

BUSHFIRE MANAGEMENT PLAN

1470 Lilydale Road, Chidlow

Shire of Mundaring

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

Prepared by Ralph Smith
SMITH BUSHFIRE CONSULTANTS Pty Ltd
BPAD 27541
smith.consulting@bigpond.com
0458 292 280

Site visited 17 January 2023; Report completed 4 May 2023

Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address: 1470 Lilydale Road, Chidlow

Site visit: Yes ☑ No ☐

Date of site visit (if applicable): Day 17 Month January Year 2023

Report author: Ralph Smith

WA BPAD accreditation level (please circle):

Not accredited ☐ Level 1 BAL assessor ☐ Level 2 practitioner ☑ Level 3 practitioner ☐

If accredited please provide the following.

BPAD accreditation number: 27541 Accreditation expiry: Month August Year 2023

Bushfire management plan version number: 1

Bushfire management plan date: Day 4 Month May Year 2023

Client/business name: Statewest Planning Pty Ltd

	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?		✓
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)?		✓

Is the proposal any of the following (see SPP 3.7 for definitions)?	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)		✓
Strategic planning proposal (including rezoning applications)		✓
Minor development (in BAL-40 or BAL-FZ)		✓
High risk land-use		✓
Vulnerable land-use		✓

None of the above ☐

Note: Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

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

Signature of report author  Date 4/5/2023

Table of Contents

	Page Number
1: Proposal Details	**5**
2: Environmental Considerations	**8**
2.1: Native Vegetation – modification and clearing	8
2.2: Re-vegetation / Landscape Plans	8
3: Bushfire Assessment Results	**8**
3.1: Assessment Inputs	8
3.2: Assessment Outputs	17
4: Identification of Bushfire Hazard Issues	**17**
5. Assessment against the Bushfire Protection Criteria	**18**
5.1: Compliance Table	18
6: Responsibilities for Implementation and Management of the Bushfire Measures	**20**

List of Figures

Figure 1. Copy of the subdivision plan 6
Figure 2. Map of Bushfire Prone Areas for the subject site 7
Figure 3. Vegetation Classification Map 9
Figure 4. BAL Contour Map 15
Figure 5. Contour map and slope 16
Figure 6. Spatial representation of the bushfire management strategies 18

List of Appendices

Appendix 1. Shire of Mundaring Firebreak and Fuel Load Notice extract 21
Appendix 2. Current hydrant locations 23
Appendix 3. Shire of Mundaring bushfire hazard map 24
Appendix 4. Shire of Mundaring local biodiversity map 25

References 26

Full Content Detail

Document control

Report Version	Purpose	Author/reviewer and accreditation details	Date Submitted
1	Support the subdivision application	Ralph Smith	4 May 2023

DISCLAIMER

This Bushfire Management Plan has been prepared in good faith. It is derived from sources believed to be reliable and accurate at the time of publication. Nevertheless, this plan is distributed on the terms and understanding that the author is not responsible for results of any actions taken based on information in this publication or for any error or omission from this publication.

Smith Bushfire Consultants Pty Ltd has exercised due and customary care in the preparation of this Bushfire Management Plan and has not, unless specifically stated, independently verified information provided by others.

Any recommendations, opinions or findings stated in this report are based on circumstances and facts as they existed at the time Smith Bushfire Consultants Pty Ltd performed the work. Any changes in such circumstances and facts upon which this document is based may adversely affect any recommendations, opinions or findings contained in this plan.

© SMITH BUSHFIRE CONSULTANTS Pty Ltd – May 2023

Section 1: Proposal Details

The proposal is to subdivide 1470 Lilydale Road, Chidlow, into 14 smaller lots of an area of around 2 hectares each. The subdivision will be serviced by the creation of a 20-metre wide road reserve and construction of a suitable standard road. This road will link to the current road network and support access to multiple alternative locations. The future lots within the site will be linked to the reticulated scheme water system and will have fire hydrants placed at the appropriate separation distance and standards.

The Shire of Mundaring has requested that the gully which links the land to the south (Reserve 37142) traversing through the lot to the west (Reserve 46376) will be established as a public open space and revegetated to a forest standard. Both ends of the gully are reserved land and are currently dominated by scrub vegetation adjacent to the lower lying land and the reserve to the west has tall trees and multi-tiered understorey on the higher upland areas. There will also be a six-metre-wide reserve on the southern boundary that will be reserved for public purposes.

.

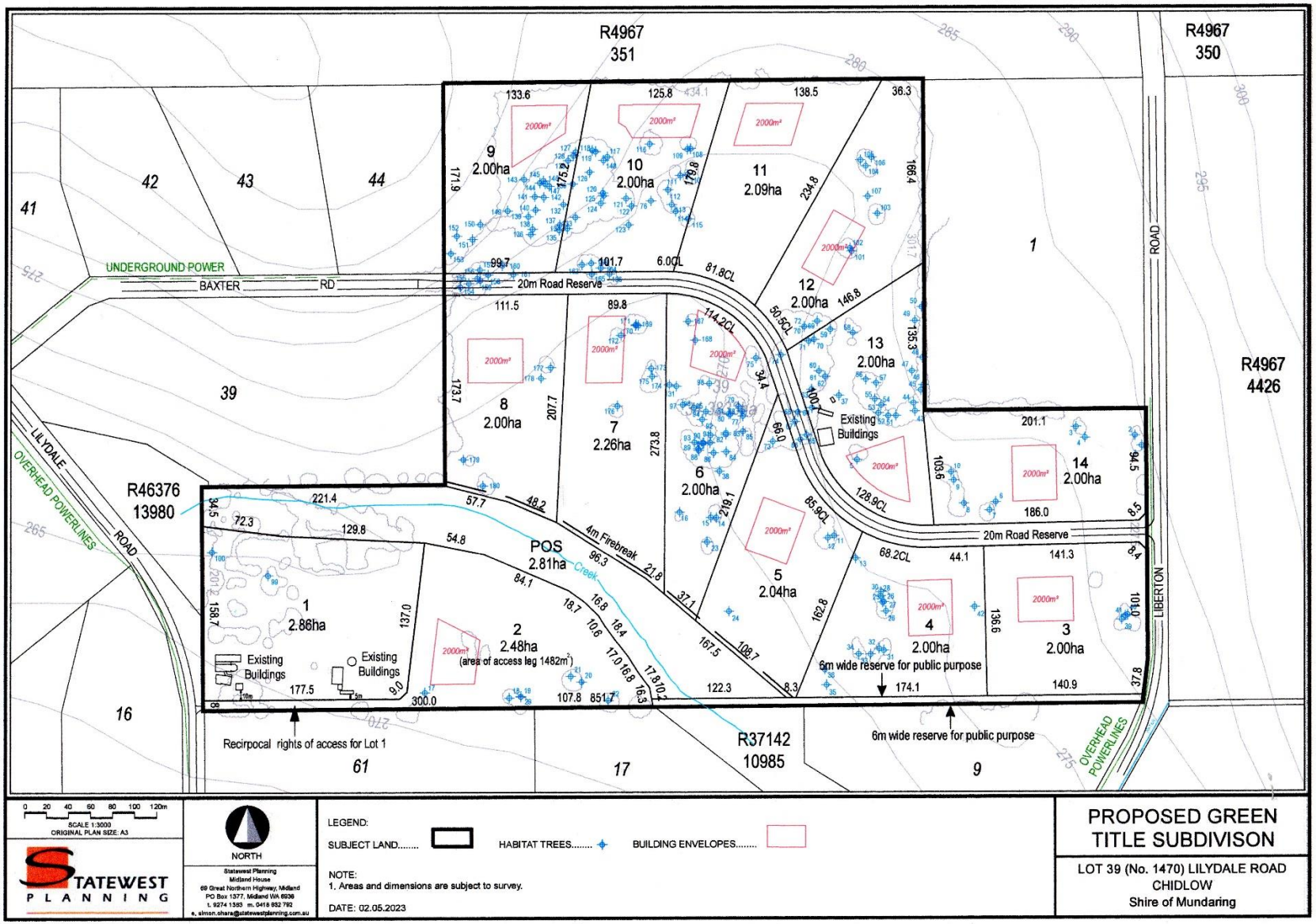


Figure 1. The copy of the subdivision site plan.

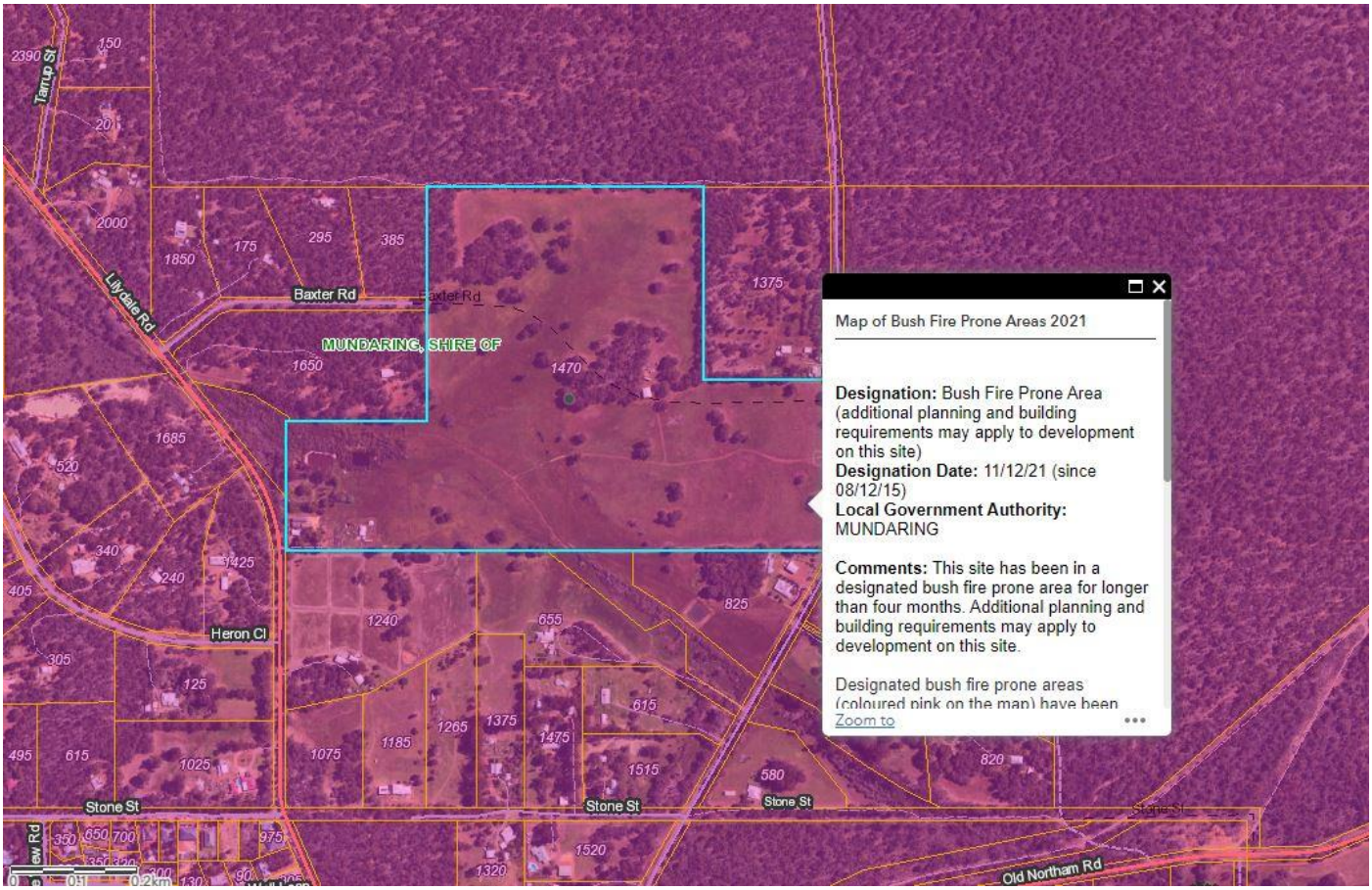


Figure 2. Screen shot of map of bushfire prone areas for the subject site.

Section 2: Environmental Considerations

The State Planning Policy 3.7 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values. A desktop search has identified that the following are not registered for the development site or immediately surrounding area:

- Threatened and priority flora;
- Threatened and priority fauna;
- Contaminated site registration;
- Clearing Regulation – Environmental Sensitive Areas;
- Black Cockatoo Breeding Sites; and
- Carnaby Cockatoo Confirmed roost sites are located around 400 metres to the south and not influenced by this subdivision.

The desktop search also identified that the following cultural issues are not registered for the development site or immediately surrounding area:

- Aboriginal heritage site; or
- Heritage Council State Register site.

Subsection 2.1: Native Vegetation – modification and clearing

There is a need to clear very limited areas of native vegetation overstorey as a component of this development and comply with the protection requirements within the Shire's Firebreak Notice and the State's Guidelines. The building envelopes have been placed to minimise overstorey clearing and placed so that retention of trees can be maximised and still achieve the 15% maximum overstorey cover in the APZ.

Subsection 2.2: Re-vegetation/Landscape Plans

There will be no revegetation plan for the private land new lots. The Shire will be conducting revegetation activities within the proposed POS, which is located in the low lying sections of the land and identified in the vegetation classification map. This revegetation has been classified as forest for the BMP.

Section 3: Bushfire Assessment Results

Any dwellings located on the new lots have all been assessed as being with BAL rating of BAL–29 or less. These BAL ratings align with the State Government criteria of not having dwellings located in areas above BAL–29.

All new dwellings will need to be constructed to the appropriate BAL rating as shown on the BAL contour plan within the BMP.

Subsection 3.1: Assessment Inputs

The assessment inputs are shown in the forthcoming pages and are supported by a vegetation assessment, photographic evidence and text to support the vegetation assessment and a BAL Contour Map.

Site Assessment

The assessment of the proposed subdivision was undertaken on 17 January 2023 for the purpose of determining the vegetation classification and the BAL Contour Map in accordance with AS 3959 (Method 1).

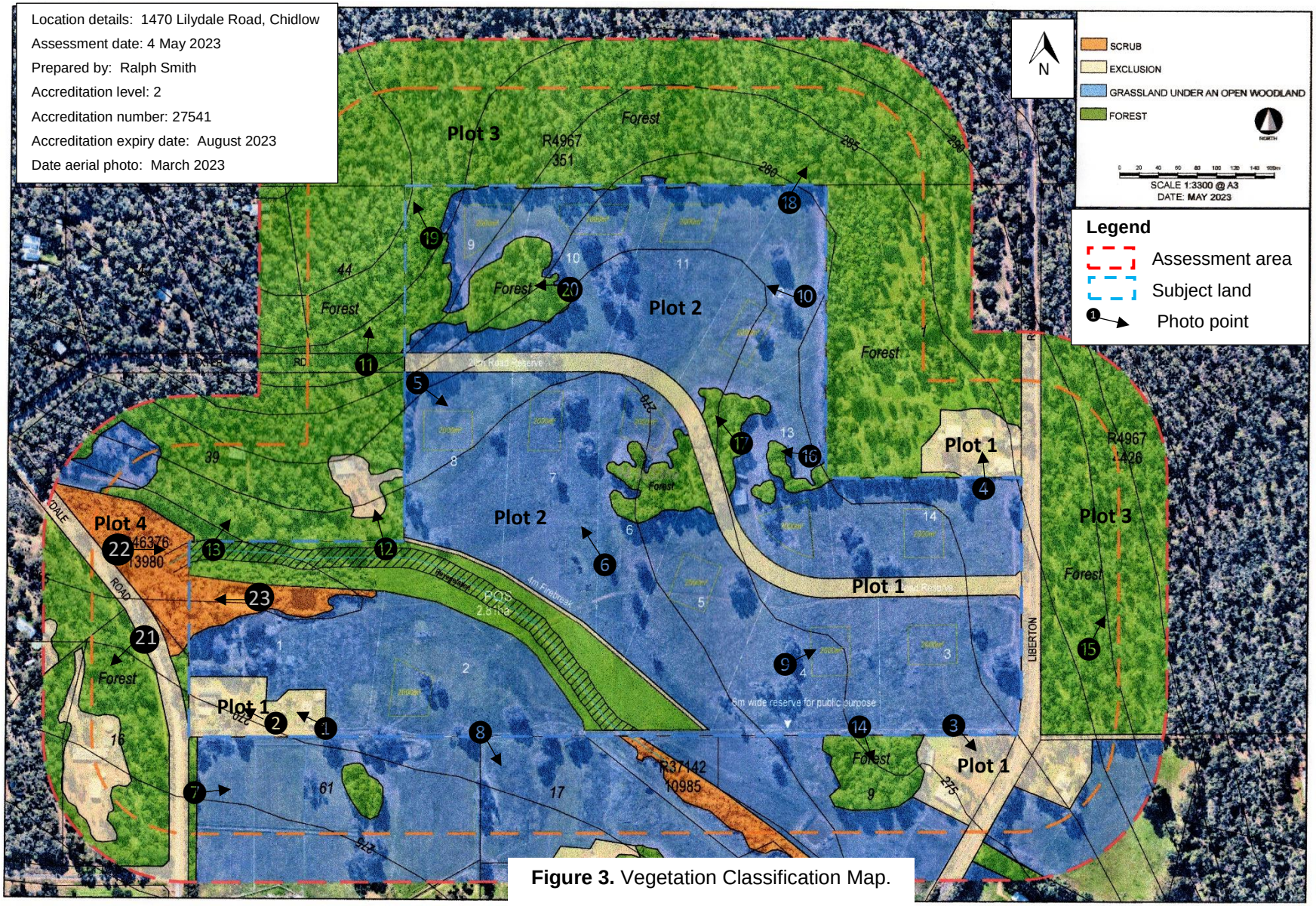


Figure 3. Vegetation Classification Map.

Vegetation Classification

All vegetation within 150 metres of the proposed subdivision as indicated on the site assessment plan was classified in accordance with the Western Australian Government criteria and Clause 2.2.3 of AS 3959 was applied. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below. AS 3959 only requires consideration of 100 metres between vegetation and the building and 50 metres between vegetation and the building for grassland.

Plot 1
Exclusion – Low threat vegetation and non-vegetated areas.
Clause 2.2.3.2 (e) and (f).



Photo ID: Photo 1 Looking at the stock yards near the current dwelling on the subdivision lot.



Photo ID: Photo 2 Looking at the dwelling on the current subdivision lot.



Photo ID: Photo 3 Looking at the dwelling and APZ on the land south of the subdivision site.



Photo ID: Photo 4 Looking at the dwelling and APZ on the land adjacent to the subdivision site.

Plot 2
Class G – Grassland under an open woodland (AS 3959 classification – G – 06).



Photo ID: Photo 5 Looking across the subdivision site at the grassland and scattered trees.



Photo ID: Photo 6 Looking across the subdivision site at the grassland and scattered trees



Photo ID: Photo 7 Looking at the grass paddock on lot to the south of the subdivision site**.**



Photo ID: Photo 8 Looking at the grassland and dwelling south of the subdivision site.



Photo ID: Photo 9 Looking at the grassland vegetation.



Photo ID: Photo 10 Looking at the grass vegetation and scattered trees on the subdivision site.

Plot 3
Class A – Forest (AS 3959 classification – A – 03)



Photo ID: Photo 11 Looking at the forest north of Baxter Road.



Photo ID: Photo 12 Looking at the forest and then the dwelling west of the subdivision site.



Photo ID: Photo 13 Looking at the forest west of the subdivision site.



Photo ID: Photo 14 Looking at the forest vegetation on the lot to the south of the subdivision site. Note the absence of a scrub understorey.



Photo ID: Photo 15 Looking at the forest east of Liberton Road.



Photo ID: Photo 16 Looking at the forest on the lot. Note the absence of a scrub understorey.



Photo ID: Photo 17 Looking at the forest on the lot. south of the development site.



Photo ID: Photo 18 Looking at the forest vegetation.



Photo ID: Photo 19 Looking at the forest vegetation on the subdivision site.



Photo ID: Photo 20 Looking at the forest vegetation west of Lilydale Road.

Plot 4

Class D – Scrub (AS 3959 classification – D – 13)



Photo ID: Photo 21 Looking at the scrub vegetation west of the subdivision site.



Photo ID: Photo 22 Looking at the scrub vegetation on the subdivision site.

Notes to Accompany Vegetation Classification

1. Plot 1
Exclusion – Low threat vegetation and non-vegetated areas
Clause 2.2.3.2 (e) and (f)

This plot comprises the established houses, APZs and gardens. It also contains the current and future roads.

2. Plot 2
Class G – Grassland under an open woodland (AS 3959 classification – G – 06)

This plot comprises the area of grassland under an open woodland. The overstorey crown cover in this plot is less than 10% and has a surface vegetation of grassland. This vegetation type is the majority of the subdivision site.

3. Plot 3
Class A – Forest (AS 3959 classification – A – 03).

This plot comprises the large areas of forest that are on three sides of the subdivision lot and the future forest regeneration associated with the POS. This plot also includes the areas of forest overstorey cover where there is an absence of scrub understorey but the overstorey exceeds 30% crown cover which are located on the subdivision lot and the lot to the south of the subdivision lot.

4. Plot 4
Class D – Scrub (AS 3959 classification – D – 13).

This plot comprises the areas of scrub that are within the drainage area in the gully on this lot and the neighbouring lots to the north-west and south. The scrub is also within the general area of the dam on the lot.

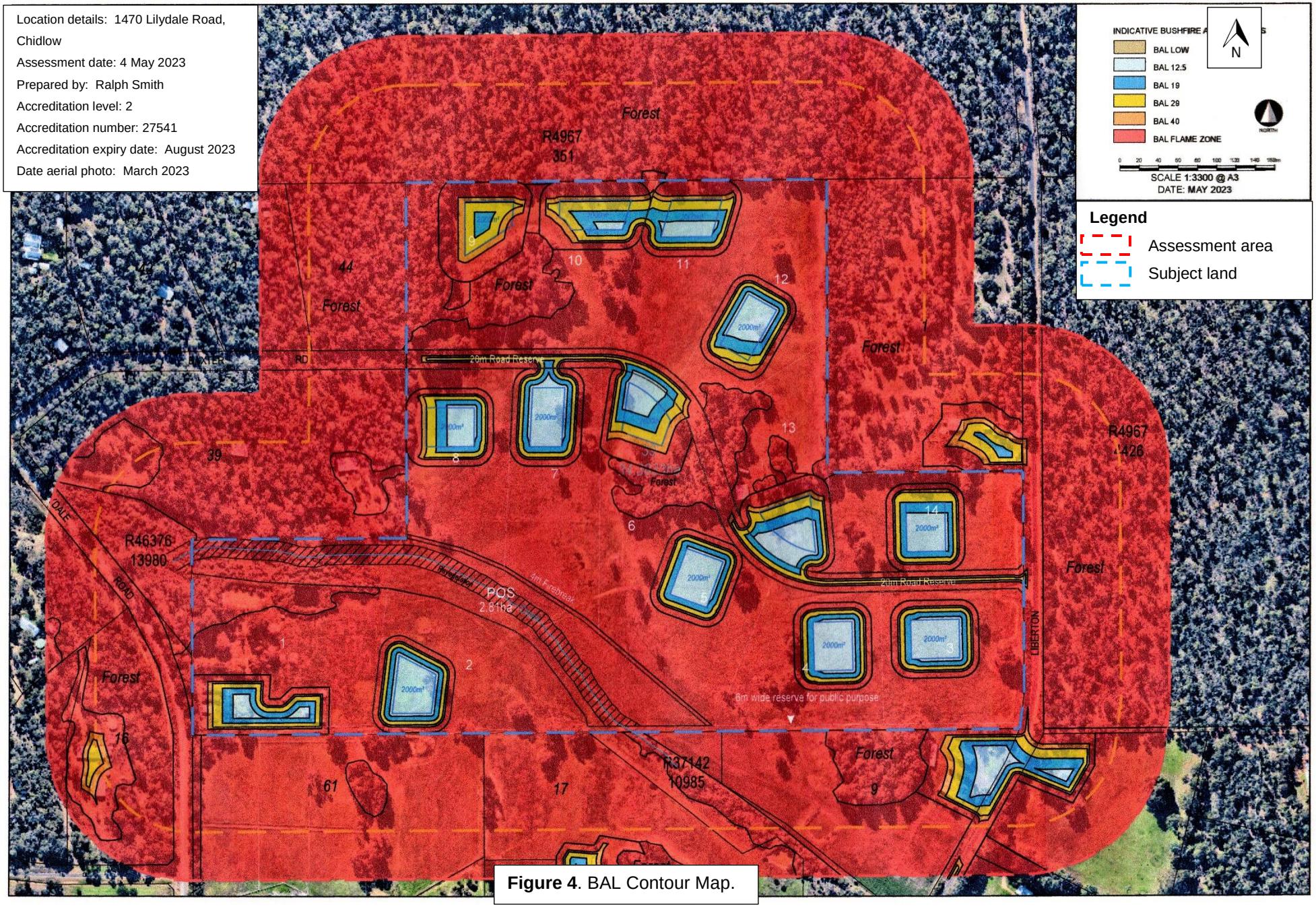


Figure 4. BAL Contour Map.

Slope



Figure 5. Two-metre contour lines.

Subsection 3.2: Assessment outputs

Plot	Applied Vegetation Classification	Effective Slope Under the Classified Vegetation (degrees)	Separation Distance to the Classified Vegetation (metres)	BAL Contour
1	Exclusion – Low threat vegetation and non-vegetated areas Clause 2.2.3.2 (e) & (f)	Not applicable	Not applicable	LOW
2	Class G – Grassland under an open woodland	>0-5°	20	12.5
3	Class A – Forest	>0-5°	27	29
4	Class D – Scrub	>0-5°	123	LOW

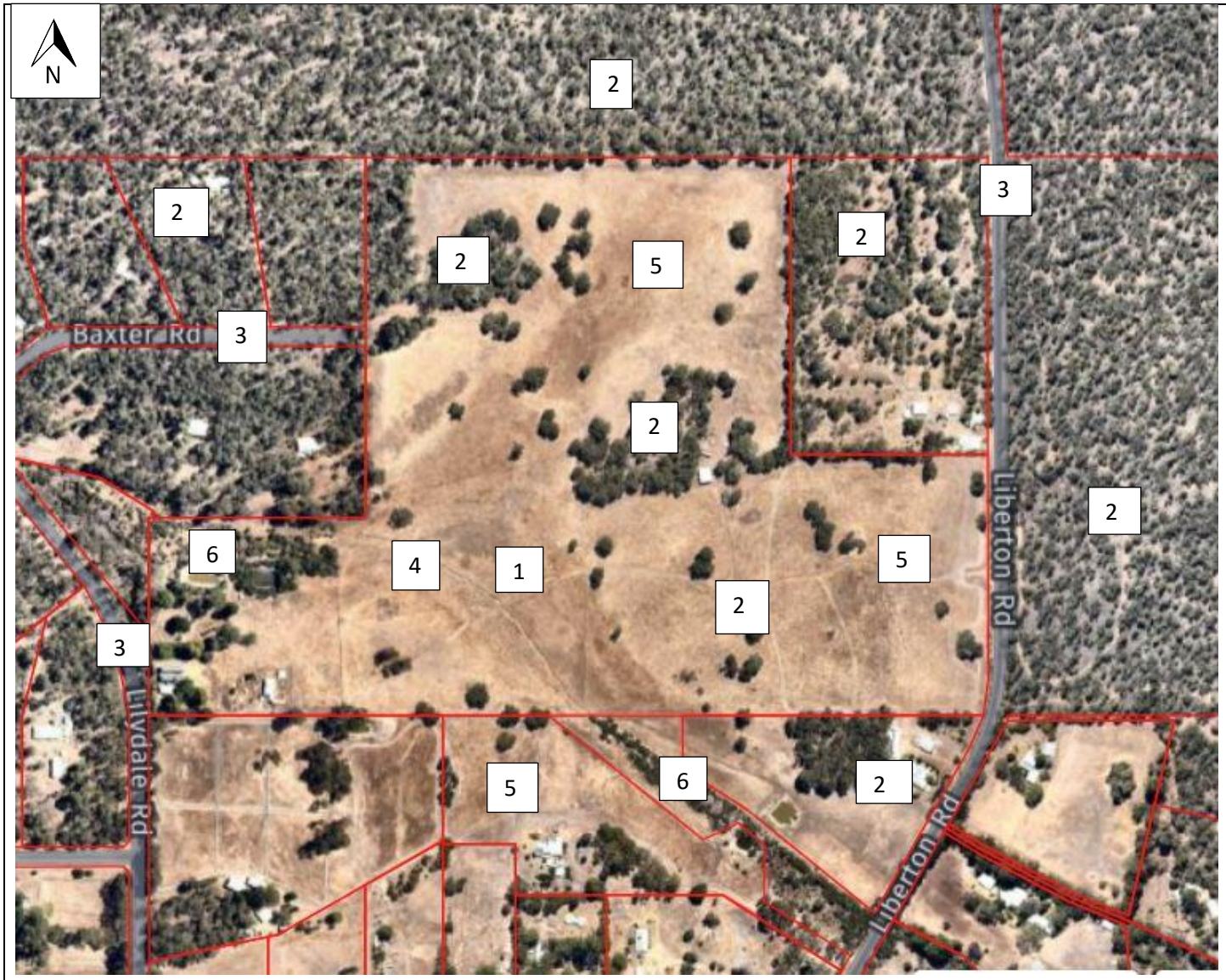
Section 4: Identification of bushfire hazard issues

The most significant bushfire hazard is the extensive native forest vegetation associated with the forest external to the subdivision lot with its complex multi-tiered understorey. The other potential bushfire hazard is the grassland on the subdivision site and neighbouring farms. The forest on the development lot does not contain the complex multi-tiered understorey associated with the neighbouring forest overstorey. The complex multi-tiered understorey forest vegetation will be sufficiently separated from any future dwelling, and any potential bushfire, by constructing to the appropriate standard and establishing and maintaining the APZ.

Section 5: Assessment against the Bushfire Protection Criteria

Subsection 5.1: Compliance Table

Bushfire protection criteria	Method of Compliance Acceptable solutions	Proposed bushfire management strategies
Element 1: Location	A1.1 Development location	The potential future dwellings will be located in an area that is restricted to the BAL rating BAL–29 or less.
Element 2: Siting and design	A2.1 Asset Protection Zone (APZ)	There is a requirement for an APZ to meet both the Shire and State Government criteria.
Element 3: Vehicular access	A3.1 Public roads	Liberton Road and Baxter Road provides multiple access options for the proposed new lots, and links to a substantial road network.
	A3.2a Multiple access routes	There are two through access options established at this stage of the development in the area.
	A3.2b Emergency access way	Nil will be constructed with this development.
	A3.3 Through-roads	Liberton Road and Baxter Road provides provide through access and roads.
	A3.4a Perimeter roads	There are no planned perimeter roads at this stage of the development within the area.
	A3.4b Fire service access routes	There are no planned FSAR at this stage of the development within the area.
	A3.5 Battle-axe access legs	There will be no battle-axe access legs within this development.
	A3.6 Private driveways	It is anticipated that there may be driveways longer than 50 m constructed with this development. If there are they, will be compliant with the Guidelines.
Element 4: Water	A4.1 Identification of future water supply	The site will be serviced with reticulated mains water.
	A4.2 Provision of water for firefighting purposes	The site will be serviced with reticulated mains water with appropriate fire hydrants.



LEGEND

Subject land

Sealed roads

REQUIREMENTS

1. The site will be serviced by a reticulated scheme water system developed to comply with the State's requirements. It will be connected as a component of this development. This includes fire hydrants.
2. This is the principal bushfire hazard vegetation being the forest.
3. Principal access road for access and egress.
4. Forest revegetation within the proposed POS.
5. Grassland under an open woodland (<10% overstorey cover).
6. Scrub vegetation areas.

Location details: 1470 Lilydale Road, Chidlow
Assessment date: 4 May 2023
Prepared by: Ralph Smith
Accreditation level: 2
Accreditation number: 27541
Accreditation expiry date: August 2023
Date aerial photo: March 2023
Version: 1

Figure 6. Spatial representation of bushfire management strategies.

Section 6: Responsibilities for Implementation and Management of the Bushfire Measures

This section is to set out the responsibilities of the developer/s, landowner/s and local government with regards to the initial implementation and ongoing maintenance of the required actions.

DEVELOPER – PRIOR TO ISSUE OF TITLES		
No.	**Implementation Action**	**Subdivision Clearance**
1	A notification pursuant to Section 165 of the *Planning and Development Act 2005*, is to be placed on the certificate(s) of title of the proposed lot(s) with a Bushfire Attack Level (BAL) rating or 12.5 or above, advising the existence of a hazard or other factor. Notice of this notification is to be included in the diagram or plan of survey (deposited plan). The notification is to state as follows: "*This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and is subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land*" (Western Australian Planning Commission).	
2	Comply with the relevant local government annual firebreak notice issued under s33 of the Bush Fires Act 1954.	
3	The developer will be responsible for extending the reticulated scheme water network into the development that is compliant with the State's requirements.	
4	The developer is responsible for construction of roads within the development.	

LANDOWNER/OCCUPIER – ONGOING	
No.	**Management Action**
1	Comply with the relevant local government annual firebreak notice issued under s33 of the Bush Fires Act 1954.
2	Maintain the dwelling sin good order to comply with the AS 3959 construction standards

SHIRE OF MUNDARING – ONGOING	
No.	**Management Action**
1	Publish and enforce the annual firebreak notice issued under s33 of the Bush Fires Act 1954.
2	Maintain the POS area to achieve the stated environmental values.
3	Maintain the public roads to the required standard.

Appendix 1

The following is an extract from the Shire of Mundaring "Firebreak & Fire Load Notice 2022/2023."

Habitable Buildings means a dwelling, workplace, place of gathering or assembly, a building used for the storage or display of goods or produce for sale by wholesale in accordance with classes 1-9 of the Building Code of Australia. The term habitable building includes attached and adjacent structures like garages, carports, verandas or similar roofed structure(s) that are attached to, or within 6 metres of the dwelling or primary building.

Maintaining Fuel Loads relates to the management of leaf litter as described in this Notice. Reducing fuel load levels does not necessarily require the removal of existing natural vegetation. A combination of methods can be utilised inclusive of safe burning, raking, weed removal, pruning and/or the removal of dead plant material.

Managed Vegetation includes vegetation that is pruned away from buildings, under pruned to minimise contact with ground fuels and that is kept free of dead suspended matter such as twigs, leaves and bark.

Trafficable means to be able to travel from one point to another in a four-wheel drive fire appliance on a clear surface, unhindered without any obstruction that may endanger such fire appliances. A firebreak is not to terminate, or lead to a dead end, without provision for egress to a safe place or a cleared turn around area of not less than a 19 metre diameter.

Vertical Axis means a continuous vertical uninterrupted line at a right angle to the horizontal line of the firebreak to a minimum height of 4 metres from the ground.

LAND CATEGORIES

The specific requirements below relating to land categories within the Shire are to be implemented and maintained to the satisfaction of an Authorised Officer.

1. All land with an area of less than 5000sqm with a building on it

Maintain an Asset Protection Zone in line with the requirements of Section 5 of this Notice.
For the remainder of the land on the lot outside of the Asset Protection Zone:

- Maintain all grass on the land to a height no greater than 5cm.
- Ensure no tree crowns overhang a building.
- Prune trees and shrubs, and remove dead flammable material within 1.5 metres around all buildings.
- Ensure the roofs, gutters and walls of all buildings on the land are free of flammable matter.
- Maintain fuel loadings in natural bush areas at less than 8 tonnes per hectare across the land.

2. All land with an area of 5000sqm or greater, with a building on it

Maintain an Asset Protection Zone in line with the requirements of Section 5 of this Notice.

For the remainder of the land on the lot outside of the Asset Protection Zone:

- If the land is an area of less than 50,000sqm (5 Hectares) all grass must be maintained on the land to a height no greater than 5cm.
- If the land is an area of 50,000sqm (5 Hectares) or greater, the grass must be maintained on the land to a height no greater than 5cm for a distance of 10m from any firebreak.
- Install a firebreak around all structures and immediately inside all external boundaries of the land.

- Prune trees and shrubs, and remove dead flammable material around all structures.
- Ensure the roofs, gutters and walls of all buildings on the land are free of flammable matter.
- Maintain fuel loadings in natural bush areas at less than 8 tonnes per hectare across the land.

3. All vacant land

- Install a firebreak immediately inside all external boundaries of the land.
- If the land is an area of less than 50,000sqm (5 Hectares) all grass must be maintained on the land to a height no greater than 5cm.
- If the land is an area of 50,000sqm (5 Hectares) or greater, the grass must be maintained on the land to a height no greater than 5cm for a distance of 10m from any firebreak.
- Maintain fuel loadings in natural bush areas to less than 8 tonnes per hectare across the land.

4. Fuel Depot / Fuel Storage Area / Haystacks / Stockpiled Flammable Material

- Remove all inflammable matter within 10 metres of where fuel drums, fuel ramps or fuel dumps are located, and where fuel drums, whether containing fuel or not, are stored.
- Install a firebreak immediately adjacent to any haystacks or stockpiled flammable material.

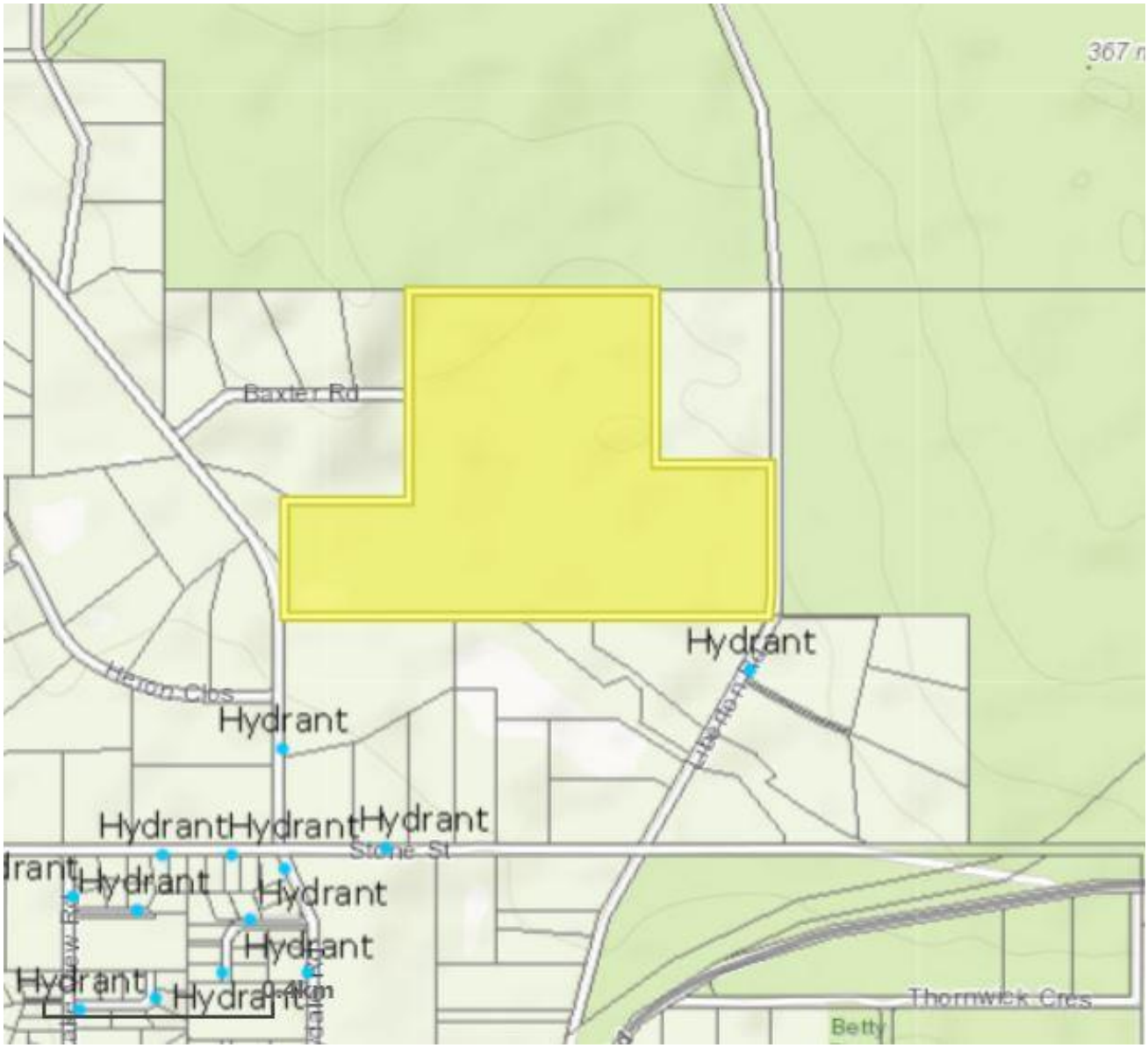
5. Asset (Building) Protection Zone Specification

The Asset Protection Zone (APZ) for habitable buildings and related structures, as defined within this Notice, must meet the following requirements, unless varied under an approved 'Alternative Fire Management Arrangement' as defined within this Notice, and applies only within the boundaries of the lot on which the habitable building is situated:

- APZs for habitable buildings must extend a minimum of 20 metres out from any external walls of the building, attached structures, or adjacent structures within 6 metres of the habitable building.
- On sloping ground the APZ distance shall increase at least 1 metre for every degree in slope on the sides of the habitable building that are exposed to down slope natural vegetation.
- APZs predominantly consist of managed vegetation, reticulated lawns and gardens and other non-flammable features.
- All grass is maintained to or under 5cm.
- Fuel loads must be maintained at 2 tonnes per hectare or lower.
- Clear separation distance between adjoining or nearby tree crowns.
- A small group of trees within close proximity to one another may be treated as one crown provided the combined crowns do not exceed the area of a large or mature crown size for that species.
- Trees are to be low pruned (or under pruned) to at least a height of 2 metres from ground.
- No tree, or shrub over 2 metres high are to be within 2 metres of a habitable building.
- Tall shrubs over 2 metres high are not planted in groups close to the habitable building and ensure there is a gap of at least three times the height (at maturity) of the shrub away from the habitable building.
- There are no tree crowns or branches hanging over habitable buildings.
- Ensure the roofs, gutters and walls of all buildings on the land are free of flammable matter.
- Install paths and non-flammable features immediately adjacent to the habitable building.
- Wood piles and flammable materials stored a safe distance from habitable buildings.

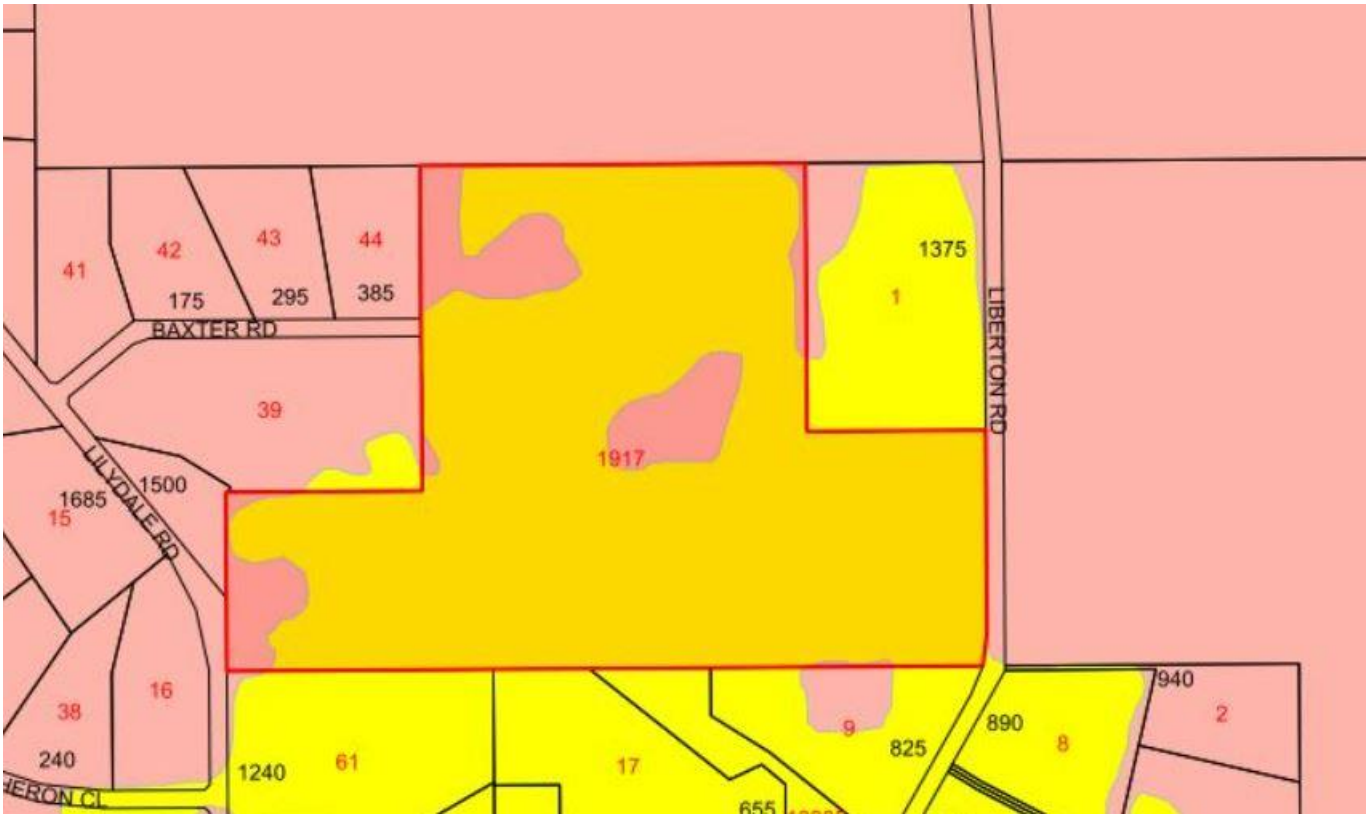
Appendix 2

Location of the current fire hydrants in the general area of the development and compliant with the Water Corporation standards. The site will be serviced by the reticulated scheme water system which includes the provision of fire hydrants and will be compliant with the State's requirements.



Appendix 3

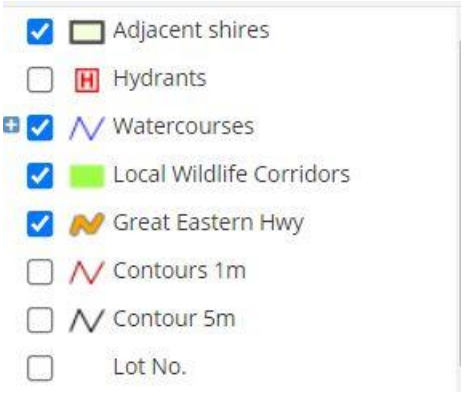
Shire of Mundaring bushfire hazard assessment map.



Appendix 4

Shire of Mundaring Local Biodiversity map.





References

Australian Building Codes Board, (2019). *Building Code of Australia*. Australian Building Codes Board, Sydney

Shire of Mundaring, (2023). *Firebreak & Fuel Load Notice 2022/23*. Retrieved 15 April 2023 from https://www.mundaring.wa.gov.au/safety-rangers/bush-fires-and-fire-management/firebreaks-and-fuel-load-notice.aspx

Near map from http://maps.au.nearmap.com/

Slope percentage to degrees conversion from https://www.calcunation.com/calculator/slope-percent-conversion.php

Landgate (SLIP), (2023). *Map of Bushfire Prone Areas*.
Retrieved 17 April 2023 from https://maps.slip.wa.gov.au/landgate/bushfireprone/

Standards Australia. (2018). *Australian Standard 3959 – Construction of buildings in bushfire-prone areas*. Standards Australia, Sydney, NSW.

Western Australian Planning Commission. (2015). *State Planning Policy 3.7 – Planning in Bushfire Prone Areas.* Western Australian Planning Commission, Perth, WA.

Western Australian Planning Commission. (2021). *Guidelines for Planning in Bushfire Prone Areas.* Western Australian Planning Commission, Perth, WA. December 2021

Hydrant and water meter locations from
https://espatial.dplh.wa.gov.au/PlanWA/Index.html?viewer=PlanWA