



# BUSHFIRE THREAT ASSESSMENT

FOR  
A PROPOSED SUBDIVISION  
AT  
21-33 OWLPEN LN,  
FARLEY NSW 2320

Prepared by:

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<b>Prepared for:</b>	The Bathla Group
<b>Reference No.</b>	Farley - Bathla
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#### **Disclaimer**

*Notwithstanding the precautions adopted within this report, it should always be remembered that bushfires burn under a wide range of conditions. An element of risk, no matter how small always remains, and although the standard is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.*



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## Executive Summary

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of The Batha Group for a proposed subdivision at Owlpen Ln, Farley NSW 2320.

The report forms part of the supporting documentation for a Development Application (DA) to be submitted to Maitland City Council (MCC). The proposed development is classified as Integrated Development under the provisions of Planning for Bushfire Protection (PBP) (NSW Rural Fire Service (RFS), 2019), and is therefore required under the legislation to be referred to the commissioner of the RFS, for the issue of a Bushfire Safety Authority. The report demonstrates compliance with PBP (RFS, 2019) and AS3959-2018 Construction of Buildings in Bush Fire Prone Areas.

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal. Recommendations are provided with regard to fuel management, access, provision of emergency services, building protection and construction standards, to facilitate an acceptable level of bushfire protection.



In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements:

- Assessment in accordance with AS3959 and the PBP 2019 (section 5 of this report) has shown that future dwellings within the lots will be able to comply with the required BALs. In any case, future dwellings within the site will be assessed under Section 4.14 of EP&A Act for each individual dwelling upon application.
- To achieve a Bushfire Attack Level (BAL) of BAL-29, following land is to be managed as an APZ, which is made up of an Inner Protection Area (IPA) and Outer Protection Area (OPA):
  - North for a distance of 10m as an IPA, 10m as an OPA or to the property boundary, whichever occurs first,
  - East for a distance of 10m as an IPA, 10m as an OPA or to the property boundary, whichever occurs first,
  - South for a distance of 10m as an IPA, and, 10m as an OPA or to the property boundary, whichever occurs first,
  - Along the Vegetated Riparian Zone for a distance of 4m as an IPA, and 10m as an OPA.
- Reticulated water is extended into the site.

- The development will be linked to the water pressure mains and the proposed internal fire hydrant spacing, sizing and pressures are to comply with AS 2419.1-2005 Fire Hydrant Installations – System design, installation and commissioning (2005).
- The development is for three or more allotments and therefore requires perimeter roads.
- All perimeter and non-perimeter roads identified on the subdivision plan need to be consistent with the following requirements:
  - a. Traffic management devices are constructed to not prohibit access by emergency services vehicles;
  - b. Where access/egress can only be achieved through forest, woodland and have heath vegetation, secondary access shall be provided to an alternate point on the existing public road system;
  - c. Where kerb and guttering are provided on perimeter roads, roll top kerbing should be used to the hazard side of the road;
  - d. Two-way sealed roads;
  - e. Minimum 8m carriageway with kerb to kerb;
  - f. Parking is provided outside of the carriageway width;
  - g. Hydrants are located clear of parking areas;
  - h. There are through roads, and these are linked to the internal road system at an interval of no greater than 500m;
  - i. Dead end roads are not recommended, but if unavoidable, are not more than 200 meters in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end;
  - j. Curves of roads have a minimum inner radius of 6m;
  - k. The maximum grade road is 15 degrees and average grade of not more than 10 degrees;
  - l. The road crossfall does not exceed 3 degrees; and
  - m. A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.
  - n. Bridges and Causeways are designed sufficiently to carry a fully loaded firefighting vehicle (up to 23 tonnes) and signage is put in place to clearly indicate the maximum load rating of 23 tonnes,
  - o. Hydrants are:
    - Located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression, and
    - Provided in accordance with the relevant clauses of AS 2419.1:2017.

Provided the recommendations stated within this report are implemented in full then Firebird ecoSultants Pty Ltd is of the opinion that the proposed development is able to meet the aims and objectives of PBP (RFS, 2019).

Yours faithfully,

BPAD  
Bushfire  
Planning & Design  
Accredited Practitioner  
Level 3

Sarah Jones

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**BPAD-A Certified Practitioner (BPD-PA-26512)**

Ecologist / Bushfire Planner



## Terms & Abbreviations

Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419 -2005	Australian Standard – Fire Hydrant Installations
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BPL Map	Bush Fire Prone Land Map
BPMs	Bush Fire Protection Measures
<i>EPA Act</i>	<i>NSW Environmental Planning and Assessment Act 1979</i>
FFDI	Forest Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
MCC	Maitland City Council
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection 2019
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation



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# I INTRODUCTION

Firebird ecoSultants Pty Ltd has been engaged to undertake a Bushfire Threat Assessment (BTA) for a proposed subdivision at 21-33 Owlpen Ln, Farley NSW 2320, hereafter referred to as the “site” (Figure 1-1).

The report forms part of the supporting documentation for a Development Application (DA) to be submitted to Maitland City Council (MCC). The proposed development is classified as Integrated Development under the provisions of Planning for Bushfire Protection (PBP) (NSW Rural Fire Service (RFS), 2019), and is therefore required under the legislation to be referred to the commissioner of the RFS for the issue of a Bushfire Safety Authority. The report demonstrates compliance with PBP 2019 (NSW RFS, 2019) and AS3959-2018 Construction of Buildings in Bush Fire Prone Areas (RFS, 2019).

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal. Recommendations are provided with regard to fuel management, access, provision of emergency services, building protection and construction standards, to facilitate an acceptable level of bushfire protection.

## I.1 Site Particulars

**Locality:** 21-33 Owlpen Ln, Farley NSW 2320

**LGA:** Maitland City Council (MCC)

**Forest Danger Index:** 100 FFDI

**Boundaries:** The site is bounded by Owlpen Lane to the west, small rural lifestyle lots to the north and large rural lifestyle lots to the south and east

**Current Land Use:** The site consists of four (4) existing dwellings, two (2) sheds, a 3rd order creek, disturbed forest vegetation and cleared land.

**Climate / Fire History:** The site lies within a geographical area with a Forest Fire Danger Index (FFDI) rating of 100. Extreme bushfire weather is therefore associated with long periods of drought, high temperatures, low humidity and gusty often north-westerly winds.



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## 1.2 Objectives of Assessment

This report has been prepared to address the requirements of Clause 44 of the *Rural Fires Regulation*, for an application for a Bush Fire Safety Authority (BFSA). This BTA also addresses the six key Bush Fire Protection Measures (BFPMs) in a development assessment context, being:

- The provision of clear separation of buildings and bush fire hazards, in the form of fuel-reduced APZ (and their components being Inner Protection Areas (IPA's) and Outer Protection Areas (OPA's));
- Sitting and design of the proposal;
- Construction standards;
- Appropriate access standards for residents, fire-fighters, emergency workers and those involved in evacuation;
- Adequate water supply and pressure, and utility services; and
- Suitable landscaping, to limit fire spreading to a building.





Figure 1-1: Site Location





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## 2 METHODOLOGY

### 2.1 Vegetation Assessment

The vegetation formations in and surrounding the subject land, to a distance of 140 m, was assessed in accordance with PBP (RFS, 2019). The vegetation assessment was carried out, as follows:

- Aerial Photograph Interpretation to map vegetation cover and extent.
- Confirmation of the vegetation assemblage typology present via a site inspection.

### 2.2 Slope Assessment

Slope assessment has been undertaken as follows:

- Aerial Photograph Interpretation in conjunction with analysis of electronic contour maps with a contour interval of 10m.



### 3 SITE ASSESSMENT

The following assessment has been undertaken in accordance with the requirements of PBP (RFS, 2019).

#### 3.1 Vegetation Assessment

In accordance with PBP (RFS 2019), an assessment of the vegetation over a distance of 140m in all directions from the site was undertaken.

Vegetation that may be considered a bushfire hazard was identified in all directions from the site and are presented and depicted in Table 3-1.

**Table 3-1: Vegetation Classification for the Northern Area**

Direction	Vegetation Type	Distance from Site Boundary	Slope Vegetation occurs on
North	Managed Land (Small lot rural lifestyle)	Adjacent	Cross-slope
East	Grassland	Adjacent	Downslope (0-5°)
South	Remnant Vegetation - Riparian Vegetation	Within Site	Downslope (0-5°)
South Continued	Grassland	Adjacent	Upslope
West	Managed Land (to be developed)	Adjacent	Upslope

**Table 3-2: Vegetation Classification for the Southern Area**

Direction	Vegetation Type	Distance from Site Boundary	Slope Vegetation occurs on
North	Remnant Vegetation- Riparian Vegetation	Within Site	Downslope (0-5°)
East	Grassland	Adjacent	Cross-slope
South	Grassland	Adjacent	Upslope
West	Grassland	Adjacent	Cross-slope

## 4 BUSHFIRE PROTECTION ASSESSMENT

### 4.1 Asset Protection Zones

The PBP (RFS, 2019) guidelines have been used to determine the widths of the APZs required for habitable buildings within the site using the vegetation and slope data identified in Section 3-1 of this report.

The site lies within Maitland Local Government Area and therefore is assessed under an FDI rating of 100. Using the results from the Site Assessment (section 3.1 of this report) the deemed to satisfy APZ requirements for the proposed buildings within the site were determined using Table A1.12.2 in PBP (RFS, 2019). Refer to Table 4-1 for the required APZs for the proposed habitable buildings.

**Table 4-1: Recommended APZ's for Future Dwellings – Northern Area**

Direction from Development	Vegetation classified within 140m	Effective Slope (within 100m)	APZ to be provided	Width of Allowable OPA	Comment
North	Managed Land (Small lot rural lifestyle)	Cross-slope	N/A	N/A	Acceptable solution in accordance with PBP (RFS, 2019)
East	Grassland	Downslope (0-5°)	>12m	10m	Acceptable solution in accordance with PBP (RFS, 2019)
South	Remnant Vegetation (Riparian Corridor)	Downslope (0-5°)	>14m	10m	Acceptable solution in accordance with PBP (RFS, 2019)
South Continued	Grassland	Upslope	>10m	10m	Acceptable solution in accordance with PBP (RFS, 2019)
West	Managed Land (to be developed)	Upslope	N/A	N/A	Acceptable solution in accordance with PBP

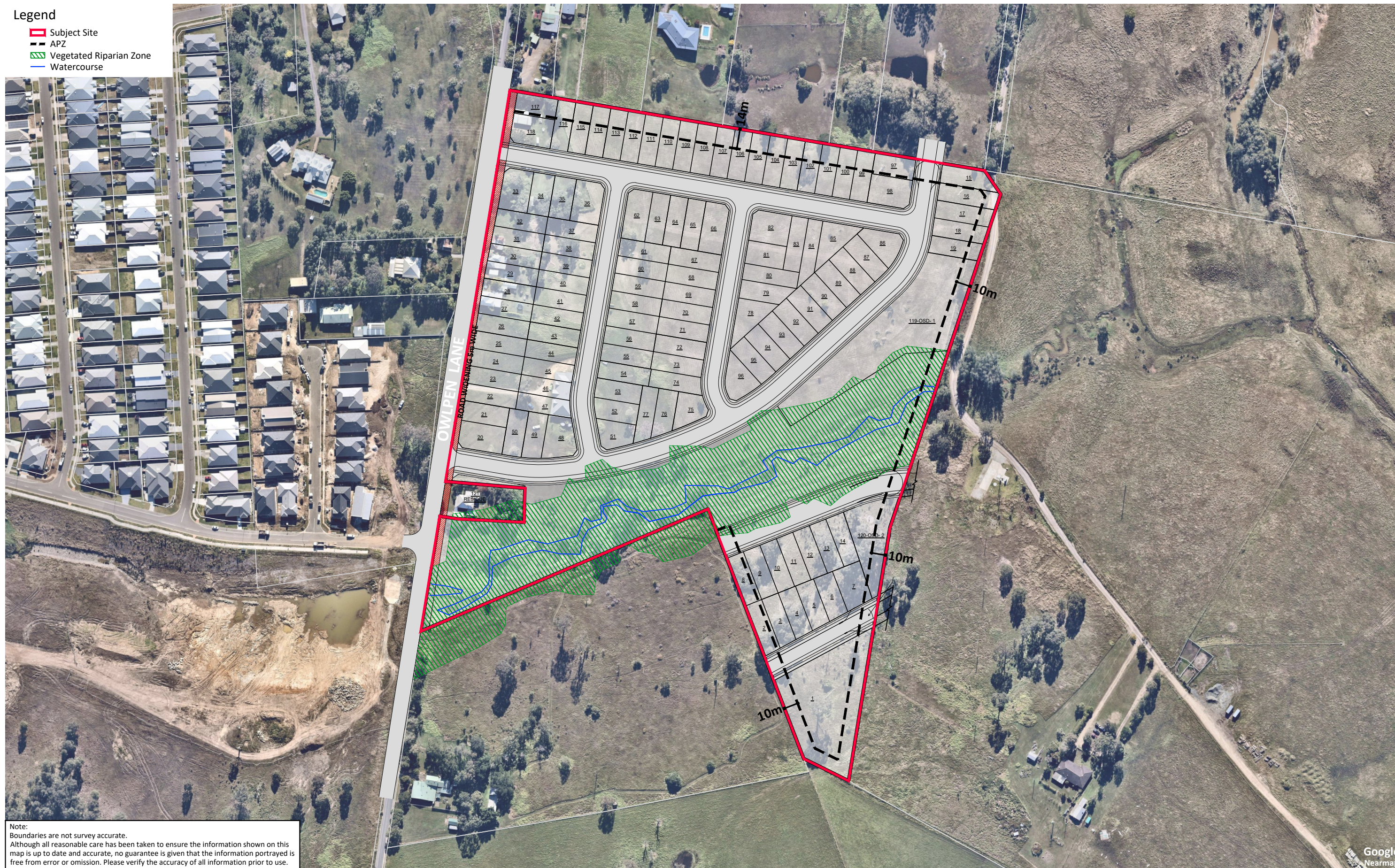
					(RFS, 2019)
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**Table 4 1: Recommended APZ's for Future Dwellings – Southern Area**

Direction from Development	Vegetation classified within 140m	Effective Slope (within 100m)	APZ to be provided	Width of Allowable OPA	Comment
North	Remnant Vegetation (Riparian Vegetation)	Downslope (0-5°)	>14m	N/A	Acceptable solution in accordance with PBP (RFS, 2019)
East	Grassland	Cross-slope	>10m	10m	Acceptable solution in accordance with PBP (RFS, 2019)
South	Grassland	Upslope	>10m	10m	Acceptable solution in accordance with PBP (RFS, 2019)
South	Grassland	Cross-slope	>10m	10m	Acceptable solution in accordance with PBP (RFS, 2019)

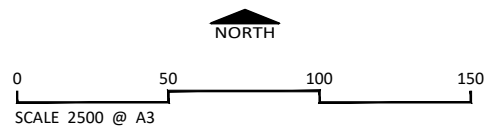


- Legend**
- ▬ Subject Site
  - - - APZ
  - ▨ Vegetated Riparian Zone
  - Watercourse



**FIGURE 4-1: ASSET PROTECTION ZONES**

CLIENT Client  
 SITE DETAILS No.21-33 Owlpen Lane Farley  
 DATE 19 August 2022



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## 5 DWELLING DESIGN & CONSTRUCTION

In 2018, the Council of Standards approved the revised Australian Standard AS3959-2018 Construction of buildings in bushfire prone areas (AS3959-2018). This standard was published by Standards of Australia on 13 November 2018 and replaces the 2009 version of the document.

AS3959-2018 was formally adopted by the BCA as the national standard in March 2020. The BCA 2010 references AS3959 as the deemed-to-satisfy (DTS) solution for construction requirements in bush fire prone areas for NSW.

Building design and the materials used for construction of future dwellings should be chosen based on the information contained within AS3959-2018, and accordingly the designer / architect should be made aware of this recommendation. It may be necessary to have dwelling plans checked by the architect involved to ensure that the proposed dwellings meet the relevant Bushfire Attack Level (BAL) as detailed in AS3959-2018.

The determinations of the appropriate BAL are based upon parameters such as weather modelling, fire-line intensity, flame length calculations, as well as vegetation and fuel load analysis. The determination of the construction level is derived by assessing the:

- Relevant FFDI = 100
- Flame temperature
- Slope
- Vegetation classification; and
- Building location

The following BAL, based on heat flux exposure thresholds, are used in the standard:

(a) **BAL – LOW**      The risk is considered to be **VERY LOW**

There is insufficient risk to warrant any specific construction requirements but there are still some risks.

(b) **BAL – 12.5**      The risk is considered to be **LOW**

There is a risk of ember attack.

The construction elements are expected to be exposed to a heat flux not greater than 12.5 k/m<sup>2</sup>.

(c) **BAL – 19** The risk is considered to be **MODERATE**

There is a risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to radiant heat.



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The construction elements are expected to be exposed to a heat flux not greater than 19 kW/m<sup>2</sup>.

(d) **BAL-29** The risk is considered to be **HIGH**

There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level of radiant heat.

The construction elements are expected to be exposed to a heat flux no greater than 29 kW/m<sup>2</sup>.

(e) **BAL-40** The risk is considered to be **VERY HIGH**

There is much increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front.

The construction elements are expected to be exposed to a heat flux no greater than 40 kW/m<sup>2</sup>.

(f) **BAL-FZ** The risk is considered to be **EXTREME**

There is an extremely high risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front.

The construction elements are expected to be exposed to a heat flux greater than 40 kW/m<sup>2</sup>.





## 5.1 Determination of Bushfire Attack Levels

Using a FFDI of 100, the information relating to vegetation, slope and according to Table 2.4.2 of AS3959-2018 and PBP, Table 5-1 illustrates the required BALs for future dwellings within the lots.

**Table 5-1: Determination of BALs for Future Dwellings within the Site within the Northern Development Area of the Site**

Northern Development Area			
Vegetation Type and Direction	Separation Distance	Bushfire Attack Level (BAL)	Construction Section
Managed Land to the North	>100m	BAL-LOW	No construction requirements
Grassland to the east (downslope 0-5°)	<9m	BAL-FZ	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	9-<12m	BAL-40	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	12-<17m	BAL-29	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	17-<25m	BAL-19	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	25-<50m	BAL-12.5	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	>50m	BAL-LOW	No construction requirements
Riparian Vegetation Zone to the south	<11m	BAL-FZ	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	11-<14m	BAL-40	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	14-<21m	BAL-29	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3

	21-<29m	BAL-19	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	29-<100m	BAL-12.5	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	>100m	BAL-LOW	No construction requirements
Grassland to the south continued (Upslope ground)	<8m	BAL-FZ	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	8-<10m	BAL-40	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	10-<15m	BAL-29	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	15-<22m	BAL-19	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	22-<50m	BAL-12.5	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	>50m	BAL-LOW	No construction requirements
Managed Land (to be developed) to the west	>100m	BAL-LOW	No construction requirements

**Table 5-2: Determination of BALs for Future Dwellings within the Site within the Southern Development Area of the Site**

Southern Development Area			
Vegetation Type and Direction	Separation Distance	Bushfire Attack Level (BAL)	Construction Section
Riparian Vegetation to the North	<11m	BAL-FZ	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	11-<14m	BAL-40	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3

	14-<21m	BAL-29	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	21-<29m	BAL-19	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	29-<100m	BAL-12.5	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	>100m	BAL-LOW	No construction requirements
Grassland to the east (Cross-slope)	<8m	BAL-FZ	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	8-<10m	BAL-40	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	10-<15m	BAL-29	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	15-<22m	BAL-19	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	22-<50m	BAL-12.5	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	>50m	BAL-LOW	No construction requirements
Grassland vegetation to the south (upslope)	<8m	BAL-FZ	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	8-<10m	BAL-40	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	10-<15m	BAL-29	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	15-<22m	BAL-19	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3

	22-<50m	BAL-12.5	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	>50m	BAL-LOW	No construction requirements
Grassland to the west (Cross-slope ground)	<8m	BAL-FZ	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	8-<10m	BAL-40	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	10-<15m	BAL-29	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	15-<22m	BAL-19	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	22-<50m	BAL-12.5	Sect 3 & 5 of AS3959 and Sect A3.7 of PBP Addendum Appendix 3
	>50m	BAL-LOW	No construction requirements

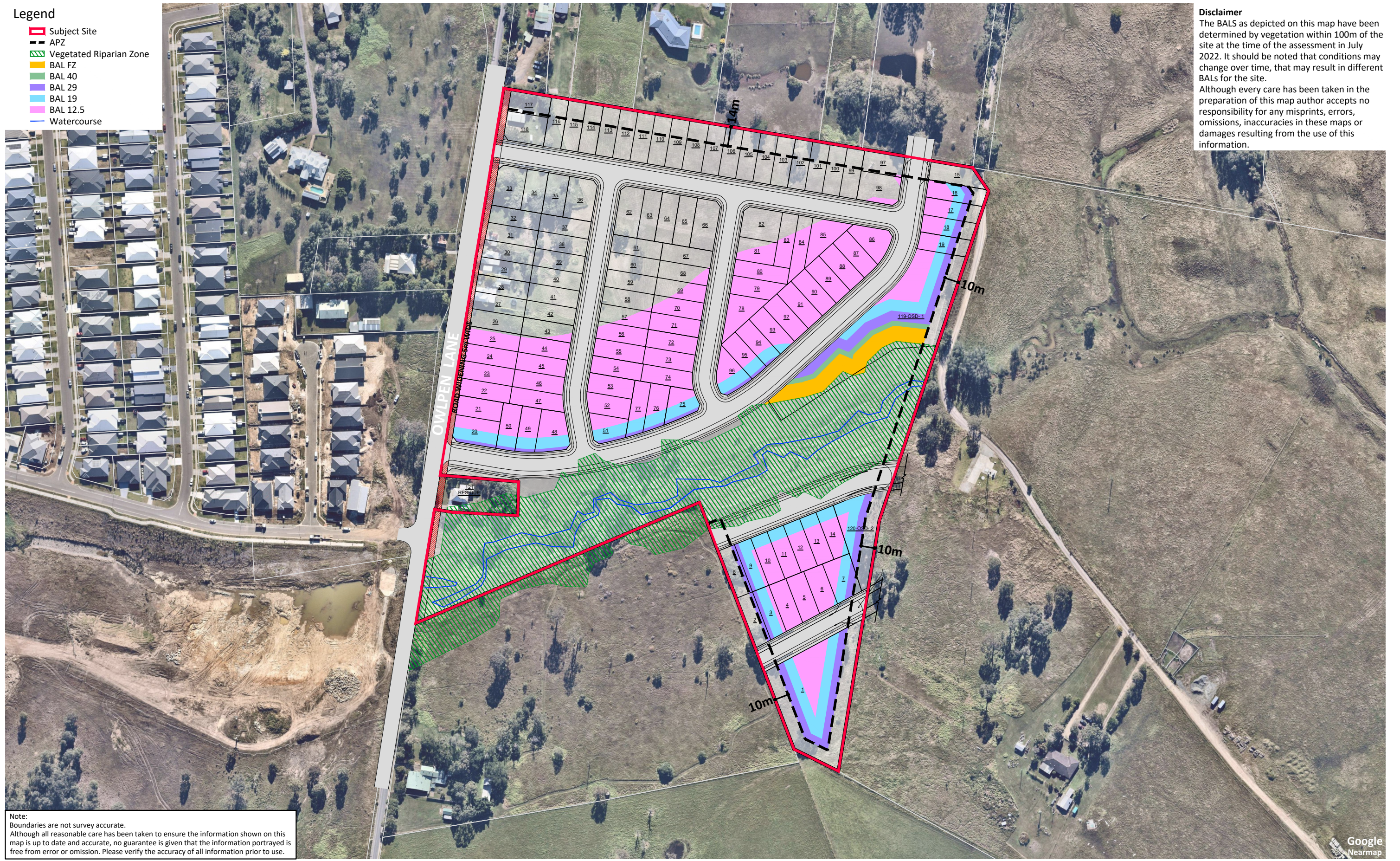
Given, the information in Table 5-1 above any future dwellings within the lots will be able to comply with AS3959-2018. These will be subject to further assessment under Section 4.14 of the EP&A Act depending on location of future dwellings and retained vegetation within the site.



**Legend**

- ▬ Subject Site
- ▬ APZ
- ▨ Vegetated Riparian Zone
- ▭ BAL FZ
- ▭ BAL 40
- ▭ BAL 29
- ▭ BAL 19
- ▭ BAL 12.5
- ▬ Watercourse

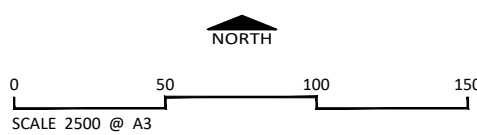
**Disclaimer**  
 The BALS as depicted on this map have been determined by vegetation within 100m of the site at the time of the assessment in July 2022. It should be noted that conditions may change over time, that may result in different BALS for the site.  
 Although every care has been taken in the preparation of this map author accepts no responsibility for any misprints, errors, omissions, inaccuracies in these maps or damages resulting from the use of this information.



**Note:**  
 Boundaries are not survey accurate.  
 Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

**FIGURE 5 - 1: BUSHFIRE ATTACK LEVELS**

**CLIENT** Client  
**SITE DETAILS** No.21-33 Owlpen Lane Farley  
**DATE** 19 August 2022



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## 6 COMPLIANCE

The following Table 6-1 outlines how the proposed subdivision complies with the provisions of PBP 2019.

**Table 6-1: Compliance with the Provisions of PBP 2019**

Acceptable Solutions	Performance Criteria	Compliance
<b>Asset Protection Zones</b>		
› APZs are provided in accordance with Tables A1.12.2 and A1.12.3 based on the FFDI.	potential building footprints must not be exposed to radiant heat levels exceeding 29 kW/m <sup>2</sup> on each proposed lot.	<b>Complies with Acceptable Solution –</b> APZs for the site have been provided in accordance with Table A1.12.2 of PBP 2019.
› APZs are managed in accordance with the requirements of Appendix 4.	APZs are managed and maintained to prevent the spread of a fire towards the building.	<b>Complies with Acceptable Solution –</b> APZs on site are to be managed in accordance with Appendix 4 of PBP 2019.
› APZs are wholly within the boundaries of the development site	the APZs is provided in perpetuity	<b>Complies with Acceptable Solution –</b> APZs on site occur entirely within the boundary of the site.
› APZs are located on lands with a slope less than 18 degrees.	APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	<b>Complies with Acceptable Solution –</b> APZs on site occur over land with slope <18°.
<b>Landscaping</b>		
› landscaping is in accordance with Appendix 4; and fencing is constructed in accordance with section 7.6.	landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	<b>Complies with Acceptable Solution –</b> All landscaping within the site will meet the requirements of the acceptable solution.
<b>Access (General Requirements)</b>		



<ul style="list-style-type: none"> <li>› property access roads are two-wheel drive, all-weather roads;</li> <li>› perimeter roads are provided for residential subdivisions of three or more allotments;</li> <li>› subdivisions of three or more allotments have more than one access in and out of the development;</li> <li>› traffic management devices are constructed to not prohibit access by emergency services vehicles;</li> <li>› maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient;</li> <li>› all roads are through roads;</li> <li>› dead end roads are not recommended, but if unavoidable, are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end;</li> <li>› where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road;</li> <li>› where access/egress can only be achieved through forest, woodland and heath vegetation, secondary access shall be</li> </ul>	<p>firefighting vehicles are provided with safe, all-weather access to structures.</p>	<p><b>Complies with Performance Criteria – –</b> all property access roads are to comply with the acceptable solution.</p>
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<p>provided to an alternate point on the existing public road system; and</p> <p>one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.</p>		
<p>› the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/causeways are to clearly indicate load rating.</p>	<p>the capacity of access roads is adequate for firefighting vehicles.</p>	<p><b>Complies with Acceptable Solution –</b> All roads within the site are designed to meet the requirements of the acceptable solution.</p>
<p>› hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;</p> <p>› hydrants are provided in accordance with the relevant clauses of AS 2419.1:2017 - Fire hydrant installations System design, installation and commissioning; and</p> <p>there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.</p>	<p>there is appropriate access to water supply.</p>	<p><b>Complies with acceptable solution –</b> hydrants are to comply.</p>

**Perimeter Roads**





<ul style="list-style-type: none"> <li>&gt; are two-way sealed roads;</li> <li>&gt; minimum 8m carriageway width kerb to kerb;</li> <li>&gt; parking is provided outside of the carriageway width;</li> <li>&gt; hydrants are located clear of parking areas;</li> <li>&gt; are through roads, and these are linked to the internal road system at an interval of no greater than 500m;</li> <li>&gt; curves of roads have a minimum inner radius of 6m;</li> <li>&gt; the maximum grade road is 15 degrees and average grade of not more than 10 degrees;</li> <li>&gt; the road crossfall does not exceed 3 degrees; and</li> </ul> <p style="padding-left: 40px;">a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.</p>	<p>access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.</p>	<p><b>Complies with performance criteria</b> – all perimeter roads to the site are designed to meet the requirements of the acceptable solution.</p>
<h2 style="margin: 0;">Non-Perimeter Roads</h2>		
<ul style="list-style-type: none"> <li>&gt; minimum 5.5m carriageway width kerb to kerb;</li> <li>&gt; parking is provided outside of the carriageway width;</li> <li>&gt; hydrants are located clear of parking areas;</li> </ul>	<p>access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating.</p>	<p><b>Complies with Acceptable Solution</b> – All non-perimeter roads to the site are designed to meet the requirements of the acceptable solution.</p>



<ul style="list-style-type: none"> <li>› roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m;</li> <li>› curves of roads have a minimum inner radius of 6m;</li> <li>› the road crossfall does not exceed 3 degrees; and  a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.</li> </ul>		
<h3>Property Access</h3>		
<ul style="list-style-type: none"> <li>› There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.  <b>In circumstances where this cannot occur, the following requirements apply:</b></li> <li>› minimum 4m carriageway width;</li> <li>› in forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m at the passing bay;</li> </ul>	<p>firefighting vehicles can access the dwelling and exit the property safely.</p>	<p><b>Complies with Acceptable Solution –</b> All future lots are to be connected to a public road by a driveway &lt;70m.</p>



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<ul style="list-style-type: none"><li>› a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches;</li><li>› provide a suitable turning area in accordance with Appendix 3;</li><li>› curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;</li><li>› the minimum distance between inner and outer curves is 6m;</li><li>› the crossfall is not more than 10 degrees;</li><li>› maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and</li><li>› a development comprising more than three dwellings has access by dedication of a road and not by right of way.</li></ul> <p><b>Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.</b></p>		
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## Water Supplies

<ul style="list-style-type: none"> <li>› reticulated water is to be provided to the development where available;</li> <li>› a static water and hydrant supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed; and</li> </ul> <p style="text-align: center;">static water supplies shall comply with Table 5.3d.</p>	<p>adequate water supplies are provided for firefighting purposes.</p>	<p><b>Complies with Acceptable Solution</b> – all proposed lots are to be connected to reticulated water.</p>
<ul style="list-style-type: none"> <li>› fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS 2419.1:2017;</li> <li>› hydrants are not located within any road carriageway; and</li> <li>› reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.</li> </ul>	<p>Water supplies are located at regular intervals; and</p> <p>the water supply is accessible and reliable for firefighting operations.</p>	<p><b>Complies with Acceptable Solution</b> – hydrants are to be appropriately located.</p>
<ul style="list-style-type: none"> <li>› fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2017.</li> </ul>	<p>flows and pressure are appropriate.</p>	<p><b>Complies with Acceptable Solution</b> – fire hydrant pressures and flows are assumed to be compliant.</p>
<ul style="list-style-type: none"> <li>› all above-ground water service pipes are metal, including and up to any taps; and</li> </ul> <p>above-ground water storage tanks shall be of concrete or metal.</p>	<p>the integrity of the water supply is maintained.</p>	<p><b>Complies with Acceptable Solution</b> – All above ground water service pipes will meet the requirements.</p>

## Electricity Services



<ul style="list-style-type: none"> <li>&gt; where practicable, electrical transmission lines are underground;</li> <li>&gt; where overhead, electrical transmission             <ul style="list-style-type: none"> <li>&gt; lines are proposed as follows: lines are installed with short pole spacing of 30m, unless crossing gullies, gorges or riparian areas; and</li> </ul> </li> </ul> <p>no part of a tree is closer to a power line than the distance set out in ISSC3 Guideline for Managing Vegetation Near Power Lines.</p>	<p>location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.</p>	<p><b>Complies with Acceptable Solution –</b> All future dwellings are able to meet the requires for electricity services.</p>
<h2 style="margin: 0;">Gas Services</h2>		
<ul style="list-style-type: none"> <li>&gt; reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 - The storage and handling of LP Gas, the requirements of relevant authorities, and metal piping is used;</li> <li>&gt; all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;</li> <li>&gt; connections to and from gas cylinders are metal;</li> <li>&gt; polymer-sheathed flexible gas supply lines are not used; and</li> <li>&gt; above-ground gas service pipes are metal, including and up to any outlets.</li> </ul>	<p>location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.</p>	<p><b>Can Complies with Acceptable Solution –</b> All future dwellings are able to meet the requirements for gas services.</p>

## 7 CONCLUSION & RECOMMENDATIONS

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of The Batha Group for a proposed subdivision at 21-33 Owlpen Lane, Farley NSW 2320.

If the recommendations contained within this report are duly considered and incorporated, it is considered that the fire hazard present is containable to a level necessary to provide an adequate level of protection to life and property on the site.

In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements:

- Assessment in accordance with AS3959 and the PBP (section 5 of this report) has shown that future dwellings within the lots will be able to comply with the required BALs. In any case, future dwellings within the site will be assessed under Section 4.14 of EP&A Act for each individual dwelling upon application.
- To achieve a Bushfire Attack Level (BAL) of BAL-29, following land is to be managed as an APZ, which is made up of an Inner Protection Area (IPA) and Outer Protection Area (OPA):
  - North for a distance of 10m as an IPA, 10m as an OPA or to the property boundary, whichever occurs first,
  - East for a distance of 10m as an IPA, 10m as an OPA or to the property boundary, whichever occurs first,
  - South for a distance of 10m as an IPA, and, 10m as an OPA or to the property boundary, whichever occurs first,
  - Along the Vegetated Riparian Zone for a distance of 4m as an IPA, and 10m as an OPA.
- Reticulated water is extended into the site.
- The development will be linked to the water pressure mains and the proposed internal fire hydrant spacing, sizing and pressures are to comply with AS 2419.1-2005 Fire Hydrant Installations – System design, installation and commissioning (2005).



- The development is for three or more allotments and therefore requires perimeter roads.
- All perimeter and non-perimeter roads identified on the subdivision plan need to be consistent with the following requirements:
  - a. Traffic management devices are constructed to not prohibit access by emergency services vehicles;
  - b. Where access/egress can only be achieved through forest, woodland and have heath vegetation, secondary access shall be provided to an alternate point on the existing public road system;
  - c. Where kerb and guttering are provided on perimeter roads, roll top kerbing should be used to the hazard side of the road;
  - d. Two-way sealed roads;
  - e. Minimum 8m carriageway with kerb to kerb;
  - f. Parking is provided outside of the carriageway width;
  - g. Hydrants are located clear of parking areas;
  - h. There are through roads, and these are linked to the internal road system at an interval of no greater than 500m;
  - i. Dead end roads are not recommended, but if unavoidable, are not more than 200 meters in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end;
  - j. Curves of roads have a minimum inner radius of 6m;
  - k. The maximum grade road is 15 degrees and average grade of not more than 10 degrees;
  - l. The road crossfall does not exceed 3 degrees; and
  - m. A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.
  - n. Bridges and Causeways are designed sufficiently to carry a fully loaded firefighting vehicle (up to 23 tonnes) and signage is put in place to clearly indicate the maximum load rating of 23 tonnes,
  - o. Hydrants are:
    - Located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression, and
    - Provided in accordance with the relevant clauses of AS 2419.1:2017.

Provided the recommendations stated above are implemented in full Firebird ecoSultants Pty Ltd is of the opinion that the proposed development is able to meet the aims and objectives of PBP (RFS, 2019).

Yours faithfully



Sarah Jones

B.Env.Sc., G.DIP.DBPA (Design for Bushfire Prone Areas)

**BPAD-A Certified Practitioner (BPD-PA-26512)**

Ecologist / Bushfire Planner



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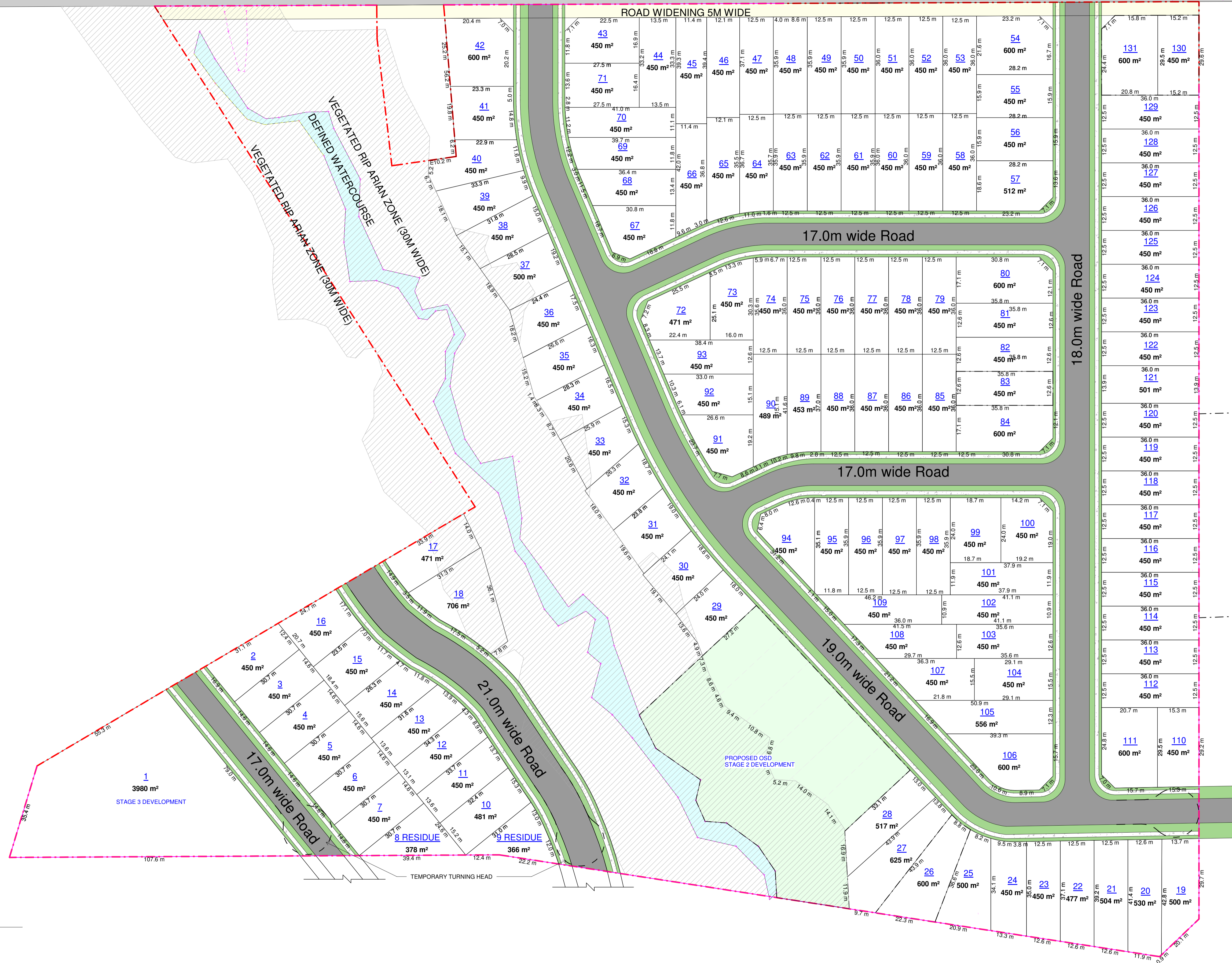
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# APPENDIX A PROPOSED PLANS

OWLPEN LANE



1 SUBDIVISION PLAN  
SK02  
1:750

REV	DATE	DESCRIPTION	BY
2	18.02.2022	REVISED PLAN ISSUED FOR REVIEW	HR
1	12.05.2022	ISSUED FOR REVIEW	JM

GENERAL NOTES:  
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 PO Box 270, Westworthville NSW 2145  
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PROJECT:  
**11,21,23,25&33 Owlpen Lane, Farley NSW 2320**

LOT NUMBER:  
LOT 1 DP 983691, LOT 10&11 DP 1229964, LOT B&C DP 348463

DRAWING TITLE:  
**SUBDIVISION PLAN**

PROJECT No.	DATE	DRAWING No.	REV.
JM	OCT 2021	SK02	2
SCALE:	1:750	ISSUED BY:	HR

SKETCH ISSUE

Z:\Projects - Current\Owlpen Lane 21-33 Farley\03 DA\ARCHITECTURAL\REVIT\PROJECT\Owlpen Lane 21-33 Farley - DA R01-OP13\_SK10.rvt