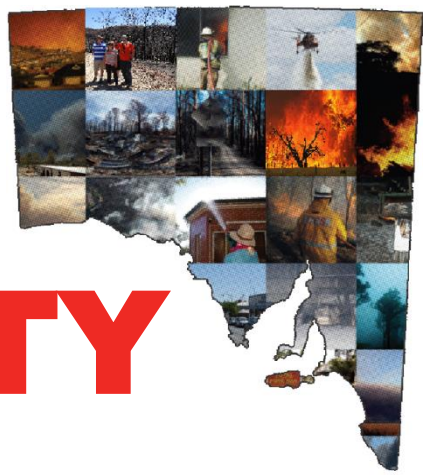


ADELAIDE MOUNT LOFTY RANGES

BUSHFIRE MANAGEMENT AREA PLAN

This Plan has been developed as part of a project funded by the Natural Disaster Resilience Program (NDRP) in partnership with the Commonwealth and State Governments of South Australia.

Government of South Australia

July 2016

Front page photograph: Looking North East from Mount Lofty House toward the Piccadilly locality

Document Control

Version	Date	Summary of Changes	Author
0.1	15 June 2016	Draft V0.1, authored by the BMPU and incorporating information, suggestions and amendments from multiple stakeholders and from public consultation was tabled for endorsement at the AMLR BMC meeting of 15 June 2016,	BMPU/BMC
0.2	22 June 2016	Following the adoption of amendments to Draft V0.1 as moved by the AMLR BMC, Draft V0.2 was endorsed by the AMLR BMC on 15 June 2016	BMPU/BMC
1.0	27 June 2016	Following the adoption of amendments to Draft V0.2 as moved by the SBCC, V1.0 was approved by the SBCC 24 June 2016.	BMPU/BMC/SBCC
1.0	5 July 2016	Signed by Chair of SBCC for publication	BMPU/BMC

Endorsements

This document requires the following endorsements by the AMLR BMC:

Version	Date	Name	Title	Signature
0.2	16 June 2016	Brett O'Loughlin (Regional Commander CFS Region 1)	Chair AMLR BMC *(on behalf of AMLR BMC)*	

Approvals

This document requires the following approvals by the SBCC:

Version	Date	Name	Title	Signature
1.0	5 July 2016	Greg Nettleton (CFS Chief Officer)	Chair, State Bushfire Coordination Committee *(on behalf of the SBCC)*	

Distribution

This is a web based, live and publically accessible Plan. Updated versions are loaded onto the web site (www.cfs.sa.gov.au). No hard copy versions are produced or distributed.

Contents

1 INTRODUCTION

Bushfire cannot be eliminated from the landscape, and there are circumstances when fire cannot be controlled, however planning and preparedness activities can reduce the frequency, spread and impact of bushfire events. The Adelaide Mount Lofty Ranges (AMLR) is a bushfire prone environment with significant numbers of people, assets and areas of environmental sensitivity. The *Fire and Emergency Services Act 2005 (FES Act 2005)*, outlines the responsibilities of key Government organisations, the community and the public to prepare for, prevent or inhibit the spread of any bushfire.

The AMLR Bushfire Management Area Plan (BMAP) comprises of three parts:

- This written component outlining the planning process, content and other relevant information.
- An interactive spatial web-based map that identifies assets and their risk levels, and includes pop up tables of information for each asset.
- A spreadsheet containing a list of all AMLR BMAP assets and their risk rating.

Prevention and preparedness are vital components in reducing injuries and deaths, loss of assets, financial costs and aiding community recovery. The AMLR BMAP is aimed at prevention and preparedness planning, processes and actions. The Plan outlines information, strategies and actions to prevent or mitigate (reduce) bushfire impact on assets and in the landscape, rather than focusing on business continuity, emergency response or asset replacement costs.

Unlike past methodologies where a plan is published and remains static for a number of years before it is updated, the AMLR BMAP utilises a web-based (electronic) style and methodology that enables it to be updated on a regular and ongoing basis following its initial approval and publication. The AMLR Bushfire Management Committee ensures the Plan is regularly reviewed and updated and that public consultation processes are undertaken where required. *(Please refer to Section 3: Roles and Responsibilities).*

At time of publication of this plan (July 2016), the existing State Bushfire Management Plan is being reviewed. The State Bushfire Management Plan is a requirement under *Section 73 of the FES Act 2005*, and sets the standards for preparation and implementation of the BMAP. In the interim, this BMAP has been prepared under specifications as determined by the current State Bushfire Management Plan 2010, the State Bushfire Coordination Committee (SBCC), Bushfire Management Committees, and the CFS Bushfire Management Planning Unit.

1.1 Purpose and Scope

The *Fire and Emergency Services Act 2005 (FES Act 2005)* requires each of the nine South Australian Bushfire Management Committees (BMC's) to prepare and maintain a BMAP. Each BMC will adopt a BMAP that will:

a. Identify existing or potential risks to assets from bushfire within the BMA
b. Outline coordinated and cooperative bushfire prevention and mitigation strategies to achieve appropriate hazard reduction associated with bushfire management within its area
c. Identify asset or land custodians responsible for the implementation of bushfire risk mitigation treatments

d. Use or establish principles and standards to guide or measure the success of the bushfire management strategies and initiatives.

The purpose of the AMLR BMAP is to provide strategic direction for bushfire management planning in the AMLR Bushfire Management Area (BMA) *(refer to location map on page 6)*, through the identification of strategies for bushfire risk modification to selected assets and areas and across the landscape regardless of tenure. The Plan will be used by State and Local Government land management organisations to guide the development of bushfire management works plans for areas of land under their responsibility. Local Government work plans will guide the establishment/development of bushfire mitigation works on private lands. The Plan also provides essential inputs into State and Local Government planning, the application of building codes, fire fuel management, planning for emergency management response, and prioritising of resources for sound mitigation decisions.

Following an assessment of bushfire risks and the adequacy of current control measures within the AMLR, additional risk treatment strategies have been determined that aims to improve the resilience of the wider community and the assets identified in the plan.

The scope of the AMLR BMAP encompasses a range of asset categories and landscape wide areas of potential bushfire risk. Asset categories include areas of human settlement; industrial and business areas; and assets of cultural significance to local communities or the State. *(Refer to Section 4.1: Assets at Risk from Bushfire)*. Selected areas of bushfire concern that relate to multiple assets or the movement of bushfire through the broader landscape have been included and mapped as Landscape Treatment Investigation Areas. These proposed areas of investigation require further assessment and consultation with stakeholders to determine the most effective, acceptable and achievable vegetation management strategies to directly reduce the intensity and movement of fire through the landscape and the impact of bushfire on a cluster of assets. Bushfire safety requires a partnership approach and is a shared responsibility between government agencies, the private sector, non-government organisations, individuals and the wider community. The planning process ensures consultation strategies provide all stakeholders with the opportunity to contribute to fire management planning and thus undertake appropriate action to address the risk of bushfire.

1.2 Objective

The protection of people, property and the environment is the fundamental objective of this plan, as a shared responsibility between government and the community. Members of the community are required to contribute to mitigating bushfire risk. The risk assessment process focuses predominantly on what can be measured (vegetation, fire intensity, separation distances, weather, topography, building resilience, access routes etc.) and what can be managed by applying risk treatment strategies.

The objective of this plan is to:

a. Document the outcome of the AMLR BMC identification and assessment of the bushfire risk to assets within the AMLR BMA;
b. Capture the current and future risk treatment strategies;

c. Identify those asset or land custodians responsible for implementing risk treatment strategies to manage the risks and reduce the community's vulnerability to bushfire by improving preparedness utilising local knowledge, experience and expertise
d. Support and inform planning at a local level; and
e. Inform stakeholders of the potential bushfire risk within the AMLR BMA.

Assessment of the strategies to protect other assets within the AMLR BMA will need to be reviewed as the strategies are implemented.

1.2.1 Constraints, Assumptions and Exclusions

It is not currently feasible to include and risk assess every parcel of land, building or area in the AMLR. However, this does not mean that land, assets, communities or people who are not specifically identified in the Plan's online map by a point, polygon or line have no level of risk. Every landholder has a responsibility to undertake bushfire prevention and preparedness activities relevant to their location and situation.

Data on the location and nature of environmental assets has been collected however restricted timeframes and resources have delayed the development of a risk assessment process and related management strategies specific to environmental assets. Any identification and assessment of risk levels and risk treatment strategies for environmental assets must include a determination of potential impacts on significant species and ecological communities. As a result, environmental assets and related management strategies will be included in a subsequent update of this online AMLR BMAP following a period of public consultation. This will include conservation and recreation parks and other areas people visit for hiking and recreation. It is planned to have the completed environmental asset information included by November 2016. *(Refer to Section 4.2.4: Environment)*

The initial list of Landscape Treatment Investigation Areas *(Refer to Section 1.1: Purpose and Scope; Section 5.2.1: Landscape Treatment Investigation Areas; Appendix 1; Appendix 2; and Definitions and Acronyms)* does not represent an exhaustive or priority-based list of all potential Landscape Treatment Investigation Areas. Additional areas will be included following further risk assessment, identification and consultation with affected landowners. This includes identifying and assessing risk treatment strategies to determine their impact on significant species and communities.

On the advice of the Department of the Premier and Cabinet – Aboriginal Affairs and Reconciliation Division, to prevent damage, disturbance or interference with any Aboriginal site or object, assets of Aboriginal cultural and spiritual significance will not be specifically identified in this iteration of the plan. Further consultation with relevant stakeholders will be undertaken on the methodology for including assets of Aboriginal significance in the Plan.

This AMLR BMAP does not include details for implementation, monitoring, review or reporting. These requirements will be set out in the State Bushfire Management Plan and undertaken as part of the BMAP implementation process.

Weather conditions play a significant role in the likelihood of a bushfire occurring and its behaviour and intensity, should it occur. As part of determining these calculations, risk assessments have been based on inputs derived from Bureau of Meteorology (BOM) weather data over the fire danger season (October to April) for the last 5-7 years for the fire ban districts in each bushfire management area throughout the state.

Formulas and data used during risk assessment workshops and in the development of this plan have been based on the best available information at the time of development, and may be subject to change over time as more accurate data and information becomes available.

1.2.2 Considerations in developing the Bushfire Management Area Plan

The following considerations have been applied in the development of the BMAP:

- Protection and preservation of life
- Protection of critical infrastructure and community assets that support community resilience
- Protection of residential property as a place of primary residence
- Protection of assets supporting livelihoods, economic production and community financial sustainability
- Protection of cultural assets
- Protection of Environmental and Conservation Assets
- Compliance with relevant Acts, Codes of Practice and Regulations

1.3 Legislation

1.3.1 Fire and Emergency Services Act

A BMAP is a requirement under the *FES Act 2005 Section 73A.* In particular *Section 73A(1)* requires the BMC to prepare and maintain a BMAP for its area. *Section 73A(3)* outlines that the BMAP must:

a. identify existing or potential risks to people and communities within its area from bushfire; and
b. outline strategies to achieve appropriate hazard reduction associated with bushfire management within its area, especially through a coordinated and cooperative approach to bushfire prevention and mitigation; and
c. identify action that should be taken by people, agencies and authorities to achieve appropriate standards of bushfire management within its area; and
d. without limiting points (b) and (c), establish or adopt principles and standards to guide or measure the successful implementation of bushfire management strategies and initiatives; and
e. include or address other matters prescribed by the regulations or specified by the SBCC.

The following *Sections 73A(4) and 73A(5)* direct that the BMAP must be consistent with the State Bushfire Management Plan, and such other plans, policies and strategies as may be prescribed by the regulations.

1.3.2 Local Government Act

Section 7 of the Local Government Act 1999 specifies the principle functions of a Council. The functions that are specific to this plan include:

- *Section 7(d):* to take measures to protect its area from natural and other hazards and to mitigate the effect of such; and
- *Section 7(f):* to provide infrastructure for its community and for development within its area (including infrastructure that helps to protect any part of the local or broader community from any hazard or other event, or that assists in the management of any area).

Additionally *Section 8(d) of the Local Government Act 1999* outlines the way in which councils are required to undertake their roles and functions. It specifies the need for consistency of all plans, policies and strategies with Regional, State and National objectives and strategies concerning the economic, social, physical and environmental development and management of the community.

1.3.3 State Emergency Management Act

Section 3 of the Emergency Management Act 2004 (South Australia) specifies that an "emergency means an event (whether occurring in the State, outside the State or in and outside the State) that causes, or threatens to cause:

a. The death of, or injury or other damage to the health of, any person; or
b. the destruction of, or damage to, any property; or
c. a disruption to essential services or to services usually enjoyed by the community; or
d. harm to the environment, or to flora or fauna

This is not limited to naturally occurring events (such as earthquakes, floods or storms) but would, for example, include fires, explosions, accidents, epidemics, sieges, riots, acts of terrorism or other hostilities directed by an enemy against Australia."

At a regional level, this plan will provide valuable input into the Zone Emergency Management Plan (ZEMP) in relation to rural fire.

1.3.4 Acts, Codes and Regulations Influencing Bushfire Management Planning

The following are some of the Acts, Codes and Regulations to be considered in developing and undertaking bushfire management planning and practices:

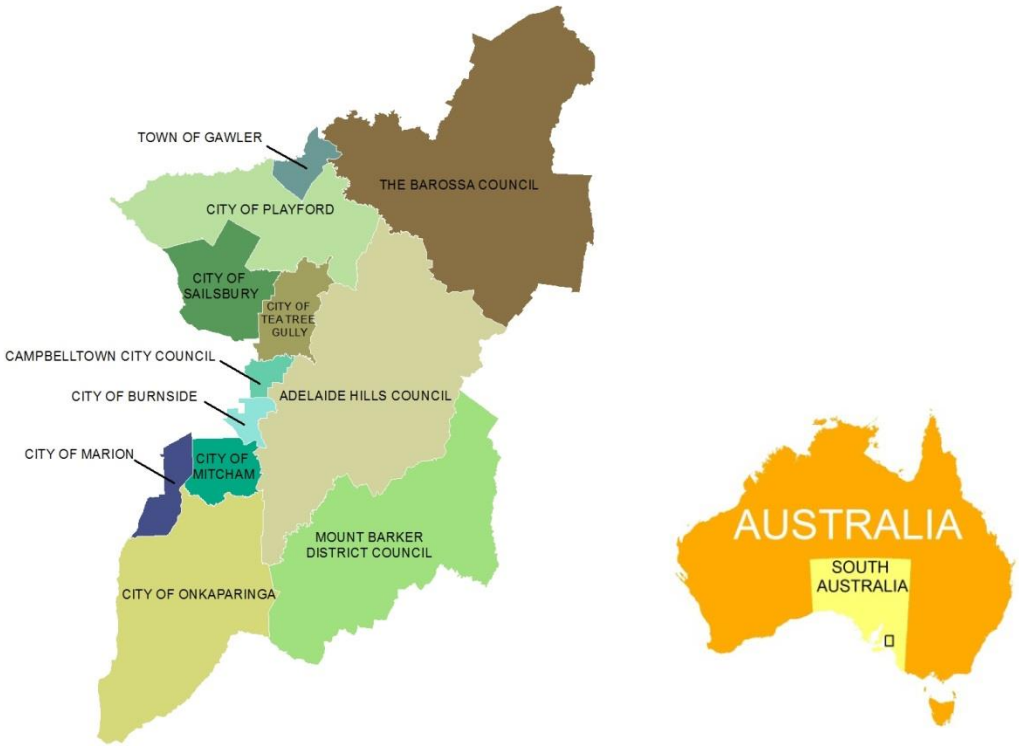
- *Native Vegetation Act 1991 (SA) Section 29*
- *Native Vegetation Regulations 2003 (SA) Section 5A-1 and 5(1)(zi)*
- *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) Section 18 and 269AA*
- *Code of Practice for fire management on Public Land in South Australia 2012-2016*
- *National Parks and Wildlife Act 1972 (SA)*
- *Wilderness Protection Act 1992 (SA)*
- *Crown Land Management Act 2009 (SA)*
- *Development Act 1993 Development Regulations 2008*

2 ADELAIDE MOUNT LOFTY RANGES BUSHFIRE MANAGEMENT AREA

2.1 Location

The AMLR BMAP has been developed for the AMLR BMA region of South Australia. The boundary incorporates the whole of the following council areas: (see map below)

- Adelaide Hills Council
- The Barossa Council
- City of Burnside
- City of Campbelltown
- The Town of Gawler
- City of Marion
- City of Mitcham
- Mt Barker District Council
- City of Onkaparinga
- City of Playford
- City of Salisbury
- City of Tea Tree Gully



Map 1: Adelaide Mount Lofty Bushfire Management Area

2.2 Fire History

The following list contains examples of the years, locations and data of some fires relevant to the Adelaide Mt Lofty Ranges BMA. It is not a definitive list of all fire occurrences within the BMA but provides a guide on the frequency of fires.

Fire history has been considered as part of the risk assessment process.

1938 – 1939	Adelaide Hills
1943 – 1944	Adelaide Hills
1948 – 1949	Bridgewater, Mt Barker
1950	Mt Lofty
1951	Adelaide Hills, Woodside, Stirling, Lenswood
1955	Adelaide Hills – Black Sunday - 40,000ha, 2 firefighters, $4,000,000
1980	Adelaide Hills - Ash Wednesday I - 3,770ha, 50 homes
1983	Adelaide Hills – Ash Wednesday II - 12 deaths, 120 homes, historic buildings.
1985	Adelaide Hills
1987	Morialta – 300ha
1988	Kersbrook – 400ha
1995	Heathfield – 450ha
2000	Brownhill Creek – 1,000ha
2001	Hillbank – 350ha
2003	Morphett Vale – 300ha
2005	Mt Osmond - 120 ha, 3 buildings, 4 vehicles, 4 km fencing.
2007	Mt Bold - 2,000ha, numerous sheds, livestock and equipment fire damaged.
2014	Eden Valley - 25,000ha, 4 houses, multiple sheds, livestock, native fauna, 100s x km fencing
2015	Sampson Flat - 12 600ha, 24 houses, 103 sheds, 62 firefighter injuries, $13 million.

2.3 Topography

The Adelaide Hills rise from the eastern edge of the Adelaide Plain. The topography is generally rolling hills with more severe gullies and creeks to the west and more undulating hills to the east and north. In the northwest Hills Face Zone there are complex steep escarpments and gullies with reservoirs, pine plantations and conservation areas with remnant vegetation. To the south is the Onkaparinga Valley with rolling hills and less continuous vegetation than that in the Mount Lofty Ranges.

2.4 Water Catchments

Water catchments often comprise of large areas with multiple landowners and jurisdictions. SA Water applies the following definitions to Mt Lofty Ranges catchment and watershed areas:

- P1 - Priority 1 (P1) areas are the immediate hydrological catchments of the primary reservoirs and streams that are directly harvested for drinking water supply, where the provision of the highest quality public drinking water is fundamental.
- P2 - Priority 2 (P2) areas are those within 2 km of secondary water supply reservoirs, land within 100 metres of watercourses used to convey River Murray water into Hills reservoirs, and land in flood-prone and high-runoff areas. P2 areas fall into an intermediate water quality risk category.

- P3 - Priority 3 (P3) areas include all remaining parts of the Watershed, including catchment areas set aside for future reservoirs. In P3 areas it is acknowledged that water supply catchment functions co-exist with agricultural, residential, commercial and industrial uses. P3 areas include the remainder of the catchment.

2.5 Land Tenure

- Private ownership – residential and industrial/commercial and conservation including Vegetation Heritage Agreements under the *Native Vegetation Act 1991*.
- Council managed areas
- SA Water
- Forestry SA
- Department of Environment, Water and Natural Resources (DEWNR)
- Commonwealth and State Crown lands
- Traditional owners

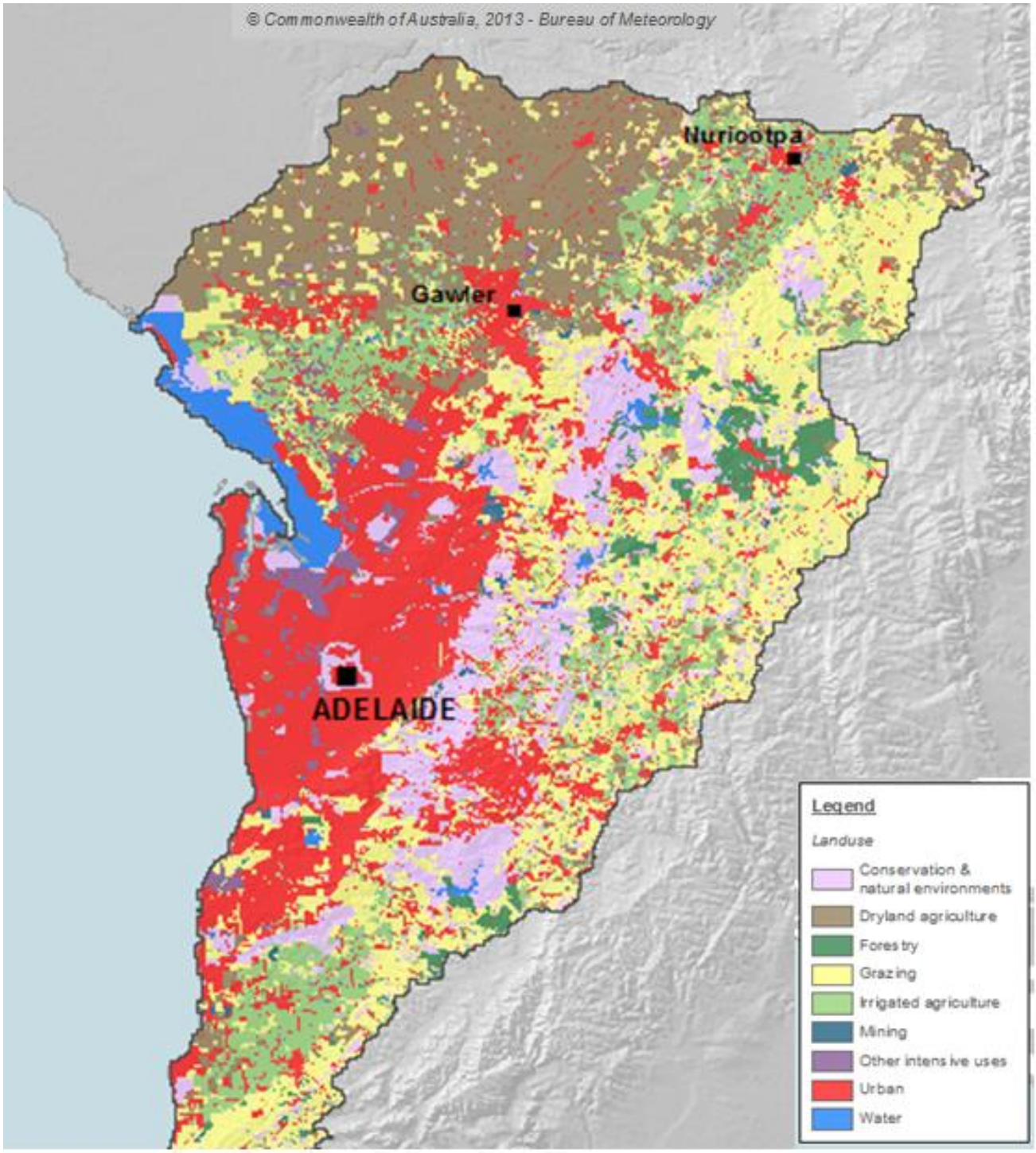
2.6 Land Use

The following list outlines some of the main types of land uses in the AMLR BMAP:

- Agriculture
- Viticulture
- Commercial forestry
- Conservation
- Tourism
- Industrial
- Residential
- Water courses, storage and catchments

The type of land use may influence a range of bushfire issues such as chances of ignitions, ability of bushfire to establish and spread, opportunities for suppression and the risk treatments applied to reduce bushfire risk and impact. Although there are multiple land uses and land owners across AMLR, broader bushfire issues and risk treatments are assessed and applied using a tenure blind approach to bushfire management planning.

Figure 2 below from the Bureau of Meteorology provides a colour coded map of land use across the AMLR



Map 2: Land use in the Adelaide Mount Lofty Ranges

2.7 Climate

2.7.1 Temperature

The temperature is typically Mediterranean in the southern coastal areas. This means hot dry summers and wet mild winters are experienced. In summer the maximum temperature ranges between 24 - 35°C, although on extreme days the temperature can reach >40°C. The average winter maximums range between 16 - 18°C and the winter minimums tend to fall between 5 - 8°C.

2.7.2 The Impacts of Climate Change

Decreases in rainfall and higher evaporation rates will mean less soil moisture and less run off in rivers, streams and reservoirs. Our demand for water may also increase as a result of warmer temperatures and as our population grows, effectively increasing bushfire activity.

Changes in climate will have a range of impacts – for example on water resources, bushfire frequency and intensity, primary production, infrastructure and the health of our landscapes. As well as the direct environmental impacts of climate change there is also the interaction with other drivers of change such as population growth in these areas.

2.7.3 Wind and Weather Patterns

During the summer a succession of high pressure systems track from west to east, usually five to seven days apart. The centres of these high pressure systems generally pass to the south of Adelaide, producing south easterly, easterly or north easterly winds. As these high pressure systems move to the east, the wind direction turns north-east to northerly, often bringing a stream of dry and hot air across the AMLR BMA. The region experiences thunderstorms and lightning in spring and summer that may be dry or wet and cause gusty and variable winds from multiple directions.

A frequent summer weather pattern of great concern to firefighters and community is during the strong northerly winds carrying hot dry air combined with a frontal change causing winds to swing around to come from the west and/or become much stronger, unstable and gusty from several directions. When fires start and become established under such conditions they may rapidly increase in size and may be difficult to control. In certain conditions fires become uncontrollable, meaning that protection of life and asset protection becomes the priority until conditions abate.

2.7.4 Rainfall

Rainfall is seasonal across the AMLR BMA with 40% of the total annual rainfall tending to occur in the winter months compared with only 10% in the summer months. The majority of rain falls between May and September. The amount of rainfall varies across the BMA and the annual average rainfall varies between 700 – 1000mm.

2.8 Fire Ban District and Bushfire Season

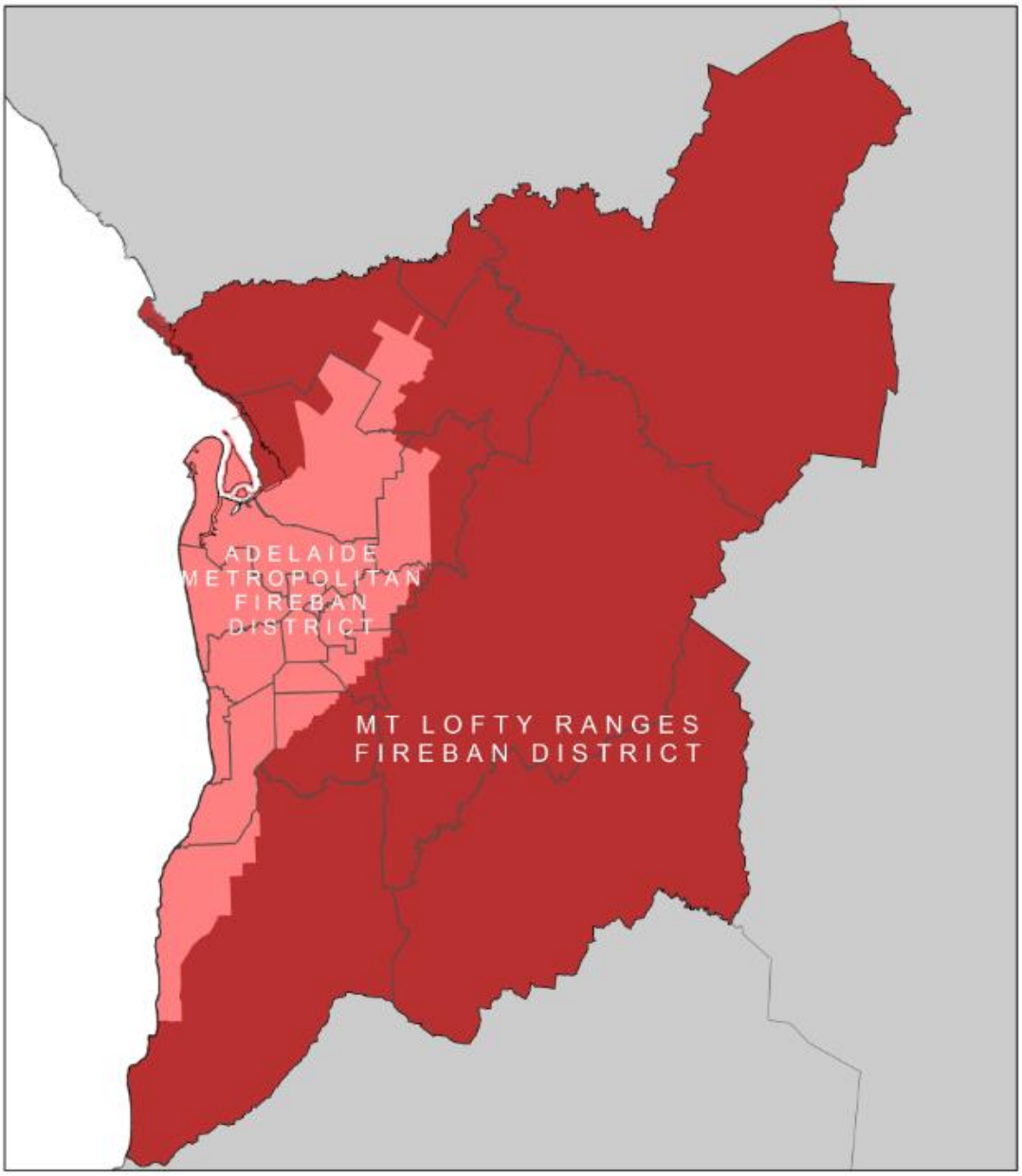
The AMLR BMA encompasses areas of both the Adelaide Metropolitan and Mt Lofty Ranges Fire Ban Districts (FBD). Fire Danger Season (FDS) dates are set annually by the CFS Chief Officer based on recommendations from the AMLR BMC.

Adelaide Metropolitan: These dates are generally from the 1st of December to the 30th April but may be varied according to climatic influences leading up to and during the summer months.

Affects: Burnside, Campbelltown, Marion, Mitcham, Onkaparinga, Playford, Salisbury and Tea Tree Gully.

Mount Lofty Ranges: These dates are generally from the 1st of December to the 30th April but may be varied according to climatic influences leading up to and during the summer months.

Affects: Adelaide Hills, Barossa, Burnside, Campbelltown, Gawler, Mitcham, Mt Barker, Onkaparinga, Playford, Salisbury and Tea Tree Gully.



Map 3: Adelaide Metropolitan and Mt Lofty Ranges Fire-Ban Districts Map

2.9 Population

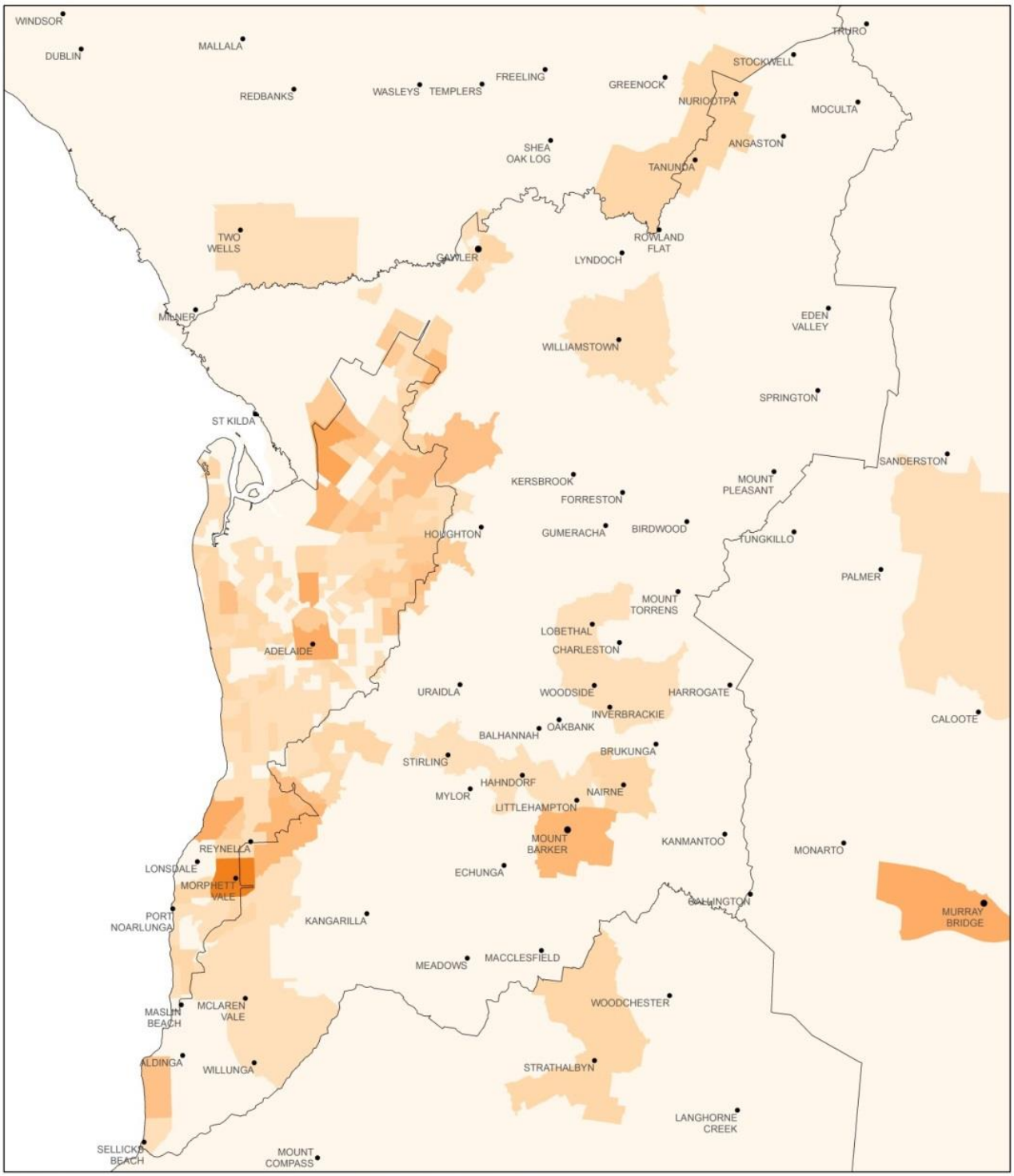
The AMLR BMA is one of the most densely populated rural fire regions in the state, with a population of over 500,000 people. In most areas there has been rapid growth around central townships with residential development now extending as far south in Metropolitan Adelaide as Pt Noarlunga and Seaford Rise. Mt Barker has also experienced rapid growth due to the opening up of land for new development. The Adelaide Mount Lofty Ranges continues to experience planned growth and population increases within centres, townships and settlements notwithstanding boundaries around townships being in place since the 1980s. The application of Environment and Food Production Areas through the new *Planning, Development and Infrastructure Act, 2016* potentially will serve to limit encroachment of residential development within productive food growing areas.

More than 35 suburbs in Adelaide's fringes and more than 40 towns in the Adelaide Hills are in bushfire prone areas.

Government of South Australia

ADELAIDE MT LOFTY BUSHFIRE MANAGEMENT COMMITTEE

POPULATION DENSITY



Map 4: Adelaide Mount Lofty Ranges Population Density

3 ROLES AND RESPONSIBILTIES

3.1 State Bushfire Coordinating Committee

The *FES Act 2005 Section 71A* outlines the functions of the State Bushfire Coordination Committee. Some of these functions include:

a. promoting the State-wide coordination and integration of policies, practices and strategies relating to bushfire management activities;
b. providing guidance, direction and advice to bushfire management committees;
c. preparing and reviewing the State Bushfire Management Plan and to keep under review the extent to which Bushfire Management Area Plans and strategies adopted or applied by bushfire management committees are consistent with the State Bushfire Management Plan;
d. approving and auditing Bushfire Management Area Plans prepared and endorsed by Bushfire Management Committees.

3.2 Adelaide Mount Lofty Ranges Bushfire Management Committee

The AMLR BMC has been established by the SBCC under the *FES Act 2005*, and under *Section 73A(1)* of this Act must prepare and maintain a BMAP for its BMA. This plan takes an unbiased landscape view of the strategic bushfire management needs of the BMA and is, therefore, boundary and tenure blind.

The key function of the AMLR BMC is to coordinate all relevant stakeholders with a responsibility for bushfire management within the BMA, to undertake a risk assessment process, and oversee the implementation of risk mitigation strategies. The purpose of this process is to reduce the risk of fire negatively impacting on life, property, and the environment in accordance with the *FES Act 2005*. The role and responsibility of AMLR BMC will include:

a. Promoting the coordination of policies, practices and strategies relating to bushfire management activities within its area;
b. Preparing and keeping under review a BMAP for its area and ensuring that the BMAP is consistent with the State Bushfire Management Plan;
c. Overseeing implementation of its BMAP and reporting to the SBCC;
d. Initiating or preparing the development of plans, policies, practices or strategies to promote effective bushfire management within its area;
e. Convening with local or regional forums to discuss issues associated with bushfire management within its area, including working with local communities to promote and improve effective bushfire management;
f. In the exercising and performance of their powers and functions:
    i. Having due regard to the impact of their actions on the environment; and
    ii. Seeking to achieve a proper balance between bushfire prevention and proper land management in the country; and
g. Performing any other functions assigned by the Minister or the SBCC.

3.3 Bushfire Management Committee Member Organisations

BMC member organisations are responsible for:

a. Contributing to the decision-making of the Committee
b. Preparing and implementing action or work plans to address relevant risk treatments or issues identified in the plan.
c. Ensuring input into the planning process by their BMC representatives
d. Providing information and make decisions on bushfire management planning issues within the area
e. Reviewing the Bushfire Management Area Plan information and drafts and make amendments if required
f. Determining methodologies for community and public consultation on key components of the BMAP
g. Assessing and endorsing BMAP updates or changes.

Please refer to **Appendix 3** for a list of the AMLR BMC member organisations.

3.4 Community

Bushfire prevention and preparedness is a shared responsibility of the State government, local councils and fire agencies, individuals, landholders and building managers (public and private), and the broader community. This BMAP assumes that all persons in the AMLR BMA are responsible for the mitigation of the bushfire risk for themselves, their neighbours and their community, and therefore need to understand and partake in bushfire prevention and preparedness. This is especially relevant to the protection of life and the property and environmental assets not specifically identified by a point, polygon or line within this BMAP.

In particular, legislation (*FES Act 2005*) states that owners of land must take reasonable steps to:

a) prevent or inhibit the outbreak of fire on the land; and
b) prevent or inhibit the spread of fire through the land; and
c) protect property on the land from fire; and
d) minimise the threat to human life from a fire on the land

To ensure that the community is observing these bushfire prevention and management activities, Local Government Fire Prevention Officers within the AMLR BMA are required by the *FES Act 2005* to assess the extent of bushfire hazards within the council area, and provide advice to land holders and work with communities on bushfire prevention and preparedness. Where necessary, Fire Prevention Officers can enforce the provisions of the *FES Act 2005* on private land.

Although conservation and recreation parks and other areas people visit for hiking and recreation have yet to be included into this Plan, people visiting DEWNR managed parks need to recognise they are at risk from bushfire. Several risk treatment measures are implemented by DEWNR with aim of reducing the risk to life, such as signage and park closure policies on Total Fire Ban days.

Information relevant to all members of the community on bushfire prevention and preparedness can be found on the following link: http://www.cfs.sa.gov.au/site/resources/fact_sheets.jsp

4 RISK ASSESSMENT

Risk assessment is undertaken as assets are identified for inclusion into the online mapping and Risk Register. The risk assessment process can be applied to cover the risks to structures, property and life within built assets. A process for determining risk outcomes for environmental assets is being developed and will be used to include environmental assets in the AMLR BMAP by November 2016.

The risk rating outcomes for assets currently identified in this Plan are determined using a number of inputs (risk drivers). Some of these include:

- Susceptibility of assets and people
- Vegetation type and its distance from the asset
- Predominant slope of the vegetation in relation to the asset
- Access and/or egress to and from the asset
- Frequency of ignitions in the general area of the asset

Risk drivers for each asset are contained in the extended version of the asset spreadsheet which is available from the CFS Bushfire Management Planning Unit.

4.1 Assets at Risk from Bushfire

The range of assets identified and assessed for their risk from bushfire in this BMAP has been sourced from local councils, infrastructure agencies, business groups, SA Government agencies, ALMR BMC working groups, CFS, community groups and web based geospatial resources.

The life and property assets are geographically identified and presented with a coloured risk rating as either, a point, line or polygon in the bushfire risk map that forms part of this plan. This plan also includes a table listing all relevant information relating to the risks, as well as existing and proposed risk treatment strategies associated with each asset. The planning process allows for a single repository for all current and future assessments to be managed and maintained within the AMLR BMA.

The assets considered within this current plan are divided into four classes: Human Settlement, Economic, Cultural Heritage and Environmental. Environmental assets will be added to the plan at a later date *(Refer to Section 1.2.1: Constraints, Assumptions and Exclusions)*. Each of these asset classes are further broken down into asset categories as shown in **Table 1.**

Asset Class	Asset Category
Human Settlement	• *Residential* • *Special Fire Protection* • *Other*
Economic	• *Infrastructure* • *Commercial or Industrial*
Cultural Heritage	• *Community* • *Historic* • *Other*
Environmental	• *Flora* • *Fauna* • *Ecological communities* *(For more information see section 4.2.4 Environment)*

Table 1: Asset Classes and Categories included in the Bushfire Management Area Plan

4.1.1 Human Settlement

Human Settlement assets are those assets which are likely to be occupied by people and may be at risk from bushfire. Therefore, there is the potential for the loss of human life.

4.1.2 Economic

Economic assets considered within this plan are those of significance to the economy at all scales, and are at risk from the impact of bushfire. They include commercial and industrial sites, and infrastructure providing utilities such as energy, water, transport and telecommunications.

4.1.3 Cultural Heritage

Cultural heritage assets identified in this plan include those of significant cultural value, post 1836, when non-Aboriginal people moved in to the Region. This category will also include assets that are of local community value including halls, churches, institutes and recreational facilities.

Please see refer to *Section 1.2.1: Constraints, Assumptions and Exclusions* regarding assets of Aboriginal cultural and spiritual significance.

4.1.4 Environmental

The development of a risk assessment process and related management strategies specific to environmental assets is still being undertaken by major stakeholders. *(Refer to Section 1.2.1: Constraints, Assumptions and Exclusions, and Section 4.2.4: Environment).* The environmental assets to be considered for inclusion include flora, fauna, and ecological communities. Priority of assessment will be given to those species and communities that have been given a rating in line with the *Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth),* the *National Parks and Wildlife Act 1972*, or have been identified in the *DEWNR Regional Species Conservation Assessment Project (Gillam 2011).* No risk mitigation treatment should be undertaken in native vegetation until these environmental assets have been identified through an environmental assessment process. Further information on this process is included in *Section 4.2.4: Bushfire Risk Assessment - Environment.*

4.1.5 Assets and Areas not risk rated

Land, assets, communities or people who are not specifically identified in the online map of this BMAP by a point, polygon or line may still have a level of bushfire risk. This is particularly relevant to the Adelaide suburban/rural interface area and the more sparsely populated areas outside of the Adelaide suburban area and rural townships. Landholders in the AMLR BMA, including people and asset owners not risk rated, have a responsibility to undertake bushfire prevention and preparedness activities relevant to their location and situation.

4.1.6 Urban Interface Area

There are large areas of the urban interface that are considered low risk from the direct impacts of a bushfire. On the BMAP spatial plan, these are non-risk rated areas that are situated between the Bushfire Safer Settlement line and risk rated human settlements. There are similar interface areas between some of the Bushfire Safer Precincts and risk rated human settlements. Although these areas are low risk, they may still be subject to smoke, spark and ember attack. People and asset owners in these areas still have a responsibility to undertake bushfire prevention and preparedness activities relevant to their location and situation.

4.1.7 Bushfire Safer Places and Last Resort Refuges

The terminology and separate categories previously referred to as the Bushfire Safer Settlement and Bushfire Safer Precincts have now been consolidated to a single category of Bushfire Safer Places. The terminology and category of Last Resort Refuge has remained unchanged.

The BMAP process may identify changes to Bushfire Safer Places and Last Resort Refuges such as an expansion of a township. This may result in the BMC requesting a reassessment based on these changes.

4.2 Bushfire Risk Assessment

Risk assessments analyse a potential hazard and consider both the likelihood and consequence of an event occurring. These two factors combine to give an overall risk. For example an event that is unlikely to happen and would have little consequence if it did happen would have a low risk; while an event that is likely to happen and would have bad consequences would be a high risk.

In terms of expressing risk for life, property and the environment in the context of this plan, the following aspects were used:

a. The likelihood of a bushfire igniting in the surrounding landscape and spreading to the vegetation adjacent to the asset;
b. A bushfire event (flame, radiant heat and embers) directly igniting the asset or igniting the vegetation immediately adjacent to an asset, resulting in an impact to the asset;
c. The consequence to the asset (loss or damage) from the bushfire event.

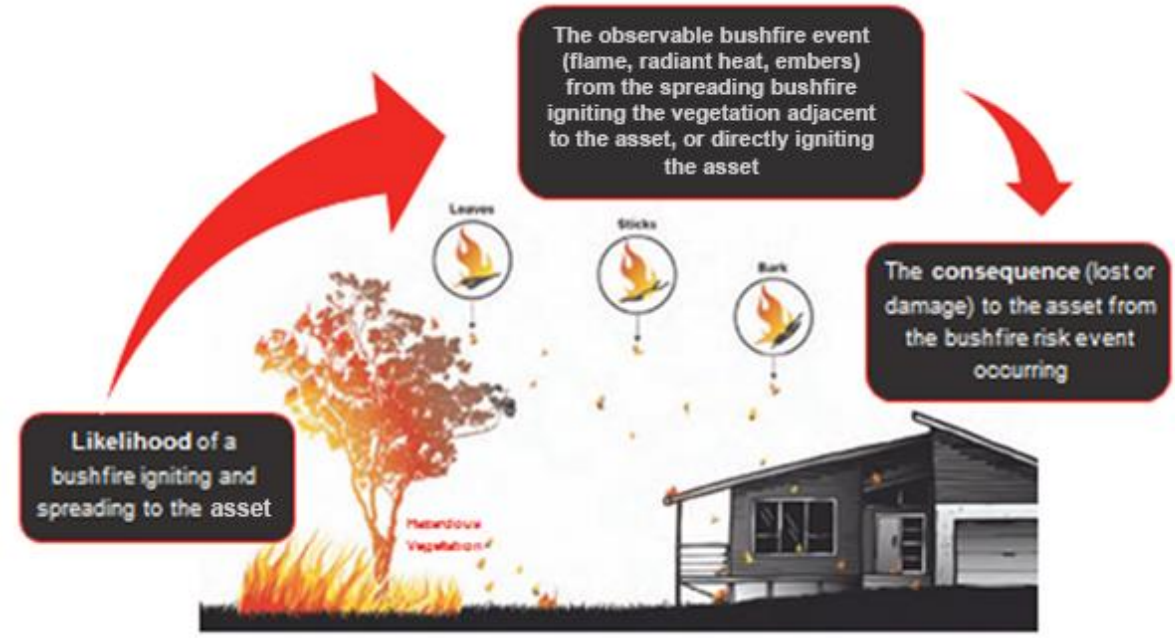


Figure 1: Bushfire Risk Diagram

4.2.1 Weather Context

When the bushfire risk assessment was undertaken for this plan, the weather conditions taken into consideration were BOM weather data over the fire danger season period for the last 5-7 years for each Fire Ban District. This is to enable the 99 percentile values to be utilised for the Bushfire Management Area Planning in setting the weather context.

The required weather input for the risk assessment process includes:

- Air temperature (°C)
- Relative humidity (%)
- Wind speed (Km/h) at a height of 10 metres
- Drought factor (BOM)
- Soil Dryness Index (SDI)

Through their local knowledge of fire weather and fire behaviour workshop attendees and other stakeholders are able to determine which assets would be at risk and aid in the determination of likelihood and impact of bushfire.

4.2.2 Likelihood

In determining the likelihood of a bushfire igniting and spreading and impacting an asset the following inputs are considered:

- Australian Incident Reporting System (AIRS) data from SACFS for known ignitions to gain an understanding of fires that have occurred.
- Current land use data across the State to assist in determining vegetation layers and activities associated with land use that could be potential ignition sources.
- Historical evidence of past bushfires and scarring across the landscape.
- The ability for fire to establish and spread and the density/type of vegetation within the landscape. Inputs include Bureau of Meteorology data relating to local weather conditions within the AMLR BMA, vegetation classification and fuel structures to undertake basic fire behaviour modelling.

4.2.3 Consequence

The term "Consequence" for the purpose of this plan applies only to the asset itself. It means "what will happen to the asset if it is impacted by a bushfire?" For example will it burn down, will it cease to function, will people be injured etc.? It does not refer to the social, financial or business continuity consequences of losing the asset. These will be considered in the implementation phase of the risk treatments.

The elements that contribute to the consequence of a bushfire are the *Bushfire Attack Level (BAL)* (measuring the radiant heat) and either the *susceptibility of occupants in human settlement assets* or *susceptibility of built structures.*

Bushfire Attack Level (Radiant Heat)

Bushfire Attack Level (BAL) is a measure of the radiant heat a building or structure is expected to be subjected to in the event of a bushfire on a day of Extreme FDR. This measure is used by the *AS3959 Australian Standard* for the construction of buildings in bushfire-prone areas in that buildings are rated to certain BALs.

The BAL is determined by classifying the type of vegetation around the building, the distance of the vegetation from the building, the slope of the land and the height of the most exposed part of the building (typically the eaves). The higher the BAL, the higher the radiant heat will be at that site during a bushfire. The aim should be to maintain assets below a BAL of 12.5 Kw/m^2 thereby eliminating the ignition of the structure from radiant heat. It should be noted that this Standard does not take into account the potential impact of spark and ember on structures.

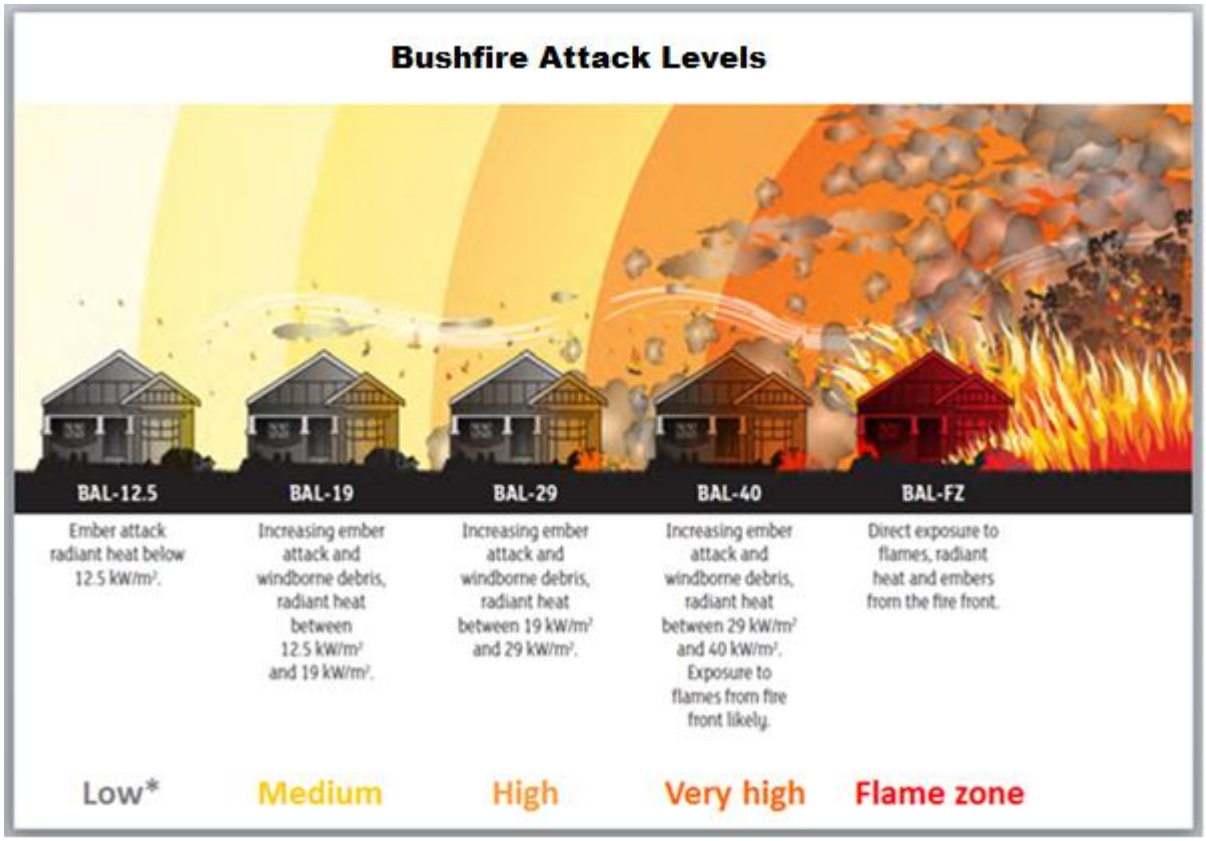


Figure 2: Bushfire Attack Levels

Susceptibility of Human Settlement Assets

This assessment refers to the susceptibility of the building occupants to bushfire and therefore, the potential for the loss of human life. It is not the assessment of the structures or the built environment.

This assessment is based on the combination of three elements: the people who live in the area, the preparedness level of the assets and environmental factors. For example, a rural community with a very active Community Fire Safe Group, well prepared properties and a well maintained bushfire buffer zone will have a reduced susceptibility.

Susceptibility of Built Structures (Economic and Cultural Heritage Assets)

The susceptibility of a built structure being adversely impacted by bushfire is dependent on the type of construction and material used as well as its general condition. For example, concrete water tanks or steel towers have a very low susceptibility, whereas a heritage timber barn would have a very high susceptibility.

4.2.4 Environment

The AMLR BMC and the SBCC acknowledge the importance of including environmental assets in bushfire risk management. However, a formal process for the risk assessment of identified environmental assets vulnerable to bushfire is not complete at the time of this plan's initial release. The assessment process and inclusion of environmental assets in the next iteration of this BMAP is scheduled for November 2016. Any identification and assessment of risk levels and risk treatment strategies for environmental assets must include a determination of potential impacts on significant species and ecological communities. Prior to the addition of these assets and related information into the BMAP, a six week period of public consultation will be undertaken to enable input and comment from interested organisations, groups and individuals. *(Refer to Section 1.2.1 Constraints, Assumptions and Inclusions).* The process will include a review of property asset risk treatments that may have environmental impacts in order to minimise these impacts without compromising community safety.

Environmental assets are located throughout the BMA, and are not limited to formal protected areas. While DEWNR Fire Management Plans provide strategic fire management direction for DEWNR-managed lands and certain privately owned Vegetation Heritage Agreements, they do not consider all tenure types, as required for BMAPs. DEWNR is currently developing a risk assessment process which will include environmental assets on public and private land.

DEWNR develops risk-based Fire Management Plans that include strategies for bushfire risk mitigation and suppression on DEWNR reserves and selected surrounding lands. The AMLR BMA incorporates lands included within the following DEWNR fire management plans:

- Hills Face Zone, Mount Lofty Ranges 2009-2019 (ref)
- Onkaparinga Valley 2011-2021 (ref)
- Southern Foothills, Mount Lofty Ranges 2009-2019 (ref); and
- South Para Collaborative Fire Management Plan 2016-2026

The recommendations made within these DEWNR fire management plans are supported by the AMLR BMC, and are included in the AMLR BMAP.

Environmental assets that will be considered in a subsequent risk assessment include:

- Large areas of native vegetation – these areas are important for biodiversity conservation (e.g. providing habitat), and may be made up of formally protected reserves, Crown lands, other lands managed by government agencies, roadside vegetation, private protected areas (Vegetation Heritage Agreements under the *Native Vegetation Act 1991*), and other private lands.
- Native species and ecological communities of conservation significance. 'Of conservation significance' is used to describe rated populations or species of flora and fauna as well as vegetation communities. These may be:
    - Nationally rated, that is, listed as Threatened (with a rating of Extinct, Critically Endangered, Endangered or Vulnerable) under the federal *Environment Protection and Biodiversity Conservation Act 1999.*
    - South Australian rated, listed as Threatened (with a rating of Endangered, Vulnerable or Rare) under the *National Parks and Wildlife Act 1972*, *Schedules 7, 8 and 9.*

- Provisionally listed as Threatened (with a rating of Endangered or Vulnerable) in South Australia, that is, included on the unpublished *DEWNR Provisional List of Threatened Ecosystems of South Australia* (Department of Environment and Heritage (DEH) 2005b).

- Water catchment areas
- Revegetation projects
- Significant habitat elements (e.g. tree hollows)

Secondary risks to the environment (e.g. the environmental impacts caused by risk mitigation activities) will also be considered, including:

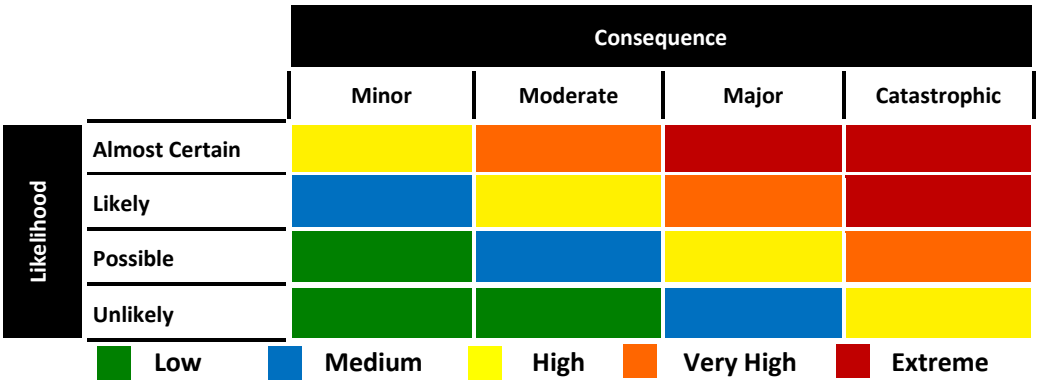
- Fire frequencies outside of Ecological Fire Management Guidelines
- Introduction of threats or conditions favourable to abundant or pest species (e.g. weeds, phytophthora, herbivores).

Further information for the management of natural resources in South Australia can be found on the DEWNR website. The following links to Managing Natural Resources and to Fire Management provide a range of information on stakeholders, responsibilities, strategies and actions in protecting and managing natural resources and managing fire:

- *http://www.environment.sa.gov.au/managing-natural-resources*
- *http://www.environment.sa.gov.au/firemanagement/Home*

4.2.5 Risk Ratings

Table 2 below shows a standard risk rating matrix. It combines the likelihood and consequence scales previously described to assign a level to each risk in terms of Low, Medium, High, Very High or Extreme. This can be used as a guide in determining the level of urgency for allocating and implementing risk treatment strategies. Although this method is very common, it is limited by only representing two dimensions of the risk; the likelihood and consequence. Considerations also need to be given to the type of asset being impacted by a bushfire, the level of risk that may be considered acceptable and whether the desired risk level is achievable through current or proposed mitigation strategies. For example, a nursing home rated moderate may be a much higher priority for risk treatments than a communication tower rated as major.



Assets at almost no risk from bushfire may be marked as: **N/A**

Table 2: Overall Risk Rating Matrix

Risk Rating Explanations

When interpreting the overall risk rating for each asset it is important to understand that these results provide a scale only by which one risk can compared to another. They are derived through assessing specific risk criteria to determine the likelihood of a bushfire threatening an asset and the level of impact or consequence to an asset from the hazardous vegetation should it be ignited by bushfire. The definition for each overall risk rating is as follows:

N/A

Properties and assets are constructed of materials that are unlikely to be impacted by bushfire and/or vegetation is at a significant distance away or virtually absent from the surrounding landscape.

Low

Properties and assets are well prepared or defendable from the potential impacts from a bushfire should a bushfire approach. Surrounding vegetation is either likely to be a significant distance away or of low levels.

Medium

Properties and assets are likely to be defendable with little preparation, although surrounding vegetation or topography still poses some risk.

High

Properties and assets that are not prepared for a bushfire or don't have adequate firefighting amenities and separation distance are susceptible to the impacts of bushfire which is likely to reach assets with surrounding vegetation and topography fuelling fire intensity and behaviour.

Very High

Properties and assets require special consideration to the impacts of bushfire. Bushfires are likely to be able to reach assets with high intensity with only low expectations of being able to defend assets.

Extreme

Assets and properties are highly susceptible with heavy ember attach and likely flame contact from nearby flammable materials. There are limited options for safe egress or areas for the ability to be able to defended a property from the effects of a bushfire due to continuous or dense vegetation or challenging topography.

5 RISK TREATMENT STRATEGIES

Bushfires cannot be eliminated from the landscape; however a combination of risk treatment strategies can be applied to reduce either the likelihood and/or impact of bushfire and to increase community resilience, enhance the ability of firefighting agencies to access and suppress bushfires, limit the spread of bushfire, and protect people, assets and the environment.

Risk treatments are activities used to modify the characteristics of a hazard to reduce either the likelihood and/or consequence of bushfire on an asset. The AMLR BMC will allocate mitigating risk treatment strategies to reduce the risk to assets within the AMLR BMA. To facilitate this, the SBCC has endorsed risk treatment strategies that include both asset specific and BMA wide risk treatments.

For a full list of all risk treatments strategies *please refer to Section 5.3: Risk Treatment Strategies Suite.*

5.1 Asset Specific Risk Treatment Strategies

Asset specific risk treatment strategies are allocated to mitigate individual risks within the BMAP Risk Treatment Register and are designed to mitigate specific elements of the risk i.e. the radiant heat, susceptibility of the asset to sparks and embers, the intensity of the bushfire and/or the potential of a bushfire starting and establishing. Asset specific risk treatment strategies are allocated to asset owners and/or land managers that are responsible and will assist in documenting in their work plans, details of actions and timeframes.

Some examples of asset specific risk treatments include:

- Property preparedness by ember proofing and clearing debris around a building
- Asset Protection Zone (APZ) of modified vegetation in and around an electrical substation
- Bushfire Buffer Zone (BBZ) of modified vegetation in a nature park immediately adjacent to a nursing home
- Bushfire Prevention Activities conducted by a Council Fire Prevention Officer such as issuing 105F notices to landholders to remove high fuel hazard vegetation around a building.

For a copy of the list of specific risk treatments allocated to individual assets, please contact the CFS BMPU.

5.2 Bushfire Management Area Wide Risk Treatment Strategies

BMA wide risk treatments are the overarching bushfire prevention and preparedness activities that are applied to mitigate the occurrence, spread and consequence of bushfire to a number of assets, across selected areas, or throughout the whole BMA.

They broadly address the bushfire risk to assets and, thereby, reduce the overall level of bushfire risk in the BMA. Each of the risk treatment strategies will reduce either the likelihood and/or the consequence of bushfire depending on the targeted outcome of the programme.

BMA wide risk treatments may include legislative requirements, policies and programs of firefighting agencies, fuel hazard reduction, fire management planning, development and building regulations in fire prone areas, arson prevention programmes, and community engagement and education about bushfires.

Some examples include:

- National and State Legislation, Policies, Guidelines and Codes such as the *South Australian Fire and Emergency Services Act and Regulations 2005*, that includes applicable fuel management requirements, firebreak standards and annual enforcement programmes
- State and local planning frameworks such as the State Bushfire Management Plan, Adelaide Mt Lofty Ranges Bushfire Management Area Plan, local Council roadside vegetation management strategies
- DEWNR, SA Water and Forestry SA fire management policies and plans which sets out a range of mitigation strategies to minimise the impact of bushfire on built and environmental assets
- CFS state-wide preparedness campaigns, partnerships and community engagement programmes, and management of Fire Danger Seasons, Fire Danger Ratings, Permits and Total Fire Bans
- Department of Education and Childhood Development policies and procedures for schools at risk from bushfires
- Building Code of Australia and State based Minister's Specifications
- SA Police Operation Nomad

A significant and effective component of BMA wide risk treatments is the management of vegetation (often referred to as "landscape risk treatments"). In response to the National Policy Statement for Bushfire Management, and recent bushfire inquiries and recommendations, the South Australian Government has mandated an increased programme of vegetation management and prescribed burning to reduce bushfire consequences to life, property and the environment. Landscape risk treatments to manage vegetation involve the use of prescribed burning, however where this may be undesirable or operationally not practical, strategies such as the mechanical removal of vegetation may be undertaken.

Landscape risk treatments that form broader strategic breaks of low fuel across areas of the AMLR aim to enhance suppression capability and therefore reduce the risk of fire moving between large or distinct areas of high fuel such as Black Hill, Morialta, Cleland and Belair. Landscape risk treatments also aim to reduce the risk of a bushfire impacting asset clusters such as townships or human settlement areas rather than individual residences.

An excellent example of a landscape risk treatment is the Sheoak Road Strategic Fire Break. Situated on the northern boundary of the Belair National Park, the City of Mitcham was assisted in developing a strategic fire break along Sheoak Road by selectively thinning vegetation, controlling weeds, controlled burns and extensive brush cutting. This fire break now reduces the possibility of fire spreading between Belair National Park and Brownhill Creek/Eagle Mountain and provides safer access for the movement of firefighting and other vehicles on hazardous fire days. This and other landscape risk treatment works are undertaken with consideration to all environmental and ecological issues and in accordance with required

approvals such as the *Environment Protection and Biodiversity Conservation Act 1999, and the Native Vegetation Act 1991.*

The bushfire buffer zone along the Belair Rail Line is another example of the value and success of these zones in enabling the suppression of bushfire spread and consequence. In February 2014, the CFS responded promptly to the notification by a SAPOL Operation Nomad patrol of a fire in the Belair National Park and was able to utilise the buffer zone along the rail line to contain and supress the fire, thereby protecting the rest of the Park and surrounding settlements.

5.2.1 Landscape Treatment Investigation Areas

Landscape Treatment Investigation Areas have been proposed as areas of bushfire concern requiring further assessment and consultation with stakeholders to determine the most effective, acceptable and achievable vegetation management strategies to directly reduce the intensity and movement of fire through the landscape and the impact of bushfire on a cluster of assets.

In order to comply with National and State requirements for the management of vegetation to reduce bushfire risk, and to reduce specific landscape risks within the AMLR area, the Bushfire Management Planning process has identified an initial number of "Landscape Treatment Investigation Areas" as examples of a fire management approach for bushfire mitigation at a broader landscape scale. These Landscape Treatment Investigation Areas have been proposed as areas of bushfire concern requiring further assessment and consultation with stakeholders to determine the most effective, acceptable and achievable vegetation management strategies for each area.

These areas have been selected to directly reduce the consequence of bushfire on a cluster of assets and to reduce the intensity and slow the movement of fire through the landscape. They may provide a broader landscape scale strategic buffer zone to enhance fire suppression capability and minimise the potential of a major bushfire developing and impacting on a number of communities across the BMA.

A number of the investigation areas have been selected by the BMC to complement current public land management mitigation activities, linking in with areas of existing lower fuel hazard levels to enhance the effectiveness of these treatments. Additionally a number of areas already contain low fuel hazard and require no treatment. The investigation areas identified in this plan do not represent a complete priority-based list of all potential landscape treatment investigation areas. Areas may be added, removed or amended following more detailed risk assessments and community consultation.

Please refer to *Appendix 1 for a list of the Landscape Treatment Investigation Areas*.

5.2.2 Existing Landscape Risk Treatments

Crown land and locations where vegetation management practices are already in place (such as Sheoak Road, Belair) have been identified within these areas as Existing Landscape Risk Treatments. Additional risk treatments may also be considered within and adjacent to these investigation areas such as community engagement or Operation Nomad activities.

5.2.3 Water Catchment Area Risk Treatments

Risk treatment strategies for water catchments are outlined in SA Water's Fire Management Plans. They focus on reservoir reserve areas and include slashing, mechanical thinning/clearing and prescribed burning. Any burning within the catchment is carefully planned and monitored to ensure no impact on water quality. Strategies engaged include avoidance of burning within creek lines, avoiding high intensity burns and, if required, installing erosion control structures immediately following a prescribed burn. Treatments for these areas may be considered BMA wide and/or landscape treatments.

5.3 Risk Treatment Strategies Suite

5.3.1 Property Preparedness

Property preparedness relates to action taken by landholders to reduce the risk of bushfire impacting on a house or other buildings. The primary focus of property preparedness should be the reduction of fuel hazards around the property and the elimination of ignition sources in areas surrounding or on structures, by:

- reducing or removing hazardous and fine vegetation fuels (long grass, dried leaves, shrubs etc.)
- removing other flammable materials and liquids
- reducing the risk of impact from windblown burning embers, flame contact and intense heat radiated from bushfires.

If the occupants plan to stay and defend their home during a bushfire, having a well prepared property is essential.

The following CFS webpage includes information and fact sheets on property preparedness and asset protection zones:

- *http://www.cfs.sa.gov.au/site/resources/fact_sheets.jsp*

5.3.2 Asset Protection Zones

An Asset Protection Zone (APZ) is a fuel reduced area surrounding a built asset or structure, which is managed to minimize fuel loads, inhibit fire travel and reduce the effects of heat, flame, ember and smoke attack on the asset. Radiant heat is the most common cause of death during bushfires and affects people (health and decision making), animals and structures, whilst ember attack on properties is the leading cause of house loss during a bushfire. Introducing an APZ will provide separation between a bushfire hazard and the asset, minimising direct flame contact, reducing the effects of radiant heat and reducing ember attack. This may apply to a group of similar residential properties or along a boundary where the hazard exists, commercial or industrial asset or infrastructure. It may also be used within the boundary of a property to form part of a property's preparedness activities. The required separation distance between vegetation and asset for an APZ is specified in the SBCC APZ Standard which is based on the process defined in the *Australian Standard AS 3959* for building in bushfire prone areas. The distance required between the asset and the vegetation is to reduce the Bushfire Attack Level below 12.5 KW/M^2. Property owners can generally reduce, modify or remove native vegetation within 20m of a building (including overhanging limbs). Significant trees may be protected under the *Development Act 1993*.

5.3.3 Bushfire Buffer Zones

A Bushfire Buffer Zone (BBZ) is a fuel reduced area that aims to provide a buffer to reduce the spread, intensity, ember attack and potential spotting from a bushfire. The works associated with the establishment of a BBZ are focussed on selectively reducing the amount of fine fuel vegetation by means of mechanical removal or prescribed burning. These zones minimise continuous fuel structures between surface, near surface, elevated and canopy fuels.

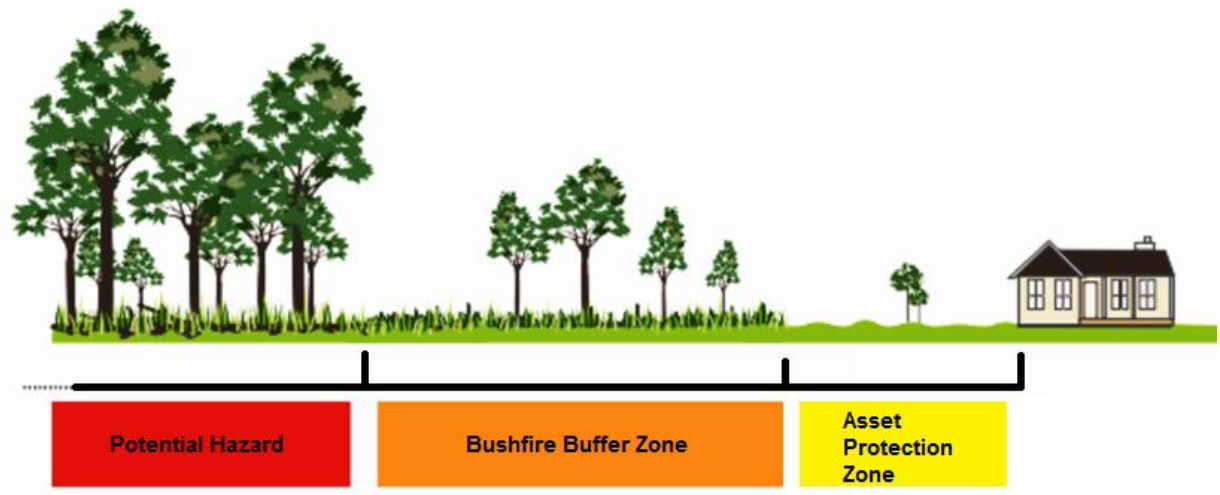


Figure 3: Asset and Bushfire Buffer Zones

5.3.4 Bushfire Prevention Activities Conducted by a Council Fire Prevention Officer

Councils and Fire Prevention Officers undertake fire prevention activities as outlined in the *South Australian Fire and Emergency Services Act and Regulations 2005.* Bushfire prevention activities undertaken by Fire Prevention Officer include:

- assessing the extent of bushfire hazards within the relevant council area;
- assisting the council in providing advice and information to any bushfire management committee whose area incorporates any part of the relevant council area in connection with the preparation or review of the committee's Bushfire Management Area Plan;
- providing advice to owners of property in respect of bushfire prevention and management;
- carrying out any other functions assigned to the Fire Prevention Officer by the regulations.

5.3.5 Community Engagement

Community education and engagement activities can extend from simple information provision to extended training and empowerment programmes. These activities can be, and are, undertaken by many different groups (CFS, MFS, local councils, SAPOL, Primary Producers SA, Red Cross, etc.). The type of programme or information that needs to be provided is dependent on the audience and their level or risk. Research has shown that information provision on its own, whilst important, does not lead to a sufficient level of planning and preparation for bushfires. Community engagement programmes have the potential to achieve positive outcomes at both the individual (resident, household, etc.) and community levels, provided they are planned, well implemented and resourced appropriately.

5.3.6 Firebreaks and Fire Access Tracks

Firebreaks and fire access tracks are strategic fire management works which may be implemented as measures to assist with bushfire mitigation or suppression. The standard for firebreaks and tracks has been defined in the *South Australian Firebreaks, Fire Access Tracks and Sign Standards Guidelines (2015 Government Agencies Fire Management Working Group GAFMWG)* and was endorsed by the SBCC.

A firebreak is an area or strip of land where vegetation has been removed or modified to reduce the intensity and rate of spread of fire that may occur. A fire access track is designed, constructed and maintained for the safe passage of firefighting vehicles undertaking fire suppression activities. Whilst firebreaks and fire tracks may be constructed or designed for a specific purpose, it does not necessarily exclude a fire track to also act as a fire break, or vice versa, in some instances. See the *GAFMWG Standard* document for further information on firebreaks, fire access tracks and sign standards.

5.3.7 Prescribed Burning

Prescribed burning is the controlled application of fire under specified environmental conditions to a predetermined area and at the time, intensity, and rate of spread required to attain planned resource management objectives. Prescribed burning is a tool used to achieve fuel hazard reduction management for bushfire risk mitigation and to achieve environmental, land management and research objectives.

The State Government public land agencies of DEWNR, SA Water and ForestrySA share agency resources to undertake fuel hazard reduction prescribed burning at a landscape scale across public lands to reduce the risk of bushfire impacts entering or emanating from a reserve.

Within the BMAP area and more broadly across the state only handful of prescribed burns are undertaken annually on private lands. The lack of prescribed burning on private lands is considered a significant gap in bushfire mitigation management as high bushfire risk areas occur on privately owned land and are not confined to public land. In an attempt to address this gap, DEWNR and SACFS are to identify issues associated with prescribed burning on private land and will present recommendations for consideration by Government to enhance prescribed burning mitigation risk treatment on a “tenure- blind” landscape scale.

5.3.8 Council Planning and Development Policy and Standards

A key objective of planning and development policy and standards within a council is the consideration of protection from bushfire to ensure the safeguarding of human life and protecting the loss of assets including infrastructure, the region’s cultural heritage (indigenous and non-indigenous) and ecological assets.

Current planning policies relating to bushfire risk, contained in relevant Development Plans, may be reviewed in this context as part of future Development Plan amendments. Notably, the State Government has embarked on the implementation of key planning reforms over the next 1-5 years, as part of a new planning system and the *Planning, Development and Infrastructure Act, 2016*. Pending the timing and sequencing of the introduction of new planning rules and governance systems, there is potential to also review future policy approaches relating to bushfire risk and asset protection through this process.

5.3.9 Policy, Standards and Codes of Practice

The policies, standards and codes of practice refer to current overarching bushfire management practices, performance measures and desired outcomes of the fire management activities on private and public lands. They provide a framework for the safe and effective management of potential ignition sources and fire on private and public land in South Australia.

This strategy may also include emergency management policies that individual organisations have or require to manage the risk of bushfire impacting upon their site. This may involve agencies such as schools, health and community services and utilities which require planning and preparation to become bushfire ready.

5.3.10 SAPOL Operation NOMAD

The potential and actual harm caused to the community from arson igniting bushfires continues to be an important area of focus for South Australian Police (SAPOL). Operation Nomad is a nationally recognised crime prevention programme using targeted SAPOL activities to reduce the incidence and severity of fires in South Australia caused by deliberate, reckless or careless human behaviour.

The focus of the SAPOL operation is guided by the Fire Prevention Strategic Alliance group which is comprised of membership from SAPOL, SAMFS, SACFS, LGA, DEWNR, Forestry SA, and SA Water.

5.4 Risk Treatment Implementation Plan

Once the AMLR BMAP has been approved by the SBCC, risk treatment implementation plans will be developed by the BMC in conjunction with asset and land manager/owners in order to document and report how the chosen risk treatment strategies and their associated activities will be implemented. These plans should include:

a. Risk and risk treatment identifiers
b. Responsibility for risk treatment implementation
c. Timeframes
d. Existing and proposed risk treatments
e. Prioritisations of risk treatments
f. Performance and success measures
g. Reporting and monitoring procedures

The AMLR BMC is to ensure that responsibility for mitigation strategies is identified within the Risk Treatment Implementation Plan.

6 MONITORING, REVIEWING AND REPORTING

6.1 Monitoring

The AMLR BMC is required to monitor the BMAP, the context and the risk on an ongoing basis including:

- Changes to accepted risk levels
- Changes in circumstances or assessment criteria
- Additional information (should it become/when it becomes available)
- Changes in social, political or legislative/regulative environments
- Changes to the BMC area or organisational responsibilities
- Progress toward the completion of the risk treatment works listed in the BMAP
- The timeliness of the works in the BMAP

6.2 Reviewing

As stipulated in the *FES Act 2005* this BMAP must be formally reviewed at least once in every four year period from the approval date of the original plan.

However, as a live Plan, the AMLR BMC will ensure that the BMAP is reviewed, in part or wholly, whenever an amendment, context or risk issue is identified or brought to the attention of the BMC.

6.3 Reporting

AMLR BMC is required to report to the SBCC on its progress implementing the bushfire risk management strategies identified in the plan. The implementation of BMAP actions and reporting processes for the BMC is currently being developed.

7 REGISTERS

7.1 Overview of Risk and Risk Treatment Registers

The Risk Register and Risk Treatment Register are current as of the date this document was approved. However, due to the dynamic nature of risk the BMC will monitor and update the status of risks and risk treatments once the implementation of mitigating controls has been completed, or should the level of risk change. The information pertaining to each risk is to be monitored by the BMC on the secure Bushfire Risk Information Management System (BRIMS) updated and maintained by the CFS Bushfire Management Planning Unit.

The registers and maps detailing risk ratings are included as attachments to this BMAP to form the complete plan.

7.2 Risk Register

The Risk Register lists the description and location of all assets identified within the AMLR BMC and the overall resulting risk rating that has been determined for each asset.

7.3 Asset Specific Risk Treatment Strategies Register

The Risk Treatment Register details the risk treatment strategies that have been allocated to each asset. The register also includes planned timelines for when the risk treatment strategies are to be implemented and who is responsible. A copy of the *Risk and Treatment Register* is available through the Bushfire Management Area Plans site:
https://www.cfs.sa.gov.au/prepare-for-a-fire/bushfire-management-planning/bushfire-management-area-plans/

Related Documents

Name of Document
A Template for a Local Council Roadside Vegetation Management Plan, Native Vegetation Council (2012)
Adelaide Mt Lofty Ranges – Bushfire Management Committee, Interim Bushfire Management Area Plan, (September 2012)
AS 3959-2009/Amendment 3-2011; Construction of buildings in bushfire-prone areas (2009)
AS/NZS ISO 31000:2009 Risk Management - Principles and Guidelines (2009)
CFS – Code of practice – Vegetation and rubbish pile burning – (April 2015)
Crown Land Management Act 2009 (SA)
Department of the Premier and Cabinet South Australia's Strategic Plan - Creating Opportunity. Department of the Premier and Cabinet, Government of South Australia (2004)
Development Act 1993 Development Regulations (2008)
Emergency Management Act (South Australia) (2004)
Emergency Management in Australia Concepts and Principles Manual 1 (2004)
Environment Protection and Biodiversity Conservation Act (Commonwealth) Section 18 and 269AA (1999)
Fire and Emergency Services Act and Regulations (2005)
Guidelines for Plantation Forestry in South Australia 2009
Guidelines for the Management of Roadside Vegetation, Native Vegetation Council (2012)
Minister's Specification SA 76, Maintenance and testing of essential safety provisions, (2015 edition)
Minister's Specification SA 76A, Fire Safety Requirements in Caravan Parks and Residential Parks, (December 2007)
Minister's Specification SA 76C, Protection of buildings exposed to brush fences, November (2007)
Minister's Specification SA H3.2, Concessions for farm buildings, (2015 edition)
National Bushfire Management, Policy Statement for Forests and Rangelands (2014)
National Construction Code (Formerly the Building Code of Australia, BCA) (2016)
National Parks and Wildlife Act 1972 (SA)
Native Vegetation Act 1991 (SA) Section 29 (1991)
Native Vegetation Act 1991 and Regulations (2003)
Native Vegetation Regulations 2003 (SA) Section 5A-1 and 5(1)(zi) (2003)
SA CFS - Rural Fire Hazard Plan (2014/15)
South Australian Firebreaks, Fire Access Tracks and Sign Standards Guidelines (2015)
State Bushfire Management Plan (2010)
Wilderness Protection Act 1992 (SA)

Definitions and Acronyms

Name	Description
Agencies	Refers to any State or Federal Government Department that is the manager or owner of the land or asset.
AIRS	Australian Incident Reporting System
AMLR	Adelaide and Mount Lofty Ranges
APZ	Asset Protection Zone is a fuel reduced area surrounding a built asset or structure.
AS/NZS ISO 31000:2009	AS/NZS ISO 31000:2009 Risk Management - Principles and Guidelines. The agreed international standard that dictates the fundamental principles behind risk management.
Asset	A term used to describe anything of value within communities that may be impacted by bushfire. This may include residential areas, infrastructure, commercial, environmental, heritage and community valued sites.
Asset Owner	The owner occupier or custodian responsible for the care or management of an asset. The responsibility may be defined by ownership, lease or contract. Also refer to the *Fire and Emergency Service Act 2005* for more information.
Asset Risk Treatment Strategies	Strategies allocated to modify the bushfire risk to specific assets that have been assessed.
BAL	Bushfire Attack Level is the level of radiant heat that is likely to impact on an asset
BBZ	Bushfire Buffer Zone consists of strategic firebreaks of sufficient width and continuity to provide a substantial barrier to the spread of bushfire.
BMA	Bushfire Management Area
BMAP	Bushfire Management Area Plan as defined under the *Fire and Emergency Services Act 2005 S73A*.
BMC	Bushfire Management Committee as defined under the *Fire and Emergency Services Act 2005 S72A*.
BOM	Bureau of Meteorology
BRIMS	Bushfire Risk Information Management System - A systematic process that identifies assets at risk from bushfire, assesses the level of risk, captures current and proposed risk treatments, risk treatment owners and time frames for implementation and provides a framework for continuous review and monitoring of the risks and their risk treatments.
Bushfire Hazard	The vegetation that poses a level of threat to human life, economic and cultural assets or environmental assets. The potential severity of a bushfire threat is determined by fuel load, fuel arrangement and topography under a given climatic condition.
Bushfire Risk	The concept of bushfire risk has three elements: a) the likelihood of a bushfire igniting and spreading to the hazard adjacent to and threatening an asset; b) the observable event of the hazardous vegetation igniting and c) the impact to the asset from a bushfire event.
Consequence	The term "Consequence" for the purpose of this plan, means "what will happen to the asset if it is impacted by a bushfire?" For example will it burn down, will it cease to function, will people be injured etc.? The elements that contribute to the consequence of a bushfire are the Bushfire Attack Level (BAL) (measuring the radiant heat) and either the susceptibility of occupants in human settlement assets or susceptibility of built structures.

Name	Description
DEWNR	Department of Environment, Water and Natural Resources
FBD	Fire Ban District
FDI	Fire Danger Index
FDR	Fire Danger Rating
FDS	Fire Danger Season
FES Act	Fire and Emergency Services Act 2005
FPO	Fire Prevention Officer
Fuel Hazard Guide	The Fuel Hazard Guide aims to assist with defining and identifying the different components of Fuel Hazard through the assessment of Fuel Hazard levels for Surface, Near-Surface, Elevated and Bark Fuel
GAFMWG	Government Agencies Fire Management Working Group
Impact	The loss, or damage, to an asset from a bushfire.
Land Manager	The person, organisation or agency responsible for the care or management of an asset or land. The responsibility may be defined by ownership, lease or contract. Also refer to the *Fire and Emergency Services Act* 2005 *Section 3* for additional clarification.
Landscape Treatment Investigation Areas.	Landscape Treatment Investigation Areas have been proposed as areas of bushfire concern requiring further assessment and consultation with stakeholders to determine the most effective, acceptable and achievable vegetation management strategies to directly reduce the intensity and movement of fire through the landscape and the impact of bushfire on a cluster of assets.
Likelihood	The chance of a bushfire igniting and spreading to the hazard adjacent to and threatening an asset.
Prescribed Burning	Prescribed burning is the planned application of fire under prescribed environmental conditions and within defined boundaries to achieve fuel hazard reduction management for bushfire risk mitigation and to achieve ecological, land management and research objectives.
Property Preparedness Zone	An area on or surrounding structures where the removal of hazardous vegetation and the elimination of ignition sources can reduce the impact of wind-blown burning embers, flame contact and intense heat generated by bushfires.
CFS	Country Fire Service (South Australia)
SAPOL	South Australian Police
SBCC	State Bushfire Coordination Committee
ZEMP	Zone Emergency Management Plan

APPENDIX 1: Landscape Treatment Investigation Areas

As discussed within Section *5.2.1: Landscape Treatment Investigation Areas*, a Fire Management Zoning approach will be applied across the AMLR Bushfire Management Area which will aim to:

- Mitigate the risks from bushfires to assets identified in the plan (in combination with other risk treatment strategies)
- Guide fuel management objectives and activities across the landscape

A description of the Fire Management Zones (Asset Protection Zones and Bushfire Buffer Zones) applied within this plan is provided within *Section 5.3.6: Asset Protection Zones* and *Section: 5.3.7: Bushfire Buffer Zones.*

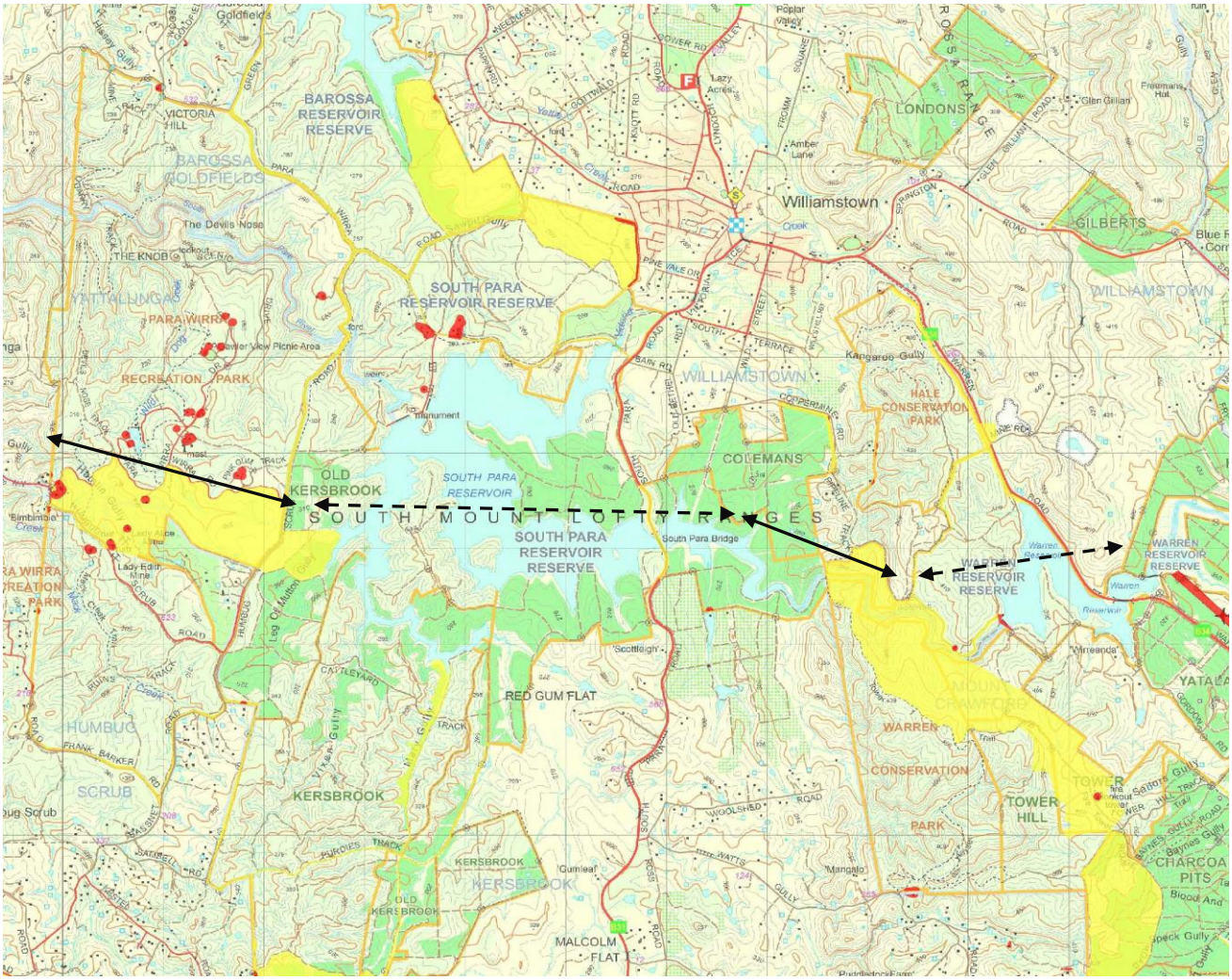
The development of these zones across the 320,000 hectare AMLR Bushfire Management Area (BMA) is a complex and challenging task requiring significant on-site investigation and landholder consultation. Within the scope of version 1 of this plan it was not achievable to develop a complete priority-based list of investigation areas or treatment zones across the BMA.

In order to provide examples of the fire management zoning approach to be used within this plan (and further versions), a small number of preliminary Landscape Treatment Investigation Areas have been identified on the attached maps. Note that these areas are described as "Investigation Areas" as they require further assessment before being formally adopted within the plan as a treatment such as an Asset Protection Zones (APZ) or Bushfire Buffer Zones (BBZ). These assessments are required to determine:

- Operationally feasible area and zone boundaries and treatment methods in negotiation with landholders
- The responsibility for implementing the treatment actions
- The environmental impact of undertaking fuel reduction within the zones and what mitigating actions are required.

Selection of investigation areas:

- Areas have been identified and selected where they meet the following objectives:
    - Providing a fuel reduced zone directly adjacent to clusters of assets (identified within the BMAP risk register) and provide protection from radiant heat damage, flame contact and short-distance ember attack.
    - Providing a broader landscape scale strategic fuel reduced area (see South Para example on following page) to enhance fire suppression capability with an aim of minimising the potential of a major bushfire developing and impacting on a number of communities across the BMAP area.
- Areas have been prioritised for inclusion where they strategically complement the existing public land fire management zoning (as show on the maps) and link in with areas of existing lower fuel hazard to enhance the effectiveness of these treatments.
- Areas have been prioritised for inclusion where they involve Local Government Land and/or a small number of private landholders. This will enable the required landholder consultation to occur before the adoption of the plan.



Map showing existing public land fire management zoning (Yellow = Buffer Zone) through the South Para district. Note the alignment of zones with existing low fuel areas (reservoirs) to create strategic east-west breaks through the landscape.

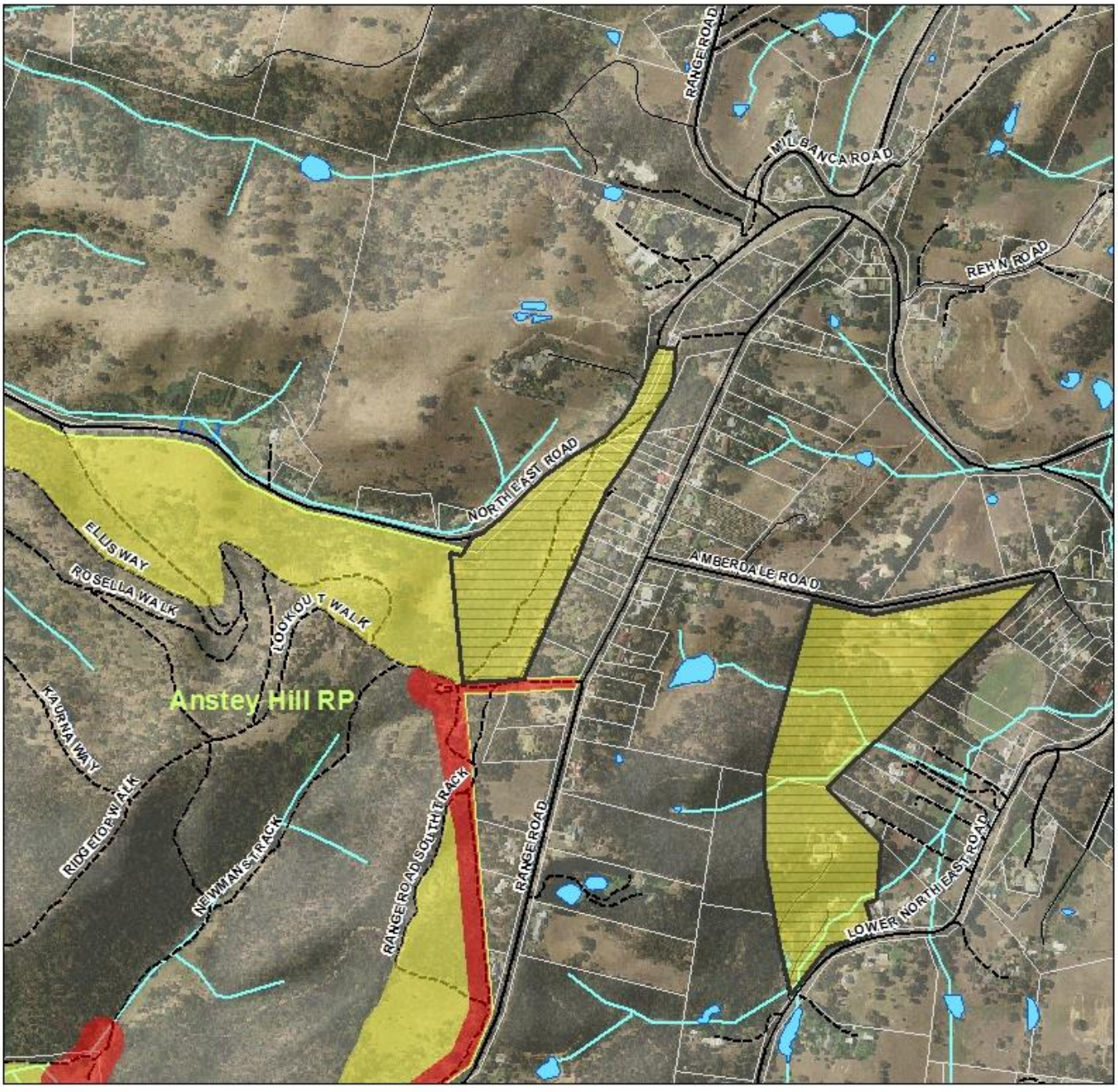
Please Note:

- Under the *Native Vegetation Regulations 2003*, landholders are able to reduce, modify or remove native vegetation within 20 metres of a building. The Asset Protection Zones identified within this plan aim to complement these existing zones for "clusters" of assets (townships, urban fringes etc.).
  For more information on what actions individual landholders can already take to manage native vegetation to reduce bushfire risk, please refer to the following website:
  - *http://www.cfs.sa.gov.au/site/prepare_for_bushfire/native_vegetation_management.jsp*
- Investigation areas identified only represent a small proportion of the areas that will be identified within future revisions of the plan.
- These initial investigation areas do not necessarily represent the highest priority treatment areas within the AMLR Bushfire Management Area.
- There are sections within the identified areas which already contain fuel hazard at or below acceptable limits (no treatment currently required). It is still important that these sections are zoned to ensure that fuels are maintained below prescribed levels into the future and any future activities (revegetation) are managed in accordance with the zoning.
- Existing fire management zoning and treatment activities on public land will be incorporated into version 1 of the plan. There will be an opportunity to revise these existing zones within future versions of the BMAP to ensure that the most appropriate and strategic zoning is applied, irrespective of tenure.

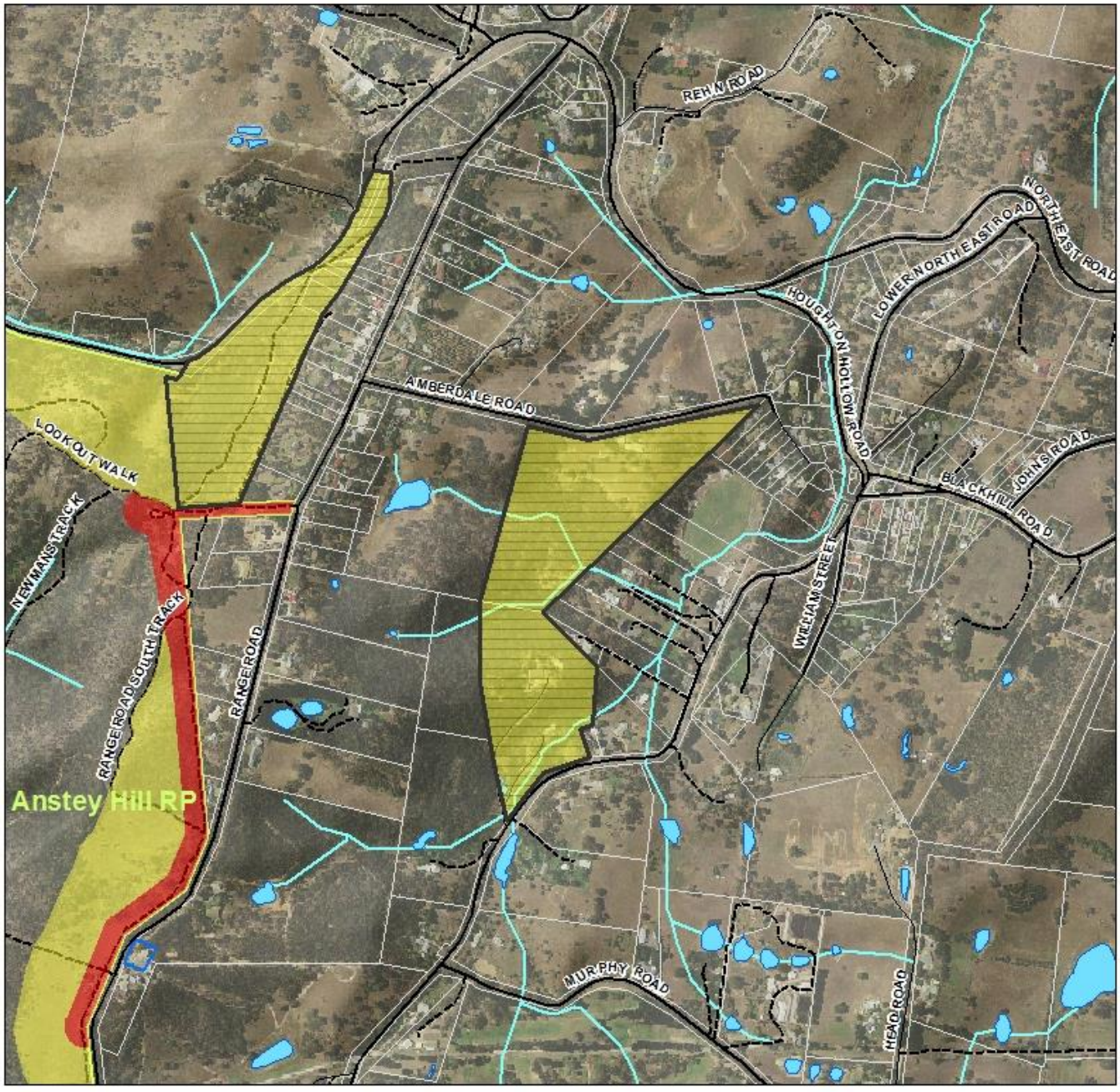
APPENDIX 2: Proposed Landscape Treatment Investigation Area Maps

Starts next page….

AREA NAME: North East Road / Range Road South	**POTENTIAL** Buffer Zone	**SIZE:** 8ha
TENURE: TTG Council / Private	**PRIORITY:** HIGH	
LOCATION: South of NE Road adjacent to the NE corner of Anstey Hill Recreation Park		
OBJECTIVE: Provide protection to dwellings along Range Road South. Strategic alignment with public land zoning.		
POTENTIAL TREATMENT METHODS: Mechanical thinning / woody weed control		
TREATMENT RESPONSIBILITY: TTG Council / Private		
OTHER NOTES: Significant efforts have already been made by the TTG Council to reduce the fuel in this area - this work will need to be maintained. Liaison with private landholders at Nth end of area has not been undertaken.		



AREA NAME: Houghton West	**ZONE TYPE:** Buffer Zone	**SIZE:** 14ha
TENURE: Private	**PRIORITY:** HIGH	
LOCATION: South of NE Road adjacent to the NE corner of Anstey Hill Recreation Park		
OBJECTIVE: Provide protection to dwellings within Houghton township and last resort refuge (Houghton oval)**.**		
POTENTIAL TREATMENT METHOD: Mechanical thinning / woody weed control/Prescribed Burning		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: Site assessment to confirm fuel hazard within this area and what area is operationally feasible to treat. Size of area may be reduced depending on the results of these investigations. Liaison with private landholders has not been undertaken.		



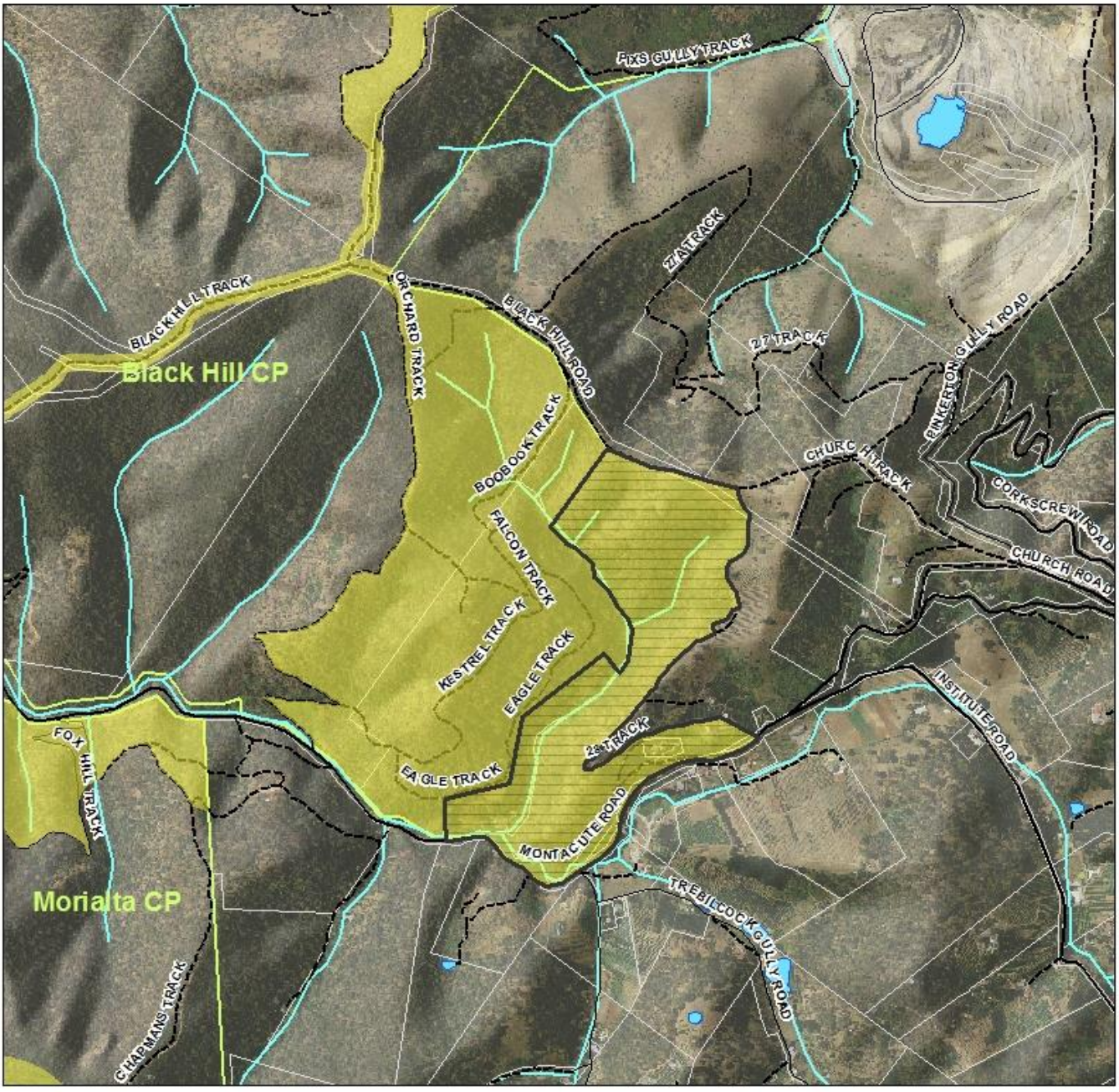
Proposed Fire Management Investigation Zones
- Asset Zone
- Buffer Zone

Existing Fire Management Zones (Public Land)
- Asset Zone
- Buffer Zone

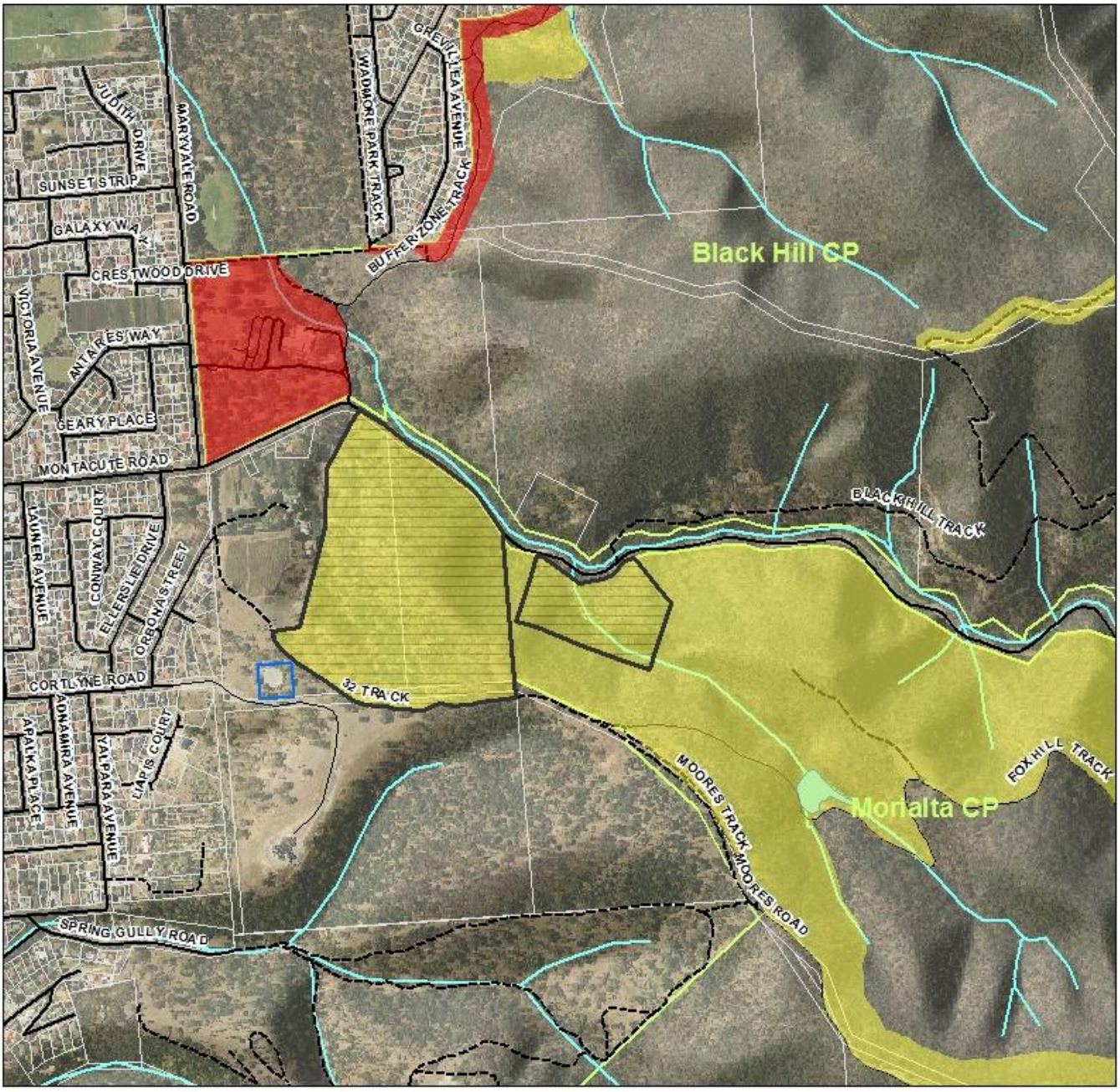
N

0 500
Meters

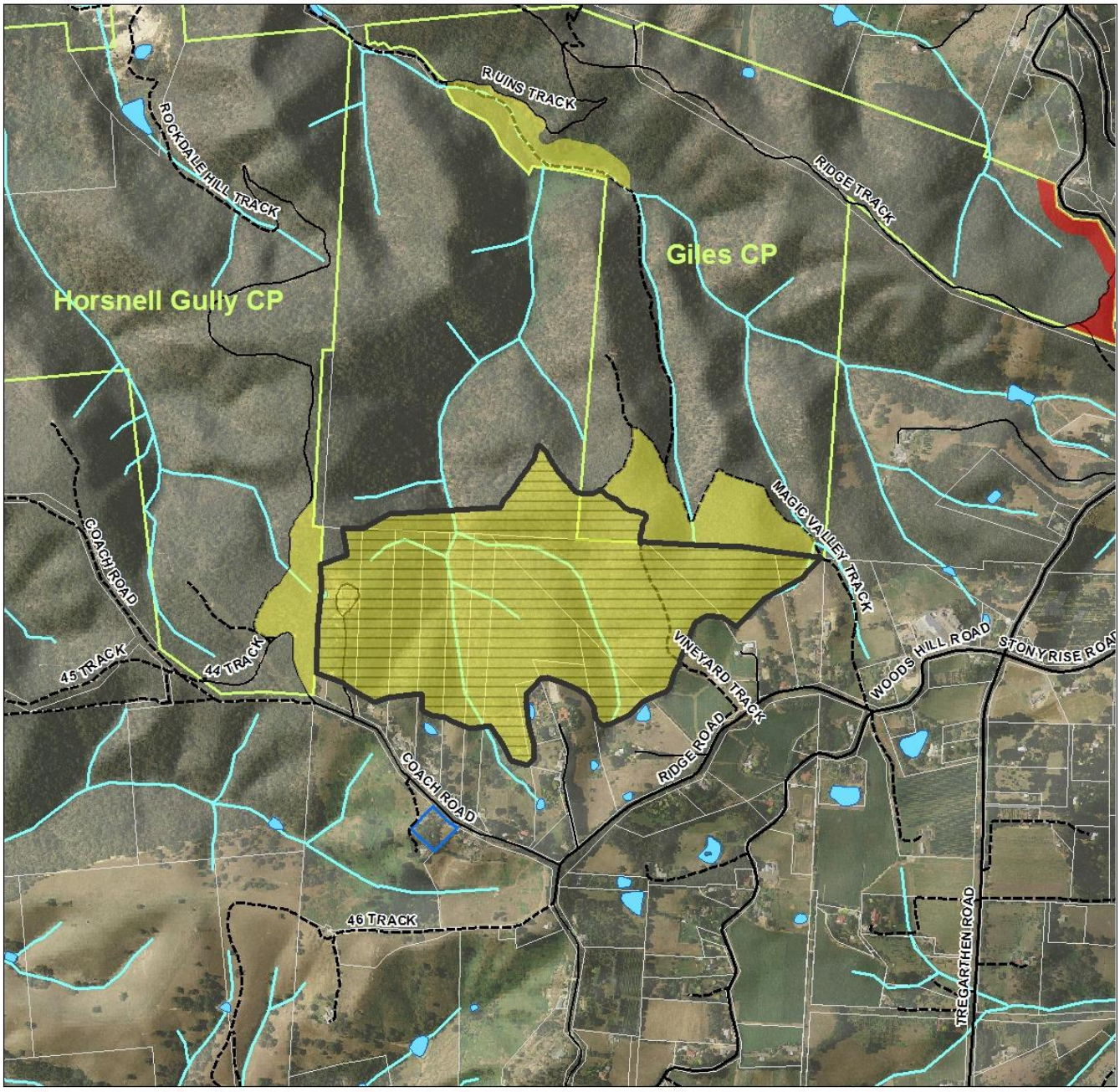
AREA NAME: Montacute Road / Smith Gully Road	**POTENTIAL** Buffer Zone	**SIZE:** 30ha
TENURE: Private	**PRIORITY:** HIGH	
LOCATION: Adjacent to SE corner of Black Hill Conservation Park		
OBJECTIVE: Provide protection to dwellings all Montacute Rd. Strategic alignment with public land zoning.		
POTENTIAL TREATMENT METHOD: Mechanical thinning / woody weed control / prescribed burning		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: The vegetation within this area should be maintained as relatively open woodland through woody weed control (blackberry etc.) and potentially prescribed burning. Liaison with private landholders has not been undertaken.		



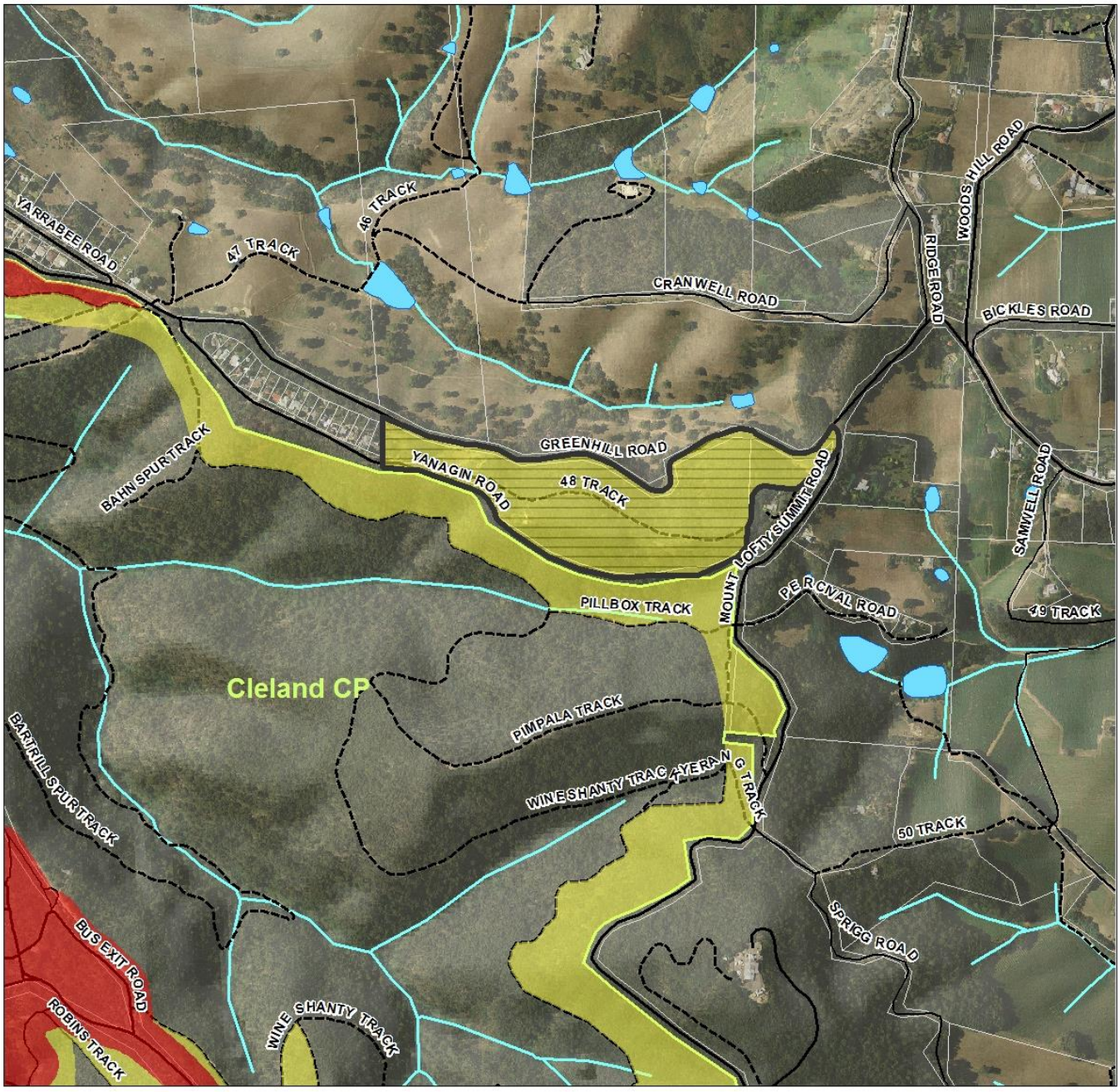
AREA NAME: Montacute Road Rostrevor	**POTENTIAL** Buffer Zone	**SIZE:** 18ha
TENURE: Private	**PRIORITY: MEDIUM**	
LOCATION: South of Montacute Road adjacent to Morialta Conservation Park		
OBJECTIVE: Landscape protection to reduce risks of fires burning between Black Hill and Morialta CP. Strategic alignment with existing public land zoning.		
POTENTIAL TREATMENT METHOD: Mechanical thinning / woody weed control / prescribed burning		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: Vegetation within this area should be maintained as open woodland through woody weed control (olive removal) and potentially prescribed burning. Liaison with private landholders has not been undertaken.		



AREA NAME: Coach Road / Ridge Road	**POTENTIAL** Buffer Zone	**SIZE:** 48ha
TENURE: Private (including Quarry) / DEWNR	**PRIORITY: HIGH**	
LOCATION: Between Horsnell Gully and Giles Conservation parks		
OBJECTIVE: Provide protection to dwellings along Ridge Road and Coach Road and to the broader community of Ashton. Strategic alignment with public land zoning.		
POTENTIAL TREATMENT METHOD: Prescribed burning / weed control		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: The size of this area may be reduced following further operational assessments. Preliminary liaison with private landholders has been undertaken.		



AREA NAME: Cleland Yanagin Reserve	**POTENTIAL** Buffer Zone	**SIZE:** 12ha
TENURE: Council	**PRIORITY:** HIGH	
LOCATION: Along Greenhill Rd adjacent to the Northern edge of Cleland CP		
OBJECTIVE: Provide protection to dwellings adjacent to Yanagin reserve and reduce the risk of fires spreading into or out of the northern side of Cleland CP. Strategic alignment with public land zoning.		
POTENTIAL TREATMENT METHOD: Prescribed burning / woody weed control		
TREATMENT RESPONSIBILITY: Council		
OTHER NOTES: Liaison with council has not been undertaken.		



Proposed Fire Management Zones

Asset Zone

Buffer Zone

Existing Fire Management Zones (Public Land)

Asset Zone

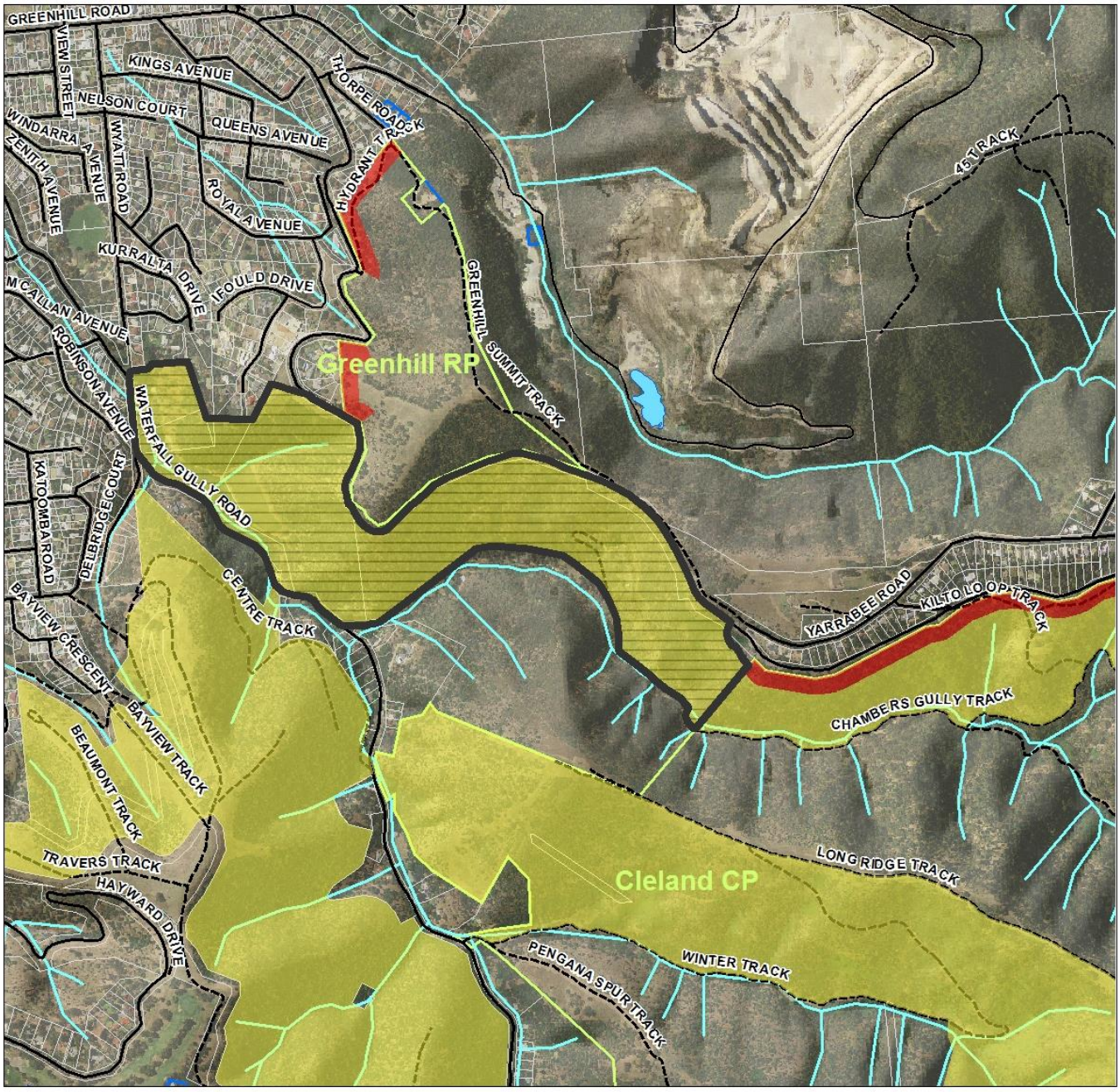
Buffer Zone

N

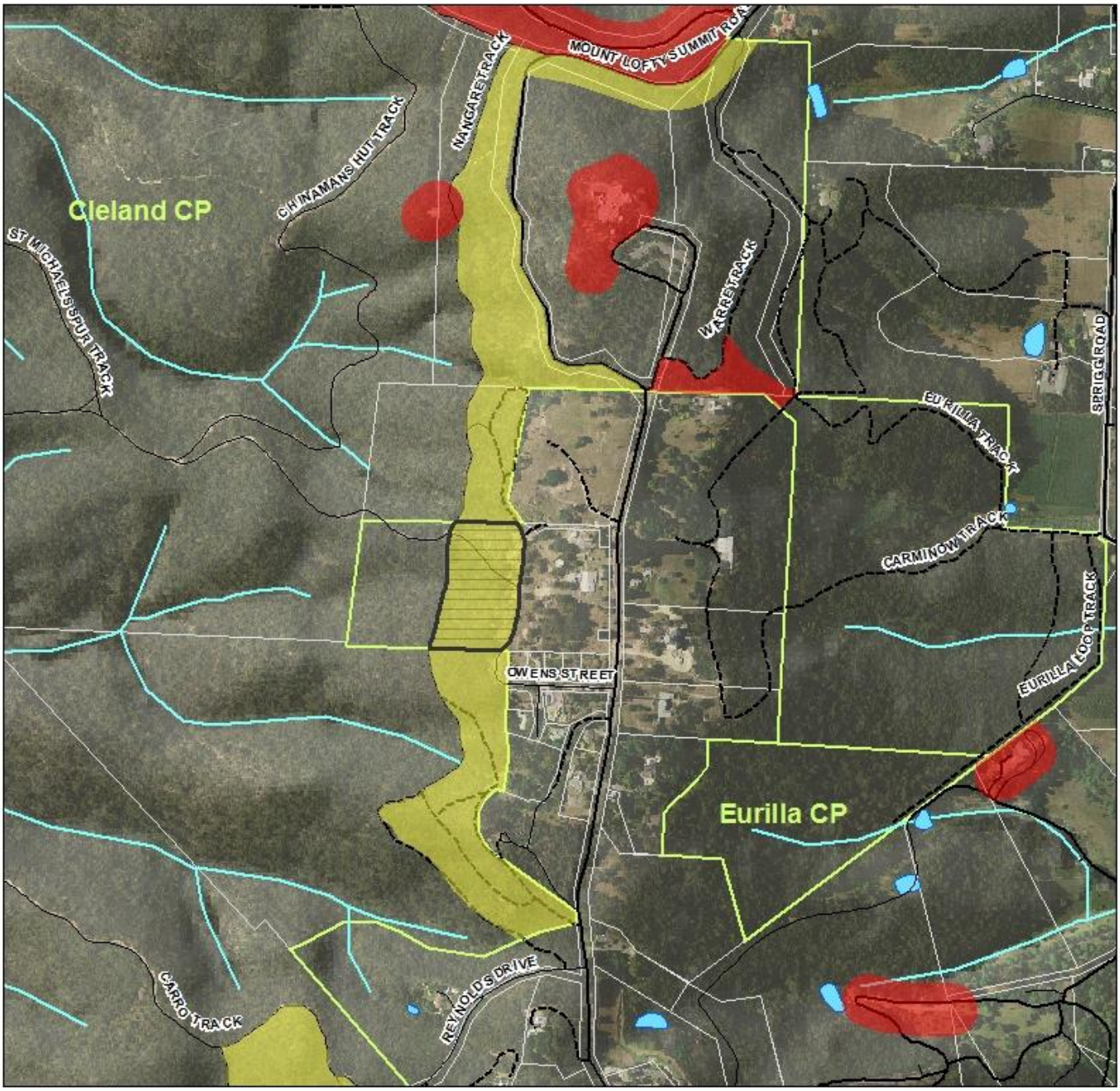
0 500

Meters

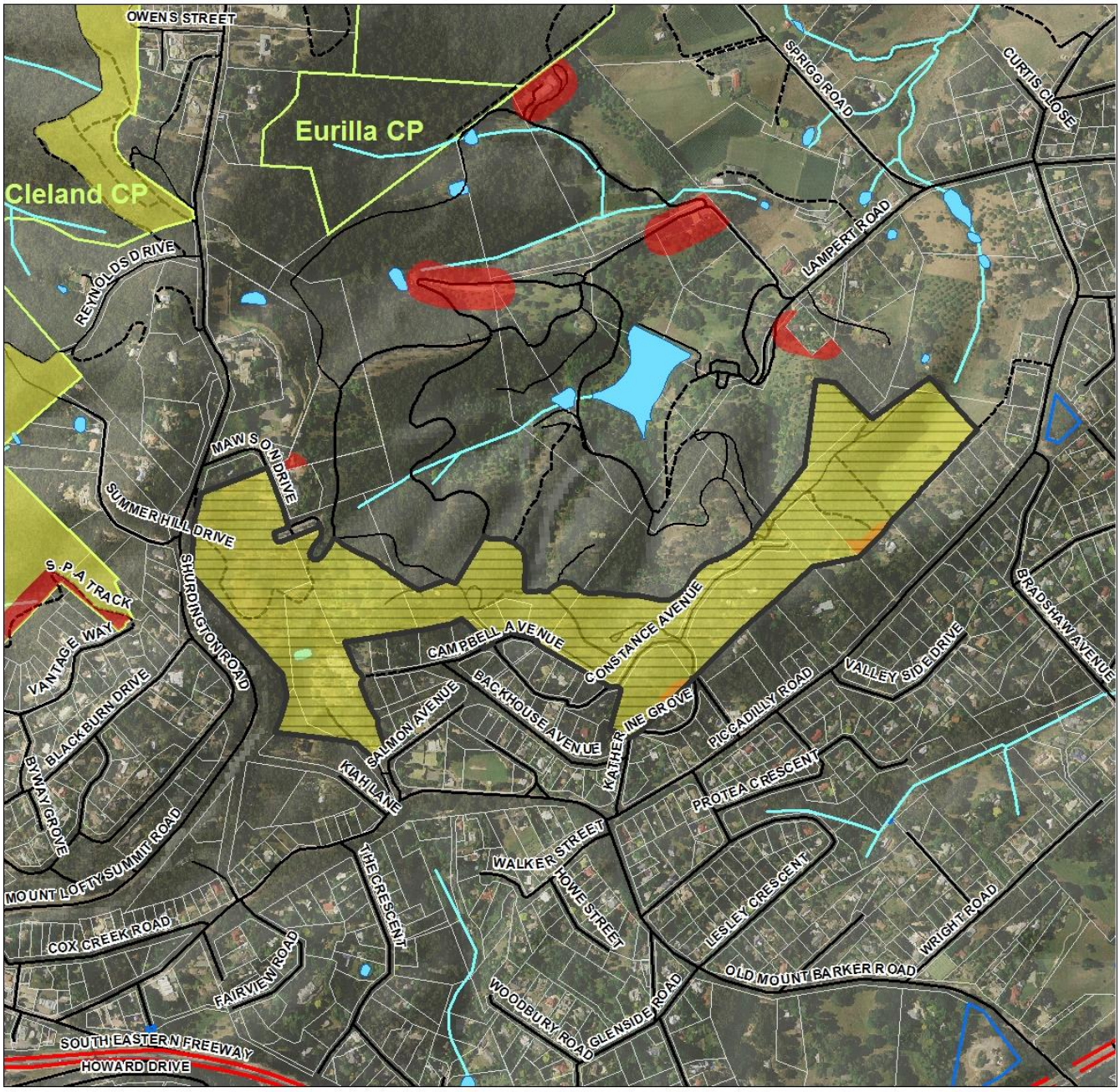
AREA NAME: Greenhill Road – Chambers Gully	**POTENTIAL** Buffer Zone	**SIZE:** 42ha
TENURE: Council / Private	**PRIORITY:** HIGH	
LOCATION: Between Greenhill Rd and Waterfall Gully Road / Chambers Gully		
OBJECTIVE: Provide protection to dwellings along Waterfall Gully Road and reduce the risk of fires spreading into or out of the northern side of Cleland CP. Strategic alignment with public land zoning.		
PROPOSED TREATMENT METHOD: Prescribed burning / woody weed control / mechanical thinning		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: Liaison with council has not been undertaken.		



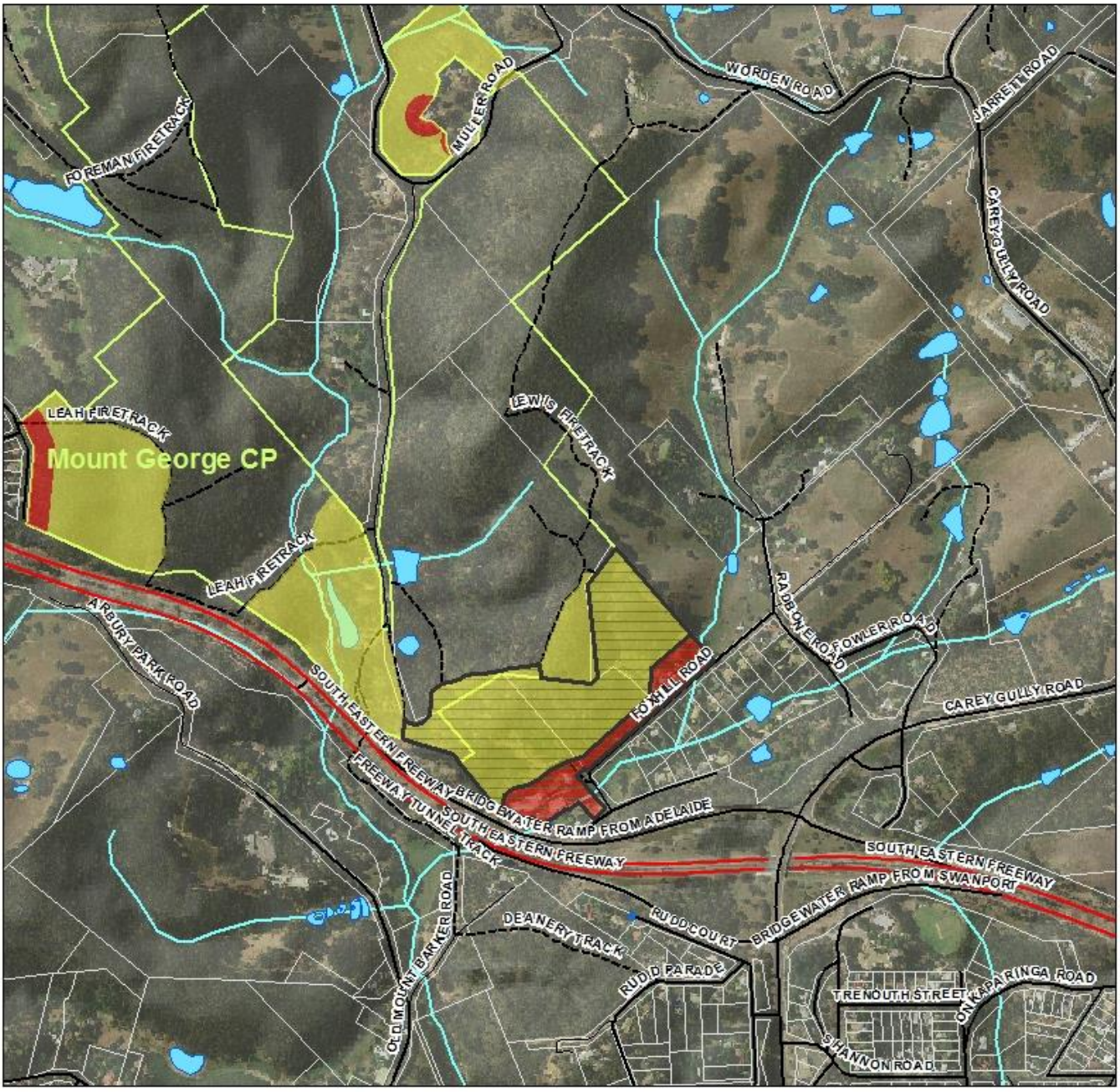
AREA NAME: Summit Road - Towers	**POTENTIAL** Buffer Zone	**SIZE:** 2ha
TENURE: Private (Broadcast Australian Pty Ltd)	**PRIORITY:** HIGH	
LOCATION: On western side of Summit road below communication towers		
OBJECTIVE: Provide protection to major communication towers and other dwellings along Summit Road. Strategic alignment with public land zoning.		
POTENTIAL TREATMENT METHOD: Prescribed burning / woody weed control		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: Liaison with private landholders (Broadcast Australian Pty Ltd) has not been undertaken.		



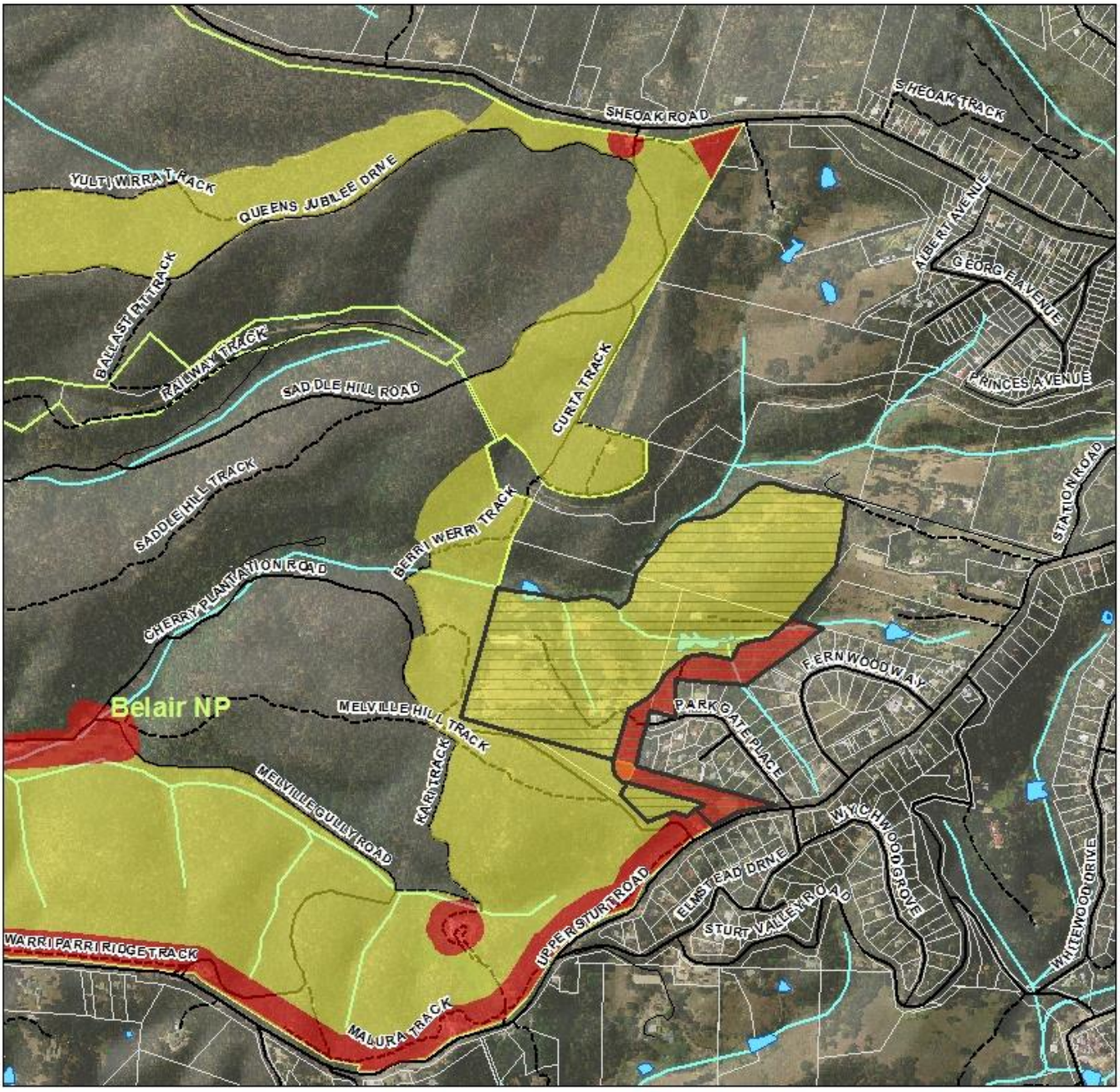
AREA NAME: Mt Lofty Botanic Gardens	**POTENTIAL** Buffer Zone	**SIZE:** 30ha
TENURE: DEWNR / Private	**PRIORITY:** HIGH	
LOCATION: Southern end of the Mt Lofty Botanic Gardens adjacent to the suburb of Crafers		
OBJECTIVE: Provide protection to the suburb of Crafers.		
POTENTIAL TREATMENT METHOD: Prescribed Burning / mechanical thinning / woody weed control		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: Significant efforts have already been made by DEWNR to reduce fuels within the area (largely through prescribed burning) - this work will need to be maintained. Liaison with private landholders has not been undertaken.		



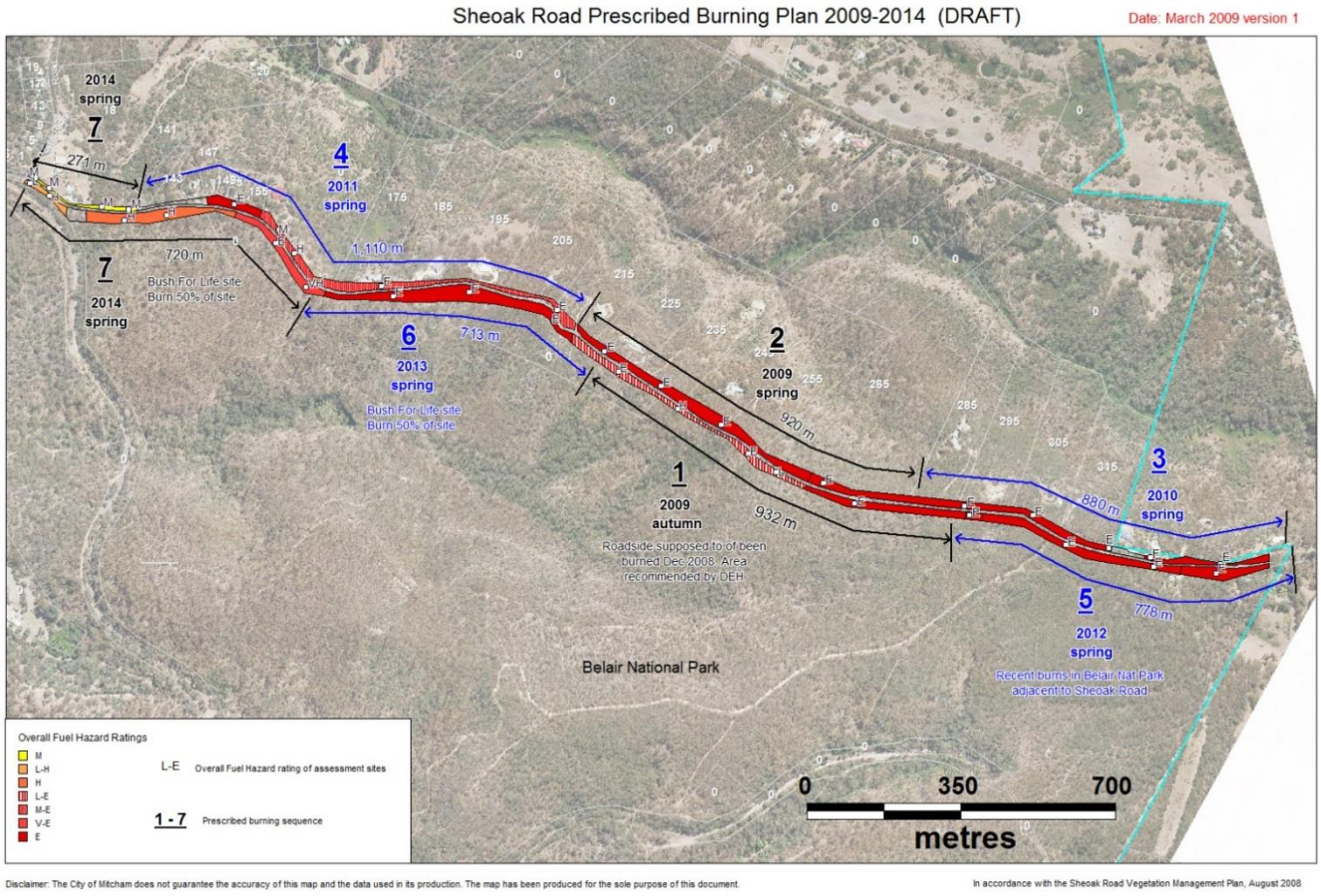
AREA NAME: Mt George – Foxhill Road	**POTENTIAL** Buffer Zone	**SIZE:** 12ha
TENURE: Private / DEWNR	**PRIORITY:** HIGH	
LOCATION: Between the southern end of Mt George Conservation park and the dwellings along Foxhill Rd		
OBJECTIVE: Provide protection to dwellings along Foxhill Rd and reduce the risk of fires spreading into Arbury Park. Strategic alignment with public land zoning.		
POTENTIAL TREATMENT METHOD: Prescribed burning / mechanical thinning / woody weed control		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: Significant weed control efforts will be required to reduce and maintain the fuels within this area Initial liaison regarding prescribed burning (not zoning) with private landholders has been undertaken.		



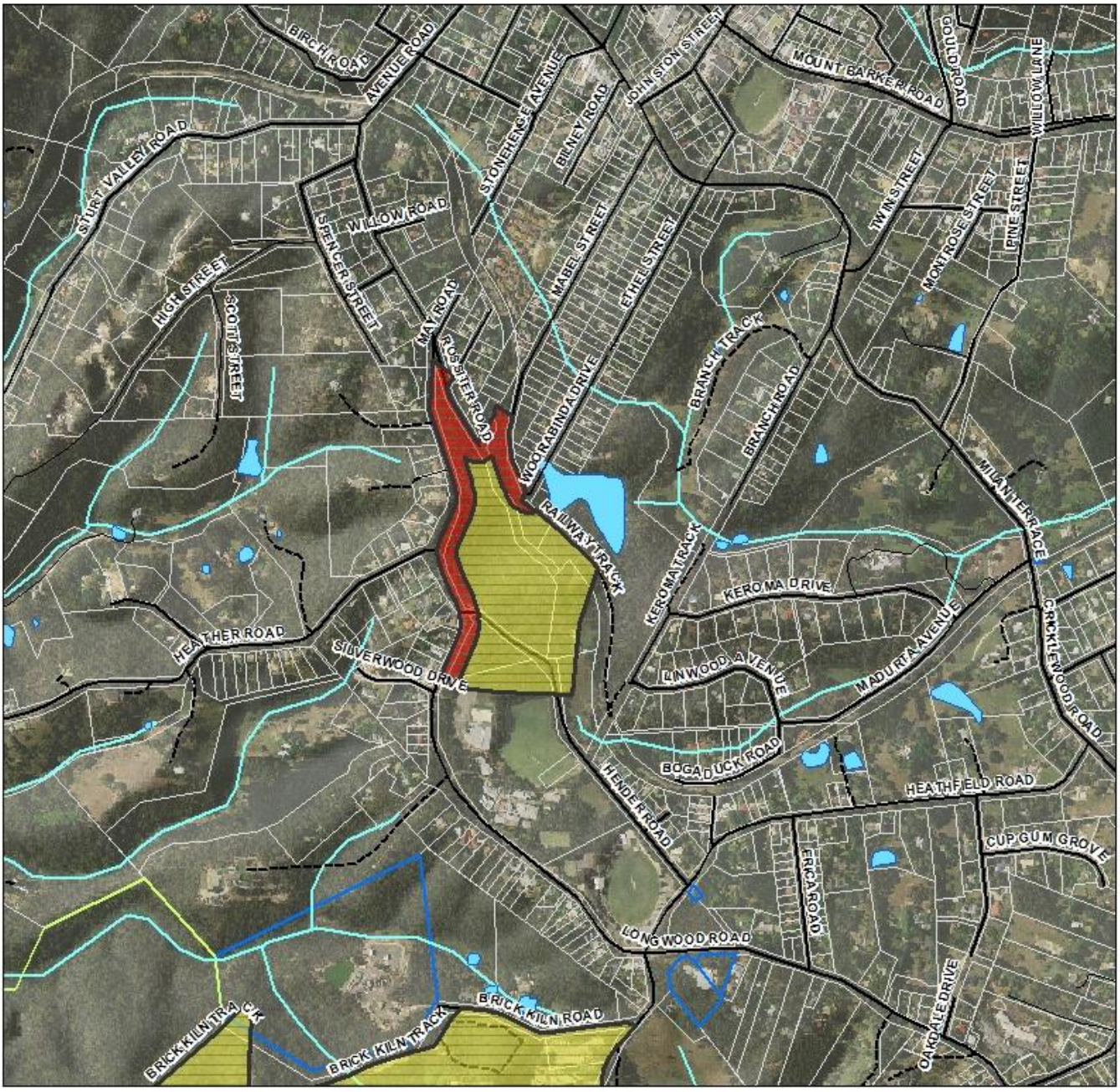
AREA NAME: Belair – Minno Creek	**POTENTIAL** Asset / Buffer Zone	**SIZE:** 26ha
TENURE: Private	**PRIORITY:** HIGH	
LOCATION: Adjacent to the eastern side of Belair National Park		
OBJECTIVE: Provide protection to dwellings within the suburb of Upper Sturt. Strategic alignment with public land zoning.		
POTENTIAL TREATMENT METHOD: Prescribed burning / mechanical thinning / woody weed control		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: Significant portions of this area may already be below BBZ fuel hazard limits. Liaison with private landholders has not been undertaken.		



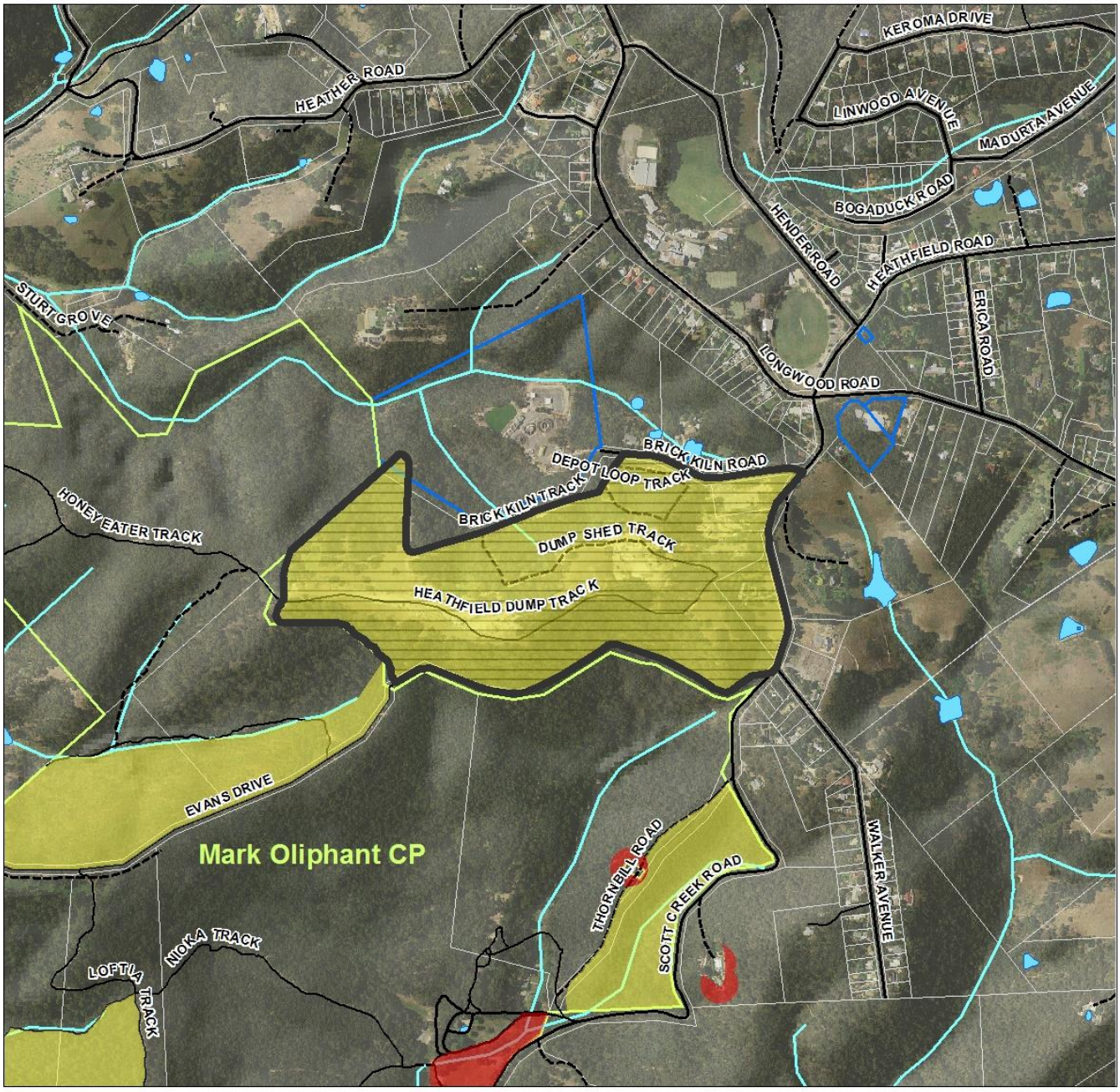
AREA NAME: Belair – Sheaok Road	**POTENTIAL** Buffer Zone	**SIZE:** Approx 2.5km
TENURE: Mitcham Council	**PRIORITY:** HIGH	
LOCATION: Along the edge of Sheoak Road adjacent to Belair National Park		
OBJECTIVE: Provide protection to dwellings along Sheaok Rd		
POTENTIAL TREATMENT METHOD: Mechanical thinning / prescribed burning		
TREATMENT RESPONSIBILITY: Mitcham Council		
OTHER NOTES: Significant efforts have already been made by Mitcham Council to reduce the fuel in this area through mechanical work and prescribed burning - this work will need to be maintained. Liaison with Council to zone this area has not been undertaken.		



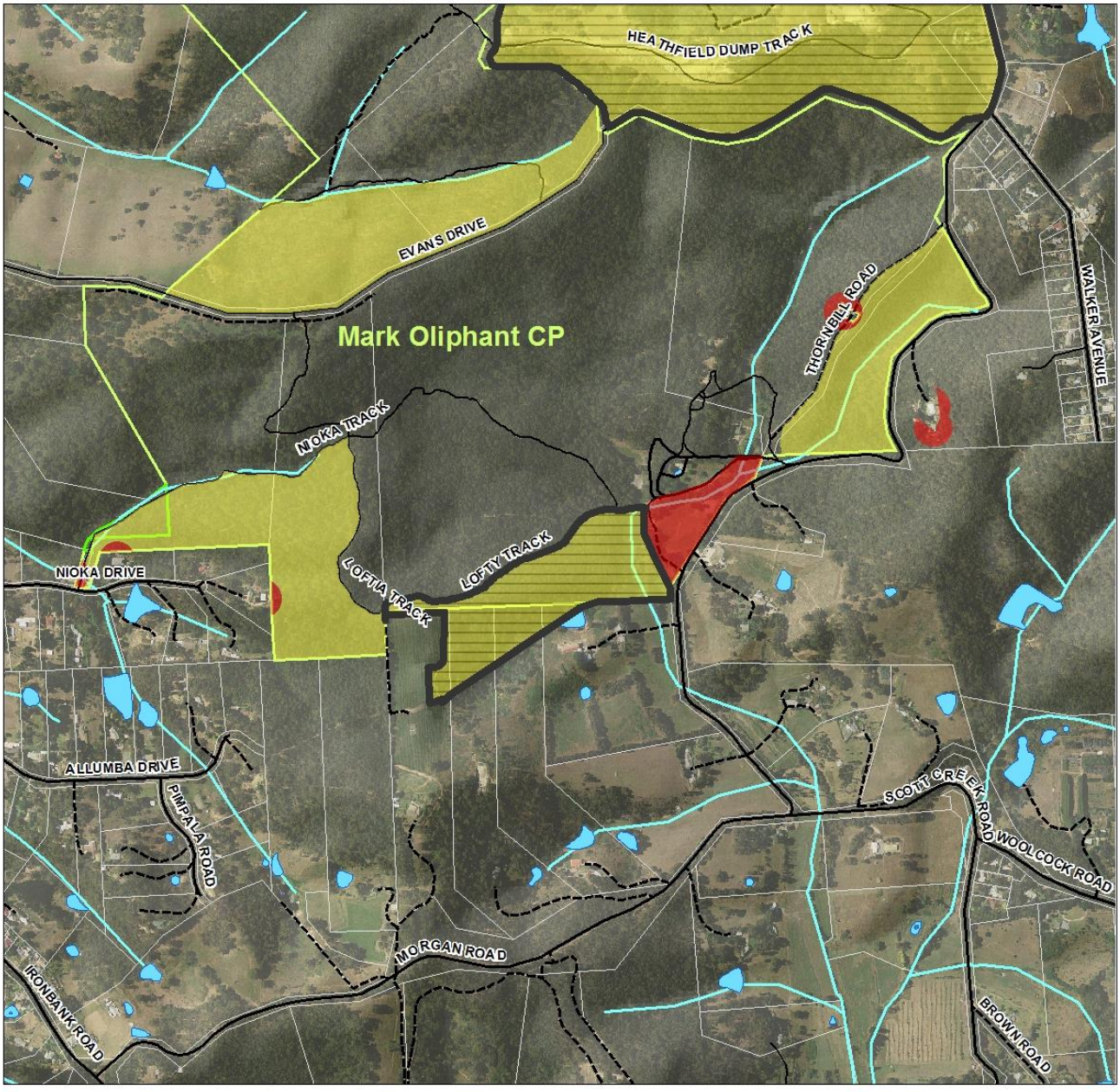
AREA NAME: Hender Reserve	**POTENTIAL** Buffer Zone	**SIZE:** 14ha
TENURE: Adelaide Hills Council / Private	**PRIORITY:** HIGH	
LOCATION: Hender Rd and Longwood Rd, Heathfield		
OBJECTIVE: Provide protection to adjacent school and built up area.		
POTENTIAL TREATMENT METHOD: Prescribed burning / mechanical thinning / woody weed control		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: Site assessment is required to confirm fuel hazard within this area and what areas are operationally feasible to treat. Size of area may be reduced depending on the results of these investigations. Liaison with council has not been undertaken.		



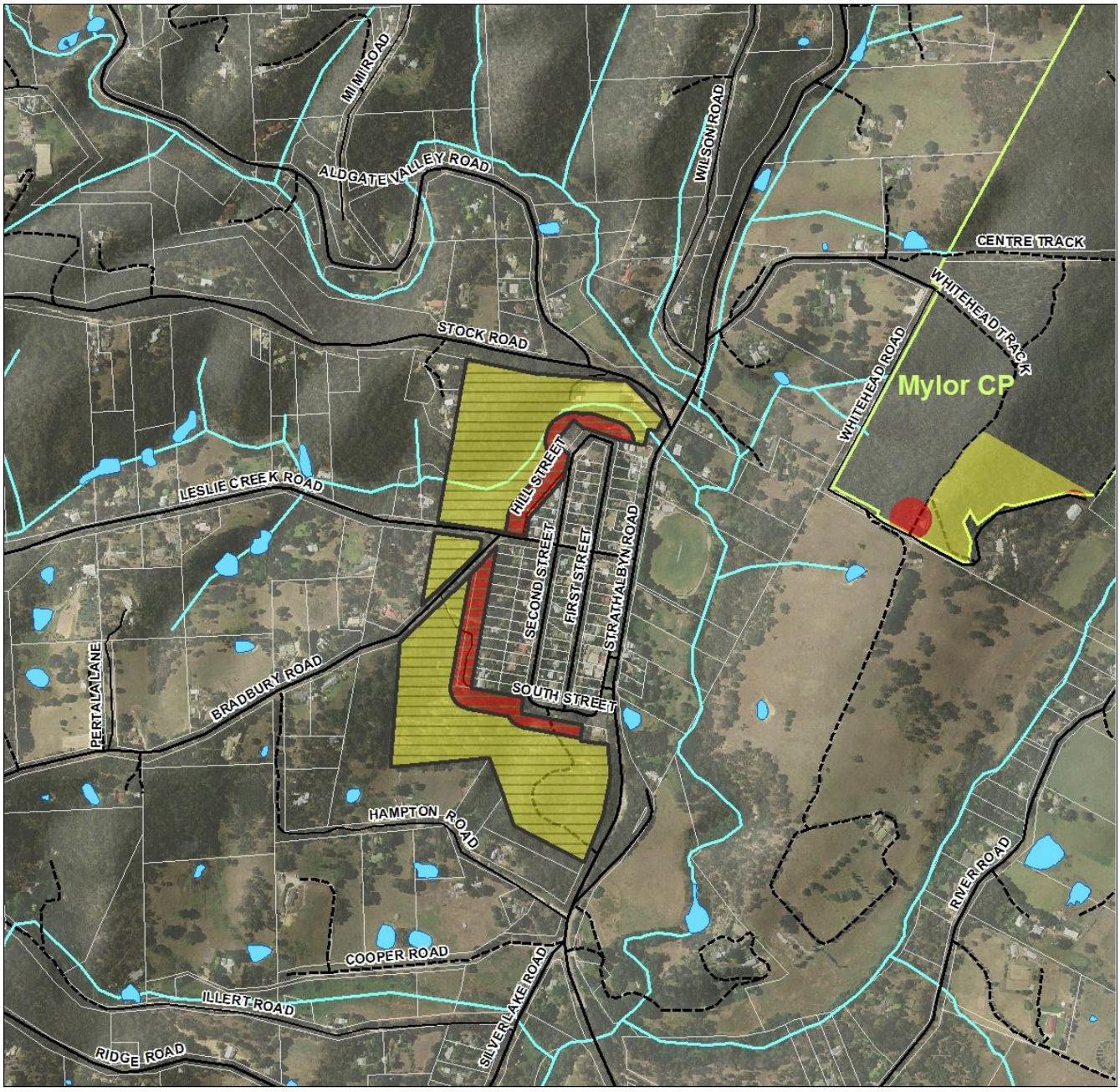
AREA NAME: Heathfield Dump	**POTENTIAL** Buffer Zone	**SIZE:** 29ha
TENURE: Adelaide Hills Council	**PRIORITY:** MODERATE	
LOCATION: Area surrounding Heathfield Dump site adjacent to the northern edge of Mark Oliphant CP		
OBJECTIVE: Provide landscape buffer between high fuels surrounding Heathfield Waste Water Treatment Plant and Mark Oliphant CP. Strategic alignment with public land zoning.		
POTENTIAL TREATMENT METHOD: Prescribed burning / woody weed control		
TREATMENT RESPONSIBILITY: Adelaide Hills Council		
OTHER NOTES: Prescribed burning has already been undertaken on this site as part of the state government program. This fuel reduction work will need to be maintained as required. Liaison AHC has not occurred.		



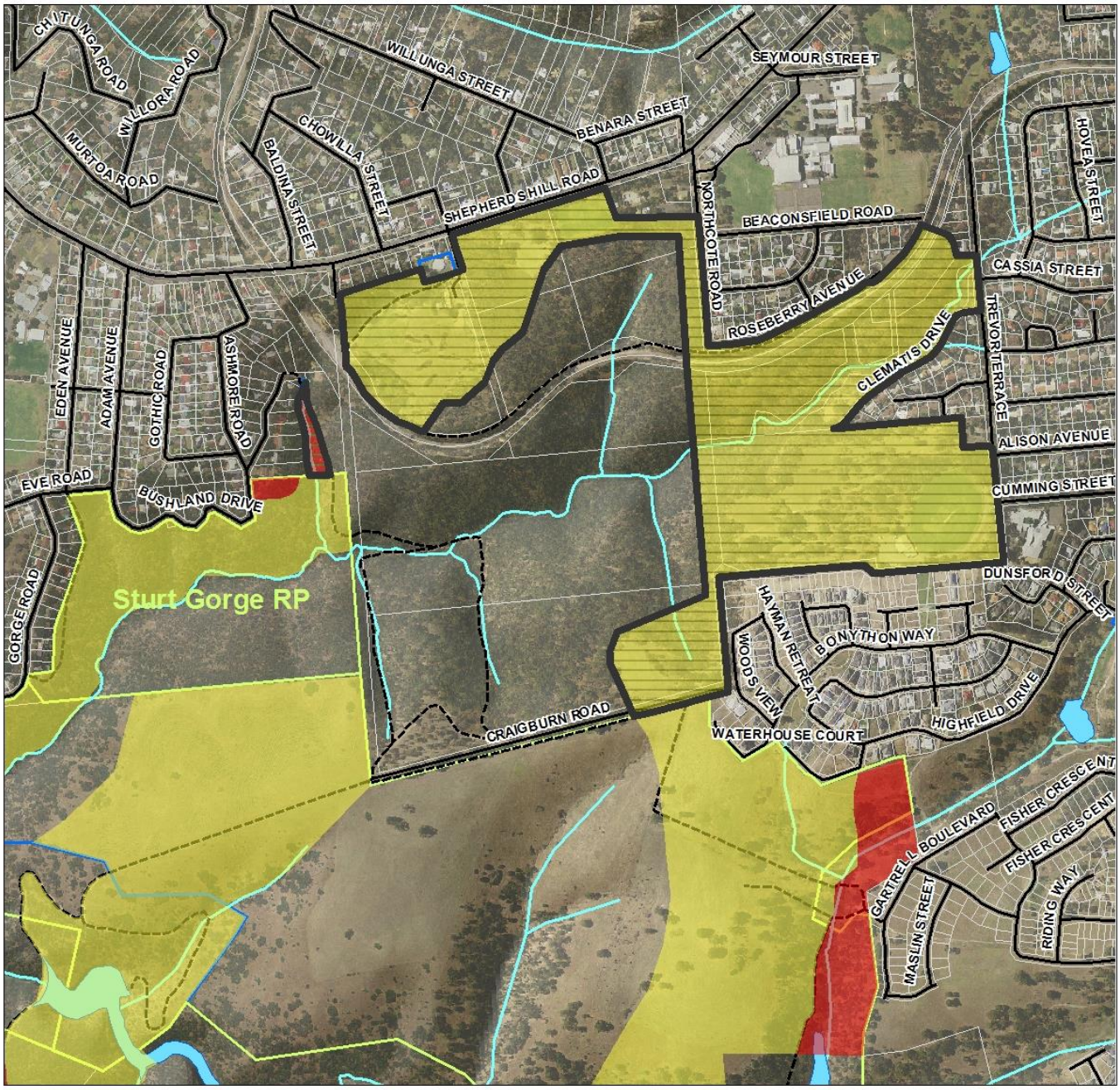
AREA NAME: Mark Oliphant South	**POTENTIAL** Buffer Zone	**SIZE:** 9ha
TENURE: DEWNR / Private	**PRIORITY:** MODERATE	
LOCATION: Along the southern boundary of Mark Oliphant CP.		
OBJECTIVE: Provide protection to dwellings along the southern end of the reserve. Reduce risk of fires burning into or out of the southern end of the reserve. Strategic alignment with public land zoning.		
POTENTIAL TREATMENT METHOD: Prescribed burning / woody weed control		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: Prescribed burning has already been undertaken on this site (DEWNR land) as part of the state government program. This fuel reduction work will need to be maintained. Private landholder liaison has not occurred.		



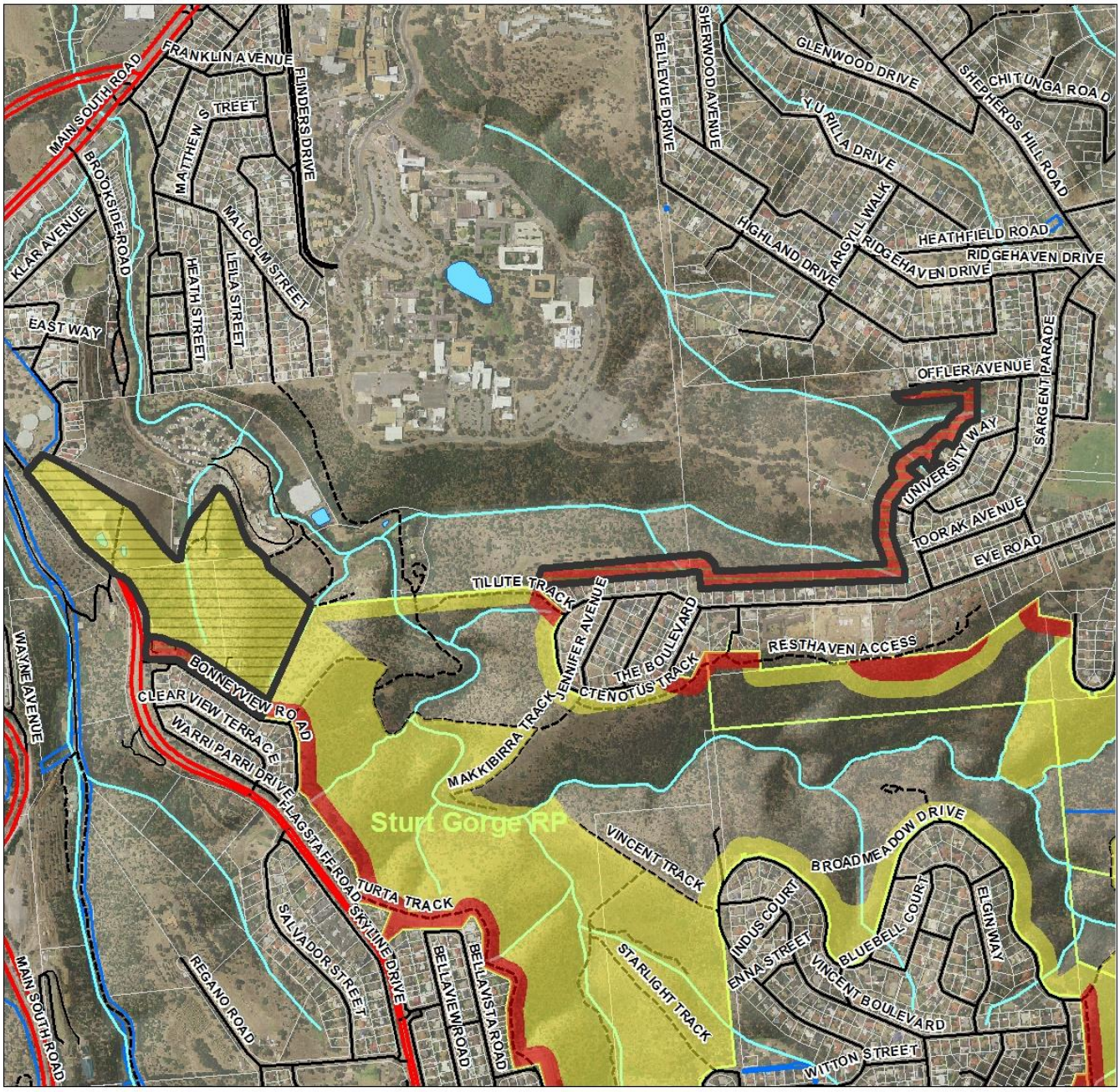
AREA NAME: Mylor Parklands	**POTENTIAL** Asset / Buffer Zone	**SIZE:** 29ha
TENURE: Adelaide Hills Council	**PRIORITY:** HIGH	
LOCATION: Within Mylor parklands which surround the western and southern sides of Mylor township		
OBJECTIVE: Provide protection to the township of Mylor.		
POTENTIAL TREATMENT METHOD: Prescribed burning / mechanical thinning / woody weed control		
TREATMENT RESPONSIBILITY: Adelaide Hills Council		
OTHER NOTES: Site assessment to confirm fuel hazard within this area and what area is operationally feasible to treat. Size of area may be reduced depending on the results of these investigations. Liaison with council has not been undertaken.		



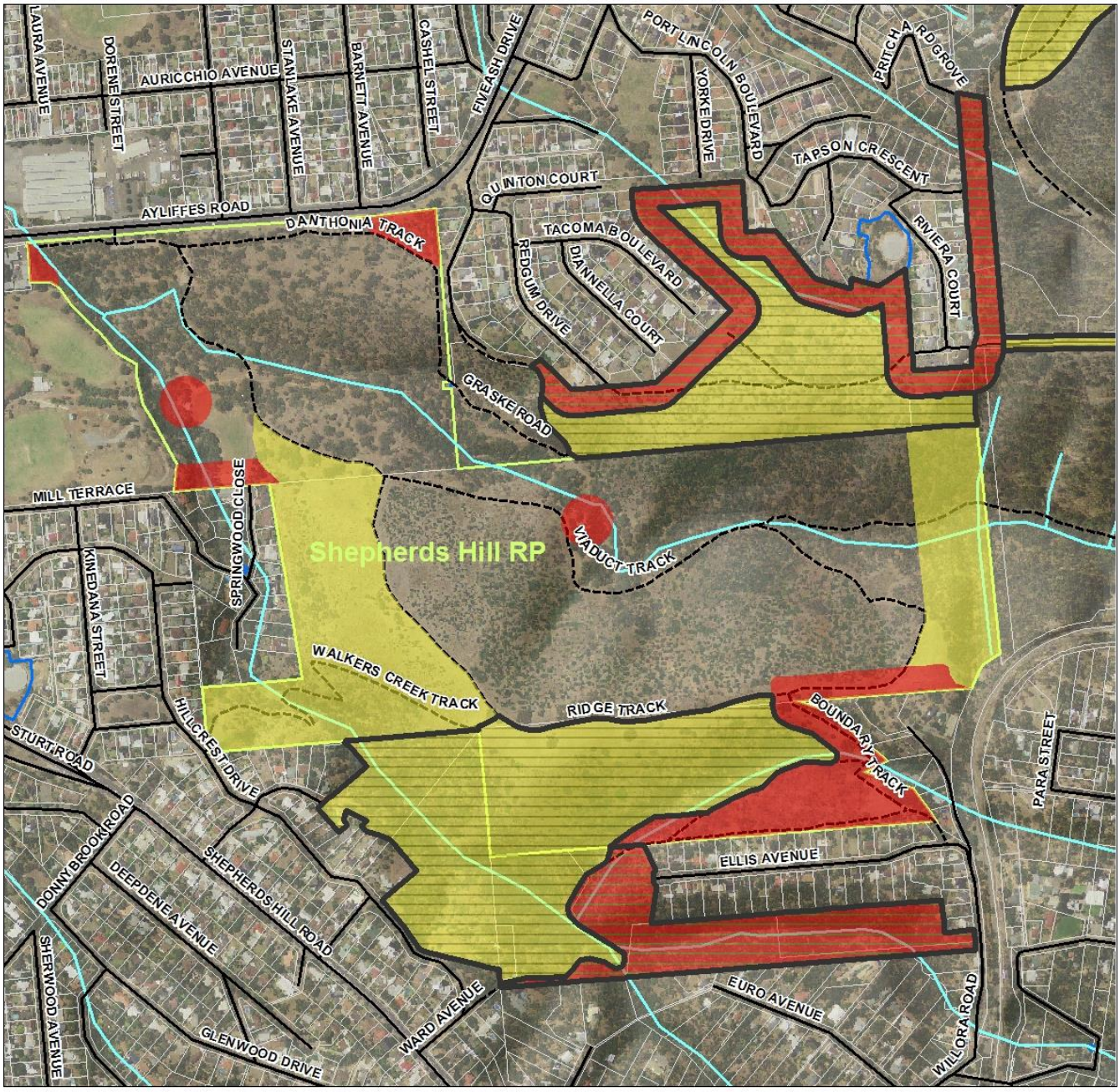
AREA NAME: Sturt Gorge – Karinya Reserve	**POTENTIAL** Asset / Buffer Zone	**SIZE:** 45ha
TENURE: Council	**PRIORITY:** HIGH	
LOCATION: Abutting Shepherds Hill Road and the new development within Craigburn Farm (Blackwood Park)		
OBJECTIVE: Provide protection to adjacent residential areas. Strategic alignment with public land zoning.		
POTENTIAL TREATMENT METHOD: Mechanical thinning / woody weed control / prescribed burning		
TREATMENT RESPONSIBILITY: Council		
OTHER NOTES: The vegetation within this area should be maintained as relatively open woodland through woody weed control, mechanical thinning and potentially prescribed burning. Liaison with council has not been undertaken.		



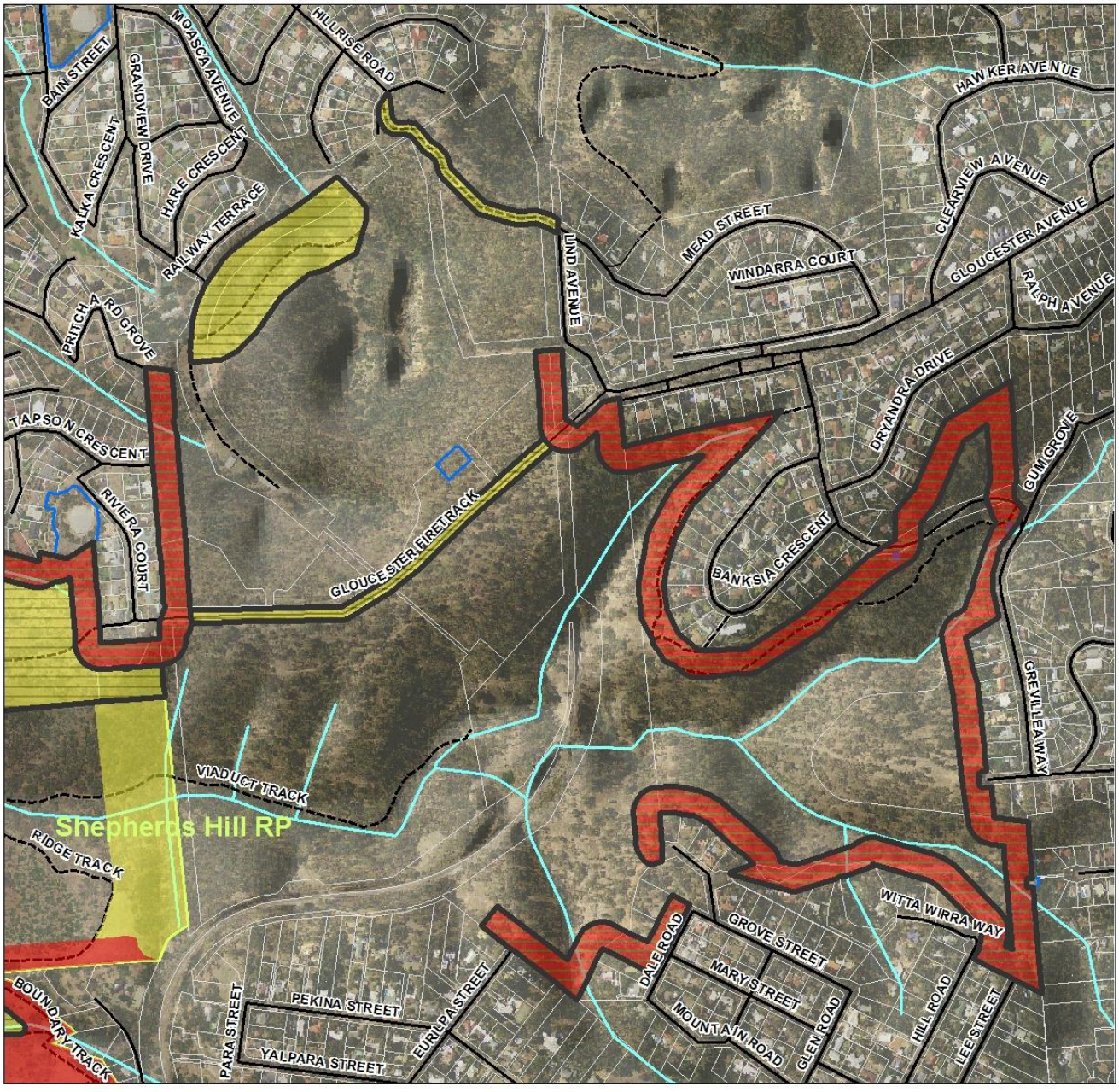
AREA NAME: Sturt River – Flagstaff Hill	**POTENTIAL** Asset Zone / Buffer Zone	**SIZE:** various
TENURE: State Government (Flinders University)	**PRIORITY:** HIGH	
LOCATION: Residential areas surrounding Flinders University land		
OBJECTIVE: Provide protection to residential areas. Strategic alignment with public land zoning.		
TREATMENT METHOD: Mechanical thinning / woody weed control / prescribed burning		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: The vegetation within this area should be maintained as relatively open woodland through woody weed control (olives), mechanical thinning and potentially prescribed burning. Liaison with the University has not been undertaken.		



AREA NAME: Shepherds Hill	**POTENTIAL** Asset Zone / Buffer Zones	**SIZE:** Various
TENURE: DEWNR / Council	**PRIORITY:** HIGH	
LOCATION: Areas abutting residential areas north and south of Shepherds Hill Recreation Park		
OBJECTIVE: Provide protection to residential areas adjacent to DEWNR and council reserves		
POTENTIAL TREATMENT METHOD: Mechanical thinning / woody weed control / prescribed burning		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: Significant portions of these areas will already be below BBZ fuel hazard limits The vegetation within these areas should be maintained as a relatively open woodland through woody weed control (olives), mechanical thinning and potentially prescribed burning. Liaison with the council has not been undertaken.		



AREA NAME: Watiparinga Reserve	**POTENTIAL** Asset / Buffer Zones	**SIZE:** Various
TENURE: Council / State Government (National Trust)	**PRIORITY:** HIGH	
LOCATION: Areas abutting residential areas surrounding Watiparinga Reserve (National Trust) and council reserves		
OBJECTIVE: Provide protection to residential areas adjacent to National Trust and council reserves		
POTENTIAL TREATMENT METHOD: Mechanical thinning / woody weed control		
TREATMENT RESPONSIBILITY: To be determined		
OTHER NOTES: Significant portions of these areas will already be below BBZ fuel hazard limits The vegetation within these areas should be maintained as relatively open woodland through woody weed control (olives), mechanical thinning and potentially prescribed burning. Liaison with the council / national trust has not been undertaken.		



APPENDIX 3: Adelaide Mount Lofty Ranges Bushfire Management Committee Member Organisations

Listed below are the Member Organisations of the Adelaide Mt Lofty Ranges Bushfire Management Committee. It should be noted that although not members of the AMLR BMC, many other Government and non-Government organisations are consulted on, and contribute to the AMLR BMAP.

For further information on the roles and responsibilities of the Bushfire Management Committee and Member Organisations, please refer to:

- *Section 3.2 Adelaide Mount Lofty Ranges Bushfire Management Committee, and*
- *Section 3.3 Bushfire Management Committee Member Organisations*

AMLR BMC Member Organisations:

- Adelaide Hills Council
- The Barossa Council
- City of Burnside
- City of Campbelltown
- The Town of Gawler
- City of Marion
- City of Mitcham
- Mt Barker District Council
- City of Onkaparinga
- City of Playford
- City of Salisbury
- City of Tea Tree Gully
- SA Police
- SA Metropolitan Fire Service
- SA Country Fire Service Volunteer Association
- Conservation Council of SA
- Primary Producers SA
- Department of Environment, Water and Natural Resources
- SA Water
- Department for Planning, Transport and Infrastructure
- Forestry SA
- SA Country Fire Service