

AustralianBushfireSolutions

BUSHFIRE ASSESSMENT REPORT

PROPOSED REZONING & CHANGE OF MINIMUM LOT SIZE

Lot 2 DP 1233492, Lot 1 DP 239858 & Lot 1 DP 1253980

PEELWOOD ROAD

LAGGAN NSW 2583

Site Visit: 19 Nov 2019

Date: 15 Dec 2023



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Executive Summary

This report has been prepared for Ian Miller by Australian Bushfire Solutions, PO Box 498, Bowral NSW 2576. It has been prepared as a bushfire assessment for to support a planning proposal in the Upper Lachlan Shire Council to achieve the following objectives:

The objective of this Planning Proposal is to change the zone and change the minimum lot size for certain land being:

- *Lot 2 DP 1233492 (part) from RU2 Rural Landscape zone to RU5 Village zone and reduce the minimum lot size from 80ha to 4,000m² to enable the development of dwelling houses on the lots under the Upper Lachlan Local Environmental Plan 2010 (LEP 2010).*
- *Lot 2 DP 1233492 (part), Lot 1 DP 239858 and Lot 1 DP 1253980 and Roads proposed to be Closed from RU2 Rural Landscape zone to C3 Environmental Management zone and reduce the minimum lot size from 80ha to 10ha to enable permissible uses to be undertaken on the lots under the Upper Lachlan Local Environmental Plan 2010 (LEP 2010).*

The land is identified as being within a designated bush fire prone area and hence as outlined in *Planning for Bushfire Protection – (PBP 2019 - NSW RFS 2019)* appropriate consideration of bushfire hazards is required at the strategic planning phase by the Environmental Planning and Assessment Act 1979 (EP&A Act) s.9.1(2) and should be considered in applying the Section 9.1 Direction.

A development application will be lodged for the subdivision of the land following gazettal of the zoning and lot size changes, however to facilitate the consideration of the above proposal, assessment as to the bushfire impact and compliance with *Planning for Bushfire Protection* at the subdivision stage has also been considered and presented here as per Section 4.46 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in combination with 100B of the Rural Fires Act, and suitable for submission to the NSW RFS for a Bushfire Safety Authority.

Laggan is a village developed on both sides of Peelwood Road in a north/south line. Located on the northern side of the settlement of Laggan the subject site occupies an area of land between Redground Heights Road and Peelwood Road and is well suited topographically to extend the residential potential of this village.

The northern portion of the site has a parcel of vegetation mapped as a Category 1 Bush Fire Hazard but the whole site is now deemed to be a grassland hazard as a result of the release of *Planning for Bushfire Protection – PBP 2019*. The vegetation mapped as a hazard has been identified as Tableland Grassy Box-Gum Woodland which equates to Woodland.

This proposal is for rezoning of the subject site. As such, this report addresses the rezoning considerations that will create the potential for future residential land use for this site.

Currently most of the site is currently zoned RU2 – Rural Landscape. However, a recent gateway determination rezones the land to RU5 – Village, and C3 – Environmental Management. All other land surrounding Laggan is also zoned RU2 – Rural Landscape. There are two paper roads included within the development footprint which will be closed and become residential land as part of this proposal.

The site is in an established rural precinct and the land is primarily cleared for grazing use with established hedges, paddock trees, dams and some small stands of remnant vegetation. Farm houses and ancillary structures are well dispersed throughout the area. The subject site contains no structures but has existing dams and Peelwood Road travels along the eastern property boundary.

The Strategic Bush Fire Study required as per PBP 2019 has been prepared and follows this summary.

The performance criteria and acceptable solutions required as per PBP 2019 have been assessed and the performance criteria and acceptable solutions to be satisfied have been outlined in Section 4 of this report.

Pending acceptance and compliance with the recommendations following (also in Section 4) this report does not find justification for the proposal to be rejected due to any bushfire considerations.

Pending compliance with the below conditions, the performance criteria and acceptable solutions outlined in Section 5 of PBP 2019 are found to be satisfied.

BAL, APZ and Landscaping Recommendations

- It is recommended that the grasslands within the site are slashed or grazed to maintain a height of less than 100mm throughout the fire season, of October to April.

Access

- The newly constructed internal road will be a through/loop road that will be 7m kerb to kerb as required by the DCP. This is deemed to be a suitable design response within a grassland hazard where the properties will be lifestyle lots requiring APZ maintenance of the grass for any future dwellings.
- Parking is provided outside of the carriageway width, minimum 5.5m carriageway width kerb to kerb;
- Property access roads are two-wheel drive, all-weather roads;
- 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;
- 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.
- Curves of roads have a minimum inner radius of 6m;
- The road crossfall does not exceed 3 degrees; and
- A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

Services Recommendations

Water:

- All above ground water service pipes are metal, including and up to any taps.

Electricity:

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

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1 Introduction

This Bush Fire Assessment Report has been compiled regarding the proposed rezoning at Lot 2 DP 1233492 and Lot 1 DP 239858 as part of a Rezoning and change to Minimum Lot Size Application to be submitted to Upper Lachlan Shire Council. To facilitate the consideration of this proposal, assessment as to the bushfire impact and compliance with *Planning for Bushfire Protection* at a subsequent subdivision stage has also been considered and presented here. The site is generally known as 297 Peelwood Road Laggan.

As of this report date, *Planning for Bushfire Protection 2019 (PBP 2019)* is the legislated document to be complied with. This report has been prepared in accordance with *Chapter 4 Strategic Planning of PBP 2019* and takes the form of a Strategic Bush Fire Study addressing the assessment considerations identified; and pertaining to the viability of future subdivision, in accordance with the submission requirements of *Appendix 2 of PBP 2019* and identifies if the proposal can meet the appropriate objectives and performance criteria of Section 5 *PBP 2019*.

2 Site Description

2.1 Location

The subject land is in the northern portion of Laggan which is located north west of the township of Crookwell.

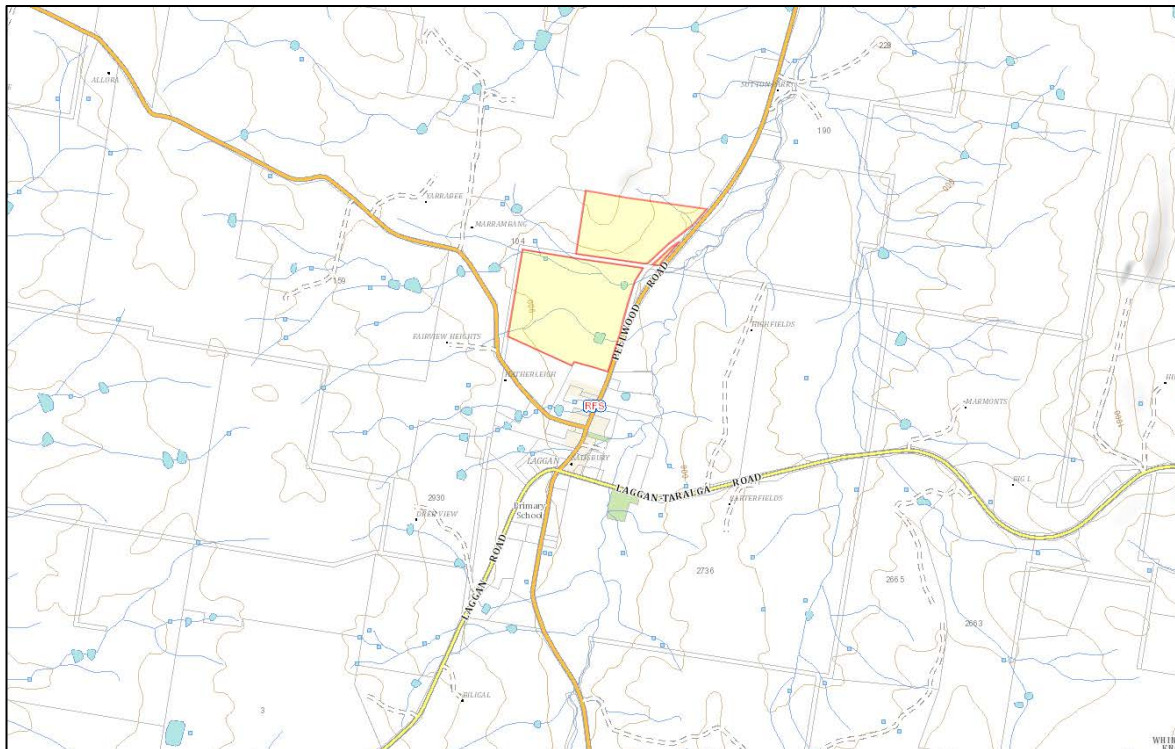


Figure 2-1 Street Map of subject land in the RU2 zone © SIX Maps

2.2 Description

Cadastral of the subject land can be found in Appendix 1 and proposed rezoning and change to minimum lot size, and development plans in Appendix 2.

The subject land proposal is to rezone the land and change minimum lot size. Subsequent subdivision of this land is proposed following gazettal of the zoning and lot size changes but has been considered and presented in this report to facilitate the proposed rezoning/lot size changes.

The subject land is currently developed with dams and fencing.

Size: approximately 37 ha

Aspect: Easterly (Peelwood Road)

Altitude: Approximately 880m

Slope: High point in the most north-west corner of the land falling between 5-10 degrees to the eastern property boundary and 0-5 degrees to the southern property boundary.

Existing: Dams

Water: On site water storage/supply

Electricity: Aboveground as is usual in the Shire

Gas: Bottled

Access: Directly from Peelwood Road

FDI: 100

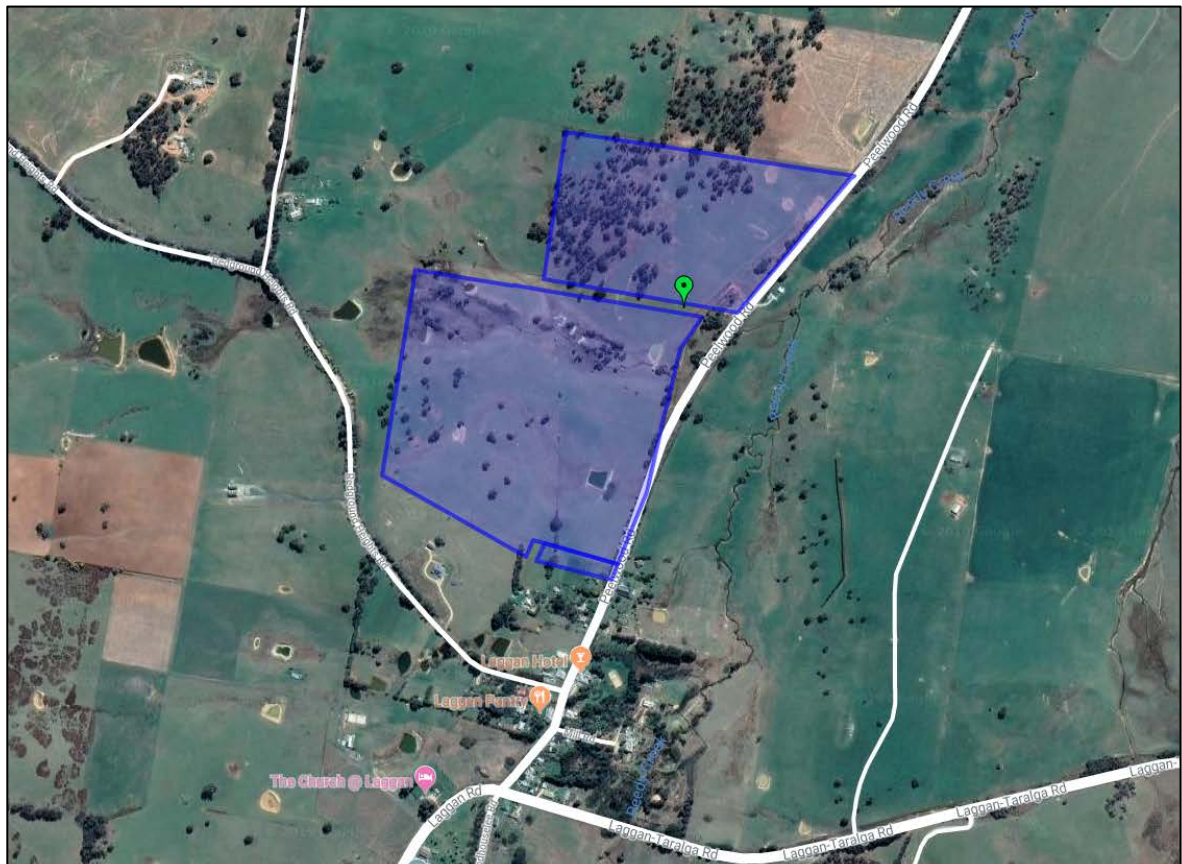


Figure 2-2 Aerial photo of subject land © Nearmap



Figure 2-3 Aerial photo of precinct © ePlanning Spatial Viewer

2.3 Zoning

The subject site includes RU2 – Rural Landscape zoned land. All adjoining lots to the village are also RU2 – Rural Landscape. A recent gateway determination will rezone the land to be RU5 – Village and C3 – Environmental Management.

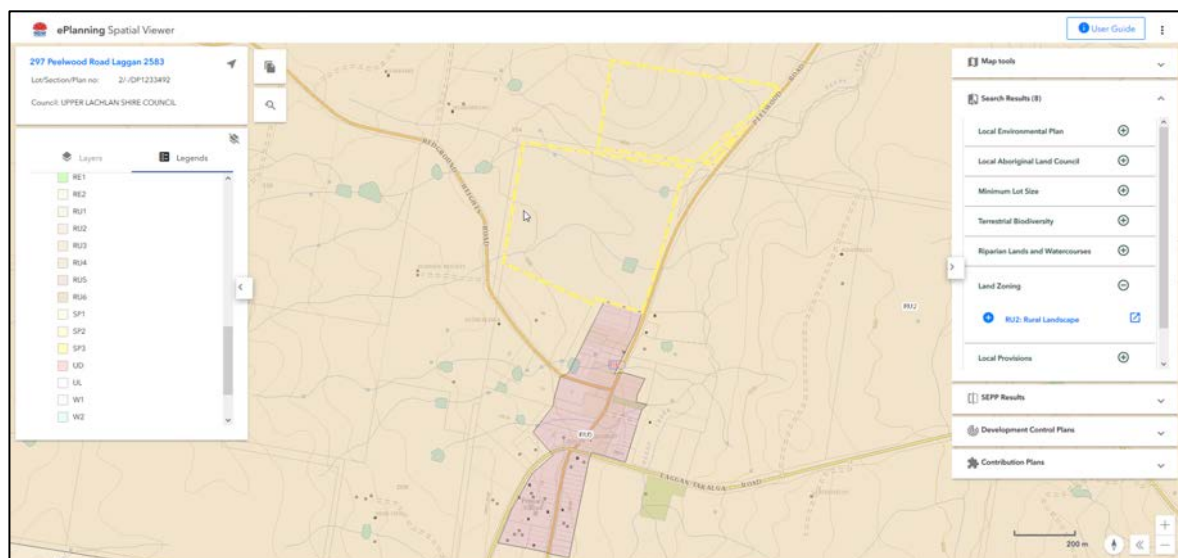


Figure 2-4 - Zoning of subject land – ePlanning Spatial Viewer

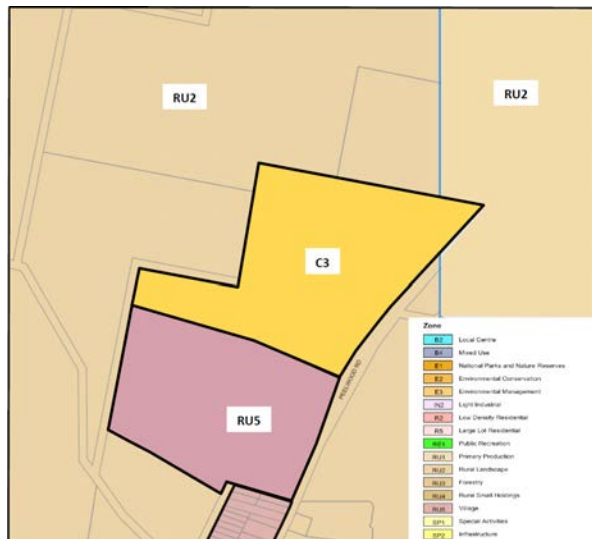


Figure 2-5 – Proposed amendment to Upper Lachlan Land Zoning Map © NSW Legislation website

2.4 Proposal

The proposal is for the rezoning of the RU2 – Rural Landscape land and change the minimum lot sizes. To facilitate this the subsequent proposal for the subdivision of both parcels of land and two paper roads is also considered here. As such, with regard to bushfire it must address the strategic principles with a Strategic Bush Fire Study as outlined in *Planning for Bushfire Protection 2019 Chapter 4*. And comply with the performance criteria and acceptable solutions as outlined in *Planning for Bushfire Protection 2019 Chapters 5*.

3 Bushfire Hazard and Risk Assessment

3.1 Bushfire Prone Land

The subject land is overlaid with a mapped Category 1 bushfire hazard and buffer from that hazard on the northern boundary of the site. The hazard is shown to extend beyond the northern boundary of the land.

Planning for Bush Fire Protection 2019 also deems grasslands to be a hazard and as such the whole site will be deemed Bush Fire Prone Land.

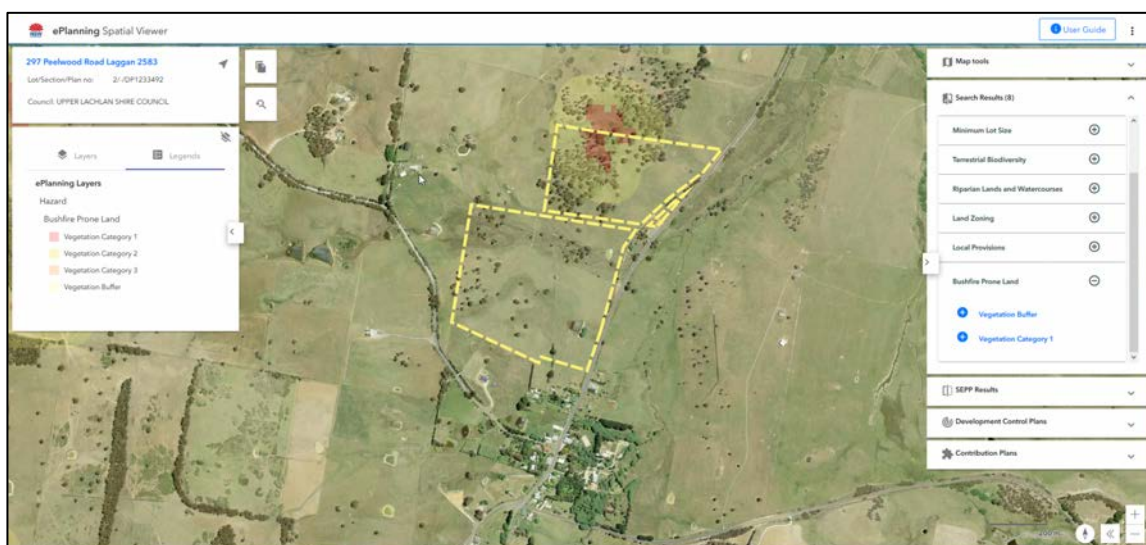


Figure 3-1 Bushfire Prone Land Map © ePlanning Spatial Viewer

3.2 Vegetation

The images that can be found in Appendix 4 show the vegetation present on the subject and surrounding lots during a site inspection. Mapping of the vegetation communities affecting the lot can be found in Appendix 3

3.2.1 Vegetation on subject lot and nearby land

The vegetation on most of the subject site is mapped as cleared land. As described above PBP 2019 includes deeming provisions for grassland fire hazards and the rural land is identified as this.

The vegetation shown to be a bush fire hazard is mapped as Tableland Dry Grassy Woodland. As required by *PBP*, this vegetation is required to be aligned with classifications by Keith who identifies this to be **woodland** as per PBP 2019.

It was noted on the aerial imagery and confirmed during a site inspection, that although the *southern portion* of the lot is also mapped with grassy woodland, this section of the subject land presents as a few scattered trees amongst the grassland hazard that predominates (As identified by the location of the trees in the Concept Plan - **Error! Reference source not found.**). The northern portion of the subject land has a larger area of grassy woodland vegetation impacting the site and proposed development.

Two riparian corridors also impact the site, with the northern one also being identified as having grassy woodland vegetation. This report presumes the regrowth of grassy woodland along this northern riparian corridor.

3.2.2 Predominant Vegetation and Closest threat of Bushfire

The closest threat is the deemed grassland hazard and the northern portion of the site is impacted by a mapped woodland hazard.

3.3 Hazard Assessment

3.3.1 Fire and Ember Attack

Ember attack would be possible from the mapped bush fire hazard on the subject land.

4 Strategic Bush Fire Study

Chapter 4 of the NSW Rural Fire Services' *Planning for Bushfire Protection 2019* (PBP 2019) addresses Strategic Planning which ensures that future development is not exposed to an unacceptable risk of bush fire. This chapter identifies what should be considered for a Bush Fire Strategic Study.

The tables below outline the issues and assessment considerations in this Chapter that must be satisfied for this proposal to be supported and approved.

4.1 Bush Fire Strategic Study

Issue and Detail	Assessment Considerations	Design Response
Bush Fire Landscape Assessment <ul style="list-style-type: none"> A bush fire landscape assessment considers the likelihood of a bush fire, its potential impact severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape. 	<ul style="list-style-type: none"> The bush fire hazard in the surrounding area, including: <ul style="list-style-type: none"> Vegetation Topography Weather The potential fire behaviour that might be generated based on the above; Any history of bush fire in the area; Potential fire runs into the site and the intensity of such fire runs; and The difficulty in accessing and suppressing a fire, the continuity of bush fire hazards or the fragmentation of landscape fuels and the complexity of the associated terrain. 	<ul style="list-style-type: none"> The bush fire hazard in the surrounding area is assessed based on the following: <ul style="list-style-type: none"> Grassland vegetation throughout the site and a small portion of woodland in the northern portion of the site. The land slopes from the north western boundary of the site between 5 – 10 degrees towards the eastern boundary, or Peelwood Road and falls 0 – 5 degrees from the north western boundary towards the village of Laggan. The FDI for the locale is 100. The potential fire behaviour is anticipated to be a fire risk travelling from the north west, driven by north westerly or northerly winds travelling towards both Peelwood Road and the village of Laggan. There have been two small grass fires in the area, both north and south west of Laggan in recent years. The potential fire run into the site would be deemed to be the intensity of a grassland fire. Access and suppression to such a fire would be improved by the proposed development. The proposed development would afford a greater level of protection to both Peelwood Road and Laggan as the woodland and grassland hazards would become managed lands within rural residential properties.

Issue and Detail	Assessment Considerations	Design Response
Land Use Assessment <ul style="list-style-type: none"> The land use assessment will identify the most appropriate locations within the masterplan area or site layout for the proposed land uses. 	<ul style="list-style-type: none"> The risk profile of different areas of the development layout based on the above landscape study; The proposed land use zones and permitted uses; The most appropriate siting of different land uses based on risk profiles within the site (i.e. not locating development on ridge tops, SFPP development to be located in lower risk areas of the site); and The impact of the siting of these uses on APZ provision. 	<ul style="list-style-type: none"> The subject site is deemed to have a consistent risk profile. The proposed land use zones are; <ul style="list-style-type: none"> RU5 – Village same as current zone for four lots within village boundary RU4 – Primary Production Small Lots With lot sizes of 4,000m², 10,000m², 2 ha and 5 ha. The village of Laggan is zoned RU5 – Village which provides for a range of land uses, services and facilities that are associated with a rural village. It is anticipated that the new lots will be used for residential purposes. RU4 – Primary Production Small Lots has as its main objective to enable sustainable primary industry and other compatible land uses. The majority of the land is currently zoned RU2 – Rural Landscape which seeks to encourage sustainable primary industry production by maintaining and enhancing the natural resource base The rezoning of land to enable a higher density and variety of rural lifestyle or rural living lots in a location that adjoins the village and also has road frontage to Peelwood Road the main road through the village is a logical and reasonable development pattern. Complying APZs for the residential land use would be able to be achieved within the future lots.
Access and egress <ul style="list-style-type: none"> A study of the existing and proposed road networks both within and external to the masterplan area or site layout 	<ul style="list-style-type: none"> The capacity for the proposed road network to deal with evacuating residents and responding emergency services, based on the existing and proposed community profile; The location of key access routes and direction of travel; and The potential for development to be isolated in the event of a bush fire. 	<ul style="list-style-type: none"> Peelwood Road is the main thoroughfare through the village of Laggan. The proposed rezoning will be for land that currently has an existing lot boundary with Peelwood Road. As such the existing road network will continue to be used as the main trafficable routes and can accommodate the anticipate increase in population density. The current lot layout has been designed as a logical extension of the village zone. There will be through road connectivity to provide for eastern or western egress from the new lots. The location of the proposed rezoning is making the best use of the trafficable infrastructure in the area.

Issue and Detail	Assessment Considerations	Design Response
Emergency Services <ul style="list-style-type: none"> An assessment of the future impact of new development on emergency services. 	<ul style="list-style-type: none"> Consideration of the increase in demand for emergency services responding to a bush fire emergency including the need for new stations/brigades; and Impact on the ability of emergency services to carry out fire suppression in a bush fire emergency. 	<ul style="list-style-type: none"> The Laggan Rural Fire Brigade is 167m from the edge of the proposed area for rezoning. It would be reasonable to anticipate that new residents in the area may volunteer to serve with the Brigade. The reduction of grassland hazard from the change of agricultural land to lifestyle properties will afford a greater level of protection to the village of Laggan from the north-west, the most likely direction of a bush fire threat. Given the above it is reasonably to conclude that the emergency services could continue to adequately service the local requirements.
Infrastructure <ul style="list-style-type: none"> An assessment of the issues associated with infrastructure and utilities. 	<ul style="list-style-type: none"> The ability of the reticulated water system to deal with a major bush fire event in terms of pressures, flows and spacing of hydrants; and Life safety issues associated with fire and proximity to high voltage power lines, natural gas supply lines etc. 	<ul style="list-style-type: none"> There is no reticulated water or gas in Laggan. Static water supplies will be installed with any future dwellings. The existing power lines are installed on managed grazing lands.
Adjoining land <ul style="list-style-type: none"> The impact of new development on adjoining landowners and their ability to undertake bush fire management. 	<ul style="list-style-type: none"> Consideration of the implications of a change in land use on adjoining land including increased pressure on bush fire protection measures through the implementation of Bush Fire Management Plans. 	<ul style="list-style-type: none"> The adjoining land most likely to be impacted will be the village land immediately on the southern boundary of the site as well as one rural property development with a dwelling. It is anticipated that the increase in managed land in the precinct will be an addition of bush fire protection measures rather than an impost.

5 Subdivision Assessment

Plan of Proposed Subdivision and Indicative Envelopes with APZ to meet BAL 29 (PBP 2019) can be found in Appendix 2

5.1 Vegetation

Details regarding the vegetation can be found in 3.2 above

5.1.1 Vegetation to 140m & Effective slope under hazard to 100m

The vegetation affecting the proposed development site can be outlined as per the table following.

Proposed lot 1 - Predominant vegetation; Effective slope and APZ

Aspect	Min APZ for BAL 29	Vegetation up to 140m	Effective Slope under hazard to 100m
North	10m	Road then Grassland	Level/upslope
South	12m	Grassland	0-5° downslope
East	12m	Grassland / Road / Grassland	0-5° downslope
West	10m	Grassland	Level/upslope

Proposed lot 2-6 - Predominant vegetation; Effective slope and APZ

Aspect	Min APZ for BAL 29	Vegetation up to 140m	Effective Slope under hazard to 100m
North	10m	Grassland	Level/upslope
South	12m	Grassland	0-5° downslope
East	12m	Grassland	0-5° downslope
West	10m	Grassland	Level/upslope

Proposed lot 7-8 - Predominant vegetation; Effective slope and APZ

Aspect	Min APZ for BAL 29	Vegetation up to 140m*	Effective Slope under hazard to 100m
North	10m	Grassland	Level/upslope
South	12m	Grassland	0-5° downslope
East	12m	Grassland	0-5° downslope
West	10m	Grassland	Level/upslope

*as per note 5 on the Concept plan in **Error! Reference source not found.**, no removal of the remaining scattered trees in this community is required – maintenance of grass is proposed to meet APZ requirements.

Proposed lot 9-17 - Predominant vegetation; Effective slope and APZ

Aspect	Min APZ for BAL 29	Vegetation up to 140m	Effective Slope under hazard to 100m
North	12m	Woodland	Level/upslope
South	12m	Grassland	0-5° downslope
East	12m	Grassland	0-5° downslope
West	10m	Grassland	Level/upslope

Proposed lot 18-20 - Predominant vegetation; Effective slope and APZ

Aspect	Min APZ for BAL 29	Vegetation up to 140m	Effective Slope under hazard to 100m
North	10m	Grassland	Level/upslope
South	12m	Grassland	0-5° downslope
East	12m	Grassland	0-5° downslope
West	12m	Grassland	0-5° downslope

Proposed lot 21-22 - Predominant vegetation; Effective slope and APZ

Aspect	Min APZ for BAL 29	Vegetation up to 140m*	Effective Slope under hazard to 100m
North	10m	Grassland	Level/upslope
South	12m	Grassland	0-5° downslope
East	12m	Grassland	0-5° downslope
West	10m	Grassland*	Level/upslope

*as per note 5 on the Concept plan in **Error! Reference source not found.**, no removal of the remaining scattered trees in this community is required – maintenance of grass is proposed to meet APZ requirements.

Proposed lot 23-26 - Predominant vegetation; Effective slope and APZ

Aspect	Min APZ for BAL 29	Vegetation up to 140m	Effective Slope under hazard to 100m
North	10m	Grassland	Level/upslope
South	10m	Grassland	Level/upslope
East	12m	Grassland	0-5° downslope
West	10m	Grassland	Level/upslope

Proposed lot 27 - Predominant vegetation; Effective slope and APZ

Aspect	Min APZ for BAL 29	Vegetation up to 140m	Effective Slope under hazard to 100m
NE	12m	Grassland	0-5° downslope
SE	12m	Grassland/Road/Grassland	0-5° downslope
NW	12m	Woodland	Level/upslope
SW	16m	Woodland	0-5° downslope

Proposed lot 28 - Predominant vegetation; Effective slope and APZ

Aspect	Min APZ for BAL 29	Vegetation up to 140m	Effective Slope under hazard to 100m
NE	12m	Woodland	Level/upslope
SE	13m	Grassland	5-10° downslope
NW	12m	Woodland	Level/upslope
SW	16m	Woodland	0-5° downslope

5.1.2 Predominant Vegetation and Closest threat of Bushfire

The closest threat is the deemed grassland hazard and the northern portion of the site is impacted by a mapped woodland hazard.

5.2 Hazard Assessment

5.2.1 Fire and Ember Attack

Ember attack would be possible from the mapped bush fire hazard on the subject land.

5.2.2 Bushfire Attack Level

The BAL's as established in the tables above indicate that as required by PBP 2019, each lot can achieve BAL 29.

5.2.3 Asset Protection Zone - APZ

The lots will need to manage an asset protection zone with the construction of dwellings on the lots created. The APZ distances are identified in the tables above.

5.3 Significant Environmental Features

5.3.1 Heritage

In accordance with the Upper Lachlan Shire Council Heritage map, there are no heritage considerations on the subject land.

5.3.2 Aboriginal Heritage

An AHIMS search did not identify any items of issue on the subject land.

5.3.3 Flora and Fauna

The current land use is for agricultural purposes and the site is already cleared of native vegetation with the remnant being highly modified. A Flora and Fauna assessment has been provided separate to this report, and the design of the proposed development has been undertaken to minimise the impact the vegetation communities on site.

Hence, there are no known significant environmental constraints or considerations on the subject land that would preclude the approval of this proposal.

5.4 Overall Assessment

Pending the satisfaction of section 4.2 below, the level of bushfire hazard risk identified in relation to the subject land and the proposed development is not considered to be such that the proposal should be denied due to bushfire considerations.

5.5 Bushfire Protection Measures

Chapter 5 Residential and Rural Residential Subdivisions in PBP 2019 provides the performance criteria and acceptable solutions for subdivision of land for the creation of residential or rural residential lots.

The table below outlines the issues, considerations, performance criteria and acceptable solutions specified in Chapter 5 that must be satisfied for this proposal to be supported and approved.

5.5.1 Asset Protection Zone – APZ

Intent of measures: to provide sufficient space and maintain reduced fuel loads to ensure radiant heat levels at the buildings are below critical limits and prevent direct flame contact (5.3.1 PBP 2019)

5.5.1.1 How PBP 2019 APZ and landscaping requirements are satisfied

Performance Criteria The intent may be achieved where:	Acceptable Solutions	Design Response
<ul style="list-style-type: none"> potential building footprints must not be exposed to radiant heat levels exceeding 29 kW/m² on each proposed lot 	<ul style="list-style-type: none"> APZs are provided in accordance with Tables A1.12.2 and A1.12.3 based on the FFDI 	<ul style="list-style-type: none"> Can comply
<ul style="list-style-type: none"> APZs are managed and maintained to prevent the spread of a fire towards the building. 	<ul style="list-style-type: none"> APZs are managed in accordance with the requirements of Appendix 4 	<ul style="list-style-type: none"> Can comply

Performance Criteria The intent may be achieved where:	Acceptable Solutions	Design Response
<ul style="list-style-type: none"> the APZ is provided in perpetuity 	<ul style="list-style-type: none"> APZs are wholly within the boundaries of the development site 	<ul style="list-style-type: none"> Can comply.
<ul style="list-style-type: none"> APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised 	<ul style="list-style-type: none"> APZs are located on lands with a slope less than 18 degrees 	<ul style="list-style-type: none"> Can comply
<ul style="list-style-type: none"> landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignition 	<ul style="list-style-type: none"> Landscaping is in accordance with Appendix 4; and Fencing is constructed in accordance with section 7.6. 	<ul style="list-style-type: none"> Can comply Can comply.

5.5.2 Access

Intent of measures: to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area (5.3.2 PBP 2019).

5.5.2.1 PBP 2019 (Table 5.3b) – Access (General Requirements)

Performance Criteria The intent may be achieved where:	Acceptable solutions	Design Response
<ul style="list-style-type: none"> firefighting vehicles are provided with safe, all weather access to structures 	<ul style="list-style-type: none"> Property access roads are two-wheel drive, all-weather roads; Perimeter roads are provided for residential subdivisions of three or more allotments; Subdivisions of three or more allotments have more than one access in and out of the development; 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. 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 	<ul style="list-style-type: none"> Can comply. The proposed subdivision has a through/loop road off Peelwood Road that will be 7m kerb to kerb as required by the DCP. This is deemed to be a suitable design response within a grassland hazard where the properties will be lifestyle lots requiring APZ maintenance of the grass for any future dwellings. Can comply Can comply. Can comply. Can comply. Can comply.

Performance Criteria The intent may be achieved where:	Acceptable solutions	Design Response
	<ul style="list-style-type: none"> turning circle, and are clearly sign posted as a dead end; 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 and heath vegetation, secondary access shall be provided to an alternate point on the existing public road system; and One way only public access roads are no less than 3.5m wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression. 	<ul style="list-style-type: none"> Not applicable to this development. Not applicable to this development. Not applicable to this development
<ul style="list-style-type: none"> The capacity of access roads is adequate for firefighting vehicles 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Can comply
<ul style="list-style-type: none"> There is appropriate access to water supply 	<ul style="list-style-type: none"> 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 the relevant clauses of AS 2419.1:2005 – <i>Fire hydrant installations System design, installation and commissioning</i>; and There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available. 	<ul style="list-style-type: none"> Not applicable to this development. Not applicable to this development. Not applicable to this stage of the development but can be achieved with future residential development.

5.5.2.2 PBP 2019 (Table 5.3b) – Access (Perimeter Roads and Non-Perimeter Roads)

Performance Criteria The intent may be achieved where:	Acceptable solutions	Design Response
<ul style="list-style-type: none"> Perimeter access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service 	<ul style="list-style-type: none"> Perimeter roads are two-way sealed roads; Minimum 8m carriageway width kerb to kerb; Parking is provided outside of the carriageway width; 	<ul style="list-style-type: none"> Peelwood Road is an existing perimeter road along the eastern boundary of the site and can comply with the specifications. The newly constructed internal road will be a through/loop road that will be 7m kerb to kerb as required by the DCP. This is deemed to be a suitable

Performance Criteria The intent may be achieved where:	Acceptable solutions	Design Response
personnel during firefighting and emergency management on the interface.	<ul style="list-style-type: none"> 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; Curves of roads have a minimum inner radius of 6m; The maximum grade road is 15 degrees and average grade of not more than 10 degrees; The road crossfall does not exceed 3 degrees; and A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided. 	design response within a grassland hazard where the properties will be lifestyle lots requiring APZ maintenance of the grass for any future dwellings.
<ul style="list-style-type: none"> Non-perimeter access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating 	<ul style="list-style-type: none"> Minimum 5.5m carriageway width kerb to kerb; Parking is provided outside of the carriageway width; 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; Curves of roads have a minimum inner radius of 6m; The road crossfall does not exceed 3 degrees; and A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided 	<ul style="list-style-type: none"> Can comply.

5.5.2.3 PBP 2019 (Table 5.3b) – Access (Property Access)

Performance Criteria The intent may be achieved where:	Acceptable solutions	Design Response
<ul style="list-style-type: none"> Fire fighting vehicles can access the dwelling and exit the property safely 	<ul style="list-style-type: none"> There are no specific access requirements in an 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. 	<ul style="list-style-type: none"> Not applicable to this development. Can comply

Performance Criteria The intent may be achieved where:	Acceptable solutions	Design Response
	<p>In circumstances where this cannot occur, the following requirements apply:</p> <ul style="list-style-type: none"> • 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; • 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; and • A development comprising more than three dwellings has access by dedication of a road and not by right of way. <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 property access roads in addition to the above.</p>	

5.5.3 Services – Water, electricity and gas

Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building

5.5.3.1 Services – Water, electricity and gas

Performance Criteria The intent may be achieved where:	Acceptable Solutions	Design Response
Water Supplies <ul style="list-style-type: none"> Adequate water supply is provided for firefighting purposes. 	<ul style="list-style-type: none"> Reticulated water is to be provided to the development where available A static water 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.. 	<ul style="list-style-type: none"> Not applicable to this development Will be installed at dwelling construction stage. Can comply at infill development
<ul style="list-style-type: none"> Water supplies are located at regular intervals; and The water supply is accessible and reliable for firefighting operations 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Not applicable to this development.
<ul style="list-style-type: none"> Flows and pressures are appropriate 	<ul style="list-style-type: none"> Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005. 	<ul style="list-style-type: none"> Not applicable to this development.
<ul style="list-style-type: none"> The integrity of the water supply is maintained 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Can comply
Electricity Services <ul style="list-style-type: none"> location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings 	<ul style="list-style-type: none"> Where practicable, electrical transmission lines are underground Where overhead, electrical transmission lines are proposed as follows: <ul style="list-style-type: none"> lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guidelines for Managing Vegetation Near Power Lines. 	<ul style="list-style-type: none"> Not applicable to this development. Can comply
Gas services <ul style="list-style-type: none"> Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings. 	<ul style="list-style-type: none"> Reticulated gas or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 – <i>The storage and handling of LP Gas</i>, the requirements of relevant authorities, and metal piping is used. 	<ul style="list-style-type: none"> Can comply Can comply

Performance Criteria The intent may be achieved where:	Acceptable Solutions	Design Response
	<ul style="list-style-type: none"> • 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; and • Above-ground gas service pipes are metal, including and up to any outlets. 	<ul style="list-style-type: none"> • Can comply • Can comply • Can comply

5.5.4 Recommendations

5.5.4.1 APZ and Landscaping Recommendations

- It is recommended that the grasslands within the site are slashed or grazed to maintain a height of less than 100mm throughout the fire season, of October to April.

5.5.4.2 Access

- The newly constructed internal road will be a through/loop road that will be 7m kerb to kerb as required by the DCP. This is deemed to be a suitable design response within a grassland hazard where the properties will be lifestyle lots requiring APZ maintenance of the grass for any future dwellings.
- Parking is provided outside of the carriageway width, minimum 5.5m carriageway width kerb to kerb;
- Property access roads are two-wheel drive, all-weather roads;
- 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;
- 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.
- Curves of roads have a minimum inner radius of 6m;
- The road crossfall does not exceed 3 degrees; and
- A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

5.5.4.3 Services Recommendations

Water:

- All above ground water service pipes are metal, including and up to any taps.

Electricity:

- Where overhead, electrical transmission lines are proposed as follows:
 - lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas;

- no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guidelines for Managing Vegetation Near Power Lines.

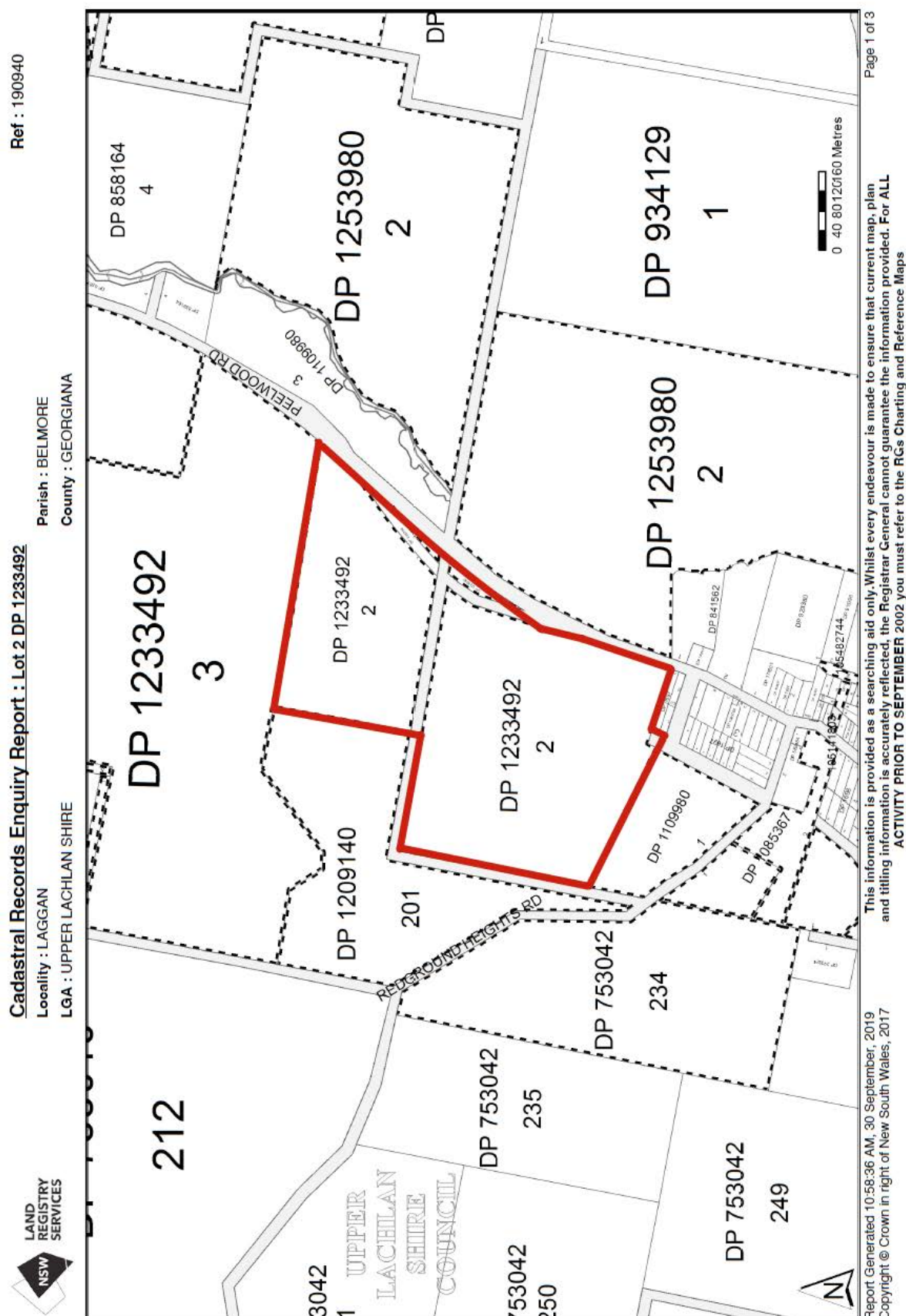
6 Summary of Assessment Considerations, Findings and Recommendations

This report finds that the proposed rezoning addresses the assessment considerations identified in Chapter 4 PBP 2019 for a Strategic Bush Fire Study.

This report finds that the proposed subsequent subdivision and road closures satisfies the requirements identified in PBP 2019 for the creation of lots for residential or rural residential purposes.

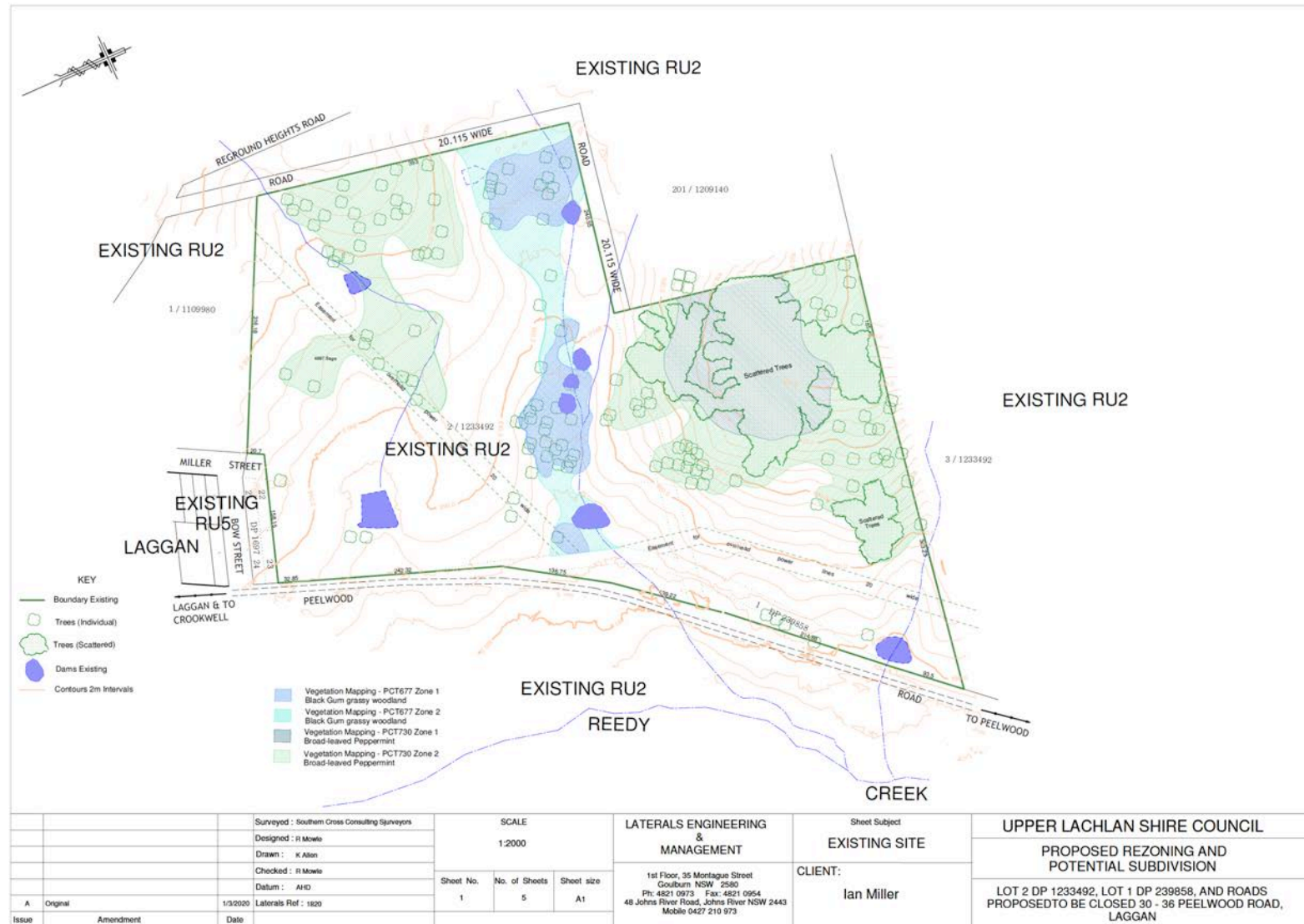
If the proposal incorporates the recommendations in Section 5 above, then the proposed design is considered acceptable in satisfying the performance criteria outlined in Chapter 5 of PBP 2019. Hence this report does not believe that the proposal should be rejected due to bushfire considerations.

Appendix 1 Cadastre

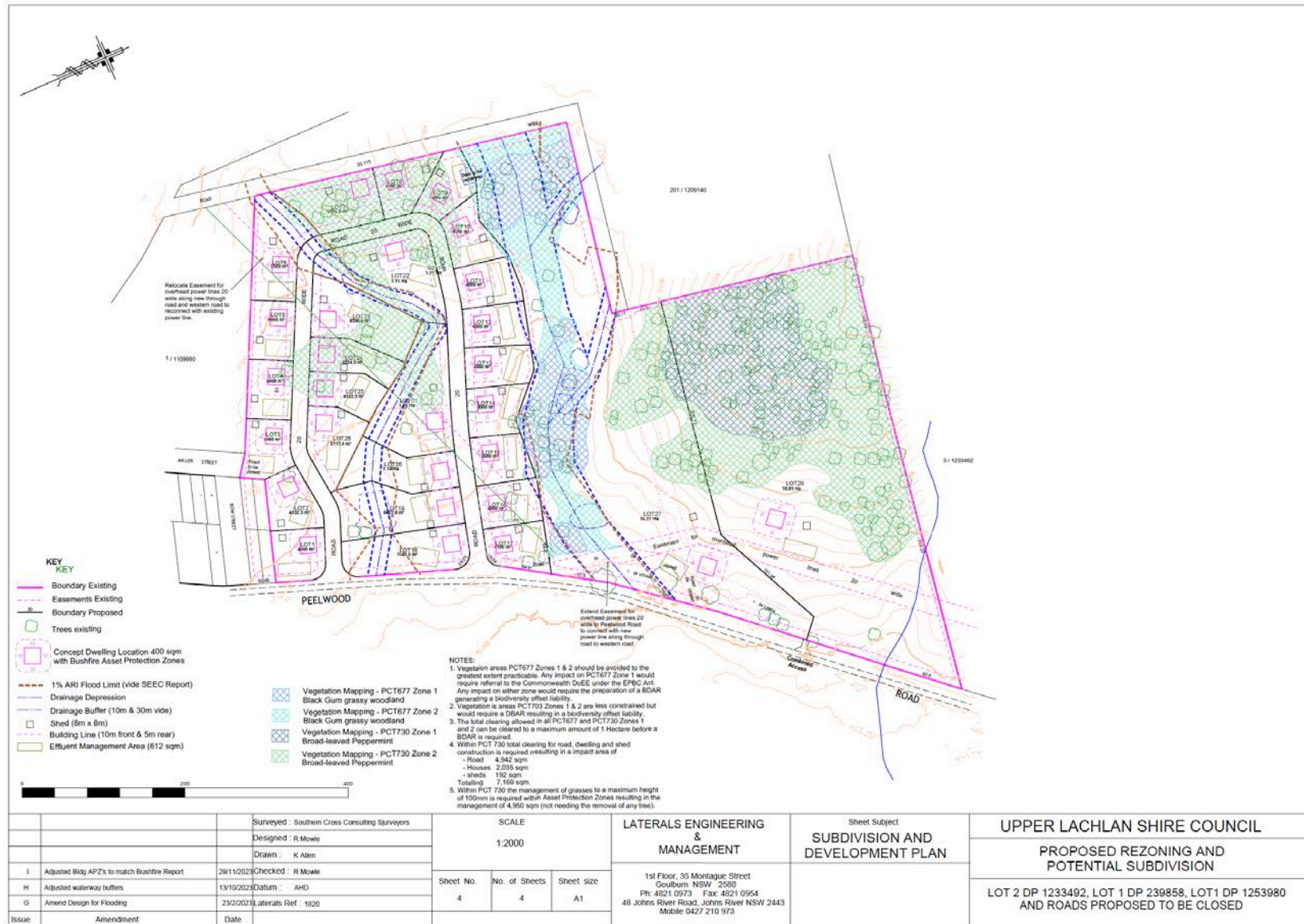


Appendix 2 Proposed Development

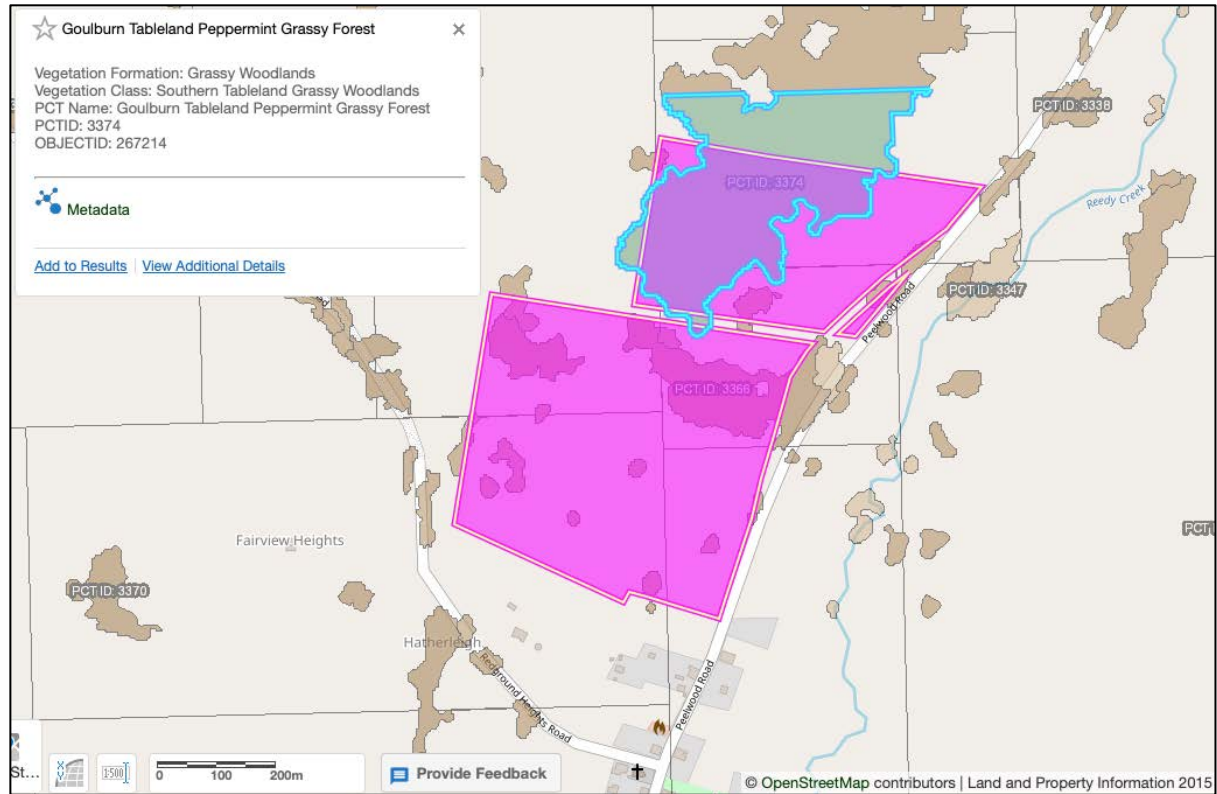
Existing Site



Plan of Proposed Subdivision and Indicative Envelopes with APZ to meet BAL 29 (PBP 2019)



Appendix 3 Vegetation Mapping



Grassy Woodland - State Vegetation Type Mapping (SVTM) © NSW Government

Appendix 4 Site photos



Figure A-1 - Looking south west along Peelwood Road towards Laggan.



Figure A-2 - Looking north west along Peelwood Road from the same location.



Figure A-3 - Current grassland hazard within the site.



Figure A-4 - Looking north towards the woodland hazard within the site that be contained with the large-lot residential portion of the development

Appendix 5 Appendix 4 of PBP 2019 – Asset Protection Zone Standards

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 defensible 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.

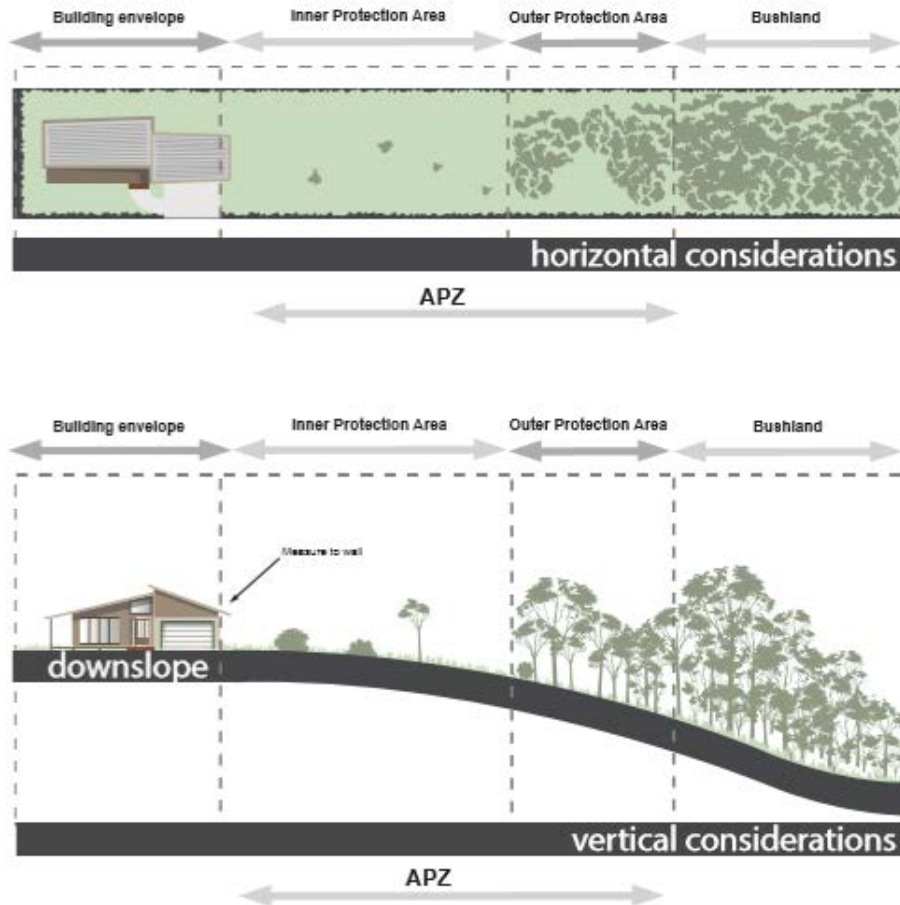
Grass

- 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 6 AHIMS



AHIMS Web Services (AWS)

Purchase Order/Reference : 190940

Client Service ID : 495404

Australian Solutions Pty Ltd
PO Box 498
BOWRAL New South Wales 2576
Attention: Jane Brandon
Email: jane@ausbushfire.com.au

Date: 03 April 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 2, DP:DP1233492 with a Buffer of 200 meters, conducted by Jane Brandon on 03 April 2020.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

8 References

Google Earth 2019-2021, viewed Oct 2019 – August 2021

Google Maps 2019-2021, <http://maps.google.com.au/>, viewed Oct 2019 – August 2021

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Keith, D. A. and Simpson, C. C. (2010) Vegetation Formations of NSW (version 3.0): A seamless map for modelling fire spread and behaviour. Report to the Rural Fire Service. NSW Department of Environment & Climate Change. October 2010

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Standards Australia 2018, AS 3959 – 2018 Construction of Buildings in Bushfire-prone Areas. Standards Australia, Sydney.

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