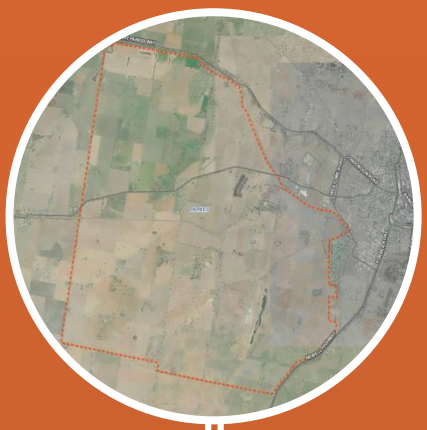
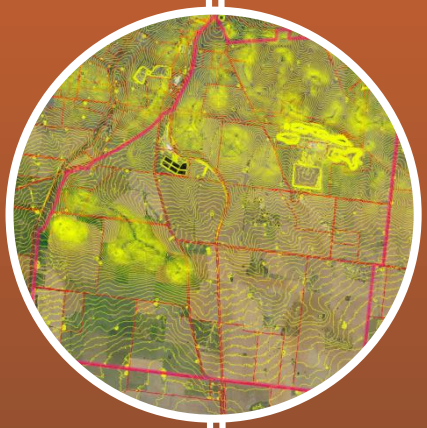
Bushfire Constraints & Opportunities Report

Parkes Special Activation Precinct





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List of Abbreviations

APZ	Asset Protection Zone
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Parkes Council
CDC	Complying Development
DA	Development Application
EP&A Act	Environmental Planning and Assessment Act 1979
ESD	Ecologically Sustainable Development
FRNSW	Fire & Rescue NSW
IPA	Inner Protection Area
NCC	National Construction Code
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	Planning for Bush Fire Protection
RFS	NSW Rural Fire Service
SAP	Special Activation Precinct
SEPP	State Environmental Planning Policy
SWS	Static Water Supply

1.0 Introduction

Building Code and Bushfire Hazard Solutions P/L has been commissioned by WSP to provide a detailed bushfire constraints and opportunities report for the future Parkes Special Activation Precinct (SAP).

The Parkes SAP is a 20 year vision for job creation and regional development which has been strategically located at the intersection of the Brisbane to Melbourne Inland Rail, the Sydney to Perth / Adelaide Rail Corridor and is in close proximity to the junction of Henry Parkes Way and the Newell Highway.

The precinct covers an area of approximately 3,600 hectares, is located to the west of the Parkes township and is within Parkes Council local government area.

The planning trigger to apply bushfire controls to development in NSW is if the site is identified as being 'bushfire prone' on the local Council's Bush Fire Prone Lands Map (BPLM). BPLM are prepared by the local Council and certified by the Commissioner of the NSW Rural Fire Service.

The precinct is not mapped as being bushfire prone on Parkes Council BPLM and consequently the bushfire planning controls would typically not be triggered. It is however important to note that in accordance with section 10.3 of the *Environmental Planning and Assessment Act* 1979 BPLMs must be updated / reviewed every 5 years.

When considering the 20 year delivery program, the characteristics of the precinct, the presence of Threatened Ecological Communities and the NSW Rural Fire Service publication 'Guide for Bush Fire Prone Land Mapping' (version 5b, dated November 2015) it is of our opinion that at this early design phase it is prudent to consider the relevant specifications and requirements of Planning for Bush Fire Protection (PBP).

We have consequently undertaken an assessment against PBP to establish the relevant specifications and requirements and subsequently assist in the development of a Master Plan.

Planning for Bush Fire Protection (PBP) is currently in a transition period with the 2006 version currently in force, but a pre-release of the 2018 version published and expected to take effect in May 2019. In considering the development program we have provided advice on the pre-release of PBP 18.

2.0 Purpose

The purpose of this report is to outline the Bushfire Protection Measures (BPMs) that would be applicable for the future Parkes SAP which will assist to understand the cumulative impacts of development. This study will support the development of the Precinct wide Master Plan.

The application of Planning for Bush Fire Protection 2018 will require satisfactory demonstration of the following BPMs:

- Asset Protection Zones
- Building Construction & Design
- Landscaping
- Emergency Management Arrangements
- Water Supply & Utilities
- Access Arrangements

This assessment will systematically address the minimum requirements (to maximise development yield) and our subsequent recommendation for the proposed development to satisfy the above BPMs.

This assessment has not considered any residential use within the SAP.

This document is for design purposes only and not suitable for submission as supportive documentation.

3.0 Location

The subject site is known as the Parkes Special Activation Precinct, which comprises of several existing allotments totalling an area of 3,600 hectares. The extent of the subject site is depicted on Image 01 below.

The subject site is located within Parkes Council local government area.

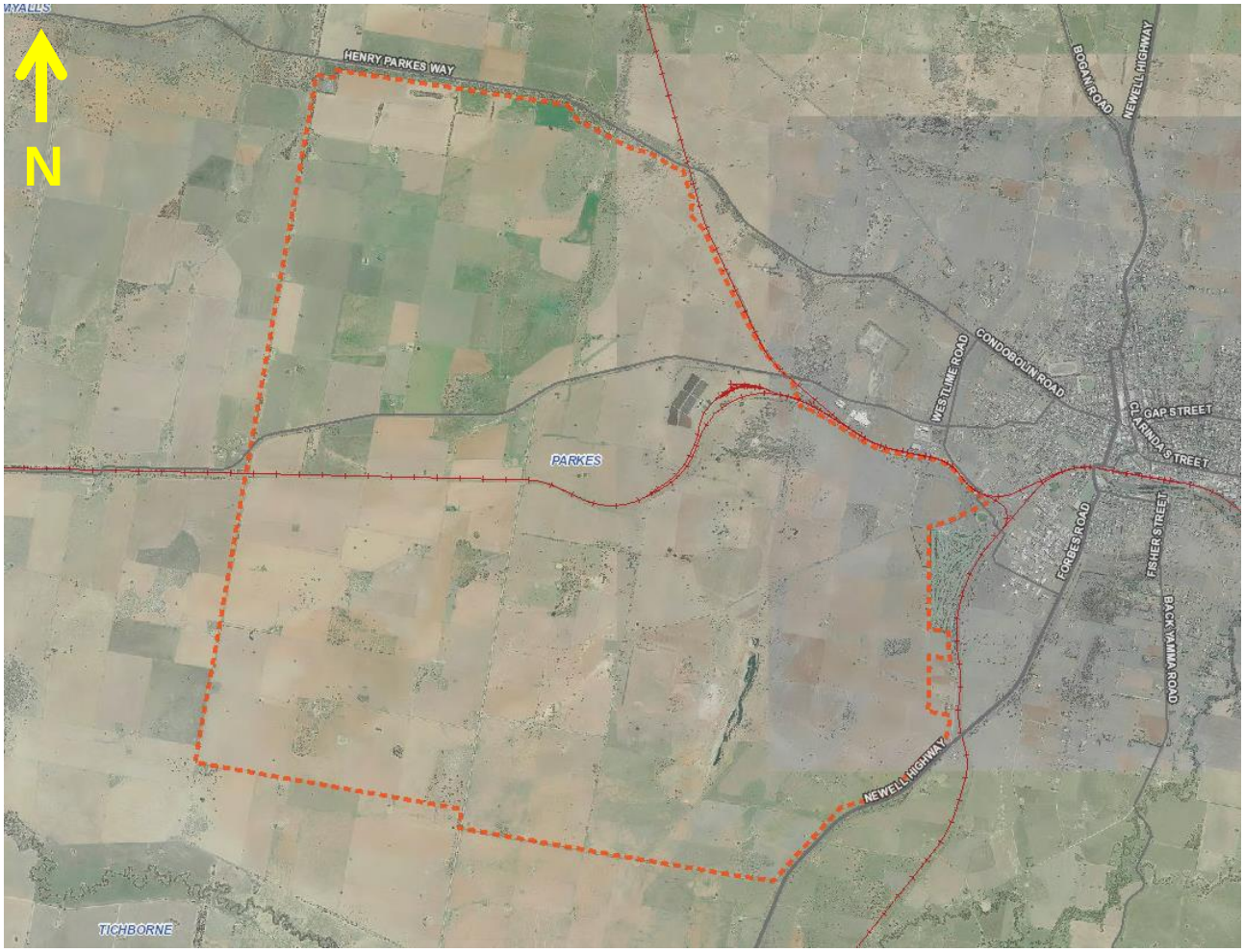

Image 01: Aerial view of the subject area, precinct highlighted by red dotted line (C/- WSP Create)

4.0 Bushfire Prone Land

The bushfire prone land map is the trigger for the consideration of bush fire protection measures for new development (*Planning for Bush Fire Protection* and Australian Standard 3959 – *Construction of buildings in bush fire prone areas*).

Section 10.3 of the *EP&A Act* requires councils, where a Bush Fire Risk Management Plan applies, to record a bush fire prone land map after consulting with the Commissioner of the NSW RFS. The Commissioner will designate lands to be bush fire prone within an area and, when satisfied that the lands have been recorded on a map, certify the map as the Bush Fire Prone Land map.

The precinct is not currently mapped as being bushfire prone on Parkes Council BPLM and consequently the bushfire planning controls would not be triggered. In some instances the Authority Having Jurisdiction can still consider bushfire under the broader environmental considerations.

In this instance when considering the 20 year delivery program, the characteristics of the precinct, the presence of Threatened Ecological Communities and the criteria for vegetation to be mapped as Category 1, 2 and 3 Vegetation it is of our opinion that at this early design phase it is prudent to consider part of the precinct as being 'bushfire prone' land and subsequently the relevant specifications and requirements of PBP.

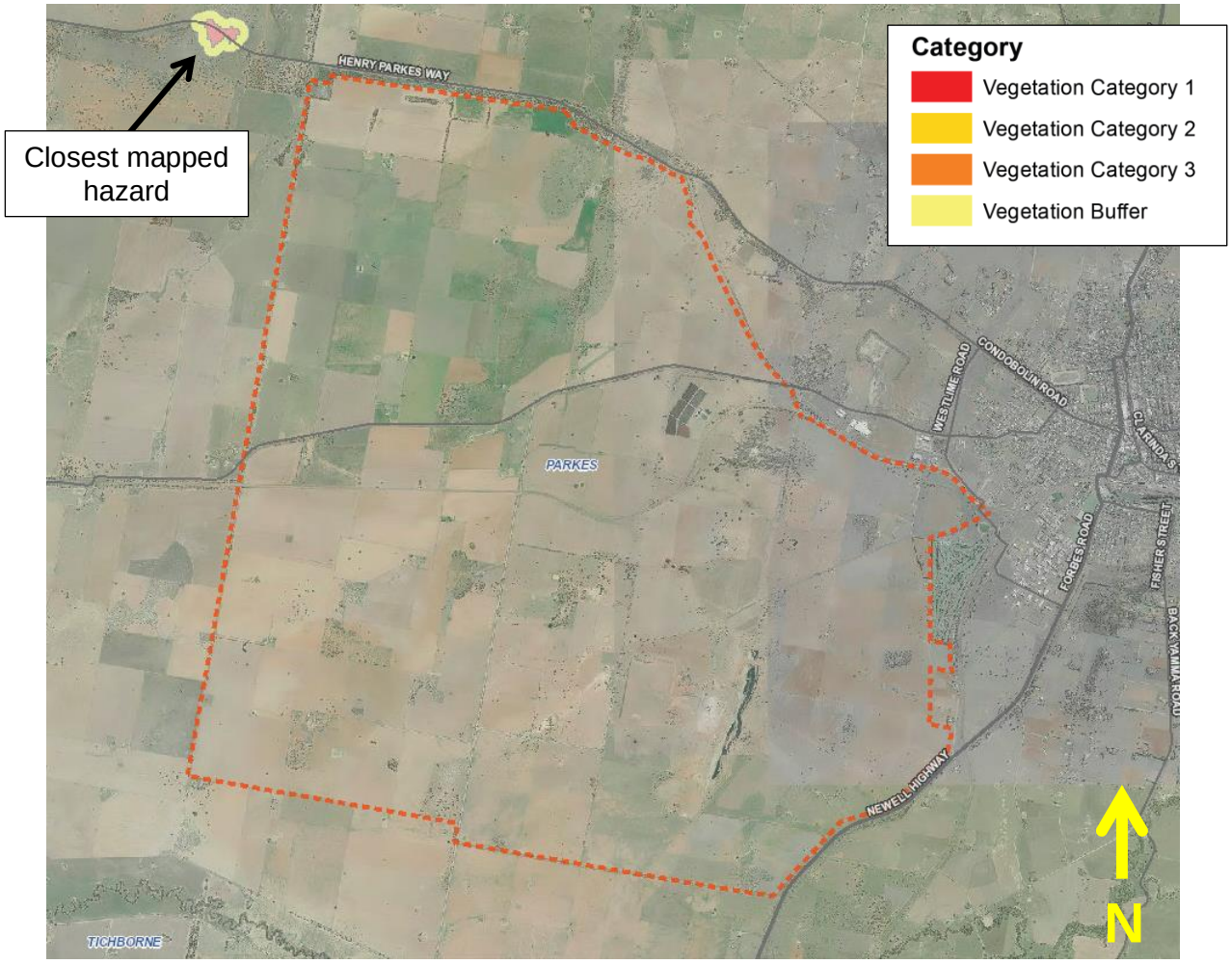

Image 02: Aerial image showing current BPLM layer (C/- WSP Create)

5.0 Vegetation

Any future bushfire assessment must consider existing vegetation within neighbouring allotments (to a distance of 140 metres) and retained or proposed vegetated areas within the precinct.

A review of Councils Bush Fire Prone Lands Map (BPLM) has found that no part of the precinct is mapped as containing Category 1, 2 or 3 vegetation or their associated buffer zones.

The precinct was currently found to largely comprise of grazed pastures, wheat stubble and some small remnant pockets of trees.

Historically the use of the precinct has been for agriculture purposes, including the cultivation of arable crops and breeding and raising of livestock. These farming practices have resulted in significantly modified vegetation.

As part of the overall development it is expected that the landscape will be significantly modified with priority given, where possible, to the retention of the identified Threatened Ecological Communities and riparian corridors within the precinct.

In this regard we are of the opinion that it is highly likely that retained / protected vegetation within the precinct will achieve the criteria to be captured as Category 1, 2 or 3 Vegetation.

For the purpose of determining Asset Protection Zones and Bushfire Attack Levels we acknowledge that the precinct is mapped by WSP as containing Grassy Woodland and Grassland formations, which is consistent with our site observations.

The NSW Rural Fire Service publication 'Guide for Bush Fire Prone Land Mapping' (version 5b, dated November 2015) defines Category 1, 2 and 3 and Excluded Vegetation as:

Vegetation Category 1

Vegetation Category 1 is considered to be the highest risk for bush fire. It is represented as red on the bush fire prone land map and will be given a 100m buffer. This vegetation category has the highest combustibility and likelihood of forming fully developed fires including heavy ember production. Vegetation Category 1 consists of:

- *Areas of forest, woodlands, heaths (tall and short), forested wetlands and timber plantations.*

Vegetation Category 2

Vegetation Category 2 is considered to be a lower bush fire risk than Category 1 and Category 3 but higher than the excluded areas. It is represented as light orange on a bush fire prone land map and will be given a 30 metre buffer. This vegetation category has lower combustibility and/or limited potential fire size due to the vegetation area shape and size, land geography and management practices. Vegetation Category 2 consists of:

- *Rainforests.*
- *Lower risk vegetation parcels. These vegetation parcels represent a lower bush fire risk to surrounding development and consist of:*
  - *Remnant vegetation;*
  - *Land with ongoing land management practices that actively reduces bush fire risk. These areas must be subject to a plan of management or similar that demonstrates that the risk of bush fire is offset by strategies that reduce bush fire risk; AND include:*

- *Discrete urban reserve/s;*
- *Parcels that are isolated from larger uninterrupted tracts of vegetation and known fire paths;*
- *Shapes and topographies which do not permit significant upslope fire runs towards development;*
- *Suitable access and adequate infrastructure to support suppression by firefighters;*
- *Vegetation that represents a lower likelihood of ignitions because the vegetation is surrounded by development in such a way that an ignition in any part of the vegetation has a higher likelihood of detection.*

Vegetation Category 3

Vegetation Category 3 is considered to be medium bush fire risk vegetation. It is higher in bush fire risk than category 2 (and the excluded areas) but lower than Category 1. It is represented as dark orange on a Bush Fire Prone Land map and will be given a 30 metre buffer. This category consists of:

- *Grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands.*

Exclusions

Vegetation excluded from being mapped as bush fire prone includes:

- *Single areas of vegetation less than 1 hectare in area and greater than 100 metres separation from other areas of Category 1, 2 or 3 vegetation;*
- *Multiple areas of vegetation less than 0.25 hectares in area and not within 30 metres of each other;*
- *Strips of vegetation less than 20 metres in width, regardless of length and not within 20 metres of other areas of Category 1, 2 or 3 vegetation;*
- *Areas of "managed grassland" including grassland on, but not limited to, recreational areas, commercial/industrial land, residential land, airports/airstrips, maintained public reserves and parklands, commercial nurseries and the like;*
- *Areas of managed gardens and lawns within curtilage of buildings;*
- *Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.*
- *Managed botanical gardens;*
- *Agricultural lands used for annual and/or perennial cropping, orchard, market gardens, nurseries and the likes are excluded;*
- *Saline wetlands including mangroves.*
- *Other areas that, due to their size, shape and overall risk are not considered Category 1, 2 or 3 vegetation.*

Photograph 01: View of wheat stubble within the precinct

Photograph 02: View of remnant stand of trees within the precinct

Photograph 03: View of dry creek bed and trees within the precinct

6.0 Topography

Generally the precinct was found to be located on relatively flat ground with some minor undulations around watercourses and high points.

The slope that would most significantly affect bushfire behaviour must be assessed for at least 100 metres from within the bushfire hazards. The effective slopes were determined using 1m & 5m LiDar contour mapping of the subject area in conjunction with site observations.

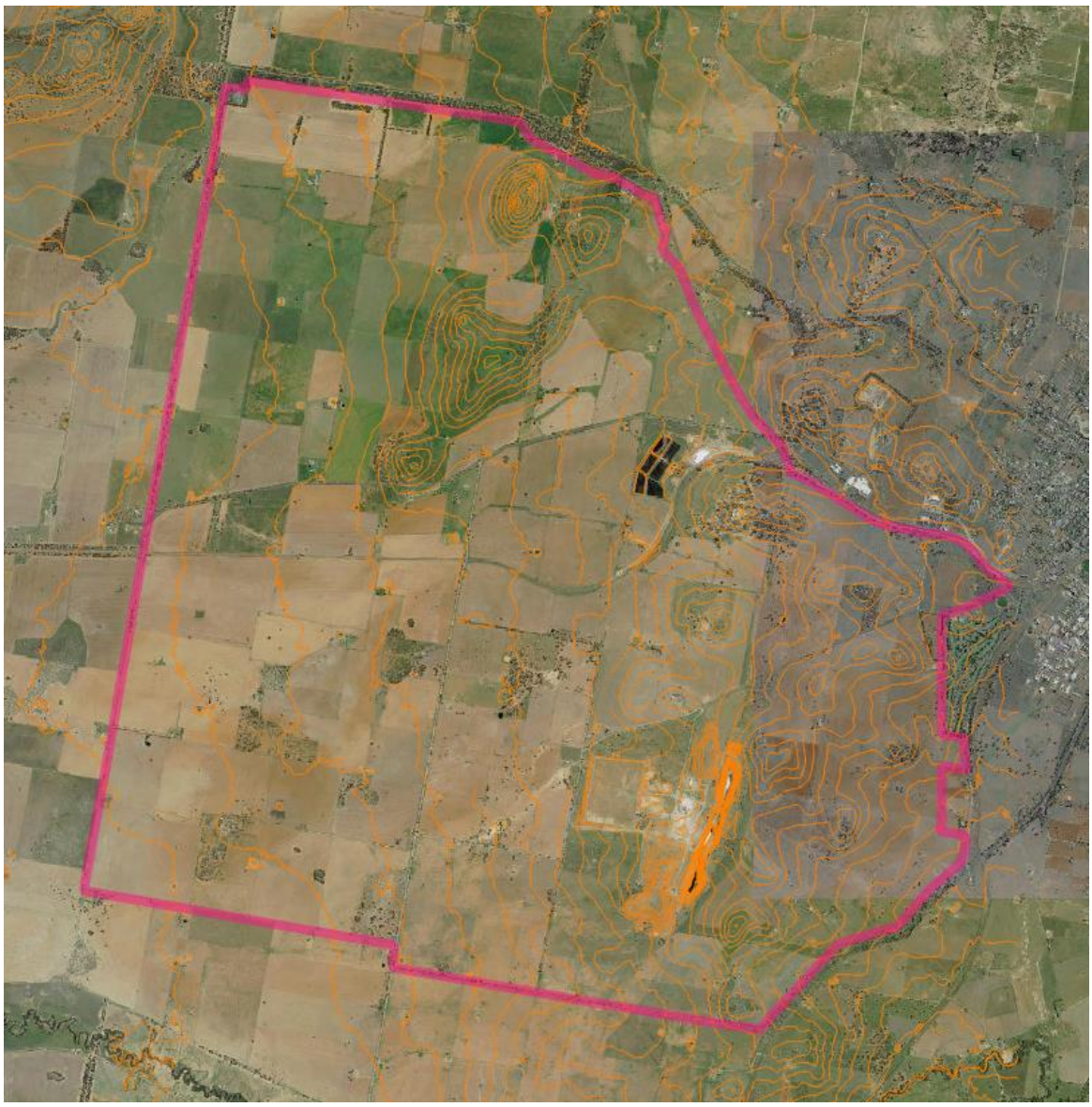

Image 03: 5 metre LiDar contours of the subject area

7.0 Approval Method

It is understood that to fast track future building construction works it is intended for most applications to be assessed under a new 'Activation Precinct' State Environmental Planning Policy (SEPP) with similar provisions to those in the current State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

It would be expected and encouraged that the future 'Activation Precinct' SEPP will have similar considerations for assessing applications located on bushfire prone land as those described in Part 5A, Division 4, Clause 5A.29 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, which include the following:

(a) the development conforms to the specifications and requirements of the following documents that are relevant to the development:

(i) Planning for Bush Fire Protection (ISBN 0 9751033 2 6) published by the NSW Rural Fire Service in December 2006,

(ii) Planning for Bush Fire Protection, Addendum: Appendix 3 (ISBN 0 9751033 2 6), published by the NSW Rural Fire Service in April 2010,

(iii) if another document is prescribed by the regulations for the purposes of section 4.14 of the Environmental Planning and Assessment Act 1979—that document, and

(b) the part of the lot on which the development is to be carried out is not in bush fire attack level-40 (BAL-40) or the flame zone (BAL-FZ), and

(c) the lot has direct access to a public road or a road vested in or maintained by the council, and

(d) a reticulated water supply is connected to the lot, and

(e) a fire hydrant is located less than 60m from the location on the lot of the proposed development, and

(f) mains electricity is connected to the lot, and

(g) reticulated or bottled gas on the lot is installed and maintained in accordance with AS/NZS 1596:2008, The storage and handling of LP Gas and the requirements of relevant authorities (such as the requirement that metal piping be used), and

(h) any gas cylinders on the lot that are within 10m of a dwelling:

(i) have their release valves directed away from the dwelling, and

(ii) are enclosed on the hazard side of the installation, and

(iii) have metal connections to and from the cylinders, and

(i) there are no polymer sheathed flexible gas supply lines to gas meters adjacent to any dwelling on the lot or an adjoining lot.

Note. The requirements of AS 3959—2009, *Construction of buildings in bushfire-prone areas* set out in the *Building Code of Australia* also apply.

At this master planning phase one of the important items is the ability to provide suitable Asset Protection Zones to result in a Bushfire Attack Level of BAL 29 or lower (not BAL 40 or BAL FZ) to the future building envelopes.

The vegetation within the precinct includes Grassland and Grassy Woodland formations, with the landscape being relatively flat. Based on these parameters we expect the minimum required Asset Protection Zones to achieve a BAL 29 rating, and facilitate Complying Development, to be between **7-13 metres**.

8.0 Special Fire Protection Purpose Development

The 'commercial' land use can permit several Special Fire Protection Purpose (SFPP) uses which would attract larger minimum required Asset Protection Zones and more onerous Bushfire Protection Measures.

These SFPP developments would also trigger the need for Development Applications and referral to the NSW Rural Fire Service (s100b Rural Fires Act 1997). Using the aforementioned parameters we would expect the minimum required APZs for SFPP development to be between **36-50 metres.**

Special fire protection purpose development is defined under section 100B of the Rural Fires Act 1997 as:

(a) a school,
(b) a child care centre,
(c) a hospital (including a hospital for the mentally ill or mentally disordered),
(d) a hotel, motel or other tourist accommodation,
(e) a building wholly or principally used as a home or other establishment for mentally incapacitated persons,
(f) seniors housing within the meaning of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004*,
(g) a group home within the meaning of *State Environmental Planning Policy No 9—Group Homes*,
(h) a retirement village,
(i) any other purpose prescribed by the regulations.

9.0 Hazardous Industry

Some developments by their very nature are considered to be hazardous, for their ability to either start bush fires or their susceptibility to the impact of bushfire.

Planning for Bush Fire Protection list a number of hazardous industries should not be permitted on bushfire prone land.

Hazardous industries include but are not limited to:

- power generating works
- sawmills
- junk yards
- liquid fuel depots
- hazardous industries/storage
- chemical industries/storage

- service stations
- ammunition storage/manufacture
- fireworks manufacture/storage.

There is a pathway to have hazard industries considered / approved on bushfire prone land however this would involve extensive consultation with the NSW Rural Fire Service and the preparation of a detailed performance-based solution / Bushfire Design Brief.

Note: Bush fire prone land is considered land which contains Category 1, 2 or 3 Vegetation, the 100 metre buffer zone from Category 1 Vegetation or the 30 metre buffer zone from Category 2 or 3 Vegetation as defined on Councils BPLM.

10.0 Commercial / Industrial Development

The National Construction Code does not provide for any bush fire specific performance requirements for Class 5 to 8 structures and as such Australian Standard 3959 'Construction of buildings in bushfire-prone areas' does not apply as a set of 'deemed to satisfy' provisions.

Whilst bush fire is not captured in the NCC for Class 5-8 buildings, the following objectives will be applied in relation to access, water and services, and emergency and evacuation planning:

- to provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation;
- to provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building;
- to provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development; and
- consideration of storage of hazardous materials away from the hazard wherever possible.

The general fire safety construction provisions (of the NCC) are taken as acceptable solutions however construction requirements for bush fire protection will need to be considered on a case-by-case basis.

Where a manager's residence is included in the proposal for a commercial and industrial development it is captured by s4.14 of the EP&A Act. Where no residential component is included, commercial and industrial development is addressed through the aim and objectives of PBP, being:

> *The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.*
>
> *The objectives are to:*
>
> *i. afford buildings and their occupants protection from exposure to a bush fire*
> *ii. provide for a defendable space to be located around buildings*
> *iii. provide appropriate separation between a hazard and buildings which, in combination with other measures, minimises material ignition*

iv. ensure that appropriate operational access and egress for emergency service personnel and residents is available
v. provide for ongoing management and maintenance of BPMs
vi. ensure that utility services are adequate to meet the needs of firefighters.

A suitable package of BPMs will be necessary which is commensurate with the assessed level of risk to the development. The scale of the development and numbers of people likely to be occupying the building will directly influence the BPMs.

While there are no minimum required Asset Protection Zones applicable to commercial / industrial development to satisfy the aim and objectives of PBP the buildings must be located outside Flame Zone, which using the aforementioned parameters would require a minimum APZ of between **7-10 metres.**

Opportunities – Maximising the APZ:

It is recommended that where possible perimeter roads be located within the Asset Protection Zones adjacent the hazard interfaces. The provision of perimeter roads will maximise the APZ and also satisfy the NSW Rural Fire Service's preferred position for access arrangements.

Non-habitable structures are also permitted within the APZs, these include car parking, active open space and the like.

11.0 Access

Planning for Bush Fire Protection addresses design considerations for internal roads for properties determined to be bushfire prone.

There is opportunity to satisfy the access requirements by way of either demonstrating compliance with the Acceptable Solutions or Performance Criteria (alternate solution). It is strongly encouraged that in the first instance compliance with the Acceptable Solutions is targeted.

As the subject precinct relates primarily to an industrial / commercial use it is our experience that the roads are typically designed in excess of the minimum requirements in PBP.

The following requirements are the Acceptable Solutions under the published pre-release of PBP 2018:

Access General

- property access roads are two-wheel drive, all-weather roads; and
- perimeter roads are provided for residential subdivisions of three or more allotments; and
- subdivisions of three or more allotments have more than one access in and out of the development; and
- traffic management devices are constructed to not prohibit access by emergency services vehicles; and

- maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient; and
- all roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end; and
- where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road; and
- where access/egress can only be achieved through forest, woodland or heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.
- the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/causeways are to clearly indicate load rating.
- hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;
- hydrants are provided in accordance with AS 2419.1:2005;
- there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.

Perimeter Roads

- perimeter roads are two-way sealed roads; and
- 8m carriageway width kerb to kerb; and
- parking is provided outside of the carriageway width; and
- hydrants are located clear of parking areas; and
- there are through roads, and these are linked to the internal road system at an interval of no greater than 500m; and
- curves of roads have a minimum inner radius of 6m; and
- the maximum grade road is 15° and average grade is 10°; and
- the road crossfall does not exceed 3°; and
- a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

Non-Perimeter Roads

- minimum 5.5m width kerb to kerb; and
- parking is provided outside of the carriageway width; and
- hydrants are located clear of parking areas; and
- roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m; and
- curves of roads have a minimum inner radius of 6m; and
- the road crossfall does not exceed 3°; and
- a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

Attached to this report are additional design principles for emergency service vehicle access contained within Appendix 3 of the published pre-release of PBP 2018.

Perimeter roads are the preferred design option and should be provided wherever possible. If a perimeter road is not achievable there may be an opportunity to provide a fire trail or other access arrangement.

12.0 Services

Water Supply:

Any future development must comply with the water supply requirements detailed in Planning for Bush Fire Protection. These requirements can be achieved in two ways, being:

- reticulated water is to be provided to the development, where available.
- a static water supply is provided where no reticulated water is available.

Given the scale of the proposal it would be considered likely that any future development will be serviced by a hydrant system. In this regard the following are the relevant Acceptable Solutions applicable for reticulated water supplies:

- fire hydrant spacing, design and sizing comply with the Australian Standard AS 2419.1:2005, and
- hydrants are not located within any road carriageway, and
- reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads, and
- fire hydrant flows and pressures comply with AS 2419.1:2005, and
- all above-ground water service pipes external to the building are metal, including and up to any taps.

Planning for Bush Fire Protection also addresses the installation of services (i.e. electricity and gas) within bushfire prone areas. The following are the requirements for the relevant services.

Electricity:

- where practicable, electrical transmission lines are underground, and
- where overhead, electrical transmission lines are proposed as follows:
    - 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

Gas:

- 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;
- polymer-sheathed flexible gas supply lines are not used;
- above-ground gas service pipes are metal, including and up to any outlets.

13.0 Conclusion

The subject site is not currently mapped as being bushfire prone on Parkes Council bushfire prone land map and consequently the application of Planning for Bush Fire Protection (PBP) and Australian Standard 3959 'Construction of buildings in bushfire-prone areas' (AS3959) is not formally triggered. A future Special Fire Protection Purpose development would also not be captured under section 100b of the Rural Fires Act 1997 and subsequently the NSW Rural Fire Service would not be a consent authority.

In this instance when considering the 20 year delivery program, the characteristics of the precinct, the presence of Threatened Ecological Communities and the criteria for vegetation to be mapped as Category 1, 2 and 3 Vegetation it is of our opinion that at this early design phase it is prudent to consider part of the precinct as being 'bushfire prone' land and subsequently the relevant specifications and requirements of PBP.

It is of our opinion that should the proposed development comply with the detail contained herein then we will be in a position to put forward a favourable report for any application.

Comments provided are based on advice received from the NSW Rural Fire Service and the requirements of the *Environmental Planning and Assessment Act* 1979, the *Rural Fires Act* 1997, the *Rural Fires Regulations* 2013, *Planning for Bush Fire Protection* 2006, *Planning for Bush Fire Protection* 2018 (pre-release) and Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2009.

Should you have any further questions please do not hesitate in contacting myself.

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List of Referenced Documents

a) Environmental Planning and Assessment Act 1979

b) Rural Fires Act 1997

c) State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

d) "Planning for Bush Fire Protection" - NSW Rural Fire Services 2006

e) "Planning for Bush Fire Protection" - NSW Rural Fire Services 2018 (pre-release)

f) "Construction of buildings in bushfire-prone areas" - AS 3959 – 2009 (as amended)

g) "Parkes Council's Bushfire Prone Land Map"

h) Acknowledgements to:

SixMaps © NSW Government
Nearmap.com
Geoscience Australia (ELVIS)
QGIS
WSP Create

Attachments

Attachment 01: Additional design principles for emergency service vehicle access Appendix 3 pre-release PBP 2018

APPENDIX 3

ACCESS

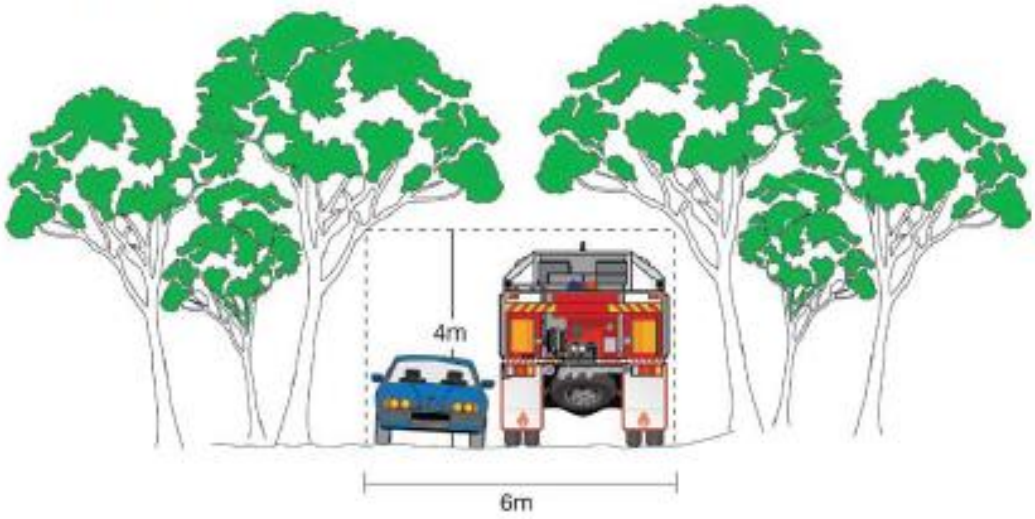
This appendix provides design principles for emergency service vehicle access.

A3.1 Vertical Clearance

An unobstructed clearance height of 4 metres should be maintained above all access ways including clearance from building construction, archways, gateways/doorways and overhanging structures
(e.g. ducts, pipes, sprinklers, walkways, signs and beams). This also applies to vegetation overhanging roads and fire trails.

Figure A3.1

Vertical clearance



A3.2 Vehicle turning requirements

Fire crews must have rapid access and egress for vehicles, therefore curved carriageways should be constructed using the minimum swept path.

Table A3.2

Minimum curve radius for turning vehicles

Curve radius (inside edge in metres)	Swept path (metres width)
< 40	4.0
40 - 69	3.0
70 - 100	2.7
> 100	2.5

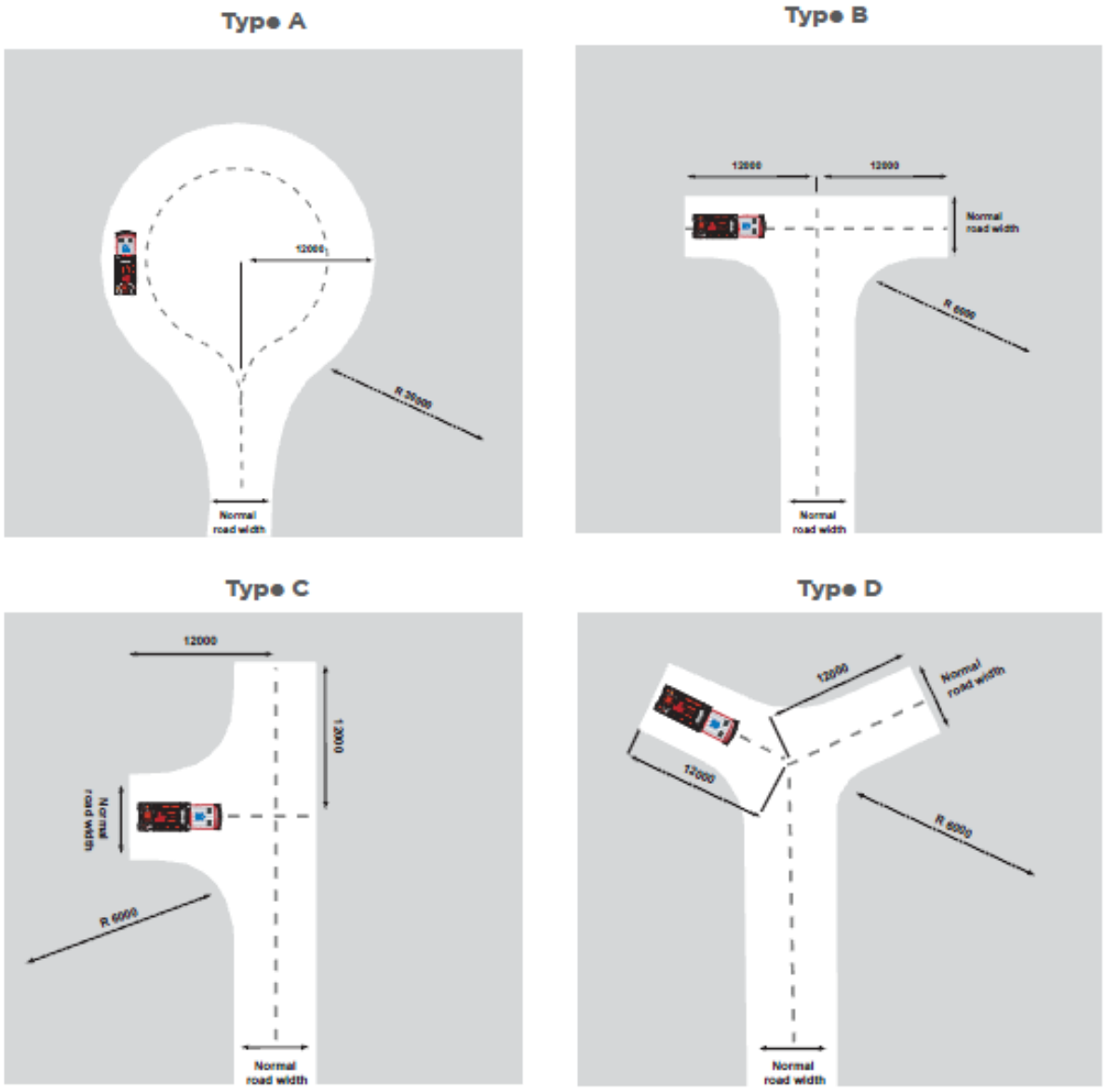
A3.3 Vehicle turning head requirements

Where a turning head is proposed the NSW RFS requires that dead ends having a length greater than 20 metres should be provided with a turning head area which avoids multipoint turns.

The minimum turning radius should be no less than the respective outer radius given in table A3.2. Where multipoint turning is proposed the NSW RFS will consider the following types:

Figure A3.5

Multipoint turning options



A3.4 Passing bays

The construction of passing bays, where required, shall be 20m in length, provide a minimum trafficable width at the passing point of 6m.

Figure A3.6

Parking bays can provide advantages when designed correctly. Poor design can and does severely impede access.

A3.5 Parking

Parking can create a pinch point within the road reserve. The location of parking should be carefully considered to ensure fire appliance access is unimpeded. Hydrants should be located clear of any parking areas to ensure that access is available at all times.

Figure A3.7

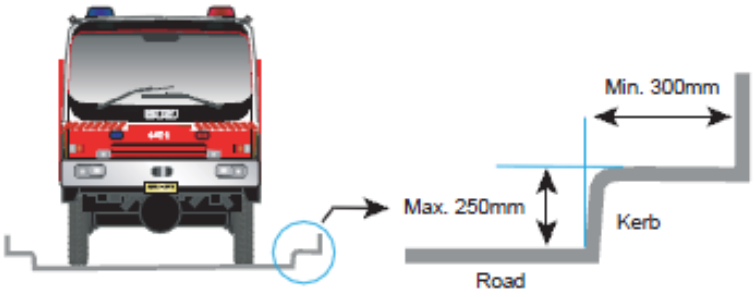
Hydrants shall not be located within parking bays.

A3.6 Kerb dimensions

All kerbs constructed around access lanes should be no higher than 250mm and free of vertical obstructions at least 300mm back from the kerb face to allow clearance for front and rear body overhang.

Figure A3.8

Carriageway kerb clearance dimensions



Services

Hydrant services should be located outside the carriageway and parking bays to permit traffic flow and access. Transporting and setup of standpipes within the carriageway will stop traffic flow. Hydrant services should be located on the side of the road away from the bush fire threat where possible.

Local Area Traffic Management (LATM)

The objective of LATM is to attain an acceptable level of speed, volume and composition of traffic within a local area and reduce the number of road accidents. This is achieved by modifying the street environment through the installation of various traffic control devices.

Traffic Engineers and Planners should consider the application of LATM devices when planning for local traffic control and their likely impact on emergency services. LATM devices by their nature are designed to restrict and or impede the movement of traffic, especially large vehicles, which is in conflict with the intent for access required by the NSW RFS and may significantly increase response times for emergency services.

Where LATM devices are provided they are to be designed so that they do not impede fire vehicle access.

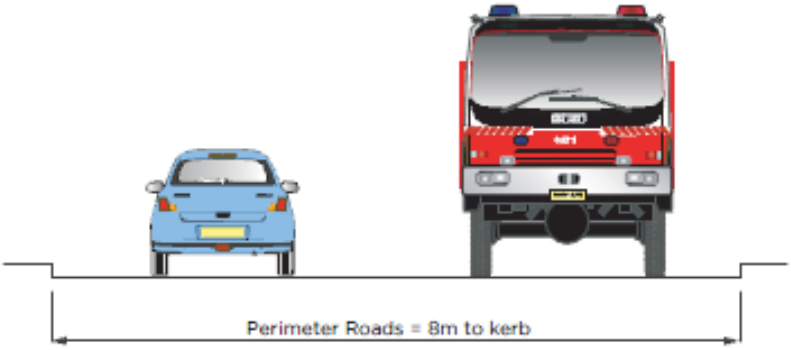
A3.7 Road types

A3.7.1 Perimeter Roads

8 metres wide - inside kerb to inside kerb - parking and location of hydrant services are to be located outside carriage way.

Figure A3.9

Perimeter road widths

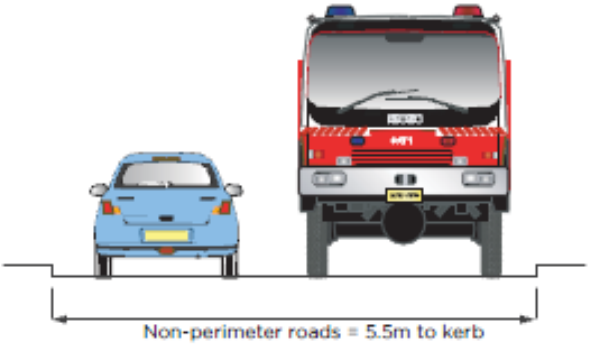


A3.7.2 Non-perimeter Roads

5.5 metres wide - parking is provided outside of the carriageway width, and hydrants are located clear of parking areas.

Figure A3.10

Non-perimeter road widths



A3.7.3 Property access

4m wide all weather road. Can be sealed or unsealed.

Figure A3.11

Property access road widths