Reeves Creek Rezoning – Remembrance Drive, Picton

Bushfire Assessment of Indicative Layout Plan

Prepared for
Dartanyon Pty Ltd

20 May 2015

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1 Introduction

1.1 Background

The Reeves Creek study area is located immediately east of the Picton Town Centre within the Wollondilly Shire Council Local Government Area (LGA), in the south west of the Greater Sydney Region (**Figure 1**). Council has resolved to investigate the potential for rezoning the study area in accordance with a 'Gateway Determination' made by the former NSW Planning and Infrastructure (now Department of Planning and Environment (DPE)).

A portion of land to the immediate east, north and south of the study area is identified as 'residual lands' in **Figure 1** and is intended for future rezoning and urban development. The rezoning of the residual lands is not addressed within this report. Residual lands are discussed within this report to the extent that information is required for specialist studies (discussed below).

1.1.1 Study area

The Reeves Creek study area (39.1 ha) and residual lands comprise 121.5 ha and they are located at 108 – 114 Menangle Street, Picton. The study area and residual lands comprise three parcels, being:

- Lot 2 Deposited Plan (DP) 229679
- Lot 6 DP 1111043
- Lot 9 DP 233840.

The study area and residual lands are largely bounded by private land and front onto Remembrance Driveway to the north, Menangle Street to the west, and can be accessed directly from Margaret Street and Baxter's Lane. It is predominately rural land with patches of native and exotic vegetation primarily along creeks, ridge tops and steeper slopes. The study area and residual lands are currently being used for low intensity cattle grazing.

The study area is identified as bushfire prone on the Wollondilly Bush Fire Prone Land Map. In NSW, bushfire prone land maps identify areas that could support a bushfire and land potentially likely to be subject to bushfire attack, generally land that contains or is within 100 metres of significant stands of bushland.

The study area is currently zoned RU2 Rural Landscape and R2 Low Density Residential under *Wollondilly Local Environmental Plan 2011* (WLEP). It is proposed to amend the WLEP and rezone the study area into the following zones: E2 Environmental Conservation, E3 Environmental Management, R2 Low Density Residential, R3 Medium Density Residential, RE1 Public Recreation and RU2 Rural Landscape. These proposed zones and the indicative layout plan (ILP) for the rezoning are shown in **Figure 2**.

Figure 1: Location of the study area and residual lands

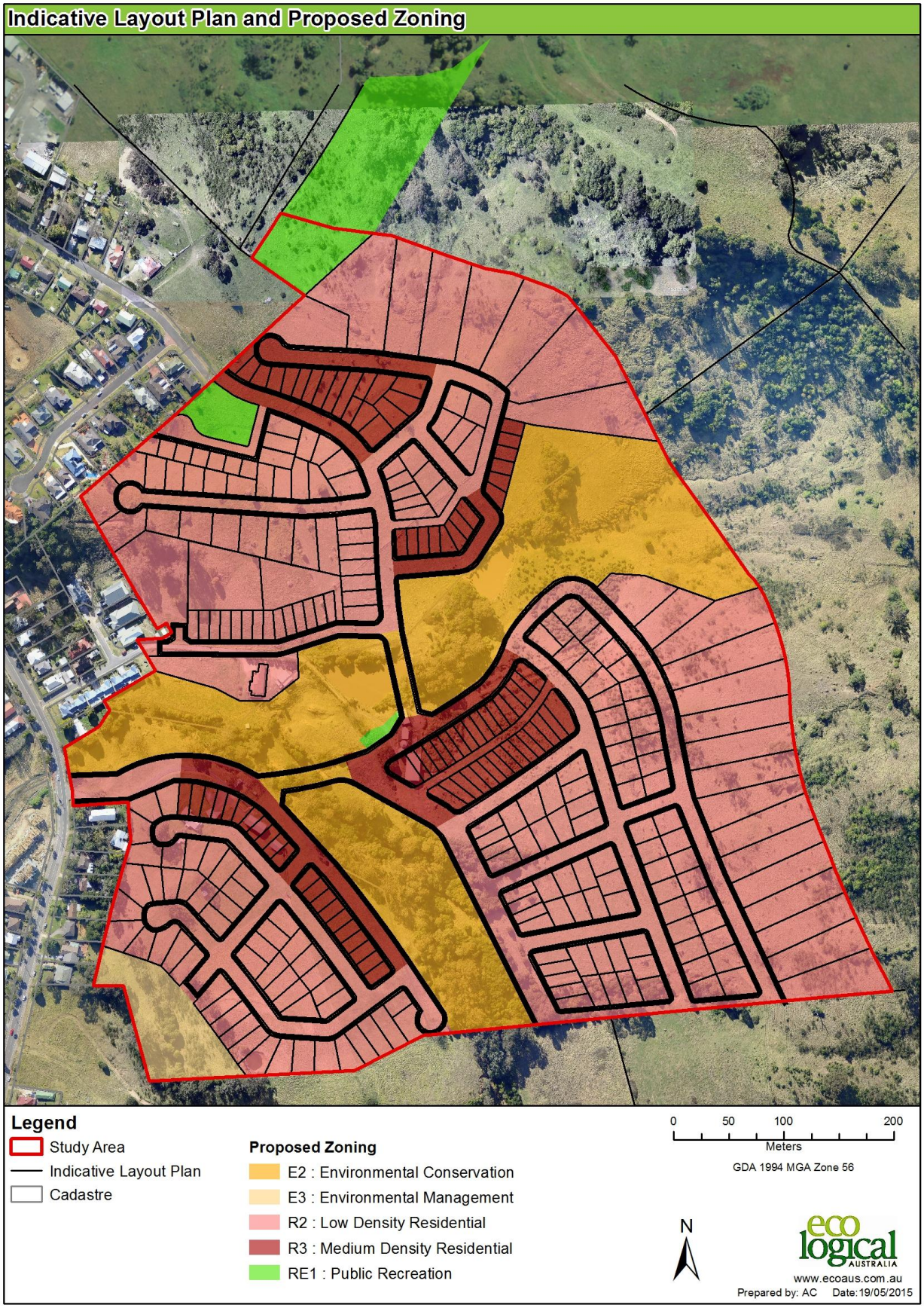

Figure 2: Indicative layout plan and proposed zoning

1.1.2 Aim and structure of report

Eco Logical Australia (ELA) has been engaged by Michael Brown Planning Strategies on behalf of Dartanyon Pty Ltd and Wollondilly Shire Council (Council), to investigate the current bushfire risk of the study area and the appropriate combination of bushfire protection measures to mitigate this risk in support of the rezoning.

Specifically, this analysis responds to the requirements of *Planning for Bush Fire Protection 2006* (PBP) (NSW RFS 2006b), *Australian Standard AS 3959 Construction of buildings in bushfire-prone areas* (AS3959) and the requirements of Council's *Specialist Studies Requirements – Picton East Planning Proposal* (July 2013) (SSR) relating to bushfire. This report details the outcomes of these investigations in the context of the proposed land use.

The overarching objective of this report is to identify all potential bushfire constraints to the future urban development of the study area. The results of this assessment will directly support the preparation of necessary planning documentation. As such the objectives of this report are to:

- Ensure the statutory requirements for bushfire protection are identified and can be adequately met; and
- Implement suitable management frameworks for bushfire protection, whilst having consideration of the vegetation and riparian issues for the study area, enabling long term conservation and management of these environmental values while facilitating safe urban development outcomes.

This report assesses the potential bushfire hazard across the study area, in the context of existing vegetation. It then identifies planning requirements as per PBP. Management of future Asset Protection Zones (APZ) and environmental areas are also considered. The location of emergency response services is mapped and the potential need for future emergency response resources is discussed.

1.2 Legislative requirements

1.2.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the principal planning legislation for NSW, providing a framework for the overall environmental planning and assessment of development proposals. A variety of other legislation and environmental planning instruments, such as the *Threatened Species Conservation Act 1995* (TSC Act), *Water Management Act 2000* and *Rural Fires Act 1997* (RF Act), are integrated with the EP&A Act.

1.2.2 Threatened Species Conservation Act 1995

The TSC Act aims to protect and encourage the recovery of threatened species, populations and communities listed under the Act. The TSC Act is integrated with the EP&A Act and requires consideration of whether a development (assessed under Part 4 of the EP&A Act) is likely to significantly affect threatened species, populations and ecological communities or their habitat.

1.2.3 Rural Fires Act 1997

Bushfire suppression and management is regulated by the RF Act. Both the EP&A Act and the RF Act were modified by the *Rural Fires and Environmental Assessment Legislation Amendment Act 2002* to enhance bushfire protection through the development assessment process. Key requirements of the RF Act include:

- The need for a bushfire safety authority to be issued by the RFS under section 100B of the RF Act for any development applications for subdivision (therefore considered integrated development);
- All landowners to exercise a duty of care to prevent bushfire from spreading on or from their land under section 63 of the RF Act. This relates to the appropriate provision and maintenance of APZs, landscaping and any retained vegetation when developing land.

1.2.4 Direction 4.4 Planning for Bush Fire Protection

Section 117(2) of the EP&A Act allows the Minister for Planning to issue directions that are to be followed in the preparation of planning proposals for new local environmental plans. This applies to LEPs that propose to rezone land.

Direction 4.4 Planning for Bushfire Protection identifies matters for consideration for planning proposals that will affect, or are in proximity to land mapped as bush fire prone. In particular a planning proposal where development is proposed must:

- have regard to *Planning for Bush Fire Protection 2006* (PBP),
- provide an Asset Protection Zone (APZ) incorporating at a minimum:
    - an Inner Protection Area (IPA) bounded by a perimeter road or reserve which circumscribes the hazard side of the land intended for development and has a building line consistent with the incorporation of an APZ, within the property, and
    - an Outer Protection Area (OPA) managed for hazard reduction and located on the bushland side of the perimeter road,
- for infill development (that is development within an already subdivided area), where an appropriate APZ cannot be achieved, provide for an appropriate performance standard, in consultation with the NSW Rural Fire Service (RFS). If the provisions of the planning proposal permit Special Fire Protection Purposes (as defined under section 100B of the RF Act), the APZ provisions must be complied with,
- contain provisions for two-way access roads which links to perimeter roads and/or to fire trail networks,
- contain provisions for adequate water supply for fire fighting purposes,
- minimise the perimeter of the area of land interfacing the hazard which may be developed,
- introduce controls on the placement of combustible materials in the Inner Protection Area.

Consideration must also be given to NSW RFS *Practice Note 2/12 Planning Instruments and Policies*. It is expected that the RFS, in its assessment of the proposal will consider the requirements of this Practice Note.

1.2.5 Planning for Bush Fire Protection 2006

Rezoning proposals require consultation with the NSW RFS as the lead agency for managing bushfire. As such the requirements of *Planning for Bush Fire Protection* (NSW RFS, 2006) are to be addressed. This includes having regard to the following planning principles of PBP:

- Provision of a perimeter road with adequate two way access which delineates the extent of the intended development;
- Provision, at the urban bushland interface, for the establishment of adequate asset protection zones for future housing;
- Specifying minimum residential lot depths to accommodate asset protection zones for lots on perimeter roads;
- Minimising the perimeter of the area of land, interfacing the hazard, which may be developed;

- Introduction of controls which avoid placing inappropriate developments in hazardous areas; and
- Introduction of controls on the placement of combustible materials in asset protection zones.

1.2.6 Streamlined Residential Development within Bush Fire Prone Urban Release Areas

Under planning reforms introduced through changes to Clause 273 of the *Environmental Planning and Assessment Regulations 2000*, exemptions are available with regards to the consideration of bushfire requirements at the Development Application or Complying Development stage for individual dwellings.

The above exemptions apply within bushfire-prone portions of the precinct that have received previous subdivision approval via the issue of a Bush Fire Safety Authority (BFSA) from the NSW Rural Fire Service (RFS). At the time of subdivision approval stage, an endorsement of the subdivision-wide Bushfire Attack Level (BAL) ratings is provided by the RFS. Once compliance with all conditions of the BFSA approval is achieved, all future dwellings are eligible for exemption from the further assessment of bushfire requirements by obtaining a Post-subdivision BAL Certificate (PSBC).

A PSBC can be obtained via applying to the RFS or through a qualified bushfire consultant, such as is available through Eco Logical (FPAA Accredited).

2 Bushfire threat assessment

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as asset protection zone location and dimension. This section provides a detailed account of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour at the study area.

This assessment is based on the possible future vegetation coverage as determined by ELA in this report for the rezoning. Some of the current bushland areas will contribute to the future bushfire hazard, however this hazard may be added to in parts, particularly in the way of connectivity between remnants and along drainage lines to achieve biodiversity and riparian vegetation management plan environmental objectives. The increase in hazard is not significant enough to preclude development or pose a future hazard that cannot be addressed by typical bushfire protection planning precautions as outlined within PBP.

The concept of bushfire risk as influenced by fire history and current and past bushfire issues has little bearing on the determination of bushfire protection strategies for rezoning and future development within the study area. This is due to a different future vegetation layer and the fact that PBP assesses bushfire protection based purely on vegetation and slope (i.e. hazard and not risk), making the assumption that a fire may occur in any patch of bushland at a worst-case scenario (based on a set design fire).

Notwithstanding this, the Wollondilly Bush Fire Risk Management Plan (BFRMP) was reviewed to gain a greater understanding of the bushfire environment, hazard and risk issues that affect the study area.

The only impact the BFRMP has specifically on the study area is that the Picton town centre and surrounding area is identified as an asset and has an associated Asset Protection Zone mapped as a treatment for the low risk posed to it. The development of the study area is situated to the east of the Picton town centre asset boundary. The proposed development will provide further asset protection for existing development to the west of the study area by creating increased separation from bushfire hazards. The BFRMP does not affect the bushfire protection measures required for future development within the study area, but should be updated following development of the study area.

Fire History data contained within the BFRMP does not identify any fires recorded within the study area between 1962 and 2007. Note that bushfires may have occurred during this period that weren't recorded spatially and therefore will not be represented.

2.1 Vegetation communities influencing bushfire

The 'predominant vegetation' influencing fire behaviour approaching future developable areas has been assessed strictly in accordance with the methodology specified within PBP.

The study area is predominately rural land with patches of native and exotic vegetation primarily along creeks, ridge tops and steeper slopes. Three native vegetation communities have been previously mapped at the study area including Shale Hills Woodland, Shale Sandstone Transition Forest (Low Sandstone Influence), and Alluvial Woodland (NPWS 2004). The reminder has been extensively cleared and modified for agricultural purposes, primarily dairy and beef production, and has a number of mature scattered paddock trees. The study area and residual lands is currently being used for low intensity cattle grazing. The current coverage of vegetation within the study area is provided in **Figure** 3.

According to the vegetation formation categories of PBP, Alluvial Woodland is considered as Forested Wetlands. Using the vegetation conversion identified in Table A3.5.1 of PBP Addendum Appendix 3 'Forest Wetlands is converted to 'Forest' for AS3959 purposes.

It has been assumed that the majority of existing remnant vegetation within the study area will be retained, with the existing cleared areas identified for residential development.

The primary hazard is the woodland areas to the east of the study area and riparian corridors. There are smaller pockets of vegetation throughout the study area that will be removed as a result of development and have not been considered in this assessment. If these areas of vegetation are to be retained then an APZ may be required depending on their size and separation from other bushfire hazards.

A further consideration, in terms of potential hazards, is areas of unmanaged grassland areas that may occur within the study area and adjoining areas.

Figure 4 shows the recommended future coverage of vegetation within the proposed riparian corridor based on environmental objectives and constraints. It is this layer that the bushfire assessment is based on.

2.2 Slopes influencing bushfire

The 'effective slope' influencing fire behaviour approaching the developable area has been assessed strictly in accordance with the methodology specified within PBP. This is conducted by measuring the worst-case scenario slope where the vegetation occurs over a 100m transect measured outwards from the development boundary. The slope classes are listed in **Table 1** below.

The area is flat with a slight grade to the west toward Stonequarry Creek.

Table 1: Effective slope

Slope	PBP slope class
Upslope / Flat Land	Flat land and all upslope land leading away from the development
Downslope	>0-5 degrees downslope leading away from the development
	>5-10 degrees downslope leading away from the development
	>10-15 degrees downslope leading away from the development
	>15-18 degrees downslope leading away from the development

Figure 3: Vegetation communities within the study area

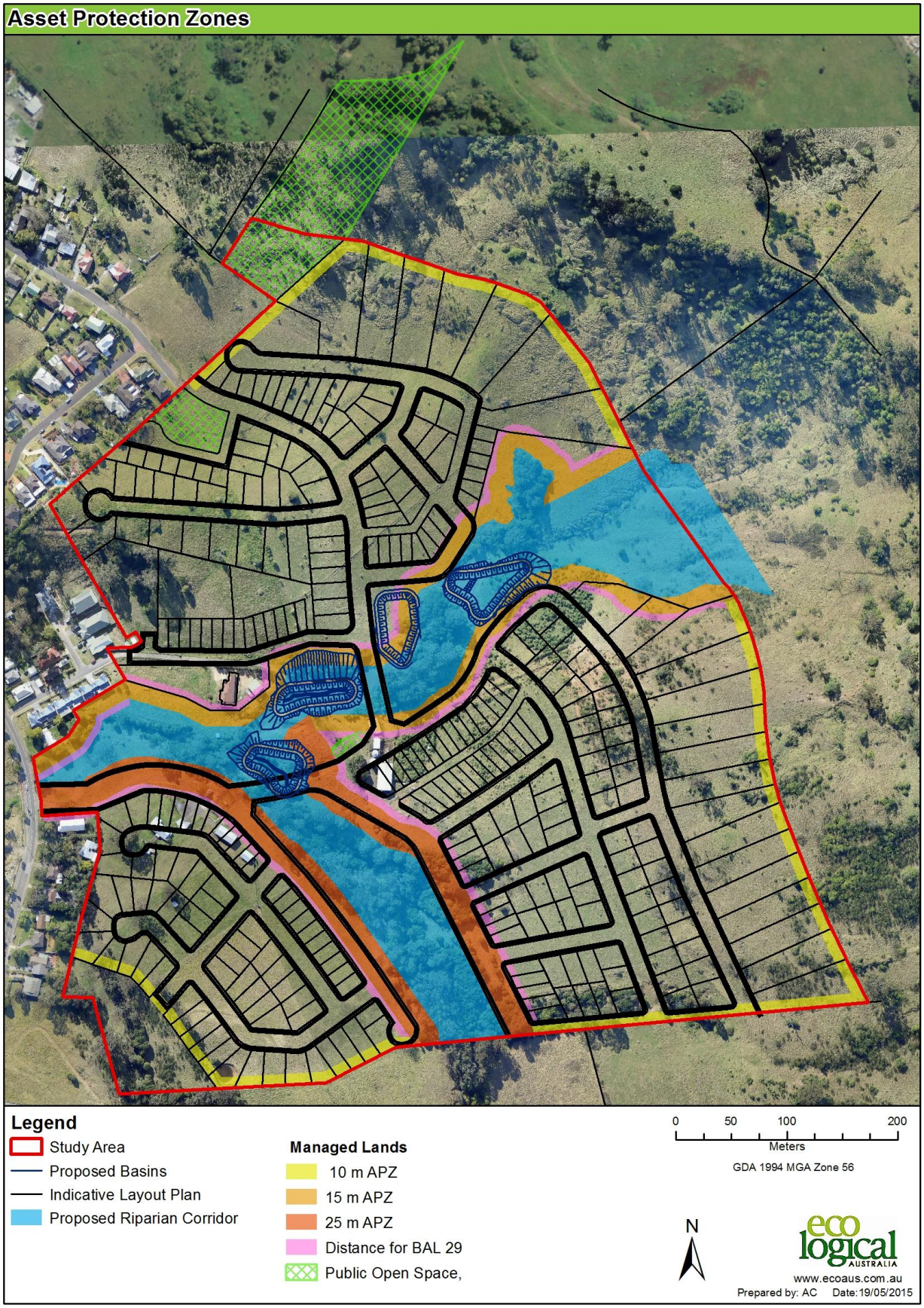

Figure 4: Bushfire hazard assessment and Asset Protection Zones (APZs)

3 Asset protection zones

Using the vegetation and slope data discussed in Section 2, APZs suitable for residential subdivision around all environmentally constrained lands have been calculated (e.g. E2, E3 and RE1 zoned land). These have been mapped and identified in **Figure 4** and described in **Table 2**. Where RE1 zoned land is to be managed for recreational purposes and a bushfire hazard will not exist, an APZ will not be required.

A second APZ dimension for Special Fire Protection Purposes (SFPP) is also listed in **Table 2**. These SFPP APZs are for schools, child care centres, tourist accommodation, retirement villages and other uses listed under s100B (6) of the RF Act.

It is recommended that development associated with employment lands, such as commercial and industrial development, be treated as residential development for the purpose of the rezoning analysis. Non-habitable development of this kind has the opportunity to have an APZ less than that required for residential subdivision. This flexibility relies on the known use of the building, its design and construction standard, and can be determined at the subdivision application stage.

It is recommended that an APZ dimension that achieves a building construction standard under *AS 3959-2009 Construction of buildings in bushfire-prone areas* (Standards Australia 2009) of Bushfire Attack Level (BAL)-29 at the maximum. The current accepted minimum APZ dimension (determined by PBP) allows for a BAL-40 standard in some instances (under AS3959). The increase in APZ provides a higher level of bushfire protection and ensures that future home owners are not impacted by the additional costs associated with construction of a dwelling at BAL-40.

Table 2 and **Figure 4** detail the current minimum APZ required by PBP and the recommended APZ to achieve BAL-29 construction (refer to Section 5.4 for more information on AS 3959-2009).

It is important to note that the APZ calculations quoted in this assessment are indicative only and have been determined at a landscape scale. This level of detail is suitable for a rezoning assessment where the aim is to demonstrate whether a parcel of land can accommodate the bushfire hazard, the expected APZ and future development. The final APZ dimensions for any future subdivision or development depends on the accuracy of a slope assessment undertaken at a site-specific level. The APZ dimensions quoted in this assessment should not be relied on to approve a future subdivision; they may be used as a guide only.

Table 2: Asset protection zones

Direction	Vegetation	Slope	PBP required APZ	SFPP APZ	BAL-29 APZ
North / North East / East	Woodland	Upslope	10	40	16
Riparian Corridor (running North / South)	Forested wetland	>5-10° downslope	25	75	39
Riparian Corridor (running East / West)	Woodland / Low hazard	>5-10° downslope	20 / 15	60 / 50	26 / 18
North / East / South	Grassland	All slopes	10	10	9-15
South west (E3 – Environmental Management lands)	Woodland	Upslope	10	40	16
All other directions (including RE1 – Public Recreation lands)	*All other areas surrounding and within the subject study area are considered to be managed lands. The majority of areas to the west of the study area consist of existing residential development and associated infrastructure, whilst within the study area, the proposed RE1 lands for Public Recreation will be managed open space.*				

3.1 Vegetation management within APZ

The management of vegetation within the APZ is to achieve the specifications of an Inner Protection Area (IPA), as described by PBP. As such, the future APZ should be managed as follows:

- No tree or tree canopy is to occur within 2 - 5 m of future dwelling rooflines;
- The presence of a few shrubs or trees in the APZ is acceptable provided that they are well spread out, do not form a continuous canopy, and are located far enough away from future buildings so that they will not ignite the buildings by direct flame contact or radiant heat emission;
- Any landscaping or plantings should preferably be low flammability species such as local rainforest species;
- In the IPA, the ground fuel is to be maintained to less than 4 tonnes per hectare of fine fuel (4 t/ha is equivalent to a 1 cm thick layer of leaf litter and fine fuel means any dead or living vegetation of less than 6 mm in diameter, e.g. twigs less than a pencil in thickness).

3.2 Staging of development for APZ

Staging of future development should give consideration to the provision of an APZ to manage any potential bushfire hazard within adjoining future development areas to ensure that future dwellings are not impacted by unnecessary construction standards. This could be through the provision of temporary APZ for earlier stages which will be automatically extinguished once the land where the APZ operates is developed and the hazard is permanently removed.

3.3 Perimeter access within APZ

An APZ may include a perimeter road depending on the significance of the bushfire threat. The assessment of perimeter access is provided in **Section 4**.

4 Access

PBP requires an access design that enables safe evacuation away from an area whilst facilitating adequate emergency and operational response to the area requiring protection. The following sections present the bushfire planning requirements for access in bushfire prone land.

4.1 Safe access and egress

All bushfire prone areas should have an alternate access or egress option. This is usually achieved by providing more than one public road into and out of a precinct. The need for an alternative road and its location depends on the bushfire risk, the density of the development, and the chances of the road being cut by fire. All precincts within the study area should allow for an alternative public access road.

The proposed access arrangements within the study area are in accordance with the intent and principles of PBP regarding the provision of safe access and egress for both residents and fire fighters.

4.2 Perimeter roads

Depending on the bushfire risk, all bushland interface areas containing an APZ for a significant bushfire hazard should feature a perimeter public road within the APZ. It is acceptable for some areas not to have a perimeter road or have a perimeter trail instead. These include areas of lower bushfire risk (such as adjoining low hazard areas), rural residential areas with large lot sizes whereby perimeter access can be provided within each lot, or areas where it may not be feasible to provide a continuous road due to the shape of the interface or the terrain. These areas should have some other access strategy such as trails or regular access points including access to a hydrant network.

4.3 Road design and construction standards

Public roads are to comply with the PBP acceptable solution design standards as listed in **Table 3**. Future residential subdivision within the study area will be able to comply with these standards.

Provision of a simple layout with perimeter roads and frequent direct access to the internal road system will provide sufficient access/egress in the case of an emergency. Public roads should provide safe operational access to structures and water supply. Perimeter roads will be required at APZ bushland interface locations where a significant bushfire hazard exists. However, minor drainage corridors and the setbacks provided within larger ‘lifestyle lots’ present a lower risk scenario and, therefore, may not require implementation of perimeter roads. Property access roads will also need to provide safe access for emergency services and provide protection to properties and occupants during a bushfire.

Table 3: Design and construction for public roads (RFS 2006; pg 21)

Performance Criteria	Acceptable Solutions
Firefighters are provided with safe all weather access to structures (thus allowing more efficient use of firefighting resources)	• Public roads are two-wheel drive, all weather roads
Public road widths and design that allows safe access for firefighters while residents are evacuating an area	• Urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway 8 metres minimum kerb to kerb), allowing traffic to pass in opposite directions. Non perimeter roads comply with PBP Table 4.1 – Road widths for Category 1 Tanker (Medium Rigid Vehicle) requiring a minimum trafficable surface of 6.5 metres • The perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas • Traffic management devices are constructed to facilitate access by emergency services vehicles • Public roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends 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 and direct traffic away from the hazard • Curves of roads (other than perimeter roads) are a minimum inner radius of six metres • 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 • There is a minimum vertical clearance to a height of four metres above the road at all times
The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles	• The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicated load rating
Roads that are clearly sign posted (with easy distinguishable names) and buildings / properties that are clearly numbered	• Public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression • Public roads between 6.5 metres and 8 metres wide are No Parking on one side with the services (hydrants) located on this side to ensure accessibility to reticulated water for fire suppression
There is clear access to reticulated water supply	• Public roads up to 6.5 metres wide provide parking within parking bays and located services outside of the parking bays to ensure accessibility to reticulated water for fire suppression • One way only public access roads are no less than 3.5 metres wide and provide parking within parking bays and located services outside of the parking bays to ensure accessibility to reticulated water for fire suppression
Parking does not obstruct the minimum paved width	• Parking bays are a minimum of 2.6 metres wide from kerb to kerb edge to road pavement. No services or hydrants are located within the parking bays • Public roads directly interfacing the bush fire hazard vegetation provide roll top kerbing to the hazard side of the road

5 Utilities

5.1 Water supply and hydrants

Future lots will likely be serviced by reticulated water infrastructure suitable for fire fighting purposes. With the exception of rural residential subdivision, the furthest point from any future dwellings to a hydrant is to be less than 90 m (with a tanker parked in-line) in accordance with *Australian Standard 2419.1 – 2005 Fire Hydrant Installations - System Design, Installation and Commissioning* (Standards Australia 2005). The reticulated water supply is to comply with the following acceptable solutions within Section 4.1.3 of PBP:

- Reticulated water supply to use a ring main system for areas with perimeter roads;
- Fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005;
- Hydrants are not located within any road carriageway;
- All above ground water and gas service pipes external to the building are metal, including and up to any taps; and
- The PBP provisions of parking on public roads are met.

5.2 Electrical and gas supplies

In accordance with PBP, electricity should be underground wherever practicable. Where overhead electrical transmission lines are installed:

- Lines are to be installed with short pole spacing, unless crossing gullies, and
- No part of a tree should be closer to a powerline than the distance specified in *ISSC 3 Guideline for Managing Vegetation Near Power Lines* (Industry Safety Steering Committee. 2005)

Any gas services are to be installed and maintained in accordance with AS/NZS 1596-2008 The storage and handling of LP gas (Standards Australia 2008).

6 Construction standards

The application of building construction standards for bushfire protection under *AS 3959-2009 Construction of buildings in bushfire-prone areas* (Standards Australia 2009) is to be considered at the development application stage for individual dwellings and buildings. An assessment under AS 3959-2009 is not required at the rezoning or subdivision stages. The following is a brief introduction on AS 3959-2009.

AS 3959-2009 contains six Bushfire Attack Levels (BAL), each with a prescribed suite of design and construction specifications aimed at preventing ignition during the passing of a bushfire front. The BALs are outlined below:

- BAL-Low: The threat does not warrant application of construction standards. Developments with BAL-Low are generally not within bushfire prone land (greater than 100 m from bushland);
- BAL-12.5: Addresses background radiant heat at lower levels and ember attack;
- BAL-19: Addresses mid-range radiant heat and ember attack;
- BAL-29: Addresses high range radiant heat and ember attack;
- BAL-40: Addresses extreme range of radiant heat and potential flame contact and ember attack; and
- BAL-FZ: Addresses construction within the flame zone. New subdivided lots are not permitted within the flame zone in NSW.

NSW has a minor variation to AS 3959-2009 which requires consideration in future development applications. The variation is contained within the document ‘PBP Appendix 3 Addendum’ (RFS 2010).

Buildings of Class 5-8 and 10 under the Building Code of Australia within the National Construction Code (NCC) do not have any specific bushfire specific performance requirements for construction. The general fire safety construction provisions within the NCC are considered as acceptable solutions. These classes of buildings include offices, factories, warehouses, public car parks and other commercial or industrial facilities. Buildings used for SFPP purposes as defined in section 100B of the RF Act are not captured by this and are required to comply with AS3959.

7 Conclusion and capability

7.1 Conclusion

Bushfire hazard has been assessed across the subject study area and found to be low, based on the relatively gentle slopes and low fuel accumulation of the vegetation present. On the basis of this assessment, indicative Asset Protection Zone requirements have been mapped across the proposed rezoning area.

A number of strategies have been provided in the form of planning controls such that the risk from bushfire can be minimised and future rezoning or development approval processes can be streamlined. Further, it has been found that development of the anticipated land uses within the subject study area, from a bushfire planning perspective, are considered suitable.

A number of strategies have been provided in this report such that the risk from bushfire can be mitigated. The main strategies suggested include:

- Ensure adequate setback from bushfire prone vegetation (APZs)
- Integrate non-combustible infrastructure within APZs such as roads, easements and parking areas. The majority of APZs should be contained within perimeter roads and front yard setbacks
- Ensure adequate access and egress from the study area through a well-designed road system
- Consider the adequacy of water supply and the delivery of other services (gas and electricity)
- Provide temporary APZs during any staged development
- Consider SFPP and other development types
- Provide for effective and ongoing management of APZs; and
- Consider construction standards (AS3959) implications for future developments.

The ILP has been prepared based on the advice and constraints contained within this report. In relation to the furthering of the planning processes as they relate to the future uses of the Precinct, it is considered appropriate that more detailed assessment and consideration of the relevant bushfire protection strategies across the Precinct should be undertaken. This further assessment should include a more comprehensive review of the ILP and subsequent planning controls, to ensure they are well designed in terms of bushfire protection outcomes.

Formalised bushfire assessments will also be required to facilitate the development approvals process if the future rezoning proceeds to land subdivision. For future development of individual dwellings, exemptions for the further consideration of bushfire requirements may apply, in accordance with Clause 273 of the *Environmental Planning and Assessment Regulations 2000*, and as detailed in section 1.3.6 of this report.

7.2 Statement of capability

This bushfire assessment demonstrates that the subject land is capable of accommodating future residential subdivision and associated land use with the appropriate bushfire protection measures and bushfire planning requirements prescribed by s.117 (2) Direction 4.4 – 'Planning for Bush Fire Protection' (EP&A Act) and PBP.

This bushfire assessment demonstrates that the study area is capable of accommodating future subdivision and land development with the appropriate bushfire protection measures.

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