

**Sutherland Shire
Bush Fire Management Committee**

Bush Fire Risk Management Plan



Photo – Sharon Quandt

2015 to 2020

**Prepared by the Sutherland Shire Bush Fire
Management Committee
Pursuant to section 52 of the *Rural Fires Act 1997***

Glossary

Assets: anything valued by the community which includes houses, crops, heritage buildings and places, infrastructure, the environment, businesses, and forests, that may be at risk from bush fire.

Bush Fire: a general term used to describe fire in vegetation, includes grass fire.

Bush Fire Hazard: the potential severity of a bush fire, which is determined by fuel load, fuel arrangement and topography under a given climatic condition.

Bush Fire Risk: the chance of a bush fire igniting, spreading and causing damage to the community or the assets they value.

Bush Fire Risk Management: a systematic process that provides a range of treatments which contribute to the well being of communities and the environment, which suffer the adverse effects of wildfire/bush fire.

Bush Fire Threat: potential bush fire exposure of an asset due to the proximity and type of a hazard and the slope on which the hazard is situated.

Consequence: outcome or impact of a bush fire event.

Display area: geographic area determined by the Bush Fire Management Committee which is used to provide a suitable area and scale for community participation and mapping display purposes.

Fire Fighting Authorities: the NSW Rural Fire Service, Fire & Rescue NSW, the National Parks and Wildlife Service and Forests NSW.

Likelihood: the chance of a bush fire igniting and spreading.

Major Bush Fire: A bush fire which requires the attendance of multiple resources, or causes damage to property or injury to one or more persons.

Neighbourhood Safer Places: A place of last resort during a bush fire emergency which is used when all other options in a bush fire survival plan can't be put in action safely.

RAMSAR: An international treaty on wetlands signed in Ramsar, Iran in 1971

Recovery costs: the capacity of an asset to recover from the impacts of a bush fire.

Risk Acceptance: an informed decision to accept the consequences and the likelihood of a particular risk.

Risk Analysis: a systematic process to understand the nature of and to deduce the level of risk.

Risk Assessment: the overall process of risk identification, risk analysis and risk evaluation.

Risk Identification: the process of determining what, where, when, why, and how something could happen.

Risk Treatment: the process of selection and implementation of measures to modify risk.

Vulnerability: the susceptibility of an asset to the impacts of bush fire.

Acronym Table

ANSTO	Australian Nuclear Science and Technology Organisation
APZ	Asset Protection Zone
BFCC	Bush Fire Coordinating Committee
BFMC	Bush Fire Management Committee
BFRMP	Bush Fire Risk Management Plan
CFU	Community Fire Unit
OEH	Office of Environment & Heritage
CL	Crown Lands
ESD	Ecologically Sustainable Development
FEZ	Fire Exclusion Zone
GLALC	Gandangarra Local Aboriginal Council
LEP	Local Environment Plan
LGA	Local Government Area
LMZ	Land Management Zone
NPWS	National Parks and Wildlife Service
NSP	Neighbourhood Safer Place
FRNSW	Fire & Rescue NSW
RFS	Rural Fire Service
SFAZ	Strategic Fire Advantage Zone
SFP	Special Fire Protection

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Authorisation

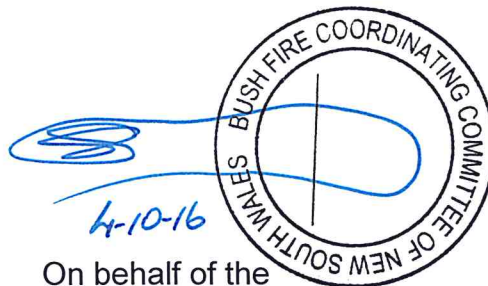
In accordance with Part 3 Division 4 of the Rural Fires Act 1997, this Draft Plan has been prepared by the Sutherland Shire Bush Fire Management Committee and has been endorsed at the BFMC meeting on **12th February 2015** for submission to the Bush Fire Coordinating Committee.

Recommended



Chairperson
Sutherland Shire Bush Fire Management Committee

Approved



On behalf of the
NSW Bush Fire Co-ordinating Committee

Amendment List

Amendment		Entered	
Number	Date	Signature	Date

Chapter 1. Introduction

1.1 Background

Under the Rural Fires Act 1997 the Bush Fire Coordinating Committee (BFCC) must constitute a Bush Fire Management Committee (BFMC) for each area in the State, which is subject to the risk of bush fires. Each BFMC is required to prepare and submit to the BFCC a draft Bush Fire Risk Management Plan (BFRMP).

A BFRMP is a strategic document that identifies community assets at risk and sets out a five-year program of coordinated multi-agency treatments to reduce the risk of bush fire to the assets. Treatments may include such things as hazard reduction burning, grazing, community education, fire trail maintenance and establishing community fireguard groups.

Annual programs to implement the treatments identified in this plan will be undertaken by the relevant land managers and fire fighting authorities.

In exercising its functions under the Rural Fires Act 1997, including the preparation of a draft bush fire risk management plan, the Sutherland Shire BFMC is required to have regard to the principles of ecologically sustainable development (ESD).

This document and the accompanying maps together form the BFRMP for the Sutherland Shire BFMC area.

This BFRMP has been prepared by the Sutherland Shire BFMC and covers both public and private lands. This BFRMP must be reviewed and updated within each successive five-year period from the constitution of the BFMC.

The BFCC recognises that climate change has the potential to increase bush fire risk. The risk assessment process applied in this BFRMP is based on current climatic conditions. The BFCC will monitor information on climate change and will modify the process when necessary.

1.2 Aim and Objectives

The **aim** of this BFRMP is to minimise the risk of adverse impact of bush fires on life, property and the environment.

The **objectives** of this BFRMP are to:

- reduce the number of human-induced bush fire ignitions that cause damage to life, property and the environment;
- manage fuel to reduce the rate of spread and intensity of bush fires, while minimising environmental/ecological impacts;
- reduce the community's vulnerability to bush fires by improving its preparedness; and
- Effectively contain fires with a potential to cause damage to life, property and the environment.

1.3 Description of the Sutherland Shire BFMC area

1.3.1 Location and land tenure

The Sutherland Shire BFMC area is located in the south of Sydney, New South Wales and comprises the Local Government Area of Sutherland Shire.

The area covered by the Sutherland Shire BFMC is 368,800 hectares and includes the land tenures outlined in Table 1.1.

Land Manager*	% of BFMC area
National Parks & Wildlife Service	45
Crown Lands	7
Local Government	7
Private	23
Gandangara LALC	2
Department of Defence	9
ANSTO	1
All other (including waterways)	6
	100%

Table 1.1 Land tenure

1.3.2 Climate and bush fire season

The Sutherland Shire has a temperate climate with generally warm summers and mild winters.

Higher rainfall occurs in summer while late winter and spring tends to be drier due to the influence of westerly winds. The area is subject to coastal rainfall and hence the western areas of the Sutherland Shire can be considerably drier than the coastal regions.

The start of an average fire season coincides with the arrival of the warmer weather, normally October or early November. If the spring period has been drier than normal, then the season may commence earlier due to the strong westerly winds which often prevail during late winter and spring (Aug/Sep).

The most extreme seasons will generally occur during late December or early January if summer rain has not occurred and may continue through to March if summer rainfall does not occur, particularly through February.

1.3.3 Population and Demographic Information

The population of the Sutherland Shire BFMC area is approximately 230,000 people. Sutherland Shire is located at the southern coastal border of the Sydney metropolitan area, about 26 kilometres from the Sydney CBD. Sutherland Shire is bounded by Bankstown/Canterbury Local Government Area and the Georges River in the north, the South Pacific Ocean in the east, Wollongong City and Royal National Park in the south and Deadman's Creek,

Woronora Dam and Campbelltown and Liverpool Cities in the west. The BFMC area has a very low percentage of the community who cannot speak or understand English at 1.2%, according to the 2011 Census. No other issue of significance is identified in the BFMC area relating to the communities ability to prepare for bush fire.

Western Map Display Area

This area comprises of the suburbs of Sandy Point, Alfords Point, Menai, Bangor, Como, Jannali and Bonnet Bay.

Area of bushland managed by Department of Defence (Holsworthy Training Area), Australian Nuclear Science and Technology Organisation (ANSTO), Georges River National Park, Crown Land, Council and private landholders.

Sandy Point is an isolated township located on the western boundary of the Shire and is surrounded by large areas of bushland to the west and south. Sandy Point has been threatened by bush fires in the past and development constraints within the area prevent a reduction of bushland areas in the foreseeable future.

Ridge top development exists throughout the suburbs of Alfords Point, Illawong, Menai, and Bangor. Steep terrain and natural vegetation surrounds these suburbs. Most of the developed areas are surrounded by perimeter fire trails (serving as Asset Protection Zones) and generally strategic fire trails are located in the valleys.

Central Map Display Area

This area comprises of the suburbs of Barden Ridge, Engadine, Woronora, Woronora Heights, Loftus, Yarrawarra and Sutherland.

Ridge top development exists throughout the suburbs of Barden Ridge, Engadine, Woronora Heights, Loftus and Yarrawarra. Steep terrain and natural vegetation surrounds these suburbs. Very few perimeter fire trails exist around the older developed areas, however strategic fire trails are located in the valleys. Some perimeter roads and fire trails exist in the newer suburbs of Woronora Heights and Barden Ridge.

Woronora is a suburb situated along the foreshore of Woronora River, it consists of low density housing with scattered residential development along the river surrounded by bushland. The development upstream is not readily accessible by road, with access primarily being by water transport.

Recreational camps are located within the Loftus Creek valley and are surrounded by bush.

Southern Map Display Area

This area comprises of Heathcote, Waterfall, Bundeena and Maianbar.

These suburbs are relatively isolated and surrounded by extensive areas of bushland including the Royal and Heathcote National Parks, Sydney Catchment Authority Area, Department of Defence (Holsworthy Training Area) and some Crown Land.

There are few significant perimeter fire trails within these suburbs. Some fuel reduced zones are in place where topography allows.

High visitation to the Royal National Park increases significantly during public and school holidays particularly in Bundeena, Maianbar, the Audley precinct and the coastal beaches of Wattamolla and Garie.

A major pet boarding facility is located between Heathcote and Waterfall and an isolated recreational camp is located in the south of the display area near Waterfall.

Eastern Map Display Area

This area comprises of Grays Point, Kirrawee, Greenhills Beach and the Kurnell Peninsula.

Adjoining the northern boundary of Royal National Park are the suburbs of Kirrawee and Grays Point. The extensive areas of bushland in this area pose a major threat to adjoining urban areas. Some fuel reduced zones are in place along the residential interface.

Kurnell peninsula consists of a residential area, bulk fuel storage facility, desalination plant, increasing industrial development, Kamay Botany Bay National Park and Towra Point Nature Reserve.

The Peninsula is somewhat isolated from additional fire fighting resources and contains potentially hazardous industries.

1.3.4 History of bush fire frequency and ignition cause

The Sutherland Shire has on average 20 bush fires per year with the predominate number being insignificant due to suppression activities by fire-fighting authorities.

The Sutherland Shire has experienced significant bush fires over the years with the average interval being 5 to 7 years. These fires have occurred throughout the Shire and the severity is largely influenced by long term rainfall deficiencies and weather conditions conducive to elevated fire danger.

Severe seasons have occurred during, 1938/39, 1944, 1951/52, 1954, 1956/57, 1967/68, 1968/69, 1974/75, 1976/77, 1979/80, 1983, 1988, 1989, 1994, 1997, 2001 and 2002.

Preventing the ignition of bush fires by human activities, particularly on days when severe weather conditions prevail is an important strategy for managing bush fires. To put effective ignition management programs in place, it is important to understand the patterns and major sources of ignition in the area.

The major ignition causes in the Sutherland Shire are:

- Human activity (deliberate or accidental)

Human activity accounts for the vast majority of fires within the Sutherland Shire and is not concentrated in any one area. The pattern of these fires tends to occur in pockets. These pockets of activity shift possibly due to increases in surveillance and suppression activities within the area in question.

Fires lit by juveniles anecdotally are the cause of a significant number of vegetation fires within the Sutherland Shire. This is associated with fires lit by children (developmental) or experimentation by adolescent youth.

Lightning activity is considered a rare source of ignition of fires in the Sutherland district although ignitions from lightning have been recorded. Most lightning strikes are associated with rainfall and therefore do not pose a major risk.

A significant threat also emanates from the restricted access lands (Department of Defence – Holsworthy Training Area) to the west of the Sutherland Shire due to the nature of activities carried out on this land.

Chapter 2. Identifying and assessing the bush fire risk

2.1 Process

The Australia/New Zealand Standard *AS/NZS 4360: 2004 Risk Management* was used as the basis for the risk assessment process. See Figure 2.1 for the steps involved. For a detailed description of the process undertaken see the Bush Fire Risk Management Planning Guidelines for Bush Fire Management Committees on the RFS website: www.rfs.nsw.gov.au.

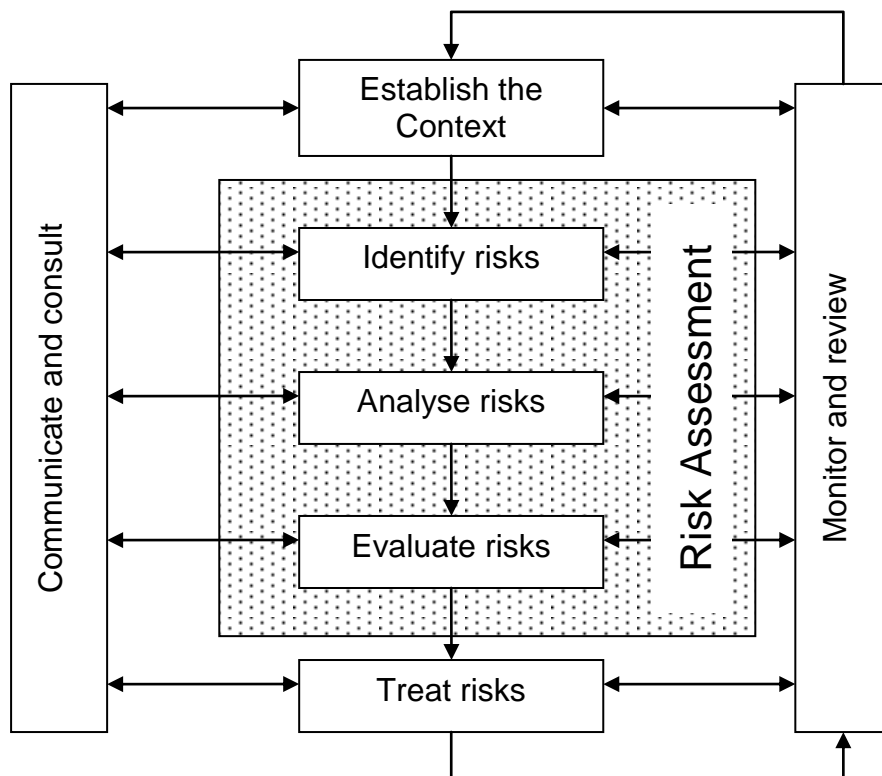


Figure 2.1 Overview of the risk assessment process

2.2 Communication and consultation

Community participation is an integral part of risk management. The Community Participation Strategy involved developing and implementing a process to address the needs, issues and concerns of stakeholders within the BFMC area in regards to the BFRMP. See Appendix 1 for the Community Participation Strategy used by the Sutherland Shire BFMC in preparing this BFRMP.

2.3 Identifying the bush fire risk

Identifying the level of bush fire risk firstly involved identifying important community assets considered to be at risk from bush fire in the Sutherland Shire BFMC area, and then assessing the likelihood and consequence ratings.

2.3.1 Assets

BFMC members and the community, identified assets within the Sutherland Shire BFMC that they believed were at risk of bush fire.

The assets were divided into four asset types:

Human settlement

- Residential areas including urban bushland interface areas
- Special Fire Protection areas including schools, hospitals, nursing homes, and tourist facilities
- A Neighbourhood Safer Place (NSP) is defined by the Rural Fires Act 1997 as land or a building designated as a NSP under section 62C. NSPs provide a place of last resort for people during a bush fire. All designated NSP locations for NSW are available at www.rfs.nsw.gov.au.

Economic

- Commercial/industrial e.g. major industries, waste treatment plants,;
- Infrastructure e.g. large power lines, gas and oil pipelines, railway lines, electricity substations, communication facilities;
- Tourist and recreational e.g. tourist sites and facilities, resorts, retreats;
- Drinking water catchments.

Environmental

- Threatened species, populations and ecological communities and RAMSAR wetlands;
- Locally important species and ecological communities, such as species and ecological communities especially sensitive to fire.

Cultural

- Aboriginal significance – Aboriginal places and items of significance;
- Non-indigenous heritage – places and items arising from the early occupation of NSW by European or other non-indigenous settlers; and
- Other cultural assets – community halls, clubs and recreational facilities.

See Appendix 2 for the full list of assets identified in the Sutherland Shire BFMC area. See maps 1-4 for the location of assets to be treated under this BFRMP.

2.3.2 Assessing the bush fire risk - consequence

Once the assets were identified, the consequence of a bush fire impacting on these assets was assessed.

See Appendix 2 for the consequence ratings assigned to each asset identified in the Sutherland Shire BFMC area.

The different asset types had different assessment processes used to determine the consequence. These processes are identified below.

Human settlement

A potential fire behaviour model using vegetation type, slope and separation distance was used to produce a threat rating for human settlement assets. The vulnerability of the asset to a bush fire was also assessed and a rating assigned. These ratings were then used to assess the consequence of a bush fire impacting upon a human settlement asset.

Special Fire Protection (SFP) assets were considered inherently more vulnerable to bush fire due to mobility capacity, knowledge or other issues relating to their inhabitants, (e.g. the elderly, infirm, children or tourists) and therefore stricter requirements for vulnerability assessment and rating were applied.

Due to circumstances surrounding Neighbourhood Safer Places and their use during a bush fire, stricter requirements for vulnerability assessment and rating will also apply to these assets.

Economic

The level of economic impact e.g. local, regional or state, as well as the economic recovery costs (how long and complicated a financial recovery will be) of the asset were identified. These ratings were used to assess the consequence of a bush fire impacting upon an economic asset.

Environmental

Environmental assets with known minimum fire threshold were assessed to determine if they were at risk of a bush fire within the 5 year life of the BFRMP using fire history data. Those environmental assets which were within or above the fire threshold were not assessed in the BFRMP, as the negative impact of a fire within the 5 year period was determined as being low and may even be of benefit to the asset and surrounding habitat.

The vulnerability of an environmental asset was determined by its conservation status and its geographic extent (distribution across the landscape). Vulnerability and potential impact of bush fire were used to assess the consequence of a bush fire impacting upon an environmental asset.

Cultural

For non-indigenous historical, Aboriginal and other cultural assets a potential fire behaviour model using fuel load, slope and proximity was used to produce a threat rating. The physical vulnerability of the asset to a bush fire was also assessed. These ratings were then used to assess the consequence of a bush fire impacting upon a cultural asset.

2.3.3 Assessing the bush fire risk - likelihood

For all asset types the likelihood of a bush fire occurring was assessed. This involves considering fire history, including ignition cause and patterns, known fire paths, access, containment potential and potential fire run (size of the vegetated area). See Appendix 2 for the likelihood ratings assigned to each asset identified in the Sutherland Shire BFMC area.

2.3.4 Identifying the level of risk

The consequence and likelihood ratings were then used to identify the level of risk. See Appendix 2 for the risk ratings assigned to each asset identified in the Sutherland Shire BFMC area.

2.3.5 Evaluating the bush fire risk

Once the risk ratings for each asset were identified, they were evaluated to:

- a) confirm that risk levels identified in the risk analysis process are appropriate and reflect the relative seriousness of the bush fire risk;
- b) identify which assets require treatments; and
- c) Identify treatment priorities.

2.3.6 Prioritising treatments

No organisation has limitless resources to deal with adverse risk. It is therefore necessary to define priorities. The bush fire risk ratings determined were used to prioritise the risk treatments, i.e. areas of extreme risk were considered first for treatment, then very high, then high then medium then low. **It was also necessary to prioritise within the risk levels i.e. determining which of the high risks was the most serious. This was done on the basis of the consequence and likelihood ratings.*

2.3.7 Risk acceptability

Some areas within the BFMC area were assessed as being of such significant risk that specific treatments have been assigned. Due to a combination of risk factors these areas have been highlighted and specific treatments allocated. Within the Sutherland Shire BFMC area the level of risk acceptability for human settlement and economic assets is set as high.

For environmental & cultural assets the Sutherland Shire BFMC has accepted the level of risk. This is due to difficulty in implementing a treatment option due to the locality of these assets (remote and difficult access). Where possible during a wildfire, it may be feasible to access environmental and cultural assets in advance of fire to mitigate any risk. During mitigation activities such as prescribed burning, environmental assessments are undertaken to ensure all assets are considered and where appropriate mitigating treatments are implemented.

Assets at or below the above mentioned acceptability thresholds are managed by BFMC wide treatments which are identified in *2.5 BFMC Wide Treatments*.

All Neighbourhood Safer Places (NSP) for a BFMC area will require ongoing treatment by the applicable land owner to ensure that the asset remains viable as a place of last resort for people during a bush fire. Therefore, all NSP assets are allocated specific treatments in this Plan, regardless of the level of bush fire risk identified and the risk acceptability nominated by the Sutherland Shire BFMC.

Chapter 3. Treating the risk

3.1 Bush Fire Management Zones

Bush Fire Management Zones were identified within the Sutherland Shire BFMC area and mapped (see maps 1 - 4). These zones identify the fire management intent for a specific area. See Table (3.1) for descriptions of the zones and their purposes. The four categories of Bush Fire Management Zones are:

- Asset Protection Zone (APZ);
- Strategic Fire Advantage Zone (SFAZ);
- Land Management Zone (LMZ); and
- Fire Exclusion Zone (FEZ).

Some of these zones (usually Land Management Zones) may be further classified within this category by the land manager, e.g. LMZ - Heritage Management Zone (NPWS).

Zone	Purpose	Suppression Objective(s)	Zone characteristics
Asset Protection Zone (APZ)	To protect human life, property and highly valued public assets and values.	To enable the safe use of Direct Attack suppression strategies within the zone. To minimise bush fire impacts on undefended assets.	As per RFS document <i>Standards for Asset Protection Zones</i>
Strategic Fire Advantage Zone (SFAZ)	To provide strategic areas of fire protection advantage which will reduce the speed and intensity of bush fires, and reduce the potential for spot fire development; To aid containment of wildfires to existing management boundaries.	To improve the likelihood and safe use of: Parallel Attack suppression strategies within the zone. and/or Indirect Attack (back burning) in high to very high fire weather conditions within the zone. To reduce the likelihood of: Crown fire development within the zone and/or spot fire ignition potential from the zone.	Zone width related to suppression objectives and dependent upon: <ul style="list-style-type: none"> • Topography • Aspect • Spotting propensity • Location of adjacent firebreaks • Mosaic pattern of treatment Assess Overall Fuel Hazard (OFH) once vegetation communities reach minimum fire thresholds within this plan. Management practices should aim to achieve mosaic fuel reduction patterns so that the majority of the SFAZ has an OFH of less than high.
Land Management Zone (LMZ)	To meet relevant land management objectives in areas where APZs or SFAZs are not appropriate.	As per the land management and fire protection objectives of the responsible land management agency. To reduce the likelihood of spread of fires. To undertake mosaic burning	As appropriate to achieve land management e.g. heritage and/or fire protection e.g. broad scale mosaic burning objectives.
Fire Exclusion Zone (FEZ)	To exclude bush fires.	N/A	Variable dependant on size of fire sensitive area requiring protection.

Table 3.1 Bush Fire Management Zones: Purpose, objectives and characteristic

NB: OFH refers the Overall Fuel Hazard Guide as described in the document published by (Dept. of Sustainability and Environment 3rd ed. 1999 & NPWS version); State-wide procedures for assessment of fuel hazard will be developed in conjunction with the BFCC.

Note: All areas that are not mapped or described as APZs or SFAZs are considered as LMZs. Due to the scale of mapping not all APZs are mapped however are consistent with table 2.2.

3.2 BFMC wide treatments

BFMC wide treatments are activities which reduce the overall bush fire risk within the BFMC area and are undertaken on an ongoing basis as part of normal business. These treatments are not linked to specific assets in the BFRMP, rather they are applied across all or part of the BFMC area as designated by legislation or agency policy. BFMC wide treatments include the following:

- **Reviewing the bush fire prone land map**

These maps identify bush fire prone land and are used to trigger whether a development application is assessed using *Planning for Bush Fire Protection*¹.

- **Ensuring developments in bush fire prone land comply with *Planning for Bush Fire Protection***

This assessment process requires new applications for development to include bush fire protection measures.

- **Using the Local Environment Plan/s (LEPs) to control developments in areas with a bush fire risk**

LEPs can be used to exclude development in extreme bush fire risk areas or where bush fire protection measures cannot be incorporated.

- **Varying the standard bush fire danger period as required**

In years where the weather is particularly adverse the bush fire danger period may be brought in early or extended. This is assessed every year by the BFMC.

- **Requiring permits during the bush fire danger period or where fire may endanger a building**

In the bush fire danger period or where a fire may endanger a building a fire safety permit is required to light a fire in the open. Permits specify conditions such as fire fighting equipment that must be on site, or restrict burns based on weather conditions.

- **Investigation of bush fire cause**

All bush fires which do not have a known cause are investigated to identify how they started.

- **Prosecution of arsonists/offenders**

Under the *Rural Fires Act 1997* persons may be prosecuted for breaching the conditions on a fire permit, lighting a fire during a Total Fire Ban, allowing fire to escape their property, or other breaches of the Act.

¹ NSW Rural Fire Service 2006 *Planning for Bush Fire Protection: A guide for councils, planners, fire authorities and developers.*

- **Prosecution of offenders**

Under the *National Parks and Wildlife Act 1974* persons may be prosecuted for lighting a fire during a Park Fire Ban or in unapproved areas, or for other breaches of the Act.

- **Normal fire suppression activities**

Responding to bush fire is a normal business activity for the fire fighting authorities.

- **Assessing and managing compliance with strategic fire fighting resource allocation provisions**

Strategic fire fighting resource allocation provisions is the process used to identify the number of stations, brigades and appliances required in an area, and considers members, training, assets and hazards.

- **Preparation of a S52 Operations Coordination Plan**

The Operations Coordination Plan is prepared biannually and sets out how coordinated fire fighting will occur. It includes specific operational restrictions on fire fighting techniques in certain areas, where fires will be managed from, and how agencies involved can communicate during operations.

- **Fire Management Plans or Plans of Management**

Some land management agencies have developed fire management plans or plans of management with specific fire or fuel management strategies, for example the Department of Defence *Liverpool Military Area – Bush Fire Management Plan 2014 -2018* and the NPWS *Fire Management Strategy and Regional Operations Plan*. These publicly exhibited plans form the basis for operational fire planning on public parks, reserves and forests.

- **Bush Fire Hazard Complaints**

If someone is concerned about possible bush fire hazards on a neighbouring property or any other land, then this can be reported to the RFS Commissioner or their local RFS Fire Control Centre. The complaint will be investigated and may result in a notice being issued to the landowner or manager to reduce the hazard.

- **Establishment and maintenance of Asset Protection Zones on Private Property to Protect Existing Dwellings**

Private land owners are responsible for the management of bush fire hazards located on their property. Where a bush fire hazard exists in close proximity to an existing dwelling, the owner or occupier should establish and maintain an asset protection zone on their own land in accordance with the provisions of the Rural Fire Service document titled *Standards for Asset Protection Zones*. The land owner or occupier must first obtain the appropriate approvals before undertaking the works.

- **Closure of National Parks due to bush fire risk**

Full or partial closure of NSW national parks and reserves during times of increased bush fire danger to protect users, the park itself and neighbouring properties as per *OEH Fire Management Manual* and *NPWS Metropolitan South West Region – Regional Incident Procedures*.

- **Proactive patrol of bushland**

Patrols of bushland areas on days of elevated bush fire danger with the objective to prevent deliberate/accidental fires occurring and enhancing the ability for fire authorities to suppress a fire in the early stages.

- **Restriction of Department of Defence activities**

Department of Defence to restrict certain operations on the Holsworthy Training Area during the statutory Bush Fire Danger Period and/or on days of increased bush fire in accordance with the *Liverpool Military Area – Bush fire Management Plan 2014-2018*.

- **Bush Fire Management Committee Annual Community Engagement Plan**

The NSW Rural Fire Service and Fire & Rescue NSW prepare a BFMC Community Engagement Plan annually for implementation by both agencies. This allows for the effective use of both agencies resources to maximise the reach of community engagement activities across the BFMC area. The implementation of community engagement activities will consider areas of highest risk, recent fire activity (wildfire or hazard reduction), likelihood of fire, level of community preparedness, and established fire preparedness programs (Community Fire Units).

- **Fire Trails**

Fire trails provide access for fire management purposes. The purpose of fire trails is to provide access for firefighters for both suppression and mitigation activities. Consideration of fire trails and their adequacy are considered in the bush fire risk management planning process. The Bush Fire Management Committee maintains a Fire Trail Register which identifies the classification (strategic importance) and capacity (for firefighting vehicles) of each fire trail across the BFMC area. Bush Fire Coordinating Committee policy number 2/2007 Fire Trails outlines guidelines in which trails should be managed.

3.3 Asset specific treatments

There are five broad strategy groups available to treat the bush fire risk to assets identified in the BFRMP.

The types of asset specific treatments in each strategy group used in the Sutherland Shire BFMC area are listed below. A full list of the treatment strategies in the Sutherland Shire BFMC area are in Appendix 3.

Strategy	Targeted treatments used in the <i>Sutherland Shire BFMC area</i>
<i>Ignition Management</i>	Ignition Management strategies are identified in 'BFMC Wide Treatments' identified in Section 2.5
<i>Hazard Reduction</i>	<ol style="list-style-type: none"> 1. Inspect APZ annually and maintain as required 2. Assess SFAZ and maintain as required 3. Inspect and maintain easement to authorities standards 4. Maintain fuels in accordance with guidelines
<i>Community Education</i>	<ol style="list-style-type: none"> 5. Conduct community engagement activity
<i>Property Planning</i>	<ol style="list-style-type: none"> 6. Develop Community Protection Plan 7. Undertake inspection of vulnerable facility
<i>Preparedness</i>	<ol style="list-style-type: none"> 8. Provide training and resources for CFU's 9. Conduct pre bush fire season briefing 10. Inspect private APZ annually and ensure compliance
Other*	

Table 3.2 Asset specific treatments used in the Sutherland Shire BFMC area

3.4 Fire thresholds

The vegetation in the Sutherland Shire BFMC area was classified into fire threshold categories (Table 2.3).

Vegetation formation	Minimum SFAZ Threshold	Minimum LMZ Threshold	Maximum Threshold	Notes
Rainforest	NA	NA	NA	Fire should be avoided.
Wet Sclerophyll forest (shrubby sub formation)	25	30	60	Crown fires should be avoided in the lower end of the interval range.
Wet Sclerophyll forest (grassy sub formation)	10	15	50	Crown fires should be avoided in the lower end of the interval range.
Grassy woodland	5	8	40	Minimum interval of 10 years should apply in the southern Tablelands area. Occasional intervals greater than 15 years may be desirable.
Dry sclerophyll forest (shrub/grass sub formation)	5	8	50	Occasional intervals greater than 25 years may be desirable.
Dry sclerophyll forest (shrub sub formation)	7	10	30	Occasional intervals greater than 25 years may be desirable.
Heathlands	7	10	30	Occasional intervals greater than 20 years may be desirable.
Freshwater wetlands	6	10	35	Occasional intervals greater than 30 years may be desirable.
Forested wetlands	7	10	35	Some intervals greater than 20 years may be desirable.
Saline wetlands	NA	NA	NA	Fire should be avoided.

Table 3.3 Fire Thresholds for Vegetation Categories (in years)

3.5 Annual works programs

The land management agencies and fire fighting authorities responsible for implementing the treatments identified in this plan will include those treatments in their annual works programs detailing how, when, and where the required activities will be undertaken.

3.6 Implementation

When the treatments identified in this BFRMP are implemented there are a number of issues that need to be considered by the responsible agency including environmental assessments and approvals, smoke management and prescribed burn plans.

Chapter 4. Performance monitoring and reviewing

4.1 Review

This BFRMP must be reviewed and updated within each successive five-year period from the constitution of the BFMC. The Sutherland Shire BFMC will also review this plan as necessary to account for any changes in context or risk. This may be triggered by a range of circumstances, including but not limited to:

- changes to the BFMC area, organisational responsibilities or legislation;
- changes to the bush fire risk in the area; or
- Following a major fire event.

4.2 Monitoring

The BFMC is required to monitor progress towards the completion of treatment works listed in the BFRMP, and the timeliness of the works.

4.3 Reporting

The BFMC is required to report annually to the BFCC on its progress in implementing the bush fire risk management activities identified in this plan.

4.4 Performance Measurements

State wide performance measurements which are linked to the BFRMP objectives have been identified within Appendix G of BFCC Policy 03/2007. All BFMCs must use these to monitor and report on their success in reducing the bush fire risk in their BFMC area.

Appendices

Appendix 1 Community Participation Strategy

Appendix 2 Asset Register

Appendix 3 Treatment Register

Appendix 4 Maps

*Sutherland BFMC – Map Display Area – Central, East, South and West
Vegetation Categories
Bush Fire Threshold*



Crown Lands



Sutherland
Shire COUNCIL

Sutherland Shire Bush Fire Management Committee

Community Participation Strategy

**Review of Bush Fire Risk Management Plan
Undertaken 2014**

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Background

Communication and community participation must be undertaken throughout the Bush Fire Risk Management Plan (BFRMP) review process and is a requirement of the Bush Fire Coordinating Committee Policy 1/2008.

Purpose

The community participation strategy involves developing and implementing a process to address the needs, issues and concerns of stakeholders within the BFMC area in regards to bush fire.

The purpose of a community participation strategy is to:

- ensure that specific and targeted communication occurs between the BFMC and the community and other stakeholders throughout the development of a BFRMP;
- ensure prominent stakeholders do not make judgements on the acceptability of a risk based on their own perception;
- provide greater opportunity for local brigades, land holders and other stakeholders to have input into the bush fire risk management process;
- ensure that the community's concerns and perceptions of bush fire risk are identified, understood, documented and addressed;
- improve community confidence in bush fire risk management across the landscape and provide the community with a sense of ownership of the BFRMP; and
- educate the community regarding bush fire risk management in the area and their responsibilities, so that they can contribute towards risk reduction.

Aim

The Sutherland Shire BFMC identified the following key aims of the community participation strategy relevant to the key stakeholders in the Sutherland Shire BFMC area.

- Create awareness and identify any short comings with the existing plan
- Foster participation in the BFRMP process
- Promote the BFRMP process to effected stakeholders
- Further enhance existing engagement strategies
- Receive feedback from a range of perspectives across the community
- Education of the BFRMP process

Stakeholder analysis

A stakeholder analysis was undertaken to identify key stakeholders within the Sutherland Shire BFMC area. The aim was to establish target audiences who would be relevant to the participation in the review of the BFRMP.

A stakeholder analysis matrix was utilised to consider to what level the stakeholder should be engaged and what methodology should be used to do so. The analysis ranked the stakeholders in four (4) distinct groups which are identified below.

1. Involve directly in process
2. Keep informed of process
3. Keep satisfied that process is being undertaken
4. Monitor and assess if stakeholder requires additional engagement

Stakeholder	Type	Stakeholder Group
Residents	Private	1, 2, 3
Rural Fire Brigades	Public	1
Local Government	Public	1
Land Managers	Public/Private	1
St George Community Housing	Private	2
Bushcare	Public	2, 3
Scouts/Girl Guides	Private	2
Community Fire Units	Public	2
Senior Groups (Probus, etc)	Private	4
Wild Flower Groups	Private	2, 3
Schools	Public/Private	2
Sporting Groups	Private	4
Vulnerable Facilities	Private	2
Government Officials (elected)	Public	2
Utilities	Public/Private	2

Table 1 – Stakeholder analysis

Stakeholder communication

Broad and targeted communication strategies were identified across the BFMC area taking into account the scale and likely relevance of each stakeholder as identified in Table 1.

Broad scale strategies were preferred in the BFMC area due to the population densities within Bush Fire Prone Land.

The communication methodology consisted of utilising social and print media, agency websites, mail, email distribution, targeted meetings/workshops and existing committees.

The current version of the Bush Fire Risk Management Plan which was endorsed in November 2009 will be utilised during the community participation process. This will allow the community to have input into the existing plan to ensure the review can consider the current plan and whether any improvements or modifications would be required.

A template located in the appendix will be utilised to provide standardisation in communication across the various communication methodologies.

A high resolution copy of the plan was available on the NSW Rural Fire Service website and a hard copy available at the Sutherland Shire Emergency Service Centre, Heathcote for viewing.

The communication methodology to be implemented for each of the stakeholders is shown in Table 2 below.

Stakeholder	Communication Method	Responsible
Residents	Social Media Mail Out Website Print Media	Rural Fire Service, Council Council Rural Fire Service, Council Rural Fire Service
Rural Fire Brigades	Email/Meeting/Workshop	Rural Fire Service
Local Government	BFRMP Working Party	Council
Land Managers	BFRMP Working Party	Land Managers
St George Community Housing	Email	Rural Fire Service
Bushcare	Meeting/Workshop	Council, Rural Fire Service
Scouts/Girl Guides	Email/Print Media	Rural Fire Service
Community Fire Units	Email	Fire & Rescue NSW
Senior Groups (Probus, etc)	Print Media	Rural Fire Service
Wild Flower Groups	Print Media	Rural Fire Service
Schools	Email	Rural Fire Service
Sporting Groups	Print Media	Rural Fire Service
Vulnerable Facilities	Email	Rural Fire Service

Elected Government Officials	Email	Council, Rural Fire Service
Utilities	BFMC	BFMC

Table 2. Communication methodology

Timeline

The communication strategy commenced on the 4th November 2014 and concluded on the 1st February 2015.

Review

The Bush Fire Management Committee will review and address feedback received during the participation period and provide the results of which in the Communication and Feedback Register.

A copy of the feedback received and response provided is to be kept on the BFMC file and is maintained by the NSW Rural Fire Service.

Communication & Feedback Register

Stakeholder	Communication Method	Date/s	Feedback Received
Residents	Social Media, Print Media (St	4/11/14 to 15/12/14	7
Bushcare	email	6/11/14 to 15/12/14	0
Schools	email	6/11/14 to 15/12/14	0
Vulnerable Facilities	email	6/11/14 to 15/12/14	0
Land Manager (Council)	Working Party	Participation in 9 meetings	
Land Manager (Lands)	Working Party	Participation in 10 meetings	
Land Managers (NPWS)	Working Party	Participation in 5 meetings	
Land Manager (Defence)	Working Party	Participation in 9 meetings	
Scouts/Girl Guides,	Print Media – St	6/11/14 to	0

Seniors Groups, Wild Flower Groups, Sporting Groups	George & Sutherland Shire Leader	15/12/14	
Brigades	Email	31/12/14 – 1/2/15	2
Community Fire Unit Members		31/12/14 – 1/2/15	1

Summary of feedback received

- Riverview Road, Oyster Bay – Risk Rating and assignment of treatments
- Moyran Parade, Grays Point – Bush Fire Management Zones and 10/50 provision
- Moyran Parade, Grays Point – Water supply and Neighbourhood Safer Places
- The life of the plan
- Fernleigh Reserve – Risk Rating and assignment of treatments
- Fire threshold
- Allwood Crescent, Lugarno – Reference to adjoining plan, fire threshold table, legend on maps, Bush Fire Management Zones

Appendix 1 – Participation information press release template

Sutherland Shire Bush Fire Management Committee

FOR IMMEDIATE RELEASE

BUSH FIRE RISK MANAGEMENT PLANNING - IT AFFECTS YOU!!

The Sutherland Shire Bush Fire Risk Management Committee is currently reviewing the Sutherland Shire Bush Fire Risk Management Plan (BFRMP).

A Bush Fire Risk Management Plan (BFRMP) is a comprehensive document that maps and describes the level of bush fire risk across an area and the proposed treatments to minimise and mitigate the risk.

The plan identifies bush fire issues, identifies assets at risk, assesses the level of risk, and establishes treatment strategies to minimise the risk and who is responsible for carrying out the treatments identified. These treatment strategies may directly affect you and your property.

“This is an important document that aims to protect our community and assets” said Mr Len Carter, Chairperson of the Sutherland Shire Bush Fire Management Committee.

“Everyone should take the opportunity to have a look at the plan to ensure that their views are addressed and they understand not only their level of risk, but the role of all stakeholders in bush fire management across the Sutherland Shire”

Your comments and feedback is invited and you can view the plan on the NSW Rural Fire Service website www.rfs.nsw.gov.au (include instructions) or at the NSW RFS District Office at 126 Wilson Parade, Heathcote between 9am to 5pm Monday to Friday.

Written submissions on the BFRMP can be sent to The BFMC Executive Officer by email Sutherland@rfs.nsw.gov.au or by post to 126 Wilson Parade, Heathcote 2233 by 15th December 2014.

For further enquires, contact Scott Deller on 8508 4040

Appendix 2 – Participation information social media release template

Feedback sought on local bush fire management plan

The Sutherland Shire Bush Fire Risk Management Committee is currently reviewing the Sutherland Shire Bush Fire Risk Management Plan (BFRMP).

The BFRMP is a comprehensive document that maps and describes the level of bush fire risk across the Sutherland Shire and identifies proposed treatments to minimise and mitigate the risk.

The plan identifies bush fire issues, identifies assets at risk, assesses the level of risk, and establishes treatment strategies to minimise the risk and who is responsible for carrying out the treatments identified.

These treatment strategies may directly affect you and your property.

If you are concerned about bush fires and wonder what is being done to minimise the risk, this document answers this question.

The existing plan can be viewed via this link http://www.rfs.nsw.gov.au/data/assets/pdf_file/0013/2632/Sutherland-BFRMP.pdf or alternatively can be viewed at the NSW RFS District Office Sutherland Shire at 126 Wilson Parade, Heathcote.

Written submissions on the plan can be sent to The BFMC Executive Officer by email Sutherland@rfs.nsw.gov.au or by post to 126 Wilson Parade, Heathcote 2233 by Monday 15th December 2014.

For further enquiries please contact the District Office on 8508 4040.

The map attached shows the areas where hazard reduction burns have occurred over the last five years according to the plan.

Map ref No	Asset type	Asset sub type	Asset name	Asset Location	LGA	Display area	Likelihood	Consequence	Risk	Priority	Treatment No
1	Human Settlement	Residential	Barnes Crescent (Menai)	Menai (west)	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	3;4;5;26
2	Human Settlement	Residential	Hall Drive Loop	Menai (west)	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	6;7;8;74
3	Human Settlement	Residential	McKenzie - Ferrier	Menai (west)	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	9;10;11;12
4	Human Settlement	Residential	Coachwood Crescent (Alfords Point)	Alfords Point (south)	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	13;14;15;16;17
5	Human Settlement	Residential	Brushwood Drive Loop	Alfords Point (north)	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	18;19;20;21
6	Human Settlement	Residential	Greenhaven Rd - Moyran Pde	Grays Point	Sutherland	East	Almost certain	Catastrophic	Extreme	1A	22;23;24;25
7	Human Settlement	Residential	Brighton Street/Beachcomber Avenue	Bundeena	Sutherland	South	Almost certain	Catastrophic	Extreme	1A	27;28;73
8	Human Settlement	Special Fire Protection	Waterfall Public School	Waterfall	Sutherland	South	Almost certain	Catastrophic	Extreme	1A	70;71
9	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Catastrophic	Extreme	1A	
10	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Catastrophic	Extreme	1A	
11	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Catastrophic	Extreme	1A	
12	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Catastrophic	Extreme	1A	
13	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Catastrophic	Extreme	1A	
14	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Catastrophic	Extreme	1A	
15	Human Settlement	Residential	Maianbar	Maianbar	Sutherland	South	Almost certain	Catastrophic	Extreme	1A	64;83
16	Human Settlement	Residential	Jervis - Walsh	Illawong	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	29;30;31;32;75
17	Human Settlement	Residential	Billa Road (west)	Bangor	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	33;34;35
18	Human Settlement	Residential	Yala Road (west)	Bangor	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	36;37;38
19	Human Settlement	Residential	Yates Road (west)	Bangor	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	39;40;41;42
20	Human Settlement	Residential	Cooriengah Heights Road (west)	Engadine	Sutherland	Central	Almost certain	Catastrophic	Extreme	1A	43;44;45;46
21	Human Settlement	Residential	Kingswood - Lantana Rd West	Engadine	Sutherland	Central	Almost certain	Catastrophic	Extreme	1A	47;48;49
22	Human Settlement	Residential	The Grand Parade - River Road	Sutherland	Sutherland	Central	Almost certain	Catastrophic	Extreme	1A	50
23	Human Settlement	Residential	Sutherland Road	Jannali	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	51;52;53;54
24	Human Settlement	Residential	Lincoln Cres - Woronora Cres	Como/Jannali	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	55;56
25	Human Settlement	Residential	Fowler Road south	Illawong	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	57;58;59
26	Human Settlement	Residential	Sproule Road south	Illawong	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	60;61
27	Human Settlement	Residential	Acacia Rd - Helena Street	Sutherland	Sutherland	East	Almost certain	Catastrophic	Extreme	1A	62;63;69
28	Human Settlement	Residential	Waterfall West	Waterfall	Sutherland	South	Almost certain	Catastrophic	Extreme	1A	65;66;67;68;72
29	Human Settlement	Special Fire Protection	Camp Coutts	Waterfall	Sutherland	South	Almost certain	Catastrophic	Extreme	1A	71;70
30	Economic	Infrastructure	Transgrid Power Line 11	Sutherland Shire West	Sutherland	South	Almost certain	Catastrophic	Extreme	1A	77
31	Economic	Infrastructure	Transgrid Line 12 & 13	Sandy Point	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	78
32	Economic	Infrastructure	Energy Australia Transmission Lines		Sutherland	South	Almost certain	Catastrophic	Extreme	1A	76
33	Economic	Infrastructure	DCA Tower (AirServices Aust)	Woronora Dam	Sutherland	South	Almost certain	Catastrophic	Extreme	1A	82
34	Economic	Infrastructure	DCA Tower Power Line Feeder	Woronora Dam Road	Sutherland	South	Almost certain	Catastrophic	Extreme	1A	79
35	Human Settlement	Residential	Sylvan Ridge Drive	Illawong	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	80
36	Human Settlement	Residential	Yala Road (east)	Bangor	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	81
37	Human Settlement	Special Fire Protection	John Paul Village	The Avenue, Heathcote	Sutherland	South	Almost certain	Catastrophic	Extreme	1A	71
38	Human Settlement	Special Fire Protection	Heathcote Scout Camp	Freeman Road, Heathcote	Sutherland	South	Almost certain	Catastrophic	Extreme	1A	70;71;84
39	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	East	Almost certain	Catastrophic	Extreme	1A	
40	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Catastrophic	Extreme	1A	
41	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Catastrophic	Extreme	1A	
42	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Catastrophic	Extreme	1A	
43	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Catastrophic	Extreme	1A	
44	Human Settlement	Special Fire Protection	Bradman Child Care Centre	Bradman Road, Menai	Sutherland	West	Almost certain	Catastrophic	Extreme	1A	70;71
45	Human Settlement	Residential	Thomas Mitchell Drive	Barden Ridge	Sutherland	Central	Likely	Catastrophic	Extreme	1B	85;86
46	Human Settlement	Residential	Ridge Road	Engadine	Sutherland	Central	Likely	Catastrophic	Extreme	1B	87;88;89
47	Human Settlement	Residential	Woronora Road	Engadine	Sutherland	Central	Likely	Catastrophic	Extreme	1B	90;91;92
48	Human Settlement	Residential	Fairview Avenue - Peppermint Grove	Engadine	Sutherland	Central	Likely	Catastrophic	Extreme	1B	93;94;101
49	Human Settlement	Residential	Forum Drive	Heathcote	Sutherland	South	Likely	Catastrophic	Extreme	1B	95;96;102
50	Human Settlement	Residential	Freeman Road - Blue Bell Road	Heathcote (west)	Sutherland	South	Likely	Catastrophic	Extreme	1B	97;98;99;100
51	Human Settlement	Residential	Audley Precinct residences	Audley	Sutherland	East	Likely	Catastrophic	Extreme	1B	172
52	Human Settlement	Residential	Heritage - Old Ferry Road	Illawong	Sutherland	West	Likely	Catastrophic	Extreme	1B	103;104;105;106;174

53	Human Settlement	Residential	Akuna Road	Bangor	Sutherland	Central	Likely	Catastrophic	Extreme	1B	114;115;116;120
54	Human Settlement	Residential	Dilkara	Bangor	Sutherland	Central	Likely	Catastrophic	Extreme	1B	117;118;119
55	Human Settlement	Residential	Sladden Road	Engadine	Sutherland	Central	Likely	Catastrophic	Extreme	1B	121;122;123
56	Human Settlement	Residential	Lantana - Kingswood Rd East	Engadine	Sutherland	Central	Likely	Catastrophic	Extreme	1B	124;125;126
57	Human Settlement	Residential	Bundanoon Rd East	Woronora Heights	Sutherland	Central	Likely	Catastrophic	Extreme	1B	127;128;129;130;131;173
58	Human Settlement	Residential	Bundanoon Rd West	Woronora Heights	Sutherland	Central	Likely	Catastrophic	Extreme	1B	132;133;134;135;173
59	Human Settlement	Residential	Old Bush Road	Yarrawarra	Sutherland	Central	Likely	Catastrophic	Extreme	1B	136;137;138
60	Human Settlement	Residential	Giles - Turrella Rd	Yarrawarra	Sutherland	Central	Likely	Catastrophic	Extreme	1B	139;140;141;142
61	Human Settlement	Residential	Ninth - Roebourne Rd	Loftus	Sutherland	Central	Likely	Catastrophic	Extreme	1B	143;144;145
62	Human Settlement	Residential	Vibernum - Cranberry Street	Loftus	Sutherland	Central	Likely	Catastrophic	Extreme	1B	146;147;148
63	Human Settlement	Residential	Sixth - Eighth Avenue	Loftus	Sutherland	Central	Likely	Catastrophic	Extreme	1B	149;150
64	Human Settlement	Residential	First - Sixth Avenue	Loftus	Sutherland	Central	Likely	Catastrophic	Extreme	1B	151;152;153;154
65	Human Settlement	Residential	Tudor - Buchanan Rd	Bonnet Bay	Sutherland	West	Likely	Catastrophic	Extreme	1B	155;156;157
66	Human Settlement	Residential	Tudor Road east	Bonnet Bay	Sutherland	West	Likely	Catastrophic	Extreme	1B	158
67	Human Settlement	Residential	Sproule Road north	Illawong	Sutherland	West	Likely	Catastrophic	Extreme	1B	159;160;161
68	Human Settlement	Residential	Helena Street - Hovea Place	Kirrawee	Sutherland	East	Likely	Catastrophic	Extreme	1B	162;163;164
69	Human Settlement	Residential	Box Road (Jannali)	Jannali	Sutherland	East	Likely	Catastrophic	Extreme	1B	165
70	Human Settlement	Residential	Oak Road Nth/Garnet Road	Kirrawee	Sutherland	East	Likely	Catastrophic	Extreme	1B	166
71	Human Settlement	Residential	Fowler Road - Loudon Avenue	Illawong	Sutherland	West	Likely	Catastrophic	Extreme	1B	167;168
72	Human Settlement	Residential	Upper Woronora River Frontages	Woronora River	Sutherland	Central	Likely	Catastrophic	Extreme	1B	177
73	Human Settlement	Residential	Shackel Road	Bangor	Sutherland	Central	Likely	Catastrophic	Extreme	1B	169
74	Human Settlement	Residential	Woronora River Frontages	Woronora	Sutherland	Central	Likely	Catastrophic	Extreme	1B	170
75	Human Settlement	Residential	Thomas Mitchell/David Road (external)	Barden Ridge	Sutherland	Central	Likely	Catastrophic	Extreme	1B	171
76	Human Settlement	Special Fire Protection	Camp Wonawong	Loftus	Sutherland	Central	Likely	Catastrophic	Extreme	1B	70;71
77	Human Settlement	Residential	Osprey - Austin Loops	Illawong	Sutherland	West	Likely	Catastrophic	Extreme	1B	107;108;109;110
78	Human Settlement	Residential	Blaxland - Moreton	Illawong	Sutherland	West	Likely	Catastrophic	Extreme	1B	111;112;113
79	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	East	Likely	Catastrophic	Extreme	1B	
80	Environment	Endangered	Flora	Kurnell	Sutherland	East	Likely	Catastrophic	Extreme	1B	
81	Economic	Infrastructure	ANSTO Feeder (east)	Woronora Valley	Sutherland	East	Likely	Catastrophic	Extreme	1B	175
82	Economic	Infrastructure	ANSTO Feeder (North)	New Illawarra Road	Sutherland	Central	Likely	Catastrophic	Extreme	1B	176
83	Human Settlement	Residential	Residential Dwelling end of Wardell Drive	Barden Ridge	Sutherland	Central	Likely	Catastrophic	Extreme	1B	178
84	Human Settlement	Special Fire Protection	Yarrawarra Public School	Old Bush Road, Yarrawarra	Sutherland	Central	Likely	Catastrophic	Extreme	1B	70;71
85	Human Settlement	Special Fire Protection	Grays Point Public School	Grays Point	Sutherland	East	Almost certain	Major	Extreme	1C	70;71
86	Human Settlement	Residential	Boundary Road - Burns Road	Heathcote (south)	Sutherland	South	Almost certain	Major	Extreme	1C	179;84;180
87	Human Settlement	Residential	Woodfield Avenue	Bundeena	Sutherland	South	Almost certain	Major	Extreme	1C	181;182;183
88	Human Settlement	Residential	West Fishermans Bay	Maianbar	Sutherland	South	Almost certain	Major	Extreme	1C	184;185
89	Human Settlement	Residential	St Georges Crescent/Bingara Road	Sandy Point	Sutherland	West	Almost certain	Major	Extreme	1C	186;192
90	Cultural	Other	Audley Post Office	Audley	Sutherland	East	Almost certain	Major	Extreme	1C	193
91	Human Settlement	Residential	Audley Road Residence	Audley	Sutherland	East	Almost certain	Major	Extreme	1C	187
92	Human Settlement	Residential	Abaroo Creek	Waterfall	Sutherland	South	Almost certain	Major	Extreme	1C	188
93	Economic	Infrastructure	Telecommunications Tower	Jannali	Sutherland	West	Almost certain	Major	Extreme	1C	197
94	Human Settlement	Residential	Bundeena Drive/Brighton Street	Bundeena	Sutherland	South	Almost certain	Major	Extreme	1C	189;190;73
95	Human Settlement	Residential	Waterfall East	Waterfall	Sutherland	South	Almost certain	Major	Extreme	1C	191
96	Economic	Infrastructure	Telecommunications Tower	Sandy Point	Sutherland	West	Almost certain	Major	Extreme	1C	200
97	Economic	Infrastructure	Woronora Dam Power Line Feeder	Woronora Dam Road	Sutherland	South	Almost certain	Major	Extreme	1C	199
98	Human Settlement	Residential	East Heathcote	Heathcote (east)	Sutherland	South	Almost certain	Major	Extreme	1C	196
99	Human Settlement	Special Fire Protection	Menai Public School	Menai	Sutherland	West	Almost certain	Major	Extreme	1C	70;71
100	Human Settlement	Residential	Beaumaris - Portmadoc	Menai	Sutherland	West	Almost certain	Major	Extreme	1C	194;203
101	Human Settlement	Residential	Billa Road (east)	Bangor	Sutherland	West	Almost certain	Major	Extreme	1C	195
102	Economic	Infrastructure	Telecommunications Tower Waterfall	1778 Princess Hwy Waterfall	Sutherland	South	Almost certain	Major	Extreme	1C	198
103	Human Settlement	Special Fire Protection	Jannali Public School	Sutherland Road, Jannali	Sutherland	West	Almost certain	Major	Extreme	1C	70;71
104	Human Settlement	Special Fire Protection	Como West Public School	Wolger Street, Como	Sutherland	West	Almost certain	Major	Extreme	1C	70;71
105	Environment	Endangered	Flora	Royal National Park	Sutherland	South	Almost certain	Major	Extreme	1C	

106	Environment	Endangered	Fauna	Royal National Park	Sutherland	South	Almost certain	Major	Extreme	1C	
107	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Major	Extreme	1C	
108	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Major	Extreme	1C	
109	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Major	Extreme	1C	
110	Cultural	Aboriginal Significance	Aboriginal Site		Sutherland	South	Almost certain	Major	Extreme	1C	
111	Human Settlement	Special Fire Protection	Heathcote East Public School	Mimosa Street, Heathcote	Sutherland	South	Almost certain	Major	Extreme	1C	70;71
112	Human Settlement	Special Fire Protection	Royal National Park Env Ed Centre	Farnell Avenue, RNP	Sutherland	East	Almost certain	Major	Extreme	1C	70;71
113	Human Settlement	Residential	Weemalah Residence	Royal National Park	Sutherland	South	Almost certain	Major	Extreme	1C	201;202
114	Human Settlement	Residential	Washington Drive - VanBuren Drive West	Bonnet Bay	Sutherland	West	Likely	Major	Very High	2A	208
115	Economic	Infrastructure	Telecommunications tower NE ANSTO	Lucas Heights	Sutherland	Central	Likely	Major	Very High	2A	211
116	Human Settlement	Residential	Como North	Woronora Crescent, Como	Sutherland	West	Likely	Major	Very High	2A	204
117	Environment	Endangered	Fauna	Bundeena	Sutherland	South	Likely	Major	Very High	2A	
118	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Likely	Major	Very High	2A	
119	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Likely	Major	Very High	2A	
120	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Likely	Major	Very High	2A	
121	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Likely	Major	Very High	2A	
122	Environment	Endangered	Fauna	Towra Point	Sutherland	East	Likely	Major	Very High	2A	
123	Environment	Endangered	Fauna	Towra Point	Sutherland	East	Likely	Major	Very High	2A	
124	Environment	Endangered	Fauna	Towra Point	Sutherland	East	Likely	Major	Very High	2A	
125	Environment	Endangered	Fauna	Woolooware	Sutherland	East	Likely	Major	Very High	2A	
126	Environment	Endangered	Fauna	Towra Point	Sutherland	East	Likely	Major	Very High	2A	
127	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Likely	Major	Very High	2A	
128	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Likely	Major	Very High	2A	
129	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Likely	Major	Very High	2A	
130	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Likely	Major	Very High	2A	
131	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Likely	Major	Very High	2A	
132	Economic	Infrastructure	Doppler Radar/Water Tank BBNP	Kurnell	Sutherland	East	Likely	Major	Very High	2A	206
133	Human Settlement	Residential	Australia Rd - Barden Rd	Barden Ridge	Sutherland	Central	Likely	Major	Very High	2A	207
134	Human Settlement	Special Fire Protection	Woronora River Public School	Woronora	Sutherland	Central	Likely	Major	Very High	2A	70;71
135	Economic	Infrastructure	Telecommunications Tower/Watertank	Lucas Heights	Sutherland	Central	Likely	Major	Very High	2A	210
136	Economic	Infrastructure	Pump 253 power line	Engadine	Sutherland	Central	Likely	Major	Very High	2A	209
137	Human Settlement	Special Fire Protection	Alfords Point Public School		Sutherland	West	Likely	Major	Very High	2A	70;71
138	Human Settlement	Special Fire Protection	Jannali East Public School	Box Road, Jannali	Sutherland	East	Likely	Major	Very High	2A	70;71
139	Human Settlement	Special Fire Protection	Thomas Holt Village	Acacia Road North, Sutherland	Sutherland	East	Likely	Major	Very High	2A	71
140	Human Settlement	Residential	Moyran Parade	Moyran Parade, Grays Point	Sutherland	East	Likely	Major	Very High	2A	205
141	Environment	Endangered	Flora	Kamay Botany Bay National Park	Sutherland	East	Likely	Major	Very High	2A	
142	Human Settlement	Residential	Cooriengah Heights Road (east)	Engadine	Sutherland	Central	Possible	Catastrophic	Very High	2B	212;213;214;215
143	Human Settlement	Residential	Sunbury Street	Sutherland	Sutherland	West	Possible	Catastrophic	Very High	2B	216;217;218
144	Human Settlement	Residential	Warumbul Residence	Royal National Park	Sutherland	South	Possible	Catastrophic	Very High	2B	220
145	Economic	Infrastructure	ANSTO	Lucas Heights	Sutherland	Central	Possible	Catastrophic	Very High	2B	219
146	Human Settlement	Special Fire Protection	Thomas Mitchell Nursing Home	Fowler Road, Illawong	Sutherland	West	Possible	Catastrophic	Very High	2B	71
147	Economic	Infrastructure	Maianbar Water Tank	Mainbar	Sutherland	South	Almost certain	Moderate	Very High	2C	228
148	Human Settlement	Residential	Timbrey Circuit	Timbrey Circuit, Barden Ridge	Sutherland	Central	Almost certain	Moderate	Very High	2C	221;226
149	Economic	Infrastructure	Telecommunications Tower	Illawong	Sutherland	West	Almost certain	Moderate	Very High	2C	231
150	Human Settlement	Residential	Eric Street	Bundeena	Sutherland	South	Almost certain	Moderate	Very High	2C	73
151	Human Settlement	Residential	Farnell Ave Residence	Audley	Sutherland	East	Almost certain	Moderate	Very High	2C	230
152	Human Settlement	Special Fire Protection	Anglican Youth Camp/Hilltop residence	Warumbul Road- Royal National Park	Sutherland	South	Almost certain	Moderate	Very High	2C	71;70;225
153	Human Settlement	Residential	Isolated Dwelling off Menai Road (north)	Bangor	Sutherland	West	Almost certain	Moderate	Very High	2C	229
154	Economic	Commercial	Hanrob Kennels/Assistance Dogs	Waterfall	Sutherland	South	Almost certain	Moderate	Very High	2C	70;71
155	Human Settlement	Residential	Mill Creek Estate	Monash Road, Menai	Sutherland	West	Almost certain	Moderate	Very High	2C	222;223;224;227
156	Economic	Commercial	Carbon Black (Dormant)	Sir Joseph Banks Drive Kurnell	Sutherland	East	Likely	Moderate	High	3A	
157	Human Settlement	Residential	Prince Edward Park Road North	Woronora	Sutherland	Central	Likely	Moderate	High	3A	
158	Human Settlement	Residential	Harrison Avenue	Bonnet Bay	Sutherland	West	Likely	Moderate	High	3A	

159	Human Settlement	Residential	Prince Edward Park - Deepwater	Woronora	Sutherland	Central	Likely	Moderate	High	3A	
160	Economic	Infrastructure	David Road pumping station	Barden Ridge	Sutherland	Central	Likely	Moderate	High	3A	
161	Economic	Infrastructure	AirServices NavAid	Kurnell	Sutherland	East	Likely	Moderate	High	3A	
162	Economic	Infrastructure	Water Pumping Station	Engadine	Sutherland	Central	Likely	Moderate	High	3A	
163	Economic	Infrastructure	Cronulla Sewage treatment works	Kurnell	Sutherland	East	Likely	Moderate	High	3A	
164	Human Settlement	Special Fire Protection	Lucas Heights Community School	Old Illawarra Road, Lucas Heights	Sutherland	Central	Likely	Moderate	High	3A	
165	Human Settlement	Residential	Mayman Row	Mayman Row, Menai	Sutherland	West	Likely	Moderate	High	3A	232
166	Human Settlement	Special Fire Protection	Illawong Public School	Fowler Road, Illawong	Sutherland	West	Likely	Moderate	High	3A	
167	Human Settlement	Residential	Greenhills Beach	Greenhills	Sutherland	East	Likely	Moderate	High	3A	
168	Economic	Infrastructure	Engadine Railway Station	Engadine	Sutherland	Central	Possible	Major	High	3B	
169	Human Settlement	Residential	Polo Street	Kurnell	Sutherland	East	Possible	Major	High	3B	
170	Economic	Commercial	Fuel Storage Facility	Kurnell	Sutherland	East	Possible	Major	High	3B	
171	Human Settlement	Residential	St Georges Crescent (East)	Sandy Point	Sutherland	West	Possible	Major	High	3B	192
172	Economic	Infrastructure	Lucas Heights Land Fill	Lucas Heights	Sutherland	Central	Possible	Major	High	3B	
173	Economic	Infrastructure	Waterfall Railway Station	Waterfall	Sutherland	South	Possible	Major	High	3B	
174	Economic	Infrastructure	Heathcote Railway Station	Heathcote	Sutherland	South	Possible	Major	High	3B	
175	Human Settlement	Residential	Matthews to Kilborn Place		Sutherland	West	Possible	Major	High	3B	233
176	Human Settlement	Special Fire Protection	Bundeena Public School	Scarborough St, Bundeena	Sutherland	South	Possible	Major	High	3B	
177	Human Settlement	Residential	Riverview Road	Oyster Bay	Sutherland	East	Unlikely	Catastrophic	High	3C	
178	Human Settlement	Residential	Bates Drive/Box Road (Kareela)	Kareela	Sutherland	East	Unlikely	Catastrophic	High	3C	
179	Human Settlement	Residential	Arcadia Avenue/Huskisson Street	Gymea Bay	Sutherland	East	Unlikely	Catastrophic	High	3C	
180	Human Settlement	Residential	Cranbrook Place - Bignell Street	Illawong	Sutherland	West	Unlikely	Catastrophic	High	3C	234
181	Human Settlement	Residential	Wardell Drive	Barden Ridge	Sutherland	Central	Unlikely	Catastrophic	High	3C	
182	Human Settlement	Residential	David Road	Barden Ridge	Sutherland	Central	Unlikely	Catastrophic	High	3C	
183	Human Settlement	Residential	Washington Drive - Van Buren East	Bonnet Bay	Sutherland	West	Unlikely	Catastrophic	High	3C	
184	Human Settlement	Residential	Yates Road (east)	Bangor	Sutherland	West	Unlikely	Catastrophic	High	3C	
185	Human Settlement	Special Fire Protection	Bonnet Bay Public School	Bonnet Bay	Sutherland	West	Unlikely	Catastrophic	High	3C	
186	Human Settlement	Special Fire Protection	Sylvanvale/Kirinari hostel	Kareela	Sutherland	East	Unlikely	Catastrophic	High	3C	
187	Human Settlement	Special Fire Protection	Loftus Public School	National Avenue, Loftus	Sutherland	Central	Unlikely	Catastrophic	High	3C	
188	Human Settlement	Special Fire Protection	Tharawal Primary School	Gerald Road, Illawong	Sutherland	West	Unlikely	Catastrophic	High	3C	
189	Human Settlement	Residential	Arana Close Lifestyle Resort	Arana Close, Bangor	Sutherland	Central	Unlikely	Catastrophic	High	3C	
190	Human Settlement	Special Fire Protection	Bates Drive School	Bates Drive, Kareela	Sutherland	East	Unlikely	Catastrophic	High	3C	
191	Human Settlement	Residential	Kendall/Drysdale Place	Kendall & Drysdale Place, Kareela	Sutherland	East	Unlikely	Catastrophic	High	3C	
192	Economic	Tourist and Recreational	Sandy Point Community Hall	Sandy Point	Sutherland	West	Almost certain	Minor	High	3D	
193	Economic	Infrastructure	Royal NP Works Depot/Old depot	Audley	Sutherland	East	Almost certain	Minor	High	3D	
194	Economic	Tourist and Recreational	Royal NP Office	Audley	Sutherland	East	Almost certain	Minor	High	3D	
195	Economic	Infrastructure	Illawong RFS Station	Illawong	Sutherland	West	Almost certain	Minor	High	3D	
196	Economic	Tourist and Recreational	Sydney Marconi Gun Club	Menai	Sutherland	Central	Almost certain	Minor	High	3D	
197	Economic	Commercial	Concrete Plant and Sand & Soil	Lucas Heights	Sutherland	Central	Almost certain	Minor	High	3D	
198	Economic	Infrastructure	Old tram sheds	Loftus	Sutherland	East	Almost certain	Minor	High	3D	
199	Economic	Tourist and Recreational	Loftus Tram Line	Loftus to RNP	Sutherland	East	Almost certain	Minor	High	3D	
200	Economic	Infrastructure	Waterfall RFS Station	Waterfall	Sutherland	South	Almost certain	Minor	High	3D	
201	Economic	Tourist and Recreational	Wattamolla Kiosk & Infrastructure	Royal National Park	Sutherland	South	Almost certain	Minor	High	3D	
202	Economic	Infrastructure	Yanagang Street Sydney Water sewage pump	Waterfall	Sutherland	South	Almost certain	Minor	High	3D	
203	Economic	Infrastructure	Casuarina Road Sydney Water sewage pump	Alfords point	Sutherland	West	Almost certain	Minor	High	3D	
204	Human Settlement	Residential	Woronora Dam Residences	Woronora Dam	Sutherland	South	Almost certain	Minor	High	3D	
205	Economic	Tourist and Recreational	Bonnie Vale	Bundeena	Sutherland	South	Almost certain	Minor	High	3D	
206	Economic	Commercial	Burns Road Industrial Estate	Burns Road, Heathcote	Sutherland	South	Almost certain	Minor	High	3D	
207	Economic	Infrastructure	Emergency Services Centre	Wilson Parade, Heathcote	Sutherland	South	Almost certain	Minor	High	3D	
208	Economic	Tourist and Recreational	The Ridge	New Illawarra Road, Barden Ridge	Sutherland	Central	Almost certain	Minor	High	3D	
209	Economic	Tourist and Recreational	Pony Club	New Illawarra Road, Barden Ridge	Sutherland	Central	Almost certain	Minor	High	3D	
210	Human Settlement	Residential	Prices Circuit	Woronora	Sutherland	Central	Possible	Moderate	Medium	4	235
211	Economic	Infrastructure	BBNP Workshop	Kurnell	Sutherland	East	Likely	Minor	Medium	4	

212	Human Settlement	Residential	GyMEA Bay Road	GyMEA	Sutherland	East	Unlikely	Major	Medium	4	
213	Human Settlement	Residential	Laguna Street	Caringbah	Sutherland	East	Unlikely	Major	Medium	4	
214	Human Settlement	Residential	Caravan Head Road/Greenpoint Road	Oyster Bay	Sutherland	East	Unlikely	Major	Medium	4	
215	Human Settlement	Residential	Dominic Street/Dolans Road	Woolooware	Sutherland	East	Unlikely	Major	Medium	4	
216	Human Settlement	Residential	Forest Road/Wonga Road	GyMEA Bay	Sutherland	East	Unlikely	Major	Medium	4	
217	Cultural	Other	Alpha Farm - Residence BBNP	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	236
218	Economic	Infrastructure	Kurnell Substation	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
219	Economic	Infrastructure	Mannikin Drive Sydney water sewage pump	Woronora Heights	Sutherland	Central	Likely	Minor	Medium	4	
220	Cultural	Other	Audley Precinct Historic structures	Audley	Sutherland	South	Possible	Moderate	Medium	4	237
221	Economic	Tourist and Recreational	Girl Guide Camp - Kingswood Road	Engadine	Sutherland	Central	Likely	Minor	Medium	4	
222	Economic	Infrastructure	Tatler Place Sydney Water sewage pump	Woronora Heights	Sutherland	Central	Likely	Minor	Medium	4	
223	Economic	Infrastructure	Rata Place Sydney Water sewage pump	Sutherland	Sutherland	Central	Likely	Minor	Medium	4	
224	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
225	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
226	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
227	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
228	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
229	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
230	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
231	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
232	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
233	Economic	Infrastructure	Woronora Dam Infrastructure	Woronora Dam	Sutherland	South	Possible	Moderate	Medium	4	
234	Human Settlement	Special Fire Protection	Engadine High School	Engadine	Sutherland	Central	Possible	Moderate	Medium	4	
235	Economic	Infrastructure	Heathcote Substation	Heathcote South	Sutherland	South	Possible	Moderate	Medium	4	
236	Economic	Infrastructure	Loftus Railway Station	Loftus	Sutherland	Central	Unlikely	Major	Medium	4	
237	Economic	Commercial	Woronora RSL	Prince Edward Park Road, Woronora	Sutherland	Central	Likely	Minor	Medium	4	
238	Economic	Tourist and Recreational	Kingswood Oval Club House	Kingswood Oval, Engadine	Sutherland	Central	Likely	Minor	Medium	4	
239	Human Settlement	Special Fire Protection	Jannali High School	Sutherland Road, Jannali	Sutherland	West	Unlikely	Major	Medium	4	
240	Human Settlement	Special Fire Protection	Menai High School	Gerald Road, Illawong	Sutherland	West	Unlikely	Major	Medium	4	
241	Economic	Infrastructure	Desalination Plant	Sir Joseph Banks Drive, Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
242	Human Settlement	Special Fire Protection	Bangor Public School	Menai Road, Bangor	Sutherland	West	Unlikely	Major	Medium	4	
243	Environment	Endangered	Fauna	Towra Point	Sutherland	East	Unlikely	Major	Medium	4	
244	Environment	Endangered	Fauna	Kurnell	Sutherland	East	Unlikely	Major	Medium	4	
245	Environment	Endangered	Flora	Towra Point	Sutherland	East	Unlikely	Major	Medium	4	
246	Environment	Endangered	Flora	Towra Point	Sutherland	East	Unlikely	Major	Medium	4	
247	Environment	Endangered	Flora	Kamay Botany Bay National Park	Sutherland	East	Unlikely	Major	Medium	4	
248	Human Settlement	Special Fire Protection	Hobart Place Child Care Centre		Sutherland	West	Unlikely	Major	Medium	4	
249	Human Settlement	Special Fire Protection	Soliders Road Child Care Centre	Soliders Road, Jannali	Sutherland	West	Possible	Moderate	Medium	4	
250	Human Settlement	Special Fire Protection	Marton Public School	Kingswood Road, Engadine	Sutherland	Central	Unlikely	Major	Medium	4	
251	Economic	Tourist and Recreational	Boat Harbour Shacks	Kurnell	Sutherland	East	Unlikely	Minor	Low	NA	
252	Economic	Tourist and Recreational	Discovery Centre - Botany Bay NP	Kurnell	Sutherland	East	Unlikely	Minor	Low	NA	
253	Economic	Commercial	Kurnell Horse Stable	Kurnell	Sutherland	East	Unlikely	Minor	Low	NA	
254	Economic	Commercial	Methane Power Station	Barden Ridge	Sutherland	Central	Unlikely	Moderate	Low	NA	
255	Economic	Infrastructure	Kurnell Sewer Pumping Station	Kurnell	Sutherland	East	Unlikely	Moderate	Low	NA	
256	Economic	Infrastructure	Army Depot- Loftus Avenue	Loftus	Sutherland	East	Unlikely	Minor	Low	NA	
257	Economic	Tourist and Recreational	Garie Beach Surf Safety Complex	Garie Beach	Sutherland	South	Possible	Minor	Low	NA	
258	Economic	Infrastructure	Yarrawarra Substation	Yarrawarra	Sutherland	Central	Unlikely	Moderate	Low	NA	
259	Human Settlement	Other	Heathcote High School NSP		Sutherland	South	Unlikely	Minor	Low	NA	238
260	Human Settlement	Other	Engadine Bowling Club NSP	61 Cambrai Avenue, Engadine	Sutherland	Central	Unlikely	Moderate	Low	NA	239
261	Human Settlement	Other	Anzac Oval NSP	Anzac Avenue, Engadine	Sutherland	Central	Unlikely	Moderate	Low	NA	240
262	Human Settlement	Other	GyMEA Bay Oval NSP	GyMEA Bay Road, GyMEA Bay	Sutherland	East	Unlikely	Moderate	Low	NA	241
263	Human Settlement	Other	Kareela Playing Fields NSP	Princes Highway, Kareela	Sutherland	East	Unlikely	Moderate	Low	NA	242
264	Economic	Infrastructure	Woronora Cemetery	Linden Street, Sutherland	Sutherland	Central	Unlikely	Minor	Low	NA	

265	Human Settlement	Other	Heathcote Hotel NSP	Veno Street, Heathcote	Sutherland	South	Unlikely	Moderate	Low	NA	243
266	Economic	Commercial	Princes Hwy Commercial Precinct	Princes Highway, Engadine	Sutherland	Central	Unlikely	Minor	Low	NA	
267	Human Settlement	Other	Boystown Oval NSP	Banksia Avenue, Engadine	Sutherland	Central	Unlikely	Moderate	Low	NA	244
268	Economic	Tourist and Recreational	Parkers Tennis Academy	Wollybutt Road, Engadine	Sutherland	Central	Unlikely	Minor	Low	NA	
269	Human Settlement	Other	Karamarra Road Reserve NSP	Karamarra Road, Engadine	Sutherland	Central	Unlikely	Moderate	Low	NA	245
270	Human Settlement	Other	Hordens Beach Reserve NSP	Brighton Street Bundeena	Sutherland	South	Unlikely	Minor	Low	NA	246
271	Human Settlement	Other	Akuna Oval NSP	Akuna Avenue, Bangor	Sutherland	West	Unlikely	Moderate	Low	NA	247
272	Human Settlement	Other	Holy Family School Carpark NSP	Anzac Road, Menai	Sutherland	West	Unlikely	Moderate	Low	NA	248
273	Human Settlement	Other	Sutherland Oval NSP	Cnr of The Grand Parade and Linden St	Sutherland	Central	Unlikely	Moderate	Low	NA	249
274	Human Settlement	Other	Yarrowarra Oval NSP	Giles Street, Yarrowarra	Sutherland	Central	Unlikely	Moderate	Low	NA	250
275	Human Settlement	Other	Sylvania Hockey Park NSP	Garnet Road, Sylvania	Sutherland	East	Unlikely	Minor	Low	NA	252
276	Human Settlement	Other	Sylvania Heights Reserve NSP	Box Road, Sylvania	Sutherland	East	Unlikely	Minor	Low	NA	253
277	Human Settlement	Other	Canberra Oval NSP	Canberra Road, Sylvania	Sutherland	East	Unlikely	Moderate	Low	NA	254
278	Human Settlement	Other	A R Hurst Rugby Fields NSP	The Promenade, Sylvania	Sutherland	East	Unlikely	Minor	Low	NA	251
279	Human Settlement	Other	Marton Oval NSP	Captain Cook Drive, Kurnell	Sutherland	East	Unlikely	Minor	Low	NA	255
280	Human Settlement	Other	Oyster Bay Oval NSP	Cnr Oyster Bay Road and Como Road O	Sutherland	East	Unlikely	Minor	Low	NA	256
281	Human Settlement	Other	Scylla Reserve NSP	Cremona Road Como	Sutherland	East	Unlikely	Minor	Low	NA	257
282	Human Settlement	Other	Cooper Street Reserve NSP	Cnr of Cooper Street and Old Princess R	Sutherland	Central	Unlikely	Minor	Low	NA	258
283	Human Settlement	Other	Orchid Street Reserve NSP	Cnr of Ninth Avenue and Mistletoe Stre	Sutherland	Central	Unlikely	Moderate	Low	NA	259
284	Human Settlement	Other	Lakewood City Reserve NSP	Coolidge Crescent Bonnet Bay	Sutherland	West	Unlikely	Minor	Low	NA	260
285	Human Settlement	Other	Jannali Shopping Centre Car Park NSP	42A Railway Crescent Jannali	Sutherland	East	Unlikely	Moderate	Low	NA	261
286	Human Settlement	Other	Maianbar Reserve Car Park NSP	Karra Karook Street North (Off Pacific C	Sutherland	South	Unlikely	Minor	Low	NA	262
287	Human Settlement	Other	Police Boys Club Car Park NSP	Rawson Avenue, Sutherland	Sutherland	East	Unlikely	Minor	Low	NA	263
288	Human Settlement	Other	Albert Hutchinson Reserve NSP	Robertson Street, Sutherland	Sutherland	Central	Unlikely	Moderate	Low	NA	264
289	Human Settlement	Other	Engadine Community Centre Park NSP	Waratah Road, Engadine	Sutherland	Central	Unlikely	Minor	Low	NA	265
290	Human Settlement	Other	Peace Park NSP	Eton Street, Sutherland	Sutherland	East	Unlikely	Moderate	Low	NA	266

15	Maianbar	Maianbar	Human Settlement	Residential	Hazard Reduction	64	Inspect APZ annually and maintain as required	OEH										[1516]	[1617]	[1718]	[1819]	[1920]						
						83	Inspect SFAZ and maintain as required	OEH														[1516]	[1617]	[1718]	[1819]	[1920]		
16	Jervis - Walsh	Illawong	Human Settlement	Residential	Hazard Reduction	29	Inspect APZ annually and maintain as required	DPI												[1516]	[1617]	[1718]	[1819]	[1920]				
						30	Inspect APZ annually and maintain as required	LGA														[1516]	[1617]	[1718]	[1819]	[1920]		
						31	Inspect SFAZ annually and maintain as required	DPI															[1516]	[1617]	[1718]	[1819]	[1920]	
					Preparedness	32	Provide training and resources for CFU's	FRNSW															[1516]	[1617]	[1718]	[1819]	[1920]	
					75	Inspect private APZ annually and ensure compliance	RFS		Other	Private									[1516]	[1617]	[1718]	[1819]	[1920]					
17	Billa Road (west)	Bangor	Human Settlement	Residential	Hazard Reduction	33	Inspect APZ annually and maintain as required	DPI												[1516]	[1617]	[1718]	[1819]	[1920]				
						34	Inspect APZ annually and maintain as required	LGA															[1516]	[1617]	[1718]	[1819]	[1920]	
					Preparedness	35	Provide training and resources for CFU's	FRNSW												[1516]	[1617]	[1718]	[1819]	[1920]				
18	Yala Road (west)	Bangor	Human Settlement	Residential	Hazard Reduction	36	Inspect APZ annually and maintain as required	DPI													[1516]	[1617]	[1718]	[1819]	[1920]			
						37	Inspect APZ annually and maintain as required	LGA															[1516]	[1617]	[1718]	[1819]	[1920]	
						38	Inspect SFAZ annually and maintain as required	DPI												[1516]	[1617]	[1718]	[1819]	[1920]				
19	Yates Road (west)	Bangor	Human Settlement	Residential	Hazard Reduction	39	Inspect APZ annually and maintain as required	DPI													[1516]	[1617]	[1718]	[1819]	[1920]			
						40	Inspect APZ annually and maintain as required	LGA															[1516]	[1617]	[1718]	[1819]	[1920]	
						41	Inspect SFAZ annually and maintain as required	DPI																[1516]	[1617]	[1718]	[1819]	[1920]
					Preparedness	42	Provide training and resources for CFU's	FRNSW																[1516]	[1617]	[1718]	[1819]	[1920]
20	Cooriengah Heights Road (west)	Engadine	Human Settlement	Residential	Hazard Reduction	43	Inspect APZ annually and maintain as required	DPI													[1516]	[1617]	[1718]	[1819]	[1920]			
						44	Inspect APZ annually and maintain as required	LGA															[1516]	[1617]	[1718]	[1819]	[1920]	
						46	Inspect SFAZ annually and maintain as required	LGA;DPI																[1516]	[1617]	[1718]	[1819]	[1920]
					Preparedness	45	Provide training and resources for CFU's	FRNSW												[1516]	[1617]	[1718]	[1819]	[1920]				
21	Kingswood - Lantana Rd West	Engadine	Human Settlement	Residential	Hazard Reduction	47	Inspect APZ annually and maintain as required	DPI													[1516]	[1617]	[1718]	[1819]	[1920]			
						48	Inspect SFAZ annually and maintain as required	DPI															[1516]	[1617]	[1718]	[1819]	[1920]	
					Preparedness	49	Provide training and resources for CFU's	FRNSW															[1516]	[1617]	[1718]	[1819]	[1920]	
22	The Grand Parade - River Road	Sutherland	Human Settlement	Residential	Hazard Reduction	50	Inspect APZ annually and maintain as required	LGA												[1516]	[1617]	[1718]	[1819]	[1920]				
						51	Inspect APZ annually and maintain as required	LGA													[1516]	[1617]	[1718]	[1819]	[1920]			
						52	Inspect APZ annually and maintain as required	Private		RFS											[1516]	[1617]	[1718]	[1819]	[1920]			

1A (Extreme)

23	Sutherland Road	Jannali	Human Settlement	Residential	Hazard Reduction	53	Inspect SFAZ annually and maintain as required	LGA										[1516]	[1617]	[1718]	[1819]	[1920]				
					Preparedness	54	Provide training and resources for CFU's	FRNSW														[1516]	[1617]	[1718]	[1819]	[1920]
24	Lincoln Cres - Woronora Cres	Como/Jannali	Human Settlement	Residential	Hazard Reduction	55	Inspect SFAZ annually and maintain as required	LGA		RFS									[1516]	[1617]	[1718]	[1819]	[1920]			
					Preparedness	56	Provide training and resources for CFU's	FRNSW														[1516]	[1617]	[1718]	[1819]	[1920]
25	Fowler Road south	Illawong	Human Settlement	Residential	Hazard Reduction	57	Inspect APZ annually and maintain as required	LGA											[1516]	[1617]	[1718]	[1819]	[1920]			
						58	Inspect APZ annually and maintain as required	DPI													[1516]	[1617]	[1718]	[1819]	[1920]	
						59	Inspect SFAZ annually and maintain as required	Private;DPI		RFS												[1516]	[1617]	[1718]	[1819]	[1920]
26	Sproule Road south	Illawong	Human Settlement	Residential	Hazard Reduction	60	Inspect SFAZ annually and maintain as required	Private;DPI		RFS									[1516]	[1617]	[1718]	[1819]	[1920]			
					Preparedness	61	Provide training and resources for CFU's	FRNSW													[1516]	[1617]	[1718]	[1819]	[1920]	
27	Acacia Rd - Helena Street	Sutherland	Human Settlement	Residential	Hazard Reduction	62	Inspect APZ annually and maintain as required	LGA											[1516]	[1617]	[1718]	[1819]	[1920]			
						69	Inspect SFAZ annually and maintain as required	LGA		RFS											[1516]	[1617]	[1718]	[1819]	[1920]	
					Preparedness	63	Provide training and resources for CFU's	FRNSW														[1516]	[1617]	[1718]	[1819]	[1920]
28	Waterfall West	Waterfall	Human Settlement	Residential	Hazard Reduction	65	Inspect APZ annually and maintain as required	LGA											[1516]	[1617]	[1718]	[1819]	[1920]			
						66	Inspect APZ annually and maintain as required	OEH													[1516]	[1617]	[1718]	[1819]	[1920]	
						67	Inspect APZ annually and maintain as required	DPI														[1516]	[1617]	[1718]	[1819]	[1920]
					Preparedness	68	Provide training and resources for CFU's	RFS														[1516]	[1617]	[1718]	[1819]	[1920]
					Property Planning	72	Develop Community Protection Plan	RFS										[1516]								
29	Camp Couatts	Waterfall	Human Settlement	Special Fire Protection	Preparedness	71	Conduct pre season bush fire season briefing	RFS		FRNSW;Police									[1516]	[1617]	[1718]	[1819]	[1920]			
					Property Planning	70	Undertake inspection of vulnerable facility	RFS													[1516]	[1617]	[1718]	[1819]	[1920]	
30	Transgrid Power Line 11	Sutherland Shire West	Economic	Infrastructure	Ignition Management	77	Maintain power easement to authorities standards	Other	Energy Authority									[1516]	[1617]	[1718]	[1819]	[1920]				
31	Transgrid Line 12 & 13	Sandy Point	Economic	Infrastructure	Ignition Management	78	Maintain power easement to authorities standards	Other	Energy Authority										[1516]	[1617]	[1718]	[1819]	[1920]			
32	Energy Australia Transmission Lines		Economic	Infrastructure	Ignition Management	76	Maintain power easement to authorities standards	Other	Energy Authority										[1516]	[1617]	[1718]	[1819]	[1920]			
33	DCA Tower (AirServices Aust)	Woronora Dam	Economic	Infrastructure	Hazard Reduction	82	Inspect APZ annually and maintain as required	OEH											[1516]	[1617]	[1718]	[1819]	[1920]			
34	DCA Tower Power Line Feeder	Woronora Dam Road	Economic	Infrastructure	Ignition Management	79	Maintain power easement to authorities standards	Other	Energy Authority										[1516]	[1617]	[1718]	[1819]	[1920]			
35	Sylvan Ridge Drive	Illawong	Human Settlement	Residential	Hazard Reduction	80	Inspect APZ annually and maintain as required	LGA											[1516]	[1617]	[1718]	[1819]	[1920]			
36	Yala Road (east)	Bangor	Human Settlement	Residential	Hazard Reduction	81	Inspect APZ annually and maintain as required	DPI											[1516]	[1617]	[1718]	[1819]	[1920]			

52	Heritage - Old Ferry Road	Illawong	Human Settlement	Residential	Hazard Reduction	105	Inspect SFAZ annually and maintain as required	OEH				[1516]	[1617]	[1718]	[1819]	[1920]	
					Preparedness	106	Provide training and resources for CFU's	FRNSW					[1516]	[1617]	[1718]	[1819]	[1920]
						174	Inspect private APZ annually and ensure compliance	RFS	Other	Private	[1516]	[1617]	[1718]	[1819]	[1920]		
53	Akuna Road	Bangor	Human Settlement	Residential	Hazard Reduction	114	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]	
						115	Inspect SFAZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]	
						120	Inspect APZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]	
					Preparedness	116	Provide training and resources for CFU's	FRNSW				[1516]	[1617]	[1718]	[1819]	[1920]	
54	Dilkara	Bangor	Human Settlement	Residential	Hazard Reduction	117	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]	
						118	Inspect SFAZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]	
					Preparedness	119	Provide training and resources for CFU's	FRNSW				[1516]	[1617]	[1718]	[1819]	[1920]	
55	Sladden Road	Engadine	Human Settlement	Residential	Hazard Reduction	121	Inspect SFAZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]	
						122	Inspect APZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]	
					Preparedness	123	Provide training and resources for CFU's	FRNSW				[1516]	[1617]	[1718]	[1819]	[1920]	
56	Lantana - Kingswood Rd East	Engadine	Human Settlement	Residential	Hazard Reduction	124	Inspect APZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]	
						125	Inspect SFAZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]	
					Preparedness	126	Provide training and resources for CFU's	FRNSW				[1516]	[1617]	[1718]	[1819]	[1920]	
						127	Inspect APZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]	
						128	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]	
						129	Inspect APZ annually and maintain as required	Other	Sydney Water			[1516]	[1617]	[1718]	[1819]	[1920]	

1B (Extreme)	57	Bundanoon Rd East	Woronora Heights	Human Settlement	Residential	Hazard Reduction	130	Inspect SFAZ annually and maintain as required	DPI							[1516]	[1617]	[1718]	[1819]	[1920]					
						Preparedness	131	Provide training and resources for CFU's	FRNSW											[1516]	[1617]	[1718]	[1819]	[1920]	
						Property Planning	173	Develop Community Protection Plan	RFS														[1718]		
	58	Bundanoon Rd West	Woronora Heights	Human Settlement	Residential	Hazard Reduction	132	Inspect APZ annually and maintain as required	DPI									[1516]	[1617]	[1718]	[1819]	[1920]			
							133	Inspect APZ annually and maintain as required	LGA												[1516]	[1617]	[1718]	[1819]	[1920]
						134	Inspect SFAZ annually and maintain as required	LGA;DPI;Other	Sydney Water & Planning												[1516]	[1617]	[1718]	[1819]	[1920]
						Preparedness	135	Provide training and resources for CFU's	FRNSW												[1516]	[1617]	[1718]	[1819]	[1920]
						Property Planning	173	Develop Community Protection Plan	RFS															[1718]	
	59	Old Bush Road	Yarrawarra	Human Settlement	Residential	Hazard Reduction	136	Inspect APZ annually and maintain as required	DPI									[1516]	[1617]	[1718]	[1819]	[1920]			
							137	Inspect SFAZ annually and maintain as required	DPI												[1516]	[1617]	[1718]	[1819]	[1920]
						Preparedness	138	Provide training and resources for CFU's	FRNSW												[1516]	[1617]	[1718]	[1819]	[1920]
	60	Giles - Turrella Rd	Yarrawarra	Human Settlement	Residential	Hazard Reduction	139	Inspect APZ annually and maintain as required	DPI									[1516]	[1617]	[1718]	[1819]	[1920]			
							140	Inspect APZ annually and maintain as required	LGA												[1516]	[1617]	[1718]	[1819]	[1920]
						141	Inspect SFAZ annually and maintain as required	DPI					RFS								[1516]	[1617]	[1718]	[1819]	[1920]
	61	Ninth - Roebourne Rd	Loftus	Human Settlement	Residential	Hazard Reduction	143	Inspect APZ annually and maintain as required	DPI									[1516]	[1617]	[1718]	[1819]	[1920]			
							144	Inspect SFAZ annually and maintain as required	DPI					RFS							[1516]	[1617]	[1718]	[1819]	[1920]
						Preparedness	145	Provide training and resources for CFU's	FRNSW												[1516]	[1617]	[1718]	[1819]	[1920]
	62	Viburnum - Cranberry Street	Loftus	Human Settlement	Residential	Hazard Reduction	146	Inspect APZ annually and maintain as required	DPI									[1516]	[1617]	[1718]	[1819]	[1920]			
147							Inspect SFAZ annually and maintain as required	DPI					RFS							[1516]	[1617]	[1718]	[1819]	[1920]	
Preparedness						148	Provide training and resources to CFU's	FRNSW												[1516]	[1617]	[1718]	[1819]	[1920]	

63	Sixth - Eighth Avenue	Loftus	Human Settlement	Residential	Hazard Reduction	149	Inspect APZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]
						150	Inspect SFAZ annually and maintain as required	DPI		RFS		[1516]	[1617]	[1718]	[1819]	[1920]
64	First - Sixth Avenue	Loftus	Human Settlement	Residential	Hazard Reduction	151	Inspect APZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]
						152	Inspect SFAZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]
					153	Inspect SFAZ annually and maintain as required	DPI		RFS		[1516]	[1617]	[1718]	[1819]	[1920]	
					Preparedness	154	Provide training and resources for CFU's	FRNSW				[1516]	[1617]	[1718]	[1819]	[1920]
65	Tudor - Buchanan Rd	Bonnet Bay	Human Settlement	Residential	Hazard Reduction	155	Inspect SFAZ annually and maintain as required	LGA		FRNSW		[1516]	[1617]	[1718]	[1819]	[1920]
						157	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]
					Preparedness	156	Provide training and resources for CFU's	FRNSW				[1516]	[1617]	[1718]	[1819]	[1920]
66	Tudor Road east	Bonnet Bay	Human Settlement	Residential	Hazard Reduction	158	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]
67	Sproule Road north	Illawong	Human Settlement	Residential	Hazard Reduction	159	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]
						160	Inspect APZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]
					161	Inspect SFAZ annually and maintain as required	DPI		RFS		[1516]	[1617]	[1718]	[1819]	[1920]	
68	Helena Street - Hovea Place	Kirrawee	Human Settlement	Residential	Hazard Reduction	162	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]
						163	Inspect SFAZ annually and maintain as required	OEH						[1819]	[1920]	
					Preparedness	164	Provide training and resources for CFU's	FRNSW				[1516]	[1617]	[1718]	[1819]	[1920]
69	Box Road (Jannali)	Jannali	Human Settlement	Residential	Preparedness	165	Provide training and resources for CFU's	FRNSW				[1516]	[1617]	[1718]	[1819]	[1920]
70	Oak Road Nth/Garnet Road	Kirrawee	Human Settlement	Residential	Hazard Reduction	166	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]
						167	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]
71	Fowler Road - Loudon Avenue	Illawong	Human Settlement	Residential	Hazard Reduction	168	Inspect SFAZ annually and maintain as required	Private		RFS		[1516]	[1617]	[1718]	[1819]	[1920]
72	Upper Woronora River Frontages	Woronora River	Human Settlement	Residential	Community Education	177	Conduct community engagement activity	RFS				[1516]		[1718]		[1920]
73	Shackel Road	Bangor	Human Settlement	Residential	Hazard Reduction	169	Inspect SFAZ annually and maintain as required	LGA		RFS		[1516]	[1617]	[1718]	[1819]	[1920]
74	Woronora River Frontages	Woronora	Human Settlement	Residential	Hazard Reduction	170	Inspect SFAZ annually and maintain as required	Private		RFS		[1516]	[1617]	[1718]	[1819]	[1920]
75	Thomas Mitchell/David Road (external)	Barden Ridge	Human Settlement	Residential	Hazard Reduction	171	Inspect SFAZ annually and maintain as required	Private		RFS		[1516]	[1617]	[1718]	[1819]	[1920]

76	Camp Wonawong	Loftus	Human Settlement	Special Fire Protection	Preparedness	71	Conduct pre season bush fire season briefing	RFS		FRNSW;Police		[1516]	[1617]	[1718]	[1819]	[1920]
				Special Fire Protection	Property Planning	70	Undertake inspection of vulnerable facility	RFS						[1516]	[1617]	[1718]
77	Osprey - Austin Loops	Illawong	Human Settlement	Residential	Hazard Reduction	107	Inspect APZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]
						108	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]
					110	Inspect SFAZ annually and maintain as required	RFS				[1516]	[1617]	[1718]	[1819]	[1920]	
					Preparedness	109	Provide training and resources for CFU's	FRNSW				[1516]	[1617]	[1718]	[1819]	[1920]
78	Blaxland - Moreton	Illawong	Human Settlement	Residential	Hazard Reduction	111	Inspect APZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]
						112	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]
						113	Inspect SFAZ annually and maintain as required	RFS				[1516]	[1617]	[1718]	[1819]	[1920]
79	Aboriginal Site		Cultural Heritage	Aboriginal Significance												
80	Flora	Kurnell	Environmental	Endangered												
81	ANSTO Feeder (east)	Woronora Valley	Economic	Infrastructure	Ignition Management	175	Inspect and maintain easement to authorities stds	Other	Energy Authority			[1516]	[1617]	[1718]	[1819]	[1920]
82	ANSTO Feeder (North)	New Illawarra Road	Economic	Infrastructure	Ignition Management	176	Inspect and maintain easement to authorities stds	Other	Energy Australia			[1516]	[1617]	[1718]	[1819]	[1920]
83	Residential Dwelling end of Wardell Drive	Barden Ridge	Human Settlement	Residential	Community Education	178	Conduct community engagement activity	RFS				[1516]		[1718]		[1920]
84	Yarrawarra Public School	Old Bush Road, Yarrawarra	Human Settlement	Special Fire Protection	Preparedness	71	Conduct pre season bush fire season briefing	RFS		FRNSW;Police		[1516]	[1617]	[1718]	[1819]	[1920]
					Property Planning	70	Undertake inspection of vulnerable facility	RFS						[1516]	[1617]	[1718]
85	Grays Point Public School	Grays Point	Human Settlement	Special Fire Protection	Preparedness	71	Conduct pre season bush fire season briefing	RFS		FRNSW;Police		[1516]	[1617]	[1718]	[1819]	[1920]
					Property Planning	70	Undertake inspection of vulnerable facility	RFS						[1516]	[1617]	[1718]
86	Boundary Road - Burns Road	Heathcote (south)	Human Settlement	Residential	Hazard Reduction	84	Inspect SFAZ annually and maintain as required	Private		RFS		[1516]	[1617]	[1718]	[1819]	[1920]
						179	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]
					Preparedness	180	Provide training and resources for CFU's	FRNSW				[1516]	[1617]	[1718]	[1819]	[1920]
					Hazard Reduction	181	Inspect APZ annually and maintain as required	OEH				[1516]	[1617]	[1718]	[1819]	[1920]

2B (Very High)	143	Sunbury Street	Sutherland	Human Settlement	Residential	Hazard Reduction	216	Inspect APZ annually and maintain as required	LGA				[1516]	[1617]	[1718]	[1819]	[1920]	
							218	Inspect SFAZ and maintain as required	LGA		RFS			[1516]	[1617]	[1718]	[1819]	[1920]
						Preparedness	217	Provide training and resources for CFU's	FRNSW					[1516]	[1617]	[1718]	[1819]	[1920]
	144	Warumbul Residence	Royal National Park	Human Settlement	Residential	Hazard Reduction	220	Inspect APZ annually and maintain as required	OEH				[1516]	[1617]	[1718]	[1819]	[1920]	
145	ANSTO	Lucas Heights	Economic	Infrastructure	Preparedness	219	Undertake inspection of vulnerable facility	FRNSW;RFS				[1516]	[1617]	[1718]	[1819]	[1920]		
146	Thomas Mitchell Nursing Home	Fowler Road, Illawong	Human Settlement	Special Fire Protection	Preparedness	71	Conduct pre season bush fire season briefing	RFS		FRNSW;Police		[1516]	[1617]	[1718]	[1819]	[1920]		
2C (Very High)	147	Maianbar Water Tank	Mainbar	Economic	Infrastructure	Hazard Reduction	228	Inspect APZ annually and maintain as required	Other	Sydney Water		[1516]	[1617]	[1718]	[1819]	[1920]		
	148	Timbrey Circuit	Timbrey Circuit, Barden Ridge	Human Settlement	Residential	Hazard Reduction	221	Inspect APZ annually and maintain as required	Private		RFS		[1516]	[1617]	[1718]	[1819]	[1920]	
						Preparedness	226	Inspect private APZ annually and ensure compliance	RFS		Other	Local Aboriginal Land Council	[1516]	[1617]	[1718]	[1819]	[1920]	
	149	Telecommunications Tower	Illawong	Economic	Infrastructure	Hazard Reduction	231	Inspect APZ annually and maintain as required	DPI				[1516]	[1617]	[1718]	[1819]	[1920]	
	150	Eric Street	Bundeena	Human Settlement	Residential	Property Planning	73	Develop Community Protection Plan	RFS						[1819]			
	151	Farnell Ave Residence	Audley	Human Settlement	Residential	Hazard Reduction	230	Inspect APZ annually and maintain as required	OEH				[1516]	[1617]	[1718]	[1819]	[1920]	
	152	Anglican Youth Camp/Hilltop residence	Warumbul Road- Royal National Park	Human Settlement	Special Fire Protection	Preparedness	71	Conduct pre season bush fire season briefing	RFS		FRNSW;Police		[1516]	[1617]	[1718]	[1819]	[1920]	
							225	Inspect private APZ annually and ensure compliance	RFS		Other	Anglican Youth	[1516]	[1617]	[1718]	[1819]	[1920]	
Property Planning						70	Undertake inspection of vulnerable facility	RFS				[1516]	[1617]	[1718]	[1819]	[1920]		
153	Isolated Dwelling off Menai Road (north)	Bangor	Human Settlement	Residential	Community Education	229	Conduct community engagement activity	RFS					[1617]	[1819]				
154	Harrish Kennel/Assistance Dogs	Waterfall	Economic	Commercial	Preparedness	71	Conduct pre season bush fire season briefing	RFS		FRNSW;Police		[1516]	[1617]	[1718]	[1819]	[1920]		

NA (Low)

265	Heathcote Hotel NSP	Veno Street, Heathcote	Human Settlement	Other	Hazard Reduction	243	Maintain fuels in accordance with Guidelines	Private		RFS			[1516]	[1617]	[1718]	[1819]	[1920]
266	Princes Hwy Commercial Precinct	Princes Highway, Engadine	Economic	Commercial													
267	Boystown Oval NSP	Banksia Avenue, Engadine	Human Settlement	Other	Hazard Reduction	244	Maintain fuels in accordance with Guidelines	Private		RFS			[1516]	[1617]	[1718]	[1819]	[1920]
268	Parkers Tennis Academy	Wollybutt Road, Engadine	Economic	Tourist and Recreation													
269	Karamarra Road Reserve NSP	Karamarra Road, Engadine	Human Settlement	Other	Hazard Reduction	245	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
270	Hordens Beach Reserve NSP	Brighton Street Bundeena	Human Settlement	Other	Hazard Reduction	246	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
271	Akuna Oval NSP	Akuna Avenue, Bangor	Human Settlement	Other	Hazard Reduction	247	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
272	Holy Family School Carpark NSP	Anzac Road, Menai	Human Settlement	Other	Hazard Reduction	248	Maintain fuels in accordance with Guidelines	Private		RFS			[1516]	[1617]	[1718]	[1819]	[1920]
273	Sutherland Oval NSP	Cnr of The Grand Parade and Linden Street, Sutherland	Human Settlement	Other	Hazard Reduction	249	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
274	Yarrowarrah Oval NSP	Giles Street, Yarrowarrah	Human Settlement	Other	Hazard Reduction	250	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
275	Sylvania Hockey Park NSP	Garnet Road, Sylvania	Human Settlement	Other	Hazard Reduction	252	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
276	Sylvania Heights Reserve NSP	Box Road, Sylvania	Human Settlement	Other	Hazard Reduction	253	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
277	Canberra Oval NSP	Canberra Road, Sylvania	Human Settlement	Other	Hazard Reduction	254	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
278	A R Hurst Rugby Fields NSP	The Promenade, Sylvania	Human Settlement	Other	Hazard Reduction	251	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
279	Marion Oval NSP	Captain Cook Drive, Kurnell	Human Settlement	Other	Hazard Reduction	255	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
280	Oyster Bay Oval NSP	Cnr Oyster Bay Road and Como Road Oyster Bay	Human Settlement	Other	Hazard Reduction	256	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
281	Scylla Reserve NSP	Cremona Road Como	Human Settlement	Other	Hazard Reduction	257	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
282	Cooper Street Reserve NSP	Cnr of Cooper Street and Old Princess Highway Engadine	Human Settlement	Other	Hazard Reduction	258	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
283	Orchid Street Reserve NSP	Cnr of Ninth Avenue and Mistletoe Street Loftus	Human Settlement	Other	Hazard Reduction	259	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
284	Lakewood City Reserve NSP	Coolidge Crescent Bonnet Bay	Human Settlement	Other	Hazard Reduction	260	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
285	Jannali Shopping Centre Car Park NSP	42A Railway Crescent Jannali	Human Settlement	Other	Hazard Reduction	261	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]

286	Maianbar Reserve Car Park NSP	Karra Karook Street North (Off Pacific Crescent) Maianbar	Human Settlement	Other	Hazard Reduction	262	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
287	Police Boys Club Car Park NSP	Rawson Avenue, Sutherland	Human Settlement	Other	Hazard Reduction	263	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
288	Albert Hutchinson Reserve NSP	Robertson Street, Sutherland	Human Settlement	Other	Hazard Reduction	264	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
289	Engadine Community Centre Park NSP	Waratah Road, Engadine	Human Settlement	Other	Hazard Reduction	265	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]
290	Peace Park NSP	Eton Street, Sutherland	Human Settlement	Other	Hazard Reduction	266	Maintain fuels in accordance with Guidelines	LGA					[1516]	[1617]	[1718]	[1819]	[1920]

Sutherland BFM Bush Fire Risk Management Plan 2016

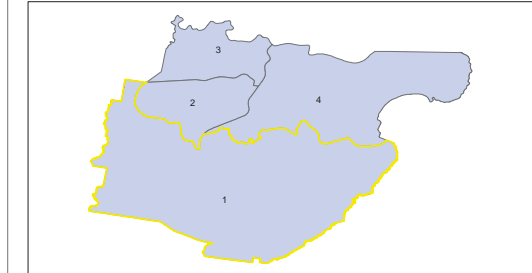
South - Map Display Area
Map 1 of 4

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- using the Local Environment Plans (LEPs) to control development in areas with a bush fire risk;
- varying the standard bush fire danger period as required;
- requiring permits during bush fire danger periods;
- prosecution of arsonists/offenders;
- investigation of bush fire cause;
- normal fire suppression activities;
- assessing and managing compliance with strategic fire-fighting resource allocation management systems;
- preparation of a S2 Operations Coordination Plan;
- fire management plans or plans of management; and
- bush fire hazard complaints.

Note on LMZ: All areas not specifically mapped as an APZ, SFAZ or FEZ are considered as LMZ for this risk management plan. For areas identified by an LMZ polygon on the map, please refer to the BFRMP document for the specific land management objectives.

Zone	Purpose	Suppression Objective(s)	Zone characteristics
Asset Protection Zone	To protect human life, property and highly valued public assets and values.	To enable the safe use of Direct Attack suppression strategies within the zone. To minimise bush fire impacts on undervalued assets.	As per RFS document Standards for Asset Protection Zones.
Strategic Fire Advantage Zone	To provide strategic areas of fire protection advantage which will reduce the spread and intensity of bush fires, and reduce the potential for spot fire development. To aid containment of wildfires to existing management boundaries.	To improve the likelihood and safe use of: Parallel Attack suppression strategies within the zone. Indirect Attack (back burning) in high to very high fire weather conditions within the zone. To reduce the likelihood of: Crown fire development within the zone, and/or Spot fire ignition potential from the zone.	Zone width related to suppression objectives and dependent upon: - Topography - Aspect - Spotting propensity - Location of adjacent firebreaks - Mosaic pattern of treatment Assess Overall Fuel Hazard (OFH) once vegetation communities reach minimum fire thresholds within this plan. Management practices should aim to achieve mosaic fuel reduction patterns so that the majority of the SFAZ has an OFH of less than high.
Land Management Zone	To meet relevant land management objectives in areas where APZs or SFAZs are not appropriate.	To reduce the likelihood of spread of fires. To undertake mosaic burning	As appropriate to achieve land management e.g. heritage and/or fire protection e.g. broad scale mosaic burning objectives.
Fire Exclusion Zone	To exclude bush fires.	N/A	Variable dependent on size of fire sensitive area requiring protection.

Assets

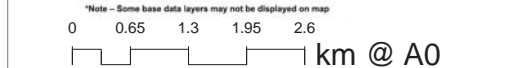
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Bush Fire Management Zones

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Base Data Layers

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Sutherland BFMCM Bush Fire Risk Management Plan 2016

Central - Map Display Area
Map 2 of 4

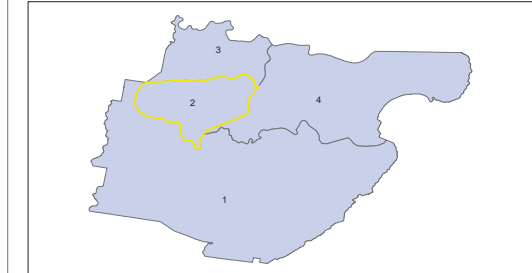
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Land Management Zone	To meet relevant land management objectives in areas where APZs or SFAZs are not appropriate.	To reduce the likelihood of spread of fires. To undertake mosaic burning	As appropriate to achieve land management objectives e.g. heritage and/or fire protection e.g. broad scale mosaic burning objectives.
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Assets

Human - Residential	Commercial Forests
Human - Other	Drinking Water Catchments
Special Fire	Environmental - High
Economic - Agricultural	Environmental - Substrate
Economic - Commercial	Environmental - Strategic
Economic - Infrastructure	Cultural - Heritage
Economic - Tourism and Recreational	Cultural - Other
Economic - Mines	Cultural - Non Indigenous

Bush Fire Management Zones

Fire Exclusion Zone (FEZ)	Land Management Zone (LMAZ)
Asset Protection Zone (APZ)	Strategic Fire Advantage Zone (SFAZ)

Base Data Layers

Major Road Sealed	Drainage Perennial
Secondary Road Sealed	Drainage Non Perennial
Secondary Road Unsealed	High Line Perennial
Local Road Sealed	High Line Non Perennial
Local Road Unsealed	Control (10m)
Local Road Unimproved	Control (50m)
4WD Track Unimproved	Map Display Area
Path	Local Government Area
Heavy Rail	Green Land
Light Rail	State Forests
Heavy Rail Sliding	National Park

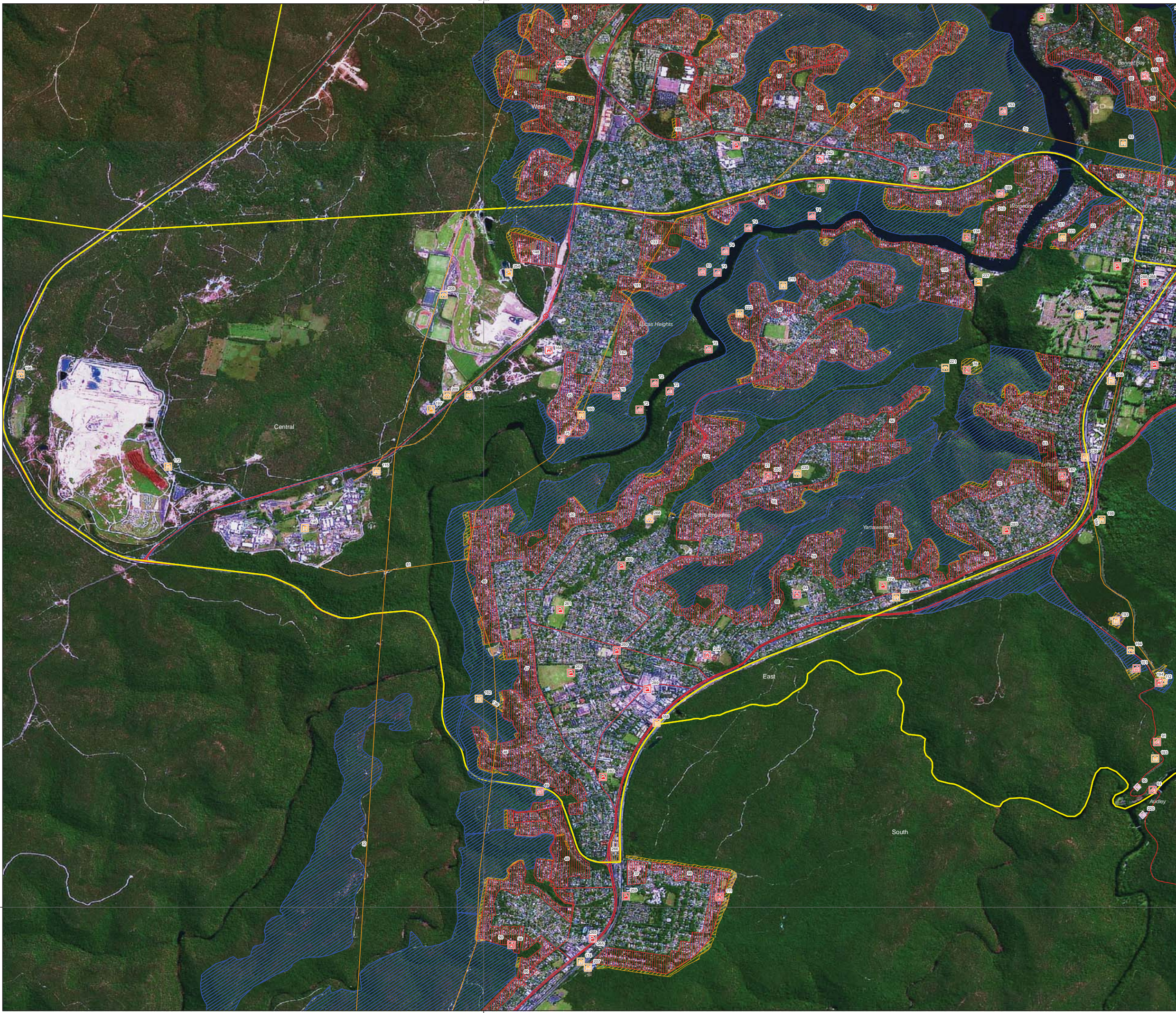
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0 0.25 0.5 0.75 1 km @ A0

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Sutherland BFM Bush Fire Risk Management Plan 2016

West - Map Display Area
Map 3 of 4

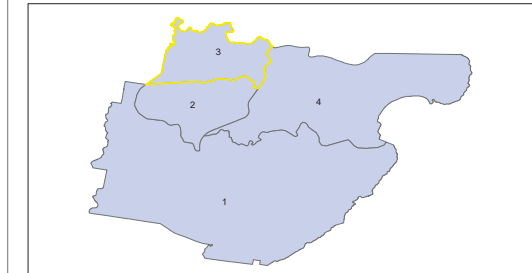
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Assets

Bush Fire Management Zones

Base Data Layers

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Sutherland BFM Bush Fire Risk Management Plan 2016

East - Map Display Area
Map 4 of 4

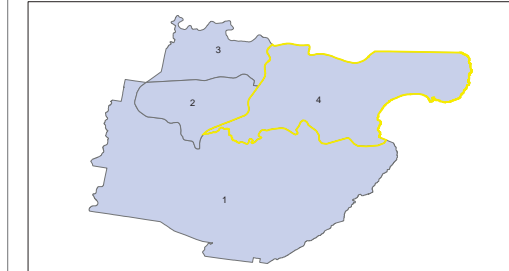
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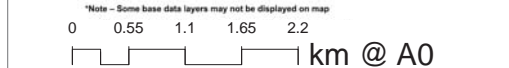
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Assets	Zone
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Human - Other	Asset Protection Zone (APZ)
Special Fire	Asset Protection Zone (APZ)
Economic - Agricultural	Asset Protection Zone (APZ)
Economic - Commercial	Asset Protection Zone (APZ)
Economic - Infrastructure	Asset Protection Zone (APZ)
Economic - Tourism and Recreational	Asset Protection Zone (APZ)
Economic - Mines	Asset Protection Zone (APZ)
Commercial Forests	Asset Protection Zone (APZ)
Drinking Water Catchments	Asset Protection Zone (APZ)
Environmental - Wetlands	Asset Protection Zone (APZ)
Environmental - Substrate	Asset Protection Zone (APZ)
Environmental - Scientific	Asset Protection Zone (APZ)
Cultural - Other	Asset Protection Zone (APZ)
Cultural - Non Indigenous	Asset Protection Zone (APZ)
Fire Exclusion Zone (FEZ)	Fire Exclusion Zone (FEZ)
Land Management Zone (LMAZ)	Land Management Zone (LMAZ)
Strategic Fire Advantage Zone (SFAZ)	Strategic Fire Advantage Zone (SFAZ)

Base Data Layers	Base Data Layers
Major Roads Sealed	Drainage Potential
Major Roads Unsealed	Drainage Non Potential
Secondary Road Sealed	High Line Potential
Secondary Road Unsealed	High Line Non Potential
Local Road Sealed	Contour (10m)
Local Road Unsealed	Contour (5m)
Local Road Unimproved	Map Display Area
4WD Track Unimproved	Local Government Area
Path	Green Land
Light Rail	State Forests
Heavy Rail	National Park
Heavy Rail Siding	

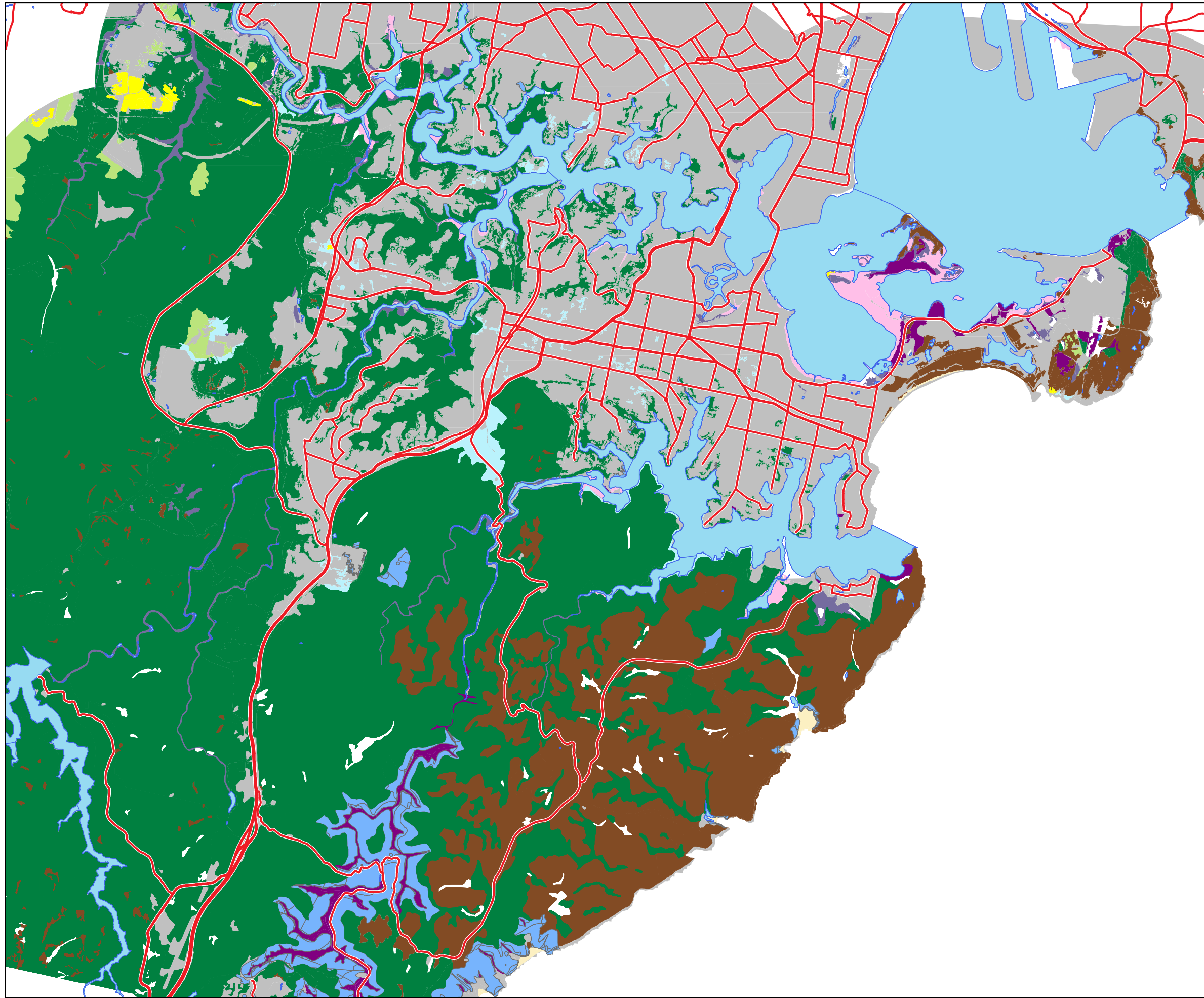


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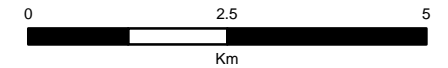
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Date created: Friday, 19 August 2016
BFRR version 2.1.24.0





Vegetation Classification

Scale: 1 : 94,875



LEGEND

- Dry Sclerophyll Forest (shrub/grass)
- Dry Sclerophyll Forest (shrub)
- Wet Sclerophyll Forest (shrub)
- Wet Sclerophyll Forest (grass)
- Forested wetlands
- Saline wetlands
- Rainforests
- Heathlands
- Grassy woodlands
- Grasslands
- Cleared

PRODUCTION INFORMATION

Map Details:

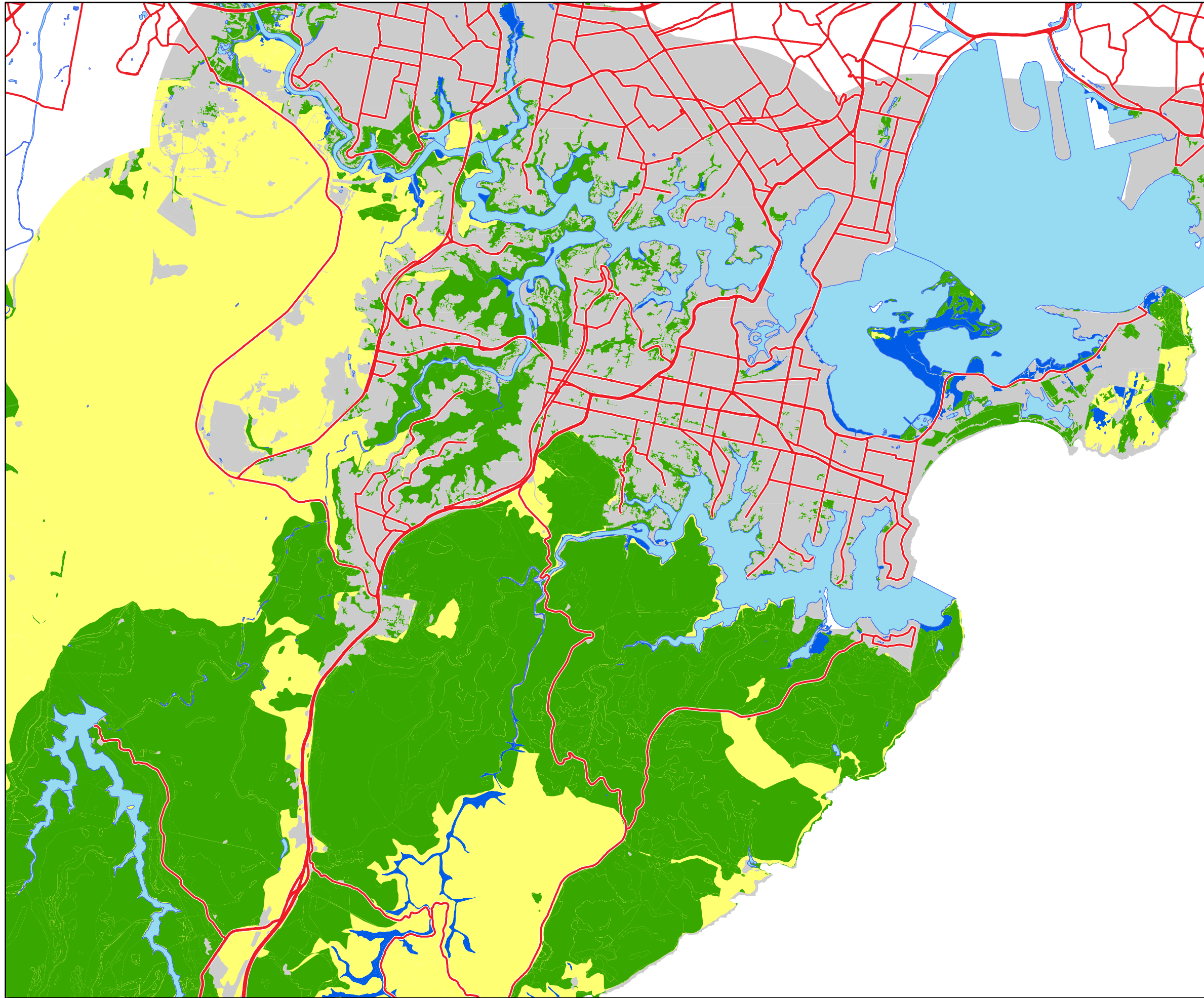
Base Data: © LPI, SPOT, AAM, SKM, OEH, Sensis, Kattron
 Map Projection: GDA 1994 NSW Lambert
 Print Date / Time: 16/01/2015 1:28:54 PM
 Produced by: Scott Deller



WARNING INFORMATION

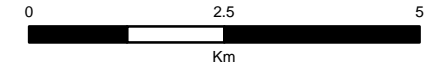
1. This map has been prepared by a NSW Government Agency ("the Agency") using data supplied to it by other agencies and entities.
2. The Agency has not verified or checked the data used to prepare this map. The map may contain errors and omissions. The Agency has not made any attempt to ground truth the map.
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4. Significant changes may have occurred:
 - i. in the time between which the data was originally collected and the map produced; and
 - ii. since the map was produced.
5. Users must, wherever possible, ground truth the map before relying on it or the accuracy of the map or the information recorded on the map for any purpose.
6. The Agency accepts no responsibility for any injury loss or damage arising from the use of this map or any errors or omissions in the information recorded on the map.

KEY MAP



Bush Fire Threshold Map

Scale: 1 : 96,719



LEGEND

FireThreshold

- Above
- Within
- Below
- Fire Intolerant
- Cleared

PRODUCTION INFORMATION

Map Details:

Base Data: © LPI, SPOT, AAM, SKM, OEH, Sensis, Kattron
 Map Projection: GDA 1994 NSW Lambert
 Print Date / Time: 15/01/2015 2:51:31 PM
 Produced by: Scott Deller



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KEY MAP