

PLANS AND DOCUMENTS  
referred to in the PDA  
DEVELOPMENT APPROVAL



Approval no: DEV2017/887

Date: 03 December 2020

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Know How

# Pebble Creek Plan of Development Stages 4-14

Orchard (Pebble Creek) Developments Pty Ltd  
24 November 2020



# Document Control

## Document Issue

Issue	Date	Prepared By	Checked By
Revision A	3 November 2020	NC	-
Revision B	3 November 2020	NC	-
Revision C	24 November 2020	NC	-

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# Accepted Uses

## 1.1. Uses exempt in accordance with this Plan of Development

Where within the Pebble Creek Plan of Development Area<sup>1</sup>, uses listed below in Table 1 are approved exempt development, where within the Residential Precinct and complying with this Plan of Development.

Table 1 – Approved Exempt Development in accordance with Plan of Development

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**Display Home**

**Home Based Business**

**House**

**Park**

**Sales Office (<150m<sup>2</sup>)**

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- In accordance with the provisions of the Greater Flagstone Development Scheme, building work and operational work are exempt development where in accordance with this Plan of Development.
- To the extent there is any conflict between this Plan of Development and the Greater Flagstone Development Scheme, this Plan of Development prevails.
- Where development is not in accordance with this Plan of Development, the provisions of the Greater Flagstone Development Scheme will apply.

## 1.2. Uses subject to Compliance Assessment

Where within the Pebble Creek Plan of Development Area<sup>1</sup>, uses listed below in Table 2 will be subject to Compliance Assessment, where complying with this Plan of Development.

Table 2 – Uses subject to Compliance Assessment

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**Sales Office (>150m<sup>2</sup>)**

**Utility Installation (where for supply of water, electricity, communications, gas, sewerage or drainage services)**

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<sup>1</sup> The Pebble Creek Plan of Development Area is shown in **Appendix A**.

# References

This Plan of Development has been prepared in accordance with the following Economic Development Queensland Guidelines and Practice Notes:

- Guideline 1 - Residential 30 (May 2015)
- Guideline 5 – Neighbourhood Planning and Design (May 2015)
- Guideline 6 – Street and Movement Network (April 2012)
- Guideline 7 – Low Rise Buildings (May 2015)
- Guideline 12 – Park Planning and Design (May 2015)
- Guideline 13 – Engineering Standards (September 2017)
- Guideline 18 – Development Interfaces (May 2015)
- Practice Note 07 – Designing for Small Lots (March 2014)
- Practice Note 10 – Plans of Development (March 2014)

## Defined Uses and Terms

**Display Home** – Means the temporary use of premises for the promotion and/or sale of land and/or houses within an estate, where such premises are located within the estate which is proposed to be promoted or sold.

**Home Based Business** – Means the use of a House or Multiple residential for an occupation or business activity as a secondary use where:

- The floor area used specifically for the home business does not exceed 50m<sup>2</sup>;
- Any visitor accommodation does not exceed 4 visitors;
- There is no hiring out of materials, goods, appliances or vehicles;
- There is only one sign related to the Home business, located within the premises or on a fence facing the road;
- There is no repairing or servicing of vehicles not normally associated with a residential use;
- There is no industrial use of premises;
- The maximum height of a new building, structure or object does not exceed the height of the House or Multiple residential and the setback is the same as or greater than, building on adjoining properties;
- Car parking is in accordance with the planning scheme;
- There is no display of goods;
- Number of employees does not exceed 4.

**House** – Means a residential use of premises containing one primary single dwelling on a lot. The use includes out-buildings and works normally associated with a dwelling and may include a secondary dwelling. The secondary dwelling is subordinate to the primary dwelling, capable of being used as a self-contained residence and may be constructed under the primary dwelling, attached to it or free standing.



**Park** – Means the use of premises by the public for free recreation and enjoyment and may be used for community events. Facilities may include children’s playground equipment, informal sports fields, ancillary vehicle parking and other public conveniences.

**Utility Installation** – Means the use of premises used to provide the public with the following services:

- Supply of water, hydraulic power, electricity or gas;
- Sewerage or drainage services;
- Transport services including road, rail or water;
- Waste management facilities;
- Network infrastructure.

*The use includes maintenance and storage depots and other facilities for the operation of the use.*

**Sales Office** – Means the use of premises for the temporary promotion and/or sale of land and/or buildings within an estate, where such premises are located within the estate which is proposed to be promoted or sold.

The definitions above are in accordance with the Greater Flagstone Development Scheme. The defined terms above and the definitions contained within the Greater Flagstone Development Scheme prevail over all other planning instruments to the extent of any inconsistency.

# Design Criteria

## 1.3. House

The following criteria apply to a House within the Pebble Creek Plan of Development Area<sup>2</sup>, where within the Residential Precinct and where within Stages 4-14 of the Pebble Creek Estate. This design criteria are to be read in conjunction with the Plan of Development (Envelope Plans)<sup>3</sup> for Stages 4-14.

### 1.3.1 Setbacks and Site Cover

- Setbacks are as per Table 3 below, dependent on the lot typology identified within Pebble Creek Plan of Development (Envelope Plans)<sup>3</sup> unless specified otherwise within Section 1.3.1;
- Built-to-Boundary walls are nominated on the Pebble Creek Plan of Development (Envelope Plans)<sup>3</sup>;
- All setbacks are measured to the wall of the structure;
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured;
- A lot can have only one primary frontage. Primary frontages are nominated on the Pebble Creek Plan of Development (Envelope Plans)<sup>3</sup>;
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage;
- To avoid any doubt, where a lot has a side boundary to a road reserve nominated as a 'pedestrian link only' on the Envelope Plans, this should be taken to be a side boundary;
- For lots with a secondary frontage, no building or structure over 2 metres high is to be built within a 6m x 6m truncation at the corner of two road frontages;
- The length of a Built-to Boundary wall is not to exceed 15m or 50% of the lot depth, whichever is the lesser;
- Notwithstanding the setbacks specified in Table 3 below, a 2.4 metre setback is permitted to unenclosed entry features such as porches, porticos, verandahs and balconies;
- Building envelope and setback requirements may be affected by provision of easements for services, which may alter the setback requirements in Table 3; and
- The maximum area covered by all buildings and structures roofed with impervious materials, does not exceed the site cover nominated within Table 3.

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<sup>2</sup> The Pebble Creek Plan of Development Area is shown in **Appendix A**.

<sup>3</sup> Pebble Creek Plan of Development (Envelope Plans) are included in **Appendix B**.

Table 3 – Design Criteria (setbacks and site cover)<sup>4</sup>

	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface Lots
Front Setback					
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	3m	3m	3m	4m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage					
To Wall (Ground Floor)	1.5m	2m	2m	2m	3m
To Wall (First Floor)	2m	2m	2m	2m	3m
Garage	5m	5m	5m	5m	5m
Rear Setback					
Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
First Floor	1m	1m	1m	1m	8.0m
Side Setback (BTB)					
Ground Floor	0 - 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)					
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

Note – within the above table BTB means Built-to-Boundary wall. If a Built-to-Boundary wall is constructed then the indicated BTB side shown on the Envelope Plans is mandatory not optional.

### 1.3.2 Interface Lots and Landscape Interface Buffer

- Interface lots are identified on the Pebble Creek Plan of Development (Envelope Plans)<sup>5</sup>;
- Interface lots are intended to provide a buffer between higher intensity residential uses within Pebble Creek to existing residential development along the southern boundary of interface lots;
- Fencing may be provided at the rear of interface lots in consultation with the adjoining land owner;
- If provided, fencing must be a minimum of 1.8m high and must be solid timber (no transparency);
- Interface lots must include a 4-metre-wide Landscape Interface Buffer as shown on the Pebble Creek Plan of Development (Envelope Plans), with the exception of Lots 835, 836 and part of lot 1256;

<sup>4</sup> Please note that setbacks for interface lots 836 and 1256 will be as per the setback nominated on the Pebble Creek Plan of Development (Envelope Plans) - **Appendix B**.

<sup>5</sup> Pebble Creek Plan of Development (Envelope Plans) are included in **Appendix B**.

- No buildings or structures are permitted within the Landscape Interface Buffer;
- No land disturbing activities (i.e. earthworks, retaining structures, vegetation clearing etc) are to be undertaken within the Landscape Interface Buffer;
- The Landscape Interface Buffer is to be maintained as a vegetated buffer and must be managed in order to control weeds and pests; and
- No vegetation clearing can be undertaken within the Landscape Interface Buffer except for declared weed removal.

### 1.3.3 Bushfire

- A separation of a minimum of 8 metres between unmanaged vegetation hazard to the west of Lot 836 and east of Lot 1256 and future dwellings must be provided in order to avoid BAL40 (in accordance with the Bushfire Management Plan dated 23 April 2018 and prepared by Bushfire Risk Reducers<sup>6</sup>);
- Lots may be subject to bushfire hazard - Refer to the Envelope Plans<sup>6</sup>, which show BAL ratings for affected lots (derived from the Bushfire Management Plan prepared by Bushfire Risk Reducers) and also the Bushfire Management Plan<sup>6</sup>; and
- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard<sup>7</sup>.

### 1.3.4 Building Height

- Building height must not exceed 9 metres and 2 storeys;
- Building height is measured from natural ground level;
- To avoid any doubt, the natural ground level is taken to be the level of the land when the survey plan creating the subject lot was registered.

### 1.3.5 Streetscape Presentation

- Buildings must address each street frontage by utilising two or more of the following design elements in the primary frontage elevation:
  - Verandahs or porches; and/or
  - Awnings or shade structures; and/or
  - Variation to roof form; and/or
  - Variation in building materials; and/or
  - Inclusion of windows to habitable rooms.
- Letterboxes must be clearly visible and identifiable from the street.

### 1.3.6 Building Design and Articulation

- All buildings with a width of more than 10 metres that are visible from a street or a park must be articulated to reduce the mass of the building by one or more of the following:
  - Windows recessed into the façade; and/or

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<sup>6</sup> Please refer to the Bushfire Management Plan prepared by Bushfire Risk Reducers dated 23 April 2018 (**Appendix C**) for further design requirements within the Pebble Creek Plan of Development Area.

- Balconies, porches or verandah; and/or
- Window Hoods/Screens; and/or
- Shadow lines are created on the building through minor changes in the facade (100 millimetres minimum).

### 1.3.7 Car Parking and Driveways

- Off-street car parking must be provided for in accordance with the following:
  - Minimum of 2 spaces per dwelling (one of which must be within a garage).
- Car parking may be provided in tandem;
- Garages are to be located on the nominated Built-to-Boundary wall side (if applicable);
- Locations for driveways and garages are nominated on the Pebble Creek Plan of Development (Envelope Plans)<sup>8</sup>;
- If a Built-to-Boundary wall is constructed it must be constructed on the side nominated on the Pebble Creek Plan of Development (Envelope Plans)<sup>8</sup>;
- Garages are to be constructed in the location identified within the Pebble Creek Plan of Development (Envelope Plans)<sup>8</sup> unless it can be demonstrated there is no conflict with existing services and does not materially affect the footpath/verge grade at or around the site frontage;
- There is a maximum of one driveway per dwelling unless a corner lot;
- Driveways must be a minimum of 6 metres from the intersection of a street; and
- The maximum width of a driveway at the lot boundary for a lot less than 12.5 metres wide is 3 metres.

### 1.3.8 Private Open Space

- Each detached dwelling has at least one clearly defined outdoor living space which has a minimum area of 12m<sup>2</sup> and a minimum dimension of 3 metres;
- Private open space must provide visual privacy from another outdoor living space via window or balcony screen; and
- Private open spaces must be directly accessible from a living area.

### 1.3.9 Fencing

- Fences, screens, and retaining walls and other structures are not more than 1 metre high within a truncation made by 3 equal chords of a 6 metre radius curve at the corner of the two road frontages;
- Fencing allows for overlooking of the street and park to provide casual surveillance opportunity;
- Fencing has a maximum height of 1.2 metres (where solid) or 1.5 metres (where at least 50% transparent); and
- Fencing to pedestrian links (shown as 'pedestrian link only' on the Envelope Plans) can be a maximum height of 1.2 metres (where solid); or up to 1.8 metres (where the part of the fence above 1.2 metres in height is at least 50% transparent).

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<sup>8</sup> Pebble Creek Plan of Development (Envelope Plans) are included in **Appendix B**.



## 1.4. Sales Office

A Sales Office (>150m<sup>2</sup>) can be located within the Pebble Creek Plan of Development Area (Residential Precinct) where:

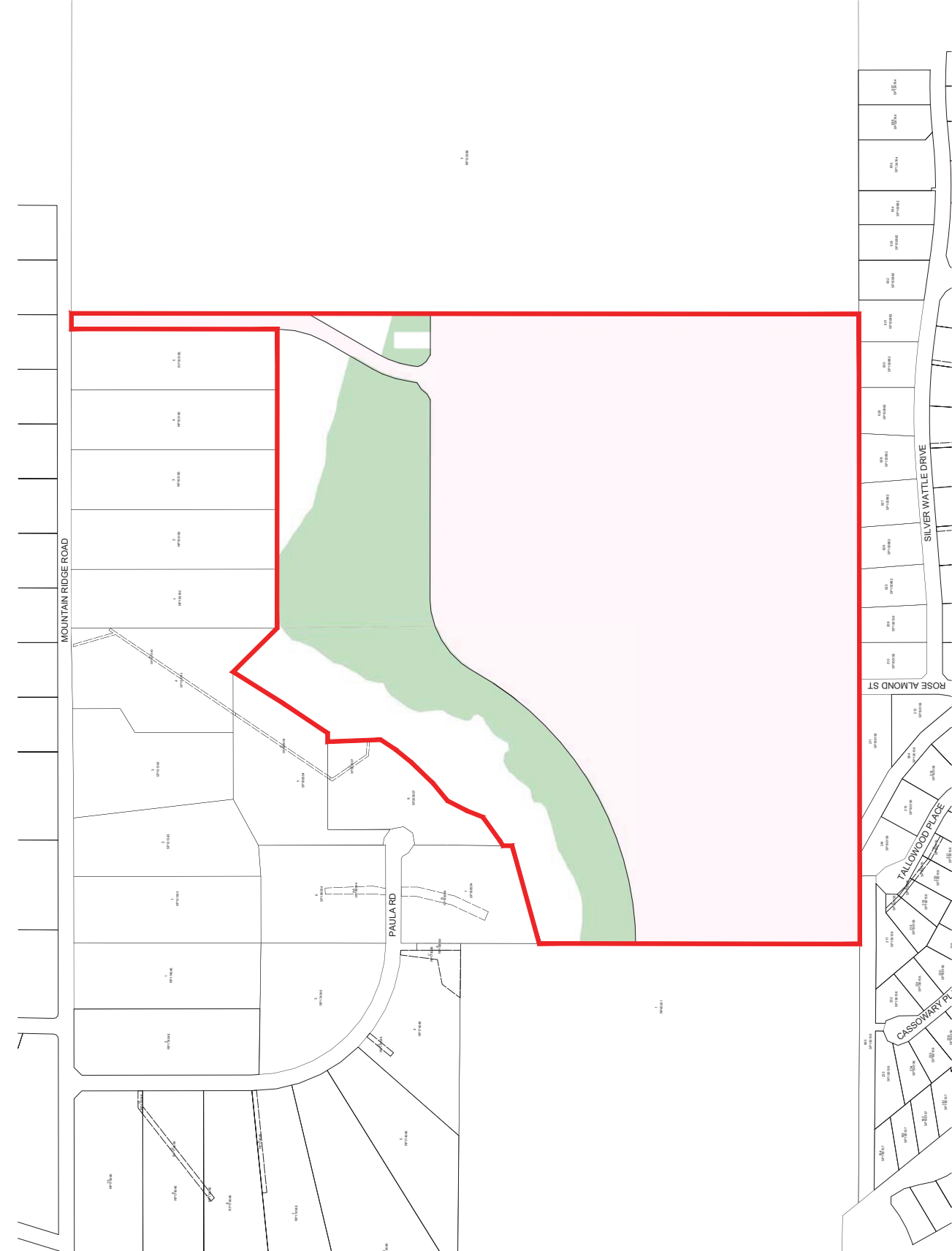
- The maximum gross floor area of the sales office does not exceed 500m<sup>2</sup>;
- Parking is provided at a rate of 1 space per 50m<sup>2</sup> of gross floor area;
- The hours of operation of the Sales Office are within the period from 7am to 6pm;
- The balance of the site comprising the Sales Office use is landscaped and turfed to present attractively to the street;
- The Sales Office (or part thereof) is not located within an interface lot;
- The Sales Office must cease use after the final lot within the Pebble Creek Plan of Development Area is sold by the developer;
- Only one Sales Office is located within the Pebble Creek Plan of Development Area (Residential Precinct); and
- The Sales Office does not obtain access solely from Rose Almond Street.

# Appendix A

Pebble Creek Plan of Development Area

PEBBLE CREEK PLAN OF DEVELOPMENT AREA

NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION



NOTES

This plan was prepared as a conceptual layout only. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. It is recommended that a full survey be undertaken in order to verify the information shown on this plan and to ensure that the proposed development complies with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Pavements and contours shown are indicative only and are subject to Engineering Design.

Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or for any financial dealings involving the land, arising from the use of this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

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\* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Pebble Creek Plan of Development Area
- District Recreation Park
- Residential

RP DESCRIPTION LOT 6 on RP193185 & LOT 9 on SP203507

SCALE (EAT 1:200 @ A3 1000) - LENGTHS ARE IN METRES



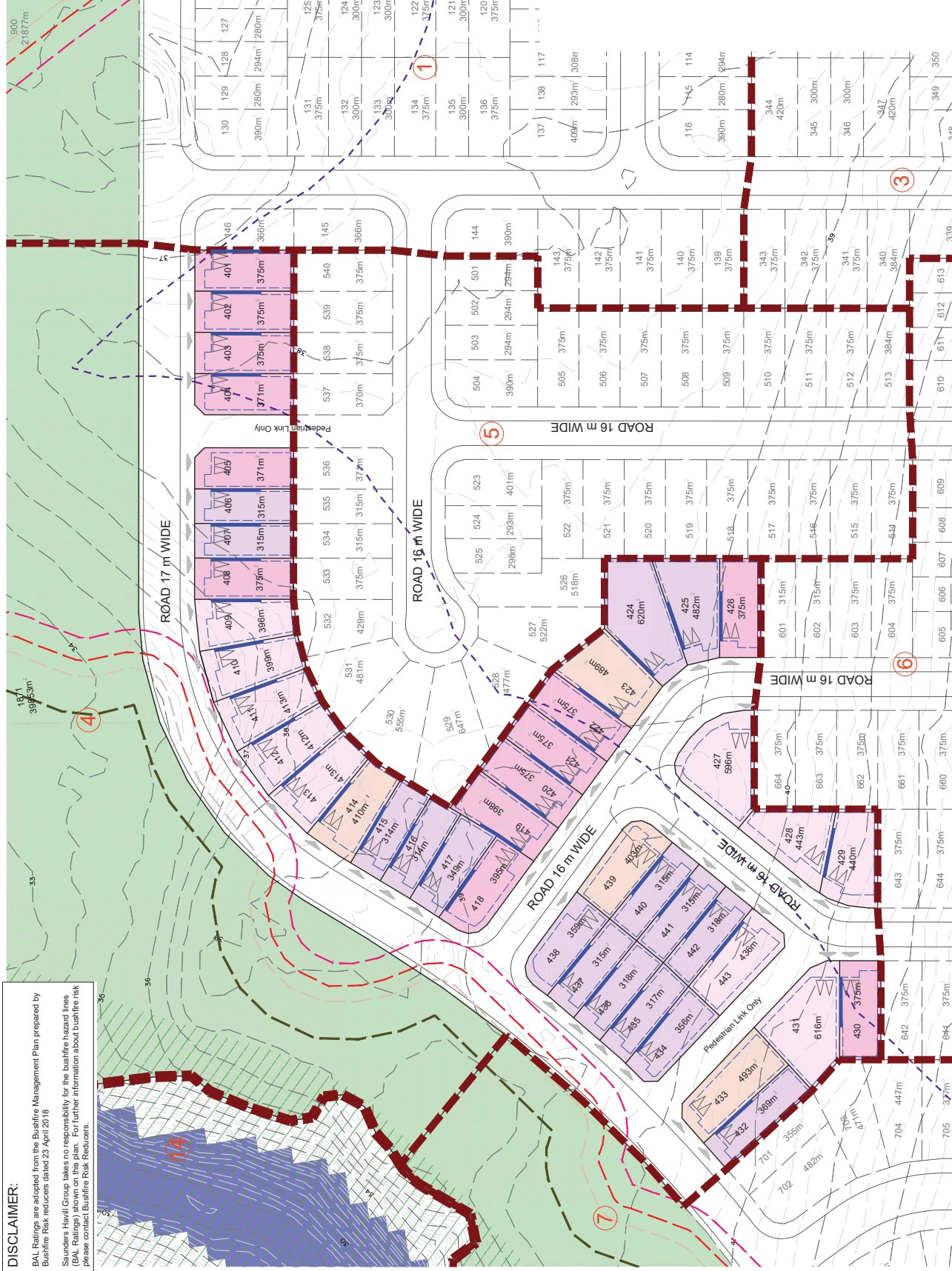
ORCHARD (PEBBLE CREEK) DEVELOPMENTS PTY LTD

MOUNTAIN RIDGE ROAD, SOUTH MACLEAN 04/10/2018 9282 P 03 SK A

# Appendix B

Pebble Creek Plan of Development  
(Envelope Plans) Stages 4-14

## LEGEND



	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface
Front Setback	To Wall (Ground Floor)	3m	3m	4m	5m
	To Wall (First Floor)	3m	3m	4m	5m
	Garage	5m	5m	5m	5m
Secondary Frontage	To Wall (Ground Floor)	1.5m	2m	2m	3m
	To Wall (First Floor)	2m	2m	2m	3m
	Garage	5m	5m	5m	5m
Rear Setback	Ground Floor	0.9m*	0.9m*	0.9m*	8.0m*
	First Floor	1m	1m	1m	8.0m
	Side Setback (BTB)	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
Ground Floor	First Floor	0.9m	1.0m	1.0m	n/a
	Side Setback (non-BTB)	0.9m	1.0m	1.0m	1.5m
	First Floor	0.9m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Minimum)	75%	75%	60%	60%	50%
Rear boundary setback for a lot including a stepped retaining wall or wall					

RP DESCRIPTION	
LOT 6 on RP193185 &	
LOT 9 on SP203507	

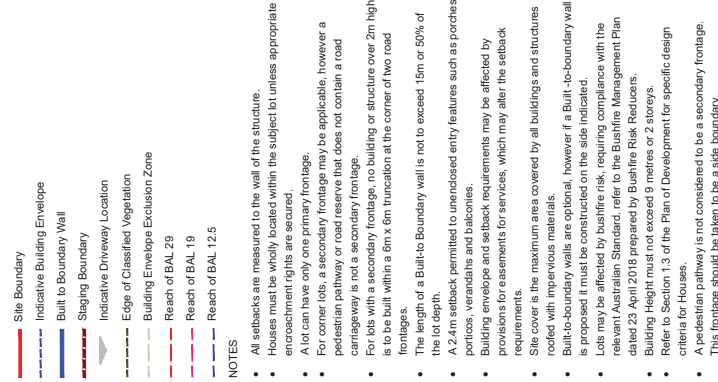




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BAL Ratings are adopted from the Bushfire Management Plan prepared by Bushfire Risk reducers dated 23 April 2018

Saunders Havill Group takes no responsibility for the bushfire hazard lines (BAL Ratings) shown on this plan. For further information about bushfire risk please contact Bushfire Risk Reducers.



	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface Lots
Front setback					
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	3m	3m	3m	4m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage					
To Wall (Ground Floor)	1.5m	2m	2m	2m	3m
To Wall (First Floor)	2m	2m	2m	3m	3m
Garage	5m	5m	5m	5m	5m
Rear Setback					
Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
First Floor	1m	1m	1m	1m	8.0m
Side Setback (BTB)					
Ground Floor	0 - 0.2m to 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)					
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a suit to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%
* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.1m) is to be increased to 2.5m					

RP DESCRIPTION	LOT 6 on RP193185 & LOT 9 on SP203507

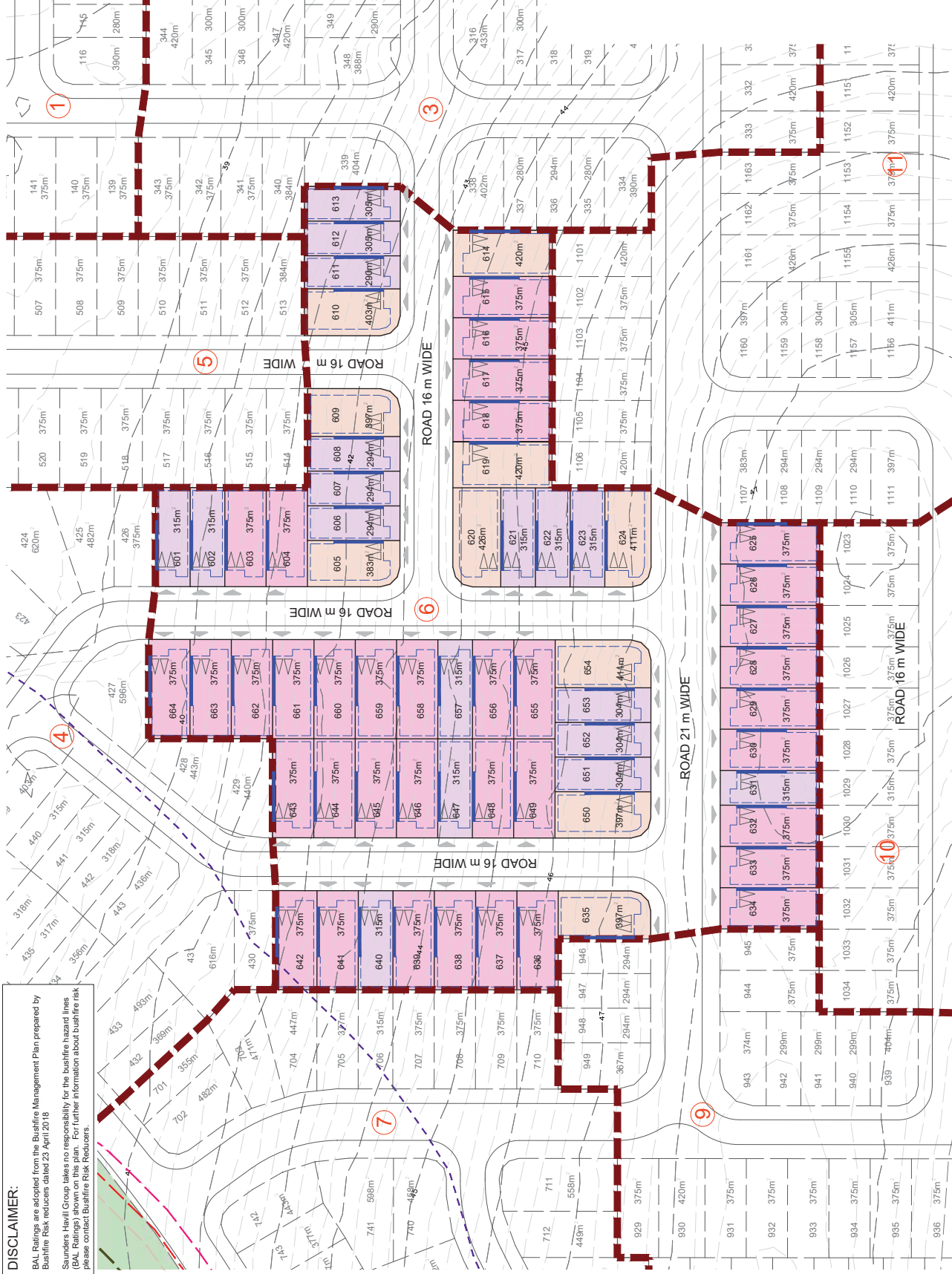
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## LEGEND

**DISCLAIMER:**

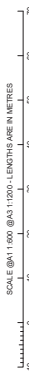
BAL Ratings are adopted from the Bushfire Management Plan prepared by Bushfire Risk reducers dated 23 April 2018

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	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface
Front Setback	To Wall (Ground Floor)	3m	3m	4m	5m
	To Wall (First Floor)	3m	3m	4m	5m
	Garage	5m	5m	5m	5m
Secondary Frontage	To Wall (Ground Floor)	1.5m	2m	2m	3m
	To Wall (First Floor)	2m	2m	2m	3m
	Garage	5m	5m	5m	5m
Rear Setback	Ground Floor	0.9m*	0.9m*	0.9m*	8.0m*
	First Floor	1m	1m	1m	8.0m
	Side Setback (BTB)	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
Ground Floor	First Floor	0.9m	1.0m	1.0m	n/a
	Side Setback (non-BTB)	0.9m	1.0m	1.0m	1.5m
	First Floor	0.9m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Minimum)	75%	75%	60%	60%	50%
Rear boundary setback for a lot including a stepped retaining wall or wall					

RP DESCRIPTION	LOT 6 on RP193185 & LOT 9 on SP203507

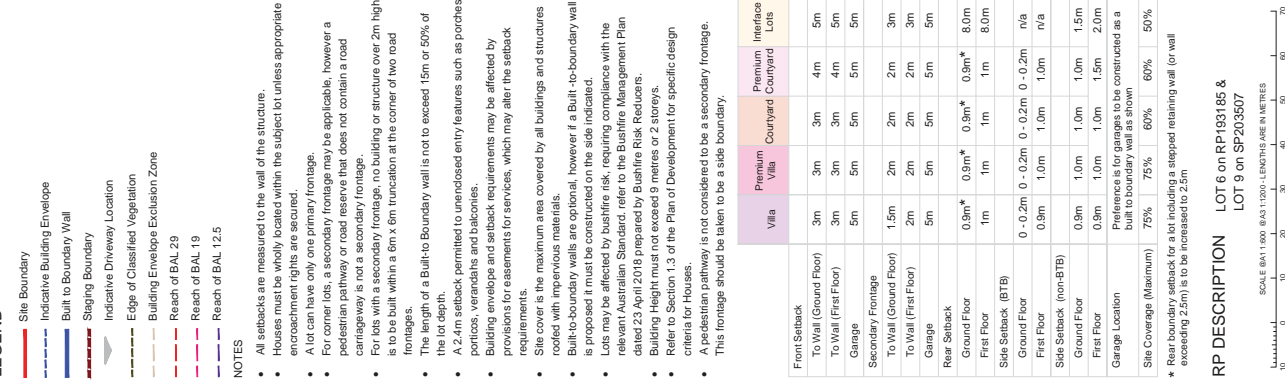




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OR CONSTRUCTION

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	Villa	Premium Villa	Courtyard	Premium Courtyard	Inference
Front Setback To Wall (Ground Floor) To Wall (First Floor)	3m	3m	3m	4m	5m
	3m	3m	3m	4m	5m
	3m	5m	5m	5m	5m
	Secondary Frontage				
	To Wall (Ground Floor)	1.5m	2m	2m	3m
	To Wall (First Floor)	2m	2m	2m	3m
Garage	5m	5m	5m	5m	5m
Rear Setback					
Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
First Floor	1m	1m	1m	1m	8.0m
Side Setback (BTB)					
Ground Floor	0 - 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)					
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location					
Preference as for garages to be constructed as a built to boundary wall as shown					
75%    75%    60%					50%
Rear boundary setback for a lot including a sloped retaining wall for wall					

RP DESCRIPTION	LOT 6 on RP193185 & LOT 9 on SP203507

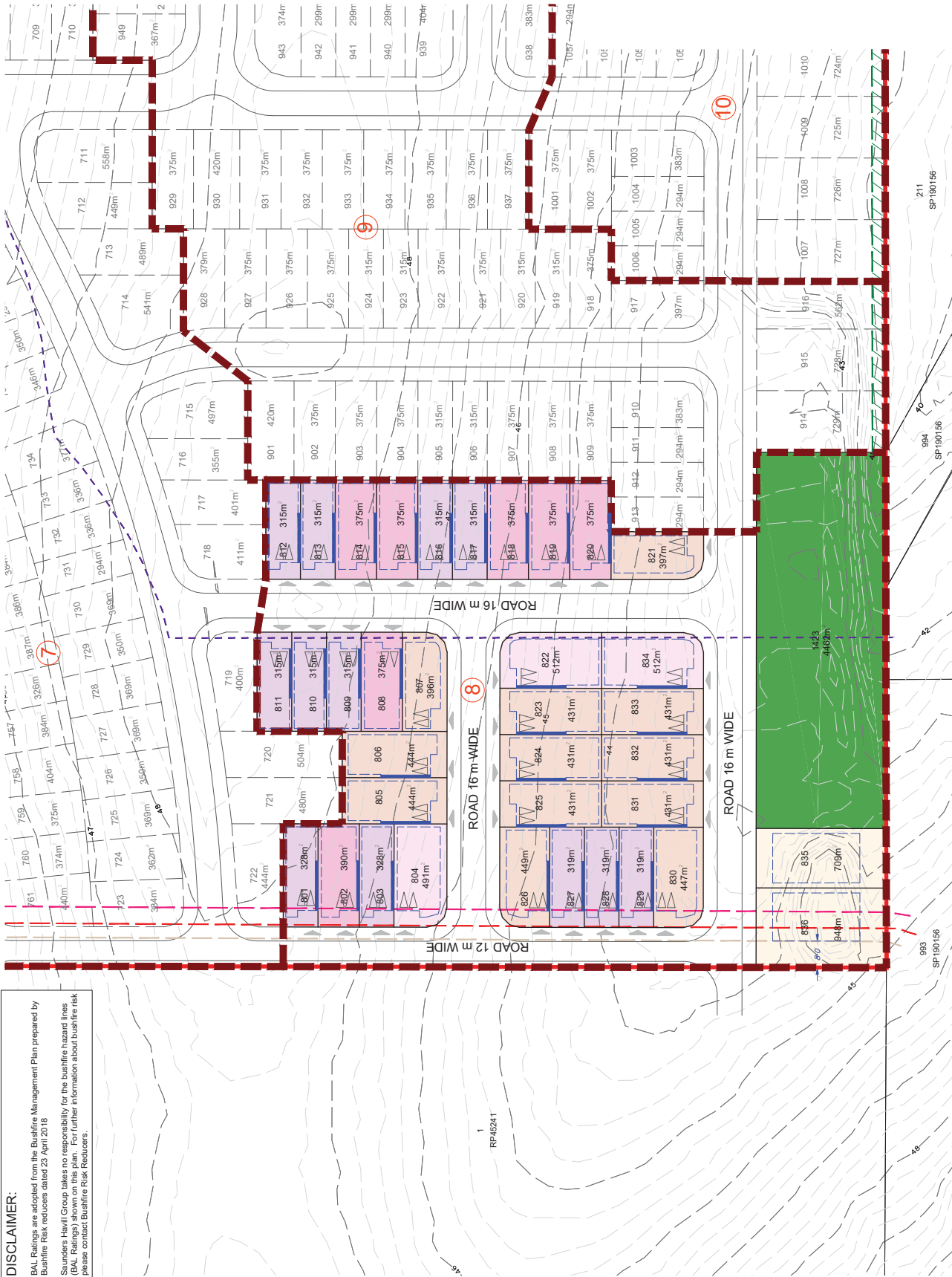
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PLAN OF DEVELOPMENT - STAGE 8

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SCALE @A1 1:600 @A3 1:300 - LENGTHS ARE IN METRES

LEGEND

- Site Boundary
- Indicative Building Envelope
- Built to Boundary Wall
- Staging Boundary
- Indicative Driveway Location
- Edge of Classified Vegetation
- Building Envelope Exclusion Zone
- Reach of BAL 29
- Reach of BAL 19
- Reach of BAL 12.5
- Landscape Interface Buffer (Refer to Pebble Creek Plan of Development)

NOTES

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage.
- For lots with a secondary frontage, no building or structure over 2m high is to be built within a 6m x 6m truncation at the corner of two road frontages.
- The length of a Built-to Boundary wall is not to exceed 15m or 50% of the lot depth.
- A 2.4m setback permitted to unenclosed entry features such as porches, porticos, verandahs and balconies.
- Building envelope and setback requirements may be affected by provisions for easements for services, which may alter the setback requirements.
- Site cover is the maximum area covered by all buildings and structures roofed with impervious materials.
- Built-to boundary walls are optional, however if a Built-to boundary wall is proposed it must be constructed on the side indicated.
- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard, refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage. This frontage should be taken to be a side boundary.
- No buildings or structures are permitted in the Landscape Interface Buffer.

	Premium Villa	Courtyard	Premium Interface
Front Setback	3m	3m	4m
To Wall (Ground Floor)	3m	3m	4m
To Wall (First Floor)	5m	5m	5m
Garage	5m	5m	5m
Secondary Frontage	1.5m	2m	2m
To Wall (Ground Floor)	2m	2m	2m
To Wall (First Floor)	2m	2m	2m
Garage	5m	5m	5m
Rear Setback	0.9m*	0.9m*	0.9m*
Ground Floor	1m	1m	1m
First Floor	1m	1m	1m
Side Setback (BTB)	0-0.2m	0-0.2m	0-0.2m
Ground Floor	0.9m	1.0m	1.0m
First Floor	0.9m	1.0m	1.0m
Side Setback (non-BTB)	0.9m	1.0m	1.0m
Ground Floor	0.9m	1.0m	1.0m
First Floor	0.9m	1.0m	1.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown		
Site Coverage (Maximum)	75%	75%	60%
	75%	60%	50%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION LOT 6 on RP193185 & LOT 9 on SP203507

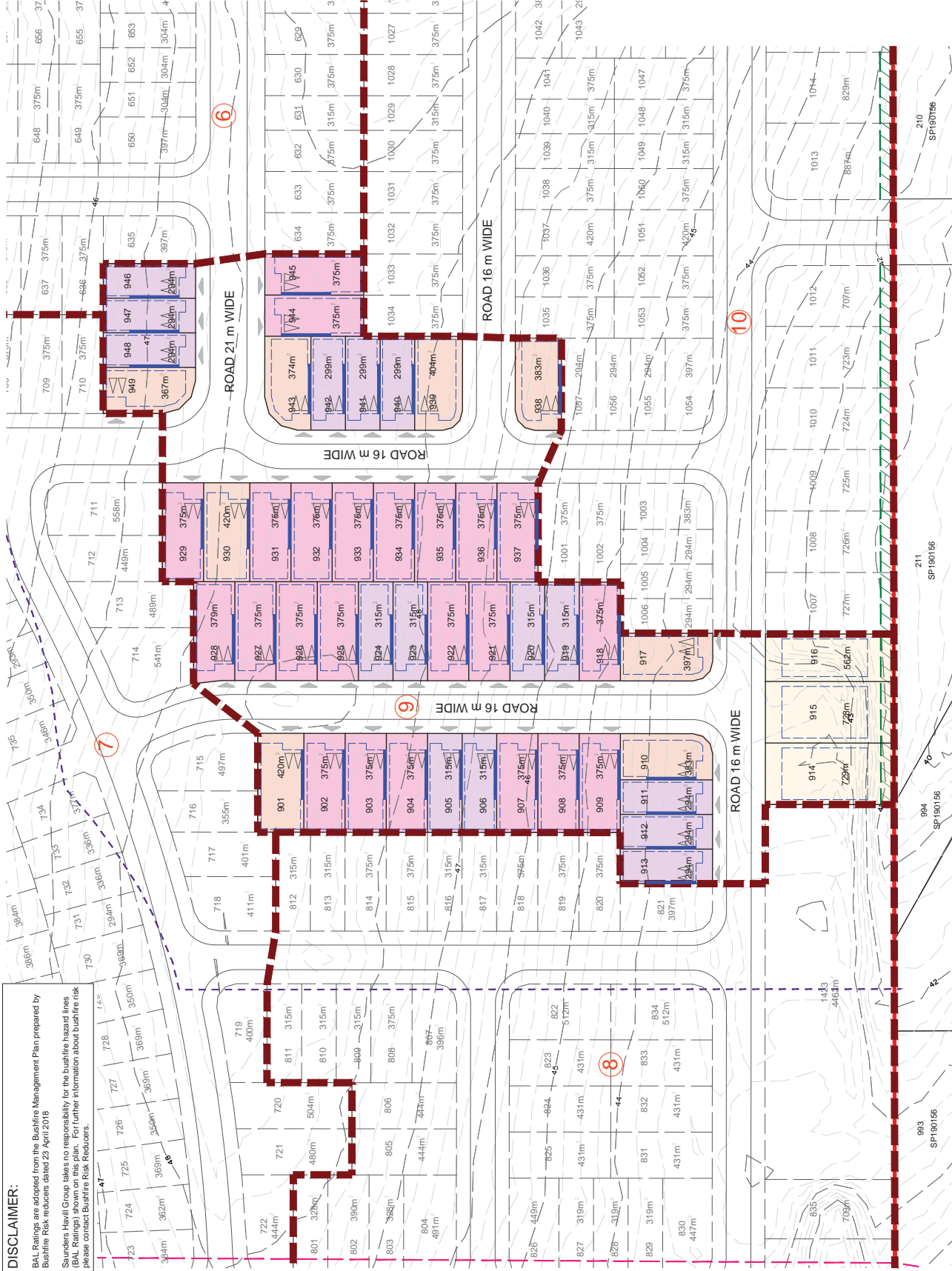


PLAN OF DEVELOPMENT - STAGE 9

NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION

DISCLAIMER:

BAL Ratings are adopted from the Bushfire Management Plan prepared by Bushfire Risk reduce dated 23 April 2018  
Saunders Havill Group takes no responsibility for the bushfire hazard lines (BAL Ratings) shown on this plan. For further information about bushfire risk please contact Bushfire Risk Reducers.



LEGEND

- Site Boundary
- Indicative Building Envelope
- Built to Boundary Wall
- Staging Boundary
- Indicative Driveway Location
- Edge of Classified Vegetation
- Building Envelope Exclusion Zone
- Reach of BAL 29
- Reach of BAL 19
- Reach of BAL 12.5
- Landscape Interface Buffer (Refer to Pebble Creek Plan of Development)

NOTES

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage.
- For lots with a secondary frontage, no building or structure over 2m high is to be built within a 6m x 6m truncation at the corner of two road frontages.
- The length of a Built-to Boundary wall is not to exceed 15m or 50% of the lot depth.
- A 2.4m setback permitted to unenclosed entry features such as porches, porticos, verandahs and balconies.
- Building envelope and setback requirements may be affected by provisions for easements for services, which may alter the setback requirements.
- Site cover is the maximum area covered by all buildings and structures roofed with impervious materials.
- Built-to boundary walls are optional, however if a Built-to boundary wall is proposed it must be constructed on the side indicated.
- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard, refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage. This frontage should be taken to be a side boundary.
- No buildings or structures are permitted in the Landscape Interface Buffer.

	Villa	Premium Villa	Courtyard	Premium Infill	Interface Lots
Front Setback	3m	3m	3m	4m	5m
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	5m	5m	5m	5m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage	1.5m	2m	2m	2m	3m
To Wall (Ground Floor)	2m	2m	2m	2m	3m
To Wall (First Floor)	5m	5m	5m	5m	5m
Garage	5m	5m	5m	5m	5m
Rear Setback	0.9m*	0.9m*	0.9m*	0.9m*	0.9m*
Ground Floor	1m	1m	1m	1m	1m
First Floor	1m	1m	1m	1m	1m
Side Setback (BTB)	0.9m	0.9m	0.9m	0.9m	0.9m
Ground Floor	0.9m	0.9m	0.9m	0.9m	0.9m
First Floor	0.9m	0.9m	0.9m	0.9m	0.9m
Side Setback (non-BTB)	0.9m	0.9m	0.9m	0.9m	0.9m
Ground Floor	0.9m	0.9m	0.9m	0.9m	0.9m
First Floor	0.9m	0.9m	0.9m	0.9m	0.9m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION LOT 6 on RP193185 & LOT 9 on SP203507

SCALE: BAL 1:900, BAL 1:1000, LENGTHS ARE IN METRES



BAL Ratings are adopted from the Bushfire Management Plan prepared by Bushfire Risk reducers dated 23 April 2018

Saunders Havill Group takes no responsibility for the bushfire hazard lines (BAL Ratings) shown on this plan. For further information about bushfire risk please contact Bushfire Risk Reducers.



Editor	Premium Villa		Courtyard		Premium Courtyard		Interface	
	Villa							
	Front Setback							
	To Wall (Ground Floor)	3m	3m	3m	3m	4m	5m	
	To Wall (First Floor)	3m	3m	3m	3m	4m	5m	
	Garage	5m	5m	5m	5m	5m	5m	
	Secondary Frontage							
	To Wall (Ground Floor)	1.5m	2m	2m	2m	2m	3m	
	To Wall (First Floor)	2m	2m	2m	2m	2m	3m	
	Garage	5m	5m	5m	5m	5m	5m	
	Rear Setback							
	Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	0.9m*	8.0m	
	First Floor	1m	1m	1m	1m	1m	8.0m	
	Side Setback (BTB)							
	Ground Floor	0 - 0.2m or 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a	
	First Floor	0.9m	1.0m	1.0m	1.0m	1.0m	n/a	
	Side Setback (non-BTB)							
	Ground Floor	0.9m	1.0m	1.0m	1.0m	1.0m	1.5m	
First Floor	0.9m	1.0m	1.0m	1.0m	1.5m	2.0m		
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown							
Site Coverage (Maximum)		75%	75%	60%	75%	50%	50%	

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION	LOT 6 on RP193185 & LOT 9 on SP203507



ORCHARD (PEBBLE CREEK) DEVELOPMENTS PTY LTD

MOUNTAIN RIDGE ROAD, SOUTH MACLEAN 23/11/2020 9282 P 02 Rev P POD 10

BAL Ratings are adopted from the Bushfire Management Plan prepared by Bushfire Risk reducers dated 23 April 2018

Saunders Havill Group takes no responsibility for the bushfire hazard lines (BAL Ratings) shown on this plan. For further information about bushfire risk please contact Bushfire Risk Reducers.



MOUNTAIN RIDGE ROAD, SOUTH MACLEAN 23/11/2020 9282 P 02 Rev P POD 11

NOTES

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage.
- For lots with a secondary frontage, no building or structure over 2m high is to be built within a 6m x 6m truncation at the corner of two road frontages.
- The length of a Built-to-Boundary wall is not to exceed 15m or 50% of the lot depth.
- A 2.4m setback permitted to unenclosed entry features such as porches, porticos, verandahs and balconies.
- Building envelope and setback requirements may be affected by provisions for easements for services, which may alter the setback requirements.
- Site cover is the maximum area covered by all buildings and structures roofed with impervious materials.
- Built-to-boundary walls are optional, however if a Built-to-boundary wall is proposed it must be constructed on the side indicated.
- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard, refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage.
- This frontage should be taken to be a side boundary.
- No buildings or structures are permitted in the Landscape Interface Buffer.

Buffer	Village					Interface Lots
	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface	
Front Setback	To Wall (Ground Floor)	3m	3m	3m	4m	5m
	To Wall (First Floor)	3m	3m	3m	4m	5m
	Garage	5m	5m	5m	5m	5m
	Secondary Frontage					
	To Wall (Ground Floor)	1.5m	2m	2m	2m	3m
	To Wall (First Floor)	2m	2m	2m	2m	3m
	Garage	5m	5m	5m	5m	5m
	Rear Setback					
	Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
	First Floor	1m	1m	1m	1m	8.0m
	Side Setback (8ftB)					
	Ground Floor	0-0.2m	0-0.2m	0-0.2m	0-0.2m	n/a
	First Floor	0.9m	1.0m	1.0m	1.0m	n/a
	Side Setback (non-8ftB)					
	Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
	First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown					
Site Coverage (Maximum)	75%	75%	60%	6%	50%	

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION	LOT 6 on RP193185 & LOT 9 on SP203507

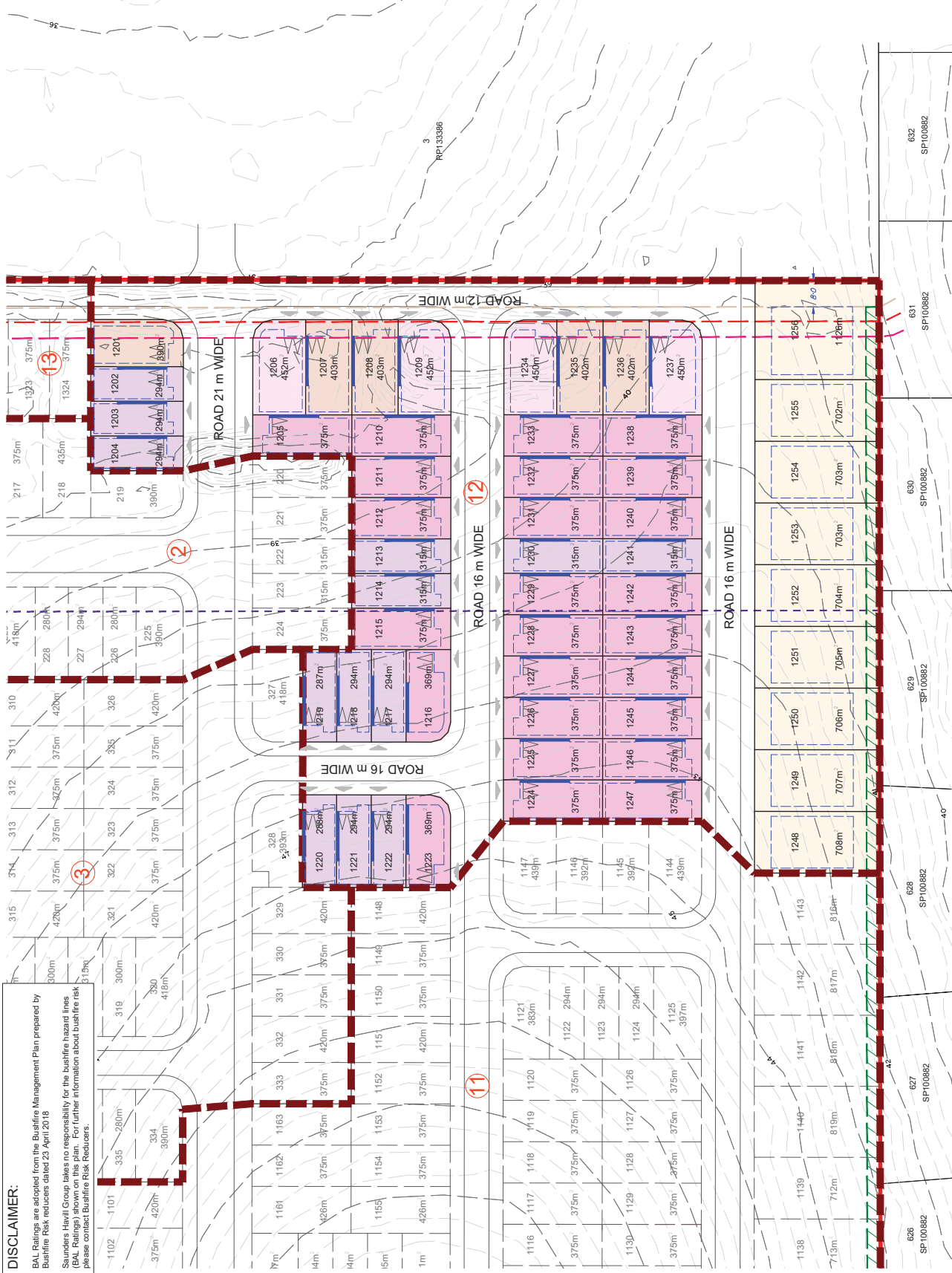




PLAN OF DEVELOPMENT - STAGE 12

DISCLAIMER:

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Bushfire Risk reducers dated 23 April 2018  
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(BAL Ratings) shown on this plan. For further information about bushfire risk  
please contact Bushfire Risk Reducers.



LEGEND

- Site Boundary
- Indicative Building Envelope
- Built to Boundary Wall
- Staging Boundary
- Indicative Driveway Location
- Edge of Classified Vegetation
- Building Envelope Exclusion Zone
- Reach of BAL 29
- Reach of BAL 19
- Reach of BAL 12.5
- Landscape Interface Buffer (Refer to Pebble Creek Plan of Development)

NOTES

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage.
- For lots with a secondary frontage, no building or structure over 2m high is to be built within a 6m x 6m truncation at the corner of two road frontages.
- The length of a Built-to Boundary wall is not to exceed 15m or 50% of the lot depth.
- A 2.4m setback permitted to unenclosed entry features such as porches, porticos, verandahs and balconies.
- Building envelope and setback requirements may be affected by provisions for easements for services, which may alter the setback requirements.
- Site cover is the maximum area covered by all buildings and structures roofed with impervious materials.
- Built-to boundary walls are optional, however if a Built-to boundary wall is proposed it must be constructed on the side indicated.
- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard, refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage.
- This frontage should be taken to be a side boundary.
- No buildings or structures are permitted in the Landscape Interface Buffer.

	Villa	Premium Villa	Courtyard	Interface	Lot
Front Setback	3m	3m	3m	4m	5m
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	5m	5m	5m	5m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage	1.5m	2m	2m	2m	3m
To Wall (Ground Floor)	2m	2m	2m	2m	3m
To Wall (First Floor)	5m	5m	5m	5m	5m
Garage	5m	5m	5m	5m	5m
Rear Setback	0.9m*	0.9m*	0.9m*	0.9m*	0.9m*
Ground Floor	1m	1m	1m	1m	1m
First Floor	1m	1m	1m	1m	1m
Side Setback (BTB)	0-0.2m	0-0.2m	0-0.2m	0-0.2m	n/a
Ground Floor	0.9m	1.0m	1.0m	1.0m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)	0.9m	1.0m	1.0m	1.0m	1.5m
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.0m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION LOT 6 on RP193185 &  
LOT 9 on SP203507

SCALE @A1 1:600 @A3 1:300 - LENGTHS ARE IN METRES

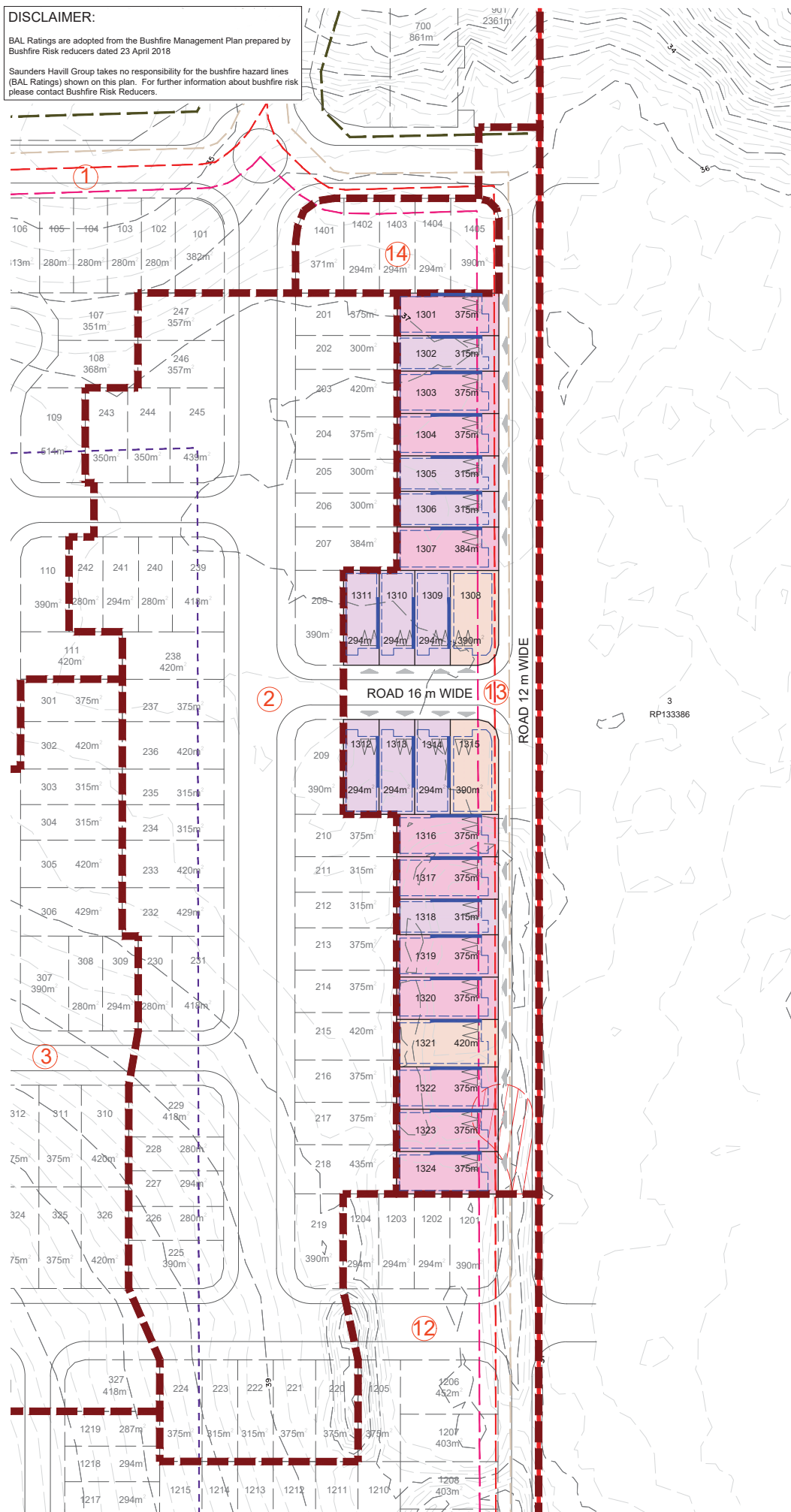


# PLAN OF DEVELOPMENT - STAGE 13

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NOT TO BE USED FOR ENGINEERING DESIGN  
OR CONSTRUCTION

## LEGEND

- Site Boundary
- Indicative Building Envelope
- Built to Boundary Wall
- Staging Boundary
- Indicative Driveway Location
- Edge of Classified Vegetation
- Building Envelope Exclusion Zone
- Reach of BAL 29
- Reach of BAL 19
- Reach of BAL 12.5

## NOTES

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
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- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard, refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage. This frontage should be taken to be a side boundary.

	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface Lots
Front Setback					
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	3m	3m	3m	4m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage					
To Wall (Ground Floor)	1.5m	2m	2m	2m	3m
To Wall (First Floor)	2m	2m	2m	2m	3m
Garage	5m	5m	5m	5m	5m
Rear Setback					
Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
First Floor	1m	1m	1m	1m	8.0m
Side Setback (BTB)					
Ground Floor	0 - 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)					
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

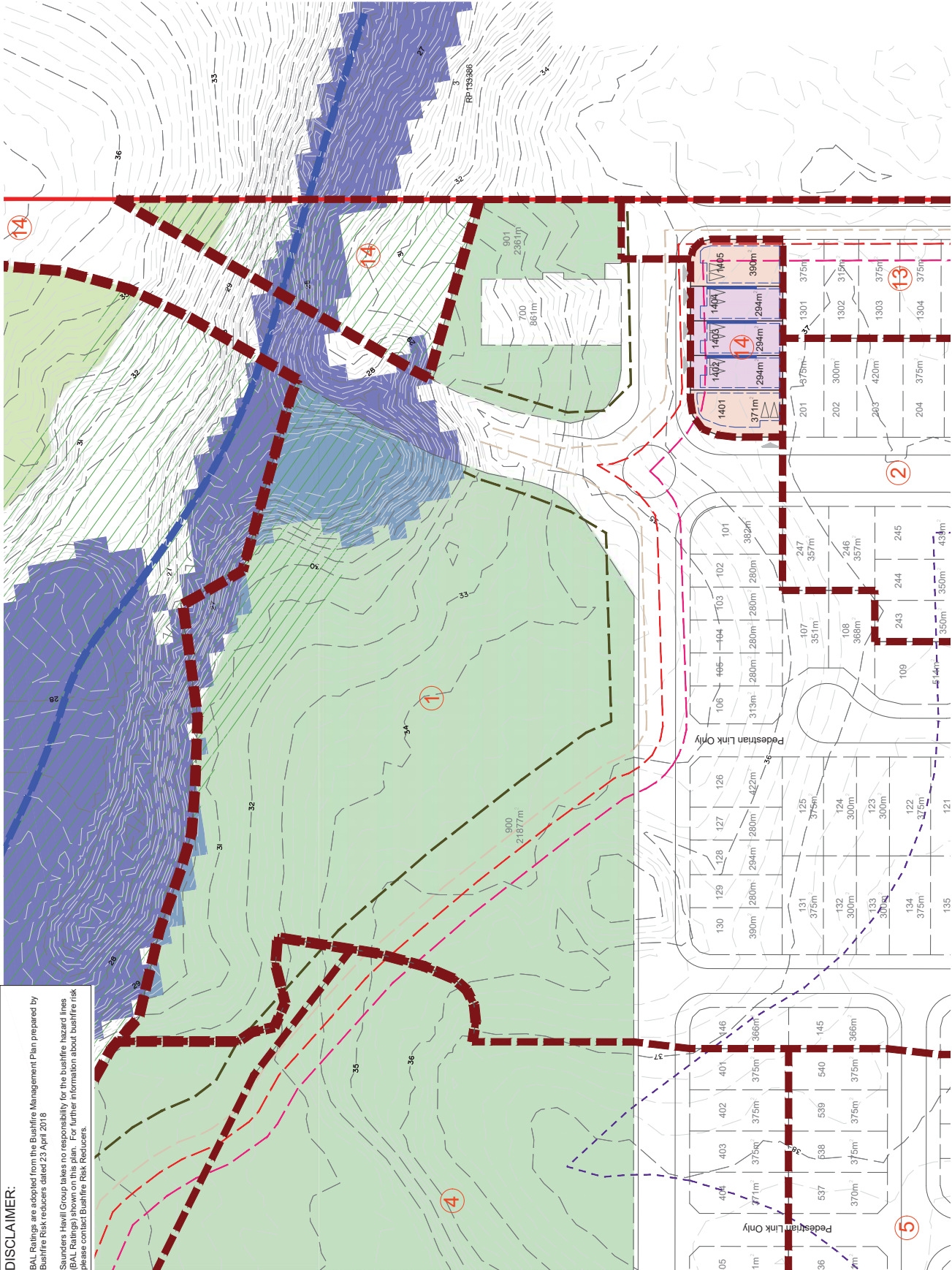
RP DESCRIPTION LOT 6 on RP193185 &  
LOT 9 on SP203507

SCALE @A1 1:600 @A3 1:1200 - LENGTHS ARE IN METRES





**DISCLAIMER:**  
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LEGEND

- Site Boundary
- Indicative Building Envelope
- Built to Boundary Wall
- Staging Boundary
- Indicative Driveway Location
- Edge of Classified Vegetation
- Building Envelope Exclusion Zone
- Reach of BAL 29
- Reach of BAL 19
- Reach of BAL 12.5

NOTES

- All setbacks are measured to the wall of the structure.
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- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard, refer to the Bushfire Management Plan dated 23 April 2016 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage.
- This frontage should be taken to be a side boundary.

	Premium Villa	Courtyard	Premium Interface
Front Setback	3m	3m	4m
To Wall (Ground Floor)	3m	3m	4m
To Wall (First Floor)	3m	3m	4m
Garage	5m	5m	5m
Secondary Frontage	1.5m	2m	2m
To Wall (Ground Floor)	2m	2m	2m
To Wall (First Floor)	2m	2m	2m
Garage	5m	5m	5m
Rear Setback	0.9m*	0.9m*	0.9m*
Ground Floor	0.9m*	0.9m*	0.9m*
First Floor	1m	1m	1m
Site Setback (BTB)	0-0.2m	0-0.2m	0-0.2m
Ground Floor	0.9m	1.0m	1.0m
First Floor	0.9m	1.0m	1.0m
Site Setback (non-BTB)	0.9m	1.0m	1.0m
Ground Floor	0.9m	1.0m	1.0m
First Floor	0.9m	1.0m	1.0m
Garage Location	Preference is for garages to be constructed as a Built to Boundary wall as shown		
Site Coverage (Maximum)	75%	75%	60%
Site Coverage	75%	75%	60%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION LOT 6 on RP193185 & LOT 9 on SP203507

SCALE @A1 1:600 @A3 1:1000 - LENGTHS ARE METRES



# Appendix C

## Bushfire Management Plan

# BUSHFIRE MANAGEMENT PLAN



**AMENDED IN RED**

By: Owen Haslam

Date: 13/12/18



Lots 6 on RP193185 and Lot 9 on SP203507

**Mountain Ridge Road, South MacLean**

Client Reference: 005.09.17



**Bushfire Risk Reducers**  
ABN 28 355 366 321

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**PLANS AND DOCUMENTS**  
referred to in the PDA  
**DEVELOPMENT APPROVAL**

Approval no: DEV2017/887

Date: 14/12/18



## DISCLAIMER

The following report is made on the basis of the assessment undertaken at this location by Bushfire Risk Reducers in September 2017.

Whilst Bushfire Risk Reducers uses its best endeavors to ensure that the information contained in this report is valid and comprehensive, the company makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

Should the Client have any concerns arising from this report or its content, they are requested to contact Bushfire Risk Reducers directly.

## REPORT AUTHOR

### **Alistair Hill**

Director - Bushfire Risk Reducers  
Grad Dip Bushfire Planning and Design  
FPAA BPAD-Level 3 Certified Practitioner  
Certification Number: BPD-PA-19034

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**DOCUMENT CONTROL****Bushfire Management Plan****Client:** Mountain Ridge Pty Ltd**Client Reference:** 005.09.17**Project:** RoL and MCU**Site Location:** Mountain Ridge Road, South McLean

Version	Date	Status	Changes	Author	Approver
Rev 0	8.09.2017	First Draft		AH	AH
Rev 1	19.09.2017	Second Draft		AH	AH
Rev 2	20.09.2017	Third Draft		AH	AH
Rev 3	11.10.2017	Final Report		AH	AH
Rev 4	20.03.2018	Final Report	Reponse to further details request	AH	AH
Rev 5	23.04.2018	Final Report	Reponse to further further details request	AH	AH

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## 1.0 Introduction

This report has been commissioned by Mountain Ridge Pty Ltd in order to support a Development Application for the subdivision of Lot 6 on RP193185 and Lot 9 on SP203507 into 650 Lots; and also in compliance with the Building Code of Australia (BCA), in respect of future residential buildings on each of the Lots.

Logan City Council (LCC) bushfire hazard overlay mapping classifies part of the Subject Lots and adjacent Lots as “bushfire prone area” (BPA). The hazard mapping is based on Queensland Government State Planning Policy (December 2013, latest version July 2017) accompanied by *A new methodology for State-wide mapping of bushfire prone areas in Queensland* (CSIRO 2014).

The designation by Council of land being BPA has two main implications:

1. It requires the production of a Bushfire Management Plan which complies with the Planning Scheme (in this case Part 8.2.3 (Bushfire Overlay Code) of the Logan Planning Scheme 2015).
2. It invokes the Building Code of Australia (BCA), requiring compliance with its bushfire related function performance objectives and with AS3959-2009 *Construction of buildings in bushfire prone areas*.

This Bushfire Management Plan objectively determines the nature and severity of potential worst case wildfire in the area, and develops risk mitigation measures to be used in combination with established construction needs in accordance with AS3959-2009. It is the implementation of all these protection measures in combination, that will demonstrate the viability and conformance of the proposed development in the development application process.

## 2.0 Site and Development Description

### 2.1 Property Description

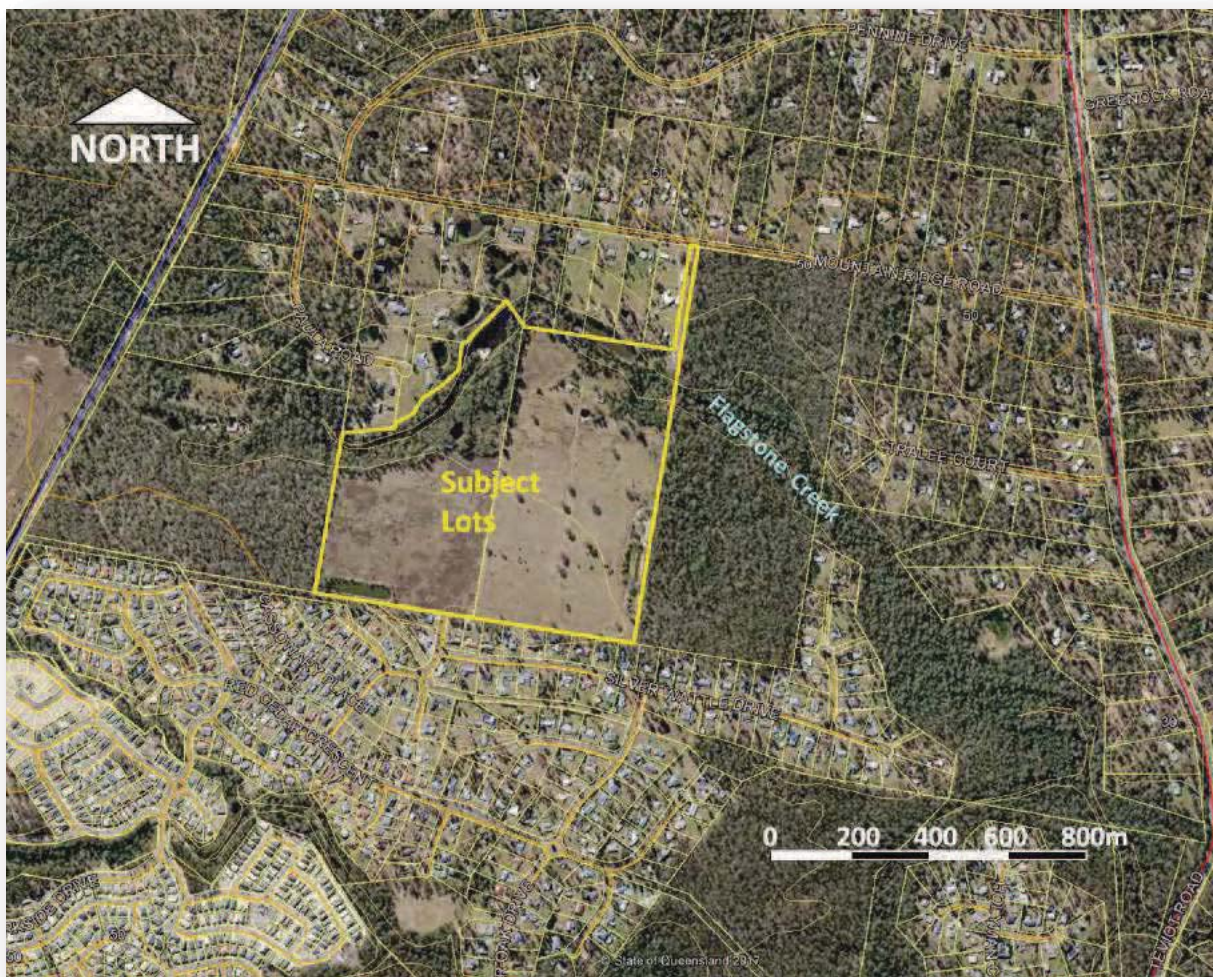
Site ID:	Lot 6 on RP193185 and Lot 9 on SP203507 Parish of MacLean, County of Stanley.
Current address of property:	3744 Mountain Ridge Road, South McLean, QLD 4280.
Local Government Area:	Logan City Council.
Total Area:	53.91ha
Zoning:	Emerging Community

### 2.2 Proposed Development

The proposed development is planned to create 650 Lots generally between 300 and 700m<sup>2</sup> in area, with a district Recreation Park and a Bio Basin.



## 2.3 Site Location and Layout



**Figure 1. Broader area showing the location of the proposed development.**

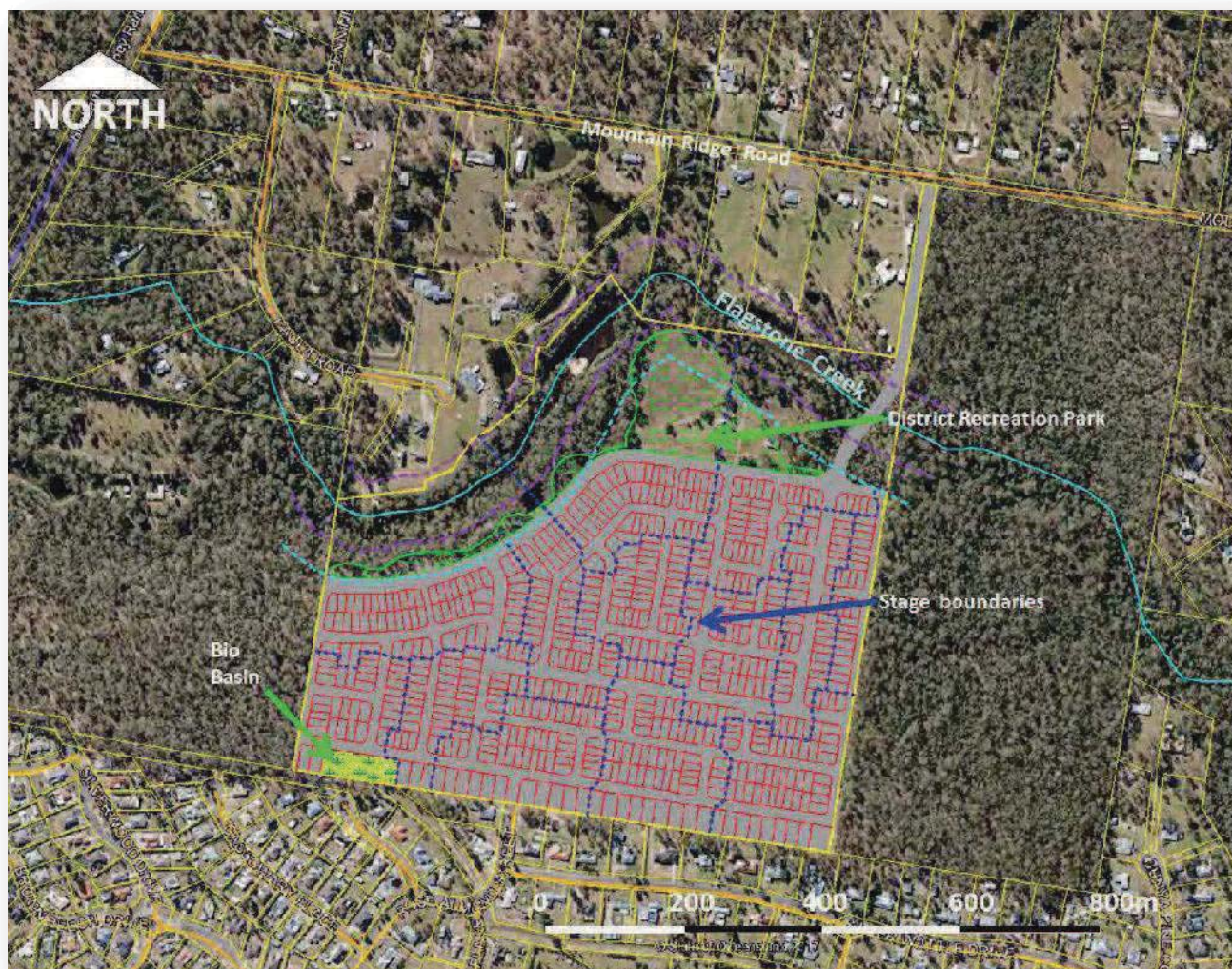
Located on the southern side of Mountain Ridge Road, and south of Flagstone Creek, the site abuts extensive areas of unmanaged forest to the west and east, and a strip of riparian forest across the north.

The proposed development involves a bridge being constructed across Flagstone Creek, so that two alternate access/egress routes exist for the site, one via Mountain Ridge Road to the north, and the other via Rose Almond Street to the south.

As designated Priority Development Area, development is anticipated to the west and east of the site, effectively lifting the bulk of the bushfire constraint. However in the meantime, current land use to the west and east of the site represents a potential threat to the development which is objectively assessed by this Plan, which develops a range of bushfire protection measures. In so doing this Plan serves to mitigate risk in the interim, to levels that can be considered acceptable.

Figure 2 shows the proposed subdivision in relation to vegetation that is being classified under AS3959-2009, and which is classifiable as potential hazard under Sc 6.2.6 Planning scheme policy 6 and under SPP 2016 – Natural hazards, risk and resilience.





**Figure 2. Proposed Subdivision and forest interfaces**

Staging Plans are attached in Appendix 2.

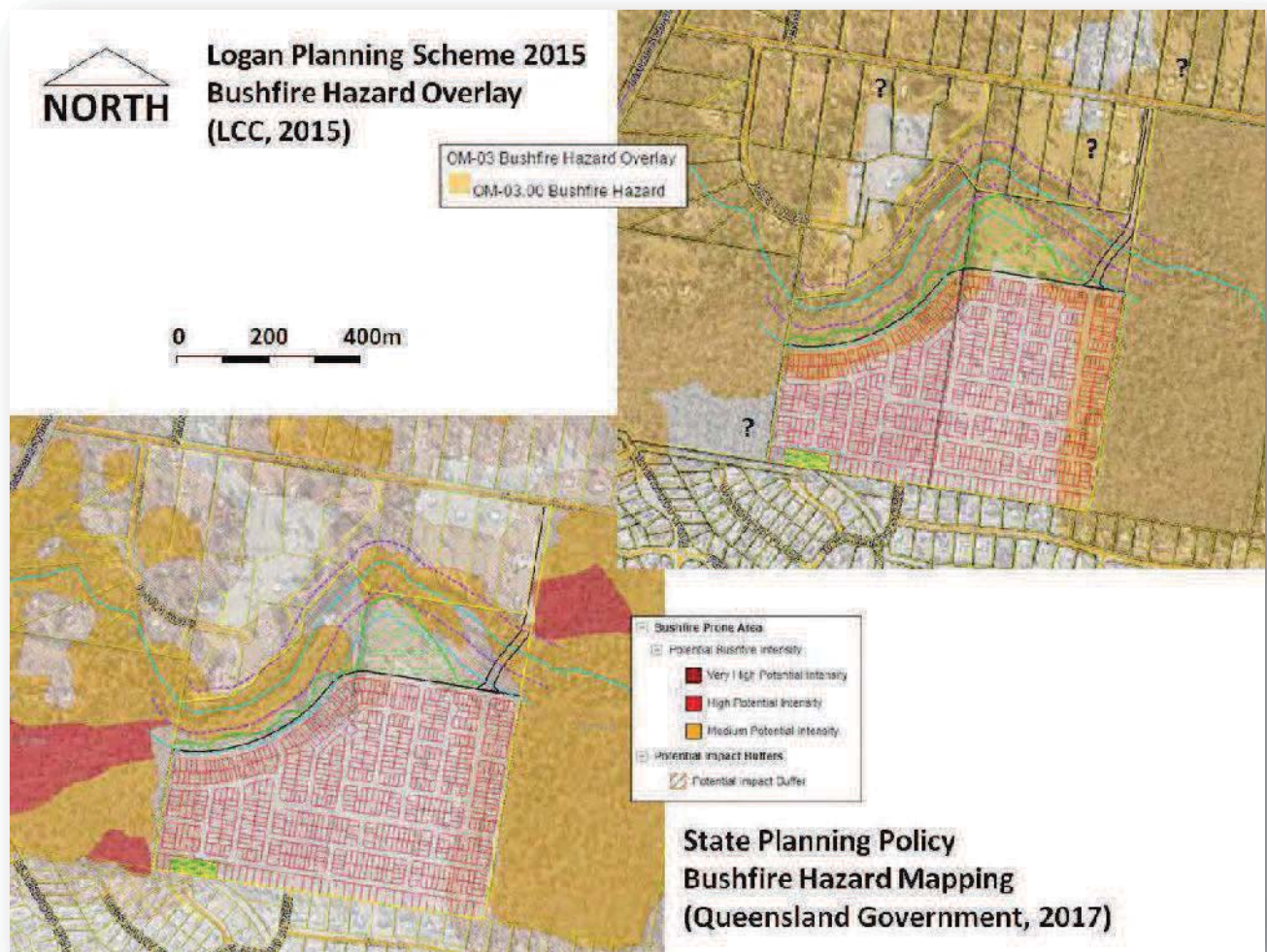
Throughout the Staged development, the balance of Lot will be retained in a low hazard state by slashing.

The site is within approximately 10km by road of the nearest Queensland Fire and Emergency Services (Jimboomba Fire Station).



## 3.0 Bushfire Hazard Assessment

### 3.1 Bushfire hazard classification



**Figure 3. Council and latest State bushfire hazard mapping**

"Bushfire Prone Area" (BPA) is defined under Section 12 of Building Regulation 2006 and the BCA as an area **identified as such by Local Government**, in this case using the methodology specified in *A new methodology for State-wide mapping of bushfire prone areas in Queensland* (CSIRO 2014). Logan City Council Policy 6 (Management of Bushfire Hazard) Part 2.1 outlines the requirement for a bushfire hazard assessment report based on such methodology in order to validate the bushfire hazard overlay mapping above.

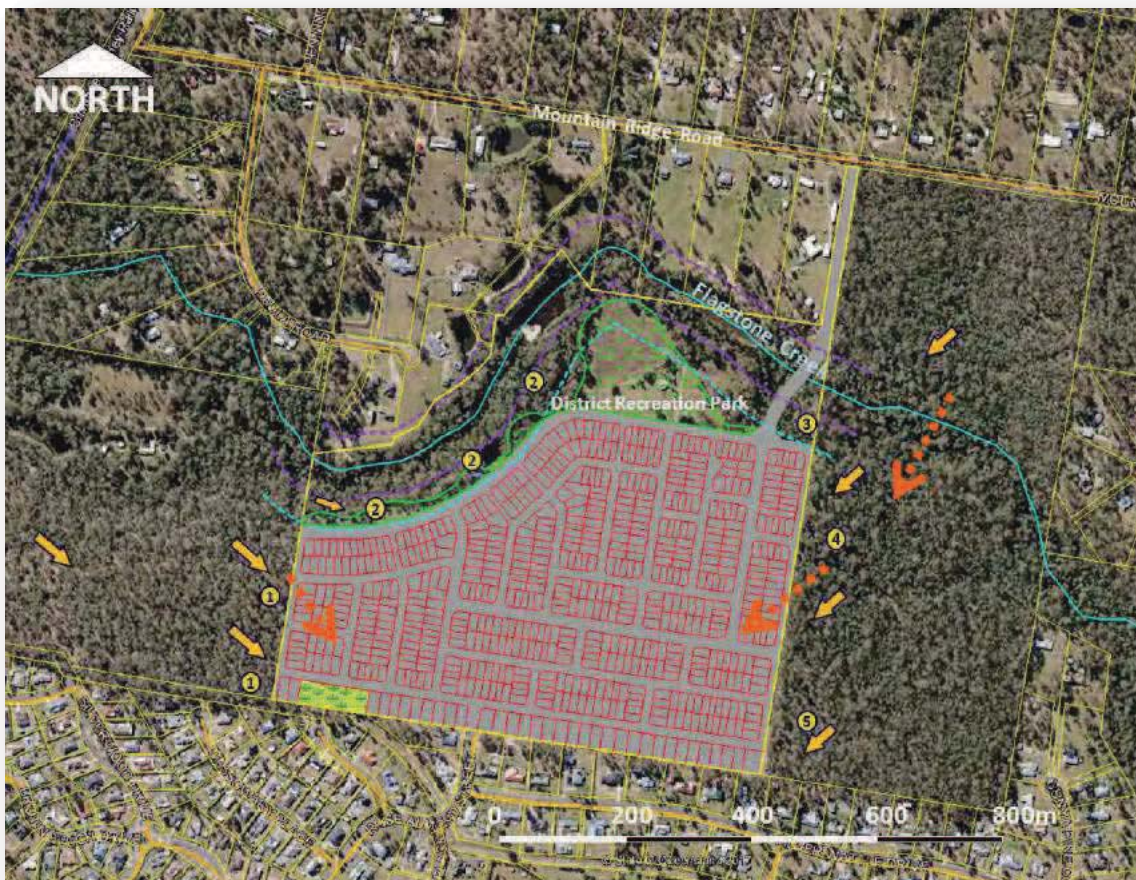
It is argued that the purpose of Logan City Council Policy 6 (Management of Bushfire Hazard) Part 2.1 is ultimately to establish simply whether the site and bushland interface is BPA or not. This does not warrant a separate extensive report as inferred by Part 2.1.3, which would add complexity and cost to the process without achieving any more value than achieved by the clear and concise approach taken by this BMP. This BMP achieves the same validation by stepping through Sections 3 (evidencing vegetation, fuel loads, slope, separation distances) and carrying this data forward to Section 6 (Fire weather characteristics and calculated fire parameters, based on the same (CSIRO) methodology). In the process it validates the BPA status of the remaining hazard interfaces.



The BCA calls up AS3959-2009 as providing “Deemed to Satisfy” construction levels for Class 1, 2 and 3 buildings constructed in bushfire prone areas. AS3959-2009 specifies building implications within 100m of designated bushfire prone land, or more strictly speaking, within 100m of intact, classified vegetation (50m in the case of grassland). This BMP establishes Bushfire Attack Levels (BALs) for affected Lots, using a combination of Methods 1 and 2 approach under AS3959-2009.

Although ostensibly based on the same methodology, there are differences between State and LCC bushfire hazard mapping. There are also errors and inaccuracies as shown in Figure 3. In various ways neither mapping is completely accurate, neither claims to be, and site assessment is required to establish bushfire hazard and risk more realistically.

### 3.2 Vegetation Assessment, Slope and Separation Distances from Proposed Development



**Figure 4. Fuel Zones Assessed** Solid orange arrows indicate most likely direction of bushfire attack, dotted arrows in the form of embers.

Figure 4 shows the five main fuel zones assessed. The average slope is taken as 3° down for each area.

Section 6 objectively calculates and determines the potential nature and severity of bushfire attack more thoroughly. This serves as a basis for determining the construction and other bushfire protection measures outlined in this BAL Assessment.

Fuel assessments were determined using the Overall Fuel Hazard Assessment Guide - DSE Victoria (Oct 2010).



### 3.3 Fuel Accumulation Assessment – Fuel Area 1



Figure 5. Fuel Accumulation Assessment – Fuel Area 1

Fuel hazard estimate	Assessment according to Hines et al 2010		
Date: 30th August 2017			
Layer	Rating	Description / Comments	Equivalent fuel load t/ha
Surface and near surface	Low Potential Moderate	Low litter bed 10 mm with Low to moderate NS fuels, <i>Themeda sp.</i> , partly grazed by macropods <i>Lomandra sp.</i> , and fine native grasses.	5 – 6 Potential 8
Elevated	Moderate	Canopy recruiters, with <i>Alphitonia sp.</i> , <i>L.suavolens</i> , <i>Acacia spp.</i> , and patches of <i>Lantana sp.</i> ... most fuel at the top of the layer	3
Bark	High	Some ribbon bark ( <i>E.tereticornis</i> ) and papery barks ( <i>L.suavolens</i> ) with low bark hazard - <i>C. intermedia</i> , <i>C.trachyphloia</i> , <i>C.tessellaris</i> .	1 - 2
Overall rating	Moderate		11t/ha

Table 1. Fuel Assessment Fuel Area 1.

Whilst not mapped as remnant, site assessment identified the developing vegetation community most closely resembling RE12.3.11, for which Queensland Fire and Emergency Services (QFES) attributes a default Total Available Fuel Load of 15.9t/ha.

Giving consideration to both State and observed available fuel values, more than 15 years post fire; and recognising the limitations in soil water holding capacity, a total of 15.9t/ha (8t/ha of which is Surface and Near Surface fuel) is considered reasonable to use in fire modelling in accordance with Method 2 of AS3959-2009, as presented in Section 6.

### 3.4 Fuel Accumulation Assessment – Fuel Area 2



**Figure 6. Fuel Accumulation Assessment – Fuel Area 2**

Fuel hazard estimate	Assessment according to Hines et al 2010		
Date: 30th August 2017			
Layer	Rating	Description / Comments	Equivalent fuel load t/ha
Surface and near surface	Very high	High litter bed 20 -30 mm with Very high NS fuels as grasses to 1m.	12
Elevated	High	Canopy recruiters, with <i>Acacia spp</i> , and areas of dense <i>Lantana sp</i> ... more dense toward Flagstone Creek	3 - 5
Bark	High	Some ribbon bark ( <i>E.tereticornis</i> ) with low bark hazard - <i>C. citriodora</i> , <i>C.tessellaris</i> , <i>E.propinqua</i> , <i>E.siderophloia</i> .	1 - 2
Overall rating	Very high		19t/ha

**Table 2. Fuel Assessment Fuel Area 2.**

More than 15 years without fire, fuel loads can be expected to be nearing their long term stable maximum state. More favourable soil moisture conditions closer to Flagstone Creek have supported higher fuel loads, higher than the QFES dataset default values for Total Available Fuel Load of 14.9t/ha and 15.9t/ha for mapped RE 12.3.6 and 12.3.11, and closer to the 20.8t/ha for RE12.9 – 10.2. A total available fuel value of 21t/ha (12t/ha of which is surface and near surface fuel) is applied to site specific fire modelling for Area 2 in Section 6.



### 3.5 Fuel Accumulation Assessment – Fuel Area 3



Figure 7. Fuel Accumulation Assessment – Fuel Area 3

Fuel hazard estimate	Assessment according to Hines et al 2010		
Date: 30th August 2017			
Layer	Rating	Description / Comments	Equivalent fuel load t/ha
Surface and near surface	High	High litter bed 30 mm with Low NS fuels shaded out.	10 - 12
Elevated	Very high	Canopy recruiters, with <i>Acacia spp</i> , and areas of dense <i>Lantana sp</i> ... more dense toward Flagstone Creek	5 - 6
Bark	High	Some ribbon bark ( <i>E.tereticornis</i> ) with low bark hazard - <i>C. citriodora</i> , <i>C.tessellaris</i> , <i>C.intermedia</i> , <i>E.propinqua</i> , <i>E.siderophloia</i> .	1 - 2
Overall rating	Very high		20t/ha

Table 3. Fuel Assessment Fuel Area 3.

More than 15 years without fire, fuel loads can be expected to be nearing their long term stable maximum state.

More favourable soil moisture conditions closer to Flagstone Creek have supported higher fuel loads, comparable to the State Government default values for Total Available Fuel Load of 20.8t/ha for mapped RE 12.9 – 10.2 in Area 3. A total available fuel value of 20.8t/ha (12t/ha of which is surface and near surface fuel) is applied to site specific fire modelling for Area 3 in Section 6.

### 3.6 Fuel Accumulation Assessment – Area 4



**Figure 8. Fuel Accumulation Assessment – Area 4 South**

Fuel hazard estimate	Assessment according to Hines et al 2010		
Date: 30th August 2017			
Layer	Rating	Description / Comments	Equivalent fuel load t/ha
Surface and near surface	Low Potential Moderate	Low litter bed 10 mm with Low to moderate NS fuels, <i>Themeda sp.</i> , partly grazed by macropods <i>Lomandra sp.</i> , and fine native grasses.	5 – 6 Potential 8
Elevated	Moderate	Canopy recruiters, with <i>Alphitonia sp.</i> , <i>L.suavolens</i> , <i>Acacia spp.</i> , and patches of <i>Lantana sp.</i> ... most fuel at the top of the layer	3
Bark	High	Some ribbon bark ( <i>E.tereticornis</i> ) and papery barks ( <i>L.suavolens</i> ) with low bark hazard - <i>C. intermedia</i> , <i>C.trachyphloia</i> , <i>C.tessellaris</i> .	1 - 2
Overall rating	Moderate		11t/ha

**Table 4. Fuel Assessment Fuel Area 4.**

Mapped by State Government as remnant vegetation of RE12.9 – 10.2, site assessment supports an RE classification more closely resembling RE12.3.11, for which Queensland Fire and Emergency Services (QFES) attributes a default Total Available Fuel Load of 15.9t/ha.

However drier soil conditions further away from Flagstone Creek is limiting biomass accumulation potential.

Giving consideration to both State and observed available fuel values, more than 15 years post fire; and recognising the limitations in soil water holding capacity, a total of 15.9t/ha (8t/ha of which is Surface and Near Surface fuel) is considered reasonable to use in fire modelling in accordance with Method 2 of AS3959-2009, as presented in Section 6.



### 3.7 Fuel Accumulation Assessment – Area 5



**Figure 9. Fuel Accumulation Assessment – Area 5 South**

Fuel hazard estimate	Assessment according to Hines et al 2010		
Date: 30th August 2017			
Layer	Rating	Description / Comments	Equivalent fuel load t/ha
Surface and near surface	Low Potential Moderate	Low litter bed 10 mm with Low to moderate NS fuels, <i>Themeda sp.</i> , partly grazed by macropods <i>Lomandra sp.</i> , and fine native grasses.	5 – 6 Potential 8
Elevated	Moderate	Canopy recruiters, with <i>Alphitonia sp.</i> , <i>L.suavolens</i> , <i>Acacia spp.</i> , and patches of <i>Lantana sp.</i> ... most fuel at the top of the layer	3
Bark	High	Some ribbon bark ( <i>E.tereticornis</i> ) and papery barks ( <i>L.suavolens</i> ) with low bark hazard - <i>C. intermedia</i> , <i>C.trachyphloia</i> , <i>C.tessellaris</i> .	1 - 2
Overall rating	Moderate		11t/ha

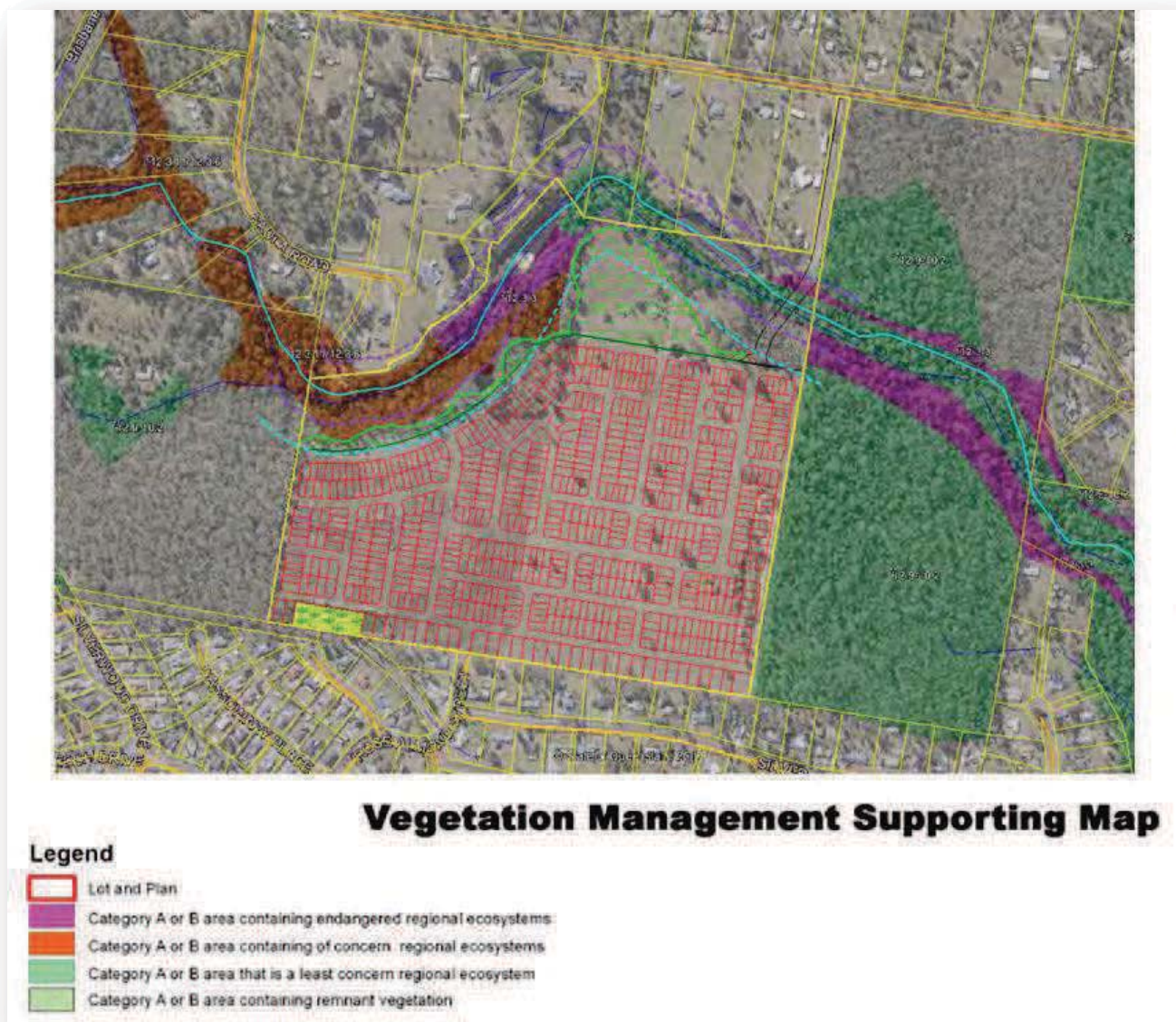
**Table 5. Fuel Assessment Fuel Area 5.**

Mapped by State Government as remnant vegetation of RE12.9 – 10.2, site assessment supports an RE classification more closely resembling RE12.3.11, for which Queensland Fire and Emergency Services (QFES) attributes a default Total Available Fuel Load of 15.9t/ha.

However drier soil conditions further away from Flagstone Creek is limiting biomass accumulation potential.

Giving consideration to both State and observed available fuel values, more than 15 years post fire; and recognising the limitations in soil water holding capacity, a total of 15.9t/ha (8t/ha of which is Surface and Near Surface fuel) is considered reasonable to use in fire modelling in accordance with Method 2 of AS3959-2009, as presented in Section 6.

## 4.0 Site constraints and environmental values which may limit mitigation options



**Figure 10. Regional Ecosystem (RE) Mapping**

Figure 10 shows the proposed development location in relation to vegetation mapped by the Queensland Department of Natural Resources and Mines as "Of Least Concern" RE 12.9-10.2, 12.3.6 and "Of Concern" RE 12.3.11 adjacent to the Subject Lot.

DNRM provides the following Description and recommended fire guidelines for the vegetation communities mapped.



Regional Ecosystem	Description	Fire Guidelines
<b>RE 12.9.10.2 Of Least Concern</b>	<p>Open-forest or woodland of <i>Corymbia citriodora</i>, usually with <i>Eucalyptus crebra</i>. Other species such as <i>Eucalyptus tereticornis</i> and <i>Corymbia intermedia</i> may be present in scattered patches or in low densities. Understorey can be grassy or shrubby. Shrubby understorey of <i>Lophostemon confertus</i> (whipstick form) often present in northern parts of bioregion. Occurs on Cainozoic and Mesozoic sediments. (BVG1M: 10b)</p> <p>Vegetation Hazard Class (VHC) 10.1    20.8t/ha Total Available Fuel Load (State Default Value)</p>	<p>OPTIMAL SEASON: Summer to winter.  INTENSITY: Low to moderate.  INTERVAL: 4-25 years.  STRATEGY: Aim for 40-60% mosaic burn. Burn with soil moisture and with a spot ignition strategy so that a patchwork of burnt/unburnt country is achieved.  ISSUES: The fire regime should maintain a mosaic of grassy and shrubby understoreys. Control of weeds is a major focus of planned burning in most areas. Careful thought should be given to maintaining ground litter and fallen timber habitats by burning only with sufficient soil moisture. Burning should aim to produce fine scale mosaics of unburnt areas. Variability in season and fire intensity is important, as well as spot ignition in cooler or moister periods to encourage mosaics.</p>
<b>RE 12.3.6 Of Least Concern</b>	<p><i>Melaleuca quinquenervia</i>, <i>Eucalyptus tereticornis</i>, <i>Lophostemon suaveolens</i> +/- <i>Corymbia intermedia</i> open-forest to woodland with a grassy ground layer dominated by species such as <i>Imperata cylindrica</i>. Occurs on Quaternary floodplains and fringing drainage lines in coastal areas. (BVG1M: 22a)</p> <p>Vegetation Hazard Class (VHC) 22.1    14.9t/ha Total Available Fuel Load (State Default Value)</p>	<p>OPTIMAL FIRE SEASON: Late summer to mid-winter (after rain).  INTENSITY: Planned and occasional unplanned burns (typically of higher intensity) influence the ecology of melaleuca ecosystems.  INTERVAL: Heath 8-12 years, Sedge 12-20 years, Mixed grass/shrub 6-20 years.  STRATEGY: Aim for a 25-70% burn mosaic (in association with surrounding ecosystems, as melaleuca ecosystems often just occur in patches or along natural drainage lines). Fires may, depending on the conditions and type of vegetation, burn areas larger than just the melaleuca ecosystem. Ensure secure boundaries from non fire-regime adapted ecosystems. Consider the needs of melaleuca ecosystems based on understorey (i.e., heath dominated, sedge dominated or mixed grass/shrub) when planning burns. High soil moisture (or presence of water on the ground) is required, as avoidance of peat-type fires must be maintained.  ISSUES: Fire regimes for melaleuca ecosystems require further fire research. Melaleuca forests are fire-adapted, but too high an intensity or frequent fire will slow or prevent regeneration and lead to lower species richness (since these communities contain numerous obligate seed regenerating species that require sufficient fire intervals to produce seed). High intensity fires may kill trees and lead to whipstick regeneration. Too frequent fire may result in a net loss of nutrients over time from an already nutrient poor system. Fire associations are significantly influenced by understorey composition. Melaleuca communities with a heath understorey should burn in a similar way to coastal heath (8-12 years). Sedge understorey communities will burn in association with the surrounding ecosystems</p>

		(so will often burn with them but sometimes not, such that these communities have a slightly less fire frequency). Mixed understorey communities burn in a similar way to dry sclerophyll, in association with the surrounding dry sclerophyll, though somewhat less frequently due to the additional moisture present in melaleuca communities.
<b>RE 12.3.11 Of Concern</b>	<p>Open-forest to woodland of <i>Eucalyptus tereticornis</i>, <i>E. siderophloia</i> and <i>Corymbia intermedia</i>. <i>Corymbia tessellaris</i>, <i>Lophostemon suaveolens</i> and <i>Melaleuca quinquenervia</i> frequently occur and often form a low tree layer. Other species present in scattered patches or low densities include <i>Angophora leiocarpa</i>, <i>E. exserta</i>, <i>E. grandis</i>, <i>C. trachyphloia</i>, <i>C. citriodora</i>, <i>E. latisinensis</i>, <i>E. tindaliae</i>, <i>E. racemosa</i>, <i>Melaleuca sieberi</i> and <i>M. viridiflora</i>. <i>E. seeana</i> may be present south of Landsborough. Occurs on Quaternary alluvial plains and drainage lines along coastal lowlands. Rainfall usually exceeds 1000mm/y (BVG1M: 16c)</p> <p>Major vegetation communities include:</p> <p>12.3.11a: Open-forest of <i>Eucalyptus tereticornis</i> and/or <i>E. siderophloia</i> with vine forest understorey. Other canopy species include <i>Corymbia intermedia</i>, <i>Araucaria cunninghamii</i> and <i>Agathis robusta</i>. Frequently occurring understorey species include <i>Flindersia</i> spp., <i>Lophostemon suaveolens</i>, <i>L. confertus</i>, <i>Cupaniopsis parvifolia</i>, <i>Acronychia</i> spp., <i>Alphitonia excelsa</i> and <i>Acacia disparrima</i> subsp. <i>disparrima</i>. Occurs on sub-coastal Quaternary alluvial plains. Rainfall usually exceeds 1000mm/y. (BVG1M: 16c)</p> <p>Vegetation Hazard Class (VHC) 16.1 15.9t/ha Total Available Fuel Load (State Default Value)</p>	<p>OPTIMAL FIRE SEASON: Summer to late-autumn.</p> <p>INTENSITY: Low.</p> <p>INTERVAL: 3-6 years.</p> <p>STRATEGY: Aim to burn 40-60% of any given area. Spot ignition in cooler or moister periods encourages mosaics.</p> <p>ISSUES: Control of weeds is a major focus of planned burning in most areas. Maintain ground litter and fallen timber habitats by burning only with sufficient soil moisture. Burning should aim to produce fine scale mosaics of unburnt areas.</p>

**Table 6. Regional Ecosystems Descriptions and Fire Guidelines**

The retained areas of forest vegetation are unlikely to be provided with managed fire, along with the temporary hazard reduction benefits this brings.

Planning is not based on any assumptions regarding hazard reduction; and has to be based on fuel levels reaching a long term maximum stable state, coinciding with ignition under worst case foreseeable fire weather conditions.

## 4.1 Fire History and Frequency

This study found several indicators of prior fire, dating back more than 15 years. Recurrence of fire at some time has to be regarded as possible, potentially coinciding with maximum fuel accumulation and worst case fire weather conditions.

## 5.0 Specific risk factors associated with the development proposal

### 5.1 Nature of activities anticipated on site

Normal residential activities are anticipated to occur in the area, which includes the potential inclination of juveniles and others to make temporary “camps” in bushland, and others to undertake illegal dumping or torching of vehicles. The number of fire incidents expected by QFES varies in direct proportion to the numbers of people present. The proposed development adds significantly to the number of people living in the area or likely to cause ignition. However only a limited number of new Lots are directly exposed.

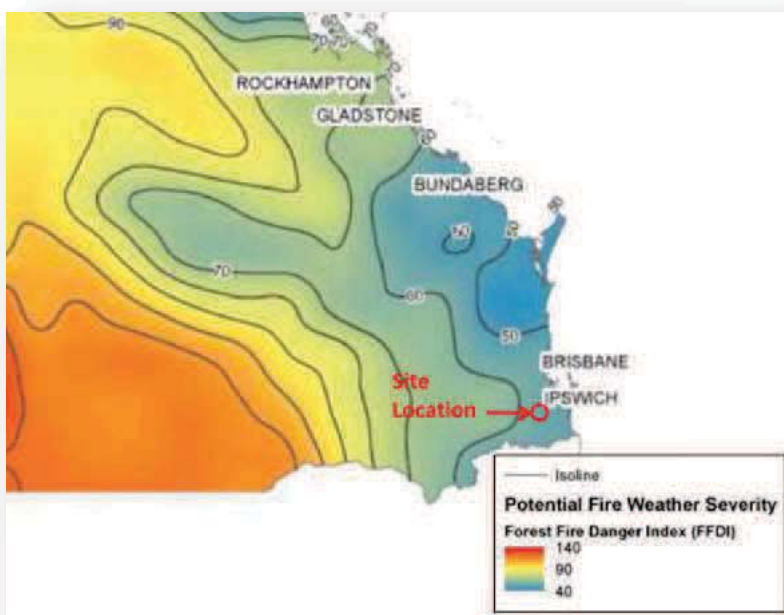
### 5.2 Numbers of people likely to be present

2 - 4 residents could be expected to be present on each of the 650 Lots. The proposed development adds significantly to the number of people living in the area or potentially exposed to the possibility of unplanned fire, however the design of the development and road layout serves to protect life and property, and facilitate access and egress.

## 6.0 Nature and Severity of Potential Bushfire Attack

### 6.1 Bushfire season and Fire Weather

The “typical fire season” in this area peaks between September and November. The predominant winds in the area are south easterly, however during the fire season, hot gusty westerlies of over 30 kph can be expected, with Relative Humidity falling to 10% and less. Temperatures on these days can climb over 35°C , and for two or three days a year, fire weather conditions equivalent to FDI levels of around 60 can be anticipated. (Note that this is in contrast to the value of 40 which Queensland is currently using in the recently revised AS3959 - 2009).



**Figure 11. State Government revised FDI values to FDI 60 for the area involved. (CSIRO, 2014).**



## 6.2 Anticipated direction of bushfire attack

The probability of unplanned “wildfire” attack is currently regarded as possible, or even likely. The potential directions of attack are from the west or north, as indicated in Figure 4. Note that the location of the hazard alligns with the direction of worst case fire weather on the western side of the site, with significant potential fire run lengths.

Bushfire attack comes in a number of forms: direct flame, radiant heat, embers, smoke and wind. Research shows that over 80% of houses lost to bushfire in Australia can be attributed to ember attack, within 100m of bushland.

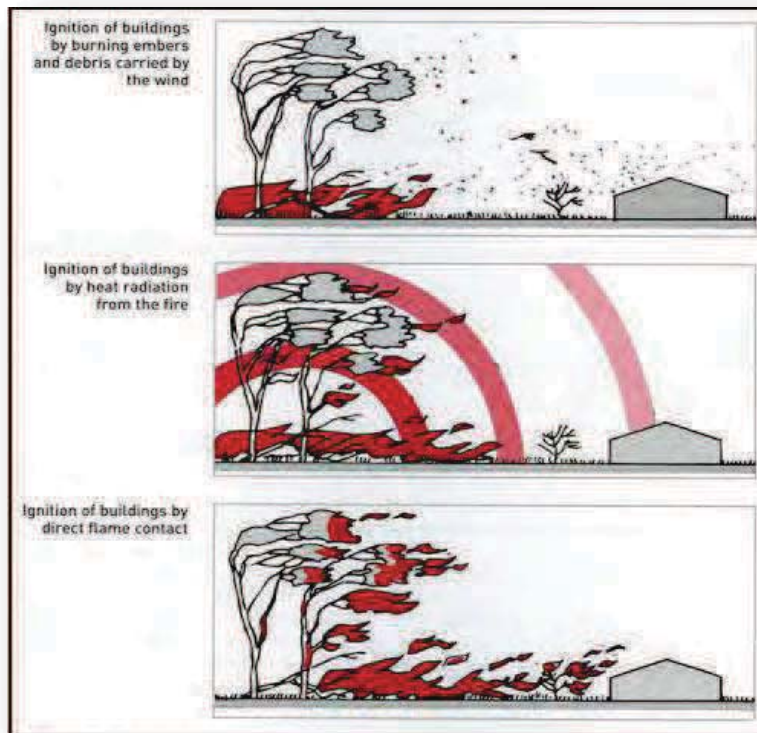


Figure 12. Main Bushfire Attack mechanisms (Image courtesy of Ramsay & Rudolf, 2003)

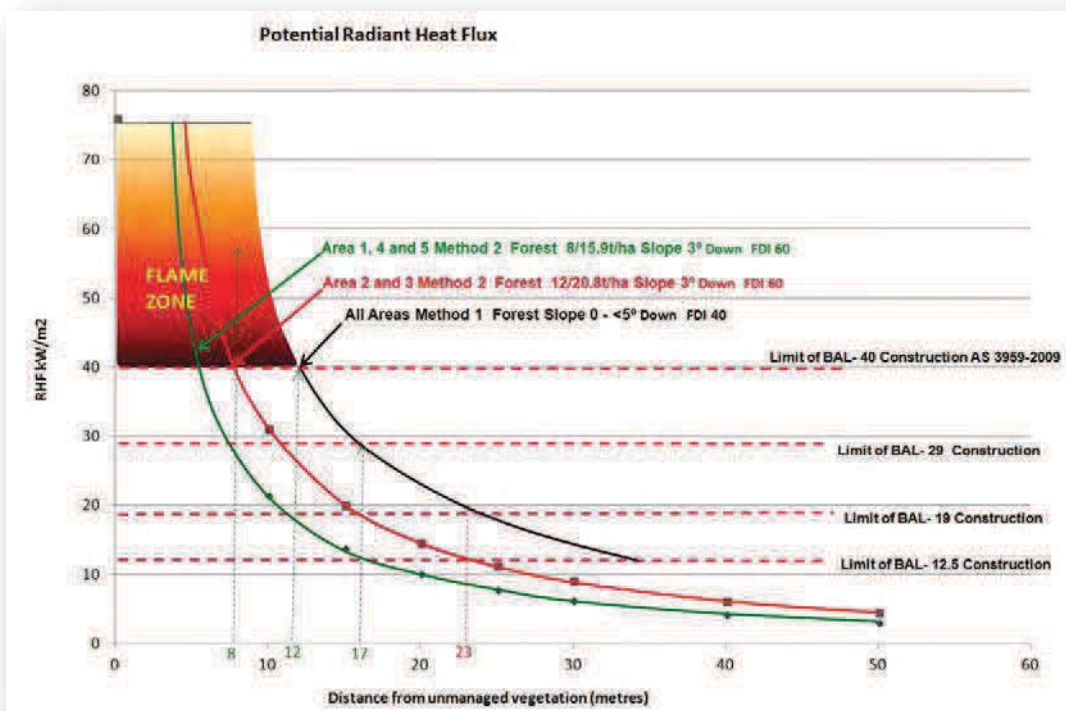
### 6.3 Anticipated severity of bushfire attack

Values for vegetation type, fuel load and slope are carried forward to Table 7, to predict the key fire parameters for the potential worst case fire scenario.

Fire Scenario – Area 1, 4 and 5	Fire Scenario – 1, 2, 3, 4 and 5	Fire Scenario – Area 2 and 3
Method 2 AS3959-2009 FDI 60 Forest @ 8/15.9t/ha. Ave Slope under vegetation 3° Down	Method 1 AS3959 – 2009 FDI 40 Forest Ave Slope under vegetation 0 - <5° Down	Method 2 AS3959-2009 FDI 60 Forest @ 12/20.8t/ha. Ave Slope under vegetation 3° Down
Fire Intensity (Byram, 1959) 5 820W/m ("MEDIUM")		Fire Intensity (Byram, 1959) 11 421kW/m ("MEDIUM")
Rate of Spread (Noble et al, 1980) 0.71kph		Rate of Spread (Noble et al, 1980) 1.06kph
Flame Height (modified Mc Arthur V equation, NSW RFS 2001)6.51m		Flame Height (modified Mc Arthur V equation, NSW RFS 2001) 9.4m
Flame Width 100m		Flame Width 100m
Elevation of Receiver 2.4m		Elevation of Receiver 2.4m
BAL FZ within <6m of intact unmanaged vegetation BAL 40 from 6 - <8m BAL 29 from 8 - <12m BAL 19 from 12 - <17m BAL 12.5 from 17 – 100m	BAL FZ within <12m of intact unmanaged vegetation BAL 40 from 12 - <16m BAL 29 from 16 - <24m BAL 19 from 24 - <34m BAL 12.5 from 34 – 100m	BAL FZ within <8m of intact unmanaged vegetation BAL 40 from 8 - <11m BAL 29 from 11 - <16m BAL 19 from 16 - <23m BAL 12.5 from 23 – 100m

**Table 7. Calculated values for potential bushfire characteristics, and methods used.**

The radiant heat flux values for Methods 1 and 2 are compared as Bushfire Attack Levels (BALs) in Table 7 and Figure 13. The predicted fireline intensity for all unmanaged vegetation interfaces is in the “Medium” range, validating the designation of bushland interfaces as BPA for the purposes of Logan City Council Policy 6 (Management of Bushfire Hazard) Part 2.1.



**Figure 13. Radiant Heat Flux Predicted by Methods 1 and 2.**

LCC bushfire overlay code permits development design that results in construction up to and including BAL 29 for future dwellings. With a minimum separation of 8m between future dwellings and retained vegetation being classified in Areas 1, 4 and 5, BAL 29 is shown to be viable. With a minimum separation of 12m between future dwellings and vegetation being classified in Areas 1, 4 and 5, BAL 19 is shown to be viable. With a minimum separation of 17m between future dwellings and vegetation being classified in Areas 1, 4 and 5, BAL 12.5 is shown to be viable. (Refer to the BAL contours in Figure 15 and 16).

With a minimum separation of 23m between future dwellings and vegetation being classified in Areas 2 and 3, BAL 12.5 is shown to be viable. The roadway and District Recreation Park to the north provides such setback.

The significance of the radiant heat flux levels discussed is shown below in Table 8.

Radiant Heat Flux (kW/m <sup>2</sup> )	Likely Effects
> 40 - 110	Flame Zone. Even the strongest toughened glass fails.
29 - 40	Latest technology in toughened glass may survive. Most will not. Timber ignites without pilot flame. Limit of BAL-40 Construction AS3959 - 2009.
29	Ignition of timbers without piloted ignition (3 minutes exposure) during the passage of a bushfire. Most types of toughened glass could fail. Limit of BAL-29 Construction AS3959 - 2009.
19	Screened float glass could fail during the passage of a bushfire. Limit of BAL-19 Construction AS3959 - 2009.
12.5	Standard float glass could fail during the passage of a bushfire. Limit of BAL-12.5 Construction AS3959 - 2009. Some timbers can ignite with prolonged exposure and with pilot ignition sources (eg embers)
10	Critical conditions. Firefighters not expected to operate in these conditions. Considered life threatening in under a minute in protective equipment. Fabrics inside a building could ignite spontaneously with long exposures.
7	Likely fatal to unprotected persons after exposure of several minutes.
4.7	Extreme conditions. Firefighter in protective clothing will feel pain after 60 seconds exposure.
3	Hazardous conditions. Firefighters expected to operate for a short period (10 minutes).
2.1	Unprotected person will feel pain after 1 minute exposure - non fatal.

Table 8. Significance of various RHF levels (Source: NSW RFS, 2006)

## 7.0 Bushfire Protection Measures in Combination



Figure 14. Bushfire Planning Measures in Combination (Source: NSW RFS, 2006)

Figure 14, taken from *Planning for Bushfire Protection* (NSW Rural Fire Service, 2006) illustrates that there are other factors and measures which need to be integrated to mutually support one another to provide protection against bushfire.

Simply removing the hazard (bushland) is one possible way of removing risk to life and property, but this approach is hardly desirable. The safety of life and property can be achieved whilst retaining the natural amenity and value of bushland areas, provided these integrated bushfire protection measures are applied.

## **7.1 Building Construction and Design**

LCC bushfire overlay code permits development design that results in construction up to and including BAL 29 for future dwellings. With a minimum separation of 8m between future dwellings and retained vegetation being classified in Areas 1, 4 and 5, BAL 29 is shown to be viable. With a minimum separation of 12m between future dwellings and vegetation being classified in Areas 1, 4 and 5, BAL 19 is shown to be viable. With a minimum separation of 17m between future dwellings and vegetation being classified in Areas 1, 4 and 5, BAL 12.5 is shown to be viable. (Refer to the BAL contours in Figures 15 and 16).

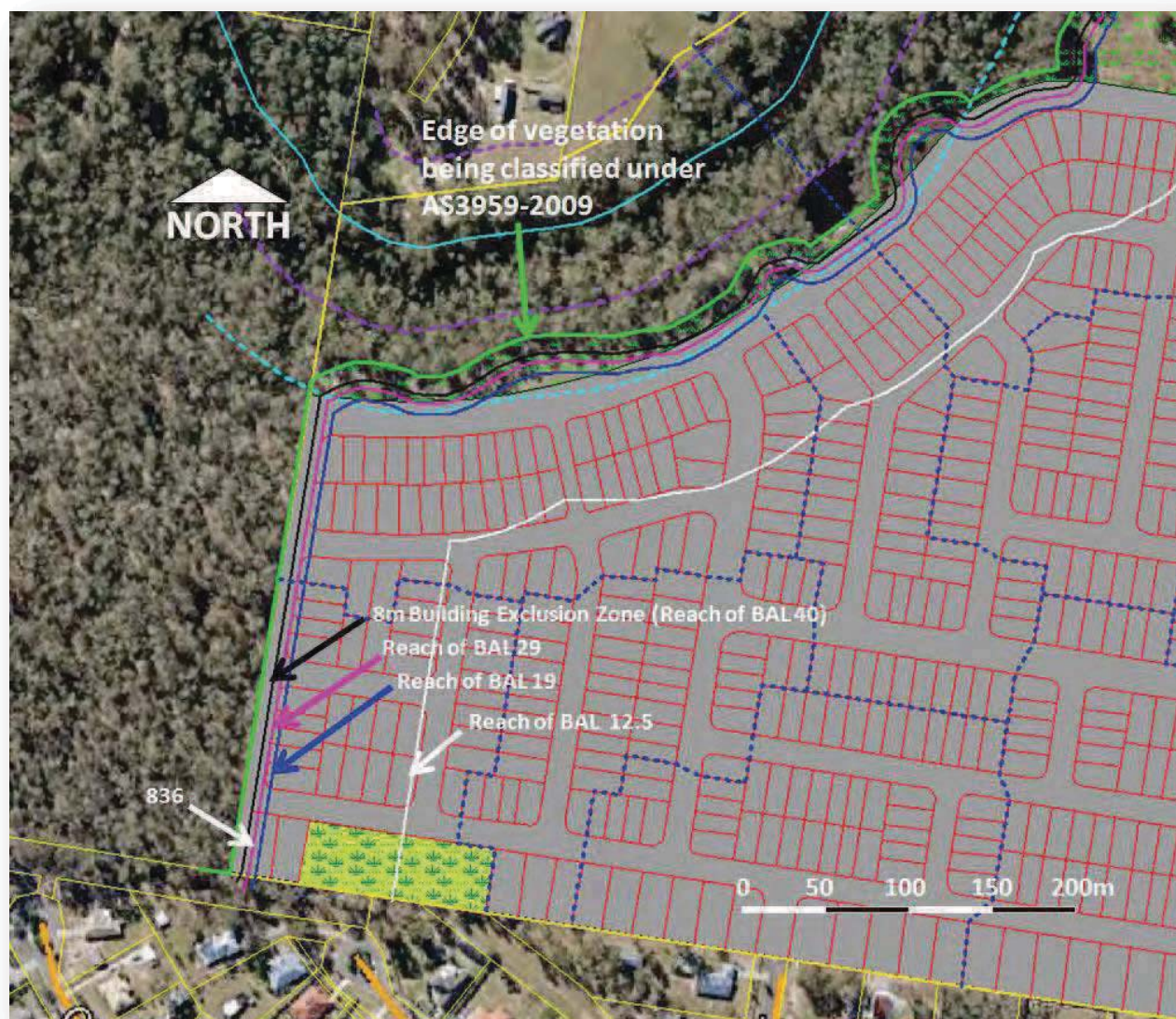
With a minimum separation of 23m between future dwellings and vegetation being classified in Areas 2 and 3, BAL 12.5 is shown to be viable. The roadway and District Recreation Park to the north provides such setback. Any other structure built within 6m of each residence shall be constructed in accordance with this Standard.

Fences constructed immediately adjacent to designated hazardous vegetation (Lots 836 and 1256) should be non combustible.

Throughout the Staged development, the balance of Lot will be retained in a low hazard state by slashing.

Figures 15 and 16 shows the “reach” of the various BAL ratings under AS3959-2009. BAL contours have been transferred to Plan of Development (POD) Plans attached in Appendix 1. BAL ratings for individual Lots should be reviewed post-construction as earthworks/pad levels may have implications for BAL ratings.

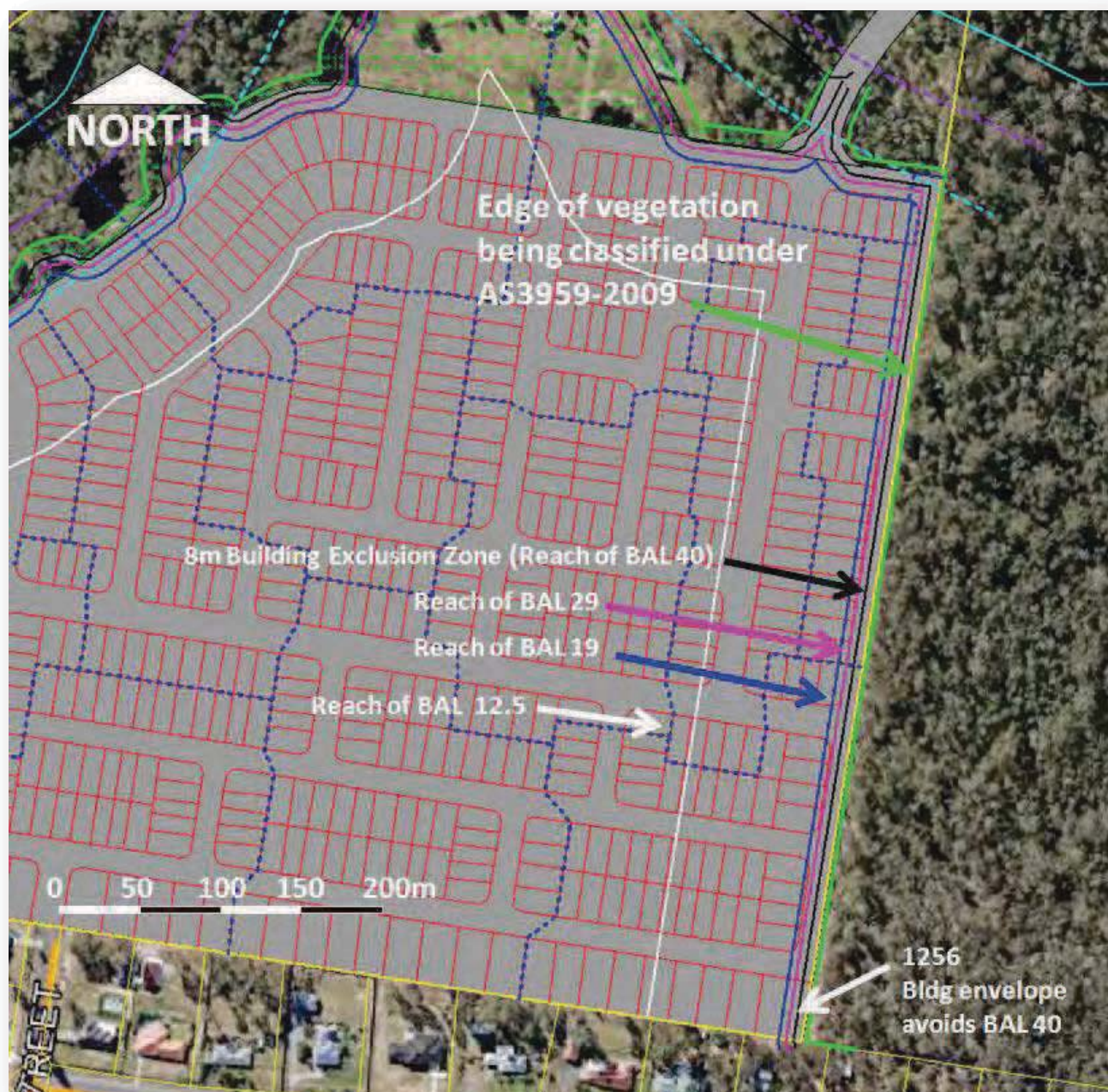




**Figure 15. BAL contours and 8m Building Exclusion Zone for Lot 836**

Note the BAL 40 contour sits along the western boundary of Lot 836, ensuring that BAL 29 construction will not be exceeded.





**Figure 16. BAL contours and 8m Building Exclusion Zone for Lot 1256**

The building envelope on Lot 1256 ensures that BAL 29 construction is not exceeded.

## 7.2 Asset Protection Zones and Landscaping

Asset protection zones are the most strategically valuable defence against radiant heat and flame, and to a lesser extent embers.

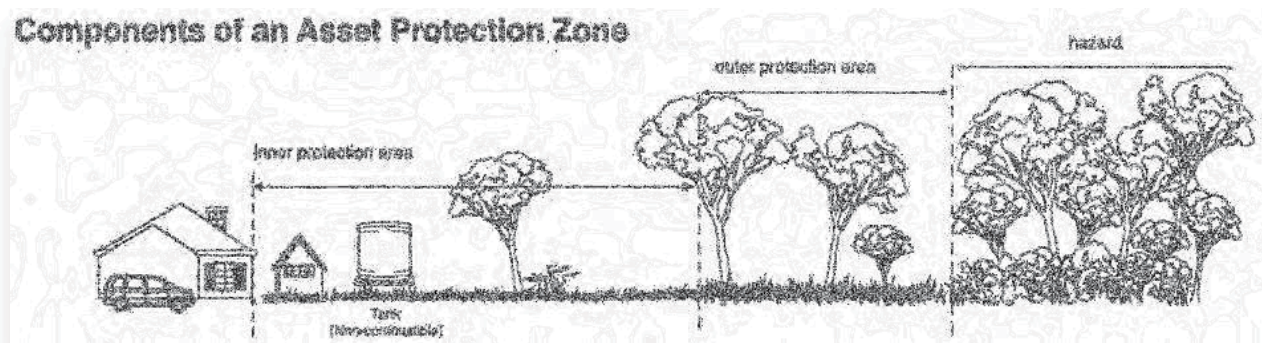
The landscaping plan shall maintain an “Inner Protection Area” (IPA) for the entire unbuilt area of all Lots effectively free of available fuel.



- Plants retained in or introduced into the IPA should be selected based on low combustibility, by virtue of high moisture content, low volatile oil content, high leaf mineral levels, large fleshy leaves, absence of shedding bark.
- Plant arrangement is just as important as low combustibility. Plants should be placed so as to minimize either vertical or horizontal connectedness of plant material. Appendix 1 provides examples of less hazardous native plant species.
- Combustible vegetation shall not be allowed to come into contact with combustible parts of buildings.
- Trees should not be allowed to directly overhang roof lines.
- Regular yard maintenance should be undertaken to remove available fine fuels and debris, particularly throughout the fire season.

A minimum 9m separation shall be maintained between unmanaged vegetation to the west and east. This is best achieved by an establishing a “building exclusion zone” of 8m, applying to Lots 393 and 640, established as a Covenant on each Lot.

An Outer Protection Area involves removal of the understorey so as to deprive an advancing fire front of its fuel continuity, and thereby collapsing the fire front. In this case the APZ recommended for the new lots shall be constructed and maintained as IPA.



**Figure 17. Components of an Asset Protection Zone (APZ)**

The bio retention basin shall be managed in a low hazard state , with a predominantly mown surface, similar to Figure 18.



**Figure 18. Bio retention basin managed in a low hazard state.**

Throughout the Staged development, the balance of Lot will be retained in a low hazard state by slashing.

### **7.3 Access and Egress Management**

The site is within approximately 10km by road of the nearest Queensland Fire and Emergency Services (Jimboomba Fire Station).

Two access/egress options exist, via Mountain Ridge Road to the north and via Roas Almond Street to the South, the latter being a particularly safe route. With future development to the west and east, further access/egress options become available, and at that point, the majority of the hazard present will have been removed.

The proposed internal road system provides for continuous traffic flow and for through roads. Ample turning opportunities are also available for large urban fire fighting appliances (a minimum inside radius of 6m and minimum outside radius of 12m).

Temporary turn-arounds at the termination of the roads shall be provided to ensure truck turnaround can be achieved for fire vehicles. These are shown on the Staging Plans attached as Appendix 2.

### **7.4 Water Supplies and Utilities**

Water supply for the development will be connected to Council mains reticulated supply, with hydrants installed in accordance with AS2419.1-2005 and with volumes and pressure under the control of Council water utilities provider.

Compliance will be achieved against the acceptable outcomes specified under the QFES Fire Hydrant and Vehicle Access Guideline (2015) in particular marking of hydrant locations and providing adequate hydrant access.

Electricity supply to the site will be supplied underground.

Any reticulated or bottled gas shall be installed and maintained in accordance with AS1596 – 2002. Metal piping is to be used. Any fixed LPG tanks shall be kept clear of flammable materials, and located on the non hazard side of the building. Any gas cylinders which need to be kept close to a building shall have release valves directed away from the building. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

### **7.5 Fire Fighting and Emergency Management Arrangements**

The development is serviced by the proposed road and driveways for Emergency Services use. The maintenance of a mown or slashed grass surface of all Lots provides safe defensible space around key assets in the unlikely event of bush fire.

Obstructions to access onto individual Lots and the rear of buildings should be avoided.

Residents shall be made aware of the existence of this Plan, and their need to comply with the relevant provisions, in particular building construction, APZ maintenance, optimizing access around buildings and emergency response preparations.

Residents shall decide on their Stay and Defend / or Go Early strategy before each fire season so as to ensure this decision is not made too late, when smoke and emergency vehicles prevent an orderly evacuation. Staying to defend is a viable and preferable option for the proposed development.

Residents staying to defend should ensure that they have adequate protective clothing , including full length cotton or denim garments, sturdy boots, gloves, smoke mask (minimum P2 with valves) and smoke goggles.

Appendix 2 provides guidance for Residents' Emergency Management Planning in relation to bushfire.

## 8.0 Assessment of proposal against Logan City Plan 2015 (Part 8.2.3 Bushfire Hazard Overlay Code)

Performance Outcomes	Acceptable Outcomes
<b>8.1 (PO1)</b> Development is designed to: (a) minimise risk of bushfire hazard; (b) provide safe premises; (c) create efficient emergency access for firefighting and other emergency vehicles.	Acceptable Outcome AO1 is applied in that: Development: (a) increases the number of persons living in, or lots in, the Bushfire hazard area identified on Bushfire hazard overlay map– OM–03.00; however the risk posed by bushfire is mitigated by this Plan.
<b>8.2 (PO2)</b> Development is sited and constructed to minimise the bushfire hazard and maximise the protection of life and property from bushfire	Acceptable Outcome AO2 is applied in that: Development is located and constructed: (a) where there is no bushfire management plan approved by an existing development approval: (i) such that the bushfire attack level for future dwellings is less than or equal to BAL–29; (ii) (not possible to achieve) - away from the most likely direction of a fire front; (iii) so that generally elements of the development least susceptible to fire (perimeter roads and parklands) are sited closest to the bushfire hazard; (iv) such that asset protection zones are sited on land with a slope less than 18 degrees; (v) such that asset protection zones are entirely within the boundaries of the private property of the development site;
<b>8.3 (PO3)</b> Reconfiguring a lot ensures that lots are designed to minimise bushfire hazard and provide safe sites for people, property and buildings.	Acceptable Outcome AO3 is applied in that: Lots: (a) are suitable for people, property and buildings by: (i) having a bushfire attack level less than or equal to BAL–29; and (ii) containing a development envelope area that has a bushfire attack level less than or equal to BAL–29; (b) provide asset protection zones that: (i) are located on land with a slope less than 18 degrees; (ii) are located on the same lot.



<p><b>8.4 (PO4) Vehicular Access and Fire Maintenance Trails</b></p> <p>Access for fire management and evacuation is provided by access that:</p> <ul style="list-style-type: none"> <li>(a) separates premises from adjoining vegetation;</li> <li>(b) is safely accessible by fire fighting vehicles;</li> <li>(c) has regular vehicular access points for bushfire management, response and evacuation;</li> <li>(d) has regular vehicle passing and turning areas for bushfire management, response and evacuation;</li> <li>(e) allows access at all times for fire fighting vehicles;</li> <li>(f) allows for maintenance, burning off and bushfire response;</li> <li>(g) has vehicular links to an alternative through road;</li> <li>(h) is readily maintained.</li> </ul>	<p>Acceptable Outcome AO4 is applied to the extent that:</p> <p>Access for fire management and evacuation is provided by vehicular access in the form of ring roads (rather than perimeter roads, since the diminished area and nature of the hazard does not make a perimeter road vital); and</p> <ul style="list-style-type: none"> <li>(d) are constructed to otherwise comply with Section 3.4 – Movement infrastructure standards of PSP5 – Infrastructure; and</li> <li>(e) layout does not include a cul de sac.</li> </ul>
<p><b>8.5 (PO5) Water Supply</b></p> <p>Development has access to adequate water supply for fire fighting purposes.</p>	<p>Acceptable Outcome AO5 is applied in that:</p> <p>Development:</p> <ul style="list-style-type: none"> <li>(a) is connected to a reticulated water supply scheme that has sufficient flow and pressure characteristics for fire fighting purposes at all times with a minimum pressure and flow of 10 litres per second at 200kPa.</li> </ul>
<p><b>8.6 (PO6) Community Infrastructure</b></p> <p>Community infrastructure is not located in a bushfire hazard area or is able to function effectively during and immediately after a bushfire event.</p>	<p>Acceptable Outcome AO6 is applied to the extent that the infrastructure involved does not involve vital core services to the community.</p>
<p><b>8.7 (PO7) Hazardous Materials</b></p> <p>Public safety and the environment are not adversely affected by the adverse impacts of bushfire on hazardous materials including fuels, explosives and flammable chemicals manufactured or stored in bulk on premises.</p>	<p>Acceptable Outcome AO6 is applied to the extent that:</p> <p>The proposed Development does not involve the manufacture or storage of hazardous materials in bulk.</p>

## 9.0 Assessment of proposal against State Planning Policy 2016

State Planning Policy – Natural hazards, risk and resilience (SPP, December 2013, latest version April 2016) replaces State Planning Policy 1/03 *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*. The SPP Guideline – Natural hazards, risk and resilience provides a methodology for determining Bushfire Hazard based on Potential Fireline Intensity. The

methodology and hazard mapping has been included in Section 3.1 of this Plan in establishing the adjacent area as potentially hazardous and as a bushfire prone area.

Part E of the SPP provides interim development assessment requirements to ensure that State interests are appropriately considered in relation to natural hazards, including bushfire hazard areas. These provisions serve as general guidelines to either avoid or otherwise adequately mitigate bushfire risk. Specific guidelines for bushfire hazard overlay codes are yet to be provided, and this detail is addressed by this Plan in terms of meeting the current requirements of Local Government in Section 8 above.

Interim Development Assessment Requirements – SPP Part E	Solutions Provided
(3) Development avoids natural hazard areas or where it is not possible to avoid the natural hazard area, development mitigates the risks to people and property to an acceptable or tolerable level, and	This Plan establishes the nature and potential severity of the adjacent hazard and provides a combination of bushfire protection measures to mitigate risk including park management, building construction, asset protection zones, access, water supplies and utilities, and emergency management arrangements.
(4) Development supports, and does not unduly burden, disaster management response or recovery capacity and capabilities, and	The combined effect of the bushfire protection measures specified by this Plan serves to reduce risk to a low level and ensure resilience and preparedness for unplanned fire so that the response or recovery capacity and capability of emergency services is not unduly burdened or impeded. This Plan serves to protect life and property from bushfire without depending on emergency services for protection.
(5) Development directly, indirectly and cumulatively avoids an increase in the severity of the natural hazard and the potential for damage on the site or to other properties, and	The development does not increase the nature of the existing hazard, and site layout and landscaping on the site is designed to moderate the exposure of buildings. The potential for damage to other properties is not increased as a consequence of the proposed development.
(6) Risks to public safety and the environment from the location of hazardous materials and the release of these materials is avoided, and	Hazardous materials are not stored in quantities or locations on the site which would pose a risk to the public or the environment.
(7) The natural processes and the protective function of landforms and the vegetation that can mitigate risks associated with the natural hazard are maintained or enhanced.	The development maintains the natural processes and protective function of vegetation that previously existed for the site.

## 10.0 Recommendations

1. That the master plan shall provide a separation between unmanaged vegetation hazard to the west and east and future dwellings on any Lot of a minimum of 8m, in association with BAL 29 construction under AS3959-2009.

This is achieved through provision of a building envelope for Lot 1256.

Preferably a separation of (minimum) 13m should be sought in association with BAL 19 construction, or a separation of (minimum) 19m in association with BAL 12.5 construction.

Lots 835 and 914 will be beside the biobasin, which will be managed in a low hazard state as shown in Figure 18.

Figures 15 and 16 shows the “reach” of the various BAL ratings under AS3959-2009. BAL contours have been transferred to Plan of Development (POD) Plans attached in Appendix 1. BAL ratings for individual Lots should be reviewed post-construction as earthworks/pad levels may have implications for BAL ratings.

Any other structure built within 6m of each residence shall be constructed in accordance with this Standard.

Builders should warrant that they have a copy of this Standard, and that it shall be used consistently throughout the design and construction of dwellings and other structures located within 6m of them.

2. The existing Asset Protection Zones available on each Lot and described in Section 7.2 of this report shall be maintained as IPA separating buildings from retained vegetation on adjacent Lots. Throughout the Staged development, the balance of Lot will be retained in a low hazard state by slashing.
3. Temporary turn-arounds at the termination of the roads shall be provided to ensure truck turnaround can be achieved for fire vehicles.
4. Reticulated water supplies shall be fully installed in accordance with AS2419.1-2005 and Council water utilities provider with sufficient flow and pressure characteristics for fire fighting purposes at all times (minimum 10litres a second at 200kPa). Compliance shall be achieved against the acceptable outcomes specified under the QFES Fire Hydrant and Vehicle Access Guideline (2015) in particular marking of hydrant locations and providing adequate hydrant access.
5. Lot buyers shall be made aware of the existence of this Plan and their responsibilities outlined within it, in particular construction, asset protection zone and emergency management.

## 11.0 Summary

The area of “hazard” faced by the proposed development is significant, and the likelihood of wildfire at some time is regarded as likely, warranting protection measures to be taken, as outlined in this Plan. This Plan demonstrates compliance with legislative requirements of State and Local Government, and the BCA.



Along with adequate water supply and emergency management arrangements, compliant construction under AS3959-2009 and APZs to reduce the exposure of life and property to bushfire, these combined measures assist prepare residents for the slim possibility of fire in the area.

## 12.0 References

ABCB (2012), *Building Code of Australia*, Australian Building Codes Board, Canberra.

Building Regulation (2006), Queensland Government, Queensland.

Environmental Protection Act (1994), Queensland Government, Queensland.

Hines, F., Tolhurst, K.G., & Wilson, A.A.G., (2010) *Overall Fuel Hazard Assessment - Research Report No. 82 4th Edition*, DSE Victoria.

Queensland Fire and Emergency Services (2015) *Fire Hydrant and Vehicle Access Guidelines for Residential, Commercial and Industrial Lots*, Queensland Government, Queensland.

Queensland Government Department of Local Government and Planning (May 2003), *State Planning Policy 01/03*, Queensland.

Queensland Government Department of Local Government and Planning (April 2016), *State Planning Policy – Natural hazards, risk and resilience*, Queensland.

Leonard, J., Newnham, G., Opie, K., and Blanchi, R. (2014), *A new methodology for State-wide mapping of bushfire prone areas in Queensland*, CSIRO, Australia.

Logan City Council (2015), *Logan Planning Scheme*, LCC, Queensland.

NSW Rural Fire Service (2006), *Planning for Bushfire Protection*, NSW.

Ramsay, C. and Rudolph, L. (2003), *Landscape and Building Design for Bushfire Areas*, CSIRO Publishing, Collingwood, Victoria.

Standards Australia (2005), *AS 2419.1– 2005, Fire hydrant installations – System design, installation and commissioning*, Sydney, NSW.

Standards Australia (2002), *AS 1596 The storage and handling of LP Gas*, Sydney, NSW.

Standards Australia (2009), *AS 3959 – 2009, Construction of buildings in bushfire-prone areas*, Sydney, NSW.

Sustainable Planning Act (2009), Queensland Government, Queensland.

Vegetation Management Act (1999), Queensland Government, Queensland.

Webster, J. (2000), *The Complete Bushfire Safety Book*, Random House Australia, NSW.

## **Appendix 1**

### **Plan of Development – Plans showing BAL Contours**

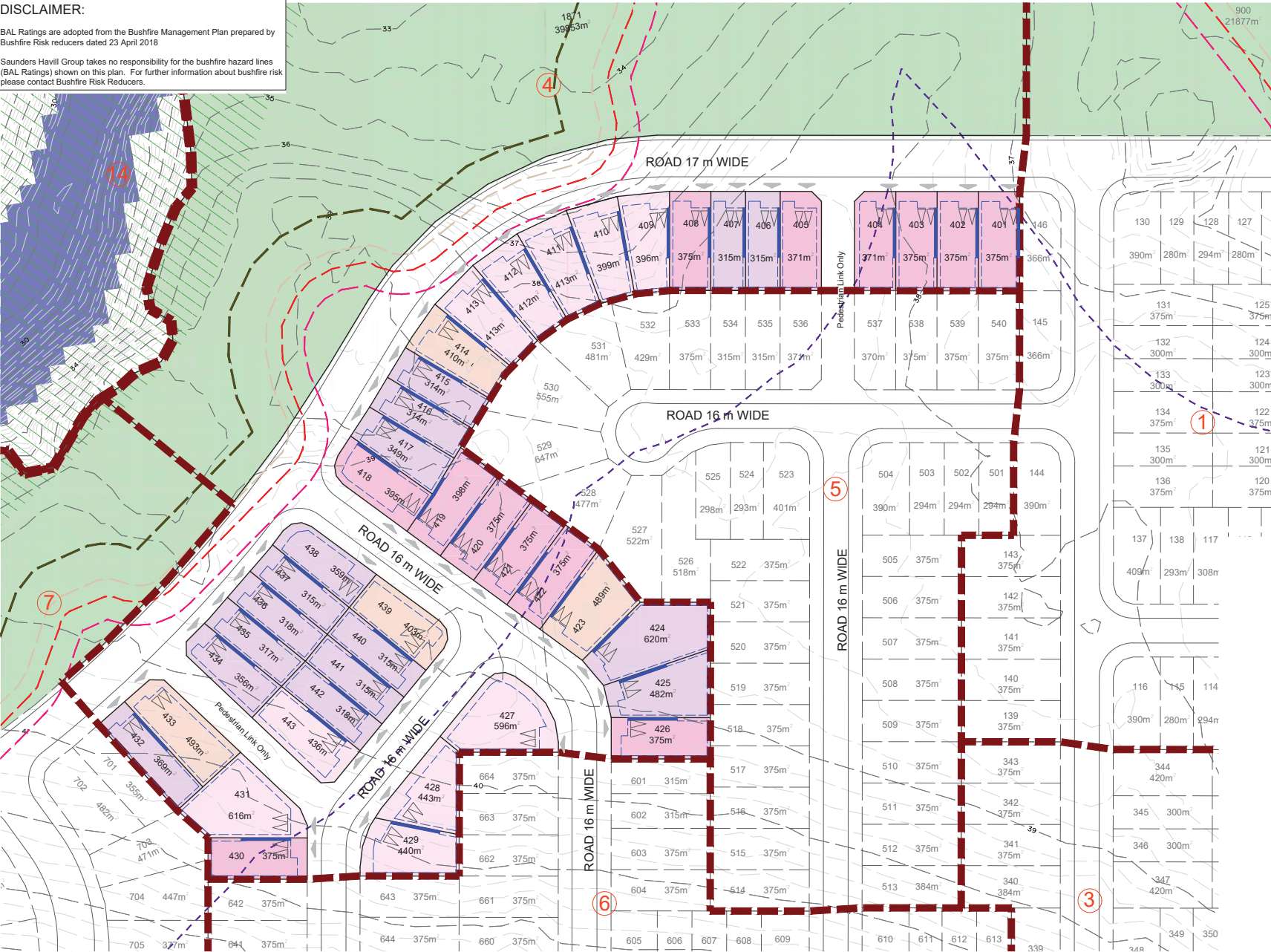


PLAN OF DEVELOPMENT - STAGE 4

**DISCLAIMER:**

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Saunders Havill Group takes no responsibility for the bushfire hazard lines (BAL Ratings) shown on this plan. For further information about bushfire risk please contact Bushfire Risk Reducers.



NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION

LEGEND

- Site Boundary
- Indicative Building Envelope
- Built to Boundary Wall
- Staging Boundary
- Indicative Driveway Location
- Edge of Classified Vegetation
- Building Envelope Exclusion Zone
- Reach of BAL 29
- Reach of BAL 19
- Reach of BAL 12.5

NOTES

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage.
- For lots with a secondary frontage, no building or structure over 2m high is to be built within a 6m x 6m truncation at the corner of two road frontages.
- The length of a Built-to Boundary wall is not to exceed 15m or 50% of the lot depth.
- A 2.4m setback permitted to unenclosed entry features such as porches, porticos, verandahs and balconies.
- Building envelope and setback requirements may be affected by provisions for easements for services, which may alter the setback requirements.
- Site cover is the maximum area covered by all buildings and structures roofed with impervious materials.
- Built-to-boundary walls are optional, however if a Built-to-boundary wall is proposed it must be constructed on the side indicated.
- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard, refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage. This frontage should be taken to be a side boundary.

	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface Lots
Front Setback					
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	3m	3m	3m	4m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage					
To Wall (Ground Floor)	1.5m	2m	2m	2m	3m
To Wall (First Floor)	2m	2m	2m	2m	3m
Garage	5m	5m	5m	5m	5m
Rear Setback					
Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
First Floor	1m	1m	1m	1m	8.0m
Side Setback (BTB)					
Ground Floor	0 - 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)					
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION LOT 6 on RP193185 & LOT 9 on SP203507

SCALE @A1 1:600 @A3 1:1200 - LENGTHS ARE IN METRES



ORCHARD (PEBBLE CREEK) DEVELOPMENTS PTY LTD

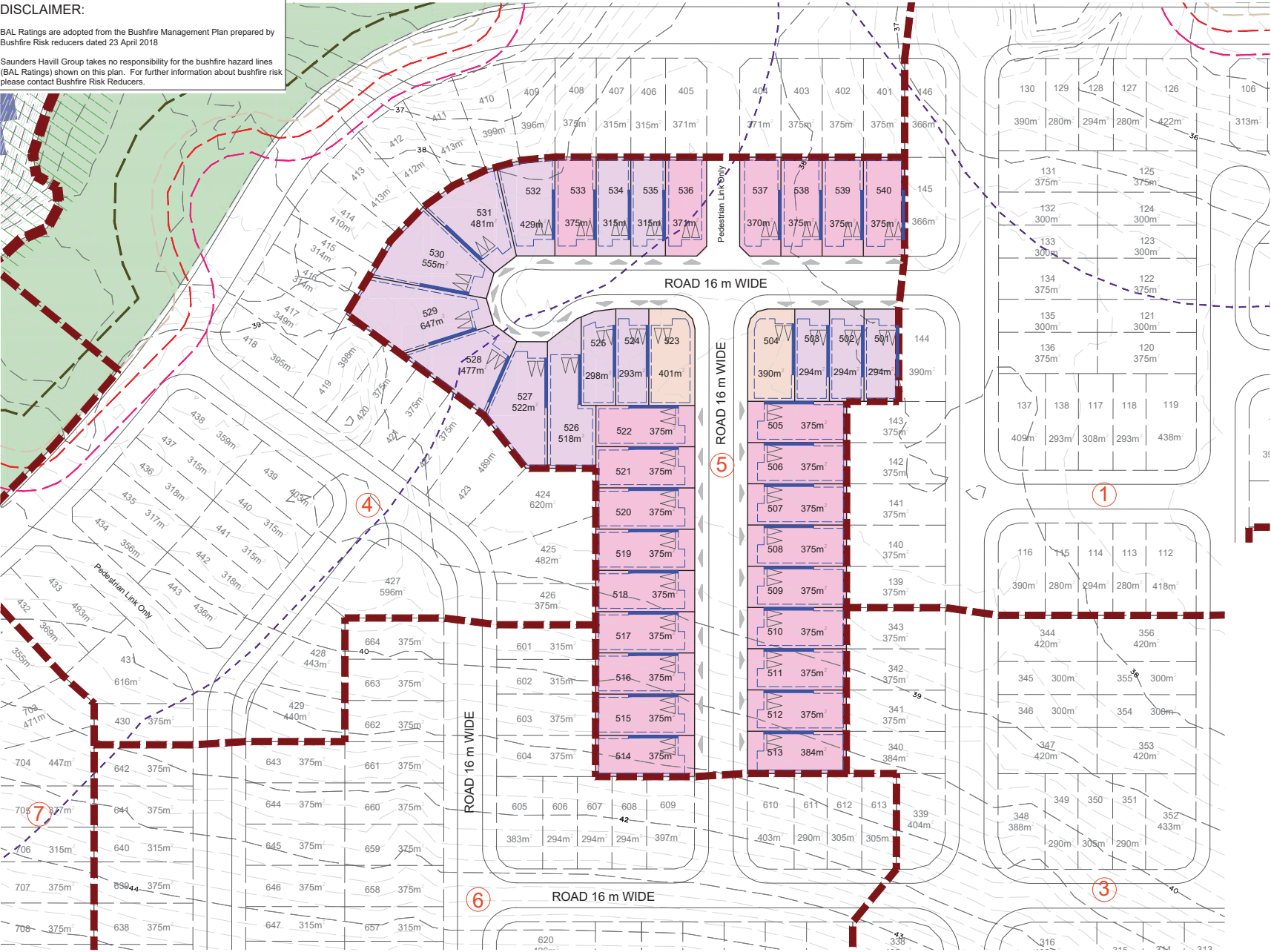


PLAN OF DEVELOPMENT - STAGE 5

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NOT TO BE USED FOR ENGINEERING DESIGN  
OR CONSTRUCTION

LEGEND

- Site Boundary
- Indicative Building Envelope
- Built to Boundary Wall
- Staging Boundary
- Indicative Driveway Location
- Edge of Classified Vegetation
- Building Envelope Exclusion Zone
- Reach of BAL 29
- Reach of BAL 19
- Reach of BAL 12.5

NOTES

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage.
- For lots with a secondary frontage, no building or structure over 2m high is to be built within a 6m x 6m truncation at the corner of two road frontages.
- The length of a Built-to Boundary wall is not to exceed 15m or 50% of the lot depth.
- A 2.4m setback permitted to unenclosed entry features such as porches, porticos, verandahs and balconies.
- Building envelope and setback requirements may be affected by provisions for easements for services, which may alter the setback requirements.
- Site cover is the maximum area covered by all buildings and structures roofed with impervious materials.
- Built-to-boundary walls are optional, however if a Built -to-boundary wall is proposed it must be constructed on the side indicated.
- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard, refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage. This frontage should be taken to be a side boundary.

	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface Lots
Front Setback					
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	3m	3m	3m	4m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage					
To Wall (Ground Floor)	1.5m	2m	2m	2m	3m
To Wall (First Floor)	2m	2m	2m	2m	3m
Garage	5m	5m	5m	5m	5m
Rear Setback					
Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
First Floor	1m	1m	1m	1m	8.0m
Side Setback (BTB)					
Ground Floor	0 - 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)					
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%

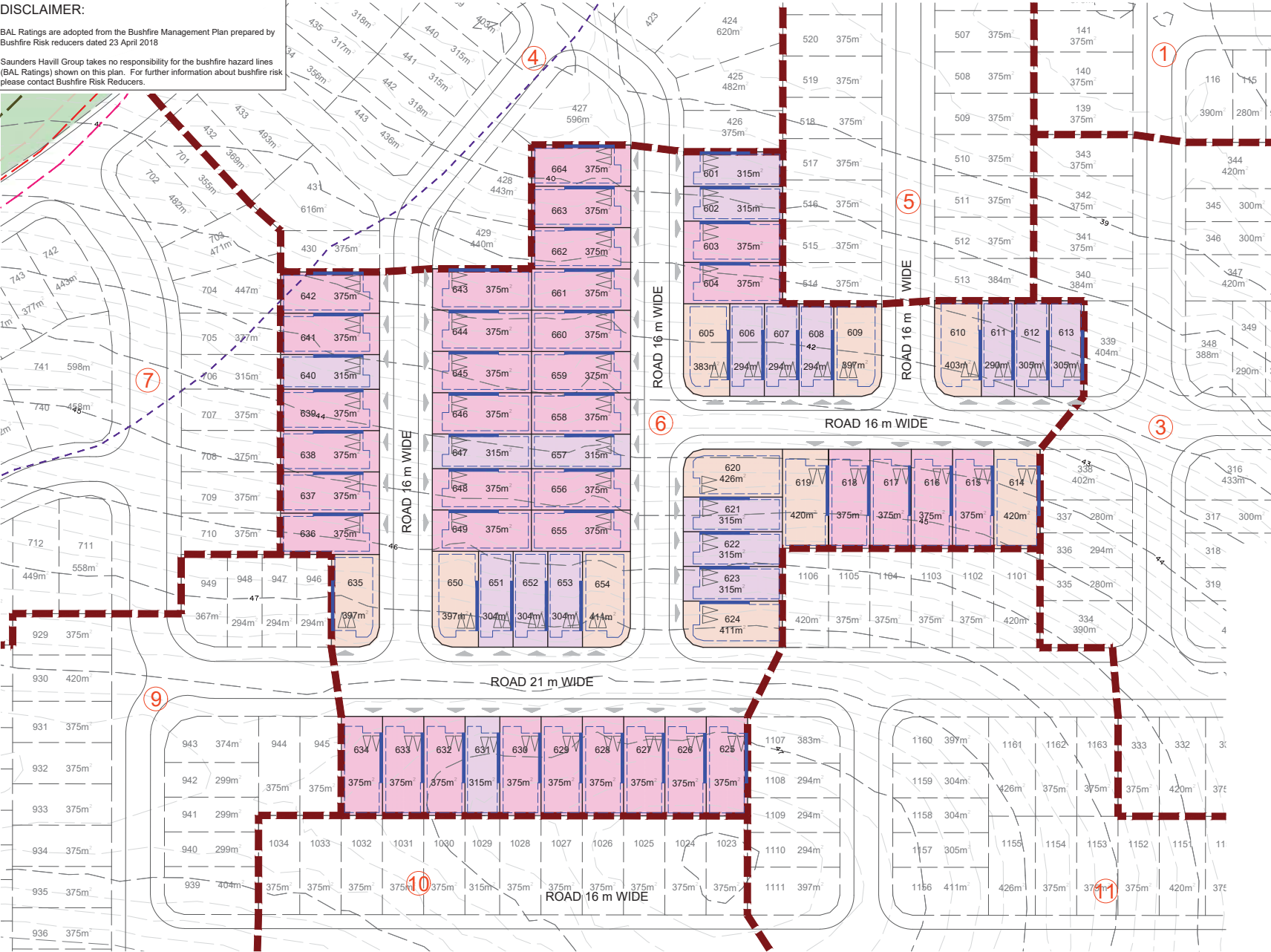
\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION	LOT 6 on RP193185 & LOT 9 on SP203507
SCALE @A1 1:600 @A3 1:1200 - LENGTHS ARE IN METRES	



PLAN OF DEVELOPMENT - STAGE 6

**DISCLAIMER:**  
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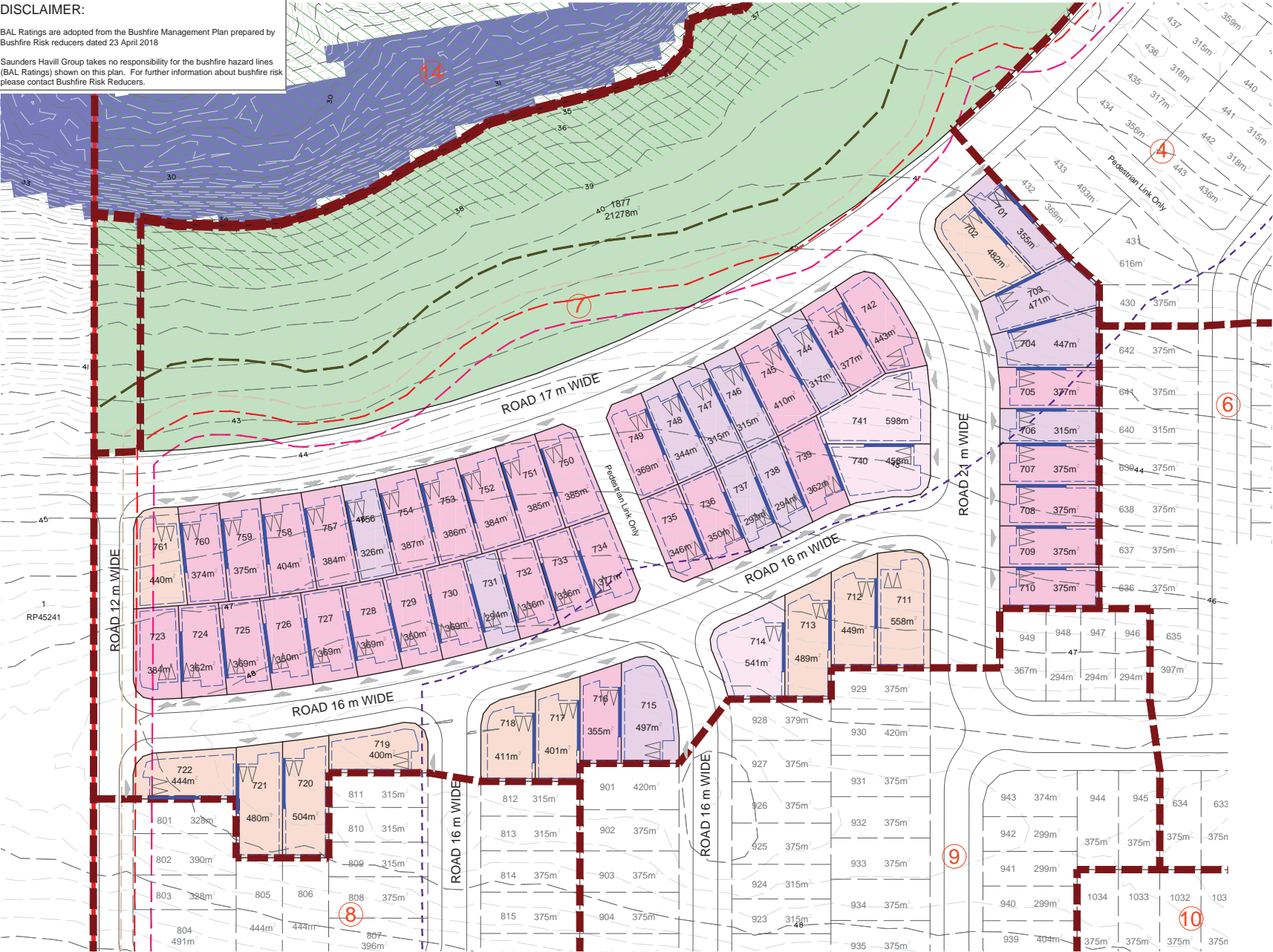


PLAN OF DEVELOPMENT - STAGE 7

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NOT TO BE USED FOR ENGINEERING DESIGN  
OR CONSTRUCTION

LEGEND

- Site Boundary
- Indicative Building Envelope
- Built to Boundary Wall
- Staging Boundary
- Indicative Driveway Location
- Edge of Classified Vegetation
- Building Envelope Exclusion Zone
- Reach of BAL 29
- Reach of BAL 19
- Reach of BAL 12.5

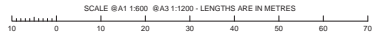
NOTES

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage.
- For lots with a secondary frontage, no building or structure over 2m high is to be built within a 6m x 6m truncation at the corner of two road frontages.
- The length of a Built-to Boundary wall is not to exceed 15m or 50% of the lot depth.
- A 2.4m setback permitted to unenclosed entry features such as porches, porticos, verandahs and balconies.
- Building envelope and setback requirements may be affected by provisions for easements for services, which may alter the setback requirements.
- Site cover is the maximum area covered by all buildings and structures roofed with impervious materials.
- Built-to-boundary walls are optional, however if a Built -to-boundary wall is proposed it must be constructed on the side indicated.
- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard, refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage. This frontage should be taken to be a side boundary.

	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface Lots
Front Setback					
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	3m	3m	3m	4m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage					
To Wall (Ground Floor)	1.5m	2m	2m	2m	3m
To Wall (First Floor)	2m	2m	2m	2m	3m
Garage	5m	5m	5m	5m	5m
Rear Setback					
Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
First Floor	1m	1m	1m	1m	8.0m
Side Setback (BTB)					
Ground Floor	0 - 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)					
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION LOT 6 on RP193185 & LOT 9 on SP203507



ORCHARD (PEBBLE CREEK) DEVELOPMENTS PTY LTD

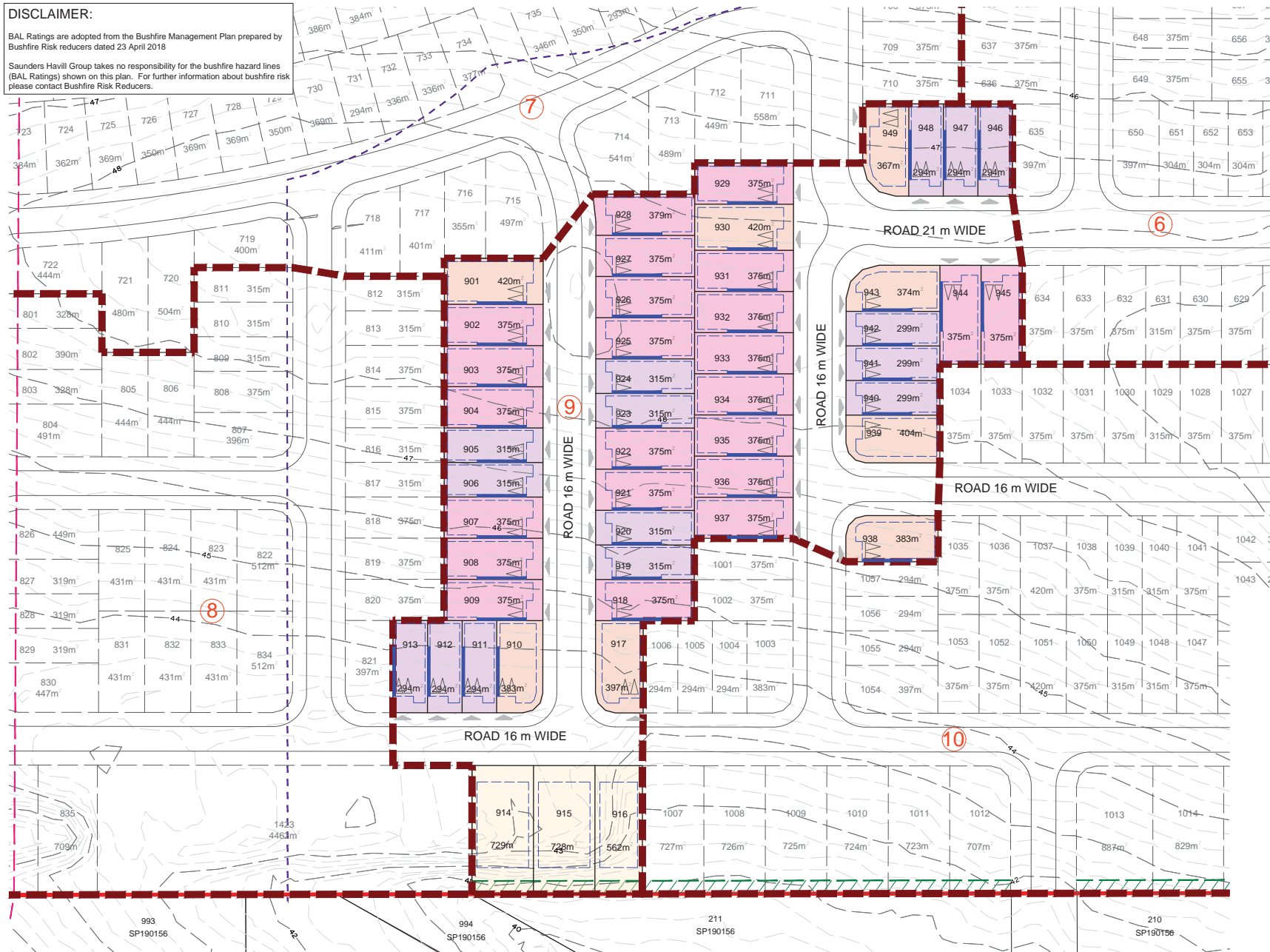




DISCLAIMER:












BAL Ratings are adopted from the Bushfire Management Plan prepared by Bushfire Risk reducers dated 23 April 2018

Saunders Havill Group takes no responsibility for the bushfire hazard lines (BAL Ratings) shown on this plan. For further information about bushfire risk please contact Bushfire Risk Reducers.



NOT TO BE USED FOR ENGINEERING DESIGN  
OR CONSTRUCTION

### LEGEND

-  Site Boundary
-  Indicative Building Envelope
-  Built to Boundary Wall
-  Staging Boundary
-  Indicative Driveway Location
-  Edge of Classified Vegetation
-  Building Envelope Exclusion Zone
-  Reach of BAL 29
-  Reach of BAL 19
-  Reach of BAL 12.5
-  Landscape Interface Buffer  
(Refer to Pebble Creek Plan of Development)

## NOTES

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage.
- For lots with a secondary frontage, no building or structure over 2m high is to be built within a 6m x 6m truncation at the corner of two road frontages.
- The length of a Built-to Boundary wall is not to exceed 15m or 50% of the lot depth.
- A 2.4m setback permitted to unenclosed entry features such as porches, porticos, verandahs and balconies.
- Building envelope and setback requirements may be affected by provisions for easements for services, which may alter the setback requirements.
- Site cover is the maximum area covered by all buildings and structures roofed with impervious materials.
- Built-to-boundary walls are optional, however if a Built -to-boundary wall is proposed it must be constructed on the side indicated.
- Lots may be required by bushfire risk, requiring compliance with the relevant Australian Standard. refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage. This frontage should be taken to be a side boundary.
- No buildings or structures are permitted in the Landscape Interface Buffer.

Buffer.	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface Lots
Front Setback					
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	3m	3m	3m	4m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage					
To Wall (Ground Floor)	1.5m	2m	2m	2m	3m
To Wall (First Floor)	2m	2m	2m	2m	3m
Garage	5m	5m	5m	5m	5m
Rear Setback					
Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
First Floor	1m	1m	1m	1m	8.0m
Side Setback (BTB)					
Ground Floor	0 - 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)					
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION LOT 6 on RP193185 &  
LOT 9 on SP203507

SCALE @A1 1:500 @A3 1:1200 - LENGTHS ARE IN METRES



ORCHARD (PEBBLE CREEK) DEVELOPMENTS PTY LTD

MOUNTAIN RIDGE ROAD, SOUTH MACLEAN ■ 23/11/2020 ■ 9282 P 02 Rev Q POD 09

**DISCLAIMER:**

BAL Ratings are adopted from the Bushfire Management Plan prepared by Bushfire Risk reducers dated 23 April 2018

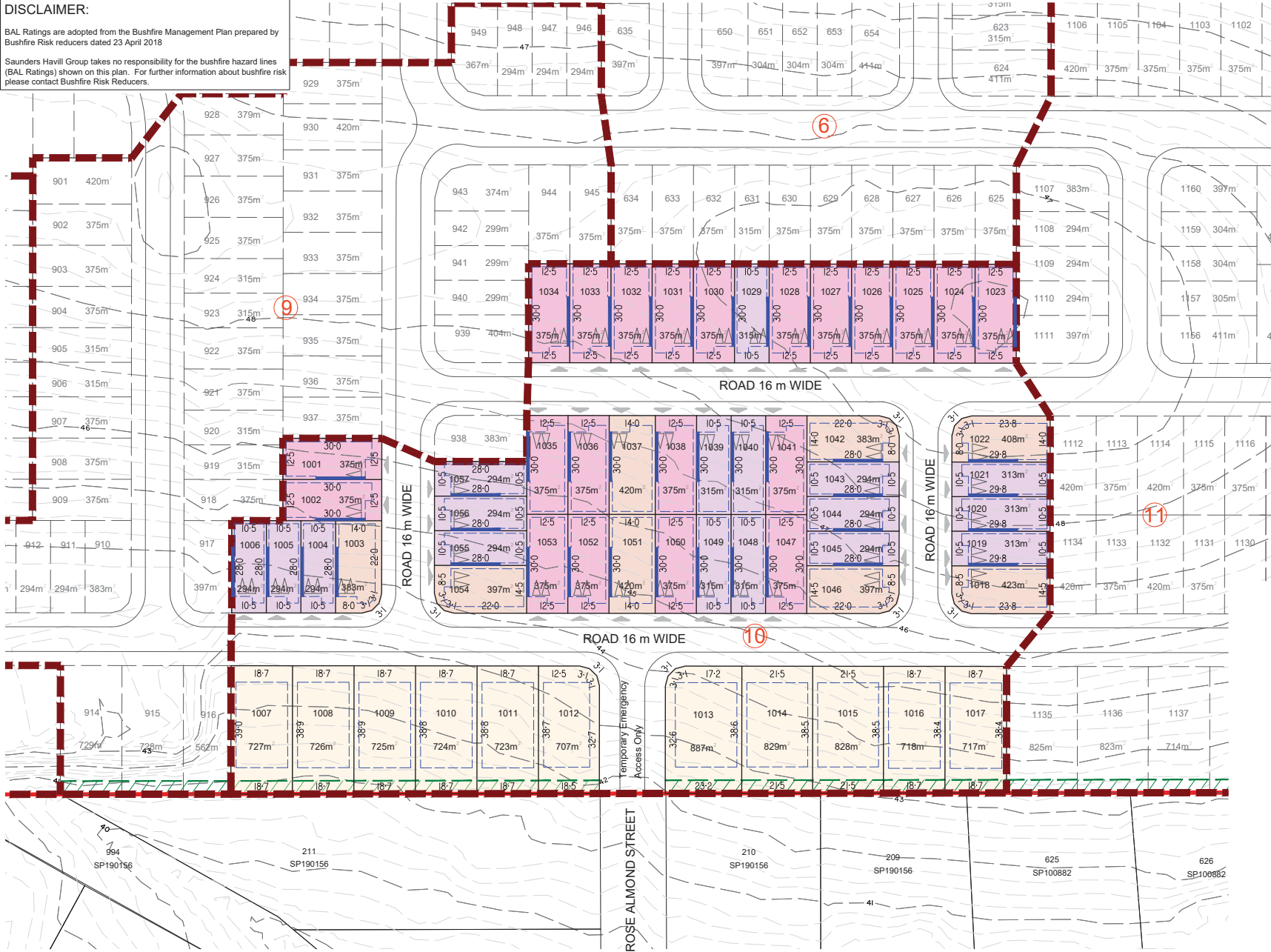
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## LEGEND

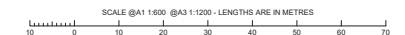
- Site Boundary
- Indicative Building Envelope
- Built to Boundary Wall
- Staging Boundary
- Indicative Driveway Location
- Edge of Classified Vegetation
- Building Envelope Exclusion Zone
- Reach of BAL 29
- Reach of BAL 19
- Reach of BAL 12.5
- Landscape Interface Buffer  
(Refer to Pebble Creek Plan of Development)

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage.
- For lots with a secondary frontage, no building or structure over 2m high is to be built within a 6m x 6m truncation at the corner of two road frontages.
- The length of a Built-to Boundary wall is not to exceed 15m or 50% of the lot depth.
- A 2.4m setback permitted to unenclosed entry features such as porches, porticos, verandahs and balconies.
- Building envelope and setback requirements may be affected by provisions for easements for services, which may alter the setback requirements.
- Site cover is the maximum area covered by all buildings and structures roofed with impervious materials.
- Built-to-boundary walls are optional, however if a Built-to-boundary wall is proposed it must be constructed on the side indicated.
- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard. refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage. This frontage should be taken to be a side boundary.
- No buildings or structures are permitted in the Landscape Interface Buffer.

Buffer.	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface Lots
Front Setback					
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	3m	3m	3m	4m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage					
To Wall (Ground Floor)	1.5m	2m	2m	2m	3m
To Wall (First Floor)	2m	2m	2m	2m	3m
Garage	5m	5m	5m	5m	5m
Rear Setback					
Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
First Floor	1m	1m	1m	1m	8.0m
Side Setback (BTB)					
Ground Floor	0 - 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)					
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

SCALE @ A1 1:600 @ A3 1:1200 - LENGTHS ARE IN METRES



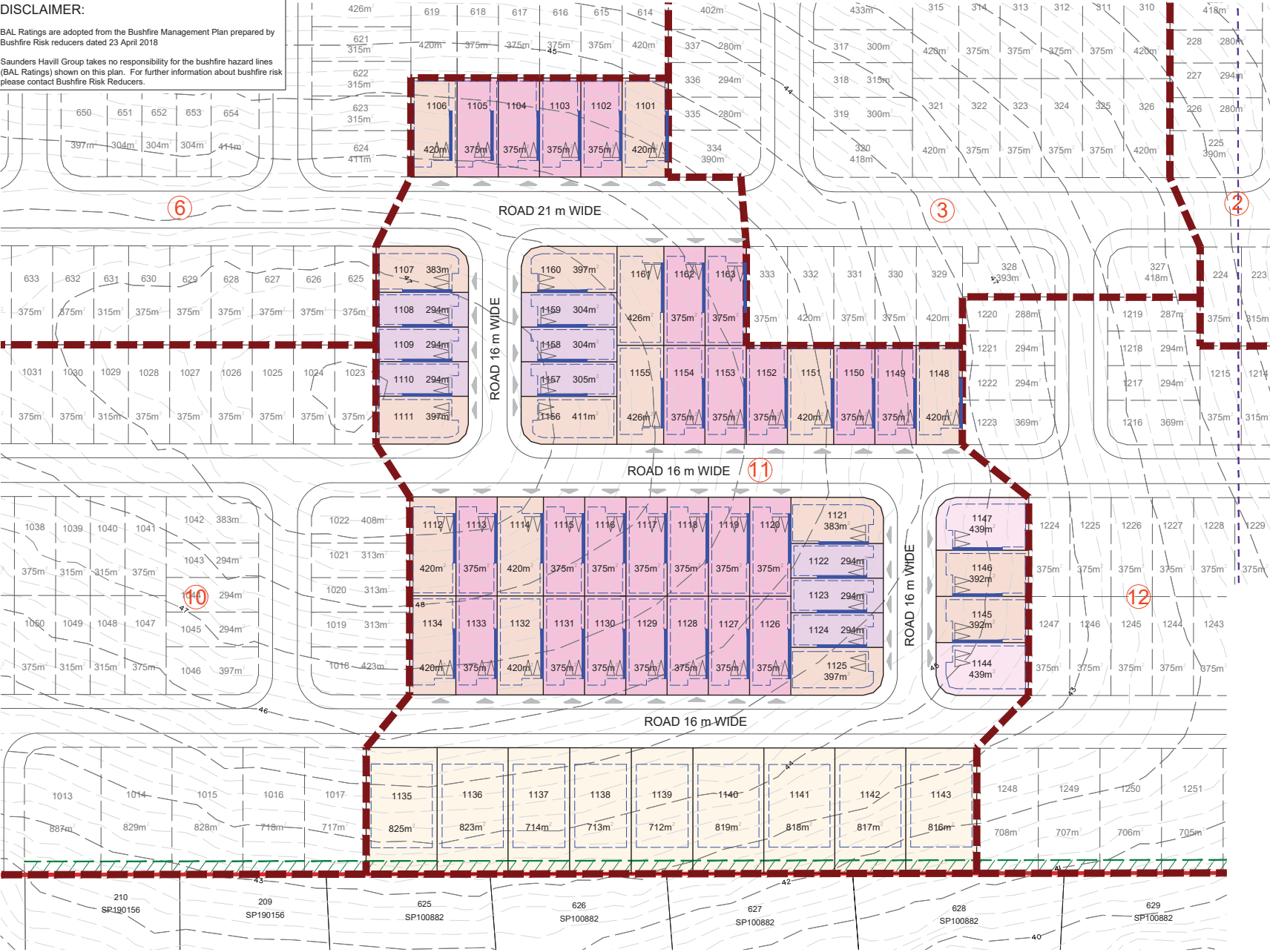


PLAN OF DEVELOPMENT - STAGE 11

**DISCLAIMER:**

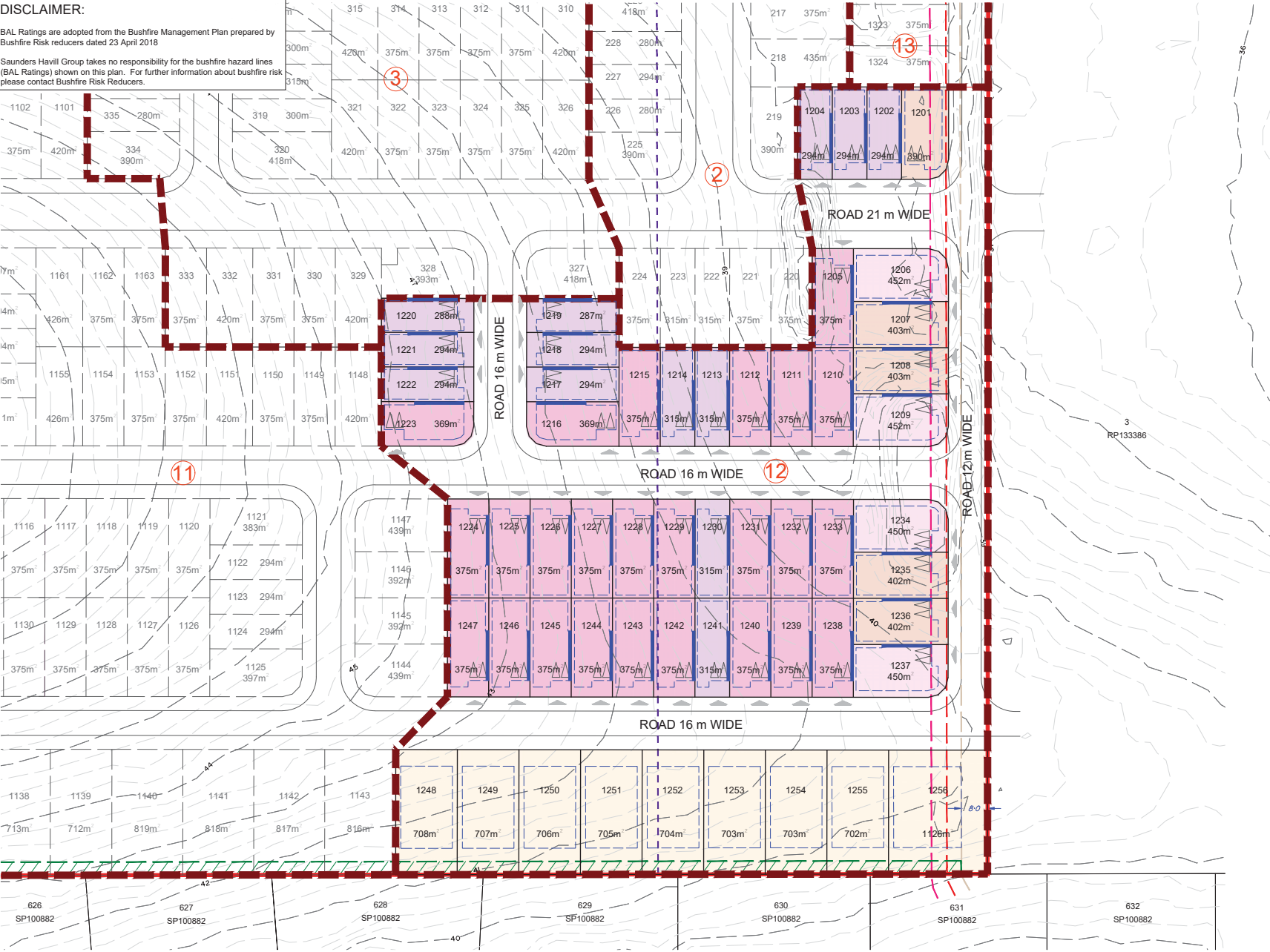
BAL Ratings are adopted from the Bushfire Management Plan prepared by Bushfire Risk reducers dated 23 April 2018

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PLAN OF DEVELOPMENT - STAGE 12

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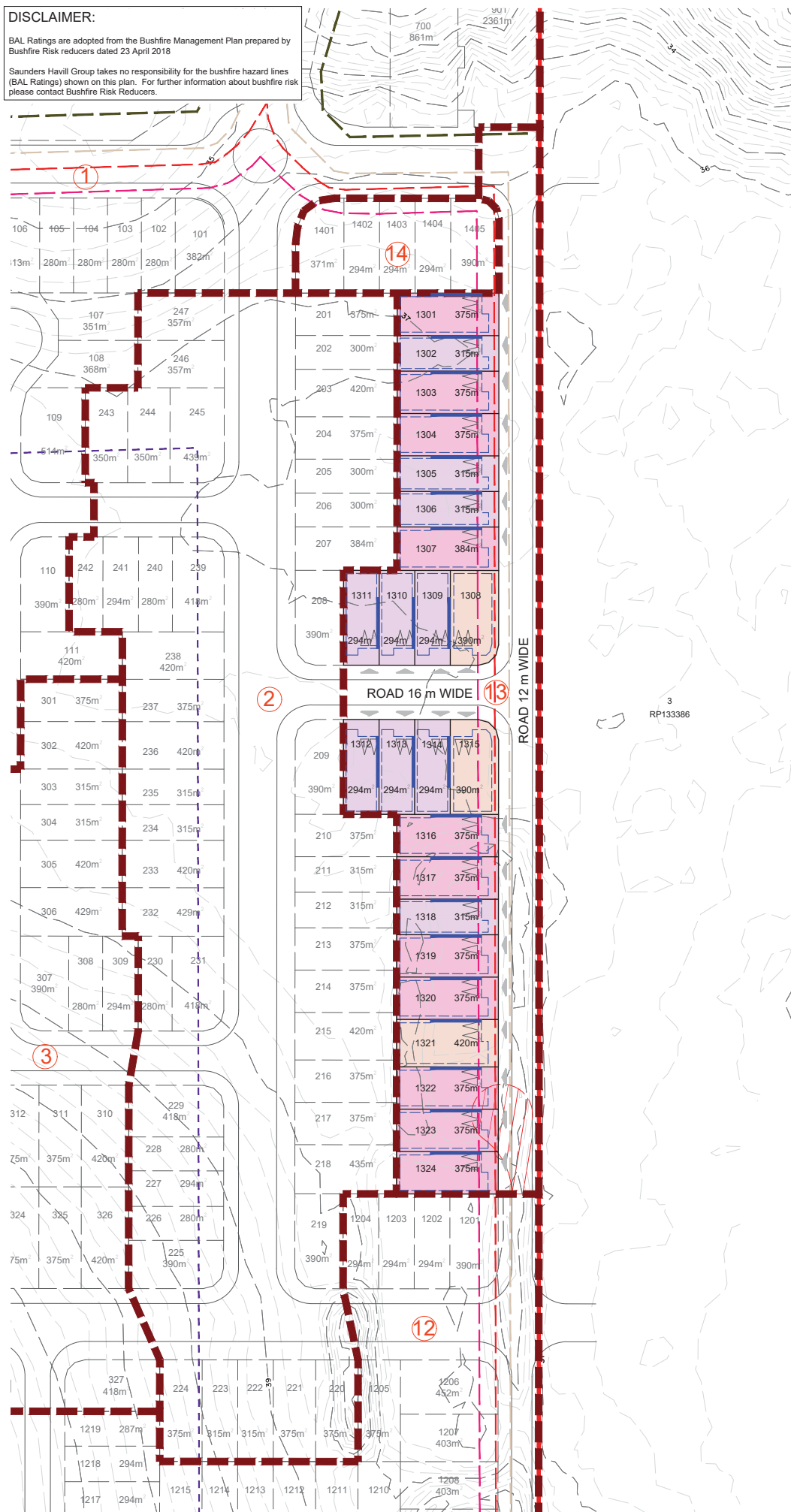


# PLAN OF DEVELOPMENT - STAGE 13

## DISCLAIMER:

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NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION

## LEGEND

- Site Boundary
- Indicative Building Envelope
- Built to Boundary Wall
- Staging Boundary
- Indicative Driveway Location
- Edge of Classified Vegetation
- Building Envelope Exclusion Zone
- Reach of BAL 29
- Reach of BAL 19
- Reach of BAL 12.5

## NOTES

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage.
- For lots with a secondary frontage, no building or structure over 2m high is to be built within a 6m x 6m truncation at the corner of two road frontages.
- The length of a Built-to Boundary wall is not to exceed 15m or 50% of the lot depth.
- A 2.4m setback permitted to unenclosed entry features such as porches, porticos, verandahs and balconies.
- Building envelope and setback requirements may be affected by provisions for easements for services, which may alter the setback requirements.
- Site cover is the maximum area covered by all buildings and structures roofed with impervious materials.
- Built-to-boundary walls are optional, however if a Built-to-boundary wall is proposed it must be constructed on the side indicated.
- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard, refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage. This frontage should be taken to be a side boundary.

	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface Lots
Front Setback					
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	3m	3m	3m	4m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage					
To Wall (Ground Floor)	1.5m	2m	2m	2m	3m
To Wall (First Floor)	2m	2m	2m	2m	3m
Garage	5m	5m	5m	5m	5m
Rear Setback					
Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
First Floor	1m	1m	1m	1m	8.0m
Side Setback (BTB)					
Ground Floor	0 - 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)					
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION LOT 6 on RP193185 & LOT 9 on SP203507

SCALE @A1 1:600 @A3 1:1200 - LENGTHS ARE IN METRES

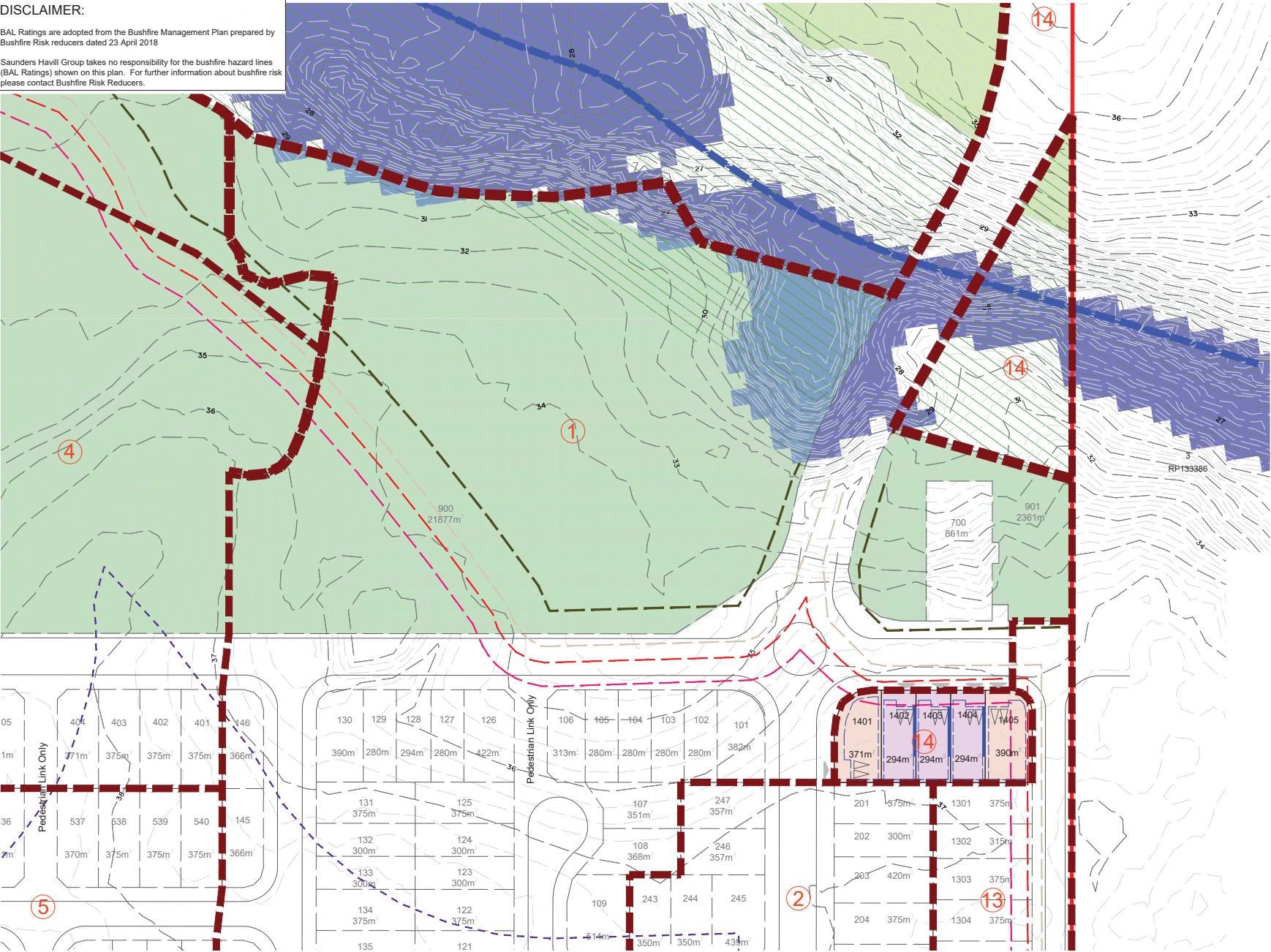


PLAN OF DEVELOPMENT - STAGE 14

**DISCLAIMER:**

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NOT TO BE USED FOR ENGINEERING DESIGN  
OR CONSTRUCTION

LEGEND

- Site Boundary
- Indicative Building Envelope
- Built to Boundary Wall
- Staging Boundary
- Indicative Driveway Location
- Edge of Classified Vegetation
- Building Envelope Exclusion Zone
- Reach of BAL 29
- Reach of BAL 19
- Reach of BAL 12.5

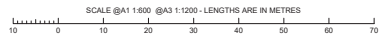
NOTES

- All setbacks are measured to the wall of the structure.
- Houses must be wholly located within the subject lot unless appropriate encroachment rights are secured.
- A lot can have only one primary frontage.
- For corner lots, a secondary frontage may be applicable, however a pedestrian pathway or road reserve that does not contain a road carriageway is not a secondary frontage.
- For lots with a secondary frontage, no building or structure over 2m high is to be built within a 6m x 6m truncation at the corner of two road frontages.
- The length of a Built-to Boundary wall is not to exceed 15m or 50% of the lot depth.
- A 2.4m setback permitted to unenclosed entry features such as porches, porticos, verandahs and balconies.
- Building envelope and setback requirements may be affected by provisions for easements for services, which may alter the setback requirements.
- Site cover is the maximum area covered by all buildings and structures roofed with impervious materials.
- Built-to-boundary walls are optional, however if a Built-to-boundary wall is proposed it must be constructed on the side indicated.
- Lots may be affected by bushfire risk, requiring compliance with the relevant Australian Standard, refer to the Bushfire Management Plan dated 23 April 2018 prepared by Bushfire Risk Reducers.
- Building Height must not exceed 9 metres or 2 storeys.
- Refer to Section 1.3 of the Plan of Development for specific design criteria for Houses.
- A pedestrian pathway is not considered to be a secondary frontage. This frontage should be taken to be a side boundary.

	Villa	Premium Villa	Courtyard	Premium Courtyard	Interface Lots
Front Setback					
To Wall (Ground Floor)	3m	3m	3m	4m	5m
To Wall (First Floor)	3m	3m	3m	4m	5m
Garage	5m	5m	5m	5m	5m
Secondary Frontage					
To Wall (Ground Floor)	1.5m	2m	2m	2m	3m
To Wall (First Floor)	2m	2m	2m	2m	3m
Garage	5m	5m	5m	5m	5m
Rear Setback					
Ground Floor	0.9m*	0.9m*	0.9m*	0.9m*	8.0m
First Floor	1m	1m	1m	1m	8.0m
Side Setback (BTB)					
Ground Floor	0 - 0.2m	0 - 0.2m	0 - 0.2m	0 - 0.2m	n/a
First Floor	0.9m	1.0m	1.0m	1.0m	n/a
Side Setback (non-BTB)					
Ground Floor	0.9m	1.0m	1.0m	1.0m	1.5m
First Floor	0.9m	1.0m	1.0m	1.5m	2.0m
Garage Location	Preference is for garages to be constructed as a built to boundary wall as shown				
Site Coverage (Maximum)	75%	75%	60%	60%	50%

\* Rear boundary setback for a lot including a stepped retaining wall (or wall exceeding 2.5m) is to be increased to 2.5m

RP DESCRIPTION LOT 6 on RP193185 & LOT 9 on SP203507

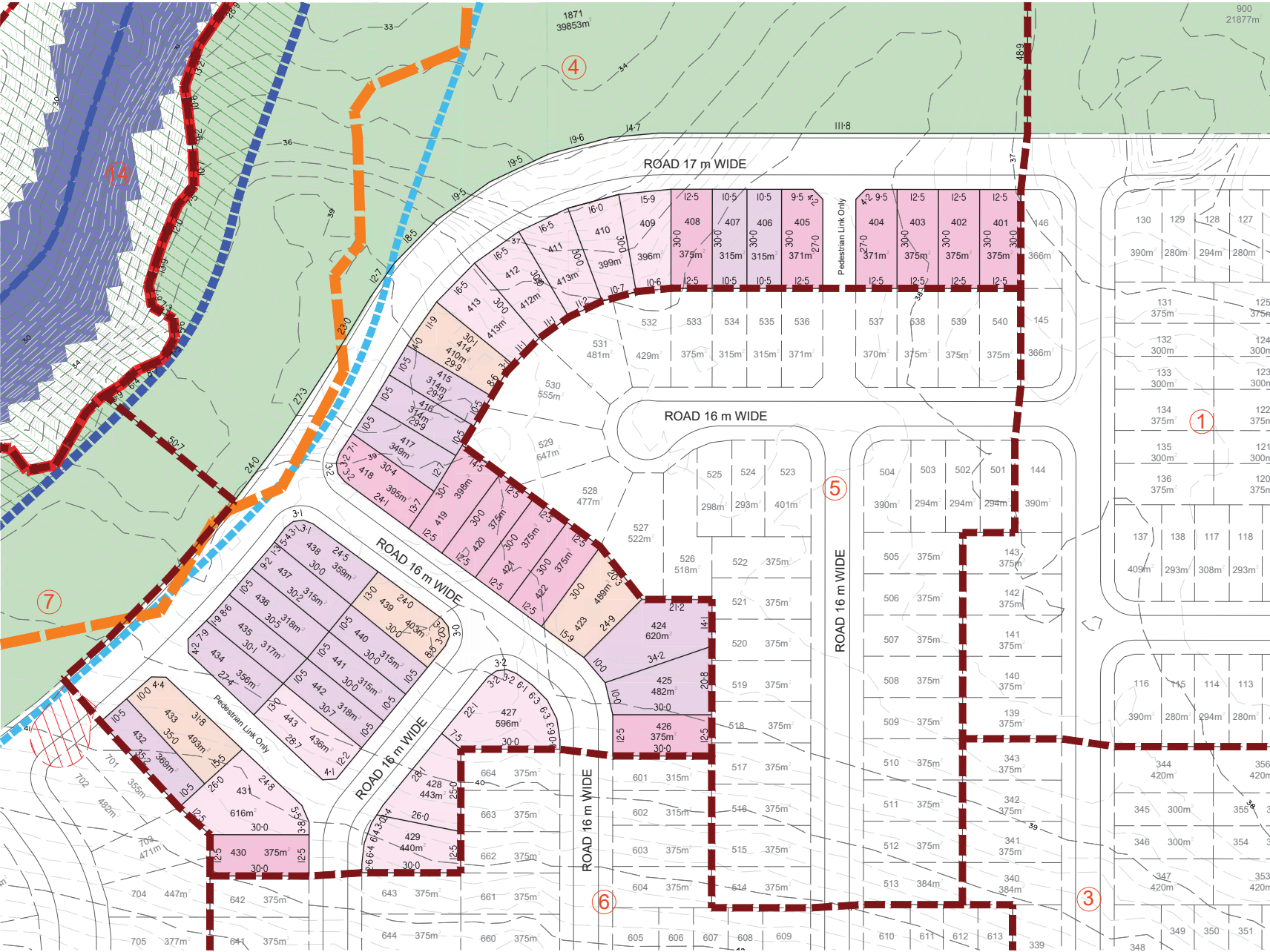


## **Appendix 2**

### **Staging Plans - showing temporary turnarounds**



STAGING PLAN - STAGE 4



NOT TO BE USED FOR ENGINEERING DESIGN  
OR CONSTRUCTION

NOTES

This plan was prepared as a conceptual layout only. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Pavements and centrelines shown are indicative only and are subject to Engineering Design.

Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

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\* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

LEGEND

- Site Boundary
- Logan City Council 2016 Flood Mapping
- Minor Contour 0.25m Interval
- Major Contour 1.0m interval
- 50m Centreline Waterway Buffer
- 100m Centreline Waterway Buffer
- Approx. High Bank - Derived from Slope analysis utilising lidar data
- 50m High Bank Offset
- 1 in 5 ARI
- Riparian Zone - 7.6 ha
- Linear Park - 2260 m<sup>2</sup>
- District Park - 9.403 ha
- Staging No.
- Staging Boundary

NOTE: Dimensions have been rounded down to the nearest 0.1m;  
Staging is sequential;  
Refer to drawing "Staging Plan - Overall" for full extent of Stage 4.

STAGING STATISTICS - STAGE 4

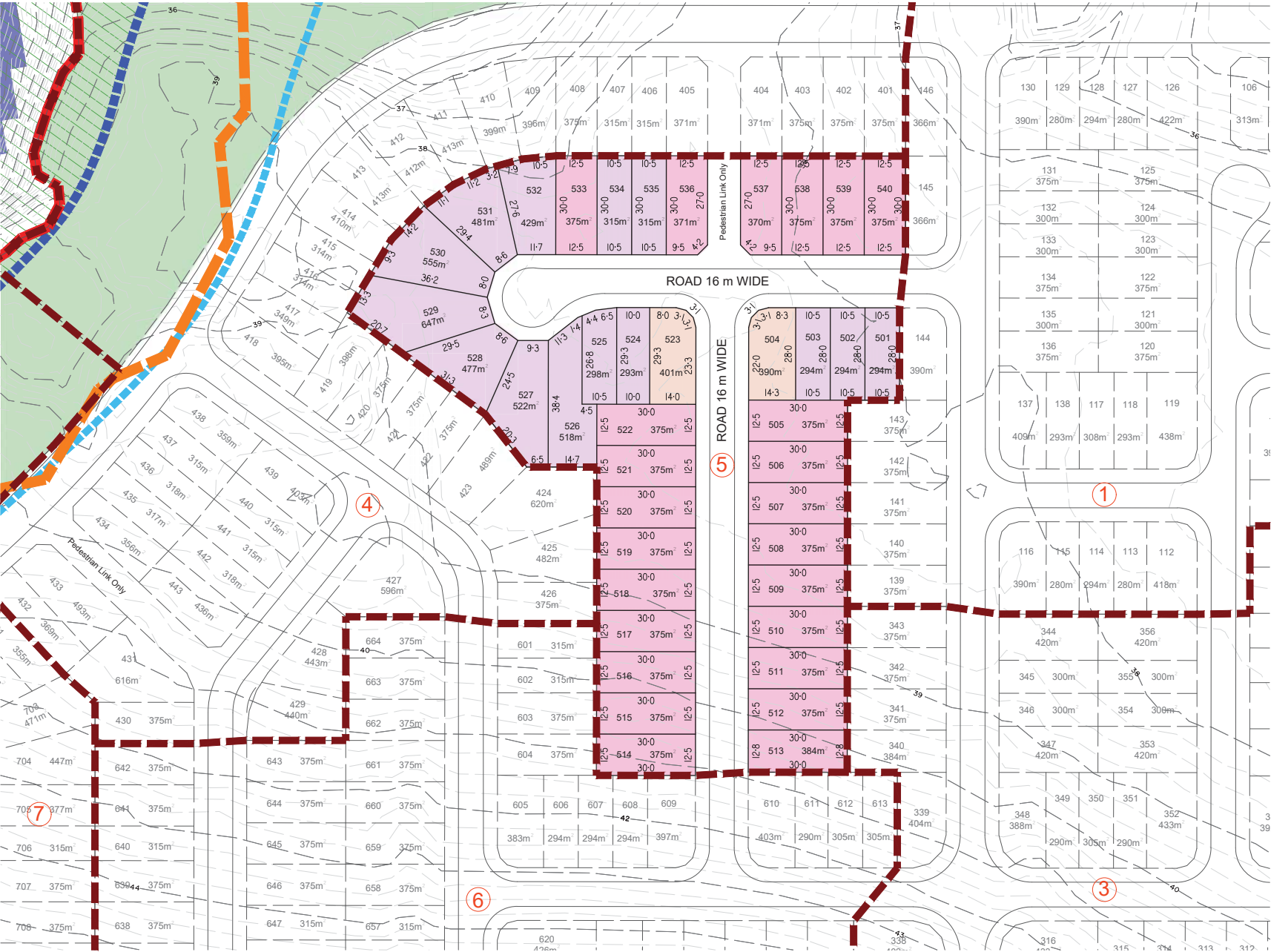
Stage Area	6.726 ha
Length of New Roads	562 m
Area of New Roads	1.044 ha 15.5%
Villa (10.0m - 12.49m frontage)	16 37.2%
Premium Villa (12.5m - 13.99m frontage)	13 30.2%
Courtyard (14m - 15.99m frontage)	4 9.3%
Premium Courtyard (16m + frontage)	10 23.3%
Total Residential Allotments	43 100%
Average Lot Size	370 m <sup>2</sup>
Open Space	3.984 ha 59.2%

RP DESCRIPTION LOT 6 on RP193185 &  
LOT 9 on SP203507





STAGING PLAN - STAGE 5



NOT TO BE USED FOR ENGINEERING DESIGN  
OR CONSTRUCTION

NOTES

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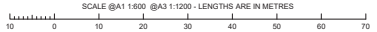
LEGEND

- Site Boundary
- Logan City Council 2016 Flood Mapping
- Minor Contour 0.25m Interval
- Major Contour 1.0m interval
- 50m Centreline Waterway Buffer
- 100m Centreline Waterway Buffer
- Approx. High Bank - Derived from Slope analysis utilising lidar data
- 50m High Bank Offset
- 1 in 5 ARI
- Riparian Zone - 7.6 ha
- Linear Park - 2260 m<sup>2</sup>
- District Park - 9,403 ha
- Staging No.
- Staging Boundary

NOTE: Dimensions have been rounded down to the nearest 0.1m.

STAGING STATISTICS - STAGE 5		
Stage Area	2.03 ha	
Length of New Roads	262m	
Area of New Roads	4781 m <sup>2</sup>	23.6%
Villa (10.0m - 12.49m frontage)	14	35.0%
Premium Villa (12.5m - 13.99m frontage)	24	60.0%
Courtyard (14m - 15.99m frontage)	2	5.0%
Total Residential Allotments	40	100%
Average Lot Size	365 m <sup>2</sup>	

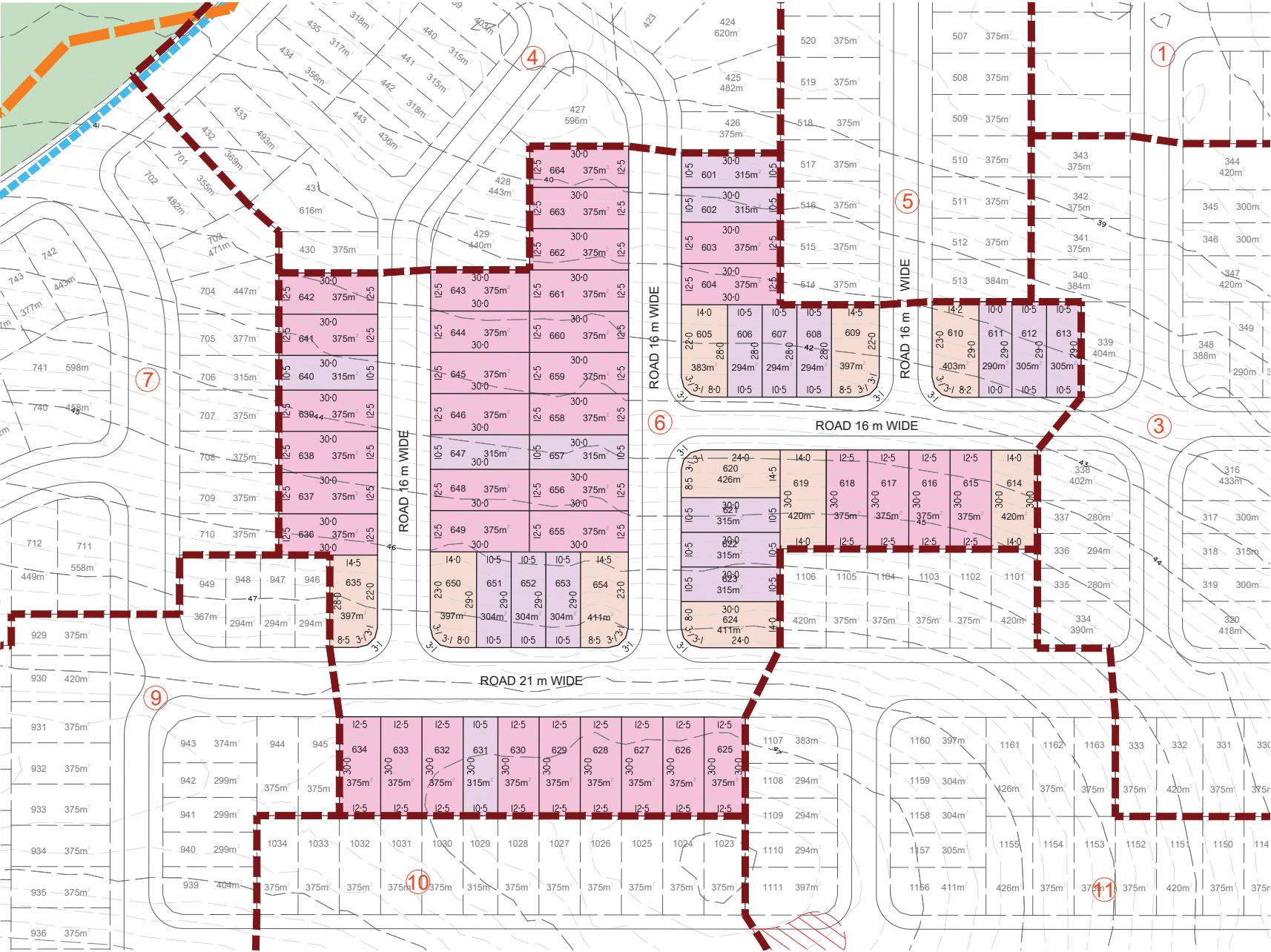
RP DESCRIPTION LOT 6 on RP193185 &  
LOT 9 on SP203507



ORCHARD (PEBBLE CREEK) DEVELOPMENTS PTY LTD

MOUNTAIN RIDGE ROAD, SOUTH MACLEAN 23/11/2020 9282 P 02 Rev P STG 05

STAGING PLAN - STAGE 6



NOT TO BE USED FOR ENGINEERING DESIGN  
OR CONSTRUCTION

NOTES

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Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

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LEGEND

- Site Boundary
- Logan City Council 2016 Flood Mapping
- Minor Contour 0.25m Interval
- Major Contour 1.0m Interval
- 50m Centreline Waterway Buffer
- 100m Centreline Waterway Buffer
- Approx. High Bank - Derived from Slope analysis utilising lidar data
- 50m High Bank Offset
- 1 in 5 ARI
- Riparian Zone - 7.6 ha
- Linear Park - 2260 m<sup>2</sup>
- District Park - 9,403 ha
- Staging No.
- Staging Boundary

NOTE: Dimensions have been rounded down to the nearest 0.1m;  
Staging is sequential;  
Refer to drawing "Staging Plan - Overall" for full extent of Stage 6.

STAGING STATISTICS - STAGE 6

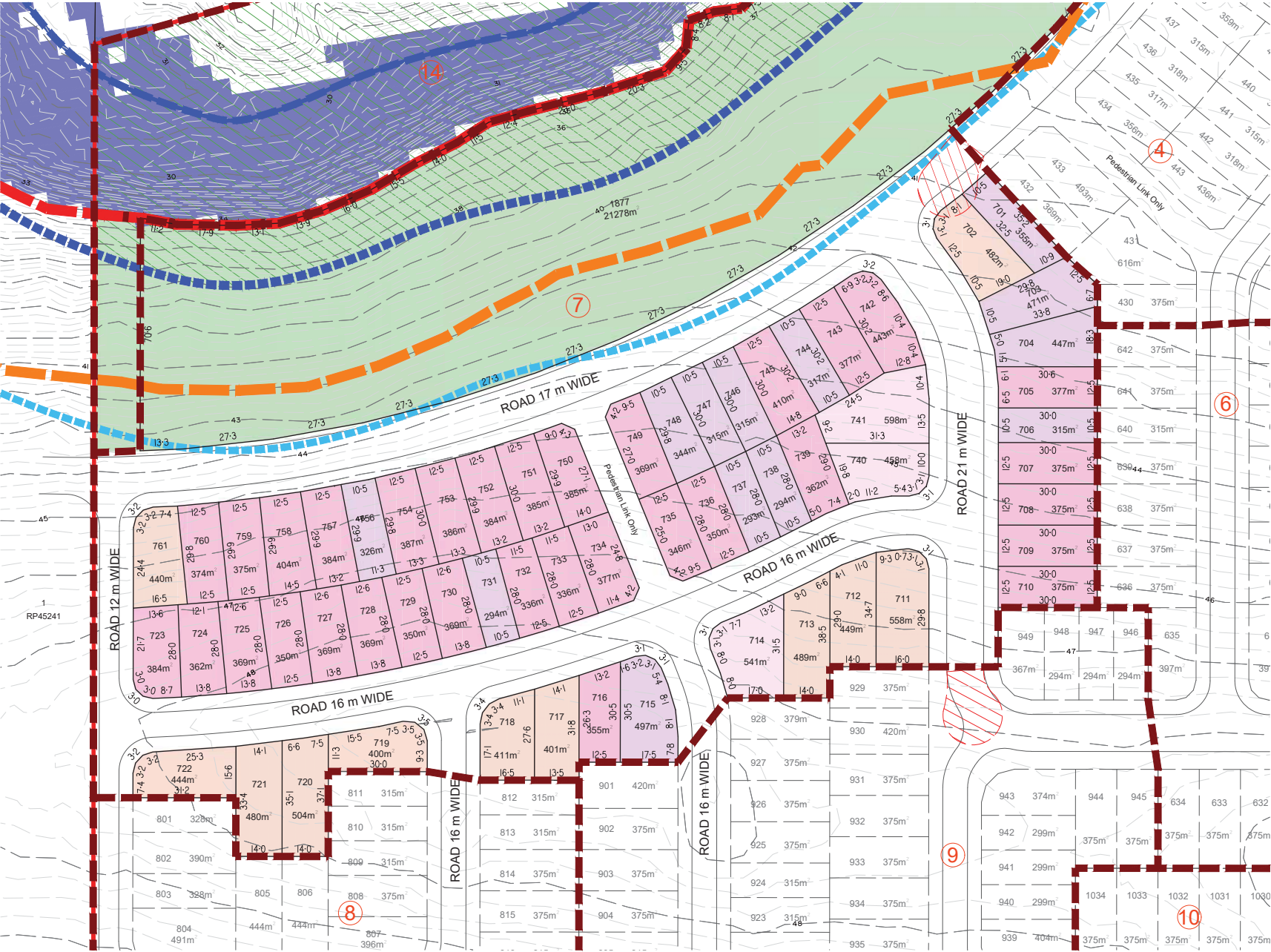
Stage Area	4.012 ha
Length of New Roads	536m
Area of New Roads	9326 m <sup>2</sup> 23.3%
Villa (10.0m - 12.49m frontage)	18 28.1%
Premium Villa (12.5m - 13.99m frontage)	36 56.3%
Courtyard (14m - 15.99m frontage)	10 15.6%
Total Residential Allotments	64 100%
Average Lot Size	355 m <sup>2</sup>
Open Space	7689 m <sup>2</sup> 19.2%

RP DESCRIPTION LOT 6 on RP193185 &  
LOT 9 on SP203507





STAGING PLAN - STAGE 7



NOT TO BE USED FOR ENGINEERING DESIGN  
OR CONSTRUCTION

NOTES

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LEGEND

- Site Boundary
- Logan City Council 2016 Flood Mapping
- Minor Contour 0.25m Interval
- Major Contour 1.0m interval
- 50m Centreline Waterway Buffer
- 100m Centreline Waterway Buffer
- Approx. High Bank - Derived from Slope analysis utilising lidar data
- 50m High Bank Offset
- 1 in 5 ARI
- Riparian Zone - 7.6 ha
- Linear Park - 2260 m<sup>2</sup>
- District Park - 9.403 ha
- Staging No.
- Staging Boundary
- Temporary Turn-Around Easement to be Provided

NOTE: Dimensions have been rounded down to the nearest 0.1m;  
Staging is sequential;  
Refer to drawing "Staging Plan - Overall" for full extent of Stage 7.

STAGING STATISTICS - STAGE 7

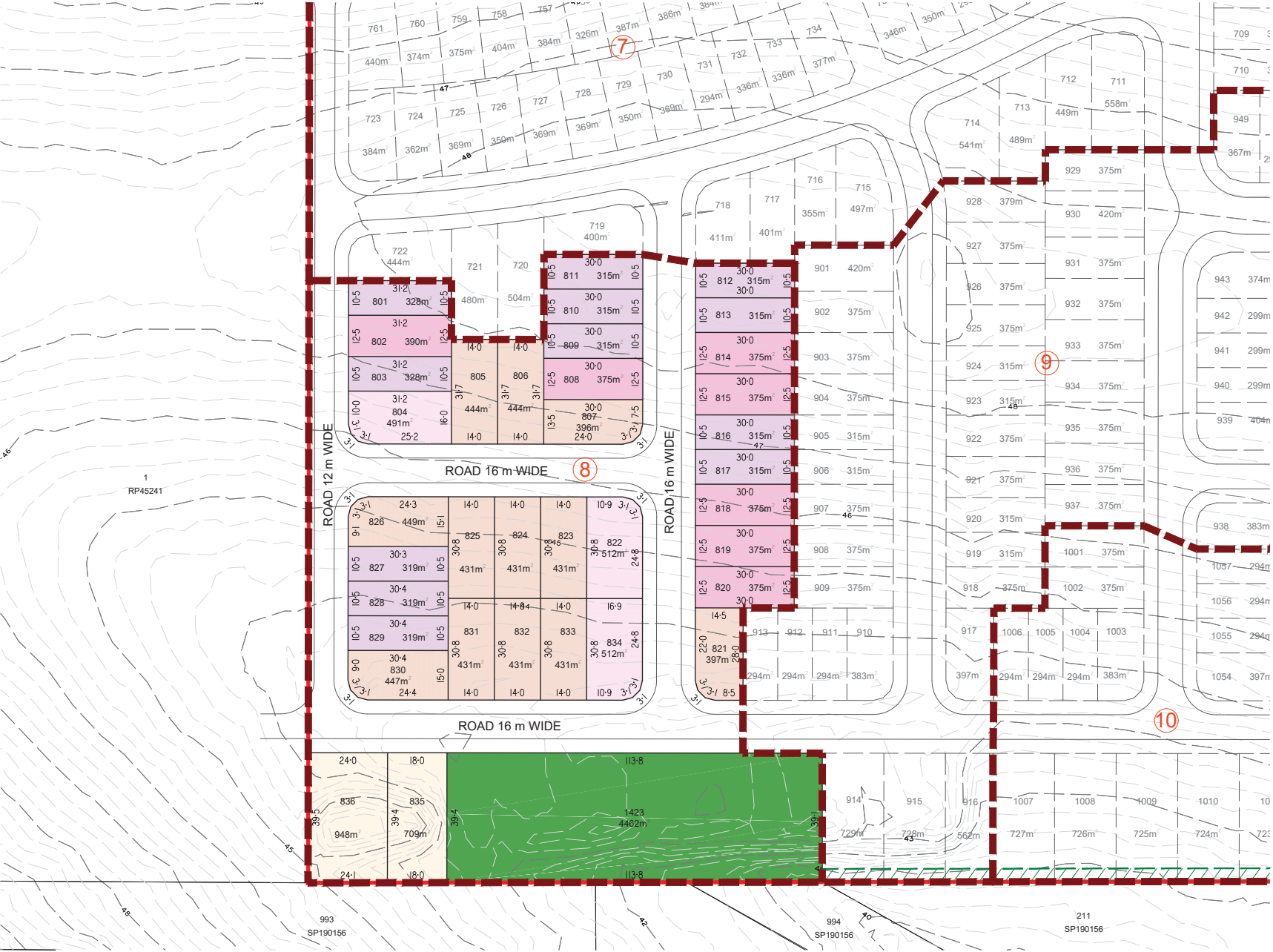
Stage Area	5.921 ha
Length of New Roads	807 m
Area of New Roads	1.437 ha 24.3%
Villa (10.0m - 12.49m frontage)	13 21.7%
Premium Villa (12.5m - 13.99m frontage)	33 54.9%
Courtyard (14m - 15.99m frontage)	11 18.4%
Premium Courtyard (16m + frontage)	3 5.0%
Total Residential Allotments	60 100%
Average Lot Size	393 m <sup>2</sup>
Open Space	2.127 ha 35.9%

RP DESCRIPTION LOT 6 on RP193185 &  
LOT 9 on SP203507

SCALE @A1 1:600 @A3 1:1200 - LENGTHS ARE IN METRES



STAGING PLAN - STAGE 8



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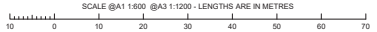
LEGEND

- Site Boundary
- Logan City Council 2016 Flood Mapping
- Minor Contour 0.25m Interval
- Major Contour 1.0m Interval
- Staging No.
- Staging Boundary
- Landscape Interface Buffer (Refer to Pebble Creek Plan of Development)

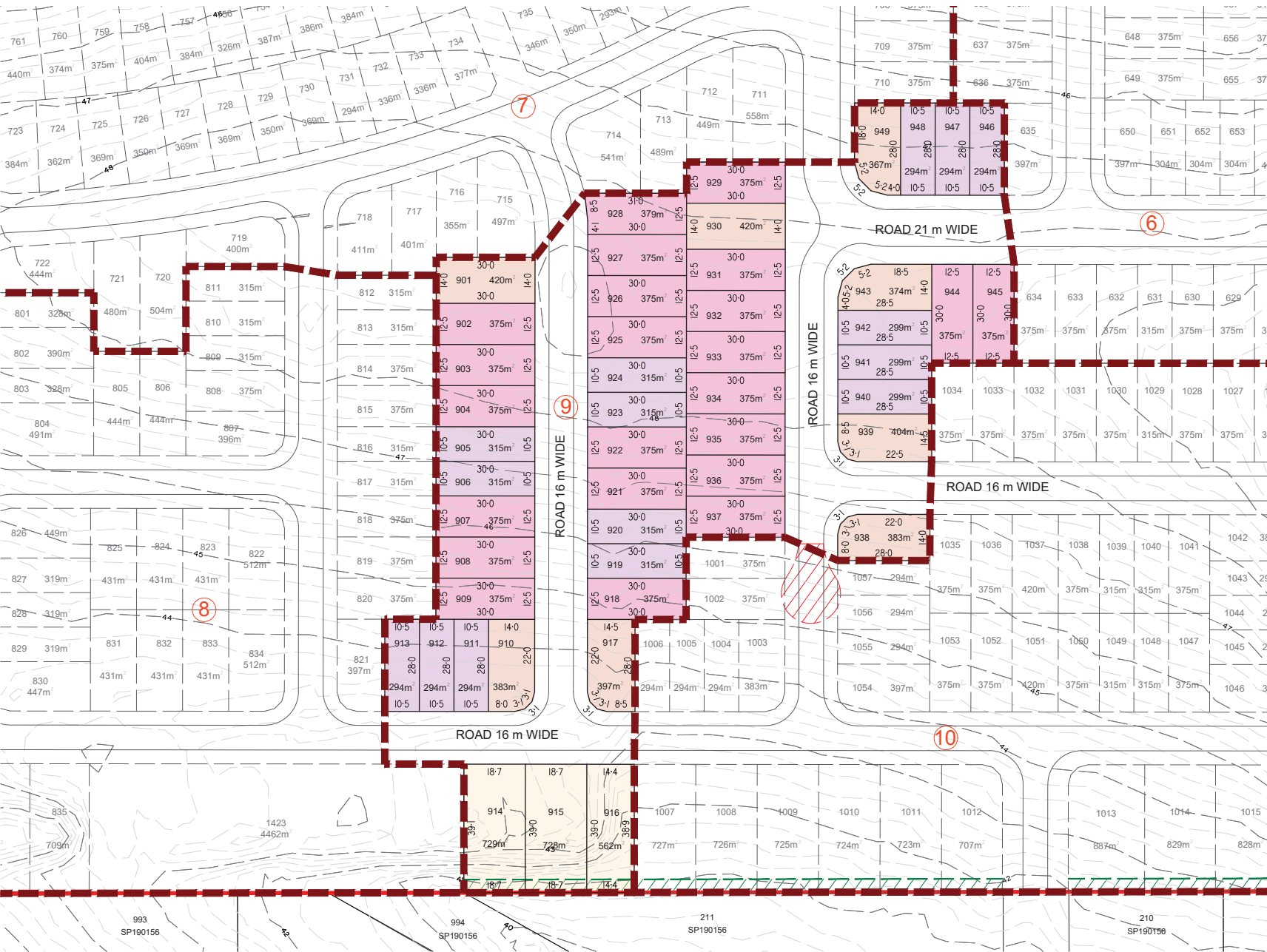
NOTE: Dimensions have been rounded down to the nearest 0.1m;

STAGING STATISTICS - STAGE 8		
Stage Area	2,652 ha	
Length of New Roads	482 m	
Area of New Roads	7266 m <sup>2</sup>	27.4%
Villa (10.0m - 12.49m frontage)	12	33.3%
Premium Villa (12.5m - 13.99m frontage)	7	19.5%
Courtyard (14m - 15.99m frontage)	12	33.3%
Premium Courtyard (16m + frontage)	3	8.3%
Interface Lots	2	5.6%
Total Residential Allotments	36	100%
Average Lot Size	411m <sup>2</sup>	
Stormwater / Detention Basin	4462 m <sup>2</sup>	16.8%

RP DESCRIPTION LOT 6 on RP193185 &  
LOT 9 on SP203507



STAGING PLAN - STAGE 9



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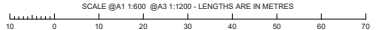
LEGEND

- Site Boundary
- Logan City Council 2016 Flood Mapping
- Minor Contour 0.25m Interval
- Major Contour 1.0m interval
- Staging No.
- Staging Boundary
- Temporary Turn-Around Easement to be Provided
- Landscape Interface Buffer (Refer to Pebble Creek Plan of Development)

NOTE: Dimensions have been rounded down to the nearest 0.1m.

STAGING STATISTICS - STAGE 9			
Stage Area	2,549 ha		
Length of New Roads	414m		
Area of New Roads	7144 m <sup>2</sup>	28.0%	
Villa (10.0m - 12.49m frontage)	15	30.6%	
Premium Villa (12.5m - 13.99m frontage)	23	47.0%	
Courtyard (14m - 15.99m frontage)	8	16.3%	
Interface Lots	3	6.1%	
Total Residential Allotments	49	100%	
Average Lot Size	378 m <sup>2</sup>		

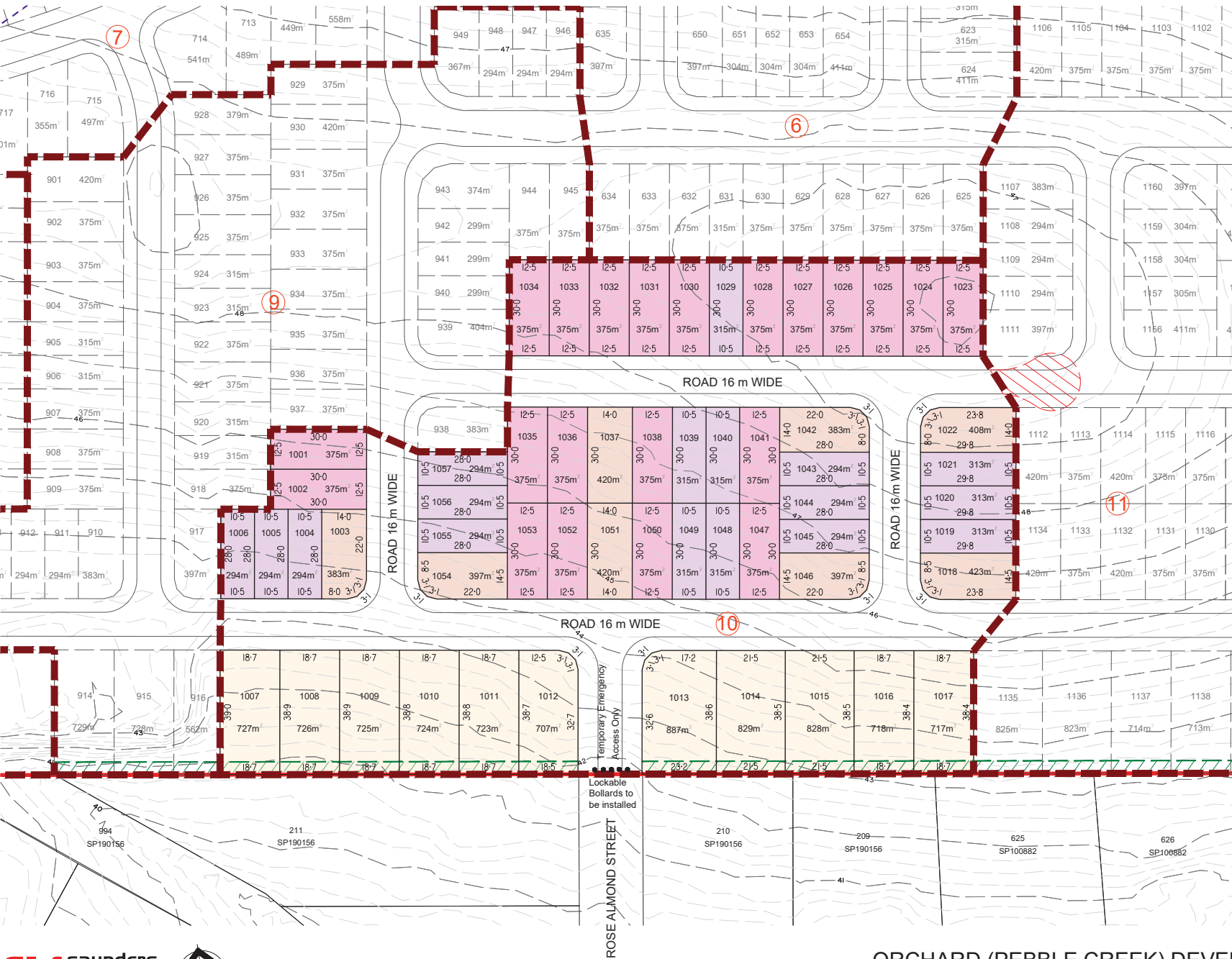
RP DESCRIPTION LOT 6 on RP193185 & LOT 9 on SP203507



ORCHARD (PEBBLE CREEK) DEVELOPMENTS PTY LTD

MOUNTAIN RIDGE ROAD, SOUTH MACLEAN 23/11/2020 9282 P 02 Rev P STG 09

STAGING PLAN - STAGE 10



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LEGEND

- Site Boundary
- Logan City Council 2016 Flood Mapping
- Minor Contour 0.25m Interval
- Major Contour 1.0m interval
- Staging No.
- Staging Boundary
- Temporary Turn-Around Easement to be Provided
- Landscape Interface Buffer (Refer to Pebble Creek Plan of Development)

NOTE: Dimensions have been rounded down to the nearest 0.1m.

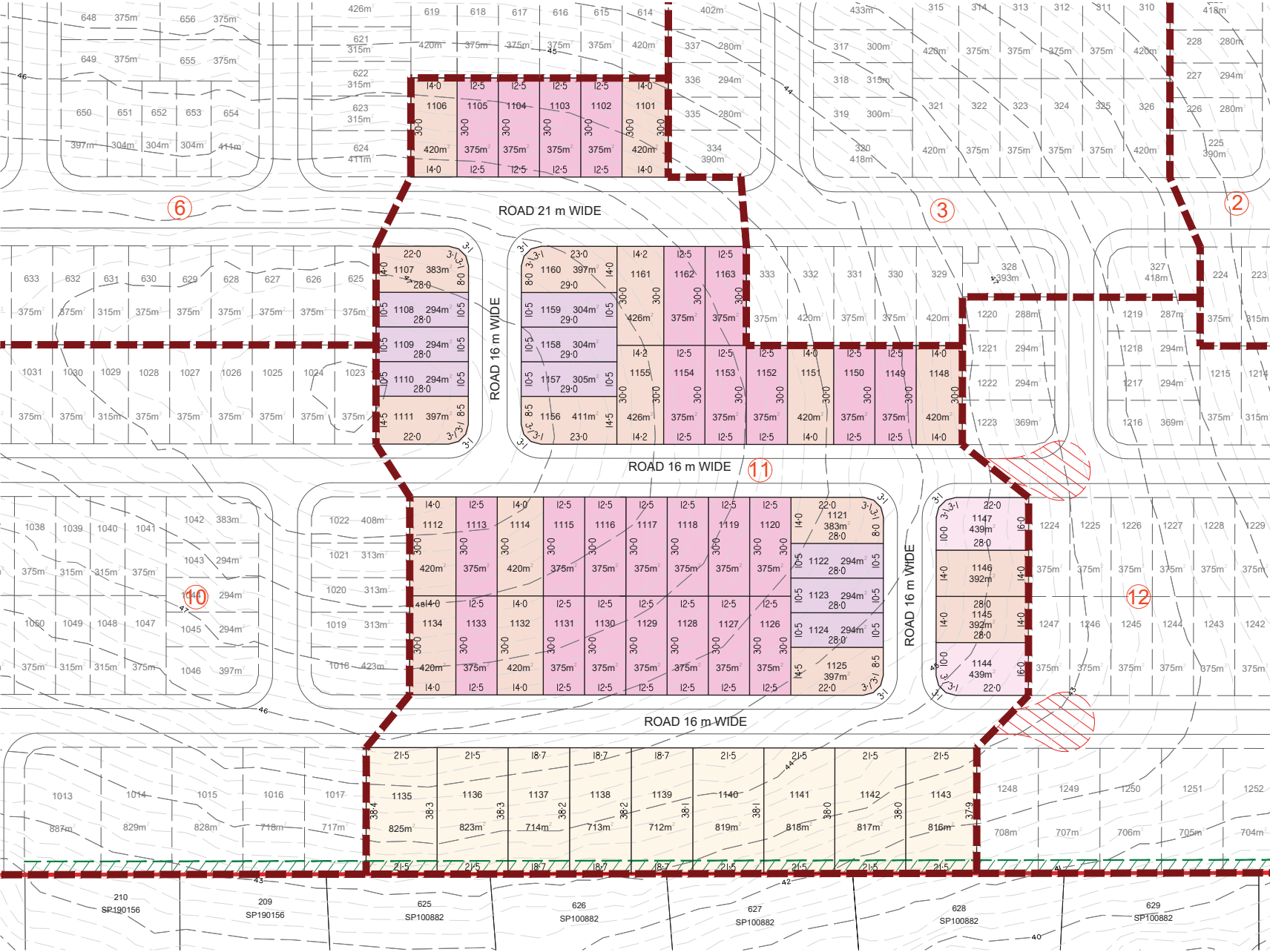
STAGING STATISTICS - STAGE 10		
Stage Area	3.346 ha	
Length of New Roads	540 m	
Area of New Roads	8891 m <sup>2</sup>	26.7%
Villa (10.0m - 12.49m frontage)	17	29.8%
Premium Villa (12.5m - 13.99m frontage)	21	36.9%
Courtyard (14m - 15.99m frontage)	8	14.0%
Interface Lots	11	19.3%
Total Residential Allotments	57	100%
Average Lot Size	429 m <sup>2</sup>	

RP DESCRIPTION LOT 6 on RP193185 & LOT 9 on SP203507

SCALE @A1 1:600 @A3 1:1200 - LENGTHS ARE IN METRES



STAGING PLAN - STAGE 11



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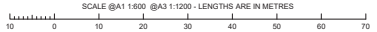
LEGEND

- Site Boundary
- Logan City Council 2016 Flood Mapping
- Minor Contour 0.25m Interval
- Major Contour 1.0m interval
- Staging No.
- Staging Boundary
- Temporary Turn-Around Easement to be Provided
- Landscape Interface Buffer (Refer to Pebble Creek Plan of Development)

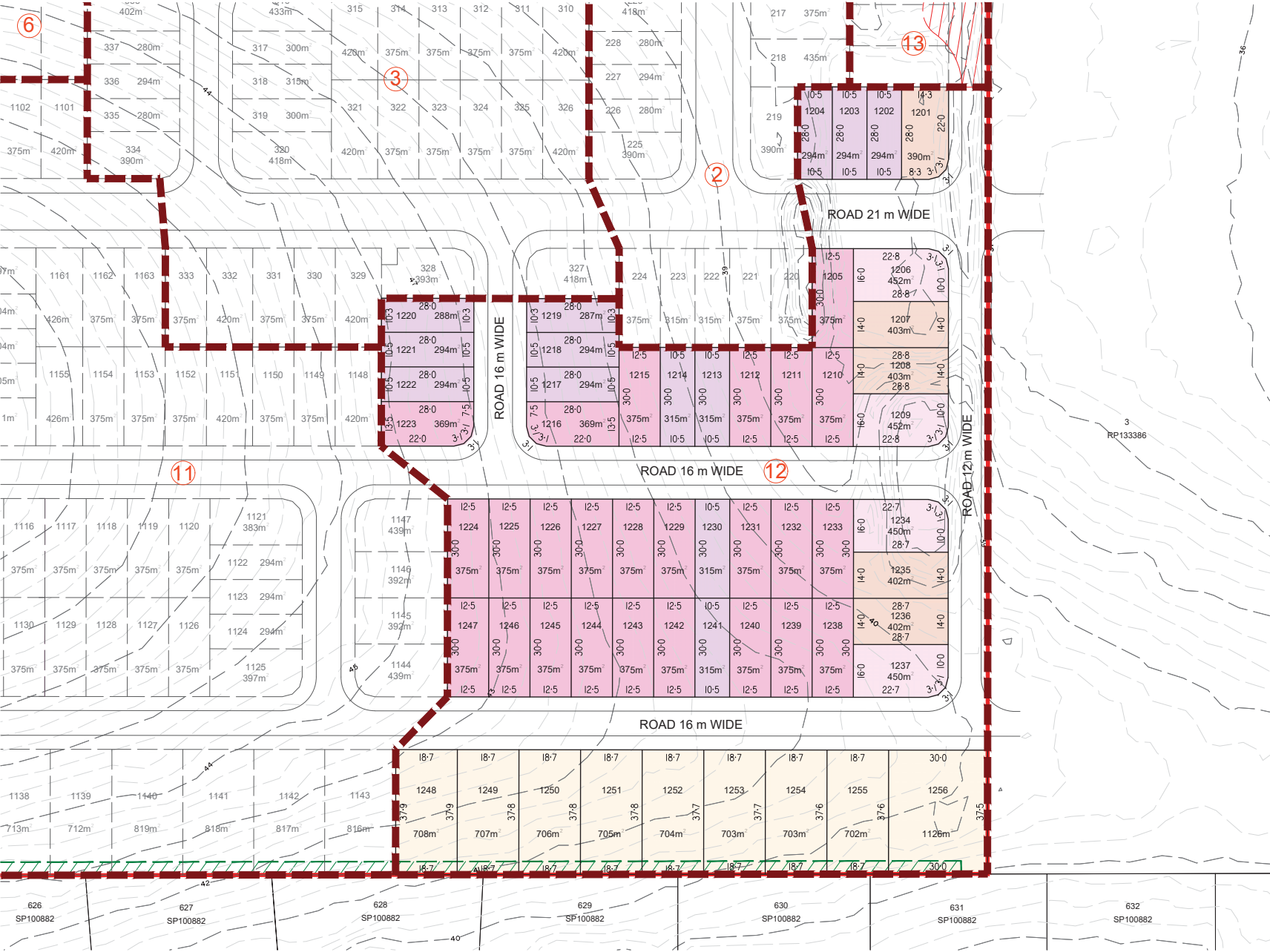
NOTE: Dimensions have been rounded down to the nearest 0.1m;

STAGING STATISTICS - STAGE 11		
Stage Area		3.75 ha
Length of New Roads		596 m
Area of New Roads	1.015 ha	27.0%
Villa (10.0m - 12.49m frontage)	9	14.3%
Premium Villa (12.5m - 13.99m frontage)	25	39.6%
Courtyard (14m - 15.99m frontage)	18	28.6%
Premium Courtyard (16m + frontage)	2	3.2%
Interface Lots	9	14.3%
Total Residential Allotments	63	100%
Average Lot Size		596 m <sup>2</sup>

RP DESCRIPTION LOT 6 on RP193185 &  
LOT 9 on SP203507



STAGING PLAN - STAGE 12



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LEGEND

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- Logan City Council 2016 Flood Mapping
- Minor Contour 0.25m Interval
- Major Contour 1.0m interval
- Staging No.
- Staging Boundary
- Temporary Turn-Around Easement to be Provided
- Landscape Interface Buffer (Refer to Pebble Creek Plan of Development)

NOTE: Dimensions have been rounded down to the nearest 0.1m;

STAGING STATISTICS - STAGE 12

Stage Area	3.307 ha
Length of New Roads	603 m
Area of New Roads	9246 m <sup>2</sup> 28.0%
Villa (10.0m - 12.49m frontage)	13 23.2%
Premium Villa (12.5m - 13.99m frontage)	25 44.7%
Courtyard (14m - 15.99m frontage)	5 8.9%
Premium Courtyard (16m + frontage)	4 7.1%
Interface Lots	9 16.1%
Total Residential Allotments	56 100%
Average Lot Size	424 m <sup>2</sup>

RP DESCRIPTION LOT 6 on RP193185 &  
LOT 9 on SP203507

SCALE @A1 1:600 @A3 1:1200 - LENGTHS ARE IN METRES  
0 10 20 30 40 50 60 70

STAGING PLAN - STAGE 13

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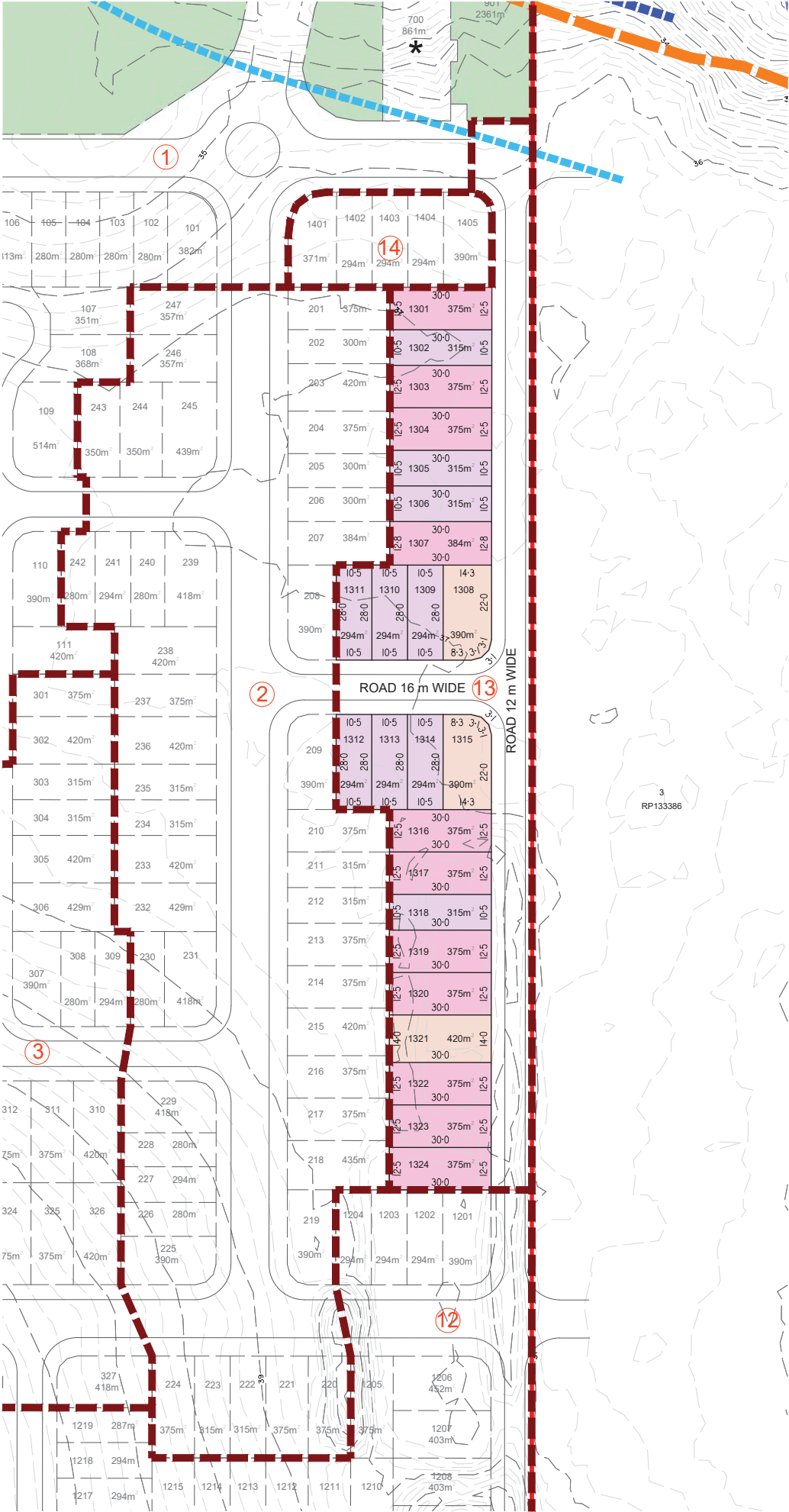
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LEGEND

- Site Boundary
- Logan City Council 2016 Flood Mapping
- Minor Contour 0.25m Interval
- Major Contour 1.0m interval
- 50m Centreline Waterway Buffer
- 100m Centreline Waterway Buffer
- Approx. High Bank - Derived from Slope analysis utilising lidar data
- 50m High Bank Offset
- 1 in 5 ARI
- Pump Station
- Riparian Zone - 7.6 ha
- Linear Park - 2260 m<sup>2</sup>
- District Park - 9.403 ha
- Staging No.
- Staging Boundary

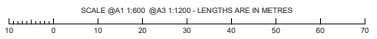
NOTE: Dimensions have been rounded down to the nearest 0.1m;



STAGING STATISTICS - STAGE 13

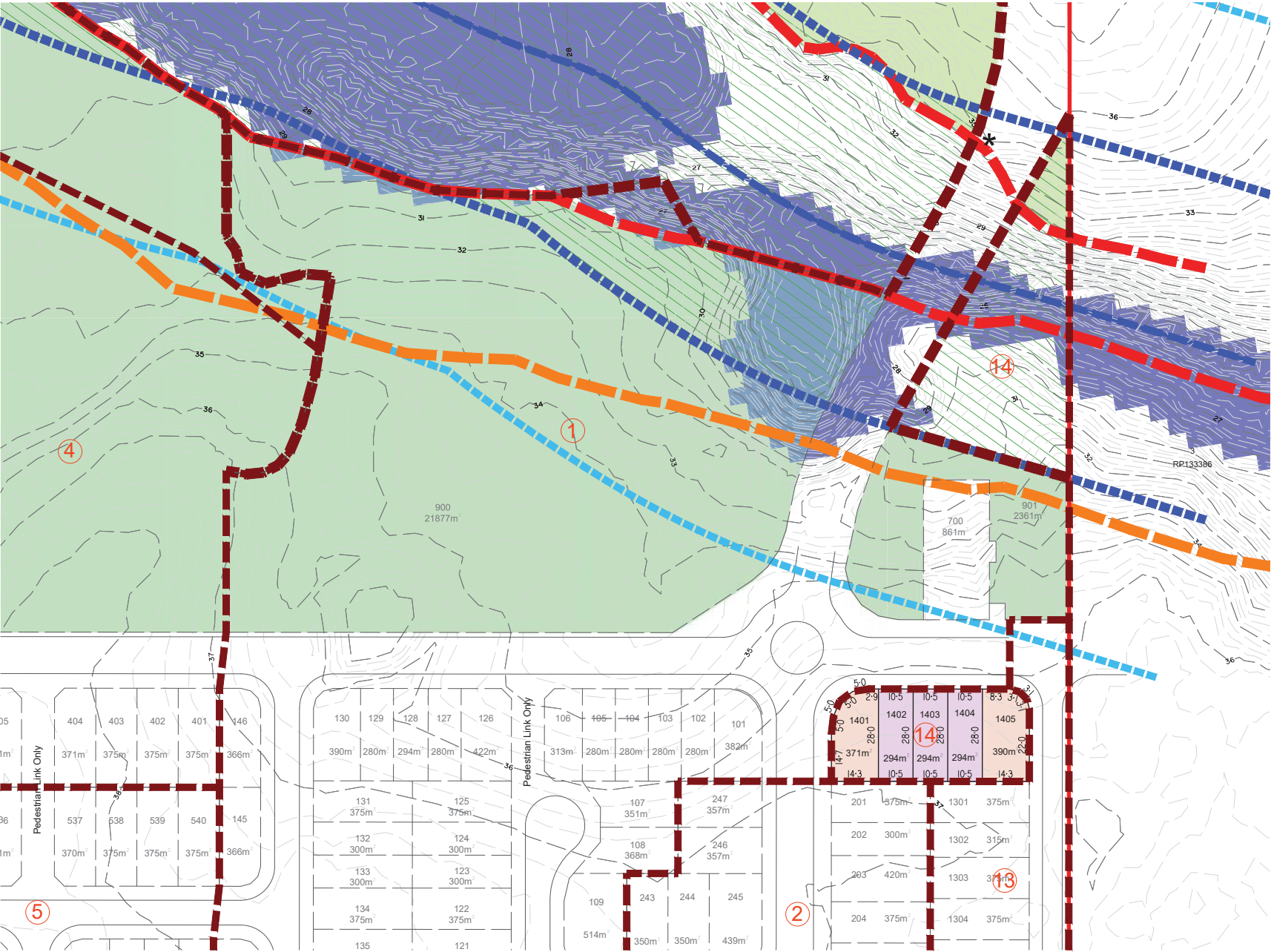
Stage Area	1,302 ha
Length of New Roads	358 m
Area of New Roads	4663 m <sup>2</sup> 35.8%
Villa (10.0m - 12.49m frontage)	10 41.7%
Premium Villa (12.5m - 13.99m frontage)	11 45.8%
Courtyard (14m - 15.99m frontage)	3 12.5%
Total Residential Allotments	24 100%
Average Lot Size	348 m <sup>2</sup>

RP DESCRIPTION LOT 6 on RP193185 &  
LOT 9 on SP203507





STAGING PLAN - STAGE 14



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LEGEND

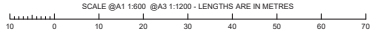
- Site Boundary
- Logan City Council 2016 Flood Mapping
- Minor Contour 0.25m Interval
- Major Contour 1.0m interval
- 50m Centreline Waterway Buffer
- 100m Centreline Waterway Buffer
- Approx. High Bank - Derived from Slope analysis utilising lidar data
- 50m High Bank Offset
- 1 in 5 ARI
- Pump Station
- Riparian Zone - 7.6 ha
- Linear Park - 2260 m<sup>2</sup>
- District Park - 9,403 ha
- Staging No.
- Staging Boundary

NOTE:

Dimensions have been rounded down to the nearest 0.1m;  
Staging is sequential;  
Refer to drawing "Staging Plan - Overall" for full extent of Stage 14.

STAGING STATISTICS - STAGE 14		
Stage Area	6.464 ha	
Villa (10.0m - 12.49m frontage)	3	60.0%
Courtyard (14m - 15.99m frontage)	2	40.0%
Total Residential Allotments	5	100%
Average Lot Size	331m <sup>2</sup>	
Open Space	6.305 ha	97.4%

RP DESCRIPTION	LOT 6 on RP193185 & LOT 9 on SP203507
----------------	---------------------------------------



## **Appendix 3**

### **Less combustible native plants list**

**Source: Bowden, J (1999)**

APPENDIX 10

Fire Retardant Native Plants

Form: S = Shrub; T = Tree; V = Vine; H = Herb; Ge = Ground cover; eO = epiphytic Orchid; eF = epiphytic Fern; tF = terrestrial Fern.

Fire-retardance: Lm = due to leaf water contents; St = due to salt content; SI = succulent leaves

Comments: Wb = suitable for windbreak/fire barrier; Ad = suitable as addition to windbreak/fire barrier but not as main species; Us = suitable for understory of windbreak/fire barrier; Oa = suitable for open areas near house; Sa = suitable for sheltered areas near house; Pf = suitable if protected from direct flames; De = Deciduous in winter, in flower or in dry periods

(-) = may not occur naturally in Pine Rivers Valley but has not proved invasive.

Fire-Retardant Plants for Small Gardens

Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>GYMNOSPERMS</b>				
<b>Zamiaceae</b>				
<i>Lepidozamia peroffskyana</i>	Shining Burrawang	S	Lm	Us Sa
<i>Macrozamia lucida</i>	Pineapple Zamia	S	Lm	Us Sa
<i>Macrozamia miquelii</i>	Wild Pineapple	S	Lm	Us Oa Sa
<b>Agavaceae</b>				
<i>Cordyline petiolaris</i>	Broad-leaf Palm Lily	S	Lm	Us Sa
<i>Cordyline rubra</i>	Red-fruit Palm Lily	S	Lm	Us Sa
<i>Cordyline stricta</i>	Slender Palm Lily	S	Lm	Us Sa
<b>MONOCOTYLEDONS</b>				
<b>Amaryllidaceae</b>				
<i>Critium pedunculatum</i>	River Lily	H	Lm SI	Us Oa Sa
<i>Doryanthes palmeri</i> (-)	Spear Lily	H	Lm SI	Us Oa Sa
<i>Proiphys cunninghamii</i>	Brisbane Lily	H	Lm SI	Us Sa
<b>Araceae</b>				
<i>Alocasia brisbanensis</i>	Cunjevoi	H	Lm	Us Sa
<i>Gymnostachys anceps</i>	Settlers Flax	H	Lm	Us Sa
<i>Pothos longipes</i>	Pothos	V	Lm	Us Sa
<i>Typhonium brownii</i>	Stinking Lily	H	Lm	Us Sa
<b>Arecaceae</b>				
<i>Livistona monostachya</i>	Walking Stick Palm	P	Lm	Us Sa

Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>Commelinaceae</b>				
<i>Anellema acuminatum</i>	Anellema	H Ge	Lm	Us Sa
<i>Anellema biflorum</i> (-)	Anellema	H Ge	Lm	Us Sa
<i>Commelina cyanea</i>	Scurvy Plant	H Ge	Lm	Us Op Sa
<i>Pollia crispata</i>	Snake Weed	H Ge	Lm	Us Sa
<i>Pollia macrophylla</i>	Large Snake Weed	H Ge	Lm	Us Sa
<b>Dioscoreaceae</b>				
<i>Dioscorea transversa</i>	Native Yam	V	Lm	Us Sa
<b>Liliaceae</b>				
<i>Bulbine bulbosa</i> (-)	Bulbine Lily	H	Lm SI	Oa
<i>Dianella brevipedunculata</i>	Blue Flax Lily	H	Lm	Us Oa Sa
<i>Dianella caerulea</i>	Blue Flax Lily	H	Lm	Us Oa Sa
<i>Dianella revoluta</i>	Flax Lily	H	Lm	Us Oa Sa
<i>Drynophila moorei</i> (-)	Orange Berry	H	Lm	Us Sa
<i>Tripladenia cunninghamii</i>	Bush Lily	H	Lm	Us Sa
<b>Orchidaceae</b>				
<i>Dendrobium gracilicaule</i>	Spotted Orchid	eO	Lm	Sa
<i>Dendrobium X gracillimum</i>	Natural Hybrid	eO	Lm	Sa
<i>Dendrobium monophyllum</i>	Lily of the Valley			
	Orchid	eO	Lm	Sa
<i>Dendrobium schoenanthum</i> (D. beckeri)	Pencil Orchid	eO	Lm	Sa
<i>Dendrobium spectosum</i>	King Orchid	eO	Lm	Sa
<i>Dendrobium teretifolium</i>	Bridal Veil Orchid	eO	Lm	Sa
<i>Dendrobium tetragonum</i>	Spider Orchid	eO	Lm	Sa
<b>Philesiaceae</b>				
<i>Eustrephus latifolius</i>	Wombat Berry	V	Lm	Us Oa Sa
<i>Geitonoplectrum cymosum</i>	Scrambling Lily	V	Lm	Us Sa
<b>Phylodactylaceae</b>				
<i>Phylodactylum lanuginosum</i>	Frogsmouth	aH	Lm SI	Oa Wet areas
<b>Smilacaceae</b>				
<i>Smilax glycyphylla</i>	Sweet Sarsparilla	V	Lm	Us Sa
<b>Xanthorrhoeaceae</b>				
<i>Lomandra confertifolia</i>	Mat Rush	H	Lm	Oa
<i>Lomandra hystrix</i>	Creek Mat Rush	H	Lm	Us Sa
<i>Lomandra longifolia</i>	Long-leaf Mat Rush	H	Lm	Us Oa Sa
<i>Lomandra filiformis</i>	Fine-leaf Mat Rush	H	Lm	Oa
<i>Lomandra multiflora</i>	Many-flower Mat Rush	H	Lm	Oa
<i>Lomandra spicata</i>	Mountain Mat Rush	H	Lm	Us Oa Sa
<b>Zingiberaceae</b>				
<i>Alpinia arundeliana</i>	Wild Ginger	H	Lm	Us Sa
<i>Alpinia coerulea</i>	Native Ginger	H	Lm	Us Sa



Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>DICOTYLEDONS</b>				
<b>Aizoaceae</b>				
<i>Carpobrotus glaucescens</i>	Pig Face	H Ge	Lm Sl	Oa
<b>Acanthaceae</b>				
<i>Graptophyllum excelsum</i> (-)	Scarlet Fuchsia	S	Im	Us Sa
<i>Graptophyllum spinigerum</i>	Sanford Holly	S	Im	Us Sa
<i>Pseuderanthemum tenellum</i>	Pseuderanthemum	H	Im	Us Sa
<i>Pseuderanthemum variable</i>	Love Flower	H	Im	Us Sa
<b>Apiaceae</b>				
<i>Centella australis</i>	Pennywort	H Ge	Im	Oa
<i>Hydrocotyle acutiloba</i>	Pennywort	H Ge	Im	Us Sa
<i>Hydrocotyle pedicellata</i>	Pennywort	H Ge	Im	Us Sa
<b>Apocynaceae</b>				
<i>Alyxia ruscifolia</i>	Chain Fruit	S	Im	Us Sa
<i>Carissa ovata</i>	Current Bush	S	Im	Us Oa Sa
<i>Neisosperma poweri</i> (-)	Milkbush	S	Im	Us Sa
<i>Ochrosia moorei</i> (-)	Southern Ochrosia	S	Im	Us Sa
<i>Parsonsia lenticellata</i>	Narrow-leaf Silkpod	V	Im	Us Sa
<i>Parsonsia lilacina</i>	Delicate Silkpod	V	Im	Us Sa
<i>Tabernaemontana pandacacqui</i>	Banana Bush	S	Im	Us Sa
<b>Aristolochiaceae</b>				
<i>Aristolochia</i> sp. aff. <i>pubera</i>	Pipe Vine	V	Im	Us Sa
<i>Aristolochia praevanosa</i>	Richmond Birdwing Vine	V	Im	Us Sa
<b>Asclepiadaceae</b>				
<i>Hoya australis</i>	Wax Flower	V	Im	Us Sa
<i>Marsdenia longiloba</i>	Slender Milk Vine	V	Im	Us Sa
<i>Secamone elliptica</i>	Corky Milk Vine	V	Im	Us Sa
<i>Tylophora paniculata</i>	Thin-leaf Tylophora	V	Im	Us Sa
<b>Bigoniaceae</b>				
<i>Pandorea floribunda</i>	New sp. Pine R	V	Im	Us Oa Sa
<i>Pandorea jasminoides</i>	Bower of Beauty	V	Im	Us Oa Sa
<b>Cacsalpiniaceae</b>				
<i>Cassia artemisioides</i> (-)	Silver Cassia	S	Im	Oa
<b>Campanulaceae</b>				
<i>Lobelia trigonocalis</i>	Forest Lobelia	H Ge	Im	Us Oa
<i>Wahlenbergia gracilis</i>	Bluebells	H	Im	Oa
<b>Capparidaceae</b>				
<i>Capparis arborea</i>	Native Caper	S/T	Im	Us Sa
<i>Capparis sarmentosa</i>	Scrambling Caper	V	Im	Us Sa
<b>Celastraceae</b>				
<i>Cassine australis</i>	Red Olive Berry	S/T	Im	Us Sa
<i>Denhamia celastroides</i>	Orange Boxwood	S/T	Im	Us Sa
<i>Denhamia pitesporoides</i>	Orange Boxwood	S/T	Im	Us Sa
<i>Maytenus bilocularis</i>	Orangebark	S/T	Im	Us Sa
<b>Chenopodiaceae</b>				
<i>Einadia hastata</i>	Berry Salt Bush	S Ge	St	Oa
<i>Enchylaena tomentosa</i>	Ruby Salt Bush	S Ge	St Sl	Oa
<i>Halosarcia indica</i>	Samphire	S Ge	St Sl	Oa Salty soil
<i>Sarcocornia quinqueflora</i>	Samphire	S Ge	St Sl	Oa Salty soil
<i>Suaeda australis</i>	Seablite	S Ge	St Sl	Oa Salty soil
<i>Suaeda arbusculoides</i>	Jellybean Plant	S Ge	St Sl	Oa Salty soil
<b>Convolvulaceae</b>				
<i>Convolvulus erubescens</i>	Australian Bindweed	V	Im	Oa
<i>Dichondra repens</i>	Kidney Weed	H Ge	Im	Us Sa
<i>Polymeria calycina</i>	Swamp Bindweed	V	Im	Oa
<b>Cunoniaceae</b>				
<i>Aphanopetalum resinotum</i>	Gum Vine	V Ge	Im	Us Sa
<i>Vesselowskya rubifolia</i> (-)	Southern Marara	S/T	Im	Us Sa
<b>Davidsoniaceae</b>				
<i>Davidsonia pruriens</i> (-)	Davidson's Plum	T	Im	Us Sa
<b>Dilleniaceae</b>				
<i>Hibbertia aspera</i>	Rough Guinea Flower	S	Im	Oa
<i>Hibbertia dentata</i>	Toothed Guinea Flower	V	Im	Us Oa Sa
<i>Hibbertia linearis</i>	Showy Guinea Flower	S	Im	Oa
<i>Hibbertia obtusifolia</i>	Hoary Guinea Flower	S	Im	Oa
<i>Hibbertia stricta</i>	Erect Guinea Flower	S	Im	Oa
<i>Hibbertia scandens</i>	Twining Guinea Flower	V	Im	Us Oa Sa
<b>Elaeocarpaceae</b>				
<i>Elaeocarpus reticulatus</i>	Blueberry Ash	S/T	Im	Us Oa Sa
<b>Epacridaceae</b>				
<i>Trochocarpa laurina</i>	Tree Heath	S/T	Im	Us Sa
<b>Escalloniaceae</b>				
<i>Abrophyllum ornans</i>	Native Hydrangea	S	Im	Us Sa
<i>Polysma cunninghamii</i>	Featherwood	S/T	Im	Us Sa
<b>Euphorbiaceae</b>				
<i>Acalypha capillipes</i>	Small-leaf Acalypha	S	Im	Us Sa
<i>Acalypha eremorum</i>	Native Acalypha	S	Im	Us Sa
<i>Acalypha nemorum</i>	Southern Acalypha	S	Im	Us Sa
<i>Actephila lindleyi</i>	Actephila	S/T	Im	Us Sa
<i>Alchornea ilicifolia</i>	Native Holly	S	Im	Us Sa
<i>Breynia oblongifolia</i>	Native Coffee Bush	S	Im	Us Oa Sa
<i>Cleistanthes cunninghamii</i>	Cleistanthes	S/T	Im	Us Sa



Scientific Name	Common Name	Form	Fire Retardance	Comments
<i>Croton phlebalioides</i>	Narrow-leaf Croton	S	Lm	Us Sa
<i>Croton verrouxii</i>	Native Cascarilla	S/T	Lm	Us Sa
<i>Macaranga tanarius</i>	Macaranga	S/T	Lm	Us
<i>Mallotus elaeagnoides</i>	Scrub Odour Bush	S/T	Lm	Us Sa
<i>Omalanthus nutans</i> ( <i>O. populifolius</i> )	Old Bleeding Heart	S/T	Lm	Us Sa
<b>Eupomatiaceae</b>				
<i>Eupomatia bennettii</i>	Small Bolwarra	S	Lm	Us Sa
<i>Eupomatia laurina</i>	Bolwarra	S	Lm	Us Sa
<b>Escaloniaceae</b>				
<i>Cutisia viburnea</i> (-)	Native Elderberry	T	Lm	Us Sa
<b>Fabaceae</b>				
<i>Abros precatorius</i>	Crabs Eye Vine	V	Lm	Us Oa Sa
<i>Aotus lanigera</i>	Pointed Aotis	S	Lm	Oa Sa
<i>Glycine clandestina</i>	Twining Glycine	V	Lm	Oa
<i>Glycine tonentella</i>	Woolly Glycine	V	Lm	Oa
<i>Hardenbergia violacea</i>	False Sansparilla	V	Lm	Oa
<i>Hovea linearis</i>	Common Hovea	S	Lm	Oa
<i>Hovea longipes</i> (-)	Brush Hovea	S	Lm	Sa
<i>Indigophora australis</i>	Australian Indigo	S	Lm	Oa
<i>Kennedia rubicunda</i>	Dusky Coral Pea	V	Lm	Oa
<i>Oxylobium ilicifolium</i> (-)	Holly Pea	S	Lm	Oa
<i>Oxylobium scandens</i> (-)	Netted Shaggy Pea	S	Lm	Oa
<i>Pultenaea rensea</i>	Blunt-leaf Bush Pea	S	Lm	Oa
<i>Pultenaea spinulosa</i> (-)	Prickly Pea	S	Lm	Oa
<i>Pultenaea villosa</i> (-)	Hairy Bush Pea	S	Lm	Oa
<i>Swainsona galegifolia</i>	Darling Pea	S	Lm	Oa
<b>Goodeniaceae</b>				
<i>Goodenia rotundifolia</i>	Star Goodenia	H Ge	Lm	Oa
<i>Scaevola aemula</i> (-)	Fairy Fan Flower	H Ge	Lm	Oa
<i>Scaevola albida</i> (-)	Fan Flower	H	Lm	Oa
<i>Scaevola calendulacea</i> (-)	Scented Fan Flower	H Ge	Lm	Oa
<i>Scaevola ramulostima</i> (-)	A Fan Flower	H Ge	Lm	Oa
<b>Lamiaceae</b>				
<i>Angia australis</i>	Southern Bugle	H	Lm	Oa
<i>Plectranthus argentatus</i> (-)	Silver Native Coleus	H	Lm	Us Sa
<i>Plectranthus graveolens</i>	Native Coleus	H	Lm	Us Sa
<i>Plectranthus parviflorus</i>	Cockspar Flower	H	Lm	Us Sa
<i>Prostanthera ovalifolia</i>	Oval-leaf Mint Bush	S	Lm	Os Sa
<b>Lauraceae</b>				
<i>Cryptocarya laevigata</i>	Glossy Laurel	S/T	Lm	Us Sa
<i>Cryptocarya meisneriana</i>	Thick-leaf Laurel	S/T	Lm	Us Sa
<b>Leeaceae</b>				
<i>Lecia indica</i> (-)	Bandicoot Berry	S	Lm	Us Sa

Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>Lythraceae</b>				
<i>Lagerstroemia archeriana</i> (-)	Native Crepe Myrtle	S/T	Lm	Us Oa Sa De
<b>Malvaceae</b>				
<i>Pavonia hastata</i> (-)	Pavonia	S	Lm	Oa Sa
<i>Hibiscus heterophyllus</i>	Native Rosella	S/T	Lm	Us Sa
<i>Hibiscus geranioides</i> (-)		S	Lm	Oa
<b>Melastomaceae</b>				
<i>Melastoma affine</i>	Pink Lasiandra	S	Lm	Us Sa Oa
<b>Meliaceae</b>				
<i>Turraca pubescens (brownii)</i>	Native Witch-Hazel	S/T	Lm	Us Sa
<b>Menispermaceae</b>				
<i>Pleogynae australis</i>	Pleogynae	V	Lm	Us Sa
<b>Mimosaceae</b>				
<i>Acacia complanata</i>	Flat-stem Wattle	S		Oa Pf
<i>Acacia hubbardiana</i>	Yellow Prickly Moses	S		Oa Pf
<i>Acacia irrorata</i>	Blue Skin	S		Oa Pf
<i>Acacia myrtifolia</i>	Myrtle Wattle	S		Oa Pf
<i>Acacia suaveolens</i>	Sweet Wattle	S		Oa Pf
<i>Acacia ulicifolia</i>	Prickly Moses	S		Oa Pf
<i>Archidendron lovelliae</i> (-)	Baconwood	S/T	Lm	Us Sa
<b>Monimiaceae</b>				
<i>Wilkiea huegeliana</i>	Tetra Beech	S/T	Lm	Us Sa
<i>Wilkiea macrophylla</i>	Large-leaf Wilkiea	S/T	Lm	Us Sa
<b>Myoporaceae</b>				
<i>Eremophila debilis</i>	Winter Apple	S Ge	Lm	Os
<i>Myoporum boninense</i> ( <i>M. ellipticum</i> )	Boobialla	S Ge	Lm	Os
<i>Myoporum montanum</i>	Mountain Boobialla	S	Lm	Os
<b>Myrsinaceae</b>				
<i>Aegiceras corniculatum</i>	Milky Mangrove	S/T	Lm St	Oa Coastal
<i>Rapanea howittiana</i>	Scrub Muttonwood	S/T	Lm	Us Sa
<i>Rapanea subsessilis</i>	Red Muttonwood	S/T	Lm	Us Sa
<b>Myrtaceae</b>				
<i>Archirhodomyrtus beckleri</i> (-)	Rose Myrtle	S	Lm	Us Sa
<i>Austrorhynchus fragrantissima</i> (-)	Sweet Myrtle	T	Lm	Us Sa
<i>Austrorhynchus hillii</i>	Scaly Myrtle	S/T	Lm	Us Sa
<i>Austrorhynchus inophloia</i>	Thread-bark Myrtle	S/T	Lm	Us Sa
<i>Austrorhynchus aff. lasioclada</i> (-)	Velvet Myrtle	T	Lm	Us Sa
<i>Austrorhynchus metrosideros</i> (-)		S	Lm	Us Sa
<i>Ptilidostigma glabrum</i> (-)	Plum Myrtle	S	Lm	Us Sa
<i>Ptilidostigma rhytidisperma</i>	Small-leaf Plum Myrtle	S	Lm	Us Sa
<i>Rhodanthe acuminata</i> (-)	Cooloola Ironwood	S	Lm	Us Sa



Scientific Name	Common Name	Form	Fire Retardance	Comments
<i>Rhododendron dunniana</i>	Rib-fruit Malletwood	S/T	Lm	Us Sa
<i>Rhododendron maidenii</i> (-)	Smooth Scrub Turpentine	S	Lm	Us Sa
<i>Rhodomyrtus psidioides</i>	Native Guava	S	Lm	Us Sa
<i>Syzygium wilsonii</i> (-)	Powder-puff Lilly Pilly	S	Lm	Us Sa
<b>Nyctaginaceae</b>				
<i>Pisonia aculeata</i>	Native Bougainvillea	V	Lm	Us Sa
<b>Oleaceae</b>				
<i>Jasminum simplicifolium</i>	Slender Jasmine	V	Lm	Us Sa
<i>Notelaea ovata</i>	Netted Mock Olive	S	Lm	Us Sa
<i>Notelaea venosa</i>	Veined Mock Olive	S	Lm	Us Sa
<b>Passifloraceae</b>				
<i>Passiflora aurantia</i>	Red Passion Flower	V	Lm	Us Oa Sa
<i>Passiflora herbertiana</i>	Yellow Passion Flower	V	Lm	Us Oa Sa
<b>Peperoniaceae</b>				
<i>Peperomia blanda</i>	Native Peperomia	H	Lm	Us Sa
<i>Peperomia (leptostachya)</i>	Native Peperomia	H	Lm	Us Sa
<i>Peperomia tetraphylla</i>				
<b>Pittosporaceae</b>				
<i>Citriobatus linearis</i>	Black-fruit Thornbush	S	Lm	Us Sa
<i>Citriobatus paucifloris</i>	Orange Thornbush	S	Lm	Us Sa
<i>Pittosporum revolutum</i>	Brisbane Laurel	S	Lm	Us/Wb Sa/Oa
<b>Proteaceae</b>				
<i>Banksia oblongifolia</i>	Dwarf Banksia	S		Oa Pf
<i>Banksia robur</i>	Swamp Banksia	S		Oa Pf
<i>Grevillea tetraphylla</i>	Wallum Grevillea	S		Oa Pf
<i>Grevillea 'Robyn Gordon'</i>	G. 'Robyn Gordon'	S		Oa Pf
<i>Grevillea sericea</i>	Pink Spider Flower	S		Oa Pf
<i>Grevillea 'Shirley Howie'</i>	G. 'Shirley Howie'	S		Oa Pf
<i>Grevillea 'Superb'</i>	G. 'Superb'	S		Oa Pf
<i>Hakea florulenta</i>	Hakea	S		Oa Pf
<i>Hakea purpurea</i>	Purple Hakea	S		Oa Pf
<i>Lambertia formosa</i> (-)	Mountain Devil	S		Oa Pf
<i>Lomatia silaifolia</i>	Crinkle Bush	S		Oa Pf
<i>Stenocarpus angustifolia</i> (-)		S		Oa Pf
<b>Rhizophoraceae</b>				
<i>Bruguiera gymnorhiza</i>	Orange Mangrove	S/T	Lm St	Oa Coastal
<i>Ceriops tagal</i>	Yellow Mangrove	S/T	Lm St	Oa Coastal
<i>Rhizophora stylosa</i>	Stilted Mangrove	S/T	Lm St	Oa Coastal
<b>Rosaceae</b>				
<i>Rubus parvifolia</i>	Pink Raspberry	S	Lm	Oa
<i>Rubus rosifolius</i>	Native Raspberry	S	Lm	Us Sa
<b>Rubiaceae</b>				
<i>Canthium coprosmoides</i>	Coast Canthium	S/T	Lm	Us Oa Sa
<i>Canthium lampophyllum</i>	Large-leaf Canthium	S/T	Lm	Us Sa

Scientific Name	Common Name	Form	Fire Retardance	Comments
<i>Canthium microphyllum</i>	Small-leaf Canthium	S	Lm	Us Sa
<i>Isora bleckleri</i>	Brown Coffeeewood	S/T	Lm	Us Sa
<i>Morinda acutifolia</i>	Veiny Morinda	V	Lm	Us Sa
<i>Morinda jasminoides</i>	Sweet Morinda	V	Lm	Us Sa
<i>Pavetta australiensis</i>	Pavetta	S	Lm	Us Sa
<i>Psychotria daphnoides</i>	Smooth Psychotria	S	Lm	Us Sa
<i>Psychotria loniceroides</i>	Hairy Psychotria	S	Lm	Us Sa
<i>Psychotria simmondsiana</i>	Small Psychotria	S	Lm	Us Sa
<i>Randia benthamiana</i>	Native Gardenia	S	Lm	Us Sa
<i>Randia chartacea</i>	Narrow-leaf Gardenia	S	Lm	Us Sa
<b>Rutaceae</b>				
<i>Clausena brevistyla</i> (-)	Clausena	S	Lm	Us Sa
<i>Microcitrus australasica</i> (-)	Finger Lime	S	Lm	Us Sa
<i>Murraya ovatifoliolata</i> (-)	Native Murraya	S/T	Lm	Us Sa
<i>Phebalium woombie</i> (-)	Phebalium	S	Lm	Oa
<b>Sambucaceae</b>				
<i>Sambucus australasica</i>	Yellow Elderberry	S	Lm	Us Sa
<b>Supindaceae</b>				
<i>Alectryon coriaceus</i> (-)	Beach Bird's Eye	S/T	Lm	Wb Oa
<i>Arytera microphylla</i> (-)	Dwarf Coogara	S	Lm	Us Sa
<i>Capaniopsis newmanii</i> (-)	Long-leaf Tuckeroo	T	Lm	Us Sa Oa
<i>Capaniopsis serrata</i>	Rusty Tuckeroo	S/T	Lm	Us Sa Oa
<i>Capaniopsis wadsworthii</i>	(-) Dwarf Tuckeroo	S	Lm	Us Sa
<i>Harpullia alata</i> (-)	Wing-leaf Tulip	S	Lm	Us Sa
<i>Mischocarpus sandaicus</i>	Red Pear-fruit	T	Lm	Us Sa
<b>Sapotaceae</b>				
<i>Planchonella myrsinoides</i>	Yellow Plumwood	S/T	Lm	Us Sa
<b>Scrophulariaceae</b>				
<i>Artemesia fibriatum</i>	Koala bells	H	Lm	Oa
<b>Tetragoniaceae</b>				
<i>Tetragonia tetragonioides</i>	Native Spinach	H Ge	St Sc	Oa
<b>Solanaceae</b>				
<i>Duboisia myoporoides</i>	Corkwood	S/T	Lm	Us Sa
<i>Solanum aviculare</i>	Kangaroo Apple	S	Lm	Us Sa Oa
<i>Solanum densevestitum</i> (-)	Furry Nightshade	S	Lm	Us Sa
<i>Solanum stelligerum</i> (-)	Star Nightshade	S	Lm	Us Sa
<b>Sterculiaceae</b>				
<i>Brachychiton bidwillii</i>	Little Kurrajong	S	Lm	Us Sa Oa
<i>Commersonia fraseri</i>	Scrub Kurrajong	S	Lm	Us Sa Oa
<b>Symplocaceae</b>				
<i>Symplocos boerhaavioides</i> (-)	Shrubby Hazelwood	S	Lm	Us Sa



# Fire-Retardant Plants for Medium Gardens

The following plants can be used in addition to the list of plants for small gardens.

Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>MONOCOTYLEDONS</b>				
<b>Arecaceae</b>				
<i>Archontophoenix cunninghamii</i>	Picabeen Palm	P	Im	Ad
<i>Calamus muelleri</i>	Lawyer Cane Vine	P	Im	Ad
<i>Livistona australis</i>	Cabbage Palm	P	Im	Ad
<b>Smilacaceae</b>				
<i>Ripogonum javeticum</i>	Small Supplejack	V	Im	Sa
<i>Smilax australis</i>	Barb-wire Vine	V	Im	Sa Oa
<b>DICOTYLEDONS</b>				
<b>Akaniaceae</b>				
<i>Akania lucens</i>	Turnipwood	T	Im	Us
<b>Alangiaceae</b>				
<i>Alangium villosum</i>	Muskwood	T	Im	Us
<i>polyosmoides</i>	Muskwood	T	Im	Us
<i>Alangium villosum</i>	Canary Beech	T	Im	Us
<i>Polyalthia nitidissima</i>				
<b>Apocynaceae</b>				
<i>Astonia constricta</i>	Quinine Tree	T	Im	Us
<i>Melodinus acutiflorus</i>	Merangarra	V	Im	Sa
<i>Melodinus australis</i>	Southern Melodinus	V	Im	Sa
<b>Araliaceae</b>				
<i>Cephalalaria cephalobotrys</i>	Climbing Panax	V	Im	Sa
<b>Bigoniaceae</b>				
<i>Pandorea pandorana</i>	Wonga Vine	V	Im	Oa Sa
<b>Caesalpinaceae</b>				
<i>Barklya syriacifolia</i>	Crown of Gold Tree	T	Im	Us Sa Oa
<i>Cassia tomentella</i> (-)	Velvet Bean	S/T	Im	Us Oa
<b>Canoniaceae</b>				
<i>Callicoma serratifolia</i> (-)	White Alder	S/T	Im	Us
<b>Dilleniaceae</b>				
<i>Tecomathe hillii</i> (-)	Fraser Island Climber	V	Im	Sa

Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>Thymeliaceae</b>				
<i>Phaleria clerdendron</i> (-)	Scrub Daphne	S	Im	Us Sa
<i>Phaleria chermideana</i>	Slender Rice Flower	S/T	Im	Us Sa
<i>Pimelea finifolia</i>	Tie Bush	S	Im	Oa
<i>Wikstroemia indica</i>		S	Im	Us Oa Sa
<b>Tiliaceae</b>				
<i>Corchorus cunninghamii</i>	Corchorus	S	Im	Us Sa
<b>Urticaceae</b>				
<i>Elatostema reticulatum</i>	Rainforest Spinach	H	Im	Us Sa
<i>Elatostema stipitatum</i> (-)	Small Soft Nettle	H	Im	Us Sa
<i>Pipturus argenteus</i>	Native Mulberry	S/T	Im	Us Sa
<b>Verbenaceae</b>				
<i>Callicarpa pedunculata</i>	Velvet-leaf	S	Im	Us Sa
<i>Clerodendrum floribundum</i>	Lolly Bush	S/T	Im	Us Oa Sa
<i>Clerodendrum tomentosum</i>	Hairy Lolly Bush	S/T	Im	Us Oa Sa
<i>Phyla nodiflora</i> (-)	Condamine Couch	H Gc	Im	Oa
<i>Vitex ovata</i> (-)	Vitex	S Gc	Im	Oa
<b>Violaceae</b>				
<i>Viola betonicifolia</i>	Purple Violet	H	Im	Us Sa
<i>Viola hederacea</i>	Native Violet	H	Im	Us Sa
<b>Vitaceae</b>				
<i>Cayratia acris</i>	Hairy Water Vine	V	Im	Us Sa
<i>Cayratia clematidea</i>	Slender Grape	V	Im	Us Oa Sa
<i>Cayratia eurycnema</i>	Soft Water Vine	V	Im	Us Sa
<i>Cissus upara</i>	Small-leaf Water Vine	V	Im	Us Oa Sa
<b>Winteraceae</b>				
<i>Tasmanian insipida</i>	Pepper Bush	S	Im	Us Sa
<b>PTERIDOPHYTES</b>				
<b>Aspleniaceae</b>				
<i>Asplenium attenuatum</i>	A Spleenwort	F	Im	Sa
<i>Asplenium australasicum</i>	Crow's Nest Fern	eF	Im	Sa
<b>Osmondaceae</b>				
<i>Todea barbara</i>	King Fern	eF	Im	Us Sa
<b>Polypodiaceae</b>				
<i>Drynaria rigidula</i>	Basket Fern	eF	Im	Sa
<i>Phymatodes scandens</i>	Scented Climbing Fern	eF	Im	Sa
<i>Platydictyon bifurcatum</i>	Elkhorn	eF	Im	Sa
<i>Platydictyon superbum</i>	Staghorn	F	Im	Sa
<i>Pyrrosia confluenta</i>	Felt Fern	eF	Im	Sa
<i>Pyrrosia rupestris</i>	Rock Felt Fern	eF	Im	Sa

Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>Ebenaceae</b>				
<i>Diospyros australis</i>	Black Plum	T	Im	Us/Wb
<i>Diospyros geninata</i>	Scaly Ebony	T	Im	Us/Wb
<i>Diospyros mabacea</i> (-)	Red-fruited Ebony	T	Im	Us
<b>Escalloniaceae</b>				
<i>Anopterus macleanus</i> (-)	Queensland Laurel	T	Im	Us
<i>Polyalthia nitidissima</i>	Canary Beech	T	Im	Us
<b>Euphorbiaceae</b>				
<i>Claoxylon australe</i>	Bottlewood	S/T	Im	Us
<i>Croton achrophyllodes</i>	Thick-leaved Croton	S/T	Im	Us
<i>Croton insularis</i>	Queensland Cascarilla	S/T	Im	Us
<i>Croton stigmatus</i>	White Croton	T	Im	Us
<b>Fabaceae</b>				
<i>Erythrina vespertilio</i>	Bat's Wing Coral Tree	T	Im	Ad De
<b>Hernandiaceae</b>				
<i>Hernandia bivalvis</i>	Cudgerie	T	Im	Wb
<b>Lauraceae</b>				
<i>Cryptocarya bidwillii</i>	Yellow Laurel	T	Im	Wb
<i>Cryptocarya meisneriana</i>	Thick-leaf Laurel	T	Im	Wb
<i>Cryptocarya sclerophylla</i>	Boonah Laurel	T	Im	Wb
<i>Cryptocarya triplinervis</i>	Brown Laurel	T	Im	Wb
<i>Cryptocarya triplinervis</i> var. <i>pubens</i>	Hairy Brown Laurel	T	Im	Wb
<b>Meliaceae</b>				
<i>Owenia venosa</i>	Crow's Apple	T	Im	Us/Wb
<i>Synoum glandulosum</i>	Scentless Rosewood	S/T	Im	Us
<i>Turraeta pubescens</i> ( <i>T. brownii</i> )	Native Witch-Hazel	T	Im	Us
<b>Menispermaceae</b>				
<i>Stephania japonica</i> var. <i>discolor</i>	Tape Vine	V	Im	Sa Oa
<b>Mimosaceae</b>				
<i>Acacia aulacocarpa</i>	Hickory Wattle	T	Im	Wb/Pf
<i>Acacia implexa</i>	Light Wood	T	Im	Wb/Pf
<i>Acacia melanoxylon</i>	Blackwood	T	Im	Wb/Pf
<i>Acacia cincinnata</i>	Wattle	S/T	Im	Wb/Pf
<i>Pararchidendron pruinatum</i>	Snowwood	T	Im	Us/Wb
<b>Moraceae</b>				
<i>Ficus coronata</i>	Creek Sandpaper Fig	T	Im	Us/Wb
<i>Ficus fraseri</i>	A Sandpaper Fig	T	Im	Us/Wb
<i>Ficus opposita</i>	A Sandpaper Fig	T	Im	Us/Wb
<i>Streblus brunonianus</i> ( <i>S. pendulinus</i> )	Whalebone Tree	T	Im	Us/Wb

Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>Myoporaceae</b>				
<i>Myoporum acuminatum</i>	Coast Boobialla	S/T	Im	Wb Oa
<b>Myrsinaceae</b>				
<i>Rapanea variabilis</i>	Muttonwood	T	Im	Us
<b>Myrtaceae</b>				
<i>Acmena smithii</i> (small varieties)	Greek Lilly Pilly	T	Im	Us/Wb
<i>Decaspermum humile</i>	Silky Myrtle	S/T	Im	Us
<i>Metrosideros queenslandica</i> (-)	Pink Myrtle	T	Im	Us
<i>Rhodamnia rubescens</i>	Brown Malletwood	T	Im	Us/Wb
<i>Syzygium hodgkinsonii</i> (-)	Smooth-bark Rose Apple	T	Im	Us
<b>Oleaceae</b>				
<i>Notelaea johnsonii</i>	Veinless Mock Olive	S/T	Im	Us
<i>Notelaea longifolia</i>	Large Mock Olive	S/T	Im	Us/Wb
<i>Notelaea microcarpa</i>	Velvet Mock Olive	S/T	Im	Us/Wb
<b>Pittosporaceae</b>				
<i>Hymenosporum flavum</i>	Native Frangipani	T	Im	Us Ad
<i>Pittosporum undulatum</i>	Mock Orange	T	Im	Us/Wb
<b>Proteaceae</b>				
<i>Buckinghamia celsissima</i> (-)	Ivory Curt Flower	T	Im	Wb
<i>Grevillea helmsiae</i> (-)		T	Im	Us Pf
<i>Hicksbeachia pinnatifolia</i> (-)	Red Boppel Nut	T	Im	Us Ad Pf
<i>Lomatia arborescens</i> (-)	Tree Lomatia	S/T	Im	Us Pf
<i>Macadamia integrifolia</i>	Queensland Nut	T	Im	Wb
<i>Macadamia ternifolia</i>	Maroochy Nut	T	Im	Wb
<i>Macadamia tetraphylla</i>	Rough Shell Bush Nut	T	Im	Wb
<i>Triunia youngiana</i>	Spice Bush	T	Im	Us
<b>Rubiaceae</b>				
<i>Coelospermum paniculatum</i>	Coelospermum	V	Im	Sa
<i>Hodgkinsonia ovatiflora</i>	Golden Ash	T	Im	Us/Wb
<b>Rununculaceae</b>				
<i>Clematis glycinoides</i>	Headache Vine	V	Im	Sa
<b>Rutaceae</b>				
<i>Acronychia imperforata</i>	Coast Aspen	S/T	Im	Us/Wb
<i>Acronychia pauciflora</i>	Soft Acronychia	S/T	Im	Us
<i>Microcitrus australis</i>	Round Lime	S	Im	Us
<b>Sapindaceae</b>				
<i>Alectryon connatus</i>	Alectryon	T	Im	Wb Show at first
<i>Alectryon subcinerus</i>	Wild Quince	T	Im	Wb
<i>Alectryon subdentatus</i>	Holly-leaf Bird's Eye	T	Im	Wb
<i>Alectryon tomentosus</i>	Hairy Bird's Eye	T	Im	Wb
<i>Arytera distylis</i>	Twin-leaf Coogera	T	Im	Wb



Scientific Name	Common Name	Form	Fire Retardance	Comments
<i>Arytera divaricata</i>	Rose Tamarind	T	Lm	Wb
<i>Arytera foveolata</i>	Pitted Coogera	T	Lm	Wb
<i>Cupaniopsis parvifolia</i>	Small-leaf Tuckeroo	T	Lm	Wb
<i>Cupaniopsis shirleyana</i> (-)	Wedge-leaf Tuckeroo	T	Lm	Us/Wb
<i>Cupaniopsis tonnetella</i> (-)	Boonah Tuckeroo	T	Lm	Wb
<i>Elaeostachys nervosa</i>	Beetroot	T	Lm	Us/Wb
<i>Elaeostachys xylocarpa</i>	White Tamarind	T	Lm	Wb
<i>Guioa semiglauca</i>	Wild Quince	T	Lm	Wb
<i>Lepideromena pulchella</i> (-)	Fine-leaf Tuckeroo	T	Lm	Wb
<i>Mischocarpus australis</i>	Red Pear-fruit	T	Lm	Wb
<i>Toechina tenax</i>	Scrub Teak	T	Lm	Wb
<b>Sapotaceae</b>				
<i>Planchonella chartacea</i>	Thin-leaf Plum	S/T	Lm	Us Sa
<i>Planchonella cotinifolia</i>	Small-leaf Plum	S/T	Lm	Us Sa
<b>Simaroubaceae</b>				
<i>Guilfoylia monoxyla</i>	Native Plum	T	Lm	Us
<b>Symplocaceae</b>				
<i>Symplocos thwaitesii</i>	Buff Hazelwood	S/T	Lm	Us

## PTERIDOPHYTES

## Cyatheaceae

<i>Cyathea australis</i>	Rough Tree Fern	tF	Lm	Us
<i>Cyathea cooperi</i>	Common Tree Fern	tF	Lm	Us
<i>Cyathea leichhardtiana</i>	Prickly Tree Fern	tF	Lm	Us

## Fire-Retardant Plants for Large Gardens, Acreage Blocks, Parks and Farms

The following plants can be used in addition to the lists of plants for small and medium gardens.

Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>GYMNOSPERMS</b>				
<b>Araucariaceae</b>				
<i>Agathis robusta</i> (-)	Old Kauri	T	Lm	Pf - resin
<i>Araucaria bidwillii</i> (-)	Bunya Pine	T	Lm	Pf - resin
<i>Araucaria cunninghamii</i>	Hoop Pine	T	Lm	Pf - resin
<b>Podocarpaceae</b>				
<i>Podocarpus elatus</i>	Brown or Plum Pine	T	Lm	Pf - resin
<b>MONOCOTYLEDONS</b>				
<b>Areaceae (Palmae)</b>				
<i>Calamus muelleri</i>	Lawyer Cane Vine	V	Lm	Sa Oa

Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>Flagellariaceae</b>				
<i>Flagellaria indica</i>	Supplejack	V	Lm	Sa
<b>Pandanaceae</b>				
<i>Freylinetia excelsa</i>	Climbing Pandanus	V	Lm	Sa
<i>Freylinetia scandens</i>	Climbing Pandanus	V	Lm	Sa
<b>Smilacaceae</b>				
<i>Ripogonum album</i>	White Supplejack	V	Lm	Sa
<i>Ripogonum brevifolium</i>	Supplejack	V	Lm	Sa
<i>Ripogonum discolor</i>	Prickly Supplejack	V	Lm	Sa
<i>Ripogonum elseyanum</i>	Hairy Supplejack	V	Lm	Sa
<b>DICOTYLEDONS</b>				
<b>Anacardiaceae</b>				
<i>Euroschinus falcata</i>	Ribbonwood	T	Lm	Wb
<i>Rhodospaera rhodanthema</i>	Deep Yellowwood	T	Lm	Wb
<b>Annonaceae</b>				
<i>Melodorum leichhardtii</i> (Rauwenhoftia L.)	Zig-Zag Vine	V	Lm	Sa
<b>Apocynaceae</b>				
<i>Astonia constricta</i>	Quinine Tree	T	Lm	Wb
<i>Melodinus acutiflorus</i>	Meringarra	V	Lm	Sa
<i>Melodinus australis</i>	Southern Melodinus	V	Lm	Sa
<i>Parsonsia encalyptophylla</i>	Gargaloo	V	Lm	Sa Oa
<i>Parsonsia fulva</i>	Furry Silkpod	V	Lm	Sa
<i>Parsonsia lanceolata</i>	Northern Silkpod	V	Lm	Sa
<i>Parsonsia latifolia</i>	Monkey Vine	V	Lm	Sa
<i>Parsonsia straminea</i>	Monkey Rope	V	Lm	Sa Oa
<i>Parsonsia velutina</i>	Velvet Silkpod	V	Lm	Sa Oa
<i>Parsonsia ventricosa</i>	Pointed Silkpod	V	Lm	Sa
<b>Areaceae</b>				
<i>Calamus muelleri</i>	Lawyer Cane	V	Lm	Sa
<b>Araliaceae</b>				
<i>Cephalalaria cephalobotrys</i>	Climbing Panax	V	Lm	Sa
<i>Polyscias elegans</i>	Celerywood	T	Lm	Wb/Ad Oa
<i>Polyscias murrayi</i>	Pencil Cedar	T	Lm	Sa
<b>Asclepiadaceae</b>				
<i>Marsdenia rostrata</i>	Common Milk Vine	V	Lm	Ad Oa Sa
<b>Atherospermataceae</b>				
<i>Daphnandra micrantha</i>	Socketwood	T	Lm	Wb



Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>Avicenniaceae</b> <i>Avicennia marina</i>	Grey Mangrove	T	Ln St	Oa Coastal
<b>Burseraceae</b> <i>Canarium australasicum</i>	Carrotwood	T	Ln	Wb
<b>Caesalpinhiaceae</b> <i>Cassia markiana</i> (-) <i>Caesalpinia bonduc</i> <i>Caesalpinia scortechinii</i> <i>Caesalpinia subtropica</i>	Native Laburnum Caesalpinia Large Prickle Vine Corky Prickle Vine	T V V V	Ln Ln Ln Ln	Wb Sa Sa Sa
<b>Celastraceae</b> <i>Celastrus australis</i> <i>Celastrus subspicatus</i> <i>Loeseneriella barbata</i> ( <i>Hippocratea</i> h.)	Staff Climber Large Staff Vine Knot Vine	V V V	Ln Ln Ln	Sa Sa Sa
<b>Cunoniaceae</b> <i>Calliclavia paniculosa</i> <i>Ceratopetalum apetalum</i> (-) <i>Geissois benthamii</i> <i>Pseudowickhamia</i> <i>lachnocarpa</i> <i>Schizomeria ovata</i>	Rose-leaf Marara Coachwood Red Carabeen Marara White Birch	T T T T T	Ln Ln Ln Ln Ln	Wb Wb Wb Wb Us/Wb
<b>Ebenaceae</b> <i>Diospyros fasciculosa</i> <i>Diospyros pentamera</i>	Grey Ebony Myrtle Ebony	T T	Ln Ln	Wb Wb
<b>Ehretiaceae</b> <i>Cordia dichotoma</i> (-) <i>Ehretia acuminata</i>	Cordia Koda	T T	Ln Ln	Wb Ad De
<b>Elaeocarpaceae</b> <i>Elaeocarpus eumundi</i> <i>Elaeocarpus grandis</i> <i>Elaeocarpus kirktonii</i> <i>Elaeocarpus obovatus</i> <i>Sloanea australis</i> <i>Sloanea woolfsii</i>	Eumundi Quandong Blue Quandong White Quandong Hard Quandong Maiden's Blush Yellow Carabeen	T T T T T T	Ln Ln Ln Ln Ln Ln	Wb Wb Wb Wb Wb Wb
<b>Escalloniaceae</b> <i>Quintinia verdonii</i>	Grey Possumwood	T	Ln	Wb
<b>Euphorbiaceae</b> <i>Austrobauxia swainii</i> (-) <i>Baloghia inophylla</i> (B. lucida) <i>Bridelia exaltata</i> <i>Bridelia leichhardtii</i> <i>Claoxylon australe</i>	Pink Cherry Scrub Bloodwood Scrub Ironbark Leichhardt's Ironbark Brittlewood	T T T T T	Ln Ln Ln Ln Ln	Wb Wb Wb Wb Wb

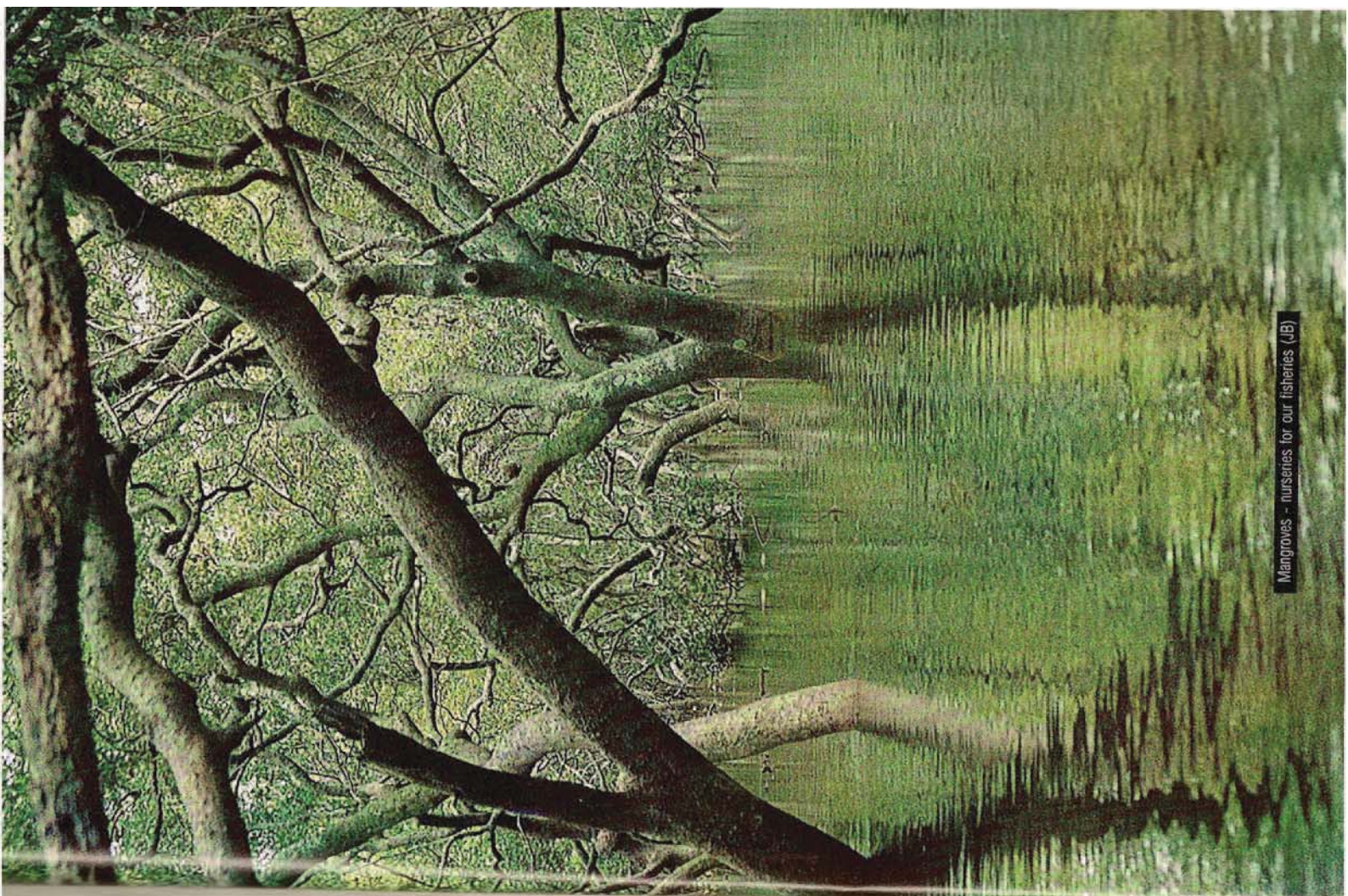
Scientific Name	Common Name	Form	Fire Retardance	Comments
<i>Disiliaria baloghoides</i> <i>Drypetes australasica</i> <i>Excoecaria agallocha</i> <i>Excoecaria dallachyana</i> <i>Glochidion ferdinandi</i> <i>Glochidion sumatranum</i> <i>Mallotus discolor</i> <i>Mallotus philippensis</i>	Lancewood Yellow Tulip Milky Mangrove Scrub Poison Tree Cheese Tree Buttonwood Yellow Kamala Red Kamala	T T T T T T T T	Ln Ln Ln St Ln Ln Ln Ln Ln	Wb Wb Ad Coastal Wb Wb Wb Wb Wb
<b>Fabaceae</b> <i>Austrosteenisia blackii</i> <i>Castanospermum australe</i> <i>Derris involuta</i> <i>Erythrina</i> sp. Lacey's Creek <i>Erythrina vesperitio</i> <i>Mucuna gigantea</i>	Blood Vine Black Bean Native Derris Corkwood Batswing Coral Tree Burny Bean	V T V T T V	Ln Ln Ln Ln Ln Ln	Sa Oa Wb Sa Ad De Ad De Sa
<b>Flacourtiaceae</b> <i>Scolopia braunii</i>	Flintwood	T	Ln	Wb
<b>Flindersiaceae</b> <i>Flindersia australis</i> <i>Flindersia bennettiana</i> <i>Flindersia collina</i> <i>Flindersia schottiana</i> <i>Flindersia xanthoxyla</i>	Crows Ash Bennett's Ash Leopard Ash Cudgerie or Bumpy Ash Yellowwood	T T T T T	Ln Ln Ln Ln Ln	Wb Wb Wb Wb Wb
<b>Icacinaceae</b> <i>Citronella moorei</i> <i>Pennantia cunninghamii</i>	Churnwood Brown Beech	T T	Ln Ln	Wb Wb
<b>Lauraceae</b> <i>Cryptocarya erythroxylon</i> <i>Cryptocarya hypopodia</i> <i>Cryptocarya macdonaldii</i> <i>Cryptocarya microneura</i> <i>Cryptocarya obovata</i> <i>Endiandra muelleri</i> <i>Endiandra pubens</i> <i>Endiandra sieberi</i> (-) <i>Neolitsea australiensis</i> <i>Neolitsea dealbata</i>	Pigeonberry Ash Rib-fruit Pepperberry Cooloola Laurel Murrogon Pepperberry Tree Mueller's Walnut Hairy Walnut Hard Corkwood Grey Bolly Gum White Bolly Gum	T T T T T T T T T T	Ln Ln Ln Ln Ln Ln Ln Ln Ln Ln	Wb Wb Wb Wb Wb Wb Wb Wb Wb Us/Wb
<b>Malvaceae</b> <i>Hibiscus tiliaceus</i> <i>Lagunaria patersonii</i> (-)	Cotton Tree Norfolk Is Hibiscus	T T	Ln Ln	Wb Wb
<b>Meliaceae</b> <i>Anthocarpus nitidula</i> ( <i>Pseudocarya nitidula</i> ) <i>Dysoxylum fraserianum</i>	Incense Cedar Rosewood	T T	Ln Ln	Wb Wb



Scientific Name	Common Name	Form	Fire Retardance	Comments
<i>Dysoxylum mollissimum</i> <i>ssp. molle</i> (D. muelleri)	Red Bean	T	Lm	Wb
<i>Dysoxylum rufum</i>	Hairy Rosewood	T	Lm	Wb
<i>Melia azedarach</i>	White Cedar	T	Lm	Wb/Ad D
<i>Owenia ceptiodora</i>	Onion Cedar	T	Lm	Wb
<i>Toona australis</i>	Red Cedar	T	Lm	Wb/Ad D
<b>Menispermaceae</b>				
<i>Legnephora moorei</i>	Wild Grape	V	Lm	Sa
<i>Sarcopetalum harveyanum</i>	Pearl Vine	V	Lm	Sa
<i>Stephania aculeata</i>	Prickly Snake Vine	V	Lm	Sa
<i>Tinospora smilacina</i>	Snake Vine	V	Lm	Sa
<i>Tinospora tinisporoides</i>	Arrow-head Vine	V	Lm	Sa
<b>Mimosaceae</b>				
<i>Acacia aulacocarpa</i> var. <i>aulacocarpa</i>	Hickory Wattle	T	Lm	Wb Pf
<i>Acacia bakeri</i>	Marblewood	T	Lm	Wb Pf
<i>Acacia harpophylla</i> (-)	Brigalow Wattle	T	Lm	Wb
<i>Acacia melanoxylon</i>	Blackwood	T	Lm	Wb Pf
<i>Archidendron grandiflorum</i>	Lace Flower	T	Lm	Wb
<b>Monimiaceae</b>				
<i>Palmeria scandens</i>	Anchor Vine	V	Lm	Sa
<b>Moraceae</b>				
<i>Ficus macrophylla</i>	Moreton Bay Fig	T	Lm	Wb
<i>Ficus obliqua</i>	Small-leaved Fig	T	Lm	Wb
<i>Ficus platypoda</i>	Rock Fig	T	Lm	Wb
<i>Ficus superba</i> var. <i>hennecana</i>	Deciduous Fig	T	Lm	Ad D
<i>Ficus virens</i> var. <i>sublaevicolata</i>	White Fig	T	Lm	Wb
<i>Ficus watkinsiana</i>	Nipple Fig	T	Lm	Wb
<i>MacLura cochinchinensis</i> (Cudrania c.)	Cockspur Thorn	V	Lm	Oa Sa
<i>Malaisia scandens</i>	Burny Vine	V	Lm	Sa
<b>Myrtaceae</b>				
<i>Acmena hemilampira</i>	Blush Satinash	V	Lm	Wb
<i>Acmena ingens</i> (A. brachyandra)	Red Apple	V	Lm	Wb
<i>Acmena smithii</i>	Creek Lilly Pilly	T	Lm	Wb
<i>Lophostemon confertus</i>	Brush Box	T	Lm	Wb
<i>Syncarpia glomulifera</i>	Turpentine	T	Lm	Wb
<i>Syzygium australe</i>	Scrub Cherry	T	Lm	Wb
<i>Syzygium corynanthum</i>	Sour cherry	T	Lm	Wb
<i>Syzygium crebrinerve</i>	Purple Cherry	T	Lm	Wb
<i>Syzygium moorei</i> (-)	Durobby	T	Lm	Wb
<b>Nyctaginaceae</b>				
<i>Pisonia aculeata</i>	Native Bougainvillea	V	Lm	Sa

Scientific Name	Common Name	Form	Fire Retardance	Comments
<b>Oleaceae</b>				
<i>Olea paniculata</i>	Native Olive	T	Lm	Wb
<b>Piperaceae</b>				
<i>Piper novae-hollandiae</i>	Native Pepper Vine	V	Lm	Sa
<b>Pittosporaceae</b>				
<i>Pittosporum rhombifolium</i>	Hollywood	T	Lm	Wb
<b>Proteaceae</b>				
<i>Floydia praedalta</i>	Ball Nut	T	Lm	Wb
<i>Grevillea hilliana</i> (-)	Hill's Silky Oak	T	Lm	Pf
<i>Grevillea robusta</i>	Silky Oak	T	Lm	Pf
<i>Helicia glabriflora</i>	Smooth Helicia	T	Lm	Pf
<i>Macadamia integrifolia</i>	Queensland Nut	T	Lm	Wb
<i>Macadamia ternifolia</i>	Maroochy Nut	T	Lm	Wb
<i>Macadamia tetraphylla</i> (-)	Rough-shell Bush Nut	T	Lm	Wb
<i>Oriocallis pinnata</i> (-)	Pink Silky Oak	T	Lm	Pf
<i>Oriocallis wickhamii</i> (-)	Satin Oak	T	Lm	Pf
( <i>Alloxylon flammeum</i> )				
<i>Stenocarpus salignus</i> (-)	Scrub Beefwood	T	Lm	Pf
<i>Stenocarpus sinuatus</i>	Wheel of Fire Tree	T	Lm	Wb
<b>Ranunculaceae</b>				
<i>Clematis aristata</i>	Old Man's Beard	V	Lm	Sa
<b>Rhamnaceae</b>				
<i>Alphitonia excelsa</i>	Red Ash	T	Lm	Wb
<i>Alphitonia petrei</i>	Pink Ash	T	Lm	Wb
<i>Emmenosperma</i> <i>alphitonioides</i>	Yellow Ash	T	Lm	Wb
<b>Rosaceae</b>				
<i>Rubus moluccanus</i>	Molucca Bramble	V	Lm	Sa
<b>Rutaceae</b>				
<i>Acronychia oblongifolia</i>	White Lilly Pilly	S/T	Lm	Wb
<i>Acronychia suberosa</i>	Corky Acronychia	T	Lm	Wb
<i>Sarcomelicope simplicifolia</i>	Bauertella	T	Lm	Wb
<b>Sapindaceae</b>				
<i>Alectryon reticulatus</i>	Alectryon	T	Lm	Wb
<i>Arytera luteirerana</i>	Corduroy Tamarind	T	Lm	Wb
<i>Atalaya multiflora</i>	Broad-leaf Whitewood	T	Lm	Wb
<i>Atalaya salicifolia</i> (A. virens)	Scrub Whitewood	T	Lm	Wb
<i>Castanospora aphanandi</i> (-)	Brown Tamarind	T	Lm	Wb
<i>Cupaniopsis anacardioides</i>	Tuckeroo	T	Lm	Wb
<i>Cupaniopsis flagelliformis</i> (-)	Brown Tuckeroo	S/T	Lm	Wb
<i>Diploglottis campbellii</i> (-)	Small-leaf Tamarind	T	Lm	Wb
<i>Diploglottis cunninghamii</i>	Native Tamarind	T	Lm	Wb/Ad
<i>Harpullia hillei</i>	Blunt-leaf Tulip	T	Lm	Wb
<i>Harpullia pendula</i>	Tulipwood	T	Lm	Wb





Scientific Name	Common Name	Form	Fire Retardance	Comments
<i>Jagera pseudorhus</i>	Foam Bark Tree	T	Im	Wb
<i>Mischocarpus anodontus</i>	Viny Pear-fruit	Im	Im	Wb
<i>Mischocarpus pyramidalis</i>	Yellow Pear-fruit	T	Im	Wb
<i>Rhysotoechia bifoliolata</i> (-)	Twin-leaf Tuckeroo	T	Im	Wb
<i>Sarcopteryx stipitata</i>	Corduroy	T	Im	Wb
<i>Toechima dasyrrhache</i>	Blunt-leaf Steelwood	T	Im	Wb
<b>Sapotaceae</b>				
<i>Anorhosphermum amilogum</i>	Brown Pearwood	T	Im	Wb
<i>Anorhosphermum whitei</i> (-)	Rusty Plum	T	Im	Wb
<i>Planchonella australis</i>	Black Apple	T	Im	Wb
<i>Planchonella laurifolia</i> (-)	Blush Coondoo	T	Im	Wb
<i>Planchonella pohmaniana</i>	Yellow Boxwood	T	Im	Wb
<b>Simaroubaceae</b>				
<i>Ailanthus triphysa</i>	White Siris	T	Im	Wb
<i>Gualfoylia monostylis</i>	Native Plum	T	Im	Wb
<b>Siphonodontaceae</b>				
<i>Siphonodon australis</i>	Ivorywood	T	Im	Wb
<b>Sterculiaceae</b>				
<i>Argyrodendron actinophyllum</i>	Black Booyong	T	Im	Wb
<i>Argyrodendron trifoliolatum</i>	Brown Tulip Oak	T	Im	Wb
<i>Brachychiton acerifolius</i>	Flame Tree	T	Im	Ad De
<i>Brachychiton discolor</i>	Lace Bark	T	Im	Ad De
<i>Brachychiton populneus</i>	Kurrajong	T	Im	Wb
<i>Brachychiton rupestris</i> (-)	Old Bottle tree	T	Im	Ad De
<i>Brachychiton sp. (-)</i>	Ormeau Bottle tree	T	Im	Ad De
<i>Commersonia bartramia</i>	Brown Kurrajong	T	Im	Us/Wb
<i>Sterculia quadrifida</i>	Peanut Tree	T	Im	Ad De
<b>Symplocaceae</b>				
<i>Symplocos stavelii</i>	White Hazelwood	T	Im	Wb
<b>Ulmaceae</b>				
<i>Aphananthe philippinensis</i>	Native Elm	T	Im	Wb
<i>Celtis paniculata</i>	Investigator Tree	T	Im	Wb
<b>Urticaceae</b>				
<i>Dendrocnide excelsa</i>	Giant Stinging Tree	T	Im	Wb
<i>Dendrocnide photinophylla</i>	Mulberry Stinger	T	Im	Wb
<b>Verbenaceae</b>				
<i>Gmelina leichhardtii</i>	White Beech	T	Im	Wb
<i>Premna lignum-vitae</i>	Lignum-vitae	T	Im	Wb
<b>Vitaceae</b>				
<i>Cissus antarctica</i>	Kangaroo Vine	V	Im	Wb
<i>Cissus hypoglauca</i>	Five-leaf Watervine	V	Im	Wb
<i>Cissus sterculifolia</i>	Long-leaf Watervine	V	Im	Wb
<i>Tetrastigma nitens</i>	Shining Grape	V	Im	Wb



## **Appendix 4**

### **QFES Bushfire Survival Plan Guidelines**

# Bushfire Survival Plan

**PREPARE.ACT.SURVIVE.**

Tomorrow's Queensland: strong, green, smart, healthy and fair

Department of Community Safety





## You must **PREPARE** . **ACT** . **SURVIVE** .

Your main priority is to ensure that you and your family are safe. During a bushfire you and your family's survival and safety depend on your preparations, and the decisions you make.

The lives of you and your family are more important than any building.

Whether your plan is to leave early or stay, you must prepare your home and property to increase their level of resilience and your chances of survival.

## Bushfires in Queensland

The fire season in Queensland normally commences in the far north of the state in July and progresses through to southern areas as spring approaches. The fire season can extend through to February in southern and far south-western Queensland. These time frames can vary significantly from year to year, depending on the fuel loads, long-term climate and short-term weather conditions in each area.

There are four key considerations for dealing with bushfire:

- The safety of you and your family.
- The resilience of your property.
- The protection of irreplaceable valuables and important documents.
- The maintenance of adequate levels of insurance.

This document will provide you with information about the things you need to consider to prepare yourself and your home for the bushfire season, and how to make your own personal Bushfire Survival Plan.

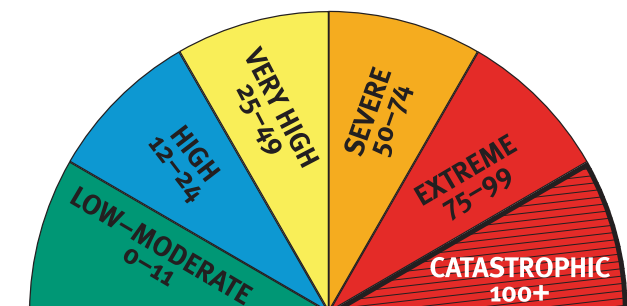
It is your responsibility  
to prepare yourself, your  
family and your  
home for the threat  
of bushfire.

## Understand your risk

The first step in planning to survive a bushfire is to understand your own level of risk. By understanding your own level of risk you will be able to make informed decisions that are right for you and your family. Included with this Bushfire Survival Plan is a self-assessment tool that will enable you to assess the risk level associated with your property. If you are still unsure of your level of risk or require assistance contact your local fire station for more information. To book a Bushfire Safety presentation call 1300 369 003.

## Fire danger ratings

The increased frequency of extreme bushfires in Australia in the last 10 years and the recent experience of the Black Saturday fires in Victoria have encouraged fire services throughout Australia to introduce new levels of Fire Danger Rating (FDR). A lift-out chart of the FDR system is contained within this document. Display it in a prominent place in your home or keep it with your Bushfire Survival Plan.





## Catastrophic fire danger rating

The highest level is catastrophic. On a day of catastrophic FDR leaving early is the only option to ensure your survival. You must relocate early to a safer location, hours or the day before a fire occurs. Under no circumstances will it be safe to stay with your property.

## Extreme fire danger rating

The second highest level is extreme. Should a fire occur in your area on a day of extreme FDR leaving early will always be the only option. Staying can only be considered for homes that:

- Have been designed and constructed specifically to address the threat of bushfire.
- Have been maintained to those levels and are currently well prepared.
- Can be actively defended by people with the skills, knowledge and confidence to implement a well-rehearsed Bushfire Survival Plan.

## On days of catastrophic or extreme FDR:

- Fires are likely to be uncontrollable, unpredictable and very fast moving with highly aggressive flames extending high above tree tops and buildings.
- Thousands of embers may be violently blown into and around homes causing other fires to start rapidly and spread quickly up to 20 kilometres ahead of the main fire.
- Fire can threaten suddenly, without warning, and the heat and wind will make it difficult to see, hear and breathe as the fire approaches.
- People in the path of such fires will almost certainly be injured or die and a significant number of homes and businesses will be destroyed or damaged.
- Even well-prepared and constructed homes will not be safe.
- Expect power, water and phone networks to fail as severe winds bring down trees, power lines and blow roofs off buildings well ahead of the fire.

It is vital that you understand on these days that your survival will depend solely on how well you have prepared and how decisively you act.

Leaving late can be  
a deadly option.  
If you are in any doubt,  
make the decision to  
**LEAVE EARLY.**

## What will you do?

At all times you need to **PREPARE.ACT.SURVIVE.**

When the fire danger rating is ‘**catastrophic**’ leaving early is the safest option.

When the fire danger rating is lower than ‘**catastrophic**’, one of the most important decisions you need to make is whether you will leave early or stay with a well prepared property. This decision is the basis of your Bushfire Survival Plan.

The following questions may help you make the right decision for whether you will leave early or stay:

- Do you need to consider family members who are young, elderly or infirm?
- Are you physically and emotionally prepared to stay with your property?
- Do you have the knowledge, skills, and confidence to stay with your property?
- Is your home adequately constructed, maintained and prepared to withstand the impact of a fire? In other words, is your home prepared to withstand the impact of a bushfire?
- Do you have well-maintained resources and equipment to fight fire, and do you know how to use them?
- Do you have appropriate protective clothing to fight a fire?
- What will you do if a rapid onset fire leaves you with no time to leave? Where will you shelter?



## Leave early

If you plan to leave early then you must leave your home well before a bushfire threatens and travelling by road becomes hazardous. Your leave early preparations include:

**Step 1: Preparation** – your property should be well prepared for bushfire even if you intend to leave early.

**Step 2: What you will do** – make your Bushfire Survival Plan in accordance with your decision to leave early.

**Step 3: Make a contingency plan** – the FDR, the preparedness of your home, a change in household circumstances, a change in your physical preparedness or unexpected visitors are some things that may require you to reconsider your Bushfire Survival Plan.

## Planning to stay

Planning is critical to successfully staying with your home may involve the risk of psychological trauma, injury or death.

**Step 1: Preparation** – your property must be able to withstand the impact of bushfire and well prepared to shelter you and your family.

**Step 2: What you will do** – make your Bushfire Survival Plan in accordance with your decision to stay.

**Step 3: Make a contingency plan** – the FDR, the preparedness of your home, a change in household circumstances, a change in your physical preparedness or unexpected visitors are some things that may require you to reconsider your Bushfire Survival Plan.

In making your decision to stay, here are a few things you need to consider.

- Is your property able to withstand the impact of a bushfire?
- Are you physically and emotionally prepared to stay with your property?
- Do you have well-maintained resources and equipment and do you know how to use them?
- Do you have appropriate protective clothing?
- Will your bushfire survival plan need to be different for weekdays, weekends or if someone is sick at home?
- Do you have a contingency plan?

## Preparing your Bushfire Survival Plan

Preparation is the key to survival. Being involved in a fire will be one of the most traumatic experiences of your life.

- Prepare yourself – you need to be both mentally and physically prepared to carry out your Bushfire Survival Plan.
- Prepare your Bushfire Survival Plan.
- Prepare your Bushfire Survival Kit.
- Prepare your Bushfire Relocation Kit.
- Prepare your property.

When writing your plan you need to consider:

- Have you made the right choice: to leave early or stay?
- Have you discussed your choice with your family, friends and neighbours?
- Who will take charge and lead other family members by carefully communicating the various tasks set out in the plan?
- If you have chosen to stay what will you do to protect your property when the fire arrives?
- What will you put in your Bushfire Survival Kit and where will you store it?
- Do your friends, family and neighbours know the details of your plan?

- What will you do if your Bushfire Survival Plan fails?
- Do you have an alternative option or contingency plan if your plan fails?
- Do you have a Neighbourhood Safer Place (NSP) you can go to as a last resort? For more information on NSPs see [www.ruralfire.qld.gov.au](http://www.ruralfire.qld.gov.au).
- Is it safe to travel there?

If your decision is to leave early, you must include the following information or action items in your Bushfire Survival Plan:

- Monitor media outlets – radio, TV, mobile phone and internet for bushfire alerts.
- When will you leave?
- What will be your trigger for action?
- Will your plan be different for weekdays, weekends, or if someone is at home sick or injured?
- What will you take with you (Relocation Kit)?
- Where will you and your family go when you leave early?
- What route will you take to get there?
- What will you do with your pets?
- What will you do if there are consecutive or multiple **‘catastrophic’** or extreme fire danger days?
- Will you go into work on days when the FDR is in the upper levels?
- Will you send your children to school when the FDR is in the upper levels?
- Will all members of your household leave early?
- What will you do to prepare your property?
- What is your contingency plan in the event that it is unsafe to leave?

If your decision is to stay you must include the following information or actions items in your Bushfire Survival Plan:

- Monitor media outlets – Radio, TV, mobile phone and internet.
- Locate your Bushfire Survival Kit.
- Put on protective clothing.
- Remain hydrated by drinking lots of water.

- Move any stock to fully grazed paddocks.
- Move cars to a safe location.
- Remove garden furniture, doormats and other items.
- Close windows and doors and shut blinds.
- Take down curtains and move furniture away from windows.
- Seal gaps under doors and window screens with wet towels.
- Place pets inside, restrain them, and provide water.
- Block downpipes and fill gutters with water.
- Wet down the sides of buildings facing the approaching fire front.
- Wet down decks and verandas.
- Wet down fine fuels close to buildings.
- Turn on sprinklers in garden before bushfire arrives.
- Fill containers with water; bath, sinks, buckets, wheelie bins, etc.
- Have ladders ready for roof space access (inside) and against roof (outside).
- Have generator or petrol pump ready.
- Start checking and patrolling for embers outside.

When the fire front arrives:

- Take all fire fighting equipment inside such as hoses and pumps as they may melt during the fire.
- Go inside and shelter away from the fire front.
- Patrol the inside of your home, including the ceiling space, for embers or small fires that may start.
- Drink lots of water.
- Check family and pets.

After the fire front has passed:

- Wear protective equipment.
- Go outside once it is safe.
- Check for small spot fires and burning embers:
  - inside roof space
  - under floor boards
  - under house space
  - on veranda and decks



- on window ledges and door sills
- in roof lines and gutters
- garden beds and mulch
- wood heaps
- outdoor furniture
- sheds and carports
- Continue to drink lots of water.
- Stay at your property until the surrounding area is clear of fire.
- Monitor media outlets – radio, TV, mobile phone and internet.

## You need to be both mentally and physically prepared to carry out your Bushfire Survival Plan

There may be other actions to include, depending on your individual property and the level of bushfire risk you are exposed to.

Include the whole family in creating your Bushfire Survival Plan. You and your family should be aware of the actions you will take at the various FDR levels and it is important to ensure this is incorporated into your Bushfire Survival Plan. The FDR for your area can be found on roadside signs and by visiting [www.ruralfire.qld.gov.au](http://www.ruralfire.qld.gov.au) and following the FDR link.

It is important that your Bushfire Survival Plan does not rely solely on receiving an alert.

Once you have completed your Bushfire Survival Plan, practise it regularly to ensure everyone involved knows exactly what to do in the event of a fire.

## Preparing your Bushfire Survival Kit

It is essential that you have a Bushfire Survival Kit if your choice is to stay with your property. This kit will ensure you and your family have the important equipment you need to stay. For a comprehensive list of equipment needed in a Bushfire Survival Kit see page 14.

## Preparing your Bushfire Relocation Kit

It is equally important to have a relocation kit if your choice is to leave early. This kit will ensure you and your family have important items and equipment required to relocate for the time needed. For a comprehensive list of items and equipment needed in a Bushfire Relocation Kit see page 15.

## Making a contingency plan

No matter whether your decision is to leave early, well before a bush fire threatens or to stay you should still have a contingency plan as part of your Bushfire Survival Plan. There are many scenarios to consider, such as what you will do if a rapid onset fire starts in your local area making roads impassable or travel particularly dangerous. You should have other options if road travel is not safe.

- Is your house well prepared?
- Can it provide you with protection from radiant heat?
- Have you identified a safer location such as an NSP?

## Sheltering in a well-prepared property is far safer than being out in the open or in a vehicle

## Preparing your property

An unprepared property is not only at risk itself, but may also present an increased danger for your neighbours and their homes.

Planning is absolutely critical to safely staying with your home. Staying home involves the risk of psychological trauma, injury and death.

There are a number of measures you can take to prepare your home and property for bushfire. These include several preparations you must take annually prior to the bushfire season.

Your pre-season property preparations should include:

- Displaying a prominent house number.
- Ensuring there is adequate access for fire trucks to your property – 4 metres wide by 4 metres high with a turn-around area. Reduce vegetation loads along the access path.
- Mowing your grass regularly.
- Removing excess ground fuels and combustible material (long dry grass, dead leaves and branches).
- Clearing of leaves, twigs, bark and other debris from the roof and gutters.
- Purchasing and testing the effectiveness of gutter plugs.
- Trimming low-lying branches 2 metres from the ground surrounding your home.
- Enclosing open areas under your decks and floors.
- Installing fine steel wire mesh screens on all windows, doors, vents and weep holes.
- Pointing LPG cylinder relief valves away from the house.
- Conducting maintenance checks on pumps, generators and water systems.
- Checking that you have sufficient personal protective clothing and equipment.
- Relocating flammable items away from your home including woodpiles, paper, boxes, crates, hanging baskets and garden furniture.
- Sealing all gaps in external roof and wall cladding.
- Checking that the first aid kit is fully stocked.

## Bushfire Alerts

If you receive an emergency warning about a bushfire or other emergency, take notice as it could save your life.

There are three types of alert messages to help you make the right safety choices:

**Bushfire Advice Message** – a fire has started – general information to keep you up to date.

**Bushfire Watch and Act Message** – represents a heightened level of threat. Conditions are changing, a fire is approaching; lives may come under threat. Take appropriate action.

**Bushfire Emergency Warning** – is the highest level message advising of impending danger. It may be preceded with the Standard Emergency Warning Signal (SEWS).

An Emergency Warning  
means there is a threat  
to lives and protective  
action is required  
immediately.

## When a bushfire strikes

You have made your decision to **PREPARE.ACT.SURVIVE.**  
You have prepared your property before the fire season.  
You have made your Bushfire Survival Plan. You have practised your Bushfire Survival Plan.

A bushfire is threatening? What do you do?

- Know the FDR for any given day.
- Regularly check the FDR on the Rural Fire Services website at [www.ruralfire.qld.gov.au](http://www.ruralfire.qld.gov.au).
- Monitor your media outlets for warnings on bushfire activity.
- Seek out information if you have to, and do not assume that you will receive a warning.
- Leave early or stay according to your Bushfire Survival Plan.
- Act decisively in accordance with your Bushfire Survival Plan.
- Do not adopt the 'wait and see' option.

## Travelling in your vehicle near a bushfire

Sheltering inside a vehicle is a high-risk strategy that can result in death. Whilst sheltering inside a vehicle offers you a slightly higher chance of survival than being caught in the open, having a leave early or stay strategy is a much safer option.

You should never take a journey into areas where the fire danger is catastrophic or extreme. You should consider postponing or finding alternative routes if necessary. If you can smell or see smoke in the distance it is best to u-turn and drive away from the danger.

If you are caught in smoke or flames while on the road:

- Turn on the vehicle's headlights and hazard warning lights.
- If you need to shelter in your vehicle drive your car into a bare, clear area well away from surrounding trees, leaving lights on. Position vehicle to prevent side impact from advancing fire front.
- Close all windows and vents.
- Leave the engine running and turn off the air conditioning system.
- Cover your entire body with woollen or cotton blankets to protect from radiant heat.
- Take shelter below the window level.
- Drink water frequently and stay in the vehicle until the fire front has passed.
- Once the fire front has passed exit the vehicle to inspect the damage and ensure other passengers are safe.

## Neighbourhood Safer Places

A Neighbourhood Safer Place (NSP) is a place of last resort for people during a bushfire. An NSP may form part of a back-up plan when:

- Your Bushfire Survival Plan has failed.
- Your plan was to stay but the extent of the fire means that your home cannot withstand the impact of the fire and therefore your home is not a safe place to shelter.
- The fire has escalated to an extreme or catastrophic level and relocation is the safest option.

An NSP is an identified building or open space within the community that can provide a level of protection from the immediate life-threatening effects of a bushfire. NSPs still entail some risk, both in moving to them and while sheltering in them and cannot be considered completely safe.

They are a place of *last resort* in bushfire emergencies only. The following limitations of NSPs need to be considered within your Bushfire Survival Plan:

- NSPs do not cater for pets.
- Firefighters may not be present as they will be fighting the main fire front elsewhere.
- NSPs do not provide meals or amenities.
- They may not provide shelter from the elements, particularly flying embers.

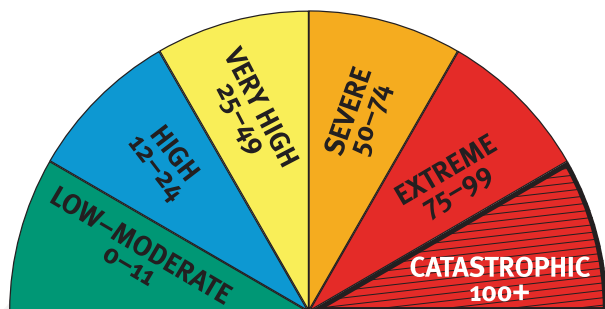
If you are a person with special needs you should give consideration to what assistance you may require at an NSP.

Although QFRS cannot guarantee an immediate presence during a bushfire, every effort will be made to provide support as soon as resources are available.

If an NSP is part of your contingency plan it should not require extended travel through fire-affected areas to get there.



# FIRE DANGER RATING



The Fire Danger Rating (FDR) is an early indicator of potential danger and should act as your first trigger for action. The higher the rating the greater the need for you to act.

The FDR is an assessment of the potential fire behaviour, the difficulty of suppressing a fire, and the potential impact on the community should a bushfire occur on a given day.

A Fire Danger Index (FDI) of 'low-moderate' means that fire will burn slowly and that it will be easily controlled, whereas a FDI in excess of 'catastrophic 100+' means that fire will burn so fast and so hot that it will be uncontrollable.

## CATASTROPHIC 100+

A fire with a rating of 'catastrophic' may be uncontrollable, unpredictable and fast moving. The flames will be higher than roof tops. Many people will be injured and many homes and businesses will be destroyed.

During a 'catastrophic' fire, well-prepared and constructed homes will not be safe. Leaving is the only option for your survival.

## EXTREME 75-99

A fire with an 'extreme' rating may be uncontrollable, unpredictable and fast moving. The flames will be higher than roof tops. During an 'extreme' fire, people will be injured and homes and businesses will be destroyed.

During a 'extreme' fire, well-prepared and well-constructed homes may not be safe. Leaving is the only option for your survival.

## SEVERE 50-74

A fire with a 'severe' rating may be uncontrollable and move quickly, with flames that may be higher than roof tops. A 'severe' fire may cause injuries and some homes or businesses will be destroyed.

During a fire with a 'severe' rating, leaving is the safest option for your survival. Use your home as a place of safety only if it is well-prepared and well-constructed.

## VERY HIGH 25-49

A fire with a 'very high' danger rating is a fire that can be difficult to control with flames that may burn into the tree tops. During a fire of this type some homes and businesses may be damaged or destroyed.

During a fire with a 'very high' danger rating, you should use your home as a place of safety only if it is well prepared and well-constructed.

## HIGH 12-24

A fire with a 'high' danger rating is a fire that can be controlled where loss of life is unlikely and damage to property will be limited.

During a fire with a 'high' danger rating, you should know where to get more information and monitor the situation for any changes.

## LOW-MODERATE 0-11

A fire with a 'low to moderate' rating can be easily controlled and pose little/or no risk to life or property.

During a fire with a 'low to moderate' rating, you should know where to get more information and monitor the situation for any changes.

# BUSHFIRE SURVIVAL PLAN

Complete your personalised Bushfire Survival Plan lift-out.

## Personal details:

Important phone numbers: **000** (Fire, Police and Ambulance)

Family:	Family:	Family:
Work:	Friends:	Friends:
School:		

## Important contact details – name and phone number:

Insurer:	Policy Number:	Phone:
Electricity:		Phone:
Water:		Phone:
Gas:		Phone:
Phone Company:		Phone:
Council:	Phone:	

## Leave early:

List all names and contact phone numbers of household members who have decided to leave early then complete Section 1.

Names:
Phone:

## Stay:

List all names and contact phone numbers of household members who have decided to stay, then complete Section 2.

Names:
Phone:

# Leave early – Section 1

Pull this Bushfire Survival Plan lift-out from this document and keep in a safe place.

Leaving early will always be the safest option for you and your family. It is extremely important for you to prepare a detailed leave early plan to ensure everyone understands what to do and when. Use the boxes below to list tasks to do.

**When to go** – Think of different triggers that will cause you and your family to leave early. Think about what you will do if you have sent the children to school that day. Think about whether or not you will have to travel from work into the fire zone.

**Where to go** – Identify one or more safer locations. Consider putting on personal protective clothing before you leave home.

**How to get there** – What roads will you take to your destination? Have an alternative route if your first choice is impassable.

**What to take** – Make a list of your most valuable items (e.g. insurance papers, electronic records, photo albums, passports, birth certificates and other important documents).



## Stay – Section 2

Anyone who is not going to leave early must be involved in completing this stay and defend plan to ensure they know what to do. Every stay plan will be different depending on your circumstances. Use the boxes below to list tasks to do.

**Before the fire approaches** – Start getting yourself and your property ready for a bushfire.

**As the fire approaches** – Prepare for ember attack on or near your home.  
Remember to put on personal protective clothing.

**As the fire front arrives** – Stay safe by monitoring the fire from inside your home.

**After the fire has passed** – Patrol your property and extinguish any spot fires or burning embers.  
You may need to keep this up for several hours.

## Everyone must have a contingency plan

**Have a contingency plan** – what will you do if you can't activate your Bushfire Survival Plan? Remember that leaving late can lead to loss of lives.

**Know where your nearest NSP is and how to get there.**

# ACTIVATING YOUR BUSHFIRE SURVIVAL PLAN

Once you have prepared your Bushfire Survival Plan and completed your preparations, it is absolutely essential that you regularly practise and review your plan. This will make sure you and your family are well organised in the event of a bushfire. If a bushfire threatens the health and safety of you, your family, home or property, you should follow these steps:

## Step 1 – Activate your Bushfire Survival Plan

Someone must take charge and lead other family members through this emotional experience by carefully communicating the various tasks set out in the plan. Know who is going to leave early and who is going to stay.

## Step 2 – Put on your personal protective clothing

Every member of the family must change into their personal protective clothing, including long pants, long-sleeve-shirt and closed-in shoes.

## Step 3A – Pack your vehicle and leave early

If your plan is to leave early, pack all valuables in your vehicle (see Relocation Kit) and relocate to your designated safer location. Give yourself enough time to get you and your family to safety. Don't return home until it is safe to do so.

## Step3B – Implement your strategy to stay and defend

If your plan is to stay ensure you have all the items in the Bushfire Survival Kit ready to go. This can be a dangerous option and you should be physically and mentally prepared.

OR

## Step 4 – Keep informed of bushfire activity

Listen to the radio, television, internet, firefighters and/or police for information on the fire in your local area. Bushfire is dynamic and unpredictable so you need to be prepared for the unexpected. Warnings are not guaranteed so do whatever is necessary to ensure you remain safe.

# BUSHFIRE SURVIVAL KIT

You need to have a Bushfire Survival Kit stored in an area of the house that is safe and easy to access. It should contain:

- protective clothing
- mop
- gloves
- torch
- hoses
- shovel
- towels
- buckets
- safety goggles
- ladder
- medications
- bottled drinking water
- fire extinguishers
- battery operated radio
- spare batteries
- smoke mask
- woollen blankets
- first aid kit
- knapsack sprayer
- protective clothing for the whole family.





# RELOCATION KIT

Write a list of all items your family will need before, during and after your relocation. The list below shows items that you might like to put in your relocation kit.

- protective clothing for the whole family
- battery operated radio and spare batteries
- safety goggles
- mobile phone and battery charger
- medications
- wallet or purse and money
- clothing (two sets of clothes for each family member)
- identity information (passports, birth certificates)
- bottled water (enough for each relocated family member)
- family and friends' phone numbers
- items of high importance (e.g. family photos, valuables, important documents)
- blankets (natural fibres)
- children's toys



# BUSHFIRE RISK SELF-ASSESSMENT CHECKLIST



This basic self-assessment checklist is designed to give you a greater understanding of the bushfire risk level relevant to your property. Information provided in this assessment will assist you when completing your Bushfire Survival Plan.

Address:

Postcode:

Property Owner/Property Name:

## ACCESS/EGRESS

Road/Street/Driveway PLEASE ✓ APPROPRIATE BOX

Clear of overhanging vegetation	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Unrestricted gate access	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Clear of overhead power lines	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Able to reverse in	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Turning/passing areas	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Heavy vehicle access on cattle grid/bridge	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Alternative way out	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Two wheel drive access	Yes <input type="checkbox"/>	No <input type="checkbox"/>

## STRUCTURE/S

Exterior walls – non-combustible	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Roof ridge capping sealed	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Eaves enclosed	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Roofing gutters and valleys clear of leaf litter and fine fuels	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Underfloor enclosed	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Vents screened	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Windows – non-combustible finishing	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Deck/veranda non-combustible	Yes <input type="checkbox"/>	No <input type="checkbox"/>

## WATER SUPPLY

Reticulated water supply	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Tank supply with QFRS access – 50mm male camlock fitting so fire fighters can use water if needed	Yes <input type="checkbox"/>	No <input type="checkbox"/>
QFRS accessible external open water supply (dam/pool)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Firefighting pump and hose connected to water supply	Yes <input type="checkbox"/>	No <input type="checkbox"/>

## Other considerations

There are a range of other things to be considered regardless of your decision to leave early or stay:

- Firefighting equipment such as pumps, hoses and sprinkler systems should be tested regularly and maintained in maximum operational working condition.
- Firefighters may need access to your property during a bushfire so it is in your best interests to allow enough space for fire trucks (4 metres wide by 4 metres high).
- Your pets, livestock and other animals require proper care and attention during fires. Consider food, medication, transportation and sleeping arrangements for your animals.

## Myths versus Reality

Myths	Reality
There will always be a fire truck available to fight a bushfire threatening my home.	Firefighters may be required to fight many fronts of a large fire. Fire trucks and firefighters are finite resources so it is important they are deployed in an appropriate manner to best manage the fire.
I know the back streets in town like the back of my hand so it is OK for me to leave at the last minute.	If your decision in your Bushfire Survival Plan is to leave early, then you should leave well before the fire front reaches your property. Irrespective of your local area knowledge you must stick to your plan and leave early. Leaving late can be fatal.
Someone from an emergency service will knock on my door when it is time to leave.	Emergency services personnel may not be available to alert the community by door-knocking and encouraging you to leave. You need to monitor the bushfire alerts by listening to the radio, watching TV or checking the rural fire website. You need to be ready to leave early if your life or the people in your care are at risk.
My house will not burn down because there is more than 50 metres between my home and nearby bushland.	Most houses which burn down during bushfires have been attacked by flying embers. Under certain conditions embers can cause ignitions up to 20kms in front of the main fire. A combination of your level of preparation and your home's construction will determine the survivability of your home.
I only have to clean my gutters and mow my lawns to prepare my property for bushfire.	Fire requires fuel, heat and oxygen to occur. This means that flames or embers do not necessarily rely solely on your gutters and lawns for fuel. They might utilise overhanging trees, woodpiles, old building materials under the deck or chemicals in the garden shed to sustain them. Take the time to properly prepare your whole property, which includes yourself, your house and your land.