BUSHFIRE THREAT ASSESSMENT

FOR
A PROPOSED 6 LOT RESIDENTIAL SUBDIVISION AT
LOT 3 (595) THE BRANCH LANE,
THE BRANCH,
NSW 2425

Prepared by:

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Site Details:	Lot 3 (595) The Branch Lane, The Branch NSW 2425
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Disclaimer

Not withstanding 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.

Executive Summary

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of PDA Planning for a proposed 6 Lots residential subdivision at Lot 3 (595) The Branch Lane, The Branch NSW 2425. The report forms part of the supporting documentation for a DA to be submitted to Mid-Coast Council (MDC).

The report demonstrates compliance with Planning for Bushfire Protection 2019 (NSW 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 for the proposed subdivision:

1. **Asset Protection Zone (APZ) - The APZ provides space and reduced fuel loads to ensure radiant heat levels at the buildings are below critical limits and to prevent direct flame contact.**

   To achieve a Bushfire Attack Level (BAL) of BAL-29 the following land is to be managed as an APZ, which is made up of an Inner Protection Area (IPA):

   - **Lot 3:** An APZ of 25m to the North, 25m to the East, 20m to the South and 20m to the West
   - **Lot 4:** An APZ of 20m to the North, 25m to the East, 20m to the South and 31m to the West
   - **Lot 5:** An APZ of 20m to the North, 25m to the East, 25m to the South and 25m to the West
   - **Lot 6:** An APZ of 20m to the North, 25m to the East, 20m to the South and 20m to the West

   These distances are to be managed as described under 'Planning for Bushfire Protection (Appendix 4 – Asset Protect Zone Requirements)' and the document titled 'Standards for Asset Protection Zones'.

2. **Property Access Roads - Access standards provide for emergency evacuation and firefighting operations**

   Property access roads are two-wheel drive, all-weather roads appropriate for fire-fighting vehicles. A perimeter road is required due to the high threat surrounding vegetation being Forest. The site has direct access to The Branch Lane that also provides direct egress away from any potential bushfire hazard.

   〉 minimum 4m carriageway width;

- 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;
- a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches;
- provide a suitable turning area in accordance with Appendix 3;
- curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;
- the minimum distance between inner and outer curves is 6m;
- the crossfall is not more than 10 degrees;
- maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and
- a development comprising more than three dwellings has access by dedication of a road and not by right of way.

3. Water Supplies – A water supply is required for firefighting operations

It is recommended that a 20,000L water supply with 65mm metal Storz outlet with a gate or ball valve provided for firefighting purposes on each lot (the gate or ball valve, pipes and tank penetrations are to be designed to allow for a full 50mm inner diameter water flow through the Storz fitting and must be of a metal construction) is to be provided. All above-ground water storage tanks shall be of concrete or metal.

4. Construction Standards – Construction standards seek to increase the protection of the habitable buildings from bushfire. The shorter the APZ (distance between the external wall of the habitable building and the unmanaged vegetation), then the higher the construction standard, which is referred to as the BAL

Based on the APZs provided above, any future dwellings may be sited to achieve 29kW/m^2, which would result in BAL-29 or less. However, all future buildings will be subject to a separate Bushfire Assessment Report (BAR) at a future point in time.

5. Landscaping – The type, location and ongoing maintenance of landscaping is considered a necessary BPM

- The identified APZs are to be managed in accordance with accordance with PBP (Appendix 4);
- A clear area of low-cut lawn or pavement is maintained adjacent to the dwellings; and
- Fencing details in accordance with PBP (7.6 – Fences and gates)

This report provides the above required information to assist Council and the RFS in determining compliance in accordance with the PBP and AS 3959-2019.

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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
BCA	Building Code of Australia
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BFPL Map	Bush Fire Prone Land Map
BPMs	Bush Fire Protection Measures
BFSA	Bush Fire Safety Authority
CC	Construction Certificate
MDC	Mid-Coast Council
EPA Act	*NSW Environmental Planning and Assessment Act 1979*
FFDI	Forest Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection 2019
PoM	Plan of Management
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation

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1 INTRODUCTION

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of PDA Planning for a proposed 6 Lots residential subdivision at Lot 3 (595) The Branch Lane, The Branch NSW 2425, hereafter referred to as the "site" (refer to Figure 1-1 for site locality). Refer to Appendix A for Proposed Site Plans.

This BTA is suitable for submission with a Development Application (DA) and provides information on measures that will enable the development to comply with 'Planning for Bushfire Protection' (NSW RFS, 2019), hereafter referred to as PBP (RFS, 2019).

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Environmental Planning and Assessment Amendment (Planning for Bushfire Protection) Regulation 2007 and the Rural Fires Amendment Regulation 2007 (RF Amendment Regulation 2007).

1.1 Site Particulars

Locality:	Lot 3 (595) The Branch Lane, The Branch NSW 2425
LGA:	Mid-Coast Council
Current Land Use:	Existing Dwelling
Forest Danger Index:	80 FFDI

Figure 1-1: Site Location

1.2 Description of the Proposal

This DA relates to the proposal for a 6 lots residential subdivision. Refer to Appendix A for proposed plans.

1.3 Legislative Requirements

The Site has been mapped as Bush Fire Prone Land Map (BFPLM) by MDC.

This report forms part of the supporting documentation for a Development Application (DA) to be submitted to MDC.

This BTA has been prepared using current legislative requirements and associated guidelines for assessment of bushfire protection, these being:

- PBP (RRS, 2019); and
- AS3959-2018 Construction of Buildings in Bushfire Prone Area; and

1.4 Objectives of Assessment

This report has been prepared to address the requirements of Clause 44 of the Rural Fires Regulation. This BTA also addresses the six key Bush Fire Protection Measures (BFRMs) 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.

2 METHODOLOGY

2.1 Vegetation Assessment

Vegetation surveys and vegetation mapping carried out on the site has been undertaken as follows:

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

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 2m (Spatial Map Viewer).

3 SITE ASSESSMENT

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

3.1 Vegetation & Slope 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. This assessment is depicted in Table 3-1 and Figure 3-1 that shows the vegetation post development.

In accordance with PBP (RFS 2019), an assessment of the slope that the vegetation considered a bushfire hazard was undertaken and the results are presented in Table 3.1 below.

Table 3-1: Vegetation Classification for proposed lot 3

Proposed Lot 3		
Direction	**Vegetation Type**	**Slope**
North	Forest Vegetation	Downslope (0-5°)
East	Forest Vegetation	Downslope (0-5°)
South	Forest Vegetation	Flat ground
West	Grassland	Downslope (5-10°)
	Forest vegetation	Flat ground

Table 3-2: Vegetation Classification for proposed lot 4

Proposed Lot 4		
Direction	**Vegetation Type**	**Slope**
North	Forest Vegetation	Flat ground
East	Forest Vegetation	Downslope (0-5°)
South	Forest Vegetation	Flat ground
West	Forest Vegetation	Downslope (5-10°)

Table 3-3: Vegetation Classification for proposed lot 5

Proposed Lot 5		
Direction	**Vegetation Type**	**Slope**
North	Forest Vegetation	Upslope
East	Forest Vegetation	Downslope (0-5°)
South	Forest Vegetation	Downslope (0-5°)
West	Forest Vegetation	Downslope (0-5°)

Table 3-4: Vegetation Classification for proposed lot 6

Proposed Lot 6		
Direction	**Vegetation Type**	**Slope**
North	Forest Vegetation	Flat ground
East	Forest Vegetation	Downslope (0-5°)
South	Forest Vegetation	Flat ground
West	Forest Vegetation	Upslope

4 BUSHFIRE PROTECTION ASSESSMENT

4.1 Asset Protection Zones (APZ)

The PBP (RFS, 2019) guidelines has 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 Mid-coast Local Government Area and therefore is assessed under a FDI rating of 80. 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 was determined using PBP (2019). Refer to Table 4-1 to Table 4-4 and Figure 4-1 for required APZs for future habitable buildings.

Table 4-1: Recommended APZs for proposed lot 3

Direction from Building Envelope	Vegetation Classification within 140m	Effective Slope (within 100m)	APZ to be Provided[1]	Width of allowable OPA[2]	Comment
North	Forest Vegetation	Downslope (0-5°)	An APZ of >25m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)
East	Forest Vegetation	Downslope (0-5°)	An APZ of >25m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)
South	Forest Vegetation	Flat ground	An APZ of >20m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)
West	Grassland	Downslope (5-10°)	An APZ of >12m will be established which already occurs on the Branch Lane.	N/A	N/A
	Forest Vegetation	Flat ground	An APZ of >20m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)

Table 4-2: Recommended APZs for proposed lot 4

Direction from Building Envelope	Vegetation Classification within 140m	Effective Slope (within 100m)	APZ to be Provided[1]	Width of allowable OPA[2]	Comment
North	Forest Vegetation	Flat ground	An APZ of >20m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)
East	Forest Vegetation	Downslope (0-5°)	An APZ of >25m will be	Will be comprised	Acceptable solution in

Direction from Building Envelope	Vegetation Classification within 140m	Effective Slope (within 100m)	APZ to be Provided[1]	Width of allowable OPA[2]	Comment
			established and maintained within the site.	of an entire IPA	accordance with PBP (RFS, 2019)
South	Forest Vegetation	Flat ground	An APZ of >20m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)
West	Forest Vegetation	Downslope (5-10°)	An APZ of >31m will be established and maintained.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)

Table 4-3: Recommended APZs for proposed lot 5

Direction from Building Envelope	Vegetation Classification within 140m	Effective Slope (within 100m)	APZ to be Provided[1]	Width of allowable OPA[2]	Comment
North	Forest Vegetation	Upslope	An APZ of >20m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)
East	Forest Vegetation	Downslope (0-5°)	An APZ of >25m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)
South	Forest Vegetation	Downslope (0-5°)	An APZ of >25m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)
West	Forest Vegetation	Downslope (0-5°)	An APZ of >25m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)

Table 4-4: Recommended APZs for proposed lot 6

Direction from Building Envelope	Vegetation Classification within 140m	Effective Slope (within 100m)	APZ to be Provided[1]	Width of allowable OPA[2]	Comment
North	Forest Vegetation	Flat ground	An APZ of >20m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)
East	Forest Vegetation	Downslope (0-5°)	An APZ of >25m will be established and maintained within the site.	Will be comprised of an entire IPA	Acceptable solution in accordance with PBP (RFS, 2019)
South	Forest Vegetation	Flat ground	An APZ of >20m will be established which is already occurs on the Branch lane road.	N/A	N/A
West	Forest Vegetation	Upslope	An APZ of >20m will be established which is already occurs on the Branch lane road.	N/A	N/A

Legend

- Subject Site
- APZ
- 31m APZ
- Building Envelope
- Open Forest
- Woodland

THE BRANCH LANE (20m wide and variable)

SHEDS

TRACK

2
5.6 ha

3
1.1 ha

4
1.1 ha

1
113.2 ha

5
1.1 ha

6
1.1 ha

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.

Google Earth
2021 CNES / Airbus

FIGURE 4-1: ASSET PROTECTION ZONES

Ref No 2964 D

CLIENT	Client
SITE DETAILS	No.595 The Branch Lane The Branch
DATE	6 December 2023

NORTH

0 100 200 400

SCALE 8000 @ A3

PIXELDRAFTING

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5 COMPLIANCE

The proposal is for a 6 Lots residential subdivision and therefore development standards apply. Table 5-1 details the proposed compliance with Development Standards for Residential and Rural Residential Subdivisions.

Table 5-1: Compliance with Development Standards

Acceptable Solutions	Performance Criteria	Compliance
Asset Protection Zones		
〉 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/m² on each proposed lot.	**Complies with Acceptable Solution –** APZs are provided in accordance with Tables A1.12.3. The proposed building footprints are not exposed to radiant heat levels exceeding 29 kW/m² on each proposed lot.
〉 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.	**Complies with Acceptable Solution –** APZs on site are to be managed in accordance with Appendix 4 of the PBP 2019.
〉 APZs are wholly within the boundaries of the development site	the APZs is provided in perpetuity	**Complies with Acceptable Solution –** APZs on site occur entirely within the site's boundary.
〉 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.	**Complies with Acceptable Solution –** APZs on site do not occur on slope > than 18 degrees.
Landscaping		
〉 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.	**Complies with Acceptable Solution –** All landscaping within the site will meet the requirements of the acceptable solution.

Access (General Requirements)		
〉 property access roads are two-wheel drive, all -weather roads; 〉 perimeter roads are provided for residential subdivisions of three or more allotments; 〉 subdivisions of three or more allotments have more than one access in and out of the development; 〉 traffic management devices are constructed to not prohibit access by emergency services vehicles; 〉 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; 〉 all roads are through roads; 〉 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; 〉 where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road; 〉 where access/egress can only be achieved through forest, woodland and heath	Firefighting vehicles are provided with safe, all-weather access to structures.	**Complies with Acceptable Solution –** Property access roads are two-wheel drive, all-weather roads appropriate for fire-fighting vehicles. A perimeter road is required due to the high threat surrounding vegetation being Forest. The site has direct access to The Branch Lane that also provides direct egress away from any potential bushfire hazard.

vegetation, secondary access shall be provided to an alternate point on the existing public road system; and 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.		
〉 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.	the capacity of access roads is adequate for firefighting vehicles.	**N/A -** No perimeter roads are proposed.
〉 hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression; 〉 hydrants are provided in accordance with the relevant clauses of AS 2419.1:2017 - Fire hydrant installations System design, installation and commissioning; and there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	there is appropriate access to water supply.	**Complies with Acceptable Solution –** There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available. A 20,000L water supply with 65mm metal Storz outlet with a gate or ball valve provided for fire fighting purposes on the lot (the gate or ball valve, pipes and tank penetrations are to be designed to allow for a full 50mm inner diameter water flow through the Storz fitting and must be of a metal construction) is to be provided.

Perimeter Roads		
〉 are two-way sealed roads; 〉 minimum 8m carriageway width kerb to kerb; 〉 parking is provided outside of the carriageway width; 〉 hydrants are located clear of parking areas; 〉 are through roads, and these are linked to the internal road system at an interval of no greater than 500m; 〉 curves of roads have a minimum inner radius of 6m; 〉 the maximum grade road is 15 degrees and average grade of not more than 10 degrees; 〉 the road crossfall does not exceed 3 degrees; and a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	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.	**N/A -** No perimeter roads are proposed.
Non-Perimeter Roads		
〉 minimum 5.5m carriageway width kerb to kerb; 〉 parking is provided outside of the carriageway width; 〉 hydrants are located clear of parking areas;	access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating.	**N/A -** No Non-perimeter roads are proposed.

〉 roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m; 〉 curves of roads have a minimum inner radius of 6m; 〉 the road crossfall does not exceed 3 degrees; and 〉 a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.		
Property Access		
〉 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. **In circumstances where this cannot occur, the following requirements apply:** 〉 minimum 4m carriageway width; 〉 in forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m wide,	firefighting vehicles can access the dwelling and exit the property safely.	**Complies with Acceptable Solution –** 〉 minimum 4m carriageway width; 〉 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; 〉 a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; 〉 provide a suitable turning area in accordance with Appendix 3; 〉 curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;

making a minimum trafficable width of 6m at the passing bay; 〉 a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; 〉 provide a suitable turning area in accordance with Appendix 3; 〉 curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress; 〉 the minimum distance between inner and outer curves is 6m; 〉 the crossfall is not more than 10 degrees; 〉 maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and 〉 a development comprising more than three dwellings has access by dedication of a road and not by right of way. **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**		〉 the minimum distance between inner and outer curves is 6m; 〉 the crossfall is not more than 10 degrees; 〉 maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and 〉 a development comprising more than three dwellings has access by dedication of a road and not by right of way. **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.**

property access roads in addition to the above.		
Water Supplies		
〉 reticulated water is to be provided to the development where available; 〉 a static water and hydrant supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed; and static water supplies shall comply with Table 5.3d.	adequate water supplies are provided for firefighting purposes.	**Can Comply –** All lots are to be connected to a 20,000L water supply with 65mm metal Storz outlet with a gate or ball valve provided for firefighting purposes on the lot (the gate or ball valve, pipes and tank penetrations are to be designed to allow for a full 50mm inner diameter water flow through the Storz fitting and must be of a metal construction) All above-ground water storage tanks shall be of concrete or metal.
〉 fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS 2419.1:2017; 〉 hydrants are not located within any road carriageway; and 〉 reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	Water supplies are located at regular intervals; and the water supply is accessible and reliable for firefighting operations.	**N/A**
〉 fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2017.	flows and pressure are appropriate.	**N/A**

〉 all above-ground water service pipes are metal, including and up to any taps; and above-ground water storage tanks shall be of concrete or metal.	the integrity of the water supply is maintained.	
Electricity Services		
〉 where practicable, electrical transmission lines are underground; 〉 where overhead, electrical transmission 〉 lines are proposed as follows: lines are installed with short pole spacing of 30m, unless crossing gullies, gorges or riparian areas; and 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.	location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	**Complies with Acceptable Solution –** All future dwellings are to meet the requirements for electricity services.
Gas Services		
〉 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; 〉 all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;	location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	**Can Complies with Acceptable Solution –** All future dwellings are to meet the requirements for gas service.

〉 connections to and from gas cylinders are metal; 〉 polymer-sheathed flexible gas supply lines are not used; and 〉 above-ground gas service pipes are metal, including and up to any outlets.		

6 CONCLUSION & RECOMMENDATIONS

In summary, a Bushfire Risk Assessment has been undertaken for a proposed 6 Lots residential subdivision at 595 the Branch Lane, The Branch NSW 2425. The report forms part of the supporting documentation for a Development Application (DA) to be submitted to MDC.

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 subdivision. In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements for the proposed subdivision:

1. **Asset Protection Zone (APZ) - The APZ provides space and reduced fuel loads to ensure radiant heat levels at the buildings are below critical limits and to prevent direct flame contact.**

   To achieve a Bushfire Attack Level (BAL) of BAL-29 the following land is to be managed as an APZ, which is made up of an Inner Protection Area (IPA):

   - **Lot 3:** An APZ of 25m to the North, 25m to the East, 20m to the South and 20m to the West
   - **Lot 4:** An APZ of 20m to the North, 25m to the East, 20m to the South and 31m to the West
   - **Lot 5:** An APZ of 20m to the North, 25m to the East, 25m to the South and 25m to the West
   - **Lot 6:** An APZ of 20m to the North, 25m to the East, 20m to the South and 20m to the West

   These distances are to be managed as described under 'Planning for Bushfire Protection (Appendix 4 – Asset Protect Zone Requirements)' and the document titled 'Standards for Asset Protection Zones'.

2. **Property Access Roads - Access standards provide for emergency evacuation and firefighting operations**

   Property access roads are two-wheel drive, all-weather roads appropriate for fire-fighting vehicles. A perimeter road is required due to the high threat surrounding vegetation being Forest. The site has direct access to The Branch Lane that also provides direct egress away from any potential bushfire hazard.

   〉 minimum 4m carriageway width;

   〉 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;

- a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches;
- provide a suitable turning area in accordance with Appendix 3;
- curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;
- the minimum distance between inner and outer curves is 6m;
- the crossfall is not more than 10 degrees;
- maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and
- a development comprising more than three dwellings has access by dedication of a road and not by right of way.

3. Water Supplies – A water supply is required for firefighting operations

It is recommended that a 20,000L water supply with 65mm metal Storz outlet with a gate or ball valve provided for firefighting purposes on each lot (the gate or ball valve, pipes and tank penetrations are to be designed to allow for a full 50mm inner diameter water flow through the Storz fitting and must be of a metal construction) is to be provided. All above-ground water storage tanks shall be of concrete or metal.

4. Construction Standards – Construction standards seek to increase the protection of the habitable buildings from bushfire. The shorter the APZ (distance between the external wall of the habitable building and the unmanaged vegetation), then the higher the construction standard, which is referred to as the BAL

Based on the APZs provided above, any future dwellings may be sited to achieve 29kW/m^2, which would result in BAL-29 or less. However, all future buildings will be subject to a separate Bushfire Assessment Report (BAR) at a future point in time.

5. Landscaping – The type, location and ongoing maintenance of landscaping is considered a necessary BPM

- The identified APZs are to be managed in accordance with accordance with PBP (Appendix 4);
- A clear area of low-cut lawn or pavement is maintained adjacent to the dwellings; and
- Fencing details in accordance with PBP (7.6 – Fences and gates)

This report provides the above required information to assist Council and the RFS in determining compliance in accordance with the PBP and AS 3959-2019.

7 BIBLIOGRAPHY

Department of Bush Fire Services (undated). *Bush Fire Readiness Checklist.*

NSWFB (1988). *Hazard Reduction for the Protection of Buildings in Bushland Areas.* New South Wales Fire Brigades.

NSW Rural Fire Service (1997). *Bush Fire Protection for New and Existing Rural Properties.* September 1997, NSW Government.

NSW Rural Fire Service (2006). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.*

NSW Rural Fire Service (2019). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.*

NSW Rural Fire Service (2005). Standards for Asset Protection Zones. NSW Rural Fire Service.

NSW Rural Fire Service (2002). *Circular 16/2002: Amendments to the Rural Fires Act 1997 – hazard reduction and planning requirements.*

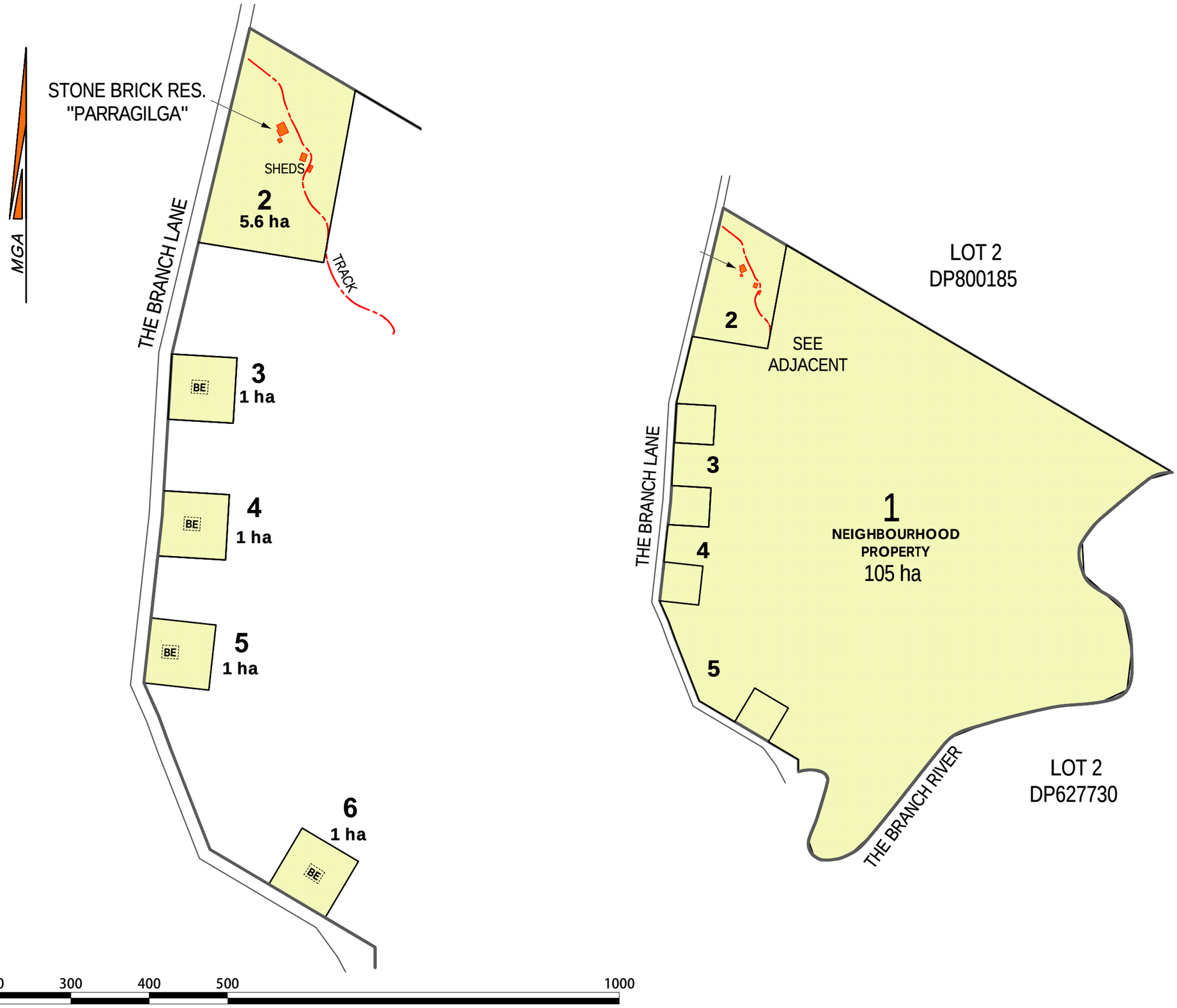
Planning NSW & NSW Rural Fire Service (2001). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.*

Ramsay, GC and Dawkins, D (1993). *Building in Bushfire-prone Areas – Information and Advice.* CSIRO and Standards Australia.

Rural Fires and Environmental Assessment Legislation Amendment Act 2002.

Standards Australia (2018). *AS 3959 – 2018: Construction of Buildings in Bushfire-prone Areas.*

APPENDIX A PROPOSED SITE PLANS



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PROJECT -
THE BRANCH

CLIENT - BAIRD

DETAIL PLAN OF LOT 3 DP800185
595 THE BRANCH LANE THE BRANCH

SCALE: AS SHOWN
DATUM - AHD
DATE 26/05/2023

JOB No. 3884

DWG No. 001

AMENDMENTS	DATE	BY	AMENDMENTS	DATE	BY
ADD LAYOUT	25.03.22	FC			
REDUCE LOTS	5.05.23	FC			
AMEND LAYOUT	26.05.23	FC			

APPENDIX B ASSET PROTECTION ZONES

APPENDIX 4

ASSET PROTECTION ZONE REQUIREMENTS

In combination with other BPMs, a bush fire hazard can be reduced by implementing simple steps to reduce vegetation levels. This can be done by designing and managing landscaping to implement an APZ around the property.

Careful attention should be paid to species selection, their location relative to their flammability, minimising continuity of vegetation (horizontally and vertically), and ongoing maintenance to remove flammable fuels (leaf litter, twigs and debris).

This Appendix sets the standards which need to be met within an APZ.

A4.1 Asset Protection Zones

An APZ is a fuel-reduced area surrounding a building or structure. It is located between the building or structure and the bush fire hazard.

For a complete guide to APZs and landscaping, download the NSW RFS document *Standards for Asset Protection Zones* at the NSW RFS Website www.rfs.nsw.gov.au.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset;
- an area of reduced bush fire fuel that allows for suppression of fire;
- an area from which backburning or hazard reduction can be conducted; and
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Bush fire fuels should be minimised within an APZ. This is so that the vegetation within the zone does not provide a path for the spread of fire to the building, either from the ground level or through the tree canopy.

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

- direct flame contact on the building;
- damage to the building asset from intense radiant heat; and
- ember attack.

The methodology for calculating the required APZ distance is contained within Appendix 1. The width of the APZ required will depend upon the development type and bush fire threat. APZs for new development are set out within Chapters 5, 6 and 7 of this document.

In forest vegetation, the APZ can be made up of an Inner Protection Area (IPA) and an Outer Protection Area (OPA).

A4.1.1 Inner Protection Areas (IPAs)

The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees

- tree canopy cover should be less than 15% at maturity;
- trees at maturity should not touch or overhang the building;
- lower limbs should be removed up to a height of 2m above the ground;
- tree canopies should be separated by 2 to 5m; and
- preference should be given to smooth barked and evergreen trees.

Shrubs

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;
- shrubs should not be located under trees;
- shrubs should not form more than 10% ground cover; and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass

- grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- leaves and vegetation debris should be removed.

A4.1.2 Outer Protection Areas (OPAs)

An OPA is located between the IPA and the unmanaged vegetation. It is an area where there is maintenance of the understorey and some separation in the canopy. The reduction of fuel in this area aims to decrease the intensity of an approaching fire and restricts the potential for fire spread from crowns; reducing the level of direct flame, radiant heat and ember attack on the IPA.

Because of the nature of an OPA, they are only applicable in forest vegetation.

When establishing and maintaining an OPA the following requirements apply:

Trees

- tree canopy cover should be less than 30%; and
- canopies should be separated by 2 to 5m.

Shrubs

- shrubs should not form a continuous canopy; and
- shrubs should form no more than 20% of ground cover.

Grass

- grass should be kept mown to a height of less than 100mm; and
- leaf and other debris should be removed.

An APZ should be maintained in perpetuity to ensure ongoing protection from the impact of bush fires. Maintenance of the IPA and OPA as described above should be undertaken regularly, particularly in advance of the bush fire season.

Figure A4.1

Typical Inner and Outer Protection Areas.