



Smith Bushfire Consultants Pty Ltd

BUSHFIRE MANAGEMENT PLAN

Lot 89 (No 748) Anketell Road, Anketell
City of Kwinana



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Site visited 15 August 2023; Report completed 24 August 2023

Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address: Lot 89 (No 748) Anketell Road, Anketell

Site visit: Yes ☒ No ☐

Date of site visit (if applicable): Day 15 Month August 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 2024

Bushfire management plan version number: 1

Bushfire management plan date: Day 24 Month August Year 2023

Client/business name: Terranovis 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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Yes	No
Is the proposal any of the following (see SPP 3.7 for definitions)?	<input type="checkbox"/>	<input type="checkbox"/>
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Minor development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 24/8/2023

NOTE

This Bushfire Management Plan has been developed by Smith Bushfire Consultants Pty Ltd for the exclusive use of the client, Terranovis Pty Ltd and their agents.

The plan has been compiled using the standard methodologies required by Western Australian government departments and agencies. It is based on the following:

- *State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7)*, December 2015
- *Guidelines for Planning in Bushfire Prone Areas*, December 2021
- *Australian Standard 3959 – Construction of buildings in bushfire-prone areas*, (Incorporating amendments No 1 and No 2), November 2018

The techniques described in the above publications have been applied in the appropriate areas and circumstances for the development of this document.

Where there was no public access, the interpretation is based on photographic and satellite imagery, and a laser distance meter was used to measure distances and effective slope.

It is recommended that this Bushfire Management Plan be revised every five years to ensure that it remains relevant and in-line with current requirements. This will optimise protection. It is proposed that the property owners undertake the review.

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.

Document control

Report Version	Purpose	Author/reviewer and accreditation details	Date Submitted
1	Support the subdivision	Ralph Smith	24/8/2023

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Table of Contents

	Page
1: Proposal Details	5
2: Environmental Considerations	7
2.1: Native Vegetation – modification and clearing	7
2.2: Re-vegetation / Landscape Plans	7
3: Bushfire Assessment Results	8
3.1: Assessment Inputs	8
3.2: Assessment Outputs	16
4: Identification of bushfire hazard issues	16
5. Assessment against the Bushfire Protection Criteria	17
5.1: Compliance	17
5.2: Additional management strategies	18
6: Responsibilities for Implementation and Management of the Bushfire Measures	19

List of Figures

Figure 1: Copy of site location plan	5
Figure 2: Map of Bushfire Prone Areas for the subject site	6
Figure 3: Pre development Vegetation Classification Map	8
Figure 4: Post development Vegetation Classification Map	
Figure 5: BAL Contour Map	9
Figure 6: Two-metre contour line map	15
Figure 7: Spatial representation of the bushfire management strategies	18

List of Appendices

Appendix 1: Vehicular access technical requirements	20
Appendix 2: Current adjacent hydrants	21
Appendix 3: Carnaby Cockatoo confirmed roost sites buffered 6 km	22
Appendix 4: Clearing Regulation- Environmentally Sensitive Areas map	23

References	24
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Section 1: Proposal Details

The proposal is to create a subdivision on Lot 89 Anketell Road. This is a staged development and will be simultaneously developed with the neighbouring lots to the west. The land is declared as bushfire prone.

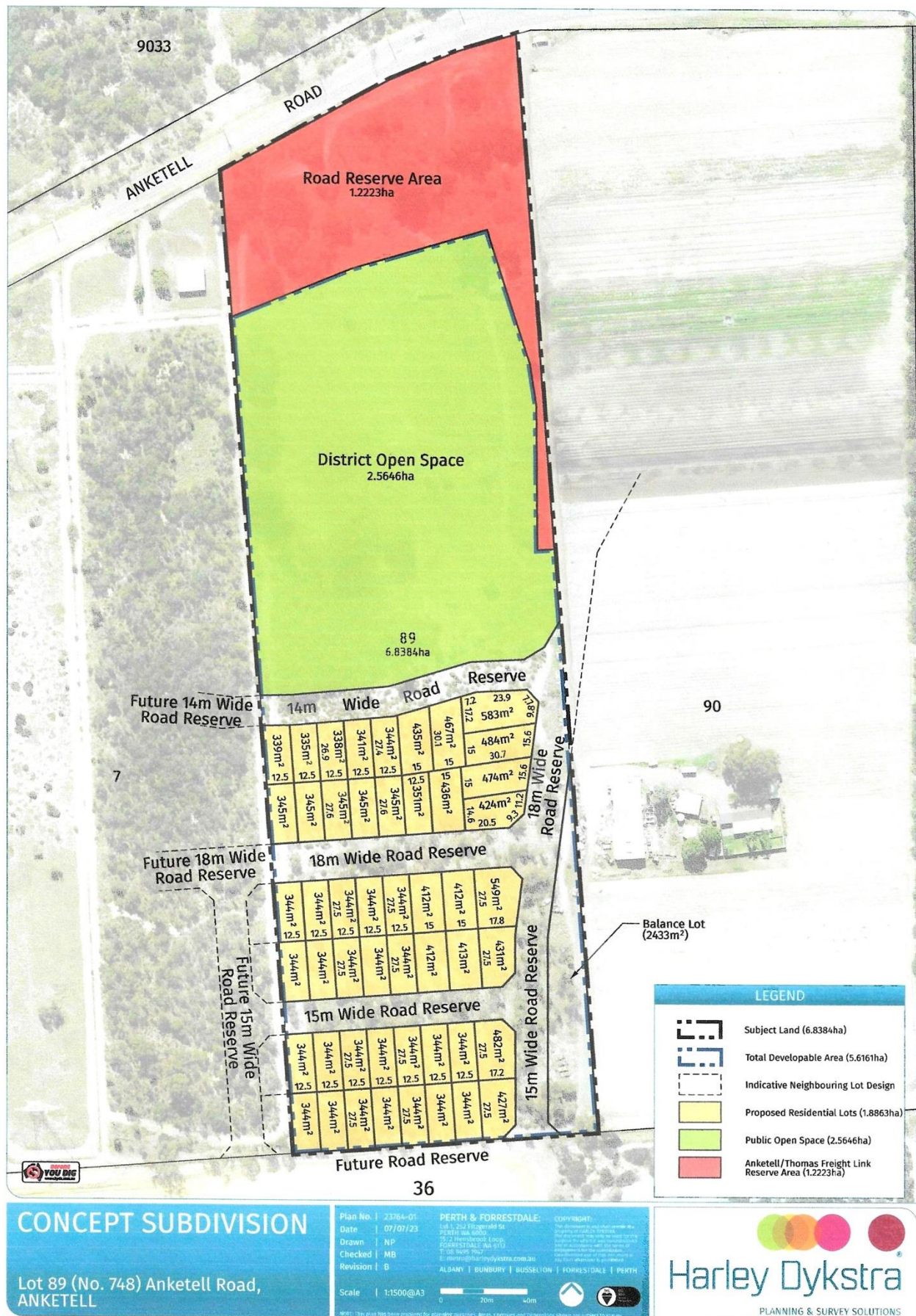


Figure 1. A copy of the site location plan as provided with the development application.

This development site is part of the significant development within the expanded area and is in the main declared as bushfire prone. The POS in the north will be developed as AS 3959 – Exclusion – Low threat vegetation compliant. The Road Reserve Area in the north is part of the Anketell/Thomas Freight Link Reserve Area and associated with this subdivision is being developed in accordance with AS3959: 2018 as an Exclusion, section 2.2.3.2. To the east is a working market garden. To the south the vegetation is being cleared with major earthworks being undertaken at the time of the field inspection.



Figure 2. Aerial photo of the bushfire prone area 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 the immediate surrounding area:

- Threatened and priority flora;
- Threatened and priority fauna;
- Contaminated site registration;
- Threatened ecological communities;
- Clearing Regulation – Environmental Sensitive area, which is adjacent but not within the subdivision site;
- Carnaby Cockatoo Confirmed Roost Sites; and
- Black Cockatoo breeding site – buffered.

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

- Aboriginal heritage site;
- Heritage areas; and
- Heritage Council site register.

The site is covered by the Carnaby Cockatoo confirmed roost site buffered by 6 km.

Subsection 2.1: Native Vegetation – modification and clearing

This site will be cleared of the vegetation.

Subsection 2.2: Re-vegetation/Landscape Plans

The POS (District Open Space) will be developed via a landscaped plan that will be developed as 'low threat vegetation' to ensure appropriate public amenity and not add a bushfire threat. The POS will be developed and comply with AS 3959 section 2.2.3.2 Exclusion–Low threat vegetation which may include paragraph (c) where the threat vegetation is less than 0.25 ha and not within 20 metres of other classified vegetation.

Section 3: Bushfire assessment results

Subsection 3.1: Assessment Inputs

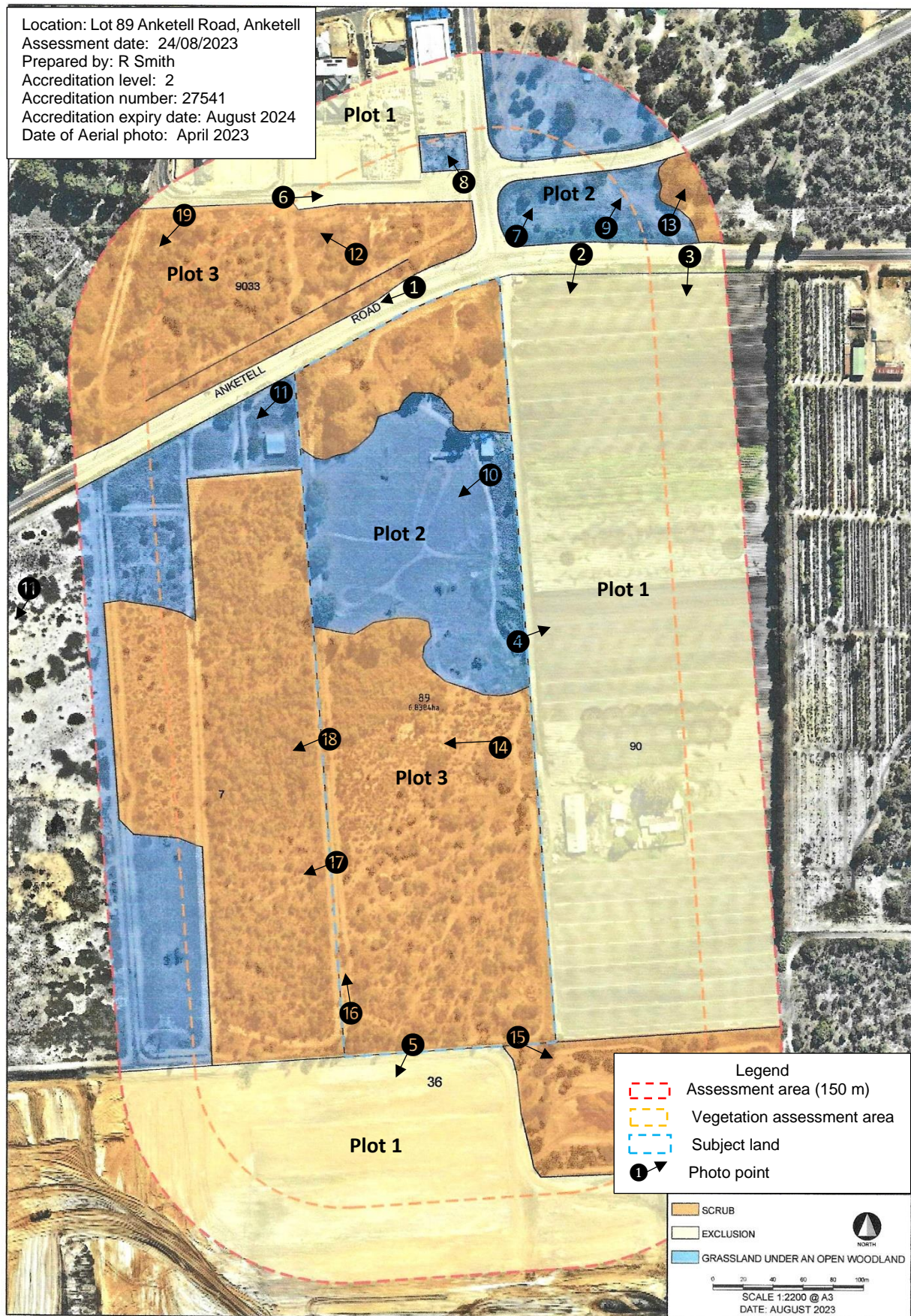


Figure 3. Pre-development Vegetation Classification Map.

Location: Lot 89 Anketell Road, Anketell
 Assessment date: 24/08/2023
 Prepared by: R Smith
 Accreditation level: 2
 Accreditation number: 27541
 Accreditation expiry date: August 2024
 Date of Aerial photo: April 2023



Figure 4. Post-development Vegetation Classification Map.

Location: Lot 89 Anketell Road, Anketell
 Assessment date: 24/08/2023
 Prepared by: R Smith
 Accreditation level: 2
 Accreditation number: 27541
 Accreditation expiry date: August 2024
 Date of Aerial photo: April 2023

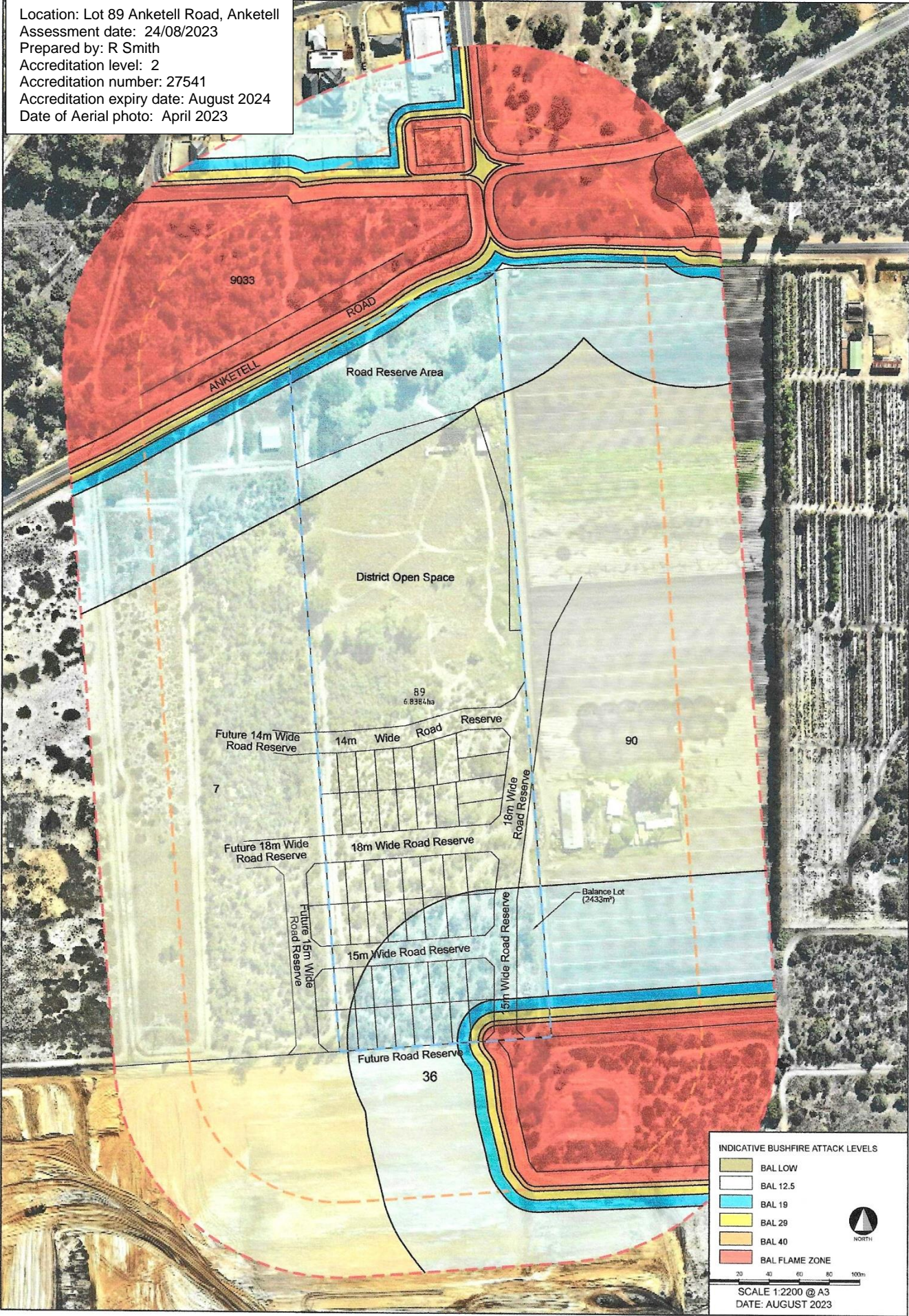


Figure 5. BAL Contour Map.

Vegetation classification

Plot 1

Exclusion

Clause 2.2.3.3 (e) and (f)



15/08/2023 11:55:28 AM (+8.0 hrs) Dir=W Lat=-32.20879 Lon=115.86204 Alt=3ft MSL WGS84

Photo ID: Photo 1 Looking west along Anketell Road at the bitumen road and scrub north of the subdivision site.



15/08/2023 12:01:13 PM (+8.0 hrs) Dir=SW Lat=-32.20824 Lon=115.86344 Alt=3ft MSL WGS84

Photo ID: Photo 2 The market garden east of the subdivision site.



15/08/2023 12:05:01 PM (+8.0 hrs) Dir=SW Lat=-32.20831 Lon=115.86503 Alt=3ft MSL WGS84

Photo ID: Photo 3 The market garden east of the subdivision site.



15/08/2023 12:29:18 PM (+8.0 hrs) Dir=ENE Lat=-32.211 Lon=115.8634 Alt=3ft MSL WGS84

Photo ID: Photo 4 The market garden east of the subdivision site.



15/08/2023 12:35:35 PM (+8.0 hrs) Dir=SW Lat=-32.21295 Lon=115.86301 Alt=3ft MSL WGS84

Photo ID: Photo 5 The extensively cleared land to the south of the subdivision site.



15/08/2023 12:52:02 PM (+8.0 hrs) Dir=SW Lat=-32.20787 Lon=115.86168 Alt=3ft MSL WGS84

Photo ID: Photo 6 The wall and compacted area between the current dwelling and vegetation north of Anketell Road.

Plot 2

Class G – Grassland (AS 3959 vegetation classification G – 06)



15/08/2023 12:01:07 PM (+8.0 hrs) Dir=NNE Lat=-32.20811 Lon=115.86324 Alt=3ft MSL WGS84
Photo ID: Photo 7 The grassland in the protected area north-east of the subdivision site.



15/09/2023 11:59:05 AM (+8.0 hrs) Dir=NW Lat=-32.2079 Lon=115.86303 Alt=3ft MSL WGS84
Photo ID: Photo 8 The small area of grassland north of of the subdivision site.



15/08/2023 12:02:08 PM (+8.0 hrs) Dir=NNE Lat=-32.2082 Lon=115.8641 Alt=3ft MSL WGS84
Photo ID: Photo 9 The grassland in the protected area north of Anketell Road .



15/08/2023 12:09:27 PM (+8.0 hrs) Dir=WSW Lat=-32.20954 Lon=115.86308 Alt=3ft MSL WGS84
Photo ID: Photo 10 The grassland on the subdivision site that will be removed.



15/08/2023 12:47:58 PM (+8.0 hrs) Dir=SSW Lat=-32.20923 Lon=115.86176 Alt=3ft MSL WGS84
Photo ID: Photo 11 The grassland on the lot to the west that will simultaneously be cleared with this subdivision.

Plot 3

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



Photo ID: Photo 12 The scrub vegetation to the north of Anketell Road and the subdivision site.



Photo ID: Photo 13 The scrub vegetation to the north-east in the protected area.



Photo ID: Photo 14 Looking at the scrub vegetation on the subdivision site that will be cleared.



Photo ID: Photo 15 The scrub vegetation to the south-east of subdivision site.



Photo ID: Photo 16 The scrub vegetation on the subdivision site and the land to the west.



Photo ID: Photo 17 The scrub vegetation to the west of the subdivision site which will be cleared simultaneously with this lot.



Photo ID: Photo 18 The scrub vegetation to the west of the subdivision site which will be cleared simultaneously with this lot.



Photo ID: Photo 19 The scrub vegetation to the north of Anketell Road and the subdivision site.

Notes to Accompany Vegetation Classification

Plot 1

Exclusion

Clause 2.2.3.3 (e) and (f)

This plot comprises the houses, sheds, gardens, infrastructure and cleared land within the adjacent land. It also includes the bitumen access roads that service the suburb. It also includes the large market garden to the east of the subdivision development site.

The POS (District Open Space) which is to be established through this subdivision will be developed to comply with AS 3959 section 2.2.3.2 Exclusion–Low threat vegetation.

The Anketell/Thomas Freight Link Reserve area will be cleared as a component of this subdivision development.

Plot 2

Class G – Grassland (AS 3959 vegetation classification G – 06)

This plot comprises the grassland area to the north-east of the development site. The grassland immediately adjacent to Anketell Road is within the Clearing Regulations – Environmentally Sensitive Area and therefore protected. The grassland in the subdivision lot and the two neighbouring lots to the west will be cleared as the area is being developed simultaneously. The scrub to the north of Anketell Road is not affected by this subdivision development.

Plot 3

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

This plot has been classified as scrub vegetation based on the predominant *Banksia* and *Melaleuca* species in the vegetation. The scrub in the subdivision lot and the two neighbouring lots to the west will be cleared as the area is being developed simultaneously. The scrub to the north of Anketell Road is not affected by this subdivision development.



Figure 6. Two-metre contour lines.

Subsection 3.2: Assessment outputs

Method 1 BAL Determination				
Vegetation Area/Plot	Applied Vegetation Classification	Effective Slope Under the Classified Vegetation (degrees)	Separation Distance to the Classified Vegetation (metres)	Bushfire Attack Level
1	Exclusion	Not applicable	Not applicable	LOW
2	Grassland	Level	306	LOW
3	Scrub	Level	9	FZ

The above information is based on the current vegetation surrounding the development site, and has considered the ongoing development and proposed vegetation clearing of the site. The BAL ratings may drop as the vegetation management and clearing for development progresses, and where appropriate, lots could have specific BAL assessments completed prior to building permits being issued, particularly for the two lots in the south-east corner of the subdivision.

Section 4: Identification of bushfire hazard issues

The principal bushfire hazard is the native vegetation (scrub) to the north, north-east and south-east of the development site. The grassland to the north-east is also a bushfire hazard. The vegetation sites in the north are separated from the development site by the current bitumen road, being Anketell Road and to the south the future road to be constructed. The development of the future public open space and Road Reserve Area to 'low threat vegetation' status will ensure that they will not contribute to any potential bushfire threat.

Section 5: Assessment against the Bushfire Protection Criteria

Subsection 5.1: Compliance

Bushfire protection criteria	Method of Compliance	Proposed bushfire management strategies
	Acceptable solutions	
Element 1: Location	A1.1 Development location	This development will be developed in such a manner that on completion the BAL rating of BAL-29 or lower is possible on the lot for all dwellings. There will be a requirement to construct a radiant heat barrier to reduce the BAL rating for dwellings subject to a high BAL rating. There will be no APZs required with the development.
Element 2: Siting and design	A2.1 Asset Protection Zone (APZ)	
Element 3: Vehicular access	A3.1 Public road	All public access will be constructed to the appropriate standards as required in the Guidelines.
	A3.2a Multiple access routes	There are multiple access options that will facilitate movement to a range of alternative locations and directions of travel. The primary access options will be linked to the development to the west which will be occurring simultaneously.
	A3.2b Emergency access way	Not applicable
	A3.3 Through roads	Egress and access into and within the development site will be compliant with the Guidelines.
	A3.4a Perimeter roads	Not applicable.
	A3.4b Fire service access routes	Not applicable.
	A3.5 Battle-axe access legs	If there is a battle-axe access in the development site which is compliant with the Guidelines.
	A3.6 Private driveways	There are no long driveways associated with this development.
Element 4: Water	A4.1 Identification of future water supply	The site will be serviced with reticulated mains water in accordance with the State Government requirements.
	A4.2 Provision of water for firefighting purposes	Hydrants will be developed in accordance with the State's Guidelines.

Subsection 5.2: Additional management strategies



Legend

- 1. Subject land ---
- 2. Cadastre ---

Notes

1. AS 3959 construction standards do apply to the dwellings as the area is declared as bushfire prone.
2. The site will have reticulated mains water supply.
3. Scrub to the north, north-east and south-east are the primary vegetation plots that provide an ongoing bushfire threat.
4. The market garden has been developed and continues to produce.
5. The POS will all be developed as 'low threat vegetation'.
6. The vegetation on the two neighbouring lots to the west will be developed simultaneously with this lot.
7. The nursery to the east of the market garden east of the development site.
8. The area south of the development site that is undergoing extensive earth works.

Location: Lot 89 Anketell Road, Anketell
 Assessment date: 24/08/2023
 Prepared by: R Smith
 Accreditation level: 2
 Accreditation number: 27541
 Accreditation expiry date: August 2024
 Date of Aerial photo: January 2023
 Version No: 1

Figure 7. Spatial representation of bushfire management strategies.

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

DEVELOPER/LANDOWNER – PRIOR TO SALE OR OCCUPANCY	
No.	Implementation Action
1	Install the access ways and associated signs to the standards stated in the Guidelines.
2	Install the required water supply that meets State Government's specifications.
3	<p>A notification, pursuant to Section 165 of the <i>Planning and Development Act 2005</i> is to be placed on the certificate(s) of title of the proposed lot(s) with a Bushfire Attack Level (BAL) rating of 12.5 or above, advising of the existence of a hazard or other factor. Notice of this notification is to be included on the diagram or plan of survey (deposited plan). The notification is to state as follows:</p> <p><i>"This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and may be subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land".</i></p> <p>(Western Australian Planning Commission)</p>
4	<p>A restrictive covenant to the benefit of the local government, pursuant to section 129BA of the Transfer of Land Act 1893, is to be placed on the certificate(s) of title of the proposed lot(s) advising of the existence of a restriction on the use of the land within areas that have been assessed as BAL-40 or BAL-Flame Zone. Notice of this restriction is to be included on the diagram or plan of survey (deposited plan). The restrictive covenant is to state as follows: <i>"No habitable buildings are to be built within areas identified as BAL-40 or BAL-Flame Zone"</i></p> <p>(Local Government).</p>

LANDOWNER/OCCUPIER – ONGOING MANAGEMENT	
No.	Management Action
1	Comply with the relevant local government annual firebreak notice issued under s33 of the Bush Fires Act 1954.
2	The City of Kwinana firebreak notice requires an ongoing compliance with the bushfire management plan and is enforceable under s33 of the Bush Fires Act 1954.

Appendix 1

Vehicular access technical requirements extracted from the Guidelines (page 76).



Table 6: Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public roads	2 Emergency access way ¹	3 Fire service access route ¹	4 Battle-axe and private driveways ²
Minimum trafficable surface (metres)	In accordance with A3.1	6	6	4
Minimum horizontal clearance (metres)	N/A	6	6	6
Minimum vertical clearance (metres)	4.5			
Minimum weight capacity (tonnes)	15			
Maximum grade unsealed road ³	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Maximum grade sealed road ³		1:7 (14.3%)		
Maximum average grade sealed road		1:10 (10%)		
Minimum inner radius of road curves (metres)		8.5		

Notes:

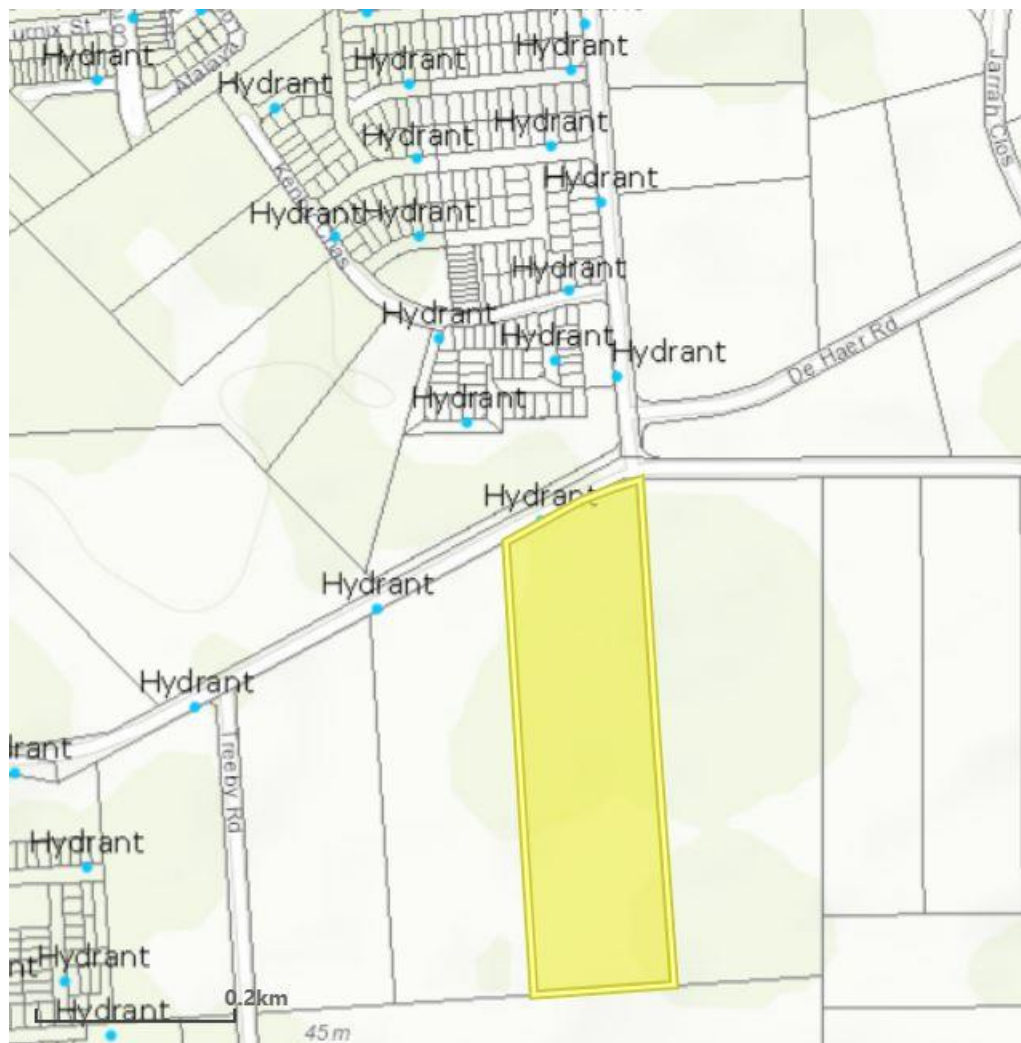
¹ To have crossfalls between 3 and 6%.

² Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision.

³ Dips must have no more than a 1 in 8 (12.5% -7.1 degree) entry and exit angle.

Appendix 2

Location of the current fire hydrants adjacent to Lot 89 (No 748) Anketell Road.



Appendix 3

Map of the Carnaby Cockatoo confirmed roost sites buffered by 6 km which cover the proposed subdivision site.



Appendix 4

Map of the Clearing Regulation – Environmentally Sensitive Area which is located north-east (shown green on the map) of the subdivision site (shown yellow on the map).



References

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

City of Kwinana, (2022). *Fire Break Notice 2022/23*. Retrieved 22 August 2023 from <https://Kwinana.wa.gov.au/forms-and-publications/your-services/fire-and-bush/fire-control-notice-2022-2023>

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

Contour map from <https://maps.agric.wa.gov.au/nrm-info/>

Landgate Bushfire prone map Retrieved 22 August 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.

Fire hydrant location from <https://espatial.dplh.wa.gov.au/PlanWA/Index.html?viewer=PlanWA>

Environmental values from <https://espatial.dplh.wa.gov.au/PlanWA/Index.html?viewer=PlanWA>