Bushfire Management Plan Coversheet

Site address:	500 Katharine Street, Bellevue						
Site visit / date:	Yes	✓	No		6 October 2025		
Report author or reviewer:	Mike Scott						
Not accredited		Level 1 BAL assessor		Level 2 practitioner		Level 3 practitioner	✓
BPAD accreditation number:	27795	Accreditation expiry – month / year			February		2026
Bushfire Management Plan - version / date:	V1.0	30 October 2025					

If one or more of the following responses are yes, then these should be automatically referred to DFES.	**Yes**	**No**
Strategic planning is required to address SPP 3.7 and the Guidelines		✓
The application is a vulnerable land use		✓

If one or more of the following responses are yes, and the decision-maker requires input from DFES, then the application can be referred.	**Yes**	**No**
The BAL rating has been calculated by a method other than Method 1 as prescribed by AS 3959		✓
An outcomes-based approach has been submitted to demonstrate compliance with the bushfire protection criteria		✓

Note: If a subdivision or development application meets all the acceptable solutions and does not otherwise trigger a referral as listed above, seeking advice from DFES on SPP 3.7 or other matters is at the discretion of the decision-maker.

The information provided within this bushfire management plan, to the best of my knowledge, is true and correct:

Dated signature of report author or reviewer:		30 October 2025

BUSHFIRE PRONE PLANNING

Robinson Grove

Bushfire Management Plan

(PREPARED FOR PLANNING APPLICATION ASSESSMENT PURPOSES)

Compiled in accordance with State Planning Policy 3.7 Bushfire and the Planning for Bushfire Guidelines

500 Katharine Street, Bellevue

Shire of Mundaring

Strategic Planning Proposal - Local Structure Plan

30 October 2025

Job Reference No: 15414

BPP GROUP PTY LTD T/A BUSHFIRE PRONE PLANNING

ACN: 166 551 784 | ABN: 139 166 551 784

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DOCUMENT CONTROL

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Reviewed:	Mike Scott (BPAD Level 3 No. 27795)	

VERSION HISTORY		
Version	Status/Details	Date
1.0	Original	30 October 2025
-	-	

DISTRIBUTION					
Destination		Version	No. Copies	Hard Copy	Electronic Copy
Person	Email				
Josh Dallimore	josh@tbbplanning.com.au	1.0		☐	☒
		-		☐	☐

LIMITATIONS AND DISCLAIMER

Management of Risks Associated with Bushfire

For the subject planning proposal, the protection measures to be implemented based on information presented in this Bushfire Management Plan, prepared for land-use planning purposes, are the minimum requirements for management of the relevant risks.

The applied protection measures do not guarantee that during a bushfire event, no buildings or infrastructure will be damaged, persons injured, or fatalities occur - either on the subject site or off the site when evacuating.

This is substantially due to the unpredictable nature of fire weather conditions, bushfire behaviour and the actions of landowners and/or operators – including the correct implementation and ongoing maintenance of required and recommended protection measures (including bushfire resistant construction) and complying with public bushfire warnings and directions from emergency services - over which Bushfire Prone Planning has no control.

Provision of Mapping Data

All maps included herein are indicative in nature and are not to be used for accurate calculations. This data has been prepared for bushfire risk management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey.

Bushfire Prone Planning does not guarantee that this data is without flaw of any kind and disclaims all liability for any errors, loss or other consequence arising from relying on any information depicted.

When the separate provision of Digital Geographic Data (GIS Files) is an agreed project deliverable, these should be used in conjunction with the relevant information presented in the associated report. Areas and/or Dimensions specified in the report will have priority over digital data transmitted and must correspond to the final 'as-built' location of the applicable buildings, other structures or boundaries.

Bushfire Prone Planning's Liability

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

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.

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LIST OF FIGURES

STATEMENT OF PURPOSE – THE 'PLANNING' BUSHFIRE MANAGEMENT PLAN

EXPLANATORY INFORMATION

SITE/USE PLANNING

This BMP is produced to present the information necessary for a planning proposal's assessment against the State's bushfire planning requirements. The developed information is to inform and assist decision-making authorities, planners, landowners/proponents and referral agencies in their implementation WA's State Planning Policy 3.7 Bushfire – and where relevant, any supplementary provisions of a local planning scheme or policy.

Policy Document Versions Applied in This BMP	State Planning Policy 3.7 Bushfire (SPP 3.7)	November 2024	Planning for Bushfire Guidelines (supporting SPP 3.7)	November 2024

> The Stated Intent of SPP 3.7 is to *implement effective, risk based land use planning and development which in the first instance avoids bushfire risk, but where unavoidable, manages and/or mitigates the risk to people, property and infrastructure to an acceptable level. The preservation of life and the management of bushfire impact are paramount.*

SITE OPERATIONS

This BMP is not an 'operational' BMP for property and operations management. Such a BMP would apply additional and more specific bushfire protection measures to more comprehensively reduce the level of risks associated with a bushfire event. These being the potential loss of life, injury, or destroyed or damaged assets which results in personal loss and economic loss.

However, this 'planning' BMP does establish certain responsibilities for the implementation and maintenance of the bushfire protection measures that are considered the minimum for bushfire planning decision making.

BUSHFIRE RESISTENT CONSTRUCTION

This 'planning' BMP is not required to consider the requirement to construct certain buildings, in designated bushfire prone areas, to the standard corresponding to the Bushfire Attack Level (BAL) they are subject to. This requirement is dealt with under the State Building Act 2011/Building Regulations 2012 and the referenced Building Code of Australia.

DETERMINED BUSHFIRE ATTACK LEVEL (BAL) RATINGS AND CONSTRUCTION – CAUTION!

For construction purposes a determined (not indicative) BAL rating is required to be known and a BAL Certificate produced for submission with a building application. This establishes the construction design and materials that are to be complied with in accordance with AS 3959 Construction in bushfire prone areas (as amended) and/or NS 300 NASH Standard Steel Framed Construction in Bushfire Areas (as amended).

This 'planning' BMP cannot necessarily determine a BAL rating that will apply to a future building. All variables required for that calculation may not be known at the assessed stage of planning. For example, actual location of a building footprint on a lot and/or any classified vegetation that will remain, at the time of construction, within the lot or on neighbouring lots.

This 'planning' BMP is only required to identify if a viable sized building can be located on a lot and be subject to a BAL rating not exceeding BAL-29, based on certain allowable assumptions. This is a planning requirement not a building requirement and a BAL contour map can be used to illustrate this information as an 'indicative' BAL rating.

Be aware that typically you cannot derive the determined BAL rating for a future building(s) on a specific lot from a BAL contour map (when presented in a BMP prepared for planning approval purposes). This is only possible in limited circumstances.

Planning assessment requirements are different to building assessment requirements. Refer to explanatory information above and Appendix B1 and B2 for additional information.

1 THE PLANNING PROPOSAL

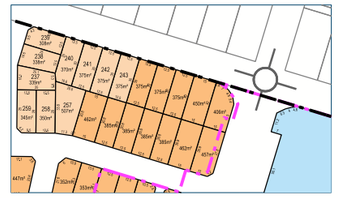
1.1 Details, Plans and Maps

SUBJECT LAND AND PROPONENT (LANDOWNER)		
Address Details	Lot 9002 (500 Katharine Street, Bellevue	
Applicable Local Government	Shire of Mundaring	
Proponent	Satterley	
Entity Commissioning Production of the BMP	TBB Planning	
THE PLANNING PROPOSAL STAGE AND TYPE		
Strategic Planning Document	☐	N/A
Structure Plan	☑	A structure plan, subject to bushfire planning requirements, where the lot layout and/or internal road network is known.
Subdivision Application	☐	N/A
Development Application	☐	N/A
DESCRIPTION		
Number of Additional Lots Created	274	
This Bushfire Management Plan has been prepared to accompany the Local Structure Plan associated with phase 2 of the Robinson Grove subdivision development. 274 new residential lots, four POS areas and one Local Centre lot are proposed at this stage. This phase also includes the revegetation of the Helena River Foreshore area which has been considered and addressed within this BMP.		
Primary Proposed or Intended Construction		
EXPLANATORY INFORMATION Note: A habitable building is defined in the WA *Planning and Development (LPS) Regulations 2015* to mean: A permanent or temporary structure on land that: (a) Is fully or partially enclosed; and (b) Has at least one wall of solid material and a roof of solid material; and (c) Is used for a purpose that involves the use of the interior of the structure by people for living, working, studying or being entertained.		
Primary Type(s)	New Building(s)	Infrastructure
BCA Classification	Class 1a (house)	N/A
Development Type - Establishing the Applicable Bushfire Protection Criteria		
Residential	Construction of, or addition to, a habitable building, including a single house, ancillary dwelling, grouped dwelling, multiple dwelling or mixed used development. Includes an	

	associated Class 10A building or deck (non-habitable) within 6 m of the habitable building. *[Guidelines s6]*
Commercial and Industrial	Construction of or addition to, a habitable building for commercial or industrial uses. *[Guidelines s7]*
Assessment Supporting Details: 274 new lots will be created for urban residential development and one lot for the purpose of a Local Centre (commercial).	

Inset A - Alternate Layout (+2 Lots)

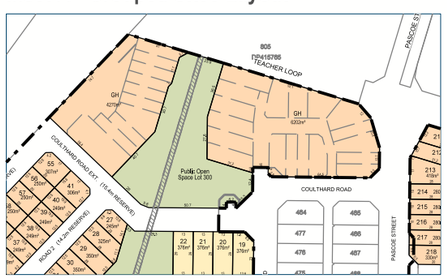
Inset C - Alternate Layout (+9 Lots)



Legend

- Site Area
- Staging Boundaries
- Existing Lots (70 Lots)
- Phase 1 Lots unchanged (83 Lots)
- Phase 1 Lots changed (181 Lots)
- Phase 2 Lots changed (272 Lots)
- Local Centre Lot
- Lot 304 Belle View House
- Regional Parks and Recreation Reserve
- Local Public Open Space
- Existing easements
- Existing sewer pressure main alignment
- Lots limited to R20 (by ANEF 20-25)
- Phase 1 Structure Plan Boundary
- Former Plan of Subdivision 158843 Approval Extent
- Potential roundabout
- Australian Noise Exposure Forecast Units

Inset A - Grouped Sites Layout



Inset B - Alternate Layout (-1 Lots)

Lot Yield Summary - ANEF 20-25 (R20 limit)

OVERALL LOT YIELD			LOT AREA	
Size	No. Lots	% Total Lots	Average Size	% of Total Area
320m² - 449m²	276	78.86%	382m²	74.31%
450m² - 499m²	53	15.14%	462m²	17.28%
500m² - 549m²	10	2.86%	525m²	3.70%
550m² - 599m²	5	1.43%	566m²	2.00%
600m² - 699m²	6	1.71%	642m²	2.71%
Total Number of Lots	**350**			
Minimum Lot Size 350m²			Average Lot Size 405m²	
Maximum Lot Size 677m²			Total Lot Area 141959m²	

Lot Yield Summary - Total

OVERALL LOT YIELD			LOT AREA	
Size	No. Lots	% Total Lots	Average Size	% of Total Area
180m² - 234m²	9	1.68%	212m²	0.91%
235m² - 319m²	66	12.31%	280m²	8.85%
320m² - 449m²	369	68.84%	379m²	66.92%
450m² - 499m²	63	11.75%	462m²	13.94%
500m² - 549m²	16	2.99%	525m²	4.02%
550m² - 599m²	6	1.12%	565m²	1.62%
600m² - 699m²	6	1.12%	642m²	1.84%
3000m² - 3999m²	1	0.19%	3941m²	1.88%
Total Number of Lots	**536**			
Minimum Lot Size 200m²			Average Lot Size 390m²	
Maximum Lot Size 3941m²			Total Lot Area 209128m²	

TBB Planning
Level 7, 160 St Georges Terrace
Perth WA 6000
T (08) 9226 4276
E admin@tbbplanning.com.au
tbbplanning.com.au

Scale 1:4000@A3, 1:2000@A1
Date 15/08/2025
Plan 24/063/052B
Drawn JB
Grid PCG 94
Approved RC

0 20 40 60 80 N

DRAFT STATUS
FOR REVIEW PURPOSES

Estate Wide Subdivision Concept Plan

LOT 9000 KATHARINE STREET, ROBINSON GROVE

A Satterley Project

Figure 1.2

Location Map

Lot 9002 on Plan430042, Area: 92.3777 ha
500 Katharine Street,
Bellevue
SHIRE OF MUNDARING

------ LEGEND ------

- Subject Site
- Cadastral
- Localities - Suburb
- LGA

DFES Stations

- Career Fire Rescue Service

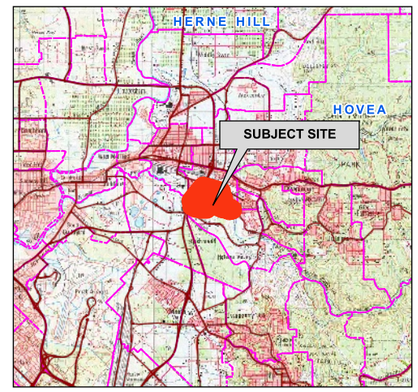
DBCA Legislated Lands and Waters

- Crown Freehold - Dept Managed
- Reserves
- Bush Forever Sites

0 200 400 600 800 1,000

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Joy 13-10-2025
SCALE (A3): 1 : 15000

BUSHFIRE PRONE PLANNING

1.2 The Planning Proposal and its Requirement to Address Bushfire Risk

EXPLANATORY INFORMATION

For the subject planning proposal, the intent of this section is to:

- Identify the relevant statutory bushfire planning provisions that have established its requirement to address bushfire risk;
- Identify the relevant policy/guideline 'triggers' to apply SPP 3.7 Bushfire;
- Identify when a local government, as the decision maker, has established additional 'triggers' to apply defined bushfire planning assessments; and
- Identify the consideration of any relevant exemptions from application of SPP 3.7 Bushfire.

Relevant Terms

Development means the development or use of any land, including (a) any demolition, erection, construction, alteration of or addition to any building or structure on the land (b) the carrying out on the land of any excavation or other works (Planning and Development Act 2005, Part1, s.4; and

Habitable building means a permanent or temporary structure on land that:

(a) is fully or partially enclosed; and

(b) has at least one wall of solid material and a roof of solid material; and

(c) is used for a purpose that involves the use of the interior of the structure by people for living, working, studying or being entertained;

Specified building means a structure of a kind specified in this Scheme as a kind of structure to which this Part applies in addition to its application to habitable buildings.

Development site means that part of a lot on which a building that is the subject of development stands or is to be constructed - Planning and Development (LPS) Regulations 2015, s.78A.

Construction of a building includes the erection, assembly or placement of a building but does not include the renovation, alteration, extension, improvement or repair of a building;

1.2.1 Applied Statutory Bushfire Provisions Requiring a Planning Application

A PLANNING APPLICATION IS TO BE SUBMITTED TO WAPC FOR DETERMINATION

For the proposed local structure plan, WAPC is the decision maker.

Determination will be made under the Planning and Development Act 2005, its relevant subsidiary legislation and associated State Planning Policies.

As the subject site is wholly or partly within a designated bushfire prone area (Map of Bushfire Prone Areas), due regard must be given to State Planning Policy 3.7 Bushfire.

1.2.2 Applied Triggers to Apply State Planning Policy 3.7 Bushfire

EXPLANATORY INFORMATION

State Planning Policy 3.7 Bushfire (SPP 3.7) provides broad objectives and high-level guidance for how planning proposals and development applications within bushfire prone areas should be considered. Implementation is supported by more detailed instructions within the *Planning for Bushfire Guidelines*.

The following table identifies the guidance that has resulted in the planning proposal being required to apply SPP 3.7.

Inconsistent Information (as of December 2024):

- There are inconsistences between the provisions of the applicable legislation (Planning and Development (LPS) Regulations 2015), the clauses of the associated policy (SPP 3.7 Bushfire) and its associated guidance (Planning for Bushfire Guidelines Nov. 2024).
- This has resulted in inconsistencies in the establishment of the 'triggers' to lodge proposals, plans and applications for planning approval sourced from these documents.

Until legislation/policy/guideline amendments are completed, the advice from WAPC/DPLH is that the decision maker should apply SPP 3.7 and the Guidelines as they deem necessary. *(Source: Explanatory Note SPP 3.7, DPLH, 25/11/24)*

Bushfire Prone Planning's Current Approach:

- To apply the 'triggers' for application of SPP 3.7/Guidelines in accordance with the current version of the Guidelines (Planning for Bushfire Guidelines, November 2024), in Sections 6, 7 and 8 - as this is best aligned with the current version (3 Nov 2024) of the LPS Regulations 2015; unless
- The relevant decision maker has determined, and confirmed in writing to the proponent, that SPP 3.7/Guidelines is to be applied.

	SPP 3.7 AND THE GUIDELINES - ESTABLISHING THE NEED TO GIVE DUE REGARD TO SPP 3.7	APPLICABLE
1	THE LAND SUBJECT TO THE PLANNING PROPOSAL IS:	
	Designated bushfire prone and 'Area 1 (Urban)' on the Map of Bushfire Prone Areas (refer to Figure 1.4); or	No
	Designated bushfire prone and 'Area 2' on the Map of Bushfire Prone Areas (refer to Figure 1.4).	Yes
	AND	
2	THE PLANNING PROPOSAL WILL:	
	Result in the intensification of development (or land use); or	Yes
	Result in an increase of visitors, residents or employees; or	Yes
	Adversely impact or increase the bushfire risk to the subject or surrounding site(s).	Yes
	AND	
3	THE PLANNING PROPOSAL IS A:	
	(Source: SPP 3.7, Part 4) A structure plan (where lot layout and/or the internal road network is known), that has or will have the subject site exposed to a Bushfire Attack Level (BAL) rating above BAL-LOW.	

Assessment Supporting Details:

While the development of 274 new residential lots decreases the bushfire threat to surrounding sites, the revegetation of large, Class A - Forest areas along the Helena River foreshore does pose an increased bushfire risk to the surrounding area when compared to the existing state of vegetation.

1.2.3 Identified Exemptions

EXPLANATORY INFORMATION

The following situations provide for an exemption from the application of SPP 3.7/Guidelines. They are established by the stated sources and are presented below as:

- Evidence they have been considered when relevant; and
- Justification for the application of SPP 3.7/Guidelines despite a relevant exemption applying to part or all of the planning proposal.

EXEMPTION SCENARIOS	APPLICABLE
(Source: LPS Regulations 2015 Part 10A - Bushfire risk management) Does not apply to land where there is no existing local planning scheme or where a local planning scheme has ceased to have legal effect.	No
(Source: Guidelines s1.2.1) For a structure plan or subdivision application, for proposed lot(s) that: • Are not designated as bushfire prone; • Or where there is no increase in the development potential and therefore no intensification of land use or bushfire risk, such as a boundary realignment, that does not restrict the ability to establish or maintain an APZ; and • does not restrict vehicular access to any existing or future habitable building.	Yes - Exemption Partially Applies
(Source: Guidelines s1.2.1) - For incidental non- habitable buildings or structures located not less than six metres from the habitable building, including but not limited to private garages, carports, patios, storage sheds, outbuildings, swimming pools, spa pools and fences.	No
(Source: Guidelines s1.2.1) - For a change of use, minor renovations, extensions, alterations, improvements or repair of an existing habitable building where: • The application does not result in an increase of occupants onsite; and/or • There is no increase in the bushfire risk, such as an extension being further away from the bushfire hazard, or the extension does not restrict vehicular access or the provision of water for the development.	No

Assessment Supporting Details:

The Bushfire Prone Area Mapping does not cover the entire development site with significant portions of the site outside of the BPA (refer to Figure 1.3). For the purposes of this Structure Plan, the whole development has been considered, noting future lots that fall outside the BPA will not be subject to SPP 3.7, Guidelines and AS3959 at the development stage.

Figure 1.3

Bushfire Prone Area

Lot 9002 on Plan430042, Area: 92.3777 ha
500 Katharine Street,
Bellevue
SHIRE OF MUNDARING

------ LEGEND ------

- Subject Site
- Cadastral
- phase 2 lots

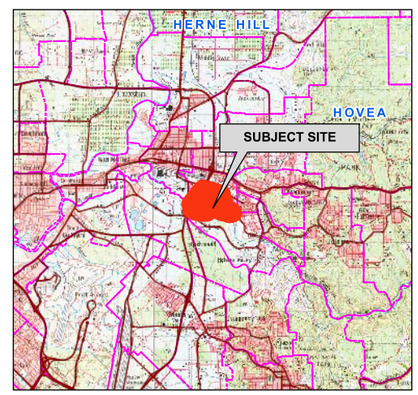
Bushfire Prone Area 2024 OBRM_023

- Bushfire Prone Area 1
- Bushfire Prone Area 2

0 100 200 300 400

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Joy 13-10-2025
SCALE (A3): 1 : 7000

BUSHFIRE PRONE PLANNING

1.3 Required 'Bushfire Planning' Assessments and Documents

INFORMATION PRESENTED IN THIS 'PLANNING' BMP (OR THE BEP) - PROVIDED TO ACCOMPANY THE PROPONENT'S PLANNING SUBMISSION						
The requirements are established by SPP 3.7 Part 4, Guidelines Section 1.2, 4.4, 5.5, 6.4, 7.2, 8.3 and A1.2. The green highlighted column identifies the required information for the subject planning proposal.		Strategic Planning Document		Structure Plan / Subdivision Application		Development Application
Required Information	Details	Map of Bushfire Prone Areas Designation				
		Area 1 (Urban)	Area 2	Area 1 (Urban)	Area 2	Areas 1 & 2
Environment - Identification of environmental, biodiversity or conservation values on subject site(s)	Presented in the BMP. Identifies how proposal siting and design avoids and/or minimises clearing of native vegetation in applying required bushfire protection measures.	BUSHFIRE PLANNING ASSESSMENTS ARE NOT REQUIRED	✓	✓	✓	✓
BLA - Broader Landscape Assessment (see note below)	Presented in the BMP. Considers subject site suitability based on exposure to bushfire hazards, potential for landscape scale bushfire, road network and suitable evacuation destinations.		✓	-	✓	-
BHL - Bushfire Hazard Level Assessment (pre-development)	Presented in the BMP. Can include detail of treatments required to achieve BHL of moderate and/or low.		✓	-	-	-
BAL - Bushfire Attack Level Assessment	Presented in the BMP in BAL contour map format as a requirement and in table format as an additional option.		-	✓	✓	-
	Presented in the BMP in table format and/or BAL contour map format – dependant on which is more efficient and effective at presenting the results (e.g. BAL contour map for multiple buildings).		-	-	-	✓
BPC - Assessment against the relevant Elements (E1 – E4) of the Bushfire Protection Criteria	Presented in the BMP. Strategic planning will necessarily focus on Element 1: Location. Can demonstrate compliance using acceptable solutions and/or an outcomes-based approach.		✓	✓ **Excluding E1**	✓	✓ **Excluding E1**
BEP - Bushfire Emergency Plan	For vulnerable land uses only. Provided as a separate document or an addition / modification to an existing BEP or site Emergency Management Plan.		-	-	-	-
LMP – Landscape Management Plan	For vulnerable land uses only. Provided as a separate document or an addendum to the BMP.					
Note: Where a relevant planning proposal (e.g. subdivision) was previously assessed and approved under the SPP 3.7/Guidelines 2015, it is likely that a BLA will not be required. Also, if an application (e.g. subdivision) is compliant with a structure plan and/or a local planning scheme amendment, which were assessed and approved under the 2015 SPP/Guidelines, it is likely that a BLA will not be required. Confirmation from a relevant DPLH officer may be required (DPLH advice to BPP 20/2/2025).						

1.4 Other Documents Relevant to Preparing the BMP

EXPLANATORY INFORMATION

This section identifies any known assessments, reports or plans that have been conducted and prepared previously, or are being prepared concurrently, and are relevant to the subject planning proposal.

They may have implications for the assessment of bushfire hazard threats and the identification and implementation of the bushfire protection measures that are established by this BMP.

RELEVANT DOCUMENTS

Document	Relevant	Exists	To Be Concurrently Developed	Copy Provided by Proponent / Developer	Title
Structure Plan	Yes	Yes	No	No	Structure Plan For Belle View Estate (PT Lot 799 and Lots 239 & 33 Wilkins Street, Bellevue)
Implications for the BMP: The existing structure plan covers part of the development lot. These areas are already covered by approved subdivisions with existing BMPs. The lots included in these approved subdivisions have been classified as 'Excluded' in the vegetation mapping of this structure plan.					
Bushfire Management Plan	Yes	Yes	No	N/A	-
Implications for the BMP: A BMP was prepared by BPP to accompany the structure plan and each stage of the subdivision. Revegetation and management requirements influence the classification within Figure 3.1 and 3.1.1 of this report.					
Preliminary bushfire advice (may include a BAL contour map)	No	-	-	-	-
Bushfire Emergency Plan	No	-	-	-	-
Bushfire Risk Report	No	-	-	-	-
Environmental Asset or Vegetation Survey	Yes	Yes	Yes	No	-
Refer to Section 2.1 for details.					
Landscape Management Plan	Yes	Yes	Yes	Yes	2409103 Robinson Grove LSP2 (G)-M2.101 LANDSCAPE MASTERPLAN (3)
Landscape Management Plan and this BMP have been developed concurrently to ensure all lots are subject to no more than BAL-29. Refer to Section 2.3 for details.					
Revegetation Plan	Yes	Yes	Yes	No	Foreshore Reserve Management Plan - Prepared by How Far Environmental
The foreshore revegetation has been included within the Landscape Management Plan by Plan E, classifying the Helena River foreshore revegetation as 'Class A – Forest'. Revegetation is also planned in the landscaped areas within the site and has been classified accordingly. Refer to Section 2.3 for details.					

2 ENVIRONMENTAL CONSIDERATIONS – NATIVE VEGETATION

EXPLANATORY INFORMATION

Some bushfire prone areas also have high biodiversity values. SPP3.7 objective 5.4 prioritises the retention of native vegetation for biodiversity conservation, environmental protection and landscape amenity.

Clearing or modification of native vegetation for the purpose of land use or development is assessed under **State Planning Policy 2: Environment (SPP 2), State Planning Policy 2.8: Bushland policy for the Perth Metropolitan Region (SPP 2.8)** and relevant environmental legislation. A key objective of these polices is to avoid development that may result in unacceptable environmental damage.

Any 'modification' or 'clearing' of vegetation to reduce bushfire risk is considered 'clearing' under the ***Environmental Protection Act 1986*** (EP Act) and requires a clearing permit under the ***Environmental Protection (Clearing of Native Vegetation) Regulations 2004*** (Clearing Regulations) – unless for an exempt purpose.

Clearing native vegetation is an offence, unless done under a clearing permit or the clearing is for an exempt purpose. Exemptions are contained in the EP Act or are prescribed in the Clearing Regulations (note: these exemptions do not apply in environmentally sensitive areas).

The ***Department of Water and Environmental Regulation*** (DWER) is responsible for issuing 'clearing' permits and the framework for the regulation of clearing. Approvals under other legislation, from other agencies, may also be required, dependent on the type of flora or fauna present.

Local Planning Policy or Local Biodiversity Strategy: Natural areas that are not protected by the above Act and Regulation (or any other National or State Acts) may be protected by a local planning policy or local biodiversity strategy. Permission from the local government will be required for any modification or removal of native vegetation in these Local Natural Areas (LNA's). Refer to the relevant local government for detail.

For further Information refer to Native vegetation clearing permits | Western Australian Government, the Planning for Bushfire Guidelines (as amended) and the Bushfire and Vegetation Factsheet - WAPC, Dec 2021.

2.1 Biodiversity or Conservation Values Identified

EXPLANATORY INFORMATION

The required information, relevant to bushfire planning and informing the production of this BMP, is sourced and presented as indicated below.

Note that where a 'desktop' assessment has been conducted, this should not be considered a replacement for a full Environmental Impact Assessment. It is a summary of potential biodiversity or conservation values at the subject site, inferred from information contained in public available datasets and/or reports, which are only current to the date of last modification.

The information provided in the BMP should be considered indicative where the subject site has not previously been subject to a site-specific environmental assessment by an appropriate professional.

The required information is sourced from the environmental/planning consultant report developed for the subject site and provided to the bushfire consultant (details below when applicable). The information it contains is not repeated in this BMP as it will accompany the planning submission. The implications for the subject planning proposal and this BMP are stated below when relevant.	No Report Available / Provided
The required information is sourced by the bushfire consultant as a 'desktop' assessment from publicly available data bases and/or a local government's local biodiversity strategy or local planning strategy. When applicable, this information is presented on the following pages of this BMP.	Yes - Fully

IDENTIFICATION OF RELEVANT BIODIVERSITY OR CONSERVATION VALUES							
Dataset	Relevant to Subject Planning Proposal	Influence on Bushfire Threat Levels and / or Application of Bushfire Protection Measures	Information Source(s) Applied				Further Action Required by Proponent
			WA Govt. Agency Dataset (ID)		Landowner or Developer Statements	Environmental Asset or Vegetation Survey Report	
Department of Biodiversity, Conservation and Attractions (DBCA) Datasets							
Conservation Category Wetlands and Buffer (geomorphic wetlands – relevant area)	Yes	Yes - Minor	☒	DBCA-019	☐	☐	Vegetation survey*
RAMSAR Sites (wetlands of international importance)	N/A	-	☒	DBCA-010	☐	☐	None
Threatened and Priority Flora	Unlikely	Unknown	Restricted Scale of Data Available (security)	DBCA-036	☐	☐	Data not available - confirm with relevant agency
Threatened Ecological Communities	Possible	Unlikely		DBCA-038	☐	☐	Confirm with relevant agency
Legislated Lands and Waters (national/conservation parks, nature/crown reserves, state forest)	Yes	No	☒	DBCA-011	☐	☐	None
Department of Planning, Lands and Heritage (DPLH) Datasets							
Bush Forever Areas 2000	Yes	No	☒	DPLH-019, 022 and MRS Bush Forever	☐	☐	None
Department of Water and Environmental Resources (DWER) Datasets							
Clearing Regulations – Environmentally Sensitive Areas	Yes	No	☒	DWER-046	☐	☐	None
Swan Bioplan Regionally Significant Natural Areas 2010	N/A	-	☒	DWER-070	☐	☐	None

ADDITIONAL INFORMATION

*A vegetation survey of the Helena River Foreshore has been conducted, and a Foreshore Reserve Revegetation Plan has been prepared by How Far Environmental. This has been used to classify the revegetation / rehabilitation along the Helena River foreshore.

Existing vegetation within the Helena River Foreshore has a minimal bushfire impact on the proposed Structure Plan. The bushfire hazards created by revegetation of the area has been considered throughout the BMP and in previous bushfire advice to maintain adequate separation distances. The bushfire protection measures will have negligible impact on existing environmentally significant areas.

Figure 1.2

Environmental Considerations

Lot 9002 on Plan430042, Area: 92.3777 ha
500 Katharine Street,
Bellevue
SHIRE OF MUNDARING

------ LEGEND ------

- Subject Site
- Cadastral
- phase 2 lots
- Cadastral
- Bush Forever Sites
- Reserves
- Clearing Regulations

DBCA Legislated Lands and Waters
- Crown Freehold - Dept Managed

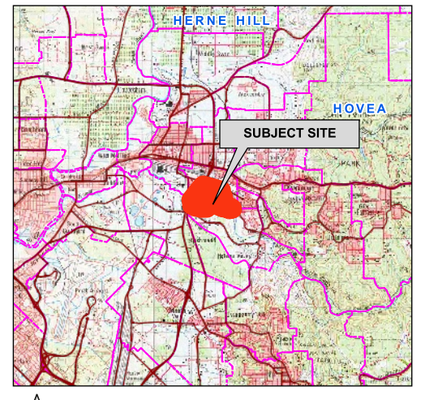
Environmentally Sensitive Areas
- Threatened Ecological Community

Geomorphic Wetlands Swan Coastal Plain
- Floodplain

0 100 200 300 400

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Joy 13-10-2025
SCALE (A3): 1 : 7000

BUSHFIRE PRONE PLANNING

2.1.1 Locally Significant Conservation Areas – Local Natural Areas (LNA)

IDENTIFICATION OF LOCALLY SIGNIFICANT CONSERVATION AREAS							
Land with Environmental, Biodiversity and Conservation Values	Relevant to Proposal	Location Relative to Subject Site	Influence on Bushfire Threat Levels and / or Application of Bushfire Protection Measures	Information Source(s) Applied			Further Action Required
				Relevant Dataset	Landowner or Developer	Environmental Asset or Vegetation Survey	
Native Vegetation / Remnant Vegetation	No	-	-	☒ Shire of Mundaring GeoHub – Town Planning	☐	☐	None
Riparian Zones / Foreshore Areas	No	-	-	☒ Shire of Mundaring GeoHub – Town Planning	☐	☐	None
Habitat Vegetation and Wildlife Corridors	No	-	-	☒ Shire of Mundaring GeoHub – Town Planning	☐	☐	None

COMMENTS:

No LNA within the subject site.

2.2 Response of the Planning Proposal to Protection of Native Vegetation

The protection of native vegetation is to be prioritised by avoiding areas that would require clearing or modification of native vegetation, specifically for the purpose of bushfire mitigation (BMP Manual, November 2024 DPLH).

SOLUTIONS APPLIED TO MINIMISE NATIVE VEGETATION REMOVAL / MODIFICATION	
Clearing and/or modification of native vegetation is proposed and necessary.	Yes
The proposed development will reconfigure the entire site by increasing the ecological value of the Helena River foreshore area. Proposed revegetation of the Foreshore area and revegetation of the interface between the foreshore and the urban area has been carefully considered during the design process. Proposed Clearing: Small sections of native vegetation classified as 'Class A – Forest' will require clearing to facilitate the development of the proposed lots. These areas are identified in Figure 3.1.1. The remainder of the site primarily comprises degraded grassland, which will also be removed as part of the development process. The post-development vegetation map (Figure 3.1.1) highlights three key areas (labelled 1, 2, and 3) where native forest vegetation must be either removed or managed to a low-threat state. Specifically: • The Class A – Forest vegetation at Points 1 and 2 is to be managed to a minimum distance of 21 metres from the proposed lot boundaries. • The Class A – Forest at Point 3 is to be entirely managed to a low-threat condition. These management assumptions have been incorporated into the Bushfire Management Plan (BMP) and are represented in the BAL Contour Map (Figure 3.2).	
Conservation Response	
The proposal reserves native vegetation for conservation, recreation or environmental protection purpose. These can include ecological linkage, local natural area, waterway, or foreshore area or wetland buffer.	Yes
The Helena River runs through the southern portion of the development site, with three ephemeral drainage lines also present in the greater development site. Although the ecological value of the Helena River foreshore and Waterways have largely been degraded over time, the Robinson Grove development has established a revegetation plan along the Foreshore and the urban interface that increases the ecological value of the area.	
Siting / Design / Construction Responses	
The proposal has applied a reduction in the intensification of land use or development potential (e.g. reduced lot yield or smaller building footprints), to ensure the retention of greater areas of native vegetation while achieving the required vegetation separation distances to limit exposure to unacceptable levels of potential bushfire impact.	Yes
Assessment Supporting Details: The subdivision has been designed to align with the Metropolitan Regional Scheme, which identifies the Helena River Foreshore as land reserved for Parks and Recreation.	
The proposal situates required non-vegetated elements (e.g. footpaths, paved areas, roads, parking, open drainage channels, and major services delivery installed in common	Yes

corridors), between bushfire hazards and elements at risk – to effectively achieve required vegetation separation distances with less vegetation clearing and/or modification.	
Assessment Supporting Details: A ring road is proposed at the edge of the development to create additional separation between the proposed lots and the bushfire hazard.	
The proposal applies building envelopes, and these have located to minimise the requirement to clear and/or modify native vegetation.	N/A
Assessment Supporting Details: The lot size does not warrant this approach.	
The proposal utilises the clustering habitable buildings to reduce requirements for native vegetation clearing and/or modification.	N/A
Assessment Supporting Details: The lot size does not warrant this approach.	
The proposal aligns roads and pathways to work around trees and other vegetation, preserving their ecological values.	No
Assessment Supporting Details: Not required.	
The proposal establishes requirements for the construction of building(s) to satisfy the requirements corresponding to higher BAL ratings to ensure a reduced vegetation separation distance requirement.	No
Assessment Supporting Details: Each lot can achieve BAL-29 or less if the post vegetation assumptions of Figure 3.1.1 have been implemented.	

2.3 Vegetation Management Plans with Implications for the BMP

EXPLANATORY INFORMATION

This section identifies the area(s) of land (supporting vegetation), within or near the subject site (i.e. onsite or offsite) to which one or more of the following scenarios and their corresponding management actions applies.

If none of these scenarios is relevant to the subject planning proposal, this is stated.

1. Area(s) subject to a **LANDSCAPE PLAN THAT RESULTS IN RELEVANT ELEMENTS AT RISK BEING EXPOSED TO A LOW BUSHFIRE THREAT LEVEL** from existing or planned area(s) of vegetation and establishes the following management actions:

    (a) To apply landscaping design (including the modification and/or establishment of plants/shrubs/trees), that will enable the area(s) to be excluded from classification under AS 3959 BAL determination methodology;

    (b) To actively manage the area(s) to maintain the low bushfire threat level in perpetuity. Thereby ensuring the applicable bushfire protection measures, applied in accordance with the BMP, remain effective;

    (c) To achieve and maintain the low threat state through using a combination of mechanisms including:

        (i) Minimising vegetation fuel loads through design and ongoing management;

        (ii) Using low flammability and/or higher moisture content species;

        (iii) Incorporating non-vegetated elements; and

    (d) To identify the entity responsible for ensuring the landscape plan is complied with in perpetuity and when required, will contain written confirmation of their acceptance of the responsibility.

2. Area(s) subject to a **LANDSCAPE PLAN THAT RESULTS IN RELEVANT ELEMENTS AT RISK BEING EXPOSED TO A REDUCED BUSHFIRE THREAT LEVEL** from existing or planned area(s) of vegetation and establishes the following management actions:

    (a) To apply landscaping design involving the removal and/or modification of existing vegetation that will enable the area(s) to be classified as a lower threat class under AS 3959:2018 BAL determination methodology;

    (b) To actively manage the area(s) to maintain the reduced bushfire threat level in perpetuity. Thereby ensuring the applicable bushfire protection measures, applied in accordance with the BMP, remain effective;

    (c) To identify the entity responsible for ensuring the landscape plan is complied with in perpetuity and when required, will contain written confirmation of their acceptance of the responsibility.

3. Area(s) subject to a **REVEGETATION PLAN THAT MAY RESULT IN RELEVANT ELEMENTS AT RISK BEING EXPOSED TO AN ADDITIONAL BUSHFIRE HAZARD AND/OR AN INCREASED BUSHFIRE THREAT LEVEL** from an existing area(s) of vegetation and establishes the following information:

    (a) The location of the areas to be revegetated (as distinct from natural regeneration which is accounted for in the vegetation classification under AS 3959 BAL determination methodology); and

    (b) A description of the planned design regarding density and species of plants/shrubs/trees to inform the bushfire consultant's classification of the vegetation under AS 3959:2018 BAL determination methodology.

Relevance of the Stated Scenarios to the Subject Planning Proposal	Only Scenario 3 is relevant.

2.3.1 Revegetation Plan – Additional Bushfire Hazard

PLANNED REVEGETATION – ADDITIONAL BUSHFIRE HAZARD			
Assessment Details			Relevant
The area of land that is to be subject to a revegetation plan is within the subject site (onsite).			Yes
The area of land that is to be subject to a revegetation plan is outside the subject site (offsite).			No
The revegetation plan will introduce a bushfire hazard that doesn't currently exist.			Yes
The area of land subject to the revegetation plan will introduce a bushfire hazard with a greater bushfire threat level than currently exists. its classification under AS 3959 (as amended) BAL determination methodology will be changed to a higher threat level classification.			Yes
Revegetated Area		Description	
Onsite	Riparian Zones	N/A	N/A
	Foreshore Areas	The Foreshore Reserve Management Plan by How Far Environmental and the updated Foreshore Reserve Management Plan by Coterra detail the planned revegetation and subsequent management of the Helena River Foreshore. The entire extent of the revegetation has been classified as Class A – Forest vegetation. The proposed hectares of forest revegetation pose an increase in the bushfire hazard to the area.	Yes
	Wetland Buffers	As above.	Yes
	Legislated Lands	N/A	N/A
	Public Open Space	Public open spaces within Phase 2 of the Robinson Grove development have been addressed in the Landscape Management Plan by Plan E. These areas will be managed and maintained to a low threat state - as indicated in the LMP.	Yes
	Road Verges	Road verges will be managed and maintained to a low threat state as per the LMP by Plan E.	Yes
	Other	N/A	N/A
Offsite	Riparian Zones	N/A	N/A
	Foreshore Areas		
	Wetland Buffers		
	Legislated Lands		
	Public Open Space		
	Road Verges		
	Other		
Identification of the Area(s) of Land Subject to a Revegetation Plan			
Figure 3.1.1 identifies the areas subject to revegetation and their assumed vegetation classification at maturity based on the LPM by Plan E.			
Implications for the BMP			
The Land Management Plan (LMP), including the proposed revegetation and vegetation management areas, has a significant influence on the post-development vegetation mapping and corresponding BAL contours (refer to Figures 3.1.1 and 3.2). The post-development vegetation classifications have been determined based on the species list supplied by Plan E as outlined in Addendum 1 of this report.			

3 THE BUSHFIRE HAZARD – POTENTIAL IMPACT - LANDSCAPE AND VEGETATION DATA

3.1 Bushfire Attack Level (BAL) Assessment Summary (Contour Map Format)

EXPLANATORY INFORMATION

Caution! Future building works require a 'determined' BAL rating for building permit applications. When a BAL contour map is being used for planning assessment purposes, (as opposed to a building assessment purpose), the required 'determined' BAL rating typically is not able to be derived from the map (there are only limited scenarios where this is possible).

The BAL ratings identified from the map will more likely be only 'indicative' of what can be achieved – with planning compliance for this factor being achieved when BAL-29 is indicated.

Otherwise, an additional assessment of the site data for building application purposes is required, and potentially approval will need to be obtained for native vegetation modification and/or removal from the relevant authority.

Refer to Appendix B2 for additional information and guidance regarding interpretation of the BAL Contour Map.

3.1.1 BAL Determination Methodology and Location of Data and Results

LOCATION OF DATA & RESULTS					
BAL Determination Methodology		Location of the Site Assessment Data			Location of the Results
AS 3959:2018	Applied to Assessment	Classified Vegetation and Topography Map(s)	Calculation Input Variables		Assessed Bushfire Attack Levels and/or Radiant Heat Levels
			Summary Data	Detailed Data with Explanatory and Supporting Information	
Method 1 (Simplified)	Yes	Figure 3.1	Table 3.2	Appendix A1	Table 3.1 Table 3.3 / BAL Contour Map

3.1.2 BAL Ratings Derived from the Contour Map

Table 3.1: Indicative and determined BAL(s) for future buildings/structures on the proposed lots.

BUSHFIRE ATTACK LEVEL FOR FUTURE BUILDINGS / STRUCTURES ON STATED LOT [1]		
Lot No.	Future Buildings / Structure	
	Indicative BAL [2]	Determined BAL [2]
286 287 315 – 324 328 – 339 352 – 379 389 – 414 417 – 420 444 446 – 505 Local Centre	BAL-LOW	Not Determined
185 199 200 288 – 300 311 – 314 340 – 344 346 – 351 380 – 388 415 416 421 – 430 435 – 443 445 506 – 521 526 - 538	BAL-12.5	Not Determined
184 186 – 191 201 202 309 310 345 522 - 525	BAL-19	Not Determined
183 194 -198 203 – 209 301 – 305 308	BAL-29	Not Determined

421 - 433		

[1] The assessment data used to derive the BAL ratings is sourced from Table 3.1 and Figure 3.2 'BAL Contour Map'.

[2] Refer to the start of Section 3 for an explanation of indicative versus determined BAL ratings.

3.1.3 Site Assessment Data Applied to Construction of the BAL Contour Map(s)

RELEVANT CLASSIFIED VEGETATION	
Identification of Classified Vegetation that is Relevant to the Production of the BAL Contour Map(s)	Relevant Vegetation Map
The relevant vegetation will be all areas of classified vegetation that exist at the time of the site assessment – both within the subject site (onsite) and external to the subject site (offsite).	Figure No.3.1
The relevant vegetation for the post-development BAL contour map will be any area of classified vegetation - both within the subject site (onsite) and external to the subject site (offsite) - that will remain at the intended end state of the subject development once earthworks, any clearing and/or landscaping and re-vegetation have been completed.	Figure No.3.1.1
Supporting Assessment Details: None required.	

Table 3.2: Calculation inputs applied to deriving the vegetation separation distances corresponding to different levels of potential radiant heat transfer.

DATA APPLIED TO CALCULATE THE SITE SPECIFIC VEGETATION SEPARATION DISTANCES CORRESPONDING TO POTENTIAL RADIANT HEAT TRANSFER LEVELS [1]												
Applied BAL Determination Method	METHOD 1 - SIMPLIFIED PROCEDURE (AS 3959:2018 CLAUSE 2.2)											
The Calculation Input Variables - Corresponding to the Applied BAL Determination Method [2]												
Methods 1 and 2		Method 1			Method 2							
Vegetation Classification		FDI	Effective Slope		Site Slope	FFDI or GFDI	Flame Temp.	Elevation of Receiver	Flame Width	Fireline Intensity	Flame Length	Modified View Factor
			Applied Range	Measured								
Area	Class		degree range	degrees	degrees		K	metres	metres	kW/m	metres	% Reduction
1	(A) Forest	80	Upslope or flat 0	flat 0	-	-	-	-	-	-	-	-
2	(B) Woodland	80	Upslope or flat 0	flat 0	-	-	-	-	-	-	-	-
3	(G) Grassland	80	Upslope or flat 0	flat 0	-	-	-	-	-	-	-	-
4	Excluded cl 2.2.3.2(e & f)	N/A	N/A	-	-	-	-	-	-	-	-	-
5	(C) Shrubland	80	Upslope or flat 0	flat 0	-	-	-	-	-	-	-	-
6	(A) Forest	80	Upslope or flat 0	flat 0	-	-	-	-	-	-	-	-

Note 1: The values used to indicate levels of potential radiant heat transfer (from fire in bushfire prone vegetation to exposed elements at risk), will be stated in subsequent tables as either as a bushfire attack level (BAL) and/or as kilowatts per square metre (kW/m2), as relevant to the application of the value and the type and use of the element at risk.

Note 2: All data and information supporting the determination of the classifications and values stated in this table is presented in Appendix A. Where the values are stated as 'default' these are either the values stated in AS 3959:2018, Table B1 or the values calculated as intermediate or final outputs through application of the equations of the AS 3959:2018 BAL determination methodology. They are not values derived by the assessor.

Table 3.3: Vegetation separation distances corresponding to the stated levels of potential radiant heat transfer.

THE CALCULATED (SITE SPECIFIC) VEGETATION SEPARATION DISTANCES CORRESPONDING TO THE STATED LEVEL OF POTENTIAL RADIANT HEAT TRANSFER (METRES) [1]									
Vegetation Classification		Maximum Radiant Heat Transfer (Flux)							
		>40 kW/m²	40 kW/m²	29 kW/m²	19 kW/m²	12.5 kW/m²	N/A [2]	10 kW/m²	2 kW/m²
		Bushfire Attack Levels							
Area	Class	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL12.5	BAL-LOW		
1	(A) Forest	<16	16-<21	21-<31	31-<42	42-<100	>100	-	-
2	(B) Woodland	<10	10-<14	14-<20	20-<29	29-<100	>100	-	-
3	(G) Grassland	<6	6-<8	8-<12	12-<17	17-<100	>100	-	-
4	Excluded cl 2.2.3.2(e & f)	-	-	-	-	-	-	-	-
5	(C) Shrubland	<7	7-<9	9-<13	13-<19	19-<100	>100	-	-
6	(A) Forest	<16	16-<21	21-<31	31-<42	42-<100	>100	-	-

Note 1: The calculated results are illustrated in Figure 3.2 as a BAL Contour Map and/ or additional defining lines as necessary. All applied calculation input variables are presented in Table 3.2. A copy of the radiant heat calculator output for each area of classified vegetation is presented in Appendix A3.

Note 2: The BAL-LOW rating does not represent a maximum level of radiant heat transfer. The rating is applied when the separation distance is at least 100m from all classified vegetation except Grassland, for which 50m applies.

Figure 3.1

Classified Vegetation & Topography (Existing)

Lot 9002 on Plan430042, Area: 92.3777 ha
500 Katharine Street,
Bellevue
SHIRE OF MUNDARING

------ LEGEND ------

- Subject Site
- Cadastral
- phase 2 lots
- Photo and Direction
- Hydrants
- 150m Assessment Area
- 100m Assessment Area

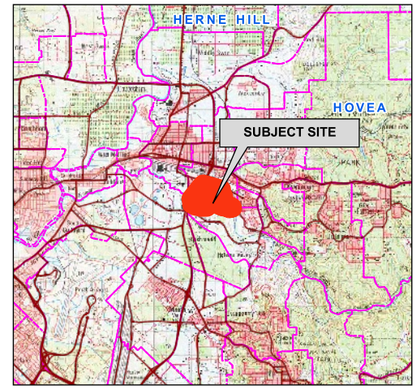
Classified Vegetation

- Forest
- Woodland
- Grassland
- Excluded 2,2,3,2 (e)
- Excluded 2,2,3,2 (f)

0 50 100 150 200 250

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Joy 30-10-2025
SCALE (A3): 1 : 3850

BUSHFIRE PRONE PLANNING

Figure 3.1.1

Classified Vegetation & Topography (Post Dev)

Lot 9002 on Plan430042, Area: 92.3777 ha
500 Katharine Street,
Bellevue
SHIRE OF MUNDARING

------ LEGEND ------

- Subject Site
- Cadastral
- phase 2 lots
- Hydrants
- 150m Assessment Area
- 100m Assessment Area

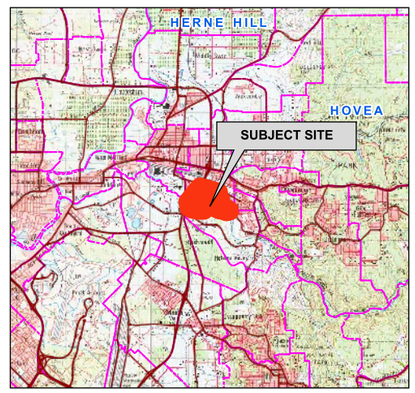
Classified Vegetation

- Forest
- Woodland
- Grassland
- Excluded 2,2,3,2 (e)
- Excluded 2,2,3,2 (f)
- Critical management points

0 50 100 150 200 250

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Joy 29-10-2025
SCALE (A3): 1 : 3850

BUSHFIRE PRONE PLANNING

Figure 3.2

BAL Contour Map

Lot 9002 on Plan430042, Area: 92.3777 ha
500 Katharine Street,
Bellevue
SHIRE OF MUNDARING

------ LEGEND ------

- Subject Site
- Cadastral
- phase 2 lots
- Hydrants
- 100m Assessment Area

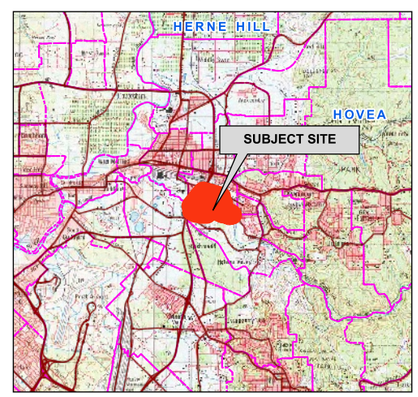
Bushfire Attack Levels

- BAL-FZ
- BAL-40
- BAL-29
- BAL-19
- BAL-12.5
- BAL-LOW

0 50 100 150 200 250

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Joy 29-10-2025
SCALE (A3): 1 : 3700

BUSHFIRE PRONE PLANNING

4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

EXPLANATORY INFORMATION

Section Content Guidance (DPLH/WAPC)

'Bushfire Hazard Issues' is a section of the Bushfire Management Plan (BMP) in accordance with guidance presented in the BMP Manual (DPLH/WAPC, November 2024).

The Manual indicates the intent of applying its guidance with the following statement:

> *"The standardisation of BMP's improves efficiencies in decision making at local and state government level by promoting the clear and succinct presentation of information required under SPP 3.7 and the Guidelines."*

Bushfire Prone Planning's Approach

In complying more broadly with the above efficiency intentions, Bushfire Prone Planning (BPP) will also seek to:

- Improve the efficiency of BMP development by its consultants; and
- Ensure the readability and understanding of the BMP by persons who will need to read the document.

Key to achieving these efficiency and comprehension outcomes is the design and quality of the explanatory and assessment content of the BMP. This includes the effective use of Section 4 by not repeating content and assessment summaries that are presented in other sections of the BMP.

Typically, bushfire hazard issues will be appropriately addressed in Sections 2 and 3 of the BMP which identify:

- The required environmental considerations; and
- The assessment of potential levels of bushfire impact and their justification.

Limitation on Section 4 Content

As a consequence of the above considerations, content in this section will be limited to raising decision maker awareness regarding additional site specific matters that otherwise may not be a component of the standard BMP bushfire hazard assessment.

Additional information is provided on an 'as necessary' basis for the following scenarios:

1. When local governments have provided jurisdiction specific bushfire hazard assessment and/or management guidance that needs to be addressed. How these have been considered by the bushfire consultant in conducting their bushfire hazard assessments will be discussed.
2. When, due to difficult site conditions, additional explanation and justification of the bushfire hazard assessment process undertaken by the bushfire consultant would assist decision making.
3. Matters are identified when they are either not considered or are only partially considered, under the bushfire hazard assessments conducted in accordance with SPP 3.7/Guidelines. These include matters that would potentially reflect poorly on the bushfire consultant's professional integrity if ignored.

For the subject planning proposal, has the bushfire practitioner determined (in accordance with the explanatory information above), that presenting additional information in this section is necessary?	No
Additional bushfire hazard information is provided below for the relevant scenarios.	N/A

5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA (BPC)

EXPLANATORY INFORMATION

State Planning Policy 3.7 Bushfire (SPP 3.7) establishes policy outcomes (cl. 6) that "specify the role of planning and development in contributing to the overall objectives" of the policy.

The policy outcomes are incorporated into the four elements of the bushfire protection criteria established in the Planning for Bushfire Guidelines (Guidelines).

CONSEQUENTLY, TO SATISFY THE OBJECTIVES AND POLICY OUTCOMES OF SPP 3.7, A PLANNING PROPOSAL IN A DESIGNATED BUSHFIRE PRONE AREA IS REQUIRED TO DEMONSTRATE THAT COMPLIANCE WITH THE BUSHFIRE PROTECTION CRITERIA CAN BE ACHIEVED.

The Guidelines in Section 2.2.1 establish two pathways to demonstrate compliance:

1. The deemed to comply pathway - in which compliance is able to be demonstrated with all relevant acceptable solutions associated with each Element, for a specific planning stage or use; or
2. An alternative pathway when all relevant acceptable solutions cannot be fully achieved, which utilises either:
    (a) The outcomes-based approach (established in SPP 3.7 cl. 6) alone; or
    (b) A combination of the outcomes-based approach and the acceptable solutions.

For the subject planning proposal:

- The assessment applying the deemed to comply pathway assessment is presented in Section 5.3.
- When an assessment applying the alternative pathway is necessary, the required additional information is presented in Section 5.4.

5.1 Local Government Variations to Apply

EXPLANATORY INFORMATION

1. Local governments may add to or modify the acceptable solutions contained within the Guidelines to recognise special local or regional circumstances that reinforce the SPP 3.7 objectives and outcomes. This is achieved through regional or local variations that form part of a local planning strategy and/or local planning scheme via a scheme amendment or special control area.

   This could include acceptable solutions that address topography, vegetation or climate to the satisfaction of the Western Australian Planning Commission (WAPC) that the modifications comply with the corresponding SPP 3.7 objectives and outcomes. (Planning for Bushfire Guidelines, s. 3.4, 2024).
2. Under the relevant state legislation (LPS Regulations 2015), SPP 3.7 does not apply to hosted or unhosted short-term rental accommodation. However, the local government under its Local Planning framework (i.e. Strategy / Scheme and Policy as applicable), may require that certain bushfire protection measures or variations to the measures (the bushfire protection criteria), established by SPP 3.7 and the Guidelines, are to be applied.

Endorsed regional or local variations to the acceptable solutions apply to the assessments against the Bushfire Protection Criteria for the planning proposal?	No
The proposed land use for hosted or unhosted short-term rental accommodation, and the local government requires certain bushfire protection measures, contained within the BPC, to be applied, that under the LPS Regulations 2015, would otherwise not be required?	N/A

5.2 Assessment Summary

PATHWAY APPLIED TO DEMONSTRATE ACHIEVING POLICY OUTCOMES OF SPP 3.7 BUSHFIRE [1] INCLUDES SUMMARY OF THE PROPOSAL'S ASSESSMENT AGAINST THE BPC ACCEPTABLE SOLUTIONS			
STRUCTURE PLAN / SUBDIVISION APPLICATION			
The Acceptable Solutions Corresponding to the Policy Outcomes of SPP 3.7 Bushfire as Incorporated into the Elements of the Bushfire Protection Criteria (Guidelines)	Acceptable Solutions Pathway Compliance Status	Alternative Pathway [2] Outcomes-Based Approach Only	Alternative Pathway [2] Combination of Pathways
ELEMENT 1: LOCATION:	Not Applicable	-	-
A1.1a Broader Landscape Type A	Not Applicable		
A1.1b Broader Landscape Type B	Not Applicable		
ELEMENT 2: SITING AND DESIGN:	Fully Compliant	-	-
A2.1 Siting and design	Fully Compliant		
A2.2 Asset Protection Zone (APZ)	Fully Compliant		
A2.3 Clearing of native vegetation	Fully Compliant		
ELEMENT 3: VEHICULAR ACCESS:	Fully Compliant	-	-
A3.1 Public roads	Fully Compliant		
A3.2 Access routes	Fully Compliant		
A3.3a No-through roads	Not Applicable		
A3.3b No-through roads technical requirements	Not Applicable		
A3.4 Emergency access way	Not Applicable		
A3.5a Perimeter roads	Fully Compliant		
A3.6 Battle-axe legs	Not Applicable		
ELEMENT 4: WATER SUPPLY:	Fully Compliant	-	-
A4.1 Water supply	Fully Compliant		
Note 1: Achieving the objectives and policy outcomes of SPP 3.7 Bushfire can be demonstrated through either the acceptable solutions pathway, the outcomes- based approach only, or a combination of both pathways (refer to Guidelines s 2.2.1). Note 2: When applied, the required additional assessment details are provided in Section 5.4 of this BMP. The content and comprehensiveness of the assessment will vary dependant on the specific conditions of the broader landscape, the development site, its use and the degree to which any relevant acceptable solutions cannot be complied with.			

5.3 BPC 5: Structure Plan - Acceptable Solutions Assessment

5.3.1 Element 1: Location

ELEMENT 1: LOCATION (STRATEGIC PLANNING)					
All details of acceptable solution requirements are established in the Planning for Bushfire Guidelines (Guidelines) – WA Department of Planning, Lands and Heritage (DPLH, as amended).					
O1	**The Outcome of State Planning Policy 3.7 Bushfire (and the BPC) to be Achieved**				
	Avoid broader landscapes that present an unacceptable bushfire risk to people, property and infrastructure (SPP 3.7, 6.1)				
E1	Acceptable Solutions Pathway - Compliance Statement				
	N/A				
	Alternative Pathway Applied to Demonstrate Ability to Achieve SPP 3.7 Outcomes				
	N/A				
ACCEPTABLE SOLUTIONS - ASSESSMENT STATEMENTS					
Check Box Legend:	☑ Relevant & met		☒ Relevant & not met		⃠ Not relevant
A1.1 Location			Applicable:	No	Compliant: -
☐ ☐ ⃠	The subject site is within Area 1 (Urban) on the Map of Bushfire Prone Areas and does not require assessment of Element 1: Location.				
Assessment Supporting Details:					
A1.1a Broader Landscape Type A			Applicable:	No	Compliant: -
☑ ☐ ☐	The subject site is within Area 2 (Urban) on the Map of Bushfire Prone Areas and is located in an area that is a Broader Landscape Type A.				
Assessment Supporting Details: A Broader Landscape Assessment for Element 1 of the Bushfire Protection Criteria was not undertaken as a strategic assessment was completed to inform the rezoning of the subject site under the previous Guidelines (2015). Reference is made to BPP's Bushfire Management Plan (BMP) and the associated Addendum (including a Bushfire Hazard Assessment) dated 19 July 2017 (15414-1) which can be made available on request					
A1.1a Broader Landscape Type B			Applicable:	No	Compliant: -
☑ ☒ ⃠	The subject site is within Area 2 (Urban) on the Map of Bushfire Prone Areas. It is located in an area that is a Broader Landscape Type B which presents an unacceptable bushfire risk of a landscape scale bushfire resulting in impacts to people, property and infrastructure. This location does not satisfy the acceptable solution for Element 1: Location. An outcomes-based approach has been prepared to demonstrate (to the decision maker) how Policy Outcome O1 will, or potentially can, be satisfied through appropriate management and/or mitigation of the relevant risks.				

Assessment Supporting Details: None required.

5.3.2 Element 2: Siting and Design

ELEMENT 2: SITING AND DESIGN (STRUCTURE PLAN / SUBDIVISION APPLICATION)

IMPORTANT INFORMATION REGARDING ADDITIONAL BCA REQUIREMENTS

Be aware of the following when the planning proposal includes the future construction of a Class 9 vulnerable use building that is required to comply with the bushfire resistance and additional requirements of the Building Code of Australia (BCA) contained within the National Construction Code 2022 (NCC 2022).

The Building Code of Australia is applied under the WA Building Act 2011/Building Regulations 2012. The BCA establishes that these buildings must have certain minimum separation distances from bushfire prone vegetation – with site specific conditions determining these distances.

The separation distances are significantly greater than the required minimum distances established by SPP 3.7/Guidelines under the Planning and Development Act 2005.

This BMP as a bushfire planning assessment is not required to determine the additional separation distances that are to apply to the subject planning proposal or its ability to comply with those requirements.

However, in consideration of the relevant provision in the LPS Regulations 2015 (see below), Bushfire Prone Planning is taking the approach of informing decision makers regarding the additional separations distances to be considered.

> *LPS Regulations 2015, Schedule 2, Part 10A – Bushfire risk management, cl. 78E (1) – "In considering an application for development approval for development to which this Part applies, the local government is to have regard to the bushfire resistant construction requirements of the Building Code".*

The separation distances from classified vegetation established by the BCA, when applicable to the subject planning proposal, are presented in this BMP as an addendum. Refer also to information provided in Appendix B3 of this BMP.

EXPLANATORY INFORMATION

Refer to Appendices B1 and B3 of this BMP for additional information and to *the bushfire protection measure implementation checklist in Section 6 for the APZ dimensions applicable to this planning proposal.*

The Planning Assessment and the APZ

This assessment is a 'planning assessment' being conducted for planning approval purposes only. All details of acceptable solution requirements are established in the Planning for Bushfire Guidelines (Guidelines) – WA Department of Planning, Lands and Heritage (DPLH, as amended).

> *Note the assessment is not conducted for building approval purposes. The derivation of 'determined' BAL ratings for building permit applications is not the intended outcome of this planning assessment. However, in limited situations, the presented indicative BAL rating might also be considered as 'determined'.*

To comply with the relevant acceptable solutions contained in the 'Bushfire Planning Guidelines', the subject planning proposal must demonstrate that the required minimum sized asset protection zone (APZ) - subject to location constraints and allowances established by the Guidelines - can be installed surrounding a habitable or specified building.

Approved BMP's and the APZ Dimensions to be Implemented

An approved BMP, unless stated otherwise, is only approving the installation of an APZ comprised of:

- The minimum dimensions that ensure the radiant heat impact of a bushfire (on building works) does not exceed 29 kW/m² (BAL-29); or

- For specific 'vulnerable' land uses, the minimum dimensions that ensures the radiant heat impact of a bushfire (on building works) does not exceed the level of radiant heat exposure stated in the applicable acceptable solution; or

- The specific minimum dimensions that may be applied through the application of an outcomes-based approach.

Consequently, the 'minimum' dimensions of the approved APZ are also the 'maximum' approved dimensions when installation of the APZ will require the modification/removal of native vegetation. Installing a larger dimensioned APZ, to lower the determined BAL rating of specific building works, will need additional approval from the relevant planning authority.

The following bushfire planning policy and guidance potentially limit installed APZ dimensions:

- SPP 3.7 Bushfire, Policy Objectives, cl. 5.5 states – "Prioritise the retention of native vegetation for biodiversity conservation, environmental protection and landscape amenity.

- SPP 3.7 Bushfire, Policy Outcomes, cl. 6.2 - establishes that clearing of native vegetation is to be avoided or minimised in managing or mitigating bushfire risk.

- The Guidelines, Appendix B2, B.2.1 states - "clearing or modification of native vegetation to reduce the radiant heat impact below 29 kW/m^2 is generally not supported."

	The Outcome of State Planning Policy 3.7 Bushfire (and the BPC) to be Achieved
O2	**Ensure siting and design solutions:** • **Manage or mitigate the bushfire risk to people, property and infrastructure; and** • **Avoid, or where unavoidable, minimises the clearing of native vegetation. (SPP 3.7, 6.2)**

E2	Acceptable Solutions Pathway - Compliance Statement
	The planning proposal is fully compliant with all applicable acceptable solutions and therefore achieves the required outcomes of this element.
	Alternative Pathway Applied to Demonstrate Ability to Achieve SPP 3.7 Outcomes
	N/A

ACCEPTABLE SOLUTIONS - ASSESSMENT STATEMENTS

Check Box Legend: ☑ Relevant & met ☒ Relevant & not met ⃠ Not relevant

A2.1 Siting and design	Applicable:	Yes	Compliant:	Yes

☑ ☐ ☐ Ensure that each proposed and existing lot(s) contains a sufficient development site(s) that can achieve a radiant heat impact not exceeding 29 kW/m² (BAL-29).

*Note: In accordance with Planning and Development (LPS) Regulations 2015, s.78A, **'development site'** means that part of a lot on which a building that is the subject of development stands or is to be constructed.*

Assessment Supporting Details:

Each proposed lot will be subject to a radiant heat impact not exceeding 29 kW/m² (BAL-29) based on the assumed management within the subject site and establishing the required setbacks between revegetated areas and the proposed lots. Refer to Figure 3.2.

A2.2 Asset Protection Zone (APZ)	Applicable:	Yes	Compliant:	Yes

Where a development site (refer to definition above in A2.1) cannot be wholly located within an area with a radiant heat impact not exceeding 29 kW/m² (BAL-29) in its pre-development state, an indicative APZ is to be provided and meet the following requirements for width, location and management:

☑ ☐ ☐ **APZ Width:** The APZ, when measured from the development site, is of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29 kW/m² (BAL-29) in all circumstances.

☑ ☐ ☐ **APZ Location – Option 1:** The indicative 'Planning BAL-29' APZ can be contained solely within the boundaries of each lot.

☐ ☐ ⃠ **APZ Location – Option 2:** The indicative 'Planning BAL-29' APZ cannot be contained solely within the boundaries of the lot. However, the relevant vegetation on the adjoining land / lot(s) is, and will continue to be, on an ongoing basis in perpetuity, low threat as per:

- Clause 2.2.3.2 of AS 3959 (including non-vegetated land such as a sealed or unsealed road, or a water body); or
- The requirements of the Guidelines Appendix B.2, Table 9 – APZ technical requirements; or
- The alternative standard in the local planning scheme (when it exists); and

- Any required ongoing vegetation management is agreed upon via a substantiated management agreement between the applicable landowners and the local government.

☑ ☐ ☐ **APZ Management:** The APZ can and will be managed in accordance with the requirements established in the Guidelines, Appendix B.2 or the alternative standard in the gazetted local planning scheme (when it exists).

Assessment Supporting Details:

Figures 3.1.1 and 3.2 illustrate that the site can achieve a Planning BAL-29 Asset Protection Zone (APZ) around the proposed lots. Each lot will be exposed to a radiant heat flux not exceeding 29 kW/m² (BAL-29). The majority of the developable portion of the site will either be cleared for future development or has already been approved for urban development. All lots will be managed and maintained in a low-threat state in accordance with the Shire of Mundaring Firebreaks and Fuel Load Notice.

The Landscape Management Plan and Figure 3.1.1 identify the areas within the site designated for revegetation. All Class A - Forest areas must be located a minimum of 21 metres from the proposed lots. Revegetated wetland areas and non-irrigated rehabilitation plantings are classified as Class C – Shrubland and must not exceed this vegetation class or occur within 9 metres of any proposed lot. The Landscape Management Plan also outlines the treatments and ongoing management requirements for all areas within the APZ, including managed or irrigated turf, irrigated native gardens, and road verges. It is assumed that these areas will be managed and maintained in perpetuity by the Local Government.

A2.3 Clearing of native vegetation	Applicable:	Yes	Compliant:	Yes

☑ ☐ ☐ The development avoids, or where unavoidable, minimises the clearing of native vegetation.

Assessment Supporting Details:

Minimal vegetation clearing is required to develop the proposed lots. Large areas of land will be rehabilitated and revegetated to increase the ecological value of the land while also supporting urban development.

5.3.3 Element 3: Vehicular Access

ELEMENT 3: VEHICULAR ACCESS (STRUCTURE PLAN / SUBDIVISION APPLICATION)	
All details of acceptable solution requirements are established in the Planning for Bushfire Guidelines (Guidelines) – WA Department of Planning, Lands and Heritage (DPLH, as amended). When relevant, the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (DPLH, 2021 Rev B), is also referenced. The technical construction requirements for access types and components are established in the Guidelines Appendix B.3, Table 10 (certain information is copied and presented in Appendix C of this BMP). The local government will advise the proponent where different requirements are to apply and when any additional specifications such as those for signage and gates are to apply. These are included as an appendix if requested by the local government. ***Note:*** *The following understanding of what constitutes a 'road', and the stated definitions can be important considerations for assessments against an acceptable solution for Element 3.* • *Guidelines Appendix B3: Vehicular Access, identifies a 'road' as being either a public road (that includes a no-through road) or a perimeter road. All other access types (i.e. emergency access ways, fire service access routes, battle-axes and private driveways) are considered a different class of access i.e. they are not 'roads'.* • *SPP 3.7 defines 'no-through road' as "a cul-de-sac or dead end road".* • *SPP 3.7 defines 'two-way access' as "vehicular access from a site in two different directions to at least two different suitable destinations". This allows for required access to potentially be provided by an emergency access way and not just public roads.*	
O3	**The Outcome of State Planning Policy 3.7 Bushfire (and the BPC) to be Achieved**
	Ensure the design and capacity of vehicular access and egress provide: • **For efficient and effective evacuation to a suitable destination(s); and/or** • **As a contingency measure for vulnerable land uses, an on-site shelter, where demonstrated appropriate, as a last resort option. (SPP 3.7, 6.3)**
E3	Acceptable Solutions Pathway - Compliance Statement
	The planning proposal is fully compliant with all applicable acceptable solutions and therefore achieves the required outcomes of this element.
	Alternative Pathway Applied to Demonstrate Ability to Achieve SPP 3.7 Outcomes
	N/A

ACCEPTABLE SOLUTIONS - ASSESSMENT STATEMENTS				
Check Box Legend:	☑ Relevant & met	☒ Relevant & not met	⃠ Not relevant	
A3.1 Public roads	Applicable:	Yes	Compliant:	Yes
☑ ☐ ☐	Public roads meet the technical requirements for minimum vertical clearance (4.5 metres) and minimum weight capacity (15 tonnes - includes bridges, culverts).			
☑ ☐ ☐	Public roads meet the technical requirement recommended in the Guidelines in Appendix B3, B3.1 for a minimum horizontal clearance of 6 metres.			

☑ ☐ ☐	Public road technical requirements for minimum horizontal clearance, gradients and curves should be in accordance with the class of road as specified in the Public Works Engineering Australasia (IPWEA) subdivision guidelines, Liveable Neighbourhoods, Austroads Standards, any applicable or relevant Main Roads standards, supplements, policies and any applicable or relevant local government standards or policies. The assessment conducted for the bushfire management plan indicates that it is likely that the proposed development can and will comply with the requirements. However, the applicable class of road, the associated technical requirements and subsequent proposal compliance, will need to be confirmed with the relevant local government and/or Main Roads WA.

Assessment Supporting Details:

All public roads within the development must be constructed to meet the public road technical requirements for minimum horizontal clearance, gradients and curves. The site plan indicates road reserves with widths of 13-20m.

A3.2 Access routes	Applicable:	Yes	Compliant:	Yes

☐ ☐ ⊘	Subject site is in Area 1 (Urban) (Map of BPA). Public road access, with all-weather surfaces, is provided to at least one suitable destination.
☑ ☐ ☐	Subject site is in Area 2 (Map of BPA). Public road access, with all-weather surfaces, is provided in two different directions, to two different suitable destinations.

Assessment Supporting Details:

Two new entry and exits are proposed and one existing onto Wilkins Street. Wilkins Street provides access towards Roe Highway providing adequate access to multiple suitable destinations. To the east, Wilkins Street provides access towards suitable destinations in residential areas such as Koongamia and Greenmount.

A3.3a No-through roads	Applicable:	No	Compliant:	-

☐ ☐ ⊘	A3.3a is not applicable to the subject planning proposal because the planning proposal is sited in Area 1 (Urban) (Map of BPA), and there is no limitation on no-through road lengths.
☐ ☐ ⊘	A3.3a is not applicable to the subject planning proposal because access to the subject site is via a private driveway from a public road providing two-way access. Consequently, vehicular access to the subject site does not have a no-through road component.
☐ ☐ ⊘	The subject site is in Area 2 (Map of BPA): Access to the subject site is via a no-through public road that does not exceed the established maximum of 200 metres in length from the subject site boundary to an intersection where two-way access is provided.
☐ ☐ ⊘	The subject site is in Area 2 (Map of BPA): Access to the subject site / lot(s) is via a no-through public road that exceeds the established maximum of 200 metres in length from the proposed lot(s) boundary to an intersection where two-way access is provided. It is demonstrated that there are site constraints and/or that there are no alternative design options to achieve the 200 metre maximum length. Compliant two-way access within 200 metres from the proposed lot(s) boundary will be established through the provision (or existence) of a compliant emergency access way through the application of acceptable solution A3.4: Emergency Access Way.

☐ ☐ ⊘	The subject site is in Area 2 (Map of BPA): Access to the subject site / lot(s) is via a no-through public road that exceeds the established maximum of 200 metres in length from the proposed lot(s) boundary to an intersection where two-way access is provided. However, the additional road length can be considered to satisfy the acceptable solution as the following established additional requirements can be met:
☐ ☐ ⊘	• It is demonstrated that that an alternative access, including an emergency access way, cannot be provided due to site constraints; and
☐ ☐ ⊘	• The no-through road travels towards a suitable destination; and
☐ ☐ ⊘	• The balance of the no-through road that is greater than 200 metres from the subject site is: o Wholly within a residential built-out area; or o Wholly within an area designated Area 1 (Urban) on Map of BPA; or o Potentially subject to radiant heat levels from adjacent bushfire prone vegetation not exceeding 12.5 kW/m^2 / BAL-LOW (Guidelines Figure 29).

Assessment Supporting Details:

The subject site is not located on a no-through road and there are no no-through roads proposed within the subdivision.

A3.3b No-through roads technical requirements	Applicable:	No	Compliant:	-

☑ ☐ ☐	A3.3b is not applicable to the subject planning proposal because the assessment against A3.3a has established that vehicular access to the site does not have a no-through road component.
☐ ☐ ⊘	The no-through road meet (or can and will meet) the public road technical requirements for minimum vertical clearance (4.5 metres) and minimum weight capacity (15 tonnes - includes bridges, culverts).
☐ ☐ ⊘	The no-through road meet (or can and will meet) the public road technical requirement recommended in the Guidelines in Appendix B3, B3.1 for a minimum horizontal clearance of 6 metres.
☐ ☐ ⊘	The no-through road (i.e. public road) technical requirements for minimum horizontal clearance (excluding perimeter road), gradients and curves should be in accordance with the class of road as specified in the Public Works Engineering Australasia (IPWEA) subdivision guidelines, Liveable Neighbourhoods, Austroads Standards, any applicable or relevant Main Roads standards, supplements, policies and any applicable or relevant local government standards or policies. The assessment conducted for the bushfire management plan indicates that it is likely that the proposed development can and will comply with the requirements. However, the applicable class of road, the associated technical requirements and subsequent proposal compliance, will need to be confirmed with the relevant local government and/or Main Roads WA.
☐ ☐ ⊘	The turnaround area/head meets (or can and will meet) the design requirements established by the Guidelines, Figure 30.

Assessment Supporting Details:

None required.

A3.4 Emergency access way	Applicable:	No	Compliant:	-

☑ ☐ ☐ A3.4 is not applicable to the subject planning proposal because it has been assessed as compliant with A3.2 (and A3.3a and A3.3b when applicable), and an emergency access way is not required.

☐ ☐ ⊘ A3.4 is applicable to the subject planning proposal because an emergency access way currently exists and has been part of the subject planning proposal's ability to comply with A3.2.

Consequently, it will apply with regard to meeting (or being able to meet), the specified technical requirements and ongoing management requirements, rather than its installation.

☐ ☐ ⊘ The requirements established for acceptable no-through road access to the subject site / lot(s) in A3.2 and/or A3.3a and/or A3.3b cannot be achieved. An emergency access way (EAW) is provided as the alternative access and can be considered as an acceptable solution, when the following established requirements are met:

☐ ☐ ⊘ It is demonstrated that an alternative design option does not exist and that site constraints prevent the requirements of A3.2 and A3.3 being met; and

☐ ☐ ⊘
- The access way is no more than 500 metres in length, provides a through connection to a public road connecting to a public road network. The connection onto the State Road Network has access approval from Main Roads WA; and

☐ ☐ ⊘
- The access way meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for minimum horizontal clearance (Map of BPA Area 1 (Urban) = 6 metres and Area 2 = 10 metres), minimum vertical clearance (4.5 metres), minimum weight capacity (15 tonnes - includes bridges, culverts) and minimum inner radius of road curves (8.5 metres); and

☐ ☐ ⊘
- The access way meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for crossfalls and gradients for different surfaces and dips; and

☐ ☐ ⊘
- The access way will be signposted and, if gated, gates will open for the whole carriageway width and remain unlocked; and

☐ ☐ ⊘
- The proponent has obtained consent from the local government, that it will accept care, control and management responsibilities for the emergency access way.

☐ ☐ ⊘ The subdivision proposes development in stages, and each stage is to comply with the relevant bushfire protection criteria.

Consequently, a temporary access way is planned to facilitate the staging arrangements of a subdivision as an interim second access route until the required second access route is constructed as a public road in a subsequent stage.

The planned approach for achieving the required outcome is described in the supporting assessment details below.

Assessment Supporting Details:

None required.

A3.5a Perimeter roads	Applicable:	Yes	Compliant:	Yes

☐ ☐ ⊘ A3.5a is not applicable to the subject planning proposal because the proposal is for less than 10 lots adjacent to each other (including the cumulative number of lots created as part of a staged subdivision).

☐ ☐ ⊘ A3.5a is not applicable to the subject planning proposal. The assessment justifies the non-applicability due to one or more of the following exclusion factors being relevant (see Supporting Details):

- The adjoining classified vegetation is Class G Grassland (AS 3959);
- Lots are zoned for rural living or equivalent;
- It is demonstrated that it cannot be provided due to site constraints; or
- All lots have frontage to an existing public road.

☑ ☐ ☐ The proposed greenfield development or large scale urban infill adjoins classified vegetation (excluding Class G, AS 3959) and consists of 10 or more lots adjacent to each other (including the cumulative number of lots created as part of a staged subdivision).

A perimeter road will be provided to separate the areas of permanent classified vegetation (under AS 3959) from the proposed lot(s) and remove the need for battle-axe lots that back onto areas of classified vegetation.

☑ ☐ ☐ The perimeter road meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for minimum horizontal clearance (Map of BPA Area 1 (Urban) = 8 metres and Area 2 = 12 metres), minimum vertical clearance (4.5 metres) and minimum weight capacity (15 tonnes - includes bridges, culverts).

☑ ☐ ☐ The perimeter road technical requirements for gradients and inner radius curves should be in accordance with the class of road as specified in the Public Works Engineering Australasia (IPWEA) subdivision guidelines, Liveable Neighbourhoods, Austroads Standards, any applicable or relevant Main Roads standards, supplements, policies and any applicable or relevant local government standards or policies.

The assessment conducted for the bushfire management plan indicates that it is likely that the proposed development can and will comply with the requirements.

However, the applicable class of road, the associated technical requirements and subsequent proposal compliance, will need to be confirmed with the relevant local government and/or Main Roads WA.

Assessment Supporting Details:

A perimeter road is provided around most of the proposed development to create separation between the proposed lots and the classified vegetation. The ten lots within the structure plan area that are not surrounded by a perimeter road are instead located adjacent to managed Public Open Space (POS) areas, which are assumed to be excludable vegetation under AS3959, and have road frontage on the opposite side. The lots to the north of the site boarder on the existing road, Wilkins Street. A perimeter road would therefore serve no purpose for these lots.

The perimeter road meets the required vertical clearance specifications outlined in Figure 1.1, with road reserves ranging between 13 and 20 metres in width. The road network must also comply with all other relevant technical construction requirements specified in the Guidelines, the Institute of Public Works Engineering Australasia (IPWEA) Subdivision Guidelines, *Liveable Neighbourhoods*, *Austroads* Standards, any applicable Main Roads standards, supplements, or policies, as well as relevant local government standards and policies.

A3.5b Fire service access route	Applicable:	No	Compliant:	-

☑ ☐ ☐ A3.5b is not applicable to the subject planning proposal because a perimeter road is assessed as being required in accordance with A3.5a, therefore a fire service access route is not required.

☐ ☐ ⊘ A3.5b is not applicable to the subject planning proposal because:

Appropriate firefighter access is currently available to all relevant areas classified vegetation (under AS 3959) that is not Class G Grassland.

Consequently, a fire service access route is not required to provide firefighter access to this vegetation, despite otherwise being required when a perimeter road is assessed as not being required (in accordance with A3.5a).

☐ ☐ ⊘	The proposed lots adjoin classified vegetation (classified under AS 3959) that is not Class G Grassland, and a perimeter road is not required in accordance with A3.5a. A fire service access route can and will be provided for firefighter access to the relevant classified vegetation where firefighter access is not currently available. It can and will meet the following established requirements:
☐ ☐ ⊘	• The fire service access route is a through-route with no dead-ends, no further than 500 metres from a public road and will be signposted; and
☐ ☐ ⊘	• The fire service access route meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for minimum horizontal clearance (Map of BPA Area 1 (Urban) = 6 metres and Area 2 = 10 metres), minimum vertical clearance (4.5 metres), minimum weight capacity (15 tonnes - includes bridges, culverts) and minimum inner radius of road curves (8.5 metres); and
☐ ☐ ⊘	• The fire service access route meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for crossfalls and gradients for different surfaces and dips; and
☐ ☐ ⊘	• When gated, gates will open the whole carriageway width and can be locked by the local government and/or the emergency services, when keys are provided for each gate; and
☐ ☐ ⊘	• The proponent has obtained consent from the local government, that it will accept care, control and management responsibilities for the fire service access route (unless it is a Crown reserve managed by another entity).

Assessment Supporting Details:

The planned perimeter road provides access to adjoining classified vegetation, a fire service access route is therefore not required.

A3.6 Battle-axe legs	Applicable:	No	Compliant:	-

☑ ☐ ☐	A3.6 is not applicable to the subject planning proposal because the subject planning proposal does not contain battle-axe legs.
☐ ☐ ⊘	The subject site is in a reticulated water area and the point where the battle-axe access leg(s) joins the effective area of the battle-axe lot, is less than 50 metres from a public road. No battle-axe leg technical requirements apply.
☐ ☐ ⊘	It is demonstrated that a battle-axe access leg(s) cannot be avoided due to site or design constraints, but they can and will satisfy the following established technical requirements (allowing the battle-axe leg(s) to be considered as an acceptable solution):
☐ ☐ ⊘	• The battle-axe leg meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for minimum horizontal clearance (6 metres) or where not required to comply with the Guidelines width, it meets the requirements of the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision; and
☐ ☐ ⊘	• The battle-axe leg meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for minimum vertical clearance (4.5 metres), minimum weight capacity (15 tonnes - includes bridges, culverts) and minimum inner radius of road curves (8.5 metres); and
☐ ☐ ⊘	• The battle-axe leg meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for the gradients of different surfaces and dips; and

☐ ☐ ⊘	• Passing bays are (or can and will be) installed every 200 metres with a minimum length of 20 metres and a minimum additional carriageway width of 2 metres i.e. the combined carriageway width of the passing bay and constructed private driveway will be a minimum 6 metres; and
☐ ☐ ⊘	• The turnaround area/head meets (or can and will meet) the design requirements established by the Guidelines, Figure 30.
Assessment Supporting Details: None required.	

5.3.4 Element 4: Water Supply

ELEMENT 4: WATER SUPPLY (STRUCTURE PLAN / SUBDIVISION APPLICATION)	
All details of acceptable solution requirements are established in the Planning for Bushfire Guidelines (Guidelines) – WA Department of Planning, Lands and Heritage (DPLH, as amended). When relevant, the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (DPLH, 2021 Rev B), is also referenced.	
O4	**The Outcome of State Planning Policy 3.7 Bushfire (and the BPC) to be Achieved**
	Ensure that sufficient water is available and accessible for emergency services, to enable people, property and infrastructure to be defended from bushfire. (SPP 3.7, 6.4)
E4	Acceptable Solutions Pathway - Compliance Statement
	The planning proposal is fully compliant with all applicable acceptable solutions and therefore achieves the required outcomes of this element.
	Alternative Pathway Applied to Demonstrate Ability to Achieve SPP 3.7 Outcomes
	N/A

ACCEPTABLE SOLUTIONS - ASSESSMENT STATEMENTS

Check Box Legend: ☑ Relevant & met ☒ Relevant & not met ⊘ Not relevant

A4.1 Water supply for structure plans	Applicable: Yes	Compliant: Yes

☑ ☐ ☐	Evidence is provided that a reticulated water supply, available for firefighting purposes, can be provided at the subdivision and/or development application stage, in accordance with the specifications established by the relevant water supply authority.
☐ ☐ ⊘	The provision of or the specifications of a reticulated water supply cannot be met. Evidence is provided that a sufficient, sustainable and accessible non-reticulated water supply dedicated to firefighting purposes can be provided at the subdivision and/or development application stage, in accordance with the specifications established in the Guidelines, Appendix B4: Water Supply.
☐ ☐ ⊘	It has been determined (by the proposed number of lots and/or the local government) that the provision of a strategic water supply tank(s) is required. A suitable area(s) will be identified as a Crown reserve on the structure plan, to the satisfaction of the WAPC on advice from the local government. The land on which the strategic tank is to be located is to be ceded and should occur free of cost, without any payment or compensation by the Crown, as a Crown reserve for 'strategic water supply for firefighting purposes.'
☐ ☐ ⊘	The structure plan is over land with fragmented ownership, and the local government has determined that a strategic water supply tank is required. The first stage of the development will include the installation of the strategic water supply tank(s) on the identified Crown reserve(s).
☐ ☐ ⊘	The applicable local planning scheme provisions provide for developer contributions for public infrastructure. The local government is supportive of applying a cash-in-lieu arrangement for the provision of a strategic water tank for firefighting purposes. This arrangement is presented as an Addendum in this BMP.

☐ ☐ ⊘	Evidence will be provided, at the subsequent relevant planning stage, that the proposed water supply has been installed in accordance with the specifications established by the relevant water supply authority and/or the Guidelines, Appendix B4: Water supply.
☐ ☐ ⊘	The BPC Explanatory Notes in Appendix B.4: Water Supply introduce additional measure as best practice but voluntary. The following measure is adopted by the planning proposal: The subject site is planned to have a reticulated water supply but is in an area designated as Area 2 on the Map of BPA and/or the local government area has known issues with water supply or pressure. Water supply tank(s) and fittings dedicated to firefighting purposes (noting that combining drinking and firefighting uses of water is not recommended and may be contrary to relevant provisions), that satisfy the construction and design requirements established in the Guidelines, Appendix B4: Water Supply, will be provided. These will be met at the subdivision and/or development application stage as applicable.
Assessment Supporting Details: The proponent will supply evidence that a reticulated water supply will be installed within the subdivision development in accordance with the specifications established by the relevant water supply authority and/or the Guidelines, Appendix B4: Water supply.	

6 RESPONSIBILITY CHECKLISTS

EXPLANATORY INFORMATION

This section of the BMP sets out the responsibilities of the relevant entity or person for:

- The initial implementation of the required bushfire protection measures and their timing; and
- The ongoing maintenance of the required bushfire protection measures to ensure their continued effectiveness.

Note: Protection measures that may be recommended by the bushfire consultant in the BMP section titled "Additional Recommended Bushfire Protection Measures' are not included in the Responsibility Checklists (at least initially).

The reason for this is the additional measure(s) are either:

- Provided as additional risk management advice to the proponent and it is up to them to choose to apply; or
- Part of an outcomes-based approach being applied to satisfy the required outcomes of SPP 3.7. Consequently, the need for their application (which would create a responsibility) is currently subject to assessment and approval by the decision maker.

  When their application is established by planning approval, the responsibility checklists in this BMP will be required to be updated.

6.1 Protection Measure Implementation Checklists

6.1.1 Developer Responsibilities Prior to Issue of Certificates of Title for New Lots

TABLE 6.1
DEVELOPER RESPONSIBILITIES PRIOR TO ISSUE OF CERTIFICATES OF TITLE FOR NEW LOTS

No.	IMPLEMENTATION OF BUSHFIRE PROTECTION MEASURES Measures Established Under SPP 3.7 / Guidelines	Local Government Clearance	Bushfire Consultant Clearance
1	For the entire area of each new lot, ensure any retained vegetation, if any, can be regarded as: • Presenting a 'low bushfire threat' currently and in perpetuity; and • Is able to be excluded from classification in accordance with AS 3959:2018 s.2.2.3.2 - where the Standard applies the determining factors of extent, connectivity, flammability, moisture and fuel load. Refer to Appendices B3 and B4 of this BMP for guidance. Where native vegetation is required to be modified or removed, ensure that prior approval has been received from the relevant authority. Refer to the applicable local government for advice.	☐	☐
2	The applicable vegetation on land within the subject site is to be removed and/or modified to the extent necessary to ensure the subject lots can provide suitable development sites with potential radiant heat impacts not exceeding 29 kW/m^2 (BAL-29). This is in accordance with the planned vegetation management presented in Section 2.3 of this BMP.	☐	☐

TABLE 6.1 DEVELOPER RESPONSIBILITIES PRIOR TO ISSUE OF CERTIFICATES OF TITLE FOR NEW LOTS			
	Where native vegetation is required to be modified or removed, ensure that prior approval has been received from the relevant authority. Refer to the applicable local government for advice.		
3	Ensure that all revegetation and rehabilitation planting aligns with the vegetation classifications within this BMP and the LMP.	☐	☐
4	Ensure the planned public open space(s) are established and vegetation can be regarded as: • Presenting a 'low bushfire threat' currently and in perpetuity; and • Is able to be excluded from classification in accordance with AS 3959:2018 s.2.2.3.2 - where the Standard applies the determining factors of extent, connectivity, flammability, moisture and fuel load. Refer to Appendices B3 and B4 of this BMP for guidance.	☐	☐
5	Construct the public roads to comply with the technical requirements stated and/or referenced in Section 5.3 of the BMP at Element 3: Vehicular access, A3.1 Public roads - or have these works bonded.	☐	☐
6	Construct the required perimeter road to comply with the technical requirements stated and/or referenced in Section 5.3 of the BMP at Element 3: Vehicular access, A3.5a Perimeter roads - or have these works bonded.	☐	☐
7	Install the reticulated firefighting water supply and hydrants to comply with the technical requirements stated and/or referenced in Section 5.3 of the BMP at Element 4: Water supply, A4.2 Water supply for subdivision applications - or have these works bonded.	☐	☐
8	The subdivision approval may be conditioned to require information be provided that informs the decision maker: • That the required bushfire protection measure implementation contained in Table 6.1 of this bushfire management plan, have been complied with during subdivisional works; and • Notes any evidence that relevant and required bushfire protection measures contained in Table 6.2 of this bushfire management plan will be complied with. The relevant bushfire protection measures are those that can be checked for compliance by a bushfire consultant. The compliance certification will be provided as a certificate or report (as most applicable).	☐	☐
IMPLEMENTATION OF BUSHFIRE PROTECTION MEASURES Measures Established by this BMP as a Required Additional Measure in Section 5.5			

6.1.2 Developer Responsibilities Prior to Sale of New Lots

TABLE 6.2 DEVELOPER RESPONSIBILITIES PRIOR TO SALE OF NEW LOTS	
No.	IMPLEMENTATION OF BUSHFIRE PROTECTION MEASURES Measures Established Under SPP 3.7 / Guidelines
1	Within the relevant and identified new lot(s), the required extent of vegetation is to be maintained in a low bushfire threat state until sold, to ensure adjoining new lot(s) can provide suitable development sites with potential radiant heat impacts not exceeding 29 kW/m^2 (BAL-29). This is in accordance with the planned vegetation management presented in Section 2.3 of this BMP. This requirement will have been initially met prior to the issuing of certificates of title. Refer to Appendices B3 and B4 (in this BMP) for 'low bushfire threat state' guidance.
2	Maintain all POS areas and revegetation areas classified as 'excluded' (e.g. lawn, irrigated native gardens, road verges etc) to a low bushfire threat state until management has been vested to the Local Government.
3	On sale of a lot, the new property owner must be made aware of the existence of this approved BMP and provided with access to a copy and be informed of their ongoing responsibilities it contains. A copy of the BMP should be attached to all contracts of sale.
IMPLEMENTATION OF BUSHFIRE PROTECTION MEASURES Measures Established by a Local Government's Section 33 Notice Under the Bush Fires Act 1954	
4	The relevant local government either has no 'Notice' or the lot sizes of the planning proposal are too small to trigger the requirement to implement firebreaks resulting in no protection measure being established.

6.2 Protection Measure Maintenance Checklists

6.2.1 Landowner Responsibilities

TABLE 6.4 LANDOWNER RESPONSIBILITIES – MAINTENANCE OF BUSHFIRE PROTECTION MEASURES	
No.	MAINTENANCE OF BUSHFIRE PROTECTION MEASURES Measures Established Under SPP 3.7 / Guidelines
1	Maintain the 'Required' Asset Protection Zone (APZ) around habitable buildings (and other structures as required) to satisfy: • The minimum required dimensions (i.e. separation distances form classified vegetation) that correspond to the determined BAL rating for the building(s) / structure(s); and • The required APZ technical requirements. Refer to Appendix B3 (of this bmp) for APZ technical requirements and dimension guidance.
2	When the property changes ownership or occupancy, to assist with the ongoing maintenance of the implemented bushfire protection measures, ensure that the relevant person(s) is aware of the BMP, and the responsibilities it contains. Provide access to a copy of the BMP (Note: this BMP may be superseded by a subsequent BMP produced specially for development on a lot).
MAINTENANCE OF BUSHFIRE PROTECTION MEASURES Measures Established Under the Building Act 2011/ Building Regulations 2012/ Building Code of Australia	
3	Ensure that builders engaged to construct dwellings/additions and/or other relevant structures on the lot, are aware of the existence of this approved Bushfire Management Plan (BMP). The plan identifies that the development site is within a designated bushfire prone area. A BAL assessment report may be required to determine the applicable BAL rating. A BAL certificate will need to be issued to accompany building permit applications. Compliance with the Building Code of Australia (Volumes 1 and 2 of the National Construction Code), will require certain bushfire resistant construction requirements be applied to certain buildings in designated bushfire prone areas (i.e. Class 1, 2 and 3 and Class 9 vulnerable use buildings and associated Class 10a buildings and decks). The deemed to satisfy solutions that will meet the relevant bushfire performance requirements are found in AS 3959 – Construction of Building in Bushfire Prone Areas (as amended) and the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended).
4	Maintain and repair buildings to ensure continuing compliance with the bushfire resistant construction requirements, corresponding to the BAL rating applied to the building, in accordance with AS 3959 – Construction of Building in Bushfire Prone Areas (as amended) and the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended). In particular, ensure the minimisation of gaps and effectiveness of screening is maintained to prevent ember entry to internal spaces and combustible materials.

6.2.2 Local Government Responsibilities

TABLE 6.5 LOCAL GOVERNMENT RESPONSIBILITIES – MAINTENANCE OF BUSHFIRE PROTECTION MEASURES	
No.	MAINTENANCE OF BUSHFIRE PROTECTION MEASURES Measures Established by the Bushfire Management Plan
1	To be aware of the potential consequences of any significant changes in the local government's management of land (including potential re-vegetation), of which they have vested control, that could have an adverse impact on the determined BAL ratings that apply to adjacent existing or future buildings and where: • The applicable 'determined' BAL ratings have been established by an existing BMP or a BAL Assessment; and • The BAL has been correctly determined with appropriate consideration of what could reasonably be expected to potentially change in the future with regards to the composition and structure of the vegetation on the local government controlled land and therefore its correct classification under AS 3959:2018 BAL determination methodology.
2	Maintain all POS areas and revegetation areas classified as 'excluded' (e.g. lawn, irrigated native gardens, road verges etc) to a low bushfire threat state
3	The landscape management plan, presented in Section 2.3, has detailed onsite vegetation design and management, ensure that this continues to be implemented as planned.

APPENDIX A: DETAILED BAL ASSESSMENT DATA AND SUPPORTING INFORMATION

A1: BAL Assessment Inputs Common to the Method 1 and Method 2 Procedures

A1.1: FIRE DANGER INDICES (FDI/FDI/GFDI)

When using Method 1 the relevant FDI value required to be applied for each state and region is established by AS 3959:2018, Table 2.1. Each FDI value applied in Tables 2.4 – 2.7 represents both the Forest Fire Danger Index (FFDI) and a deemed equivalent for the Grassland Fire Danger Index (GFDI), as per Table B2 in Appendix B. When using Method 2, the relevant FFDI and GFDI are applied.

The values may be able to be refined within a jurisdiction, where sufficient climatological data is available and in consultation with the relevant authority.

Relevant Jurisdiction:	WA	Region:	Whole State	Method 1	Applied FDI:	80

A1.2: VEGETATION ASSESSMENT AND CLASSIFICATION

Vegetation Types and Classification

In accordance with AS 3959:2018 Clauses 2.2.3 and C2.2.3.1, all vegetation types within 100 metres of the 'site' (defined as "the part of the allotment of land on which a building stands or is to be erected"), are identified and classified. Any vegetation more than 100 metres from the site that has influenced the classification of vegetation within 100 metres of the site, is identified and noted. The maximum excess distance is established by AS 3959: 2018 Clause 2.2.3.2 and is an additional 100 metres.

Classification is also guided by the Visual Guide for Bushfire Risk Assessment in WA (WA Department of Planning February 2016) and any relevant FPA Australia practice notes.

Modified Vegetation

The vegetation types have been assessed as they will be in their natural mature states, rather than what might be observed on the day. Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its expected re-generated mature state. Modified areas of vegetation can be excluded from classification if they consist of low threat vegetation (refer to Appendix B) and that any required active management can be expected to continue in perpetuity, and this can be adequately justified.

The Influence of Ground Slope

Where significant variation in effective slope exists under a consistent vegetation type, these will be delineated as separate vegetation areas to account for the difference in potential bushfire behaviour, in accordance with AS 3959:2018 Clauses 2.2.5 and C2.2.5.

THE INFLUENCE OF VEGETATION GREATER THAN 100 METRES FROM THE SUBJECT SITE	
Vegetation area(s) within 100m of the site whose classification has been influenced by the existence of bushfire prone vegetation from 100m – 200m from the site:	None
Assessment Statement:	No vegetation types exist close enough, or to a sufficient extent, within the relevant area to influence classification of vegetation within 100 metres of the subject site.

VEGETATION AREA 1						
Classification	**A. FOREST**					
Types Identified	Open forest A-03 Low open forest A-04					
Exclusion Clause	N/A					
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees		
Foliage Cover (all layers)	30-70%	Shrub/Heath Height	1-2m	Tree Height	Up to 30m	
Justification Comments:	Remnant forest vegetation along the Helena River Foreshore. Consisting of various dense, Eucalyptus species <30m in height with a minimal mid and under storey. With a grassy under storey and occasional Acacia sp. Many young Eucalypts scattered throughout and in the surrounding areas which have been classified as Forest vegetation based on the state of vegetation at maturity.					
Post Development Assumptions:	Some areas of forest vegetation in close proximity will need to be managed to low threat by increasing canopy separation, removing young trees and under pruning mature trees. Ground fuels will need to be managed and removed to reduce the potential for ladder fuels. All classified Forest vegetation will need to be a minimum of 21m from the proposed new lots. The critical management areas have been identified in Figure 3.1.1 with numerical values of 1, 2 and 3.					

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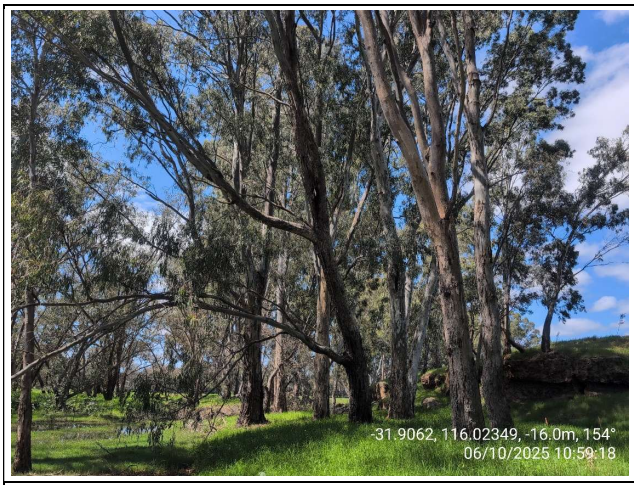
PHOTO ID: 4



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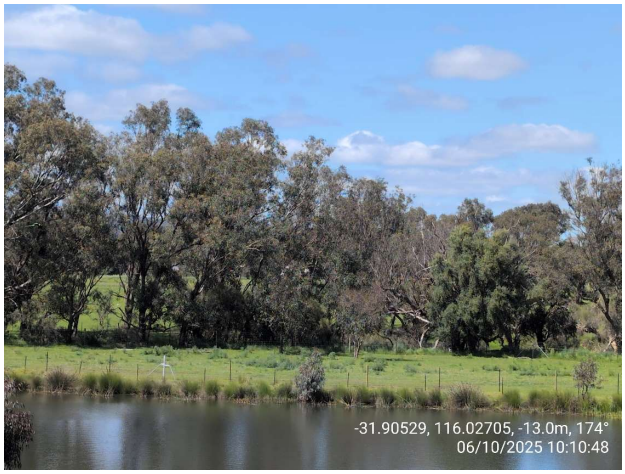

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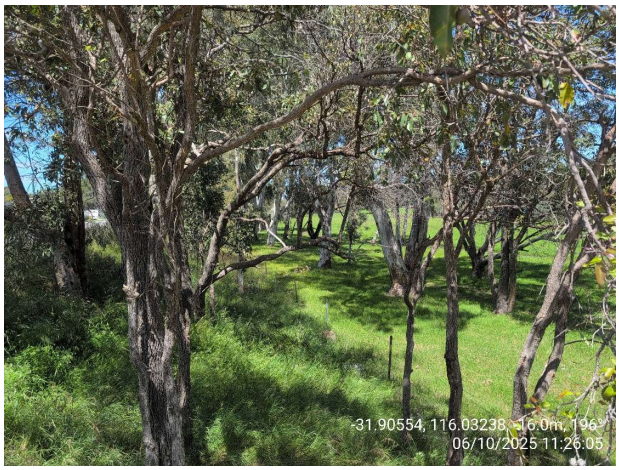

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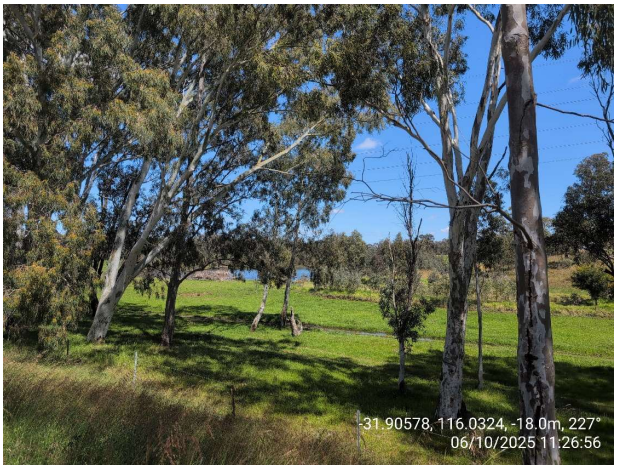
VEGETATION AREA 2						
Classification	**B. WOODLAND**					
Types Identified	Woodland B-05					
Exclusion Clause	N/A					
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees		
Foliage Cover (all layers)	30-70%	Shrub/Heath Height	N/A	Tree Height	Up to 30m	
Justification Comments:	Narrow strip of woodland vegetation – eucalypts with a grassy under storey along Katharine Street.					
Post Development Assumptions:	This area is expected to remain as it is in perpetuity.					
						
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VEGETATION AREA 3						
Classification	**G. GRASSLAND**					
Types Identified	Sown pasture G-26		Open tussock G-23			
Exclusion Clause	N/A					
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)		Upslope or flat 0 degrees	
Foliage Cover (all layers)	<30%	Shrub/Heath Height	1-2m	Tree Height	Up to 30m	
Justification Comments:	Open degraded grassland that was previously used for agricultural purposes. The subject land on which the new lots are propose was likely cleared and grassland has taken over. Grassland along the Helena River has also some scattered shrubs and some small herbs.					
Post Development Assumptions:	The grassland on the development area will likely be removed with earthworks and installation of infrastructure. Any remaining vegetation within the development area will need to be managed to a low bushfire threat state (refer to Figure 3.1.1 for the area). Areas of grassland along the Helena River Foreshore will be revegetated and the classification of these areas will change to Class A – Forest of Class C – shrubland (refer to Figure 3.1.1).					

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VEGETATION AREA 3						
Exclusion Clause	2.2.3.2 (e) Non-vegetated areas and (f) Low threat vegetation - minimal fuel condition.					
Effective Slope	Measured	-	Applied Range (Method 1)	-		
Foliage Cover (all layers)	-	Shrub/Heath Height	-	Tree Height	-	
Justification Comments:	Excluded areas include permanently non-vegetated areas such as roads, dwellings and water ways. Other excluded areas are those that have been cleared for development, managed POS areas and private, low bushfire threat gardens. A small area of the developable land is currently being used as a nursery (which is excluded under AS3959(f).					
Post Development Assumptions:	The areas that have been excluded are expected to remain in their current managed state (i.e. POS areas) or become developed. The developed lots (due to their limited size) will need to be entirely managed and maintained by the landowners in perpetuity under the Shire of Mundaring Firebreak and Fuel Load Notice.					

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PHOTO ID: 52	PHOTO ID: 53

<table>
<tr><th colspan="8">VEGETATION AREA 4</th></tr>
<tr><td>Classification</td><td colspan="7">C. SHRUBLAND</td></tr>
<tr><td>Types Identified</td><td colspan="7">Low shrubland C-12 Closed (low) heath C-10</td></tr>
<tr><td>Exclusion Clause</td><td colspan="7">N/A</td></tr>
<tr><td>Effective Slope</td><td>Measured</td><td colspan="2">flat 0 degrees</td><td colspan="2">Applied Range (Method 1)</td><td colspan="2">Upslope or flat 0 degrees</td></tr>
<tr><td>Foliage Cover (all layers)</td><td><30%</td><td>Shrub/Heath Height</td><td><2m</td><td>Tree Height</td><td colspan="3">Up to 30m</td></tr>
<tr><td>Justification Comments:</td><td colspan="7">These areas are to be revegetated as per the Landscape Management Plan.</td></tr>
<tr><td>Post Development Assumptions:</td><td colspan="7">Bioretention areas to be planted with (classified as Class – C Shrubland):

TABLE 5
MIX:BIORETENTION AREAS
<table><tr><th>Key</th><th>Botanic Name</th><th>Spacing</th><th>Pot</th><th>Qty.</th></tr><tr><td>BFU</td><td>BILLARDIA FUSIFORMIS</td><td>500 mm</td><td>TUBE</td><td>0</td></tr><tr><td>CAS</td><td>CENTELLA ASIATICA</td><td>500 mm</td><td>TUBE</td><td>0</td></tr><tr><td>CHE</td><td>CHORIZANDRA ENDOIS</td><td>500 mm</td><td>TUBE</td><td>0</td></tr><tr><td>DLI</td><td>DAMPIERA LINEARIS</td><td>500 mm</td><td>TUBE</td><td>0</td></tr><tr><td>FNO</td><td>FICINIA NODOSA</td><td>500 mm</td><td>TUBE</td><td>0</td></tr><tr><td>JCA</td><td>JUNCUS CAESPITICUS</td><td>500 mm</td><td>TUBE</td><td>0</td></tr><tr><td>LSQ</td><td>LEPIDOSPERMA SQUAMATUM</td><td>500 mm</td><td>TUBE</td><td>0</td></tr><tr><td>LSU</td><td>LEPIDOSPERMA SUBSECUNDUS</td><td>500mm</td><td>TUBE</td><td>0</td></tr><tr><td>LOS</td><td>LOMANDRA SERICEA</td><td>500 mm</td><td>TUBE</td><td>0</td></tr></table>
Proposed non-irrigated, not managed native vegetation rehabilitation planting within urban interface (classified as Class – C Shrubland):

TABLE 2
MIX: GROUNDCOVERS: LOW FUEL
<table><tr><th>Key</th><th>Botanic Name</th><th>Spacing</th><th>Pot</th><th>Qty.</th></tr><tr><td>ALP</td><td>ACACIA LASIOCARPA PROSTRATE</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>ACS</td><td>ACACIA SALIGNA PROSTRATE 'GREEN MULCH'</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>BFU</td><td>BILLARDIERA FUSIFORMIS</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>CIL</td><td>CHORIZEMA ILICIFOLIUM</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>COA</td><td>CONOSTYLIS ACULEATA</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>CCA</td><td>CONOSTYLIS CANDICANS</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>ERG</td><td>EREMOPHILA GLABRA KALBARRI CARPET</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>GGG</td><td>GREVILLEA OBTUSIFOLIA GIN GIN GEM</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>HPU</td><td>HEMIANDRA PUNGENS</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>KCO</td><td>KENNEDIA COCCINEA</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>KPR</td><td>KENNEDIA PROSTRATA</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>LBI</td><td>LECHENAULTIA BILOBA</td><td>550mm</td><td>130mm</td><td>0</td></tr><tr><td>MYI</td><td>MYOPORUM INSULARE 'COASTAL CARPET'</td><td>550mm</td><td>130mm</td><td>0</td></tr></table>
(Refer to proponent submitted LMP).</td></tr>
</table>

<table>
<tr><th colspan="7">VEGETATION AREA 5</th></tr>
<tr><td>Classification</td><td colspan="6">A. FOREST</td></tr>
<tr><td>Types Identified</td><td colspan="6">Open forest A-03</td></tr>
<tr><td>Exclusion Clause</td><td colspan="6">N/A</td></tr>
<tr><td>Effective Slope</td><td>Measured</td><td colspan="2">flat 0 degrees</td><td>Applied Range (Method 1)</td><td colspan="2">Upslope or flat 0 degrees</td></tr>
<tr><td>Foliage Cover (all layers)</td><td>30-70%</td><td>Shrub/Heath Height</td><td>1-2m</td><td>Tree Height</td><td colspan="2">Up to 30m</td></tr>
<tr><td>Justification Comments:</td><td colspan="6">This area includes the revegetation of the Helena River foreshore. Refer to the client submitted Landscape Management Plan and the Foreshore Reserve Management Plan.</td></tr>
<tr><td>Post Development Assumptions:</td><td colspan="6">The area has been classified as its likely state at maturity.
Example of species to be replanted within the Foreshore / Riparian area.
MIX: RIPARIAN REHAB MIX
<table>
<tr><th>Key</th><th>Botanic Name</th><th>Spacing</th><th>Pot</th><th>Qty.</th></tr>
<tr><td>BAP</td><td>BAUMEA JUNCEA</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>BRU</td><td>BAUMEA RUBIGINOSA</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>BFU</td><td>BILLARDIA FUSIFORMIS</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>CEA</td><td>CENTELLA ASIATICA</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>EAC</td><td>ELEOCHARIS ACULATA</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>FNO</td><td>FICINIA NODOSA</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>HVA</td><td>HAKEA VARIA</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>HYA</td><td>HYPOCALLYMA ANGUSTIFOLIUM</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>JUK</td><td>JUNCUS KRAUSSII</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>JPA</td><td>JUNCUS PALLIDUS</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>JSU</td><td>JUNCUS SUBSECUNDUS</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>KRE</td><td>KUNZEA RECURVA</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>LEF</td><td>LEPIDOSPERMA EFFUSUM</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>LOA</td><td>LOBELIA ANCEPS</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>MEL</td><td>MELALEUCA LATERITA</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
<tr><td>SCL</td><td>SCHOENUS CLANDESTINEUS</td><td>650 mm</td><td>TUBE</td><td>0</td></tr>
</table>
This area will be managed in perpetuity by DBCA.</td></tr>
</table>

A1.3: EFFECTIVE SLOPE

EXPLAINING THE ASSESSMENT METHODOLOGY APPLIED BY BUSHFIRE PRONE PLANNING

DEFINITION: Effective slope is "the slope under that classified vegetation which most influences the bushfire attack" (AS 3959:2018, Clause 1.5.11).

"The effective slope under the classified vegetation is not the same as the average slope for the land surrounding the site of the proposed building. The effective slope is that slope which most significantly influences bushfire behaviour" (AS 3959:2018, Clause CB4).

The slope is described as upslope, flat or downslope when viewed from an exposed element (e.g., building) and looking towards the vegetation. It is measured in degrees.

[Note: Additional relevant guidance provided by AS 3959:2018 and NSW RFS, Planning for Bushfire Protection (2019) is incorporated into the applied assessment methodology and is presented at the end of this explanation.]

COMPOUND SLOPES UNDER VEGETATION AND DETERMINING SLOPE SIGNIFICANCE

Non-Linear Slopes: When the slope of ground under the vegetation out to the distance to be assessed (100 m or further if necessary), is not a straight line or nearly straight line slope, then it is made up of several different slopes i.e., it is a compound slope. The different slope angles and lengths must be factored into the determination of the effective slope value to be applied. Different slopes will potentially influence the bushfire rate of spread and intensity, both increasing and decreasing it.

Significant Slope: The AS 3959:2018 bushfire attack level determination methodology, with default inputs, models a fully developed bushfire. Therefore, a 'significant' slope is one that will significantly influence bushfire behaviour. To be 'significant' the length of the slope must be 'sufficient' to support a fully developed fire on that slope. The angle of a significant slope could be the determined effective slope for the area of classified vegetation if it is the one that 'most influences the bushfire attack'.

Sufficient Slope Length: Is a slope that will, as a minimum, allow the entire flame depth (flaming zone) of a fully developed fire (100m flame width) to exist on that slope.

The expected flame depth of a fully developed bushfire is a function of the length of time the flaming phase will exist on a section of the fuel bed (the 'residence time') and the bushfire's 'rate of spread'. For a given rate of spread, longer residence times result in greater flame depths. Greater flame depths are correlated with greater flame temperatures and greater flows of radiant heat.

The primary factors that will increase the residence time are:

- Heavier fine fuel loads of grass, leaf litter, twigs, bark etc less than 6mm in width and existing within the surface and near surface layers (and elevated fuel layers when contiguous with the base layers); and
- A greater percentage of larger fine fuels within the fuel load.

The primary factors that increase the rate of spread (apart from fire weather factors), include finer fuels, drier fuels, horizonal continuity of fuel and steeper upward ground slope in the direction of fire travel.

Example values:

- Residence Time: Grassfire 5 – 15 seconds, Forest fire 25 -50 seconds.
- Rate of Spread: Grassfires of a few km/hr are considered fast moving, 5-10 km/hr is common and fastest in the order of 25km/hr. Forest fire typically recorded in metres/hour with 1-1.5 km/hr being considered fast moving and fastest in the order of 3–4 km/hr.
- Flame Depth: More typically, a few metres for grasses to tens of metres for forest fires.

An Isolated Slope: For scenarios where there is a single significant slope (based on the above criteria) additional consideration would need to be given to the time and distance consumed by a bushfire still in its 'developing' phase. This will require due consideration be given to how it is potentially ignited i.e., from a single or multiple points, as this will influence the time and distance required to fully develop. For such scenarios, a normally significant slope may not be sufficiently long. It may be necessary to determine the potential bushfire impact more accurately by

justifying the application of a lesser effective slope, or a lower threat vegetation classification, or calculating a reduced head fire width (using short fire run modelling).

Determined Effective Slope: Only a 'significant' slope can potentially be the effective slope by itself. In which case, for a defined area of classified vegetation area, the worst significant slope under that vegetation is to apply.

The table below presents Bushfire Prone Planning's considerations applied to assessing short and/or compound slopes in determining the effective slope.

Slope Length (m)	Considered a Significant Slope	Considerations in Determining the Effective Slope
< 5	No	Where these short slopes exist as part of a compound slope under an area of classified vegetation, they can be ignored as they will not influence the fire behaviour in that vegetation.
5-20	Will Vary	These slopes will have a range of influence on fire behaviour from very little to a degree of influence that must be accounted for to some extent by the effective slope value that is applied (i.e., with a greater length - apply to a greater extent). But the actual slope of these shorter slopes is less likely to be applied as it is not a 'significant' length.
20-30	Possibly - Likely	The same considerations applied to the 5-20m slope lengths should be applied here. However, more justification would need to be presented to support an assessment of not 'significant'. For these slope lengths, consideration must be given more broadly to the potential level of risks associated with a bushfire event in this location. The risk level will be a function of the bushfire hazard threat levels (direct attack mechanisms) within the immediate and broader assessment area as influenced by local topography, vegetation extents and types and the exposure and vulnerability of persons and/or buildings/structures to these threats. Higher consequent risk levels require greater precaution meaning these length slopes should be considered 'significant', and vice versa. Consider the potential for a bushfire on adjoining or nearby land be a source of ignition and/or pre-heating to vegetation on the subject slope. Consider if vegetation on the slope is likely be ignited by a single ignition point or is multipoint ignition possible from bushfire an adjoining slopes or the surrounding area. Single point ignition will require a fire to travel further before being fully developed (DFES considers less than 100m fire runs may be considered a short fire run for forest, woodland and scrub vegetation classifications, RFS NSW applies 150m). Isolated slopes of this length are less likely to be considered significant as compared to when part of a compound slope.
>30	Yes	Likely to always be a significant slope unless isolated (i.e., exists alone) – in which case, justifying the application of a lesser effective slope, or a lower threat vegetation classification, or calculating a reduced head fire width, are approaches that may justifiably be applied.

BPP Approach - Slope Variation Within Areas of Vegetation

When multiple 'significant' slope lengths with large differences in degrees of effective slope (or different applicable slope ranges when AS 3959:2018 Method 1 is applied), exists under a single vegetation classification, these will be delineated as separate vegetation areas of classified vegetation to account for the difference in potential bushfire behaviour and impact, in accordance with AS 3959:2018 clauses 2.2.5 and C2.2.5.

Effective Slope Variation Due to Multiple Development Sites

When the effective slope, under a single area of bushfire prone vegetation, will vary significantly relative to multiple proposed development sites (exposed elements), then the effective slopes corresponding to each of the different

locations, are separately identified. The relevant (worst case) effective slope is determined in the direction corresponding to the potential directions of fire spread towards the subject building(s).

AS 3959:2018 EFFECTIVE SLOPE DETERMINATION - GUIDANCE

The Standard presents a broad set of guidance statements that indicate the intent of deriving an effective slope value for use in calculations, rather than detailing the 'in the field' determination process. These include:

- Highlighting the importance of the value by stating "The slope of the land under the classified vegetation has a direct influence on the rate of fire spread, the severity of the fire and the ultimate level of radiant heat flux" (Clause C2.2.5). [Note: A common rule of thumb is that for every 10 degrees of upslope, a fire will double its rate of spread if moving in the direction of the prevailing wind].

- "It may be necessary to consider the slope under the classified vegetation for distances greater than 100 m in order to determine the effective slope for that vegetation classification) … (i.e. the vegetation within 100 m) (Clause C2.2.5).

- "Where there is more than one slope within the classified vegetation, each slope shall be individually assessed, and the worst case Bushfire Attack Level shall apply" (Clause 2.2.5).

NSW RFS 2019, PLANNING FOR BUSHFIRE PROTECTION - APPENDIX A1.5 - ADDITIONAL DETERMINATION GUIDANCE

- "In identifying the effective slope - it may be found that there are a variety of slopes covering different distances within the vegetation. The effective slope is considered to be the slope under the vegetation which will most significantly influence the bushfire behaviour for each aspect. This is usually the steepest slope. In situations where this is not the case, the proposed approach must be justified".

- "Vegetation located closest to an asset may not necessarily be located on the effective slope".

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

The effective slopes determined from the site assessment are recorded in Table 3.2 of this Bushfire Management Plan.

Additional explanation and justification is not required.

A1.4: SEPARATION DISTANCE

Measuring

The separation distance is the distance in the horizontal plane between the receiver (building/structure or area of land being considered) and the edge of the classified vegetation (AS 3959:2018, clause 2.2.4)

The relevant parts of a building/structure from which the measurement is taken is the nearest part of an external wall or where a wall does not exist, the supporting posts or columns. Certain parts of buildings are excluded including eaves and roof overhangs.

The edge of the vegetation, for forests and woodlands, will be determined by the unmanaged understorey rather than either the canopy (drip line) or the trunk (AS 3959:2018, clause C2.2.5).

Measured Separation Distance as a Calculation Input

If a separation distance can be measured because the location of the building/structure relative to the edge of the relevant classified vegetation is known, this figure can be entered into the BAL calculation. The result is a determined BAL rating.

Assumed Separation Distance as a Calculation Input

When the building/structure location within the lot is not known, an assumed building location may be applied that would establish the closest positioning of the building/structure relative to the relevant area of vegetation.

The assumed location would be based on a factor that puts a restriction on a building location such as:

- An established setback from the boundary of a lot, such as a residential design code setback or a restrictive covenant; or
- Within an established building envelope.

The resultant BAL rating would be indicative and require later confirmation (via a Compliance Report) of the building/structure actual location relative to the vegetation to establish the determined BAL rating.

Separation Distance as a Calculation Output

With the necessary site specific assessment inputs and using the AS 3959:2018 bushfire modelling equations, the range of separation distances that will correspond to each BAL rating (each of which represents a range of radiant heat flux), can be calculated. This has application for bushfire planning scenarios such as:

- When the separation distance cannot be measured because the exact location of the exposed element (i.e., the building, structure or area), relative to classified vegetation, is yet to be determined.

  In this scenario, the required information is the identification of building locations onsite that will correspond to each BAL rating. That is, indicative BAL ratings can be derived for a variety of potential building/structure locations; or

- The separation distance is known for a given building, structure or area (and a determined BAL rating can be derived), but additional information is required regarding the exposure levels (to the transfer of radiant heat from a bushfire), of buildings or persons, that will exist at different points within the subject site.

The calculated range of separation distances corresponding to each BAL rating can be presented in a table and/or illustrated as a BAL Contour Map – whichever is determined to best fit the purpose of the assessment.

For additional information refer to the information boxes in Section 3 'Bushfire Attack Levels (BAL) - Understanding the Results and Section 3.2. 'Interpretation of the BAL Contour Map'.

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

For the subject development/use the applicable separation distances values are derived from calculations applying the assessed site data. They are an output value, not an input value and therefore are not presented or justified in this appendix.

The derived values are presented in Section 3, Table 3.1 and illustrated as a BAL contour map in Figure 3.2.

APPENDIX B: GUIDANCE – BUSHFIRE ATTACK LEVELS AND ASSET PROTECTION ZONES

B1: Understanding Bushfire Attack Level (BAL) Ratings

BUSHFIRE ATTACK LEVEL

IMPORTANT

It is not the purpose of this 'planning' BMP to derive a 'determined' BAL rating (and associated minimum APZ dimensions), that will apply to an existing or future habitable or specified building, for the purpose of establishing its bushfire resistant construction requirements in accordance with the Building Code of Australia (contained in the NCC).

However, in limited situations a 'determined' BAL can be an incidental outcome of the planning assessment.

BUSHFIRE ATTACK LEVEL (BAL)

The potential transfer (flux/flow) of radiant heat from a bushfire to a receiving object is measured in kW/m^2. The AS 3959:2018 Bushfire Attack Level (BAL) determination methodology establishes the ranges of radiant heat flux that correspond to each bushfire attack level.

These ranges of radiant heat transfer are titled BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ.

For certain classes of building/structure the bushfire performance requirements and the associated deemed to satisfy solutions are established by the Building Code of Australia (Vol. 1 & 2 of the NCC). For most jurisdictions the relevant building classes are 1, 2, 3, 9 and associated 10a.

The assessed BAL rating that applies to a specific building/structure determines the bushfire resistant construction requirements for those works in accordance with AS 3959:2018 - *Construction of buildings in bushfire prone areas,* or for Class 1 buildings, the NASH Standard – *Steel framed construction in bushfire areas (NS 300 2021),* as the recognised deemed to satisfy solutions.

DETERMINED BAL RATINGS

A BAL can only be classed as 'determined' and therefore apply to an existing or future building/structure when:

1. The building/structure final design and position on the lot are known and the stated separation distance from classified bushfire prone vegetation exists and can justifiably be expected to remain in perpetuity; or

2. The building/structure will always remain subject to the same BAL regardless of:

    (a) The retention of all existing classified vegetation either onsite or offsite; and

    (b) Its design or position on the lot - including, as relevant and necessary, accounting for any regulatory or enforceable building setbacks from lot boundaries (i.e. R-codes, restrictive covenants and defined building envelopes).

Consequently, a BAL Certificate may be able to be issued for a BAL stated in the BMP when it can be considered 'determined'. However, this is not the typical outcome but an incidental one.

If the BMP can derive determined BAL(s), the BAL Certificate(s) required for submission with building applications could potentially be provided, using the BMP as the supporting assessment data.

INDICATIVE AND CONDITIONAL BAL RATINGS

An 'Indicative BAL' indicates the highest BAL rating that exists for the applied set of parameters that have been applied to the site's assessment. Because the potential remains for these parameters to be varied, they are unable to be considered a 'determined' BAL.

A 'Conditional BAL' establishes the BAL rating that will be considered as a 'Determined BAL' once the stated requirements (i.e. the conditions), which may require approval by the relevant authority, are implemented and subsequently confirmed as being met.

Relevant conditions that may need to be met include:

- The location of future development sites being identified accurately and/or modified; and/or
- Classified vegetation being modified or removed (after obtaining any required approvals from the relevant authority), to establish the required vegetation separation distances.

A BAL Certificate cannot be issued for an indicative or conditional BAL rating – only for a 'Determined BAL'.

BAL RATINGS FOR BUILDING VERSUS PLANNING PURPOSES – ASSESSMENT & REPORTING REQUIREMENTS ARE DIFFERENT

Building Permit Applications

The relevant requirements are established in accordance with the WA Building Act 2011 and Building Regulations 2012 which reference the application of the Building Code of Australia (within the National Construction Code).

The required BAL rating is a 'determined' BAL rating (stated on a BAL Certificate) and supported by the requisite assessment details. Typically, this will be a Bushfire Attack Level (BAL) Report produced specifically for this purpose.

The required supporting assessment information may be derived from a Bushfire Management Plan (BMP) when a 'determined' BAL can be derived for a planning proposal. This is possible when the specific conditions discussed under 'Determined BAL Ratings' above, can be met, as an incidental outcome.

Planning Proposal Applications

The relevant requirements are established in accordance with the Planning and Development Act 2005, LPS Regulations 2015, SPP 3.7 Bushfire and the associated Guidelines.

To comply with the relevant acceptable solutions contained in the Guidelines, the subject planning proposal must demonstrate that the required minimum sized asset protection zone (APZ) - subject to location constraints and allowances established by the Guidelines - can be installed surrounding a habitable or specified building.

The minimum dimensions are those that ensure the potential radiant heat impact on the relevant buildings does not exceed 29 kW/m^2 from fire in any surrounding types of classified vegetation. This is the upper limit of the range of radiant heat flux corresponding to the BAL-29 rating.

Consequently, the BAL ratings identified in a Bushfire Management Plan (BMP) only need to be 'indicative' - although 'determined' ratings may be derived as an incidental outcome when relevant conditions are met (discussed under 'Determined BAL Ratings' above).

The indicative BAL-29 dimensioned APZ is not necessarily the APZ that will be required to be implemented and maintained surrounding any subject building/structure that exists as per an approved planning proposal. Refer to Appendix B3 in this BMP for additional information.

B2: BAL Contour Map Interpretation

THE BAL CONTOUR MAP

The Bushfire Attack Level (BAL) contour map is a diagrammatic representation of the outcome of the bushfire attack level assessment that has been conducted.

The map presents six shaded radiant heat contours extending out from each area of classified vegetation. Each coloured contour represents a different BAL rating (BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ) and corresponds to a set range of potential radiant heat transfer (kW/m^2), in accordance with AS 3959:2018 BAL determination methodology.

The highest BAL rating contour that an exposed element (building, person or other defined element), is partly or fully located within, is the BAL rating that will apply to that element.

The width of each BAL contour:

- Will vary dependent on the BAL rating it represents; and
- The assessed potential bushfire behaviour that considers site specific vegetation types, fuel loads, ground slopes and fire weather; and
- Represents the minimum and maximum vegetation separation distances corresponding to the BAL rating it represents.

For 'post development' BAL contour maps, the areas of classified vegetation applied to the production of the BAL contours, are those that will remain at the intended end state of the subject development once earthworks, clearing and/or landscaping and/or re-vegetation have been completed.

IMPORTANT

A BAL contour map is typically constructed for planning assessment and application purposes rather than building permit application purposes.

The BAL ratings identified from a BAL contour map will likely only be 'indicative' of what can be achieved – with planning compliance for this factor being satisfied when BAL-29 is indicated.

However, future building works require a 'determined' BAL rating for building permit applications and a BAL Certificate. The required 'determined' BAL rating is not necessarily able to be derived from the BAL contour map. There are only limited scenarios where this is possible. Refer to Appendix B1 and B3 for additional information.

Consequently, a subsequent assessment of the site data and associated report for building application purposes may be required to determine the BAL rating that is to apply for building purposes. Note: If approval from the relevant authority needs to be obtained for native vegetation modification and/or removal this also establishes that a subsequent assessment and report will be required.

B3: The Asset Protection Zone (APZ)

THE APZ – DESCRIPTION, TECHNICAL REQUIREMENTS AND DIMENSIONS

DESCRIPTION AND PURPOSE

An asset protection zone (APZ) is an area surrounding a habitable or specified building that is:

- Not vegetated; and/or
- Supports retained or planted vegetation that can be considered to present a low bushfire threat as a result of;
    - Low flammability and/or higher moisture content characteristics; and/or
    - Minimal fuel loads (either naturally or as a result of continual maintenance).

The primary objectives of establishing an APZ are:

1. To ensure a reduction in the exposure of the building/structure to the bushfire direct attack mechanisms (threats) of flame contact, radiant heat transfer and ember attack, by establishing appropriate separation distances from each identified area of classified vegetation.

   These distances are measured from the nearest part of an external wall and/or the supporting posts of building parts without external walls; and
2. To ensure a reduction in the exposure of the building/structure to bushfire indirect attack mechanisms (threats) by:
    - Preventing surface fire spreading to the building/structure;
    - Minimising the potential for tree strike that can decrease building/structure resilience to bushfire direct attack mechanisms; and
    - Limiting the potential for consequential fires to impact the building/structure by eliminating, reducing, moving away and/or shielding consequential fire fuels.

      These fuels include accumulated debris, stored combustible/flammable items and constructed combustible items. Note that consequential fire, typically ignited by embers, is the primary cause of building loss in a bushfire event; and
3. To provide a defendable space for firefighting activities.

TECHNICAL REQUIREMENTS

Established by the Guidelines

The relevant technical requirements for an APZ are established in the Planning for Bushfire Guidelines (DPLH/WAPC) (as amended), Appendix B2: Siting and design and available online at Planning WA - SPP 3.7 Bushfire

Established by the Relevant Local Government

Certain LGA may state technical requirements to be complied with that vary from and/or are additional to those established by the Guidelines.

Refer to the notice issued annually by the relevant local government under s33 of the Bushfires Act 1954 (e.g. Bushfire Risk Reduction Notice or Firebreak and Hazard Reduction Notice etc). These technical requirements may also be established by their gazetted local planning scheme. Refer to the ratepayer notice and/or the local government's website for the current version.

Information Published by the Bushfire Centre of Excellence (DFES)

The book titled Firewise Gardening in Western Australia (2024), is a good source of relevant information and is available online at https://dfes.wa.gov.au/hazard-information/bushfire/bcoe#bushfire-resources.

DIMENSIONS

The dimensions of the APZ that will be the responsibility of a landowner to implement and/or maintain around a habitable or specified building/structure, are stated as the separation distances between these buildings and each identified area of classified vegetation. These distances will be site specific and dependant on variables which include:

- The potential bushfire behaviour in the identified vegetation which is dependent on factors including vegetation types, fuel loads, ground slopes and fire weather;
- The intended use of the site, with vulnerable uses requiring greater safety margins; and
- The constructed bushfire resistance of the subject building/structure (typically corresponding to a BAL rating or kW/m^2 level of radiant heat exposure).

Dimensions Established by the BAL Rating of the Subject Building/Structure

These minimum separation distances, to be installed and maintained, correspond to a 'determined' BAL rating and align the building's applied level of bushfire resistant construction to its potential level of exposure to flames, radiant heat and embers from the bushfire (note: this will not account for any exposure from significant consequential fires closer to the building).

The dimensions should be stated within a Bushfire Attack Level Report (BAL Report) produced for building application purposes. They may also be identified in an associated Bushfire Management Plan (BMP) produced for planning application purposes.

Dimensions Established by the Guidelines, DPLH/WAPC for an On-site Shelter for a Vulnerable Tourism Land Use

For the stated specific use, the Guidelines specify the maximum level of radiant heat exposure allowed. Consequently, the BMP produced for planning application purposes will state the minimum distances that are to be installed and maintained.

> *Note: Other than for the above use, the Guidelines do not establish the dimensions of the APZ for other buildings/structures that must be installed. They only establish that at least a BAL-29 dimensioned APZ should be the minimum that is installed and ensures that this is possible for the subject planning proposal. Consequently, the BMP can only indicate the separation distances corresponding to different levels of radiant heat exposure. Refer also to Appendix B1 in this BMP.*

Dimensions Established by this BMP

The required dimensions may be identified in this BMP when specific increased separation distances have been applied through the application of an outcomes-based assessment that requires this as an additional protection measure.

Dimensions Established by the BCA (NCC 2022) for Certain Class 9 Vulnerable Use Buildings

These separation distances are stated in the BCA in Specification 43 as either:

- Not less than the minimum distances specified in Table S43C2; or
- Those corresponding to radiant heat flux on exposed building elements not exceeding 10kW/m² from a justified design bushfire analysis; or
- Those justified as an outcome of a building performance solution.

The separation distances may be included in the BMP by the bushfire practitioner as additional information to inform proponents and decision makers. They are not addressed by the Guidelines and therefore not a required part of the bushfire assessments presented within a BMP for planning application purposes.

Dimensions Established by a Local Government

To satisfy certain local government requirements, required APZ dimensions may be stated in the notice issued annually by the relevant local government under s.33 of the Bushfires Act 1954. These may be greater than the dimensions applied by the above mechanisms. A maximum APZ dimension could also be applied by the LGA.

These separation distances may be included in the BMP for informative purposes, but they are not a requirement for a BMP submitted for planning application purposes in accordance with the Guidelines.

B4: Vegetation Excluded from Classification – Ensure Continued Low Threat Status

MAINTAINING THE LOW THREAT STATUS OF EXCLUDED VEGETATION

When applying AS 3959:2018 BAL determination methodology, vegetation adjoining or adjacent to the subject site can be excluded from classification based on being a 'low bushfire threat'. To maintain this status, certain requirements must continue to be met in accordance with the below extract from AS3959:2018. Refer to the 'Classified Vegetation and Topography Map' for the relevant low threat areas associated with the subject site.

Determination of 'low threat' vegetation is based on factors such as - proximity to the subject site / small areas of vegetation / low flammability / higher moisture content / low fuel load.

Aside from a naturally occurring low fuel load, vegetation maintained in a minimal fuel condition through active management can be excluded. The associated key requisite is that the active management can be expected to continue in perpetuity, and this can be adequately justified.

Acceptable forms of justification typically involve supportable evidence or the existence of an enforceable mechanism. Examples of enforceable mechanisms include:

- Requirements established by a Section 33 (Bush Fires Act 1954) notice issued by a local government;
- An appropriate and enforceable agreement between relevant parties (which may involve additions to land titles); and
- For public open space or crown land, written evidence that the land manager e.g. local government or a State Government department, agrees to maintain the designated area of land in a low threat state in perpetuity.

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 100 m from the site.

(b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified vegetation.

(c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified vegetation.

(d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m 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 the bushfire attack (recognizable as short-cropped grass for example, to a nominal height of 100 mm).

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.

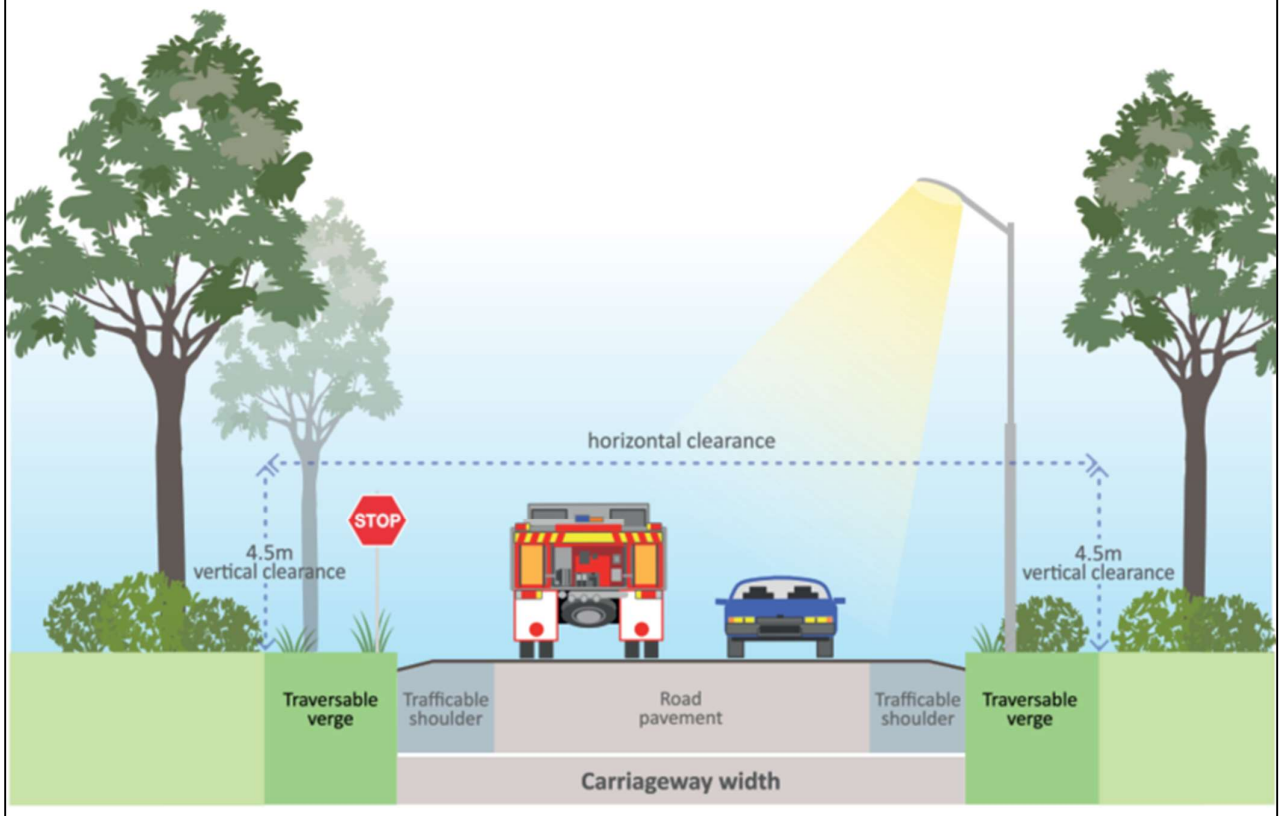
APPENDIX C: GUIDANCE - TECHNICAL REQUIREMENTS FOR VEHICULAR ACCESS

The relevant technical requirements are established in the Planning for Bushfire Guidelines (DPLH/WAPC) (as amended), Appendix B3: Vehicular access and available online at Planning WA - SPP 3.7 Bushfire

The following excerpts are presented here as a quick reference to applicable terminology and design requirements applied in the assessment against the bushfire protection criteria, Element 3: Vehicular access in this BMP.

C1: Road Component Terminology

Figure 26: Area encompassing horizontal clearance and vertical clearance



Horizontal clearance: The carriageway width (including the road pavement and trafficable shoulder) and traversable verge that provides for the movement and parking of vehicles and area required by emergency services to operate. Infrastructure and vegetation within the traversable verge should be frangible, however, non-frangible items can occur providing they do not restrict vehicular movement in the event of an emergency.

C2: Vehicular Access Technical Requirements

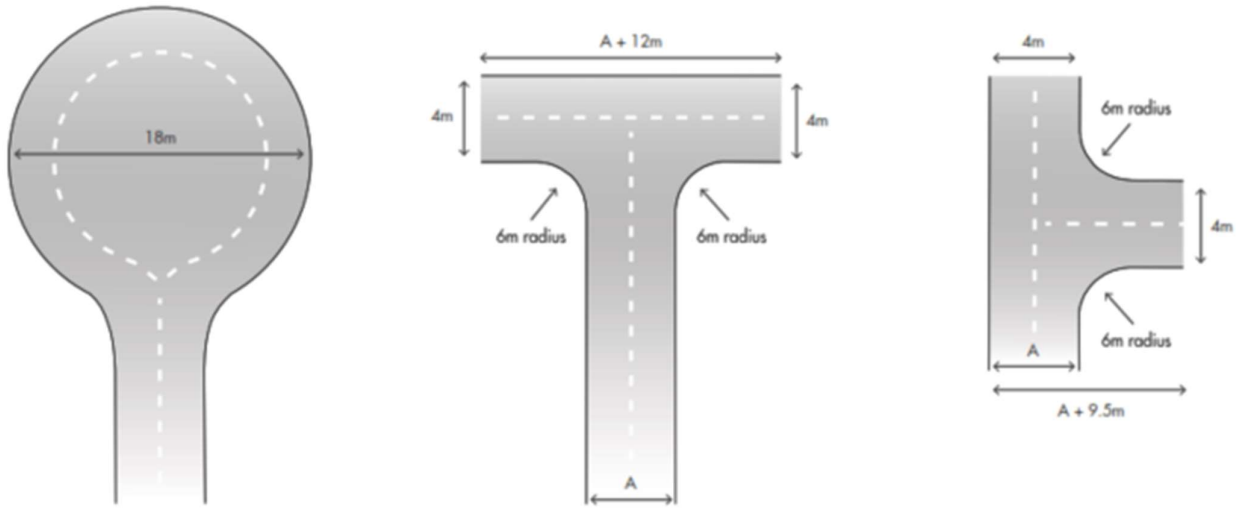
Table 10: Vehicular access technical requirements

	1		2		3		4		5	
TECHNICAL REQUIREMENTS	**PERIMETER ROADS**		**PUBLIC ROADS**		**EMERGENCY ACCESS WAY[3]**		**FIRE SERVICE ACCESS ROUTE[3]**		**BATTLE-AXE & PRIVATE DRIVEWAYS[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 (metres)	12	8	See note 5		10	6	10	6	6	
Minimum vertical clearance (metres)	4.5									
Minimum weight capacity (tonnes)	15									
Maximum grade unsealed road[2]	See note 5		See note 5		1:10 (10% or 6°)					
Maximum grade sealed road[2,4]					1:7 (14.3% or 8°)					
Maximum average grade sealed road					1:10 (10% or 6°)					
Minimum inner radius of road curves (metres)					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.

Figure 30: Design requirements for a turn-around area



APPENDIX D: GUIDANCE - TECHNICAL REQUIREMENTS FOR FIREFIGHTING WATER SUPPLY

The relevant technical requirements are established in the Planning for Bushfire Guidelines (DPLH/WAPC) (as amended), Appendix B4: Water supply and available online at Planning WA - SPP 3.7 Bushfire

The information provided in this appendix is additional to that provided in the Guidelines. It includes:

- For reticulated water supply, the hydrant location specifications established by the WA Water Corporation (Design Standard DS 63), as dependant on land use type and relevant to bushfire planning assessments (highlighted). Note: the maximum distance from a hydrant to the rear of a lot/building is generally interpreted as not applicable to large lot sizes where the maximum distance becomes an impractical limitation i.e., typically rural residential areas; and
- Images of example installations of acceptable water supply tanks and outlet fittings.

D1: Hydrant Location in Reticulated Areas

2.2.1.5 Appurtenances

c. Hydrants

Hydrants shall be screw-down hydrant with built-in isolation valve and installed only on DN100 or larger pipes. Hydrants shall be located:

- so that the maximum distance between a hydrant and the rear of a building envelope, (or in the absence of a building envelope the rear of the lot) shall be 120m;
- so that spacing (as measured by hose-run) between hydrants in non-residential or mixed use areas shall be maximized and no greater than 100m;
- so that spacing (as measured by hose-run)between hydrants in residential areas with lots per dwelling <10,000m^2 shall be maximized and no greater than 200m;
- so that spacing between hydrants (as measured by hose-run) in rural residential areas where minimum lots per dwelling is >10,000 m^2 (1ha) shall be maximized and no greater than 400m;
- centrally along the frontage of a lot to avoid being under driveways, unless the lot features a frontage 6m or less, in which case it shall be placed to the side opposite the driveway;
- at lots that have the widest frontage in the local area;
- where appropriate at the truncation of road junctions or intersections so that they can serve more than one street and can be readily located;
- on both sides of the major roads at staggered intervals where there are mains on both sides of the road;
- at major intersections on dual multi-lane roads, where two hydrants are to be sited on diagonally opposite corners;
- hydrants should be located at least 20m from traffic calming devices i.e. median slow points or chokers, chicanes, mini traffic circles, and intersection 'pop-outs' to ensure traffic is not impeded;
- in a position not less than 10m from any high voltage main electrical distribution equipment such as transformers and distribution boards, liquefied petroleum gas or other combustible storage
- directly on top of the main using a tee unless proved to be impractical

CERTIFICATION:
This drawing shall not be used for construction purposes unless Revised 0 Issued for Construction and signed and approved by the Certifying Landscape Architect. Verify all dimensions on site before commencing work or ordering materials. Refer any discrepancy to Landscape Architect before proceeding with the works.

DO NOT SCALE FROM THE DRAWING

DATE	REV	DESCRIPTION	BY	AP
07.07.25	A	ISSUED FOR INFORMATION	TK	KD
19.09.25	B	ISSUED FOR INFORMATION	KD	KD
14.10.25	C	ISSUED FOR INFORMATION	KD	KD

EXISTING APPROVED LOCAL STRUCTURE PLAN BOUNDARY

EXISTING OPEN WETLANDS (OW) NUMBERED
NO FUEL LOAD RISK AS OPEN AND PERMANENT WATER BODIES

HELENA RIVER ASSOCIATED EXISTING TREES AND VEGETATION TO BE RETAINED.
ASSUME 'FOREST' CLASSIFICATION.
WEED MANAGEMENT AND REHABILITATION PLANTING UNDER TREES TO A TOTAL OF 9.57HA.
SPECIES INCLUDE RIPARIAN AND REHABILITATION

FURTHER EXISTING TREES AND VEGETATION TO BE RETAINED. IDENTIFIED FROM CURRENT AERIAL IMAGERY

EXISTING TREES SURVEYED AND IDENTIFIED TO BE PROTECTED AND RETAINED

RED ASPHALT PATHS (TO MATCH EXISTING)

NEW GREY CONCRETE PATHS

NEW TRAFFICABLE CONCRETE ACCESS PATHS

NEW GRAVEL TRAIL

IRRIGATED 'MANAGED' NATIVE SHRUB PLANTING

PERMANENTLY IRRIGATED TURF

PROPOSED REHABILITATION PLANTING TO MANAGED LANDSCAPE CLASSIFICATION – LOW FUEL GROUNDCOVERS PLANTED ON EARTHWORKED BATTER (1:4 TO 1:6 GRADIENT SLOPE)

EXISTING NATURAL DEPRESSION THAT SEASONALLY HOLDS WATER (FROM JULY 2025 MNG AERIAL)

PROPOSED SEASONAL WETLAND (SW)
BIO-RETENTION AREA OR WETLAND SYSTEM NUTRIENT STRIPPING PLANTING.
APPROX 300MM–500MM DEPTH STORM WATER STORAGE (WHERE BASIN),
NATIVE SEDGE PLANTED TO 1M HEIGHT AT MATURITY – MANAGED
APPROXIMATELY 1.22HA TO BE PLANTED REFER TABLE 5 FOR SPECIES LIST

ROBINSON GROVE
PREPARED FOR SATTERLEY

LSP2
LANDSCAPE MASTER PLAN DRAWING

JOB NO. 2409103 M1.101 REV C OCT 2025

1:2500 @ A1

0 50 100 150 250m

LANDSCAPE ARCHITECTS
L1, 278 RAILWAY PDE, WEST LEEDERVILLE, WA 6007
T: (08) 9388 9566 E: mail@plane.com.au
LANDSPACE PTY LTD ACN 056 538 679

FILE LOCATION: L:\PROJECTS\2024 PROJECTS\24091 ROBINSON GROVE\2409103 ROBINSON GROVE LSP2\PROJECT\P5 DRAWINGS\CONCEPTS\ACAD\2409103 ROBINSON GROVE LSP2 (G).DWG

PLOTTED BY: KDAWSON

PLOT DATE: 27/10/2025 8:35:25 AM