# Bush Fire Assessment Report

Tumblong Waste Disposal Facility; *Tumblong Reserve Road Tumblong NSW* 

Prepared For:

Salvestro Planning 16 Fitzmaurice St. Wagga Wagga NSW 2650

## 29<sup>th</sup> February 2020

Reference Number: 201158



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### **List of Abbreviations**

APZ	Asset Protection Zone
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Cootamundra-Gundagai Regional Council (CGRC)
CDC	Complying Development
DA	Development Application
EP&A Act	Environmental Planning and Assessment Act 1979
ESD	Ecologically Sustainable Development
IPA	Inner Protection Area (PBP)
NCC	National Construction Code
NSP	Neighbourhood Safer Place
NSWFR	NSW Fire & Rescue
OPA	Outer Protection Area (PBP)
PBP	Planning for Bush Fire Protection - 2006
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SWS	Static Water Supply

### **1.0 Introduction**

A proposed non-putrescible waste disposal facility (landfill) is proposed to replace the existing Bangus gravel quarry which is nearing the end of its useful life. The quarry site is located in Lot 7004 of DP 1028797, approximately 3.5km from the community of Tumblong and 18.7km from the Gundagai Township on the Tumblong Reserve Road.

The site is approximately 4.5 hectares in area and positioned on gently undulating ground.

As part of the development process a temporary stockpile of earth and gravel will be excavated from the quarry for future use. This will be located adjacent on Lot 1 of DP 702858. Both locations will be accessed from a crown road reserve commencing off Tumblong Road.

Salvestro Planning of Wagga Wagga has commissioned Building Code and Bushfire Hazard Solutions to prepare a bushfire hazard assessment report to assist in a development application to Cootamundra-Gundagai Regional Councils (CGRC) for the proposed re-use of the quarry.

The planning trigger in New South Wales for the consideration and application of Bushfire Protection Measures for new development is whether the site is identified on the local Council's bushfire prone land map (BPLM) as containing Category 1, 2 or 3 Vegetation or their associated buffer zones.

The landfill site's northern boundary abuts a deemed bushfire buffer zone of forested (Category 1) vegetation to the north as determined by the (CGRC) Bushfire Prone Lands Map.

Similarly the temporary stockpile site adjoining the landfill site is located on deemed bushfire prone land. The temporary stockpile site has no associated buildings or structures and is exempt from the aims and objects of PBP-2006.

This desk top report addresses the bushfire planning considerations and provides recommended bushfire mitigation measures applicable to the landfill and the temporary stockpile site.

I have undertaken a desk top assessment against Planning for Bush Fire Protection (PBP) - 2006 and AS3959-2009 to establish the relevant compliance requirements to assist in the development application.

PBP is currently in a transition period with the 2006 version currently in force. The release of the 2019 version is expected to take effect in early March 2020.

### 2.0 Purpose

The purpose of this report is to outline the Bushfire Protection Measures (BPMs) that would be applicable for the future use of the quarry as landfill site.

The application of Planning for Bush Fire Protection - 2006 will require satisfactory demonstration of the following BPMs:

- Asset Protection Zones
- Building Construction & Design
- Landscaping
- Emergency Management Arrangements
- Water Supply & Utilities
- Access Arrangements

This assessment will address the minimum requirements and provide our recommendations to satisfy the above BPMs all to ensure reasonable bushfire protection is provided. This assessment has not considered any bushfire associated assessment of any other adjoining land but may consider bushfire impact from those adjoining properties onto the landfill site.

It is noted that no landscaping is proposed to any part of the landfill site and that very little natural vegetation will be retained. Poor landscaping can lead to bushfire impact to structures.

It is therefore suggested that landscaping is excluded from this particular assessment.

### 3.0 Location

The investigation area is known as the 'Bangus Quarry' which comprises two allotments being Lot 7004 of DP 1028797 and Lot 7300 of DP 1149008 covering approximately 4.5 ha, the Crown Road Reserve and the temporary stockpile site, being part of Lot 1 DP 702858.

Current site access is off Tumblong Reserve Road. The proposed landfill site access will be via an existing Crown Road running easterly off Tumblong Reserve Road. This road is already in use. Tumblong Reserve Road intersects with the Old Hume Highway approximately 1.25km to the south.

A temporary stockpile will be located on part of Lot 1 of DP 702858 immediately adjacent the north east corner of the proposed landfill site. (refer to attachment MH Earthmoving Figure 02 for more detail)

The extent of the desk top investigation area is depicted on Image 01 below.

The investigation area is located within the CGRC local government area and is captured by the CGRC Bushfire Risk Management Plan. (this document is currently in draft form and yet to be released) Notwithstanding, the CGRC Bushfire Prone Land Map has already indicated partial 'buffer zone' impact from Category 1 (woodland) vegetation. (see following and the CGRC BFPL map attached)



Image 01: Aerial view of the landfill site plan (part MH Earthmoving Fig 02)

### 4.0 Bushfire Prone Land

Section 10.3 of the *EP&A Act* requires Councils, where a Bush Fire Risk Management Plan applies, to produce a bush fire prone land map after consulting with the Commissioner of the NSW RFS. The Commissioner will designate lands to be bush fire prone within an area and, when satisfied that the lands have been recorded on a map, certify the map as the Bush Fire Prone Land map.

The planning trigger in New South Wales for the consideration and application of Bushfire Protection Measures for new development (*Planning for Bush Fire Protection* and Australian Standard 3959 – *Construction of buildings in bush fire prone areas*) is whether the site is identified on the local councils Bushfire Prone Land Map as containing Category 1, 2 or 3 Vegetation or their associated buffer zones.

There is 100m buffer zone abutting the northern boundary of the investigation area which is currently mapped on the CGRC Bushfire Prone Lands Map as being Category 1 Vegetation as a consequence bushfire planning controls must be considered.

It is noted that the investigation area itself is not otherwise impacted by bushfire mapping.

The current mapped Category 1 Vegetation to the north of the investigation area including the temporary stockpile comprises sparse woodland land and limited scrubby understorey typical of the region. Adjoining lands to east, south and west are disturbed pasture lands with sporadic mature trees and grasses.



Image 02: Extract from the current CGRC bushfire prone land map

### 5.0 Vegetation

Any bushfire assessment must consider existing vegetation within neighbouring allotments (to a distance of 140 metres) and retained or proposed vegetated areas within the site and surrounding investigation area.

The investigation area was currently found to largely comprise of sporadic grasses and minor tree clumps due to its current use as a gravel pit.

Lands abutting the site area appear to be well grazed pasture lands with few remnant mature trees. This suggests a very low bushfire impact area which is confirmed by the CGRC bushfire prone land map not incorporating any other adjoining allotments.

Historically the primary use of the investigation area has been for agriculture purposes, including the raising of livestock. These farming practices have resulted in significantly modified vegetation equivalent to woodland or grasslands.

As part of the overall proposed development it is expected that other than a perimeter walking trail along the boundary fence supporting some natural grasses and possibly some mature trees, no other vegetation is proposed or will exist within the subject landfill site.

To our knowledge there are no threatened ecological communities.

The NSW Rural Fire Service publication 'Guide for Bush Fire Prone Land Mapping' (version 5b, dated November 2015) defines Category 1, 2 and 3 and Excluded Vegetation as:

#### Vegetation Category 1

Vegetation Category 1 is considered to be the highest risk for bush fire. It is represented as red on the bush fire prone land map and will be given a 100m buffer. This vegetation category has the highest combustibility and likelihood of forming fully developed fires including heavy ember production. Vegetation Category 1 consists of:

Areas of forest, <u>woodlands</u>, heaths (tall and short), forested wetlands and timber plantations.

#### Vegetation Category 2

Vegetation Category 2 is considered to be a lower bush fire risk than Category 1 and Category 3 but higher than the excluded areas. It is represented as light orange on a bush fire prone land map and will be given a 30 metre buffer. This vegetation category has lower combustibility and/or limited potential fire size due to the vegetation area shape and size, land geography and management practices. Vegetation Category 2 consists of:

- > Rainforests.
- Lower risk vegetation parcels. These vegetation parcels represent a lower bush fire risk to surrounding development and consist of:
  - Remnant vegetation;
  - Land with ongoing land management practices that actively reduces bush fire risk. These areas must be subject to a plan of management or similar that demonstrates that the risk of bush fire is offset by strategies that reduce bush fire risk; AND include:
    - Discrete urban reserve/s;

- Parcels that are isolated from larger uninterrupted tracts of vegetation and known fire paths;
- Shapes and topographies which do not permit significant upslope fire runs towards development;
- Suitable access and adequate infrastructure to support suppression by firefighters;
- Vegetation that represents a lower likelihood of ignitions because the vegetation is surrounded by development in such a way that an ignition in any part of the vegetation has a higher likelihood of detection.

#### **Vegetation Category 3**

Vegetation Category 3 is considered to be medium bush fire risk vegetation. It is higher in bush fire risk than category 2 (and the excluded areas) but lower than Category 1. It is represented as dark orange on a Bush Fire Prone Land map and will be given a 30 metre buffer. This category consists of:

Grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands.

#### Exclusions

Vegetation excluded from being mapped as bush fire prone includes:

- Single areas of vegetation less than 1 hectare in area and greater than 100 metres separation from other areas of Category 1, 2 or 3 vegetation;
- Multiple areas of vegetation less than 0.25 hectares in area and not within 30 metres of each other;
- Strips of vegetation less than 20 metres in width, regardless of length and not within 20 metres of other areas of Category 1, 2 or 3 vegetation;
- Areas of "managed grassland" including grassland on, but not limited to, recreational areas, commercial/industrial land, residential land, airports/airstrips, maintained public reserves and parklands, commercial nurseries and the like;
- Areas of managed gardens and lawns within curtilage of buildings;
- Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.
- > Managed botanical gardens;
- Agricultural lands used for annual and/or perennial cropping, orchard, market gardens, nurseries and the likes are excluded;
- Saline wetlands including mangroves.
- Other areas that, due to their size, shape and overall risk are not considered Category 1, 2 or 3 vegetation.



Photograph 01: View of existing quarry and undulating lands (source SP2019)



Photograph 02: View of the existing quarry pit (source SP2019)

The investigation area is also bounded by a Trade Stock Route (TSR) along Tumblong Road. This will ensure low level vegetation along the TSR from time to time. Additionally Tumblong Road will be sealed.

### 6.0 Topography

Generally the investigation area was found to be located on relatively flat ground with some minor undulations around watercourses and high points.

The slope that would most significantly affect bushfire behaviour must be assessed for at least 100 metres from within the bushfire hazards. The effective slopes were determined using 1.0m LiDar contour mapping of the investigation area in conjunction with site observations provided.



Image 01 – View of contours set at 1.0m intervals

The arrow to the east of the quarry edge suggests an upslope of 0-5 degrees.

The Category 1 land to the northeast of the site represents the bushfire hazard. This being the case the slope is also approximately 0-5 degrees upslope.

To accord with PBP – 2006 the vegetation associated with Category 1 is defined as woodland and grassland.

For the purposes of this assessment the structures proposed on the site include a non-combustible steel site office and amenities building and a portable toilet assembly. No residential accommodation is provided.

### 7.0 Special Fire Protection Purpose Development

'Commercial' land use can permit several Special Fire Protection Purpose (SFPP) uses which would attract larger minimum required Asset Protection Zones and more onerous Bushfire Protection Measures.

Special fire protection purpose development is defined under section 100B of the Rural Fires Act 1997 as:

- (a) a school,
- (b) a child care centre,
- (c) a hospital (including a hospital for the mentally ill or mentally disordered),
- (d) a hotel, motel or other tourist accommodation,
- (e) a building wholly or principally used as a home or other establishment for mentally incapacitated persons,
- (f) seniors housing within the meaning of *State Environmental Planning Policy (Housing for Seniors or People with a Disability)* 2004,
- (g) a group home within the meaning of *State Environmental Planning Policy No 9—Group Homes*,
- (h) a retirement village,
- (i) any other purpose prescribed by the regulations.

The provision of a non-putrescible waste disposal facility is not classified as a Special Fire Protection Purpose development in terms of Planning for Bush Fire Protection. Therefore only the aim and objectives of PBP need to comply.

#### 8.0 Hazardous Industry

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.

The provision of a non-putrescible waste disposal facility is not classified as a hazardous industry in terms of Planning for Bush Fire Protection.

### 9.0 Commercial / Industrial Development

The proposed landfill site buildings shall consist of a small administration shed (Class 5) combined with an amenities and storage shed (Class 10a) and a separate portable toilet structure (Class 10a).

The site buildings shall be located in the north eastern corner of the landfill site on the crown road. Minimal car parking will be provided close to the office and amenities sheds.

The National Construction Code does not provide for any bush fire specific performance requirements for Class 5 to 8 structures or Class 10 structures not associated with any Class 1-4 or Class 9 accommodation buildings and as such Australian Standard 3959 'Construction of buildings in bushfire-prone areas' does not apply as a set of 'deemed to satisfy' provisions.

Where no residential component is included, that is a site office only within a commercial and industrial development, bushfire safety is addressed through the aim and objectives of PBP, these being:

The aim of PBP is to use the NSW development assessment system to provide for the protection of human life (including fire fighters) and to minimise the impacts on property from the threat of bushfire ,while having due regard to development potential, on site amenity and protection of the environment.

The objectives are to:

- i. afford occupants of any building adequate protection from exposure to a bush fire
- *ii. provide for a defendable space to be located around buildings*
- *iii. provide appropriate separation between a hazard and buildings which, in combination with other measures, prevents direct flame contact and material ignition.*
- iv. ensure that safe operational access and egress for emergency service personnel and residents is available.
- v. provide for ongoing management and maintenance of BPMs including fuel loads in the APZ, and
- vi. ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bushfire fighting).

While there are no minimum required Asset Protection Zones (APZs) applicable to commercial / industrial development, to satisfy the aim and objectives of PBP the buildings must be located outside Flame Zone, which using the aforementioned parameters would require a minimum APZ of not less than 10 metres in respect to a woodland hazard and a regional Fire Danger Index of 80. (AS3959, Table 2.4.3 level and upslope)

Where required, the provision of bushfire Asset Protection Zones must occur on the subject property. In this instance however the APZ can be incorporated into the Crown Road access bounding the northern boundary of the landfill site being approximately 20m wide. (acknowledgements SixMaps)

The proposed site sheds would be required to be at least 10m away from the northern boundary. The existing Crown Road access is to be maintained as an APZ for at least the first 110m from the north eastern corner of the landfill site toward Tumblong Reserve Road.

#### 10.0 Access

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

In the case of the proposed landfill site and the temporary stockpile area, the existing 20m wide Crown Road access corridor off Tumblong Reserve Road positioned along the northern boundary of the landfill site will provide adequate two way traffic lanes to a facility security gate.

Tumblong Reserve Road and the Crown Road access off Tumblong Reserve Road will be '*sealed to appropriate standards*' suggesting all weather access will be provided. (ref Salvestro Planning EIS, Section 4.2.1 Site Access)

It appears in the MH Earthmoving plan referenced as Figure 18, there will be no provision for heavy vehicle access around the perimeter fence line.

Given the landfill area is 'open space', firefighting appliances could negotiate the landfill grounds itself in order to reach internal areas of the site which may be affected by bush fire. Additionally an excavator will be on-site and can assist in firefighting operations if required.

Access to adjoining properties for fire fighting purposes will be available as necessary via local roads, trails and gates.

### 11.0 Services

#### Water Supply:

- No reticulated town water supply will be provided.
- Staff will take water in for personal use as necessary.
- A water cart will be used for dust mitigation and firefighting duties if necessary. Water shall be trucked in from elsewhere.
- The proposed toilet will be pumped out by a private contractors as necessary.

#### **Electricity:**

- No reticulated electrical services will be provided.
- A small generator or solar panels may be provided to provide power for office administration purposes.

#### <u>Gas:</u>

- No reticulated gas will be provided.
- No bottled gas will be provided.

#### **Telephone:**

• No above or below ground telephone cabling will be provided.

### **12.0 PBP Compliance – Aims and Objectives**

The National Construction Code does not provide for any bush fire specific performance requirements for Class 5 to 8 structures and as such Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2009 does not apply as a set of 'deemed to satisfy' construction provisions.

PBP-2006 also states that Class 10 structures are not subject to regulation where they are not associated with residential accommodation or more than 6.0m from a residence.

In relation to Class 5 to 8 structures PBP 2006 states:

The general fire safety construction provisions are taken as acceptable solutions, but the aim and objectives of PBP apply in relation to other matters such as access, water and services, emergency planning and landscaping / vegetation management.

In circumstances where the aim and objectives of PBP (section 1.1) are not met, then the construction requirements for bush fire protection will need to be considered on a **case-by-case basis**.

The following table details the aims and objectives of Planning for Bush Fire Protection 2006 and the proposals ability to comply.

Aim / Objective	
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The aim of PBP is to use the NSW development assessment system to provide for the protection of human life (including firefighters) and to minimize impacts on property from the threat of bush fire, while having due regard to development potential, on-site amenity and protection of the environment.

(i) afford occupants of any building adequate protection from exposure to a bush fire;

Comment

With the inclusion of the recommendations made herein it is of our opinion that the aim and objectives of PBP-2006 will be satisfied.

These recommendations in conjunction with the type of building (i.e. slab on ground, sheet metal cladding and roofing) are considered adequate to provide reasonable protection to occupants seeking refuge from bushfire impact within the office building.

Aim / Objective	Comment
(ii) provide for a defendable space to be located around buildings;	<ul> <li>The subject office building is to be on the landfill side of the Crown Road access being located 10m from the hazard to the north.</li> <li>In consideration of the site specific circumstances it is of our opinion that a suitable defendable space will be provided around the office building.</li> <li>The temporary stockpile site has no buildings or structures and is therefore excluded.</li> </ul>
(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition.	The proposed office building will be 10m from the 100m buffer zone to woodland vegetation. It is of our opinion that sufficient separation from the hazard will exist.
(iv) ensure that safe operational access and egress for emergency service personnel and residents is available;	The landfill proposal does not include any residential accommodation. The proposed road arrangements are considered adequate for fire-fighter access and staff and public evacuation for both the landfill site and the temporary stockpile.
(v) Provide for on-going management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ); and	<ul> <li>The existing Crown Road will be the access road for both the landfill and temporary stockpile sites and will naturally form the required APZ.</li> <li>As an access road it will be regularly maintained to be suitable for heavy vehicles use.</li> <li>No APZ's are recommended for the temporary stockpile area.</li> <li>The proposed Crown Road access is considered adequate for the management of vehicular management and by default the maintenance of the APZ.</li> </ul>

(vi) ensure that utility services are adequate to No utility services will be provided. meet the needs of firefighters (and others assisting in bush firefighting). The subject landfill site shall be provided with a dedicated water cart vehicle capable of discharging water via a hose reel or other methods should a bush fire occur. It is recommended that a minimum 10,000ltr static water supply, complying with requirements detailed in section 4.1.3 of PBP, be available for attending fire services. The proposed water supply is considered adequate for the replenishment of attending fire services. The temporary stockpile does not contain combustible materials or support any buildings. Notwithstanding, the static water supply noted above will be sufficient to assist with the control of bushfires emanating from other parts of the landscape.

As part of the operational requirements of the landfill and temporary stockpile sites, a loader style tractor will be permanently on site. This vehicle could be used to assist in any bushfire containment operations if considered safe to do so.

It is therefore my opinion that the proposal can satisfactorily comply with the requirements for Class 5, 10 structures under the aims and objectives Planning for Bush Fire Protection - 2006.

The temporary stockpile site will not be provided with any buildings however will benefit from the services provided for the landfill site.

### 13.0 Recommendations

The following sets out our recommendations for the Bushfire Protection Measures (BPM's) with respect to the aims and objectives of Planning for Bushfire Protection - 2006.

a) Bushfire Asset Protection Zone;

#### Landfill site:

The use of the Crown Road corridor for access to the landfill facility will meet the required 10m wide APZ along the north eastern corner boundary. No other APZ's are required.

A cleared area around the Office building shall be maintained to a maximum of 3.0m. This shall be equivalent to an Inner Protection Area (paved or close mown).

Temporary Stockpile Area:

The temporary stockpile area will not contain any combustible materials or buildings.

PBP does not require any APZ's for this site.

b) Access

The use of the Crown Road corridor for access to both the landfill and temporary stockpile sites will meet the required access provisions for heavy fire fighting vehicle access.

Clear access across the landfill site will also assist.

c) Utility Services

No utility services shall be provided therefore:

A dedicated firefighting water cart will be provided. The capacity of the water cart should exceed 2500lts. The water cart is to be provided with a rubber hose reel of minimum 30m in length and a cab controlled water monitor located on the front bumper bar, cab roof or tank.

Additionally, a dedicated fire service water tank having a capacity of 10,000lts is to be provided. The tank shall be non-combustible, be fitted with a 65mm 'storz' coupling suitable to local fire services and be freely accessible to attending fire service trucks.

d) Structures

All structures other than the portable toilet shall be non-combustible.

All structures shall be located on the southern boundary of the Crown road access to provide for the required 10m APZ.

The office and amenities building shall be located on a reinforced concrete slab and provided with metal mesh screens to all openable doors, windows and vents. Carports are exempt.

e) Bushfire Emergency Management Plan

The facility operators are to develop a bushfire emergency management plan to ensure the safety of both staff and others. A template can be downloaded from the NSW Rural Fire Services web page.

### **14.0 Conclusion**

The investigation area including the landfill, crown road and temporary stockpile area are currently abutting CGRC's Bushfire Prone Land Map indeed it could be argued that the buffer zone to the woodland land ceases at the top of 20m wide Crown Road access commencing off Tumblong Reserve Road. However the temporary stockpile site is the subject of bushfire prone mapping.

Notwithstanding the whole of the proposed facility has been desk top assessed and assumed to be bushfire prone. As a consequence the aim and objectives of Planning for Bush Fire Protection – 2006 have been applied and suitable recommendations provided.

It is of our opinion that should the proposed development comply with the recommendations contained herein the facility will have successfully met the aim and objectives of Planning for Bush Fire Protection - 2006.

Comments provided are based on the requirements of the *Environmental Planning and Assessment Act* 1979, the *Rural Fires Act* 1997, the *Rural Fires Regulations* 2013, *Planning for Bush Fire Protection* 2006, and Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2009.

Should you have any further questions please do not hesitate to contact me.

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### **List of Referenced Documents**

- a) Environmental Planning and Assessment Act 1979
- b) Rural Fires Act 1997
- c) State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
- d) "Planning for Bush Fire Protection" NSW Rural Fire Service's 2006
- e) "Construction of buildings in bushfire-prone areas" AS 3959 2009 (as amended)
- f) "Cootamundra and Gunnedah Regional Council's Bushfire Prone Land Map"
- g) Plans and documents provided by Salvestro Planning of Wagga Wagga
- h) Acknowledgements to:

SixMaps © NSW Government Nearmap.com Geoscience Australia (ELVIS) QGIS

#### Attachments:

- 1. MH Earthmoving Tumblong Quarry, Existing Layout and site boundaries. Figure 02.
- 2. MH Earthmoving Tumblong Quarry, Proposed Stockpile Layout and Sections. Figure 22.
- 3. MH Earthmoving Tumblong Quarry, Draft Infrastructure Layout Plan. Figure 18.
- 4. CGRC Bushfire Prone Lands Map Local Allotment Extract or 22/02/2020







