

Bushfire Assessment Report for Subdivision of Lot 21 DP755681 83 Fotheringay Rd, Clarence Town NSW 2321.



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Table 1 – Document Version and Disclaimer

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No:	Reference:	Author:	Reviewer:
Version 1	21/12/10_BAR_ 83 Fotheringay Rd_V1	lezette	PH
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Charitable Donation: Please note that a donation of \$10.00 will be made by Perception Planning to the NSW Rural Fire Service. The donation is made at the end of the financial year and is intended to assist the NSW RFS with community activities.			

EXECUTIVE SUMMARY

A Bushfire Assessment Report (BAR) has been prepared by Hunter Valley Bushfire Consulting Services at the request of Perception Planning to assess compliance with the document, Planning for Bushfire Protection (PBP 2019) for a proposed six (6) lot subdivision at Lot 21 DP755681, 83 Fotheringay Road, Clarence Town NSW 2321.

The report forms part of the supporting documentation for a Development Application (DA) to be submitted to Dungog Shire Council (DSC). The proposed development is classified as Integrated Development under the provisions of Planning for Bushfire Protection (PBP) (NSW Rural Fire Service (RFS), 2019), and is therefore required under the legislation to be referred to the commissioner of the RFS, for the issue of a Bushfire Safety Authority. The report demonstrates compliance with PBP (RFS, 2019) and AS3959-2018 Construction of Buildings in Bush Fire Prone Areas.

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal. Recommendations are provided with regard to fuel management, access, provision of emergency services, building protection and construction standards, to facilitate an acceptable level of bushfire protection.

In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements:

- APZs are required to be implemented for the subdivision in accordance with Table 4-1 and Figure 8 in the appendix
- Assessment in accordance with AS3959 and the PBP (sections 4 of this report) has shown that future dwellings within the lots will be able to comply with the required BAL29. In any case, future dwellings within the site will be assessed under Section 4.14 of EP&A Act for each individual dwelling upon application.
- Reticulated water is extended into the site. The development will be linked to the water pressure mains and the proposed internal fire hydrant spacing, sizing and pressures are to comply with AS 2419.1-2005 Fire Hydrant Installations – System
- Access to all lots is to comply with the acceptable criteria as listed in Table 5.3a below.

INTRODUCTION

The purpose of this report is to assess the compliance of a six (6) lot subdivision of Lot 21 DP775681 83 Fotheringay Rd, Clarence Town NSW 2321 with the provisions of PBP 2019.

1. LOT INFORMATION

Address: (Lot 21 DP775681) 83 Fotheringay Rd, Clarence Town NSW 2321

Proposal: The proposal is for a six (6) - lot subdivision.

Area: Total area of Lot 21 is 15.81ha

Council: Dungog

Zoning: R5/E3

Bushfire Prone Land: yes

RFS Region: Lower Hunter

Is a Bushfire Safety Authority (BFSA) required? Yes

Significant Environmental Features: Flooding

Threatened Species: Nothing mapped

Aboriginal Objects: Nothing Mapped

Registered Fire Trails: there are no registered fire trails in the area.

2. SPECIFIC OBJECTIVES

2.1 Compliance with the Specific Objectives in Clause 5.2 of the PBP 2019.

Specific Objective	Compliance	Comments
Minimise perimeters of the subdivision exposed to the bushfire hazard (hourglass shapes which maximise perimeters and create bottlenecks should be avoided).	Able to comply	Subject plan shows compliance
Minimise vegetated corridors that permit the passage of bushfire towards buildings.	Able to comply	No vegetated corridors
Provide for the siting of future dwellings away from ridge-tops and steep slopes, within saddles and narrow ridge crests.	Able to comply	No ridge tops or steep slopes.
Ensure that APZ's between a bushfire hazard and future dwellings are effectively designed to address the relevant bushfire attack mechanisms.	Able to comply	APZs comply with Table A1.12.2 in PBP 2019.
Ensure the ongoing maintenance of APZ's.	Able to comply	An 88B instrument should be provided.
Provide access to hazard vegetation to facilitate bushfire mitigation works and fire suppression	Able to comply	Internal access within the individual lots can be provided
Provide adequate access from all properties to the wider road network for residents and emergency services	Able to comply	Compliant access to/from the individual lots to Fotheringay Rd can be provided
Ensure the provision of an adequate supply of water and other services to facilitate effective firefighting.	Able to comply	a reticulated water supply is provided.

3. METHODOLOGY

The Australian Standard for assessing the BAL and providing the detailed requirements for construction has been reviewed and amended with the latest version being adopted for use in bushfire prone areas of NSW in March 2020. This version is titled AS 3959-2018 'Construction of Buildings in Bushfire Prone Areas' (standards Australia 2018, was used in this assessment.

In addition, the NSW method of determining the bushfire attack level, found in Appendix 1 of the document 'Planning for Bushfire Protection 2019' (NSW Rural Fire Service 2019) has also been reviewed and amended to come into line with the process within AS 3959. Therefore, in NSW the methodology with AS 3959 is to be used to determine the bushfire attack level. AS3959 (2018) Appendix A – Method 1 has been used in this BAL assessment.

3.1 Vegetation Assessment

Vegetation surveys and vegetation mapping carried out on the site has been undertaken as follows:

- Aerial Photograph Interpretation to map vegetation cover and extent.
- Confirmation of the vegetation present via a site inspection.

3.2 Slope Assessment

Slope assessment has been undertaken as follows:

- Aerial Photograph Interpretation in conjunction with analysis of electronic contour maps with a contour interval of 10m.
- Confirmation of the slope present via a site inspection.

4. SITE ASSESSMENT

4.1 Asset Protection Zone (APZ) Assessment of Table A1.12.2, PBP 2019 – rural-residential subdivision. FFDI 100 (Dungog LGA).

Direction from site	Vegetation type within 140m of subdivision boundaries.	Effective slope of vegetated land(degrees)	Required minimum distance for APZ
north	Residential development	upslope	-
west	Woodland/residential	upslope	12m
east	grassland	flat	10m
south	grassland	flat	10m

4.2 Building Attack Level's (BAL's). (Refer to Figure 7 in the Appendix)

Vegetation type	Slope of land under vegetation type	Separation distance from vegetation type	Bushfire attack level
Woodland- (rural residential lots exist to the west of Fotheringay Rd. These have not been determined to be managed land due to being outside of the requirements for an OPZ)	Flat/upslope	12-<18m	BAL29
		18- <26m	BAL19
		26 <100m	BAL12.5
grassland	Flat/upslope	10 - <15m	BAL29
		15 - <22m	BAL19
		22 - <50m	BAL12.5

The rural - residential properties that exist to the west of Fotheringay Rd are not determined to be managed land. The predominant vegetation is determined as woodland. This Woodland vegetation to the west was determined onsite as any mapped forest (see Figure 4 appendix) understorey has been removed/managed. Existing tree canopies however do not comply with OPA requirements (Appendix 4 PBP 2019).

5. BUSHFIRE PROTECTION MEASURES

5.1 APZ's and Compliance with Table 5.3a of the PBP 2019. (Refer to Figure 8 in Appendix)

Performance Criteria	Acceptable Solutions	Compliance	Comments
Potential building footprints must not be exposed to radiant heat levels exceeding	APZs are provided in accordance	Able to comply	The proposed subdivision can comply with the APZs

29kW/m2 on each proposed lot.	with Tables A1.12.2 and A1.12.3 based on the FFDI		as listed in Table A1.12.2. PBP 2019 Refer to Table 4.1 above.
APZ's are managed and maintained to prevent the spread of fire towards the building.	APZs are managed in accordance with the requirements of Appendix 4	Able to comply	This requirement is to be the subject of an 88B instrument.
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are wholly within the boundaries of the development site	Able to comply	Maintenance of the APZs is to be subject to an 88B instrument.
The APZ's is provided in perpetuity	APZs are located on lands with a slope less than 18degrees	Able to comply	The presence of an APZ provided in perpetuity is to be the subject to an 88B instrument.

5. 2 Landscaping and Compliance with Table 5.3a of the PBP 2019.

Performance Criteria	Acceptable Solutions	Compliance	Comments
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings and the potential for wind driven embers to cause ignitions	Landscaping is in accordance with Appendix 4; and Fencing is constructed in accordance with section 7.6	Able to comply	Fencing and landscaping will be considered at dwelling DA stage however the features of the subdivision do not pose any problem with compliance.

5.3. Access and compliance with table 5.3b of the PBP 2019

Performance Criteria	Acceptable Solutions	Compliance	Comments
<p><u>General access requirements</u></p> <p>- Fire Fighting</p> <p>Vehicles are provided with safe all-weather access to structures</p>	<p>property access roads are two-wheel drive, all-weather roads.</p> <p>perimeter roads are provided for residential subdivisions of three or more allotments.</p> <p>subdivisions of three or more allotments have more than one access in and out of the development.</p> <p>traffic management devices are constructed to not prohibit access by emergency services vehicles; 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; all roads are through roads.</p> <p>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</p>	Able to comply	Access details are not yet provided; however, the development should be able to comply.

	<p>clearly sign posted as a dead end.</p> <p>where kerb and guttering are provided on perimeter roads, roll top kerbing should be used to the hazard side of the road.</p> <p>where access/egress can only be achieved through forest, woodland and heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.</p> <p>and one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression</p>		
<p><u>General access requirements</u></p> <p>- the capacity of access roads is adequate for fire fighting vehicles</p>	<p>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).</p> <p>bridges/causeways are to clearly indicate load rating.</p>	Able to comply	Access details are not yet provided; however, the proposal should be able to comply.
<p><u>General access requirements</u></p>	hydrants are located outside of parking reserves	Able to comply	A (the presence of the water supply easement) reticulated water supply is available to the subject Lot.

<p>- There is appropriate access to water supply</p>	<p>and road carriageways to ensure accessibility to reticulated water for fire suppression.</p> <p>hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005 - Fire hydrant installations System design, installation, and commissioning.</p> <p>there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.</p>		<p>Where the location of a water hydrant cannot comply a static water supply is able to be provided.</p>
<p><u>Perimeter Access</u> - roads are designed to allow safe access and egress for fire fighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency personnel during firefighting and emergency management</p>	<p>are two way sealed roads; minimum 8m carriageway width kerb to kerb.</p> <p>parking is provided outside of the carriageway width.</p> <p>hydrants are located clear of parking areas; are through roads, and these are linked to the internal road system at an interval of no greater than 500m.</p> <p>curves of roads have a minimum inner radius of 6m.</p>	<p>Able to comply</p>	<p>Access details are not yet provided; however, the proposal should be able to comply. Existing Fotheringay Rd should comply with these requirements.</p>

on the interface	<p>the maximum grade road is 15 degrees and average grade of not more than 10 degrees.</p> <p>the road crossfall does not exceed 3 degrees; and</p> <p>a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.</p>		
<p><u>Non-Perimeter</u> - Access roads are designed to allow safe access and egress for firefighting vehicles whilst residents are evacuating</p>	<p>minimum 5.5m carriageway width kerb to kerb.</p> <p>parking is provided outside of the carriageway width; hydrants are located clear of parking areas.</p> <p>roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m.</p> <p>curves of roads have a minimum inner radius of 6m; the road crossfall does not exceed 3 degrees; and</p> <p>a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.</p>	Able to comply	Access details are not yet provided; however, the proposal should be able to comply. Existing Fotheringay Rd should comply with these requirements.
<u>Property access</u> – firefighting	There are no specific access requirements in an	Able to comply	The development is just outside of an urban area.

vehicles can access the dwelling and exit the property safely	<p>urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.</p> <p>In circumstances where this cannot occur, the following requirements apply:</p> <p>minimum 4m carriageway width; in forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m at the passing bay.</p> <p>a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches.</p> <p>provide a suitable turning area in accordance with Appendix 3.</p>		Access details are not yet provided; however, the proposal should be able to comply. Existing Fotheringay Rd should provide compliance with these requirements.
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	<p>curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress.</p> <p>the minimum distance between inner and outer curves is 6m.</p> <p>the crossfall is not more than 10 degrees.</p> <p>maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and</p> <p>a development comprising more than three dwellings has access by dedication of a road and not by right of way.</p> <p>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</p>		
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	property access roads in addition to the above.		
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5.4. Water supply and compliance with Table 5.3c of PBP 2019

Performance Criteria	Acceptable Solutions	Compliance	Comments
Adequate water supplies are provided for firefighting purposes	reticulated water is to be provided to the development where available. a static water and hydrant supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed; and static water supplies shall comply with Table 5.3d	Able to comply	It appears that the development will have a reticulated water supply available – a water supply easement is shown on concept plan.
Water supplies are located at regular intervals; and The water supply is accessible and reliable for firefighting operations	fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS 2419.1:2005. 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.	Able to comply	The proposal is not within an urban area.
Flows and pressure are appropriate	fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005	Able to comply	Noted – compliance should be able to be achieved.
The integrity of the water supply is maintained.	all above-ground water service pipes are metal, including and up to any taps; and above-ground water storage tanks shall be of concrete or metal.	Able to comply	Noted – compliance should be able to be achieved.

5.5. Electricity and Compliance with Table 5.3c of the PBP 2019

Performance Criteria	Acceptable solutions	compliance	comments
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Location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of the buildings	<p>where practicable, electrical transmission lines are underground.</p> <p>where overhead, electrical transmission lines are proposed as follows:</p> <p>lines are installed with short pole spacing of 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 ISSC3 Guideline for Managing Vegetation Near Power Lines</p>	Able to comply	<p>Noted – compliance should be able to be achieved.</p> <p>An existing electricity transmission easement is shown on plan. It is advised that there is no infrastructure associated with this easement and that extinguishment of this easement is being investigated.</p>
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5.6. Gas and compliance with Table 5.3c of the PBP 2019

Performance criteria	Acceptable solutions	compliance	comments
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of the buildings	<p>reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 - The storage and handling of LP Gas, the requirements of relevant authorities, and metal piping is used.</p> <p>all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side.</p> <p>connections to and from gas cylinders are metal; polymer-sheathed flexible gas supply lines are not used; and</p> <p>above-ground gas service pipes are metal, including and up to any outlets.</p> <p>P</p>	Able to comply	There is no mention of a proposal for the installation of gas however there is no impediment to compliance with this requirement.

CONCLUSION AND RECOMMENDATIONS.

The six (6) lot subdivision can comply with the provisions of Section 5 – Residential and Rural Residential Subdivisions, of the document, Planning for Bushfire Protection (RFS,2019). Subject to the required APZ distances (listed in Table 4.1 above and shown on Figure 8 in the Appendix) any future dwellings are capable of being located on proposed Lots where a maximum BAL29 construction level will apply. It is recommended that: -

- APZs are required to be implemented for the subdivision in accordance with Table 4-1 and Figure 8 in the appendix.
- Assessment in accordance with AS3959 and the PBP (sections 4 of this report) has shown that future dwellings within the lots will be able to comply with the required BALs. In any case, future dwellings within the site will be assessed under Section 4.14 of EP&A Act for each individual dwelling upon application.
- Reticulated water is extended into the site. The development will be linked to the water pressure mains and the proposed internal fire hydrant spacing, sizing and pressures are to comply with AS 2419.1-2005 Fire Hydrant Installations – System
- Access to all lots is to comply with the acceptable criteria as listed in Table 5.3a below.

APPENDIX

















