



## Strategic Bush Fire Study

Lot 23 DP1244350, 505 Minmi Road, Fletcher

Prepared for  
**Barr Planning**

V3 Final / December 2021

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Approval for use:



**Matt Doherty - Director**

16-12-2021

*This report has been prepared in accordance with Planning for Bushfire Protection 2019 and certifies the development conforms to the specifications and requirements of S4.14 of the Environmental Planning and Assessment Act 1979.*

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*Finally, the implementation of the measures and recommendations forwarded within this report would contribute to the amelioration of the potential impact of any bushfire upon the development site, but they do not and cannot guarantee that the area will not be affected by bushfire at some time.*

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## GLOSSARY OF TERMS AND ABBREVIATIONS

Term/ Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419-2005	Australian Standard – Fire Hydrant Installations
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BAR	Bushfire Assessment Report
BCA	Building Code of Australia
BC Act	Biodiversity Conservation Act 2016
BMP	Bush Fire Management Plan
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BPL	Bush Fire Prone Land
BPLM	Bush Fire Prone Land Map
BPM	Bush Fire Protection Measures
DoE	Commonwealth Department of the Environment
DPI Water	NSW Department of Primary Industries – Water
EPA Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
FDI	Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
LLS Act	Local Land Services Act 2013
OPA	Outer Protection Area
OEH	NSW Office of Environment and Heritage
PBP or PBP (2019)	Planning for Bushfire Protection 2019
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation
RFS	NSW Rural Fire Service
TSC Act	NSW Threatened Species Conservation Act 1995 (as repealed)

# 1 Introduction

MJD Environmental has been engaged by Barr Planning to prepare a Strategic Bushfire Study (SBFS) to accompany a Planning Proposal application for the rezoning of a 26.2 hectare parcel of land at Lot 23 in DP 1244350, 505 Minmi Rd, Fletcher, hereafter referred to as the 'site' (**Figure 1**).

The assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal, and to outline the minimum mitigative measures which would be required in accordance with *Planning for Bush Fire Protection 2019* (PBP), as adopted through the *Environmental Planning & Assessment Amendment* (Planning for Bush Fire Protection) *Regulation 2020*.

In order to determine whether the proposed development is bushfire-prone, and if so, which setbacks and other relevant Bush Fire Protection Measures (BPM) will be appropriate, this assessment adheres to the methodology and procedures outlined in PBP (2019) via assessment of acceptable solutions as outlined in Chapter 4 and Chapter 5 of PBP (2019).

This assessment has been made based on the bushfire hazards in and around the site at the time of site inspection and report production.

## 1.1 Description of Proposal

The objective of the Planning Proposal is to amend the Newcastle Local Environmental Plan 2012 to facilitate the future delivery of the site for low density residential subdivision development and environmental conservation purposes. The rezoning seeks to zone the 26.2ha parcel into the following areas:

- R2 - Low Density Residential 13.2ha
- E2 - Environmental Conservation 13ha

Refer to **Appendix A** for plans of the proposal.

## 1.2 Aims & Objectives

PBP (2019) states in Chapter 4, the study of bushfire context ensures that future land uses are in appropriate locations to minimise the risk to life and property from bush fire attack. Services and infrastructure that facilitate effective suppression of bushfires also need to be provided for at the earliest stages of planning.

The bushfire risk is considered at the macro-scale, looking at fire runs, steep slopes and any areas of isolation. The amount of proposed development interfacing vegetation will also be considered. Firefighting access and evacuation potential must be considered as well as an assessment of traffic volumes and evacuation routes. The study will highlight areas with a significant fire history and any known fire paths

The broad principles which apply to this 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.

Strategic planning should provide for the exclusion of inappropriate development in bush fire prone areas in the following circumstances:

- 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 bushfire due to its siting in the landscape, access limitations, fire history and/or size and scale;
- the development will adversely affect other bushfire 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.

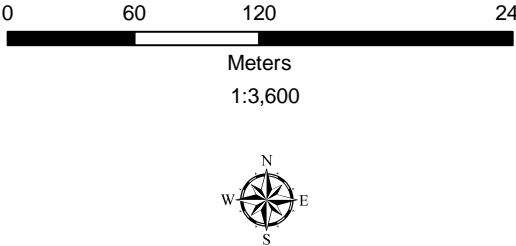
### 1.3 Site Particulars

<b>Locality</b>	The site is located in Fletcher
<b>Land Title</b>	Lot 23 DP 1244350
<b>LGA</b>	City of Newcastle Council
<b>Area</b>	26.2ha (approx.)
<b>Zoning</b>	The site is currently zoned E4 – Environmental Living (DPE 2021).
<b>Boundaries</b>	T The Study Area is situated in the recently established residential precinct of the Fletcher village with residential lots under construction adjoining the Study Area to the East and North, vacant land zoned as R2 - Low Density Residential to the West and to the South by E2 – Environmental Conservation zoned lands. The Study Area is bound by frontage (North) to Minmi Road.
<b>Current Land Use</b>	The lot is currently a vacant bush block, comprising native vegetation, unsealed roads, fences, rubbish dumps and motorcycle/bicycle tracks.
<b>Topography</b>	The highest point of Study Area is located on the Eastern boundary at 53m ASL. The land falls steeply from the East (~20m ASL) until it reaches a creekline (28m ASL) and elevates again towards the west to 38m ASL.
<b>Climate / Fire History</b>	The site lies within a geographical area with a Fire Danger Index (FDI) rating of 100. The site is classified as being affected by Category 1 Vegetation and Vegetation Buffers from Category 1 Vegetation on the Bushfire Prone Land Map (DPE 2021). Refer to <b>Figure 2</b> .
<b>Environment &amp; Cultural Significance</b>	The planning proposal has been informed by an Aboriginal Cultural Heritage Assessment and Environmental Assessment.



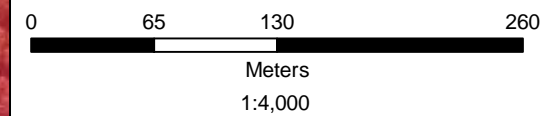


505 MINMI RD, FLETCHER  
SLOPE AND VEGETATION CLASSIFICATION



- Legend**
- Watercourse
  - Subject Site
  - Slope Classification Buffer (100m)
  - Vegetation Classification Buffer (140m)
  - Cadastral Boundaries







## 2 Bushfire Hazard Analysis

### 2.1 Vegetation Assessment

#### Methodology

The vegetation in and around the site, to a distance of 140m, has been assessed in accordance with PBP 2019. This assessment has been made via a combination of:

- aerial photo interpretation;
- on-site vegetation classification aided by GPS; and
- reference to regional community vegetation mapping (including Greater Hunter and Keith).

These vegetation communities have been classified for bushfire purposes into structure and formation using the system adopted by Keith (2004) and using Figure A1.2 of PBP (2019) with due regard to Appendix 1 of PBP (2019).

#### Vegetation Classification

Vegetation classification for the site has been presented in **Table 1** below and **Figure 3**. Vegetation classification has been separated in to the Eastern and Western portion of the site where a proposed R2 zoning would be established.

**Table 1 Vegetation Classification**

Direction	Description	Vegetation Classification
<b>Eastern</b>		
North-west	Minmi Road followed by established residential subdivision	Managed - No Hazard
North-east	Minmi Road followed by grassland area transitioning to riparian corridor. This area is the subject of a proposed development (MP06_0031) and fuel load will be managed in the future	Grassland/ Forest
East	Residential subdivision	Managed - No Hazard
South-east	The area is currently managed to APZ standards and is subject to a proposed development (DA04/2782) and part of the Newcastle Link Road residential subdivision (MP10_0090)	Managed - No Hazard
South-west	Forested corridor approximately 100m wide zoned E2 (Environmental Conservation), backed onto a residential subdivision development in progress (Newcastle Link Rd MP10_0090, DA 2015/10360)	Forest
West	Forested area proposed for conservation, approximately 10.8ha in size. The complex topology has 4 distinct gullies forming a 1 <sup>st</sup> order stream and feeds into a small natural waterbody	Forest
<b>Western</b>		
North-west	Minmi Road followed by grassland with small patches of forest	Grassland/ Forest
North-east	Minmi Road followed by established residential subdivision	Managed - No Hazard
East	Forested area proposed for conservation, approximately 10.8ha in size. The complex topology has 4 distinct gullies forming a 1 <sup>st</sup> order stream and feeds into a small natural waterbody	Forest
South	Forest across a large area. Summerhill Waste Facility tenure lies approximately 50m south of the	Forest



	development. A dam, approximately 0.4ha, sits just inside the Summerhill property	
South-east	Forested corridor approximately 100m wide zoned E2 (Environmental Conservation), backed onto a residential subdivision development in progress (Newcastle Link Rd MP10_0090, DA 2015/10360)	Forest
West	Currently the land is forested but is approved to be developed as a residential subdivision (Newcastle Link Rd MP10_0090, DA 2015/10393)	Currently Forest, will become Managed – No Hazard following future development of approved subdivision.

## 2.2 Slope Assessment

### Methodology

In accordance with PBP (2019), an assessment of the slope was conducted throughout the site (where a hazard is present) and for a distance of 100m around the site in the hazard direction. Both the average slope and maximum slopes were considered to determine the level of gradient which will most significantly influence fire behaviour on the site. The slope transect was categorised within the slope classification under PBP Appendix A1.4.

Slope assessment was assisted by:

- Preparation of elevation model based on state LiDAR data; and
- Preparation of slope assessment based on 1m contours

### Effective Slope

The slope class under the bushfire hazard within 100m is presented in **Table 2** below and **Figure 3**.

**Table 2 Slope Class**

Direction	Vegetation Classification	Slope Class
<b>Eastern</b>		
North-east	Grassland/ Forest	10-15° Downslope
South-west	Forest	Upslope
West	Forest	5-10° Downslope / 10-15° Downslope
<b>Western</b>		
North-west	Grassland/ Forest	Upslope
East	Forest	Upslope / 0-5° Downslope
South	Forest	0-5° Downslope
West	Managed – following subdivision construction per development approval NCC DA 2015/10393	5-10° Downslope



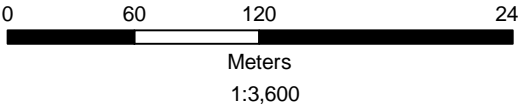


505 MINMI RD, FLETCHER  
SLOPE AND VEGETATION CLASSIFICATION

- Legend**

  - Elevation
  - Transects
  - Watercourse
  - Contours (1m)
  - Subject Site
  - Slope Classification Buffer (100m)
  - Vegetation Classification Buffer (140m)
  - Cadastral Boundaries
- Vegetation (Keith 2004)**

  - Forest
  - Grassland
  - Managed Land
  - Managed as APZ
  - Waterbody
  - Development Footprint



Aerial: NearMap (2020) | Base map: | Data: MJD Environmental, NSW DPIE, NSW Spatial Services (2020) | Datum/Projection: GDA 2020 MGA Zone 56 | Date: 23/11/2021 | Version 1 | GIS19082 - Planning Proposal 505 Minmi Rd, Fletcher | This plan should not be relied upon for critical design dimensions.



## 3 Bushfire Protection Measures

PBP sets out a suite of BPMs and criteria that require consideration and assessment for applicable proposals on bushfire prone land in order to provide an adequate level of protection to new developments.

The measures required to be assessed are listed below and discussed throughout this chapter:

- Asset Protection Zones (APZ)
- Bushfire Attack Levels (BAL) set out in PBP 2019
- Landscaping and Fuel Management

Measures pertaining to the items listed below are addressed in Chapter 4 of this report as it relates to the Strategic Bush Fire Study:

- Access
- Services – Water supply, Gas and Electricity
- Emergency Management

### 3.1 Asset Protection Zone

An APZ is a buffer zone between the hazard and buildings that is progressively managed to minimise bushfire hazard (fuel loads and reduce potential radiant heat levels, flame, ember and smoke attack) PBP (2019), in order to mitigate risk to life and asset. Where a forest or woodland vegetation classification has been determined, an APZ can consist of two areas being:

- 1) Inner Protection Area (IPA) – The IPA extends from the edge of the development/ buildings to the OPA. The IPA aims to provide defensible space and reduce potential for direct or spontaneous ignition by providing a heavily reduced or fuel free zone.
- 2) Outer Protection Area (OPA) – The OPA is located adjacent to the hazard. Within the OPA any trees and shrubs should be maintained in a manner such that the vegetation is not continuous in order to reduce flame length and fire intensity. A properly managed OPA can aid in ember attack by filtering embers and slowing the fires rate of spread.

An APZ can include the following:

- Lawns;
- discontinuous gardens;
- swimming pools;
- driveways;
- detached garages;
- open space / parkland;
- car parking; and
- cycleway and formed walkways.

#### 3.1.1 Determining APZs

The subject site lies within the City of Newcastle LGA and therefore is assessed under an FDI (Fire Danger Index) rating of 100. Table 5.3a and Table A1.12.2 within PBP (2019), the acceptable solution setbacks have been calculated based on the bushfire hazard analysis presented in Chapter 2. Notably, as the planning proposal is for future residential subdivision, performance criteria for APZs is satisfied if radiant heat levels 29kW/m<sup>2</sup> or less are experienced at the building or in this case suitable area exists to establish a dwelling at BAL-29 or lower exposure. Refer to **Table 3** below and **Figure 4** for the required APZ.

**Table 3 Required APZ (PBP 2019)**

Direction	Vegetation Classification	Slope Class	Required APZ
<b>Eastern</b>			
North-east	Grassland/ Forest	10-15° Downslope	45m
South-west	Forest	Upslope	24m
West	Forest	5-10° Downslope / 10-15° Downslope	36m / 45m
<b>Western</b>			
North-west	Grassland/ Forest	Upslope	24m
East	Forest	Upslope / 0-5° Downslope	24m / 29m
South	Forest	0-5° Downslope	29m
West	Currently Forest, Managed – following subdivision construction per development approval NCC DA 2015/10393	5-10° Downslope	36m as temporary APZ until such time that development occurs to the west.

### 3.1.2 Determining BAL

Acceptable solution BAL has been set out in Appendix 1 Table A1.12.5 of PBP (2019). The APZ determined in **Section 3.1.1** achieves the RFS objective for a maximum BAL exposure of BAL-29 to any new lot in a residential subdivision. Future subdivision design should be guided by the required APZ and ensure that all future building envelopes on lots to be created will not be exposed to BAL greater than BAL-29.

On the basis of the APZ mapping provided it is considered at this early stage in the site planning process that the site is readily capable of complying with PBP 2019 BAL requirements.

## 3.2 Landscaping & Fuel Management

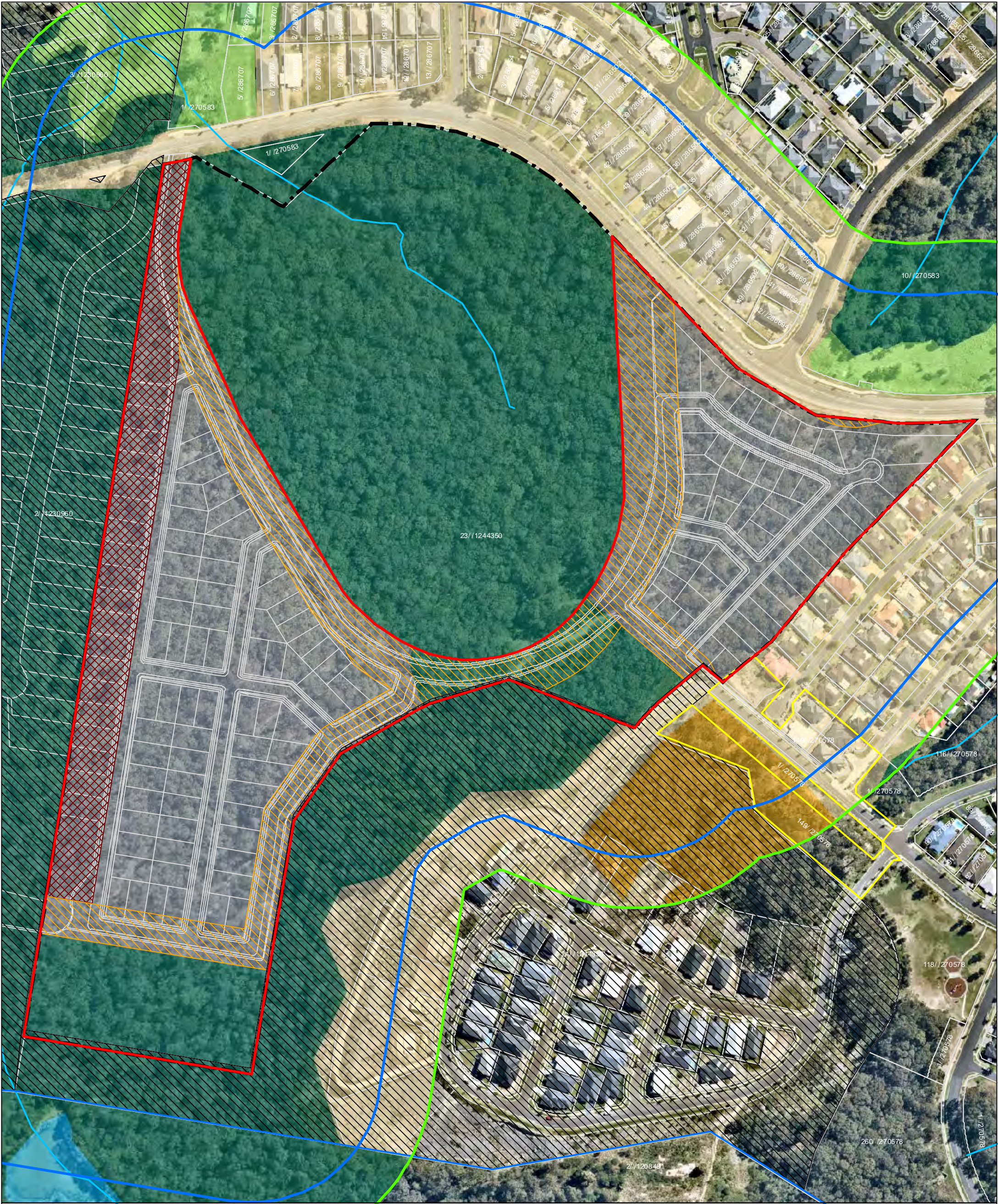
All future landscaping on the site should be designed and managed to minimise impact of bushfire based on the principles set out in PBP (2019) being:

- Prevent flame contact / direct ignition on the dwelling;
- Provide a defensible space for property protection;
- Reduce fire spread;
- Deflect and filter embers;
- Provide shelter from radiant heat; and
- Reduce wind speed.

In this manner, consideration should be given to species selection, planting location, flammability and size at maturity to ensure discontinuous canopy/ structure both vertically and horizontally to ensure the above principles are met.

Ongoing fuel management across the residential zoned site area as part of the maintenance regime should give due consideration to Appendix 4 Asset Protection Zone Requirements of PBP (2019) which provides guidance on maintenance activities to assist in achieving the landscape principles.





505 MINMI RD, FLETCHER

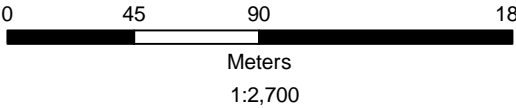
FIGURE 4: REQUIRED ASSET PROTECTION ZONES (PBP 2019)

Legend

- Proposed and Existing Lots
- Watercourse
- Subject Site
- Study Area
- Slope Classification Buffer (100m)
- Vegetation Classification Buffer (140m)

- Required APZ
- Temporary APZ
- Adjacent Tenures
  - DA04/2782
  - Summerhill Waste Facility
  - Winten Development

- Vegetation (Keith 2004)
- Forest
  - Grassland
  - Managed Land
  - Managed as APZ
  - Waterbody
  - Development Footprint



Aerial: NearMap (2021) | Data: MJD Environmental, Moir LA (2021), NSW Spatial Services (2019) | Datum/Projection: GDA 1994 MGA Zone 56 | Date: 22/12/2021 | Version 1 | GIS19082 - Planning Proposal 505 Minmi Rd, Fletcher | This plan should not be relied upon for critical design dimensions.



## 4 Bush Fire Strategic Study

### 4.1 Bush Fire Landscape Assessment

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

*This bushfire landscape assessment considers the likelihood of a bush fire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape.*

- *The Bushfire hazard in the surrounding area, including:*
  - *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.*

A landscape analysis relating to bushfire has been undertaken within a 2 kilometre buffer of the site. This analysis has considered:

- Topography (**Figure 5**)
- Mean annual rain fall (**Figure 6**)
- Mean annual temperatures (**Figure 7**)
- Wildfire History (**Figure 8**)
- Current Landuse including approved developments yet to physically commence over Keith (2004) vegetation (**Figure 9**)
- Current / proposed landuse over zoning (**Figure 10**)

The bushfire hazard surrounding the site is generally represented by topography consisting of foothills that slope toward floodplains. Vegetation is fragmented by the urban fabric and road network. Additionally, a large concept approved (refer to **Appendix B**) development (former Coal and Allied now owned by Winten Property Group) will remove large portions of vegetation that currently represent a local hazard to the west and south. In doing so there will be a much larger urban setting in the locality with a reduced bushland area limited to riparian connections and Blue Gum Hills Regional Park and the Summer Hill Waste Facility. To the north-east the final stage of The Outlook will increase the urban footprint. Vegetation in the locality is characterised by Keith (2004) as Dry Sclerophyll Forest on the foothills and Freshwater Wetlands, Forested Wetlands on the floodplain. Riparian corridors have an association with wet sclerophyll forests.

The temperate climate as evidenced by the mean precipitation and temperatures is characteristic of the coastal zone with warm to hot summers at peak and cool winter periods. Rainfall patterns generally make for a dryer period in the peak of summer.

On the basis of the local climate coupled with vegetation and topography, history of severe fire behaviour in the area is well documented, however as neighbouring subdivision Development Applications are approved (Winten) the vegetation connectivity in the immediate vicinity shall be significantly reduced, thus the potential for severe fires to develop within the site will also be diminished.

NSW NPWS fire history records several recent wildfires that occurred in close proximity to the site as follows:

- To the south, fires centred on the *Blue Gums Hills Regional Park* burned closest to the site, coming within 500m of the site's Southern Boundary - fires recorded: 2001-02, 2002-03, 2006-07, 2011-12.
- To the west, fires in the recent past have burnt up to the M1 Pacific Freeway, coming within 1.5km West of the site - fires recorded: 2001-02, 2010-11, 2013-14.
- To the east, fires in the recent past have burned the freshwater wetlands, twice burning to the edge of the established suburb of Maryland, 2.5kms to the East - fires recorded: 2005-06, 2009-10, 2013-14.

A table has been provided in **Appendix C** lists all fires larger than 1Ha that occurred within 10km of the site (NPWS fire history data-20200817). These fires occurred within the Newcastle, Lake Macquarie and Cessnock LGAs.

### ***Potential fire runs into the site and the intensity of such fire runs***

Potential fire runs into the site are most likely from a South/South-Westerly direction, as a riparian corridor West of the site would allow a fire from *Blue Gums Hills Regional Park* to run uphill towards the site's Southern or Western site boundary to the proposed developments. The fact that a first-order branch of "Back Creek" runs diagonally across the Southern boundary of the site mitigates this threat somewhat, allowing greater soil moisture and vegetation greenness in the area, decreasing vegetation flammability lowering potential fire rate of spread.

Likewise, the *Summerhill waste treatment facility* located to the South & South-East of the site is the only other substantial area of dense vegetation proximate to the site. As the waste treatment facility contains an elevated area higher than the site, any fire run to the site would be downhill- greatly reducing the rate of spread of any fire towards the site. The primary bushfire threat from the *Summerhill waste treatment facility* & *Blue Gums Hills Regional Park* is in the form of ember attack igniting spot fires in the vicinity.

Ember attack from the West is more likely, as prevailing winds during the bushfire season often come from a North-Westerly direction. West of the site at the M1 motorway and into the Sugarloaf Range is the largest area of vegetation, potential fuel for spotting to occur. Notwithstanding the Winten development occupies the immediate western landscape and spans to the M1 Motorway.

### ***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.***

The planning proposal and indicative layout incorporates a central ring road that, with Minmi Road, encircles the steeper central area of the denser hazard vegetation. This design element aids emergency services in the access to and suppression of any fire that occurs within this vegetated central area. Perimeter roads also bound the site's southern boundaries, allowing greatly improved access to the 150m wide strip of hazard vegetation between the site and Waterside Drive – of the neighbouring approved suburban development (NCC DA 2015/10393)

To a large extent the ability of emergency services to access and suppress a fire depends on access to and within the nearby bushfire hazards. NPWS fire history records and current development plans indicate that the only substantial tract of bushfire-prone land to remain nearby the site is the *Summerhill waste treatment facility* and *Blue Gums Hills Regional Park*. The inclusion of a perimeter road surrounding the 10 lots in the southernmost protrusion of the proposed development serve to greatly enhance the ability of emergency responders to defend properties from a bushfire, and also to access these adjacent sites from the North- which are currently only accessible from the South via *Summerhill waste treatment facility* or West via *Blue Gums Hills RP*. Furthermore the continuity of nearby bushfire hazards is low, and fragmentation of landscape fuels in the vicinity is high – these factors as well as the moderate complexity of the terrain, do not serve to increase the level of threat to emergency responders.

The findings of this bushfire landscape assessment are that the site does not exhibit any significant features that would make it more likely to experience a bushfire of undue severity or intensity. The potential impact on life and property of the site is not worsened by the context of the broader surrounding landscape in which it is situated.



505 MINMI RD, FLETCHER  
DIGITAL ELEVATION MODEL

Legend

- Watercourse
- Study Area
- 2km Buffer from Site
- Local Government Area

Adjacent Tenures

- DA04/2782
- Outlook Estate
- Summerhill Waste Facility
- Winten Development
- National Park Estate

Elevation (m)

- 210
- 160
- 100
- 50
- 5



0 410 820 1,640  
Meters  
1:25,000



Base map: © Department of Customer Service 2020 | Data:  
MJD Environmental, NSW DPI, NSW Spatial Services  
(2020) | Datum/Projection: GDA 2020 MGA Zone 56 | Date:  
17/09/2020 | Version 1 | GIS\19082 - Planning Proposal 505  
Minmi Rd, Fletcher | This plan should not be relied upon for  
critical design dimensions.



505 MINMI RD, FLETCHER  
**MEAN ANNUAL  
PRECIPITATION**

**Legend**

- Watercourse
- Study Area
- 2km Buffer from Site
- Local Government Area

**Adjacent Tenures**

- DA04/2782
- Outlook Estate
- Summerhill Waste Facility
- Winten Development
- National Park Estate

**Mean Annual Precipitation (mm)**

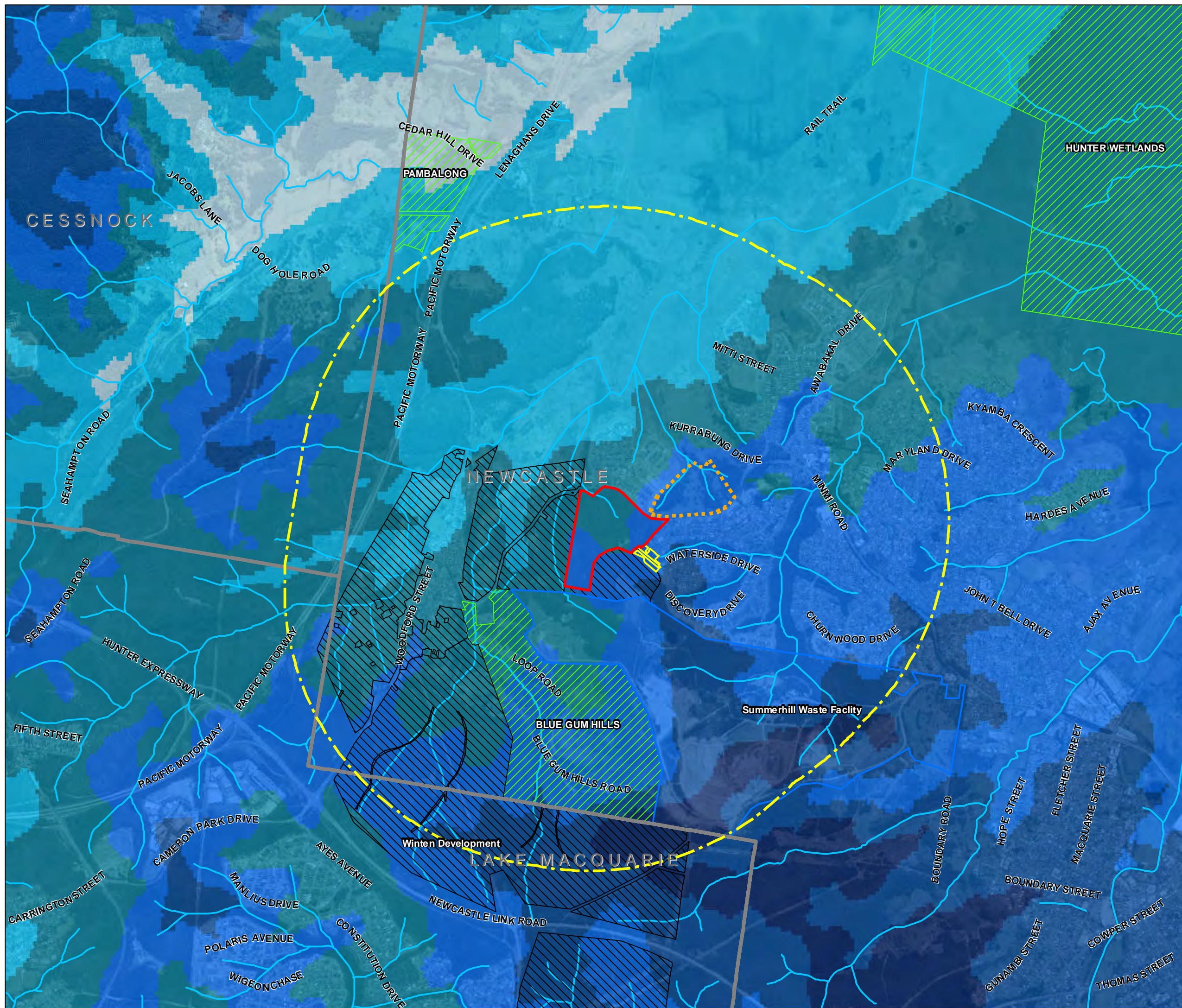
- 981 - 1,000
- 1,001 - 1,020
- 1,021 - 1,040
- 1,041 - 1,060
- 1,061 - 1,080
- 1,081 - 1,100



0 410 820 1,640  
Meters  
1:25,000



Base map: © Department of Customer Service 2020 | Data:  
MJD Environmental, NSW DPI, NSW Spatial Services  
(2020) | Datum/Projection: GDA 2020 MGA Zone 56 | Date:  
17/09/2020 | Version 1 | GIS\19082 - Planning Proposal 505  
Minmi Rd, Fletcher | This plan should not be relied upon for  
critical design dimensions.





505 MINMI RD, FLETCHER  
**MEAN ANNUAL  
TEMPERATURE**

**Legend**

- Watercourse
- Study Area
- 2km Buffer from Site
- Local Government Area

**Adjacent Tenures**

- DA04/2782
- Outlook Estate
- Summerhill Waste Facility
- Winten Development
- National Park Estate

**Mean Annual Temperature (C°)**

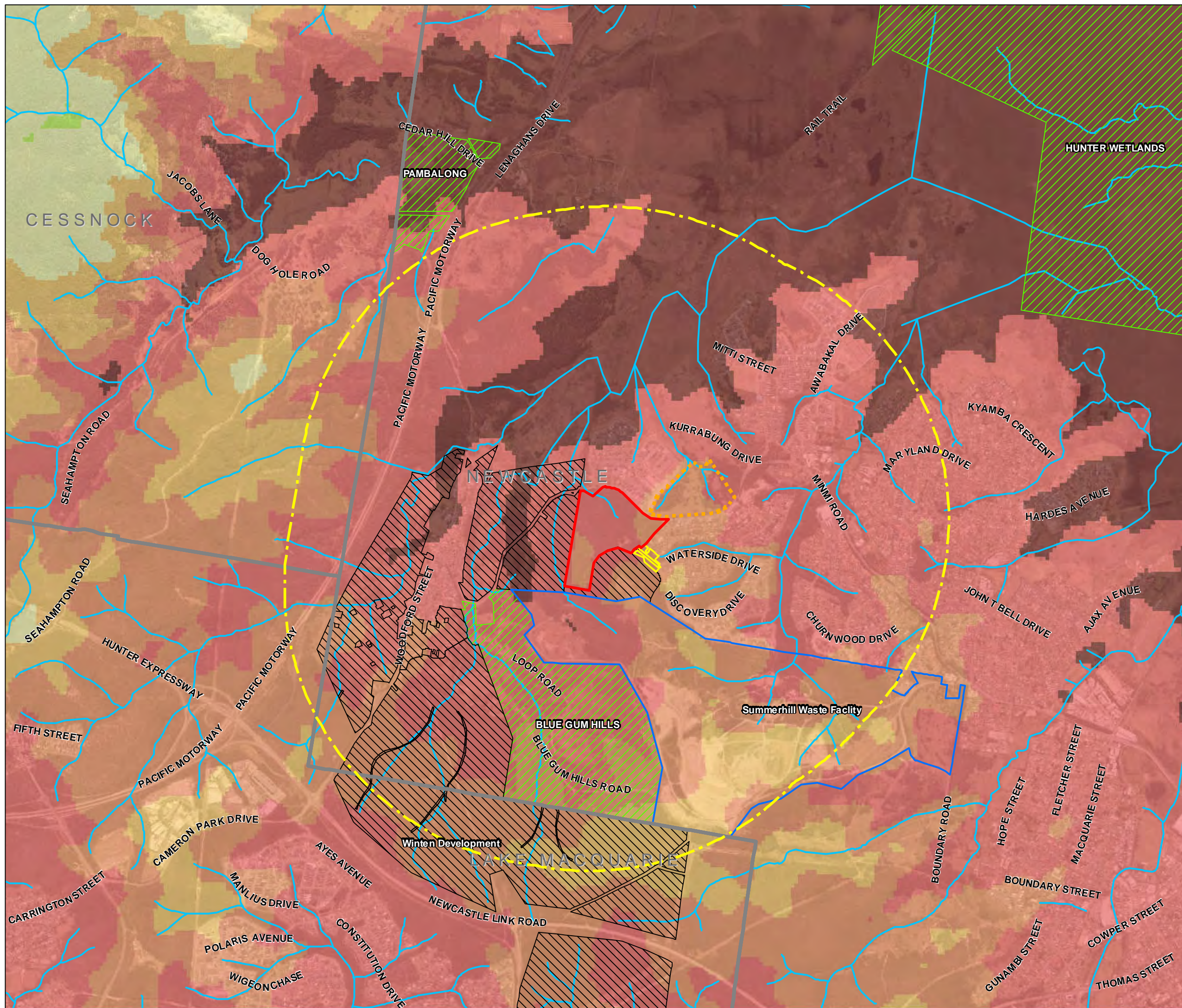
- 16.3 - 16.6
- 16.7 - 16.9
- 17 - 17.2
- 17.3 - 17.4
- 17.5 - 17.6
- 17.7 - 17.9



0 410 820 1,640  
Meters  
1:25,000



Base map: © Department of Customer Service 2020 | Data:  
MJD Environmental, NSW DPI, NSW Spatial Services  
(2020) | Datum/Projection: GDA 2020 MGA Zone 56 | Date:  
17/09/2020 | Version 1 | GIS\19082 - Planning Proposal 505  
Minmi Rd, Fletcher | This plan should not be relied upon for  
critical design dimensions.





Base map: © Department of Customer Service 2020 | Data:  
MJD Environmental, NSW DPIE, NSW Spatial Services  
(2020) | Datum/Projection: GDA 2020 MGA Zone 56 | Date:  
17/09/2020 | Version 1 | GIS119082 - Planning Proposal 505  
Minmi Rd, Fletcher | This plan should not be relied upon for  
critical design dimensions.



## 4.2 Land Use Assessment

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

*The land use assessment will identify the most appropriate locations within the masterplan area or site layout for the proposed land uses*

- *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.*

The steep central area of the proposed development designated for low-density housing may have the higher risk profile as the exposed slope faces North-West, however riparian corridors flowing North from the area also increases the greenness of vegetation and so decrease the susceptibility to fire propagating in this area.

The North-Eastern portion of the proposed development exhibits the lowest risk profile as it has a lower slope gradient. This area has emergency egress to the South-East, away from the direction of downslope hazard vegetation. However, this area is the closest to downslope hazard vegetation, as on the North side of Minmi Road is an unnamed tributary of Fishery Creek which is densely vegetated and allows a potential fire run towards this portion of the site.

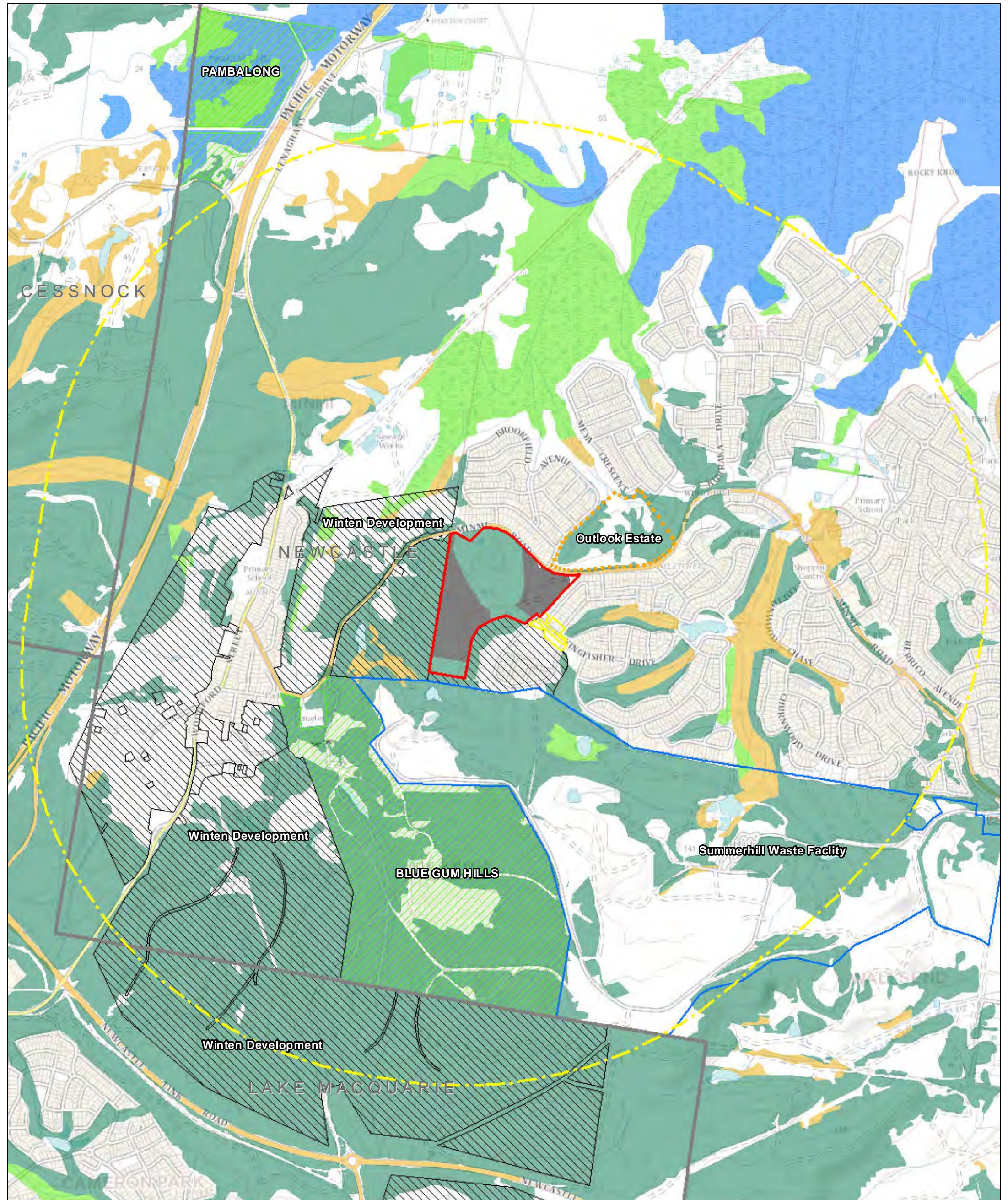
The Western portion of the proposed development has the second-lowest risk profile, as although the connectivity to Minmi Road is adequate, the aspect being downslope facing the West/ North-West is the direction of greatest risk from ember attack, and spot fires developing at the base of the slope may threaten houses further up the slope. As the land to the West is also a part of the Winten development (NCC DA 2015/10393), the current hazard vegetation will be replaced by managed land, greatly reducing the risk profile of this portion of the proposed development.

The current land use zone of the site is E4 – Environmental living, wherein home occupations are permitted without consent. The proposed land zoning aims to maintain the central area containing riparian corridors as E2- Environmental Conservation, while the higher, flatter areas on either side are proposed to become R2 – Low Density Residential.

The proposal to apply E2 - Environmental Conservation land zoning within the centre of the site is an appropriate land use for the risk profile of the site due to its steeper topography and North-West facing aspect. Although some hazard vegetation occurs downslope North of Minmi Road within the riparian zone of an unnamed tributary of Back Creek, the majority of nearby hazard vegetation in this direction is grassland within the freshwater wetland. The next nearest tract of forest vegetation, (aside from the previously mentioned *Blue gum hills RP & Summerhill waste treatment facility*) is >700m NW of the site, North of Minmi Creek – in the vicinity of the M1 Pacific Freeway and the Fire & Rescue NSW Minmi Fire Station on Lenaghans Drive/Woodford St, Minmi.

The proposed R2 - Low Density Residential zoning on the remainder of the site is an appropriate land use for the siting as the risk profile shows adequate access/egress to Minmi Road, and a lack of adjacent bushfire hazard vegetation due to concurrent suburban developments (Winten - NCC DA 2015/10393).





505 MINMI RD, FLETCHER  
**LANDSCAPE ASSESSMENT**

**Legend**

- Study Area
- 2km Buffer from Site
- Local Government Area

**Adjacent Tenures**

- DA04/2782
- Outlook Estate
- Summerhill Waste Facility
- Winten Development
- National Park Estate

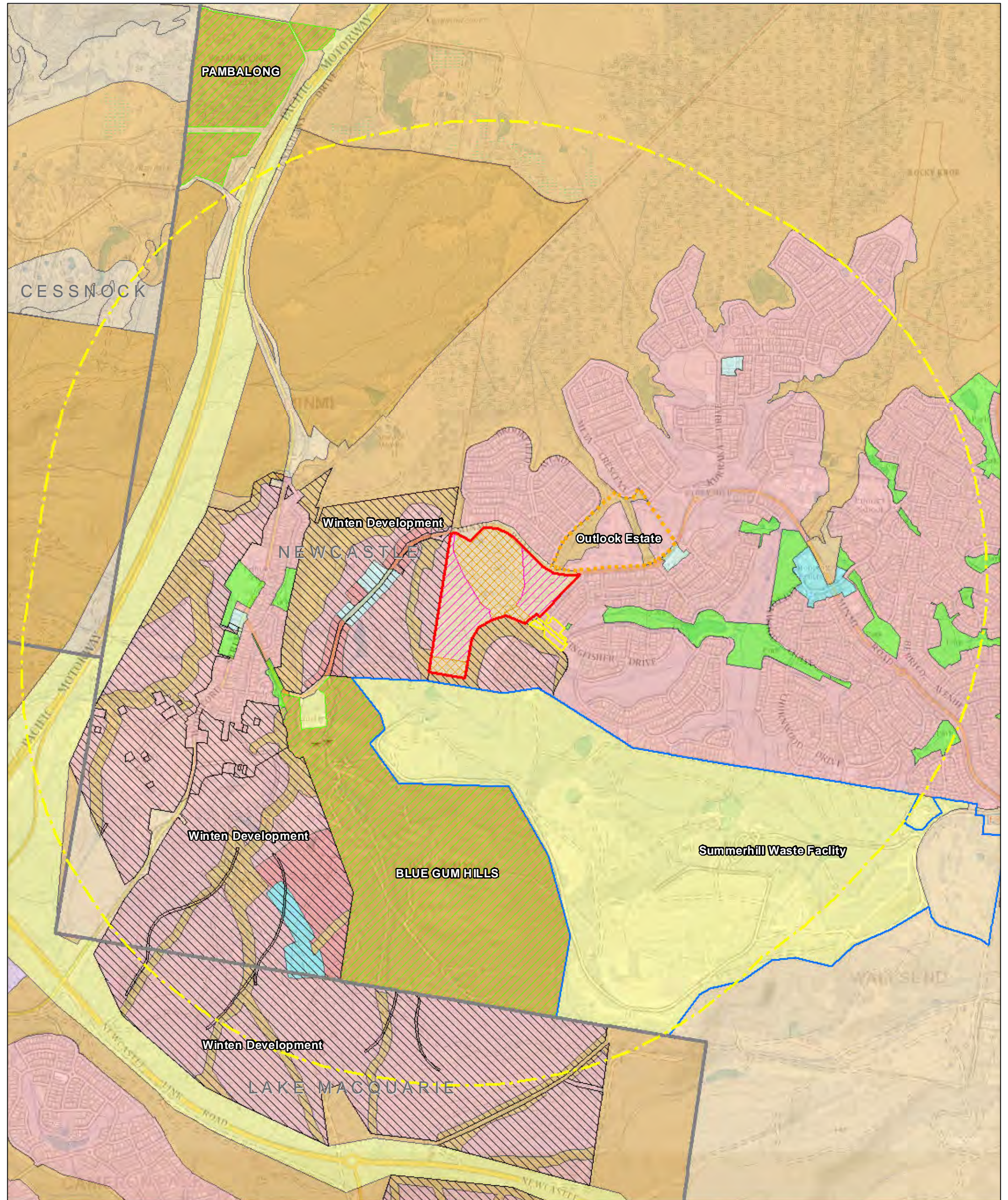
**Vegetation (Keith 2004)**

- Dry Sclerophyll Forests
- Forested Wetlands
- Freshwater Wetlands
- Wet Sclerophyll Forests
- Proposed Development

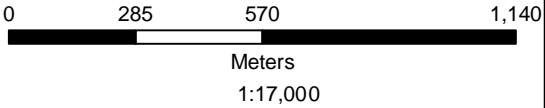


Aerial: NearMap (2020) | Base map: © Department of Customer Service 2020 | Data: MJD Environmental, NSW DPIE, NSW Spatial Services (2020) | Datum/Projection: GDA 2020 MGA Zone 56 | Date: 23/11/2021 | Version 1 | GIS/19082 - Planning Proposal 505 Minmi Rd, Fletcher | This plan should not be relied upon for critical design dimensions.





505 MINMI RD, FLETCHER  
**PROPOSED AND EXISTING LAND USE ZONING**



**Legend**

- Study Area
- 2km Buffer from Site
- Local Government Area

**Proposed Zoning**

- E2: Environmental Conservation
- R2: Low Density Residential

**Adjacent Tenures**

- DA04/2782
- Outlook Estate
- Summerhill Waste Facility
- Winten Development
- National Park Estate

**Land Use Zoning**

- |    |     |
|----|-----|
| B1 | IN1 |
| B2 | R2  |
| E1 | R3  |
| E2 | RE1 |
| E3 | RE2 |
| E4 | RU2 |
|    | SP2 |



Aerial: NearMap (2020) | Base map: © Department of Customer Service 2020 | Data: MJD Environmental, NSW DPIE, NSW Spatial Services (2020) | Datum/Projection: GDA 2020 MGA Zone 56 | Date: 23/11/2021 | Version 1 | GIS/19082 - Planning Proposal 505 Minmi Rd, Fletcher | This plan should not be relied upon for critical design dimensions.



### 4.3 Access and Egress

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

*A study of the existing and proposed road networks both within and external to the masterplan area or site layout*

- *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.*

In the event of a serious bushfire threat to the proposed development, it will be essential to ensure that adequate ingress/ egress and the provision of defendable space are afforded in the residential development design with due regard to the requirements of Table 5.3b, and Appendix 3 of PBP (2019). Construction driveways will provide all-weather access and maximum grades for sealed roads that do not exceed 15 degrees and not more than 10 degrees for unsealed roads.

Direct access to the site will continue to occur from Minmi Road in the North and Kingfisher Drive to the east. A bushfire hazard does not occur to the site's immediate North and therefore all egress in the case of a bushfire will be away from the hazard. As outlined in the Traffic Impact Assessment Report by BRS, dated 20 December 2019 (chapter **3.2**) *"Winten Precinct 1A residential subdivision (DA 2015/10393) is located immediately west of the subject site. Construction has not commenced on this subdivision that has been approved for 305 lots that will be constructed over 5 stages. The study team has advised that this subdivision will provide several direct connections to Minmi Road, including a left in / left out arrangement immediately west of the western boundary of 505 Minmi Road, the site of the current planning proposal."*

SIDRA modelling has been conducted by Barker Ryan Stewart for Barr Property & Planning to study the existing and proposed road networks both within and external to the masterplan area or site layout. The modelling was produced to accompany the planning proposal for a residential subdivision of 150 lots at 505 Minmi Road, Fletcher. The modelling found that intersection counts at Minmi Road indicated 100-1200 vehicles per hour in the AM & PM peak periods. (Data from traffic study; **2.3**) 56% of movements were eastbound in the AM peak, while 63% were westbound in the PM peak, indicating typical commuter travel to & from locations of employment & education. This traffic Impact Assessment concluded that the Minmi Rd/ Britannia Boulevard intersection has sufficient spare capacity for additional traffic and that the existing road network has the capacity to deal with evacuating residents and responding emergency services, based on the existing and proposed community profile.

The potential for the proposed development to be isolated in the event of a bushfire is low, as access to Minmi Road is provided by two separate routes; a direct access road in the North-Western corner of the Site, and indirectly via Kingfisher drive in the South / South-East of the Site, which connects to Minmi Road via Britannia Boulevard & Highland Way.

Refer to **Figure 11** below for Plan showing Key Access Routes.

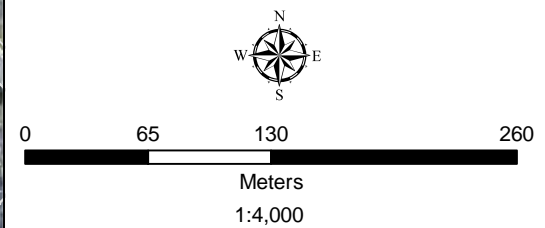


# 505 MINMI RD, FLETCHER

## FIGURE 11: KEY ACCESS ROUTES

### Legend

- Proposed and Existing Lots
- Traffic Access
- Study Area



Aerial: NearMap (2020) | Data: MJD Environmental, RAP Surveying, NSW Spatial Services (2020) | Datum/Projection: GDA 2020 MGA Zone 56 | Date: 22/12/2021 | Version 1 | GIS\19082 - Planning Proposal 505 Minmi Rd, Fletcher | This plan should not be relied upon for critical design dimensions.





#### 4.4 Emergency Services

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

*An assessment of the future impact of new development on emergency services.*

- *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.*

Consultation has been undertaken with the RFS who referred the matter to the local Fire+Rescue NSW (FRNSW) zone office. In response FRNSW issued the following advice:

*The area as indicated previously, is within Fire & Rescue NSW (FRNSW) Fire District. (The RFS are still responsible for advice and approvals required under the Planning for Bushfire provisions).*

*It would be primarily serviced by the nearest two fire stations at Minmi (Woodford St) and Wallsend (Summerhill Dr). At present, these stations are staffed by Retained (on-call) firefighters, and each have a Class 2 Urban Pumper as their primary response vehicle.*

*Further response to the area would be provided by the network of surrounding stations, including Holmesville, Cardiff and Lambton, which are all staffed by full-time firefighters with Class 3 Urban Pumpers. Holmesville and Cardiff are also equipped with a Class 1 Tanker appliance, which is specifically designed for bush firefighting. These FRNSW resources would be supplemented by RFS resources from the Lake Macquarie area (Cameron Park in particular) if required.*

*There are no additional needs that would be expected, in terms of new stations or brigades, as a result of development in this area.*

From this advice it is evident that the proposed suburban development will not significantly impact on the ability of emergency services to carry out fire suppression in a bush fire emergency, nor would it place an undue demand on the resources of existing emergency services in the area.

#### 4.5 Infrastructure

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

*An assessment of the issues associated with infrastructure and utilities.*

- *The ability of the reticulated water system to deal with a major bush fire event in terms of pressures, flows, and spacing of hydrants;*
- *Life safety issues associated with fire and proximity to high voltage power lines, natural gas supply lines etc.*

In addition, any future residential subdivision over the site will need to comply with the acceptable solution criteria for services outlined in Chapter 5 of PBP (2019) as summarised in **Table 4** below.

**Table 4 Acceptable solutions for services (PBP 2019)**

Performance Criteria	Acceptable Solutions
The intent may be achieved where:	
<b>Reticulated water supplies</b> <ul style="list-style-type: none"> <li>▪ water supplies are easily accessible, reliable and located at regular intervals.</li> <li>▪ flows and pressure are appropriate</li> <li>▪ the integrity of the water supply is maintained</li> </ul>	<ul style="list-style-type: none"> <li>▪ reticulated water is to be provided to the development, where available</li> <li>▪ a static water supply is to be provided where no reticulated water is available</li> </ul>



Performance Criteria	Acceptable Solutions										
<p>If reticulated water supplies are considered inadequate or shall not be connected as part of the proposal, the PBP (2019) performance criteria for 'non-reticulated' water supply shall apply as detailed below.</p>	<ul style="list-style-type: none"> <li>reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads</li> <li>fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005.</li> <li>hydrants are not located within any road carriageway</li> <li>all above ground water and gas service pipes external to the building are metal, including and up to any taps</li> </ul>										
<p><b>Non-reticulated water supply areas</b></p> <p>for rural-residential and rural developments (or settlements) in bush fire prone areas, a water supply reserve dedicated to firefighting purposes is provided and maintained. The supply of water can be an amalgam of minimum quantities for each lot in the subdivision (community titled subdivisions), or held individually on each lot.</p> <table border="1"> <thead> <tr> <th>Development Type</th><th>Water Requirements</th></tr> </thead> <tbody> <tr> <td>Residential lots (&lt;1000m<sup>2</sup>)</td><td>5,000L/lot</td></tr> <tr> <td>Rural-residential lots (1000-10,000m<sup>2</sup>)</td><td>10,000L/lot</td></tr> <tr> <td>Large rural/lifestyle lots (&gt;10,000m<sup>2</sup>)</td><td>20,000L/lot</td></tr> <tr> <td>Multi-dwelling housing (including dual occupancies)</td><td>5,000L/dwelling</td></tr> </tbody> </table> <p>Table 5.3d PBP 2019</p>	Development Type	Water Requirements	Residential lots (<1000m <sup>2</sup> )	5,000L/lot	Rural-residential lots (1000-10,000m <sup>2</sup> )	10,000L/lot	Large rural/lifestyle lots (>10,000m <sup>2</sup> )	20,000L/lot	Multi-dwelling housing (including dual occupancies)	5,000L/dwelling	<ul style="list-style-type: none"> <li>the minimum dedicated water supply required for firefighting purposes for each occupied building excluding drenching systems, is provided in accordance with Table 5.3d (refer to insert on left)</li> <li>there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available</li> <li>static water supply is not required to be solely dedicated for firefighting purposes and can include water holding structures such as tanks, pools, and dams</li> <li>static water supply must be accessible, reliable, adequate, and available for the life time of the development</li> <li>the provision of appropriate connections as detailed above for reticulated water supplies must be considered if a static water supply is to be suitable</li> <li>a 'SWS' (Static Water Supply) sign in a visible location should be installed</li> </ul>
Development Type	Water Requirements										
Residential lots (<1000m <sup>2</sup> )	5,000L/lot										
Rural-residential lots (1000-10,000m <sup>2</sup> )	10,000L/lot										
Large rural/lifestyle lots (>10,000m <sup>2</sup> )	20,000L/lot										
Multi-dwelling housing (including dual occupancies)	5,000L/dwelling										
<p><b>Electricity Services</b></p> <ul style="list-style-type: none"> <li>location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings</li> </ul>	<ul style="list-style-type: none"> <li>where practicable, electrical transmission lines are underground.</li> <li>where overhead electrical transmission lines are proposed: <ul style="list-style-type: none"> <li>lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and</li> <li>no part of a tree is closer to a power line than the distance set out in accordance with the specifications in <i>ISSC3 Guideline for Managing Vegetation Near Power Lines</i>.</li> </ul> </li> </ul>										



Performance Criteria	Acceptable Solutions
<b>Gas services</b> <ul style="list-style-type: none"> <li>location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings</li> </ul>	<ul style="list-style-type: none"> <li>reticulated or bottled gas is installed and maintained in accordance with AS/NZ 1596:2014 – <i>The storage and handling of LP Gas</i>, and the requirements of relevant authorities. Metal piping is to be used.</li> <li>all fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.</li> <li>Above-ground gas service pipes are metal, including and up to any outlets.</li> <li>Connections to and from gas cylinders are metal.</li> <li>polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.</li> </ul>

The planning proposal is considered to be able to satisfy the requirements of Chapter 4 and Chapter 5 of PBP (2019) given:

- A reticulated water supply is available from the local authority, Hunter Water. During previous rezoning investigations over the site Hunter Water granted conditional approval to the Minmi Road Fletcher Sewer Servicing Strategy, subject to the issues raised being addressed in the final strategy document. The approval was valid for 5 years. As this period has expired Hunter Water will require the strategy to be reviewed by the developer and approved by Hunter Water prior to proceeding with the works related to water, wastewater or recycled water supply.

In the interim period the Winten lands each side of the site have been granted subdivision development approval by NCC. Subdivision construction is completed for the Winten Precinct 1 land, adjoining the south eastern side of the site, with lots pending release to the market. Winten Precinct 1A land, adjoining the western side of the site, comprises a staged development with construction of the first stage programmed for commencement early in 2020. The site is within the same catchment area as the Winten Precinct 1A development and it has been previously been identified as a potential development site by both Hunter Water and NCC. Based on the above, development of the site should not be constrained and by going through the processes previously defined by Hunter Water the site should be capable of being fully serviced for water and sewer.

Establishment of hydrants associated with the mains network throughout the site are to be provided in accordance with the relevant clauses of AS 2419.1:2005 - *Fire hydrant installations System design, installation and commissioning*.

- Power is available to be augmented as required to service a future subdivision over the site. It is anticipated that all power services will be underground rather than overhead poles and wires. As such this greatly reduces the life safety risks associated with overhead power in bushfire situations. Furthermore, there are no significant power infrastructure, towers or lines traversing the site.
- Gas supply where available and augmented throughout a future subdivision over the site will be installed underground. All future residential connections are considered able to comply with PBP (2019) requirements.



## 4.6 Adjoining Land

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

*The impact of new development on adjoining landowners and their ability to undertake bush fire management.*

- *Consideration of the implications of a change in land use on adjoining land including increased pressure on BPMs through the implementation of Bush Fire Management Plans.*

Rezoning and future residential subdivision of the site will not have implications on neighbouring property owners or managers that should necessitate them to modify or change their bushfire management. Site development will reduce the bushfire hazard on site and in the immediate locality, decreasing pressure on adjacent land BPMs by reducing the proximity and prevalence of hazardous vegetation.

Assessment of the site set out in **Chapter 2** and **Chapter 3** of this report has determined that an APZ can be established from hazards to remain within the site (to be zoned E2 Environmental Conservation) and on the site boundaries without a reliance on adjacent land owners. Future development of the approved subdivision on adjacent land to the West over the approved Winten Development (NCC DA 2015/10393) will provide co-benefits for each development in the context of hazard removal and management for the life of development.



## 5 Conclusion & Recommendations

MJD Environmental has been engaged by Barr Planning to prepare a Strategic Bushfire Study (SBFS) to accompany a Planning Proposal application for the rezoning of a 26.2 hectare parcel of land at Lot 23 in DP 1244350, 505 Minmi Rd, Fletcher.

The assessment considers and assesses the bushfire hazard and associated potential threats relevant to the proposal, and to outline the minimum mitigative measures which would be required in accordance with *Planning for Bush Fire Protection 2019* (PBP), as adopted through the *Environmental Planning & Assessment Amendment* (Planning for Bush Fire Protection) *Regulation 2020*.

In order to determine whether the proposed development is bushfire-prone, and if so, which setbacks and other relevant Bush Fire Protection Measures (BPM) will be appropriate, this assessment adhered to the methodology and procedures outlined in PBP (2019) via assessment of acceptable solutions as outlined in Chapter 4 and Chapter 5 of PBP (2019).

This assessment has been made based on the bushfire hazards in and around the site at the time of site inspection and report production.

PBP (2019) states in Chapter 4, the study of bushfire context ensures that future land uses are in appropriate locations to minimise the risk to life and property from bush fire attack. Services and infrastructure that facilitate effective suppression of bushfires also need to be provided for at the earliest stages of planning.

The bushfire risk is considered at the macro-scale, looking at fire runs, steep slopes and any areas of isolation. The amount of proposed development interfacing vegetation was also considered. Firefighting access and evacuation potential was considered as well as an assessment of traffic volumes and evacuation routes. The study highlighted areas with a significant fire history and any known fire paths

The broad principles which apply to this 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.

Strategic planning should provide for the exclusion of inappropriate development in bush fire prone areas in the following circumstances:

- 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 bushfire due to its siting in the landscape, access limitations, fire history and/or size and scale;
- the development will adversely affect other bushfire 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.

A strategic assessment across the local landscape and local site assessment presented in this report has determined that the site does not exhibit any significant features that would make it more likely to experience a bushfire of undue severity or intensity. The potential impact on life and property of the site is not worsened by the context of the broader surrounding landscape in which it is situated.



The proposed land use being low density residential development is appropriate to the site and surrounding landscape.

In summary, this strategic assessment has determined that the proposed development is able to comply with PBP (2019) as;

- the land is suitable for development in the context of bushfire risk
- new development on BFPL will comply with PBP 2019
- reliance on performance-based solutions is minimised
- infrastructure associated with emergency evacuation and firefighting operations is adequate.
- Ongoing land management practices are appropriate

Furthermore, the development is not deemed inappropriate from a bushfire risk perspective due to the following factors;

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

In summary, the following key recommendations have been generated to enable the proposal to comply with PBP (2019).

- Direct access will be provided to each lot in the proposed developments
- Services are to be provided and connected to the site in accordance with PBP (2019).
- Careful consideration of future site landscaping and ongoing fuel management must occur to minimise the potential impact of bushfire on the site.
- The following APZ will be required, additionally each future residential lot is to be managed as an IPA in perpetuity:
  - Eastern;
    - 45m from the Forest hazard to the North-east;
    - 24m from the Forest hazard to the South-west;
    - 36/45m from the Forest hazard to the West
  - Western;
    - 24m from the Forest hazard to the North-west
    - 24m/29m from the Forest hazard to the East
    - 29m from the Forest hazard to the South
    - 36m from the Forest hazard to the West (pending development)
- Assessment has demonstrated that a future residential dwelling on each lot within the proposed subdivision, can be established with a BAL exposure of no greater than BAL-29.
- Services are to be provided and connected to the site in accordance with PBP (2019) as summarised and assessed in Chapter 3, Section 3.4 of this report.
- Careful consideration of future site landscaping and ongoing fuel management must occur to minimise the potential impact of bushfire on the site.



## 6 Bibliography

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Keith D. (2004). *Ocean Shore to Desert Dunes*. Department of Environmental and Conservation. Sydney

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NSW Planning & Environment (2020). *ePlanning Spatial Viewer*. Accessed from: <https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address>

NSW Rural Fire Service (2019). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, and Developers*.

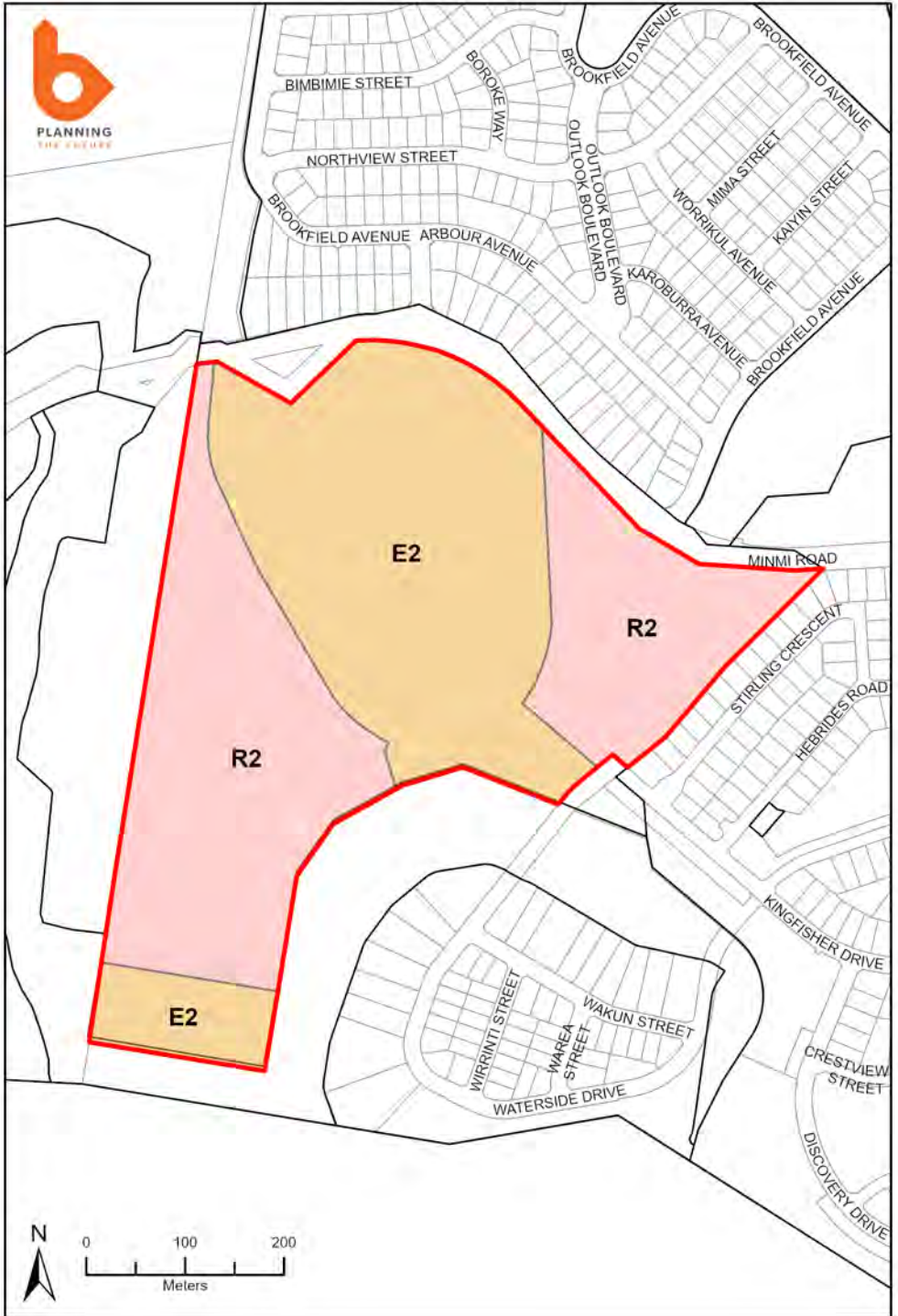
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Standards Australia (2018). *AS 3959 – 2018: Construction of Buildings in Bushfire-prone Areas*.



## Appendix A      Plan of Proposal



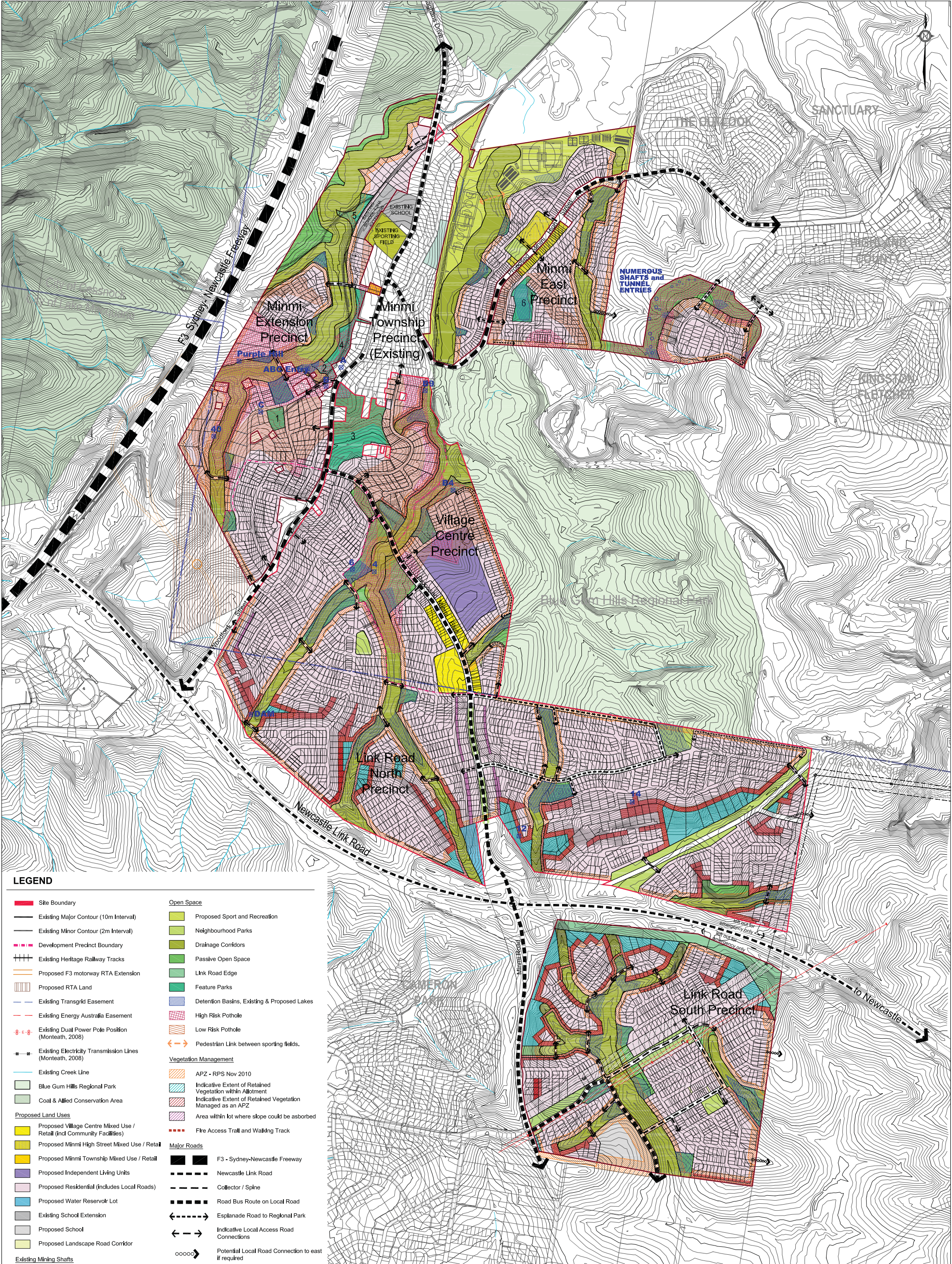




## Appendix B

## Winten Concept Approval Plan





LEGEND

- Site Boundary

Existing Major Contour (10m Interval)

Existing Minor Contour (2m Interval)

Development Precinct Boundary

Existing Heritage Railway Tracks

Proposed F3 motorway RTA Extension

Proposed RTA Land

Existing Transgrid Easement

Existing Energy Australia Easement

Existing Dual Power Pole Position (Monteath, 2008)

Existing Electricity Transmission Lines (Monteath, 2008)

Existing Creek Line

Blue Gum Hills Regional Park

Coal & Allied Conservation Area

Proposed Land Uses

Proposed Village Centre Mixed Use / Retail (incl Community Facilities)

Proposed Minmi High Street Mixed Use / Retail

Proposed Minmi Township Mixed Use / Retail

Proposed Independent Living Units

Proposed Residential (includes Local Roads)

Proposed Water Reservoir Lot

Existing School Extension

Proposed School

Proposed Landscape Road Corridor

Existing Mining Shafts

Shaft Locations (Located)

Wallsend Borehole Colliery (WBC) Entry Location

Shaft Locations (Uncertain)
- Open Space

Proposed Sport and Recreation

Neighbourhood Parks

Drainage Corridors

Passive Open Space

Link Road Edge

Feature Parks

Detention Basins, Existing & Proposed Lakes

High Risk Pothole

Low Risk Pothole

Pedestrian Link between sporting fields.

Vegetation Management

APZ - RPS Nov 2010

Indicative Extent of Retained Vegetation within Allotment

Indicative Extent of Retained Vegetation Managed as an APZ

Area within lot where slope could be absorbed

Fire Access Trail and Walking Track

Major Roads

F3 - Sydney-Newcastle Freeway

Newcastle Link Road

Collector / Spine

Road Bus Route on Local Road

Esplanade Road to Regional Park

Indicative Local Access Road Connections

Potential Local Road Connection to east if required

Note  
All dimensions and areas are approximate only, and are subject to survey and Council approval.  
Dimensions have been rounded to the nearest 0.1 metres.  
The boundaries shown on this plan should not be used for final detailed engineers design.

REVISION	C: 25/11/2010 Add small section of residential to site D: 28/01/2011 Adjust size of village centre parcels.

Level Datum	Origin	Date	28-01-2011
		Comp By,	JLS/CWC
		DWG Name,	24311-15L.dwg
		Local Authority	NEWCASTLE/LAKE MACQUARIE
		Locality	MINMI
		Job Reference	24311

Scale	1:5000	Sheet	A0

CLIENT	COAL & ALLIED

PROJECT	PROPOSED SUBDIVISION

Plan Ref	24311-35	Rev	D

RPS

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## Appendix C

## List of recorded fires over 1Ha within 10km of site



Fire Name	Fire number	Label	Start Date	End Date	Area (Ha)
Unnamed		1990-91 Wildfire			17.43216801
Unnamed		1990-91 Wildfire			29.69440685
Unnamed		1990-91 Wildfire			42.8254737
Unnamed		1990-91 Wildfire			136.8578319
Unnamed		1992-93 Wildfire			86.17313727
Unnamed		1993-94 Wildfire			12.98931724
Unnamed		1994-95 Wildfire			2.77354641
Unnamed		1996-97 Wildfire			89.5890337
Unnamed	TM512	1997-98 Wildfire	10/26/1997	10/26/1997	34.19378569
Unnamed	TM516	1997-98 Wildfire	11/1/1997	4/2/1998	1117.858203
Unnamed	H541	1997-98 Wildfire	12/26/1997	12/29/1997	3.05600993
Unnamed	HM00/007	1999-00 Wildfire	1/3/2000	1/4/2000	2.80973883
Unnamed	HM00/018	1999-00 Wildfire	2/20/2000	2/20/2000	5.66109545
Unnamed	HM00/020	1999-00 Wildfire	2/24/2000	2/25/2000	1.44392536
Unnamed		2000-01 Prescribed Burn	4/18/2001		813.3684367
Unnamed	HM01/037	2000-01 Wildfire	10/20/2000	10/20/2000	2.23245012
Unnamed	HM01/042	2000-01 Wildfire	11/9/2000	11/10/2000	3.63431463
Unnamed	HM01/049	2000-01 Wildfire	1/5/2001	1/5/2001	3.59210386
Unnamed		2001-02 Wildfire	8/7/2001		25.11050676
Unnamed		2001-02 Wildfire	8/22/2001		15.05654484
Unnamed		2001-02 Wildfire	9/23/2001		19.99202221
Unnamed		2001-02 Wildfire	9/24/2001		10.12697578
Unnamed		2001-02 Wildfire	10/22/2001		50.07034078
Unnamed		2001-02 Wildfire	3/10/2002		1.21934881
George Booth Drive		2001-02 Wildfire		1/3/2002	1.16012265
Buttai Fire		2001-02 Wildfire		12/27/2001	2.02967312
Unnamed		2001-02 Wildfire			22.26574129
Unnamed		2001-02 Wildfire			170.5670383
Unnamed		2002-03 Wildfire			34.44542283
Killingsworth		2002-03 Wildfire			3910.671399
Pambalong Fire	HUN04003	2004-05 Wildfire	7/6/2004	7/6/2004	3.0427703
Hexham Swamp Fire	HUN05011	2005-06 Wildfire	10/4/2005	10/5/2005	23.13792646
Northlakes - Lake Macq		2005-06 Wildfire	1/7/2006		22.05472751
Sheppards Drive	6082218072	2006-07 Wildfire	8/22/2006	8/23/2006	27.21734263
Tip	HUN nil	2006-07 Wildfire	11/26/2006	11/26/2006	1.08816267
Ash Island Fire	HUN06021	2006-07 Wildfire	6/5/2007	6/6/2006	18.39826394
Hexham Swamp NR	9	2008-09 Wildfire	12/1/2008	12/1/2008	18.87362224
Hexham Swamp	HN011	2009-10 Wildfire	9/6/2009	9/9/2009	216.7482379
Sugarloaf Range	9091326854	2009-10 Wildfire	9/12/2009	9/16/2009	19.92256719
Orica		2009-10 Wildfire	11/21/2009	11/23/2009	9.85111101
Orica Fire		2009-10 Wildfire	12/8/2009	12/9/2009	14.60234437



Coal & Allied		2010-11 Wildfire	9/19/2010	9/19/2010	1.38455048
Millams Rd	11031034926	2010-11 Wildfire	3/9/2011	3/11/2011	2.7644376
Blue Gum Hills 2		2011-12 Wildfire	8/2/2011	8/3/2011	1.4616096
Blue Gum Hills 3		2011-12 Wildfire	9/6/2011	9/7/2011	8.79237761
Grass Fire Ash Island	12012244387	2011-12 Wildfire	1/22/2012	1/24/2012	25.29330154
Grass Fire Ash Island	12120760452	2012-13 Wildfire	12/7/2012	12/7/2012	8.85098396
Maryland Grass Fire	13081575038	2013-14 Wildfire	8/15/2013	8/18/2013	490.496045
Browns Road Blackhill		2013-14 Wildfire	9/10/2013	9/11/2013	7.31603751
O'Donnelltown Road	13092979164	2013-14 Wildfire	9/29/2013	10/4/2013	162.1882758
Stockrington Fire	13102381224	2013-14 Wildfire	10/23/2013	10/27/2013	267.1765411
Sugarloaf Range Rd 1		2013-14 Wildfire	12/8/2013	12/8/2013	1.36078735
Lings Road		2013-14 Wildfire	2/3/2014	2/8/2014	43.9868318
Ash Island	14022354957	2013-14 Wildfire	2/23/2014	3/3/2014	2.55561808
Millham Road, Kooragang	14031856700	2013-14 Wildfire	3/18/2014	3/18/2014	1.83714115
Wagtail Way, Kooragang	14041558406	2013-14 Wildfire	4/15/2014	4/15/2014	1.5336127
Teal Road		2013-14 Wildfire	6/26/2014	6/26/2014	8.82032495
(Pacific Mwy), Black Hill		2014-15 Wildfire	9/30/2014	10/2/2014	13.08245097
Ramsar Road	14100773808	2014-15 Wildfire	10/7/2014	10/9/2014	7.40260688
Hunter Exp, Buchanan		2014-15 Wildfire	10/13/2014	10/13/2014	25.3511198
LHUN_Treetop PB_HR	HR12032157939	2015-16 Prescribed Burn	2/29/2016	3/1/2016	7.38523488
LHUN_Chitter Dump_HR	HR11090854330	2015-16 Prescribed Burn	3/1/2016	3/5/2016	55.37715658
George Booth Fire	15073198503	2015-16 Wildfire	7/31/2015	8/1/2015	4.29108101
LHUN_Mount Sugarloaf_HR	HR16060977020	2016-17 Prescribed Burn	10/19/2016	10/21/2016	16.05902128
Killingworth Rd	17011850660	2016-17 Wildfire	1/18/2017	1/20/2017	59.66923066
George Booth Dr	17022555442	2016-17 Wildfire	2/25/2017	2/25/2017	1.74222757
Ash Island. Millams Rd, Hexham	17091574447	2017-18 Wildfire	9/15/2017	9/17/2017	15.86301272
Maitland Rd, Hexham	18021491153	2017-18 Wildfire	2/14/2018	2/20/2018	62.1999752
Maitland Rd, Hexham	18021491153	2017-18 Wildfire	2/14/2018	2/20/2018	62.1999752
Haul road, Stockrington	18110217187	2018-19 Wildfire	11/2/2018	11/5/2018	15.16183084
Ash Island	19010523379	2018-19 Wildfire	1/4/2019	1/9/2019	44.81879924
Ash Island	19010523379	2018-19 Wildfire	1/4/2019	1/9/2019	56.98676973
Ramsar Rd, Kooragang	19012625696	2018-19 Wildfire	1/25/2019	1/31/2019	2.42679913