

Bushfire Assessment Report

Planning Proposal

At:
**Maldon Bridge Road,
Maldon NSW**

Reference Number: 210369

Prepared For:
Boral Land & Property Group

21st December 2020



Prepared By:
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Version Control			
Version	Date	Prepared by	Details
1	10/12/2020	Stuart McMonnies BPAD Accreditation No. 9400	Draft Report
2	21/12/2020	Stuart McMonnies BPAD Accreditation No. 9400	Final Report

List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2018 as amended
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
ESD	Ecologically Sustainable Development
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 Solution P/L has been commissioned by Boral Land & Property Group to prepare an independent Bushfire Assessment Report for a planning proposal at Maldon Bridge Road, Maldon to facilitate future industrial development.

The subject site comprises of eight (8) existing allotments (Lot 1 DP 748675, Lot 1 DP 162140, Lot 1 DP 795225, Lot 1 DP 1138675, Lot W DP 163774, Lot 31 DP 602144, Lot X DP 161196 and Lot 2 DP 1138675) zoned RU2: Rural Landscape. The subject site is located within the Wollondilly Shire Council local government area.

The proposed IN3: Heavy Industrial zoning will facilitate future industrial development within the already disturbed portions of the site, while establishing an E2: Environmental Conservation zone for the existing vegetated areas (see Figure 03). The existing six (6) dwellings within the site will be decommissioned to facilitate the future industrial development.

The subject site is located within the Wilton Priority Growth Area, which in accordance with the Interim Land Use and Infrastructure Implementation Plan will include around 15,000 new homes, 60,000m² of retail and business space and a target of 15,000 local jobs. The subject site is nominated as being 'Employment Land' under this plan, which is consistent with this planning proposal.

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 their associated buffer zone. The subject site is therefore considered 'bushfire prone'.

The vegetation identified as posing the potential bushfire threat to the proposed industrial lands is located centrally within the subject site along a tributary to Stonequarry Creek and along Stonequarry Creek to the east. The vegetation is located within well-defined gullies with a high concentration of exposed rock outcrops.

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.*

As part of the consultation process with the NSW Rural Fire Service, a bush fire assessment is required to demonstrate compliance with the s9.1(2) Directions and Planning for Bush Fire Protection 2019 (PBP). Where the proposal is of a strategic nature, this assessment should take the form of a Strategic Bush Fire Study as outlined in section 4.2 of PBP.

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

In addition to the Strategic Bush Fire Study an assessment of the proposal against Chapter 8 'Other Development' of PBP has concluded the future Development Applications have the capacity to comply with the relevant specifications and requirements.

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 and the fact there have been no recorded wildfires within the immediate area (closest recorded wildfire (Nepean River 2002) >1.7km to the southeast).

It is also important to consider the improved outcome as a result of this planning proposal with the decommissioning of the six (6) residential dwellings.

The proposal satisfies all relevant specifications and requirements of Planning for Bush Fire Protection 2019 and results in an improved bushfire safety outcome for the site.

1.0 Introduction

The subject site comprises of eight (8) existing allotments (Lot 1 DP 748675, Lot 1 DP 162140, Lot 1 DP 795225, Lot 1 DP 1138675, Lot W DP 163774, Lot 31 DP 602144, Lot X DP 161196 and Lot 2 DP 1138675) zoned RU2: Rural Landscape. The subject site is located within the Wollondilly Shire Council local government area.

The planning proposal involves the establishment of an IN3: Heavy Industrial zone within the already disturbed portions of the site to facilitate future industrial development. It should be noted that Lot 31 (100 Maldon Bridge Road) contains an existing operating industrial development (concrete batching plant).

It is proposed for the existing vegetated areas to have an E2: Environmental Conservation zone.

The existing six (6) dwellings within the site will be decommissioned to facilitate the future industrial development.

The subject site is located within the Wilton Priority Growth Area, which in accordance with the Interim Land Use and Infrastructure Implementation Plan will include around 15,000 new homes, 60,000m² of retail and business space and a target of 15,000 local jobs. The subject site is nominated as being 'Employment Land' under this plan, which is consistent with this planning proposal.

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 their associated buffer zones. Subject site is therefore considered 'bushfire prone'.

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.

This report includes a Strategic Bush Fire Study and an assessment of the proposal against Chapter 8 'Other Development' in accordance with section 4.4 of PBP.

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.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire assessment and recommendations for the subject site. 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, Site Plan & Zoning

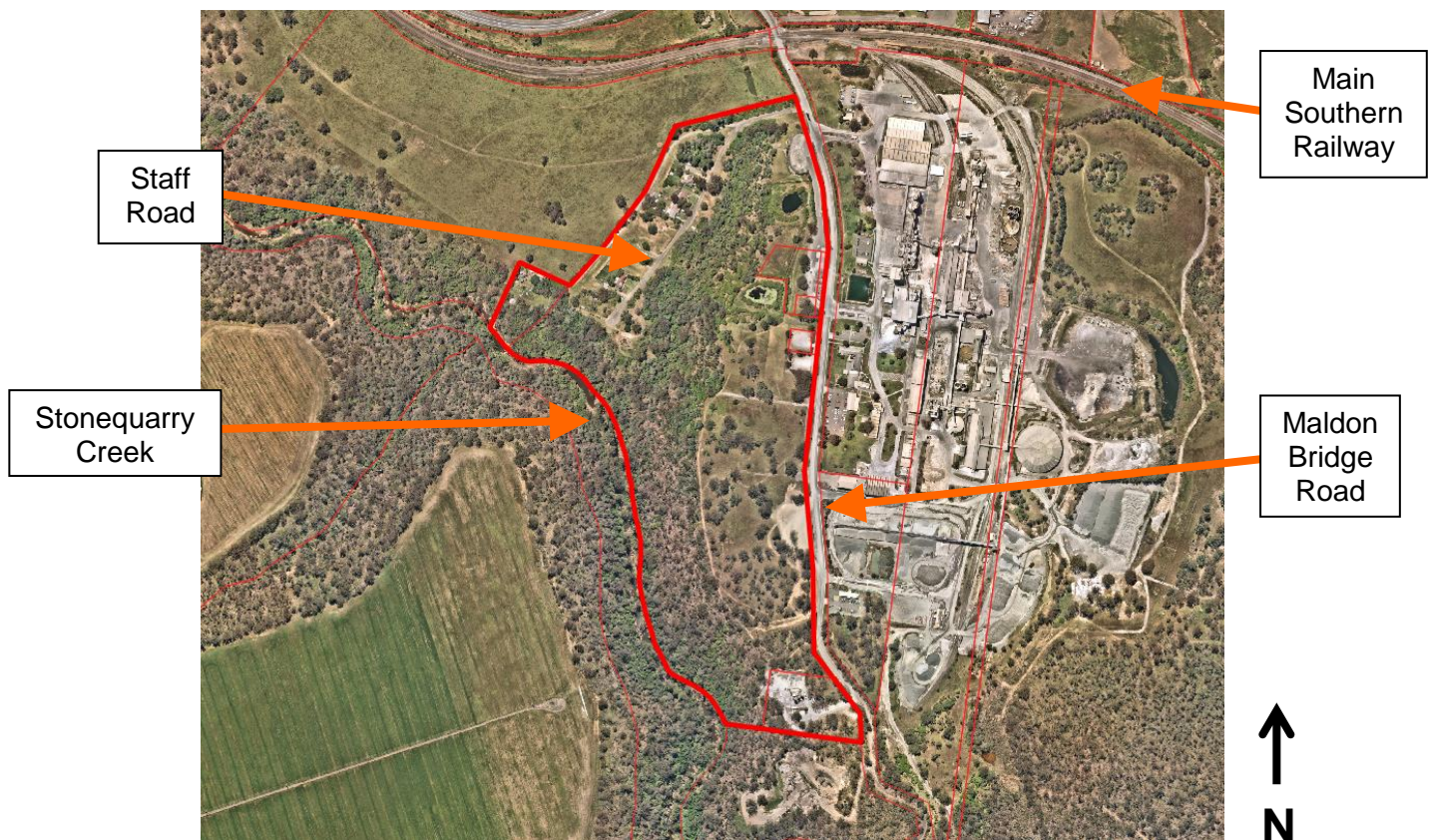


Figure 01: Aerial view of the subject site (red outline)

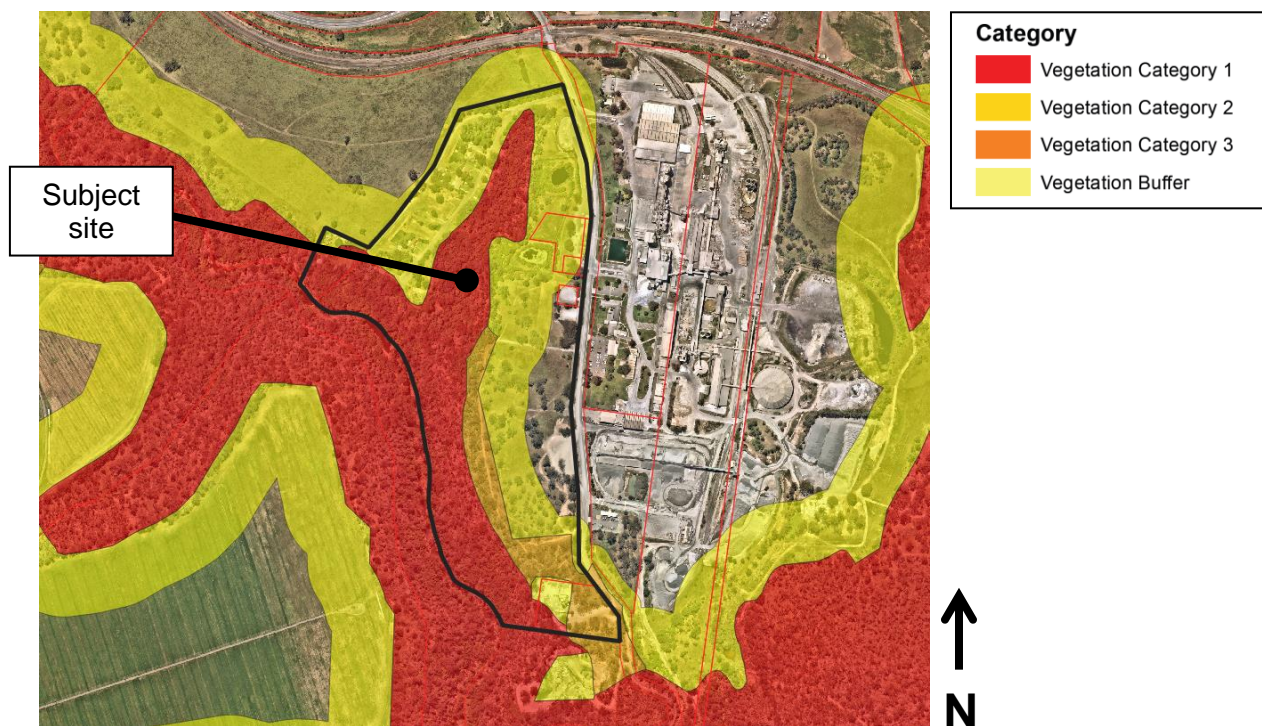


Figure 02: Extract from Wollondilly Shire Council's Bushfire Prone Land Map

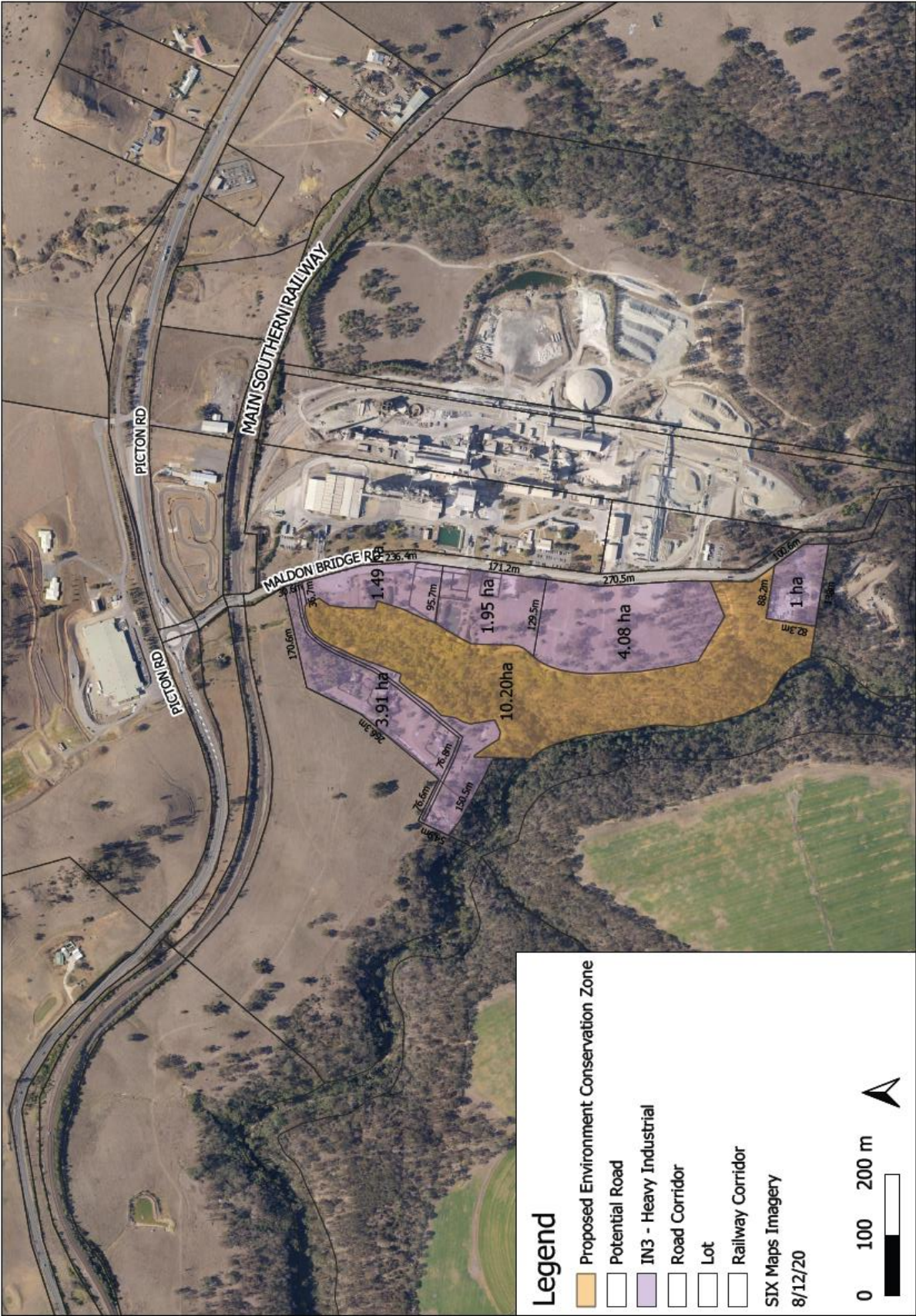


Figure 03: Extract of proposed Plan

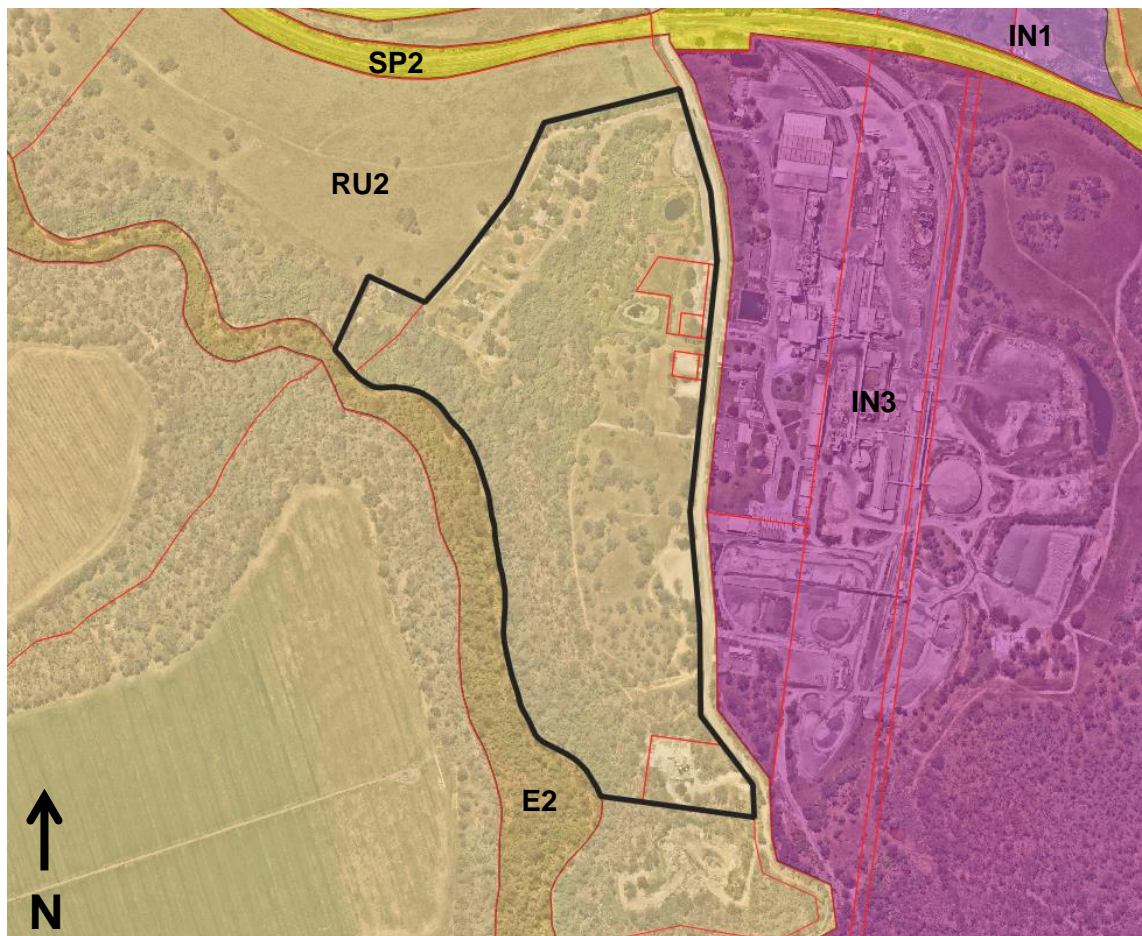


Figure 04: Land zoning of the subject area

Land Use Plan

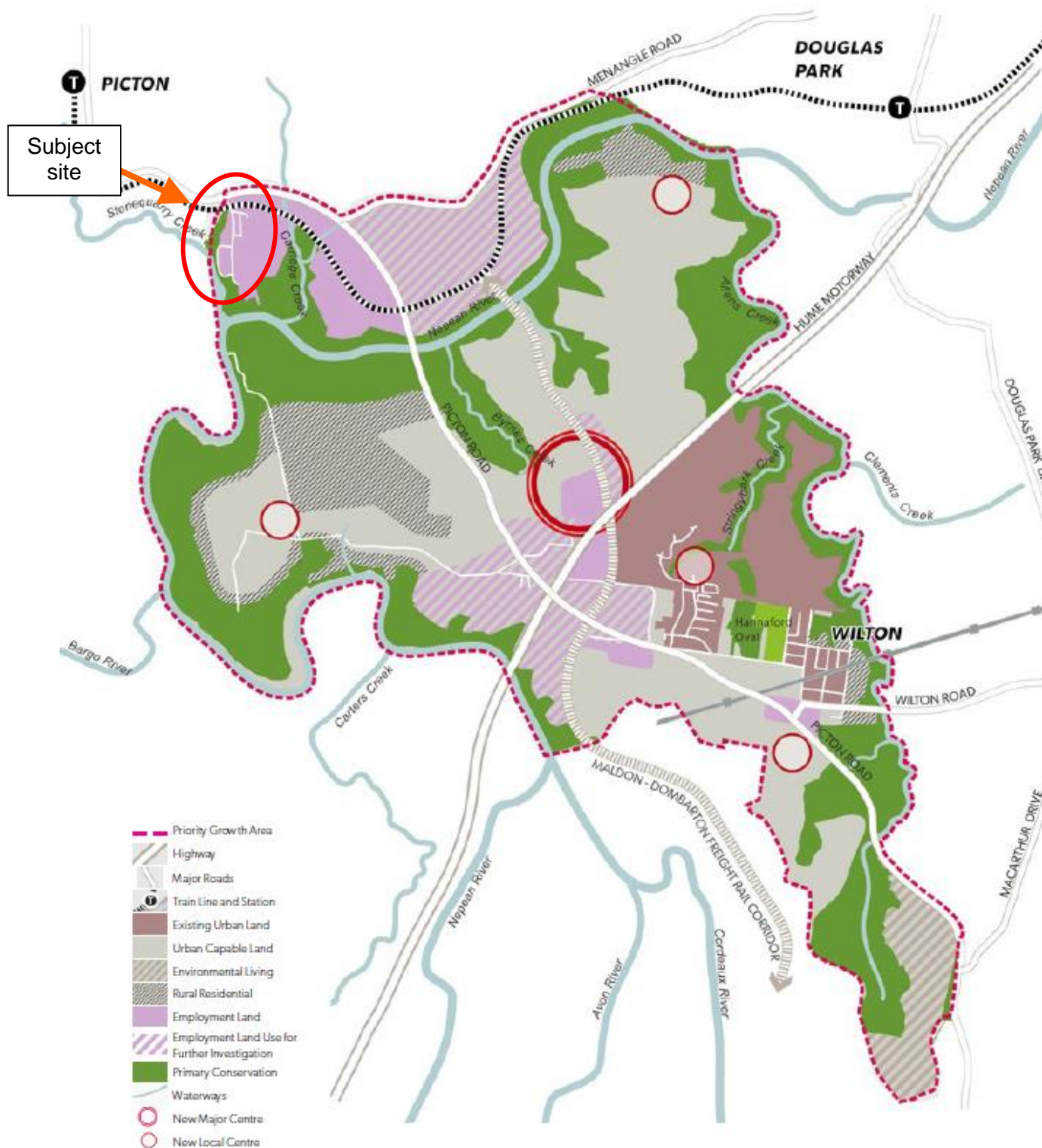


Figure 05: Wilton Priority Growth Area Land Use Plan

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 their associated buffer zones and is therefore considered 'bushfire prone'.

As the subject site is considered 'bushfire prone' Wollondilly Shire Council is required to apply section 9.1(2) of the *Environmental Planning and Assessment Act 1979* when assessing this planning proposal. 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.*

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. Where the proposal is of a strategic nature, this assessment should take the form of a Strategic Bush Fire Study as outlined in section 4.2 of PBP.

In addition to the Strategic Bush Fire Study an assessment of the proposal against Chapter 8 'Other Development' of PBP must be undertaken to ensure the future Development Applications have the capacity to comply with the relevant specifications and requirements.

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 industrial development and the relevant bushfire protection measures.

5.02 Strategic Bush Fire Study

Planning proposals of a strategic nature 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 zone and proceeding development is appropriate in the bushfire hazard context.

Once these strategic issues have been addressed in the SBFS, an assessment of whether the proposal can comply with 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 and 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 eight (8) existing allotments (zoned RU2: Rural Landscape), being:

Street Address	Lot and DP
6 Maldon Bridge Road, Maldon	Lot 3 DP 818975
Staff Road, Maldon	Lot 1 DP 162140
80 Maldon Bridge Road, Maldon	Lot 1 DP 795225
40 Maldon Bridge Road, Maldon	Lot 1 DP 1138675
40 Maldon Bridge Road, Maldon	Lot W DP 163774
45 Maldon Bridge Road, Maldon	Lot X DP 161196
42 Maldon Bridge Road, Maldon	Lot 2 DP 1138675
100 Maldon Bridge Road, Maldon	Lot 31 DP 602144

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

The subject site is within the Wilton Priority Growth Area, which in accordance with the Interim Land Use and Infrastructure Implementation Plan will include around 15,000 new homes, 60,000m² of retail and business space and a target of 15,000 local jobs.

The subject site has street frontage to Maldon Bridge Road to the east and abuts neighbouring allotments to the north and south and Stonequarry Creek to the west.

Vegetation

The subject site was predominately found to comprise of previously disturbed and managed areas with more pronounced vegetation along the tributary of Stonequarry Creek and embankment down to Stonequarry Creek.

As part of this bushfire assessment process consideration has been given to all existing vegetation within neighbouring allotments and any retained or proposed vegetated areas within the subject site. In this regard it is proposed for the existing vegetated areas to have an E2: Environmental Conservation zone (see Figure 03) and subsequently assessed as a bushfire hazard.

The vegetation identified a posing a potential bushfire / grassfire threat was found to be located to the north within a neighbouring allotment, the proposed E2: Environmental Conservation zone land within the subject site and to the south within neighbouring private allotments.

The vegetation posing a hazard within the neighbouring property to the north was found to comprise of grassland.

The proposed E2: Environmental Conservation zone land has been defined by the extent of the more natural vegetation within the subject site. This vegetation is located within well-defined gullies with a high concentration of exposed rock outcrops.

The vegetation along the tributary of Stonequarry Creek was also found to have a high concentration of known hard to burn species, including privet and pittosporums.

The vegetation within the proposed E2: Environmental Conservation zone and within the neighbouring properties to the south has been reported by EMM Consulting (2018) as predominately comprising of the following Plant Community Types:

- PCT 1395 - Narrow-leaved Ironbark – Broadleaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion
- PCT 1181 - Smooth-barked Apple – Red Bloodwood - Sydney Peppermint heathy open forest on slopes of dry sandstone gullies of western and southern Sydney, Sydney Basin Bioregion

Site observations were consistent with a Forest classification although it was noted that the presence of the rock outcrops has resulted in areas having a lower quantity of surface and near surface fuels and a sparser canopy than that commonly associated with Forest communities.

Regardless as a conservative assessment a Forest classification was adopted for the purpose of this bushfire assessment.



Figure 06: Extract aerial view of subject area with assessed Forest hazard (green shade)



Photograph 01: View of an area containing a high concentration of known hard to burn species along the tributary of Stonequarry Creek



Photograph 02: View of an area containing a high concentration of rock outcrops along Stonequarry Creek



Photograph 02: View of an area containing a high concentration of rock outcrops along Stonequarry Creek

Slope and Topography

The slope that would most significantly affect bushfire behaviour must be assessed for at least 100 metres from within the bushfire hazards.

The most significant grassfire impact from the north is expected to be a fire travelling down slope toward the subject site.

The vegetation posing a hazard along the tributary of Stonequarry Creek and Stonequarry Creek is located within well-defined gullies with a high concentration of exposed rock outcrops.

The gradient of the embankments of the tributary of Stonequarry Creek where generally found to be consistent at 5 – 10 degrees down.

It was generally observed that there is an escarpment (3-8m high) 30-50 metres from Stonquarry Creek. The gradient below this escarpment was found to exceed 20 degrees down and above was relatively flat (0-5°).

The steeper gradient beneath the escarpment has a very high concentration of exposed rock outcrops (clearly visible from aerial imagery), reducing the amount of available fuels. In consideration of the attributes of the vegetation and local landscape features we are of the opinion that application of a 15-20 effective slope is appropriate in this instance.

The slope that would most significantly influence bushfire impact was determined onsite using an inclinometer and verified using 1 metre LiDar contour mapping of the subject area and are shown in Figure 07 overleaf.

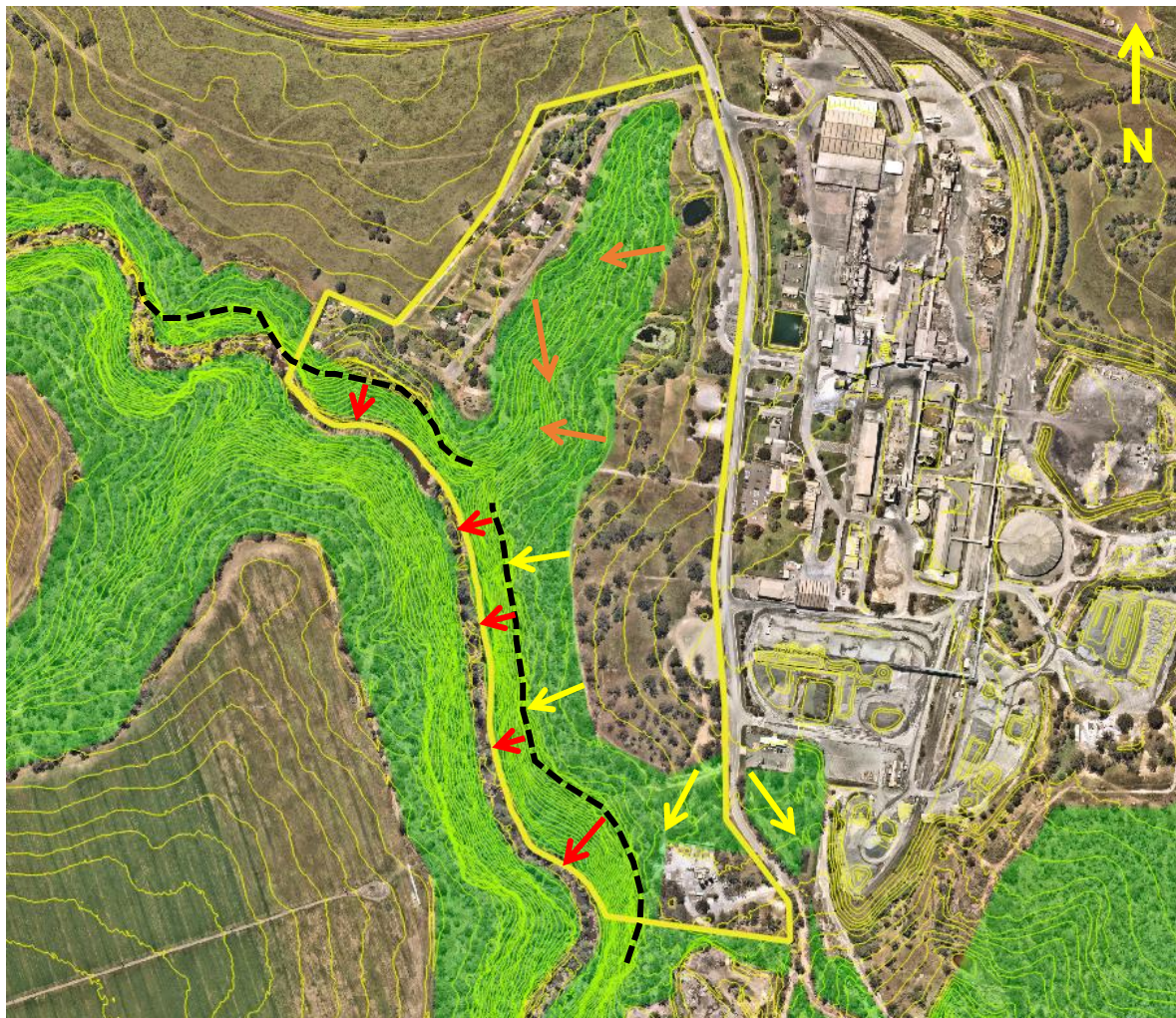


Figure 07: LiDar contour mapping of subject area (1m contours)
3-8 metre high Escarpment (black dotted line), 0-5° down (yellow arrows), 5-10° down (orange arrows) and >20° (red arrows)

Fire Weather

The subject site is located within the Greater Sydney Region Fire Area 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 there have been no recorded wildfires or hazard reductions within the subject site or immediate surrounding area (source NPWS Fire History dataset).

There were also no visual indicators of previous bushfires at the time of our inspection.

The closest recorded wildfire was found to be located >1.7 kilometres to the southeast of the subject site (Nepean River Fire 2002).

The subject site is therefore not considered to be within a known fire path. Furthermore in consideration of the previous bushfire history the likelihood of a bushfire occurring within the immediate area is considered unlikely.



Figure 08: Aerial view of the subject area

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 a direct attack.

In this particular instance the vegetation posing a bushfire hazard is concentrated along existing watercourses (Stonequarry Creek, Nepean River and their tributaries).

Access is available to this vegetation via the paddocks above, or by utilising existing road and service trails.

In consideration of the access available to and along the vegetated corridors and their exposure to the public from Picton Road the early identification of a bushfire is considered probable.

Land Use Assessment

The Land Use Assessment identifies the most appropriate locations in the Masterplan area for the proposed land uses.

In this instance the proposal does not include a broad masterplan but rather a specific 'spot' rezoning to facilitate future industrial development.

The subject site is located within the Wilton Priority Growth Area, which in accordance with the Interim Land Use and Infrastructure Implementation Plan will include around 15,000 new homes, 60,000m² of retail and business space and a target of 15,000 local jobs. The subject site is nominated as being 'Employment Land' under this plan, which is consistent with this planning proposal.

The existing six (6) dwellings within the site will be decommissioned to facilitate the future industrial development.

The proposed industrial use is considered lower risk than residential in the context of bushfire planning provisions.

The proposed IN3: Heavy Industrial zone has the following permitted use:

Depots; Freight transport facilities; General industries; Hazardous storage establishments; Heavy industries; Industrial training facilities; Intensive plant agriculture; Kiosks; Offensive storage establishments; Oyster aquaculture; Roads; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in item 2 or 4

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

Planning for Bush Fire Protection lists a number of hazardous industries that should not be permitted on bushfire prone land. Generally hazardous industries should not be located within 100 metres of a bushfire hazard and / or within 50 metres of a Grassland hazard.

Hazardous industries include but are not limited to:

- power generating works
- sawmills
- junk yards
- liquid fuel depots
- hazardous industries/storage
- chemical industries/storage
- service stations
- ammunition storage/manufacture
- fireworks manufacture/storage.

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

We are of the opinion the proposed land use is appropriate.

Access and Egress

The subject site is accessed via Maldon Bridge Road to the east.

The key evacuation route from the subject site is to the east via Maldon Bridge Road and Picton Road further north. This key evacuation route is away from the identified bushfire hazards.

Maldon Bridge Road and Picton Road were found to exceed the minimum carriageway requirements for perimeter roads as described in section 5.3.2 of PBP.

In consideration of the surrounding road network and proposed use the access and egress routes are considered acceptable.

Emergency Services

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

The subject site is located within the NSW Rural Fire Service area and has two (2) fire stations (NSW Rural Fire Service and NSW Fire & Rescue) located approximately 3 kilometres (measure in line of sight) (source street-directory.com.au) in Picton.

In consideration of the relatively modest size of the future industrial development 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.

The subject site is connected to reticulated towns water which in this locality is serviced by Sydney Water. The capabilities of the broader hydrant network is the responsibility of Sydney Water. The modest size of the future industrial development is unlikely to have a significant adverse impact on this system.

The site contains an existing hydrant system which will be upgraded / modified to service the future industrial development as needed. The sizing, spacing and pressures of the internal hydrant system must comply with AS2419.1-2005.

5.03 Planning for Bush Fire Protection

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

One of the objectives underpinning Planning for Bush Fire Protection is to provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings.

Asset Protection Zones

While there are no minimum required Asset Protection Zones for this type of development it is acknowledged that for commercial and industrial development PBP requires that the provisions within Chapter 7, inclusive of APZs, are to be used as the base for the package of measures.

Chapter 7 requires that APZs are provided in accordance with table A1.12.2, which details the minimum APZs to achieve 29kW/m² (BAL 29).

Figure 09 depicts the minimum APZs for residential development as determined from table A1.12.2, which can be achieved entirely within the subject site.

The subject site has the capacity to comply with the minimum required Asset Protection Zones for residential development as detailed in PBP.

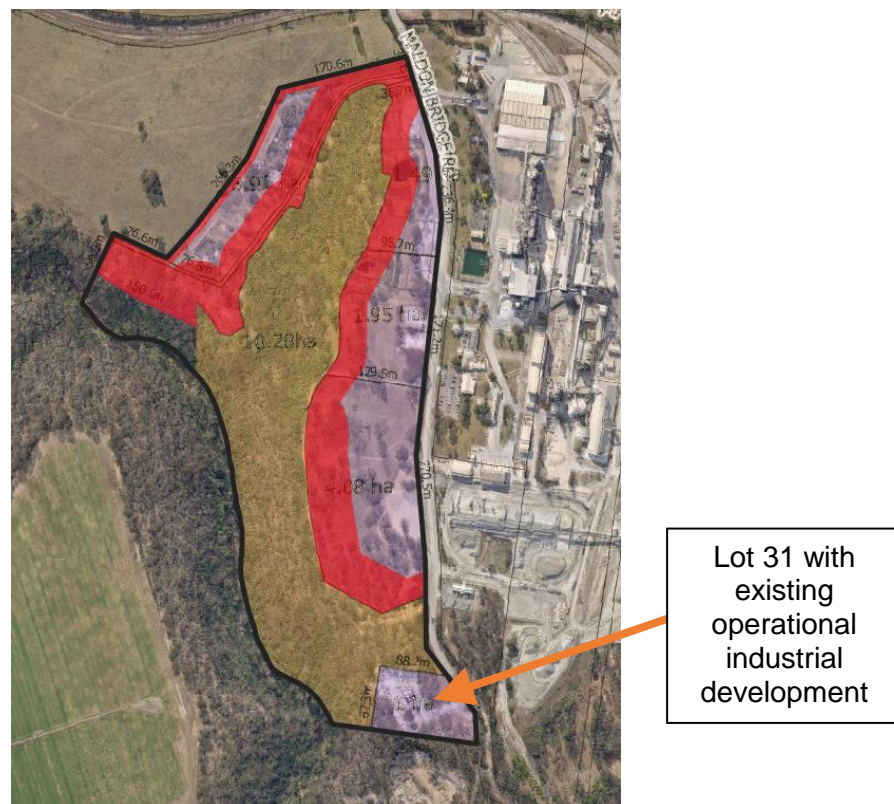


Figure 09: Aerial view of the subject site overlaid with the APZs detailed in Chapter 7

Fire Fighting Water Supply

The site contains an existing hydrant system which will be upgraded / modified to service the future industrial buildings as needed. The sizing, spacing and pressures of any upgrade / modification must comply with AS2419.1-2005.

Hydrants are also available along Maldon Bridge Road and Picton Road for the replenishment of attending fire services.

The subject site has the capacity to comply with the Water Supply requirements as detailed in Chapter 7 of PBP.

Property Access

The subject site has street frontage to Maldon Bridge Road to the east.

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

Perimeter roads are typically provided to separate bushland from urban / industrial areas, allowing more efficient use of firefighting resources. Perimeter roads also provide space to conduct firefighting operations and hazard reduction activities.

The proposal does not include detail on future access arrangements however in consideration of the size of the properties we are satisfied that the future internal road system has the capacity to comply with the requirements for Access under Chapter 7 of PBP.

Construction

The objectives of Planning for Bush Fire Protection – 2019 are for the protection of life including fire fighters. Provided these objectives can be met the construction of buildings is feasible and both the Rural Fire Service and Council should be in a position to consider such applications.

No new buildings are proposed as part of this application. Future industrial development will require further assessment under s4.14 of the *Environmental Planning and Assessment Act 1997* or *State Environmental Planning Policy (Exempt and Complying Development)* 2008 at the time of any application for the construction of any new building.

6.0 Conclusion

The subject site comprises of eight (8) existing allotments (Lot 1 DP 748675, Lot 1 DP 162140, Lot 1 DP 795225, Lot 1 DP 1138675, Lot W DP 163774, Lot 31 DP 602144, Lot X DP 161196 and Lot 2 DP 1138675) zoned RU2: Rural Landscape. The subject site is located within the Wollondilly Shire Council local government area.

The planning proposal involves the establishment of an IN3: Heavy Industrial zone within the already disturbed portions of the site to facilitate future industrial development. It should be noted that Lot 31 (100 Maldon Bridge Road) contains an existing operating industrial development (concrete batching plant). It is proposed for the existing vegetated areas to have an E2: Environmental Conservation zone.

The existing six (6) dwellings within the site will be decommissioned to facilitate the future industrial development.

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 their associated buffer zones. Subject site is therefore considered 'bushfire prone'.

We are satisfied that the subject site and proposed Concept Layout 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 Concept Layout 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 rezoning application.

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

Prepared by
Building Code & Bushfire Hazard Solutions P/L



Stuart McMonnies

Manager Bushfire Section
G. D. Design in Bushfire Prone Areas.
Certificate IV Fire Technology
Fire Protection Association of Australia BPAD – L3 Accredited Practitioner
Certification number – BPAD9400



7.0 Annexure 01

List of Referenced Documents

Australian Building Codes Board (2019). *National Construction Code Volume Two - Building Code of Australia*. ABCB

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Attachments

Attachment 01: N/A