



Bushfire Management Plan

Lot 101 (356) Lake Road and Lot 102
Arabian Court, Champion Lakes

Report No:

A24.165-RPT-BMP_0_FINAL

Issue Date:

7-Jan-2025

Status

FINAL

Prepared for:


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Prepared by

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6-Jan-2025	6-Jan-2025	6-Jan-2025

Distribution Record

Copies	Document ID / Version	Date	Received by
1	A24.165-RPT-BMP_A_DRAFT	20-Dec-2024	Brenton Downing
1	A24.165-RPT-BMP_O_FINAL	7-Jan-2025	Julia Alberghini

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The bushfire management measures and risk treatments proposed in this document do not guarantee that buildings or infrastructure will not be damaged in a bushfire, nor that there will be no injuries or fatalities either on the site or offsite while evacuating. Primarily, this is due to the unpredictable nature and behaviour of fire and fire weather conditions. In addition, implementation of the required bushfire management measures (including construction standards, maintenance etc.) and any other required or recommended measures, will depend upon, among other things, the ongoing actions of landowners and/or operators over which WEPL has no control.

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1. Introduction

1.1 Proposal Details

Celsius Land is seeking to progress a subdivision application for Lot 101 (356) Lake Road and part of Lot 102 Arabian Court, Champion Lakes (hereafter referred to as the subject site, Figure 1). The proposed subdivision will result in an intensification of land use and involves the development of 46 residential lots (Figure 2).

The subject site is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES, 2024; Figure 3), which triggers bushfire planning requirements under *State Planning Policy 3.7 Bushfire* (SPP 3.7; WAPC, 2024a) and reporting to accompany submission of the subdivision application in accordance with the associated *Planning for Bushfire Guidelines* (the Guidelines; WAPC, 2024b).

Western Environmental Approvals Pty Ltd (WEPL) was commissioned to prepare a Bushfire Management Plan (BMP) to support the subdivision. This BMP has been prepared by Bushfire Consultant Bridie Farrar and Senior Principal Bushfire Consultant Daniel Panickar (FPAA BPAD Level 3 Certified Practitioner No. BPAD37802).

1.1.1 Site context

The subject site is located within the City of Armadale and is zoned Urban Development under the City of Armadale Town Planning Scheme No. 4 and Urban under the Metropolitan Region Scheme. The subject site contains a mixture of unmanaged, classifiable vegetation as well as cleared areas. The subject site is bound by:

- Champion Drive and rural residential lots to the north.
- Lake Road and urban areas to the east.
- Cleared areas for Stage 1 of the subdivision to the south.
- Rural residential lots to the west.

1.2 Purpose and Application of the BMP

This BMP has been prepared in accordance with SPP 3.7 and the Guidelines to support the assessment of the subdivision for the subject site submitted to WAPC.

In addition, this BMP provides strategies and guidance to reduce the level of bushfire risk exposure for the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

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2. Environmental Considerations

SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values.

2.1 Native Vegetation - Clearing and Modification

The subject site has been historically cleared and used for semi-rural residential purposes, including grazing by horses.

Following a desktop search, the subject site was not found to contain any mapped native vegetation, conservation category wetlands, Bush Forever areas or environmentally sensitive areas (Figure 2). The proposed subdivision is not expected to have any adverse impacts to environmental assets in the near vicinity.

WEPL is not aware of any outstanding environmental approvals required for development to proceed.

2.2 Revegetation/Landscape Plans

Revegetation will occur within the public open space (POS) area; however, this will be limited to the drainage basin. This vegetation is not expected to increase the bushfire risk associated with the POS as it is a small patch which is sufficiently separated from the proposed lots as well as any other classified vegetation. The landscape concept plan for the POS (Appendix A) also includes low-threat vegetation and hardscaped areas.

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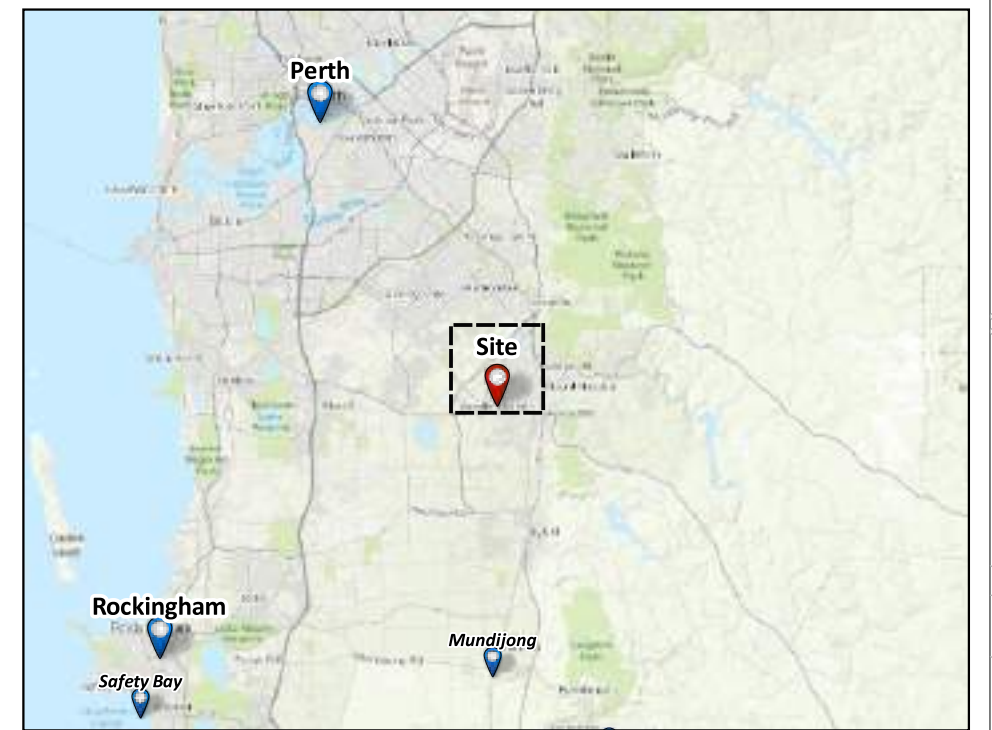
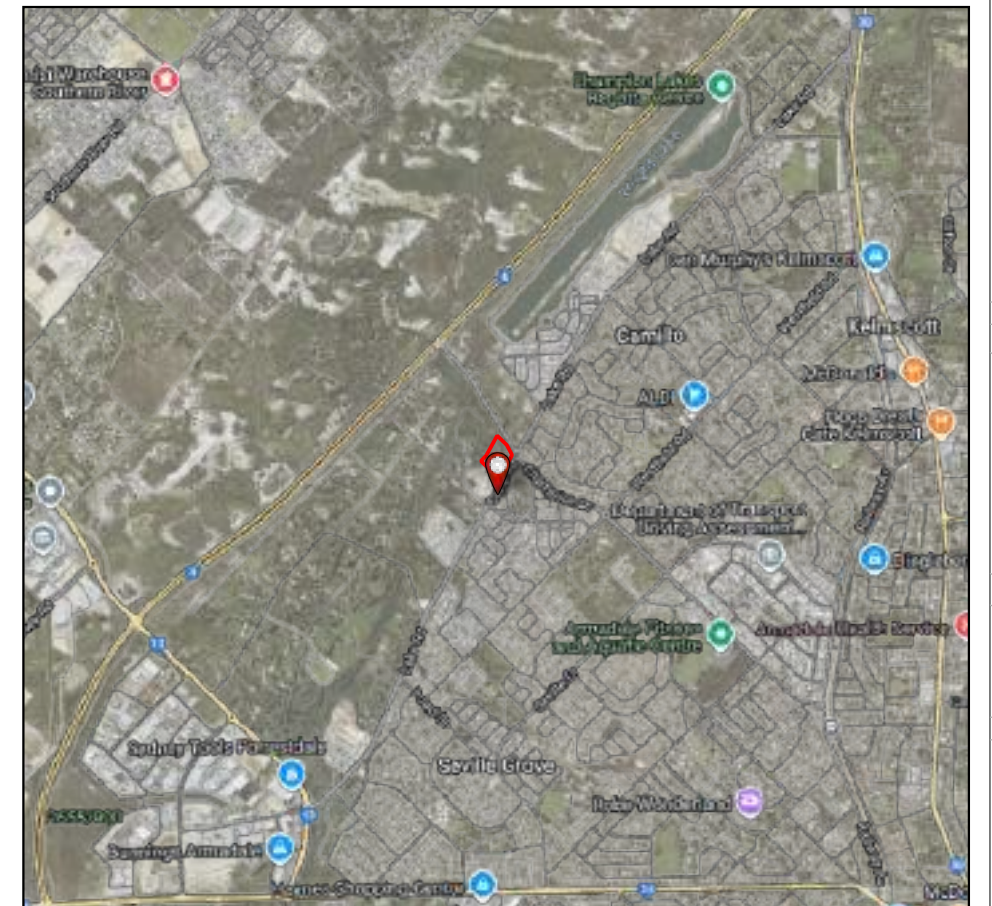


Figure 1: Site Overview

	PROJECT/REPORT NAME Bushfire Management Plan Lot 101 Lake Road and Lot 102 Arabian Court, Champion Lakes		Legend Subject Site Buffer 100m Buffer 150m
	SCALE 1:2,929	SHEET SIZE A3 COLOUR	
COORDINATE REFERENCE SYSTEM GDA2020 / MGA zone 50	PROJECT NUMBER A24.165	VERSION 0	
DATA SOURCE Nearmap Imagery (6th December, 2024)	DRAWN BY / REVIEWED BY JP/BF	DATE 20/12/2024	

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Cadastral boundary (LGATE-002), Base map ESRI Topo, Townsites (LGATE-248).



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Figure 2: Site Plan

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	PROJECT/REPORT NAME Bushfire Management Plan Lot 101 Lake Road and Lot 102 Arabian Court, Champion Lakes		Legend <ul style="list-style-type: none"> Subject Site Buffer 100m Buffer 150m Lots WAPC Approvals 162858 and 164566 Balance of Lot 102 POS Road Reserve Native Vegetation Extent (DPIRD-005) Geomorphic Wetlands, Swan Coastal Plain (DBCA-019) Conservation 	<table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Drawn</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Original issue</td> <td>JP</td> <td>BF</td> <td>20/12/2024</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No	Description	Drawn	Approved	Date	A	Original issue	JP	BF	20/12/2024																				
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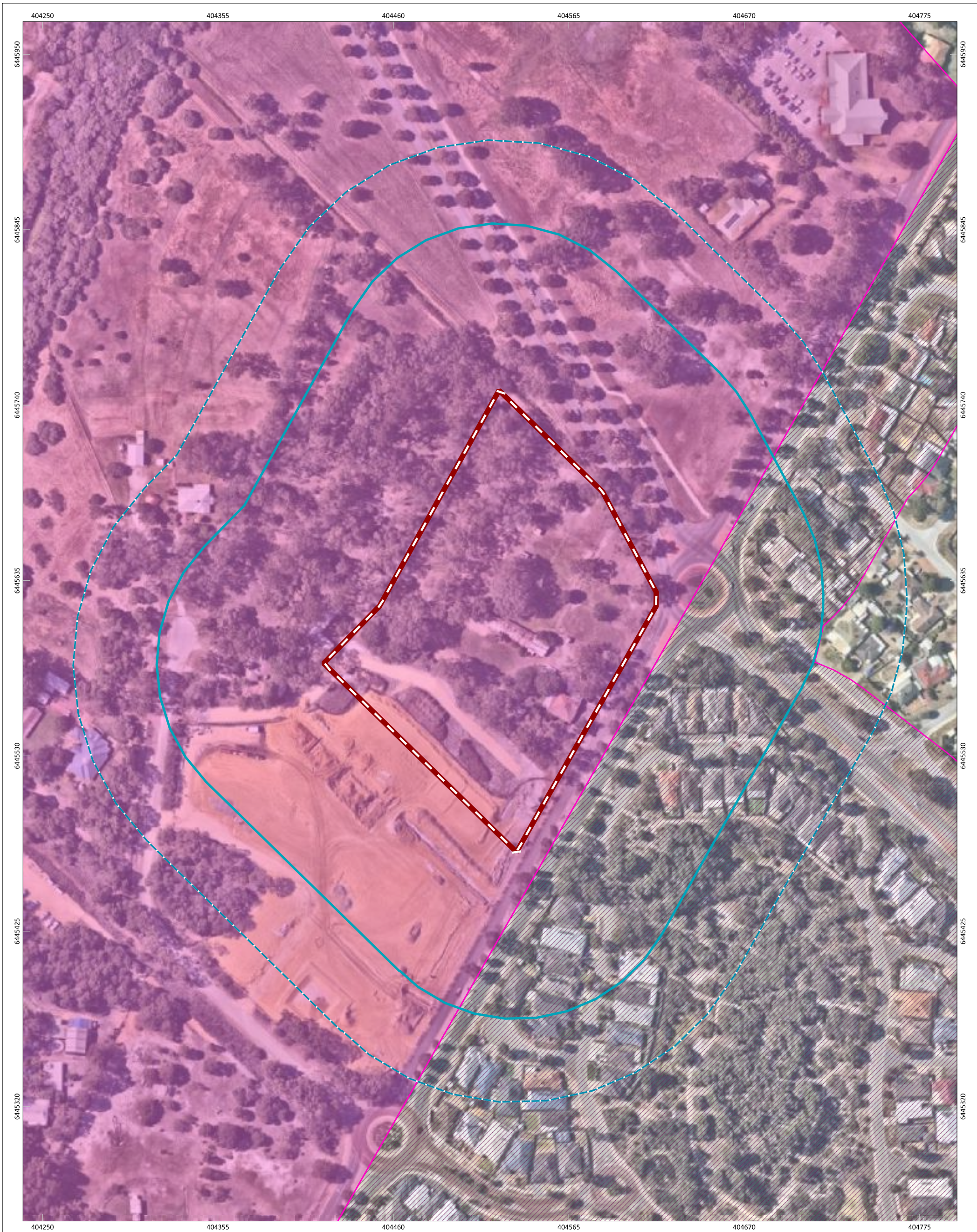


Figure 3: Bushfire Prone Areas

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	PROJECT/REPORT NAME Bushfire Management Plan Lot 101 Lake Road and Lot 102 Arabian Court, Champion Lakes		Legend Subject Site Buffer 100m Buffer 150m Bush Fire Prone Area Planning (OBRM-023) Bushfire Prone Area 1 Bushfire Prone Area 2	<table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Drawn</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Original issue</td> <td>JP</td> <td>BF</td> <td>20/12/2024</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No	Description	Drawn	Approved	Date	A	Original issue	JP	BF	20/12/2024															
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3. Bushfire Assessment Results

3.1 Bushfire Assessment Inputs

A bushfire assessment has been undertaken for the proposed subdivision in accordance with the Guidelines. Inputs to this assessment are detailed below.

3.1.1 Fire Danger Index

A blanket Fire Danger Index (FDI) 80 is adopted for Western Australia, as outlined in *Australian Standard AS 3959: 2018 Construction of Buildings in Bushfire Prone Areas* (SA, 2018).

3.1.2 Vegetation Classification and Slope under Vegetation

Vegetation and effective slope (i.e. slope under vegetation) within the subject site and surrounding 150 m (the assessment area) were assessed on 29/08/2024 in accordance with the Guidelines and AS 3959: 2018.

The classified vegetation and effective slope for the site from each of the identified vegetation plots are identified below in Table 1 and Figure 4.

Table 1: Classified Vegetation as per AS 3959: 2018

Plot	Vegetation classification	Effective slope
1	Class A Forest	All upslopes and flat land (0 degrees)
2	Class B Woodland	All upslopes and flat land (0 degrees)
3	Class G Grassland	All upslopes and flat land (0 degrees)
4	Excluded - clause 2.2.3.2 (e)	-
5*	Excluded - clause 2.2.3.2 (c)	-
6*	Excluded - clause 2.2.3.2 (f)	-

*These plots will exist post-development.

Photographs relating to each area and vegetation type are included in Appendix B.

3.1.3 Post-Development Assumptions

Post-development, the POS will contain a mixture of low-threat landscaped areas and revegetated areas. The drainage basin will be vegetated, containing shrubs and trees, constituting classifiable vegetation. Despite the structure of this vegetation, the plot is less than 0.25 ha in size, greater than 20 m from other plots of classified vegetation and greater than 20 m from the proposed lots within Stage 2 (Appendix A). For this reason, it has been excluded under Clause 2.2.3.2 (c) of AS 3959: 2018 (Figure 5).

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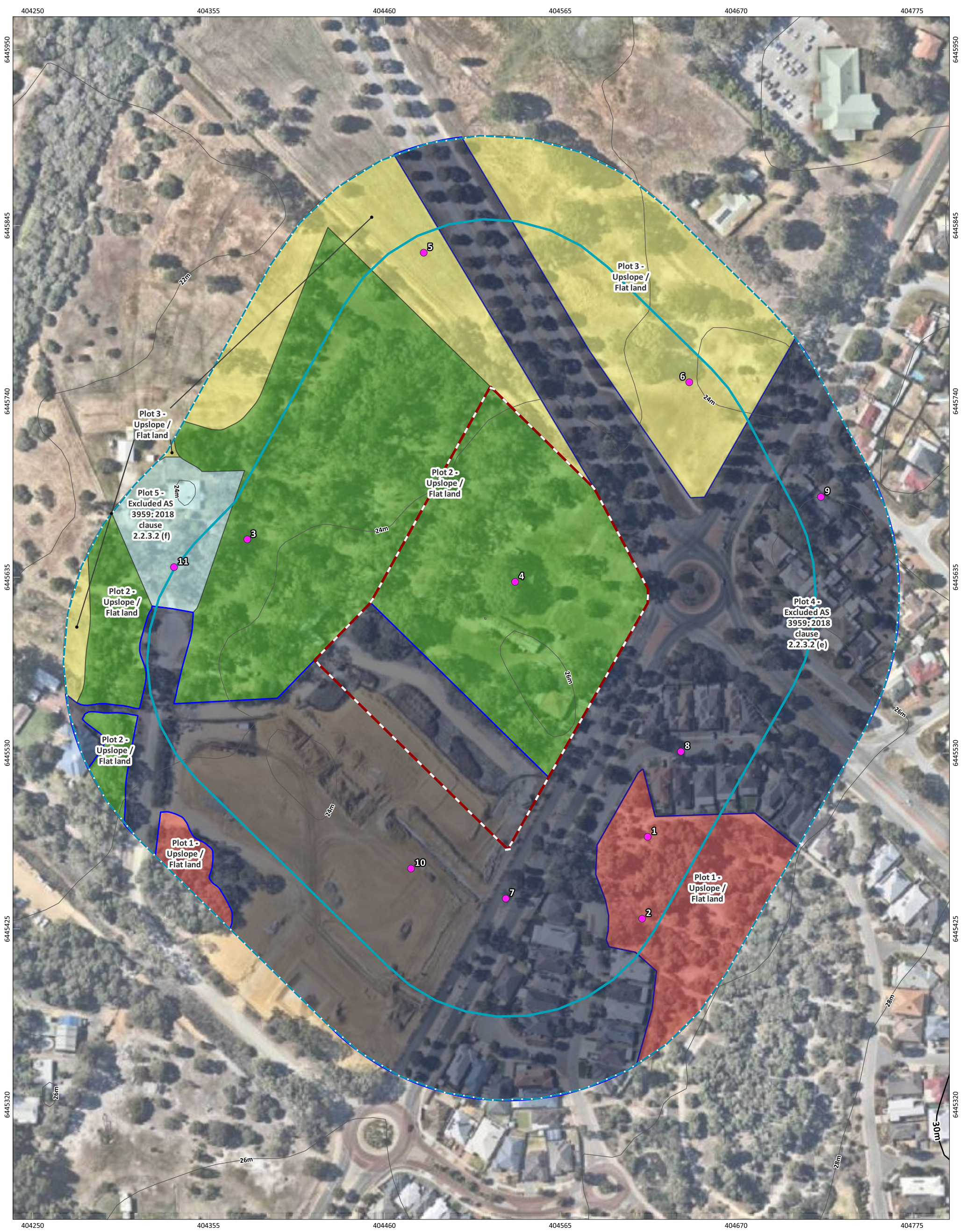


Figure 4: Pre-Development Vegetation Classification

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	PROJECT/REPORT NAME Bushfire Management Plan Lot 101 Lake Road and Lot 102 Arabian Court, Champion Lakes		Legend Subject Site Buffer 100m Buffer 150m Photos 2m Contours (DPIRD-072) 2m Contour 10m Contour	Vegetation Classification Class A - Forest Class B - Woodland Class G - Grassland Excluded AS 3959: 2018 2.2.3.2 (e) Excluded AS 3959: 2018 2.2.3.2 (f)	<table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Drawn</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Original issue</td> <td>JP</td> <td>BF</td> <td>20/12/2024</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No	Description	Drawn	Approved	Date	A	Original issue	JP	BF	20/12/2024																				
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3.2 Bushfire Assessment Outputs

A Bushfire Attack Level (BAL) assessment has been undertaken in accordance with SPP 3.7, the Guidelines, AS 3959: 2018 and the bushfire assessment inputs in Section 3.1.

3.2.1 BAL Assessment

All land located within 100 m of the classified vegetation depicted in Figure 4 is considered bushfire prone and is subject to a BAL assessment in accordance with AS 3959: 2018.

A Method 1 BAL assessment (as outlined in AS 3959: 2018) has been completed for the proposed development and incorporates the following factors:

- Fire Danger Index (FDI) rating.
- Vegetation class.
- Slope under classified vegetation.
- Distance between proposed subdivision area and the classified vegetation.

Based on the identified BAL, construction requirements for relevant buildings/structures can then be assigned. The BAL rating gives an indication of the expected level of bushfire attack (i.e. radiant heat flux, flame contact and ember penetration) that may be received by proposed buildings and subsequently informs the standard of construction required to increase building survivability.

3.2.2 Method 1 BAL Assessment

Table 2 and Figure 5 display the Method 1 BAL assessment (in the form of BAL contours) that has been completed for the proposed subdivision in accordance with AS 3959: 2018 methodology.

Post-development, 40 lots will be subject to BAL ratings of \leq BAL-29. The BAL-FZ and BAL-40 ratings on the six lots, however, can be managed and reduced to \leq BAL-29 for future dwellings as discussed in section 3.3.

Table 2: Method 1 BAL Calculation (BAL Contours)

Plot	Vegetation classification	Effective slope	Separation distances required (m)				
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
1	Class A Forest	All upslopes and flat land (0 degrees)	<16	16 - <21	21 - <31	31 - <42	42 - <100
2	Class B Woodland	All upslopes and flat land (0 degrees)	<10	10 - <14	14 - <20	20 - <29	29 - <100
3	Class G Grassland	All upslopes and flat land (0 degrees)	<6	6 - <8	8 - <12	12 - <17	17 - <50

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Plot	Vegetation classification	Effective slope	Separation distances required (m)				
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
4	Excluded - clause 2.2.3.2 (e)	-	No separation distances required - BAL-LOW				
5	Excluded - clause 2.2.3.2 (c)	-	No separation distances required - BAL-LOW				
6	Excluded - clause 2.2.3.2 (f)	-	No separation distances required - BAL-LOW				

3.3 Identification of Issues Arising from the BAL Assessment

Post-development, 40 of the 46 proposed lots will be subject to BAL ratings of \leq BAL-29. Measures to ensure that BAL ratings on the other six lots can be reduced to \leq BAL-29 for future dwellings are discussed below.

Lots 2, 16 and 34 contain Asset Protection Zones (APZ) and have sufficient space outside of the APZs to facilitate the construction of future dwellings in areas subject to BAL-29 or lower.

Lots 1, 14 and 15 contain APZs and will be withheld from sale until such time that the bushfire hazard associated with the vegetation on Lot 103 Arabian Court is removed and these lots can facilitate the construction of dwellings which will be subject to BAL-29 or lower.

A reassessment of BAL ratings, through either a BMP addendum or revised BMP will be undertaken if changes to development design or classified vegetation within the assessment area which require a modified bushfire management response occur.

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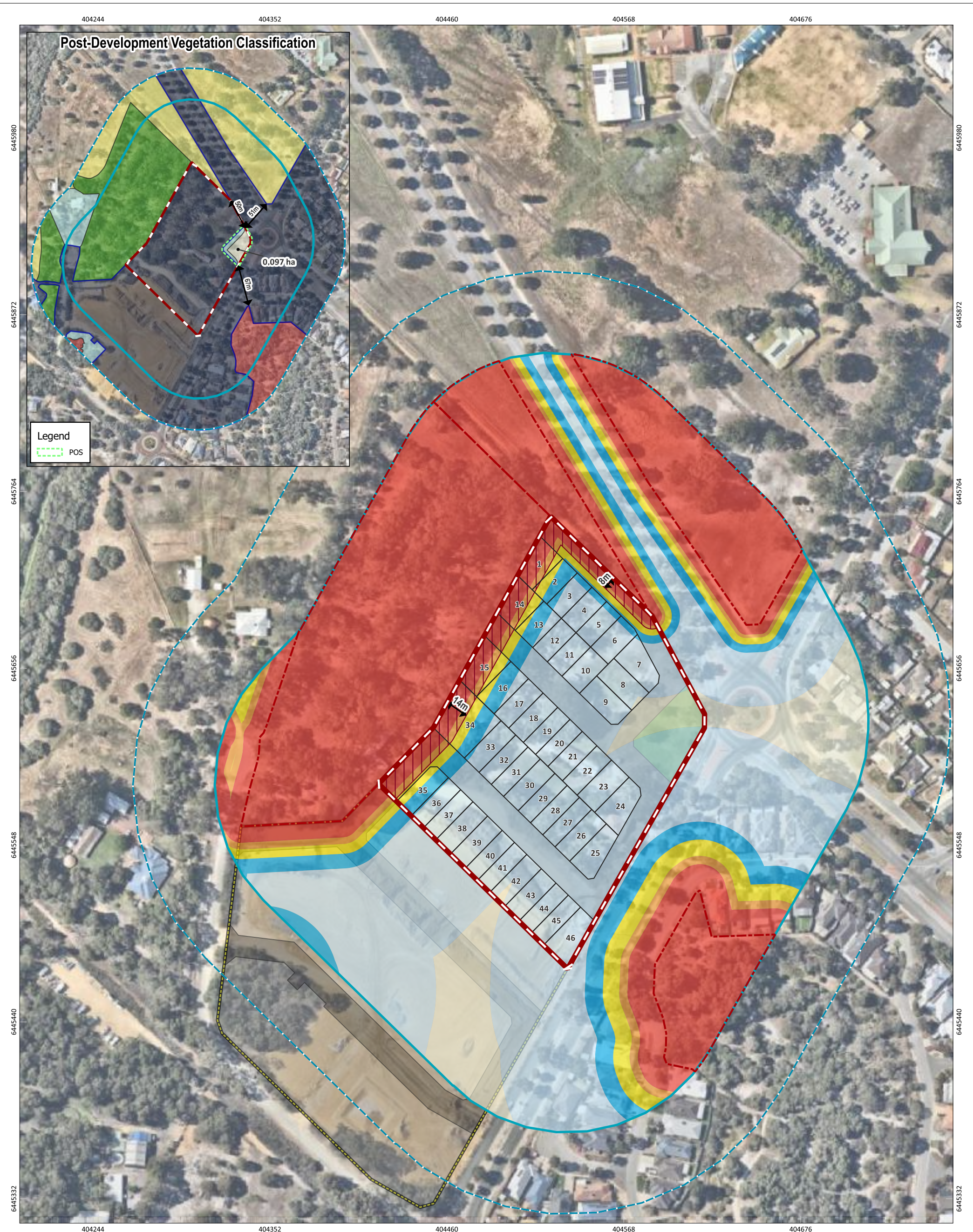


Figure 5: Bushfire Attack Level (BAL) Contours

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	PROJECT/REPORT NAME Bushfire Management Plan Lot 101 Lake Road and Lot 102 Arabian Court, Champion Lakes		Legend Subject Site Buffer 100m Buffer 150m Bushfire hazard Interface Lots WAPC Approvals 162858 and 164566 Asset Protection Zone (APZ) POS Road Reserve	Balance of Lot 102 Vegetation Classification Class A - Forest Class B - Woodland Class G - Grassland Excluded AS 3959: 2018 2.2.3.2 (c) 2018 2.2.3.2 (e) Excluded AS 3959: 2018 2.2.3.2 (f)	Bushfire Attack Level (BAL) BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-LOW	<table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Drawn</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Original issue</td> <td>JP</td> <td>BF</td> <td>20/12/2024</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No	Description	Drawn	Approved	Date	A	Original issue	JP	BF	20/12/2024															
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4. Assessment Against the Bushfire Protection Criteria

4.1 Compliance

The proposed subdivision is required to comply with policy measures 7.1 and 7.3 of SPP 3.7 and Bushfire Protection Criteria 5 in the Guidelines.

Table 3 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summarises how the intent of each Bushfire Protection Criteria has been achieved through the application of bushfire risk management measures. No Outcomes-Based Solutions (OS) have been proposed for this subdivision. These management measures are depicted in Figure 6 where relevant.

Implementation of this BMP is expected to meet objectives 5.1-5.4 of SPP 3.7.

Table 3: Assessment Against the Bushfire Protection Criteria

Bushfire Protection Criteria	AS	OS	N/A
Element 1: Location			✓
A1.1 Broader Landscape Assessment	<input type="checkbox"/>	<input type="checkbox"/>	✓
Not Applicable - A structure plan exists over the subject site which has been previously assessed under SPP 3.7 (Rowe Group Design, 2023). Therefore, no BLA is required as part of this BMP.			
Element 2: Siting and design	✓	<input type="checkbox"/>	<input type="checkbox"/>
A2.1 Siting and design			
Post-development, 40 of the 46 proposed lots will be subject to BAL ratings of ≤BAL-29. The BAL-FZ and BAL-40 ratings on the six lots however, can be managed and reduced to ≤BAL-29 for future dwellings as discussed in section 3.3. All remaining proposed lots within the subject site will be located in an area subject to BAL ratings of ≤BAL-29 (Figure 5, Figure 6). The proposed subdivision is considered to be compliant with A2.1.			
A2.2 Asset Protection Zone (APZ)	✓	<input type="checkbox"/>	<input type="checkbox"/>
The proposed development has an APZ sufficient for the potential radiant heat flux to not exceed 29kW/m ² and will be managed in accordance with the requirements of 'Standards for Asset Protection Zones' (WAPC, 2024b; Appendix C). The APZ can be contained within the boundaries of the subject site. The proposed subdivision is considered to be compliant with A2.2.			
A2.3 Clearing of native vegetation	✓	<input type="checkbox"/>	<input type="checkbox"/>
The subject site contains no mapped native vegetation. The subject site has been previously cleared and used for rural living purposes. WEPL is not aware of any outstanding environmental approvals required for development to proceed. The proposed subdivision is considered to be compliant with A2.3.			

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Bushfire Protection Criteria	AS	OS	N/A
Element 3: Vehicular access	✓	<input type="checkbox"/>	<input type="checkbox"/>
A3.1 Public roads		<input type="checkbox"/>	<input type="checkbox"/>

The subject site is accessed via public roads which are being constructed as part of Stage 1 of the subdivision. The Guidelines do not prescribe values for the trafficable (carriageway/pavement) width of public roads as they should be in accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards and/or any applicable standard in the local government area. Proposed roads within the subject site will be designed according to Liveable Neighbourhoods.

WEPL's assessment, however, has identified that the existing roads surrounding the development are, and the proposed roads to the south will be, bitumen with estimated width of the sealed surface achieving a minimum width of 6 m and therefore consider the existing road network would provide suitable access and egress for the community and emergency services personnel in the event of a bushfire.

Vehicular access technical requirements in accordance with the Guidelines are detailed in Appendix D.

The proposed subdivision is considered to be compliant with A3.1.

A3.2 Access routes	✓	<input type="checkbox"/>	<input type="checkbox"/>
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Multiple access routes from the subject site to more than two suitable destinations are available via the existing public network (**Figure 6**). Access to the site is available via one public access point, and one emergency access point. The subject site will be accessible via two additional access points, when Lot 103 is developed in future.

Refer to A3.1 above for details regarding vehicular access technical requirements for public roads.

The proposed subdivision is considered to be compliant with A3.2.

A3.3a No-through roads	✓	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------	---	--------------------------	--------------------------

Two proposed roads within the subject site are no through roads.

These proposed no through roads are temporary, and will be connected to future roads in neighbouring developments. The terminus of these roads will contain temporary cul-de-sacs in accordance with the Guidelines until future road connections remove the requirements for these (**Figure 6**). Both of these roads are less than 200 m in length.

The proposed subdivision is considered to be compliant with A3.3a.

A3.3b No-through road requirements	✓	<input type="checkbox"/>	<input type="checkbox"/>
---	---	--------------------------	--------------------------

The temporary no-through roads will meet the public road requirements as outline in Appendix D and the temporary turnaround areas will have turning heads which comply with Figure 30 in the Guidelines.

The proposed subdivision is considered to be compliant with A3.3b.

A3.4 Emergency access way	✓	<input type="checkbox"/>	<input type="checkbox"/>
----------------------------------	---	--------------------------	--------------------------

An emergency access way (EAW) will be constructed providing emergency access and egress to/from the subject site via Lakes Road (**Figure 6**). The EAW will be constructed in accordance with the vehicular access technical requirements (Appendix D) and be no longer than 500 m.

The proposed subdivision is considered to be compliant with A3.4.

A3.5a Perimeter roads	✓	<input type="checkbox"/>	<input type="checkbox"/>
------------------------------	---	--------------------------	--------------------------

No perimeter roads are proposed as part of this subdivision. Although proposed Lots 1, 14, 15 and 34 directly abut classified vegetation, the classified vegetation in Lot 103 Arabian Court will be cleared when the lot is developed in accordance with the structure plan (Rowe Group Design, 2023). Lots 1, 14 and 15 will be withheld from sale until such time that Lot 103 is cleared. Each of these lots can be accessed from the roadside in the event of a bushfire.

The proposed subdivision is considered to be compliant with A3.5a.

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Bushfire Protection Criteria	AS	OS	N/A
A3.5b Fire service access route	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

No fire service access routes are proposed as part of this subdivision. Although proposed Lots 1, 14, 15 and 34 directly abut classified vegetation, the classified vegetation in Lot 103 Arabian Court will be cleared when the lot is developed in accordance with the structure plan (Rowe Group Design, 2023). Lots 1, 14 and 15 will be withheld from sale until such time that Lot 103 is cleared. Each of these lots can be accessed from the roadside in the event of a bushfire.

The proposed subdivision is considered to be compliant with A3.5b.

A3.6 Battle-axe access legs	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
------------------------------------	--------------------------	--------------------------	-------------------------------------

Not Applicable - No battle-axe style lots are proposed as part of this subdivision.

Element 4: Water supply			
A4.1 Water supply for structure plans	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Not Applicable - This Acceptable Solution does not apply to subdivision applications.

A4.2 Water supply for subdivision applications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	-------------------------------------	--------------------------	--------------------------

Existing reticulated water is present within the area and the subject site will be connected to this water supply. The nearest existing hydrants are located Milagro Fairway (**Figure 6**). WEPL assumes the surrounding network of hydrants meet Water Corporation specifications given they are established and within the Perth metropolitan area. The proposed subdivision is considered to be compliant with A4.2.

A4.3 Water supply for existing habitable buildings	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------

Not Applicable - No existing habitable buildings are to be retained as part of this subdivision.

Note: AS - Acceptable solution, OS - Outcomes-based solution, N/A - Not applicable.

Buyer Initial: _____

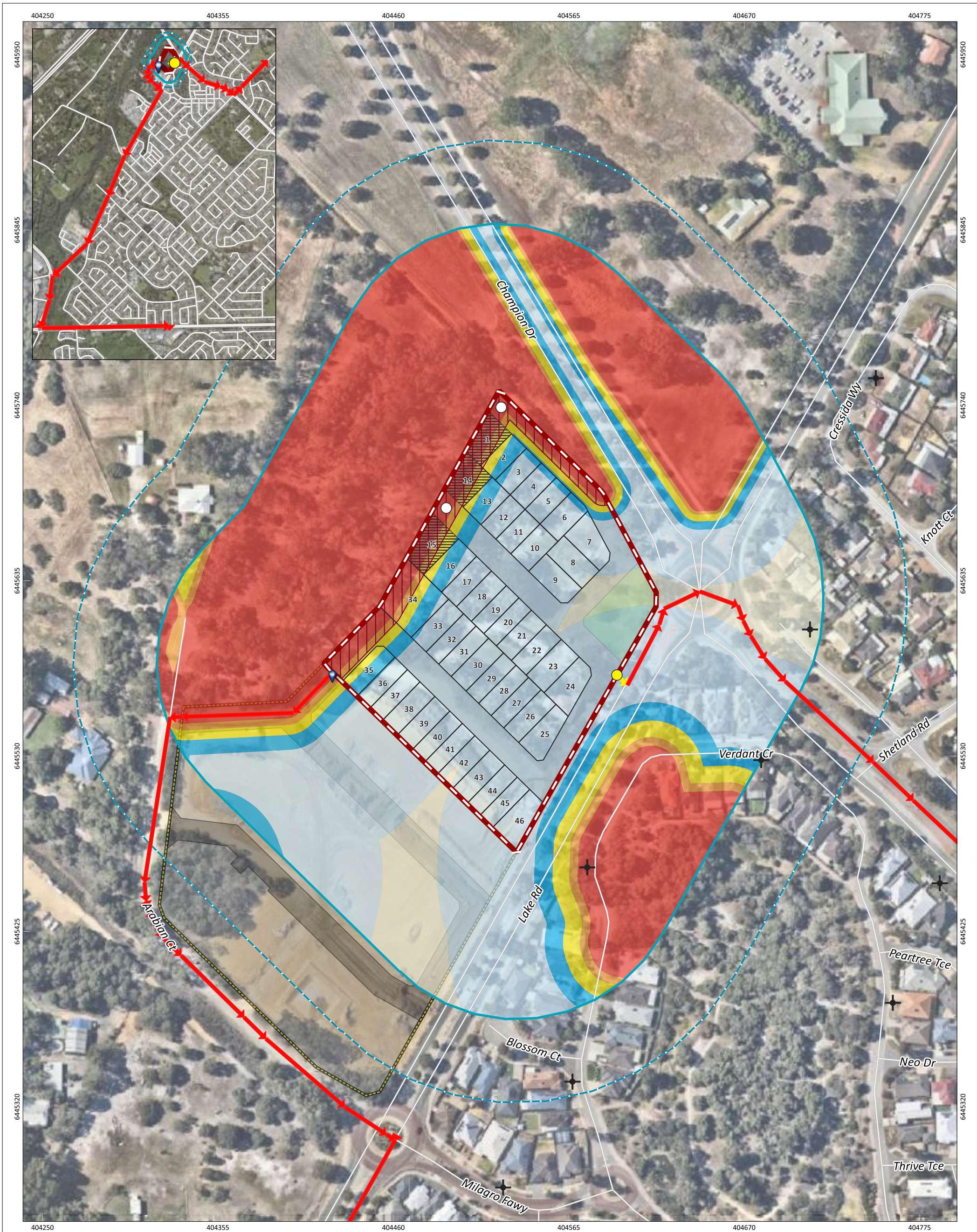


Figure 6: Spatial representation of the bushfire management strategies

Buyer Initial: _____

	PROJECT/REPORT NAME Bushfire Management Plan Lot 101 Lake Road and Lot 102 Arabian Court, Champion Lakes		Legend Subject Site Buffer 100m Buffer 150m Lots to be withheld from sale WAPC Approvals 162858 and 164566 Asset Protection Zone (APZ) POS Road Reserve	Balance of Lot 102 Access / egress route Emergency Access Way Access point Emergency Access /Egress Point Temporary turnaround point Water Hydrant (WCORP-070)	Bushfire Attack Level (BAL) BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-LOW	<table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Drawn</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Original issue</td> <td>JP</td> <td>BF</td> <td>20/12/2024</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No	Description	Drawn	Approved	Date	A	Original issue	JP	BF	20/12/2024															
	No	Description				Drawn	Approved	Date																							
A	Original issue	JP	BF	20/12/2024																											
SCALE 1:2,110	SHEET SIZE A3 COLOUR	CLIENT Celsius Land	PROJECT NUMBER A24.165	VERSION 0	Name: Daniel Panickar Western Environmental Approvals Pty Ltd																										
COORDINATE REFERENCE SYSTEM GDA2020 / MGA zone 50		DRAWN BY / REVIEWED BY JP/BF	DATE 20/12/2024		Signature: 																										
DATA SOURCE Nearmap Imagery (6th December, 2024)		Accreditation No: BPAD 37802 Expiry: December 2024																													
G:\GIS\Project Data\2024\A24.165\A24.165_BMP\A24.165_BMP.qgz					 Western Environmental Pty Ltd 08 6244 2310 enquiries@westenv.com.au Level 3/25 Prowse St, West Perth WA 6005 westenv.com.au																										

5. Responsibilities for Implementation and Management of Bushfire Management Measures

Responsibility for implementation of the bushfire risk management measures outlined in Section 4 of this BMP applies to the developer, future owners/builders within the subject site and the local government. Table 4 provides a works program detailing these measures, timing of implementation and responsibility.

Table 4: Proposed Works Program

No.	Bushfire management measure
Developer responsibilities - Prior to issue of Titles	
1	Ensure that Asset Protection Zones (APZs) are established and maintained as per the design in Figure 6.
2	Construct emergency access way as per plan in Figure 6.
3	Place Section 165 Notification on Title for all lots within Bushfire Prone Areas.
4	Withhold lots identified in Figure 6 from sale, until the BAL rating for future dwellings on these lots can be reduced to \leq BAL-29.
5	Construct road network (including temporary cul-de-sacs) as per plan in Figure 6.
6	Provide reticulated water supply to all lots and hydrants in accordance with Figure 6.
7	Install vegetation within the POS area as per the landscape concept plan in Appendix A.
Landowner/Builder responsibilities - Ongoing	
8	Construct dwellings to relevant construction standard in AS 3959: 2018.
9	Maintain APZs to the standard in the Guidelines.
City of Armadale responsibilities - Ongoing	
10	Maintain turfed areas and mulch beds to a low-threat state, as depicted in the landscape concept plan in Appendix A.

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6. Conclusion

In the professional opinion of the author, the proposed subdivision satisfies the intent, aim and objectives of SPP 3.7 and the Guidelines and is recommended for approval.

Buyer Initial: _____

7. References

Department of Fire and Emergency Services (DFES). (2024). *Map of Bush Fire Prone Areas*. Retrieved on 19/12/2024 from:
<http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>.

Rowe Group Design. (2023). *Lake Road, Precinct C Structure Plan, Champion Lakes*.

Standards Australia (SA). (2018). *Construction of buildings in bushfire-prone areas (AS 3959: 2018)*.

Western Australian Planning Commission (WAPC). (2024a). *State Planning Policy 3.7 Bushfire*. Government of Western Australia.

Western Australian Planning Commission (WAPC). (2024b). *Planning for Bushfire Guidelines*. Government of Western Australia.

Buyer Initial: _____

Appendix A: Landscape Concept Plan

Buyer Initial: _____



ARABIAN COURT - STAGE 2 POS

preliminary landscape concept | December 2024 [A]

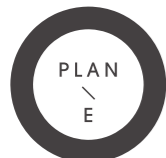
Buyer Initial: _____





LEGEND

- 01 Proposed concrete footpath
- 02 Picnic seating in shade of tree
- 03 Low threat native shrub planting
- 04 Turf grassing
- 05 Proposed native trees
- 06 Seating node with feature paving
- 07 Basin (vegetated)
- 08 Nature play area with picnic seating
- 09 Existing trees to be retained
- 10 Cycle path



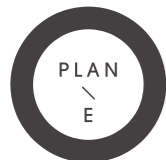
LANDSCAPE ARCHITECTS
 LEVEL 1 278 RAILWAY PDE WEST LEEDERVILLE WA 6007
 T: (08) 9388 9566 E: mail@plane.com.au

ARABIAN COURT STAGE 2 POS / LANDSCAPE CONCEPT
 PREPARED FOR CELSIUS PROPERTY GROUP
 DECEMBER 2024

C1.101
 REV A
 1:250 @ A3



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Buyer Initial: _____






Appendix B: Classified vegetation photos




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<p>Plot 1</p> <p>Photo 1</p> <p>This plot consists of trees reaching up to 30 m in height and is dominated by Eucalypts in the overstorey. The canopy cover exceeds 30% and the vegetation structure throughout the plot is multi-tiered, with grasses and shrubs throughout the understorey.</p> <p>The slope under this vegetation was assessed to be upslope/flat land.</p>	<p>Class A Forest</p> 
<p>Plot 1</p> <p>Photo 2</p> <p>This plot consists of trees reaching up to 30 m in height and is dominated by Eucalypts in the overstorey. The canopy cover exceeds 30% and the vegetation structure throughout the plot is multi-tiered, with grasses and shrubs throughout the understorey.</p> <p>The slope under this vegetation was assessed to be upslope/flat land.</p>	<p>Class A Forest</p> 
<p>Plot 2</p> <p>Photo 3</p> <p>This plot consists of Eucalypts reaching up to 30 m in height, over a grassy understorey. Tree canopy cover is between 10 and 30% and the vegetation structure is open.</p> <p>The slope under this vegetation was assessed to be upslope/flat land.</p>	<p>Class B Woodland</p> 



Buyer Initial: _____

Plot 2	Class B Woodland
<p>Photo 4</p> <p>This plot consists of Eucalypts reaching up to 30 m in height, over a grassy understorey. Tree canopy cover is between 10 and 30% and the vegetation structure is open.</p> <p>The slope under this vegetation was assessed to be upslope/flat land.</p>	
Plot 3	Class G Grassland
<p>Photo 5</p> <p>This plot is dominated by grasses in the understorey. Some sparse trees are present throughout the plot, with tree canopy cover not exceeding 10%.</p> <p>The slope under this vegetation was assessed to be upslope/flat land.</p>	
Plot 3	Class G Grassland
<p>Photo 6</p> <p>This plot is dominated by grasses in the understorey. Some sparse trees are present throughout the plot, with tree canopy cover not exceeding 10%.</p> <p>The slope under this vegetation was assessed to be upslope/flat land.</p>	

Buyer Initial: _____

Plot 4	Excluded - clause 2.2.3.2 (e)
<p>Photo 7 Roads surrounding the subject site which are devoid of vegetation.</p>	
<p>Photo 8 Houses, roads and low-threat gardens and nature strips in the areas surrounding the subject site.</p>	
<p>Photo 9 Houses, roads and low-threat gardens and nature strips in the areas surrounding the subject site.</p>	

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Plot 4	Excluded - clause 2.2.3.2 (e)
<p>Photo 10 The balance of Lot 102 Arabian Court, which has been cleared for development and devoid of vegetation.</p>	
Plot 5	Excluded - clause 2.2.3.2 (f)
<p>Photo 11 Vegetation within large rural lots which is maintained to a low-threat state.</p>	

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Appendix C: Standards for Asset Protection Zones (WAPC, 2024b)

Buyer Initial: _____

The following standards have been extracted from the Planning for Bushfire Guidelines (WAPC, 2024b).

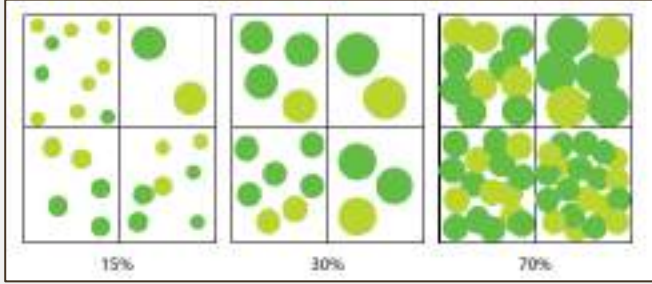
Every habitable building is to be surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

- a. Width: the APZ is measured from the development site, and of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29kW/m² (BAL-29) in all circumstances.
- b. Location: the APZ should be contained solely within the boundaries of the lot, except in instances where:
 - o the vegetation on the adjoining lot(s) is, and will continue to be, low threat as per Clause 2.2.3.2 of AS 3959 or the APZ technical requirements, or an alternative standard on a local planning scheme, on an ongoing basis in perpetuity; or
 - o the adjoining land is and will remain in perpetuity, non-vegetated.
- c. Management: the APZ is managed in accordance with the APZ technical requirements (below), or an alternative standard in a gazetted local planning scheme.

APZ Technical Requirements

Object	Requirement
Fences within the APZ	Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
Fine fuel load (Combustible, dead vegetation matter less than 6 mm in thickness)	<ul style="list-style-type: none"> • Should be managed and removed on a regular basis to be maintained as a low threat vegetation. • Should be maintained at less than two tonnes per hectare (on average). • Mulches should be non-combustible such as stone, gravel, shells, rock or crushed mineral earth or wood mulch more than five millimetres in thickness.
Trees* (more than 6 m in height)	<ul style="list-style-type: none"> • Trunks at maturity should be a minimum distance of six metres from all elevations of the building. • Branches at maturity should not touch or overhang a building or powerline. • Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. • Canopy cover within the APZ should be less than 15 per cent of the total APZ area. • Tree canopies at maturity should be at least 5 m apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided the total canopy cover within the APZ does not exceed 15 per cent and is not connected to the tree canopy outside the APZ.

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Object	Requirement
	 <ul style="list-style-type: none"> • Tree canopy cover – ranging from 15 to 70 per cent at maturity
<p>Shrub* and scrub* (0.5 m to 6 m in height). Shrub and scrub more than 6 m in height are to be treated as trees.</p>	<ul style="list-style-type: none"> • Should not be located under trees or within three metres of buildings. • Should not be planted in clumps more than five square metres in area. • Clumps should be separated from each other and any exposed window or door by at least 10 metres.
<p>Ground cover*(less than 0.5 m in height. Ground cover more than 0.5 m in height is to be treated as shrub)</p>	<ul style="list-style-type: none"> • Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above • Can be located within two metres of a structure but three metres from windows or doors if more than 100 mm in height.
<p>Grass</p>	<ul style="list-style-type: none"> • Grass should be maintained at a height of 100 mm or less, at all times • Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
<p>Defendable space</p>	<ul style="list-style-type: none"> • Within three metres of each wall or supporting post of a habitable building; the area is kept free from vegetation but can include ground cover, grass and non-combustible mulches as prescribed above.
<p>Liquid petroleum gas cylinders</p>	<ul style="list-style-type: none"> • Should be located on the side of a building farthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building. • The pressure relief valve should point away from the house. • No flammable material within six metres from the front of the valve. • Must sit on a firm, level and non-combustible base and be secured to a solid structure.
<p>*Plant flammability, landscaping design and maintenance should be considered - refer to explanatory notes in the Guidelines.</p>	

ADDITIONAL NOTES

An Asset Protection Zone (APZ) is a low fuel area, maintained around a building to increase the likelihood a building will survive a bushfire, by reducing the potential for direct flame contact, radiant heat exposure and ember attack. The APZ allows emergency services access and provides an area for firefighters and homeowners to defend their property.

An APZ should be contained within the boundaries of the lot on which the building is situated, except in instances where it is demonstrated the vegetation on the adjoining land is, and will continue to be, low threat as per cl. 2.2.3.2 of AS 3959, or the vegetation on the adjoining lot is, and will remain in perpetuity, non-vegetated. However, it should be noted there is no requirement for a neighbouring landowner or land

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manager (public or private) to be party to a legal agreement to undertake ongoing management of vegetation as low threat, in perpetuity.

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Appendix D:

Vehicular access technical requirements (WAPC, 2024b)

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Technical requirements	Perimeter Roads		Public Roads		Emergency Access Way ³		Fire Service Access Route ³		Battle-Axe and Private Driveways ¹	
	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1
Map of Bush Fire Prone Areas Designation	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1
Minimum horizontal clearance (m)	12	8	See note 5		10	6	10	6	6	
Minimum vertical clearance (m)	4.5									
Minimum weight capacity (t)	15									
Maximum grade unsealed road ²	See note 5		See note 5		1:10 (10% or 6 degrees)					
Maximum grade sealed road ^{2, 4}					1:7 (14.3% or 8 degrees)					
Maximum average grade sealed road					1:10 (10% or 6 degrees)					
Minimum inner radius of road curves (m)					8.5					

NOTES

1. Driveways and battle-axe legs to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision where not required to comply with the widths in this Appendix or the Guidelines.
2. Dips must have no more than a 1 in 8 (12.5% - 7.1 degrees) entry and exit angle.
3. To have crossfalls between 3 per cent and 6 per cent.
4. For sealed roads only the maximum grade of no more than 1 in 5 (20 per cent) (11.3 degrees) for no more than 50 metres is permissible, except for short constrictions to 3.5 metres for no more than 30 metres in length where an obstruction cannot be reasonably avoided or removed.
5. As outlined in the Institute of Public Works Engineering Australasia (IPWEA) subdivision guidelines, Liveable Neighbourhoods, Austroads Standards Main Roads standard, supplement, policy or guideline and/or any applicable or relevant local government standard or policy.

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