Bushfire Management Plan Coversheet

Site address:	Lots 253 and 254 Helena Valley Road, Helena Valley						
Site visit / date:	Yes	✓	No		17 September 2025		
Report author or reviewer:	Kathy Nastov						
Not accredited		Level 1 BAL assessor		Level 2 practitioner		Level 3 practitioner	✓
BPAD accreditation number:	27794	Accreditation expiry – month / year		August		2026	
Bushfire Management Plan - version / date:	V1.0	17 December 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.

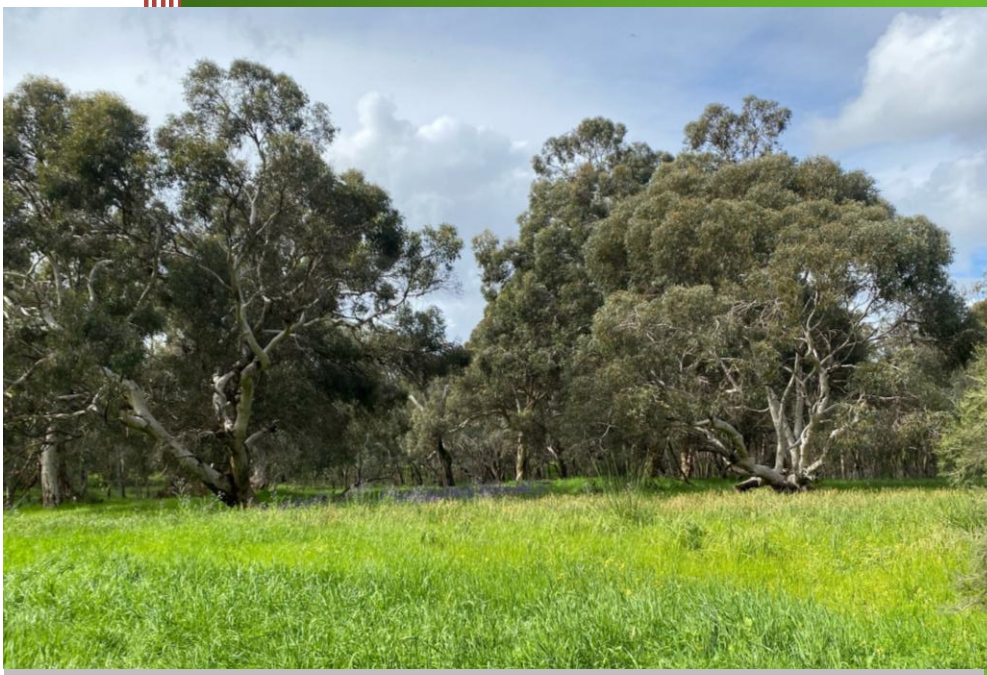
The information provided within this bushfire management plan, to the best of my knowledge, is true and correct:

Dated signature of report author or reviewer:		17 December 2025

BUSHFIRE PRONE PLANNING

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

Lots 253 and 254 Helena Valley Road, Helena Valley

Shire of Mundaring

Subdivision Application

17 December 2025

Job Reference No: 250711

BPP GROUP PTY LTD T/A BUSHFIRE PRONE PLANNING

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

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DOCUMENT CONTROL

PREPARATION		
Author:	Tessa Ferreira	
Reviewed:	Kathy Nastov (BPAD Level 3 No. 27794)	

VERSION HISTORY		
Version	Status/Details	Date
1.0	Original	17 December 2025

DISTRIBUTION					
Destination		Version	No. Copies	Hard Copy	Electronic Copy
Person	Email				
Luka Martins	luka@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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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.

EXECUTIVE SUMMARY

The Bushfire Management Plan (BMP) for Lots 253 and 254 Helena Valley Road, Helena Valley Structure Plan Concept outlines the relevant measures at this stage of the planning process to mitigate bushfire risk within the subject site.

Covering an area of approximately 7.3 hectares, the site currently consists of rural living landholdings. The land has been rezoned under the Metropolitan Region Scheme (MRS) to facilitate urban development.

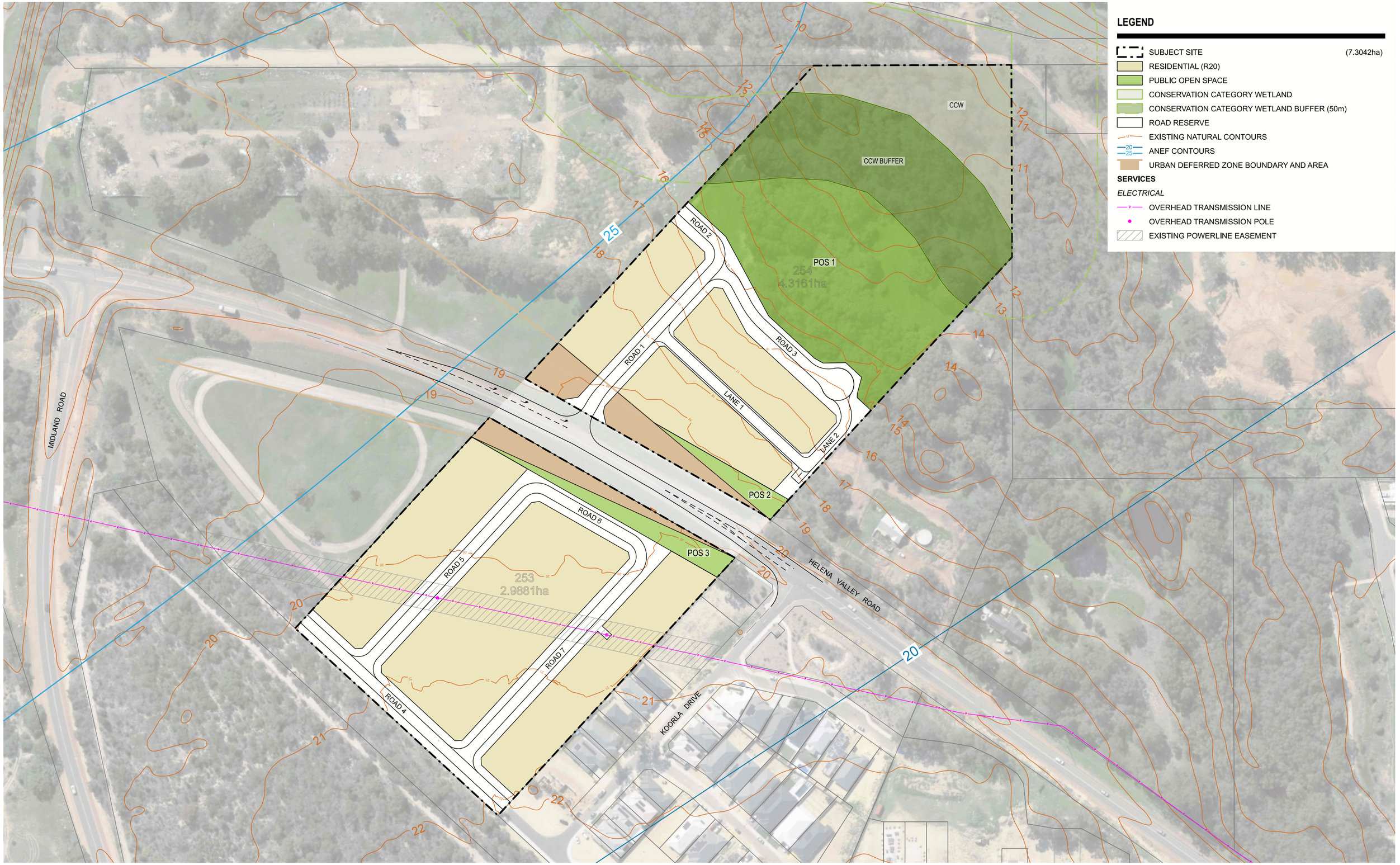
This BMP has been developed to help balance the protection of environmental values with the need for effective bushfire risk management as part of the Structure Plan submission. The BMP is a critical component of the broader planning framework, ensuring that Helena Valley develops into a safe and resilient community.
The measures proposed will reduce the bushfire risk to life and property, including embedding separation distances into the Structure Plan layout, establishes expectations regarding maintaining landscaped areas to a low threat state and revegetation within the Foreshore of the Helena River.

The BMP demonstrates that the Structure Plan design balances urban growth with bushfire risk mitigation treatment, ensuring the subsequent stages of planning development are capable of complying with relevant bushfire risk management standards with careful design considerations.

1 THE PLANNING PROPOSAL

1.1 Details, Plans and Maps

SUBJECT LAND AND PROPONENT (LANDOWNER)		
Address Details	Lot 254, 335 Helena Valley Road HELENA VALLEY Lot 253, 330 Helena Valley Road HELENA VALLEY	
Applicable Local Government	Shire of Mundaring	
Proponent	Jardim Property	
Entity Commissioning Production of the BMP	Luka Martins – TBB Planning	
THE PLANNING PROPOSAL STAGE AND TYPE		
Strategic Planning Document	☑	Local Structure Plan that is subject to bushfire planning requirements, and where the lot layout and/or internal road network is not known.
Structure Plan	☐	N/A
Subdivision Application	☐	N/A
Development Application	☐	N/A
DESCRIPTION		
Local Structure Plan will guide the subdivision of the subject land, and designates cells for Residential Area (R20), Public Open Space Areas, and a Conservation Category Wetland and associated Buffer. While the road layout is envisaged, this BMP represents a strategic assessment of the proposal.		



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tbbplanning.com.au

Scale
1:2000@A3
1:1000@A1

0 10 20 30 40

N

Date
26/11/2025

Plan
25/031/002A

Grid
PCG 2020

Drawn
MH

Approved
BDM

Structure Plan Concept

LOTS 253 & 254 HELENA VALLEY ROAD, HELLENA VALLEY

Figure 1.2

Proposed Development

Lot 254 on Plan 413196, Area : 4.3161 ha
335 Helena Valley Rd

Lot 253 on Plan 413196, Area : 2.9881 ha
330 Helena Valley Rd
HELENA VALLEY
SHIRE OF MUNDARING

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

- Subject Site
- Cadastral
- Hydrants
- Proposed New Roads

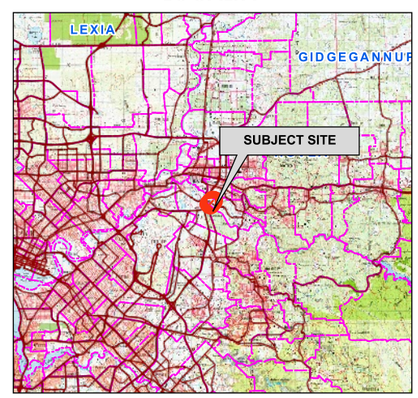
Proposed Structure Plan Cells

- Residential (R20)
- Public Open Space
- Urban Deferred Zone
- Road Reserve
- Conservation Category Wetland Buffer
- Conservation Category Wetland

0 20 40 60 80 100

Metres

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



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Tessa Ferreira 17-12-2025
SCALE (A3): 1 : 1800

BUSHFIRE PRONE PLANNING

Figure 1.3

Location Map

Lot 254 on Plan 413196, Area : 4.3161 ha
335 Helena Valley Rd

Lot 253 on Plan 413196, Area : 2.9881 ha
330 Helena Valley Rd
HELENA VALLEY
SHIRE OF MUNDARING

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

- Subject Site
- Reserves
- Bush Forever Sites

DBCA Legislated Lands and Waters (DBCA-011)

- Crown Freehold - Dept Managed
- National Park
- Nature Reserve
- Section 5(1)(g) Reserve

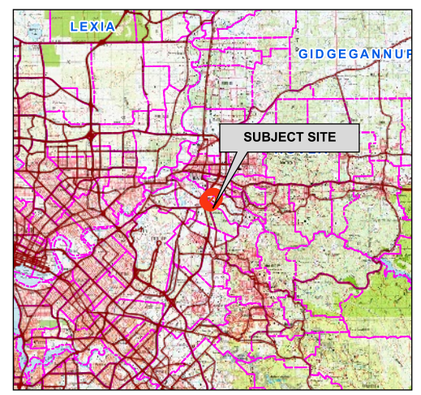
DFES Stations (DFES-023)

- Career Fire Rescue Service

2400 0 2400 4800

Metres

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



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Tessa Ferreira 17-12-2025
SCALE (A3): 1 : 20000

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 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).	No
AND		
3	THE PLANNING PROPOSAL IS A:	
	(Source: SPP 3.7, Part 4) A strategic planning proposal for which the subject site is within the designated Area 2 on the Map of Bushfire Prone Areas and is exposed to a Bushfire hazard Level above LOW from vegetation on and/or external to the site. [note: there is no requirement for strategic planning proposals within BPA Area 1 (Urban) to apply SPP 3.7.]	

Assessment Supporting Details:

None required.

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.	No
(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: No exemptions apply.	

Figure 1.4

Bushfire Prone Area

Lot 254 on Plan 413196, Area : 4.3161 ha
335 Helena Valley Rd

Lot 253 on Plan 413196, Area : 2.9881 ha
330 Helena Valley Rd
HELENA VALLEY
SHIRE OF MUNDARING

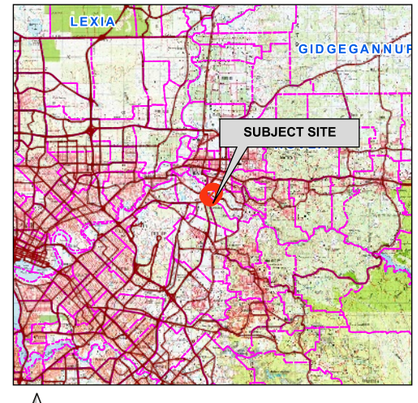
------ LEGEND ------

- Subject Site
- Bushfire Prone Areas 2024
- Cadastral
- Hydrants
- Proposed New Roads

0 20 40 60 80 100

Metres

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



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Tessa Ferreira 17-12-2025
SCALE (A3): 1 : 2200

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	N/A	Yes	Structure Plan Concept Lots 253 & 254 Helena Valley Road, Helena Valley by TBB Planning
Implications for the BMP: The Site Plan which the BMP applies. This BMP has been specifically developed to support the proposed Structure Plan and provide a framework for addressing bushfire risks associated with the design. As there is no previously approved Structure Plan for this site, the outcomes of this BMP are based entirely on the design proposed in this application. The Structure Plan, as presented in Figure 1.2, serves as the foundation for the assessments and recommendations contained in this BMP. The layout, land use areas, and proposed vegetation management outlined in the Structure Plan have been analysed to determine the required measures for maintaining compliance with State Planning Policy 3.7 (SPP 3.7) and the associated Guidelines. This BMP assumes the implementation of the proposed Structure Plan as designed, emphasising the need for ongoing coordination between development activities and bushfire mitigation measures. Any significant alterations to the Structure Plan, or subsequent subdivision plans will trigger a review of this BMP (or fresh BMP) to ensure alignment with updated bushfire risk parameters and mitigation strategies.					
Bushfire Management Plan	Yes	Yes	N/A	Yes	Helena Valley Bushfire Management Plan (Bushfire Hazard Level Assessment) Lots 5, 250, 253 & 254 Helena Valley Road April 2023 by Lushfire & Planning
Implications for the BMP: A strategic Bushfire Management Plan was already submitted with the Metropolitan Region Scheme (MRS) application and has been considered by the Department of Fire and Emergency Services. The strategic merit of urban expansion in this location has already been determined having regard to bushfire risk and the requirements of SPP3.7.					
Preliminary bushfire advice (may include a BAL contour map)	Yes	Yes	N/A	Yes	BAL contour map prepared by Bushfire Prone Planning
Implications for the BMP: None					
Bushfire Emergency Plan	No	No	No	N/A	-
Bushfire Risk Report	No	No	No	N/A	-
Environmental Asset or Vegetation Survey	Yes	No	Yes	No	-
Refer to Section 2.1 for details.					

Landscape Management Plan	Yes	No	No	N/A	-
Refer to Section 2.3 for details.					
Revegetation Plan	No	No	No	N/A	-

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.	Yes - Fully

An Environmental Assessment Report is being prepared alongside this Bushfire Management Plan to support the planning submission. A copy has not yet been provided to the bushfire consultant; however, environmental constraints have been discussed at a high level, and the post-development map has been prepared to reflect these constraints. As such, a detailed environmental assessment has not been undertaken as part of this BMP, as these matters will be addressed within the Environmental Assessment being prepared by Western Environmental.

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.	No Report Available / Provided

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.	Select.

Proposed Clearing:

The proposed clearing for the development will involve the removal of vegetation in areas designated for urban infrastructure, including residential lots and roads. The clearing will primarily occur in regions that have already been disturbed or modified by prior land use. The conservation wetland area, and the conservation wetland buffer and most of POS 1, are planned to retain existing vegetation. Efforts will be made to limit clearing to essential areas to minimise impact on significant ecological features. Any necessary vegetation removal will comply with environmental regulations and aim to reduce the bushfire risk, with management strategies in place to address potential impacts to retained vegetation and ecological communities.

Proposed Modification:

The proposed vegetation modification includes both retention and enhancement of existing vegetation in various parts of the site, as well as the implementation of landscaping initiatives. Key areas of native vegetation, including wetland buffers, will be retained within designated conservation and open space zones. Vegetation in other areas will be modified through strategic landscaping, particularly within public open spaces (POS) and around stormwater infrastructure like drainage basins and swales. This will involve planting low-fuel species that align with bushfire risk management objectives.

Demonstration of why the planning proposal cannot be re-designed or re-located to avoid clearing and/or modifying native vegetation.

The development proposal has already been carefully designed to minimise the impact on native vegetation while enabling the required urban development. The layout has been optimised to reduce vegetation clearing by locating infrastructure in areas previously disturbed by land use. Furthermore, significant patches of native vegetation, including wetland areas, have been retained within conservation and open space zones, ensuring their protection. Relocating or redesigning the plan would compromise the functional integrity of the urban layout and prevent efficient integration of necessary infrastructure, all while diminishing efforts to protect environmentally sensitive areas.

The planning proposal cannot be re-designed or re-located to avoid clearing and/or modifying native vegetation. The configuration of the site is constrained by the need to align with the existing road network and water easements. Furthermore, areas of native vegetation are located within critical zones designated for urban development and essential infrastructure. Additionally, the retention of vegetation within key ecological areas, such as wetland buffers, has been prioritised in the design. While efforts have been made to minimise the impact on native vegetation, it is necessary to remove or modify some areas to meet urban planning and fire management objectives. Relocating or redesigning the proposal would result in unfeasible or less efficient outcomes, both from an infrastructure and environmental management perspective.

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 proposed development has been designed with a strong focus on the conservation of native vegetation, ensuring that significant ecological areas are protected while enabling urban growth. The development reserves large portions of land for conservation, recreation, and environmental protection, including a designated conservation area located in the northern portion of the site. This conservation area includes the retention of native vegetation and a wetland buffer, which is critical for maintaining the health of the nearby wetland ecosystem and mitigating potential disturbances to water quality and wildlife. In addition to the conservation area, POS 1 will also retain a substantial portion of native vegetation, contributing to the ecological value of the development. These areas will be carefully managed to preserve their native flora while offering open space for the community. The design of the public open space (POS) areas will incorporate native species to ensure that the landscapes align with the site's natural environment.

Siting / Design / Construction Responses	
Reduction in the proposed intensification of land use or development potential.	Not considered
Assessment Supporting Details: This approach was not considered as the State has, by endorsing an MRS amendment, endorsed an increase in urban development in the locality.	
Containing or clustering areas of intensification of land use to reduce clearing requirements.	Considered and applied
Assessment Supporting Details: Key areas of intensified land use have been clustered together to minimise the extent of vegetation clearing, thereby conserving more of the native vegetation.	
Consideration of locating proposed development to have greater initial vegetation separation distances from bushfire hazards by utilising non-vegetated interfaces.	Considered and applied
Assessment Supporting Details: Development has been designed to take advantage of non-vegetated interfaces, which helps maintain necessary separation from bushfire hazards.	
Modification or redesign of the proposed areas of intensification of land use to avoid areas with high environmental, biodiversity or conservation values.	Considered and applied
Assessment Supporting Details: Efforts were made to avoid areas with significant ecological value by working development layouts to protect sensitive environmental zones, including areas of high conservation value.	
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.	Not considered
Assessment Supporting Details: The lot layout has not yet been determined.	
The proposal situates required non-vegetated elements (e.g. footpaths, paved areas, roads, parking, open drainage channels, and major services delivery installed in common corridors), between bushfire hazards and elements at risk – to effectively achieve required vegetation separation distances with less vegetation clearing and/or modification.	Considered and applied
Assessment Supporting Details: Non-vegetated elements such as roads have been strategically placed to create effective vegetation separation distances from bushfire hazards, minimising vegetation clearing.	

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: This is not applicable to the current proposal, as building envelopes are not yet defined.	
The proposal utilises the clustering habitable buildings to reduce requirements for native vegetation clearing and/or modification.	Considered and applied
Assessment Supporting Details: Clustering of habitable buildings has been employed as a strategy to minimise the need for clearing and modification of native vegetation areas.	
The proposal aligns roads and pathways to work around trees and other vegetation, preserving their ecological values.	No
Assessment Supporting Details: This was not considered in the current design.	
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: This was not considered in the current design.	

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 1 is relevant.

2.3.1 Landscape Management Plan – Low Bushfire Threat Level

<table>
<tr><th colspan="5">PLANNED LANDSCAPING – LOW BUSHFIRE THREAT LEVEL</th></tr>
<tr><td colspan="4">Assessment Details</td><td>Relevant</td></tr>
<tr><td colspan="4">The area of land that is to be subject to a Landscape Management Plan is within the subject site (onsite). This can include the balance lot of a staged subdivision.</td><td>Yes</td></tr>
<tr><td colspan="4">The area of land that is to be subject to a Landscape Management Plan is outside the subject site (offsite).</td><td>No</td></tr>
<tr><td colspan="4">The landscape management plan is a required bushfire protection measure established by the relevant acceptable solution of the bushfire protection criteria (Guidelines). [Development proposals for vulnerable land uses require a landscape management plan]</td><td>No</td></tr>
<tr><td colspan="4">The landscape plan is recommended as a bushfire protection measure by the bushfire consultant.</td><td>Yes</td></tr>
<tr><td colspan="4">The area of land subject to the landscape management plan will be excluded from classification under AS 3959 (as amended) BAL determination methodology as it will achieve and maintain a low bushfire threat state in perpetuity.</td><td>Yes</td></tr>
<tr><td colspan="4">Responsibility for Ongoing Management of the Landscaped Area</td><td rowspan="8">Yes</td></tr>
<tr><td>Landscaped Area</td><td colspan="2">Persons / Agency</td><td>A Requirement Exists for Written Authority and/or Agreement to Remove/Modify/Manage Vegetation</td></tr>
<tr><td rowspan="2">Onsite</td><td>Landowner</td><td>Yes</td><td>Yes</td></tr>
<tr><td>Local Government</td><td>Yes</td><td>Yes</td></tr>
<tr><td rowspan="4">Offsite</td><td>Landowner</td><td>N/A</td><td>N/A</td></tr>
<tr><td>Local Government</td><td>N/A</td><td>N/A</td></tr>
<tr><td>DBCA</td><td>N/A</td><td>N/A</td></tr>
<tr><td>Main Roads WA</td><td>N/A</td><td>N/A</td></tr>
<tr><td colspan="4">An approved landscape management plan and/or written confirmation exists and is provided to demonstrate that agencies responsible for the ongoing management understand and support the vegetation classification assigned to the subject area and its resulting ongoing management implications on the agency.</td><td>No</td></tr>
<tr><td colspan="4">A written authority and management agreement exists and is provided to demonstrate an arrangement between adjoining landowners as to the responsibility for establishment and ongoing management of the defined area of land subject to a Landscape Management Plan.</td><td>N/A</td></tr>
<tr><td colspan="5">Identification of the Area(s) of Land Subject to a Landscape Management Plan</td></tr>
<tr><td colspan="5">Areas labelled as POS are subject to a Landscape Management Plan (see Figure 1.1 and 1.2).</td></tr>
<tr><td colspan="5">Location of the Landscape Management Plan / Authority / Confirmation / Agreement for Reference</td></tr>
<tr><td colspan="5">N/A</td></tr>
<tr><td colspan="5">Implications for the BMP</td></tr>
<tr><td colspan="5">The landscape plan for the development plays a crucial role in defining the post-development vegetation management strategy, particularly in terms of bushfire risk. The landscape plan will need to include provisions for the management of vegetation within Public Open Spaces (POS), which are designed to maintain low fuel loads and reduce bushfire risk.

The landscape design should focus on incorporating low-flammability plant species and managing vegetation in a manner that prevents the spread of fire while preserving the ecological and environmental values of the site. As the landscape plan is not yet finalised, assumptions have been made based on preliminary designs that all POS areas will be managed with appropriate fire control measures, ensuring that they meet the required bushfire risk management standards.</td></tr>
</table>

As the landscape plan is not yet finalised, BPP has made some informed assumptions that all POS areas will be managed with appropriate fire control measures, ensuring that they meet the required bushfire risk management standards, aside from:

- A portion of POS 1 is proposed to remain in its existing condition as Class A Forest. The areas of POS 1 located within 27 metres of the proposed residential cell boundaries will be managed to a low bushfire threat to facilitate development.
- Drainage basin areas are proposed to be revegetated to achieve a Class C Shrubland classification. While the exact locations of these areas have not yet been confirmed and therefore have not been classified, it is assumed they will be located at least 9 metres from lot boundaries to ensure residential lots are not subject to BAL ratings greater than BAL-29.

See Figure 3.1.1 for assumed post development classifications.

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

3.1 Broader Landscape Assessment (BLA)

EXPLANATORY INFORMATION

SPP 3.7 cl. 6.1 establishes that strategic planning, subdivision and development should avoid broader landscapes that present an unacceptable bushfire risk to people, property and infrastructure.

A desktop assessment is conducted in accordance with the methodology established within the Guidelines Appendix A1 which:

- Examines the area external to the planning proposal and extending for a distance of approximately two kilometres;
- Shows the relevant information annotated on a scaled map; and
- Is "supported by explanatory text commensurate with the scale and complexity of the proposal and/or broader landscape".

When considering the suitability of a location for the intensification of land use or development, the BLA is a "means of quantifying the characteristics and the potential for a landscape scale bushfire in the broader landscape" and the availability of certain bushfire protection measures (i.e. road network and suitable destinations) that assist mitigate risk to persons from a bushfire event.

The BLA will identify one of the following:

1. That a 'Simplified BLA' assessment can be conducted to demonstrate compliance with BPC Element 1: Location.
2. That the broader landscape is 'Type A' and the proposal therefore achieves the required outcome of BPC Element 1: Location; or
3. That the broader landscape is 'Type B' and the proposal will not be supported unless it has demonstrated that the level of risks, to people, property and infrastructure, associated with a bushfire event in the broader landscape, is acceptable.

3.1.1 Exemption to Broder Landscape Assessment due to approvals issued prior to SPP 3.7 (2024)

A Broader Landscape Assessment is not required for this proposal based on Section 1.3.1 of the *Planning for Bushfire Guidelines* (2024), which states: "Where a strategic planning proposal, subdivision or development application was assessed against SPP3.7 (2015) and the Guidelines, the subsequent stage(s) of the planning process, or modification or addition to development approval, should demonstrate compliance with SPP3.7 (2024) and these Guidelines, **with the exception of the new methodology for Element 1: Location**" (emphasis added). As this proposal was previously assessed under SPP3.7 (2015) during the proposal to amend the Metropolitan Region Scheme, this strategic Structure Plan BMP is specifically exempt from requiring a Broader Landscape Assessment that addresses Element 1 of the Guidelines 2024.

3.2 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.

3.2.1 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

3.2.2 BAL Ratings Derived from the Contour Map

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

DETAILS OF BUSHFIRE EXPOSURE TO PROPOSED ALLOTMENTS/LAND USE ZONES						
Derived from the Application of Method 1 BAL Determination Methodology (AS 3959:2018 Section 2, Table 2.5)[1]						
Land Use Zones	BAL-FZ[2] Exposure	BAL-40[2] Exposure	BAL-29 Exposure	BAL-19 Exposure	BAL-12.5 Exposure	BAL-LOW Exposure
Residential R20	5	1				
POS	N/A					
Conservation Category Wetland Buffer	N/A					
Conservation Category Wetland	N/A					
Urban Deferred Zone	N/A					

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

[2] Land Use Zones currently subject to radiant heat levels corresponding to BAL-40 and/or BAL-FZ that require consideration for development design and location of eventual allotments and associated structures.

At this early stage, it's reasonable to conclude based upon the BAL contour that the future lots created could be sufficiently sized to accommodate buildings at BAL-29 as BAL-40 and BAL-FZ falls around the edge of the Cells. Careful consideration to lot design will be required to ensure that a sufficient developable area of BAL-29 or lower will be provided within each lot and a notification should be place on the title of lots that contain BAL-40 or BAL-FZ to ensure that buildings will not be placed within these areas.

3.2.3 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.3.2
The relevant vegetation is the classified vegetation external to the subdivision boundaries. All identified classified vegetation areas, or portions of areas, within the proposed subdivision are excluded, with the exception of the vegetation located within the Conservation Wetland, the Conservation Wetland Buffer, and POS 1. This approach is applied to indicate the achievable bushfire attack levels within the future subdivision and the resultant area of developable land on all lots where buildings will be subject to BAL-29 or less. It is based on the following assumptions: 1. Any classified vegetation within the subdivision can potentially be managed or removed by the developer and/or landowner to meet asset protection zone standards; and 2. Future development and consequent removal/management of vegetation that may take place on any adjoining land cannot be part of considerations for the subdivision.	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	Downslope >0-5	d/slope 3	-	-	-	-	-	-	-	-
2	(A) Forest	80	Upslope or flat 0	flat 0	-	-	-	-	-	-	-	-
3	(B) Woodland	80	Upslope or flat 0	flat 0	-	-	-	-	-	-	-	-
4	(D) Scrub	80	Upslope or flat 0	flat 0	-	-	-	-	-	-	-	-
5	(C) Shrubland	80	Upslope or flat 0	flat 0	-	-	-	-	-	-	-	-
6	(G) Grassland	80	Upslope or flat 0	flat 0	-	-	-	-	-	-	-	-
7	Excluded cl 2.2.3.2(e & f)	N/A	N/A	N/A	-	-	-	-	-	-	-	-

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	<20	20-<27	27-<37	37-<50	50-<100	>100	-	-
2	(A) Forest	<16	16-<21	21-<31	31-<42	42-<100	>100	-	-
3	(B) Woodland	<10	10-<14	14-<20	20-<29	29-<100	>100	-	-
4	(D) Scrub	<10	10-<13	13-<19	19-<27	27-<100	>100	-	-
5	(C) Shrubland	<7	7-<9	9-<13	13-<19	19-<100	>100	-	-
6	(G) Grassland	<6	6-<8	8-<12	12-<17	17-<50	>50	-	-
7	Excluded cl 2.2.3.2(e & f)	-	-	-	-	-	-	-	-

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 254 on Plan 413196, Area : 4.3161 ha
335 Helena Valley Rd

Lot 253 on Plan 413196, Area : 2.9881 ha
330 Helena Valley Rd
HELENA VALLEY
SHIRE OF MUNDARING

AREA 1
Class (A) Forest
Effective Slope >0-5°

AREA 2
Class (A) Forest
Effective Slope 0°

AREA 3
Class (B) Woodland
Effective Slope 0°

AREA 4
Class (D) Scrub
Effective Slope 0°

AREA 5
Class (C) Shrubland
Effective Slope 0°

AREA 6
Class (G) Grassland
Effective Slope 0°

AREA 7
Excluded

ROE HWY
MIDLAND RD
KOORLA DR
CUJONG AV
TAMALA GR
HELENA VALLEY RD
Helena River

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

- Photos
- Subject Site
- Cadastral
- Hydrants

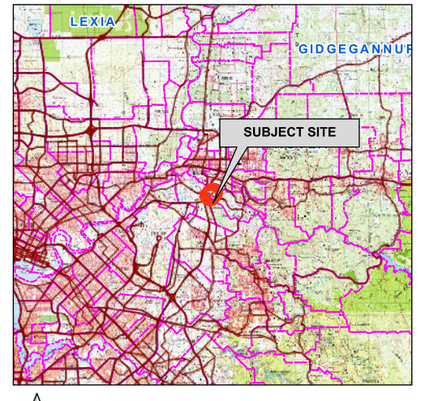
Classified Vegetation

- Forest
- Woodland
- Shrubland
- Scrub
- Grassland
- Excluded 2,2,3,2 (f)

0 20 40 60 80 100

Metres

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



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Tessa Ferreira 18-12-2025
SCALE (A3): 1 : 2600

BUSHFIRE PRONE PLANNING

Figure 3.1.1

Classified Vegetation & Topography (Post Dev)

Lot 254 on Plan 413196, Area : 4.3161 ha
335 Helena Valley Rd

Lot 253 on Plan 413196, Area : 2.9881 ha
330 Helena Valley Rd
HELENA VALLEY
SHIRE OF MUNDARING

AREA 6
Class (G) Grassland
Effective Slope 0°

AREA 2
Class (A) Forest
Effective Slope 0°

AREA 2
Class (A) Forest
Effective Slope 0°

AREA 6
Class (G) Grassland
Effective Slope 0°

AREA 3
Class (B) Woodland
Effective Slope 0°

AREA 2
Class (A) Forest
Effective Slope 0°

AREA 3
Class (B) Woodland
Effective Slope 0°

AREA 1
Class (A) Forest
Effective Slope >0-5°

AREA 7
Excluded

AREA 6
Class (G) Grassland
Effective Slope 0°

AREA 7
Excluded

AREA 7
Excluded

AREA 6
Class (G) Grassland
Effective Slope 0°

AREA 3
Class (B) Woodland
Effective Slope 0°

AREA 5
Class (A) Forest
Effective Slope 0°

AREA 2
Class (A) Forest
Effective Slope 0°

AREA 4
Class (D) Scrub
Effective Slope 0°

AREA 7
Excluded

ROE HWY

MINDALENY WAY

KOORLA DR

HELENA VALLEY RD

GUJONG AV

TAMALA GR

MIDLAND RD

Helena River

CCW

CCW Buffer

POS 1

POS 2

POS 3

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

- Subject Site
- Cadastral
- Hydrants
- Proposed New Roads

Proposed Structure Plan Cells

- Residential (R20)
- Public Open Space
- Urban Deferred Zone
- Conservation Category Wetland Buffer
- Conservation Category Wetland

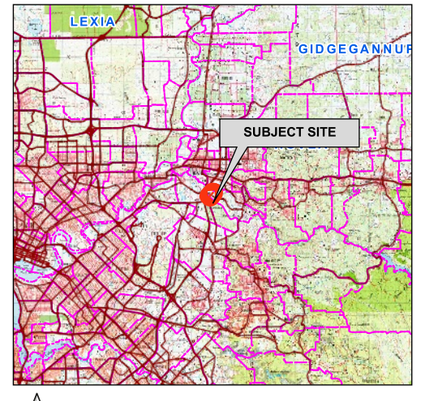
Classified Vegetation

- Forest
- Woodland
- Shrubland
- Scrub
- Grassland
- Excluded 2,2,3,2 (f)

0 20 40 60 80 100

Metres

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



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Tessa Ferreira 17-12-2025
SCALE (A3): 1 : 2600

BUSHFIRE PRONE PLANNING

Figure 3.2

BAL Contour Map

Lot 254 on Plan 413196, Area : 4.3161 ha
335 Helena Valley Rd

Lot 253 on Plan 413196, Area : 2.9881 ha
330 Helena Valley Rd
HELENA VALLEY
SHIRE OF MUNDARING

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

- Subject Site
- Cadastral
- Hydrants
- Proposed New Roads

Proposed Structure Plan Cells

- Residential (R20)
- Public Open Space
- Urban Deferred Zone
- Conservation Category Wetland Buffer
- Conservation Category Wetland

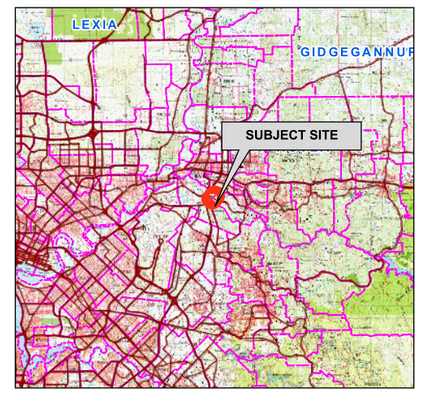
Bushfire Attack Levels

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

0 20 40 60 80 100

Metres

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



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Tessa Ferreira 18-12-2025
SCALE (A3): 1 : 2400

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?	None known or identified
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			
STRATEGIC PLANNING			
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 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	Fully Compliant		
A3.3b No-through roads technical requirements	Fully Compliant		
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 4: Strategic Planning – 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				
	Already has an approved strategic planning proposal – Not Applicable				
	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: The subject site is located within area 2 of the Map of Bushfire Prone Areas.					
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: Site already assessed under previous guidelines with the RMS amendment submission, therefore BLA mapping has been deemed unnecessary.					
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: Site already assessed under previous guidelines with the RMS amendment submission, therefore BLA mapping has been deemed unnecessary.					

5.3.2 Element 2: Siting and Design

ELEMENT 2: SITING AND DESIGN (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). When relevant, the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (DPLH, 2021 Rev B), is also referenced.					
	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		
E2: Siting and Design		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 2: Siting and Design.				
Assessment Supporting Details: The subject site is located within Area 2 of the Bushfire Prone Area and therefore requires assessment against Element 2: Siting and Design. While some individual lots may ultimately fall outside the Bushfire Prone Area at the detailed lot design stage and would not be required to achieve a BAL rating, all proposed land use cells partially intersect the Bushfire Prone Area. Accordingly, these have been assessed at a higher level to ensure an appropriate and conservative assessment outcome.					
A2.1 Siting and design		Applicable:	Yes	Compliant:	Yes
☑ ☐ ☐	The subject site is within Area 2 (Urban) on the Map of Bushfire Prone Areas and the areas of the subject site(s) identified for intensification and/or the future development site(s) achieve a pre or post-development bushfire hazard level of moderate or low.				
Assessment Supporting Details: The plan demonstrates that this is achievable at subsequent stages of planning. It is recognised, that a number of Residential Cells will potentially be subject to radiant heat levels corresponding to BAL-40 and BAL-FZ ratings. To comply, it will need to be demonstrated that the subsequent subdivision stage, that the proposed lots can accommodate a building and the establishment of an APZ to ensure a maximum BAL rating of BAL-29. This BMP to support the Local Structure Planning Stage simply demonstrates that these cells contain a sufficient sized development site(s) that can achieve a radiant heat impact not exceeding 29kW/m2 (BAL-29).					
A2.2 Clearing of native vegetation		Applicable:	Yes	Compliant:	Yes

☑ ☐ ☐	The subject site is within Area 2 (Urban) on the Map of Bushfire Prone Areas, and the strategic planning proposal avoids, or where unavoidable, minimises the clearing of native vegetation.
Assessment Supporting Details: The proposal prioritises the retention of high-value ecological areas, such as the Conservation Category Wetland and Buffer area on the north-eastern boundary and the majority of the vegetation within POS 1. Clearing is limited to areas essential for infrastructure, focusing on degraded vegetation where possible, and existing trees will be retained where feasible.	

5.3.3 Element 3: Vehicular Access

ELEMENT 3: VEHICULAR ACCESS (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). 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.*	
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		
E3: Vehicular Access			Applicable:	Yes	Compliant: Yes
☑ ☐ ☐	The subject site is within Area 1 (Urban) on the Map of Bushfire Prone Areas or not within a Bushfire Prone Area and does not require assessment of Element 3: Vehicular Access.				
Assessment Supporting Details: A portion of the subject site is located outside the Bushfire Prone Area and is therefore not required to be assessed against Element 3: Vehicular Access. While this part of the development proposes road access that exceeds 200 metres from an intersection providing two-way access to two suitable destinations, compliance with this element is not required as it falls outside the Bushfire Prone Area.					

A3.1 Public roads	Applicable:	Yes	Compliant:	Yes

☑ ☐ ☐	Public roads, including perimeter roads meet (or can and will meet) the technical requirements for minimum vertical clearance (4.5 metres) and minimum weight capacity (15 tonnes - includes bridges).
☑ ☐ ☐	Public roads meet (or can and will meet) the technical requirement <u>recommended</u> in the Guidelines in Appendix B3, B3.1 for a minimum horizontal clearance of 6 metres.
☑ ☐ ☐	Public road (including perimeter roads) technical requirements for minimum horizontal clearance (excluding perimeter road), 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.
☑ ☐ ☐	Perimeter roads meet (or can and will meet) the technical requirements for minimum horizontal clearance of 8 metres in designated Area 1 (Urban) on Map of BPA and 12 metres in designated Area 2.

<u>Assessment Supporting Details:</u> Helena Valley Road complies with all relevant standards, and the newly proposed roads must satisfy all technical requirements.

A3.2 Access routes	Applicable:	Yes	Compliant:	Yes

☑ ☐ ☐	Public road access (includes perimeter roads), with all-weather surfaces, is provided in two different directions, to two different suitable destinations.

<u>Assessment Supporting Details:</u> The proposal is located within BPA - Area 2. Two way access is available to Lot 254 via Helena Valley Road and to Lot 253 Vis Koorla Drive.

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

☐ ☐ ⊘	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.
☑ ☐ ☐	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.
☐ ☐ ⊘	Access to the subject site is via a no-through public road that exceeds the established maximum of 200 metres in length from the subject site 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/m2 / BAL-LOW (Guidelines Figure 29).

Assessment Supporting Details:

Access to Lot 254 is provided via Helena Valley Road, which is a through road connecting to two suitable destinations. As part of the development, a no-through road (Road 3, refer to Figure 1.1) is proposed with a length of approximately 220 metres, marginally exceeding the 200-metre maximum. However, Road 3 connects with Lane 2 to form a loop road. Lot design can ensure that lot boundaries are located no more than 200 metres from the intersection with Helena Valley Road, which provides two-way access.

It is understood Proposed Road 2 will not be constructed until a through connection is provided as part of future development. Should Road 2 be constructed prior to this, a temporary compliant turnaround will be provided.

Access to Lot 253 is via Koorla Drive, which currently includes a temporary no-through section located approximately 40 metres from the subject site to a point of two-way access. Within the subject site, a loop road is proposed, which will function as a no-through road. Within the Bushfire Prone Area, the maximum distance from a point of two-way access is approximately 250 metres, which marginally exceeds the 200-metre requirement. However, lot design can ensure that lot boundaries are no more than 200 metres from the intersection with Koorla Drive, which provides two-way access.

It is intended that Road 4 not be constructed until a through connection is delivered as part of future development. If constructed prior to this, a temporary compliant turnaround will be provided.

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

☑ ☐ ☐	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 meets (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. a public road) technical requirements for minimum horizontal clearance (excluding perimeter road), 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.
☑ ☐ ☐	The turnaround area/head meets (or can and will meet) the design requirements established by the Guidelines, Figure 30.

Assessment Supporting Details: See Assessment details from 3.3a

5.3.4 Element 4: Water Supply

ELEMENT 4: WATER SUPPLY (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). 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		
E2: Water Supply			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 4: Water Supply.				
Assessment Supporting Details: None required.					
A4.1 Water supply			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.				
☐ ☐ ⃠	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.				
☑ ☐ ⃠	Evidence is provided that a sufficient 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.				
☑ ☐ ☐	Evidence will be provided, at the 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: Refer to additional technical requirement information contained in Appendix D.	

5.4 Assumptions informing the Bushfire Protection Assessment – Informing the Proponent and Decision Maker

EXPLANATORY INFORMATION

This section of the Bushfire Management Plan outlines the key conditions, expectations, and constraints that underpin the bushfire assessment and recommendations. It establishes the foundation for the BMP by clarifying the context in which the post-development vegetation mapping and BAL Contour Map have been prepared.

This sections functions to:

- Define the basis for the indicative BAL ratings applied to the proposed lots.
- Acknowledge limitations, identifying where assumptions have been made or where conditions may change due to factors such as future management agreements, proposed landscaping, or vegetation clearing.
- Set conditions for validity, making it clear that the findings of the BMP are only valid if these assumptions hold true. Should site conditions change (e.g. if vegetation is not managed as assumed or subdivision design is altered), the conclusions of the BMP may no longer apply.
- Clarify responsibilities, outlining who is expected to implement and maintain the measures that support the assessment (e.g. landowners, developers, or local government through management agreements).
- Support transparency, ensuring decision makers, approval authorities, and landowners understand the scenarios and assumptions considered in developing the bushfire solutions.

5.4.1 Assumptions of post development site conditions

This Bushfire Management Plan has been prepared based on a series of assumptions regarding the post-development conditions of the subject site. These assumptions have informed the preparation of the Post-Development Classified Vegetation Map (Figure 3.1.1) and the BAL Contour Map (Figure 3.2). The key assumptions are as follows:

- All proposed lots will be managed to a low bushfire threat.
- Revegetation plans address bushfire risk and ensure alignment with the classified vegetation outlined in this Bushfire Management Plan (BMP) to prevent any increase in BAL ratings or bushfire risk.
- Public Open Space (POS) landscape design incorporates low-flammability plant species and is managed to mitigate fire spread while maintaining the ecological and environmental values of the site.
- Road verges throughout the site and adjacent to the site are managed to a minimal fuel state to reduce fire risk.
- POS Areas 2, 3 and the Urban Deferred Zones are managed to a minimal fuel state to comply with bushfire mitigation requirements.
- Drainage basins that are proposed within the POS are planted out as Class C Shrubland and are located at least 9m from the lot boundaries.
- A permanent 3-metre wide firebreak of bare earth will be installed directly within the lot boundary of Lot 250 and Lot 5 to the north-west of the subject site which will be bare earth.
- All planned landscaping follows an approved landscaping management plan that does not contribute to increased bushfire risk.
- Existing trees in public open spaces, road reserves, and residential areas are retained where feasible.
- Lots are designed to ensure they are large enough to accommodate a building and provide sufficient space to establish an Asset Protection Zone (APZ), ensuring no lot exceeds a maximum BAL rating of BAL-29.
- Buildings will not be located within areas identified as BAL-40 or BAL-FZ.
- Lots are designed to ensure lot boundaries fall within 200m from two-way access or an outcomes based solution is conducted to justify a greater distance to two-way access.
- Additional hydrants will be installed within the subdivision in accordance with the requirements of this BMP
- The Subdivision Plan will require a separate BMP to address lot design.

- Fuel management within designated areas, including road verges, POS, retained lots, drainage basins, conservation zones, wetland buffers, and powerline easements, will align with the guidelines set forth in this document.
- Any modifications or deviations from the landscape or vegetation assumptions in this BMP may trigger specific or localised bushfire assessments to maintain compliance.

By adhering to these measures and assumptions, the Structure Plan can effectively balance the objectives of urban development and bushfire risk management while supporting ecological and environmental preservation within the site.

Given the above, no additional Structure Plan provisions are considered necessary or warranted, beyond the application of standard bushfire planning requirements at subdivision stage.

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
				Method 2	Applied FFDI:	N/A
					Applied GFDI:	N/A

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		Woodland B-05	
Exclusion Clause	N/A			
Effective Slope	Measured	d/slope 3 degrees	Applied Range (Method 1)	Downslope >0-5 degrees
Justification Comments:	This area is composed mostly of Melaleuca sp. along the wetland area. It has an understory of invasive European grasses as well as many non-native species throughout such as the Japanese Pepper Tree. The canopy cover is high and therefore is considered Class A Forest.			
Post Development Assumptions:	Vegetation within the CCW and CCW buffer is expected to remain as Forest or naturally revegetate to Forest within the existing grassy areas. Vegetation within POS 1 is proposed to be managed to a distance of 27 metres from the proposed residential cells to facilitate development within these cells at BAL-29. The remaining portions of POS 1 are expected to remain in their current condition.			

PHOTO ID: 1

PHOTO ID: 2

PHOTO ID: 3

PHOTO ID: 4

VEGETATION AREA 2				
Classification	**A. FOREST**			
Types Identified	Open forest A-03			
Exclusion Clause	N/A			
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees
Justification Comments:	Area 2 is made up of a line of trees that is not a single managed line of trees so cannot be considered a windbreak (see Photo ID 5), and a larger section of remnant native vegetation on the southern side of the subject site. The vegetation on the southern side of the subject site (the northern end of the Banksia Woodland, adjacent to Area 4, see Figure 3.1) is consistent with Type D Scrub like the adjacent area. However, this section includes scattered *Eucalyptus* trees that reach heights around 6 meters, at the upper height limit for scrub-type vegetation. As a precautionary approach, this portion has been classified as Forest due to the tree canopy contribution and overall vegetation characteristics (see Photo ID 6).			
Post Development Assumptions:	Onsite vegetation must be managed in accordance with the guidelines set out in Appendix B of this report. This includes the management of understorey grasses, under pruning branches to a height of 2 metres above the ground and managing fine fuels load. Consideration should be given to the clause stating, 'trunks at maturity should be a minimum distance of six metres from all elevations of the building'.			

PHOTO ID: 5

PHOTO ID: 6

PHOTO ID: 7

PHOTO ID: 8

VEGETATION AREA 3				
Classification	**B. WOODLAND**			
Types Identified	Select.		Select.	Select.
Exclusion Clause	N/A			
Effective Slope	Measured	Select.	Applied Range (Method 1)	Select.
Justification Comments:	Area 3 consists areas with unmanaged grasses and some shrubs and trees. These areas are classified as worst-case scenario woodland as they have presence of trees and some saplings coming up and left unmanaged they are likely to develop into Woodland classification. The vegetation in this area is characterised by a discontinuous canopy of *Eucalyptus* species, with a ground cover dominated by invasive European grasses. While there are scattered shrubs present in some locations, understorey vegetation is generally sparse, resulting in minimal structural diversity beneath the canopy. This discontinuity in the canopy and limited presence of understorey vegetation aligns with the classification of Class B Woodland.			
Post Development Assumptions:	This vegetation is reasonably expected to remain as is in perpetuity or be removed if the area is developed.			

PHOTO ID: 9

PHOTO ID: 10

PHOTO ID: 11

PHOTO ID: 12

VEGETATION AREA 4				
Classification	**D. SCRUB**			
Types Identified	Closed scrub D-13	Closed scrub D-13		
Exclusion Clause	N/A			
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees
Justification Comments:	Area 4 comprises of remnant bushland, banksia woodland with a diverse mix of native species mostly banksia species. The scrub-type vegetation exhibits high foliage cover, with little variation in vegetation height. Heights range between 1.5 and 6 metres, with most vegetation around 4–5 metres tall, as illustrated by the 5-metre height staff in the photos. This uniform structure, coupled with the predominance of native shrub species, aligns with the classification of Class D Scrub.			
Post Development Assumptions:	This vegetation is reasonably expected to remain as is in perpetuity.			

PHOTO ID: 13

PHOTO ID: 14

PHOTO ID: 15

PHOTO ID: 16

VEGETATION AREA 5				
Classification	**C. SHRUBLAND**			
Types Identified	Low shrubland C-12			
Exclusion Clause	N/A			
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees
Justification Comments:	Area 5 consists of a planted out drainage basin on the new subdivision to the south east of Lot 253. The type of vegetation planted is species typical of drainage areas that is consistent with Class C Shrubland. There are some scattered taller species however these make up less than 10% of the area.			
Post Development Assumptions:	These species have been recently planted and are expected to grow and spread but they are not species that will grow taller than 2m and are expected to remain consistent with Class C Shrubland classification.			

PHOTO ID: 17

PHOTO ID: 18

VEGETATION AREA 6				
Classification	**G. GRASSLAND**			
Types Identified	Dense sown pasture G-25 Tussock grassland G-22			
Exclusion Clause	N/A			
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees
Justification Comments:	Paddocks, unmanaged gardens, roadside verges, and empty lots with European grasses greater than 100mm in height.			
Post Development Assumptions:	Onsite vegetation will be managed in accordance with the guidelines set out in Appendix B of this report. This should include slashing of grass to under 100mm and managing fine fuel loads. Permanent firebreaks are expected to be installed within Lot 250 and Lot 5 to the north-west of the subject site which will be bare earth. Based on this assumption 3 metres of the Class G Grassland has been excluded from classification in Figure 3.1.1.			

PHOTO ID: 19

PHOTO ID: 20

PHOTO ID: 21

PHOTO ID: 22

VEGETATION AREA 7				
Classification	**N/A**			
Types Identified	N/A			
Exclusion Clause	2.2.3.2 (e) Non-vegetated areas and (f) Low threat vegetation - minimal fuel condition.			
Effective Slope	Measured	Select.	Applied Range (Method 1)	Select.
Justification Comments:	Non vegetated areas include sealed public roads or accessways, private driveways, houses, and sandy empty lots. Low threat vegetation includes small, reticulated lawns, and gardens and yards with native species managed to a minimal fuel state.			
Post Development Assumptions:	Non-vegetated areas are reasonably expected to remain as is in perpetuity. Low threat vegetation is reasonably expected to remain in a low threat state in perpetuity.			

PHOTO ID: 23

PHOTO ID: 24

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.

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/m^2 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.

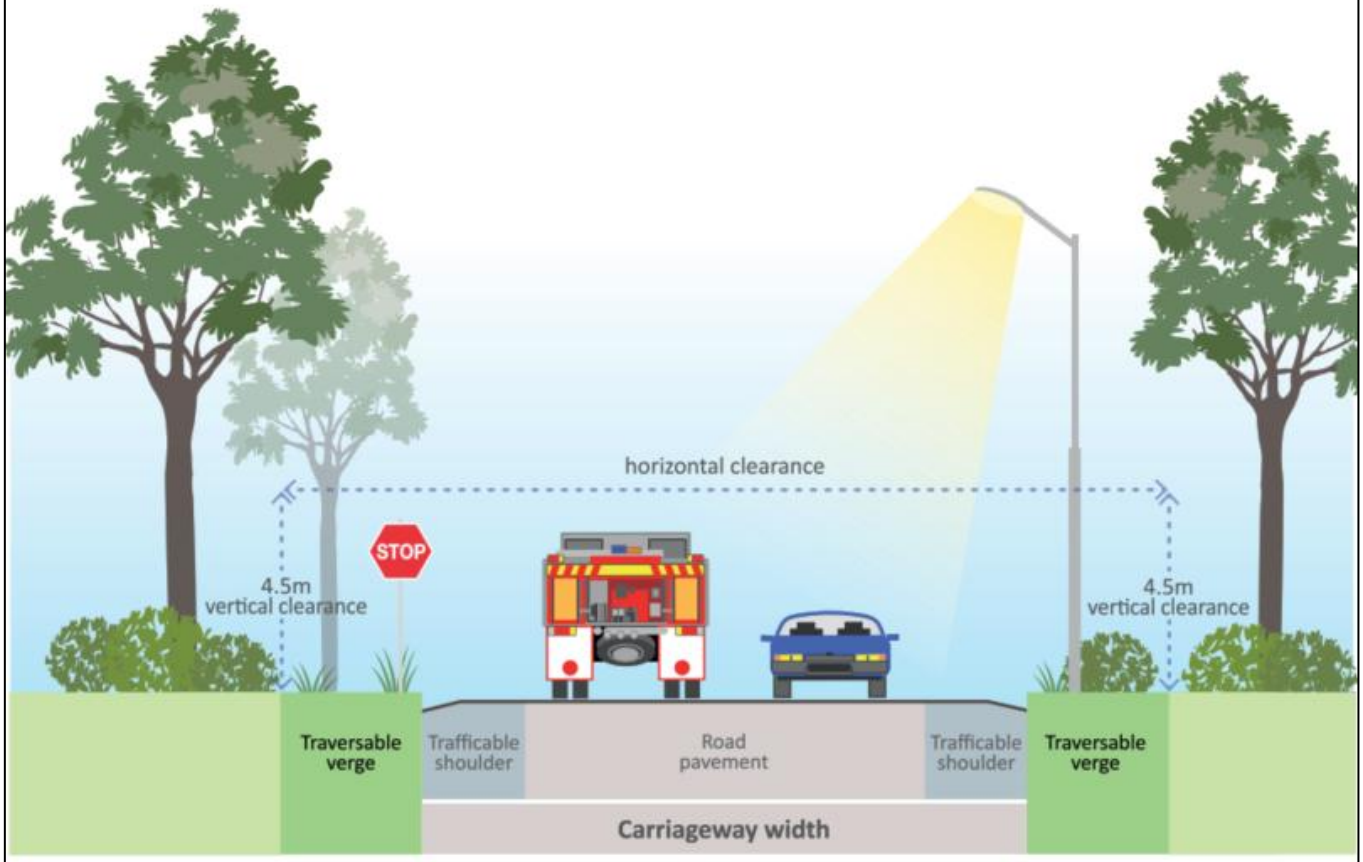
APPENDIX C: GUIDANCE - TECHNICAL REQUIREMENTS FOR VEHICULAR ACCESS

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.

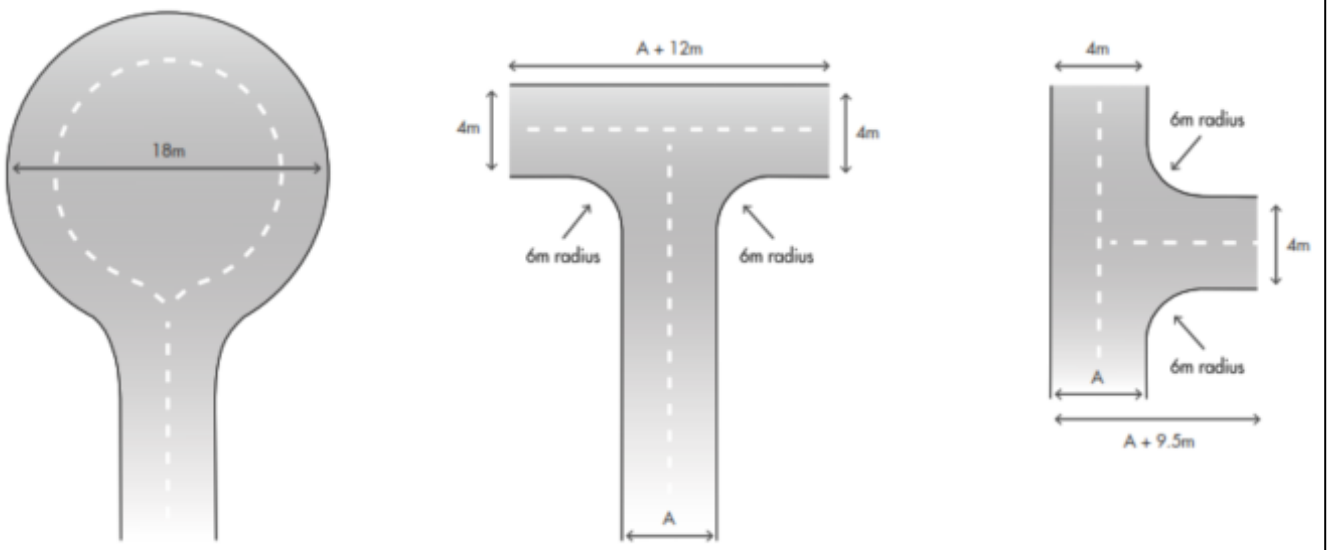
[2] Dips must have no more than a 1 in 8 (12.5% - 7.1 degrees) entry and exit angle.

[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

WATER CORPORATION

Design Standard DS 63
Water Reticulation Standard

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

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