

Strategic Bush Fire Study

Planning Proposal

Brooks Point Road, Appin

Reference Number: 220628

Prepared For:
Auslands Developments Pty Ltd

11th August 2023



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Version Control			
Version	Date	Author	Details
1	21/02/2022	Stuart McMonnies BPAD Accreditation No. 9400	Draft Report
2	18/03/2022	Stuart McMonnies BPAD Accreditation No. 9400	Final Report
3	02/12/2022	Andrew Muirhead	Update Plan with reduced yield
4	11/08/2023	Andrew Muirhead	Update Plans

List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 'Construction of buildings in bushfire-prone areas' – 2018
BAL	Bushfire Attack Level
BPMs	Bushfire Protection Measures
BPLM	Bush Fire Prone Land Map
Council	Wollondilly Shire Council
DA	Development Application
EP&A Act	Environmental Planning and Assessment Act - 1979
FRNSW	Fire & Rescue NSW
IPA	Inner Protection Area
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Places
OPA	Outer Protection Area
PBP	Planning for Bush Fire Protection – 2019
ROW	Right of Way
RF Act	Rural Fires Act - 1997
RFS	NSW Rural Fire Service
SBFS	Strategic Bush Fire Study
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

Executive Summary

Building Code and Bushfire Hazard Solutions P/L has been commissioned by Auslands Developments Pty Ltd to prepare an independent Bushfire Assessment Report for a Planning Proposal which will facilitate a future residential development at 10, 14 & 20 Brooks Point Road, Appin.

The subject site comprises of six (6) existing allotments (Lots 1, 3, 4 & 5 DP 249446 and Lots 1 & 2 DP 584515), zoned RU2: Rural Landscape.

The Planning Proposal (PP) seeks to rezone the site from its current rural land zone to permit low and medium density housing and to ensure the environmental management of ecologically important land. The PP proposes a future mix of residential land, public reserve and rural lots.

The subject site is depicted on Wollondilly Shire Council's Bushfire Prone Land Map as containing Category 1 and 2 Vegetation and the Vegetation Buffer and is therefore considered 'bushfire prone land'.

In relation to this planning proposal Wollondilly Shire Council is required to apply section 9.1(2) of the *Environmental Planning and Assessment Act 1979*. Direction 4.4 Planning for Bushfire Protection identifies matters for consideration for proposals that affect or are in proximity to land mapped as bushfire prone. Under these directions the following objectives apply:

- i. to protect life, property and the environment from bush fire, by discouraging the establishment of incompatible land uses in bush fire prone areas; and*
- ii. to encourage sound management of bush fire prone areas.*

A Strategic Bush Fire Study has been undertaken and concluded the proposal is appropriate in the bushfire hazard context.

A key consideration for planning proposals in bushfire prone areas is limiting or excluding incompatible development commensurate with the level of risk. In this regard the subject site is considered to have a low bushfire risk when considering the characteristics of the vegetation.

In addition to the Strategic Bush Fire Study an assessment of the proposed land zoning against the specific Bushfire Protection Measures of PBP has concluded that future Development Applications have the capacity to satisfy this document.

The site is located within the Greater Macarthur Growth Area which is a Growth Area incorporating Glenfield to Macarthur urban renewal precincts and the land release precincts to the south of Campbelltown, including Gilead, North Appin and Appin.

A Strategic Bushfire Study (Eco Logical Australia 2021) has been prepared by the Greater Macarthur Growth Area, within the subject site within the Appin (A) precinct. This study determined a 'Moderate' risk rating for this precinct and provided the following conclusion / recommendation:

Moderate bushfire risk is based on exposure to hazard in both the east and west, protrusion of retained vegetation corridors and reduced off-site evacuation options. The risk is moderated by multiple off-site evacuation options and on-site refuge capacity.

Precinct planning should be able to provide an appropriate combination of BPMs in accordance with PBP. Evacuation route, timing and capacity needs to be planned carefully for these sub-precincts, along with on-site refuge capacity, for redundancy.

It is of our opinion that the proposal provides an appropriate combination of Bushfire Protection Measures (BPMs) in accordance with *Planning for Bush Fire Protection* 2019.

Furthermore we are satisfied that the proposed Master Plan, in combination with the bushfire protection measures discussed herein will not result in areas that are difficult to evacuate, create control difficulties during a bushfire or adversely affect other bush fire protection strategies or place existing development at increased risk.

1.0 Introduction

Building Code and Bushfire Hazard Solutions P/L has been commissioned by Auslands Developments Pty Ltd to prepare an independent Bushfire Assessment Report for a Planning Proposal which will facilitate a future residential development at 10 & 20 Brooks Point Road, Appin.

The subject site comprises of five (5) existing allotments (Lots 1, 3, 4 & 5 DP 249446 and Lot 1 DP 584515), zoned RU2: Rural Landscape.

The Planning Proposal (PP) seeks to rezone the site from its current rural land zone to permit low and medium density housing and to ensure the environmental management of ecologically important land. The PP proposes a future mix of residential land, public reserve and rural lots.

The subject site is depicted on Wollondilly Shire Council's Bushfire Prone Land Map as containing Category 1 and 2 Vegetation and the Vegetation Buffer and is therefore considered 'bushfire prone land'.

In relation to this planning proposal Wollondilly Shire Council is required to apply section 9.1(2) of the *Environmental Planning and Assessment Act 1979*. Direction 4.4 Planning for Bushfire Protection identifies matters for consideration for proposals that affect or are in proximity to land mapped as bushfire prone. Under these directions the following objectives apply:

- i. to protect life, property and the environment from bush fire, by discouraging the establishment of incompatible land uses in bush fire prone areas; and*
- ii. to encourage sound management of bush fire prone areas.*

The proposal must demonstrate compliance with the s9.1(2) Directions and the relevant specifications and requirements of *Planning for Bush Fire Protection 2019* (PBP).

The application of PBP requires satisfactory demonstration of the aim and objectives and the specific objectives and bushfire protection measures relevant to the type of development.

In this instance the proposal relates to a Planning Proposal to facilitate a future residential subdivision and therefore in addition to the aim and objectives detailed in Chapter 1 'Introduction' the proposal must satisfy Chapter 4 'Strategic Planning' of PBP.

The bushfire protection measures detailed in Chapter 5 'Residential and Rural Residential Subdivisions' of PBP have also been considered for the future subdivision applications.

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide an independent bushfire assessment together with appropriate recommendations for bushfire mitigation measures considered necessary having regard to development within a designated 'bushfire prone' area.

This Bushfire Assessment Report addresses Section 4 'Strategic Planning' of *Planning for Bush Fire Protection 2019*.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire assessment and recommendations for the subject site (refer to Figure 01). Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject site.

4.0 Aerial Image, BPLM, Zoning, Structure Plan & Master Plan



Figure 01: Aerial view of the subject area
Subject site (yellow outline)
1 kilometre buffer (blue outline)

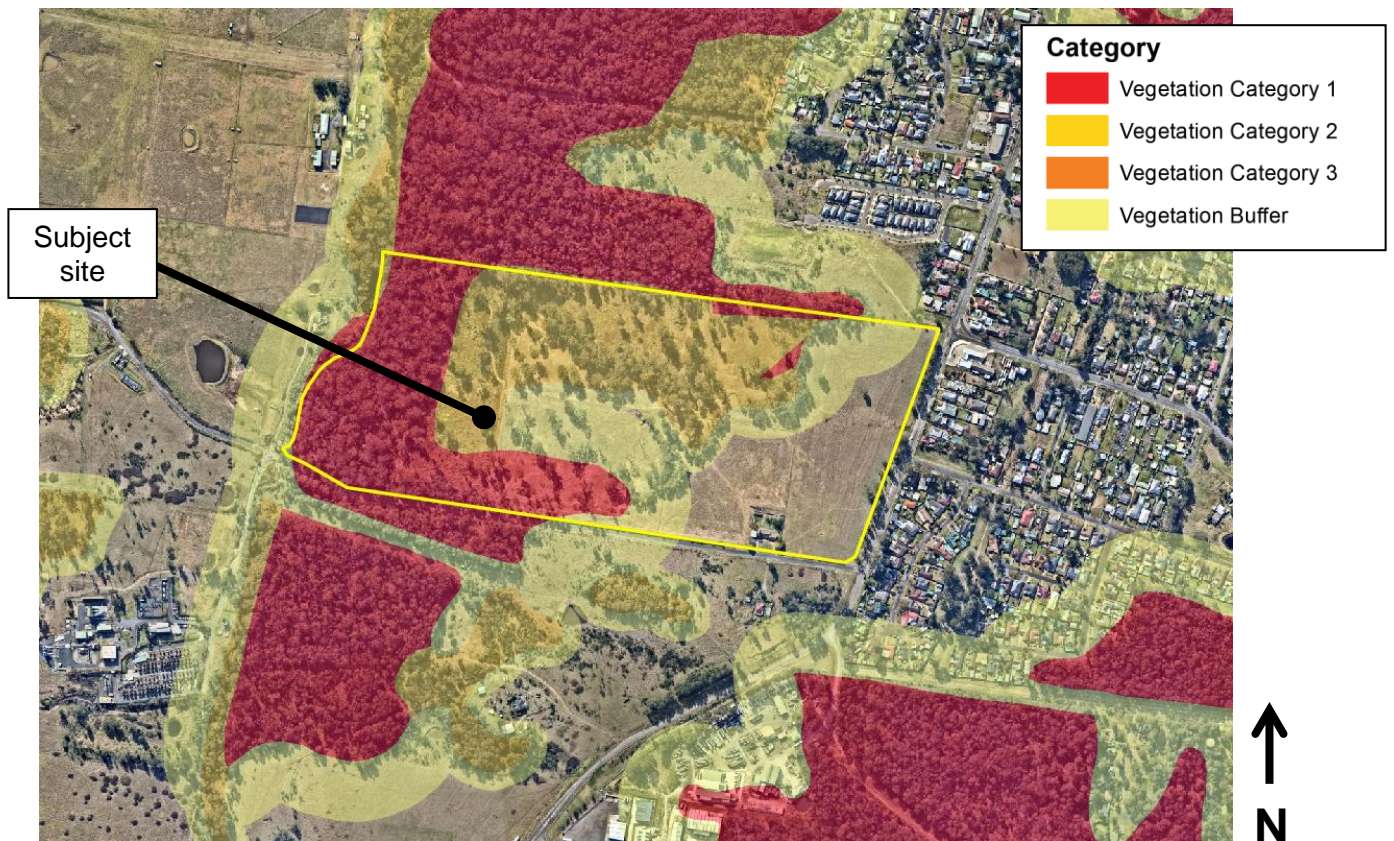


Figure 02: Extract from Wollondilly Shire Council's Bushfire Prone Land Map

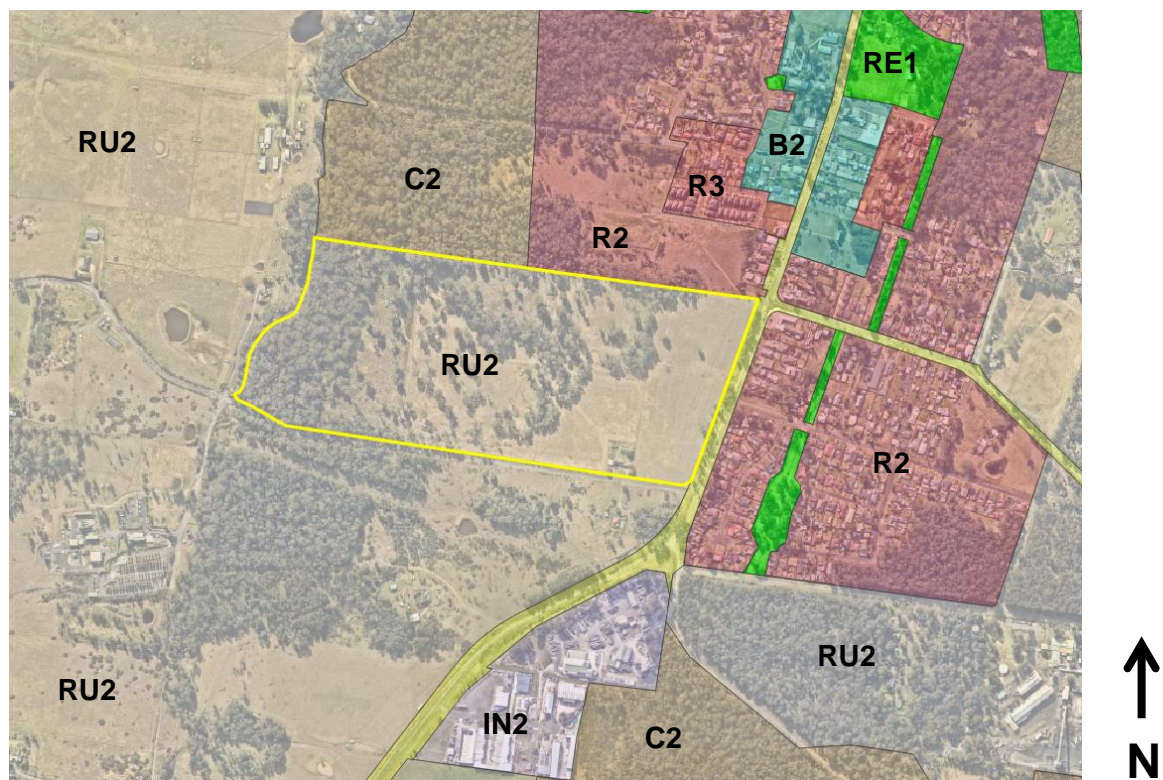


Figure 03: Land zoning of the subject area
Subject site (outlined in yellow)

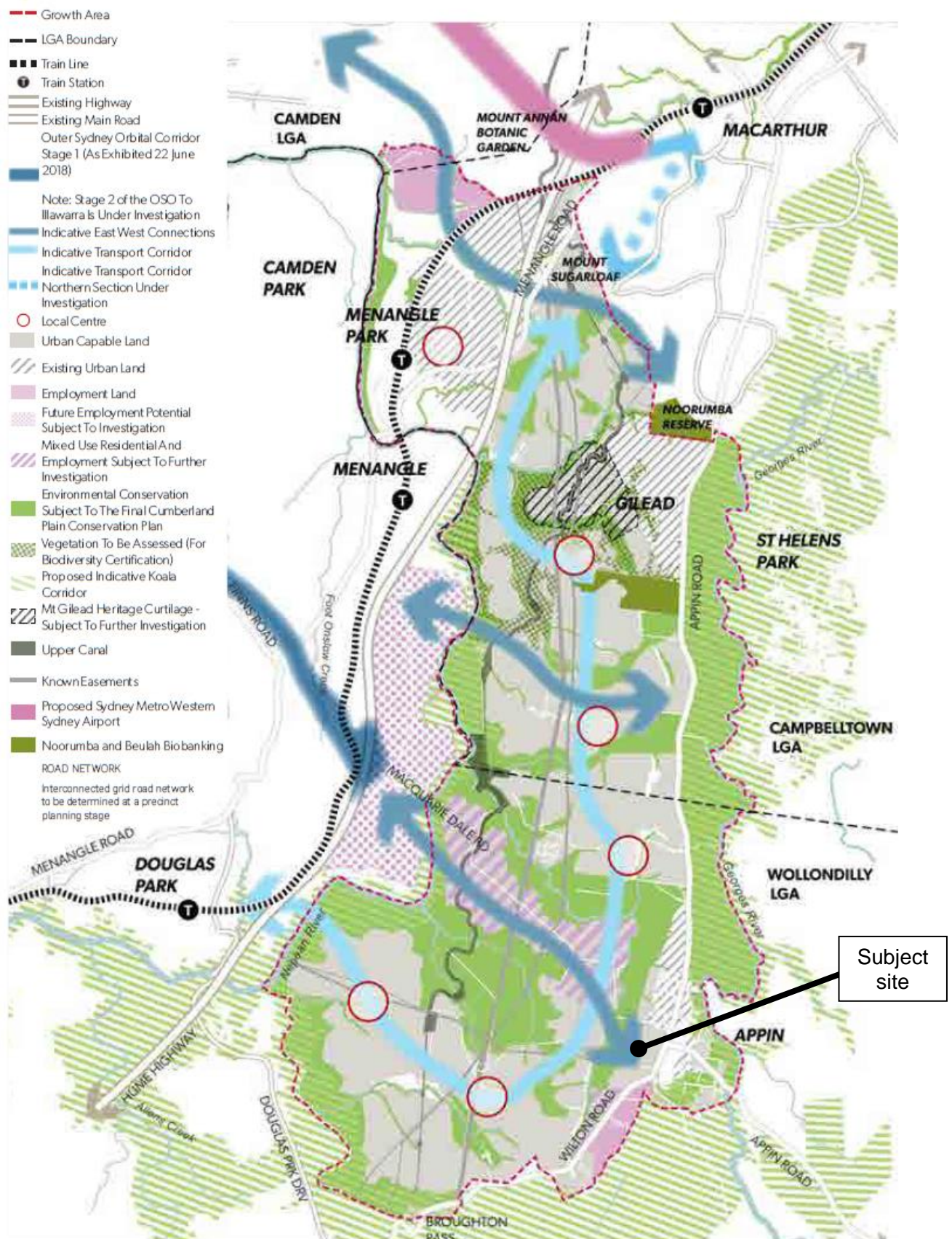


Figure 04: Greater Macarthur Structure Plan (land release areas)

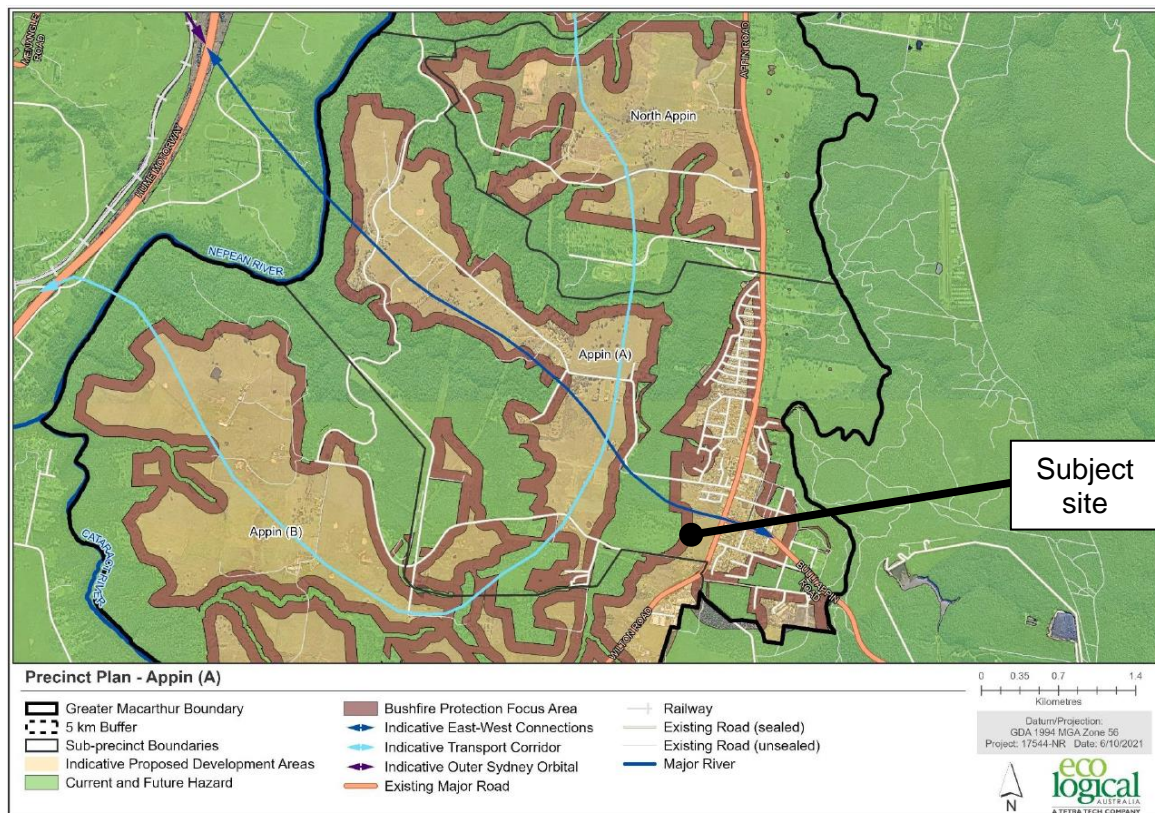


Figure 05: Precinct Plan – Appin (A) – Strategic Bushfire Study Greater Macarthur Growth Area (Eco Logical Australia 2021)

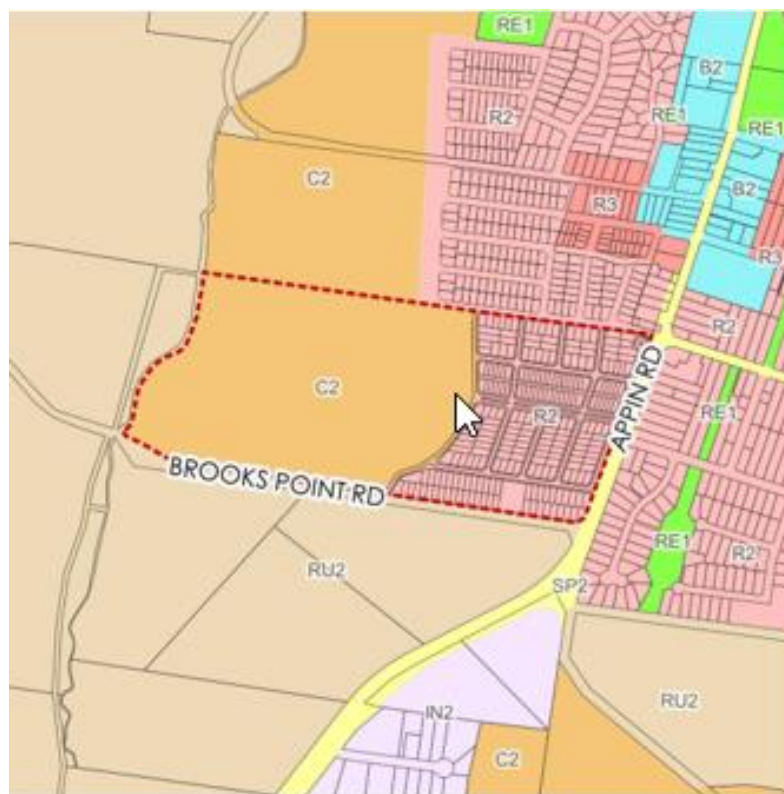


Figure 06: Proposed Zoning Map

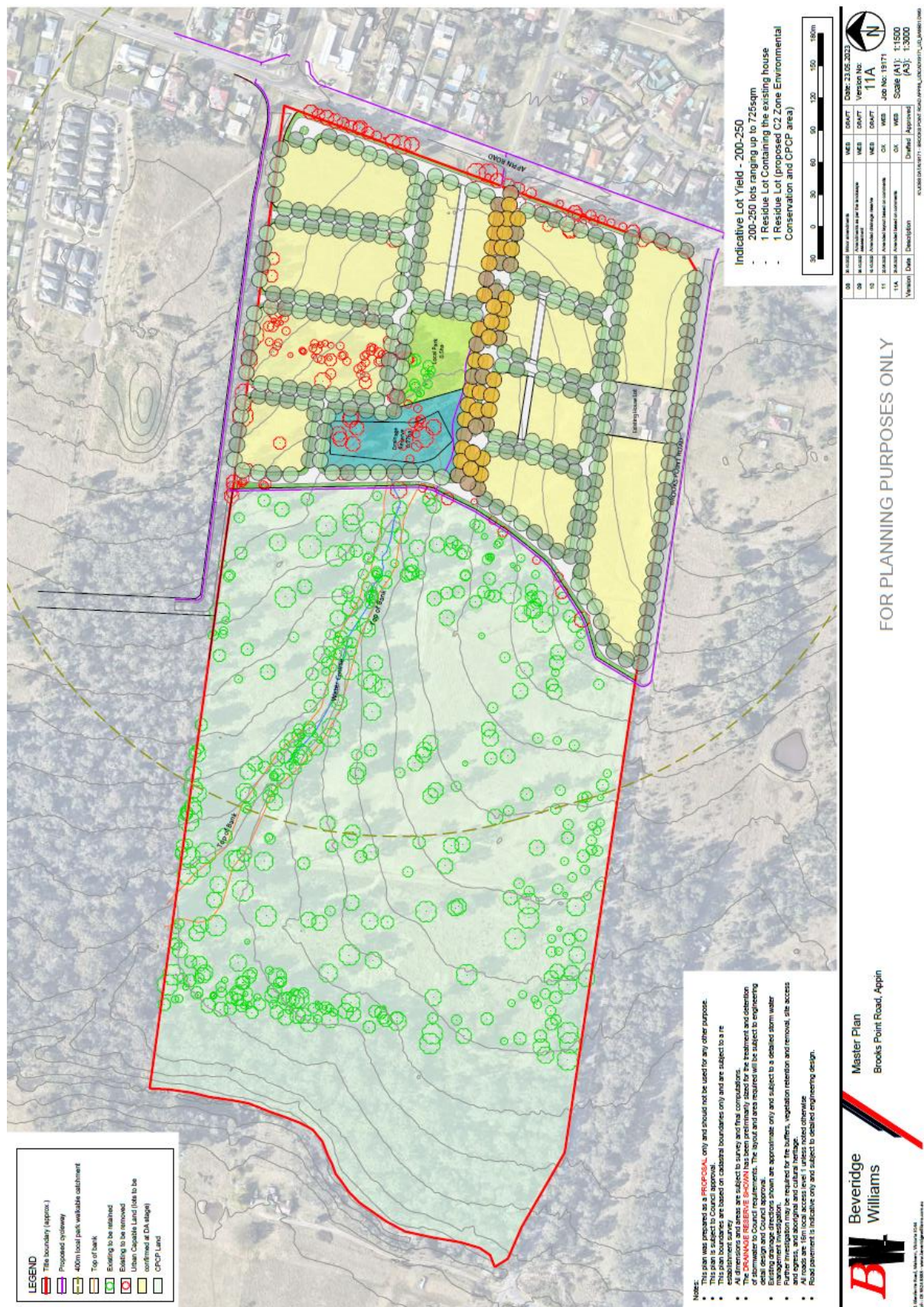


Figure 07: Extract of Master Plan prepared by Beveridge Williams

5.0 Bushfire Assessment

5.01 Preface

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and/or the Rural Fire Service. All development within affected areas is subject to the application of the relevant specifications and requirements of 'Planning for Bush Fire Protection - 2019' (PBP).

PBP formally adopted on the 1st March 2020 provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

In this instance the subject site is depicted on Wollondilly Shire Council's Bushfire Prone Land Map as containing Category 1 and 2 Vegetation and Vegetation Buffer. The subject site is therefore considered to be 'bushfire prone land'.

When preparing a planning proposal s9.1(2) of the EP&A Act is required to be applied. Direction 4.4 'Planning for Bushfire Protection' of the s9.1(2) Direction, applies when a Council prepares a draft LEP that affects, or is in proximity to, land mapped as bushfire prone. Under these directions the following objectives apply:

- i. to protect life, property and the environment from bush fire hazards, by discouraging the establishment of incompatible land uses in bush fire prone areas; and
- ii. to encourage sound management of bush fire prone areas.

Under direction 4.4 the Commissioner of the NSW RFS must be consulted and any comments taken into account. As part of the consultation process with the NSW RFS, a bush fire assessment is required to be submitted to demonstrate compliance with the s9.1(2) Directions and PBP.

Consideration must be given to limiting or excluding incompatible development in bushfire affected areas commensurate with the level of risk. A key principle to ensure this is that future development is designed and sited capable of complying with PBP.

The NSW Rural Fire Service also encourages the application of zones that limit or exclude inappropriate development in bushfire prone areas where:

- *the development area is exposed to a high bush fire risk and should be avoided;*
- *the development is likely to be difficult to evacuate during a bush fire due to its siting in the landscape, access limitations, fire history and/or size and scale;*
- *the development will adversely effect other bush fire protection strategies or place existing development at increased risk;*
- *the development is within an area of high bush fire risk where density of existing development may cause evacuation issues for both existing and new occupants; and*
- *the development has environmental constraints to the area which cannot be overcome.*

We provide the following assessment in consideration of the above and *Planning for Bush Fire Protection 2019* to highlight the suitability of the site for residential development and the relevant Bushfire Protection Measures.

5.02 Strategic Bush Fire Study

Planning proposals which relate to bushfire prone properties require the preparation of a Strategic Bush Fire Study. The Strategic Bush Fire Study (SBFS) provides opportunity to assess the broader landscape and ultimately assesses whether the new zones and proceeding development is appropriate in the bushfire hazard context.

The broad principles which apply to the SBFS analysis are:

- ensuring land is suitable for development in the context of bush fire risk;
- ensuring new development on BFPL will comply with PBP;
- minimising reliance on performance-based solutions;
- providing adequate infrastructure associated with emergency evacuation and firefighting operations; and
- facilitating appropriate ongoing land management practices.

Once the strategic assessment has been addressed in the SBFS, an assessment of whether the future land uses can comply with the aim and objectives and specific bushfire protection measures of PBP must then be carried out. The assessment against PBP is addressed in section 5.03 of this report.

The following assessment details the components in Table 4.2.1 of PBP which must be addressed in a SBFS.

Bushfire Landscape Assessment

The Bushfire Landscape Assessment component considers the likelihood of a bushfire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape.

Location

The subject site comprises of six (6) existing allotments zoned 'RU2: Landscape' located at 10, 14 & 20 Brooks Point Road, Appin being:

Street Address	Lot and DP
10 Brooks Point Road, Appin	Lot 1 DP 249446
	Lot 4 DP 249446
	Lot 5 DP 249446
14 Brooks Point Road, Appin	Lot 2 DP 584515
20 Brooks Point Road, Appin	Lot 1 DP 584515
	Lot 3 DP 249446

The subject site is located within Wollondilly Shire Council's local government area.

The site is within the Illawarra / Shoalhaven Fire Weather District and is captured by the Wollondilly / Wingecarribee Bush Fire Risk Management Plan 2017.

The site is located within the Greater Macarthur Growth Area which is a Growth Area incorporating Glenfield to Macarthur urban renewal precincts and the land release precincts to the south of Campbelltown, including Gilead, North Appin and Appin.

The site has street frontage to Appin Road to the east and Brooks Point Road to the south and abuts neighbouring private allotment (which is subject to an active Development Application for a large residential subdivision) to the north and Ousedale Creek, followed by large rural allotments to the west.

The site is within the immediate fringe of the Appin village, with established residential properties located to the northeast and east.

Vegetation

The vegetation structure, connectivity and attributes are fundamental contributors to bushfire behaviour and its movement through the landscape.

As part of this assessment we have considered the potential bushfire runs (catchments) that currently exist into the site, as well as the potential fire behaviour and impacts following the delivery of the Master Plan.

Consideration has also been given to a large residential development (DA/2021/144/1 and DA/2021/249/1) which is currently under assessment immediately to the north of the subject site. The Master Plan for this proposal relies on delivery of neighbouring road infrastructure to activate numerous residential allotments and therefore in conjunction with existing land zoning (R2: Low Density Residential) it is considered reasonable to consider it as being delivered. Regardless the size of the subject site would allow for suitable mitigations measures if this property is to be assessed as a hazard.

Historically the primary use of the site has been for agriculture purposes, including the cultivation of arable crops and breeding and raising of livestock. These farming practices and other anthropological disturbances have resulted in degraded or fragmented vegetation, with more pronounced vegetation on the lower slopes, associated with Ousedale Creek.

To assess the potential fire runs into the site we have considered all existing vegetation within 1 kilometre and potential fire behaviour and impacts following the delivery of the Master Plan and neighbouring residential development to the north (Figure 08).



Figure 08: Aerial view of the subject area showing subject site (yellow outline), 1km buffer (blue outline) and bushfire hazards post development of the subject site and neighbouring site to the north (green shade)

Note: Unshaded area within subject site assumed to be developed or maintained to the standard of an Asset Protection Zone

The most significant catchments for bushfire were identified to be:

- North of the site, being a vegetated corridor associated with Ousedale Creek;
- Northeast of the site, beyond Appin village, comprising of vegetation within large and vacant residential allotments, large allotments zoned E2: Environmental Conservation and Dharawal State Conservation Area; and
- Southeast of the site, comprising of bushland within the Sydney Catchment Authority and Appin Colliery land.

As part of the assessment of the potential fire behaviour and impacts we have considered land proposed to be zoned RE1: Public Recreation and RU2: Rural Landscape, excluding the proposed local park, to form part of the bushfire hazard.

We have assumed all other land within the site will either be developed, maintained to the standard of an Asset Protection Zone or considered Low Threat Vegetation in accordance with A1.10 of PBP.

The existing vegetation within the subject site is mapped (Enviro Ecology 2022) as being Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion (1395).

The following vegetation parameters apply to the mapped vegetation within the site:

Plant Community Type	Formation	Class	Surface and Elevation Fuel Load*	Overall Fuel Load (including bark and canopy)*
Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion (1395)	Grassy Woodland	Coastal Valley Grassy Woodland	10 t/ha	18.07 t/ha

* Fuel loads from NSW Rural Fire Service publication Comprehensive Vegetation Fuel Loads (2019)

The vegetation posing a hazard to the north, northeast and southeast was found to comprise of trees 10-20 metres in height having a 30-70% canopy foliage cover and an understorey of low trees, shrubs and grasses.

While it is acknowledged that there are large areas within these hazards mapped as Grassy Woodland as a conservative measures and in acknowledging the presence of higher fuel loads than that attributed to Woodland communities a Forest classification was applied to the north, northeast and southeast.

This conservative assessment has also been applied to the retained vegetation within the subject site, with the exception of the central riparian corridor and RU2 (Strategic Conservation Area) which will be the subject of a Vegetation Management Plan to ensure fuel loads are consistent with a Grassy Woodland.

Figure 09 overleaf shows the vegetation assessment adopted for both the bushfire landscape assessment and site specific assessment.

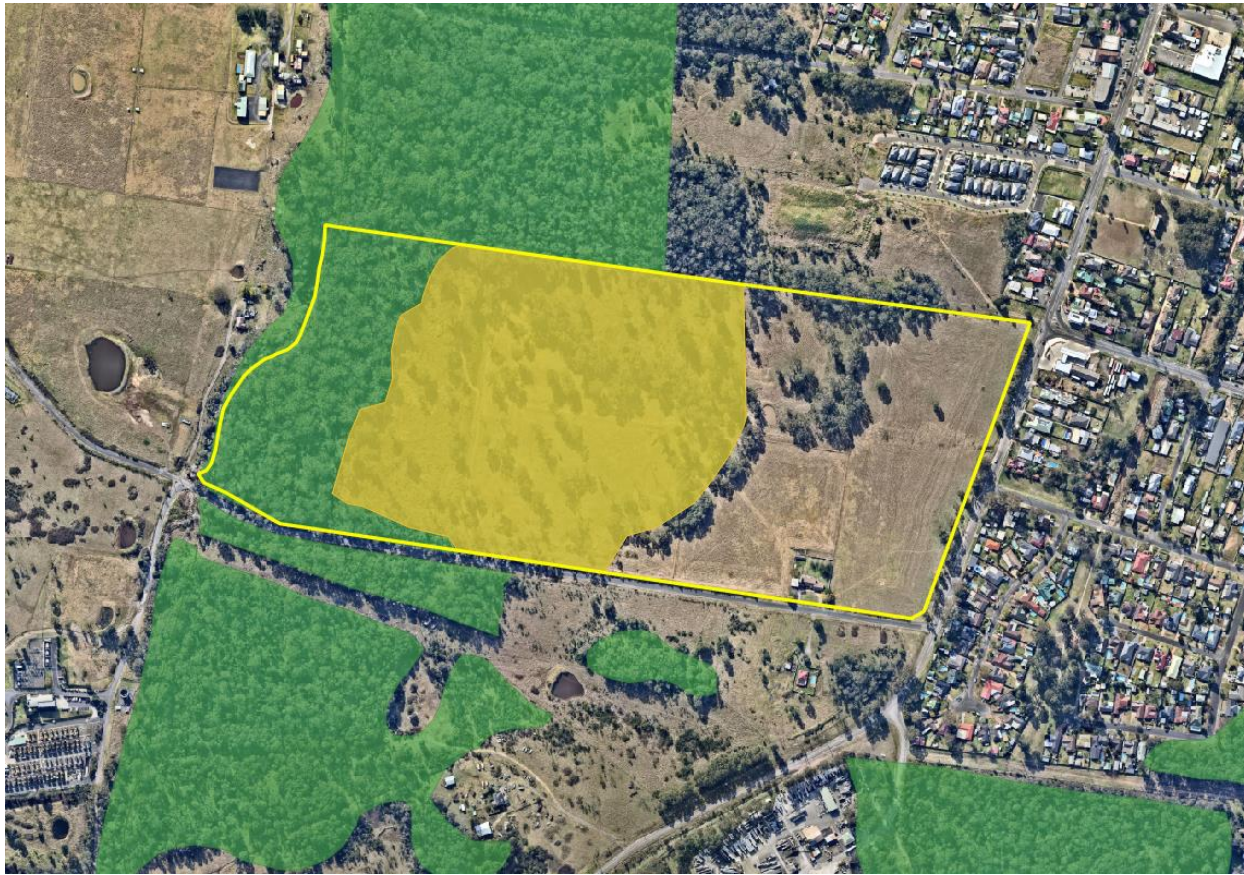


Figure 09: Vegetation Assessment
Forest hazard (green shade), Woodland hazard (orange shade)

Slope and Topography

The slope of the land under the classified vegetation has a direct influence on the forward rate of spread, fire intensity and radiant heat exposure. The effective slope is considered to be the slope under the classified vegetation which will most significantly influence bushfire behaviour toward the development site.

The slope that would **most significantly** influence bushfire impact was determined using 1 metre LiDar contour mapping of the subject area.

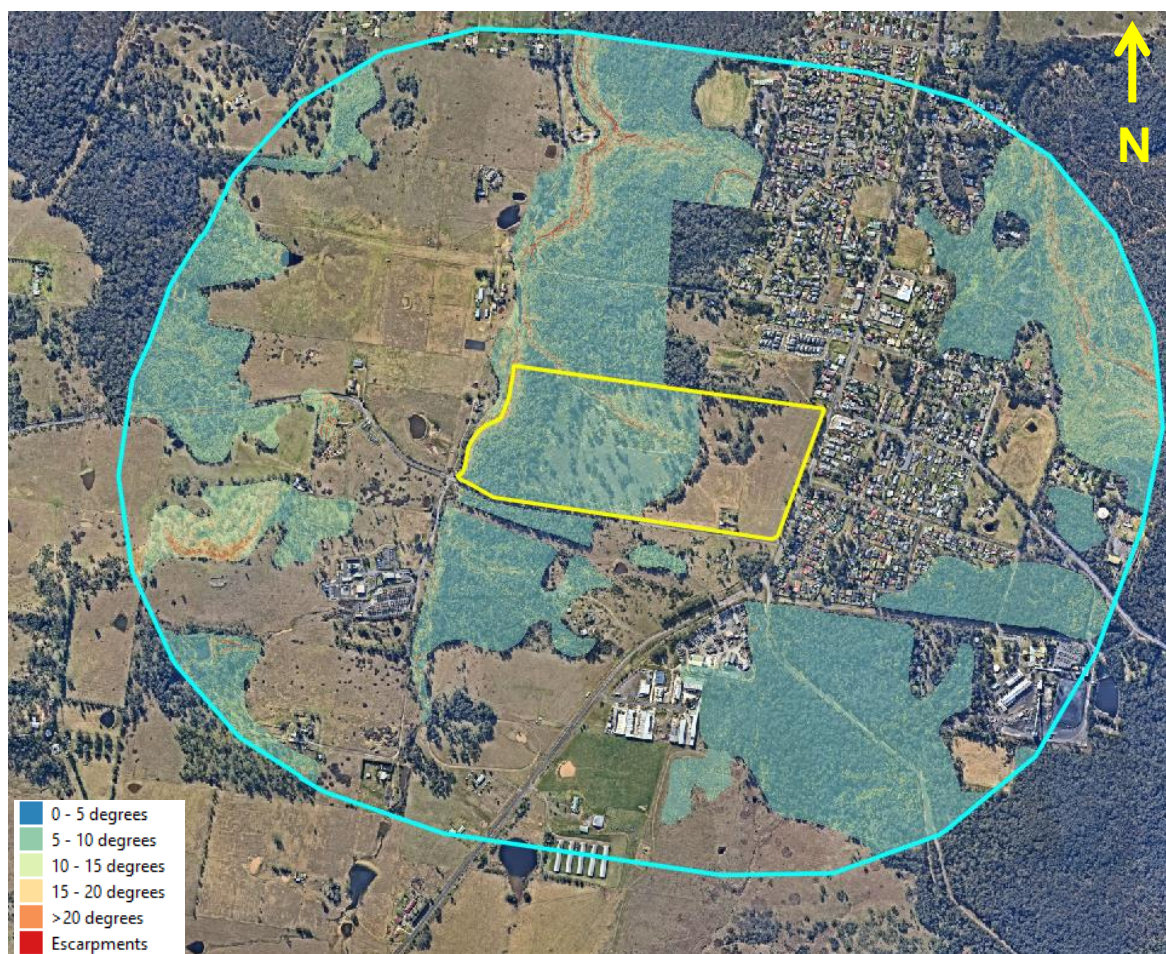


Figure 10: Slope within subject site (yellow outline) and investigation area (blue outline)



Figure 11: Extract from ELVIS – Geoscience Australia (1 metre contours)

Fire Weather

All development which attracts an Asset Protection Zone under PBP requires the identification of the relevant Fire Danger Index (FDI). The FDI required to be used for development assessment purposes is based on the local government boundaries, being Wollondilly Shire Council in this instance.

In accordance with the NSW Rural Fire Service publication 'NSW Local Government Areas FDI' (2017) Wollondilly Shire Council is located within the Illawarra / Shoalhaven Fire Weather District which attracts a Fire Danger Index (FDI) of 100 for bushfire planning purposes.

Previous Bushfire History

There are areas within NSW that have significant fire history and are recognised as known fire paths. In a planning context it is important to identify these locations and ensure incompatible development is not proposed.

In this instance the site was partially impacted in 1968/69 (source NPWS Fire History dataset).

Large wildfires have been recorded >280 metres to the north (1984/85), >700 metres to the east (1994/95, 2001/02) and >400 metres to the south (1994/95, 1994/96) of the site.

Severe fire behaviour in this part of NSW is typically heavily influenced by hot dry northwest / westerly winds brought from inland Australia. These winds are the primary influence for the direction of a fire, generally pushing fires in a south-easterly / easterly direction. Southerly changes which are typically associated with strong winds that push fires in a northerly direction are an exception to this.

In this instance there have been no recorded wildfires to the northwest or west of the site. In addition, there are no significant stands of vegetation to the northwest and west, with the vegetation generally being concentrated along existing watercourses.

The site is therefore not considered to be within a known fire path.

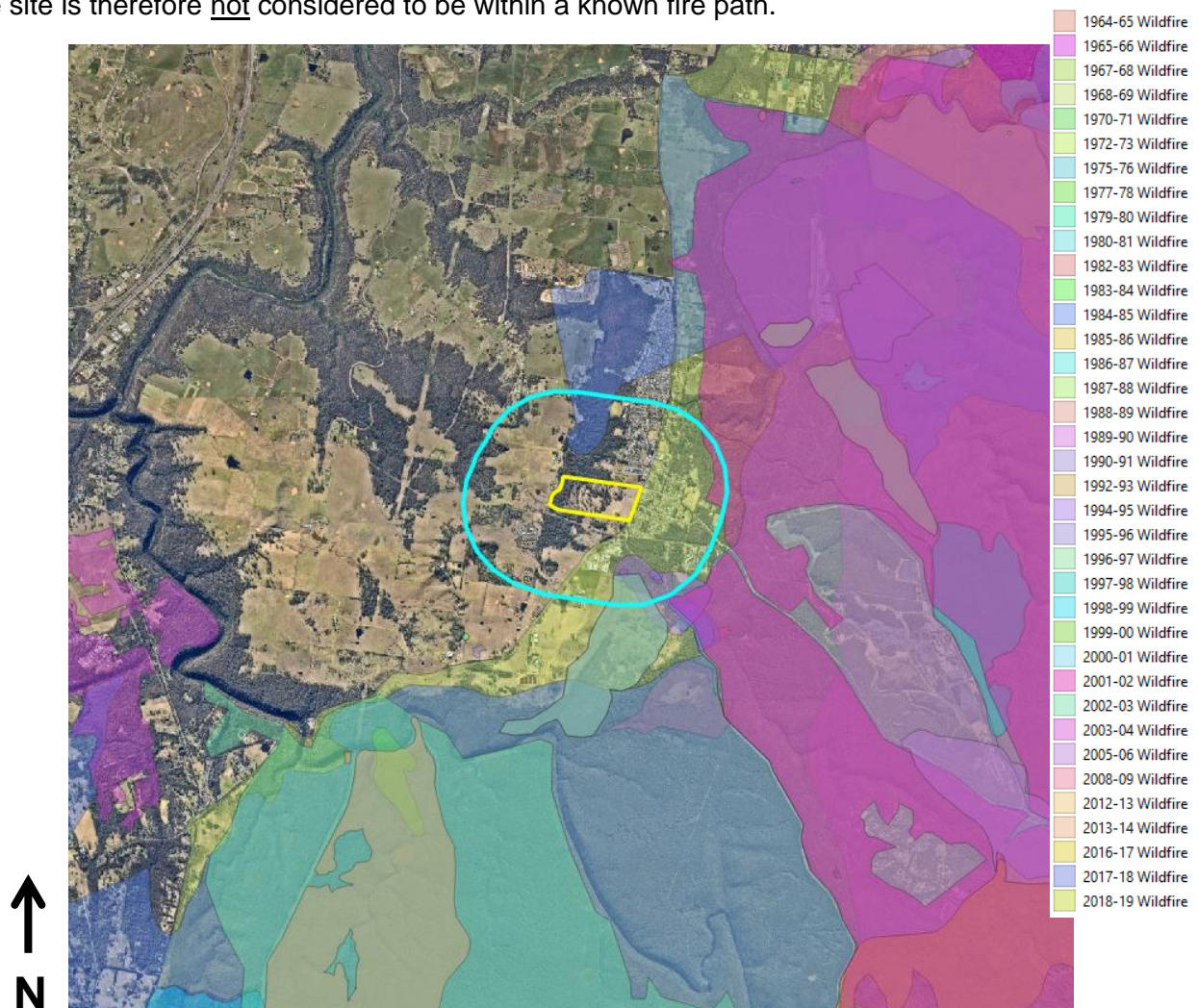


Figure 12: Aerial view of the subject area
Subject site (yellow outline), 1km buffer (blue outline)

Potential Fire Behaviour

In this instance it has been identified that the largest fire catchments to the subject site are from the north, northeast and southeast, with the vegetation to the northeast and southeast aspects having direct link to heavily vegetated Colliery and Sydney Catchment Authority lands and Dharawal National Park.

In applying the parameters described in this section and the accepted assessment methodology described in PBP bushfire design modelling was undertaken to determine the intensity of three potential fires. These being:

1. A bushfire burning from the north through the vegetated corridor associated with Ousedale Creek. While the vegetation to this aspect is fragmented this is an aspect which is more commonly associated with severe fire behaviour;
2. A bushfire burning from the northeast through Dharawal National Park and vegetated allotments toward the subject site. While the coastal influences of a fire burning in this direction are expected to reduce the Fire Danger Index as a margin of safety an FDI 100 was adopted; and
3. A bushfire burning from the southeast through Sydney Catchment Authority and Appin Colliery land toward the subject. While the coastal influences of a fire burning in this direction are expected to reduce temperatures and humidity, stronger winds are also commonly experienced causing increased fire activity. As a margin of safety an FDI 100 was adopted.

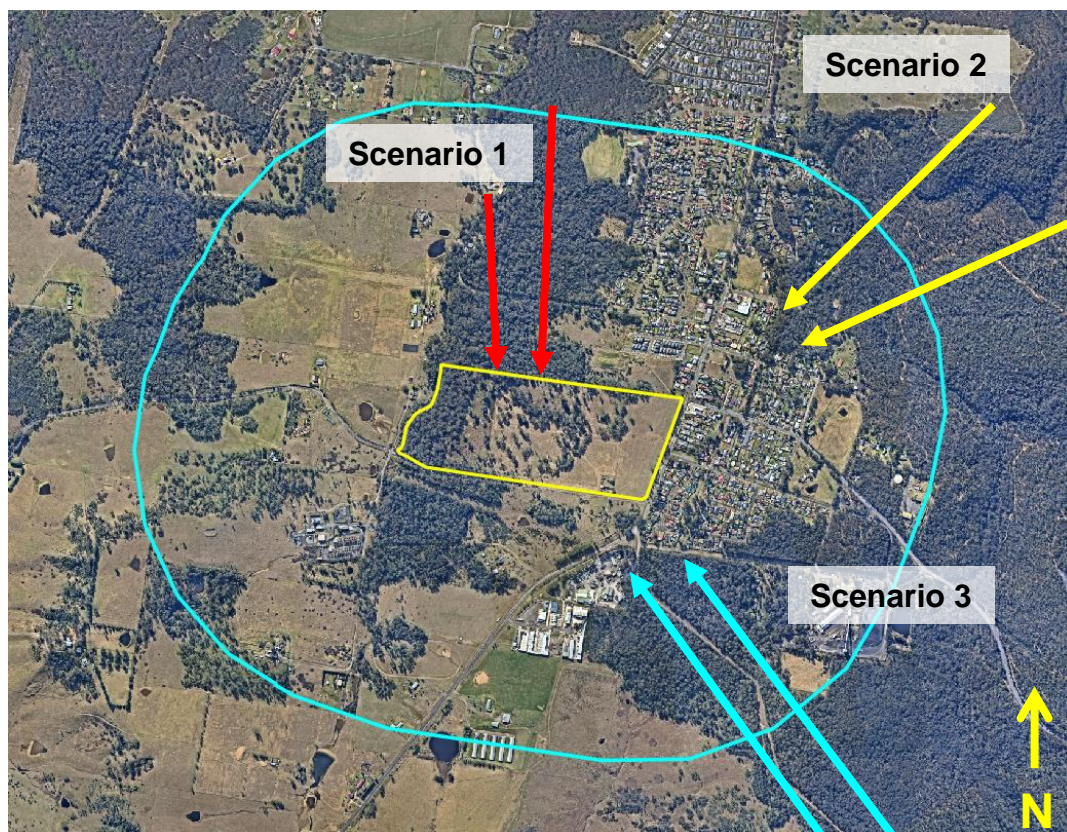


Figure 13: Aerial view of the subject area showing assessed fire runs
Subject site (yellow outline) and 1 kilometer buffer (blue outline)

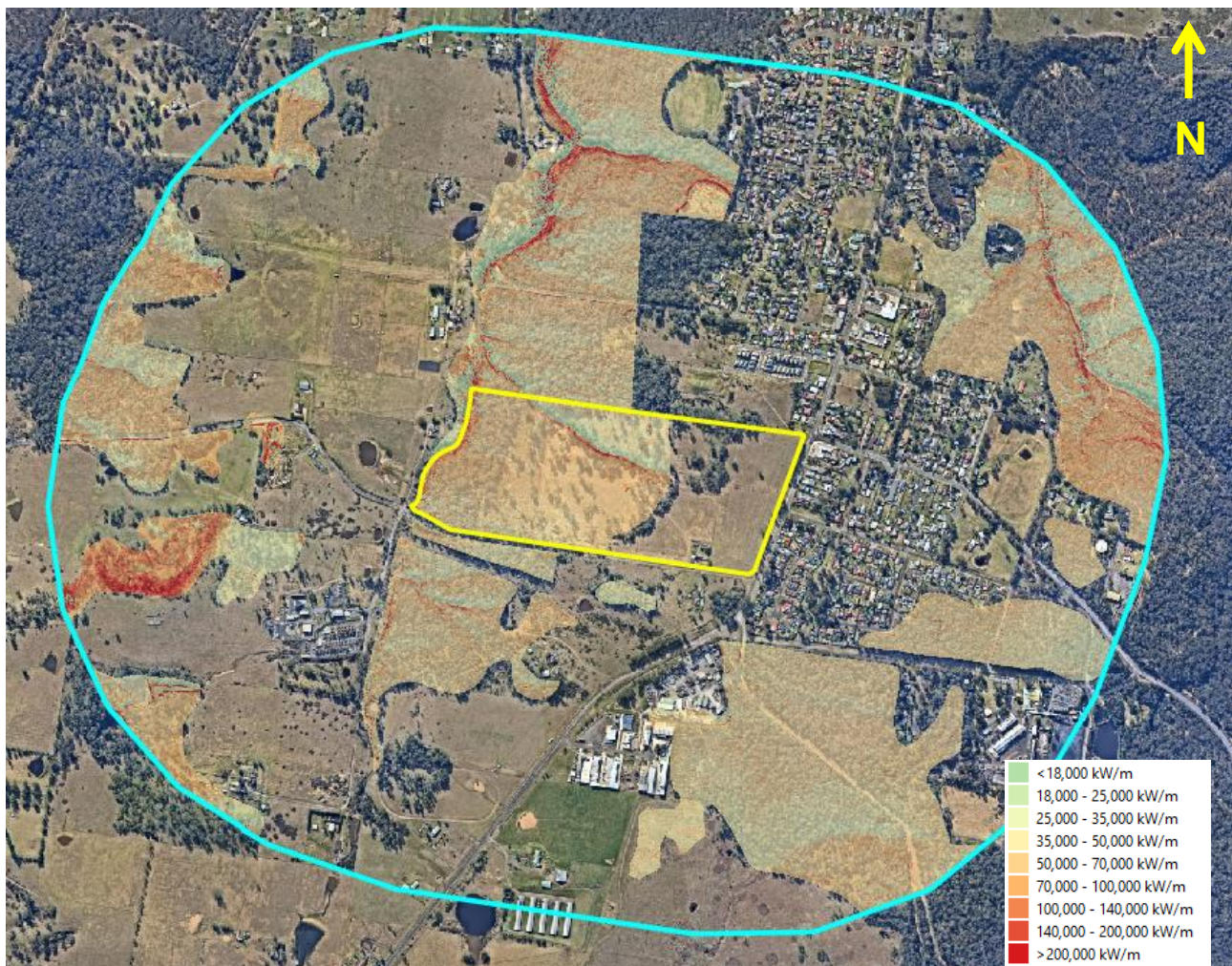


Figure 14: Fire intensity mapping of Scenario 1 (North)
Subject site (yellow outline) and 1 kilometer buffer (blue outline)

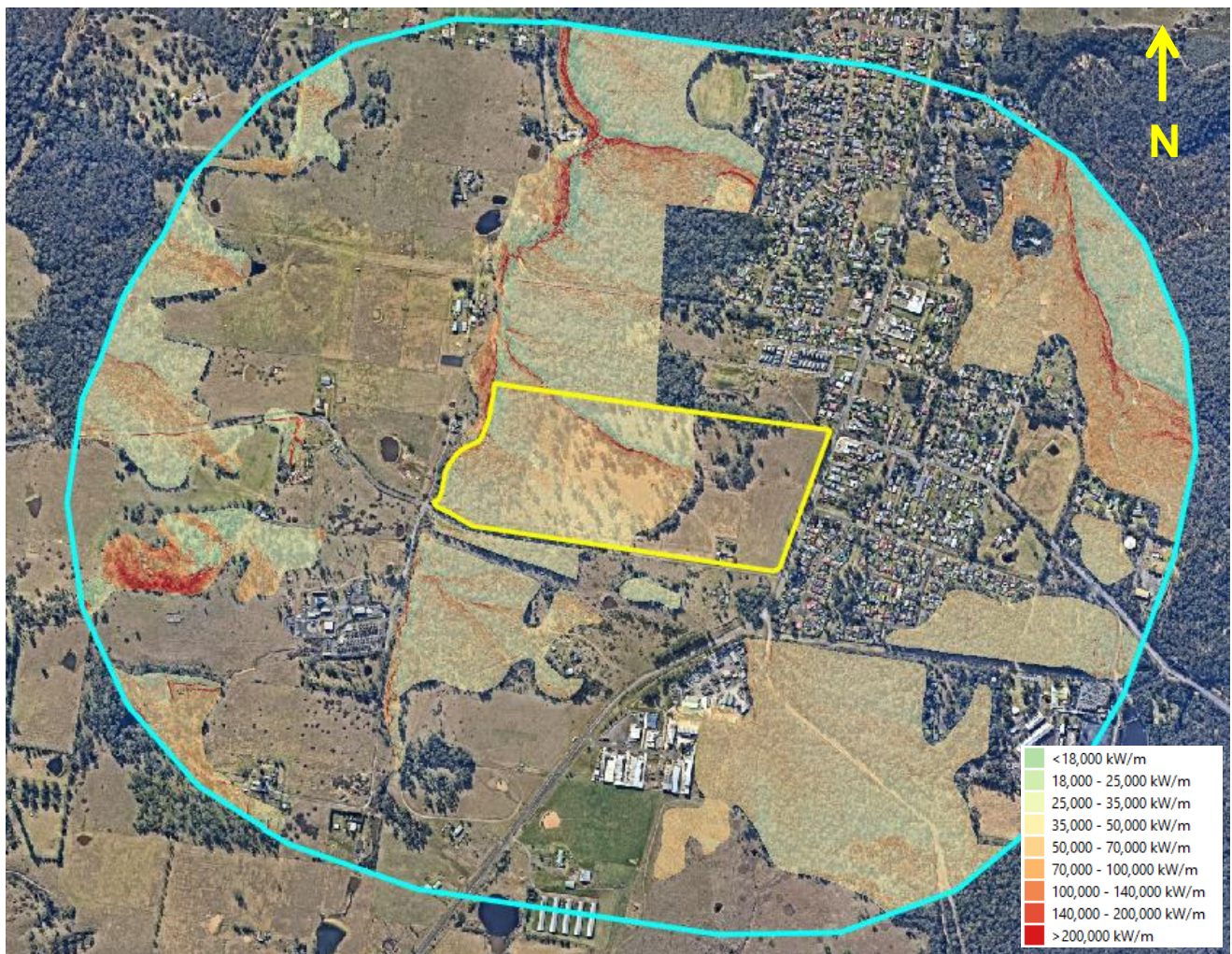


Figure 15: Fire intensity mapping of Scenario 2 (Northeast)
Subject site (yellow outline) and 1 kilometer buffer (blue outline)

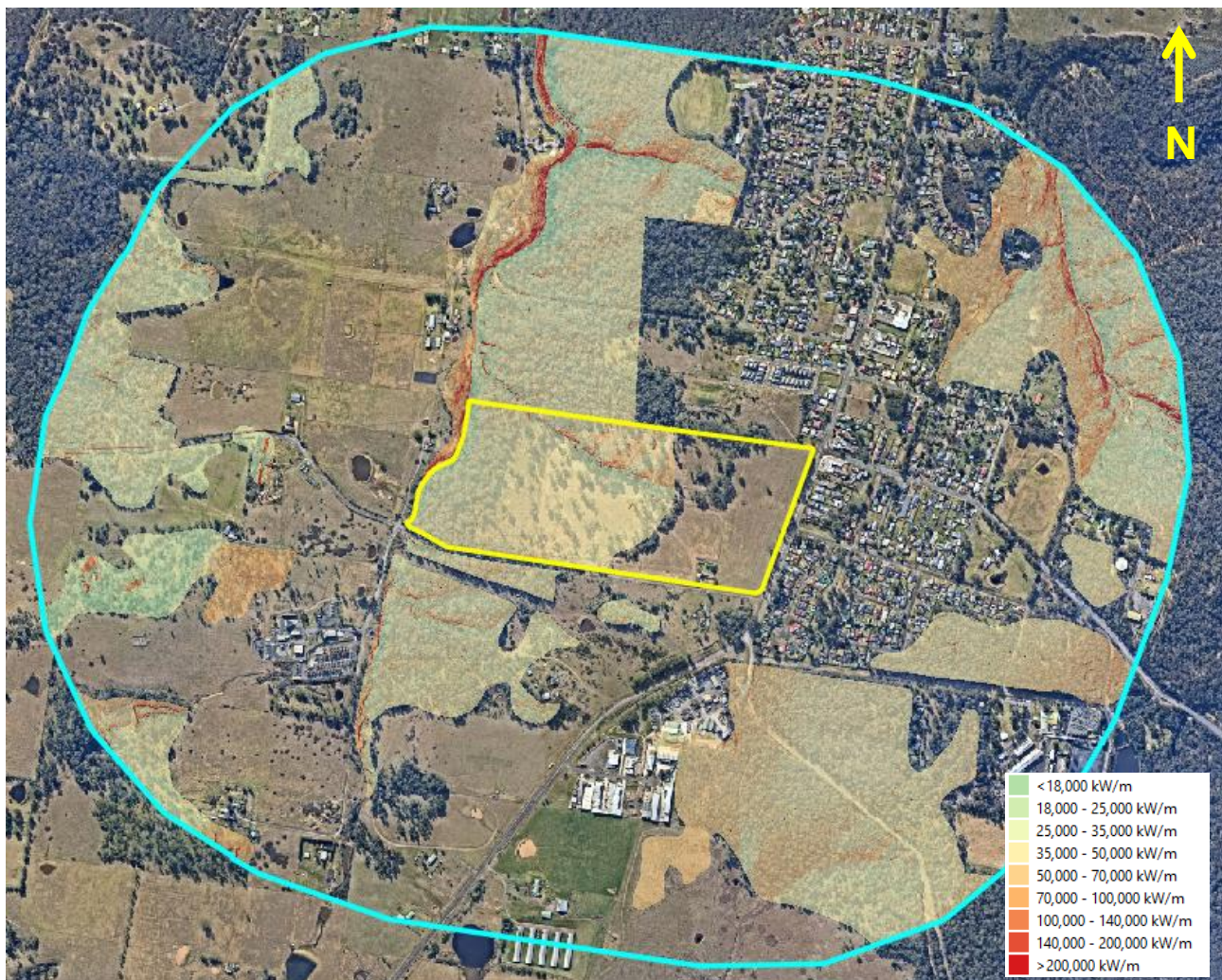


Figure 16: Fire intensity mapping of Scenario 3 (Southeast)
Subject site (yellow outline) and 1 kilometer buffer (blue outline)

Access & Suppression

Access for attending fire services to undertake early suppression is a key factor in whether a fire has the opportunity to develop into a quasi-steady state at which point the opportunity to control / extinguish the fire becomes far more challenging.

Where good access is available it provides opportunity to control / extinguish a fire in its growth phase before developing further and consequently becoming more difficult to conduct direct attacks.

In this particular instance comprehensive access will be available to the bushfire hazards that are within or immediately adjacent the subject site via the internal road network. The internal road network includes perimeter roads adjacent all identified hazards.

Access to the hazard in the broader landscape is available via existing public roads and classified fire trails. Refer to Figure 17 for the extent of existing roads and classified fire trails in the subject area (source Transport NSW).

Classified fire trails must meet certain standards to be registered as such. This ensures that the NSW RFS and other fire agencies have confidence to deploy resources to a location, with confidence that they will be able to efficiently access and respond to an incident.

In consideration of the comprehensive access and its exposure to the public the identification and subsequent extinguishment of a bushfire within the site is considered reasonable.

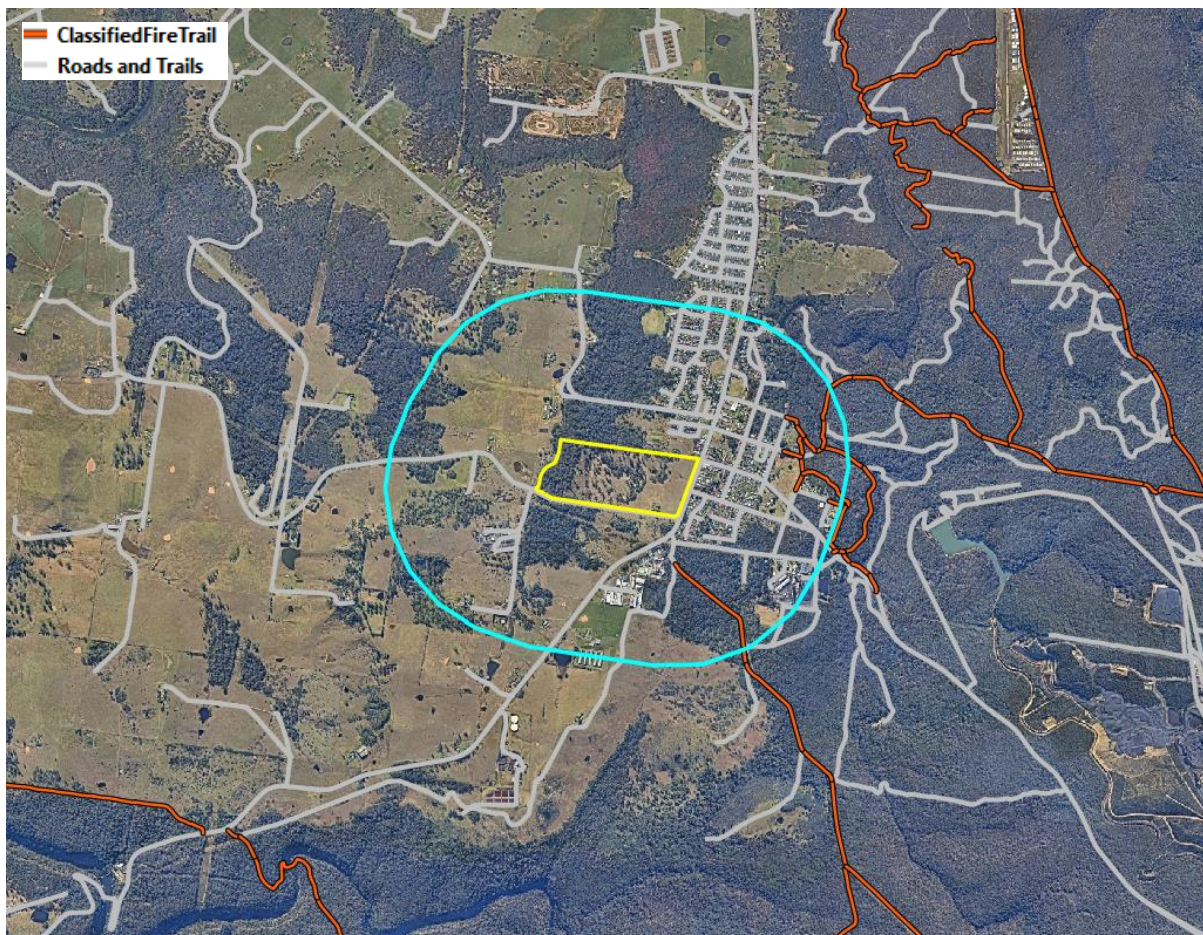


Figure 17: Aerial view of the subject area overlaid with roads, trails and classified fire trails (source Transport NSW)

Land Use Assessment

The Land Use Assessment identifies the most appropriate locations in the Master Plan area for the proposed land uses. In a bushfire planning context the various land uses present different risk profiles and as such are assessed differently under Planning for Bush Fire Protection.

In this instance the proposal does not include a broad masterplan but rather a specific 'spot' rezoning to facilitate a future residential development. The proposal provides a mix of residential density, from larger residential allotments to medium density.

Special Fire Protection Purpose (SFPP):

SFPP development is one which is occupied by people who are considered to be at-risk members of the community. In a bushfire event, these occupants may be more susceptible to the impacts of bush fire.

SFPP development consequently attracts the highest Bushfire Protection Measures commensurate to the risk profile. Most notably SFPP development, attracts large minimum required Asset Protection Zones, which in instances can preclude future development.

Development that is listed in section 100B of the *Rural Fires Act 1997* as SFPP are:

- (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.

Section 47 of the *Rural Fires Regulation 2022* also lists additional SFPP development which are:

- (a) a manufactured home estate (within the meaning of *State Environmental Planning Policy No 36—Manufactured Home Estates*), comprising two or more caravans or manufactured homes, used for the purpose of casual or permanent accommodation (but not tourist accommodation),
- (b) a sheltered workshop, or other workplace, established solely for the purpose of employing persons with disabilities,
- (c) a respite care centre, or similar centre, that accommodates persons with a physical or mental disability or provides respite for carers of such persons,
- (d) student or staff accommodation associated with a school, university or other educational establishment,
- (e) a community bush fire refuge approved by the Commissioner

Buildings used for public assembly which have a floor area of greater than 500m² are also treated technically as SFPP development due to the evacuation challenges presented by large numbers of occupants.

In this instance the Planning Proposal seeks residential and environmental conservation land zones and subsequently does not directly seek approval to facilitate future SFPP development.

It is acknowledged that the residential zone can permit, with consent, some SFPP uses. Where future SFPP development is proposed these will be the subject to independent Development Applications which would be required to demonstrate compliance with the relevant specifications and requirements of PBP at that time.

Residential:

Residential development (increased density, subdivision, townhouses etc) presents the next highest risk profile and accordingly also attracts minimum required Asset Protection Zones. In this regard a Residential Asset Protection Zone overlay (attachment 01) has been prepared to depict the minimum required for residential development.

It should also be noted that this is a macro-level assessment and further refinement of the APZs at a micro level may be achieved.

All land proposed to be medium density residential is outside the minimum required APZs for residential development.

Land Use:

The proposed Master Plan locates the medium density residential centrally within the site, in areas which exceed the minimum required Asset Protection Zones.

In consideration of the landscape study and risk profiles we are of the opinion the proposed land uses are appropriate.

Access and Egress

It is important to assess the capacity of both the existing and proposed road networks both within and external to the investigation area to deal with evacuating residents and responding emergency services.

The key evacuation route from the site is to the north via Appin Road. From Appin Road residents / occupants can travel north toward the townships of Rosemeadow and Campbelltown.

While travel is also available in a south-easterly direction along Bulli Appin Road and in a south-westerly direction along Wilton Road these routes are considered unlikely during a bushfire event considering the increased exposure to bushland immediately adjacent and travel distance to an area of safety.

Appin Road currently exceeds the minimum carriageway requirements for non-perimeter roads as described in section 5.3.2 of PBP and will be further enhanced, along with other access routes as Greater Macarthur Priority Growth Area is delivered.

As the future dwellings will be constructed to the relevant requirements of Australian Standard 3959 'Construction of buildings in bushfire-prone areas' and *Planning for Bush Fire Protection* 2019 they will provide occupants a suitable onsite refuge.

Alternatively, Main Street, Appin is an identified Neighbourhood Safer Place and is located less than 500 metres to the north of the subject site.

An Emergency Evacuation Assessment has been prepared by Hemanote Consultants Pty Ltd (2022) to assess the traffic impacts in the event of an emergency evacuation for the proposed rezoning of the subject site.

The assessment concluded:

It can be concluded from the Emergency Evacuation Assessment that, based on the available travel paths, distances, number of egress points and travel times calculated, it is expected that an acceptable overall evacuation time can be achieved for the proposed rezoning and future subdivision.

Emergency Services

In some circumstances the scale of a planning proposal warrants a need to include provisions for a new fire station.

The site is located within a NSW Rural Fire Service area, with a station (Appin Rural Fire Brigade) located along King Street less than 300 metres to the northeast of the subject site. Additional NSW Rural Fire Service stations are also located at Wedderburn, Wilton, Douglas Park, Lynwood Park, Menangle and Menangle Park.

NSW Fire & Rescue also have stations located within the townships of Rosemeadow, Thirroul and Campbelltown.

In consideration of the relatively modest population increase relating to this planning proposal the existing fire service coverage is considered acceptable.

Infrastructure

An assessment of the issues associated with infrastructure and utilities must be undertaken. This assessment is to include the ability of the reticulated water system to deal with a major bushfire event in terms of pressures, flows and spacing of hydrants.

There are hydrants available along the existing public roads within the area. The capabilities of the broader hydrant network is the responsibility of Sydney Water.

The sizing, spacing and pressures of any future hydrant system must comply with AS2419.1-2005.

It is understood that the proposal will not directly impact any existing electrical or gas infrastructure.

5.03 Planning for Bush Fire Protection

As the strategic issues have been satisfactorily addressed in the SBFS, an assessment of compliance with PBP is required. This section addresses the future developments capacity to comply with the relevant specifications and requirements of PBP.

The application of PBP requires satisfactory demonstration of the aim and objectives and the specific objectives and bushfire protection measures relevant to the type of development. The bushfire protection measures detailed in Chapter 5 of PBP have been considered for the future Residential development.

The following table details the aim and objectives of *Planning for Bush Fire Protection 2019* and the proposals ability to comply.

Aim / Objective	Comment
<i>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.</i>	With the inclusion of the recommendations made herein it is of our opinion that the aim of PBP has been satisfied.
<i>(i) afford buildings and their occupants protection from exposure to a bush fire;</i>	<p>The proposed land uses can support the minimum required Asset Protection Zones for residential development.</p> <p>In conjunction with the application of the relevant Bushfire Attack Level under Australian Standard 3959 'Construction of buildings in bushfire-prone areas' future buildings and their occupants will be afforded protection from exposure to a bushfire.</p>
<i>(ii) provide for a defensible space to be located around buildings;</i>	The conservations areas, which present the bushfire threat, are framed by roads. These roads provide a defensible space for fire services and logical fire-fighting platforms.
<i>(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;</i>	The application of the minimum required APZs in conjunction with the relevant Bushfire Attack Level for the future buildings will prevent the likely fire spread to buildings.

Aim / Objective	Comment
<i>(iv) ensure that appropriate operational access and egress for emergency service personnel and occupants is available;</i>	<p>Comprehensive access will be available to the bushfire hazards for attending fire services via the internal road network.</p> <p>The access design provides perimeter roads adjacent identified bushfire hazards provide direct access for attending fire services undertaking hazard reduction or fire suppression activities.</p>
<i>(v) provide for ongoing management and maintenance of bush fire protection measures, (BPMs); and</i>	<p>The specific bushfire protection measures of the future developments will be addressed within the submission documents of those developments.</p>
<i>(vi) ensure that utility services are adequate to meet the needs of firefighters.</i>	<p>The capabilities of the broader hydrant network is the responsibility of Sydney Water.</p> <p>The sizing, spacing and pressures of any future hydrant system within the site must comply with AS2419.1-2005.</p> <p>These future hydrants are considered to be the logical water supply for fire services undertaking hazard reduction and / or fire suppression activities.</p>

It is therefore of our opinion that the proposal can satisfactorily comply with the aim and objectives of *Planning for Bush Fire Protection 2019*.

Asset Protection Zones

Asset Protection Zones (APZs) for residential subdivision are determined from Table A1.12.2 of PBP or bushfire design modelling achieving a radiant heat impact of no more than 29 kW/m² at a building footprint.

The minimum required Asset Protection Zones for the future residential development were determined from Table A1.12.2 of PBP to be 29 metres from the identified Forest hazards and 20 metres from the central riparian corridor.

These minimum required APZs for the residential subdivision component are depicted on Attachment 01.

The available APZs consist of the land within the subject site (including roads, active open space and residential allotments) and Brooks Point Road.

The subject site has the capacity to comply with the minimum required APZs as detailed in PBP.

Fire Fighting Water Supply

There are hydrants available along Appin Road and existing public roads within the township of Appin.

The sizing, spacing and pressures of any future internal hydrant system must comply with AS2419.1-2021. Alternatively to achieve compliance with PBP each future allotment will require the installation of a Static Water Supply.

The subject site has the capacity to comply with the Water Supply requirements as detailed in sections 5.3.3 and 6.8.3 of PBP.

Access

Planning for Bush Fire Protection addresses design considerations for internal roads (public roads) for properties determined to be bushfire prone. In a bush fire prone area, the purpose of the road system is to:

- provide firefighters with access to structures, allowing more efficient use of firefighting resources;
- provide evacuation routes for firefighters and the public; and
- provide access to areas of bush fire hazard for firefighting and hazard mitigation purposes.

The subject site has street frontage to Appin Road to the east and Brooks Point Road to the south.

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

The proposed Master Plan prepared by Beveridge Williams provides three connection points to Brooks Point Road, a connection point to Appin Road and four (4) connection points to the residential development to the north (DA/2021/144/1 and DA/2021/249/1).

The proposed Master Plan also includes perimeter roads adjacent the bushfire hazards and utilises through roads throughout the design, satisfying the preferred design option.

The short dead-end road servicing future lots in the north-eastern corner of the site is less than 200 metres in length (approx. 80m) and will service lots that will not be 'bushfire prone' following the execution of the Master Plan and neighbouring development to the north.

We are satisfied that the proposed internal road system has the capacity to comply with the requirements for Access under section 5.3.2 of PBP 2019.

6.0 Conclusion

Building Code and Bushfire Hazard Solution P/L has been commissioned to prepare an independent Bushfire Assessment Report for a Planning Proposal which will facilitate a future residential development at 10, 14 & 20 Brooks Point Road, Appin.

The subject site is currently zoned 'RU2: Rural Landscape' and is located within Wollondilly Shire Council's local government area.

The Planning Proposal (PP) seeks to rezone the site from its current rural land zone to permit low and medium density housing and to ensure the environmental management of ecologically important land. The PP proposes a future mix of residential land, public reserve and rural lots.

In this instance the subject site is depicted on Wollondilly Shire Council's Bushfire Prone Land Map as containing Category 1 and 2 Vegetation and Vegetation Buffer. The subject site is therefore considered 'bushfire prone'.

We are satisfied that the subject site and proposed Master Plan has the capacity to comply with the relevant specifications and requirements of *Planning for Bush Fire Protection* 2019.

Furthermore we are satisfied that the proposed Master Plan, in combination with the bushfire protection measures discussed herein will not result in areas that are difficult to evacuate, create control difficulties during a bushfire or adversely affect other bush fire protection strategies or place existing development at increased risk.

We are therefore in support of the Planning Proposal.

Should you have any enquiries regarding this project please contact me at our office.

Prepared by
Building Code & Bushfire Hazard Solutions P/L



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Certification number – BPAD9400



7.0 Annexure 01

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Acknowledgements to:

Geoscience Australia
Nearmap
Street-directory.com.au

Attachments

Attachment 01: Residential Asset Protection Zone Overlay

