



Bushfire Hazard Assessment and Management Plan

Sunrise at 1770 Residential Area – Community
Titles Scheme CTS32536

September 13, 2021

Revision 2



3D Environmental
Landscape & Vegetation Science

Project No. 290

Project Manager: David Stanton

Client: Sunrise at 1770 Body Corporate

Specified Purpose: Bushfire Management Plan for Sunrise at 1770

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1	30 August 2021	David Stanton	Peter Kemp / Peter Stanton
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Purpose of the report: 3D Environmental has produced this report in its capacity as consultant for and on the request of Sunrise at 1770 Body Corporate. The information and any recommendations in this report are particular to the Specified Purpose and are based on facts, matters and circumstances particular to the subject matter at the time of production. This report is not to be used, nor is it suitable, for any purpose other than the Specified Purpose. 3D Environmental disclaims all liability for any loss and/or damage whatsoever arising either directly or indirectly because of any application, use or reliance upon the report for any purpose other than the Specified Purpose.

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1.0 Introduction and Background

This document presents a Bushfire Management Plan (BMP) for Sunrise at 1770 which has previously been incorporated into a broader fire management plan for the Reedy Creek Conservation Area (the 'Conservation Area') implemented by Bush Heritage Trust (BHT). The preparation of a separate plan for Sunrise at 1770 arises from BHT's transfer of responsibility for management of fire risk and hazard within the Sunrise at 1770 residential area (the 'Residential Area') to the Sunrise at 1770 Body Corporate under Titles Scheme 32536 (the Body Corporate). BHT will continue ongoing fire management and maintenance activities within the Conservation Area, consistent with dictates of the *Fire Management Plan: Reedy Creek Conservation Area* (Conservation Area Fire Plan) which was developed in 2004 with the most recent review completed in 2014.

1.1 Prior Management by Bush Heritage Trust.

Up to the date of preparation of this report, the purpose of the Conservation Area Fire Plan was to:

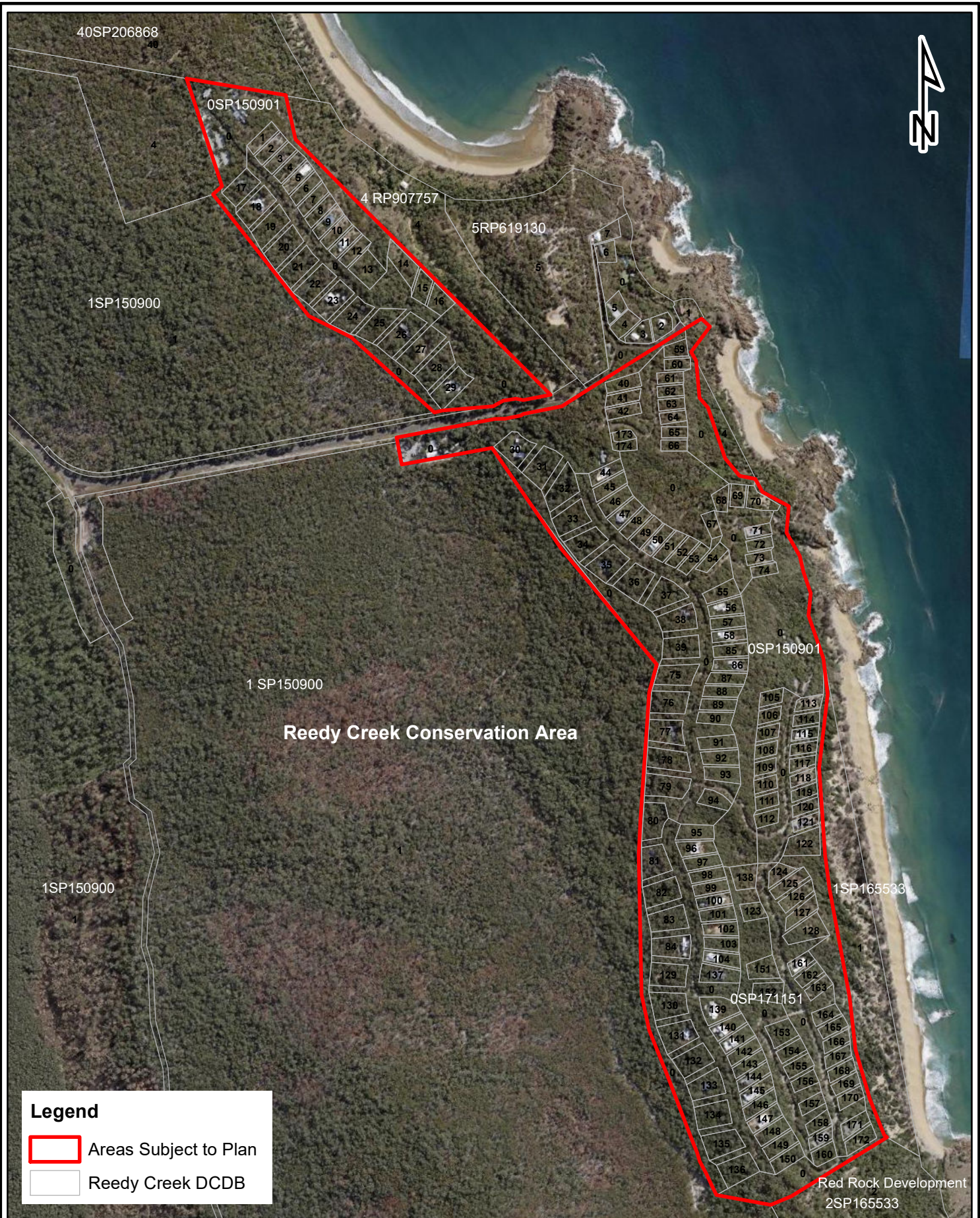
“To provide a prescription for the management of fire within the Conservation Area and some contiguous areas, based on an understanding of the likely behaviour of fire in their various habitats, the regime necessary for the maintenance of those habitats, and the overriding necessity to provide maximum security possible for the lives and property of residents within the area, and in neighbouring areas.”

The Conservation Area Fire Plan encompassed management of fire hazard within the Residential Area adjoining the Conservation Area including Sunrise at 1770 and the neighboring Red Rock development to the south. The location of the Conservation Area relative to the Residential Area subject to this BMP and other adjoining tenures is shown in **Figure 1**.

The Conservation Area Fire Plan is underpinned by a strategy which places maintenance of ecological values at a level that is *subservient to Interests of preserving human life and property*. It requires that unplanned fires must be easily controlled through the management of fuel accumulation in natural habitats through appropriate use of controlled burning, with physical removal or control of fuel loads in situations where application of fire is considered unpractical or hazardous. As identified in The Conservation Reserve Plan, a worst-case fire hazard scenario would involve fire travelling from two directions being.

- a. A fire in the swamp community on the western section of the Conservation Reserve when the ground is dry and driven by a strong westerly wind under conditions of low humidity. Under such conditions, burning bark carried by the wind could ignite spot fires within residential areas near the coast.
- b. Fires lit on the esplanade or nearby, under drought conditions, driven by a gale force south-easterly wind upslope on steep escarpments, towards houses.

Anticipation of these conditions creates an imperative to manage fuel levels in the swamp, to ensure that fires cannot burn across the Conservation Area from west to east, and that levels of ground layer fuel are kept as low as possible in vicinity of infrastructure within the Sunrise at 1770 development.



Legend

- Areas Subject to Plan
- Reedy Creek DCDB

Figure 1. Location of the Residential Area subject to the bushfire management plan

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0 0.2 0.4 0.6 0.8
Kilometres



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Providing current levels of prescribed burning in the Conservation Area are maintained, and fuels are not allowed to accumulate for decades in the adjoining National Park and the council controlled reserve to the north, a worst-case wildfire scenario for the residential areas would be extremely unlikely to involve a crown fire. The lack of many decades of fuel accumulation is the best guarantee of mitigating the potential for high magnitude wildfire.

Continued application of the Conservation Area Fire Plan by BHT will ensure the likelihood of fires entering the residential area from the west is low and much greater risk is posed by fire originating within the residential areas or the adjacent esplanade. Protection against any fires originating within the residential areas will depend on denying them the opportunity to gain size and momentum, a quick response to extinguish them, as well as the maintenance of a low fuel load adjacent to houses and wherever else possible. Fire protection through maintenance of fuel loads must also be augmented with appropriate physical fire breaks and establishment of “green buffer” areas where vine forest species have been planted under the eucalypt forest canopy to shade out flammable grasses and reduce inherent fire risk.

1.2 Climatic Considerations

The region is sub-tropical with highest monthly average temperatures recorded in Agnes Water ranging between 27.8°C and 31.7°C for the hottest month of January, and 19.4°C and 23.2 °C in the coldest winter month of July. The long-term average rainfall (30 years of data between January 1990 and August 2021) from the Seventeen-Seventy recording station BOM Recording Station ID 303194) is 1122.6mm (BOM 2021) with a pronounced wet season. Approximately 75% of the annual rainfall is recorded between November and March, inclusive (BoM 2021). Plant growth in the region is strongly limited by moisture rather than temperature which is reflected in the evapotranspiration rates at the Seventeen-Seventy recording station being considerably higher than average rainfall for all months except for February. The largest offset between rainfall and evapotranspiration occurred between July and December, particularly during the build-up to summer storms (**Figure 2**) (data from SILO 2021). Throughout this period, vegetation continues to dry resulting in progressively increased fire risk into latter parts of the year.

The region has experienced several significant drought events, with major climatic cycles reflected in **Figure 3** which show Cumulative Rainfall Departure (CRD) for the previous 30 years from January 1990 to August 2021. The early to mid-1990’s drought, the worst on record for Queensland, and the millennium drought which commenced in 2000 and peaked in 2007 are clearly visible in troughs in the CRD curve. There is also a strong trend for decreasing rainfall between 2019 and 2021. Drought events are interspersed with periods of above average rainfall which stimulate growth of groundcover and promote regeneration of vegetation fuel loads.

The most significant fire threat occurs in the months from July to December where the offset between rainfall and pan-evaporation is highest, and vegetative material will be at its driest and this will be exacerbated during drought periods. Strong, dry, westerly trade winds often blow between July and September, corresponding to high evaporation rates, dramatically increasing fire risk during these months. This is particularly relevant for fires which originate from the west. Northerly and north-easterly winds blowing up the coastal escarpment from the east present the most significant fire threat in terms of potential for property damage.

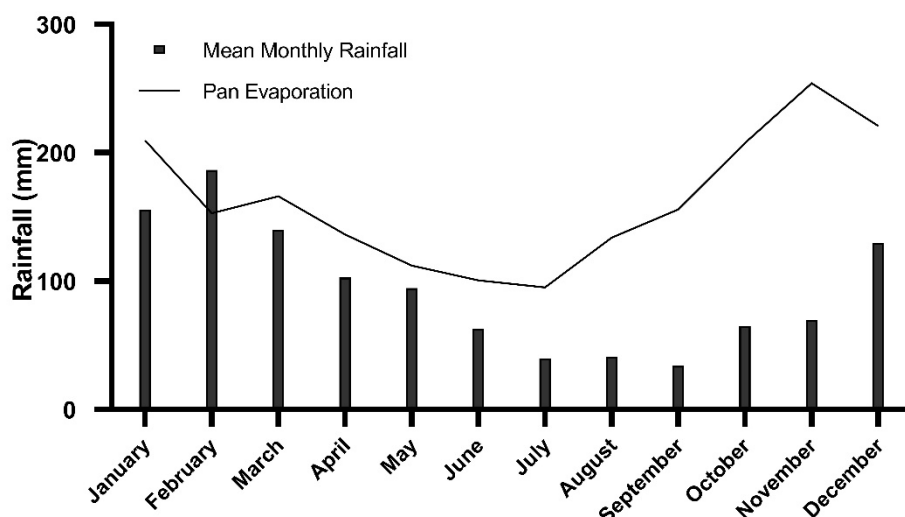


Figure 2. Average monthly rainfall plotted against pan evaporation for the Seventeen-seventy recording station.

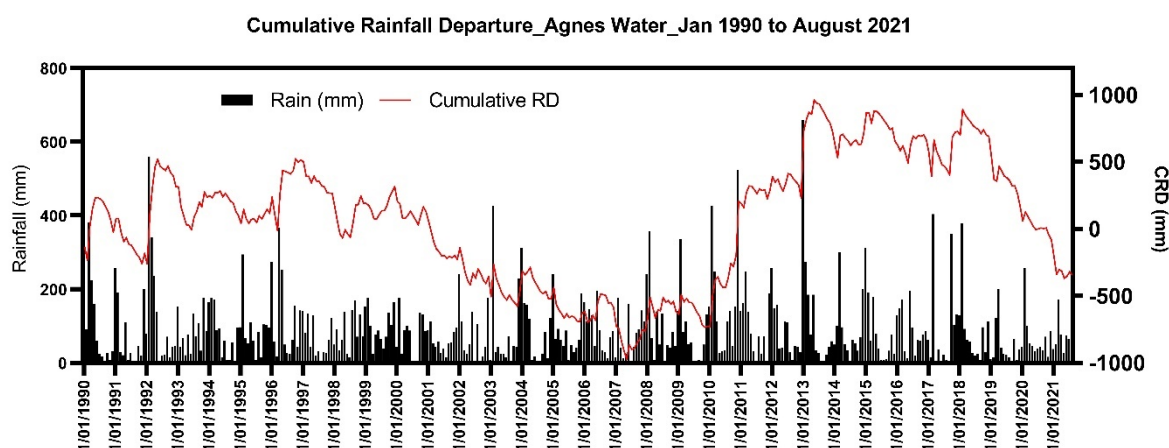


Figure 3. Cumulative rainfall departure for the Agnes Water (from Silo 2021) demonstrating periods of significant drought associated with decreasing rainfall trends and the declining trend in rainfall associated with the previous two years. The deep trough which peaked in 2007 coincides with the driest period of the Millennium Drought.

2.0 Aim of the Plan

The aim of this document is to prepare a BMP for the Residential Area. This will augment existing fire management protocols currently in operation under Conservation Area Fire Plan with localised / site specific measures applied within the Residential Area to reduce fire hazard to the lowest level possible, within the limitations imposed by the original Project Development Codes (KBR 2001) and Development Consent Order (2015).

3.0 Development Codes and Community Management Statement

3.1 General Development Code

The General Development Code for the Sunrise at 1770 development as prepared by Brown & Root (2001) prescribes the following approach to site development:

1. Protect the unique environment and character of the locality and the adjacent coastal waters
2. Constrain human activity on the site
3. Apply ecological sustainability principals and maintain environmental integrity.

Principals for the development include a requirement to *'Protect native vegetation by minimising site clearance and reinstating native vegetation from endemic stock'*. The following Performance Outcomes and Acceptable Solutions from the development codes are relevant to the BMP.

- **Performance Criteria P2:** The development must have minimal impact on the natural environment.
 - Acceptable Solution A7: The proposed development is designed, constructed, and managed to retain as much native remnant vegetation as possible.

3.2 Dwelling House Code

- **Performance Criteria P2:** Development must have minimal impact on the natural environment.
 - Acceptable Solution A6: Proposed development is designed, constructed and managed to retain as much native remnant vegetation as practicable.
 - Acceptable Solution A7: Clearing of the understorey vegetation and mowing of naturally occurring grasses to no more than 4 m outside the permitted building footprint will be permitted for fire control purposes.

3.3 Community Management Statement

From **Section 3.3** of the Design and Operations Manual (Building Curtilage and Footprint), the curtilage is an area four (4) metres wide measured outward from the outermost projection including eaves and gutters of any building within which selective removal of the under-story vegetation and mowing of naturally occurring grasses is permitted for fire mitigation purposes.

3.4 Gladstone Regional Council Planning Scheme

Development codes under the Gladstone Regional Planning Scheme (V2 2017) were not available for consideration when the General Development Code and Dwelling House Code for Sunrise at 1770 were developed. Under this scheme however, the Bushfire Hazard Overlay Code identifies the following Acceptable Solutions regarding roads, fire trails and firebreaks:

- **Acceptable Outcome 5.3:** Development incorporates an area of managed vegetation that separates lot boundaries from hazardous vegetation by a distance of:
 - 20m to a high or very high bushfire risk area or
 - 10m to a medium risk bushfire area and includes a fire access trail.

Under the Bushfire Hazard Overlay Code, all vegetation within the residential area is identified in bushfire hazard categories ranging from *Very High Potential Bushfire Intensity* to *Medium Potential Bushfire Intensity* dependent on slope class (see **Attachment A**). Therefore, if a development application were to be lodged under the current GRC Planning Scheme, a minimum 20m zone of managed vegetation would be required around dwellings as a condition of development approval.

4.0 Existing Fire Management Infrastructure and Procedures

BHT will continue fire management actions as dictated by the Conservation Area Fire Plan, requiring burning of habitats within The Reserve in fire management blocks divided by fire management boundaries /breaks and ecological burn characteristics. Fire management blocks, shown in **Figure 4** include:

1. Block 1 and Block 2: The southern and northern sections of the swamp forest on the western fringe of The Reserve.
2. Block 3: Shrubby woodland of banksia and bloodwood in the central portion of The Reserve area.
3. Block 4a and Block 4b: The bloodwood open forest on the interface between The Reserve and the Residential Area with Block 4a in the north and Block 4b in the south. These blocks are separated from the residential area by maintained mineral earth fire breaks allowing controlled burns to be undertaken along the boundary of the residential area.
4. Block 7: Represents habitats on the southern extent of the residential area contiguous with the Red Rock development.
5. Block 5a,5b, 5c, 5d, 5e and Block 6: Includes the Residential Area which is the subject of this BMP, comprising Block 6 north of Springs Road and Block 5a to 5e to the south. These blocks include the steep dune escarpment plunging to the east and the broad crest of the dune escarpment.

For this BMP, focus is on Blocks 5a to 5e and Block 6 which are directly applicable to the residential area and are under control of the Sunrise at 1770 body corporate. These fire management blocks are to be excised from future activities undertaken by BHT under the Conservation Area Fire Plan, which recommends a defensive approach to fire hazard reduction in the Residential Area including physical removal of fuel loads and planting of fire-retardant vegetation.

BHT have undertaken controlled burns as a component of 2021 prescribed burn plan within Block 4a and 4b, the northern section of Block 3 (against the southern side of the access road) and the southern section of the swamp forest (Block 1) which are all subject to controlled burn events. These burns will offer some protection for the Residential Area from fires approaching from the south and the west. The location of burn scars from the 2021 BHT prescribed burn program is shown in **Figure 5**, which also shows the location of existing fire breaks, access easements and green buffer areas where planting of rainforest trees and shrubs has been undertaken.

5.0 Australian Standards and Bushfire Attack Levels for Dwellings

The assessment of Bushfire Attack Level (BAL) for a dwelling is provided in accordance with **Australian Standard (AS) 3959-2018 - Construction of buildings in Bushfire Prone areas**. While the calculation of BAL is intended to dictate construction requirements for new dwellings (and may be applied for that purpose for future dwellings), it acts as a guide to hazard levels and mitigations in the case of existing dwellings. Bushfire attack occurs principally through embers, direct flame, or radiant heat. Intensification of attack occurs through hazardous vegetation on the downslope slope of a dwelling, or through wind, or a combination of these factors. Standard of construction in accordance with BAL rating, is one of the elements that reduces the risk of dwelling loss or damage, and a combination of several measures will provide the greatest level of hazard reduction and dwelling protection. This will include:

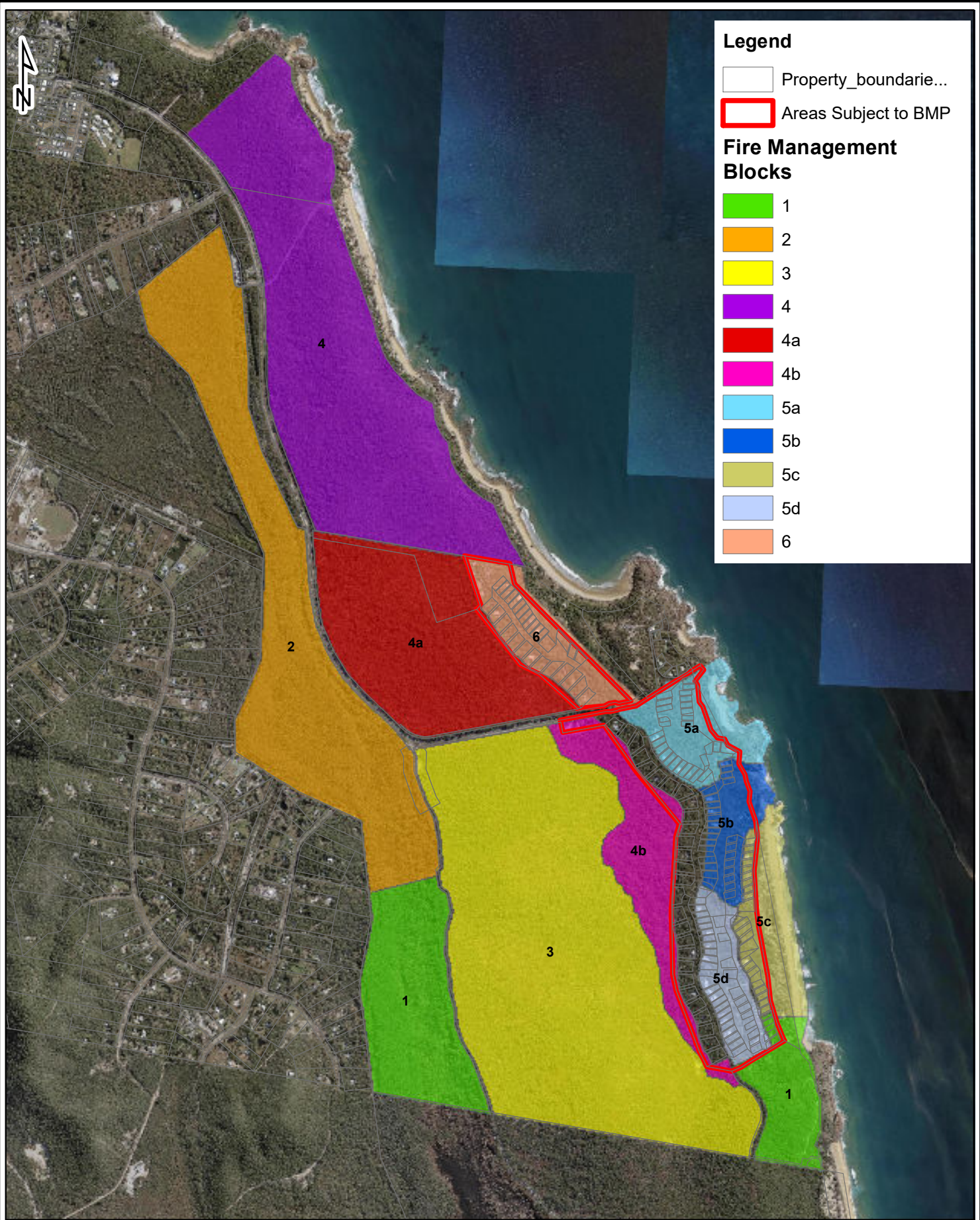
1. Preparation of an Asset Protection Zone (APZ), which is a buffer of managed vegetation around a dwelling where fine and woody fuel loads are minimised¹.
2. Landscape screening, in particular landscaping with fire retardant species, to protect from ember attack and fire generated wind.
3. Safe access protocols for firefighting personnel.
4. A dedicated source of water for firefighting.

Slope analysis across allotments in the Residential Area, as per slope categories prescribed in AS3959, to determine the influence of slope on fire hazard and associated BAL as shown in **Figure 6**. Contour data used to generate slope classes provide in **Attachment B**. It should be noted that:

1. The Residential Area is in south-east Queensland, which is attributed with Fire Danger Index (FDI) 40 (from AS3959).
2. Slope classes are indicative only and are a guide to slope influence on fire hazard. The Body Corporate should instruct owners to confirm with a site-specific slope hazard assessment.
3. Where hazardous vegetation occurs upslope from the dwelling, the bushfire hazard is reduced to levels associated with flat land.
4. Where hazardous vegetation occurs downslope from a dwelling, bushfire hazard increases with increasing slope angle (downslope angle).

The concept of upslope and downslope vegetation for the purpose of hazard assessment from AS3959 is shown in **Figure 7**. **Table 1** presents the risk levels to properties associated with individual BAL levels. BAL 19 is generally the current building standard for most LGAs, although the GRC does not prescribe BAL prerequisites for new dwellings. To minimise the risk of dwelling loss, it is recommended that the Body Corporate adopt a maximum hazard tolerance of **BAL 29** for existing dwellings and management measures be applied to reduce fire hazard to this level, or a lower risk level, as far as is practical. The recommendation for BAL 29 considers the restrictions on vegetation management imposed by the General Development Code and the Community Management Statement as well as the fire mitigation measures being undertaken in the fringing Conservation Area by BHT. If practical, APZ widths can be increased to further reduce BAL on dwellings.

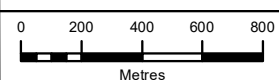
¹ The APZ is measured as a horizontal distance from the edge of a dwelling rather than distance on the ground.



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Figure 4. Fire management blocks from the Conservation Area Fire Plan

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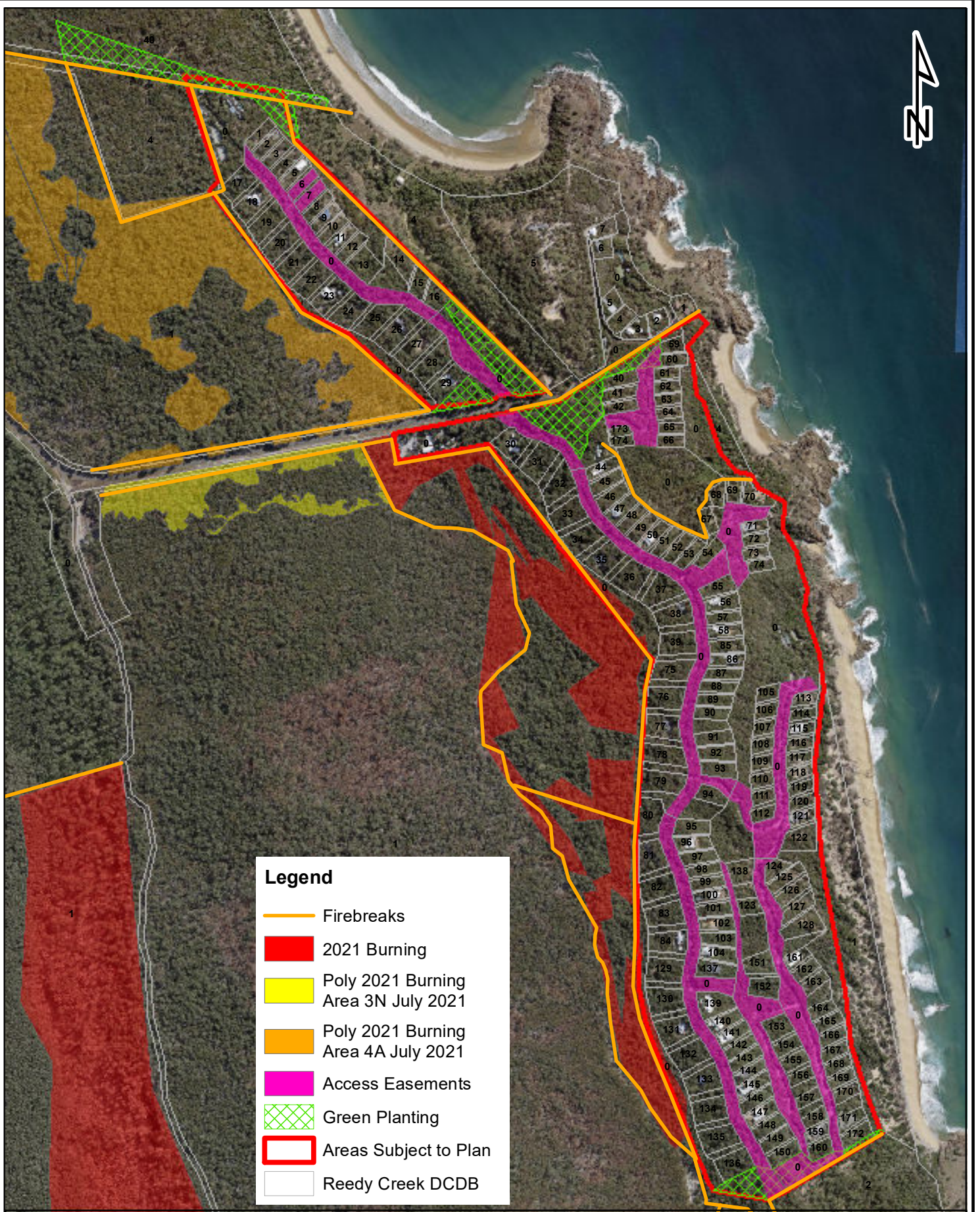
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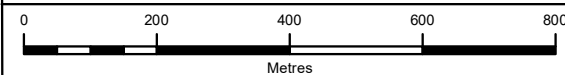


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- Firebreaks
- 2021 Burning
- Poly 2021 Burning Area 3N July 2021
- Poly 2021 Burning Area 4A July 2021
- Access Easements
- Green Planting
- Areas Subject to Plan
- Reedy Creek DCDB

Figure 5. Constructed firebreaks, green buffers and access easements with BHT burns from 2021

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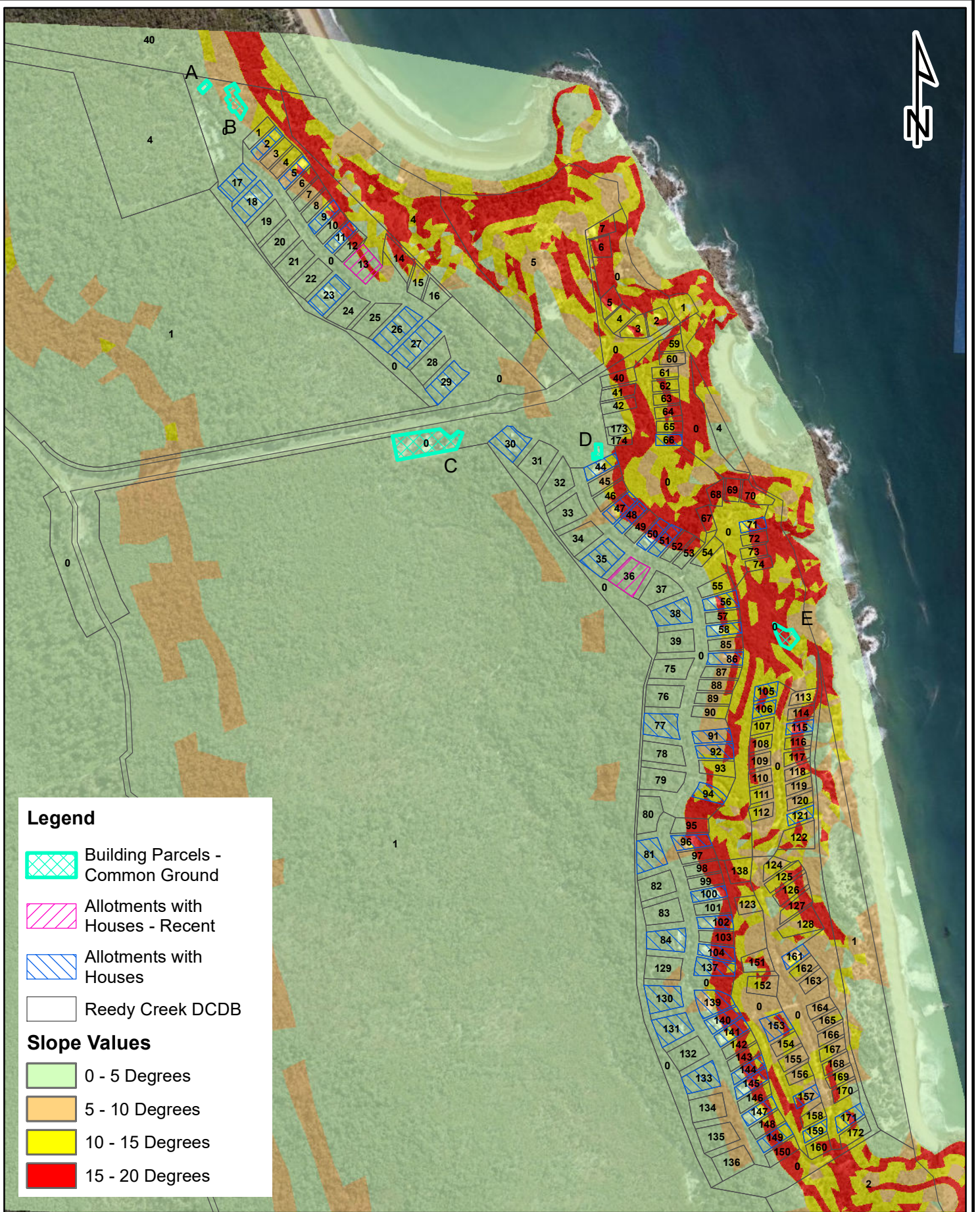
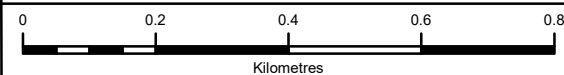


Figure 6. Slope classes representative of bushfire hazard levels relative to allotments

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Table 2 presents the APZs applied for the various BAL categories to individual allotments, including dwellings and infrastructure on common ground (see dwellings marked A to E on **Figure 6**). Allotments are divided into various slope and hazard classes. From Table 2, the following management buffers should be considered a minimum:

1. A minimum 31m APZ is required for dwellings where hazardous vegetation occurs downslope on slopes > 15° to achieve BAL 29.
2. A minimum 25m APZ is required for dwellings where hazardous vegetation occurs downslope on slopes > 10° to 15° to achieve BAL 29.
3. A minimum 20m APZ is required for dwellings where hazardous vegetation occurs downslope on slopes > 5° to 10° to achieve BAL 29.
4. A minimum 16m APZ is required for dwellings where hazardous vegetation occurs downslope on slopes > 0° to 5° to achieve BAL 29.
5. A minimum 13m APZ is required for dwellings where hazardous vegetation occurs upslope or flat land to achieve BAL 29.

A summary of recommended minimum APZ's for individual allotments with dwellings is provided in **Attachment B. Figure 8, Figure 9** and **Figure 10** provide illustration of APZs on selected representative allotments on slopes ranging from gentle (> 0° to 5° for allotment 23), moderate (> 10° to 15° for allotment 159) and steep slopes (> 15° for allotment 50 and 51).

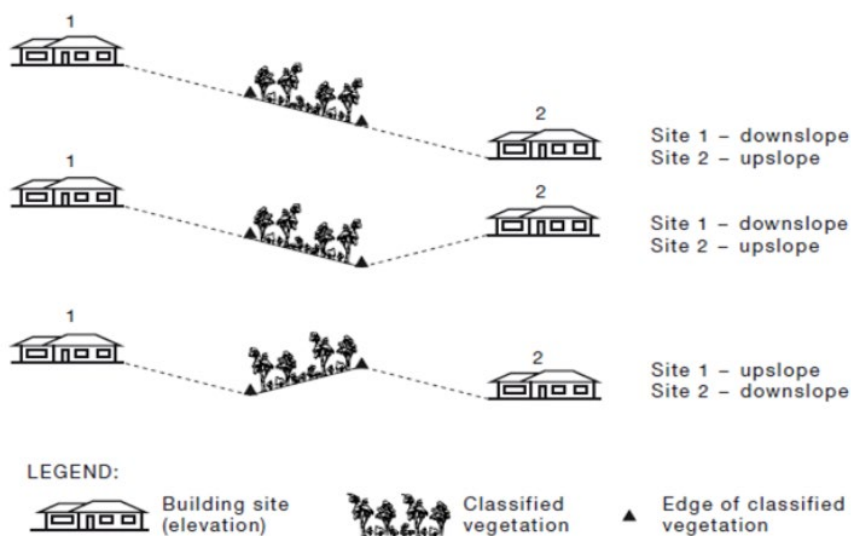
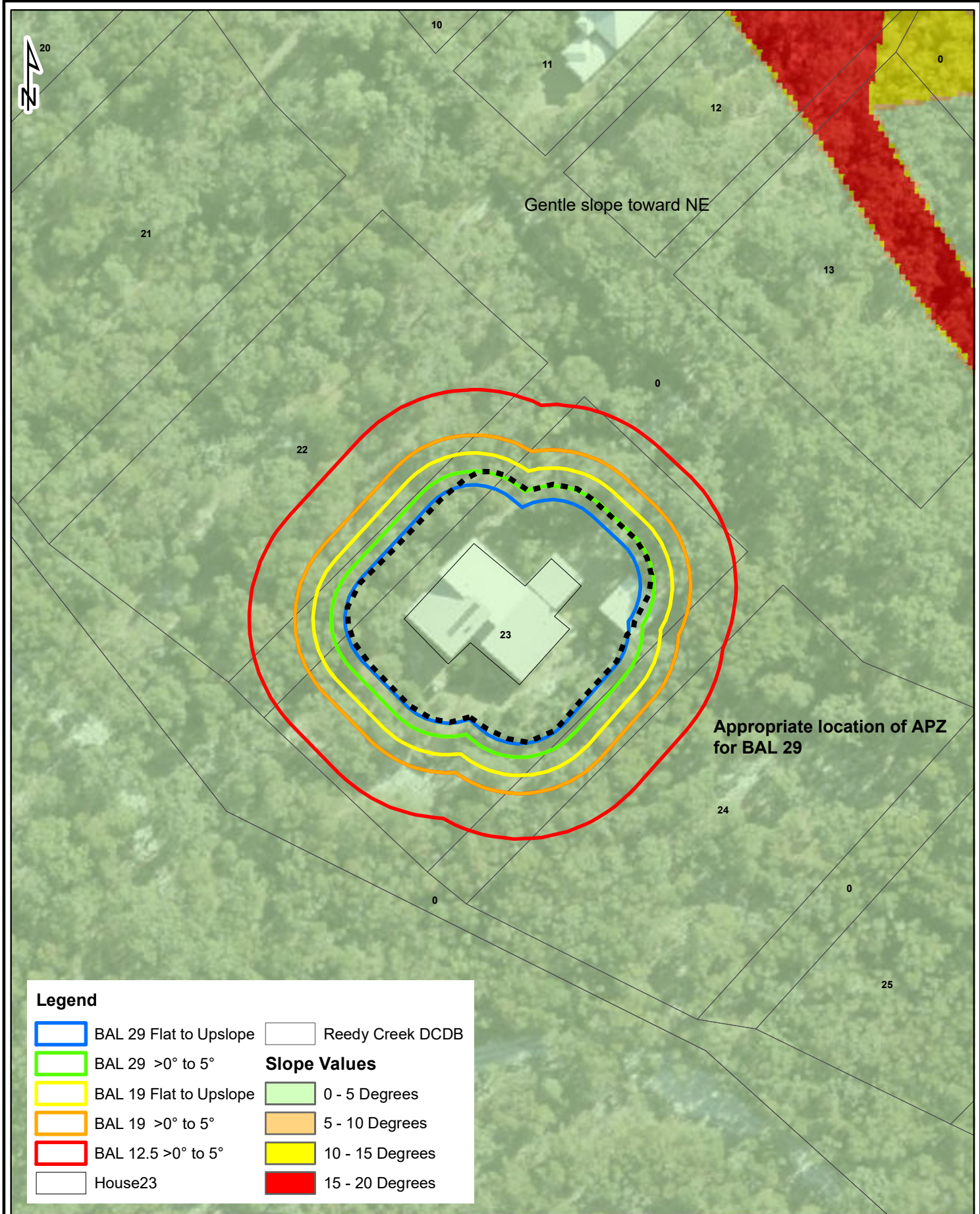


Figure 7. Slope categories /positions for hazardous vegetation as per AS3959.

BAL	Fire Hazard / Risk Category
BAL – LOW	Lowest risk from a potential fire.
BAL – 12.5	Risk is primarily from potential embers during a fire.
BAL – 19	Moderate risk, particularly from embers and burning debris.
BAL – 29	High risk, particularly from embers, debris and heat.
BAL – 40	Very high risk. Likely to be impacted by embers, debris, heat and potentially flames.
BAL – FZ	Extreme risk. Directly exposed to the flames of a potential fire front.

Table 1. BAL risk categories from NSW Rural Fire Service (2020).



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






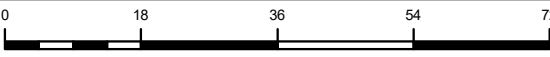
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|--|--|
|  BAL 29 Flat to Upslope |  Reedy Creek DCDB |
|  BAL 29 >0° to 5° | Slope Values |
|  BAL 19 Flat to Upslope |  0 - 5 Degrees |
|  BAL 19 >0° to 5° |  5 - 10 Degrees |
|  BAL 12.5 >0° to 5° |  10 - 15 Degrees |
|  House23 |  15 - 20 Degrees |

Figure 8. APZ widths for BAL's on Lot 23 where slopes are 0° to 5°.

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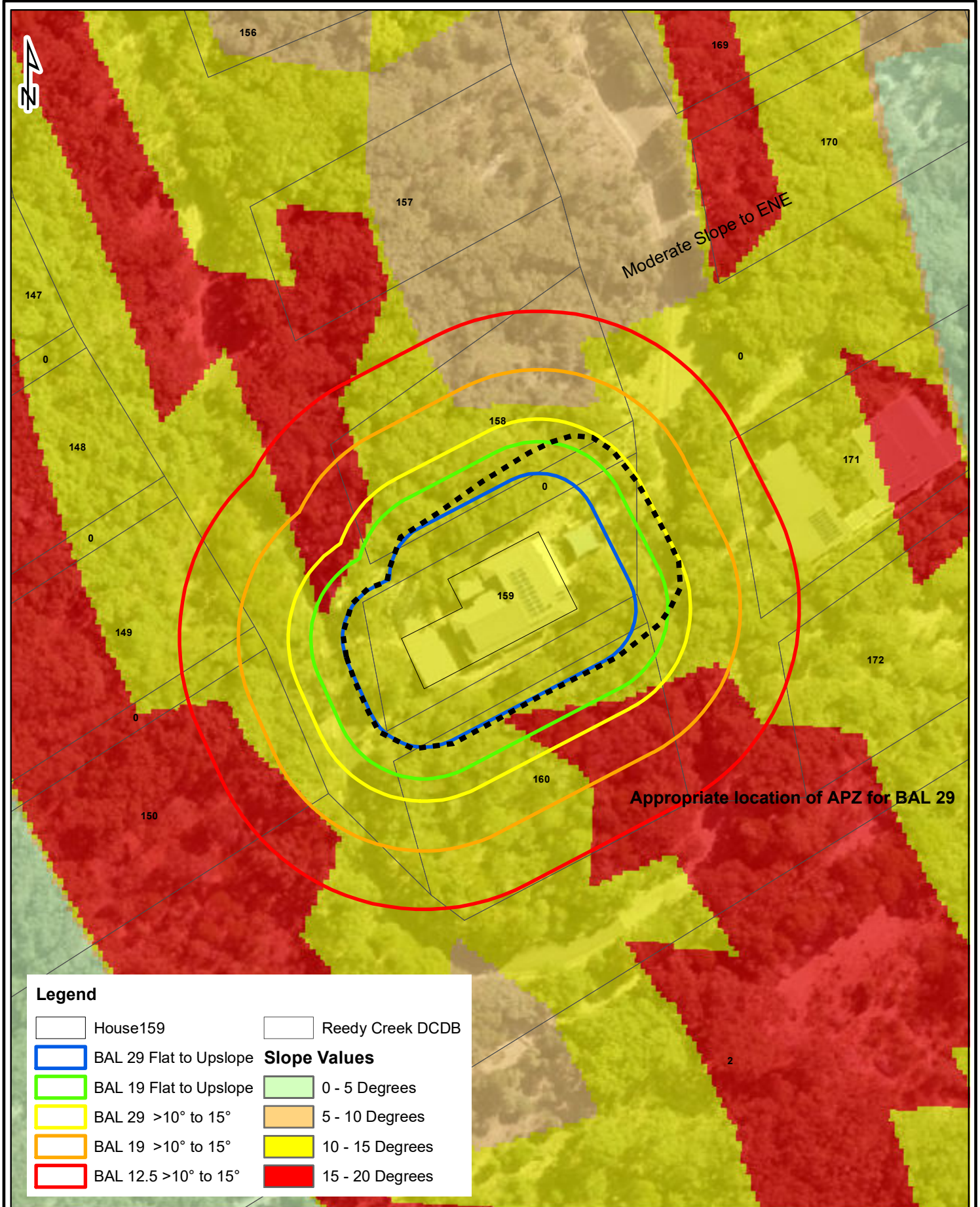
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Moderate Slope to ENE

Appropriate location of APZ for BAL 29

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House159	Reedy Creek DCDB
BAL 29 Flat to Upslope	Slope Values
BAL 19 Flat to Upslope	0 - 5 Degrees
BAL 29 >10° to 15°	5 - 10 Degrees
BAL 19 >10° to 15°	10 - 15 Degrees
BAL 12.5 >10° to 15°	15 - 20 Degrees

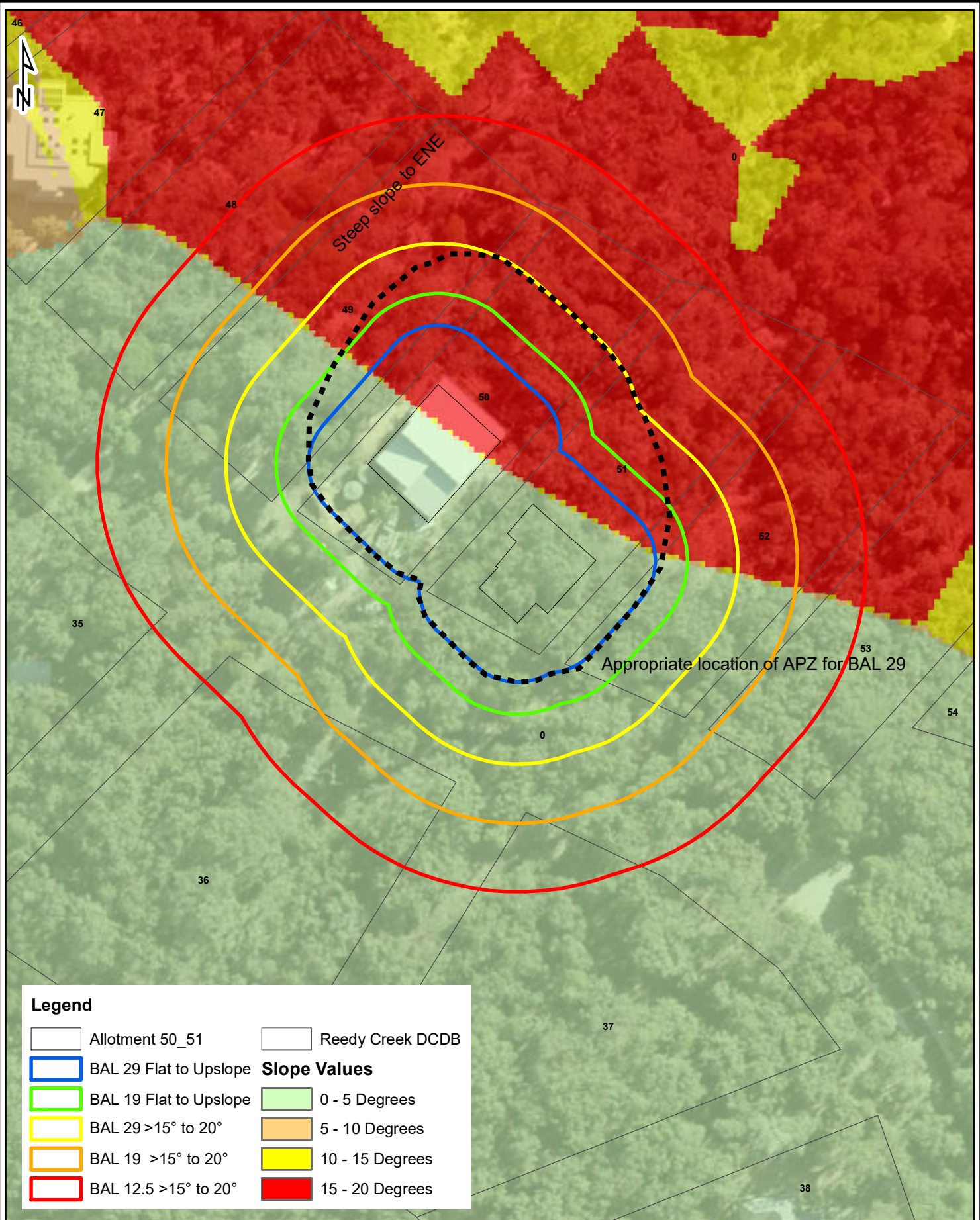
Figure 9. APZ widths for BALs on Lot 159 where slopes are >10° to 15°

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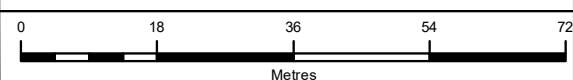


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- | | | | |
|--|------------------------|---------------------|------------------|
| | Allotment 50_51 | | Reedy Creek DCDB |
| | BAL 29 Flat to Upslope | Slope Values | |
| | BAL 19 Flat to Upslope | | 0 - 5 Degrees |
| | BAL 29 >15° to 20° | | 5 - 10 Degrees |
| | BAL 19 >15° to 20° | | 10 - 15 Degrees |
| | BAL 12.5 >15° to 20° | | 15 - 20 Degrees |

Figure 10. APZ widths for BALs for Lot 50 and 51 where slopes are >15° to 20°

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Allotment	Downslope Hazard Category	Minimum Asset Protection Zone Applied to Achieve BAL 29
2, 5, 9, 11, 44, 47, 48, 50, 51, 56, 58, 66, 71, 86, 91, 92, 96, 100, 102, 104, 115, 137, 139, 140, 141, 144, 145	>15° to <20°	31m
94, 105, 106, 121, 147, 149, 159, E_Pool, Change Room and Cabanas	>10° to <15°	25m
153, 157, 161, A_Caretakers House, B_Pools, Change Rooms and Tennis Courts	>5° to <10°	20m
13, 17, 18, 23, 26, 27, 29, 30, 35, 36, 38, 77, 81, 84, 130, 131, 133, 171, C_Office and Nursery, D_Managers House	>0° to <5°	16m

Table 2. Minimum Asset Protection Zone / Buffer required to achieve BAL 29 for individual allotments.

6.0 Management Actions within APZs

The following recommendations for management within APZs rely on forest fuel levels in the Conservation Area being managed through the prescribed burn program administered annually by BHT. Providing prescribed burning activities are maintained and fuel levels in natural forests are not allowed to accumulate for several years, a worst-case wildfire scenario for the Residential Area would not involve a crown fire. It is also unlikely that wildfire would gain sufficient size and momentum to breach fire breaks and buffers to penetrate deeply into the Residential Area from the west. A much more hazardous scenario would be fires, driven up the dune escarpment by strong wind from an ignition source (either lightning, accidental ignition, or arson), approaching the residential area from the east where forest fuel loads are unmanaged. For this reason, minimum APZs to achieve BAL 29 for downslope vegetation are critical for managing the risk of property loss.

The recommendations for management of hazardous vegetation within APZs are cognisant of restrictions on vegetation removal applied under the General Development Code although some deviations are however recommended to reduce bushfire hazard to an acceptable BAL's. These are discussed in **Section 7.0**.

It is also recommended that the Body Corporate provide advice to residents on disposal of green / woody waste that is generated during fire hazard reduction activities. This could be a dedicated waste disposal site be identified at a suitable location within the area under Body Corporate management, or an offsite disposal option.

6.1 Treatment of Trees and Woody Vegetation

Recommended treatments assume vegetation surrounding allotments with dwellings is an open forest with a typical canopy height range of 15m to 20m and a canopy cover of at least 60%. The dominant canopy species is pink bloodwood (*Corymbia intermedia*) with scattered Moreton Bay ash (*Corymbia tessellaris*) and understory cabbage palm (*Livistona australis*). Native groundcovers are typically blady grass (*Imperata cylindrica*) and bracken fern (*Pteridium esculentum*).

Within APZs, woody vegetation is retained as much as practical. Trees mitigate against high winds, disrupt wind passage, and disrupt associated ember attack. Trees also reduce the degree to which groundcover fuels dry out, acting to decrease fire hazard. Removal of mature canopy trees or parts of trees with APZs should be limited to management and removal of:

1. Dead stags or trees with a high proportion (<30%) of dead limbs.
2. Hollow trees which have potential to burn for extended periods and ultimately fall toward a dwelling during a bushfire.
3. Tree limbs which fall within the 4m buffer associated with the building curtilage.

Where downslope hazardous vegetation is shorter in stature, verging on shrubland dominated by allocasuarina or acacia (typically <8m average height) APZs can be reduced, and the following management actions adopted:

4. The APZ can be reduced to 15m width on slopes >15° where flammable shrubs including allocasuarina, banksia or acacia are removed.
5. Cleared shrubs can be maintained in a low fuel state (mown) or dense plantings of fire-resistant shrubs, small rainforest trees.

All allotment owners with dwellings should be encouraged to densely plant rainforest trees and shrubs within APZs as an additional line of defence against fire penetration.

6.2 Use of Mulch

Excessive mulching, except for fire-retardant mulch (wood chips), creates a significant fire hazard which is difficult to extinguish when ignited and carries ground level fires to the base of buildings. The use of mulch should be avoided in landscaped gardens adjacent to buildings, or at a maximum limited to spread around the base of a tree. Bare / mineral earth including sand or rock should be used in garden landscaping wherever possible.

6.3 Maintenance of Asset Protection Zones

The following recommendation can be made for allotment owners regarding maintenance of APZs:

1. Fuel removal should be done manually with a brush-cutter. Vegetative material from grasses (or shrubs when necessary) should be removed from the site after cutting. Effort should be taken to protect any small rainforest trees during this operation. There must be no flammable material touching or underneath buildings.
2. Ongoing annual inspections should be undertaken to identify hazardous trees, particularly canopy trees which are hollow or dying.
3. It will be in the residents' interests to develop as dense upper canopy as possible in the areas adjacent to their properties including APZs except where canopy branches overlap with the building curtilage. Apart from preserving existing canopy trees and shrubs (hollow trees excepted) the seedlings of any species from the vine forest should be protected. The reason for this is that the most easily managed ground cover is leaf litter which can be raked and mulched or removed. Additionally, fires burning in leaf litter can be easily controlled, especially in the absence of wind which trees obstruct. Dense vegetation, by suppressing grass and weed growth, providing a moister environment as compared to open areas while limiting local wind speed. This increases the potential to

control wildfires, other than intense wind-driven canopy fires which are considered unlikely providing BHT continues prescribed burning in the Conservation Area.

6.4 Recommendations for Management in Asset Protection Buffers

Table 3 provides prescriptions for management actions within APZs to achieve BAL 29, or as close to that value as practical, within constraints of the General Development Codes.

6.5 Management Measures for Allotments without Dwellings and Common Lands

A well-developed system of fire breaks is now established around the western boundary of the Residential Area with mineral-earth buffers of up to 4m wide and the establishment of “green buffer” areas where vine forest species have been planted under the eucalypt forest canopy. These measures effectively shade out flammable grasses and reduce inherent fire risk on the southern and northern boundaries. Bloodwood Avenue (north and south), Sunbird Drive and Hawksbill drive all serve to compartmentalise the land and break up potential fronts to slow or extinguish the travel of fire through the landscape (see **Figure 5**). To augment the action of these fire breaks, the following additional measures should be applied:

1. APZs established on allotments with dwellings should be extended across vacant allotments where there is overlap.
2. Mowing or slashing of grassy groundcovers to 10m either side of an established firebreak will greatly increase their effectiveness in suppression of fire. Alternatively, green plantings of rainforest trees within the maintained areas can be undertaken.
3. Regular (annual) inspection of the health of canopy trees adjacent to access roads and fire breaks should be undertaken and any hollow trees that represent a potential fire / falling hazard should be removed.
4. Physical removal of dead trees and bulky fuel should be undertaken opportunistically where strong fuel accumulation is identified.
5. Consideration can be given to prescribed burning with common lands to reduce fuel loads, though this will depend on support for prescribed burning within the Body Corporate, plus support from the local Rural Fires unit and possibly BHT.

7.0 Recommended Deviations from General Code of Development

It is recommended that amendments be made to the Dwelling Code (see **Section 3.2**) to:

- *Acceptable Solution A7: Clearing of the understorey vegetation and mowing of naturally occurring grasses to no more than 4 m outside the permitted building footprint will be permitted for fire control purposes.*

Acceptable Solution A7 should be updated to:

- *Clearing of the understory vegetation and mowing of naturally occurring grasses to a minimum extent to allow provide for BAL 29 on existing dwellings”. This would allow for mowing and trimming of natural grasses (including bracken fern) to a minimum horizontal distance of 31m from the building curtilage where dwellings occur on slopes >15 °.*

8.0 Bushfire Evacuation Plan

The Sunrise at 1770 estate has prepared an Emergency Evacuation Plan and a Wildfire Evacuation Plan which identify necessary emergency responses to bushfire. The Emergency Evacuation Plan is a flexible document that details:

- The potential emergencies that are applicable to the use.
- The written procedures developed in response to a Bushfire.
- The staff members responsible for particular actions in a Bushfire situation.
- The ongoing education and training proposed as part of the overall strategy.
- The location of emergency evacuation and assembly points.
- The location of firefighting equipment including fire hydrants.

The Wildfire Evacuation Plan details specific procedures to be followed if threatened by wildfire including emergency procedures, preparation of your home both internally and externally, procedures to protect property and procedures for evacuation which are targeted toward preservation of human life. Both documents are included in **Attachment D** without alteration and erasure as a complement to this BMP.

9.0 Closure

This document provides a BMP for Sunrise at 1770, complementing bushfire management actions by BHT in the Conservation Area which is contiguous with the residential area to the west. Recommendations contained within are intended to be flexible and adaptable with scope to further reduce BAL for dwellings if allowable by the Body Corporate and the operation and development codes by which it is governed.

The recommendations, intent and outcomes rely on ongoing fuel reduction activities in the Conservation Area as managed by BHT under the Conservation Area Fire Plan. Should management procedures and actions in the Conservation Area be significantly altered, this BMP will need to be reviewed to assess any changes of risk to both property and life. As such, ongoing interaction, and liaison with BHT will be required into the future on an annual basis to communicate management actions completed, particularly where these affect bushfire risk in the Residential Area.

Should further information or advice be required, please contact the undersigned.

Yours Sincerely,




David Stanton

Principle Landscape Ecologist – 3D Environmental

Ph: 0447822119

10.0 References

Bureau of Meteorology (BoM) (2021). Australian Government. www.bom.gov.au/climate/data/ - Recording Station 303194, accessed 28 August 2021.

New South Wales Rural Fires Service (2020). Building in Fire Prone Lands, available at:
[Your Level of Risk - NSW Rural Fire Service](#)

Silo (2021). Australian climate data from 1989 to yesterday. Available at:
[SILO | LongPaddock | Queensland Government](#)

Standards Australia (2018). Construction of Buildings in Bushfire Prone Areas – AS3959 - 2018

Stanton J.P and Stanton D. (2014). Fire Management of the Reedy Creek Conservation Area, Agnes Waters, Queensland – 2014 to 2019. Prepared for the Bush Heritage Trust.

Table 3. Recommendations for management buffer / Asset Protection Zones for all houses with dwellings.

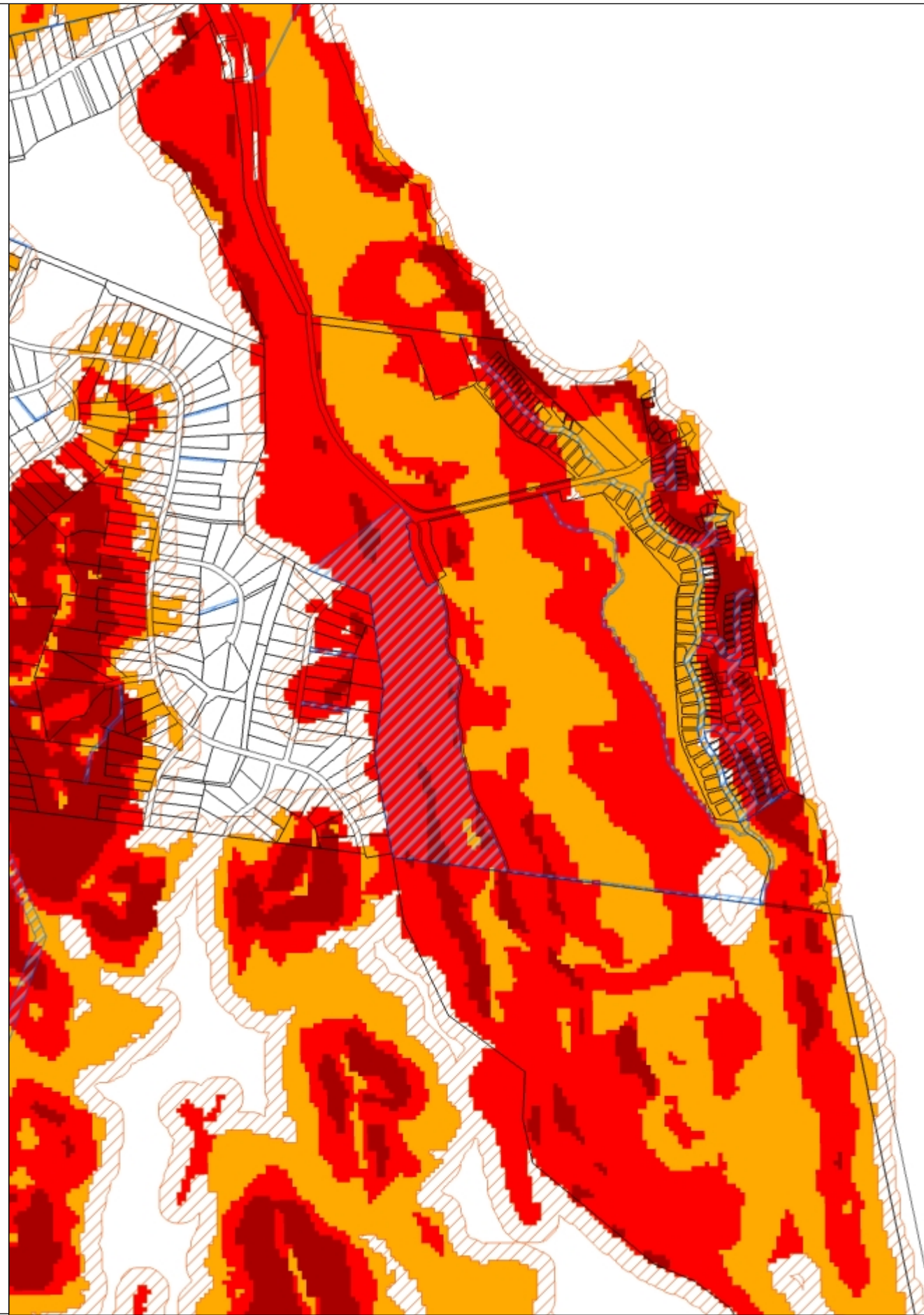
APZ Aea / Width ²	Subject Allotments	Slope Classes	Management Requirements
0-4m	All allotments with dwellings	All slope classes	<ol style="list-style-type: none"> 1. Cleared and kept clear of all grassy and woody fuels. 2. Canopy and sub-canopy trees with branches that overlap the building curtilage should be lopped by a qualified arborist. 3. No flammable organic mulch to be used. 4. Firebreaks to constructed from mineral earth / rock 5. Garden bed to use non-flammable mulch and comprise non-flammable vegetation / rainforest trees.
4 – 20m	All allotments with dwellings	All slope classes	<ol style="list-style-type: none"> 1. All hazardous canopy and sub-canopy trees are to be removed including <ol style="list-style-type: none"> a. Trees with significant hollows at the base. b. Dead or dying trees. 2. Any sub-canopy livistona to be stripped of dead leaves to prevent potential for fire ladders into the canopy.
4 – 13m	As per site assessment	All allotments where hazardous vegetation lies on slope classes that range from flat to upslope	<ol style="list-style-type: none"> 1. All exotic grasses removed. 2. Native grasses kept cropped low to the ground and regularly mown. All bracken fern should be removed. 3. Woody sclerophyllous shrubs (mostly wattles) should be removed. 4. Rainforest shrubs can be retained
4 – 16m	2, 5, 9, 11, 13, 17, 18, 23, 26, 27, 29, 30, 35, 36, 44, 48, 49, 50, 51, 56, 58, 77, 81, 84, 86, 96, 100, 102, 104, 137, 139, 140, 141, 144, 145, 147, 149, C_Office and Nursery, D_Managers House	All sites with downslope hazardous vegetation on slopes from 0° to <5°	<ol style="list-style-type: none"> 1. All exotic grasses removed. 2. Native grasses kept low to the ground and regularly mowed. All bracken fern should be removed. 3. Woody sclerophyllous shrubs (mostly wattles) should be removed. 4. Rainforest shrubs can be retained
4 – 20m	47, 86, 91, 92, 96, 139, 153, 157, 161, A_Caretakers House, B_Pools, Change Rooms and Tennis Courts	All allotments where downslope hazardous vegetation lies on slopes >5° to 10°.	<ol style="list-style-type: none"> 1. All exotic grasses removed. 2. Native grasses kept low to the ground and regularly mowed. All bracken fern should be removed.

² Measured as a horizontal distance from the edge of building curtilage

APZ Aea / Width ²	Subject Allotments	Slope Classes	Management Requirements
			<ol style="list-style-type: none"> 3. Woody sclerophyllous shrubs (mostly wattles) should be removed. 4. Rainforest shrubs can be retained
20 – 25m	2, 5, 44, 56, 58, 66, 71, 92, 94, 105, 106, 115, 121, 147, 159, 171, E_Pool, Change Room and Cabanas	All allotments where downslope hazardous vegetation is on slopes >10° though not more than 15°.	<ol style="list-style-type: none"> 1. Grasses and other herbaceous groundcovers including bracken to be mown / kept trimmed. 2. All woody shrubs including eucalypts, acacias and rainforest species to be retained. 3. Gradual promotion of woody groundcovers through removal of grasses.
20 – 36m	2, 5, 9, 11, 44, 47, 48, 50, 51, 56, 58, 66, 71, 86, 91, 92, 96, 100, 102, 104, 115, 137, 139, 140, 141, 144, 145	All allotments where downslope hazardous vegetation occurs on slopes >15°	<ol style="list-style-type: none"> 1. Grasses and other herbaceous groundcovers including bracken to be mown / kept trimmed. 2. All woody shrubs including eucalypts, acacias and rainforest species to be retained. 3. Gradual promotion of woody groundcovers through removal of grasses.

Attachment A. Gladstone Regional Council bushfire hazard mapping

- Bushfire Prone Areas**
- Very High Potential Bushfire Intensity
 - High Potential Bushfire Intensity
 - Medium Potential Bushfire Intensity
 - Potential Impact Buffer



Map Title

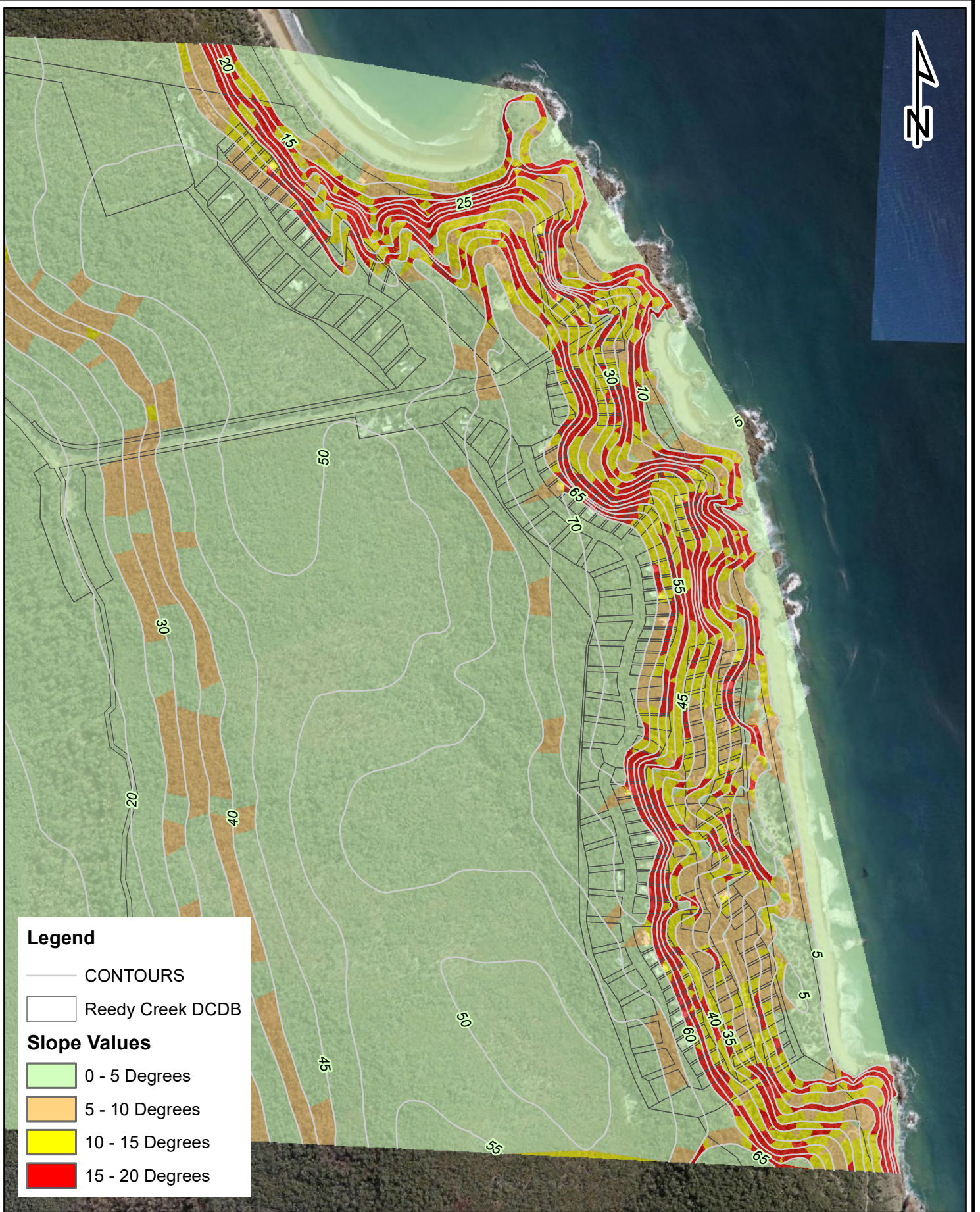
678.74 0 339.37 678.74 Meters



Printed: 28-Aug-2021
 Map Scale 1: 27,149
 Original Size: A3

© The State of Queensland Department of Natural Resources and Mines 2021 and Gladstone Regional Council 2021. In consideration of the State and Gladstone Regional Council permitting use of this data you acknowledge and agree that the State and Gladstone Regional Council gives no warranty in relation to the data including accuracy, reliability, completeness, currency or suitability and accept no liability including without limitation, liability in negligence for any loss, damage or costs including consequential damage relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws. The information shown on this plan is approximate only and should not be considered as any more than indicative only.

Attachment B. Contour data used to generate slope hazard classes from AS3859.



Legend

- CONTOURS
- Reedy Creek DCDB

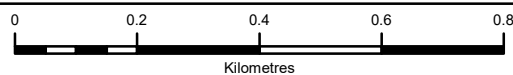
Slope Values

- 0 - 5 Degrees
- 5 - 10 Degrees
- 10 - 15 Degrees
- 15 - 20 Degrees

D:\Backup_C Drive 26519\3D Environmental\Reedy_Creek\reedy_creek.mxd

Attachment C: Contour and slope Mapping

Client



Scale 1:12,384

Drawn By DG

Checked DS

File Path

Date 13/08/2021

A4



3D Environmental
Landscape & Vegetation Science

Kenmore, Qld 4069
Mobile: 0447 822 119
www.3denvironmental.com.au

Attachment C. Slope hazard classes and APZ buffer width for representative BAL categories

Allotment No. with Dwelling	Downslope Angle Category	Management Buffer Interval (m)				
		BAL FZ	BAL 40	BAL 29	BAL 19	BAL 12.5
Dwelling on Allotments with Steep Slopes						
2	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
5	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
9	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
11	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
44	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
47	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
48	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
50	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
51	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
56	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
58	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
66	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
71	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
86	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
91	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
92	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
96	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
100	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
102	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
104	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
115	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
137	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
139	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
140	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100

Allotment No. with Dwelling	Downslope Angle Category	Management Buffer Interval (m)				
		BAL FZ	BAL 40	BAL 29	BAL 19	BAL 12.5
141	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
144	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
145	>15 to <20	<24	24 – <31	31 – <44	44 – <59	59 – <100
Dwelling on Allotments with Moderate Slopes						
94	>10 to <15	<19	19 – <25	25 – <36	36 – <49	49 – <100
105	>10 to <15	<19	19 – <25	25 – <36	36 – <49	49 – <100
106	>10 to <15	<19	19 – <25	25 – <36	36 – <49	49 – <100
121	>10 to <15	<19	19 – <25	25 – <36	36 – <49	49 – <100
147	>10 to <15	<19	19 – <25	25 – <36	36 – <49	49 – <100
149	>10 to <15	<19	19 – <25	25 – <36	36 – <49	49 – <100
159	>10 to <15	<19	19 – <25	25 – <36	36 – <49	49 – <100
Dwelling on Allotments with Gentle Slopes to Moderate Slopes						
153	>5 to 10	<15	15 – <20	20 – <29	29 – <41	41 – <100
157	>5 to 10	<15	15 – <20	20 – <29	29 – <41	41 – <100
161	>5 to 10	<15	15 – <20	20 – <29	29 – <41	41 – <100
Dwelling on Allotments with Flat to Gentle Slopes						
13	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
17	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
18	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
23	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
26	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
27	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
29	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
30	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
35	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
36	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
38	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100

Allotment No. with Dwelling	Downslope Angle Category	Management Buffer Interval (m)				
		BAL FZ	BAL 40	BAL 29	BAL 19	BAL 12.5
77	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
81	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
84	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
130	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
131	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
133	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
171	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
Dwelling / Structures on Common Land						
E_Pool, Change Room and Cabanas	>10 to <15	<19	19 – <25	25 – <36	36 – <49	49 – <100
A_Caretakers House	>5 to 10	<15	15 – <20	20 – <29	29 – <41	41 – <100
B_Pools, Change Rooms and Tennis Courts	>5 to 10	<15	15 – <20	20 – <29	29 – <41	41 – <100
C_Office and Nursery	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100
D_Managers House	0 to <5	<12	12 – <16	16 – <24	24 – <34	34 – <100

Attachment D. Emergency Evacuation Plan and Wildfire Evacuation Plan



Emergency Evacuation Plan

Outline:

1.0 Evacuation Plan Objective

2.0 Estate Description

3.0 Scope

4.0 Emergency Preparation and Testing

5.0 General Roles and Responsibilities

6.0 Emergency Response

Appendix 1 List of Emergency Control Personnel

Appendix 2 List of Emergency Contacts

Appendix 3 Emergency Assembly Point Map

Appendix 4 Fire Hydrant Map

Appendix 5 Reedy Creek Fire Control Lines Map

Introduction:

1.0 Evacuation Plan Objective

To clearly define the process to be followed in the event of a Bushfire occurring at Sunrise At 1770 Estate. The procedures in this plan should not be regarded as rigid but rather as flexible guidelines to be used to address the Emergency Response Procedure to a Bushfire.

This plan will be used by the staff as a “living document” to set out the following;

- The potential emergencies that are applicable to the use.
- The written procedures developed in response to a Bushfire.
- The staff members responsible for particular actions in a Bushfire situation.
- The ongoing education and training proposed as part of the overall strategy.

2.0 Sunrise At 1770 Estate Description

Sunrise At 1770 Estate covers an area of 250Ha of land comprising of 172 household Lots, 2 Pool Areas and other various structures nestled within the natural coastline, the Estate bushland is made up of various vegetation types ranging from Open forest with grassy understory to Closed Shrublands (As per Appendix 2). The Estate has a Fire Management Plan which is currently executed by Sunrise At 1770 Staff and Bush Heritage Australia for the control and maintenance of Fire Control Lines, Low Fire Zones, Onsite Fire Fighting Equipment, Emergency Diesel Fire Pump, Emergency Electric Fire Pump and 92 Fire Hydrants situated throughout the Estate (As Per Appendix 3,4,5)

3.0 Scope

This plan applies to Sunrise At 1770 Estate relating to the event of a Bushfire Emergency and the actions and procedures to be followed by Staff and Owners.

3.3 Response Actions

The above-mentioned Emergency will require one or more of the following responses:

- Evacuation of the Area/Estate
- Containment of Threat (Back Burning)
- First Aid Treatment (Medical Emergency)
- Assist Local Fire Authorities with Emergency (QFRS, SES)

4.0 Emergency Preparation and Testing

All Staff will undergo quarterly Emergency Response Training to maintain constant familiarisation with Emergency Fire Fighting Equipment and to test the operation of all equipment

4.1 Training Requirements

All personnel normally working in any of the areas identified through this plan shall be trained in the following emergency management information:

- The general information contained within this document
- The Key personnel roles and responsibilities
- Emergency exit locations and procedures
- Assembly point locations
- Fire Fighting equipment locations
- The written procedures applicable to this Estate for the emergency evacuation.
- All staff will be asked, at the completion of the training, to sign a statement advising that they have read the Bushfire Evacuation Procedures, understood the Bushfire Evacuation Procedures, had any questions they had answered adequately by the Chief Warden, and understand their responsibilities and role, in the event of a Bushfire.

4.2 Exercise Fire Evacuation Drills

Exercise drills will comprise of a full walk through by the Chief Warden on the Bushfire Evacuation Procedure, who will ensure that all staff of Sunrise At 1770 are aware of the Bushfire Evacuation Procedure requirements.

4.3 Maintenance and Testing of Equipment

Maintenance and testing of the Emergency Diesel and Electric Fire Pumps, GAAM Trolley Fire Fighting Units, Mobile Fire Fighting Units, UHF Radios and Knapsack 20L Fire Fighting Units to be conducted in accordance with AS 1851 – 2006 and be undertaken by a suitably qualified person at intervals as detailed within AS 1851 – 2006.

Log books will be kept of all testing and maintenance carried out.

4.4 Emergency Plan Review

A review of the Emergency Plan will be undertaken immediately after the event

5.0 General Roles and Responsibilities

The roles and responsibilities of personnel working at Sunrise At 1770 are listed below;

OH&S Emergency Planning Committee

The OH&S Emergency Planning Committee consists of the following personnel;

Michael Lane
Wayne Upton
Daniel Barber

The OH&S Emergency Planning Committee will review the Emergency Plan, evaluate response to emergency drills, and will revise the plan as is required.

5.1 Chief Warden - Name: Michael Lane

- As required, evaluate the need for evacuation.
- As required, initiate evacuation.
- As required, contact Statutory Authorities, for example Fire, Ambulance and Police.
- Account for all staff and owners in liaison with area wardens and the Emergency Services representative
- Liaise with Emergency Services on their arrival
- Evaluate, in conjunction with Emergency Services areas of immediate threat
- Start Emergency Fire Pumps
- Organise/Account for Personnel at Emergency Muster Point
- Document emergency situation, what happened, what was the outcome.

5.2 Area Warden/s

Wayne Upton

Rick Dodson

Matthew Mclean

- Receive directions from the Chief Fire Warden
- Switch Main Gates to Manual Mode and Lock Open
- Ensure that all personnel have been alerted that an evacuation is in progress.
- Issue of Fire Fighting Equipment
- Assist Local Emergency Services if required

5.3 All Staff

- Report their presence to Chief Fire Wardens at the assembly area.
- Not to leave the assembly area unless directed by the Chief Fire Warden.
- Carry out tasks as directed by the Chief Fire Warden.
- Contribute to debriefing.

6.0 Emergency Bushfire Response

The objective of the emergency bushfire response procedures is to:

- Decrease the level of risk to life and property
- Control an incident, and minimise it's effect
- Provide the basis for training people who may be involved in a bushfire emergency.
- The response expected of staff and management to potential incidents covered by this plan, include the following;

6.1 Evacuation

The Chief Fire Warden will take the following issues into consideration when determining if and when to evacuate;

1. The severity of the Bushfire
2. The likelihood of escalation;
3. The incident becoming uncontrollable beyond the resources available.
4. Generic process of evacuation is shown below;
 - a. Reason for evacuation realised.
 - b. Appropriate staff assess situation.
 - c. Notification given to staff and owners to evacuate to emergency muster points.
 - d. Staff to render assistance as required, under direction of Chief Warden.
 - e. Emergency Services notified of emergency.
 - f. Await Emergency Services Assessment.

6.1.1 Location of Sunrise At 1770 Fire Fighting Equipment

BHA Compound Shed

Mobile Fire Fighting Units x 3
GAAM Trolley Fire Fighting Units x 2
Knapsack 20L Fire Fighting Units x 8
Drip Torch x 3
Standpipe x 4
Fire Fighting Clothing
Rakes, layflat hoses and nozzles

Compound Fire Pump Shed Emergency Diesel Fire Pump
Emergency Electric Fire Pump

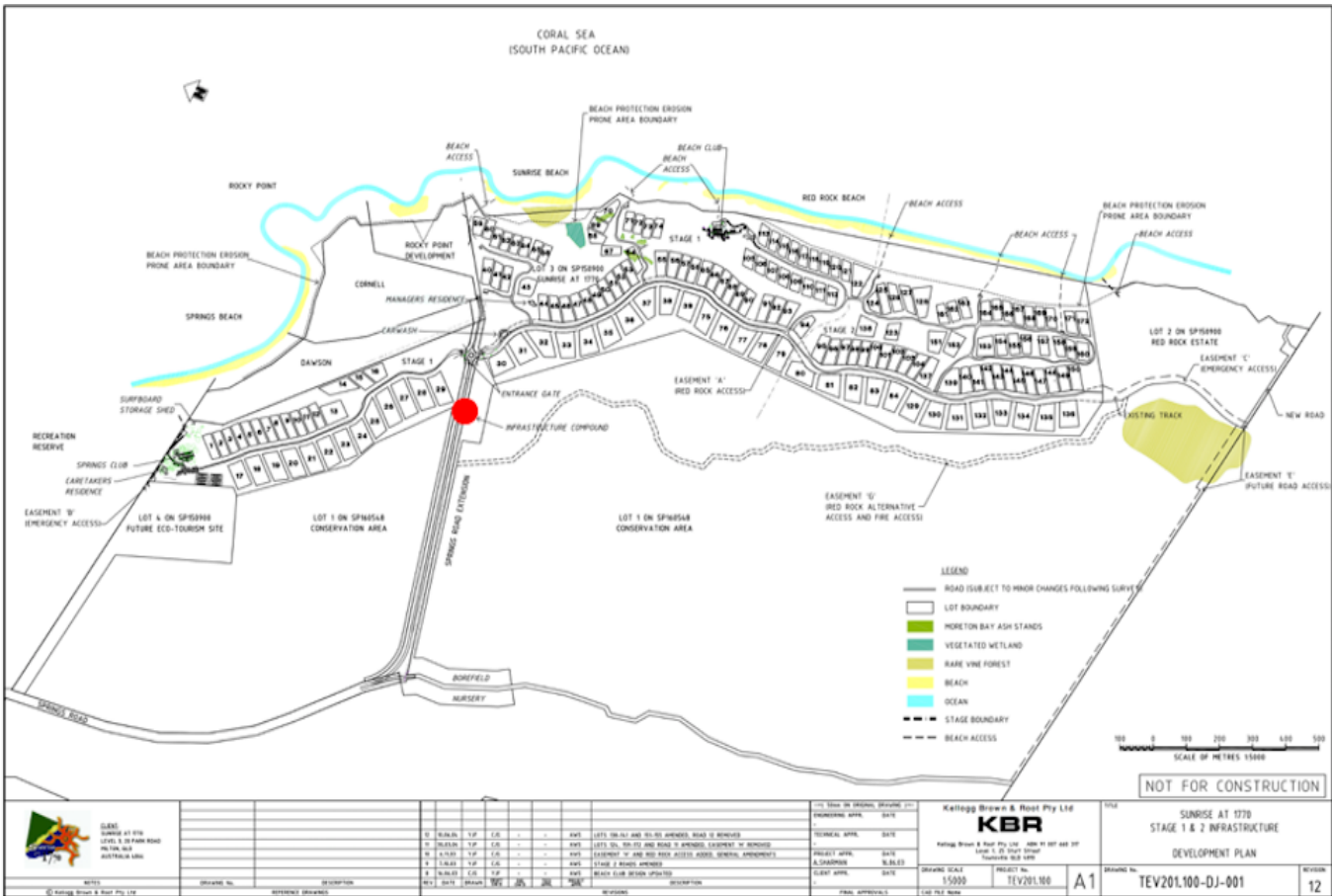
Appendix 1 List of Emergency Bushfire Control Personnel

Michael Lane	0484 000 138
Matthew McKleen (BHA)	0429 315 820
Wayne Upton	0484 193 561

Appendix 2 List of Emergency Contacts

Emergency Services	Phone No.	Emergency Services	Phone No.
Fire/Ambulance/Police	000		
Local Fire Station	07 4974 9099 0428 815 568		
Local Police	07 4974 9708		
Fire Warden Luke Cunningham	0427 784 588		
Poisons Information	13 11 26		

Appendix 3 Sunrise At 1770 Estate Map showing location of Assembly Points



<p>KBR Kilgob Brown & Root Pty Ltd Level 1, 20 Park Road Melbourne VIC 3000 AUSTRALIA</p>	<p>PROJECT NO. _____</p> <p>CLIENT NO. _____</p>		<p>PROJECT NO. _____</p> <p>CLIENT NO. _____</p>		<p>DATE _____</p> <p>DATE _____</p> <p>DATE _____</p> <p>DATE _____</p> <p>DATE _____</p>	<p>DATE _____</p> <p>DATE _____</p> <p>DATE _____</p> <p>DATE _____</p>	<p>DATE _____</p> <p>DATE _____</p> <p>DATE _____</p> <p>DATE _____</p>																																						
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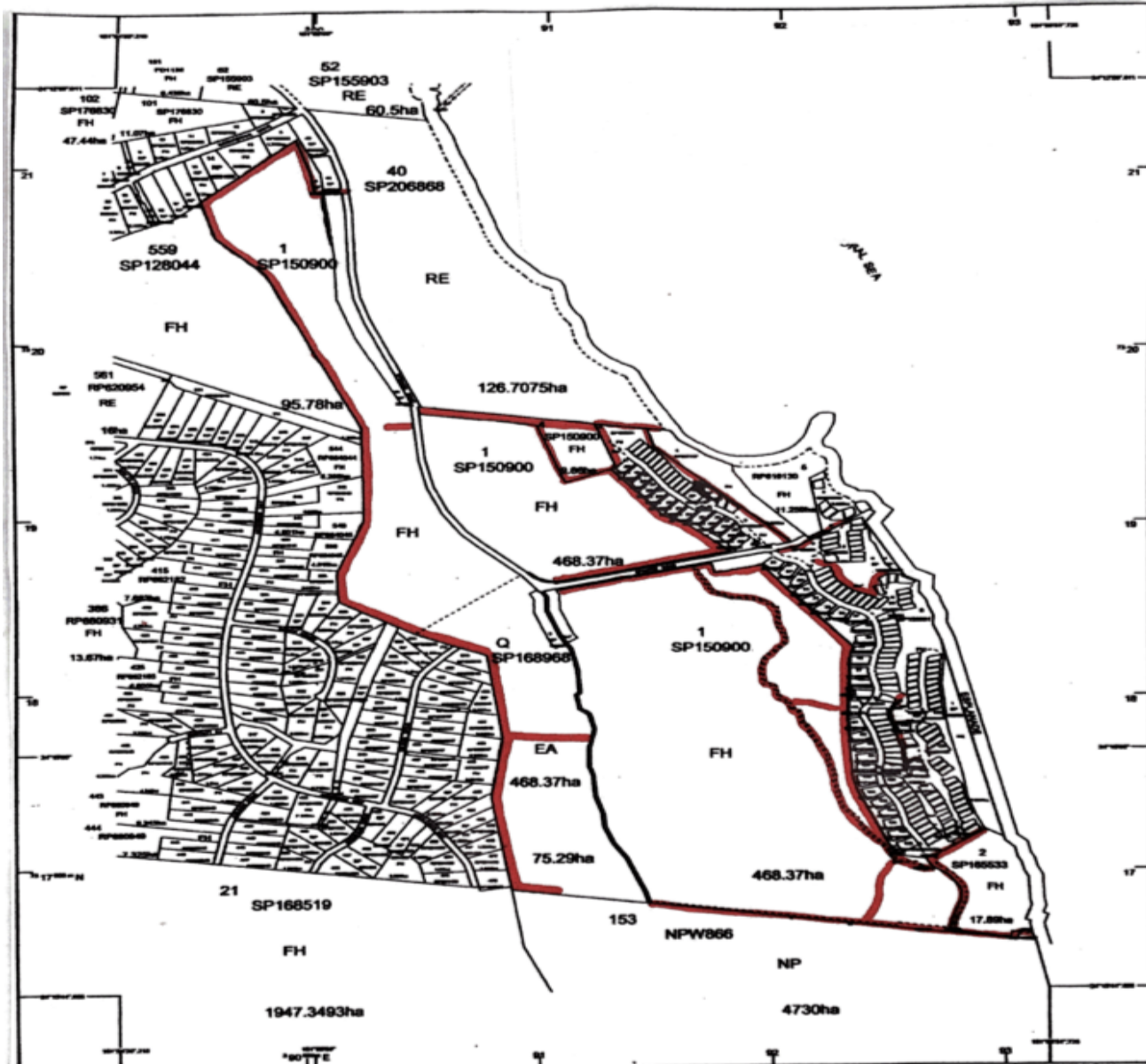
Appendix 4 Sunrise At 1770 Fire Hydrant Map

Sunrise@1770 Fire Hydrant Layout

- Eastern neighbours.shp
- Public_track.shp
- Sr hydrant locations.shp



Appendix 5 Reedy Creek Fire Control Lines Map



STANDARD MAP NUMBER
 5249-1232



SUBJECT PARCEL DESCRIPTION

Lot	Subdivision
Section	County
Local Government Area	State
Local Government	Local Government
Local Government	Local Government
Local Government	Local Government
Local Government	Local Government
Local Government	Local Government

CLIENT SERVICE STANDARDS

Standard of service to be provided to clients of the Queensland Government. This standard is intended to provide a clear and consistent set of expectations for the Queensland Government and its agencies. It is intended to be used as a benchmark for the Queensland Government and its agencies to measure their performance against. It is intended to be used as a benchmark for the Queensland Government and its agencies to measure their performance against. It is intended to be used as a benchmark for the Queensland Government and its agencies to measure their performance against.

SmartMap

The Queensland Government
 Department of Environment and
 Heritage



WILDFIRE EVACUATION PLAN

- If you see a fire approaching your home call **000** first, and then Sunrise At 1770 Manager Michael Lane Mobile 0484 000 138
- Dress to prevent burns with cotton or woollen long pants, long sleeve shirt, gloves and leather shoes. DO NOT wear synthetic fabrics.

PREPARE FOR EVACUATION

- Contact your neighbours to let them know of the approaching fire.
- Park the car in the garage, facing out with windows closed and keys in the ignition.
- Close the garage door but leave unlocked. Disconnect automatic garage door opener in case of power failure.
- Place documents, family mementos and pets inside car in the garage, ready for quick departure.
- Take personal items for a stay of at least 3 days. Don't forget to take insurance policy info, prescriptions, eye glasses, address book, mobile, charger, extra car keys, credit cards, cash.

OUTSIDE YOUR HOME

- Move combustible yard furniture and door mats away from the house or store it in the garage.
- Cover windows, eave vents, sub floor vents with fire resistant material such as 12mm plywood.
- Close window shutters if they are fire resistant.
- Shut off propane or natural gas valves at tanks.
- Remove excess propane or fuel tanks from property. Do not evacuate with these items. Place tanks away from structures and clear of combustibles.
- Attach garden hoses to taps and place them so they can reach any area of your house.
- Fill bins and buckets with water and place them where fire fighters can find them.
- If you have an emergency generator or petrol powered pump that will supply water from a swimming pool, pond or tank, clearly mark its location and make sure it is ready to operate.
- Place ladder against house on the side opposite the approaching fire to help fire fighters get onto your roof.

INSIDE YOUR HOUSE

- Close all windows and doors to prevent sparks from blowing inside and minimize smoke damage.
- Close all interior doors to slow down fire spread from room to room.
- Turn on a light in each room, on the veranda and yard to make the house more visible.
- Shut off propane and natural gas valves.
- Move furniture away from windows and sliding glass doors to keep it from igniting from radiant heat.
- Remove curtains. If you have metal blind, close them to block heat radiation.

EVACUATING

- Familiarise yourselves with the Sunrise Evacuation Areas.

- Let proper authorities know of neighbours who might need assistance evacuating.
- Use your pre planned route, away from the approaching fire front. The front gates will be set open for emergency exit and fire fighters access. Travel with car head lights on so you are more visible and be aware of on coming traffic on narrow lanes.

WILDFIRE EVACUATION PLAN

- If you are trapped by fire while evacuating in your car, park in an area clear of vegetation, close all windows and vents with the AC on low and recycle, cover yourself with a blanket or jacket and lie on the floor.
- If you are trapped by fire while evacuating on foot, find an area clear of vegetation such as the beach, cover your skin with a blanket or jacket. Avoid gullies which can concentrate and channel fire.

IF YOU STAY IN YOUR HOUSE WHEN A FIRE APPROACHES

- Stay inside your house, away from outside walls.
- Close all doors but leave them unlocked.
- Keep the entire family together. Remain calm. If it is hot inside, conditions are worse outside.

AFTER THE FIRE PASSES

- Check the roof immediately, extinguishing all sparks and embers.
- Check inside the roof space for hidden embers.
- Check the yard for burning trees, fence posts or other materials.
- Keep the doors and windows closed.
- Continue checking your yard and home for burning embers for at least 24hours.

Copy of procedure found on Sunrise@1770 website. References from QRFS, Fire Ready & BHA