

Bushfire Management Plan:
Subdivision Application: Lot 5001 Pipidiny Road,
Eglinton

PEET Limited

DOCUMENT TRACKING

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Template 2.8.1

Version control	
Version	Purpose
v1	Draft submission to client
v2	Response to DPLH comments

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1. Introduction

1.1 Proposal details

Eco Logical Australia (ELA) was commissioned by PEET Limited to prepare a Bushfire Management Plan (BMP) to support a subdivision application for Lot 5001 Pipidinnny Road, Eglinton (hereafter referred to as the subject site, Figure 1). The proposed development will result in an intensification of land use and involves the development of 368 residential lots and supporting infrastructure (Figure 2). The proposed development represents PEET Limited's Elevale residential estate.

The subject site is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2019; Figure 3), which triggers bushfire planning requirements *under State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; Western Australian Planning Commission (WAPC) 2015) and reporting to accompany submission of the development application in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.3* (the Guidelines; WAPC 2017).

This assessment has been prepared by ELA Bushfire Consultant Stephen Moore with quality assurance undertaken by Principal Bushfire Consultants Daniel Panickar (FPAA BPAD Level 3 Certified Practitioner No. BPAD37802).

1.2 Purpose and application of the plan

The primary purpose of this BMP is to act as a technical supporting document to inform planning assessment. This BMP is also designed to provide guidance on how to plan for and manage the bushfire risk to the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

1.3 Environmental considerations

Some bushfire prone areas 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.

The subject site and the 100 m assessment area (excluding the Regional Open Space [ROS] areas to the west of the subject site) will be cleared for development and ELA is not aware of any pending environmental approvals required to facilitate this clearing. Proposed Public Open Space (POS) areas will be landscaped and planted in a manner that will not result in classified vegetation. Any changes to these factors will be addressed in a BMP addendum or similar.

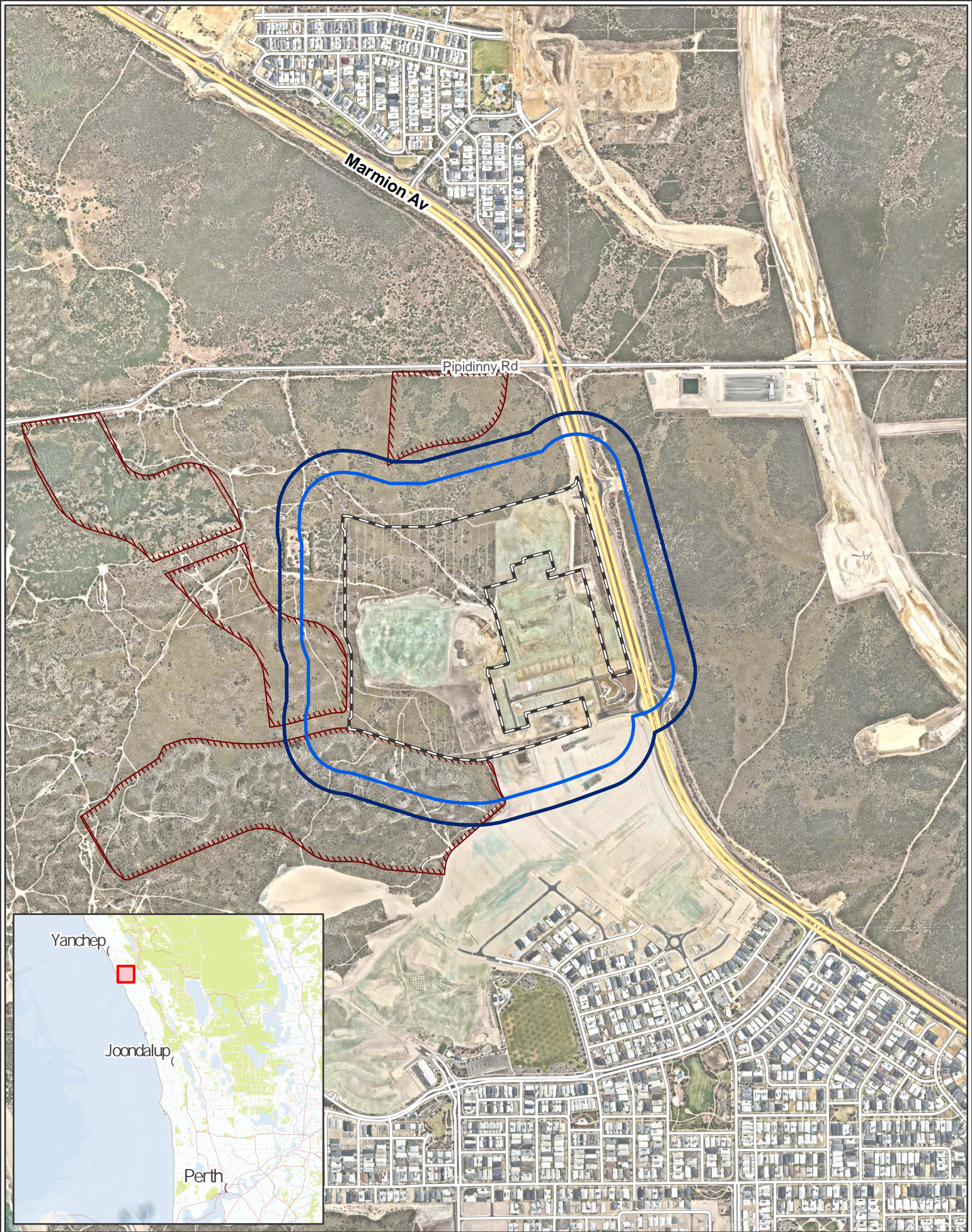




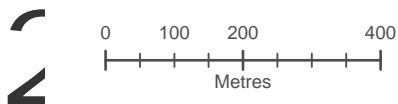
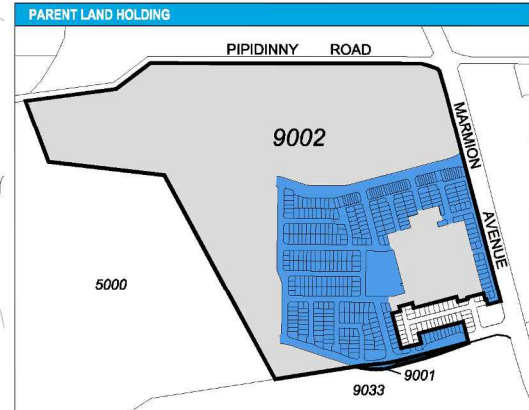


Figure 1: Site Overview

-  Subject site
-  100m site assessment
-  150m site assessment
-  Regional Open Space (ROS)



Datum/Projection:
GDA 1994 MGA Zone 50
Project: 12787-SM Date: 25/01/2022



LEGEND

- Lot 9002 - 77.5138ha
- Lot 9001 - 0.3584ha
- Subject Area - 23.8654ha
- Balance Lot - 54.0068ha

Yield

- Residential - 371 lots
- Other - 1 lot
- Balance - 1 lot
- Total - 373 lots

LOT SUMMARY (Residential)

Size	No. Lots
180m ² - 234m ²	40
235m ² - 319m ²	105
320m ² - 449m ²	157
450m ² - 499m ²	60
500m ² - 549m ²	7
550m ² - 599m ²	1
600m ² - 699m ²	1
Total Lots	371

Minimum Lot Size	- 180m ²
Maximum Lot Size	- 626m ²
Average Lot Size	- 353m ²
Total Lot Area	- 13,1047ha

All road cartage detail where depicted on this subdivision plan including road pavements, road treatments, medians or parking, are for illustrative purposes only and are subject to final engineering design and separate approval processes. The detail reflects the preferred urban design intent for the road network standards.

All dimensions and areas depicted on this plan are subject to pre-cast and final survey and will vary from the figures shown. This plan remains the property of CLE.



Figure 2: Site Plan

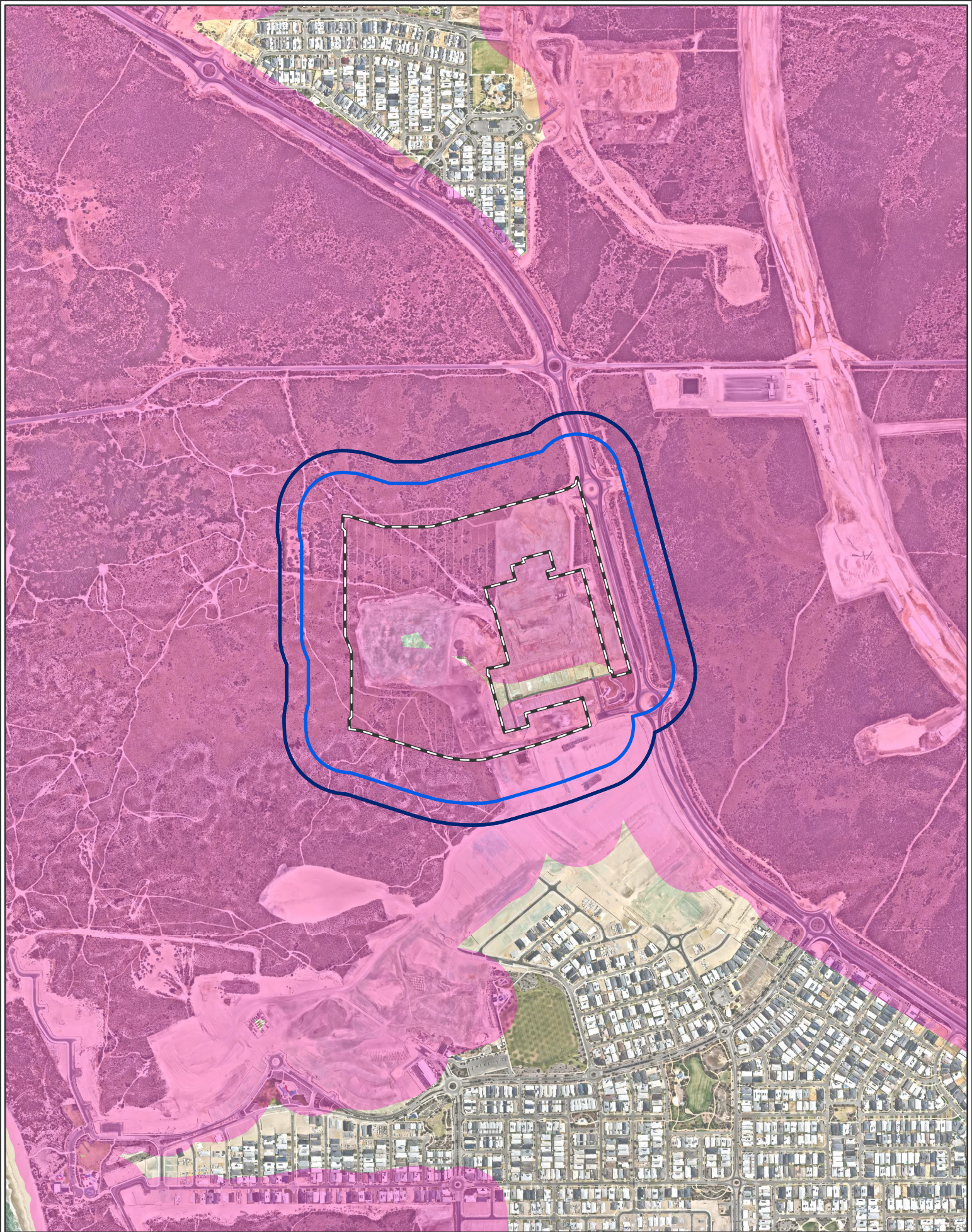




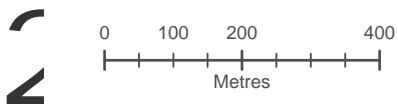


Figure 3: Bushfire Prone Areas

-  Subject site
-  100m site assessment
-  150m site assessment
-  Bushfire Prone Mapping (DFES 2021)



Datum/Projection:
GDA 1994 MGA Zone 50
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2. Bushfire assessment results

2.1 Bushfire assessment inputs

The following section is a consideration of spatial bushfire risk and has been used to inform the bushfire assessment in this report.

2.1.1 Fire Danger Index

A blanket Fire Danger Index (FDI) 80 is adopted for Western Australia, as outlined in Australian Standard AS 3959: 2018 *Construction of Buildings in Bushfire Prone Areas* (SA 2018) and endorsed by Australasian Fire and Emergency Service Authorities Council (AFAC).

2.1.2 Vegetation classification and slope under vegetation

Vegetation and effective slope (i.e. slope under vegetation) within the subject site and surrounding 150 m (the assessment area) were assessed in accordance with the Guidelines and AS 3959: 2018 with regard given to the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016). Site assessment was undertaken on 18 January 2022.

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

Table 1: Classified vegetation as per AS 3959: 2018

Plot	Vegetation Classification	Effective Slope
1	Class A Forest	Downslope >0 to 5 degrees
2	Class C Shrubland	Downslope >0 to 5 degrees
3	Class C Shrubland	All upslopes and flat land (0 degrees)
4	Class D Scrub	Downslope >0 to 5 degrees
5	Class D Scrub	All upslopes and flat land (0 degrees)
6	Class G Grassland	Downslope >0 to 5 degrees
7	Class G Grassland	All upslopes and flat land (0 degrees)
8	Excluded AS 3959: 2018 2.2.3.2 (e) & (f)	N/A

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

Vegetation within the subject site as well as the 100 m assessment area to the north and west will be cleared as part of the subdivision works (excluding ROS areas) and are owned by the developer. Vegetation to the east (across Marmion Avenue) has been assessed as remaining in this BMP. A 'post vegetation clearing' vegetation class map depicting the proposed clearing is provided in Figure 5.

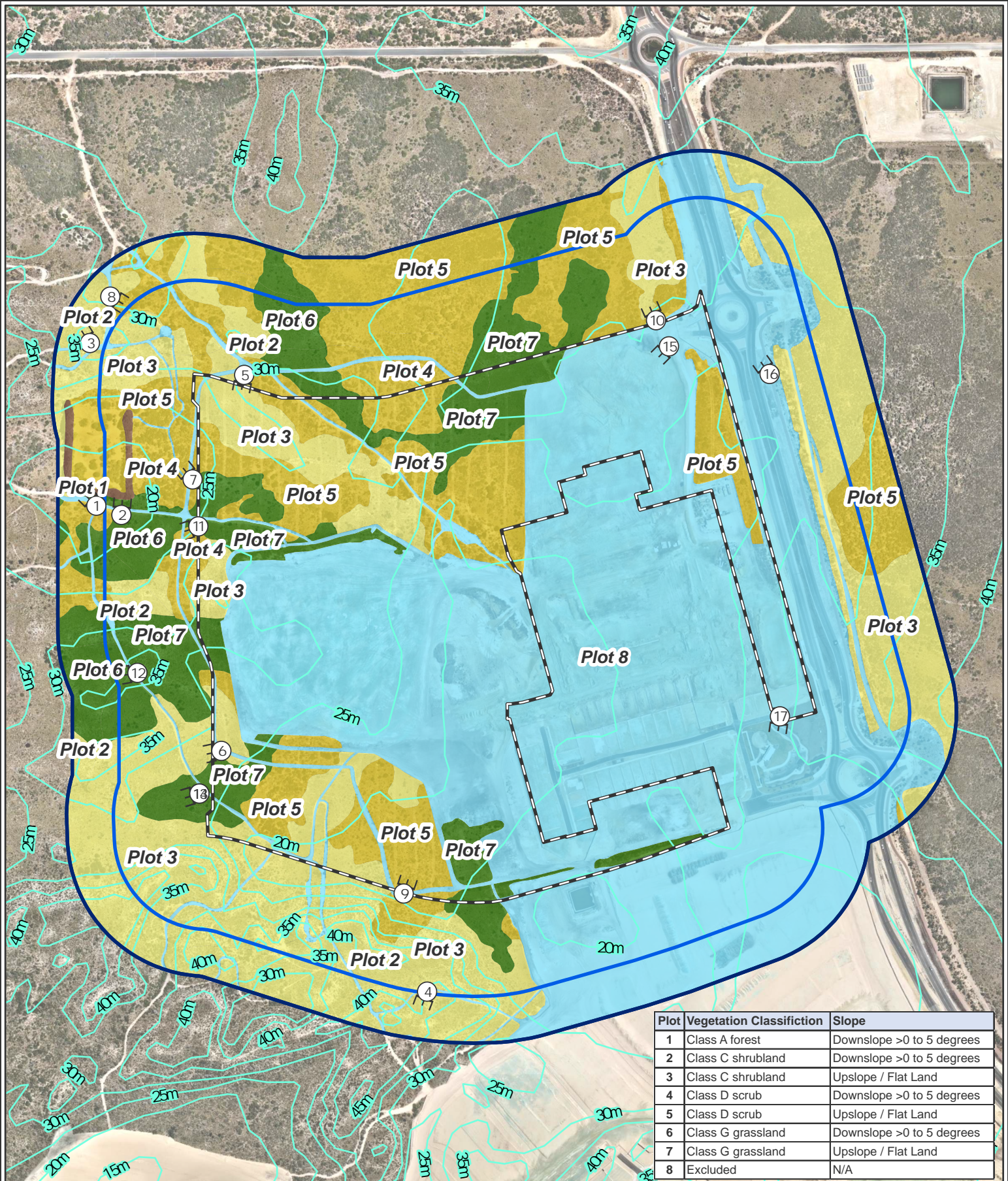


Figure 4: Vegetation Classification - Pre-Development

- Subject site
- 100m site assessment
- 150m site assessment
- Contour (5m)
- Photo location

- Vegetation classification**
- Class A forest
 - Class C shrubland
 - Class D scrub
 - Class G grassland
 - Excluded as per clause 2.2.3.2 (e) and (f)

0 50 100 200
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

Project: 12787-SM Date: 25/01/2022

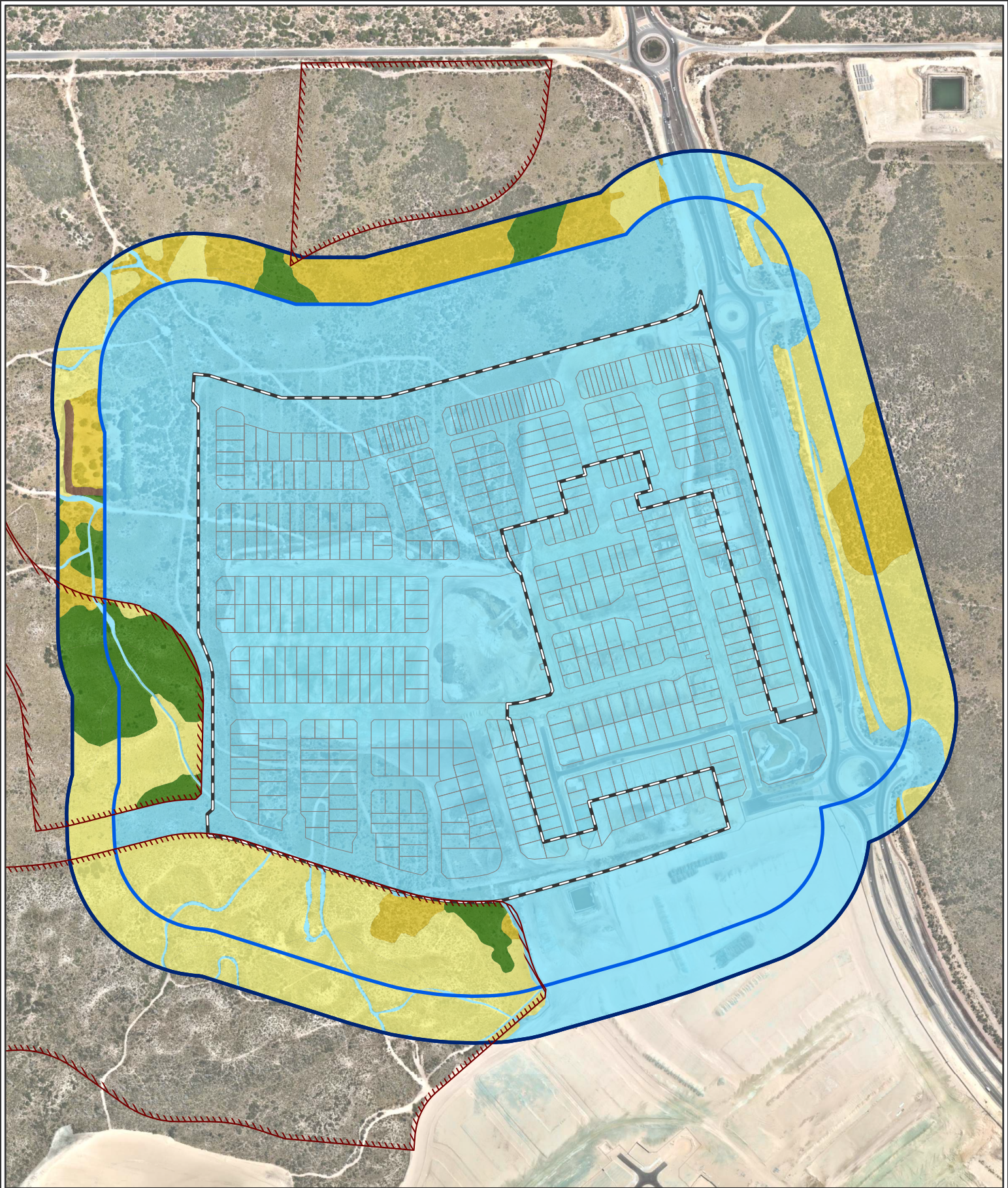










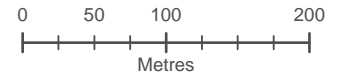


Figure 5: Vegetation Classification - Post-Development and Vegetation Clearing

-  Subject site
-  100m site assessment
-  150m site assessment
-  Lot boundary
-  Regional Open Space (ROS)

- Vegetation classification**
-  Class A forest
 -  Class C shrubland
 -  Class D scrub
 -  Class G grassland
 -  Excluded as per clause 2.2.3.2 (e) and (f)



Datum/Projection:
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2.2 Bushfire assessment outputs

A Bushfire Attack Level (BAL) assessment has been undertaken in accordance with SPP 3.7, the Guidelines, AS 3959: 2018 and the bushfire assessment inputs in Section 2.1.

2.2.1 BAL assessment

All land located within 100 m of the classified vegetation depicted in Figure 5Figure 4 is considered bushfire prone and is subject to a BAL assessment in accordance with AS 3959: 2018.

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

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

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

2.2.2 Method 1 BAL assessment

Table 2 and Figure 6 display the Method 1 BAL assessment (in the form of BAL contours) that has been completed for the proposed development in accordance with AS 3959: 2018 methodology.

The BAL assessment in Figure 6 factors in clearing and management of vegetation within the property and the 100 m assessment area excluding the ROS areas to the south-west of the subject site (Figure 5).

All proposed lots will be located in areas subject to BAL ratings of \leq BAL-19.

2.3 Identification of issues arising from the BAL assessment

Majority of vegetation within the 100 m assessment area will be cleared as part of the proposed development. As the developer owns the landholdings within the clearing area to the north and west and as a result, no landowner agreements are required for this area.

These clearing areas will be managed as Asset Protection Zones until they are developed for residential purposes and the bushfire threat is removed.

Should there be any changes in development design or vegetation/hazard extent that requires a modified bushfire management response, then the above BAL ratings will need to be reassessed for the affected areas and documented in a brief addendum to this BMP.

Table 2: Method 1 BAL calculation (BAL contours)

Plot and vegetation classification	Effective slope	Hazard separation distance	BAL rating	Comment
Plot 1 Class A Forest	Downslope >0 to 5 degrees	0-<20	BAL-FZ	No development proposed in this area
		20-<27	BAL-40	No development proposed in this area
		27-<37	BAL-29	No development proposed in this area
		37-<50	BAL-19	No development proposed in this area
		50-<100	BAL-12.5	No development proposed in this area
Plot 2 Class C Shrubland	Downslope >0 to 5 degrees	0-<7	BAL-FZ	No development proposed in this area
		7-<10	BAL-40	No development proposed in this area
		10-<15	BAL-29	No development proposed in this area
		15-<22	BAL-19	No development proposed in this area
		22-<100	BAL-12.5	Development proposed in this area
Plot 3 Class C Shrubland	All upslopes and flat land (0 degrees)	0-<7	BAL-FZ	No development proposed in this area
		7-<9	BAL-40	No development proposed in this area
		9-<13	BAL-29	No development proposed in this area
		13-<19	BAL-19	No development proposed in this area
		19-<100	BAL-12.5	Development proposed in this area
Plot 4 Class D Scrub	Downslope >0 to 5 degrees	0-<11	BAL-FZ	No development proposed in this area
		11-<15	BAL-40	No development proposed in this area
		15-<22	BAL-29	No development proposed in this area
		22-<31	BAL-19	Development proposed in this area
		31-<100	BAL-12.5	Development proposed in this area
Plot 5 Class D Scrub	All upslopes and flat land (0 degrees)	0-<10	BAL-FZ	No development proposed in this area
		10-<13	BAL-40	No development proposed in this area
		13-<19	BAL-29	No development proposed in this area
		19-<27	BAL-19	No development proposed in this area
		27-<100	BAL-12.5	No development proposed in this area
Plot 6 Class G Grassland	Downslope >0 to 5 degrees	0-<7	BAL-FZ	No development proposed in this area
		7-<9	BAL-40	No development proposed in this area
		9-<14	BAL-29	No development proposed in this area
		14-<20	BAL-19	No development proposed in this area
		20-<50	BAL-12.5	No development proposed in this area

Plot and vegetation classification	Effective slope	Hazard separation distance	BAL rating	Comment
Plot 7 Class G Grassland	All upslopes and flat land (0 degrees)	0-<6	BAL-FZ	No development proposed in this area
		6-<8	BAL-40	No development proposed in this area
		8-<12	BAL-29	No development proposed in this area
		12-<17	BAL-19	No development proposed in this area
		17-<50	BAL-12.5	Development proposed in this area
Plot 8 Excluded AS 3959: 2018 2.2.3.2 (e) & (f)		N/A		

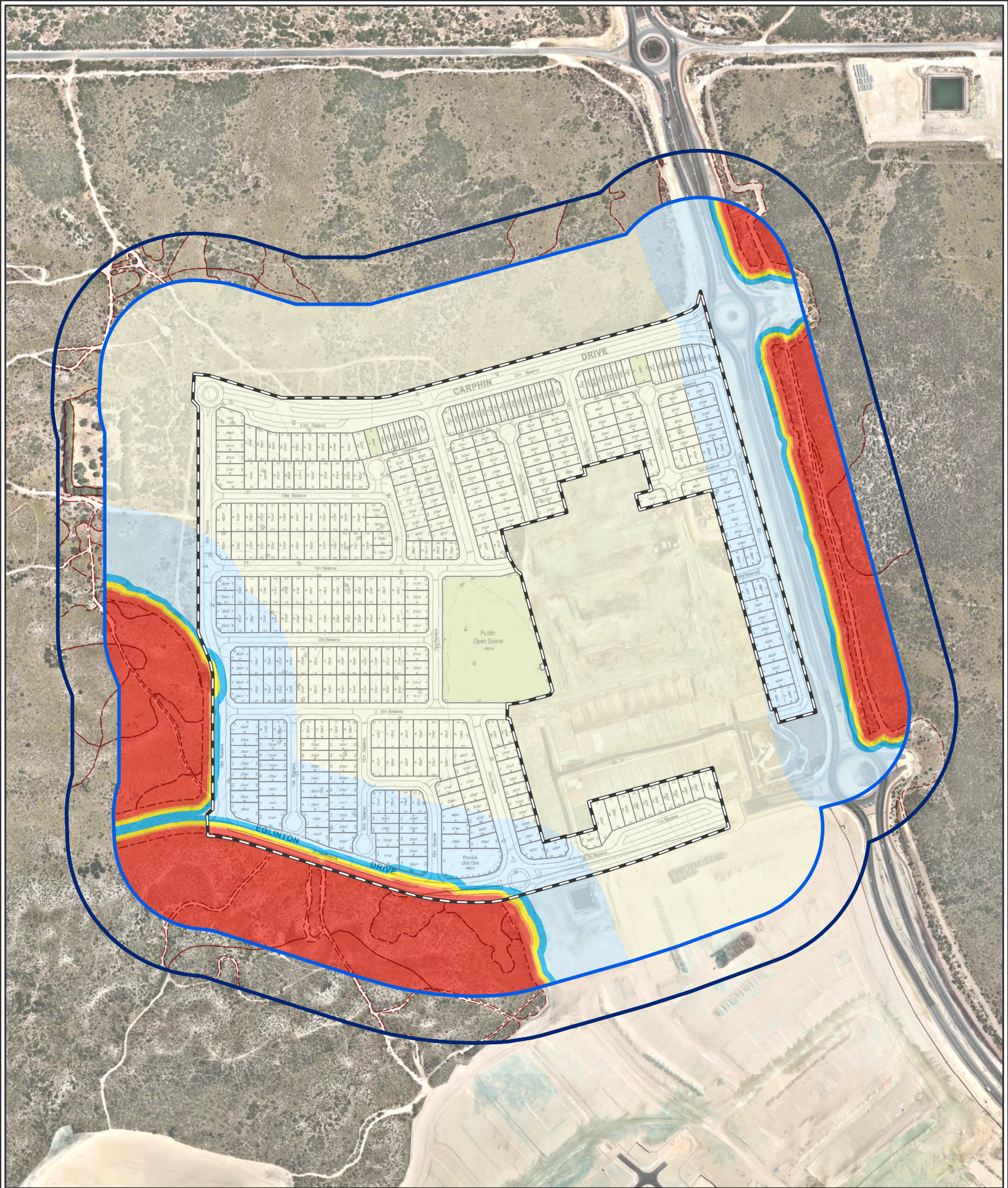











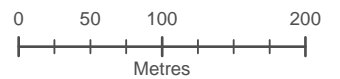


Figure 6: Bushfire Attack Level (BAL) Contours

-  Subject site
-  100m site assessment
-  150m site assessment
-  Lot boundary
-  Bushfire hazard interface

Bushfire Attack Level (BAL)

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



Datum/Projection:
GDA 1994 MGA Zone 50
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3. Assessment against the Bushfire Protection Criteria

3.1 Compliance

The proposed development is required to comply with policy measures 6.2 and 6.4 of SPP 3.7 and the Guidelines. Implementation of this BMP is expected to meet objectives 5.1-5.4 of SPP 3.7.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire risk management measures, as outlined, have been devised for the proposed development in accordance with Guideline acceptable solutions to meet compliance with bushfire protection criteria.

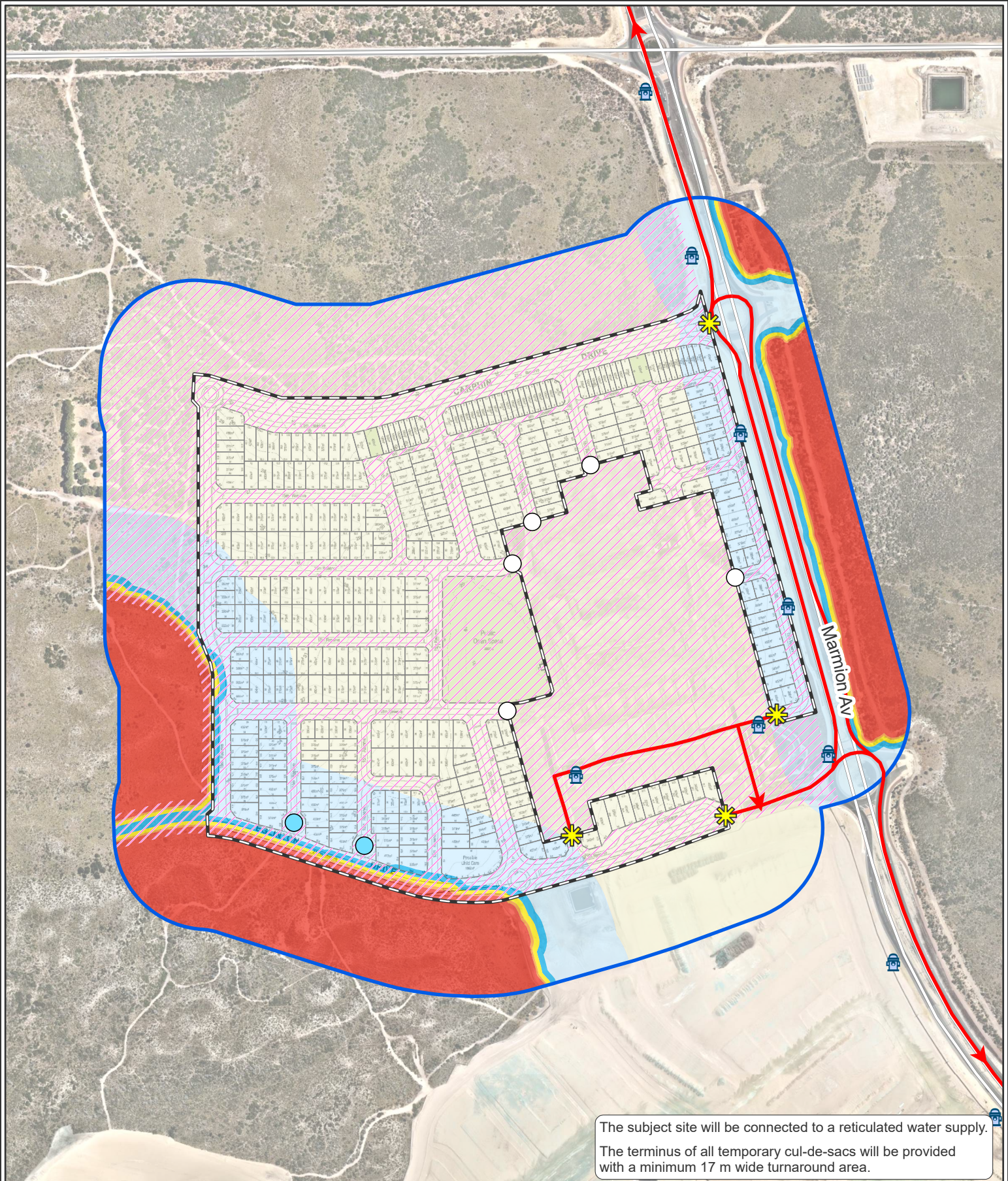
Table 3 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summarises how the intent of each Bushfire Protection Criteria has been achieved. No Performance Solutions (PS) have been proposed for this proposal. These management measures are depicted in Figure 7 where relevant.

Table 3: Summary of solutions used to achieve bushfire protection criteria

Bushfire Protection Criteria	AS	PS	N/A	Comment
Element 1: Location A1.1 Development location	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All future buildings within the subject site will be located in an area subject to BAL ratings of ≤BAL-19 (Figure 6; Figure 7). The proposed development is considered to be compliant with A1.1.
Element 2: Siting and design of development A2.1 Asset Protection Zone (APZ)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	APZs will be established and maintained between future buildings and classified vegetation (Figure 7). The APZs are all located within land owned by the developer, including to the north of the subject site. These APZs will be managed in accordance with the requirements of 'Standards for Asset Protection Zones' (WAPC 2017; Appendix B). The proposed development is considered to be compliant with A2.1.
Element 3: Vehicular access A3.1 Two access routes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Two access routes to/from the subject site are available north and south along Marmion Avenue (Figure 7). The proposed development is considered to be compliant with A3.1.
A3.2 Public road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All roads are public roads and comply with requirements outlined in the Guidelines (Appendix C). The proposed development is considered to be compliant with A3.2.

Bushfire Protection Criteria	AS	PS	N/A	Comment
A3.3 Cul-de-sac	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Two permanent cul-de-sacs occur within the subject site. Five temporary cul-de-sacs also occur within the subject site which will be connected to future roads to the south (Figure 7).</p> <p>Temporary turnaround areas complying with the cul-de-sac requirements in the Guidelines (Appendix C) will be provided at the terminus of all temporary cul-de-sacs until the future connections occur.</p> <p>The proposed development is considered to be compliant with A3.3.</p>
A3.4 Battle-axe	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No battle axe lots are proposed.
A3.5 Private driveway longer than 50 m	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No private driveways longer than 50 m are proposed.
A3.6 Emergency access way	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No emergency access way is required or proposed.
A3.7 Fire-service access routes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No fire service access routes are required or proposed.
A3.8 Firebreak width	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No fire breaks are required or proposed as per the City of Wanneroo Firebreak Notice 2019 (CoW 2019).
Element 4: Water				The subject site will be connected to a reticulated water supply.
A4.1 Reticulated areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The proposed development is considered to be compliant with A4.1.</p> <p>A4.2 and A4.3 are not applicable to this proposed development.</p>
A4.2 Non-Reticulated areas	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Reticulated water is present within the area.
A4.3 Individual Lots within non-reticulated areas	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Reticulated water is present within the area.

NOTE – AS- ACCEPTABLE SOLUTION, PS- PERFORMANCE SOLUTION, N/A- NOT APPLICABLE



The subject site will be connected to a reticulated water supply.
 The terminus of all temporary cul-de-sacs will be provided with a minimum 17 m wide turnaround area.

Figure 7: Spatial representation of the bushfire management strategies

Subject site	Access point	Bushfire Attack Level (BAL)	
100m site assessment	Access / egress route		
Lot boundary	Hydrant	BAL - 40	Datum/Projection: GDA 1994 MGA Zone 50 Project: 12787-SM Date: 1/12/2022
Asset Protection Zone (APZ)	Cul-de-sacs	BAL - 29	
	Permanent cul-de-sac	BAL - 19	
	Temporary cul-de-sac	BAL - 12.5	
		BAL - LOW	 A TETRA TECH COMPANY

4. Implementation and enforcement

Implementation of the BMP applies to the developer, future owners within the subject site and the local government to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in Section 3, as well as a works program, is provided in Table 4. These measures will be implemented to ensure the ongoing protection of life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

Table 4: Proposed work program

No	Bushfire management measure	Responsibility
Prior to issue of Titles		
1	Clear and maintain APZs depicted in Figure 7.	Developer
2	Ensure that 100 m wide APZs are cleared around each stage of subdivision if the entirety of the development depicted in Figure 7 is not developed in a single stage.	Developer
3	Provide reticulated water supply to all lots and hydrants in accordance with Water Corporation 'No. 63 Water Reticulation Standard'.	Developer
4	Place Section 70A on title of all lots within Bushfire Prone Areas.	Developer
5	Construct road network as per plan in Figure 7.	Developer
6	Construct temporary turnaround areas in accordance with the Guidelines at the terminus of all temporary cul-de-sacs.	Developer
Prior to occupancy		
7	Maintain vegetation within APZs to APZ standard in the Guidelines.	Developer
8	Construct proposed buildings to relevant construction standard in AS 3959: 2018.	Owner/builder
Ongoing management		
9	Maintain vegetation within APZs to APZ standard in the Guidelines.	Individual landowners (within property) City of Wanneroo (within public reserves)

5. Conclusion

In the author's professional opinion, the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development. As such, the proposed development is consistent with the aim and objectives of SPP 3.7 and associated guidelines and is recommended for approval.

6. References

City of Wanneroo. Firebreaks, [Online], City of Wanneroo, available from:

http://www.wanneroo.wa.gov.au/info/20035/community_health_and_safety/195/firebreaks

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Standards Australia (SA), 2018, *Construction of buildings in bushfire-prone areas, AS 3959-2018*. SAI Global, Sydney.

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Western Australian Planning Commission (WAPC), 2017, *Guidelines for Planning in Bushfire Prone Areas Version 1.3 (including appendices)*, WAPC, Perth.

Western Australian Planning Commission (WAPC), 2019, *A guide to developing a Bushfire Emergency Evacuation Plan, October 2019*.

Appendix A – Classified Vegetation Photos

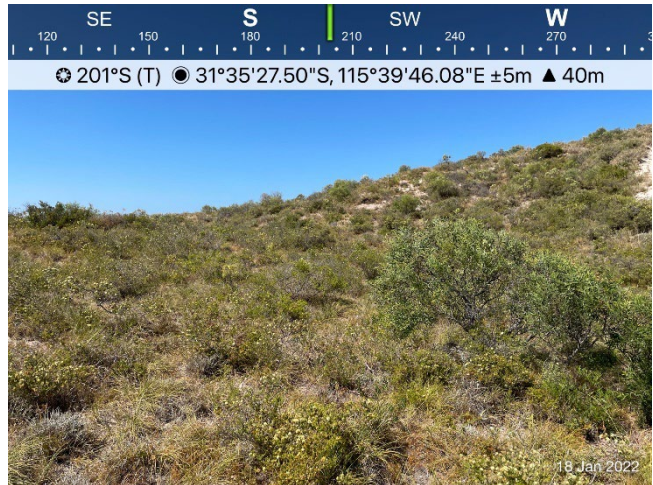
Plot	Classification or Exclusion Clause	Class A Forest
Plot 1	<p>Photo Point 1</p> <p>Classified vegetation within this plot is comprised of trees up to 30 m high with a 30% - 70% foliage cover and a shrub understory.</p> <p>Downslope >0 to 5 degrees</p>	
Plot 1	<p>Photo Point 2</p> <p>Classified vegetation within this plot is comprised of trees up to 30 m high with a 30% - 70% foliage cover and a shrub understory.</p> <p>Downslope >0 to 5 degrees</p>	
Plot 2	<p>Photo Point 3</p> <p>Classified vegetation within this plot is comprised of shrubs <2 m high with >30% foliage cover.</p> <p>Downslope >0 to 5 degrees</p>	

Plot 2 Classification or Exclusion Clause Class C Shrubland

Photo Point 4

Classified vegetation within this plot is comprised of shrubs <2 m high with >30% foliage cover.

Downslope >0 to 5 degrees

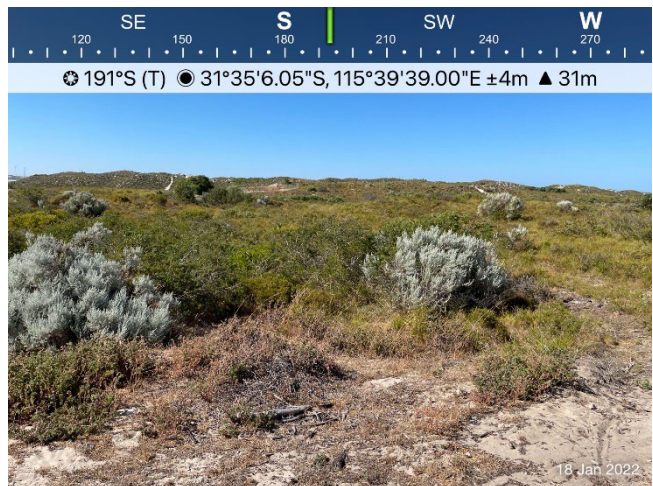


Plot 3 Classification or Exclusion Clause Class C Shrubland

Photo Point 5

Classified vegetation within this plot is comprised of shrubs <2 m high with >30% foliage cover.

All upslopes and flat land (0 degrees)



Plot 3 Classification or Exclusion Clause Class C Shrubland

Photo Point 6

Classified vegetation within this plot is comprised of shrubs <2 m high with >30% foliage cover.

All upslopes and flat land (0 degrees)



Plot 4 **Classification or Exclusion Clause** **Class D Scrub**

Photo Point 7

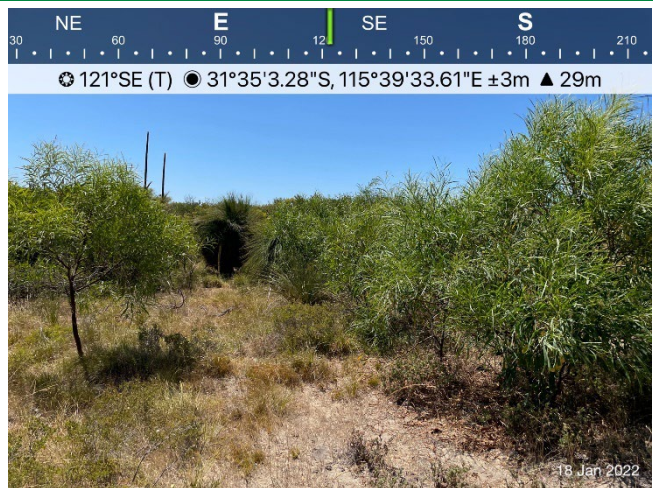
Classified vegetation within this plot is comprised of shrubs >2 m high with a 10%-30% foliage cover.
 Downslope >0 to 5 degrees



Plot 4 **Classification or Exclusion Clause** **Class D Scrub**

Photo Point 8

Classified vegetation within this plot is comprised of shrubs >2 m high with a 10%-30% foliage cover.
 Downslope >0 to 5 degrees



Plot 5 **Classification or Exclusion Clause** **Class D Scrub**

Photo Point 9

Classified vegetation within this plot is comprised of shrubs >2 m high with a 10%-30% foliage cover.
 All upslopes and flat land (0 degrees)



Plot 5 Classification or Exclusion Clause Class D Scrub

Photo Point 10

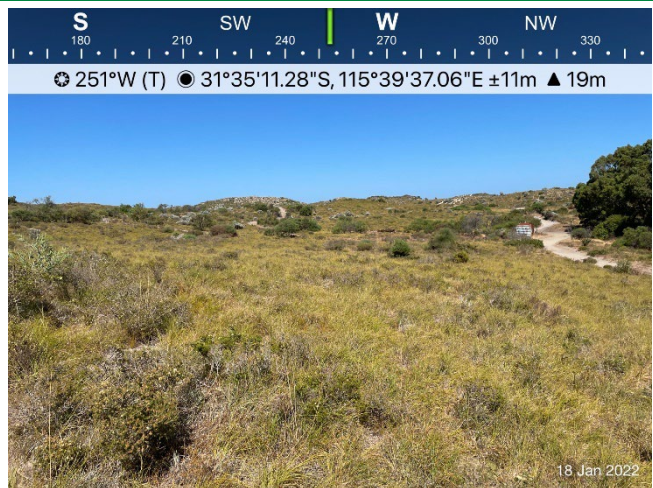
Classified vegetation within this plot is comprised of shrubs >2 m high with a 10%-30% foliage cover.
 All upslopes and flat land (0 degrees)



Plot 6 Classification or Exclusion Clause Class G Grassland

Photo Point 11

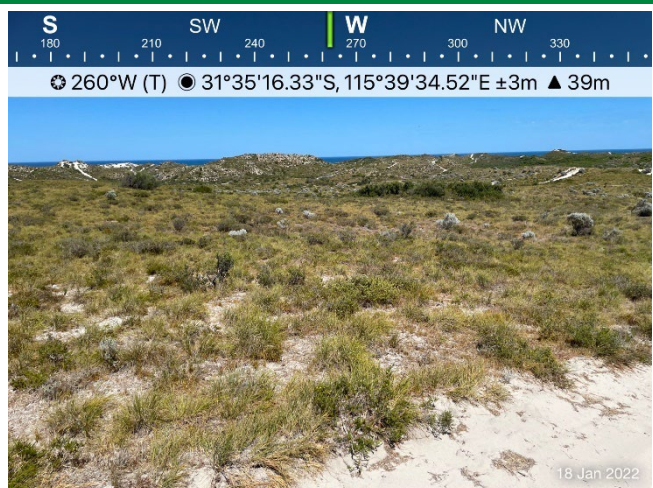
Classified vegetation within this plot is comprised of grassland with an overstorey foliage cover <10%.
 Downslope >0 to 5 degrees



Plot 6 Classification or Exclusion Clause Class G Grassland

Photo Point 12

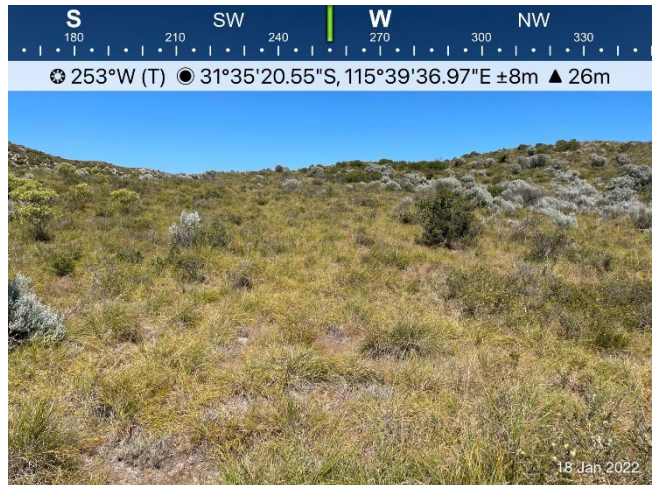
Classified vegetation within this plot is comprised of grassland with an overstorey foliage cover <10%.
 Downslope >0 to 5 degrees



Plot 7 **Classification or Exclusion Clause** **Class G Grassland**

Photo Point 13

Classified vegetation within this plot is comprised of grassland with an overstorey foliage cover <10%.
 All upslopes and flat land (0 degrees)



Plot 7 **Classification or Exclusion Clause** **Class G Grassland**

Photo Point 14

Classified vegetation within this plot is comprised of grassland with an overstorey foliage cover <10%.
 All upslopes and flat land (0 degrees)



Plot 8 **Classification or Exclusion Clause** **Excluded AS 3959: 2018 2.2.3.2 (e)**

Photo Point 15

This plot comprises non-vegetated land within the subject site with all vegetation cleared for development.



Plot 8 Classification or Exclusion Clause Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 16

This plot comprises non-vegetated land encompassing road and footpaths and vegetation managed to a low threat state within the road reserve.



Plot 8 Classification or Exclusion Clause Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 17

This plot comprises non-vegetated land encompassing road and footpaths and vegetation managed to a low threat state that contains mulched areas or maintained vegetation.



Appendix B – Standards for Asset Protection Zones

The following standards have been extracted from the *Guidelines for Planning in Bushfire Prone Areas v 1.3* (WAPC 2017).

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

a. Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29) in all circumstances.

b. Location: the APZ should be contained solely within the boundaries of the lot on which a 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 (see explanatory notes).

c. Management: the APZ is managed in accordance with the requirements of ‘Standards for Asset Protection Zones’ (below):

- 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 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare
- 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 (Figure 8).

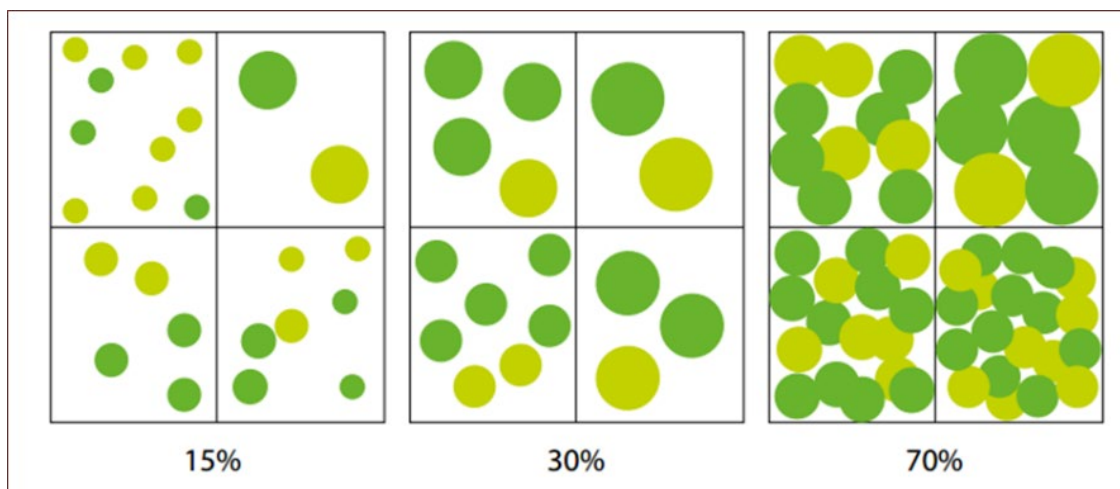


Figure 8: Illustrated tree canopy cover projection (WAPC 2017)

- **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 millimetres 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 millimetres or less.

Additional notes

The Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. Hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot.

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.

Appendix C – Vehicular access technical requirements (WAPC 2017)

Technical requirements	Public road	Cul-de-sac	Private driveway	Emergency access way	Fire service access route
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal distance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 m	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius	8.5	8.5	8.5	8.5	8.5
* Refer to E3.2 Public roads: Trafficable surface					

