

5 Planning for Bushfire Protection

Planning for Bushfire Protection (2001) provides a methodology for determining setback distances (Asset Protection Zones) required for habitable buildings in residential development that is designated as bushfire prone.

Section 5.1 below uses this methodology to determine Asset Protection Zones required for future dwellings.

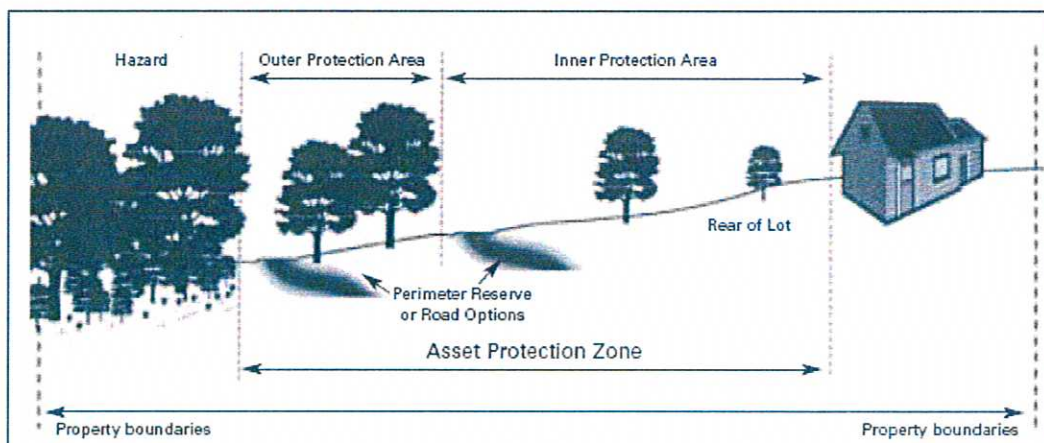
5.1 Bushfire Protection Assessment

Section A2.3.1 of Planning for Bushfire Protection (2001) requires the following procedure for determining whether a development is bushfire prone and, if so, an appropriate Asset Protection Zone:-

- (a) Determine predominant vegetation type, class and separation distance;
- (b) Determine average slope of the land between the predominant vegetation class and the site; and
- (c) Consult Tables A2.2- A2.4 to determine appropriate Asset Protection Zone.

It is important to note that an Asset Protection Zone must be contained wholly within the boundaries of the subject site.

An Asset Protection Zone consists of an Inner Protection Area (IPA) and an Outer Protection Area (OPA). The Inner Protection Area extends from the edge of the development to the Outer Protection Area and is an area in which fuels are discontinuous and there is minimal fine fuel at ground level which could be set alight by a bushfire. The Outer Protection Area is located adjacent to the hazard and is an area in which fuel loadings are reduced. Figure 4.1 of Planning for Bushfire Protection (2001), as shown below, illustrates an example Asset Protection Zone.



A Bushfire Protection Assessment was completed on the entire site using the above methodology. The following assessment concentrates on those areas found to be bushfire prone.

The assessment has been divided into three areas:- (1) lots in the south-east of site adjoining Fraser Drive, (2) lots in the east of site adjoining Fraser Drive and (3) lots adjoining the SEPP 14 wetland. The number of lots along Fraser Drive that are bushfire prone are limited (see Bushfire Map at Appendix A). Tables 1 to 3 below provide a summary of this assessment.

Table 1 – Bushfire Protection Assessment for lots in south-east of site adjoining Fraser Drive

Aspect	Predominant Vegetation within 140m of development	Predominant Vegetation Class (Fig A2.2 and Table A2.1)	Average Slope of Land	Recommended width of Asset Protection Zone (Tables A2.2-A2.4)	IPA + OPA (metres)
North	Grassland – to be cleared for residential development	-	Level	-	-
East	Woodland	Group 2	>5° upslope	20 metres	20 + 0
South	Residential development	-	Level	-	-
West	Grassland – to be cleared for residential development	-	>5° upslope	-	-

Although Asset Protection Zones must generally be contained wholly within the boundaries of the subject site, Fraser Drive provides a 30m permanent Asset Protection Zone between the adjoining lots and the hazard, thereby eliminating the need for further setbacks within the site.

Table 2 – Bushfire Protection Assessment for lots in east of site adjoining Fraser Drive

Aspect	Predominant Vegetation within 140m of development	Predominant Vegetation Class (Fig A2.2 and Table A2.1)	Average Slope of Land	Recommended width of Asset Protection Zone (Tables A2.2-A2.4)	IPA + OPA (metres)
North	Grassland – to be cleared for residential development	-	Level	-	-
East	Open Forest (less than 1 ha)	Group 3	>5° upslope	20 metres	20 + 0
South	Residential development	-	0-5° upslope	-	-
West	Grassland – to be cleared for residential development	-	>5° upslope	-	-

Although open forest vegetation is normally classified as group 1, small remnant forest areas less than 1 hectare may be considered equivalent to specifications in vegetation group 3.

Again, although Asset Protection Zones must generally be contained wholly within the boundaries of the subject site, Fraser Drive provides a 30m permanent Asset Protection Zone between the adjoining lots and the hazard, thereby eliminating the need for further setbacks within the site.

Table 3 – Bushfire Protection Assessment for lots adjoining SEPP 14 wetland

Aspect	Predominant Vegetation within 140m of development	Predominant Vegetation Class (Fig A2.2 and Table A2.1)	Average Slope of Land	Recommended width of Asset Protection Zone (Tables A2.2-A2.4)	IPA + OPA (metres)
Integrated Housing (east of SEPP 14 wetland)					
North	Residential development	-	Level	-	-
East	Grassland – to be cleared for residential development	-	Level	-	-
South	Grassland – to be cleared for residential development	-	Level	-	-
West	SEPP 14 Coastal Wetland/Tall Open Ecotonal Forest	1	0-5° Downslope	40 metres	30 + 10
Lots south of SEPP 14 wetland					
North	SEPP 14 Coastal Wetland/Tall Open Ecotonal Forest	1	0-5° Downslope	40 metres	30 + 10
East	Grassland – to be cleared for residential development	-	Level	-	-
South	Grassland – to be cleared for residential development	-	>5° upslope	-	-
West	Grassland – to be cleared for residential development	-	>5° upslope	-	-

The Concept Plan has incorporated a 50m buffer alongside the SEPP 14 wetland which is proposed to contain public recreational facilities such as boardwalks and footpaths. The Outer Protection Area of 10m could be contained within this buffer area, with the 30m Inner Protection Area situated adjacent to the buffer. The Inner Protection Area of 30m is based upon Level 2 construction in accordance with AS3959-1999.

Other areas

A small area along the western boundary of the site adjoining residential lots on Hillcrest Avenue is also classified as bushfire prone land. As no residential lots are affected by the bushfire prone classification and the area is separated from the bushfire prone vegetation by two rows of residential lots and a street, no Asset Protection Zones are required.

6 Services

6.1 Water

The subject site has access to water infrastructure connected to the town water supply.

The water system should comply with Section 6.4.3 of Planning for Bushfire Protection (2001) which specifies that:-

- In Urban Subdivisions the water supply to the perimeter road should be delivered by a ring main system.
- Fire hydrants must be accessible and located such that a tanker can park within a distance serviceable by a 20m hose and the habitable building must be located such that a fire at the furthest extreme can be attacked by the tanker using a 60m hose and 10m jet of water. A clear unobstructed path between the hydrant and the most distant point of the building cannot exceed 90m allowing for the tanker to be parked inline. Obstructions to the path will reduce the distances. Australian Standard 2419.1 – 1994 details the location of external fire hydrants.
- If the building is located such that the distances do not comply with AS 2419 for the location of hydrants, then a static supply of water (5000 litres minimum), or an additional hydrant must be supplied.
- In major bushfires there is a possibility that the mains water supply will fail due to excessive demand. The installation of a water supply independent of the mains system on properties along the hazard interface is recommended.

6.2 Gas

Planning for Bushfire Protection (2001) states that any reticulated or bottled gas shall be installed and maintained in accordance with AS1596 "Storage and Handling of LP Gas" and comply with any requirements of relevant authorities.

Large gas cylinders should be kept clear of flammable materials.

If a gas cylinder must be kept close to a building the release valve must be directed away from the building and other combustible materials.

The above standards are recommended to be applied to future residential development on the subdivided lot.

6.3 Electricity

Underground electrical transmission lines are favoured by Planning for Bushfire Protection (2001) and are recommended for the proposed subdivision. Where overhead electrical transmission lines are necessary the following guidelines apply:-

- pole spacing is short unless crossing gullies, gorges or riparian areas; and
- regular inspections are carried out to ensure that no part of a tree is closer to a power line than the distance set out in Appendix 4 of Planning for Bushfire Protection (2001) as shown in Table 3 below.

Table 3 – Typical Tree Pruning Clearances

Voltage	Clearance at pole to nearest conductor in rest position	Clearance along middle 2/3 of span to nearest conductor in rest position
Insulated service wires	0.5m	0.5m
Up to 650V (additional clearance of 0.5m should be added to nominated clearances for fire hazard areas)	1.0m	1.0m or sag at 50° C plus 0.5m (whichever is greater)
>650V to 22kV	1.5m	1.5m or sag at 50° C plus 0.5m (whichever is greater)
>22kV up to 66kV	2.25m	2.25m or sag at 50° C plus 1.0m (whichever is greater)
>66kV up to 132kV	3.0m	3.0m or sag at 50° C plus 1.0m (whichever is greater)

7 Access/Egress

Principal access to the site will be gained from Fraser Drive, a bitumen sealed two lane road, which borders the eastern boundary of the site. There is a possibility that the road will be upgraded to four lanes sometime in the future.

The Concept Plan indicates that access will also be provided to the site from Hillcrest Avenue, Ocean Avenue and Merlot Court.

A future interchange is currently being negotiated by the Tweed Shire Council and the Roads and Traffic Authority that will allow direct access from Fraser Drive to the Pacific Highway. The Pacific Highway is approximately one kilometre to the west of the site.

Approximately 2kms of internal access roads will be constructed to provide access to the proposed lots.

Roads will be two-wheel drive, all weather roads and be two-way, that is, at least two traffic lane widths with shoulders on each side, allowing traffic to pass in opposite directions.

Fraser Drive, as the perimeter road in Part 'A' of the development, will be linked to the internal road system at an interval of approximately 300 metres.

Roads will be through roads, however, where dead end roads are greater than 200m in length, as will be the case with the road constructed off Hillcrest Avenue, a minimum 12m radius turning circle will be incorporated. Such roads will be clearly sign posted as dead ends.

Curves will have a minimum inner radius of approximately 25m and be minimal in number to allow for rapid access and escape. The minimum distance between inner and outer curves will be approximately 12m.

The internal road system should also generally comply with Section 4.3.1 of Planning for Bushfire Protection (2001). Specifically, these roads shall address the following design criteria:

- Restrict the use of speed humps and chicanes to control traffic;
- The capacity of road surfaces and bridges should be sufficient to carry fully loaded firefighting vehicles;
- There must be a minimum vertical clearance to a height of 6m above the road at all times;
- Roads should provide sufficient width to allow firefighting vehicle crews to work with firefighting equipment about the vehicle; and
- Road should be clearly sign-posted (with easily distinguished names) and buildings should be clearly numbered. Bridges should clearly indicate load rating.