BUSHFIRE ASSESSMENT

On behalf of

RW SURVEYING & VALUATIONS

For N Clements D/A

Proposed 14 Lot Sub-division
of
Lot 3 in DP 1041314 & Lot 70 in DP 818506
Millingandi Road, Millingandi

September 2004

EDEN FOREST MANAGEMENT SERVICES P/L
PO BOX 493
EDEN NSW 2551
Ph/Fax: 02 64 961332
Mobile: 0428 961332
Email: yoko@asitis.net.au

1. **Property Owner**: Mr Neil Clement

2. **Location**: Proposed Subdivision of Lot 3 in DP 1041314 & Lot 70 in DP 818506
   Parish: Pambula
   County: Auckland
   Council: Bega Valley Shire
   Address: Millingandi Road, Millingandi

3. **General Description of Property & Surrounds**:

3.1 Topography & Utilities:

The subject area includes Lots 1 to 14 as indicated on the attached map. It forms part of the catchment of an unnamed tributary that feeds directly into the Merimbula Lake.

This drainage feature runs in a south-north direction along the western portion of the subject area to Boggy Creek Road then changes direction and heads east towards to the lake along the northern boundary and through Lot 14.

To west of the drainage feature the topography is quite flat with slopes of approx 2 – 3° and a north-northeasterly aspect. East of the gully it is quite steep (up to 15°) leading up to a ridge along the eastern boundary. Most of the proposed sub-division is dominated by this ridge that has a northerly aspect with the highest point at the southeastern corner. (See Figures 1 & 2)

Proposed Lot 14 is north of Millingandi Road and has the drainage feature mentioned above traveling through the middle. This lot is very flat (see Figure 3).

There is an existing house located on Proposed Lot 2 and a metal shed on Lot 9

There is a property access road already in place that travels along the western boundary of Lots 1 & 2. Once this is extended it would provide access to Lots 1 to 9. There is also an existing road along the western boundary that would provide access to any proposed dwellings that would be built on Lots 10 –13 (see Figure 4). Lot 14 is directly accessible from Millingandi Road.

There is a major high voltage transmission line that runs along the eastern boundary that has a 50 metre easement (See Figure 5) and other power lines along the western boundary and through Lot 9 as can be seen on the attached diagram.

3.2 Vegetation:

For the purposes of bushfire protection, the vegetation is assessed in this report on and surrounding the area at a distance of 140 metres from the boundaries of the proposed building sites. The classification system used is that which is described in Appendix 2 of the Planning for Bushfire Protection Guidelines 2001(PBPG).

This divides the vegetation into three major groups;

- Vegetation Group 1, *Forest*
- Vegetation Group 2, *Woodland and heaths*
- Vegetation Group 3, *Rainforests, shrubland, open woodlands, mallee, grasslands*

The whole of the subject area has been essentially cleared for farmland with an occasional Mountain Grey Gum (*Eucalyptus cypellocarpa*) and Bloodwood (*Corymbia gummifera*) and as such would be regarded as Vegetation Group 3 (See figures 1 & 2).

To the west, north and east the major land use is rural residential lots (see Figure 6) and the vegetation is dominated by pastured land with occasional strips of forested vegetation for example, along Boggy Creek and Millingandi Roads (see figure 7), the access road along the western boundary (see figure 4) and east of the main power line easement along the eastern boundary (see figure 8). Again this would be all classified as Vegetation Group 3.

South of the subject area is forested vegetation dominated by Bloodwood, Yellow Stringybark (*E. muellerana*) and Woollybutt (*E. longifolia*). The understorey consists mainly of Sallow Wattle (*Acacia longifolia*), Sheoak (*Allocasuarina littoralis*) and Native Cherry (*Exocarpus cupressiformis*) with quite a sparse ground cover (See Figure 9). As such this would be classified as Vegetation Group 1.

4. Bushfire Threat Assessment:

4.1 Asset Protection Zones

This Bushfire Assessment follows the methodology described in Appendix 2 of the PBPG. Determination of the appropriate Asset Protection Zone (APZ) for the subject area is based on the assessment of the prominent vegetation type and slope surrounding the area and applying the recommended specifications as per Table A2.4 of the Guidelines.

Because this is such a large sub-division proposal and the vegetation within the subject area is primarily pastured land, the asset protection zone was considered around the whole perimeter of the subject area rather than around individual building envelopes. This is with the exception of Lot 14 which is by itself north of Millingandi Road is considered individually.

These setbacks are based on the need to conform with a Level 3 construction for Class 1 and 2 buildings under the Building Code of Australia. (For definition of Classes refer to Schedule 2 and description of Level 3 construction standards refer to Schedule 3).

The following table indicates the recommended APZ for the subject area (Lots 1 –13):

Boundary Section	Prominent Veg. Class	Average Slope *(within 100m of boundary)*	Recommended APZ*
Northern	3	0° up -slope	20m (IPA = 20, OPA=0)
Eastern	3	>0-5° down-slope	20m (IPA = 20, OPA=0)
Southern	1	>5° up-slope	20m (IPA = 20, OPA=0)
Western	3	0-5° up-slope	20m (IPA = 20, OPA=0)

** Recommended APZ taken from Table A2.2 of Planning for Bushfire Protection 2001*

The vegetation surrounding the proposed dwelling site for Lot 14 is classified as Vegetation Class 3 and the land is flat all round. As such the recommended APZ for the site will be twenty metres. The Princes Highway and Millingandi Road already provide a 20 metre separation from the surrounding vegetation and as such it could be considered that the APZ is already in place for the southern and northeastern boundaries.

To maintain these APZs the vegetation would need to be slashed or grazed on a regular basis.

Due to the location of the recommended APZ's the layout of the sub-division may be subject to some changes.

5. Water & Electricity Supplies:

5.1 Water Supplies

- Part of the sub-division requirements will be to include a water supply reserve as per page 36 of Planning for Bushfire Protection (2001) i.e. water tanks and/or dam will be provided for fire fighting purposes as part of the development.

- PBPG recommend that a 5hp pump independently powered by either diesel or petrol be used to ensure that water supplies can maintained when needed for firefighting purposes.

5.2 Electricity Supplies

- There is an existing electricity supply through overhead electrical transmission lines. No part of a tree should be planted any closer than 3 metres to any power line that is linked to the proposed dwellings.

  This should be inspected on a regular basis.

6. **Access for Firefighting Operations:**

- There are two Property Access Roads that service all the proposed lots. Both run off Boggy Creek Road. There is one along the western boundary that is approximately 500m from the Princes Highway.
- There is also an existing road that provides access to the existing dwelling. Its entry point off Milingandi Road is approximately 200m to the east of the Highway. This road would need to be extended to service Lots 3 – 6.
- To the east of the subject area there is a gravelled road that accesses properties to the south (refer to locality map). This would provide fire fighting vehicles access to the forested land to the south should it be required.
- All access roads should be maintained according to the specifications required in Section 4.3.2 of the Planning for Bushfire Protection Guidelines (2001).

7. **Special Considerations:**

7.1 Threatened Species

No evidence of any threatened species, population or ecological community was found on the property during the assessment.

8. **Bushfire Maintenance Plan:**

It is recommended that:

- Asset Protection Zones are put in place as per Diagram 1 attached
- The maintenance of the APZ to be done by either slashing and/or grazing of the immediate surrounds to a distance of at least 20 metres of the proposed dwellings
- When establishing gardens once the dwellings are in place, the following points should be considered:
  - maintain a clear area of low cut lawn adjacent to the house;
  - keep areas under fences, fence posts and gates and trees raked and cleared of fuel
- Trees are allowed within the proposed house blocks as long as they do not overhang the building. Ensure gutters & drains of houses (once they are established) are regularly cleared of debris.
- As per point 5 above, all lots within the proposed sub-division to include a water supply reserved for firefighting purposes

Assessment conducted by:

Erica Hansen
Bsc (For)

Figure 1: Typical Vegetation within Subject Area showing scattered trees and existing dwelling in background

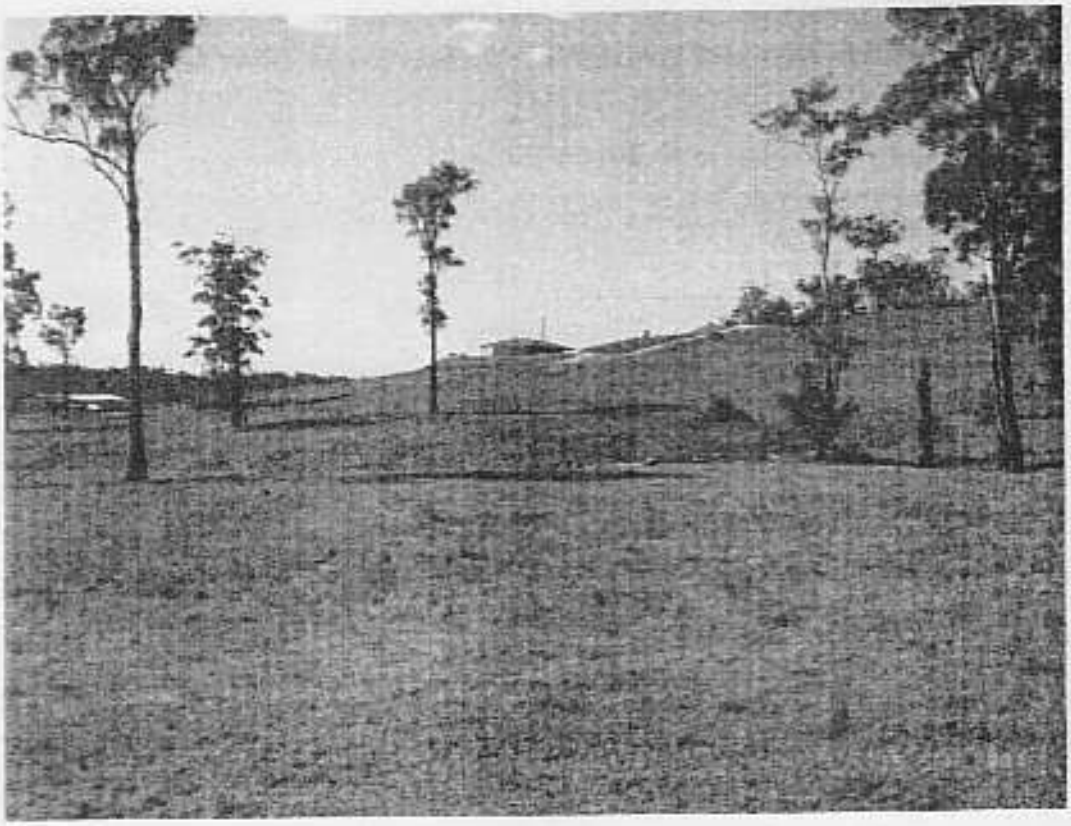


Figure 2: View of Subject area from Southeastern corner

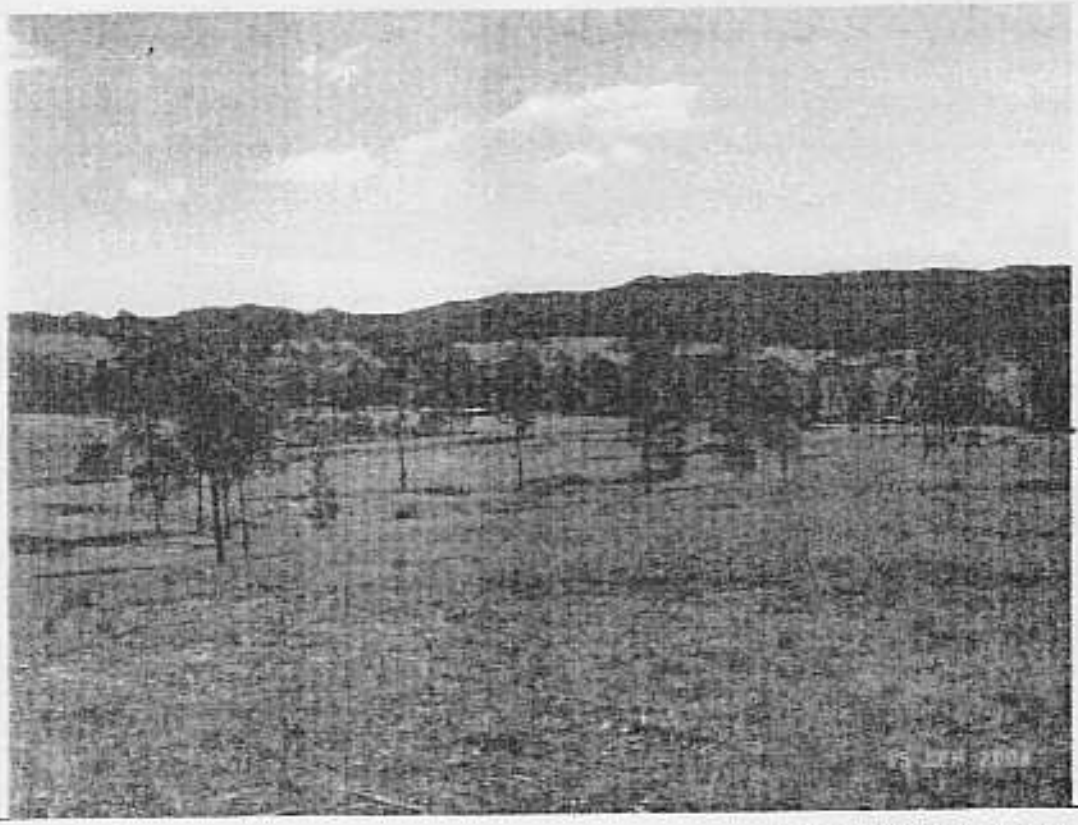


Figure 3: Proposed Lot 14 with Princes Highway in background

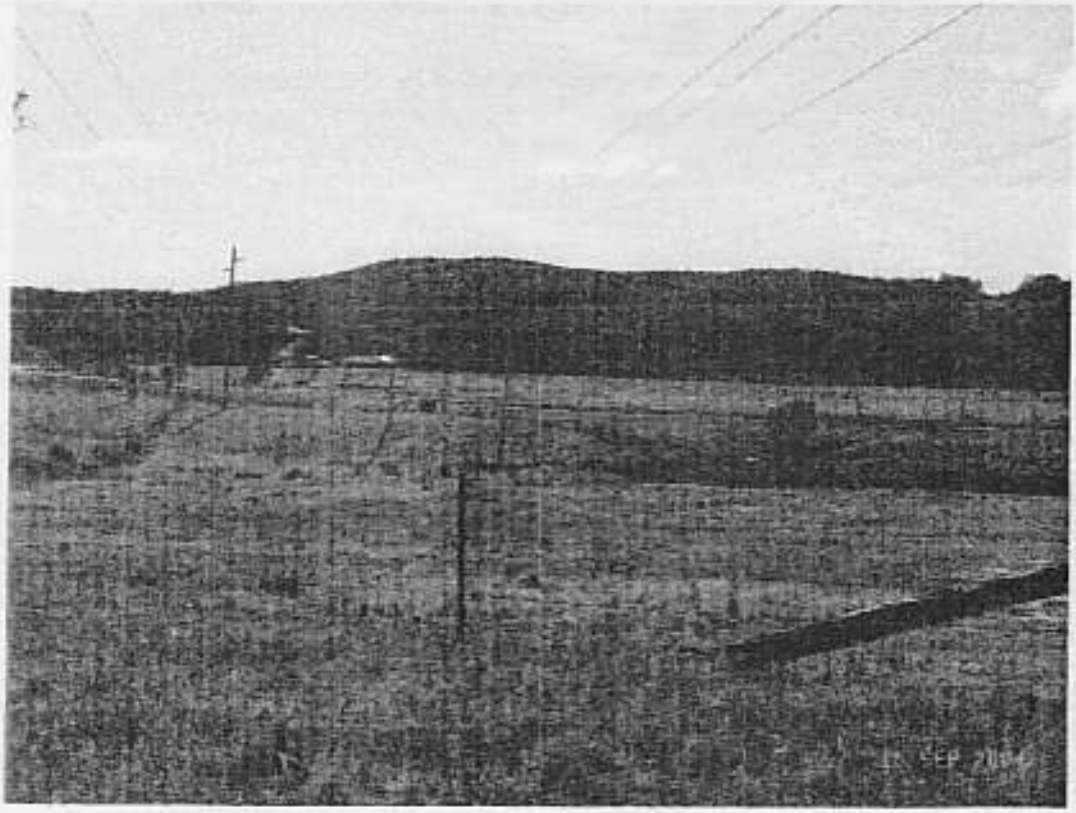


Figure 4: Property Access Road and power line easement along western boundary

Figure 5: Power line and easements along eastern boundary (looking north)

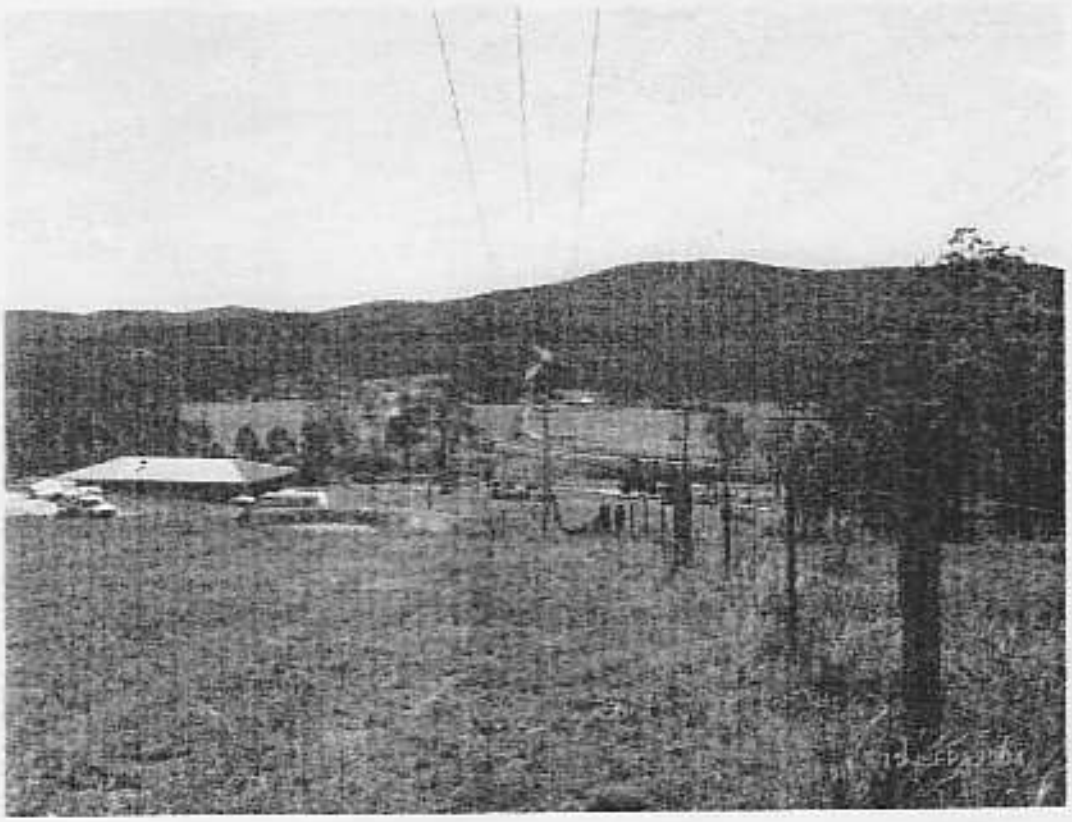


Figure 6: Rural Residential Lots north of Proposed Lots 9 & 10

Figure 5: Power line and easements along eastern boundary (looking north)

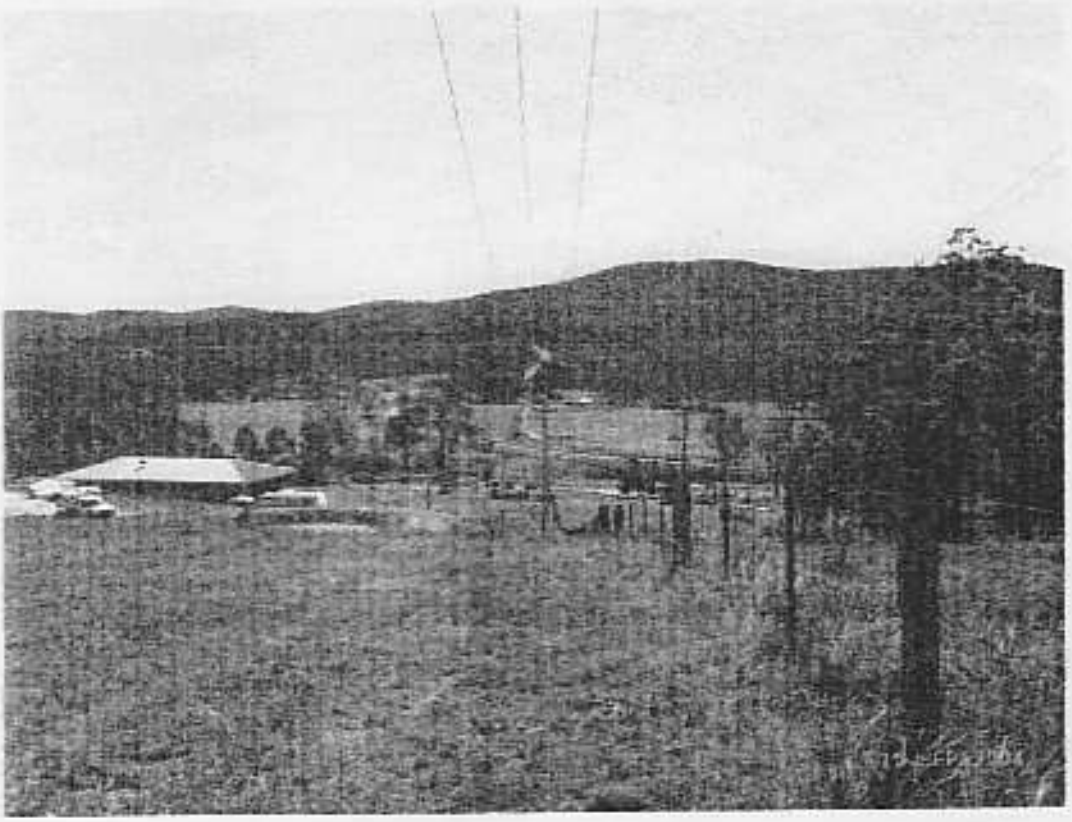


Figure 6: Rural Residential Lots north of Proposed Lots 9 & 10

Figure 7: Millingandi Road and land to the west of Proposed Lot 14

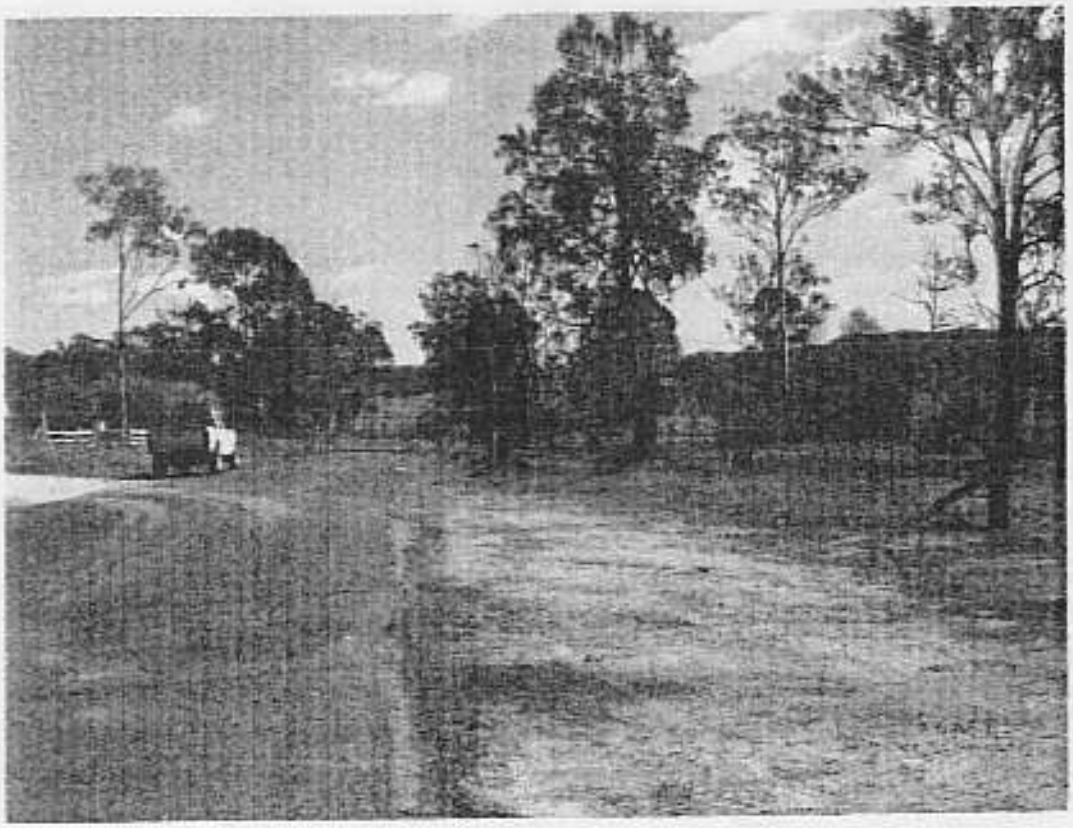


Figure 8: Thin Strip of Vegetation east of Power line easements along eastern boundary

Figure 9: Forested vegetation south of Subject Area

Schedule 1: Definition of Outer & Inner Protection Areas

a) Outer Protection Area:

(i) Location:

The Outer Protection Area is located adjacent to the hazard. Originally the Outer Protection Area would have been part of the bushfire hazard but has become an area where the fuel loadings are reduced.

(ii) Purpose:

The reduction of fuel in this area substantially decreases the intensity of an approaching fire and restricting the pathways to crown fuels, reducing the level of direct flame, radiant heat and ember attack on the Inner Protection Area.

(iii) Depth:

The depth of the OPA is largely dependent on the type of land use and vulnerability of the dwelling or persons affected. For residential development the OPA is usually 10m deep. For special protection development the OPA is usually 15m deep. Some variation may be possible in consultation with local fire authorities (RFS or NSWFB).

(iv) Fuel Loadings:

Within the Outer Protection Area any trees and shrubs should be maintained in such a manner that the vegetation is not continuous. Fine fuel loadings within the OPA should be kept to a level where the fire intensity expected will not impact on adjacent developments. In the absence of any policy to the contrary, 8 tonnes per hectare of fuel is commonly used. In grasslands, fuel height should be maintained below 10 centimetres.

b) Inner Protection Area:

(I) Location:

The Inner Protection Area extends from the edge of the Outer Protection Area to the development.

(ii) Purpose:

The Inner Protection Area ensures that the presence of fuels, which could become involved in a fire, are minimised close to a development. Therefore the impact of direct flame contact and radiant heat on the development is minimised.

(iii) Depth:

The depth of the IPA is dependent upon the slope of the land. The greater the slope, the greater the intensity of any approaching fire and hence the greater the depth required for the IPA.

(iv) Fuel Loadings:

It is more practical to determine the specifications of the IPA in terms of performance than in terms of a minimum fuel loading.

The performance of the Inner Protection Area must be such that:

- there is minimal fine fuel at ground level which could be set alight by a bushfire;

and

- any vegetation in the Inner Protection Area does not provide a path for the transfer of fire to the development – that is, the fuels are discontinuous.

The presence of a few shrubs or trees in the Inner Protection Area is acceptable provided that they:

- do not touch or overhang the building;
- 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 house so that they will not ignite the house by direct flame contact or radiant heat emission.

Woodpiles, wooden sheds, combustible material storage areas, large areas/quantities of garden mulch, stacked flammable building materials etc should not be permitted in the Inner Protection Area.

(taken from Planning for Bushfire Protection Guidelines - 2001)

Schedule 2 - Building Class Classifications

Buildings are classified as follows:

Class 1: one or more buildings which in association constitute -

a. **Class 1a** - a single dwelling being -
   i. a detached house; or
   ii. one or more attached dwellings, each being a building, separated by a fire-resisting wall, including a row house, terrace house, town house or villa unit; or

b. **Class 1b** - a boarding house, guest house, hostel or the like with a total floor area not exceeding 300m^2 and in which not more than 12 persons would ordinarily be resident, which is not located above or below another dwelling or another Class of building other than a private garage.

Class 2: a building containing 2 or more sole-occupancy units each being a separate dwelling.

Class 3: a residential building, other than a building of Class 1 or 2, which is a common place of long term transient living for a number of unrelated persons, including -

a. a boarding-house, guest house, hostel, lodging-house or backpackers accommodation; or
b. a residential part of an hotel or motel; or
c. a residential part of a school; or
d. accommodation for the aged, children or people with disabilities; or
e. a residential part of a health-care building which accommodates member of staff; or a residential part of a detention centre.

Taken from Bushfire Practice Note (DIPNR Website)

Schedule 3 – Summary of AS 3959 Construction of Buildings in Bushfire Prone Areas

Taken from RFS Fact Sheet: AS 3959 Construction of Buildings in Bushfire Prone Areas

This is an abridged version of Australian Standard AS 3959 1999 Construction of Buildings in Bush Fire Prone Areas which provides some detail for developments proposed in high risk zones. Please do not use the abridged version alone. The full version is available from Standards Australia

Flooring

Level 1
Concrete slab on ground. Suspended floor: concrete floorframed floor, underside of bearer to be greater than 600mm above finished ground level. Under space where unenclosed all timber flooring, bearers and joists to be fire retardant treated timber.

Level 2
As per Level 1

Level 3
As per Level 1 except where framed floors have a greater clearance than 600mm above finished ground level and are not fully enclosed – all flooring components are to be fire retardant treated timber.

External Walls

Level 1
Masonry, concrete, pise, rammed earth, stabilised earth or; Framed walls have no restriction to cladding materials but must incorporated breather-type sarking having appropriate flammability index or an insulating material confirming to the appropriate Australian Standard.

Where combustible sheeting is less than 400mm from ground, cladding shall be protected with a non-combustible material for no less than 400mm.

Level 2
As per Level 1 except PVC claddings not permitted and all external timber wall cladding shall be fire retardant treated timber.

Level 3
As per Level 2

Windows

Level 1
All openable windows shall be fitted with screens

Level 2
As per Level 1 and in addition – timber windows shall be fire retardant treated timber except where protected by non-combustible shutters. Lead light windows shall be protected by a shutter constructed of non-combustible material or toughened glass.

Level 3
As per Level 2 except windows are to be protected by non-combustible shutters or toughened glass.

External Doors

Level 1
Weather strips or draft excluders to be fitted. Tight fitting door screens to be fitted.

Level 2
As per Level 1 except aluminium mesh shall not be used. Leadlight glassing shall be protected by shutters constructed of non-combustible material or toughened glass.

Level 3
As per Level 2 except that timber doors shall be fire retardant treated or covered with non-combustible material on the exterior or doors shall be protected by shutters of non-combustible material or Doors shall be solid core having a thickness of not less than 35mm.

Roofs

Level 1
Timber shakes or shingles are not permitted. Tiled roofs shall be fully sarked. Sarking shall have a flammability index of no more than 5.

Sheeted roofs shall be fibre cement or metal and all gaps under corrugations or ribs where it meets the fascia/wall shall be sealed or protected by either (a) fully sarking roof or (b) corrosion resistant steel, bronze mess, profiled metal sheet, neoprene seal, compressed mineral wool or similar material.

The use of (b) cannot be used on roofs with valleys. Rib caps and ridge capping shall be sealed using either rib caps, ridge capping or as per prior clause.

Roof wall junctions shall be sealed by the use of fascias and eaves linings or with non-combustible materials.

Level 2
As per Level 1 except that all roofing shall be non-combustible and sarked.

Level 3
As per Level 2 except that no fibre-reinforced cement or aluminium sheet shall be used.

Roof lights

Level 1
All roof lights and associated shafts shall be sealed with a non-combustible sleeve or lining.

A roof light can be constructed from thermoplastic sheet in a metal frame, but diffuser installed at ceiling level shall be wired or toughened glass in a metal frame.

Vented roof lights shall have corrosion resistant steel or bronze mesh.

Level 2
As per Level 1 except roof light glazing shall be wired glass.

Level 3
As per Level 2

Eaves

Level 1
Eaves shall be enclosed with all fascia or gaps between rafters being sealed.

Level 2
As per Level 1 except all timber eaves lining and joining strips shall be fire retardant-treated timber.

Level 3
As per Level 2 except that aluminium shall not be used.

Fascias

Level 1
No special requirement

Level 2
All material must be either non-combustible or fire-retardant treated timber.

Level 3
As per Level 2 except that no fibre-reinforced cement or aluminium sheet shall be used.

Gutters and Downpipes

Level 1
All leaf guards must have a flammability index no greater than 5 (AS1503.2)

Level 2
As per Level 1

Level 3
As per Level 1

Verandahs and Decks

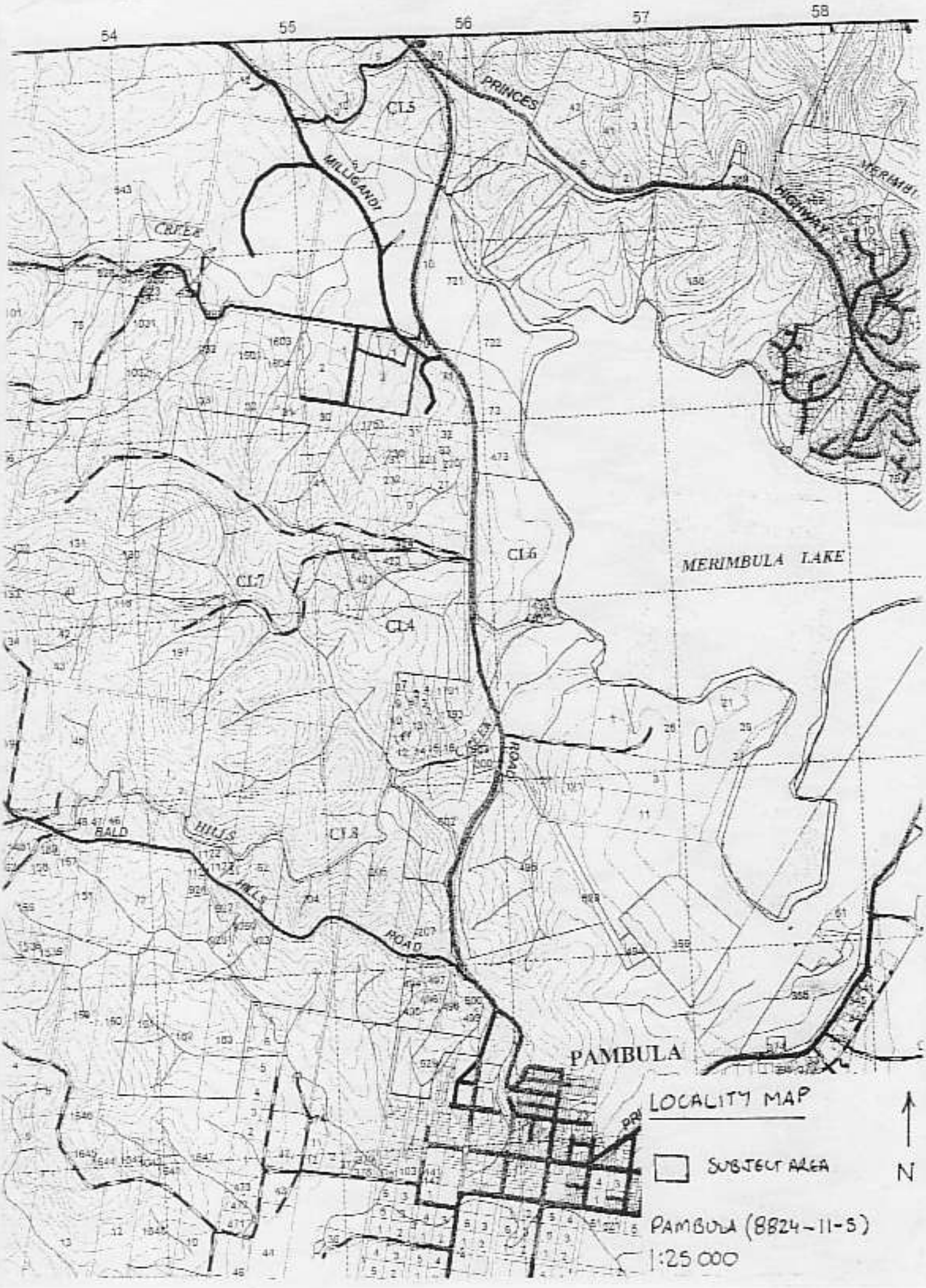
Level 1
Slab-reinforced concrete suspended slab floor, supported by posts or columns. Slab on ground. Sheeted or tongued and grooved solid flooring having:
where clearance between under side of flooring to ground level is not greater than 400mm, all joints in the flooring shall be covered or sealed.

- decking timbers shall have no less than 5m clearance
- posts and columns shall be non-combustible, fire retardant for a minimum of 400mm above finished ground level or mounted on galvanised metal shoes with a clearance of not less than 75mm
- the external perimeter beneath the decking shall not be enclosed nor have access restricted
- decking timbers shall not connect with the remainder of the building unless measures are used to prevent the spread of fire into the building.

Level 2
As per Level 1 except spaced timber decking shall be fire retardant treated.

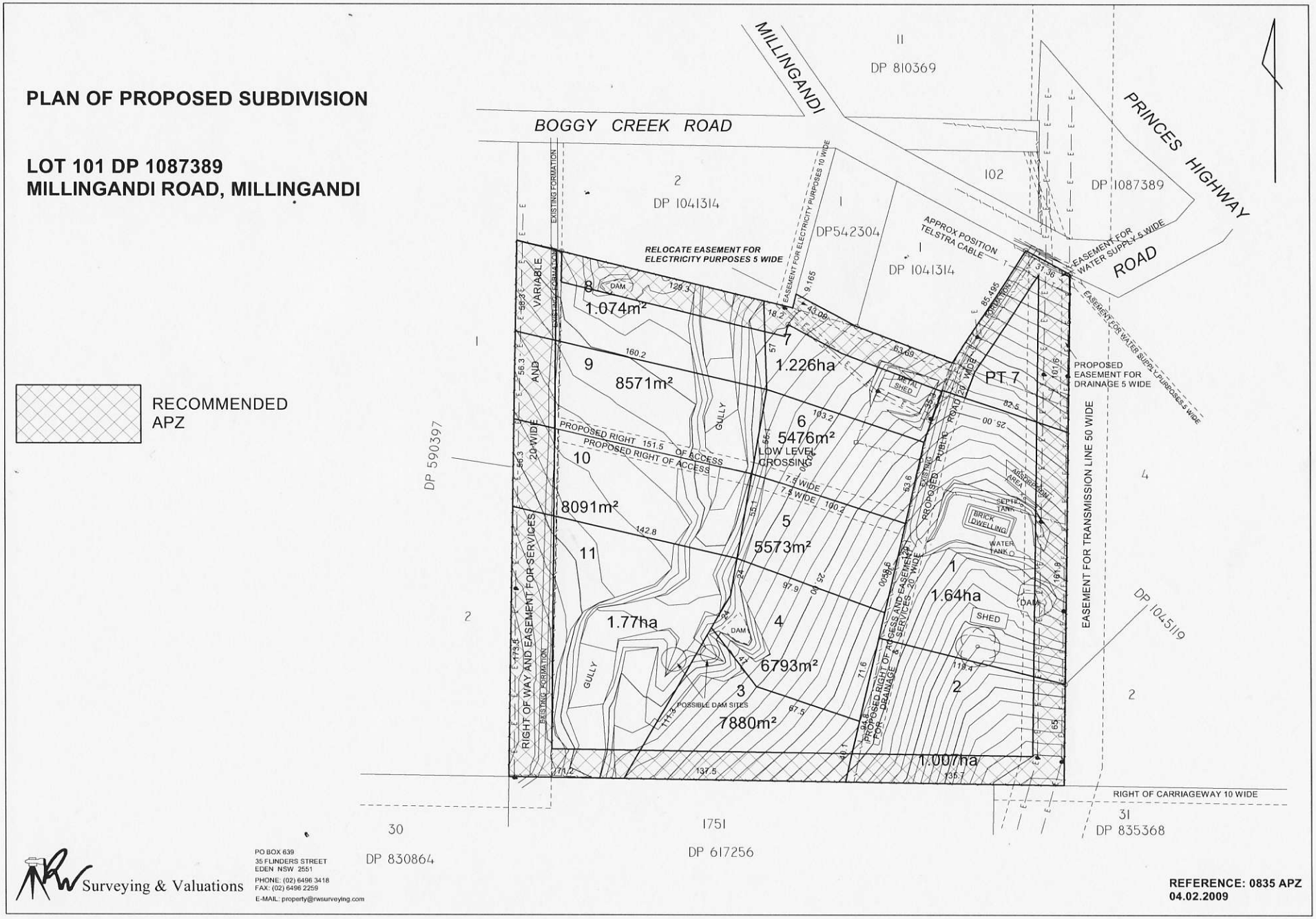
Level 3
As per Level 2 except all materials shall be non-combustible or where timber is used it all will be fire retardant treated including balustrades.

EDEN MANAGEMENT



PLAN OF PROPOSED SUBDIVISION

LOT 101 DP 1087389
MILLINGANDI ROAD, MILLINGANDI



RECOMMENDED APZ

Surveying & Valuations

PO BOX 639
35 FLINDERS STREET
EDEN NSW 2551
PHONE: (02) 6496 3418
FAX: (02) 6496 2259
E-MAIL: property@rwsurveying.com

REFERENCE: 0835 APZ
04.02.2009