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Our ref: 15SYD: 1063

10 May 2015

Dear Paula

### **Greater Macarthur Investigation Area – Preliminary Asset Protection Zone Assessment**

Eco Logical Australia (ELA) was engaged to prepare an indicative Asset Protection Zone (APZ) assessment across the Greater Macarthur investigation area. The following provides a brief overview of the purpose, methodology, results and recommendations of this assessment.

## **Purpose and Scope**

The aim of this assessment is to provide indicative APZs required for future residential subdivision and other land uses as guided by the relevant legislation and policy into bushfire planning. The information is to be used to understand potential development areas and yields from the Greater Macarthur investigation area.

## **Methodology**

An assessment of the bushfire hazard is necessary to determine the application of Asset Protection Zone locations and dimensions. The following sub-sections describe the vegetation formations (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour at the site.

This assessment is based on existing Bushfire Prone Land maps and existing vegetation maps. Field assessment would be required to determine whether the mapped formation is accurate. It is also possible that bushfire hazard areas will change over time - either as land is developed or vegetation is rehabilitated - for example where gaps in connectivity are restored or along drainage lines to achieve biodiversity and riparian environmental objectives.

Analysis was undertaken by Alastair Patton, Bushfire Planner and GIS analyst.

## VEGETATION FORMATIONS INFLUENCING BUSHFIRE

Vegetation extent considered to be bush fire prone was mapped using a combination of vegetation mapping and Bush Fire Prone Land data provided by Wollondilly and Campbelltown Councils. Mapped vegetation formations within the study area include units mapped as Forest, Woodland, Freshwater Wetland and Forested Wetland. The 'predominant vegetation' influencing fire behaviour approaching future developable areas has been assessed in accordance with the methodology specified within Planning for Bushfire Protection (PBP) (RFS 2006).

## SLOPES INFLUENCING BUSHFIRE

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

All slope classes are represented within the study area, which is characterised by relatively flat ridgelines adjoining steep slopes with gullies and cliff lines.

Table 1: PBP slope classes

Upslope or Downslope	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

## ASSET PROTECTION ZONES

Using the vegetation and slope data discussed above, APZs suitable for residential subdivision have been calculated for all vegetated areas. These have been mapped in **Figure 1** and described in **Table 1**. This assessment and mapping will need to be revised and site specific APZs will need to be calculated when an indicative masterplan is available.

A second APZ dimension for Special Fire Protection Purposes (SFPP) is shown in **Figure 2** and also listed in **Table 1**. The following development is identified as SFPP in s100(b)(6) of the Rural Fires Act:

- (a) a school,
- (b) a child care centre,
- (c) a hospital (including a hospital for the mentally ill or mentally disordered),
- (d) a hotel, motel or other tourist accommodation,
- (e) a building wholly or principally used as a home or other establishment for mentally incapacitated persons,

- (f) *seniors housing within the meaning of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004,*
- (g) *a group home within the meaning of State Environmental Planning Policy No 9—Group Homes,*
- (h) *a retirement village,*
- (i) *any other purpose prescribed by the regulations.*

In relation to point (i) above, the Rural Fires Regulations define the following as prescribed purposes:

*For the purposes of paragraph (i) of the definition of **special fire protection purpose** in section 100B (6) of the Act, the following purposes are prescribed:*

- (a) *a manufactured home estate (within the meaning of State Environmental Planning Policy No 36—Manufactured Home Estates), comprising two or more caravans or manufactured homes, used for the purpose of casual or permanent accommodation (but not tourist accommodation),*
- (b) *a sheltered workshop, or other workplace, established solely for the purpose of employing persons with disabilities,*
- (c) *a respite care centre, or similar centre, that accommodates persons with a physical or mental disability or provides respite for carers of such persons,*
- (d) *student or staff accommodation associated with a school, university or other educational establishment,*
- (e) *a community bush fire refuge approved by the Commissioner.*

ESRI shapefiles of the APZs have been provided to the NSW Department of Planning and Environment.

It is recommended that development associated with employment lands, such as commercial and industrial development, be treated as residential development for the purpose of this 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 only be determined at the subdivision application stage, thus it is considered appropriate to assess residential sized APZs for such development at this stage.

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 regional scale planning but will need to be re-assessed at a finer scale when detailed masterplanning is undertaken.

**Table 1: Asset Protection Zone (APZ) calculation**

Predominant Vegetation	Effective Slope	APZ width*	SFPP APZ width*
Forest	Upslope/Flat	20 m	60 m
Forest	>0-5° downslope	25 m	70 m
Forest	>5-10° downslope	35 m	85 m
Forest	>10-15° downslope	50 m	100 m
Forest	>15-18° downslope	60 m	100 m
Woodland	Upslope/Flat	10 m	40 m
Woodland	>0-5° downslope	15 m	50 m
Woodland	>5-10° downslope	20 m	60 m
Woodland	>10-15° downslope	25 m	70 m
Woodland	>15-18° downslope	30 m	75 m

\* PBP 2006 based assessment;

## Results and Recommendations

The results of the assessment include indicative minimum required APZs for both residential and SFPP development mapped around the vegetated interface and these have been provided in ESRI Shapefile format and as A1 size PDF's.

PBP (RFS 2006) requirements include the provision of an 8 m wide perimeter road between any vegetation and residential or SFPP development. For many of the required APZ widths it is expected that the required perimeter road and standard front yard setback will satisfy the APZ requirements.

Due to the landscape scale of this assessment it is recommended that the APZs be re-assessed in more detail at precinct scale to ensure detailed masterplans have a clear understanding of the APZ requirements.

## References

NSW Rural Fire Service (RFS) (2006a) *Planning for Bush Fire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*. NSW Rural Fire Service, Rosehill.

Regards,



David Bonjer, Senior Environmental Planner



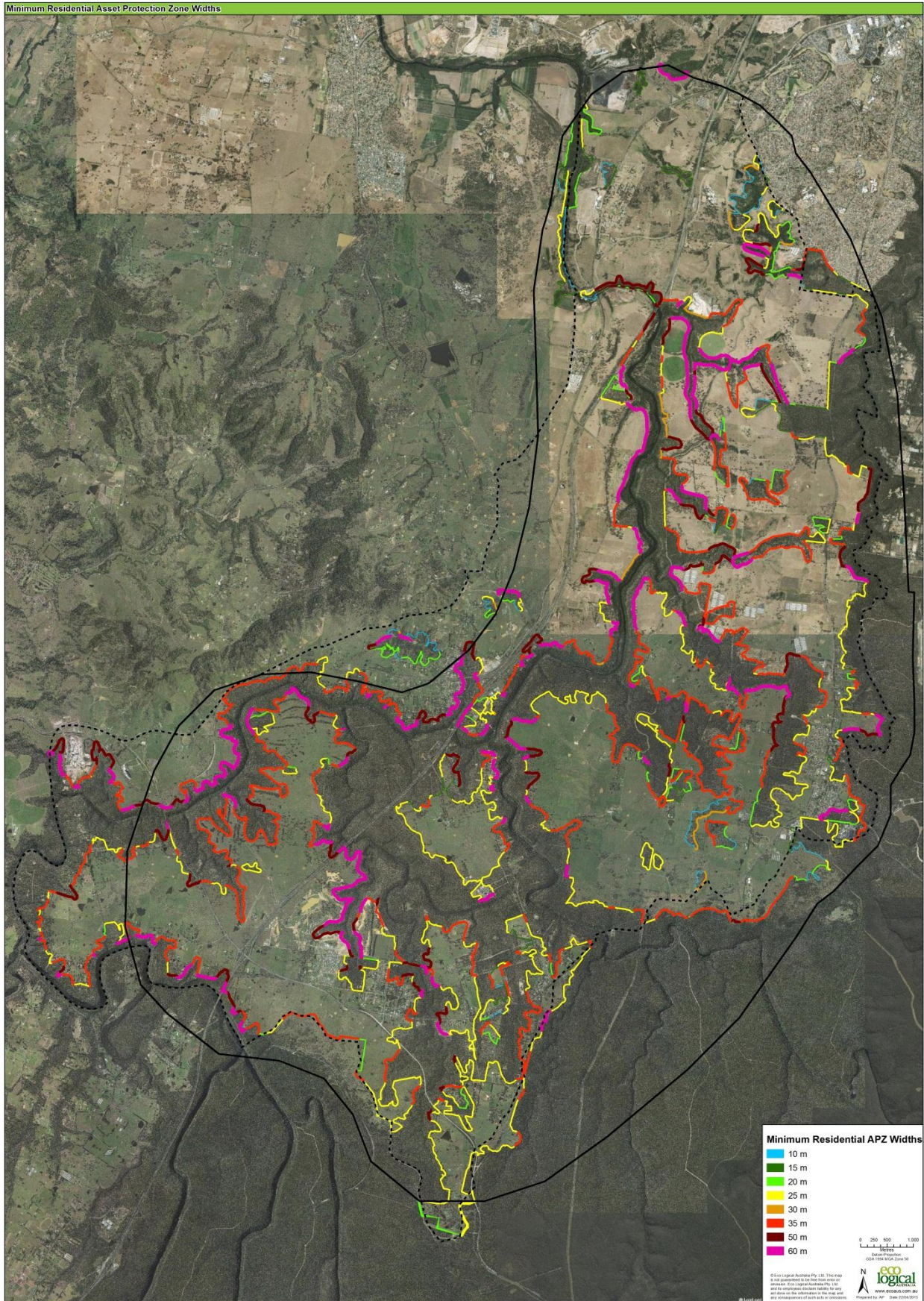


Figure 1 Indicative APZs for residential development



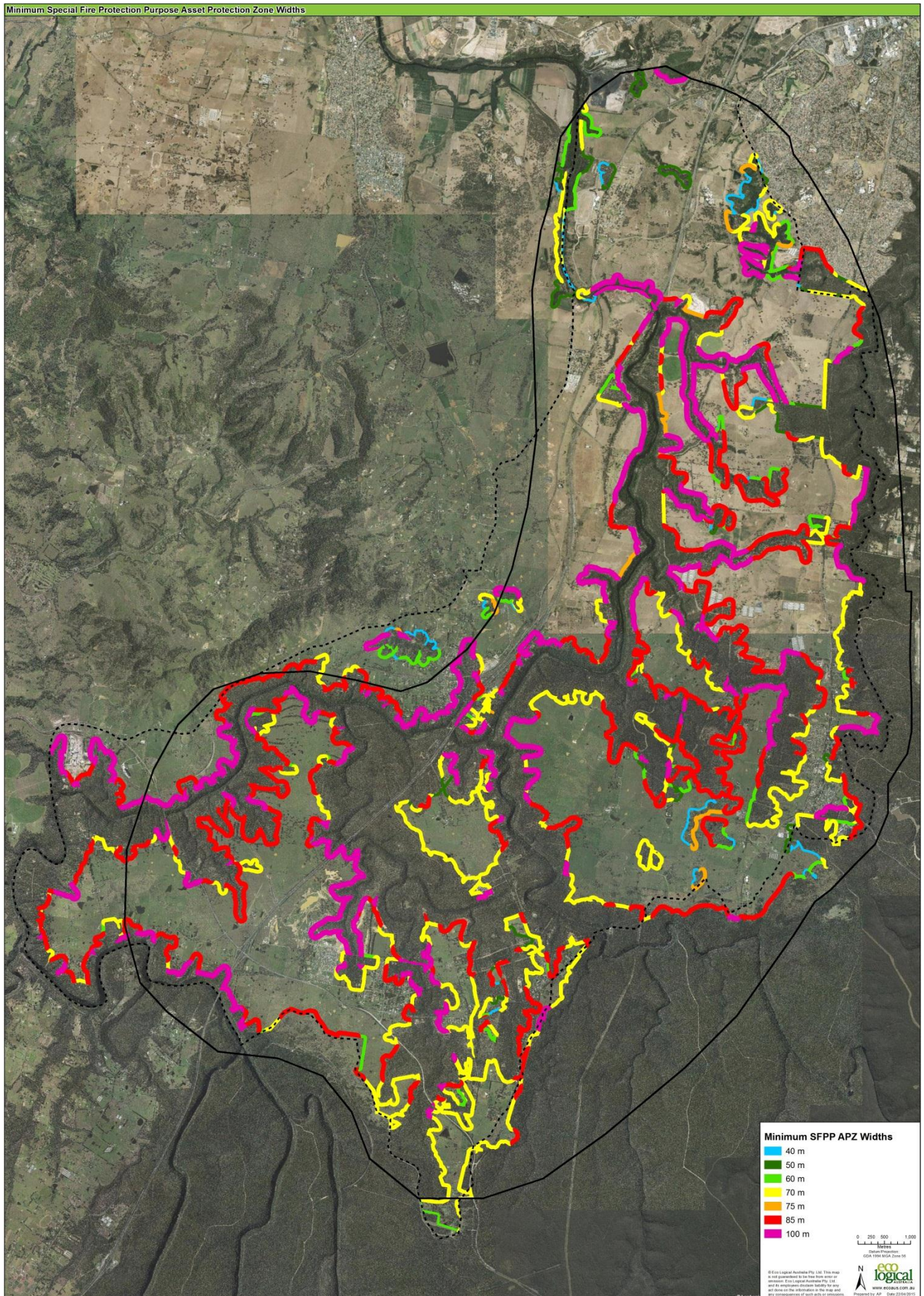


Figure 2 Indicative APZs for Special Fire Protection Purpose