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BUSH FIRE ASSESSMENT REPORT

SPECIAL FIRE PROTECTION PURPOSE (SFPP)

Lot 3 DP 710680

43 Synotts Lane Ocean Shores

Primitive Camping Development (s100B)

Prepared for: Josh Glennon

Prepared by:
Scott Sewell
BUSHFIRE CONSULTANT

Date: 28 October 2020

Ref: 20/280

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DOCUMENT CONTROL

Revision No.	Date	Description	Prepared	Checked	Authorised
A	28.10.2020	Final	Scott Sewell	PJT	Peter Thornton

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1.0 EXECUTIVE SUMMARY

This report has been prepared to assess the proposed primitive camping development at Lot 3 DP 710680, 43 Synotts Lane Ocean Shores being a Special Fire Protection Purpose (SFPP) and is prepared pursuant to the requirements of Planning for Bushfire Protection 2019 (PBP2019).

It is noted the NSW RFS may consider the report complies completely with the acceptable solutions of PBP2019 however, in our opinion, the wording in PBP2019 relating to such developments is somewhat ambiguous, a performance solution with regard to access has been prepared in Section 7 to demonstrate compliance with PBP2019 is achieved.

Primitive camping developments are classified as a SFPP however Section 6.3.1 of PBP2019 acknowledges them as 'lower risk SFPP developments' and therefore asset protection zones and construction standards are not applicable to these types of developments.

> ***Primitive camping*** *– Primitive camping is generally more remote from urban areas, and is defined as having only a limited range of facilities. This is covered by the Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005. The NSW RFS discourages the use of primitive camp grounds in high risk and isolated bush fire prone areas during periods of elevated bush fire danger.*

A description of the development is provided in Section 3. The development is accessed directly from Synotts Lane. It is noted that the proposed development does not involve the construction of cabins or the like, with only non-habitable amenities buildings being part of the development, and this report has been prepared on that basis. The report only relates to primitive camping.

The report establishes the proposed development is capable of complying with the acceptable solutions of Planning for Bushfire Protection 2019 except in regard to access for which a performance solution has been prepared. The following table is provided as a summary of the recommendations and method of assessment for each consideration relating to Planning for Bushfire Protection 2019.

MEASURE	RECOMMENDATION	METHOD OF ASSESSMENT
Construction Standards	N/A for primitive camping developments	N/A
APZ Required	N/A for primitive camping developments	N/A
Water Supply	See recommendation 1	Acceptable Solution
Electricity Supply	To comply with Section 6.8.3 and Table 6.8c of PBP2019	Acceptable Solution
Gas Supply	To comply with Section 6.8.3 and Table 6.8c of PBP2019	Acceptable Solution
Landscape	N/A for primitive camping developments	N/A
Access	See recommendation 3	Performance Solution
Emergency Evacuation	See recommendation 4	Acceptable Solution

The following recommendations therefore are proposed for the development.

1. A 10,000 litre water supply and RFS connection to a non-combustible water tank for fire fighting purposes is to be provided within the camp area to comply with Section 6.8.3 and Table 6.8c of PBP2019 including other conditions detailed in Section 6.1 of this report.

2. New electricity and gas, if required, are to comply with Section 6.8.3 and Table 6.8c of PBP2019 as detailed in Section 6.2 and Section 6.3 of this report.

3. The internal property access road to the water supply at the camp area is to comply with the property access requirements of Table 5.3b of PBP2019 only (as applicable) detailed in Section 7 of this report except no alternative access road is required. A turning head in accordance with Section 3.3 and Figure 3.3 of PBP2019 is also required (see ***attached*** Appendix B).

4. An emergency evacuation procedure and detailed plans of all Emergency Assembly Areas (onsite and offsite) are to be prepared in accordance with s6.8d of PBP2019. In this regard, the following aspects are to be implemented and adhered to:

   - a Bush Fire Emergency Management and Evacuation Plan is to be prepared consistent with the NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan, and AS 3745:2010.
   - for proposals in isolated or remote areas which involve large travel distances through bush fire prone vegetation, the following issues should be determined and addressed:
     - the amount of travel likely to be generated during an emergency evacuation;
     - the capacity of the broader road network to facilitate safe emergency evacuation;
     - limitations/constraints inherent in the road system; and
     - management of potential traffic conflicts (such as emergency vehicles versus evacuating members of the public).
   - the Bush Fire Emergency Management and Evacuation Plan must consider a mechanism for the early relocation of occupants on days when adverse fire weather is notified or adverse fire activity occurs in the local government area in which the development operates.
   - a copy of the Bush Fire Emergency Management and Evacuation Plan is to be provided to the Local Emergency Management Committee for its information prior to occupation of the development.
   - an Emergency Planning Committee is to be established to consult with residents (and their families in the case of aged care accommodation and schools) and staff in developing and implementing an Emergency Procedures Manual.
   - detailed plans of all emergency assembly areas including on-site and off-site arrangements as stated in AS 3745:2010 are to be clearly displayed, and an annually emergency evacuation is conducted.

2.0 INTRODUCTION

2.1 GENERAL

The purpose of this report is to establish suitable bushfire mitigation measures for the proposed primitive camping development at Lot 3 DP 710680, 43 Synotts Lane Ocean Shores being a Special Fire Protection Purpose (SFPP).

The recommendations within this report address the aims and objectives of Planning for Bushfire Protection 2019 to reduce the risk of ignition to the development in a bushfire event. It is noted however that bushfire is a natural phenomenon and there can never be any guarantee that a building or occupants will not be adversely affected by bushfire.

2.2 SIGNIFICANT ENVIRONMENTAL FEATURES

An assessment is to be undertaken, if applicable, with regard to:

- State Environmental Planning Policy (Koala Habitat Protection) 2019
- Biodiversity Conservation Act 2016 (NSW)
- Local Land Services Act 2013 (NSW)
- Land Management (Native Vegetation) Code 2017 (NSW)
- National Parks and Wildlife Act 1974 (NSW)
- Environmental Protection and Biodiversity Conservation Act 1999 (Cwlth)

This report does not consider the above legislation and in this regard this report should be read in conjunction with the Statement of Environmental Effects submitted with the development application.

2.3 REPORT DETAILS

Report Reference No.:	20/280
Property Address:	Lot 3 DP 710680, 43 Synotts Lane Ocean Shores
Local Government Area:	Byron Shire Council
Proposal:	Primitive camping development
Drawings:	See Figure 2
Report Prepared By:	Scott Sewell
	Bushfire Consultant

3.0 PROPOSED DEVELOPMENT

The applicant is proposing a primitive camping development at Lot 3 DP 710680, 43 Synotts Lane Ocean Shores. A description of the development has been provided by the applicant, as follows. It is noted that the proposed development does not involve the construction of cabins, with only non-habitable amenities buildings being part of the development and this report has been prepared on that basis.

The proposal seeks to gain development consent for an eco-tourism facility and camping ground comprising 10 primitive camp sites and amenities at lot 3 DP 710680. No 43 Synotts Lane, Ocean Shores. Access is by way of Synotts Lane.

The landowners have resided at the property for over 25 years and have identified the areas natural scenery for short term tourist use. The objective of the proposal is to provide the land owner with a small-scale business that in effect will allow him to employee a small-scale team to maintain and to take care of his property as he becomes older in age. The development has been carefully designed to apply sustainable features to produce a development that will capitalise on its natural aesthetics whilst it intends to minimise impacts on its surrounding environment and resources.

The proposed camping sites are accumulated in three different groups in the south-western and south-central areas of the site. The camping ground is nominated as a 'primitive camping ground' under the Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005.

The proposed 10 primitive camping sites are prominently located in open spacious and cleared areas of the site however do have small remnants of scatted tree vegetation allotments. The proposed location was specifically selected to minimise the impacts of bush fire constraints on the proposed tourist use. Each designated primitive camping site is projected to have a minimum length of 40m by a width of 20m making site area's of 800m square, providing an intended low-key low-density atmosphere. Each site has the capacity to hold 4-6 people per site. The proposed site areas consist to have a flat level of elevation and are accessible by the southern entry of the existing gravel driveway at the end of Synotts lane.

A new on-site effluent disposal system with a subsurface irrigation area's are proposed to service the new development. The system will consist of having 2 amenity blocks within the camping ground one situated central and the other to the sites east. Both amenity blocks will be accompanied by water & septic tanks with solar powered irrigation pumps to 4 sub surface evapotranspiration/absorption beds with each bed consisting of a measurement of18.4 m x 2 m x 0.45 m.

Whilst the proposed camping sites are located within the gently sloping land in the south-central western areas of the property, the northern and eastern areas of the allotment contain gentle sloping land containing a mix of wet sclerophyll forests and subtropical Rainforest. These areas of

the property provide a drawcard to the site. The landowners have reported a variety of native fauna within the forested land.

The wildlife that uses the site, and particularly the birdlife, provides an attractive destination for eco-tourists. It is proposed to maintain existing nature trails as walking tracks within the land to allow access to the naturally rich forest and low lying lands of the Midjimbul Creek.

Nearby attractions include local towns and villages of Brunswick Heads, Ocean Shores, Billinudgel and Mullumbimby. Nearby natural attractions include Midjimbul creek /Brunswick river, the Inner Pocket Nature Reserve and Mount Jerusalem National Park. The property is also within close proximity of the North Byron Shire Parklands which hosts regular music festivals.

The small scale of the development is such that the property owners are capable of managing and operating the tourist use without relying on external assistance. It is anticipated that bookings will be largely weekend stays from local to regional demographics. Advertising will promote the rural and environmental qualities of the property as its low key atmosphere will attract nature seeking tourists.

Figure 1: Location of subject property and proposed camping area *NSW Govt. Six Maps*

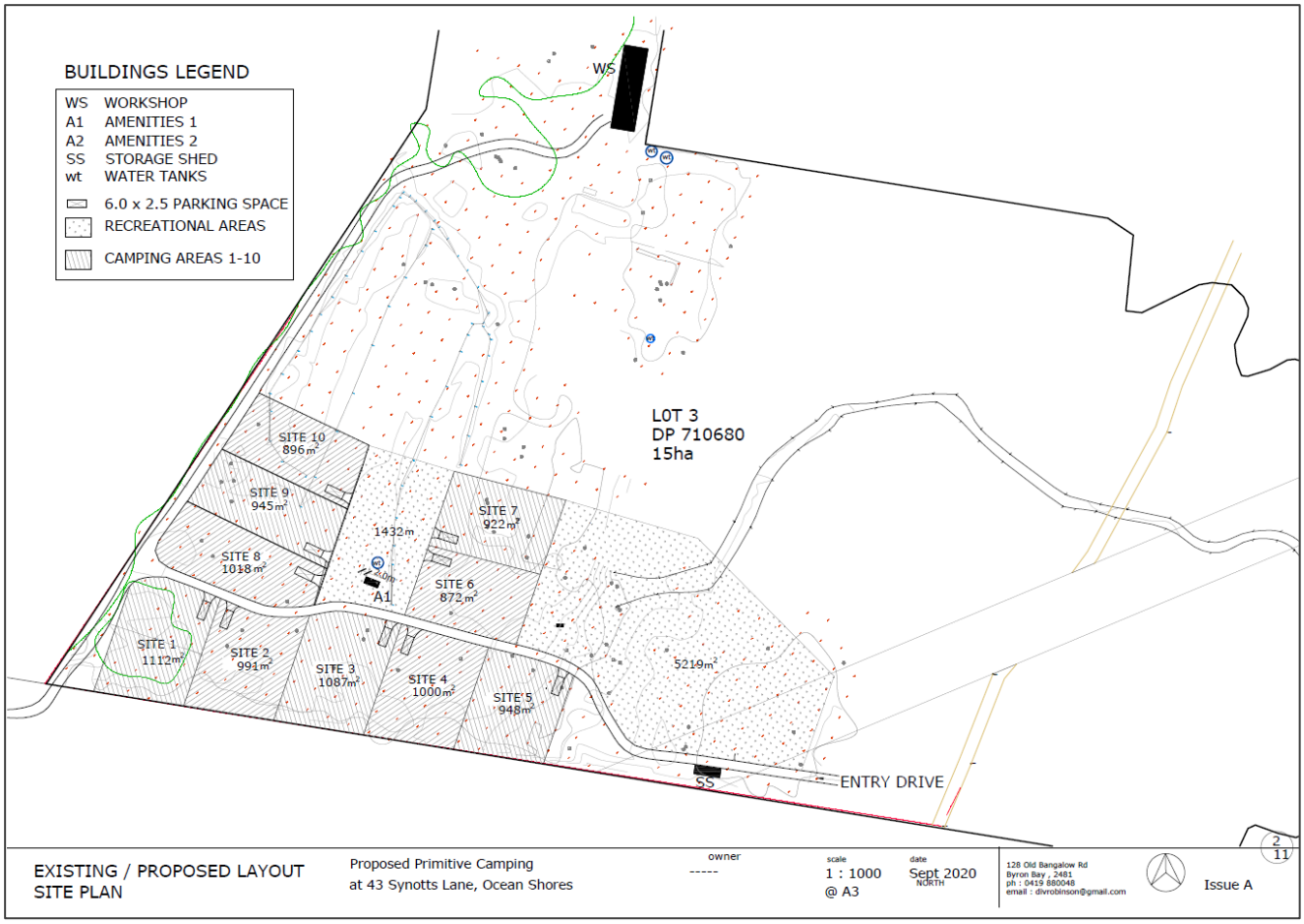


Figure 2: Site plan (larger image in Appendix A)

Proposed primitive camp ground

4.0 BUSHFIRE THREAT ASSESSMENT

4.1 OVERVIEW

The bushfire threat assessment to determine the BAL and asset protection zone comprises the identification of the vegetation formations for each aspect within 140 metres of the proposed primitive camping area and the effective slope of the ground under the hazard as required by PBP2019 (Appendix 1).

4.2 BUSHFIRE PRONE LAND MAP

The bushfire prone mapping identifies the subject allotment as being bushfire prone (Figure 3). Aerial mapping and inspection of the site reveals that the bushfire prone land map is considered inaccurate in respect to the current bushfire hazard as the cleared areas onsite are mapped and an area of forest vegetation to the west is unmapped.

Figure 3: Bushfire prone land map *Source: planningportal.nsw.gov.au*

4.3 PRIMITIVE CAMP AREA

Identification of the vegetation formations for each aspect within 140 metres of the proposed primitive camp area as per Keith (2004) classifications was undertaken and is detailed as follows. The slope was measured onsite with a 'Tru Pulse 3600 R' laser range finder and inclinometer with the assessment undertaken.

To the north of the camping sites is grassland located on relatively flat ground with forest vegetation at a further distance.

To the east, south and west is forest vegetation located also on relatively flat ground.

Grassland to the north in the foreground with forest located further beyond.

Forest to the west

Forest to the east

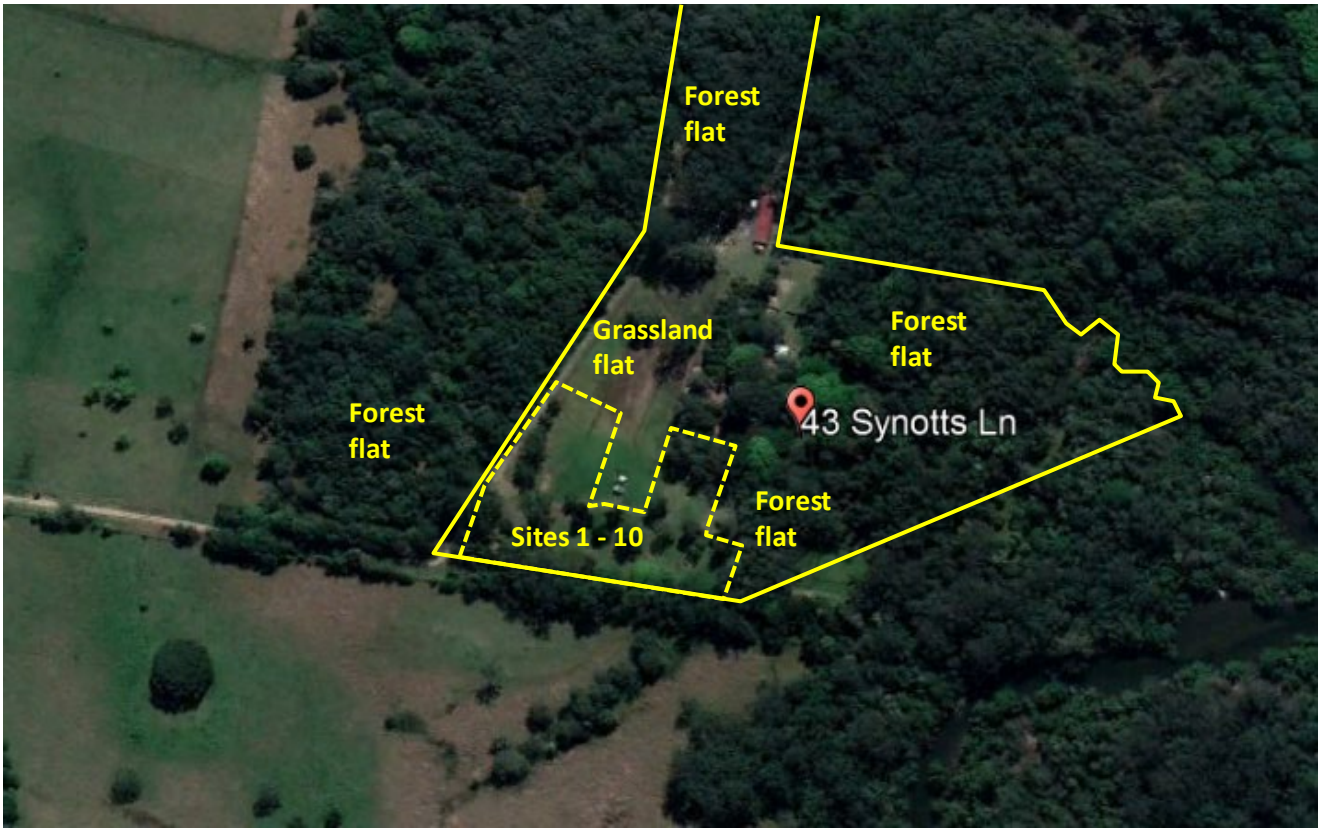


Figure 4: Bushfire threat analysis *Source: Google*

5.0 ASSET PROTECTION ZONES AND CONSTRUCTION STANDARDS

Asset Protection Zones are areas established and maintained to ensure that bushfire fuels are progressively reduced between the development and the bushfire hazard. The asset protection zone incorporates an Inner Protection Area (IPA) having reduced fuel loadings of approximately 3t/ha.

Section 6.8.1 of PBP2019 does not require specific asset protection zones or construction standards for primitive camping developments. It is understood only non-habitable amenities buildings will be at the primitive camp area. This type of structure does not require specific bushfire attack level (BAL – AS 3959) construction given they are not defined as habitable buildings and no habitable buildings are proposed with this development application. The following table summarises the category of bushfire attack pursuant to Planning for Bushfire Protection 2019.

Table 1: Summary Bushfire Threat Assessment, APZs & Construction Standards – Camp Area

ASPECT	SLOPE	VEG. CLASS Figure A1.2 PBP2019	DISTANCE TO VEGETATION	APZ REQUIRED Table A1.12.1 PBP2019	CONSTRUCTION LEVEL AS 3959-2018
North	Flat	Grassland	N/A	N/A	N/A
East	Flat	Forest	N/A	N/A	N/A
South	Flat	Grassland/Forest	N/A	N/A	N/A
West	Flat	Forest	N/A	N/A	N/A

6.0 WATER AND UTILITY SERVICES

6.1 WATER SERVICES

A 10,000 litre water supply and RFS connection to a non-combustible water tank for fire -fighting purposes is to be provided at the primitive camp area given access to a reticulated water system is not available. The static water supply (tank) is to comply with Section 6.8.3 and Table 6.8c of PBP2019 as follows.

- reticulated water is to be provided to the development, where available, or a 10,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available.
- all above-ground water service pipes external to the building are metal, including and up to any taps.
- a connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure;
- a 65mm Storz outlet with a ball valve is fitted to the outlet; ball valve and pipes are adequate for water flow and are metal;
- supply pipes from tank to ball valve have the same bore size to ensure flow volume; underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank;
- a hardened ground surface for truck access is supplied within 4m of the access hole;
- above-ground tanks are manufactured from concrete or metal;
- raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F AS 3959);
- unobstructed access is provided at all times;
- tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters;
- underground tanks are clearly marked,
- all exposed water pipes external to the building are metal, including any fittings;
- where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack;
- Any hose and reel for firefighting connected to the pump shall be 19mm internal diameter;
- fire hose reels are constructed in accordance with AS/NZS 1221:1997 Fire hose reels, and installed in accordance with the relevant clauses of AS 2441:2005 Installation of fire hose reels.

In addition, a SWS - Stored Water Supply sign is recommended to be attached to the front gate or in that proximity.

6.2 ELECTRICITY SERVICES

New electrical transmission lines, if required, are to comply with Section 6.8.3 and Table 6.8c of PBP2019 as follows:

- where practicable, electrical transmission lines are underground;
- where overhead, electrical transmission lines are proposed as follow:
    - lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and
    - no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 *Guideline for Managing Vegetation Near Power Lines.*

6.3 GAS SERVICES

The following aspects are to comply with Section 6.8.3 and Table 6.8c of PBP2019 should a gas service be considered:

- reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;
- all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;
- connections to and from gas cylinders are metal;
- if gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion;
- polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used; and
- above-ground gas service pipes external to the building are metal, including and up to any outlets.

7.0 ACCESS

The property access is provided by way of Synotts Lane providing access from the public road system giving fire fighters access to the proposed camping ground sites. Planning for Bushfire Protection 2019 provides a concession to primitive camping requiring the property access to comply with Table 5.3b of PBP2019.

In this regard, the performance criteria states:

> *'firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation'.*

Given it is not clear in Planning for Bushfire Protection 2019 if the 'General access requirements' are intended to form part of the access requirement for primitive camping, a performance assessment for the access has been included as the access is greater than 200 metres from a public through road without a dedicated alternative access/egress road.

As there are no structures (apart from the toilet block/s), the access will be provided (existing) to the camp area. This, in turn, provides access to the hazard vegetation adjacent to the camp area.

Existing public road (Synotts Lane)

7.1 PERFORMANCE SOLUTION

7.1.1 ACCEPTABLE SOLUTION RELATING TO ACCESS

The application departs from the acceptable solutions relating to access specified in Table 5.3b in Section 5.3.2 of Planning for Bushfire Protection 2019 which states:

- *'all roads are through roads'.*
- *'dead end roads are not recommended, but if unavoidable, 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'.*

The existing public road is greater than 200 metres without being a through road.

The single access for the proposed use of primitive camping is considered adequate given there are no permanent habitable structures proposed and the evacuation planning and procedures will form the basis for occupant safety based on triggers within the evacuation plan to leave the site early. The public road (Synotts Lane) is mainly surrounded by grassland and does not have a high likelihood of being cut in a bushfire event with the on-site property access road traversing through managed land.

7.1.2 SCOPE

The scope of the performance solution is limited to the providing an assessment of the existing public road network and property access identified in this report without the alternative access / egress road.

7.1.3 LIMITATIONS

The report provides recommendations that will reduce the risk of ignition to a future building while the fire front passes however as documented:

> *'The goal of absolute safety during a bush fire event is not attainable and despite best effort there is the ever-present risk of personal injury or damage to property. Ultimately, it is the responsibility of the owner/occupier to comply with conditions of consent and to maintain systems designed to mitigate the impacts of bush fire'.*

The performance solution relies on the owner/occupier to comply with the recommendations in this report and the consent conditions and to maintain in perpetuity systems designed to mitigate the impacts of bush fire.

The report is not considered to be a compliance report for any other aspects other than that specified in the scope.

7.1.4 ASSUMPTIONS

The primitive camp ground, once established, is compliant with the acceptable solutions of Planning for Bushfire Protection 2019 and the recommendations within this report relating to the performance criteria.

The water, access and evacuation planning will be maintained in perpetuity in accordance with Planning for Bushfire Protection 2019.

7.1.5 METHODOLOGY

Part A2.2 of the Housing Provisions identifies how you would satisfy the performance requirements and provides as follows:

(1) A Performance Solution must –

(a) Compliance with all relevant Performance Requirements; or

(b) The solution is at least equivalent to the Deemed-to-Satisfy Provisions,

This assessment will demonstrate the proposal is to demonstrate compliance with the relevant performance criteria pursuant to A2.2(1)(a). The performance solution will demonstrate compliance with the nominated performance criteria pursuant to A2.2(3).

7.1.6 PERFORMANCE SOLUTION FOR PROPERTY ACCESS

Property access is to be provided by way of Synotts Lane being approximately 100 metres in length from the public road system to the camp area providing access to the private land giving fire fighters access to the area as shown in Figure 5. However, Synotts lane to the property entrance is approximately 750 metres and is not a through road.

The public road traverses mostly open areas of grassland and the access will comply with the 'property access' requirements of Table 5.3b PBP2019. Consideration has also been given to the 'Access General Requirements' of PBP2019 which lists measures that encompass all roads including public roads, internal roads and property access roads. It is not clear as to which of these requirements apply to 'property access roads' given some are clearly related only to public roads for subdivisions rather than property access roads.

In this regard the following acceptable solution is relevant –

> *'Property access roads are two-wheel drive, all-weather roads'.*

In this regard, a recommendation in this report has been provided for compliance to be achieved for the road onsite.

Should the following acceptable solution be considered as relating to the property access road requirements then the report provides the following performance solution to address only one access greater than 200m to ensure all relevant items are addressed.

> *'Dead end roads are not recommended, but if unavoidable, 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 road'.*

On the assumption this requirement is applicable, demonstration with the following performance criteria is provided –

> *'firefighting vehicles are provided with safe, all-weather access to structures'* (Table 5.3b PBP2019)

The access road onsite to the camping area is to comply with the applicable property access requirements of Table 5.3b of PBP2019 as follows:

- property access roads are two-wheel drive, all-weather roads;
- minimum 4m carriageway width;

- a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches;
- provide a suitable turning area in accordance with Appendix 3;
- curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;
- the minimum distance between inner and outer curves is 6m; the crossfall is not more than 10 degrees;
- maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads;

  Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.

Figure 5: Access road. Existing public road (red) and property access (blue) *NSW Govt. Six Maps*
Note – cadastre offset

In conclusion, the use as a primitive camping area will rely heavily of good evacuation procedures with triggers that will allow sufficient time for occupants to prepare and evacuate to a neighborhood safer place early and before likely adverse impact from a bushfire event including impact from embers, smoke, flame and traffic congestion. Further, the Synotts Lane is not heavily impacted by a bushfire hazard apart from grassland which has a fire front residence of between 5-15 seconds thereby only impacting the road for an insignificant amount of time having regard to evacuation.

8.0 LANDSCAPING

It is understood that landscaping and landscape plans are not proposed or required as part of the development application.

9.0 EMERGENCY AND EVACUATION PLANNING

Emergency and evacuation planning is a critical measure for a Special Fire Protection Purpose to provide a higher level of co-ordination and safety for the occupants in a bushfire event. It is extremely important that the emergency plan is constantly monitored and amended when required and that training of staff, participants and stakeholders is sustained at a high level.

An emergency evacuation procedure and detailed plans of all Emergency Assembly Areas (onsite and offsite) are to be prepared in accordance with Section 6.8.4 and Table 6.8d of PBP2019. In this regard, the following aspects are to be implemented and adhered to:

- a Bush Fire Emergency Management and Evacuation Plan is to be prepared consistent with the NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan, and AS 3745:2010.

- for proposals in isolated or remote areas which involve large travel distances through bush fire prone vegetation, the following issues should be determined and addressed:

  - the amount of travel likely to be generated during an emergency evacuation;
  - the capacity of the broader road network to facilitate safe emergency evacuation;
  - limitations/constraints inherent in the road system; and
  - management of potential traffic conflicts (such as emergency vehicles versus evacuating members of the public).

- the Bush Fire Emergency Management and Evacuation Plan must consider a mechanism for the early relocation of occupants on days when adverse fire weather is notified or adverse fire activity occurs in the local government area in which the development operates.

- a copy of the Bush Fire Emergency Management and Evacuation Plan is to be provided to the Local Emergency Management Committee for its information prior to occupation of the development.

- an Emergency Planning Committee is to be established to consult with residents (and their families in the case of aged care accommodation and schools) and staff in developing and implementing an Emergency Procedures Manual.

- detailed plans of all emergency assembly areas including on site and off-site arrangements as stated in AS 3745:2010 are to be clearly displayed, and an annually emergency evacuation is conducted.

10.0 CONCLUSION

This assessment demonstrates the proposed primitive camping area will be compliant with the intent and acceptable solutions of Planning for Bushfire Protection 2019. A performance solution however has been applied to the access road to further demonstrate compliance given it is not completely clear if the 200m maximum length of the access road is necessarily applicable given there are no habitable structures proposed. It is noted even the performance criteria relates to access to structures.

The report provides recommendations that are considered to facilitate compliance with a heavy reliance on having good evacuation procedures and plans.

DISCLAIMER

This report was prepared for the purposes and exclusive use of the stated client to accompany an application to Byron Shire Council specifically relating to the proposed primitive camping development on the subject property, and is not to be used for any other purpose or by any other person or Corporation. BCA Check Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person or Corporation who may use or rely on this report in contravention of the terms of this clause. This report is not intended for or to be used where aluminium composite panels are proposed. The report is not to be construed as an assessment of the building materials or compliance with the recommended bushfire attack level/s.

As identified in Planning for Bushfire Protection 2019 and the Building Code of Australia the report is to provide recommendations to reduce the risk of ignition and does not guarantee the complete protection of the building in the event of bush fire or that the building will not be adversely impacted upon.

Reporting has been based on the relevant Council and Rural Fire Service Guidelines however recommendations or suggestions given in this report are based on our site investigation at the time of reporting. In some cases site conditions may change dramatically within a few years due to rapid vegetation re-growth and invading weed species.

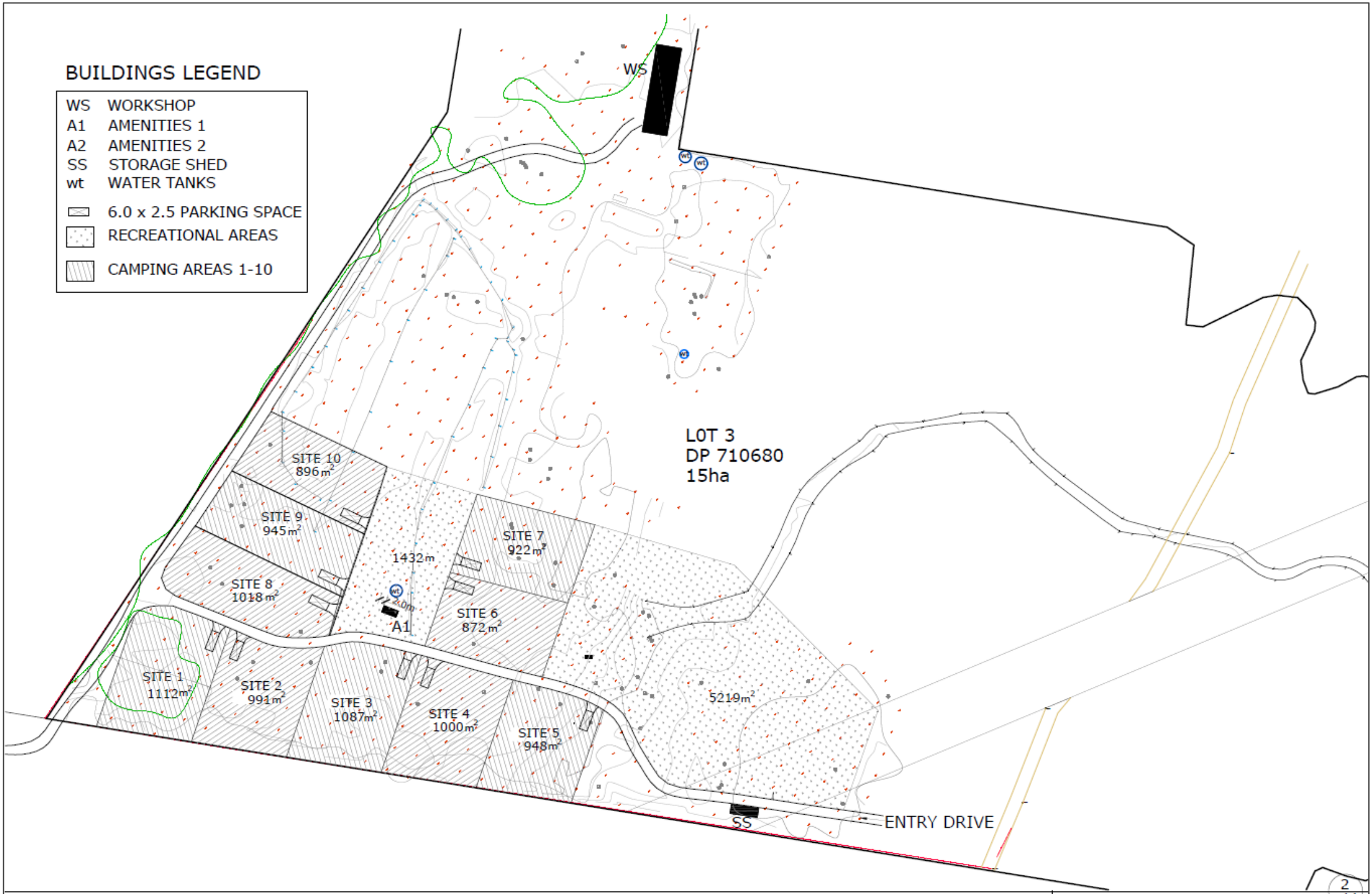
REFERENCES

NSW Rural Fire Service and Planning NSW (2019), *Planning for bushfire protection, A guide for councils planners fire authorities developers and homeowners.* Rural Fire Service NSW Australia.
Standards Australia, (2018), AS3959 *Construction of buildings in bushfire prone areas,* Australian Standards, Sydney.

LEGISLATION

Environmental Planning and Assessment Act 1979 and Regulations 2000. *New South Wales.* Parliamentary Counsel's Office, NSW Government Information Service.
Rural Fires Act 1997. *New South Wales.* Parliamentary Counsel's Office, NSW Government Information Service.
Rural Fires Regulation. *New South Wales.* Parliamentary Counsel's Office, NSW Government Information Service.

APPENDIX A: Site plan



EXISTING / PROPOSED LAYOUT
SITE PLAN

Proposed Primitive Camping
at 43 Synotts Lane, Ocean Shores

owner
---

scale
1 : 1000
@ A3

date
Sept 2020

NORTH

128 Old Bangalow Rd
Byron Bay , 2481
ph : 0419 880048
email : divrobinson@gmail.com

Issue A

APPENDIX B: Turning Head Requirements PBP 2019

A3.3 Vehicle turning head requirements

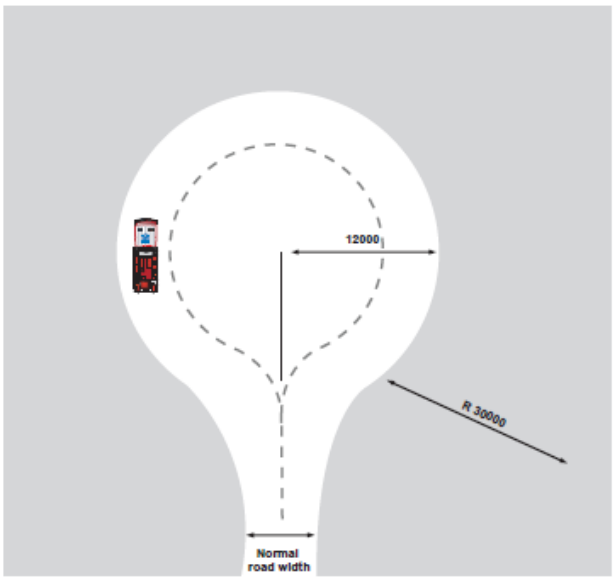
Dead ends that are longer then 200m must be provided with a turning head area that avoids multipoint turns. “No parking” signs are to be erected within the turning head.

The minimum turning radius shall be in accordance with Table A3.2. Where multipoint turning is proposed the NSW RFS will consider the following options:

Figure A3.3

Multipoint turning options.

Type A



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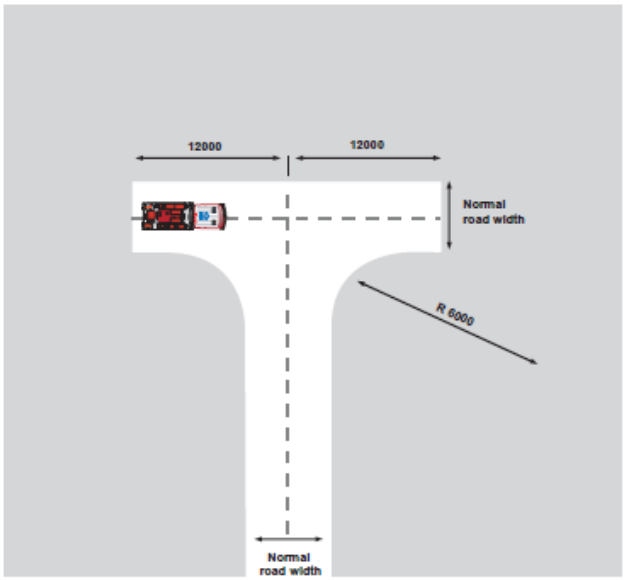

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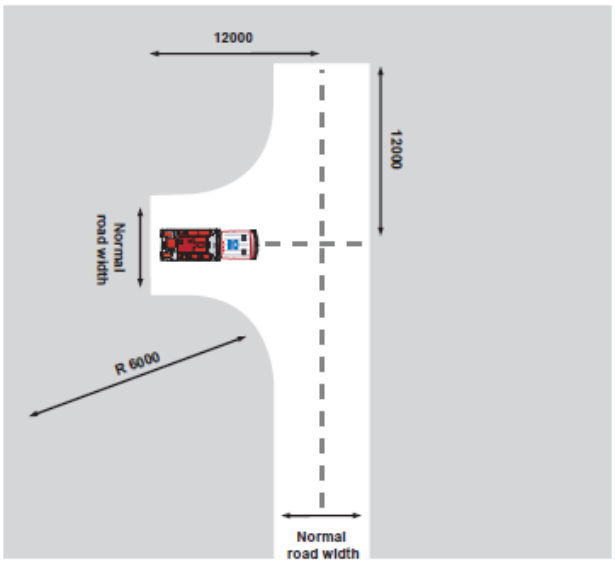

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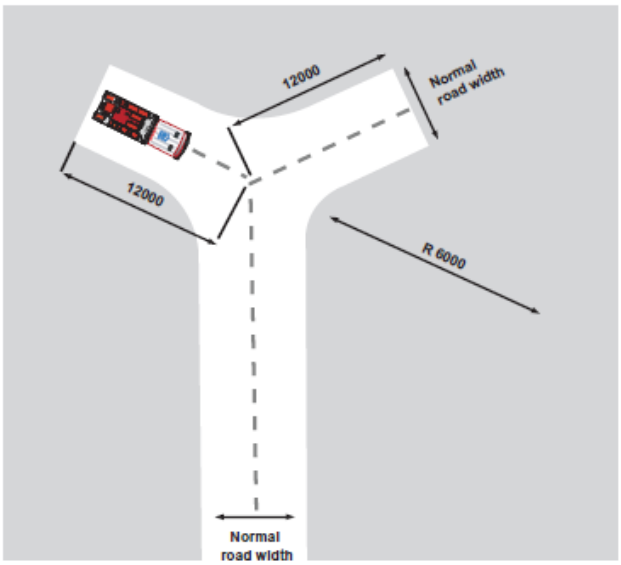


APPENDIX C: Appendix 4 PBP 2019

APPENDIX 4

ASSET PROTECTION ZONE REQUIREMENTS

In combination with other BPMs, a bush fire hazard can be reduced by implementing simple steps to reduce vegetation levels. This can be done by designing and managing landscaping to implement an APZ around the property.

Careful attention should be paid to species selection, their location relative to their flammability, minimising continuity of vegetation (horizontally and vertically), and ongoing maintenance to remove flammable fuels (leaf litter, twigs and debris).

This Appendix sets the standards which need to be met within an APZ.

A4.1 Asset Protection Zones

An APZ is a fuel-reduced area surrounding a building or structure. It is located between the building or structure and the bush fire hazard.

For a complete guide to APZs and landscaping, download the NSW RFS document *Standards for Asset Protection Zones* at the NSW RFS Website www.rfs.nsw.gov.au.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset;
- an area of reduced bush fire fuel that allows for suppression of fire;
- an area from which backburning or hazard reduction can be conducted; and
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Bush fire fuels should be minimised within an APZ. This is so that the vegetation within the zone does not provide a path for the spread of fire to the building, either from the ground level or through the tree canopy.

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

- direct flame contact on the building;
- damage to the building asset from intense radiant heat; and
- ember attack.

The methodology for calculating the required APZ distance is contained within Appendix 1. The width of the APZ required will depend upon the development type and bush fire threat. APZs for new development are set out within Chapters 5, 6 and 7 of this document.

In forest vegetation, the APZ can be made up of an Inner Protection Area (IPA) and an Outer Protection Area (OPA).

A4.1.1 Inner Protection Areas (IPAs)

The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees

- tree canopy cover should be less than 15% at maturity;
- trees at maturity should not touch or overhang the building;
- lower limbs should be removed up to a height of 2m above the ground;
- tree canopies should be separated by 2 to 5m; and
- preference should be given to smooth barked and evergreen trees.

Shrubs

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;
- shrubs should not be located under trees;
- shrubs should not form more than 10% ground cover; and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass

- grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- leaves and vegetation debris should be removed.

A4.1.2 Outer Protection Areas (OPAs)

An OPA is located between the IPA and the unmanaged vegetation. It is an area where there is maintenance of the understorey and some separation in the canopy. The reduction of fuel in this area aims to decrease the intensity of an approaching fire and restricts the potential for fire spread from crowns; reducing the level of direct flame, radiant heat and ember attack on the IPA.

Because of the nature of an OPA, they are only applicable in forest vegetation.

When establishing and maintaining an OPA the following requirements apply:

Trees

- tree canopy cover should be less than 30%; and
- canopies should be separated by 2 to 5m.

Shrubs

- shrubs should not form a continuous canopy; and
- shrubs should form no more than 20% of ground cover.

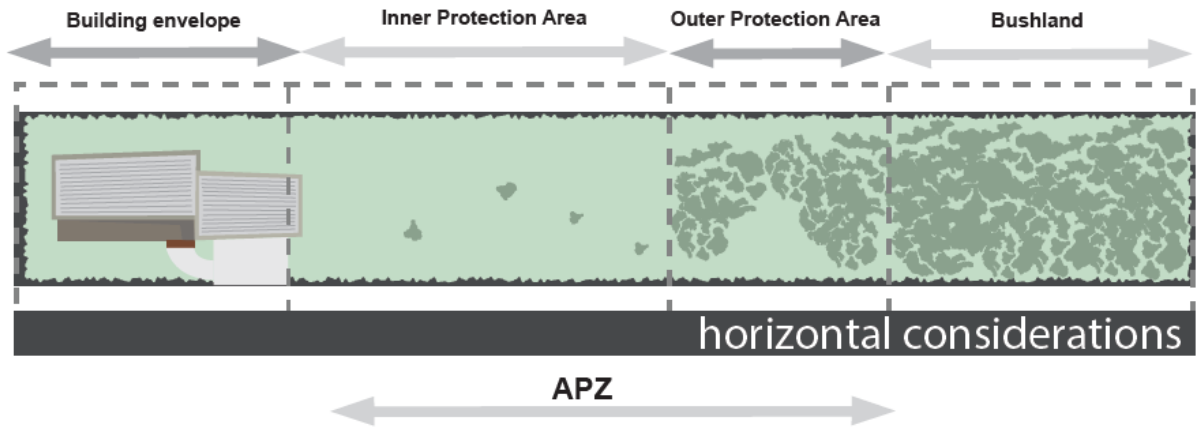
Grass

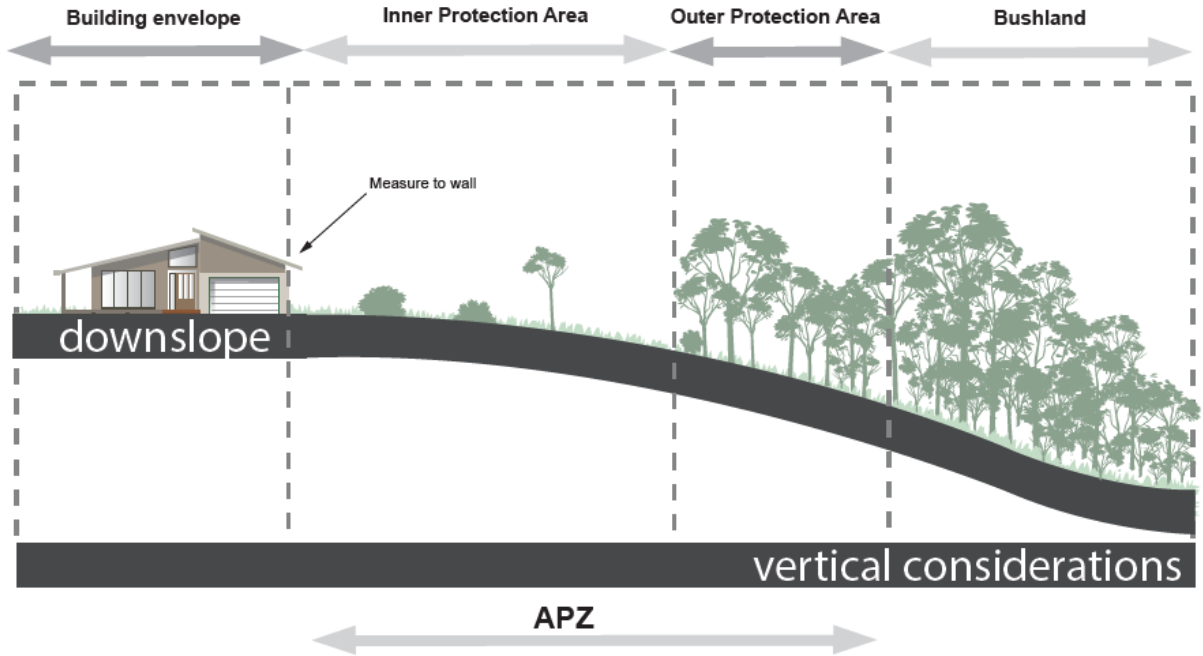
- grass should be kept mown to a height of less than 100mm; and
- leaf and other debris should be removed.

An APZ should be maintained in perpetuity to ensure ongoing protection from the impact of bush fires. Maintenance of the IPA and OPA as described above should be undertaken regularly, particularly in advance of the bush fire season.

Figure A4.1

Typical Inner and Outer Protection Areas.





APPENDIX D: Standards for Asset Protection Zones (RFS 2005)

standards

for asset protection zones

protection

NSW RURAL FIRE SERVICE

STANDARDS FOR ASSET PROTECTION ZONES

INTRODUCTION

For thousands of years bush fires have been a natural part of the Australian landscape. They are inevitable and essential, as many Australian plants and animals have adapted to fire as part of their life cycle.

In recent years developments in bushland areas have increased the risk of bush fires harming people and their homes and property. But landowners can significantly reduce the impact of bush fires on their property by identifying and minimising bush fire hazards. There are a number of ways to reduce the level of hazard to your property, but one of the most important is the creation and maintenance of an Asset Protection Zone (APZ).

A well located and maintained APZ should be used in conjunction with other preparations such as good property maintenance, appropriate building materials and developing a family action plan.

WHAT IS AN ASSET PROTECTION ZONE?

An Asset Protection Zone (APZ) is a fuel reduced area surrounding a built asset or structure. This can include any residential building or major building such as farm and machinery sheds, or industrial, commercial or heritage buildings.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset;
- an area of reduced bush fire fuel that allows suppression of fire;
- an area from which backburning may be conducted; and
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Potential bush fire fuels should be minimised within an APZ. This is so that the vegetation within the planned zone does not provide a path for the transfer of fire to the asset either from the ground level or through the tree canopy.

WHAT WILL THE APZ DO?

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

- direct flame contact on the asset;
- damage to the built asset from intense radiant heat; and
- ember attack on the asset.

WHERE SHOULD I PUT AN APZ?

An APZ is located between an asset and a bush fire hazard.

The APZ should be located wholly within your land. You cannot undertake any clearing of vegetation on a neighbour's property, including National Park estate, Crown land or land under the management of your local council, unless you have written approval.

If you believe that the land adjacent to your property is a bush fire hazard and should be part of an APZ, you can have the matter investigated by contacting the NSW Rural Fire Service (RFS).

There are six steps to creating and maintaining an APZ. These are:

1. Determine if an APZ is required;
2. Determine what approvals are required for constructing your APZ;
3. Determine the APZ width required;
4. Determine what hazard reduction method is required to reduce bush fire fuel in your APZ;
5. Take measures to prevent soil erosion in your APZ; and
6. Landscape and regularly monitor in your APZ for fuel regrowth.

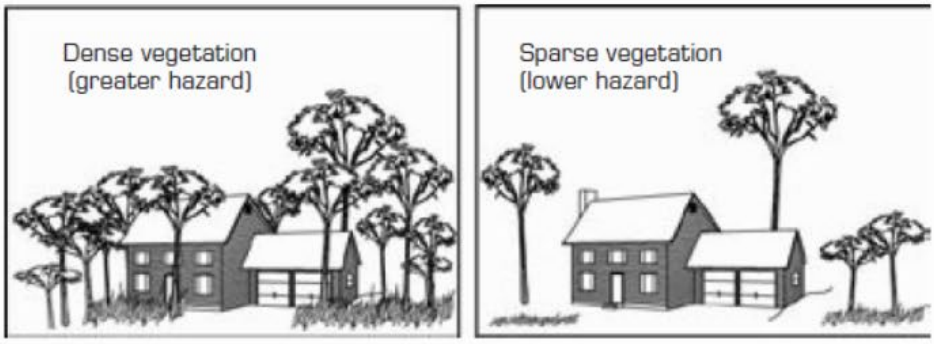
STEP 1. DETERMINE IF AN APZ IS REQUIRED

Recognising that a bush fire hazard exists is the first step in developing an APZ for your property.

If you have vegetation close to your asset and you live in a bush fire prone or high risk area, you should consider creating and maintaining an APZ.

Generally, the more flammable and dense the vegetation, the greater the hazard will be. However, the hazard potential is also influenced by factors such as slope.

- A large area of continuous vegetation on sloping land may increase the potential bush fire hazard.
- The amount of vegetation around a house will influence the intensity and severity of a bush fire.
- The higher the available fuel the more intense a fire will be.



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Isolated areas of vegetation are generally not a bush fire hazard, as they are not large enough to produce fire of an intensity that will threaten dwellings.

This includes:

- bushland areas of less than one hectare that are isolated from large bushland areas; and
- narrow strips of vegetation along road and river corridors.

If you are not sure if there is a bush fire hazard in or around your property, contact your local NSW Rural Fire Service Fire Control Centre or your local council for advice.

STEP 2. DETERMINE WHAT APPROVALS ARE REQUIRED FOR CONSTRUCTING YOUR APZ

If you intend to undertake bush fire hazard reduction works to create or maintain an APZ you must gain the written consent of the landowner.

Subdivided land or construction of a new dwelling
If you are constructing an APZ for a new dwelling you will need to comply with the requirements in *Planning for Bushfire Protection*. Any approvals required will have to be obtained as part of the Development Application process.

Existing asset
If you wish to create or maintain an APZ for an existing structure you may need to obtain an environmental approval. The RFS offers a free environmental assessment and certificate issuing service for essential hazard reduction works. For more information see the RFS document *Application Instructions for a Bush Fire Hazard Reduction Certificate* or contact your local RFS Fire Control Centre to determine if you can use this approval process.

Bear in mind that all work undertaken must be consistent with any existing land management agreements (e.g. a conservation agreement, or property vegetation plan) entered into by the property owner.

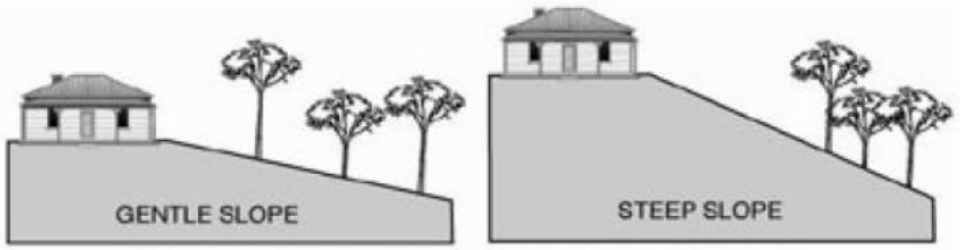
If your current development consent provides for an APZ, you do not need further approvals for works that are consistent with this consent.

If you intend to burn off to reduce fuel levels on your property you may also need to obtain a Fire Permit through the RFS or NSW Fire Brigades. See the RFS document *Before You Light That Fire* for an explanation of when a permit is required.

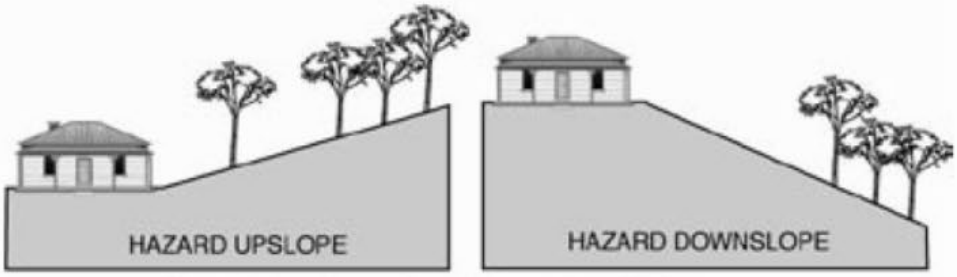
STEP 3. DETERMINE THE APZ WIDTH

The size of the APZ required around your asset depends on the nature of the asset, the slope of the area, the type and structure of nearby vegetation and whether the vegetation is managed.

Fires burn faster uphill than downhill, so the APZ will need to be larger if the hazard is downslope of the asset.



Gentle slopes require a smaller APZ distance than steep slopes



A hazard downslope will require a greater APZ distance then a hazard upslope of the asset

Different types of vegetation (for example, forests, rainforests, woodlands, grasslands) behave differently during a bush fire. For example, a forest with shrubby understorey is likely to result in a higher intensity fire than a woodland with a grassy understorey and would therefore require a greater APZ width.

A key benefit of an APZ is that it reduces radiant heat and the potential for direct flame contact on homes and other buildings. Residential dwellings require a wider APZ than sheds or stockyards because the dwelling is more likely to be used as a refuge during bush fire.

Subdivided land or construction of a new dwelling
If you are constructing a new asset, the principles of *Planning for Bushfire Protection* should be applied. Your Development Application approval will detail the exact APZ distance required.

Existing asset
If you wish to create an APZ around an existing asset and you require environmental approval, the Bush Fire Environmental Assessment Code provides a streamlined assessment process. Your Bush Fire Hazard Reduction Certificate (or alternate environmental approval) will specify the maximum APZ width allowed.

For further information on APZ widths see *Planning for Bushfire Protection* or the *Bush Fire Environmental Assessment Code* (available on the RFS website), or contact your local RFS Fire Control Centre.

STEP 4. DETERMINE WHAT HAZARD REDUCTION METHOD IS REQUIRED TO REDUCE BUSH FIRE FUEL IN YOUR APZ

The intensity of bush fires can be greatly reduced where there is little to no available fuel for burning. In order to control bush fire fuels you can reduce, remove or change the state of the fuel through several means.

Reduction of fuel does not require removal of all vegetation, which would cause environmental damage. Also, trees and plants can provide you with some bush fire protection from strong winds, intense heat and flying embers (by filtering embers) and changing wind patterns. Some ground cover is also needed to prevent soil erosion.

Fuels can be controlled by:

1. raking or manual removal of fine fuels
Ground fuels such as fallen leaves, twigs (less than 6 mm in diameter) and bark should be removed on a regular basis. This is fuel that burns quickly and increases the intensity of a fire.

Fine fuels can be removed by hand or with tools such as rakes, hoes and shovels.

2. mowing or grazing of grass
Grass needs to be kept short and, where possible, green.

3. removal or pruning of trees, shrubs and understorey
The control of existing vegetation involves both selective fuel reduction (removal, thinning and pruning) and the retention of vegetation.

Prune or remove trees so that you do not have a continuous tree canopy leading from the hazard to the asset. Separate tree crowns by two to five metres. A canopy should not overhang within two to five metres of a dwelling.

Native trees and shrubs should be retained as clumps or islands and should maintain a covering of no more than 20% of the area.

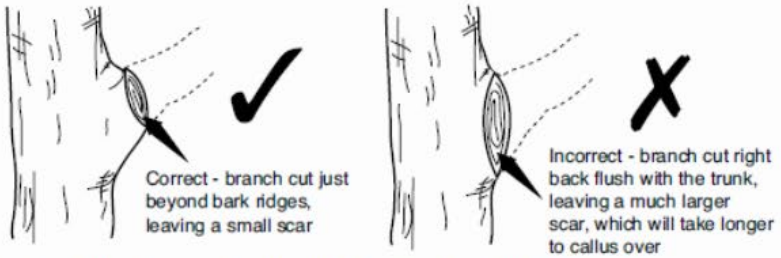
When choosing plants for removal, the following basic rules should be followed:

1. Remove noxious and environmental weeds first. Your local council can provide you with a list of environmental weeds or 'undesirable species'. Alternatively, a list of noxious weeds can be obtained at **www.agric.nsw.gov.au/noxweed/**;
2. Remove more flammable species such as those with rough, flaky or stringy bark; and
3 Remove or thin understorey plants, trees and shrubs less than three metres in height

The removal of significant native species should be avoided.

Prune in acordance with the following standards:

- Use sharp tools. These will enable clean cuts and will minimise damage to the tree.
- Decide which branches are to be removed before commencing work. Ensure that you maintain a balanced, natural distribution of foliage and branches.
- Remove only what is necessary.
- Cut branches just beyond bark ridges, leaving a small scar.
- Remove smaller branches and deadwood first.



There are three primary methods of pruning trees in APZs:

1. Crown lifting (skirting)
Remove the lowest branches (up to two metres from the ground). Crown lifting may inhibit the transfer of fire between the ground fuel and the tree canopy.

2. Thinning
Remove smaller secondary branches whilst retaining the main structural branches of the tree. Thinning may minimise the intensity of a fire.

3. Selective pruning
Remove branches that are specifically identified as creating a bush fire hazard (such as those overhanging assets or those which create a continuous tree canopy). Selective pruning can be used to prevent direct flame contact between trees and assets.

Your Bush Fire Hazard Reduction Certificate or local council may restrict the amount or method of pruning allowed in your APZ.

See the *Australian Standard 4373 (Pruning of Amenity Trees)* for more information on tree pruning.

4. Slashing and trittering
Slashing and trittering are economical methods of fuel reduction for large APZs that have good access. However, these methods may leave large amounts of slashed fuels (grass clippings etc) which, when dry, may become a fire hazard. For slashing or trittering to be effective, the cut material must be removed or allowed to decompose well before summer starts.

If clippings are removed, dispose of them in a green waste bin if available or compost on site (dumping clippings in the bush is illegal and it increases the bush fire hazard on your or your neighbour's property).

Although slashing and trittering are effective in inhibiting the growth of weeds, it is preferable that weeds are completely removed.

Care must be taken not to leave sharp stakes and stumps that may be a safety hazard.

5. Ploughing and grading
Ploughing and grading can produce effective firebreaks. However, in areas where this method is applied, frequent maintenance may be required to minimise the potential for erosion. Loose soil from ploughed or graded ground may erode in steep areas, particularly where there is high rainfall and strong winds.

6. Burning (hazard reduction burning)
Hazard reduction burning is a method of removing ground litter and fine fuels by fire. Hazard reduction burning of vegetation is often used by land management agencies for broad area bush fire control, or to provide a fuel reduced buffer around urban areas.

Any hazard reduction burning, including pile burns, must be planned carefully and carried out with extreme caution under correct weather conditions. Otherwise there is a real danger that the fire will become out of control. More bush fires result from escaped burning off work than from any other single cause.

It is YOUR responsibility to contain any fire lit on your property. If the fire escapes your property boundaries you may be liable for the damage it causes.

Hazard reduction burns must therefore be carefully planned to ensure that they are safe, controlled, effective and environmentally sound. There are many factors that need to be considered in a burn plan. These include smoke control, scorch height, frequency of burning and cut off points (or control lines) for the fire. For further information see the RFS document *Standards for Low Intensity Bush Fire Hazard Reduction Burning*, or contact your local RFS for advice.

7. Burning (pile burning)
In some cases, where fuel removal is impractical due to the terrain, or where material cannot be disposed of by the normal garbage collection or composted on site, you may use pile burning to dispose of material that has been removed in creating or maintaining an APZ.

For further information on pile burning, see the RFS document *Standards for Pile Burning*.

In areas where smoke regulations control burning in the open, you will need to obtain a Bush Fire Hazard Reduction Certificate or written approval from Council for burning. During the bush fire danger period a Fire Permit will also be required. See the RFS document *Before You Light that Fire* for further details.

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STEP 5. TAKE MEASURES TO PREVENT SOIL EROSION

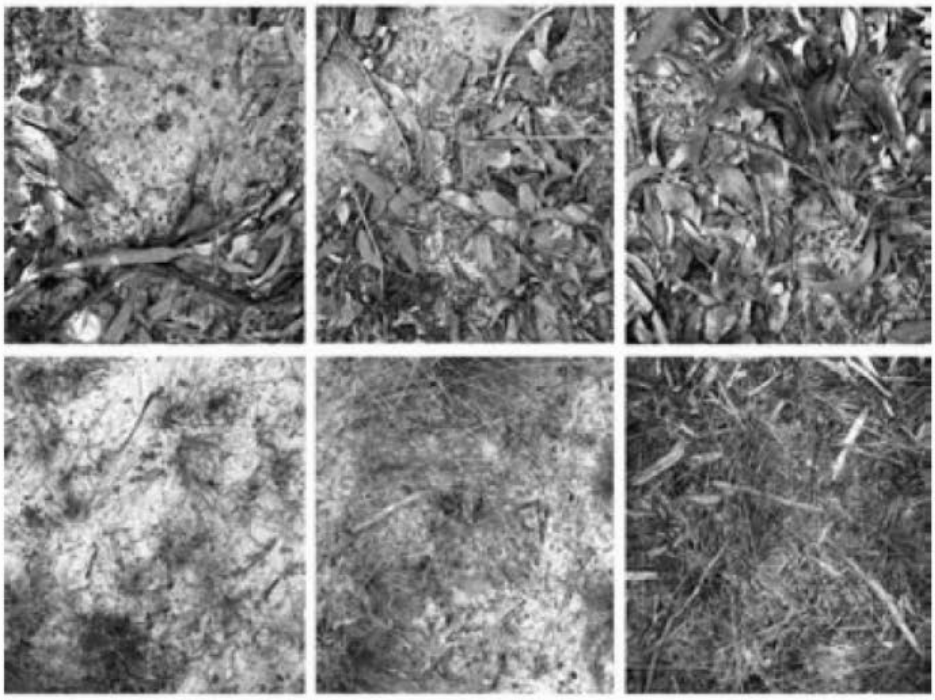
While the removal of fuel is necessary to reduce a bush fire hazard, you also need to consider soil stability, particularly on sloping areas.

Soil erosion can greatly reduce the quality of your land through:

- loss of top soil, nutrients, vegetation and seeds
- reduced soil structure, stability and quality
- blocking and polluting water courses and drainage lines

A small amount of ground cover can greatly improve soil stability and does not constitute a significant bush fire hazard. Ground cover includes any material which directly covers the soil surface such as vegetation, twigs, leaf litter, clippings or rocks. A permanent ground cover should be established (for example, short grass). This will provide an area that is easy to maintain and prevent soil erosion.

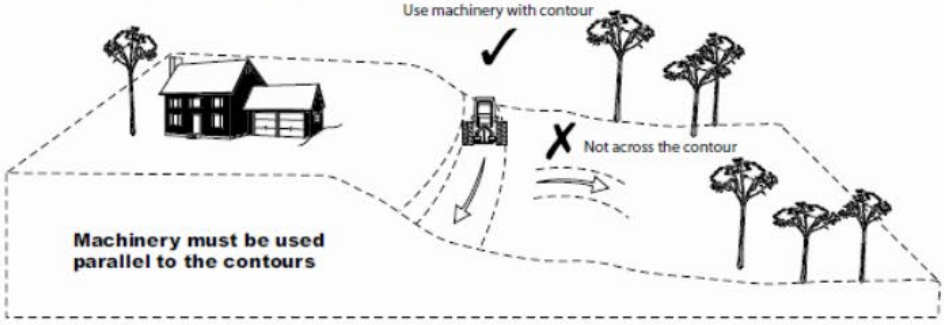
When using mechanical hazard reduction methods, you should retain a ground cover of at least 75% to prevent soil erosion. However, if your area is particularly susceptible to soil erosion, your Hazard Reduction Certificate may require that 90% ground cover be retained.



50% **75%** **100%**

Ground Cover

To reduce the incidence of soil erosion caused by the use of heavy machinery such as ploughs, dozers and graders, machinery must be used parallel to the contours. Vegetation should be allowed to regenerate, but be managed to maintain a low fuel load.

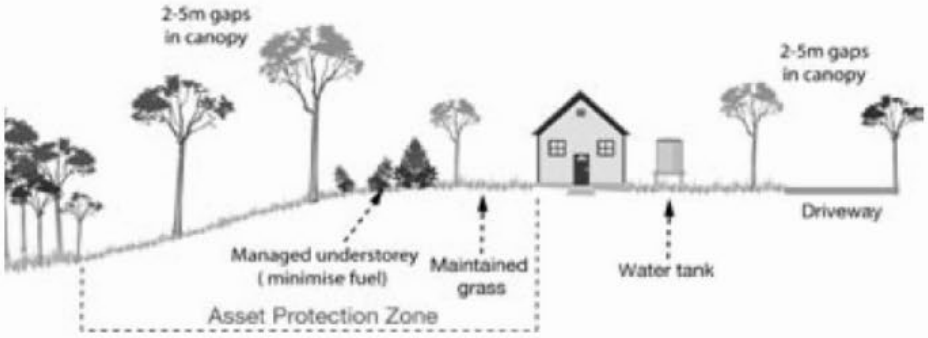


STEP 6. ONGOING MANAGEMENT AND LANDSCAPING

Your home and garden can blend with the natural environment and be landscaped to minimise the impact of fire at the same time. To provide an effective APZ, you need to plan the layout of your garden to include features such as fire resistant plants, radiant heat barriers and windbreaks.

Layout of gardens in an APZ
When creating and maintaining a garden that is part of an APZ you should:

- ensure that vegetation does not provide a continuous path to the house;
- remove all noxious and environmental weeds;
- plant or clear vegetation into clumps rather than continuous rows;
- prune low branches two metres from the ground to prevent a ground fire from spreading into trees;
- locate vegetation far enough away from the asset so that plants will not ignite the asset by direct flame contact or radiant heat emission;
- plant and maintain short green grass around the house as this will slow the fire and reduce fire intensity. Alternatively, provide non-flammable pathways directly around the dwelling;
- ensure that shrubs and other plants do not directly abut the dwelling. Where this does occur, gardens should contain low-flammability plants and non flammable ground cover such as pebbles and crush tile; and
- avoid erecting brush type fencing and planting "pencil pine" type trees next to buildings, as these are highly flammable.



Removal of other materials
Woodpiles, wooden sheds, combustible material, storage areas, large quantities of garden mulch, stacked flammable building materials etc. should be located away from the house. These items should preferably be located in a designated cleared location with no direct contact with bush fire hazard vegetation.

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Other protective features
You can also take advantage of existing or proposed protective features such as fire trails, gravel paths, rows of trees, dams, creeks, swimming pools, tennis courts and vegetable gardens as part of the property's APZ.

PLANTS FOR BUSH FIRE PRONE GARDENS

When designing your garden it is important to consider the type of plant species and their flammability as well as their placement and arrangement.

Given the right conditions, all plants will burn. However, some plants are less flammable than others.

Trees with loose, fibrous or stringy bark should be avoided. These trees can easily ignite and encourage the ground fire to spread up to, and then through, the crown of the trees.

Plants that are less flammable, have the following features:

- high moisture content
- high levels of salt
- low volatile oil content of leaves
- smooth barks without "ribbons" hanging from branches or trunks; and
- dense crown and elevated branches.

When choosing less flammable plants, be sure not to introduce noxious or environmental weed species into your garden that can cause greater long-term environmental damage.

For further information on appropriate plant species for your locality, contact your local council, plant nurseries or plant society.

If you require information on how to care for fire damaged trees, refer to the Firewise brochure *Trees and Fire Resistance; Regeneration and care of fire damaged trees.*

WIND BREAKS

Rows of trees can provide a wind break to trap embers and flying debris that could otherwise reach the house or asset.

You need to be aware of local wind conditions associated with bush fires and position the wind break accordingly. Your local RFS Fire Control Centre can provide you with further advice.

When choosing trees and shrubs, make sure you seek advice as to their maximum height. Their height may vary depending on location of planting and local conditions. As a general rule, plant trees at the same distance away from the asset as their maximum height.

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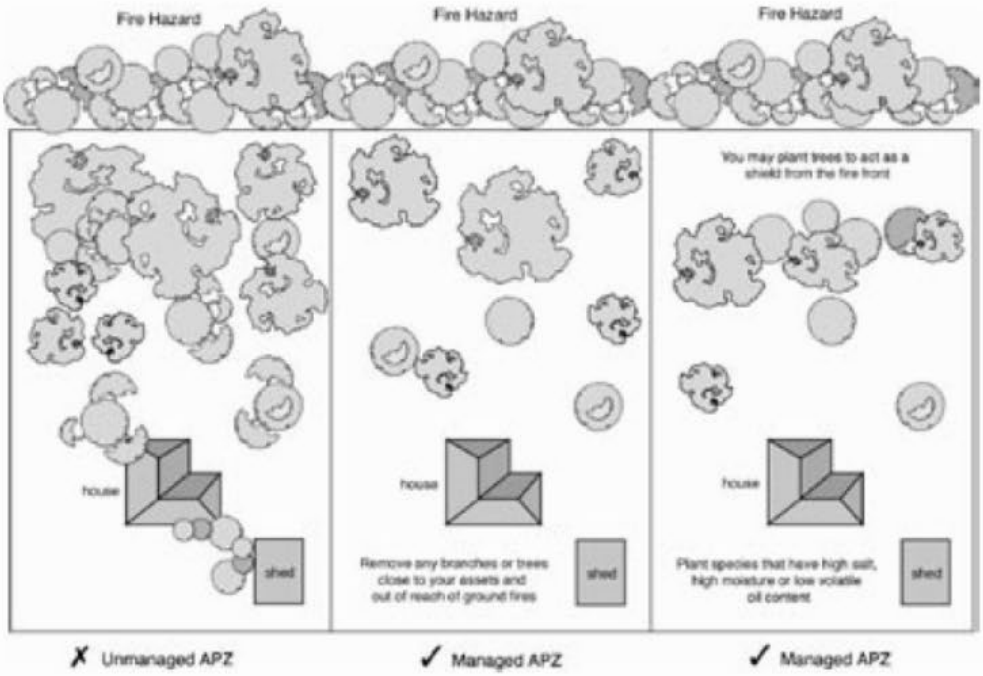
When creating a wind break, remember that the object is to slow the wind and to catch embers rather than trying to block the wind. In trying to block the wind, turbulence is created on both sides of the wind break making fire behaviour erratic.



HOW CAN I FIND OUT MORE?

The following documents are available from your local Fire Control Centre and from the NSW RFS website at **www.rfs.nsw.gov.au.**

- Before You Light That Fire
- Standards for Low Intensity Bush Fire Hazard Reduction Burning
- Standards for Pile Burning
- Application Instructions for a Bush Fire Hazard Reduction Certificate

If you require any further information please contact:

- your local NSW Rural Fire Service Fire Control Centre. Location details are available on the RFS website or
- call the NSW RFS Enquiry Line 1800 679 737 (Monday to Friday, 9am to 5pm), or
- the NSW RFS website at **www.rfs.nsw.gov.au.**

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