Bushfire Protection Assessment

Eastern Creek Business Hub: Stage 1 Subdivision

Prepared for
PDS Group

11 September 2017

DOCUMENT TRACKING

Item	Detail
Project Name	Bushfire Protection Assessment: Eastern Creek Business Hub: Stage 1 Subdivision
Project Number	17HNG_7573
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Approved by	Bruce Horkings
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1 Property and proposal

Name:	Eastern Creek Business Hub		
Street or property name:	Cnr Rooty Hill Road South, M7 Motorway, Great Western Highway and Church Street		
Suburb, town or locality:	Eastern Creek	**Postcode:**	2766
Local Government Area:	Blacktown City Council		
Type of area:	Urban		
Type of development:	Subdivision		

1.1 Description of proposal

PDS Group commissioned Eco Logical Australia Pty Ltd (ELA) to prepare a bushfire protection assessment (BPA) for the Stage 1 Subdivision of The Eastern Creek Business Hub at Eastern Creek (hereafter referred to as the subject land).

The current proposal seeks approval for consolidation of ownership and legal title of the numerous existing lots, construction of Stage 1 and works associated with the site establishment works such as roads and drainage. The lots involved include Lots 1-8//DP31130, Lots 2-3/Section-A/DP8681, Lots 7-10//DP830836 and Lot A//DP358346.

Future development will include the construction of commercial premises including retail food outlets and speciality stores, supermarket and pharmacy, associated roads and infrastructure.

This assessment has been prepared by ELA Senior Bushfire Consultant, Mark Hawkins (FPAA BPAD Level 3 Certified Practitioner No. BPAD30419-L3). Mark is recognised by the NSW Rural Fire Service (RFS) as a suitably qualified consultant in bushfire risk assessment.

1.2 Location and description of subject land

The development is located in Western Sydney in the suburb of Eastern Creek, as shown in **Figure 1**. The site is bound by Belmore Road and the M7 Freeway to the east, the Great Western Highway to the south, Rooty Hill Road South to the west and Beggs Road to the north.

Figure 2 contains a site plan of the proposed development and **Figure 3** details the previously approved Masterplan staged subdivision and revegetation proposal that includes this DA.

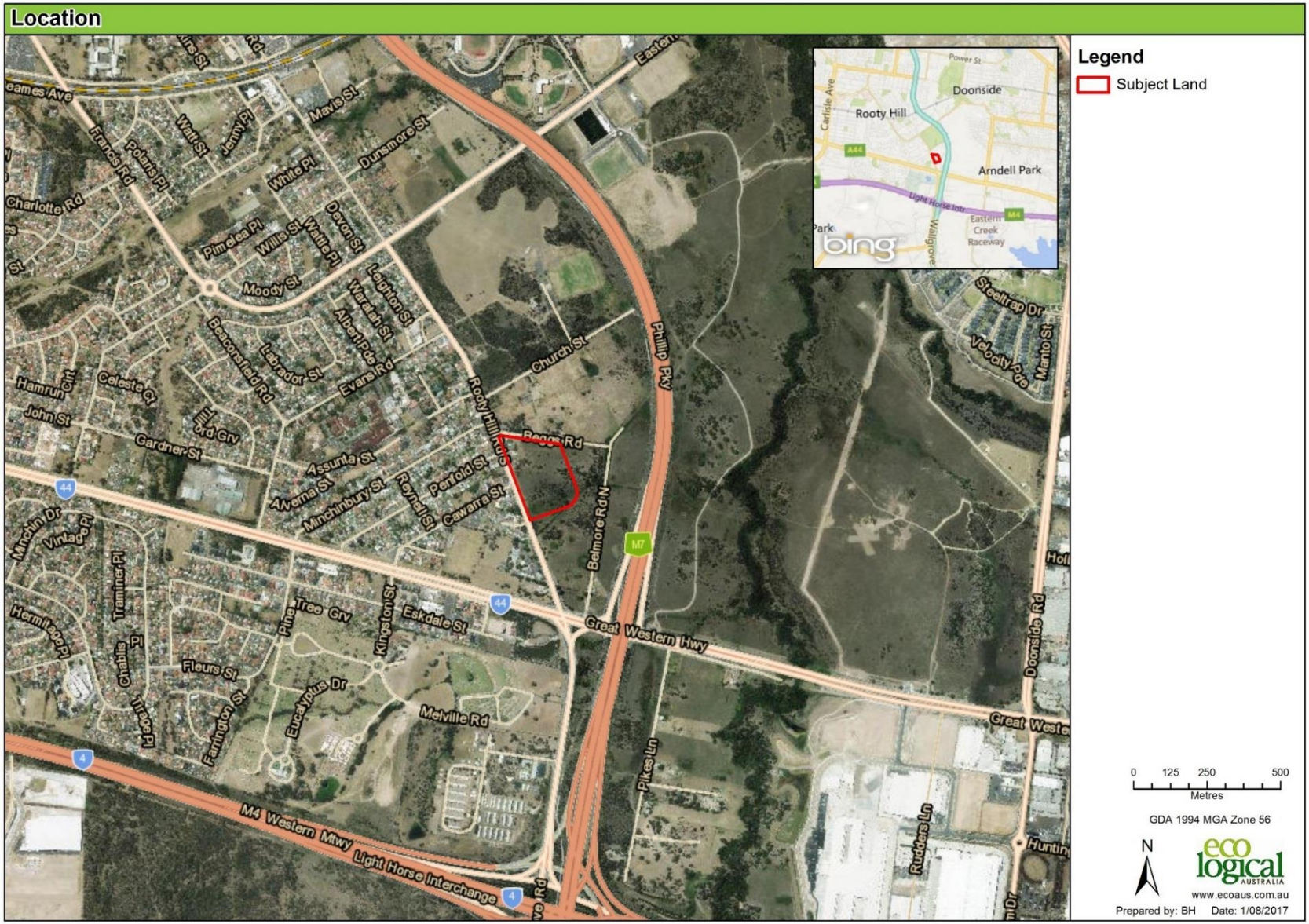


Figure 1: Location

Development Plan

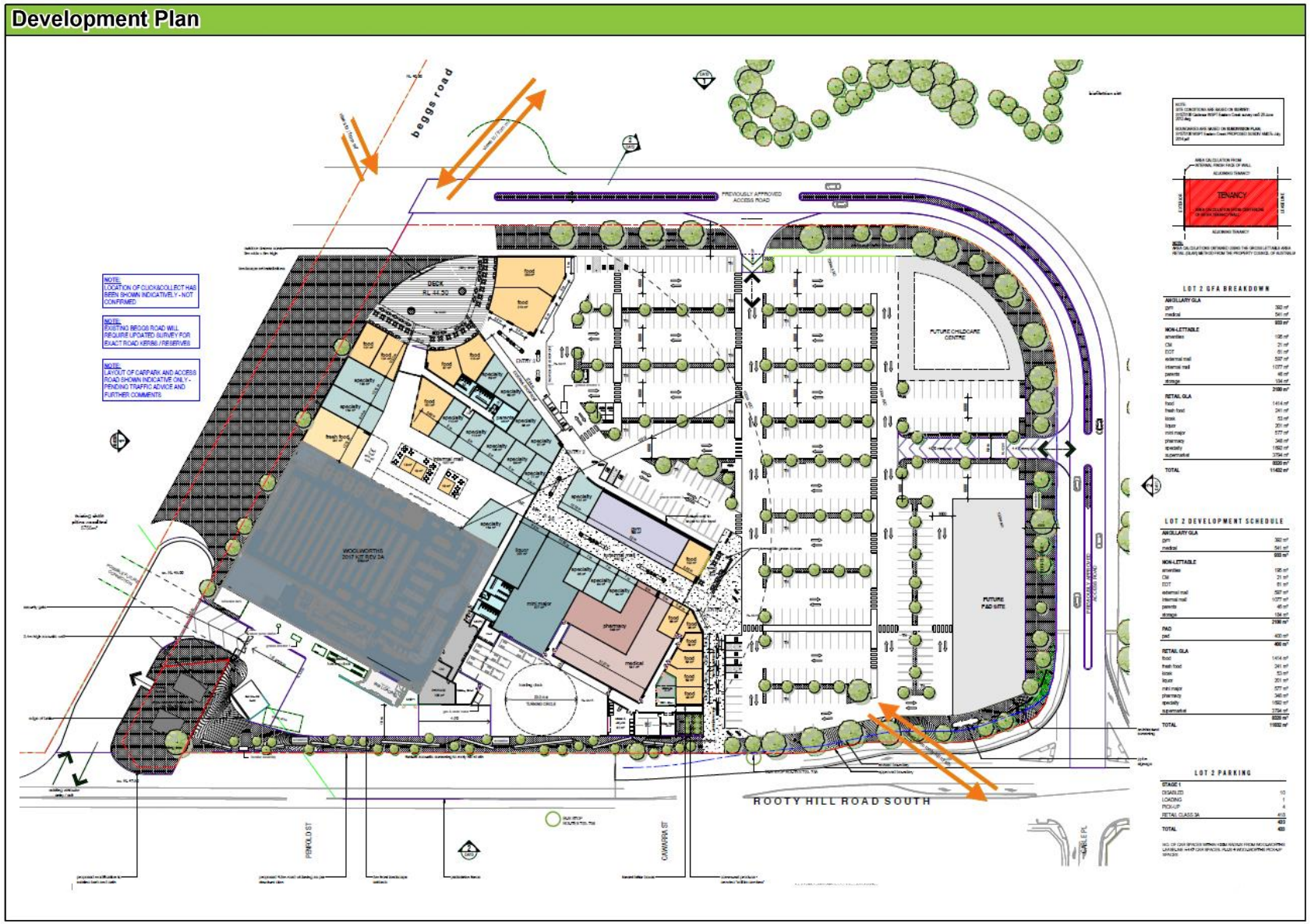


Figure 2: Development plan

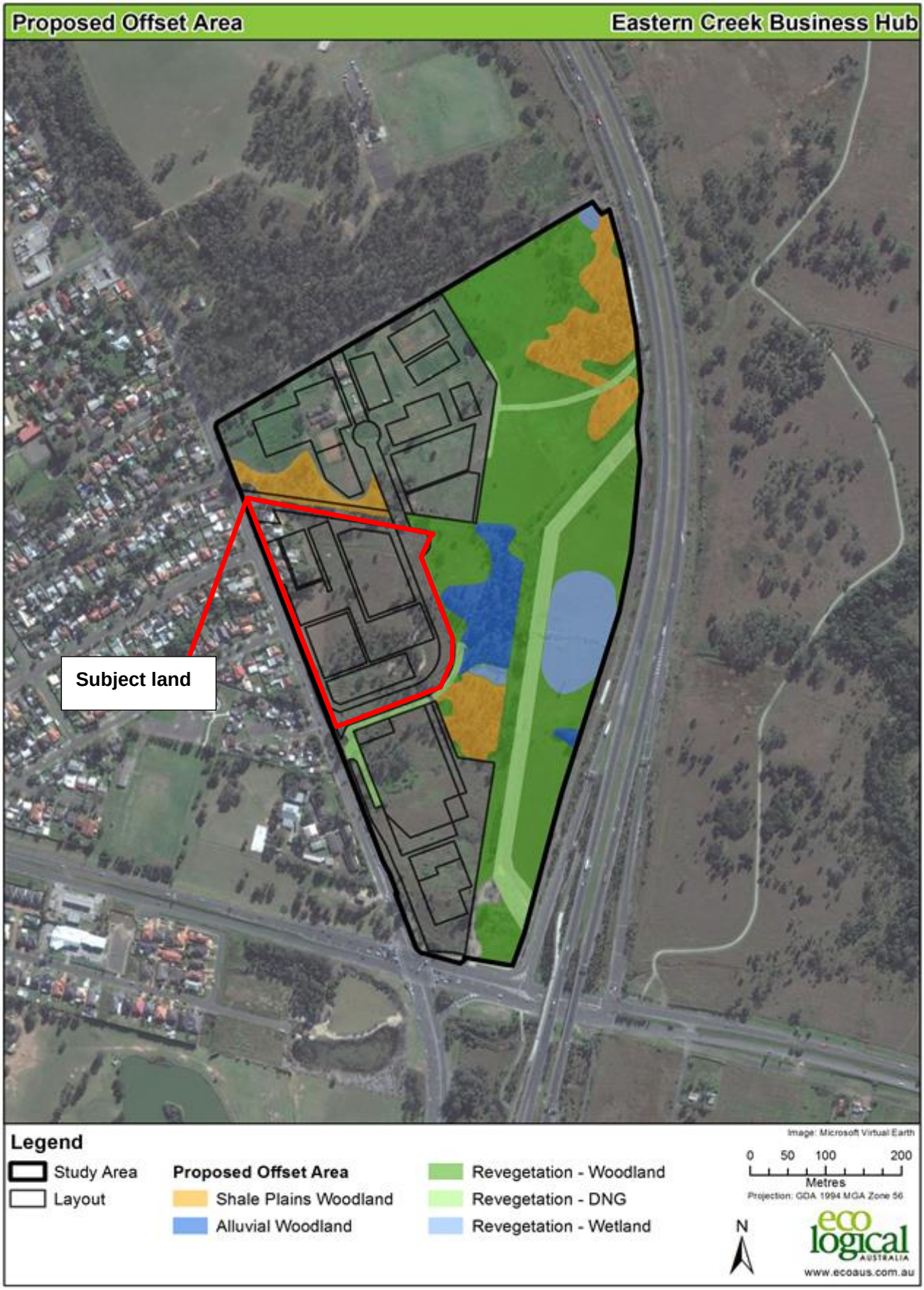


Figure 3: Masterplan staged subdivision and revegetation

2 Bushfire threat assessment

Part of the subject land has been identified as bush fire prone land by Blacktown City Council. The following assessment is prepared in accordance with Section 100B of the *Rural Fires Act 1997* and *Planning for Bush Fire Protection 2006* (RFS 2006), herein referred to as PBP.

2.1 Vegetation types

In accord with PBP the predominant vegetation class has been assessed for a distance of at least 140 m from the boundary of the proposed development and the slope class 'most significantly affecting fire behaviour' has been determined for a distance of at least 100 m in all directions. The predominant vegetation and effective slope assessments are shown in **Table 1**.

The bushfire hazard consists of grassy woodland vegetation surrounding the subject land as seen on **Figure 4**. The woodland vegetation is a mixture of Shale Plains Woodland and Alluvial Woodland communities that will be subject to further revegetation. The Alluvial Woodland indicated on the Masterplan in **Figure 3** will be representative of an inland riverine forest and have the same fuel loads and structure as a grassy woodland.

There are also managed/cleared grassland areas adjoining the subject land to the north and south within open space parcels and superlots associated with the other stages of the masterplan, as detailed in **Figure 3**. Much of this land is in the process of, or will be developed for commercial purposes. Immediately to the north is an area of remnant woodland trees which will be managed as an asset protection zone for open space purposes.

To the west of the study area exists urban development (houses and major arterial roads) which are considered 'Managed Lands'.

2.2 Effective slope

In accord with PBP, the slope that would most significantly influence fire behaviour was determined over a distance of 100 m from the boundary of the proposed development where the vegetation was found. This assessment was made with a topographic map with 2 m contour intervals, and checked onsite.

The subject land is essentially flat, with a very gradual rise from the eastern edge to the western edge. The future revegetated bushfire prone vegetation to the east of Stage 1 exists essentially across slope from the subject site and falls into the PBP slope class of 'all upslopes and flat lands' (Refer to **Figure 4**).

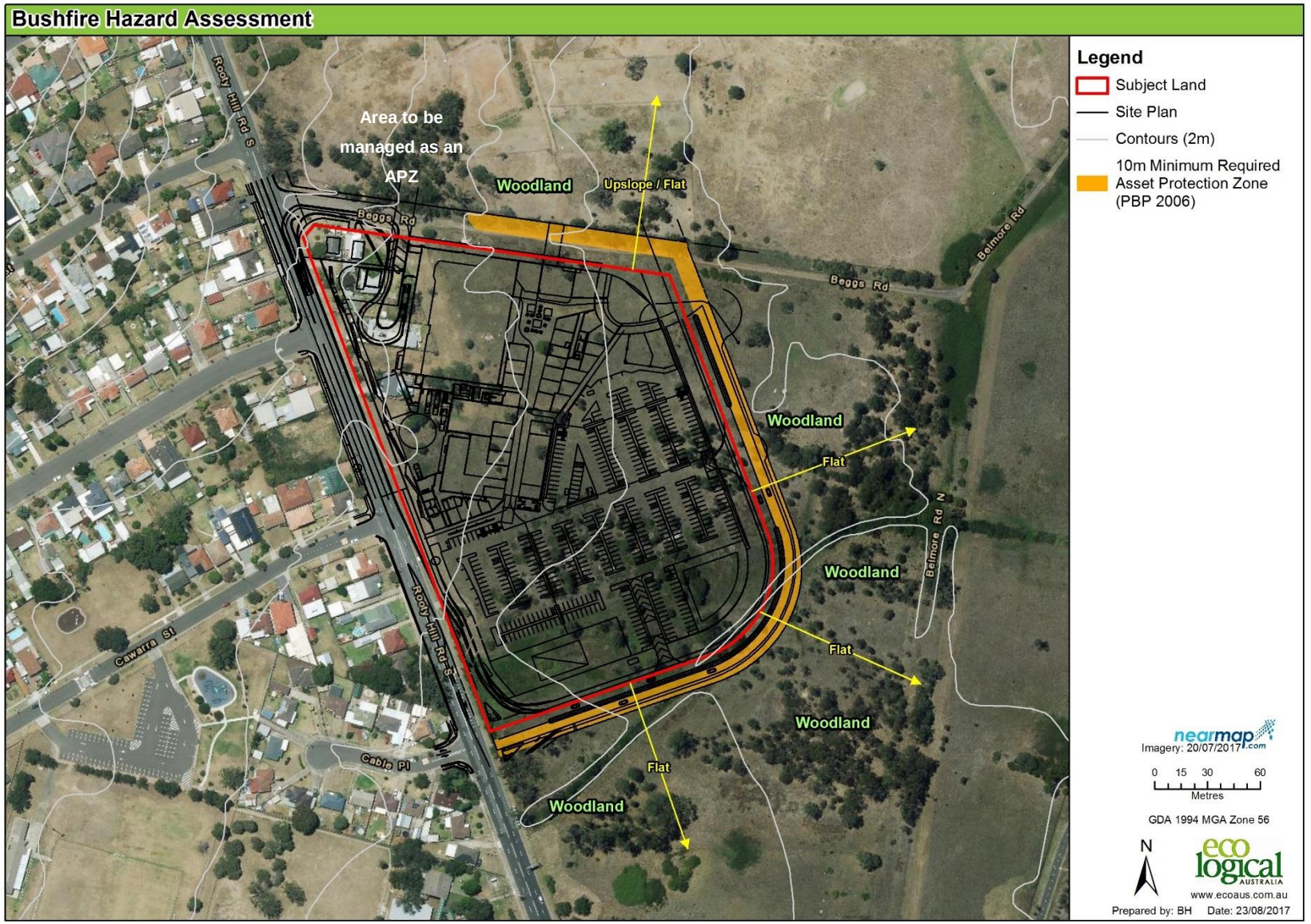


Figure 4: Bushfire hazard assessment

3 Asset protection zones

Table A2.4 of PBP has been used to determine the width of required Asset Protection Zone (APZ) for the proposed development using the vegetation and slope data identified in **Section 2**. The APZ dimensions are tabulated below in **Table 1**.

Table 1: Threat assessment, APZ and category of bushfire attack

Direction from envelope	Slope[1]	Vegetation[2]	PBP required APZ[3]	Proposed APZ	Comment
North	Upslope	Woodland (future development)	10 m	≥16 m	APZ provided by road until development removes hazard
East	Flat	Woodland (future revegetation)	10 m	≥16 m	See **Section 3.1** below for additional APZ note
South	Flat	Woodland (future development)	10 m	≥16 m	APZ provided by road until development removes hazard
West	Managed Lands				

[1] Slope most significantly influencing the fire behaviour of the site having regard to vegetation found. Slope classes are according to PBP.

[2] Predominant vegetation is identified, according to PBP and *"Where a mix of vegetation types exist the type providing the greater hazard is said to be predominate".*

[3] Assessment according to PBP.

3.1 APZ considerations

The APZ will be provided by road reserves, carparks and building setbacks until such time as development occurs to remove the hazard to the north and south.

The only bushfire prone vegetation that will affect the site is the woodland to the east which will be restored and revegetated in the future. This vegetation is classified as a "Grassy Woodland" formation and its potential to affect bushfire hazard levels has been assessed in the table above.

The minimum APZ can be achieved within the site as depicted in **Figure 3**.

4 APZ maintenance plan

As part of the vegetation management within the subject land, the landscaping density and structure is to comply with the performance requirements of an APZ as described by PBP. The following fuel management specifications can be used as a guide to achieve the Inner Protection Area (IPA) performance requirements:

- No tree or tree canopy is to occur within 2m of the building roofline.
- The presence of a few shrubs or trees in the IPA is acceptable provided that they:
    - are well spread out and do not form a continuous canopy;
    - are not species that retain dead material or deposit excessive quantities of ground fuel in a short period or in a danger period; and
    - are located far enough away from the building so that they will not ignite the building by direct flame contact or radiant heat emission;
- Any landscaping or plantings should preferably be local endemic mesic species or other low flammability species;
- A minimal ground fuel is to be maintained to include less than 4 tonnes per hectare of fine fuel (fine fuel means ANY dead or living vegetation of <6 mm in diameter e.g. twigs less than a pencil in thickness. 4 t/ha is equivalent to a 1 cm thick layer of leaf litter); and
- Any structures storing combustible materials such as firewood (e.g. sheds) must be sealed to prevent entry of burning debris.

5 Construction standard

The building construction standard is based on the determination of the Bushfire Attack Level (BAL) in accordance with Method 1 of *Australian Standard AS 3959-2009 'Construction of buildings in bushfire-prone areas'* (Standards Australia 2009). The BAL is based on known vegetation type, effective slope, and managed separation distance between the development and the bushfire hazard.

The bushfire construction standards vary across the site but can achieve the maximum threshold of 29kW/m^2 (BAL-29). **Figure 5** details the BALs for future structures however the construction standards represented in **Figure 5** will be improved upon after significant commencement of construction to the north and south which completely removes the hazard. In this event, BAL zones will continue along the eastern edge of the development only as represented in **Figure 5**.

A draft version of PBP is currently on public exhibition by the NSW RFS and possible released for the end of 2017, this may cause a change for future development requirements.

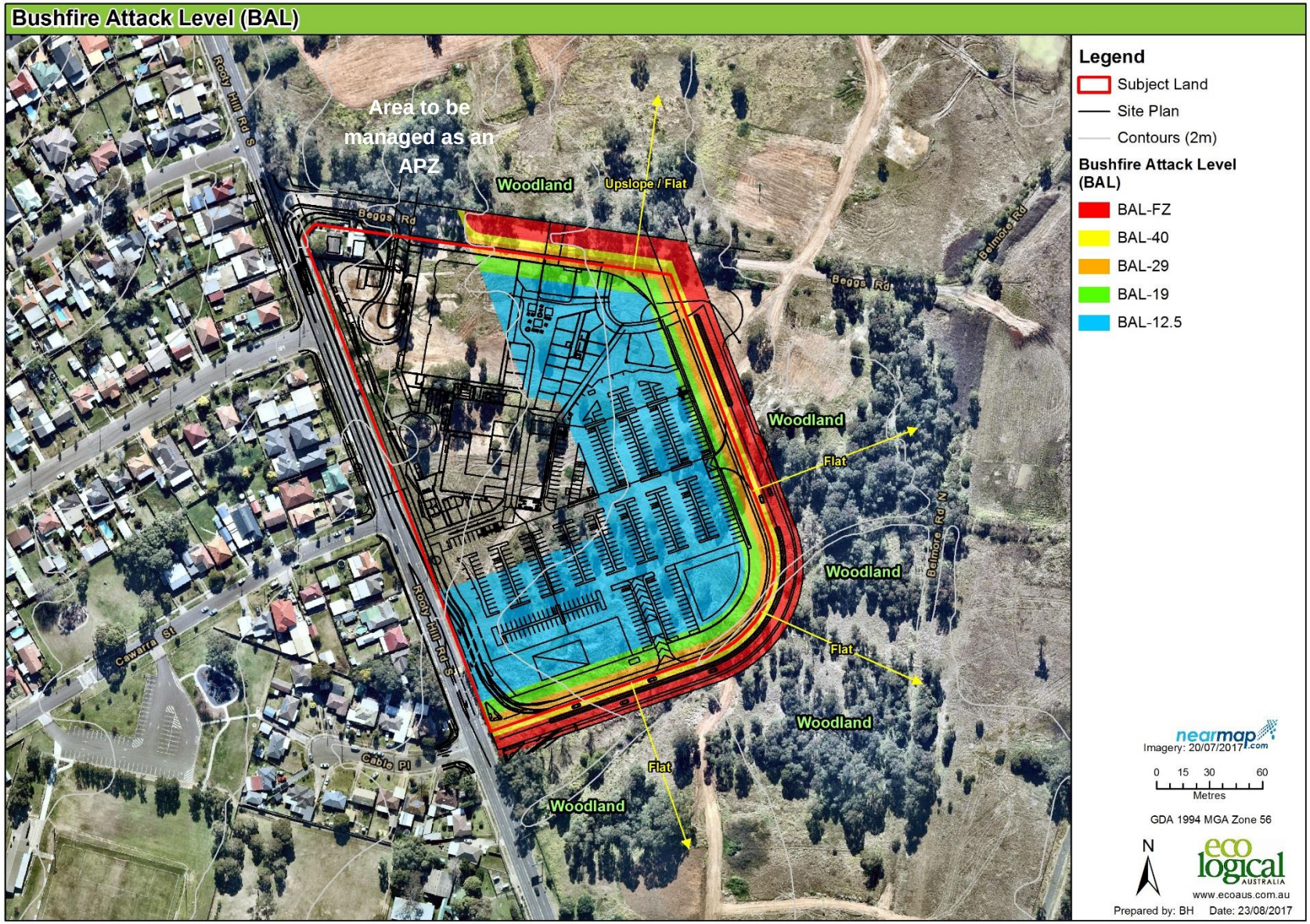


Figure 5: Bushfire attack levels

6 Water supply

The subject land will be serviced by reticulated water. The furthest point from any future buildings to a hydrant will be less than 70 m in accordance with *Australian Standard AS 2419.1 'Fire hydrant installations – System design installation and commissioning'* (Standards Australia 2005). The reticulated water supply is to comply with Council Development Control Plan.

7 Gas and electrical supplies

The electricity supply to the future subdivision is proposed to be located underground which complies with PBP.

Any gas services are to be installed and maintained in accordance with *Australian Standard AS/NZS 1596 The storage and handling of LP Gas, AS/NZS 1596:2014,* Eighth edition 2014.

8 Access

The proposal will consist of commercial development within the subdivision which will require compliance with the PBP performance criteria for public roads as outlined in **Table 2**.

9 Assessment of environmental issues

At the time of assessment, there were no known heritage items that will affect or be affected by the bushfire protection proposals in this report.

The environmental assessment of the proposed subdivision works has been assessed by separate studies in detail. Blacktown City Council is the determining authority for this subdivision; they will assess more thoroughly any potential environmental and heritage issues.

Table 2: Performance criteria for proposed public roads

Intent May be Achieved Where:	Acceptable Solutions	Complies
• 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	Can comply
• 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 Table 4.1 – Road widths for Category 1 Tanker (Medium Rigid Vehicle)	Can comply (8 m)
	• the perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas	Can comply
	• traffic management devices are constructed to facilitate access by emergency services vehicles	Can comply
	• public roads have a cross fall not exceeding 3 degrees	Can comply
	• 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	Can comply
	• curves of roads (other than perimeter roads) are a minimum inner radius of six metres	Can comply
	• 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	Can comply
	• there is a minimum vertical clearance to a height of four metres above the road at all times	Can comply
	• 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	Can comply
• the capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles	• public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression	Can comply
• roads that are clearly sign posted (with easy distinguishable names) and buildings / properties that are clearly numbered	• 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	Not applicable
	• 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	Not applicable
• there is clear access to reticulated water supply	• 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	Not applicable
	• 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	Can comply
• parking does not obstruct the minimum paved width	• public roads directly interfacing the bush fire hazard vegetation provide roll top kerbing to the hazard side of the road	Can comply

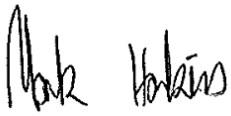
10 Recommendations and conclusion

The proposal consists of the construction of commercial buildings known as Stage 1 of The Eastern Creek Business Hub at Eastern Creek. It is located in close proximity to woodland vegetation, which is to be revegetated as part of the overall Masterplan subdivision approval. The development will be able to satisfy the aim and objectives of PBP and construction approval of individual buildings.

The following recommendations have been made within this report:

- Asset protection zones are to be provided to the proposed development as listed in **Table 1** and shown in **Figure 4** (**Section 3**);
- Construction is to be provided to the proposed development as listed in **Section 5** and shown in **Figure** 4**5**;
- Water supply is to be installed in accordance with the requirements outlined in **Section 6**;
- Electrical services should be underground (**Section 7**);
- Any gas services are to be installed and maintained in accordance with AS/NZS 1596:2014 (**Section 7**); and
- Public roads are to comply with the requirements of *Planning for Bush Fire Protection 2006* as outlined in **Section 8**.

In the author's professional opinion the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development, a standard that is consistent with *Planning for Bush Fire Protection 2006* and appropriate for the issue of a Bush Fire Safety Authority.



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bsi. AS/NZS 4801:2001 Occupational Health and Safety Management

bsi. ISO 9001 Quality Management

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