Bushfire Management Plan

Proposed Childcare Centre

Lot 29 (#38) Paterson Street, Mundijong

Shire of Serpentine-Jarrahdale

Planning Stage:	Development Application
Planning Development Type:	Construction of a Class 4 - 9 Building
Bushfire Policy – Specific Development or Use Type:	Vulnerable Land Use (Non-Tourism)

Job Number:	210158
Assessment Date:	10 March 2021
Report Date:	9 April 2021

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VERSION HISTORY		
Version	**Version Details**	**Date**
1.0	Original Document Issue	9 April 2021
1.1	Amendments DFES Comments – Woodland area added.	7 July 2021
1.2	Revised Site Plans	1 March 2022

BMP (Standard DA-Non-Tourism) Template v8.5

DISTRIBUTION				
Destination	**Version**	**No. Copies**	**Hard Copy**	**Electronic Copy**
Person/Business: Benjamin Houweling/Harley Dykstra **Email:** benh@harleydykstra.com.au	1.2		☐	☒
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Limitation of Liability: The measures contained in this Bushfire Management Plan, are considered to be minimum requirements and they do not guarantee that a building will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and fire weather conditions. Additionally, the correct implementation of the required bushfire protection measures will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control.

All surveys, forecasts, projections and recommendations made in this report associated with the proposed development are made in good faith based on information available to Bushfire Prone Planning at the time. All maps included herein are indicative in nature and are not to be used for accurate calculations.

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TABLE OF CONTENTS

LIST OF FIGURES

EXECUTIVE SUMMARY

This Bushfire Management plan is to accompany a development application for a childcare centre on Lot 29 (#38) Paterson Street, Mundijong in the Shire of Serpentine-Jarrahdale.

The development is considered a vulnerable land use, being a facility designed to accommodate occupants with reduced physical or mental ability such as the elderly, children (under 18 years of age) or the sick or injured. A separate Bushfire Emergency Plan is to be developed for this site.

Currently, certain operational information required to complete the Bushfire Emergency Plan is not available. It is a requirement of this Bushfire Management Plan that the associated Bushfire Emergency Plan for this site be updated and completed prior to occupation of the childcare centre.

The assessments and bushfire protection measures detailed in the BMP, assume that environmental approval will be achieved or clearing permit exemptions will apply.

The proposed development will provide an area of land within the lot that can be considered suitable for development, as BAL-40 or BAL-FZ construction standards will not be required to be applied. This meets the requirements established by Acceptable Solution A1.1 and its associated explanatory note.

The subject lot is currently managed to a low bushfire threat state and is expected to be maintained in this condition.

There are no bushfire hazards adjoining the subject site. The nearest bushfire hazard is a narrow strip of forest and woodland type vegetation located to the east of the site and running alongside the South West railway line. Further east is an 8ha area of forest vegetation and then cleared grazing pasture. Nearby land to the north, west and south of the subject site are residential or commercial lots.

Consequently, there are limited scenarios in which the development site is likely to be subject to a significant bushfire event. It is limited to a fire in the narrow strip of forest and woodland vegetation alongside the railway line in which a bushfire would either be a flanking fire or if a direct fire, would be unable to develop fully.

The development site, within the context of its location in the broader landscape, cannot be considered as being at high risk from the impacts of bushfire.

The proposed buildings on the lot can be surrounded by an APZ that will ensure the potential radiant heat impact of a bushfire does not exceed 29 kW/m2 (BAL-29). The BAL-29 APZ will exist both within and outside the subject lot. The portions of the required size APZ that exist outside the subject lot consist of road, footpath and adjacent lots managed and maintained to a low bushfire threat state.

The whole of the subject lot is to comply with APZ requirements. Retained onsite vegetation will be managed in accordance with the technical requirements established by the Schedule 1: 'Standards for Asset Protection Zones (Guidelines). The APZ specifications are also detailed in Appendix 1 and the Shire of Serpentine-Jarrahdale may have additional requirements established by their Fire Control Notice.

Paterson Street provides access/egress in two different directions and to two different destinations. The existing public roads are available to residents and the public at all times and under all weather conditions.

A reticulated water supply is available to the subject site. A hydrant is located on Paterson Street approximately 2 metres from the subject lot.

Buildings of Class 4 to Class 9 are not required by the Building Code of Australia (BCA) to be constructed to comply with bushfire performance requirements. As the proposed buildings are located in a bushfire prone area and may be subject to a bushfire attack, Bushfire Prone Planning recommends that the buildings be constructed to their assessed BAL rating.

1 PROPOSAL DETAILS

1.1 Description and Associated Plans and Maps

Proponent:	Harley Dykstra
Bushfire Prone Planning Commissioned to Produce the Bushfire Management Plan (BMP) By:	Harley Dykstra
For Submission To:	Shire of Serpentine-Jarrahdale
Purpose of the BMP:	To accompany a planning application
'Development' Site Total Area:	1014 square metres
Description of the Proposed Development:	
This Bushfire Management plan is to accompany a development application for a childcare centre on Lot 29 (#38) Paterson Street, Mundijong in the Shire of Serpentine-Jarrahdale. The childcare centre will accommodate a maximum of 55 children and 8 staff.	

Figure 1.1

Proposed Childcare Centre Site Map

Lot 29 on Diagram 13165
38 Paterson Street
MUNDIJONG
SHIRE OF SERPENTINE-JARRAHDALE

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

- Hydrants

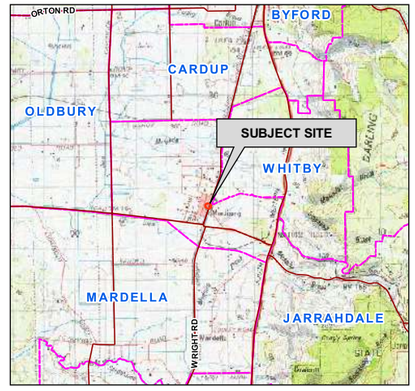
Buildings

- Childcare Centre
- Outdoor Play Area
- Subject Site
- Cadastre

0 5 10 15 20

Metres

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



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Ian Macleod 25-02-2022
SCALE (A3): 1 : 300

BUSHFIRE PRONE PLANNING

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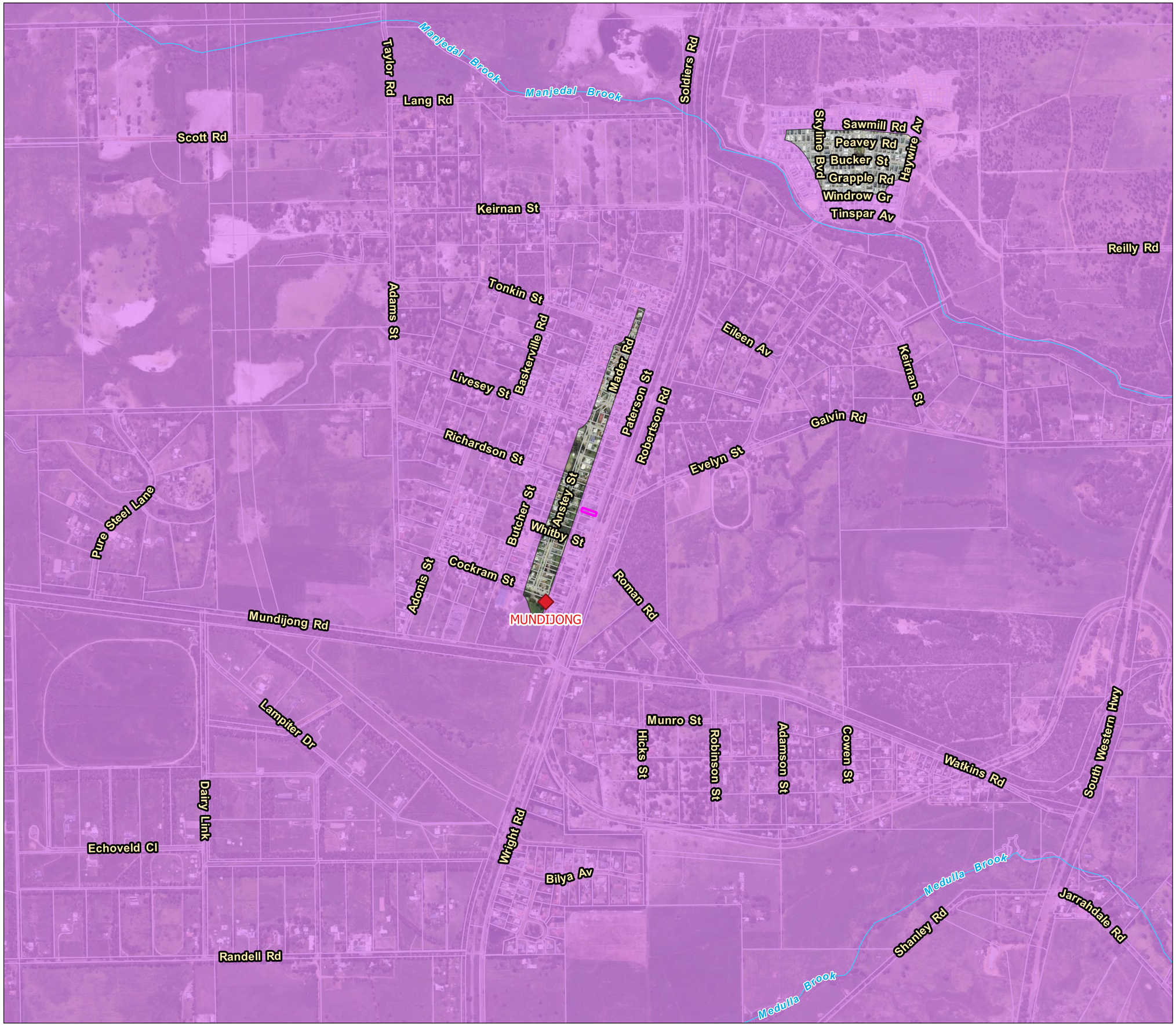
Figure 1.2

Proposed Childcare Centre Bushfire Prone Areas Map

Lot 29 on Diagram 13165
38 Paterson Street
MUNDIJONG
SHIRE OF SERPENTINE-JARRAHDALE



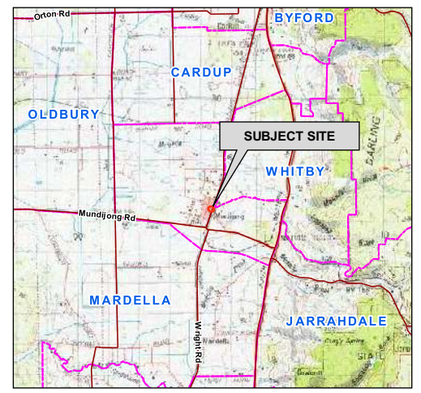
------ LEGEND ------

- DFES Stations
- Bush Fire Prone Areas 2019
- Subject Site
- Cadastre

0 200 400 600 800 1,000

Metres

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



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Ian Macleod 11-03-2021
SCALE (A3): 1 : 15000

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1.2 The Specific 'Land Use' and the Bushfire Planning Requirements

SPP 3.7, the associated Guidelines and Position Statements, define certain land uses that require additional and/or alternative bushfire related assessment and additional information to be provided. This is necessary to facilitate planning application assessment and for subsequent operational use.

When such a proposal is unable to fully achieve the implementation of all required bushfire protection measures - as established by the 'acceptable solutions' contained in the Guidelines and Position Statements – further assessments and the development of additional protection measures are required.

The land use classification that applies to the proposal is identified in Table 1.2, along with the required additional assessments and information and the form and location in which this is provided.

Table 1.2: The determined land use and assessment/information requirements.

THE PROPOSED LAND USE CLASSIFICATION AND BUSHFIRE PLANNING REQUIREMENTS			
Assessment / Information / Documents Detail			
The proposed land use classification is determined to be:		Vulnerable (Non-Tourism)	High Risk
Category, type and/or operations of the land use that have determined the classification:		Category 1: A facility designed to accommodate occupants with reduced physical or mental ability such as the elderly, children (under 18 years of age) and the sick or injured.	N/A
The Policies, Guidelines and Position Statements against which the proposed land use will be assessed, and which guide the information to be provided.[1]	SPP 3.7	☒	N/A
	Guidelines including the BPC	☒	N/A
	Guidelines excluding the BPC		N/A
	Position Statement - BPC Element 1 and 2	☒	N/A
	Position Statement - Tourism	N/A	N/A
The documents and the information developed and the format and location in which they are provided.	Bushfire Management Plan (BMP)	☒ Separate Document	N/A
	Risk Management Plan (RMP)	N/A	N/A
	Risk Assessment and Treatment Plan	N/A	N/A
	Bushfire Emergency Plan (BEP)	☒ Separate Document	N/A
	BEP Supporting Information	☒ Addendum to BEP	N/A
	Additional bushfire protection measures	☒ In BMP s5.4	N/A
Note [1]: State Planning Policy 3.7 Planning in Bushfire Prone Areas; Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3; Bushfire Protection Criteria (BPC) established in the Guidelines; Position Statement: Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design WAPC November 2019; Position Statement: Tourism land uses in bushfire prone areas WAPC October 2019.			

Currently, certain operational information required to complete the Bushfire Emergency Plan is not available. It is a requirement of this Bushfire Management Plan that the associated Bushfire Emergency Plan for this site be updated and completed prior to occupation of the childcare centre.

1.3 Existing Documentation Relevant to the Construction of this Plan

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

Table 2.1: Existing relevant documentation.

RELEVANT EXISTING DOCUMENTS		
Existing Document	Copy Provided by Client	Title
Structure Plan	No	
Environmental Report	No	
Landscaping (Revegetation) Plan	No	
Bushfire Risk Assessments	No	

2 ENVIRONMENTAL CONSIDERATIONS

2.1 Native Vegetation – Restrictions to Modification and/or Clearing

Many bushfire prone areas also have high biodiversity values. SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values (Guidelines s2.3).

There is a requirement to identify any need for onsite modification and/or clearing of native vegetation and whether this may trigger potential environmental impact/referral requirements under State and Federal environmental legislation. Confirmation that any proposed native vegetation modification and/or clearing is acceptable, should be received from the relevant agencies by the proponent and provided to the bushfire consultant for inclusion in the Bushfire Management Plan if it will influence the required bushfire planning assessments and outcomes. The following table details any potential environmental restrictions of which the author of this report is aware.

Table 2.2: Native vegetation and potential environmental considerations and restrictions.

NATIVE VEGETATION MODIFICATION / CLEARING - POTENTIAL ENVIRONMENTAL RESTRICTIONS IDENTIFIED				
Environmental Considerations / Features	Potential Mapping Data Source (SLIP / Local Planning)	Relevant to Proposed Development	Data Applied	Action Required
Onsite clearing of native vegetation is required.		No		
Environmental impact/referral requirements under State and Federal environmental legislation may be triggered.		Unlikely		
National Park / Nature Reserve	DBCA-011	No- Confirmed by Bushfire Consultant	Relevant Database Reviewed by Bushfire Consultant	None
Conservation Covenant	DPIRD-023	Not Known	Data Not Readily Available to Bushfire Consultant	Proponent to Seek Advice
Bush Forever Site	DPLH-019	No- Confirmed by Bushfire Consultant	Relevant Database Reviewed by Bushfire Consultant	None
RAMSAR Wetland	DBCA-010	No- Confirmed by Bushfire Consultant	Relevant Database Reviewed by Bushfire Consultant	None
Geomorphic and Other Wetland	DBCA-011- 019, 040, 043, 044	No- Confirmed by Bushfire Consultant	Relevant Database Reviewed by Bushfire Consultant	None
Threatened and Priority Ecological Communities (TECs or PECs)	DBCA-038	Not Known	Data Not Readily Available to Bushfire Consultant	Proponent to Seek Advice
Threatened and Priority Flora including Declared Rare Flora (DRFs)	DBCA-036	No- Confirmed by Bushfire Consultant	Relevant Database Reviewed by Bushfire Consultant	None
Land Identified as significant through a Local Biodiversity Strategy	LG - Intramaps	Unlikely	Data Not Readily Available to Bushfire Consultant	Proponent to Seek Advice

Statement of how the identified environmental feature(s) is dealt with in this Bushfire Management Plan (and the location of relevant information):

The assessments and bushfire protection measures detailed the BMP, assume that environmental approval will be achieved or clearing permit exemptions will apply.

It is advised that the proponent seek further advice from an Environmental Consultant or the WA Department of Biodiversity Conservation and Attractions for further information on the condition and species contained within the proposed development area and the requirement for referral of the proposal.

Development Design Considerations

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

Table 2.3: Development design.

MINIMISE THE REMOVAL OF NATIVE VEGETATION	
Design Option	Assessment / Action
Reduction of lot yield	N/A
Cluster development	N/A
Construct building to a standard corresponding to a higher BAL as per BCA (AS 3959:2018 and/or NASH Standard)	N/A
Modify the development location	N/A
The proposed development is located on a cleared vacant lot with a few remnant marri trees.	
IMPACT ON ADJOINING LAND	
Is this planning proposal able to implement the required bushfire protection measures within the boundaries of the land being developed so as not to impact on the bushfire and environmental management of neighbouring reserves, properties or conservation covenants?	Yes
The subject lot is currently managed to a low bushfire threat state and is expected to be maintained this way into the future. No bushfire protection measures are required to be implemented external to the lot.	

2.2 Retained Vegetation / Re-vegetation / Landscape Plans (including POS)

Riparian zones, wetland/foreshore buffers, road verges and public open space may have plans to re-vegetate or retain vegetation as part of the proposed development. Vegetation corridors may be created between offsite and onsite vegetation and provide a route for fire to enter a development area.

All retained/planned vegetation and its management will be considered in the development of this Bushfire Management Plan.

Is re-vegetation of riparian zones and/or wetland or foreshore buffers and/or public open space a part of this Proposal?	No
N/Aa	
Is the requirement for ongoing maintenance of existing vegetation in riparian zones and/or wetland or foreshore buffers and/or public open space a part of this Proposal?	No
N/A	
Has a landscape plan been developed for the proposed development?	No
N/A	

3 POTENTIAL BUSHFIRE IMPACT ASSESSMENT

3.1 Assessment Input

3.1.1 Fire Danger Index (FDI) Applied

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

Table 3.1: Applied FDI Value

FDI VALUE			
Vegetation Areas	As per AS 3959:2018 Table 2.1	As per DFES for the Location	Value Applied
All Vegetation Areas	80	N/A	80

3.1.2 Vegetation Classification and Effective Slope

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

When more than one vegetation type is present, each type is identified separately, and the applied classification considers the potential bushfire intensity and behaviour from the vegetation types present and ensures the worst case scenario is accounted for – this may not be from the predominant vegetation type.

The vegetation structure has been assessed as it will be in its mature state (rather than what might be observed on the day). Areas of modified vegetation are assessed as they will be in their natural unmodified state (unless maintained in a permanently low threat, minimal fuel condition, satisfying AS 3959:2018 s2.2.3.2(f) and asset protection zone standards). Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its revegetated mature state.

Effective Slope: Refers to the ground slope under each area of classified vegetation and is described in the direction relative to the view from the building or proposed development site. Effective slope is not the same as 'average slope', rather it is the slope which most significantly influences fire behaviour. This slope has a direct and significant influence on a bushfire's rate of spread and intensity.

Where there is a significant change in effective slope under an area of classified vegetation, that will cause a change in fire behaviour, separate vegetation areas will be identified to enable the correct assessment.

When the effective slope, under a given area of bushfire prone vegetation, will be different relative to multiple proposed development sites, then the effective slopes corresponding to the different locations, are separately identified.

Table 3.2: Vegetation classification and effective slope.

ALL VEGETATION WITHIN 150 METRES OF THE PROPOSED DEVELOPMENT				
Vegetation Area	Identified Vegetation Types [1] or Description if 'Excluded'	Applied Vegetation Classification [1]	Effective Slope (degrees)[2] (AS 3959:2018 Method 1)	
			Assessed	Applied Range
1	Open forest A-03	Class A Forest	0	upslope or flat
2	Tussock grassland G-22	Class G Grassland	0	upslope or flat
3	Open forest A-03	Class A Forest	0	upslope or flat
4	Woodland B-05	Class B Woodland	0	upslope or flat
5	Woodland B-05	Excluded as per Section 2.2.3.2 (c) Multi Areas <0.25	0	N/A
6	Managed gardens, street verges or non-vegetated areas.	Excluded as per Section 2.2.3.2 (e) & (f)	N/A	N/A
Representative photos of each vegetation area, descriptions and classification justification, are presented on the following pages. The areas of classified vegetation are defined, and the photo locations identified on Figure 3.1, the vegetation and topography map.				
Note[1]: Described and classified as per AS 3959:2018 Table 2.3 and Figures 2.3 and 2.4 (A)-(H) Note[2]: Effective slope measured as per AS 3959:2018 Section 2.2.5 and Appendix B Part B4				

VEGETATION AREA 1	
AS 3959:2018 Vegetation Classification Applied:	Class A Forest
Vegetation Types Present:	Open forest A-03
Description/Justification:	Strip of marri and jarrah forest vegetation greater than 20 metres in width, average tree height is 12 metres, grass understorey.

Photo ID: 1a

Photo ID: 1b

Photo ID: 1c

VEGETATION AREA 2	
AS 3959:2018 Vegetation Classification Applied:	Class G Grassland
Vegetation Types Present:	Tussock grassland G-22
Description/Justification:	Strips of grassland vegetation alongside railway line.

Photo ID: 2a

Photo ID: 2b

Photo ID: 2c

VEGETATION AREA 3	
AS 3959:2018 Vegetation Classification Applied:	Class A Forest
Vegetation Types Present:	Open forest A-03
Description/Justification:	Marri, jarrah, sheoak, grass trees, shrubs and scrub, grass understorey.

Photo ID: 3a

Photo ID: 3b

VEGETATION AREA 4	
AS 3959:2018 Vegetation Classification Applied:	Class B Woodland
Vegetation Types Present:	Woodland B-05
Description/Justification:	Photo 4a:Trees to 12 metres tall, <30% foliage cover, grass understorey. Photo 4b: Marris to 15 metres tall, leaf litter understorey, trees underpruned.

Photo ID: 4a

Photo ID: 4b

VEGETATION AREA 5	
AS 3959:2018 Vegetation Classification Applied:	Excluded as per Section 2.2.3.2 (c) Multi Areas <0.25 ha
Vegetation Types Present:	Low woodland B-07
Description/Justification:	Melaleucas, willows to 10 metres tall, managed grass understorey.

Photo ID: 5a

Photo ID: 5b

VEGETATION AREA 6	
AS 3959:2018 Vegetation Classification Applied:	Excluded as per Section 2.2.3.2 (e) & (f)
Vegetation Types Present:	Vegetation managed to a low bushfire threat state.
Description/Justification:	Photo 3a: Managed subject lot. Photo 3b: Managed residential lot.

Photo ID: 6a

Photo ID: 6b

VEGETATION AREA 6	
AS 3959:2018 Vegetation Classification Applied:	Excluded as per Section 2.2.3.2 (e) & (f)
Vegetation Types Present:	Vegetation managed to a low bushfire threat state.
Description/Justification:	Managed gardens, lawns and non-vegetated areas.

Photo ID: 6c

Photo ID: 6d

Photo ID: 6e

Photo ID: 6f

Photo ID: 6g

Photo ID: 6h

VEGETATION AREA 6	
AS 3959:2018 Vegetation Classification Applied:	Excluded as per Section 2.2.3.2 (e) & (f)
Vegetation Types Present:	Vegetation managed to a low bushfire threat state.
Description/Justification:	Managed gardens, lawns and non-vegetated areas.

Photo ID: 6i

Photo ID: 6j

Photo ID: 6k

Photo ID: 6l

Photo ID: 6m

Photo ID: 6n

Vegetation Area	Vegetation Class	Vegetation Type	Effective Slope
1	A	Forest	0
2	G	Grassland	0
3	A	Forest	0
4	B	Woodland	0
5	Ex	Exempt	
6	Ex	Exempt	

Figure 3.1

Proposed Childcare Centre Topography & Classified Vegetation Map

Lot 29 on Diagram 13165
38 Paterson Street
MUNDIJONG
SHIRE OF SERPENTINE-JARRAHDALE

Paterson St
Robertson Rd
Whitby St
Anstey St
Roman Rd
Paterson St
AREA 6 Excluded
AREA 5 Excluded
Area 1
Area 2
Area 3
Area 4
1a
1b
1c
2a
2b
2c
3a
3b
4a
4b
5a
5b
6a
6b
6c
6d
6e
6f
6g
6h
6i
6j
6k
6l
6m
6n
36m
38m
40m

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

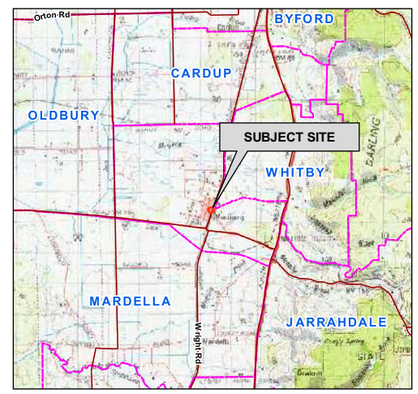
- Photos
- Elevation (m)
- Subject Site
- 150m Assessment Area
- Cadastre

Classified Vegetation

- Class A - Forest
- Class B - Woodland
- Class G - Grassland
- Exclusion 2.2.3.2

0 10 20 30 40 50 60 70
Metres

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



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Ian Macleod 25-02-2022
SCALE (A3): 1 : 1200

BUSHFIRE PRONE PLANNING

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3.1.3 Vegetation Separation Distance

The vegetation separation distance is the horizontal distance measured from the relevant parts of an existing building or a future building's planned location (within a lot), to the determined edge of an area of classified vegetation.

This separation distance applied to determining a Bushfire Attack Level (BAL) can be either:

- The *measured distance* – for which the location of the building relative to the edge of classified vegetation must be known. This will result in single determined BAL that will apply to a building. (The measured distance is a required calculation input); or
- A *calculated minimum and maximum distance (range)* that will correspond to each individual BAL. The calculated distances provide an indicative (or achievable) BAL for which the determined BAL will be dependent on the known location of the building relative to the edge of classified vegetation.

  The calculated range of distances corresponding to each BAL can be presented in different formats (tables or a BAL contour map), dependent on the form of information that is most appropriate for the proposed development/use. These distance ranges corresponding to BAL(s) will be presented in Section 3.2: 'Assessment Output".

For the proposed development/use, the applicable vegetation separation distances will be presented within the Bushfire Management Plan in this location:	In Section 3.2 'Assessment Output' as a table containing the calculated ranges of distance corresponding to each BAL and illustrated as a BAL Contour Map.

3.2 Assessment Output

UNDERSTANDING THE RESULTS OF THE BUSHFIRE IMPACT ASSESSMENT

Bushfire Attack Levels (BALs) – Their Application in the Building Environment is Different to the Planning Environment

In the building environment, a ***determined BAL*** is required for the proposed construction at the building application stage. This is to inform approval considerations and establish the bushfire construction standards that are to apply. An indicative BAL is not acceptable for a building application.

In the planning environment, through the application of SPP 3.7 and associated Guidelines, the deemed to satisfy requirement for a proposed 'development site' or sites (defined by the LPS Amendment Regulations 2015 as "that part of a lot on which a building that is the subject of development stands or is to be constructed"), is that a BAL-29 or lower rating can be achieved once all works associated with the proposal are completed. For planning approval purposes, an ***indicative BAL*** can provide the required information.

Determined Bushfire Attack Level

A determined BAL is to apply to an existing building or the 'development site' on which the building is to be constructed and not to a lot or building envelope. Its purpose is to state the potential radiant heat flux to which the building will be exposed, thereby determining the construction standard to be applied.

A determined BAL cannot be given for a future building whose design and position on the lot are unknown or the vegetation separation distance has not been established. It is not until these variables have been fixed that a determined BAL can be stated, and a BAL Certificate can be issued.

The one exception is when a building ***of any dimension*** can be ***positioned anywhere*** on a proposed lot (within R-Code building setbacks) or within a defined building envelope, and always remain subject to the same BAL, regardless of the retention of any existing classified vegetation either onsite or offsite.

Indicative Bushfire Attack Level

If a BAL is not able to achieve 'determined' status it will be an indicative BAL. It indicates the BAL that can be achieved by the proposed development/use. However, it is conditional upon an assessment variable(s) being confirmed at a later stage (e.g. the building location is established/changed, or vegetation is modified/removed to establish the vegetation separation distance).

A BAL certificate cannot be issued for an indicative BAL – unless that BAL cannot vary (refer to 'Determined BAL' above).

In table form, a single or a range of indicative BAL(s) may be presented. If a single indicative BAL is stated for a defined area (i.e. the lot or building envelope), this will be the highest indicative BAL impacting the defined area.

In BAL contour map form (refer to Section 3.2.1), the illustrated BAL contours visually identify areas of land for which if any part of an existing or proposed building is located on that land and within the BAL contours, then the highest BAL affecting that building (or part of the land on which the building will be constructed), will be the indicative BAL that is to apply.

The BAL can only become a determined BAL once the actual location of that building on the land is known and/or the required minimum vegetation separation distance corresponding to the relevant BAL contour is established (refer to Table 3.3).

3.2.1 Bushfire Attack Level Results - BAL Contour Map Format

INTERPRETATION OF THE BUSHFIRE ATTACK LEVEL (BAL) CONTOUR MAP

The contour map will present different coloured contour intervals extending from the areas of classified bushfire prone vegetation. These represent the different bushfire attack levels that will exist at varying distances away from the classified vegetation in the event of a bushfire in that vegetation.

The areas of classified vegetation to be considered in developing the BAL contours, are those that will remain as the intended end state of the subject development once earthworks, clearing and/or landscaping and re-vegetation have been completed (or each stage completed).

Each bushfire attack level corresponds to a set range of radiant heat flux that is generated by a bushfire. That range is defined by the AS 3959:2018 BAL determination methodology.

The width of each shaded BAL contour is a diagrammatic representation of the separation distances from the classified vegetation that correspond to each BAL for each separately identified area of classified vegetation. They have been calculated by the application of the unique site variables including vegetation types and structure, ground slope and applied fire weather.

(Refer to Section 3.2 'Understanding the Results of the Bushfire Impact Assessment' for the explanation of how BAL(s) for buildings will be assessed from the BAL Contour Map).

Construction of the BAL Contours

VEGETATION AREAS APPLIED TO THE DEVELOPMENT OF THE BAL CONTOUR MAP

All identified areas of classified vegetation have been applied.

VEGETATION SEPARATION DISTANCES APPLIED

The distances that have been applied to illustrating the width of each BAL contour shown in Figure 3.2 are stated in Table 3.3. These correspond to each Bushfire Attack Level and are specific to the proposed development site.

Table 3.3: Vegetation separation distances applied to construct the BAL contours.

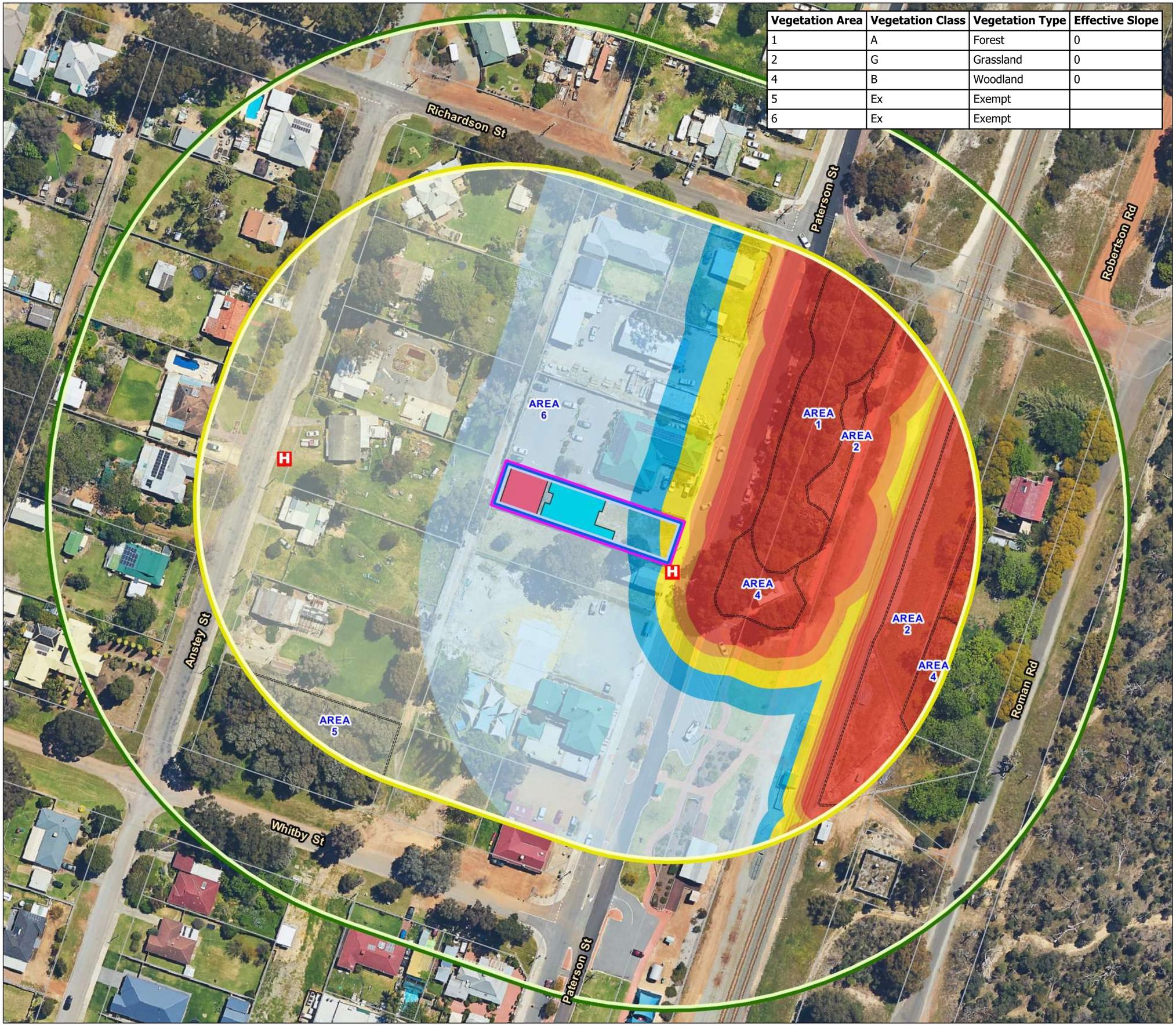
BAL CONTOUR MAP – APPLIED VEGETATION SEPARATION DISTANCES								
Derived from the Application of Method 1 BAL Determination Methodology (AS 3959:2018 Section 2, Table 2.5)[1]								
Vegetation Area	Vegetation Classification	Effective Slope (degree range)	BAL and Corresponding Separation Distance (m)					
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL12.5	BAL-LOW
1	Class A Forest	upslope or flat	<16	16-<21	21-<31	31-<42	42-<100	>100
2	Class G Grassland	upslope or flat	<6	6-<8	8-<12	12-<17	17-<50	>50
3	Class A Forest	upslope or flat	<16	16-<21	21-<31	31-<42	42-<100	>100
4	Class B Woodland	upslope or flat	<10	10-<14	14-<20	20-<29	29-<100	>100
Note[1] All the assessment inputs applied are presented in Section 3.1.								

Figure 3.2

Proposed Childcare Centre BAL Contour Map

Lot 29 on Diagram 13165
38 Paterson Street
MUNDIJONG
SHIRE OF SERPENTINE-JARRAHDALE

Vegetation Area	Vegetation Class	Vegetation Type	Effective Slope
1	A	Forest	0
2	G	Grassland	0
4	B	Woodland	0
5	Ex	Exempt	
6	Ex	Exempt	



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

- Hydrants

Buildings

- Childcare Centre
- Outdoor Play Area
- Asset Protection Zone
- Subject Site
- 100m BAL Buffer
- 150m Assessment Area
- Cadastre
- Vegetation Outline

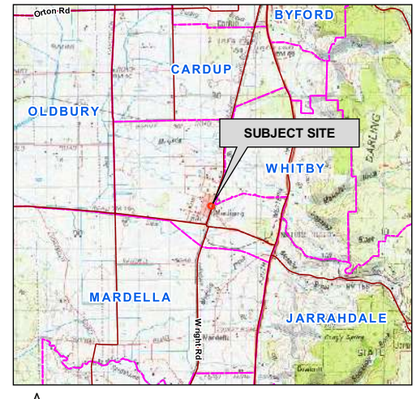
Bushfire Attack Levels

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

0 10 20 30 40 50 60 70

Metres

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



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Ian Macleod 25-02-2022
SCALE (A3): 1 : 1200

BUSHFIRE PRONE PLANNING

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

3.2.2 Bushfire Attack Level Results - Derived from The BAL Contour Map

Table 3.4: Determined BAL(s) for proposed building works.

BUSHFIRE ATTACK LEVEL FOR PLANNED BUILDINGS/STRUCTURE	
BAL Determination Methodology Applied[1]	Method 1 as per AS 3959:2018 s2.2.6 and Table 2.5.
Building/Structure Description (planned)	Determined BAL (refer to start of s3.2)
Proposed Childcare Centre	BAL-12.5
Proposed Covered Outdoor Play Area	BAL-12.5
Note[1] Assessment inputs applied are presented in Section 3.1.	

4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

In response to the Bushfire Management Plan requirements established by Appendix 5 of the Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 v1.3), the following statements are made to assist in the understanding of whether the proposal is likely to be able to comply with the bushfire protection criteria now or in subsequent planning stages.

Spatial Context - Broader Landscape Considerations	
Wider road network and access constraints	The surrounding area has an extensive public road network at the larger scale with access/egress available in all directions through rural lands. At a more local level the proposed development is located on the main through road in the town of Mundijong. Access to the east is impeded by the South West railway line and the nearest crossing is located approximately 600 metres to the south. Access in other directions is easily available. There is no access constraint for the subject site with regard to what is considered acceptable from a planning perspective.
Proximity of settlements and emergency services	The subject site is situated in the town of Mundijong and the Mundijong Bush Fire Brigade is located approximately 500 metres by road south of the site.
Bushfire prone vegetation types and extent (including conserved vegetation)	Significant extents of bushfire prone vegetation exist across the broader landscape in the form of cleared pasture and remnant areas of forest. Most of the vegetation is on private land and subject to various levels of fuel load management. Closer to the proposed development there is a narrow strip of forest and woodland vegetation along the South West railway line which terminates close to the subject lot. An 8ha area of forest is located 140 metres to the east of the lot.
Topography and fire behaviour interactions.	The topography of the area is relatively flat and will not increase a bushfire rate of spread or intensity.
Potential for extreme fire behaviour and pyro convective events.	The Darling Range escarpment, which has steep undulating land with large areas of forest vegetation, sits approximately 2.5 kms east of the subject site. This area has the potential for extreme fire behaviour.
Environmental Considerations	
Constraints to implementing required and/or additional bushfire protection measures	The environment considerations have not identified any issues primary bushfire hazard identified.
Provision of Access Within the Subject Site	
Potential constraints	No constraints to establishing the required access will exist.
Potential Bushfire Impacts	
Flame and radiant heat and ability to establish an APZ	The proposed building will be subject to a BAL rating of BAL-12.5. The whole of the subject lot will be managed to a low bushfire threat state. The current separation distances will prevent flame contact from nearby classified vegetation. Application of the BAL-12.5 bushfire construction standard will mitigate the risks from radiant heat impact to what is considered an acceptable level.
Embers/firebrands, smoke and fire-driven wind	These will be the major impacts to the subject site. The appropriate protection measures of building construction and strict management of the APZ will mitigate the risk to what is considered an acceptable level.

5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA ESTABLISHED BY THE GUIDELINES

For a development application that is not a 'Tourism Land Use' to be considered compliant with SPP 3.7, it must satisfy (achieve) the intent of each of the four elements of the bushfire protection criteria. These criteria are established by the *Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3*). Compliance can be achieved by either:

- Meeting all applicable acceptable solutions corresponding to each element (i.e. the minimum bushfire protection measures that are deemed to satisfy planning requirements); or
- Where an acceptable solution cannot be met, by developing a performance solution that satisfies the established requirements.

5.1 Local Government Variations to Apply

Local governments may add to or modify the acceptable solutions of the Bushfire Protection Criteria (BPC) and/or apply technical requirements that vary from those specified in the Guidelines for Planning in Bushfire Prone Areas (WAPC). In such instances, this Proposal will be assessed against these variations and/or any specific local government technical requirements for emergency access and water. Refer to Appendices 2 and 3 for relevant technical requirements.

Will local or regional variations (endorsed by WAPC / DFES) to the applicable acceptable solutions established by the *Guidelines* or the *Position Statement: Tourism land uses in bushfire prone areas WAPC October 2019,* apply to this Proposal?	N/A

5.2 Summary of Assessment Against the Bushfire Protection Criteria

SUMMARISED OUTCOME OF THE ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA					
Element of the Bushfire Protection Criteria	Basis for the Proposal Achieving Full Compliance with SPP 3.7			The Proposal Cannot Achieve Full Compliance with SPP 3.7	
	Acceptable Solutions Met	Achieves the Intent of the Element			
	All applicable solutions are fully met	All applicable solutions are not fully met. A merit based assessment and/or a bushfire performance comparison of the proposals residual risk with that of the residual risk of the acceptable solution is conducted (refer Note 4)	A performance principle-based solution is applied	Bushfire planning development type that may not require full compliance is applied	An improvement in bushfire performance compared to the existing development is detailed (refer Note 4)
1. Location	✓			N/A	
2. Siting and Design of Development	✓				
3. Vehicular Access	✓				
4. Water	✓				

Note: The development proposal has been assessed:

1. Against the requirements established in Appendix 4 of the *Guidelines for Planning in Bushfire Prone Areas, WAPC 2017 v1.3 (Guidelines)*. The Guidelines are found at https://www.planning.wa.gov.au/8194.aspx; and
2. Applying the interpretation guidance provided in *Position Statement: Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design (WAPC Nov 2019)*.
3. Applying any endorsed variations to the Guideline's acceptable solutions and associated technical requirements that have been established by the local government. If known and applicable these have been stated in Section 5.1 with the detail included as an appendix if required by the local government.
4. When non-compliant with SPP 3.7 and when appropriate, by utilising additional compliance pathways that include the application of merit based assessment and comparative bushfire performance. The validity of this approach is derived from relevant decisions made by the responsible authorities (refer Appendix 2).

5.3 Assessment Detail

Element 1: Location	
Intent: To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.	
Compliance: How the proposed development achieves the intent of Element 1:	By fully meeting all applicable acceptable solutions established by the bushfire protection criteria (Guidelines v1.3 WAPC 2017)

ASSESSMENT (COMPLIANCE) STATEMENTS

For each applicable acceptable solution, the following statements present the results of the assessment of the proposed development against the requirements established by the *Guidelines (WAPC 2017 v1.3)* and apply the interpretation guidance established by the *Position Statement: Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design (WAPC Nov 2019)*.

Acceptable Solution: A1.1: Development Location

ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE GUIDELINES

The proposed development will provide an area of land within the lot that can be considered suitable for development as BAL-40 or BAL-FZ construction standards will not be required to be applied. This meets the requirements established by Acceptable Solution A1.1 and its associated explanatory note.

ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE POSITION STATEMENT

The position statement establishes that:

- The source of risk (the hazard) to be considered in Element 1 is the "level of bushfire exposure" from the type and extent of bushfire prone vegetation and the topography of the land on which it exists; and
- "Consideration should be given to the site context" which includes the land both "within and adjoining the subject site". The "hazards remaining within the site should not be considered in isolation of the hazards adjoining the site, as the potential impact of a bushfire will be dependent on the wider risk context."

The position statement also recognises:

- That the proposed development site and its surrounding land may be part of an area "identified for development or intensification of land use prior to the release of SPP 3.7"; consequently
- Consideration by decision-makers "should also be given to improving bushfire management of the site and surrounding area, thereby reducing the vulnerability of people property and infrastructure to bushfire"; and
- The application of mitigation measures to lessen the risk to the broader area would include improvements to the local road network (including emergency access ways), improvements/additions to firefighting water supply and increasing separation distance from the hazard.

The Hazard Within the Subject Site

The subject lot is managed to a low bushfire threat state and is expected to be maintained in this condition.

Element 1: Location

The Hazard Adjoining the Subject Site

- There are no bushfire hazards adjoining the subject site. The nearest bushfire hazard is a narrow strip of forest and woodland type vegetation located to the east of the site and alongside the South West railway line. Further east is an 8ha area of forest vegetation and then cleared grazing pasture.
- Nearby land to the north, west and south of the subject site are residential or commercial lots.

Consequently, there are limited scenarios in which the subject development site is likely to be subject to a significant bushfire event. It is limited to a fire in the narrow strip of forest and woodland vegetation alongside the railway line in which a bushfire would either be a flanking fire or if a direct fire, be unable to develop fully.

The development site, within the context of its location in the broader landscape, cannot be considered as being at high risk from the impacts of bushfire.

Element 2: Siting and Design of Development

Intent: To ensure that the siting and design of development (note: not building/construction design) minimises the level of bushfire impact.

Compliance: How the proposed development achieves the intent of Element 2:	By fully meeting all applicable acceptable solutions established by the bushfire protection criteria (Guidelines v1.3 WAPC 2017)

ASSESSMENT (COMPLIANCE) STATEMENTS

For each applicable acceptable solution, the following statements present the results of the assessment of the proposed development against the requirements established by the *Guidelines (WAPC 2017 v1.3)* and apply the interpretation guidance established by the *Position Statement: Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design (WAPC Nov 2019)*.

Acceptable Solution: A2.1: Asset Protection Zone

THE APZ - DEVELOPMENT SITING AND DESIGN PLANNING REQUIREMENTS

The necessary outcome of bushfire planning for development siting and design, is to ensure that a building can be located within the developable portion of any lot (i.e. outside those parts of the lot that form the required R-Code building setbacks, or any other excluded area), and be subject to potential radiant heat from a bushfire not exceeding 29 kW/m^2 (i.e. a maximum BAL of BAL-29).

This will be achieved when the size of the "low fuel area immediately surrounding a building", the asset protection zone (APZ), is large enough. This requires a certain separation distance to exist between the building and areas of classified vegetation. These are the BAL-29 APZ dimensions and they will vary dependent on site specific parameters.

The APZ should be contained solely within the boundaries of each lot, except in instances where the neighbouring lot(s) or adjacent public land will be managed in a low-fuel state on an ongoing basis, in perpetuity.

Where possible, planning for siting and design should incorporate elements that include non-vegetated areas (e.g. roads/parking/drainage) and/or formally managed areas of vegetation (public open space/recreation areas/ services installed in a common section of land), as either part of the required APZ dimensions or to additionally increase separation distances to provide greater protection. These elements create robust and easier managed asset protection zones.

THE ASSESSMENT

The proposed buildings on the lot can be surrounded by an APZ that will ensure the potential radiant heat impact of a bushfire does not exceed 29 kW/m^2 (BAL-29). The required APZ specifications of width, location and management can be achieved

APZ Width: The required APZ dimensions to ensure buildings are subject to a maximum BAL of BAL-29 (measured from any external wall or supporting post or column to the edge of the classified vegetation), has been determined in Section 3.2 of this BMP and are:

BAL-29 APZ Dimensions		
Applicable to Following Buildings: Childcare Centre Stores.	Building to Vegetation Area 1	Minimum 21 metres
	Building to Vegetation Area 2	Minimum 8 metres
	Building to Vegetation Area 3	Minimum 21 metres
	Building to Vegetation Area 4	Minimum 14 metres

APZ Location: The BAL-29 APZ will exist both within and outside the subject lot. The portions of the required size APZ that exist outside the subject lot consist of:

- Road
- Footpath
- Adjacent lots managed and maintained to a low bushfire threat state.

Element 2: Siting and Design of Development

APZ Management: The whole of the subject lot is to comply with APZ requirements. Retained onsite vegetation will be managed in accordance with the technical requirements established by the Schedule 1: 'Standards for Asset Protection Zones (Guidelines). The APZ specifications are also detailed in Appendix 1 and the Shire of Serpentine-Jarrahdale may have additional requirements established by their Fire Control Notice.

THE APZ – REQUIRED DIMENSIONS TO SATISFY FUTURE BUILDING (AND ONGOING MANAGEMENT)

It is important for the landowner to be aware that the APZ dimensions that will be required to be physically established and maintained on the lot surrounding relevant future buildings, may be different to those stated above for the BAL-29 APZ - which is the minimum dimension a planning proposal needs to show can be established to comply with SPP 3.7.

The actual APZ dimensions to be physically established and maintained, will be based on which of the following establishes the larger APZ dimension:

- The dimensions corresponding to the determined BAL of a building (refer to Section 3.2 for explanation of the 'planning' versus 'building' requirements and 'indicative' versus 'determined' BAL); or
- The APZ dimensions established by the local government's Firebreak Notice.

If the dimensions of the APZ that are to be established are known at this time, they will be stated below.

For the proposed development, the whole of the subject lot is to be managed to a low bushfire threat state.

Element 3: Vehicular Access

Intent: To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.

Compliance: How the proposed development achieves the intent of Element 3:	By fully meeting all applicable acceptable solutions established by the bushfire protection criteria (Guidelines v1.3 WAPC 2017)

ASSESSMENT (COMPLIANCE) STATEMENTS

For each applicable acceptable solution, the following statements present the results of the assessment of the proposed development/use against the requirements established by the *Guidelines (WAPC 2017 v1.3)*.

Acceptable Solution: A3.1: Two Access Routes

Paterson Street provides access/egress in two different directions to two different destinations. The road is available to residents and the public at all times and under all weather conditions.

Acceptable Solution: A3.2: Public Road

No new roads are planned for this development.

Acceptable Solution: A3.3: Cul-de-sacs (including a dead-end road)

N/A

Acceptable Solution: A3.4: Battle-axe

N/A

Acceptable Solution: A3.5: Private Driveways

N/A
The proposed building will be less than 50 metres from a public road and therefore this acceptable solution is not applicable.

Acceptable Solution: A3.6: Emergency Access Way

N/A

Acceptable Solution: A3.7: Fire Service Access Routes

N/A

Acceptable Solution: A3.8: Firebreak Width

The proposed lots will comply with the requirements of the local government annual firebreak notice issued under s33 of the Bush Fires Act 1954. Firebreaks to be installed prior to subdivision clearance.

Element 4: Water	
Intent: To ensure water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.	
Compliance: How the proposed development achieves the intent of Element 4:	By fully meeting all applicable acceptable solutions established by the bushfire protection criteria (Guidelines v1.3 WAPC 2017)
ASSESSMENT (COMPLIANCE) STATEMENTS For each applicable acceptable solution, the following statements present the results of the assessment of the proposed development/use against the requirements established by the *Guidelines (WAPC 2017 v1.3)*.	
Acceptable Solution: A4.1: Reticulated Areas	
A reticulated water supply is available to the subject site. A hydrant is located on Paterson Street approximately 2 metres south of the subject lot.	
Acceptable Solution: A4.2: Non-Reticulated Areas	
N/A	
Acceptable Solution: A4.3: Non-Reticulated Areas – Individual Lots	
N/A	

5.4 Additional Bushfire Protection Measures

The following bushfire protection measures are recommended to be implemented and maintained. They are additional to those established by the relevant acceptable solutions applied to the proposed subdivision, development or use.

The relevant acceptable solutions are those against which this planning proposal has been assessed in Section 5.3 of this Bushfire Management Plan.

5.4.1 Additional Measures to Improve Bushfire Performance

Buildings of Class 4 to Class 9 are not required by the Building Code of Australia (BCA) to be constructed to comply with bushfire performance requirements. As the proposed buildings are located in a bushfire prone area and may be subject to a bushfire attack, Bushfire Prone Planning recommends that the buildings be constructed to their assessed BAL rating.

SUMMARY OF ADDITIONAL BUSHFIRE PROTECTION MEASURES TO BE APPLIED (Detail Contained in Section 5.4)		
Treatment Category	Brief Description	The Relevant Element and its Intent the Treatment Has Been Developed to Help Achieve
Siting and Design of Development	Construct the proposed buildings/structures to their assessed BAL rating of BAL-12.5.	Element 2 Construction to assessed BAL rating to protect against ember attack.

5.4.2 Additional Measures Established by the Bushfire Emergency Plan

SPP 3.7 establishes the requirement for a Bushfire Emergency Plan to be developed and used as a bushfire protection measure for 'vulnerable' land uses. The emergency plan is produced as a separate operational document.

It establishes the required actions corresponding to a set of relevant procedures that are to be followed in preparation for a bushfire emergency event and in response to and recovery from, a bushfire emergency event.

The responsibility for the facility owner/manager to ensure the requirements of Bushfire Emergency Plan are actioned every year, is established in Section 6 of this Bushfire Management Plan.

5.4.3 Additional Measures Established by the Vulnerability Assessment ('Vulnerable' Land Use)

The following treatments are those identified in the Bushfire Emergency Plan Supporting Information document that accompanies the Bushfire Emergency Plan for this site.

Additional Bushfire Protection Measures - To Implement at Design Stage or Prior to Operation		
Bushfire Protection Measure	Relevant Site Specific Details	Application
Ensure the Bushfire Emergency Plan is developed.		To be applied
Complete all actions of the Pre-Season Prepare Procedure established in the Bushfire Emergency Plan, prior to initial operation.		To be applied
Any proposed buildings that are not Class 1, 2 3 or 10(a), are to be constructed to the bushfire standard established by either AS 3959-2018 or the NASH Standard and corresponding to their determined BAL rating, or greater.	The proposed childcare centre building should be constructed to its assessed BAL rating.	To be applied
To reduce the risks from gas flaring or explosion, the installation of LP Gas cylinders must be in accordance with AS 1596:2014. This includes 6m separation from any combustible materials, the use of metal piping and fittings, safety valves directed away from the building and persons access/egress routes and tethers securing cylinders upright to be non-combustible.	Compliance with these requirements will increase the robustness of the new building design by ensuring additional heat/flame load is not placed on the structure. It is a suitable and effective treatment.	To be applied

Additional Bushfire Protection Measures - Ongoing Operational		
Bushfire Protection Measure	Relevant Site Specific Details	Application
Each year complete the actions of the Pre-Season Prepare Procedure established in the Bushfire Emergency Plan.		To be applied
A responsible person, with appropriate bushfire emergency training, must always be present on-site (staff / caretaker / landowner) to oversee emergency management procedures.	To achieve the greatest effectiveness from a Bushfire Emergency Plan this an important protection measure.	To be applied

Figure 5.1

Proposed Childcare Centre Bushfire Lot Management Map

Lot 29 on Diagram 13165
38 Paterson Street
MUNDIJONG
SHIRE OF SERPENTINE-JARRAHDALE

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

- Hydrants
- Access-Egress

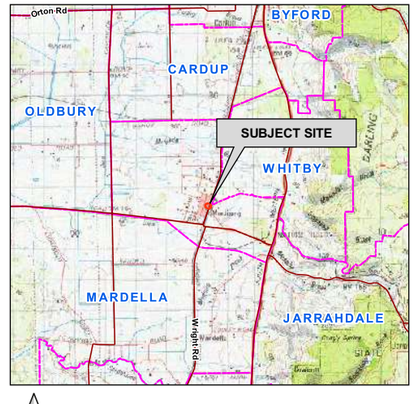
Buildings

- Childcare Centre
- Outdoor Play Area
- Asset Protection Zone
- Subject Site
- Cadastre

0 5 10 15 20 25 30

Metres

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



AERIAL IMAGERY: Landgate/SLIP

BUSHFIRE PRONE PLANNING

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Ian Macleod 25-02-2022
SCALE (A3): 1 : 500

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

6 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE PROTECTION MEASURES

Table 6.1: BMP Implementation responsibilities prior to occupancy or building.

Landowner (Developer) - Prior to Occupancy or Building	
No.	Implementation Actions
1	The local government may condition a development application approval with a requirement for the landowner/proponent to register a notification onto the certificate of title and deposited plan. This will be done pursuant to Section 70A *Transfer of Land Act 1893* as amended ('Factors affecting use and enjoyment of land, notification on title'). This is to give notice of the bushfire hazard and any restrictions and/or protective measures required to be maintained at the owner's cost. This condition ensures that: 1. Landowners/proponents are aware their lot is in a designated bushfire prone area and of their obligations to apply the stated bushfire risk management measures; and 2. Potential purchasers are alerted to the Bushfire Management Plan so that future landowners/proponents can continue to apply the bushfire risk management measures that have been established in the Plan.
2	Prior to sale and post planning approval, the entity responsible for having the BMP prepared should ensure that anyone listed as having responsibility under the Plan has endorsed it and is provided with a copy for their information and informed that it contains their responsibilities. This includes the landowners/proponents (including future landowners where the Plan was prepared as part of a subdivision approval), local government and any other authorities or referral agencies ('Guidelines' s4.6.3).
3	Establish the Asset Protection Zone (APZ) surrounding the proposed childcare centre. The whole of the subject lot is to comply with APZ requirements. Establish the APZ to the standards established by the Guidelines (refer to Appendix 1) or as varied by the local government through their Firebreak Notice. This is the responsibility of the developer.
4	Prior to occupation of the subject lot, the lot is to be compliant with the Shire of Serpentine-Jarrahdale Fire Control Notice issued under s33 of the Bushfires Act 1954. This may include specifications for asset protection zones that differ from the Guideline's APZ Standards, with the intent to better satisfy local conditions. When these are more stringent than those created by the Guidelines, or less stringent and endorsed by the WAPC and DFES, they must be complied with. Refer to Appendix 1.
5	There is an outstanding obligation, created by this Bushfire Management Plan, for a Bushfire Emergency Plan for proposed occupants to be developed and approved for the 'vulnerable' land use.
6	At the development application stage, the details of evacuation vehicles, evacuation timing, the key persons with responsibility for the application of the Bushfire Emergency Plan is unknown. This information must be compiled within the Plan prior to occupancy.
7	Prior to sale or occupancy, a copy of the Bushfire Emergency Plan must be provided to the landowner/occupier and they are to be informed that it contains responsibilities that must be actioned due to the subject Proposal's land use being defined as 'Vulnerable'. This Plan must be read, and the instructions contained in the Plan that require certain information to be displayed and available to all occupants, must be complied with.
8	Prior to occupancy, all actions contained within the Pre-Season Procedure established by the Bushfire Emergency Plan, must be completed.

9	Prior to any building work, inform the builder of the existence of this Bushfire Management Plan and the responsibilities it contains, regarding the required construction standards. This will be: • The standard corresponding to the determined BAL, as per the bushfire provisions of the Building Code of Australia (BCA); and/or • A higher standard because the BMP establishes that the construction standard is to correspond to a higher BAL as an additional bushfire protection measure.
10	To implement and maintain the additional bushfire protection measures contained in Section 5.4 of this Bushfire Management Plan, in addition to the measures that are established by the acceptable solutions.

Table 6.3: Ongoing management responsibilities for the Landowner/Occupier.

Landowner/Occupier - Ongoing	
No.	Ongoing Management Actions
1	Maintain the Asset Protection Zone (APZ) surrounding the proposed childcare centre. The whole of the subject lot is to comply with APZ requirements. Maintain the APZ to the standards established by the Guidelines (refer to Appendix 1) or as varied by the local government through their Firebreak Notice.
2	Comply with the Shire of Serpentine-Jarrahdale Fire Control Notice issued under s33 of the Bush Fires Act 1954. This may include specifications for asset protection zones that differ from the Guideline's APZ Standards, with the intent to better satisfy local conditions. When these are more stringent than those created by the Guidelines, or less stringent and endorsed by the WAPC and DFES, they must be complied with. Refer to Appendix 1.
3	Ensure that any builders (of future structures on the lot) are aware of the existence of this Bushfire Management Plan and the responsibilities it contains regarding the application of construction standards corresponding to a determined BAL.
4	Ensure all future buildings the landowner has responsibility for, are designed and constructed in full compliance with: 1. the requirements of the WA Building Act 2011 and the bushfire provisions of the Building Code of Australia (BCA); and 2. with any identified additional requirements established by this BMP or the local government.
5	Annually review the Bushfire Emergency Plan and conduct the pre-season preparation procedure.
6	To comply with the 'Ongoing Operational' additional bushfire protection measures as stated in section 5.4.3 of this Bushfire Management Plan.

Table 6.4: Ongoing management responsibilities for the Local Government.

Local Government - Ongoing	
No.	Ongoing Management Actions
1	Monitor landowner compliance with the Bushfire Management Plan and the annual Fire Control Notice.

APPENDIX 1: TECHNICAL REQUIREMENTS FOR ONSITE VEGETATION MANAGEMENT

A1.1 Requirements Established by the Guidelines – Standards for Asset Protection Zones

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

DEFINING THE ASSET PROTECTION ZONE (APZ)

Description: An APZ is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level (by reducing fuel loads). The width of the required APZ varies with slope and vegetation and varies corresponding to the BAL rating determined for a building (lower BAL = greater dimensioned APZ).

For planning applications, the minimum sized acceptable APZ is that which is of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29). It will be site specific.

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

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

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

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

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

Schedule 1: Standards for APZ

Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.

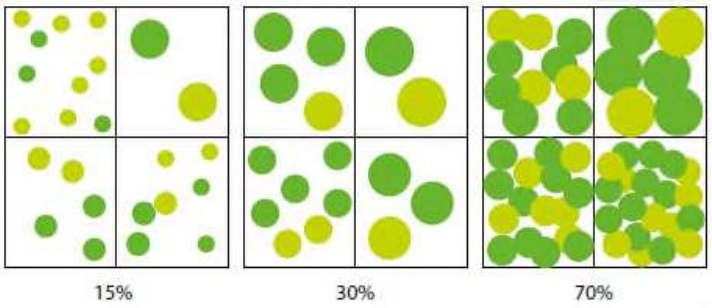
Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.

Fine Fuel Load: combustible dead vegetation matter less than 6 mm in thickness reduced to and maintained at an average of two tonnes per hectare (example below).

Example: Fine fuel load of 2 t/ha
(Image source: Shire of Augusta Margaret River's Firebreak and Fuel Reduction Hazard Notice)

Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy. Diagram below represents tree canopy cover at maturity.

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



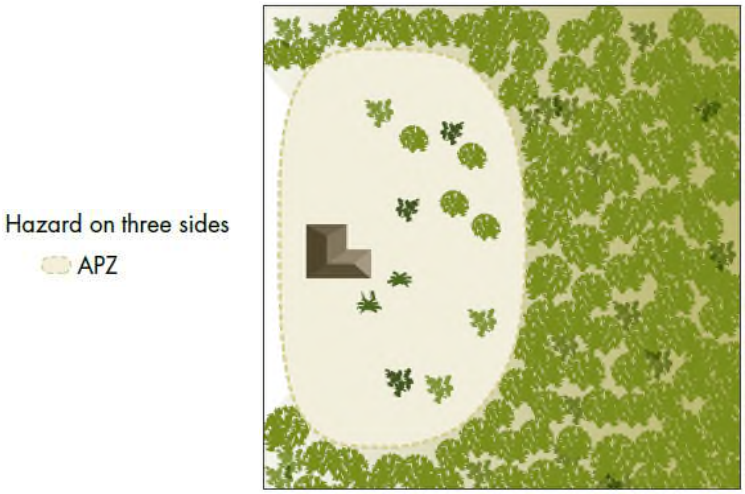
(Source: Guidelines for Planning in Bushfire Prone Areas 2017, Appendix 4)

Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m2 in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.

Ground covers (<0.5 metres in height): can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 mm in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.

Grass: should be managed to maintain a height of 100 mm or less.

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



A1.2 Requirements Established by the Local Government – the Firebreak Notice

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

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

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

The APZ dimensions to be physically established and maintained, will be based on which of the following establishes the larger APZ dimension:

- The dimensions corresponding to the determined BAL of a building (refer to Section 3.2 explanation of the 'planning' versus 'building' requirements and 'indicative' versus 'determined' BAL(s)); or
- The APZ dimensions established by the local government's Firebreak Notice.

A1.3 Requirements Recommended by DFES – Property Protection Checklists

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

A1.4 Requirements Established by AS 3959:2018 – 'Minimal Fuel Condition'

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

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

The Bushfire Attack Level shall be classified BAL-LOW where the vegetation is one or a combination of the following:

a) Vegetation of any type that is more than 100m from the site.

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

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

d) Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m of the site or each other, or other areas of vegetation being classified vegetation.

e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.

f) *Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a* ***minimal fuel condition,*** *(means insufficient fuel available to significantly increase the severity of a bushfire attack – for example, recognisable as short cropped grass to a nominal height of 100mm), 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 (single row of trees)."*

APPENDIX 2: TECHNICAL REQUIREMENTS FOR VEHICULAR ACCESS

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

When required, these are stated in Section 5.1 of this bushfire management plan.

Requirements Established by the Guidelines – The Acceptable Solutions

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

VEHICULAR ACCESS TECHNICAL REQUIREMENTS - PART 1
Acceptable Solution 3.8: Firebreak Width Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three meters or to the level as prescribed in the local firebreak notice issued by the local government.

APPENDIX 3: TECHNICAL REQUIREMENTS FOR FIREFIGHTING WATER

Reticulated Areas

[Source: Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4, Element 4]

The Water Corporation's 'No 63 Water Reticulation Standard' is deemed to be the baseline criteria for developments and should be applied unless local water supply authority's conditions apply.

The requirement is to supply a reticulated water supply and fire hydrants, in accordance with the technical requirements of the relevant water supply authority and DFES.

Key specifications in the most recent version/revision of the design standard include:

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

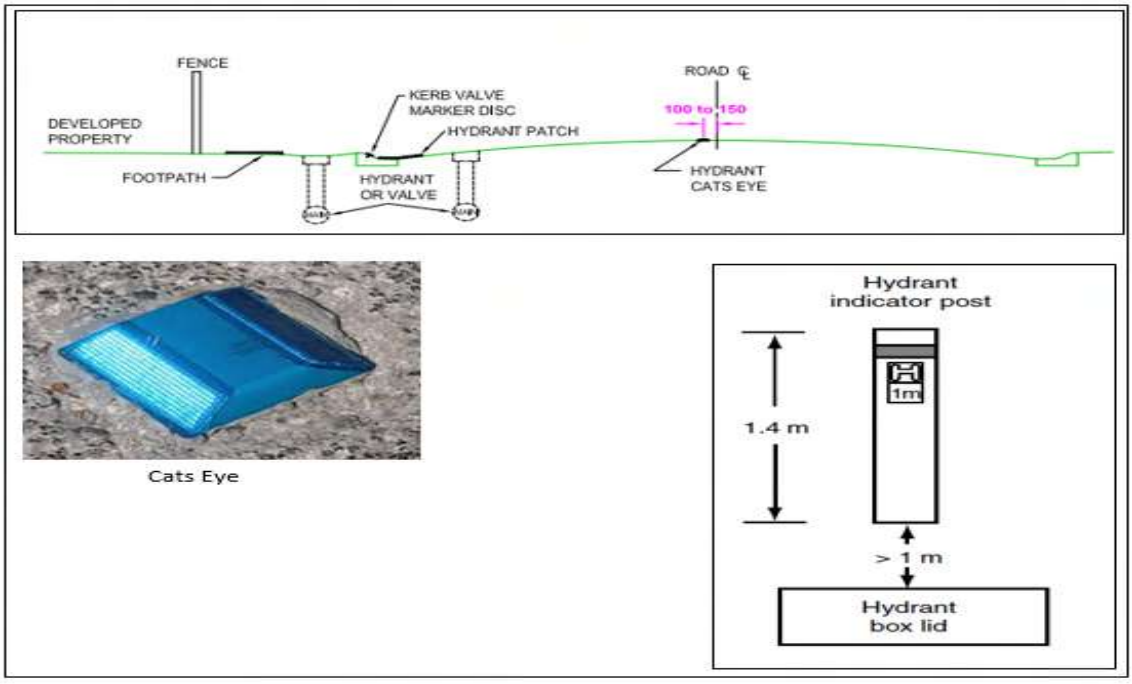


Figure A4.1: Hydrant Location and Identification Specifications