Appendix N

Bushfire Management and Emergency Evacuation Plan

Bushfire Management and Emergency Evacuation Plan

Mt Emerald Wind Farm, Herberton Range, North Queensland

Prepared by:

RPS AUSTRALIA EAST PTY LTD

135 Abbott Street
PO Box 1949
CAIRNS QLD 4870

T: +61 4031 1336
F: +61 4031 2942
E: mellissa.jess@rpsgroup.com.au

Client Manager: Mellissa Jess
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Prepared for:

RATCH AUSTRALIA CORPORATION LTD

Level 4, 231 George Street,
Brisbane,
Queensland, 4001

T: +61 7 3214 3401
F: +61 7 3214 3499
E: terry.johannesen@ratchaustralia.com
W: www.ratchaustralia.com

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1.0 Introduction

This Bushfire Management and Emergency Evacuation Response Plan (the plan) is prepared for RATCH Australia Corporation Limited (RACL) for construction and operational activities proposed to be carried out on the Mount Emerald Wind Farm (MEWF) site. The Plan is prepared in accordance with State Planning Policy 1/03 - *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (SPP 1/03).

The project area comprises Lot 7 on SP235224, Easements A, C & E in Lots 1, 2 & 3 on SP231871 and part of Lot 905 on CP896501. The project involves the construction and operation of a wind farm located approximately 20 km SSW of Mareeba on the Atherton Tablelands in north Queensland. The project approval allows for the construction of up to 63 wind turbines, associated access tracks and an electricity substation that will feed into the main electricity grid (Powerlink's Chalumbin – Woree 275 kV transmission line).

Fires have the potential to impact upon flora, fauna, and infrastructure within the MEWF site. The fire risk varies throughout the study area dependent on topography. Bushfire danger season is typically from August to late October in north Queensland when the dry season is nearing its end and both temperatures and winds are on the increase. Fire is an important landscape function and should be managed in respect to vegetation and human safety.

The purpose of this Plan is to focus on preventing fires on the MEWF site and to be prepared should a bushfire be ignited or pass through the site.

1.1 The Project

The Mount Emerald Wind Farm (MEWF) is approved for the construction of up to 63 wind turbines on an elevated site approximately 20 km SSW of Mareeba on the Atherton Tablelands in north Queensland (**Figure 1**). The towers will be approx 80-90m high with approximately 55-60m blades, utilising 3.3-3.45 MW machines.

The site where the wind turbines, interconnecting tracks and associated infrastructure are to be established is on land formally described as Lot 7 on SP235224, which encompasses an area of 2,422ha. This land forms the terminus of the Herberton Range and is contiguous with Mount Emerald (proper) at its southern boundary. Virtually all the wind farm project area is covered by remnant and relatively undisturbed vegetation, where the only land modification is associated with the existing 275 kV transmission line infrastructure and its series of access tracks. Kippen Drive at the base of the site is severely degraded in most zones adjacent to the unsealed road, and weeds are conspicuous.

The wind farm site has been selected on the basis that it represents an excellent wind resource because of its elevated position and series of high ridges. The elevation range of the site is between 540m up to 1089m above sea level (ASL). The highest ridges south of the existing 275 kV transmission line hold the most significant value in terms of flora and represent an important tract of land with functional connectivity to other regional nodes of high biodiversity importance. Although land to the north of the transmission line (including the landmark of Walsh Bluff) possesses lower floristic diversity, it is recognised for its habitat value for the endangered Northern Quoll (which is also expected to occur south of the transmission line).

The wind farm project estimates to deliver up to 650,000 megawatt hours of renewable energy, which is predicted to meet the annual needs of approximately 75,000 North Queensland homes over a 20 year period.

The wind farm will be connected to the existing Chalumbin –Woree 275 kV transmission line via a substation, which is to be located within the site. The 275 kV transmission line infrastructure that traverses the site was established in 1998 and represents a pre-existing disturbance footprint which the proposed wind farm will take advantage of in order to minimise the area of new impacts to the environment.

From a constructability perspective the northern sector of the site has more undulating landforms and fewer dissected ridges. There also appears to be a higher proportion of former landscape disturbance in the northern sector and across the east-facing slopes on the Walkamin side.

1.2 Construction Details

Access to the site will be via Kennedy Highway, onto Hansen Drive and then into the site at a realigned Springmount Road - Kippen Drive intersection. Kippen Drive is currently unsealed. A series of access and interconnecting tracks will need to be constructed within the wind farm site, and will take advantage of existing transmission line infrastructure tracks wherever possible. A number of new tracks will need to be constructed to an initial cleared width of approximately 10m. The interconnecting tracks will form the routes for the inter-turbine underground cabling – expected to be buried in trenches at approximately 1m deep.

Each turbine construction pad is expected to occupy an area in the order of 40m (long) x 60m (wide). The substation and associated compound will be in the order of 200m x 200m or similar configuration and will be located close to the existing 275 kV transmission line which crosses the site.

Wind turbines will be "micro-sited" – a technique which involves selecting a position in the landscape where the, environmental, constructability and other impacts area considered and weighed up. As part of this procedure, comprehensive ground surveys will be undertaken of each site to ensure impacts to conservation significant species and other matters of importance are minimised or avoided.

A wind farm operations building will be constructed adjacent to the substation, which will house monitoring and communications equipment. Other associated internal infrastructure will include car parking areas, construction compound and machinery area. Depending on the outcomes of relevant approvals, a batching plant may be temporarily constructed within the site.

The Mount Emerald Wind Farm (MEWF) project has been broadly categorised into four phases: pre-construction, construction, operation and maintenance and decommissioning. Rehabilitation and impact mitigation will be actively practiced throughout these stages and will be informed by respective plans and strategic documents.

In preparing the Environmental Impact Statement (EIS), several specialist investigations were undertaken and accompanying technical reports prepared. These include the disciplines of flora, fauna, general environmental reporting and offsets plan; town planning; aeronautical assessment; transport and traffic assessment; shadow flicker, electromagnetic interference, and energy yield; geotechnical; visual and landscape aesthetics; noise mapping; cultural heritage; community consultation; and social and economic assessment.

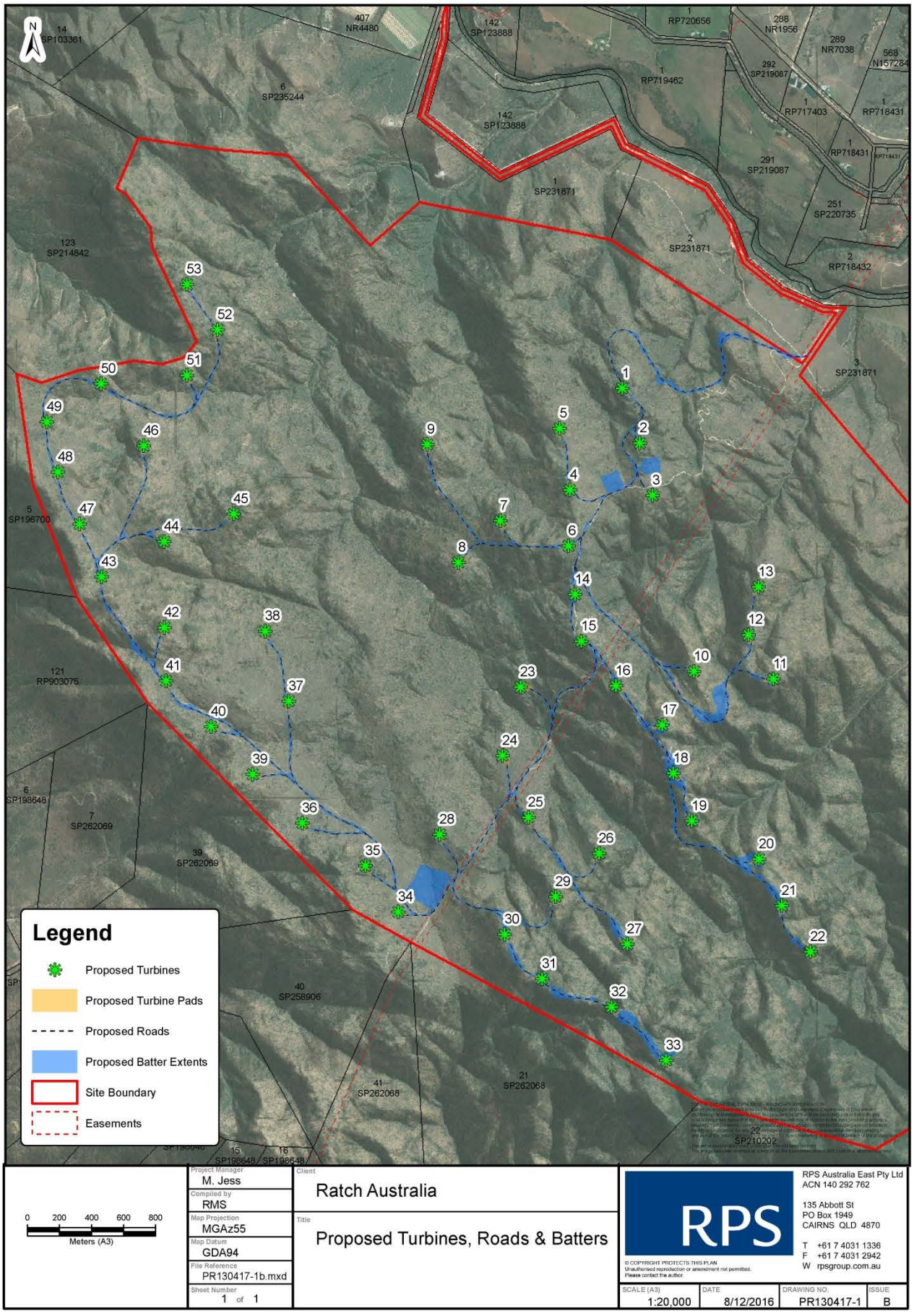


Figure 1 Project Site Location

1.3 Site Details

Lot 7 is a large rural allotment, situated (at its closest point) approximately 3.5km south-west of Walkamin, off Springmount Road at Arriga on the Atherton Tablelands. The site is characterised by rugged terrain with elevations of between 540m up to 1089m above sea level (ASL). Virtually the entire site is covered by remnant vegetation, as defined under Queensland's *Vegetation Management Act 1999* (VMA).

Bushfire hazard mapping which considers factors such as vegetation type, slope and aspect to determine the level of bushfire hazard is shown in **Appendix 1**. This map shows the majority of the eastern portion of the site (east of the powerline) is rated high and very high potential bushfire intensity risk. Northern extents of the site where the slope gradient is high also have significant areas of very high potential bushfire intensity risk. The correlation between slope gradient and bush fire potential is clear.

Fire mapping based on interpretation of satellite imagery obtained from the Northern Australia Fire Information (NAFI, 2016) indicates that the entire site was burnt most recently in a September 2015 event which covered 70.1km^2. Previous to this, a summary of recent fires recorded is provided in **Table 1**:

Table 1 Major Fires Summary (NAFI 2016).

Fire Date and Month	Area of Site Burnt
August 2011	21.8km^2
2009 (Month Unknown)	8.75km^2
December 2006	2.7km^2
November 2004	0.1km^2
October 2003	7.9km^2
November 2001	72km^2

From visual assessments of the extent of scorching on trees, the fires are presumed to have been relatively hot and ferocious – extending completely into the crowns of trees in the canopy of vegetation to 10m high. This was particularly evident on hill slopes and at the crest of hills however evidence of powerful fire was found across the entire site.

The 2009 fire does not appear to have affected the whole project area. For example, the flat-bottomed valley in the interior and the western ridgeline remained relatively unburnt and showed fewer signs of severe fire impact. In this sense, it is believed fire passes through the project area on a periodic basis – enough to limit the development of excessive fuel loads.

1.4 Climate and Rainfall

The dominant rainfall pattern of the local area is monsoonal, with alternating wet and dry seasons that typically last for four and eight months respectively. The Walkamin Research Station (Bureau of Meteorology station number 031108, elevation 594m) has been selected as a suitable reference site, due to its close proximity (situated 6km from the wind farm) and availability of long term climate records. A summary of the weather data from this station is presented in **Table 2**.

Table 2 Summary of Weather Data for Walkamin Research Station (BoM, 1965 - 2016)

Weather Conditions	Measurements
Mean Annual Rainfall	1022.3mm
Highest Annual Rainfall	1750.5mm (1974)
Lowest Annual Rainfall	470.2mm (2002)
Highest Monthly Rainfall	894.1mm (Feb 2000)
Lowest Monthly Rainfall	0.0mm (May 2001)
Mean Annual Minimum/Maximum Temperature	17.0°C/27.4°C
Highest Temperature	39.8°C (19 Nov 1990)
Lowest Temperature	2.6°C (4 July 1984)

Bureau of Meteorology (2016).

Average annual rainfall in the area is 1022.3mm with the wettest month being February (248.9mm), and the driest month being September (8.4mm). The majority of rain (80%) falls within the months of December to March. This rainfall distribution over the year is displayed in **Figure 2** (BoM, 1965 – 2016):

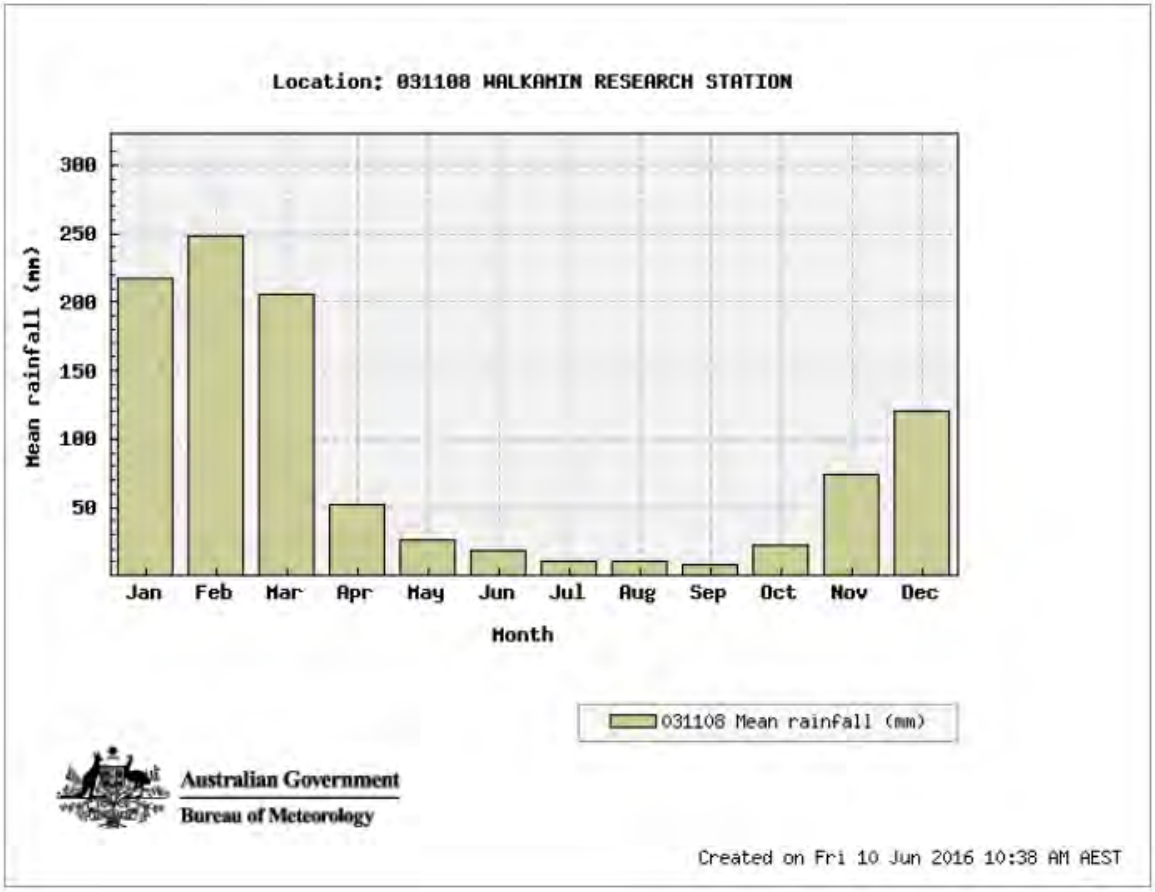


Figure 2 Mean monthly rainfall for Walkamin Research Station (BoM, 1965 – 2016)

The highest aspects of the site are 1089m ASL, which are 550m higher in altitude than the Walkamin Monitoring Station. The change in temperature as a function of elevation is typically between 0.6°C and 1°C per 100m increase in altitude (BOM, 2013), but this can vary significantly by factors such as wind speed, moisture and daily temperatures. Some of the highest elevated parts of the site also experience higher precipitation and ground moisture due to cloud stripping, as clouds intersect the landform.

1.5 Surrounding Land Uses

Land surrounding the subject site is utilised for a diverse array of land uses, as a result of the changing nature of the agricultural industry, the size of surrounding land holdings, topography and soil characteristics.

While the majority of the area surrounding the project site has been extensively cleared and historically used for livestock grazing and agricultural pursuits, a number of recent approvals issued upon adjacent properties reflect the changing land uses in the area, from passive agricultural and pastoral uses to more intensive farming practices and other industrial and agribusiness practices. A representation of these land uses is shown in **Figure 3**. There are approximately 118 receptors (representing individual residences, or in some cases groups of residences) in total, associated with both farming and other uses located within a 5 km radius of the windfarm.

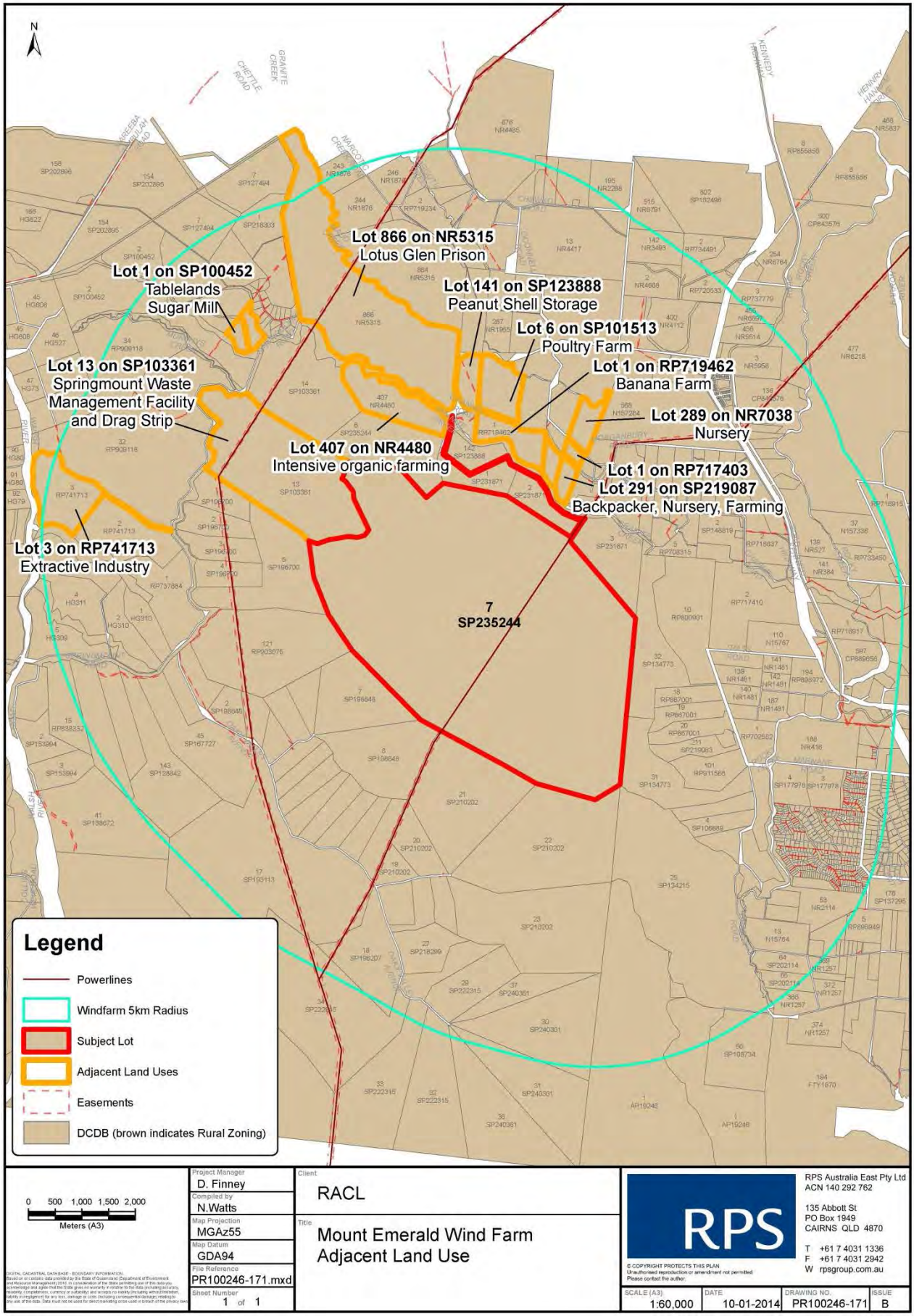


Figure 3 Surrounding Land Uses

1.6 Topography

The project site is situated over mountainous terrain coinciding with the northern extent of the Herberton Range. The site is characterised by acid igneous rhyolite geology forming windswept ridges and rock outcrops interspersed with rock pavements, which support skeletal soils. Between these prominent features are undulating valleys. The site is broadly divided in terms of the degree of surface relief. This has bearing on the landforms and vegetation types. To the south of the Chalumbin to Woree 275 kV transmission line the land is conspicuously dissected, rugged and characterised by narrow, high ridges and in some instances, precipitous slopes. The land to the north of the transmission line exhibits less surface relief, dissected ridges and steep slopes. The landform generally becomes more undulating in this northern area, until the escarpment edges of the mountainous range is reached.

1.7 Vegetation

Several REs (regional ecosystems - remnant vegetation communities) are mapped over the project site. The transmission line which bisects the site generally coincides with the boundary between two bioregions:

- The Wet Tropics to the south of the transmission line; and
- The Einasleigh Uplands to the north.

The Wet Tropics bioregion to the south of the transmission line is characterised by shrubland and low woodland with open canopies. The shrub layer can at times be quite thick, covering the ground layer. The canopy layer is dominated by Eucalyptus and Corymbia species with canopies typically 5-10m in height. These areas are typically higher in elevation and experience cloud stripping in many areas above 900m and therefore experience cooler environments with increased precipitation.

The Einasleigh Uplands to the north of the transmission line are characterised by low woodland to low open woodland. The ground layer is dominated by grass species and has a sparse shrub layer. Eucalyptus and Corymbia species again dominate the canopy layer with heights up to 8-12 meters. These areas typically have less relief, remain below 900m and hence do not receive extra precipitation due to cloud stripping and consequently are typically drier than to the south of the transmission line.

1.8 Fire History

As discussed in **Section 1.1**, fire mapping based on interpretation of satellite imagery obtained from the Northern Australia Fire Information (NAFI, 2016) indicates the entire site was burnt most recently in 2015. It should be noted that the pixel size of the MODIS satellite imagery is approximately 250 m^2 so the mapping is unable to provide an accurate indication of the degree of the spatial heterogeneity of fires. Summary reports obtained from NAFI can be found in **Appendix 2**.

From visual assessments of the extent of scorching on trees, the fires are presumed to have been relatively hot and ferocious – extending completely into the crowns of trees in the canopy of vegetation to 10 m high.

1.8.1 Wind Farms and Fire

Research and operations over the past 20 years suggest that there is little chance of operational wind farms to create a fire risk (Macintosh and Downie, 2006) in Australia. Wind turbines have the potential to create fire hazard in two ways (Flynn 2004):

- mechanically in which turbine bearings wear out, electrical shorts occur or cables are damaged for example; and
- lightning strikes due to the turbines height.

A review of available data reveals three wind turbine fires being reported in Australia with the root cause of each being attributed to mechanical issues. In each case the fires did not spread beyond the turbine due mostly to the passive nature of the turbines (few flammable materials), their lightning protection equipment, and in part due to the wind farms fire management strategy.

The impact of a bushfire on WTG's at MEWF should be limited. Fires will be hot and fast but are unlikely to burn for long enough periods in the vegetation surrounding a turbine to cause damage, especially if asset protection zones and other aspects of this plan are followed. It is unlikely that damage from flames could reach the nacelle or blade tips (lowest point is approximately 30m above ground level) given past fires height estimated at being no higher than 10m above ground level. The greatest risk will be to the substation and other associated maintenance infrastructure on site which can, if damaged, interfere significantly in the wind production capability on site.

2.0 Regulatory Requirements

2.1 Project Approvals

2.1.1 Sustainable Planning Act 2009

Conditions relevant to the preparation and implementation of the Bushfire Management and Emergency Evacuation Plan (BMP) are detailed in Condition 13 of the Ministerial Decision Notice.

2.1.1.1 Ministerial Decision Notice

The Development Notice (dated 18 December 2015) in accordance with the SPA included a number of conditions relating to the preparation of a BMP. *Condition 13 - Environmental Management* which relates to the BMP, states the following:

Submit to the chief executive administering SPA an Environmental Management Plan (EMP) prepared by a suitably qualified person(s). The EMP must:

i. be generally in accordance with the Preliminary Environmental Management Plan prepared by RPS and dated November 2013 and the draft Statement of Commitments contained within Appendix A of the RPS Development Application Material Change of Use Report dated March 2012;

ii. be based on the revised Turbine Location and Development Footprint Plan submitted in accordance with condition 2 of this approval;

iii. include the following components, as further detailed in Attachment 1:

- *a bushfire risk management plan and emergency evacuation plan (timing as required with the EMP).*
- *an ecological fire management plan (timing as required with the EMP).*

3.0 Bushfire Management Plan

Fire risk can be minimised through strategically managed vegetation and landscaping, and this Plan considers the use of Asset Protection Zones around buildings (where turbine infrastructure are also considered buildings), whereby a range of landscape features such as mature trees, can be retained to maintain elements of the natural character of the site.

3.1 Maintenance of Vegetation

Traditionally and in accordance to guidelines of SPP 1/03, vegetation is cleared around buildings to a distance of 1.5 times the average height of the adjacent trees. Vegetation is up to 12m in height; therefore in some instances a clearance distance of 18m will be required around buildings/substation/switchyard/wind turbine generators. Roadways and regularly maintained landscaped grounds with low-growing and shrubby plants can be included as part of the cleared zone (see Asset Protection Zones).

3.2 Asset Protection Zones

Where it is considered safe to do so, an Asset Protection Zone (APZ) can be incorporated as a landscaping feature into the vegetation clearing area around buildings and other wind farm infrastructure that requires protection from fire. The concept of Asset Protect Zones aims to retain natural characteristics of the ground such as trees and patches of vegetation, whilst reducing the potential for high intensity bushfire contacting with buildings and other fire sensitive wind farm infrastructure. Subsequently, the Asset Protection Zone is a low fuel load area surrounding buildings and other wind farm infrastructure.

Any Asset Protection Zones should be managed so that the fire hazard is substantially reduced and in particular to reduce the chance of a fire damaging wind farm infrastructure. For example, large and healthy trees can be retained as isolated, stand-alone specimens surrounded by areas of mowed grass or other 'fire proof' surfaces. Likewise, small pockets of natural shrubby vegetation can be preserved providing they are of a manageable area and also surrounded by mowed grass or 'fire-proof' surfaces such as pathways or short-growing vegetation with low flammable properties. This is shown diagrammatically in **Plate 1** below.

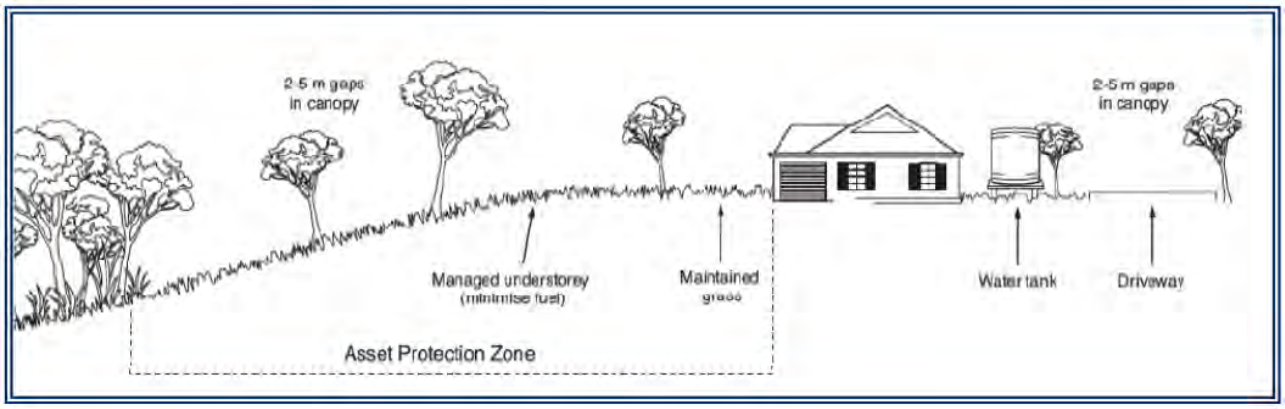


Plate 1 Asset Protection Zone

Mowed grass areas or other fire proof surfaces or short vegetation with low flammability to ensure that wind farm infrastructure is separated from contiguous and subsequently hazardous, fire-prone areas of vegetation; thereby reducing the overall fire hazard and intensity. Mowed grass areas also allow for more free-flowing pathways for emergency vehicles, and can serve as emergency evacuation points.

Where trees such as Eucalypts are to be retained, their canopies should be separated by at least 2m and ideally up to 5m to avoid crown fires developing.

4.0 Bushfire Hazard Reduction Measures

Reduction of fuel loads in an APZ does not have to be as drastic as removing all vegetation, particularly in sensitive receptor environments. Bushfire fuel loads can be reduced, removed or changed through several means as discussed below.

Bushfire Mitigation and Management Measures for the Operation Phase of the Project are contained with **Appendix 3**.

4.1 Maintenance of APZ

The following suggested recommendations for gardens and landscaping are given in relation to the maintenance of the APZ:

- Low-cut lawns or other fire resistant surfaces should be maintained adjacent to buildings.
- Areas under and along fences and gates should be maintained free of fuel (i.e. tall grasses and weeds).
- Do not allow tall, weedy grasses such as Guinea Grass (*Megathyrsus maximus*) to establish in the APZ.
- Trees and shrubs should not overhang dwellings and should be pruned as necessary.
- Tree canopies should not be continuous in the APZ (should be spaced as per section 3.2).
- Gutters and valleys should be kept clear of leaves at all times and regularly inspected.
- Minimise mulched areas, or mulch where irrigation is installed.
- Keep gardens well-watered.
- Ensure that the access is maintained entirely unobstructed around the buildings.

4.1.1 Clearing and Pruning

The management of existing vegetation involves both selective fuel reduction (removal, thinning and pruning) and the retention of vegetation. The majority of the leaves and groundcover should be removed from the surface. Valuable native trees and shrubs (such as threatened species) should be retained as clumps or islands. In selecting vegetation for removal the following features should be considered in order:

- Species that are listed by the local authority, as noxious or environmental weeds should be removed in preference to other species.
- Non-native woody plants should be removed in preference to other species.
- Species with rough, flaky or stringybark should be removed in preference to those with smooth or tightly held bark.
- Small trees without hollows should be removed in preference to larger trees and trees with hollows.
- Locally common species should be removed in preference to species listed by the authorities as threatened, regionally significant, or valuable for habitat or food source.
- Trees that have been determined to be structurally dangerous should be removed in preference to other trees.

4.1.2 Mowing and Slashing

Slashing and trittering are economical methods of reducing fuel. However, for these methods to be effective, the cut material must be removed or allowed to rot well before summer starts. Grass needs to be kept short and mowed regularly. Slashing and trittering is only practical in some situations. Alternative means of hazard reduction may be necessary where it is unsafe to implement a particular method of fuel reduction.

4.1.3 Fire Break

As clearing restraints are applicable, firebreaks around the entire site are not possible. Access tracks will help provide a break and defendable space which will assist in arresting any fires.

4.1.4 Hazard Reduction

Hazard reduction burning may be undertaken to assist in reducing fire danger, as mechanical means may be constrained by the rocky terrain. A Permit to Light Fire is required to be obtained from a Fire Warden prior to undertaking any hazard reduction burning. Local fire wardens are able to be contacted through the Mareeba Office, contact details are provided in **Table 3**.

Table 3 Mareeba Area Office Contact Details

Street Address	20 Mammino Street, Mareeba
Phone	(07) 4092 1044

Alternatively the Queensland Fire and Emergency Services can be contacted on:

Street Address	Corner of Grogan and Gatton Streets, Westcourt
Phone	(07) 4232 5468

Regional ecosystem descriptions provided by the Queensland Department of Environment and Heritage Protection (EHP) recognise the fuel loads of this vegetation community and that of surrounding country needs to be maintained so that wildfires will be limited in extent. The fire management guidelines provided by EHP are directed at maintaining the regional ecosystems biodiversity. It is recommended that annual inspections are conducted by a suitably qualified person to determine fuel load quantities and conditions (weed invasion, etc) and therefore the optimal burning interval and timing. Burning intervals and timing are likely to change depending on the annual rainfall and weed invasion. Refer to **Section 5.0**.

4.1.5 Inspections

A pre (June) and post (November) bushfire season maintenance program to reduce fuel loads (e.g. mowing and slashing) should be undertaken. An additional annual inspection to determine the requirement for hazard reduction burning should also be undertaken. This should be undertaken in conjunction with an Ecological Fire Management Strategy as outlined in **Section 5.0**.

4.2 Fire Fighting Equipment

Provision of fire fighting equipment during declared fire danger periods;

All project vehicles will contain a fire extinguisher and CB radios. A specific project vehicle will be fitted with a water tank, diesel pump, 30m fire hose and a knapsack spray. Each Wind Turbine Generator contains a fire extinguisher in the base of the tower and up in the nacelle.

4.2.1 Water Supply Tanks

Criteria for the provision of static water supply tanks solely for fire fighting processes including minimum capacities, appropriate connection and signage;

An adequate supply of water is essential for fire fighting purposes when considering all forms of development. As reticulated water supply is not available on site, two static water supplies will be available for fire fighting purposes, located centrally and which are easily accessible.

One storage container will be located at the Substation, Operation and Maintenance Building with the other at the Contractors Site Compound. Each will contain a water tank (approx. 50,000 litres capacity) collecting

water from the buildings in the compound. The tank will be fitted with outlets allowing fire trucks to connect to the tank. Should the water level drop below a minimum set point a water truck will deliver water to the tank. Guidance from Rural Fire Services Queensland (RFSQ) will be sought on what the minimum level within these tanks should be. The storage tanks shall be of non-combustible construction and fitted with a 65mm outlet completed a 65mm ball valve and Stortz coupling; or the preferred connections approved by the RFSQ. Adjacent to the water tanks will be a fire hose reel (30m) and a diesel pump to provide coverage in and around the buildings. All buildings will be fitted with smoke detectors and contain portable fire extinguishers. All fire extinguishers will be checked on a 12 monthly basis.

4.3 Emergency Services Access

Procedures for vegetation management, fuel control and the minimum standards for access roads and tracks to allow access for fire fighting vehicles including criteria for access to static water supply tanks for fire fighting vehicles;

Property and internal access roads should enable safe access, egress and defendable space for emergency services. Traffic that will require access to the site includes light vehicles, semi tippers or truck dog combinations. The access roads and manoeuvring areas throughout the site need to ensure safe access for vehicles. The following identifies road widths and design aspects to enable safe access for vehicles:

- Have a minimum cleared width of 6m and a formed width of 4m.
- Dead end roads, incorporate a minimum 12m outer radius turning circle, and be clearly sign posted as a dead end and direct traffic away from the hazard.
- A minimum vertical clearance of four metres to any overhanging obstructions, including tree branches.
- Internal roads provide a loop road around any office or incorporate a turning circle with a minimum 12m outer radius.
- Curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress.
- The minimum distance between inner and outer curves is 6m.
- The crossfall is not more than 10 degrees. Where a 10 degree crossfall is unachievable, either an alternate route is to be provided or the access road is sufficiently formed to prevent erosion and slope instability.
- Access road shall be designed to carry a fully laden RFSQ tanker of 15 tonnes GVM.

All onsite access roads are to provide safe, all weather access to structures and allow safe access for fire fighters while employees and contractors are evacuating the site. Directional signage should be installed to identify major tracks and the most direct route to the site office and emergency egress points.

4.3.1 Evacuation Routes

Consideration needs to be given to the safety of employees and contractors occupying the site during an incident. It may be safer to remain on site and seek shelter in a safe place. A designated assembly area should be nominated greater than 300m from the nearest significant bushfire hazard and greater than 100m from major electrical infrastructure.

4.4 Building Standards

Details of a lighting and earthing system to mitigate against the risk of bushfires caused by direct lightning strikes on the turbines

Wind Turbines and Substation

The wind farm design shall ensure all wind turbine and wind farm substation equipment is shielded and protected against direct lightning strike as detailed in International Standard *IEC61400-24 Wind Turbine Generator Systems – Part 24: Lightning Protection* and Australian Standard *AS1768 Lightning Protection*. The wind turbines, wind farm substation and associated equipment shall be suitably protected against damage caused from lightning and over-voltages due to lightning.

The lightning protection systems together with the grounding system shall:

- Minimise any danger to people in the immediate surroundings of the wind turbines and wind farm substation;
- Prevent fire / overheating; and
- Prevent any mechanical damage.

Buildings

The following recommendations for the construction of buildings and other structures have been prepared to ensure that an adequate level of protection to life and property on the site is provided.

- All exposed external cabling is adequately secured to prevent physical damage/breakage which may cause ignition of vegetation.
- All cabling within 100m of the nearest bushfire hazard is to be protected by a non-combustible conduit that is heat resistant and unlikely to melt or warp due to radiant heat.
- Any new buildings shall comply with the Bushfire Attack Exposure specifications of BAL-FZ construction in accordance with Australian Standard *AS3959-2009 Construction of buildings in bushfire prone areas*.
- External openings such as vents/louvres, skylights, cable entry ducts and air-conditioning intake grills shall be protected against the entry of flying embers. These openings shall be fitted with external mesh screens comprising stainless steel mesh with a maximum aperture of 2.0mm.

5.0 Ecological Fire Management

Fire is an integral component of many landscapes in far north Queensland and has been continually impacting on the MEWF site at interval. It plays an important role in biodiversity and ecosystem function and for some species it is a necessary dynamic in their lifecycle. Fire ecology (intensity, timing, duration etc) is critical for the successful regeneration of some plant communities and also brings a change to the fauna composition due to attraction of new species to seeding and flowering ground cover, for example.

Inappropriate fire regimes may occur due to the development and their impact can be severe. Changed fire ecology can often result in species elimination and / or the promotion of different plant functional groups, and consequently change the habitat micro-environment.

On the sensitive ridge top environments obligate seeder species are killed by fire and regenerate through germination of seed stored in the soil seed bank; whereas, resprouters recuperate after fire by reshooting from stems or rootstock. As many rock areas are considered refuges, inappropriate fire regimes that breach the natural level of protection afforded by rock pavements and outcrops are likely to have a deleterious effect at least in the short-term, with further possibility in the longer-term if the fire event is unnaturally severe. These impacts can extend to altering the habitat structure thus reducing food availability, and subsequently impacting on fauna species lifecycles.

It is therefore crucial that fire management of vegetation communities be undertaken on the MEWF project site to ensure both the project and the environmental values of the property are protected.

5.1.1 Regional Ecosystems

Several REs (regional ecosystems - remnant vegetation communities) are mapped over the project site. The transmission line which bisects the site generally coincides with the boundary between two bioregions:

- The Wet Tropics to the south of the transmission line; and
- The Einasleigh Uplands to the north.

The RE vegetation mapping for these bioregions is at a scale 1:50,000 and 1:100,000 respectively. A summary of the mapped RE's of the project area is given in **Table 4** below.

The Wet Tropics Bioregion is not considered to contribute to the Wet Tropics World Heritage Area (WTWHA). The Wet Tropics bioregion and the WTWHA are unrelated biophysical mapping areas. Mapping of the boundaries of these entities (**Figure 4** and **Figure 5**) indicates the physical separation of the Wet Tropics bioregion section of the wind farm site (see inset), and the WTWHA boundary. The WTWHA boundary has two sections – to the south, and to the east - both separated from the site by farm land, roads and built infrastructure.

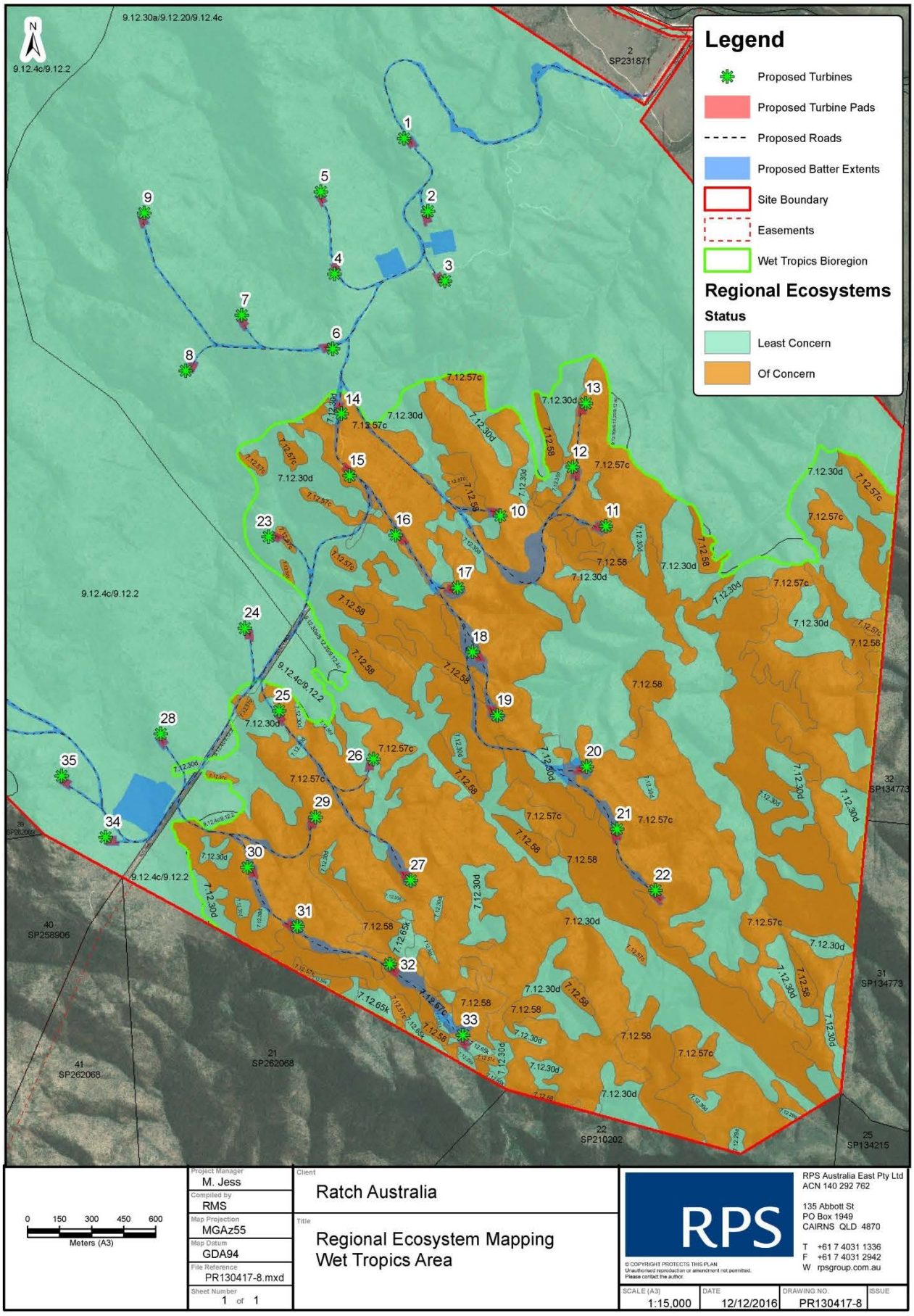


Figure 4 Regional Ecosystems on Southern Extent of MEWF.

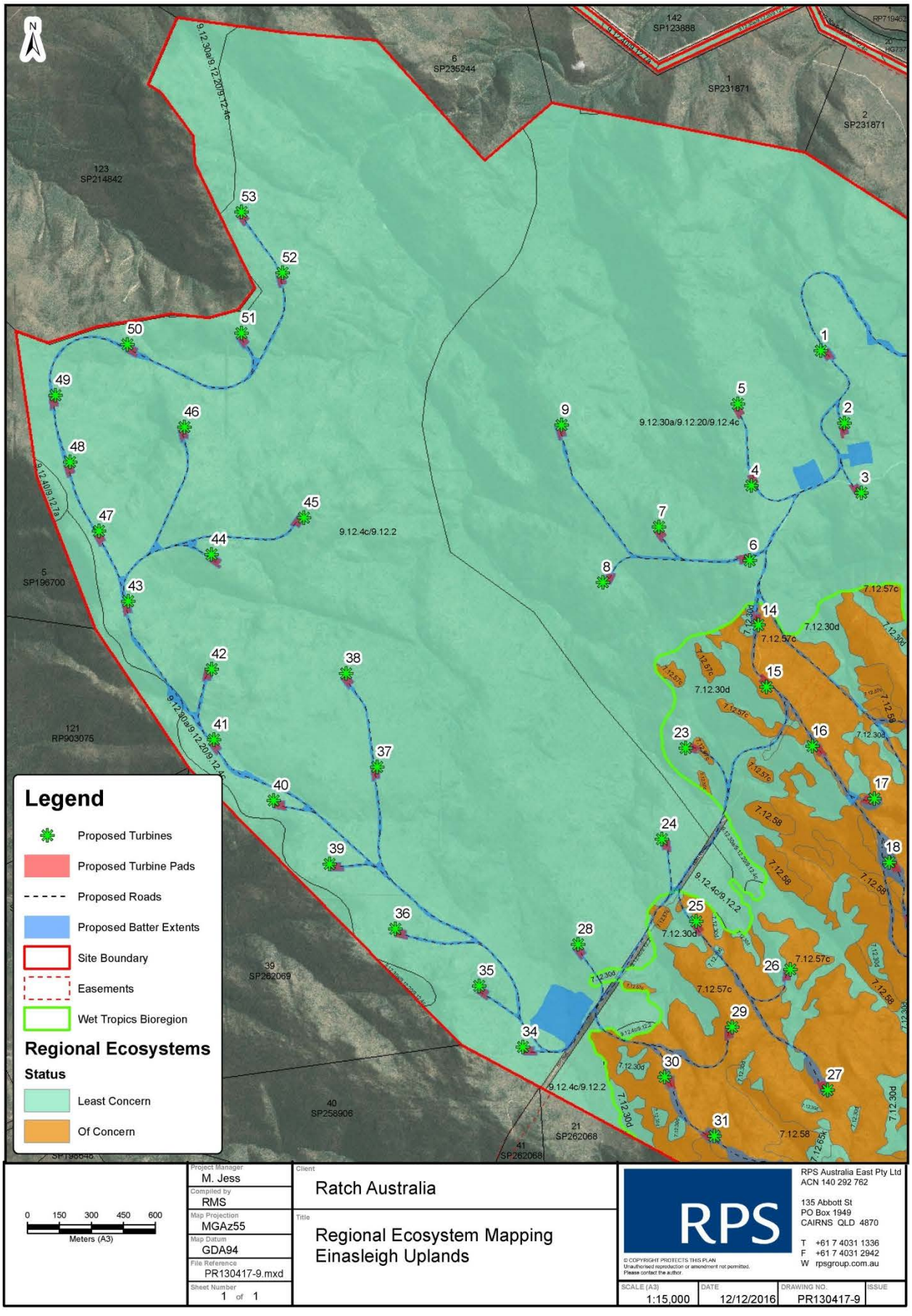


Figure 5 Regional Ecosystems on Northern extent of MEWF

5.1.2 Fire Management Guidelines

Fire management guidelines are provided below (**Table 4**) which indicates the optimal season, intensity, interval and strategy for regional ecosystems.

The objectives of these management strategies are to assist in protecting the flora and fauna habitats represented on the MEWF site and to manage the fuel load to prevent intense dangerous fires that may impact human life and property. This information is based on current knowledge and expert opinion.

Issues are also presented in the table to identify the problems associated with fire not occurring within the prescribed time frames etc.

All Rare and Threatened flora species that have been found on the MEWF site have been located within *Of Concern RE* vegetation of the Wet Tropics Bioregion. These ecosystems (7.12.57 and 7.12.58) are also the least tolerant to fire on the site.

5.1.2.1 Implementation of Guidelines

Prescribed burning will meet the ecological objectives of the management strategies presented in **Table 4** and maintain the ecological integrity of the MEWF site.

These strategies will be reviewed and evaluated with all other MEWF documentation on an annual monitoring process ensuring uptake of new information from relevant Queensland government resources.

Table 4 Fire Management Guidelines for Regional Ecosystems found on the MEWF Project Site

Regional Ecosystem	Description	Season	Intensity	Interval	Strategy	Issues
7.12.30: Wet Tropics Bioregion	Woodland to open forest mosaic with variable dominance, often including *Eucalyptus cloeziana, Corymbia abergiana, C. citriodora, E. portuensis, E. reducta, E. lockyeri, C. leichhardtii, E. atrata, E. pachycalyx* and *E. shirleyi*, on rhyolite and granite.	Cool, dry season (April-Sep).	Low to moderate	2-5 years.	Mosaic burn < 30%. Begin burning early in the fire season, with progressive patch fires burnt through the year. Stop burning when the network of fires and other breaks is sufficient to impede fire spread later in the year. Storm-burning may be used to add further diversity to the fire mosaic.	An occasional moderate severity fire may be used to manage overabundant recruitment of trees. Maintaining a fire mosaic will ensure protection of animal habitats and mitigate against wildfires.
7.12.57: Wet Tropics Bioregion	Shrubland and low woodland mosaic with *Syncarpia glomulifera*, *Corymbia abergiana*, *Eucalyptus portuensis*, *Allocasuarina littoralis*, and *Xanthorrhoea johnsonii*, on moist and dry uplands and highlands on granite and rhyolite. Shrubland/low woodland mosaic with variable dominance, often including *Eucalyptus cloeziana*, *Corymbia abergiana, E. portuensis*, *E. reducta*, *E. lockyeri*, *C. leichhardtii*, *E. atrata*, *E. pachycalyx*, *E. shirleyi* and *Homoranthus porteri*, on rhyolite and granite Of Concern	Avoid dry conditions or fires will spread too much. April to July or as early as March, conditions permitting.	Moisture and topography affect severity. With Low to high. intensity	6-10 years with some areas burnt at longer intervals. Fire intervals less than 6 years are too short to allow replenishment of obligate seeders.	Mosaic burns will be achieved through use of natural features such as topography and creek-lines. Burn in association with surrounding vegetation. Protection relies on the broad-scale management of surrounding country with numerous small fires throughout the year so that wildfires will be very limited in extent. Fire exclusion and buffering from fire are not necessary.	Any planned burning should be conducted in association with plans for surrounding vegetation. Often contains obligate seed regenerating species and as such, the application of frequent fire may reduce species richness if the intervals between fire are not sufficient for plants to produce seed. Too frequent a fire frequency may result in a net loss of nutrients over time from an already nutrient poor system. Burn when water and moisture are present on the ground.
7.12.58: Wet Tropics Bioregion	*Eucalyptus reducta, E. granitica, Corymbia dimorpha, C. citriodora* and *Syncarpia glomulifera* woodland, on granite and rhyolite. Of concern	April-May or in some years through until Sep.	Low to occasional moderate.	6-10 years.	Mosaic burn 25-70% of the target area. Across the landscape burn different areas at different intervals to add diversity.	Occasional moderate fire can assist management of overabundant tree recruitment. Too frequent fire can eliminate shrubs which require several years before they set seed.

Regional Ecosystem	Description	Season	Intensity	Interval	Strategy	Issues
7.12.65 Wet Tropics Bioregion	Rock pavements or areas of skeletal soil, on granite and rhyolite, mostly of dry western or southern areas, often with shrublands to closed forests of *Acacia* spp. and/or *Lophostemon suaveolens* and/or *Allocasuarina littoralis* and/or *Eucalyptus lockyeri* subsp. *exuta*.	Avoid dry conditions or fires will spread too much. April to July or as early as March, conditions permitting. c: April-May or in some years through until Sep. d: Cool, dry season (April-Sep).	Moisture and topography affect severity.	6-10 years with some areas burnt at longer intervals. Fire intervals less than 6 years are too short to allow replenishment of obligate seeders.	Mosaic burns will be achieved through use of natural features such as topography and creek-lines. Burn in association with surrounding vegetation. Protection relies on the broad-scale management of surrounding country with numerous small fires throughout the year so that wildfires will be very limited in extent. Fire exclusion and buffering from fire are not necessary. c: Mosaic burn 25-70% of the target area. Across the landscape burn different areas at different intervals to add diversity. d: Mosaic burn < 30%. Begin burning early in the fire season, with progressive patch fires burnt through the year. Stop burning when the network of fires and other breaks is sufficient to impede fire spread later in the year. Storm-burning may be used to add further diversity to the fire mosaic. Maintain appropriate mosaic burning in surrounding country. Do not protect from fire but do not burn deliberately.	Any planned burning should be conducted in association with plans for surrounding vegetation. Often contains obligate seed regenerating species and as such, the application of frequent fire may reduce species richness if the intervals between fire are not sufficient for plants to produce seed (e.g., loss of Banksia plagiocarpa). Too frequent a fire frequency may result in a net loss of nutrients over time from an already nutrient poor system. c: Occasional moderate fire can assist management of overabundant tree recruitment. Too frequent fire can eliminate shrubs which require several years before they set seed. d: An occasional moderate severity fire may be used to manage overabundant recruitment of trees. Maintaining a fire mosaic will ensure protection of animal habitats and mitigate against wildfires. This is mainly a self protecting community.

Regional Ecosystem	Description	Season	Intensity	Interval	Strategy	Issues
9.12.4 / 9.12.2: Einasleigh Uplands Bioregion	(9.12.4) - *Eucalyptus shirleyi or E. melanophloia* with *Corymbia peltata* and/or *C. leichhardtii* low open woodland to low woodland on acid volcanic rocks. / (9.12.2) - Open forest commonly including *Eucalyptus portuensis*, *E. crebra* (sens. lat.), *Corymbia clarksoniana*, *C. citriodora* on steep hills and ranges on acid and intermediate volcanics close to Wet Tropics boundary.	Early dry season and storm time. Timing of early dry season burns will vary depending on seasonal conditions; it may sometimes commence as early as March. Avoid burning August-October when south-easterly winds are typically strongest..	Low, with occasional moderate or high.	5-10 years.	Apply mosaic across the landscape at a range of frequencies to create varying stages of post-fire response	These ecosystems contain shrubs that germinate after fire. Seedlings typically take a number of years to mature. Avoid repeated fires at short intervals and high intensity burns of broad areas. Leave areas of long unburnt vegetation to maintain a diversity of habitat for wildlife. Shrub species diversity will decline if areas are left long unburnt. Callitris intratropica are fire sensitive. Protect from fires until plants old enough to replace seed pool.
9.12.30 / 9.12.20 / 9.12.4: Einasleigh Uplands Bioregion	(9.12.30) - *Corymbia leichhardtii +/- Callitris intratropica +/- Eucalyptus shirleyi* low woodland to low open woodland on rhyolite hills. /(9.12.20) - *Eucalyptus pachycalyx* and *E. cloeziana* woodland on acid volcanics. / (9.12.4) - *Eucalyptus shirleyi* or *E. melanophloia* with *Corymbia peltata* and/or *C. leichhardtii* low open woodland to low woodland on acid volcanic rocks.	Early dry season and storm time. Timing of early dry season burns will vary depending on seasonal conditions; it may sometimes commence as early as March. Avoid burning August-October when south-easterly winds are typically strongest	Low, with occasional moderate or high.	5-10 years.	Apply mosaic across the landscape at a range of frequencies to create varying stages of post-fire response.	These ecosystems contain shrubs that germinate after fire. Seedlings typically take a number of years to mature. Avoid repeated fires at short intervals and high intensity burns of broad areas. Leave areas of long unburnt vegetation to maintain a diversity of habitat for wildlife. Shrub species diversity will decline if areas are left long unburnt. *Callitris intratropica* are fire sensitive. Protect from fires until plants old enough to replace seed pool.

Source: environment.ehp.qld.gov.au/regionalecosystems/detail. (2016).

6.0 Emergency Evacuation Procedures

Emergency evacuation procedures, plans and strategies, including associated documentation and signage should be prepared in accordance with the guidelines outlined by the RFSQ. This could include a Fire & Evacuation Plan. The RFSQ provide examples and templates of these types of documents, with useful fire emergency guidelines. The RFSQ website is **http://www.fire.qld.gov.au**.

6.1 Contacts - Roles & Responsibilities

The following people are responsible for the evacuation of the site and emergency response.

Title	Name	Telephone Number
Fire Warden	On-site Manager	TBA
First Aid	On-site Manager	TBA

6.2 Employee and Contractor Communication

All employees whilst working within the site (and away from the main office) are required to be contactable at all times. Means of communication may be by way of mobile phone, two-way radio (closed channel) or GPS trackers installed on company vehicles. Any contractors entering the site shall be inducted to the site and made aware of the emergency evacuation procedures. Contractors may, for example, also be issued with a GPS tracker for the duration of their stay within the site.

All vehicles shall be fitted with portable fire extinguishers suitable for extinguishing small grass fires.

6.3 Storage of Fuels and Hazardous Materials

All materials that are flammable and combustible should be stored in a secure and enclosed area away from the site office or any electrical infrastructure. An area of cleared land of all vegetation including grasses of no less than 20m shall be maintained surrounding the storage enclosure.

6.4 Emergency Contacts

For all fires and emergencies call 000

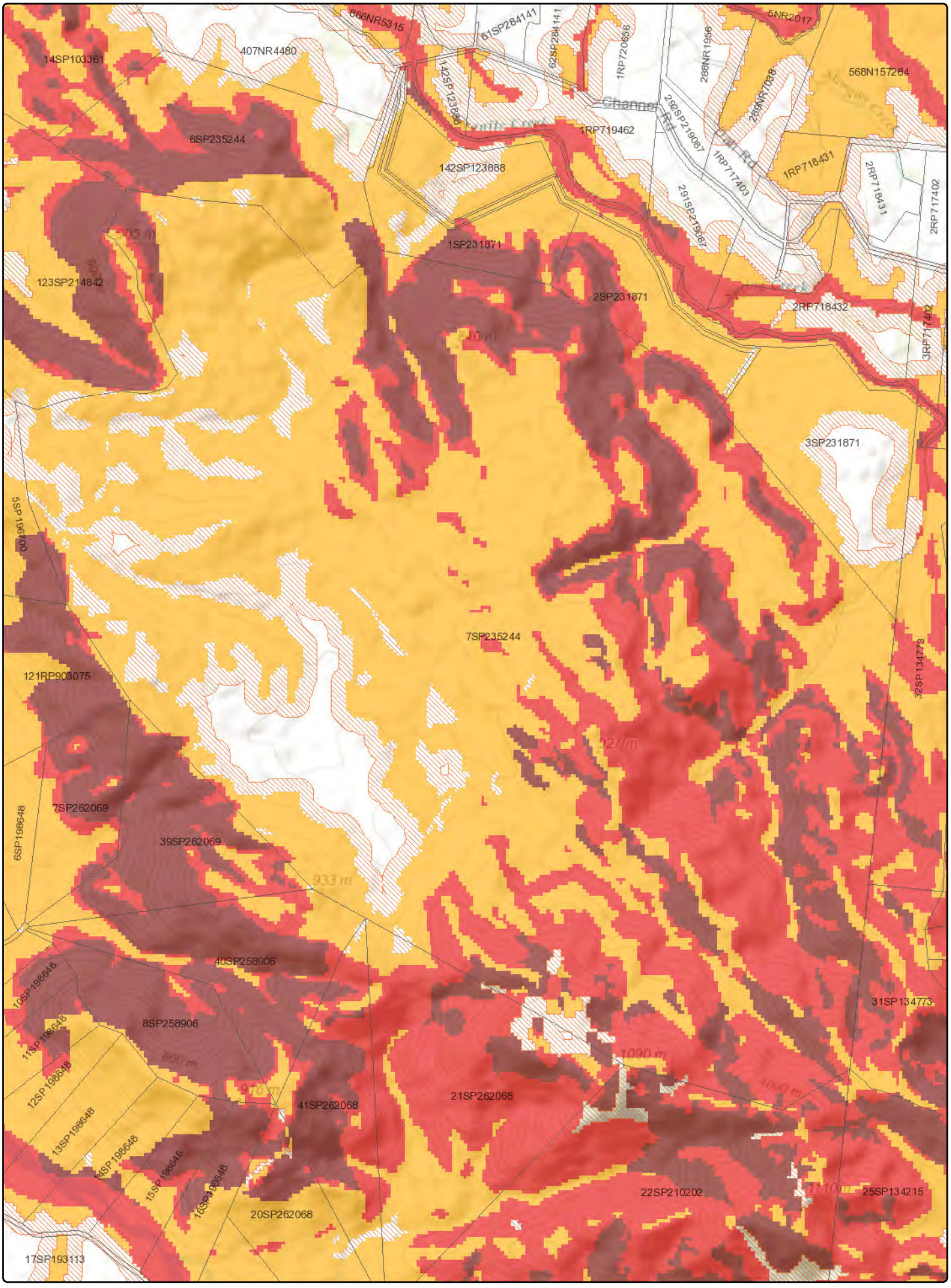
In the instance that it is not an urgent emergency the following contact details may be of assistance.

Emergency Services Contacts

Service	Location and Phone Number
Ambulance	Cairns and Hinterland Local Area Service Network: (07) 4032 8615
Fire Warden (Urban Fire Brigade)	Atherton Fire Station: (07) 4091 9290 Mareeba Fire Station: (07) 4092 1044
State Emergency Services (SES)	Cairns: (07) 4032 8682

Appendix 1

Bushfire Hazard Mapping



State Planning Policy

Local government development assessment

Date: 15/07/2016

Department of Infrastructure, Local Government and Planning

Queensland Government

0 580 1,160 1,740 2,320

Metres

Disclaimer:
This map has been prepared with due care based on the best available information at the time of publication. The State of Queensland holds no responsibility for any errors, inconsistencies or omissions within this document. Any decisions made by other parties based on this document are solely the responsibility of those parties.

Legend

Cadastre (50k)

Cadastre (50k)

Bushfire hazard area (Bushfire prone area)

Very High Potential Bushfire Intensity

High Potential Bushfire Intensity

Medium Potential Bushfire Intensity

Potential Impact Buffer

Queensland Government

Date: 15/07/2016

Department of Infrastructure, Local Government and Planning

State Planning Policy

Local government development assessment

Appendix 2

Northern Australia Fire Information (NAFI) Reports

Territory Natural Resource Management

Northern Territory Government

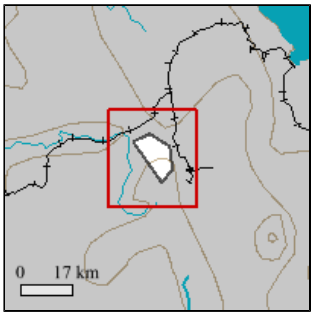
CHARLES DARWIN UNIVERSITY

Custom area

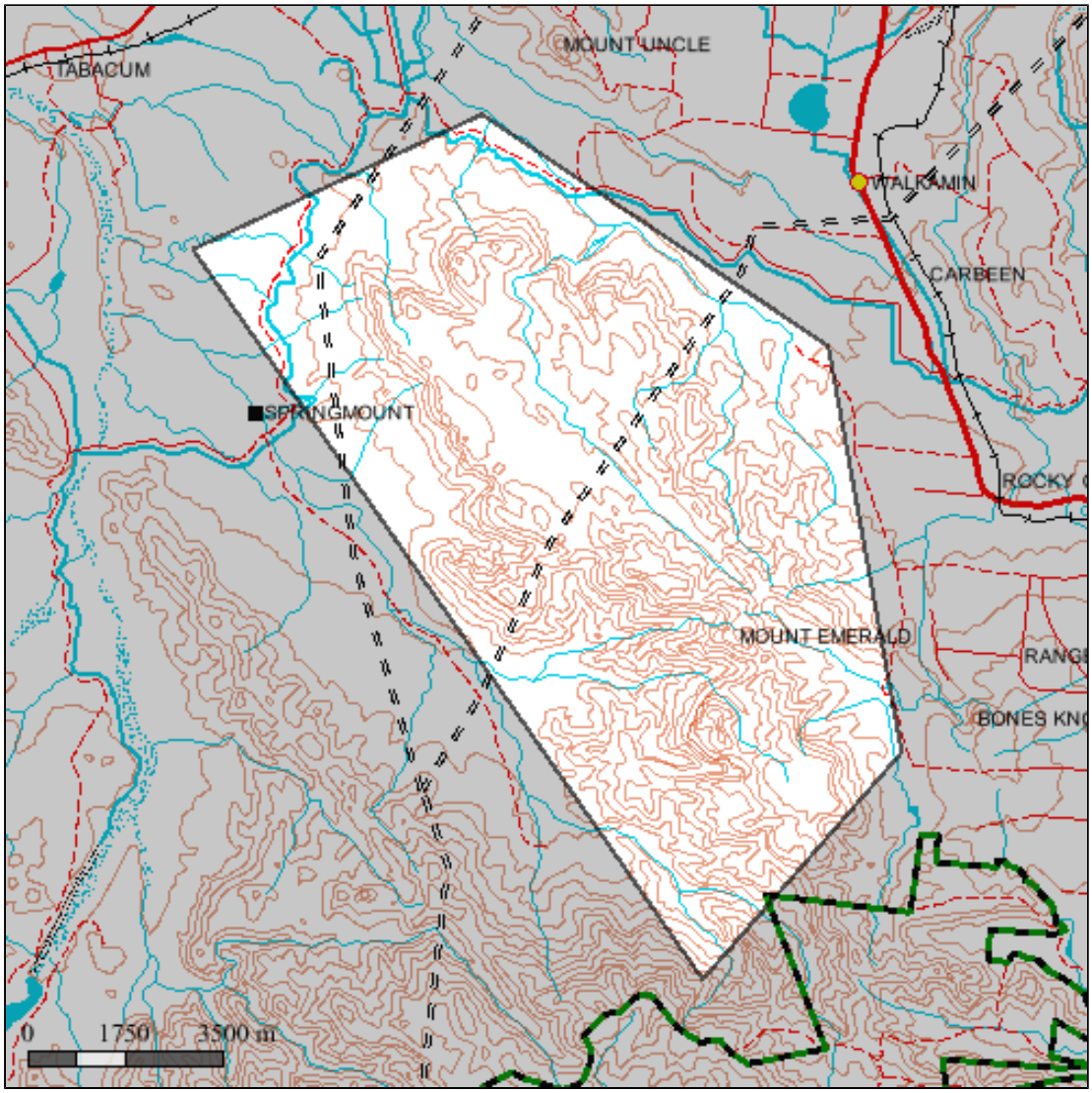
Fire History Report

Custom area

Custom area encompasses an area of 94.58 sq km extending from 17 deg 7.0 min to 17 deg 15.0 min S and 145 deg 19.0 min to 145 deg 26.0 min E.
Custom area is located in the Wet Tropics, Einasleigh Uplands, bioregion(s)



Location of Custom area

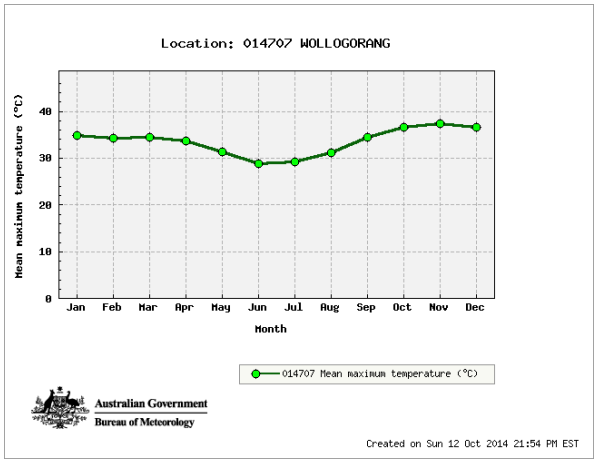


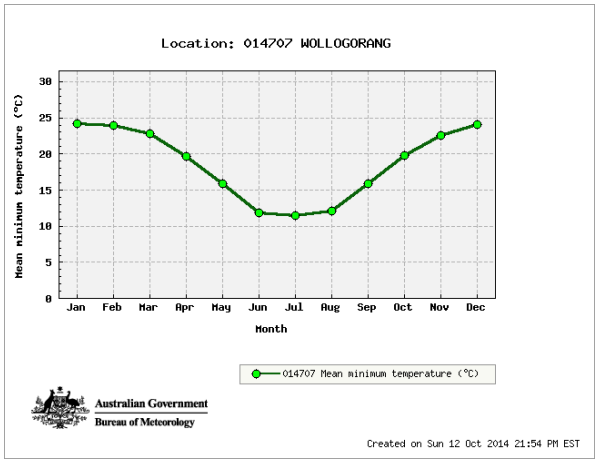
Custom area Climate

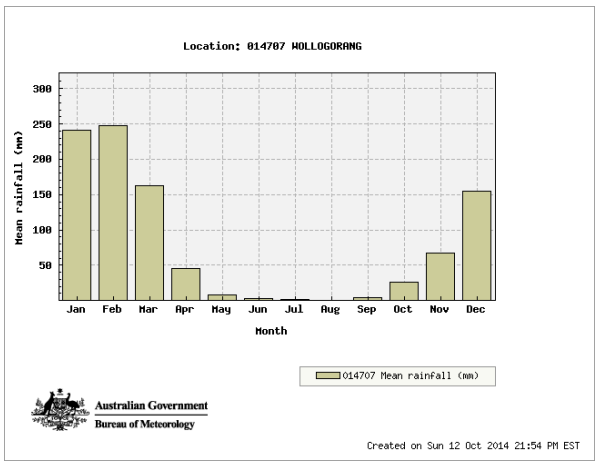
The closest long-term weather station is WOLLOGORANG (17 deg 12.0 min S, 137.9462E) 790 km W of the center of selected area

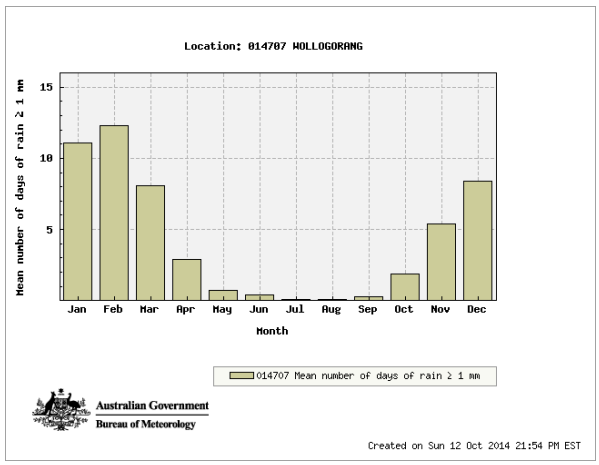
Statistics	Annual Values	Years of record
Mean max temp (deg C)	33.6	31
Mean min temp (deg C)	18.7	31
Average rainfall (mm)	973.3	38
Average days of rain	51.7	38

Climate summaries from Bureau of Meteorology (www.bom.gov.au)



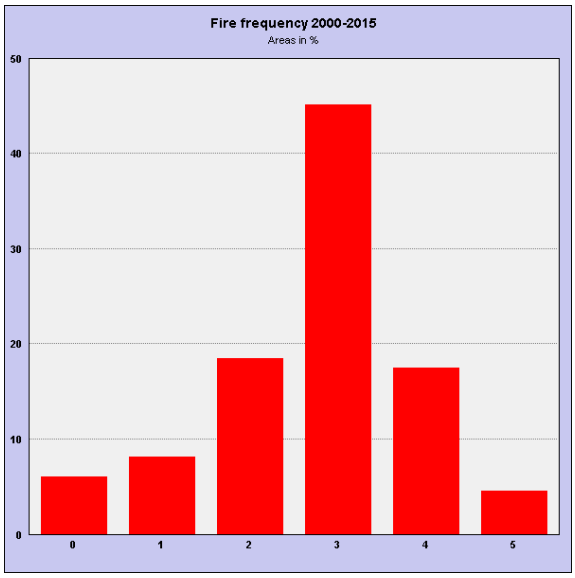






Custom area Fire History

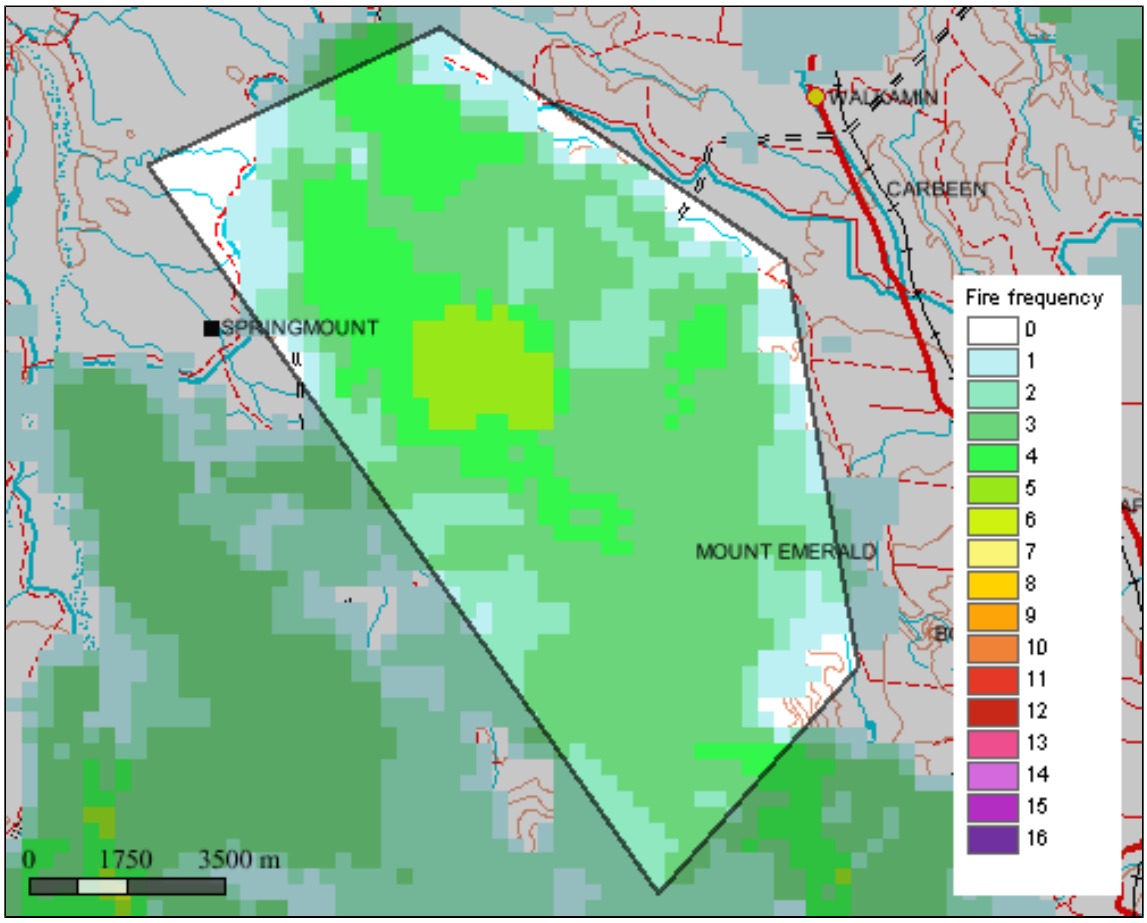
Fire frequency 2000-2015



area burnt for each fire frequency category 2000-2015

Category	Area sq km	Area%
0	5.75	6.08
1	7.71	8.15
2	17.53	18.54
3	42.71	45.16
4	16.53	17.48
5	4.35	4.60

Fire frequency 2000-2015



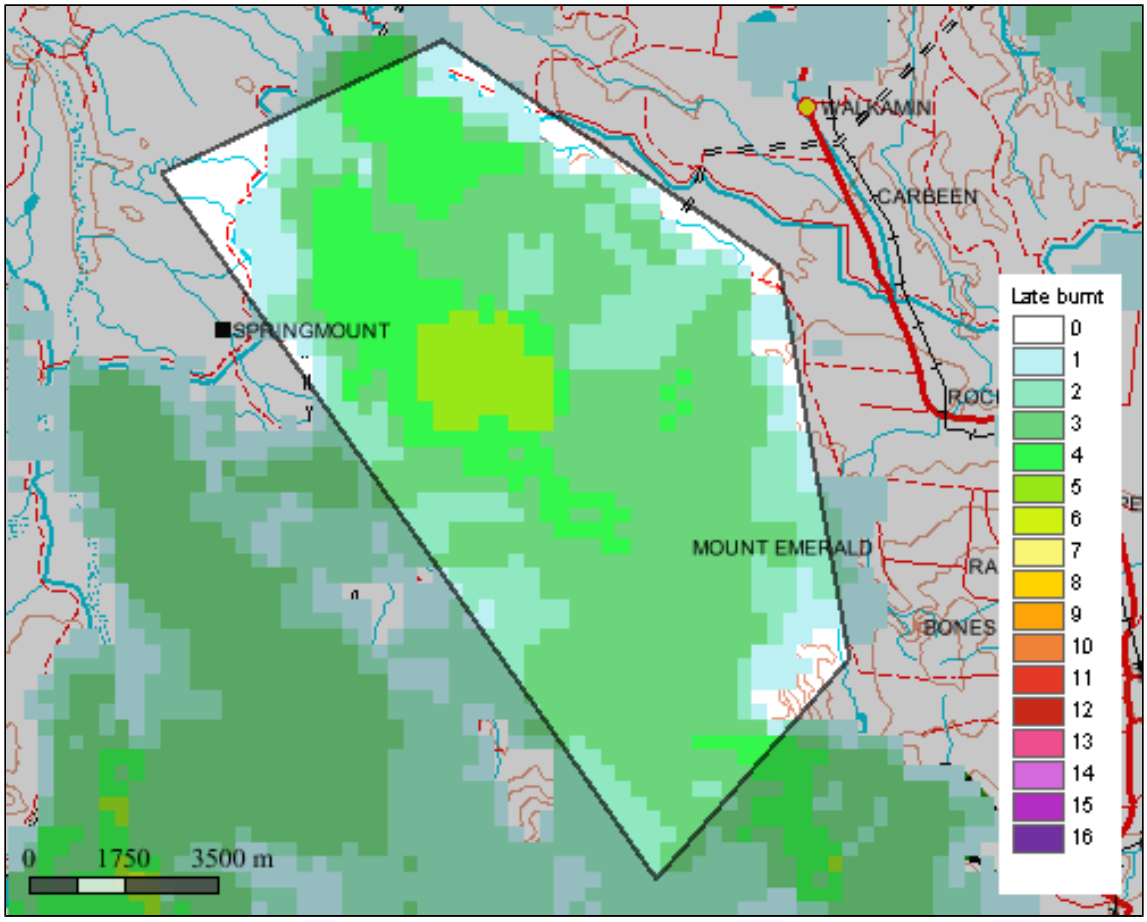
The fire frequency(250m) Layer is derived from satellite imagery sourced from the Moderate Resolution Imaging Spectroradiometer (MODIS) on the NASA Terra satellite
Spatial Resolution: 250m x 250m pixels (at Nadir).

Late fire frequency (after July 31) 2000-2015

area burnt in each late fire frequency category 2000-2015

Selected area is too small to produce reliable statistics

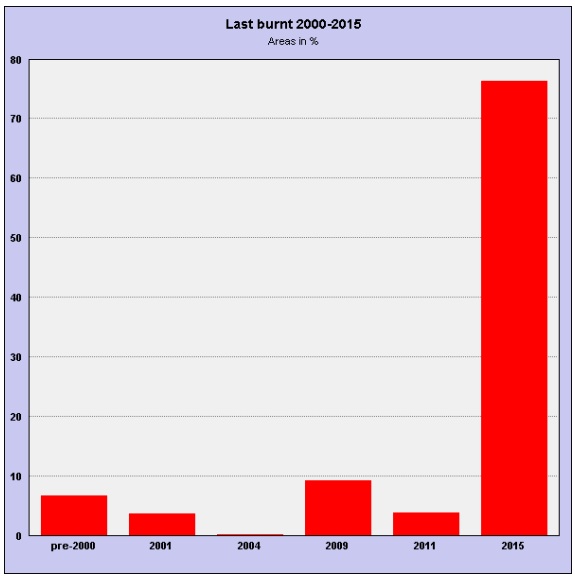
Late fire frequency 2000-2015



The fire frequency(250m) Layer is derived from satellite imagery sourced from the Moderate Resolution Imaging Spectroradiometer (MODIS) on the NASA Terra satellite Spatial Resolution: 250m x 250m pixels (at Nadir).

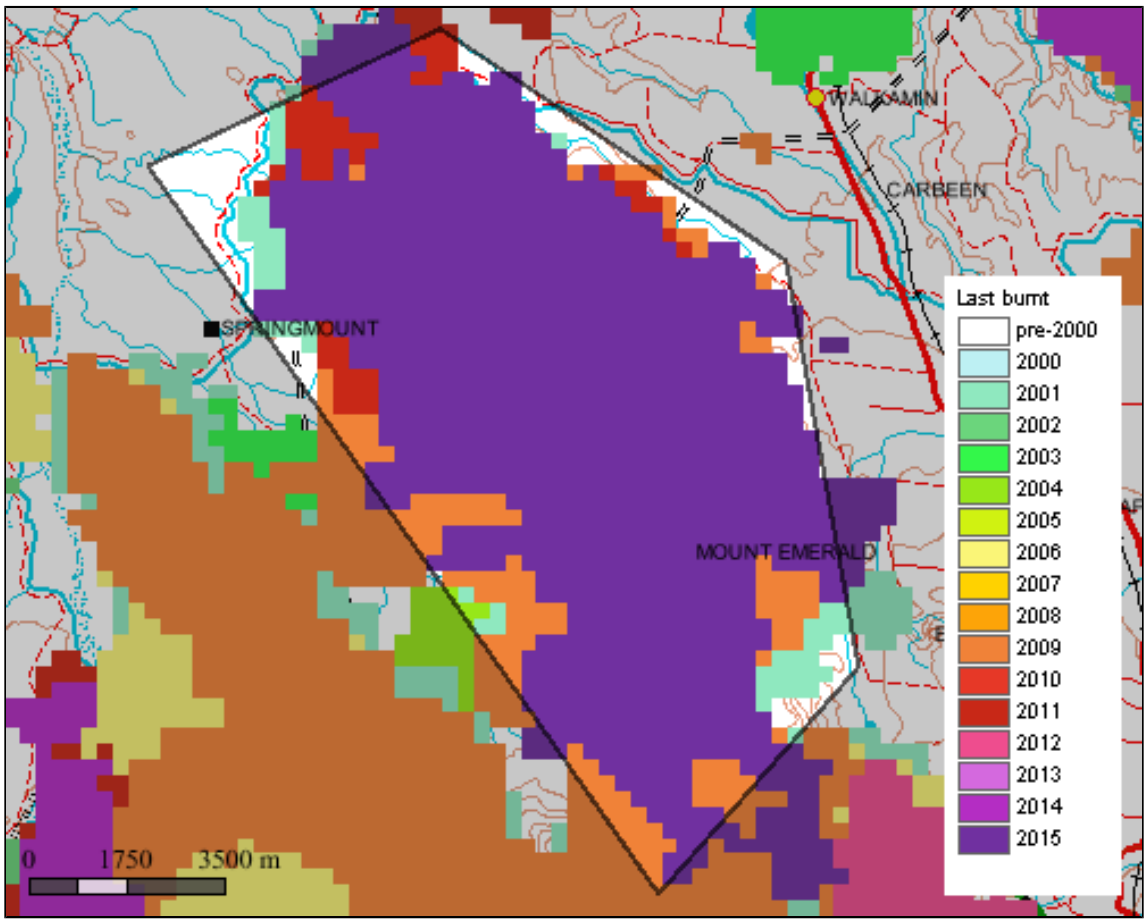
Year last burnt 2000-2015

and area of each year last burnt category



Category	Area sq km	Area%
pre-2000	6.35	6.71
2001	3.52	3.72
2004	.17	.18
2009	8.75	9.25
2011	3.64	3.84
2015	72.16	76.30

Year last burnt 2000-2015



The fire frequency(250m) Layer is derived from satellite imagery sourced from the Moderate Resolution Imaging Spectroradiometer (MODIS) on the NASA Terra satellite Spatial Resolution: 250m x 250m pixels (at Nadir).

Soils and vegetation graphs and tables refer to area of soils and vegetation only. Fire graphs and tables refer to entire selected area including sea if present. Calculations are derived from map images or vector data, and should be taken as a guide only. Accuracy cannot be guaranteed. For small areas, figures should be rounded to the nearest whole number.

Appendix 3

Bushfire Mitigation and Management Measures – Operation Phase

Table A-1 Prevention

PREVENTION				
Aspect	**ID**	**Management Action**	**Responsibility**	**Timing**
Fire Detection	1	Site personnel will report fires within the area of the Project. Site personnel will also rely on detection and reporting of bush fires in the region by neighbours, Mareeba Shire Council or RFSQ alerts.	All site personnel	During operation
	2	Identify potential sources of ignition e.g. fuel storage areas.	*[Contractor to insert]*	During operation
	3	The Contractor will advise RFSQ and Mareeba Shire Council of the contact details for the site (including after-hours contact details).	*[Contractor to insert]*	During operation
Fire Equipment	4	Vehicles will be regularly inspected and cleared of vegetation build-up.	*[Contractor to insert]*	During operation
	5	All machinery capable of causing a fire during operation will be fitted with appropriate guards to prevent accidental ignition of vegetation from sparks or heat sources.	*[Contractor to insert]*	During operation
	6	A water truck fitted with a water tank and pump system capable of initial attack of spot fires will be located on-site.	*[Contractor to insert]*	During operation
	7	The Contractor will supply sufficient fire fighting equipment (fire extinguishers, protective gear) to vehicles, machinery and amenities areas and provide a plan for employees to locate necessary equipment in the event of an emergency.	*[Contractor to insert]*	During operation
	8	Fire equipment will be checked and tested regularly to ensure it is in good working order and will be replaced or repaired where necessary.	*[Contractor to insert]*	During operation
Access	9	Access roads within the site will be regularly inspected and graded to ensure rapid deployment of fire fighting vehicles and earthmoving equipment to roll vegetation at the fire's edge (if required).	*[Contractor to insert]*	During operation
		Access roads are to be provided within the Project area in accordance with NSW RFS (2006).	*[Contractor to insert]*	During operation
	10	At least two evacuation routes will be maintained from each work area and these will be identified to all personnel working on the Project.	*[Contractor to insert]*	During operation
	12	Existing fence lines and access tracks will be maintained to assist in the control of fire.	*[Contractor to insert]*	During operation
	13	Evacuation doors, points and routes will be clearly marked and maintained around temporary construction facilities and office and amenities buildings. These will be inspected weekly as a part of the environmental inspection.	*[Contractor to insert]*	During operation
Storage	14	The Contractor will comply with all relevant regulations and the Dangerous Goods Safety Act 2004 (equivalent QLD statutory document) for fuel transport, containment and storage. All fuel will be stored in accordance with the relevant Australian Standards.	*[Contractor to insert]*	During operation
	15	Oxygen and fuel gas cylinders will not be stored together, with a minimum of 3 metres between cylinders.	*[Contractor to insert]*	During operation
	16	Flammable materials (solid, liquid or gases) shall not be stored within 5 metres of any occupied building. These materials will be suitably secured and correctly signposted "Danger, Highly Flammable."	*[Contractor to insert]*	During operation

PREVENTION				
Aspect	**ID**	**Management Action**	**Responsibility**	**Timing**
Other	17	Open fires will not be allowed in the Project area.	*[Contractor to insert]*	During operation
	18	For all work involving heat, sparks or flame, such as welding and grinding, all flammable materials will be cleared away from the area of works, whilst minimising disturbance to vegetation where possible. Fire extinguishers will be fitted to vehicles to extinguish spot fires. Where necessary a water cart and pump will be provided.	*[Contractor to insert]*	During operation
	20	The contactor shall establish and maintain Managed Fuel Zones in accordance with this BMP.	*[Contractor to insert]*	During operation

Table A-2 Preparedness

PREPAREDNESS				
Aspect	ID	**Management Action**	**Responsibility**	**Timing**
Training	1	Site induction will include information from this BMP. Employees will be shown the location and use of fire fighting equipment. Contractors will be briefed on relevant fire management practices and emergency response and evacuation procedures. Fire drills will be carried out on a quarterly basis to ensure all personnel are familiar with the procedures. These will be addressed in the site induction.	*[Contractor to insert]*	During operation
Equipment	2	Fire fighting equipment will be checked and maintained on a regular basis.	*[Contractor to insert]*	During operation
	3	Testing of alarm systems, escape routes and fire extinguishers will be conducted during weekly environmental inspections.	*[Contractor to insert]*	During operation
Housekeeping	4	Site personnel will maintain excellent housekeeping standards of storage areas and construction areas to minimize potential sources of flammable material.	*[Contractor to insert]*	During operation

Table A-3 Response

RESPONSE				
Aspect	ID	**Management Action**	**Responsibility**	**Timing**
Fire Suppression	1	Upon becoming aware of a fire, the observer will alert all bystanders and then attempt to extinguish the fire, if this can be done safely with adequately trained personnel. If the fire can be suppressed without additional resources, then personnel will suppress the fire, make the area safe and organise a patrol to monitor the suppressed fire.	All site personnel present at the fire	During operation
	2	The site personnel senior person at the fire will co-ordinate fire fighting activities and will be responsible for ensuring that all personnel are kept safe at all times.	All site personnel	During operation
	3	In the event that a fire is reported within the Project Area, *[contractor to insert position title]* will assess the situation and will decide whether to enact fire emergency procedures depending on the severity of the fire, current conditions and its potential to impact on infrastructure, or human and environmental values.	*[Contractor to insert]*	During operation

<table>
<tr><th colspan="5">RESPONSE</th></tr>
<tr><td>Aspect</td><td>ID</td><td>Management Action</td><td>Responsibility</td><td>Timing</td></tr>
<tr><td></td><td></td><td>Alternatively, if the fire is assessed as non-threatening and is not likely to impact on infrastructure, or human and environmental values, it will be closely monitored and allowed to burn out.</td><td></td><td></td></tr>
<tr><td></td><td>4</td><td>In the event that a fire occurs adjacent to the Project area, site personnel will contact the RFSQ and other relevant authorities to report the fire. The [contractor to insert position title] will assess the fire and whether it has the potential to migrate into the Project area and impact on infrastructure, or human and environmental values. If this is the case, the Contractor will implement emergency response procedures and liaise with RFSQ and other relevant authorities where necessary.</td><td>[Contractor to insert]</td><td>During operation</td></tr>
<tr><td></td><td>5</td><td>If a fire in the Project Area is considered to be of low threat to human and environmental values by [contractor to insert position title], the RFSQ will monitor the fire and liaise with other stakeholders where required.</td><td>[Contractor to insert]</td><td>During operation</td></tr>
<tr><td>Communication</td><td>6</td><td>In the event that control of the situation is taken by fire fighting authorities, the site personnel will follow the directions of the relevant authorities and assist where possible.</td><td>All site personnel</td><td>During operation</td></tr>
<tr><td></td><td>7</td><td>In the event that a significant bushfire occurs within the Project area, the Contractor will follow the communication protocol outlined below.
<table>
<tr><th>Service</th><th>Location and Phone Number</th></tr>
<tr><td>Ambulance</td><td>Cairns and Hinterland Local Area Service Network: (07) 4032 8615</td></tr>
<tr><td>Fire Warden (Urban Fire Brigade)</td><td>Atherton Fire Station: (07) 4091 9290
Mareeba Fire Station: (07) 4092 1044</td></tr>
<tr><td>State Emergency Services (SES)</td><td>Cairns: (07) 4032 8682</td></tr>
</table></td><td>[Contractor to insert]</td><td>During operation</td></tr>
<tr><td></td><td>8</td><td>If a bushfire occurs on or near the Project area, the response time to communicate with the relevant agencies will be dependent on the severity of the fire. The RFSQ and other relevant stakeholders will be notified immediately of a significant fire by [contractor to insert position title].</td><td>[Contractor to insert]</td><td>During operation</td></tr>
<tr><td></td><td>9</td><td>In the event of a significant bushfire requiring agency assistance, it is anticipated that the response time to communicate with these agencies will be less than 30 minutes.</td><td>[Contractor to insert]</td><td>During operation</td></tr>
<tr><td></td><td>10</td><td>It will be the responsibility of [contractor to insert position title] to communicate with the appropriate personnel to coordinate the necessary fire fighting equipment required for the first response of the fire. In the event that the fire is not immediately suppressed and further intervention is required [contractor to insert position title] will be responsible for contacting the appropriate fire fighting authorities.</td><td>[Contractor to insert]</td><td>During operation</td></tr>
</table>

RESPONSE				
Aspect	ID	**Management Action**	**Responsibility**	**Timing**
Responsibility	11	It will be the responsibility of *[contractor to insert position title]* to ensure the evacuation of buildings and affected areas within the Project area to a pre-arranged emergency meeting point.	*[Contractor to insert]*	During operation
	12	*[Contractor to insert position title]* will be responsible for liaisons with local authorities such as the Fire Service and Mareeba Shire Council on a as needs basis.	*[Contractor to insert]*	During operation

Table A-4 Assessment

ASSESSMENT				
Aspect	ID	**Management Action**	**Responsibility**	**Timing**
Recovery	1	Once the site has been deemed safe to re-enter *[contractor to insert position title]* will assess the extent of damage to the site and equipment and determine if works can resume. Part of the assessment will be to determine if the resumption of works will cause increased environmental damage, such as increasing the susceptibility of erosion.	*[Contractor to insert]*	During operation
Review	2	The BMP will be reviewed 12 monthly following the date of implementation, or earlier if a significant fire event has occurred to warrant a procedural review.	*[Contractor to insert]*	During operation
	3	The Contractor will review training needs and protocols on an annual basis.	*[Contractor to insert]*	During operation
Reporting	4	All fire incidents will be reported to *[contractor to insert position title]*. The person who observes the incident is responsible for reporting the incident.	*[Contractor to insert]*	During operation
	5	Fire and safety training undertaken by site personnel will be recorded and maintained.	*[Contractor to insert]*	During operation
	6	Relevant information will be provided in the monthly Project Report.	*[Contractor to insert]*	During operation