of this Plan; and
2. Any endorsed variations to the Guideline's acceptable solutions and associated technical requirements that have been established by the relevant local government. If known and applicable these have been stated in Section 5.0 of this Plan with the detail included as an appendix if required by the relevant local government.

### Bushfire Protection Criteria - Element 1- Location

Acceptable Solution	Method of Achieving Compliance with the Intent of the Element	Assessment Statements (and any required action)
<b>A1.1 Development Location</b>	The acceptable solution is fully met.	<p>By implementing the positioning and vegetation management measures identified in this Plan the proposed development can meet the acceptable solution of being subject to BAL-29 or below and result in the bushfire risk being able to be managed.</p> <p>It does not require the use of BAL-40 or BAL-FZ construction standards.</p>

### Bushfire Protection Criteria - Element 2 - Siting and Design of Development

Acceptable Solution	Method of Achieving Compliance with the Intent of the Element	Assessment Statements (and any required action)
<b>A2.1 Asset Protection Zone (APZ)</b>	The acceptable solution is fully met.	<p>The proposed development meets the acceptable solution by:</p> <ul style="list-style-type: none"> <li>• Being able to establish an APZ of the required dimensions (as determined by the classified vegetation impacting the Site and the relevant ground slopes) within the lot boundary.</li> <li>• The landowner having the responsibility of implementing the requirements of the 'Standards for APZ's' and continuing to manage the APZ to the required specifications, maintaining it in a low fuel state.</li> </ul>

Bushfire Protection Criteria - Element 3 - Vehicular Access		
Acceptable Solution	Method of Achieving Compliance with the Intent of the Element	Assessment Statements (and any required action)
<b>A3.1 Two access routes</b>	The acceptable solution is fully met.	The proposed development will have access to Illareen Road to the West and Prosser Street to the East, both of which are part of a public road network which will provide safe access and egress to two different destinations. As public roads constructed to the required standard, they are available to all residents and the public at all times and under all weather conditions. The proposed development has several roads proposed which will link up with the existing road network.
<b>A3.2 Public Road</b>	The acceptable solution can be fully met in the future (at a later subdivision stage).	<p>Illareen Road and Prosser Street are public roads constructed to the required standard. Any new roads constructed at subdivision stages will be required to meet the technical requirements stated in Appendix 4.</p> <p>Illareen Road is currently unsealed but meets the technical requirements of having a trafficable surface of &gt;6m and meeting the clearance requirements.</p>
<b>A3.3 Cul-de-sacs</b>	The acceptable solution will be fully met in the future (at a later subdivision stage).	<p>The proposed cul-de-sac in future staging of the subdivision will meet the construction technical requirements established by the Guidelines and/or the local government and will be complied with.</p> <p>The construction of an Emergency Access Way from the end of the cul-de-sac along the Lot boundary to connect with the future road network will provide additional access/egress for residents and fire-fighting appliances during the bushfire season.</p>
<b>A3.4 Battle-axe</b>	The acceptable solution will be fully met in the future (at a later subdivision stage).	The proposed battle-axe Lot in the south east corner, in future staging of the subdivision will meet the construction technical requirements established by the Guidelines and/or the local government and will be complied with.



<b>Bushfire Protection Criteria - Element 3 - Vehicular Access (continued)</b>		
Acceptable Solutions	Method of Achieving Compliance with the Intent of the Element	Assessment Statements (and any required action)
<b>A3.5 Private Driveways</b>	The acceptable solution will be fully met in the future (at a later subdivision stage).	Driveways will meet the construction technical requirements established by the Guidelines and/or the local government and will be complied with. This is the future landowner's responsibility.
<b>A3.6 Emergency Access Way</b>	The acceptable solution will be fully met in the future (at a later subdivision stage).	The emergency access way will meet the construction technical requirements established by the Guidelines and/or the local government and will be complied with. This is the developer/proponent's responsibility.
<b>A3.7 Fire Service Access Routes - (perimeter roads)</b>	N/A	-
<b>A3.8 Firebreak Width</b>	The acceptable solution is fully met.	The proposed lots area able to and will comply with the requirements of the local government annual firebreak notice issued under s33 of the Bush Fires Act 1954.

<b>Bushfire Protection Criteria - Element 4 – Water</b>		
Acceptable Solution	Method of Achieving Compliance with the Intent of the Element	Assessment Statements (and any required action)
<b>A4.1 Reticulated Areas</b>	Will Fully Comply with the Acceptable Solution	<p>Water Corporation – Resource planning in this region is due for a review. Providing scheme water to the Structure Plan area in the future is dependent upon review outcomes. Where a reticulated water supply is available to the subject site, hydrants are to be located at the required regular intervals &amp; installed by the Developer/Proponent. The construction technical requirements established by the Guidelines and/or the local government can and will be complied with.</p> <p>Static water supply dedicated fire tanks will be implemented for this Proposal and requirements assessed as part of each subdivision stage.</p>
<b>A4.2 Non-Reticulated Areas</b>	Will Fully Comply with the Acceptable Solution	<p>To manage the requirements of the Structure Plan area and as the development of the land will occur in stages, the following will apply:</p> <ul style="list-style-type: none"> <li>• Stage 1: A 50,000ltr capacity fire tank will be required;</li> <li>• Future Stages: Install fire tank/s and limit Lots in each stage as per the requirements of the 'Guidelines' for ratio of Lots per number and volume of water/number of tanks, where reticulated water cannot be supplied;</li> <li>• Designated fire tanks will be required to meet the specification of the local government. This may include multiple 50,000ltr tanks located within the road reserve locations, to the satisfaction of the local government.</li> </ul> <p>Prior to Council issuing any licence to build within the zone, there will need to be incorporated a domestic water supply on Lots which in the absence of alternative arrangements (reticulated water supply) will mean a 150,000 litre storage tank, of which 10,000 litres shall be kept in reserve for fire-fighting purposes.</p>
<b>A4.3 Non-reticulated Areas (Individual Lots)</b>	N/A	-

## 4.2 Local Government Variations to the Bushfire Protection Criteria (BPC)

Local governments may apply specific acceptable solutions or technical requirements that vary from those specified in the Guidelines. When applicable, the Proposal will be assessed against these variations and the changed technical requirements of the acceptable solutions associated with each 'Element' will apply.

Are there any endorsed local variations to the acceptable solutions of the Bushfire Protection Criteria elements that are to apply to this Proposal?	Yes
Are there any endorsed local variations to the technical requirements of the Bushfire Protection Criteria acceptable solutions that are to apply to this Proposal?	No

The inclusion of an Emergency Access Way (EAW) to connect the proposed cul-de-sac located in the south east of the Structure Plan area, is supported by the local government as a variation to the acceptable solutions of the Bushfire Protection Criteria. The proposed EAW will enable a secondary connection through to the internal road network for the 3 Lots in the south of the Structure Plan area. The alignment of this EAW will be along the Lot boundary to coincide with the required firebreak location and will be subject to an easement detail on the Lot.

The EAW will cross the creek at an existing creek crossing point, which is accessible during the drier months of the year, when the immediate area is conducive to bushfires, due to the curing of crops and vegetation. The crossing will be constructed and maintained to ensure minimal disturbance of the creek line and erosion of the foreshore area in consultation with and to the specification of the Shire of Katanning. The timing of the subdivision stages as part of this Structure Plan proposal, may in the future not require the implementation of the EAW, where future development of adjoining land provides for additional road connections. The variation to the acceptable solution will be re-assessed at the relevant subdivision stage to ensure compliance with current standards and risk mitigation requirements at that time.

The proposed EAW can meet the construction technical requirements established by the Guidelines and/or the local government and will be complied with. This is the developer/proponent's responsibility to construct the EAW at the future subdivision stage.



Existing crossing – Proposed EAW crossing location

## 5 Responsibilities for Implementation and Management of the Required Bushfire Measures

### 5.1 Implementation Responsibilities Established by the BMP

Table 5.1.1: Developer BMP implementation responsibilities.

<b>DEVELOPER (LANDOWNER/PROPONENT)</b>			
<b>No.</b>	<b>Implementation Action</b>	<b>Timing</b>	<b>Subdivision Clearance</b>
1	<p>Planning approval may be conditioned with the requirement to make appropriate notifications (on the certificates of title and the deposited plan), of the existence of this Bushfire Management Plan.</p> <p>The WAPC may condition a subdivision application approval with a requirement for the landowner / proponent to place a notification onto the certificate(s) of title and a notice of the notification onto the diagram or plan of survey (deposited plan). This will be done pursuant to Section 165 of the Planning and Development Act 2005 ('Hazard etc. affecting land, notating titles as to:') and applies to Lots with a determined BAL rating of BAL-12.5 or above. The notification will be required to state:</p> <p><i>'This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and may be subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land'.</i></p>	To support the creation of titles	<input type="checkbox"/>
2	Establish the Asset Protection Zone (APZ) in each Lot to the dimensions and standard stated in the BMP.	Prior to sale of Lots	<input type="checkbox"/>
3	Before any of the subject Lots are sold, each individual Lot is to be compliant with the relevant local government's annual firebreak notice.	Prior to sale of Lots	<input type="checkbox"/>
4	The entity responsible for having the BMP prepared should ensure that anyone listed as having responsibility under the Plan has endorsed it and is provided with a copy for their information. This includes the landowners/proponents (including future landowners where the Plan was prepared as part of a subdivision approval), local government and any other authorities or referral agencies ('Guidelines' s4.6.3).	Post planning approval and prior to sale of Lots	<input type="checkbox"/>
5	The developer/proponent is to construct the EAW at the future subdivision stage. The EAW will be subject to an easement detail on the Lot, including outlining management responsibility.	Post planning approval and prior to sale of Lots	<input type="checkbox"/>

Table 5.1.2: Landowner BMP implementation responsibilities.

<b>LANDOWNER</b>			
<b>No.</b>	<b>Implementation Action</b>	<b>Timing</b>	<b>Development Clearance</b>
1	Inform any builders of proposed structures on the Lot of the existence of this Bushfire Management Plan and the responsibilities it contains regarding the application of construction standards corresponding to the determined BAL rating.	Prior to any building work	<input type="checkbox"/>
2	Develop and maintain the Asset Protection Zone (APZ) to the dimensions and standard stated in the BMP.	Prior to occupancy	<input type="checkbox"/>
3	Install the required emergency static water supply (tank within the Lot) that meets construction, capacity and vehicle access specifications.	Prior to occupancy	<input type="checkbox"/>

Table 5.1.3: Builder BMP implementation responsibilities.

<b>BUILDER</b>		
<b>No.</b>	<b>Implementation Action</b>	<b>Timing</b>
1	Be aware of the existence of any BMP that refers to the Subject Site.	Prior to any building work
2	The builder (generally named on the building permit) is responsible for ensuring that the building or incidental structure to which a building permit applies will be compliant on completion with the bushfire provisions of the Building Code of Australia (BCA) as it applies in WA.	Prior to any building work

## 5.2 Management Responsibilities Established by the BMP

Table 5.2.1: Landowner/Occupier management responsibilities.

<b>LANDOWNER/OCCUPIER</b>		
<b>No.</b>	<b>Management Action</b>	<b>Timing</b>
1	Maintain the Asset Protection Zone (APZ) to the dimensions and standard stated in the BMP.	Ongoing
2	Comply with the Shire of Katanning, Fire Management Requirements issued under s33 of the Bush Fires Act 1954.	Ongoing
3	Maintain vehicular access routes within the Lot to the required surface condition and clearances as stated in the BMP.	Ongoing
4	Maintain the emergency static water supply tank and its associated fittings and vehicular access in good working order/condition.	Ongoing
5	Ensure that any builders (of future structures on the Lot) are aware of the existence of this Bushfire Management Plan and the responsibilities it contains regarding the application of construction standards corresponding to the determined BAL rating.	Ongoing
6	Ensure all future buildings the landowner has responsibility for, are designed and constructed in full compliance with: (a) the requirements of the WA Building Act 2011 and the bushfire provisions of the Building Code of Australia (BCA); and (b) with any identified additional requirements established by this BMP or the relevant local government.	Ongoing
7	Updating the Bushfire Management Plan may be required to ensure that the bushfire risk management measures remain effective. Bushfire plans do not expire and should be a 'living document'. Updating is required in certain circumstances, including (but not limited to) if site conditions change, if further details are required at subsequent stages of the planning process or to reflect new technologies or methodologies in best practice bushfire risk management ('Guidelines' s4.6.4 and s4.6.5).	Ongoing

Table 5.2.2: Local Government management responsibilities

<b>LOCAL GOVERNMENT</b>		
<b>No.</b>	<b>Management Action</b>	<b>Timing</b>
1	Monitor landowner compliance with the Bushfire Management Plan and annual Firebreak and Fuel Load Notice.	Ongoing
2	Develop and maintain district fire-fighting services and facilities under their control.	Ongoing

## 6 Appendix 1 - Onsite Vegetation Management Technical Requirements

It is the responsibility of the landowner to maintain the established bushfire protection measures on their property. Not complying with these responsibilities can result in buildings being subject to a greater potential impact from bushfire than that determined by the assessed BAL rating presented in this Bushfire Management Plan.

For the management of vegetation within a lot (i.e. onsite) the following technical requirements exist:

1. **The APZ:** Installing and maintaining an asset protection zone (APZ) of the required dimensions to the standard established by the Guidelines for Planning in Bushfire Prone Areas (WA Planning Commission, as amended). When, due to the planning stage of the proposal to which this Bushfire Management Plan applies, defined APZ dimensions are known and are to be applied to existing or future buildings – then these dimensions are stated in Section 5.4.1 of this Plan.
2. **The Firebreak/Fuel Load Notice:** Complying with the requirements established by the relevant local government's annual firebreak notice issued under s33 of the Bushfires Act 1954. Note: If an APZ requirement is included in the Notice, the standards and dimensions may differ from the Guideline's APZ Standard – the larger dimension must be complied with.
3. **Changes to Vegetated/Non-Vegetated Areas:**
  - a. If applicable to this Plan, the minimum separation distance from any classified vegetation, that corresponds to the determined BAL for a proposed building, must be maintained as either a non-vegetated area or as low threat vegetation managed to a minimal fuel condition as per AS 3959-2018 s2.2.3.2 (e) and (f). Refer to Part 4 of this Appendix 1.
  - b. Must not alter the composition of onsite areas of classified vegetation (as assessed and presented in Section 3.1.2) to the extent that would require their classification to be changed to a higher bushfire threat classification (as per AS 3959-2018); and
  - c. Must not allow areas within a lot (i.e. onsite) that have been:
    - i. excluded from classification by being low threat vegetation or non-vegetated; and
    - ii. form part of the assessed separation distance that is determining a BAL rating  
-  
...to become vegetated to the extent they no longer represent a low threat (refer to Part 4 of Appendix 1). Note: The vegetation classification exclusion specifications as established by AS 3959-2018 s2.2.3.2, are included at Appendix 4 below for reference.

## 1. Requirements Established by the Guidelines – the Asset Protection Zone (APZ) Standards

(Source: Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 Appendix 4, Element 2, Schedule 1 and Explanatory Note E2.1)

### Defining the Asset Protection Zone (APZ)

**Description:** An APZ is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level (by reducing fuel loads). The width of the required APZ varies with slope and vegetation. For planning applications, the minimum sized acceptable APZ is that which is of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m<sup>2</sup> (BAL-29). It will be site specific.

The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

For subdivision planning, design elements and excluded/low threat vegetation adjacent to the lot can be utilised to achieve the required vegetation separation distances and therefore reduce the required dimensions of the APZ within the lot.

**Defendable Space:** The APZ includes a defendable space which is an area adjoining the asset within which firefighting operations can be undertaken to defend the structure. Vegetation within the defendable space should be kept at an absolute minimum and the area should be free from combustible items and obstructions. The width of the defendable space is dependent on the space which is available on the property, but as a minimum should be 3 metres.

**Establishment:** The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity.

*Note: Regardless of whether an Asset Protection Zone exists in accordance with the acceptable solutions and is appropriately maintained, fire fighters are not obliged to protect an asset if they think the separation distance between the dwelling and vegetation that can be involved in a bushfire, is unsafe.*



## Schedule 1: Standards for APZ

**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 mm in thickness reduced to and maintained at an average of two tonnes per hectare (example below).

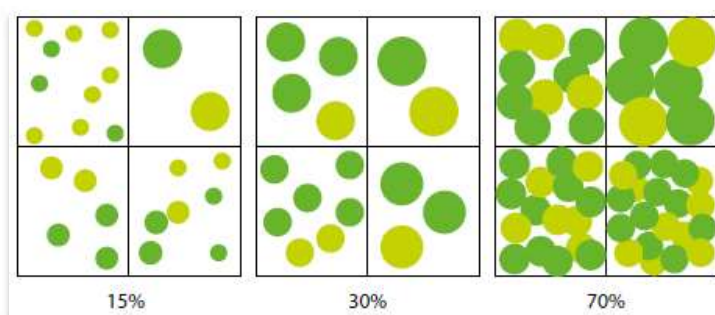
*Example Fine Fuel Load of Two Tonnes per Hectare*



(Image source: Shire of Augusta Margaret River's Firebreak and Fuel Reduction Hazard Notice)

**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. Diagram below represents tree canopy cover at maturity.

*Tree canopy cover – ranging from 15 to 70 per cent at maturity*



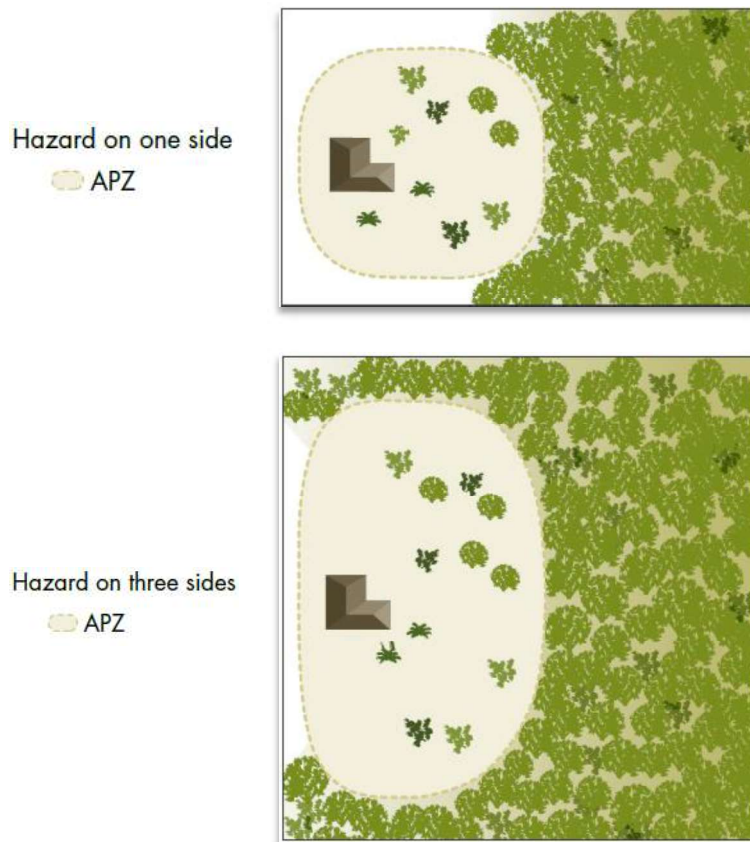
(Source: Guidelines for Planning in Bushfire Prone Areas 2017, Appendix 4)

**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 5m<sup>2</sup> 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 mm 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 mm or less.

The following example diagrams illustrate how the required dimensions of the APZ will be determined by the type and location of the vegetation.



## 2. Requirements Established by the Local Government – the Firebreak Notice

These requirements are established by the relevant local government's Firebreak Notice created under s33 of the Bushfires Act 1954 and issued annually (potentially with revisions). The Notice may include additional components directed at managing fuel loads, accessibility and general property management with respect to limiting potential bushfire impact.

The relevant local government's current Firebreak Notice is available on their website, at their offices and is distributed as ratepayer's information. It must be complied with.

If Asset Protection Zone technical requirements are defined in the Notice, the standards and dimensions may differ from the Guideline's APZ Standards, with the intent to better satisfy local conditions. When these are more stringent than those created by the Guidelines, or less stringent and endorsed by the WAPC and DFES, they must be complied with.

When, due to the planning stage of the proposal to which this Bushfire Management Plan applies, defined APZ dimensions are known and are to be applied to existing or future buildings – then these dimensions are stated in Section 5.3.1 of this Plan.

### 3. Requirements Recommended by DFES – Property Protection Checklists

Further guidance regarding ongoing/lasting property protection (from potential bushfire impact) is presented in the publication 'DFES – Fire Chat – Your Bushfire Protection Toolkit'. It is available from the Department of Fire and Emergency Services (DFES) website.

### 4. Requirements Established by AS 3959-2018 - Maintaining Areas within your Lot as 'Low Threat'

This information is provided for reference purposes. This knowledge will assist the landowner to comply with Management Requirement No. 3 set out in the Guidance Panel at the start of this Appendix. It identifies what is required for an area of land to be excluded from classification as a potential bushfire threat.

This information is taken from the Australian Standard AS 3959-2018 *Construction of buildings in bushfire prone areas*. This Standard presents the methods for calculating Bushfire Attack Levels that have been applied in this Report. The following specific section identifies what is required for an area of land to be excluded from classification as a potential bushfire threat.

*"Australian Standard - AS 3959-2018 Section 2.2.3.2: Exclusions - Low threat vegetation and non-vegetated areas"*

*The following vegetation shall be excluded from a BAL assessment:*

- a) *Vegetation of any type that is more than 100m from the site.*
- b) *Single areas of vegetation less than 1ha in area and not within 100m of other areas of vegetation being classified.*
- c) *Multiple area of vegetation less than 0.25ha in area and not within 20m of the site or each other or of other areas of vegetation being classified vegetation.*
- d) *Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m of the site or each other, or other areas of vegetation being classified vegetation.*
- e) *Non-vegetated areas that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.*
- f) *Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.*

Notes:

- 1 *Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of a bushfire attack (recognisable as short cropped grass to a nominal height of 100mm for example).*
- 2 *A windbreak is considered a single row of trees used as a screen or to reduce the effect of wind on the leeward side of the trees.*

## Appendix 2 – Vehicular Access Technical Requirements

Each local government may have their own standard technical requirements for emergency vehicular access and they may vary from those stated in the Guidelines.

Contact the relevant local government for the requirements that are to apply in addition to the requirements set out as an acceptable solution in the Guidelines. If the relevant local government requires that these are included in the Bushfire Management Plan, they will be included in this appendix and referenced.

### Requirements Established by the Guidelines – The Acceptable Solutions

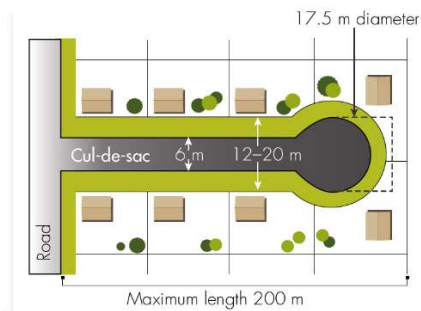
(Source: Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4)

#### Vehicular Access Technical Requirements - Part 1

##### Acceptable Solution 3.3: Cul-de-sacs (including a dead-end road)

Their use in bushfire prone areas should be avoided. Where no alternative exists then the following requirements are to be achieved:

- Maximum length is 200m. If public emergency access is provided between cul-de-sac heads (as a right of way or public access easement in gross), the maximum length can be increased to 600m provided no more than 8 lots are serviced and the emergency access way is less than 600m in length;
- Turnaround area requirements, including a minimum 17.5m diameter head to allow type 3.4 fire appliances to turn around safely;
- The cul-de-sac connects to a public road that allows for travel in two directions; and
- Meet the additional design requirements set out in Part 2 of this appendix.

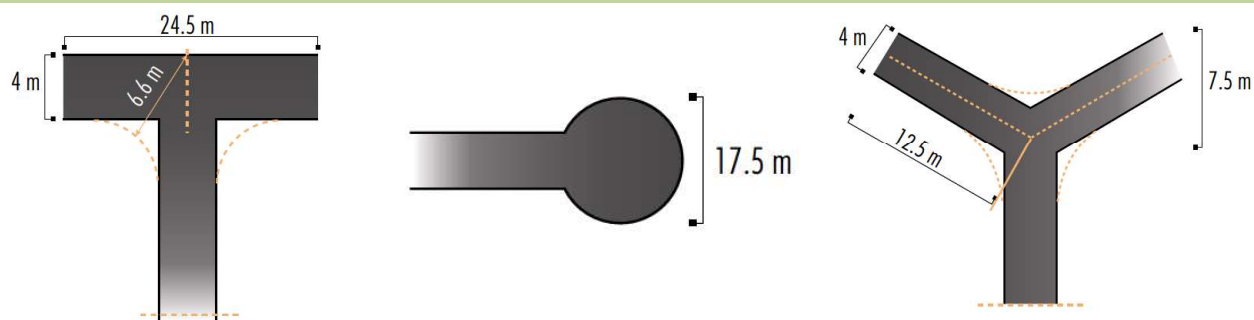


##### Acceptable Solution 3.5: Private Driveways

The following requirements are to be achieved:

- The design requirements set out in Part 2 of this appendix; and
- Where the house site is more than 50 metres from a public road:
- Passing bays every 200 metres with a minimum length of 20 metres and a minimum width of two metres (ie combined width of the passing bay and constructed private driveway to be a minimum six metres);
- Turn-around areas every 500 metres and within 50 metres of a house, designed to accommodate type 3.4 fire appliances to turn around safely (ie kerb to kerb 17.5 metres);
- Any bridges or culverts are able to support a minimum weight capacity of 15 tonnes; and
- All weather surface (i.e. compacted gravel, limestone or sealed).

\*See over for turn-around detail.



### Acceptable Solution 3.8: Firebreak Width

Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three meters or to the level as prescribed in the local firebreak notice issued by the local government.

### Vehicular Access Technical Requirements - Part 2

Technical Component	Vehicular Access Types				
	Public Roads	Cul-de-sacs	Private Driveways	Emergency Access Ways	Fire Service Access Routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	4.5	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum cross-fall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5

\* A six metre trafficable surface does not necessarily mean paving width. It could, for example, include four metres of paving and one metre of constructed road shoulders. In special circumstances, where 8 lots or less are being serviced, a public road with a minimum trafficable surface of four metres for a maximum distance of ninety metres may be provided subject to the approval of both the local government and DFES.

## Appendix 3 – Water Technical Requirements

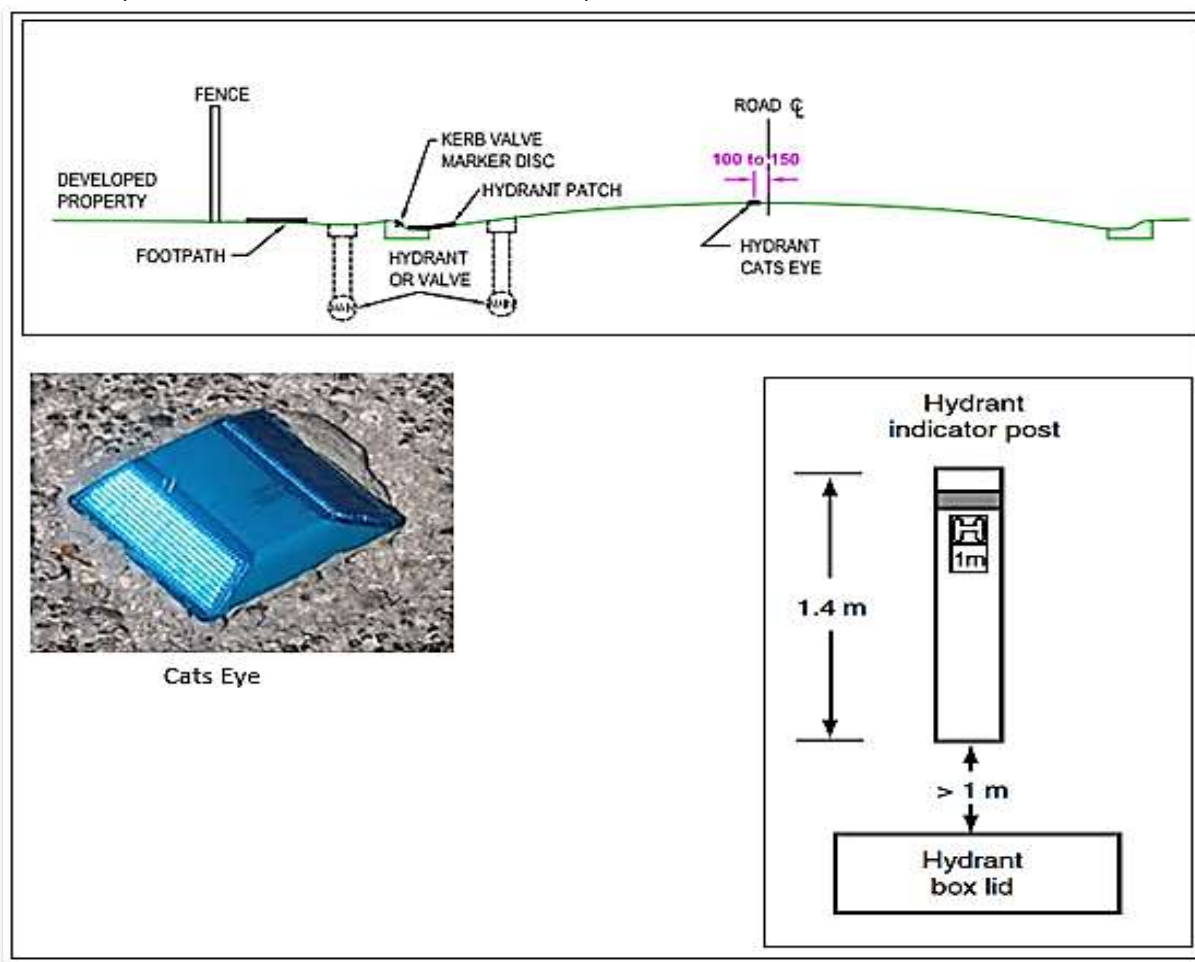
Source: *Guidelines for Planning in Bushfire Prone Areas WAPC 2015* and DFES website

### Acceptable Solution 4.1 Reticulated Areas

The requirement is to supply a reticulated water supply, together with fire hydrants, in accordance with the specifications set by DFES and the relevant water supply authority (WA Water Corporation or Aqwest - Bunbury or Busselton Water). The Water Corporation's 'No 63 Water Reticulation Standard' is deemed to be the baseline criteria for developments and should be applied unless local water supply authority's conditions apply. Key specifications in the most recent version/revision of the design standard include:

- **Residential Standard** – hydrants are to be located so that the maximum distance between the hydrants shall be no more than 200 metres.
- **Commercial Standard** – hydrants are to be located with a maximum of 100 metre spacing in Industrial and Commercial areas.
- **Rural Residential Standard** – where minimum site areas per dwelling is 10,000 m<sup>2</sup> (1 ha), hydrants are to be located with a maximum 400m spacing. If the area is further subdivided to land parcels less than 1 ha, then the residential standard (200m) is to be applied.

Figure A4.1: Hydrant Location and Identification Specifications



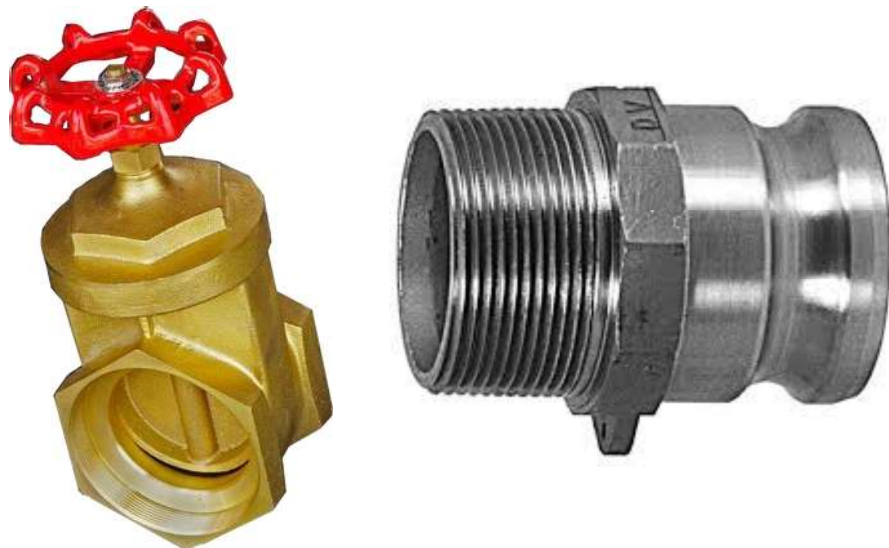
## Acceptable Solution 4.2 Non-Reticulated Areas

Static water supplies are used by firefighters in areas where there is no reticulated water supply. Water tanks are the only acceptable static water source acceptable to meet Element 4 (Water) of the Bushfire Protection Criteria as per the Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4.

The requirements for the development being assessed can be increased by the relevant local government. If a variation applies it will be stated and referenced in this Plan.

---

Volume:	50,000 litres per tank
Ratio of tanks to lots:	1 tank per 25 lots (or part thereof)
Location:	No more than two kilometres to the furthest house site within the residential development to allow a 2.4 fire appliance to achieve a 20-minute turnaround time at legal road speeds.
Tank Construction:	Above ground tanks constructed using concrete or metal. Stands of raised tanks are constructed using non-combustible materials and heat shielding where applicable (required for metal stands).
Pipe Construction:	Galvanised or copper (PVC if buried 300mm below ground).
Access:	Hardstand and turnaround areas suitable for a 3.4 appliance (i.e. kerb to kerb 17.5metres) are provided within three metres of each tank.
Couplings:	Tanks are to be fitted with a full flow gate (not ball) valve and a 100mm cam-lock coupling of metal/alloy construction (source: DFES). Examples below:



Ownership Responsibility:	Water tanks and associated facilities are vested in the relevant local government. A procedure must be in place to ensure that water tanks are maintained at or above designated capacity at all times.
---------------------------	---

---

## Requirements Established by the Guidelines - Acceptable Solution A4.3: Non-Reticulated Areas – Single Lot

Each local government may have their own standard technical requirements for firefighting water supplies and they may vary from those stated in the Guidelines.

Contact the relevant local government for the requirements that are to apply in addition to the requirements set out as an acceptable solution in the Guidelines. If the relevant local government requires that these are included in the Bushfire Management Plan, they will be included in this appendix and referenced.

**Table A4.1:** The acceptable solution as contained in the Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4, Element 4 – with example construction / coupling requirements from various sources including FESA (DFES) Operational Circular 07/2011 and Planning for Bushfire Protection Guidelines WAPC 2010.

### Technical Requirements for Static Water Supply (example only – check with local government)

**Application:** Single lots above 500 m<sup>2</sup> need a dedicated static water supply on the lot. This solution is only for use if creating one additional lot and cannot be applied cumulatively.

**Volume:** Minimum 10,000 litres per tank dedicated to firefighting purposes. The storage tank must not facilitate sharing the water for domestic use due to the danger of contamination.

**Tank Construction:** Above ground tanks constructed using concrete or metal.

**Pipe Construction:** Galvanised or copper (PVC if buried at least 300mm below ground).

**Vehicle Access:** Hardstand and turnaround area suitable for a 3.4 appliance (i.e. kerb to kerb 17.5metres) is provided at the tank.

**Couplings:** Tanks are to be fitted with a full flow gate valve (not ball valve) and a 50mm or 100mm cam-lock coupling of metal/alloy construction (example below).

**Responsibility:** A procedure must be in place to ensure that water tanks are maintained at or above designated capacity always.

