

SMITH CONSULTING

Bushfire Consultants

BUSHFIRE MANAGEMENT PLAN

Lot 9001 (formerly Lot 13) Lyon Road, Wandi

City of Kwinana



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Site visited 24 July 2018; Report completed 21 August 2018

Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address:

Site visit: Yes No

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

Report author:

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: Accreditation expiry: Month Year

Bushfire management plan version number:

Bushfire management plan date: Day Month Year

Client/business name:

	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

NOTE

This Bushfire Management Plan has been developed by Smith Consulting for the exclusive use of the client, Terranovis 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 2017
- *Australian Standard 3959 – Construction of buildings in bushfire-prone areas (incorporating amendments 1, 2 and 3)*, March 2009
- Standard fuel load field data collection methods and conversion to a fuel load applicable for the appropriate fire spread models.

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 Consulting 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 Consulting 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	Original version	R Smith	21 August 2018

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Section 1: Proposal Details

This proposal is to develop a subdivision on a current market site. The eastern portion (balance of Lot 9003) of the market garden will remain active and productive as a market garden.

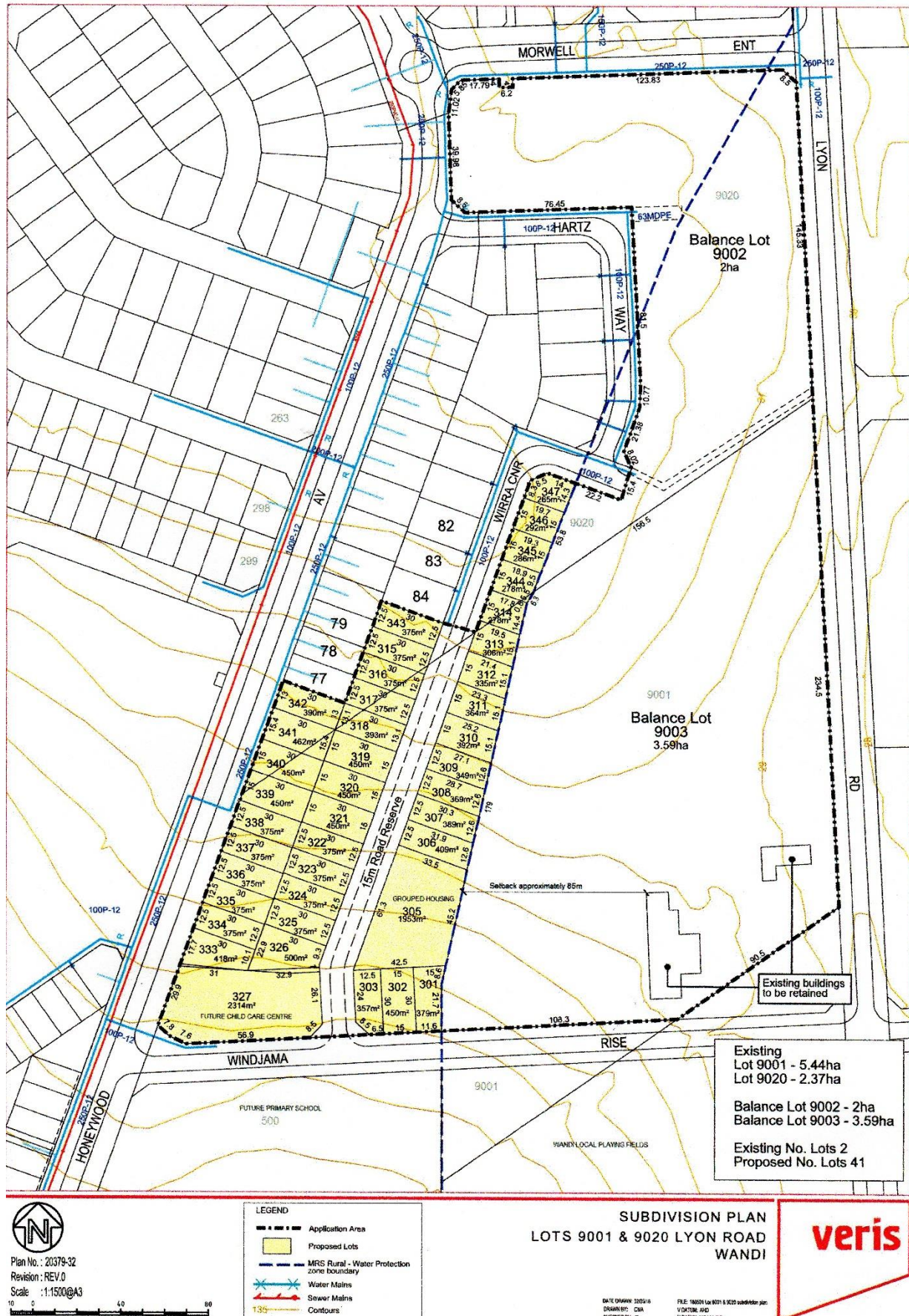


Figure 1. A copy of the site plan as provided with the development application.



Figure 2. Aerial photo of the bushfire prone area for the subject site.

Section 2: Environmental Considerations

This development site is a current market garden that is cleared, reticulated and ready for development. There will be no requirement to clear any additional native vegetation. Only a portion of the site is declared as bushfire prone and therefore subject to the application of AS 3959.

Subsection 2.1: Native Vegetation – modification and clearing

There is no need for additional clearing of native vegetation as a component of this development application.

Subsection 2.2: Re-vegetation/Landscape Plans

There are no specific revegetation or landscape plans associated with this BMP other than to ensure that any exposed soil will be managed to ensure that there is no soil erosion, either wind or water erosion. It is anticipated that all new dwellings will have gardens established and maintained.

Section 3: Bushfire assessment results

Subsection 3.1: Assessment Inputs



Figure 3. Vegetation classification map.

BAL Contour map

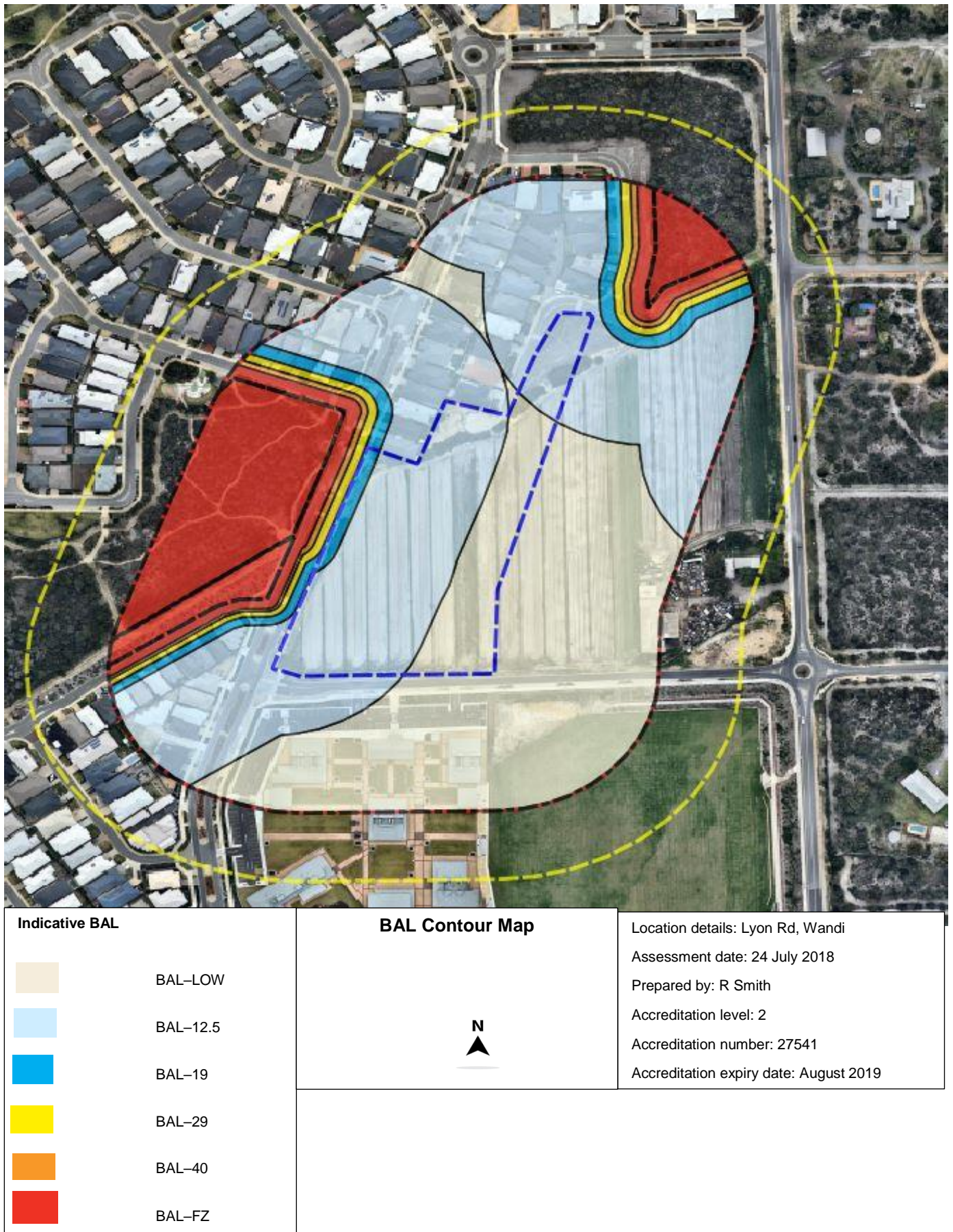


Figure 4. BAL contour map.

Plot 1

Exclusion
Clause 2.2.3.3 (e) and (f)



Photo ID: Photo 1 Looking at the grass oval that is reticulated and cultivated south of the development site.



Photo ID: Photo 2 Looking at the low threat vegetation market garden.



Photo ID: Photo 3 The infrastructure and housing west of the development site.



Photo ID: Photo 4 Looking at the roads and housing north of the development site.

Plot 2

Class B – Woodland (AS 3959 vegetation classification B – 07)



Photo ID: Photo 5 Looking west at the woodland vegetation west of Honeywood Avenue.



Photo ID: Photo 6 Looking at the vegetation north-west of the development site.



24/07/2018 9:19:20 AM (+8.0 hrs) Dir=E Lat=-32.19486 Lon=115.86438 Alt=43ft MSL WGS-84
Photo ID: Photo 7 The woodland east of Lyon Road. scrub vegetation.



24/07/2018 9:21:07 AM (+8.0 hrs) Dir=N Lat=-32.19561 Lon=115.86486 Alt=36ft MSL WGS-84
Photo ID: Photo 8 The woodland north of Magenup Road and east of the development site.



24/07/2018 9:22:24 AM (+8.0 hrs) Dir=SSE Lat=-32.1957 Lon=115.86477 Alt=39ft MSL WGS-84
Photo ID: Photo 9 The woodland vegetation south-east of the development site

Plot 3

Class C – Shrubland (AS 3959 vegetation classification C – 10)



24/07/2018 8:52:54 AM (+8.0 hrs) Dir=W Lat=-32.19542 Lon=115.86092 Alt=3ft MSL WGS-84
Photo ID: Photo 10 Looking at the revegetated shrubs which on maturity will be less than 2 metres high.



24/07/2018 8:54:00 AM (+8.0 hrs) Dir=WSW Lat=-32.19512 Lon=115.8606 Alt=13ft MSL WGS-84
Photo ID: Photo 11 The revegetated shrub vegetation west of Honeywood Avenue.

Notes to Accompany Vegetation Classification

1. Plot 1

Exclusion as per 2.2.3.2 (e) and (f)

This plot comprises the houses, sheds, gardens and infrastructure surrounding the proposed development. The site is within a well established suburb, with all of the normal amenities such as houses, schools, roads, mains reticulated water and other infrastructure.

2. Plot 2

Class B – Woodland (AS 3959 vegetation classification B-07)

This plot comprises the banksia woodland that adjacent to the site and is on the north, west and east of the development site.

3. Plot 3

Class C – Shrubland (AS 3959 vegetation classification C-10)

This plot comprises the narrow strip of revegetated shrubland that is west of Honeywood Avenue and therefore west of the development site. This revegetated shrubland is located between the banksia woodland and the houses on Mornington Court. It is anticipated that the shrubland will be less than two metres tall at maturity as a consequence of the species chosen. This plot is 26 metres from the proposed development site.

Other than considerations in regard to vegetation

1. The fire spread algorithms applied in AS 3959 consider fine fuels as less than 6 mm diameter for dead material, and less than 3 mm diameter for live material.

Slope

Lyon Road has a slope topography with a mixture of woodland and scrub vegetation. The potential threat is the scrub and woodland vegetation, associated with neighbouring properties.

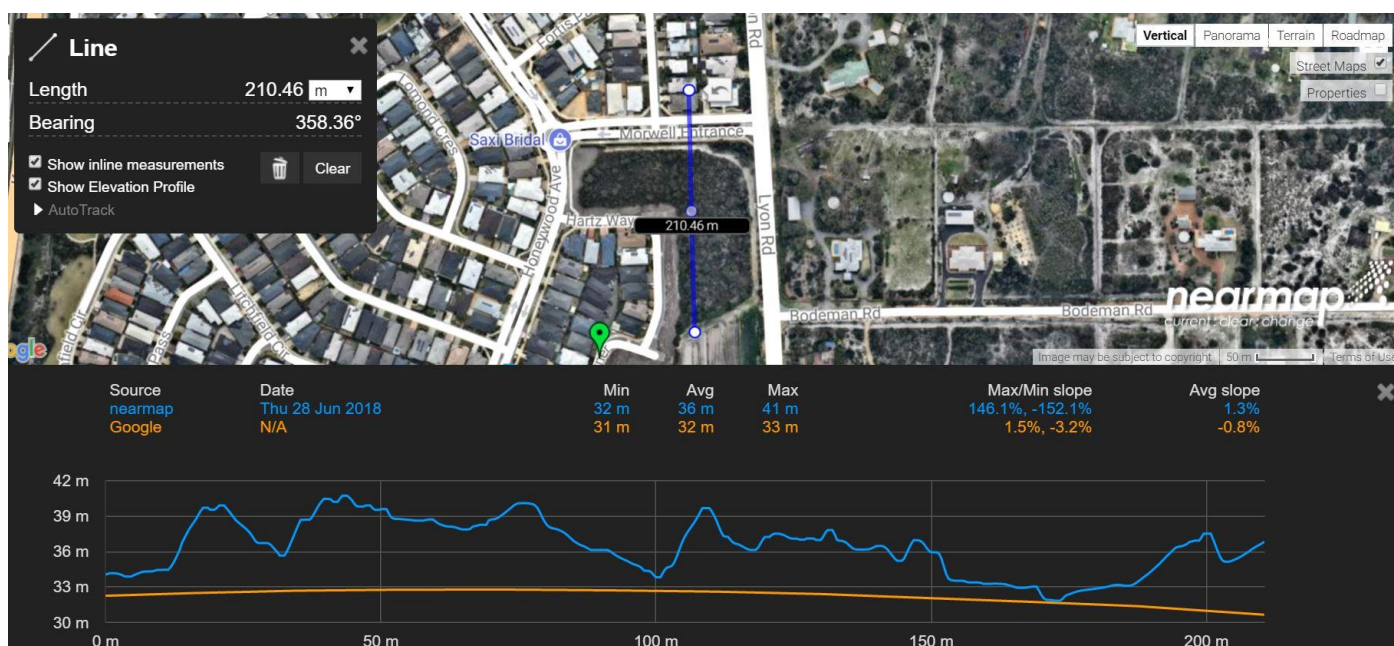


Figure 5. Slope from the development Lot to the north (0.46°).

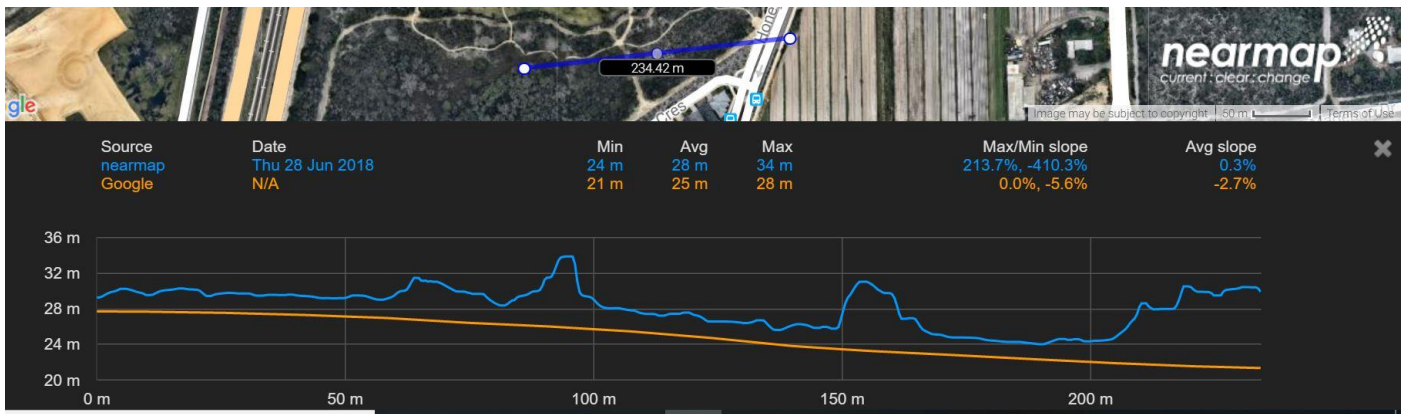


Figure 6. Slope from the Lot to the west (1.55°).



Figure 7. Slope across the land to the east (0.97°).

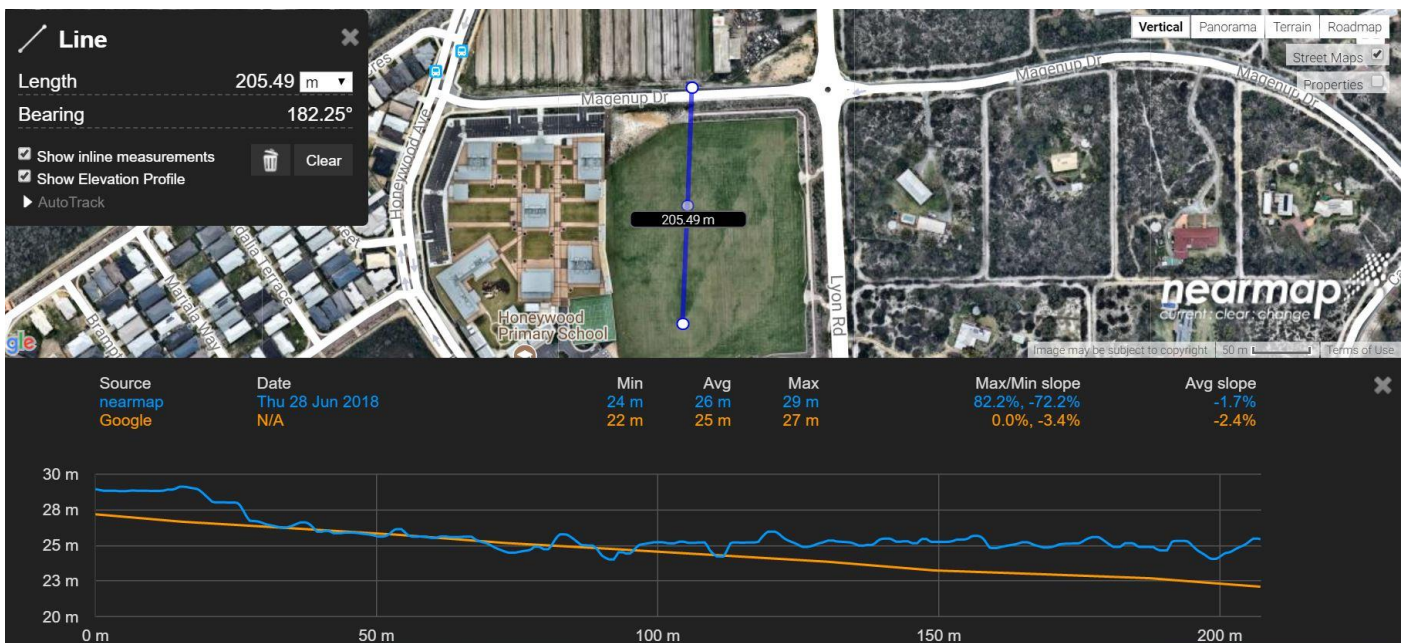


Figure 8. Slope across the land to the south (1.37°).

It should be noted that only the slope to the areas north and east are under vegetation and therefore require consideration for the BAL assessment.

The orange line on the slope aerial photos show the land surface slope.

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	Woodland	0.92	41	12.5
3	Shrubland	0.52	26	12.5
Determined Bushfire Attack Level				12.5

The slope has been classified as undulating as the slope is so minimal. The BAL rating is only applicable to the nearest lot boundary within 100 metres of the vegetation and not all lots.

Section 4: Identification of bushfire hazard issues

The bushfire hazards are located on the neighbouring land and not on the development site. The bushfire hazards are limited because of the separation between the development site and the vegetation. The significant road network adjacent to the development site effectively provide a perimeter road network

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	The entire site is BAL rated at BAL-19 or less and within the site there is an appropriate road network.
Element 2: Siting and design	A2.1 Asset Protection Zone (APZ)	There is no requirement for APZ with lots within this development.
Element 3: Vehicular access	A3.1 Two access routes.	There are multiple access options, which are bitumen.
	A3.2 Public road	There are a number of public roads servicing this development, which are bitumen.
	A3.3 Cul-de-sac (including a dead-end-road)	There are no cul-de-sacs associated with this development.
	A3.4 Battle-axe	Not applicable.
	A3.5 Private driveway longer than 50 m.	Not applicable.
	A3.6 Emergency access way	Not applicable.
	A3.7 Fire service access routes (perimeter roads)	Not applicable.
	A3.8 Firebreak width	Lots without buildings will be maintained in accordance with the City's firebreak and fuel load notice during the prescribed period.
Element 4: Water	A4.1 Reticulated areas	The site will be serviced with reticulated mains water in accordance with the State Government requirements.
	A4.2 Non-reticulated areas	Not applicable.
	A4.3 Individual lots within non-reticulated areas (Only for use if creating 1 additional lot and cannot be applied cumulatively)	Not applicable.

Subsection 5.2: Additional management strategies

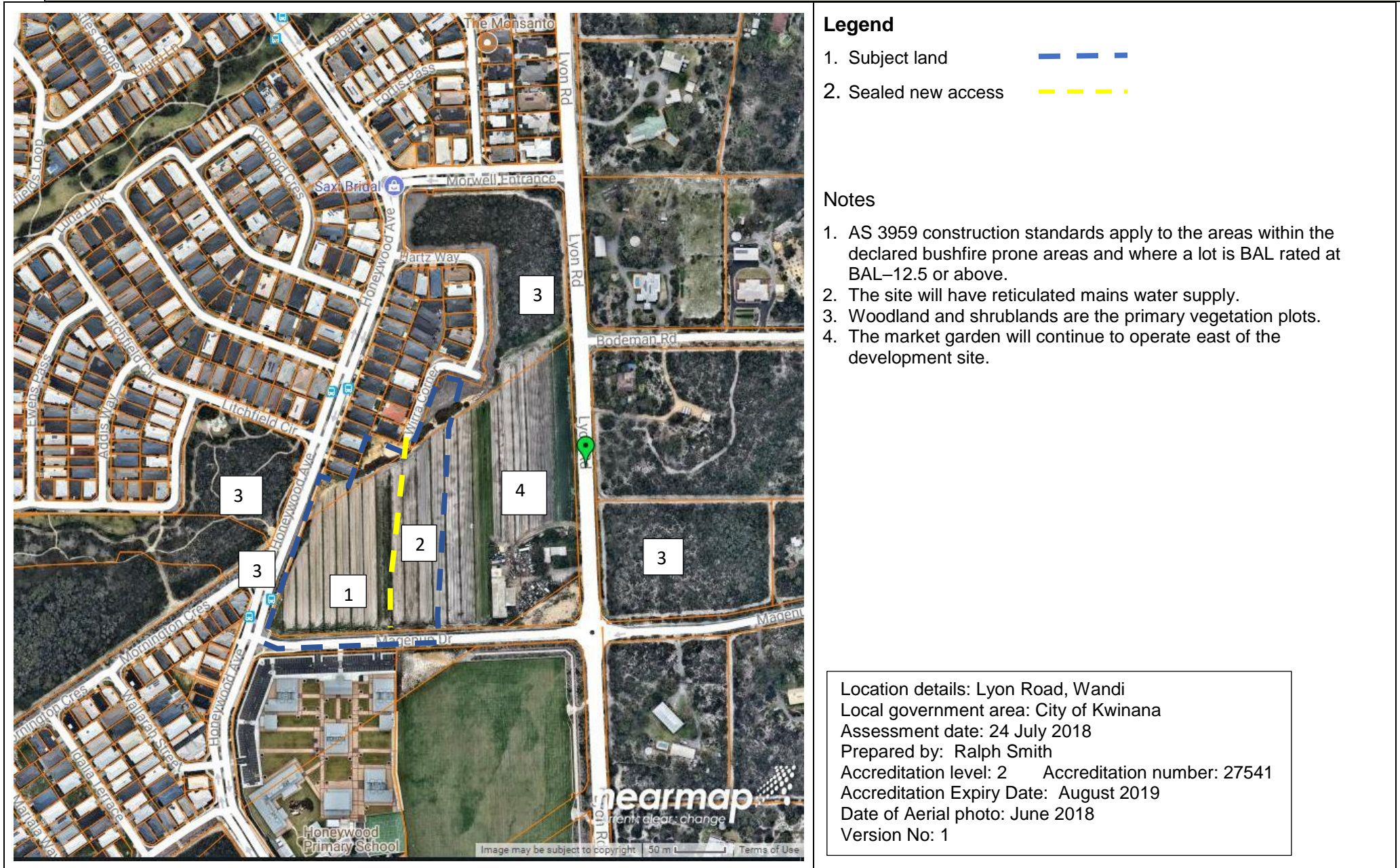


Figure 9. Spatial representation of bushfire management strategies.

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.

The requirements are to be set out in a **table/s** and provide the following:

- Identify the required initial and ongoing actions and any associated works that need to be undertaken;
- Responsibilities are to be separately identified and assigned to the developer/s, landowner, local government, as applicable to the development.
- For each responsible entity, the actions are to be assigned a number.
- Identify the required timing of the actions.

(Following is a format example with content to be deleted/added as applicable to the specific proposal.)

DEVELOPER/LANDOWNER – PRIOR TO SALE OR OCCUPANCY	
No.	Implementation Action
1	Construct the public road to the standards required in the Guidelines.
2	Install the scheme reticulated water supply.

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	Maintain vehicular access routes servicing the lots to the required surface condition and clearances lot to the required surface condition and clearances.

Appendix 1

Vehicle technical requirements extracted from the Guidelines (page 68).

Table 4: Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 Fire service access routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 metres	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 (m)	8.5	8.5	8.5	8.5	8.5
*Refer to E3.2 Public roads: Trafficable surface					