

Queensland Bushfire Risk Assessments
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BUSHFIRE RISK ASSESSMENT AND RISK MITIGATION COMPLIANCE REPORT

Prepared in accordance with:

State Planning Policy Guideline - 2017
Queensland Development Code - 2009
Australian Standard AS3959 - 2018
Construction of Buildings in Bushfire Prone Areas
The Gold Coast City Council Planning Scheme - 2016

Report prepared for:

Salt Development Projects

For property:

(Lot 1) 98 Glenmore Drive,
Bonogin. 4213

Prepared by:

Queensland Bushfire Risk Assessments
Ray Cavanough and Max Gray

Date: 31/03/2026

Valid for adoption for 36 months from date of site inspection

Note: Whilst every care has been taken in the preparation of this report, it has been drawn up within the guidelines provided, and is a risk assessment only, recommending risk reduction measures, and should the recommendations be adopted fully, neither implies nor guarantees any warranty of any kind in respect to life, property, or any other matter.

Document Control:

Date	Rev	Comment	Prepared By	Checked By	Authorised By
31/03/26	1	First version.	Max Gray	Max Gray	Max Gray and Ray Cavanough
06/08/26	2	Amendments to report in response to council information request (reference ROL/2026/37).	Max Gray	Max Gray	Max Gray and Ray Cavanough
20/10/26	3	Amendments to report in response to council information request (reference ROL/2026/37).	Max Gray	Max Gray	Max Gray and Ray Cavanough

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Property: Location and Details

A site inspection was conducted on 23/01/2026.

Local Government Authority: City of Gold Coast Council
Street Address: 98 Glenmore Drive, Bonogin. 4213
Real Property Description: Lot 1 – RP 218875
Site Area: 124,000m^2

Proposal:

The proposal is for the subdivision of one property into 16 residential lots all with dedicated building envelopes, as per the site plan under Appendix 1. Base plans outlining the development, and any other documentation have been supplied by Salt Development Projects.



Site Overview (Fig. 1)

CGCC Interactive Mapping System 2016 Overlay Map, indicating Potential Bushfire Impact Buffer Zone, Medium, High, Very High Bushfire Hazard areas.



Site Overview (Fig. 2)

The State Planning Policy interactive mapping system indicating bushfire hazard areas.

CITY OF
GOLDCOAST.



City Plan: v13

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This is not an official City Plan Property Report.

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Site Overview (Fig. 3)
CGCC Interactive Mapping System 2016 Overlay Map, indicating environmental significance overlays.

98 Glenmore Drive

Regional Ecosystems



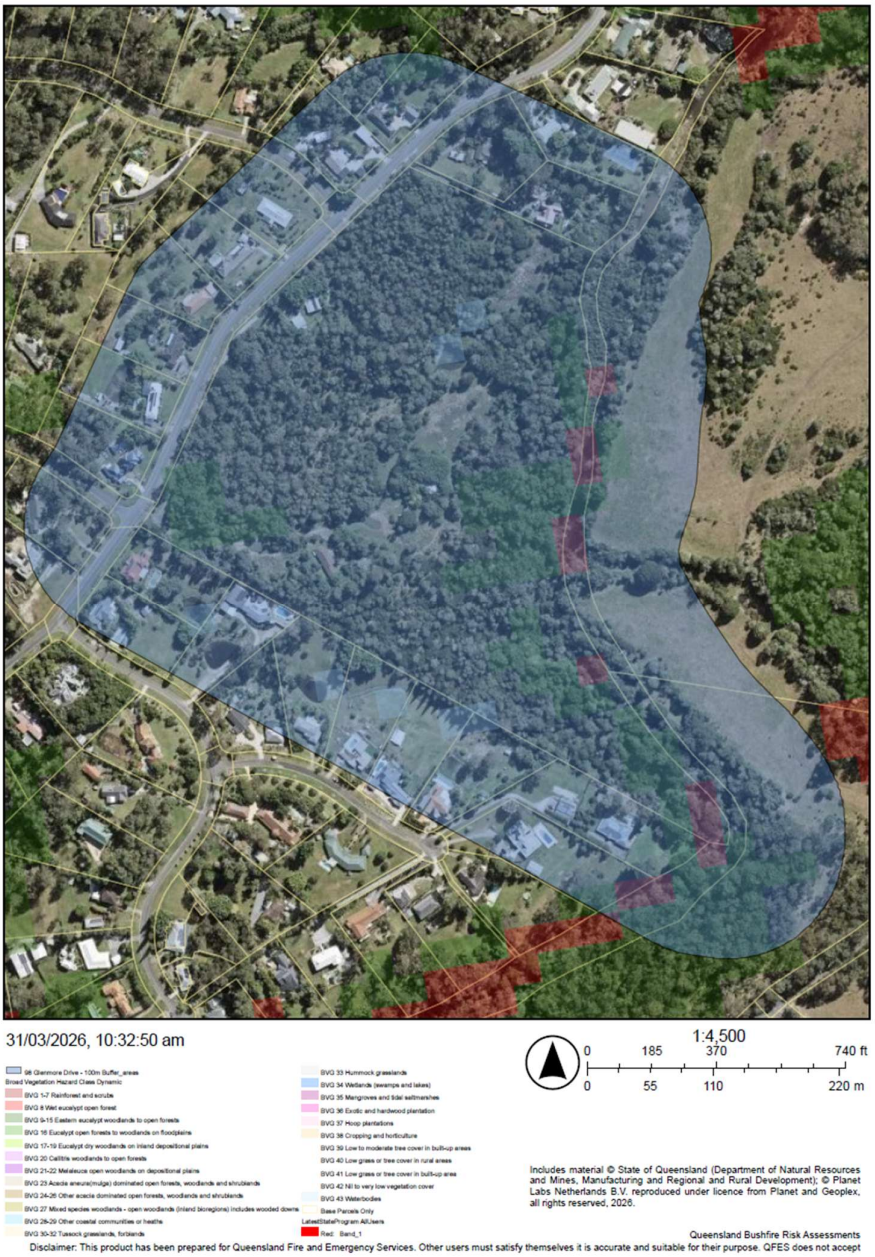
	Short Description	Full Description	Common Names	Fire Guidelines
Regional Ecosystem 12.11.3	Eucalyptus siderophloia, E. propinqua +/- E. microcorys, Lophostemon confertus, Corymbia intermedia, E. acmenoides open forest on metamorphics +/- interbedded volcanics	Eucalyptus siderophloia and E. propinqua open forest +/- E. microcorys, Lophostemon confertus, Corymbia intermedia, E. biturbinata, E. acmenoides, E. tereticornis, E. moluccana, Angophora leiocarpa, Syncarpia verecunda with vine forest species and E. grandis or E. saligna in gullies. Eucalyptus pilularis and E. tindaliae sometimes present e.g. mid D'Aguilar Range, Conondale Range. Occurs predominantly on hills and ranges of Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 9a)	**Open Forest** • Northern grey ironbark • Grey gum • Tallowwood • Brush box • Pink bloodwood • White mahogany	**SEASON:** Summer to winter. **INTENSITY:** Plan for low to moderate. Unplanned occasional high intensity wildfire will occur. **INTERVAL:** 4-8 years maintains a healthy grassy system. 8-20 years for shrubby elements of understorey. **STRATEGY:** Aim for 40-60% mosaic burn. Needs disturbance to maintain RE structure (eucalypt overstorey with open understorey of predominantly non-rainforest species). Any moist sclerophyll that is relatively open with a mixture of grasses and shrubs should be a priority for fire management to retain RE structure. **ISSUES:** Frequent fire is needed to maintain understorey integrity, keeping more mesic species low in the profile of the understorey so that other species can compete. A grassy system is especially important for species such as the eastern bristlebird and its habitat. It is essential that wildfires are not the sole source of fire in this ecosystem. High intensity fires occur periodically through time, however frequent low to moderate intensity fires will create the disturbance required to keep the understorey diverse. A follow-up

				burn soon after a high intensity wildfire can be considered to reduce germinating mesic species. This 'of concern' RE may contain a high number of rare and threatened plant species (e.g., Acomis acoma, Corchorus cunninghamii, Marsdenia coronata and Sophora fraseri) which require appropriate fire management.
Regional Ecosystem 12.11.24	Eucalyptus carnea or E. tindaliae, Corymbia intermedia +/- E. siderophloia or E. crebra woodland on metamorphics +/- interbedded volcanics	Eucalyptus carnea or E. tindaliae, Corymbia intermedia woodland +/- E. crebra or E. siderophloia, Eucalyptus resinifera, Eucalyptus major, E. helidonica, Angophora woodsiana, C. trachyphloia, E. microcorys, Corymbia citriodora subsp. variegata, C. henryi. Occurs on Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics usually at altitudes <300 metres. (BVG1M: 9g)	**Woodland** • Thick-leaved mahogany • Tindal's stringybark • Pink bloodwood • Northern grey ironbark • Narrow-leaved ironbark	**SEASON:** Summer to winter. **INTENSITY:** Low to moderate. **INTERVAL:** 4-25 years. **STRATEGY:** Aim for 40-60% mosaic burn. Burn with soil moisture and with a spot ignition strategy so that a patchwork of burnt/unburnt country is achieved. **ISSUES:** The fire regime should maintain a mosaic of grassy and shrubby understoreys. Control of weeds is a major focus of planned burning in most areas. Careful thought should be given to maintaining ground litter and fallen timber habitats by burning only with sufficient soil moisture. Burning should aim to produce fine scale mosaics of unburnt areas. Variability in season and fire intensity is important, as well as spot ignition in cooler or moister periods to encourage mosaics.
Regional Ecosystem 12.11.25	Corymbia henryi and/or Eucalyptus fibrosa subsp. fibrosa +/- E. crebra, E. carnea, E. tindaliae woodland on metamorphics +/- interbedded volcanics	Corymbia henryi and/or Eucalyptus fibrosa subsp. fibrosa woodland. Other frequently occurring canopy species may include Eucalyptus crebra, E. carnea, E. tindaliae, E. siderophloia, C. citriodora subsp. variegata, Angophora leiocarpa, E. acmenoides, E. helidonica, E. propinqua, C. intermedia and E. seeana. Rarely includes patches of E. dura. Usually occurs on low hills, hills and footslopes of mountains in near coastal areas on Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 10b)	**Woodland** • Spotted gum • Red ironbark • Narrow-leaved ironbark • Thick-leaved mahogany • Tindal's stringybark	**SEASON:** Summer to winter. **INTENSITY:** Low to moderate. **INTERVAL:** 4-25 years. **STRATEGY:** Aim for 40-60% mosaic burn. Burn with soil moisture and with a spot ignition strategy so that a patchwork of burnt/unburnt country is achieved. **ISSUES:** The fire regime should maintain a mosaic of grassy and shrubby understoreys. Control of weeds is a major focus of planned burning in most areas. Careful thought should be given to maintaining ground litter and fallen timber habitats by burning only with sufficient soil moisture. Burning should aim to produce fine scale mosaics of unburnt areas. Variability in season and fire intensity is important, as well as spot ignition in cooler or moister periods to encourage mosaics.
Regional Ecosystem 12.3.2	Eucalyptus grandis tall open forest on alluvial plains	Eucalyptus grandis +/- E. microcorys, Lophostemon confertus tall open forest with vine forest understorey ('wet sclerophyll'). Patches of Eucalyptus pilularis sometimes present especially in vicinity of sedimentary rocks (e.g. around Palmwoods). Fringing streams and in narrow gullies in high rainfall areas. (BVG1M: 8a)	**Open Forest** • Flooded gum	**SEASON:** Late summer to autumn. **INTENSITY:** Moderate to high. **INTERVAL:** Minimum 20 years, maximum unknown, requiring further research. **STRATEGY:** Needs disturbance to maintain RE structure (eucalypt overstorey, rainforest dominated but mixed species understorey). It is unlikely that mosaic burns will be achievable because fire would most likely be of higher intensity (i.e., likely to be a wildfire) and is only likely to occur at long intervals (at least 20+ years) during prolonged dry periods. In exceptional circumstances, different localities containing this ecosystem could be burnt to ensure a continuum of habitat availability across the broader landscape. Using this strategy maximises the probability of spatial mosaics in the landscape. **ISSUES:** Operationally there will be many areas of wet sclerophyll that cannot be safely burnt, and will only burn in wildfire. There is evidence that suggests that infrequent high intensity fires sustain the eucalypt overstorey. Wet sclerophyll has been shown to be a moving ecotone between vine forest and moist/dry sclerophyll.

Site Overview (Fig. 4)

Queensland Globe indicating regional ecosystems within 100 metres of the proposed development.

98 Glenmore Drive - Vegetation Hazard Classes

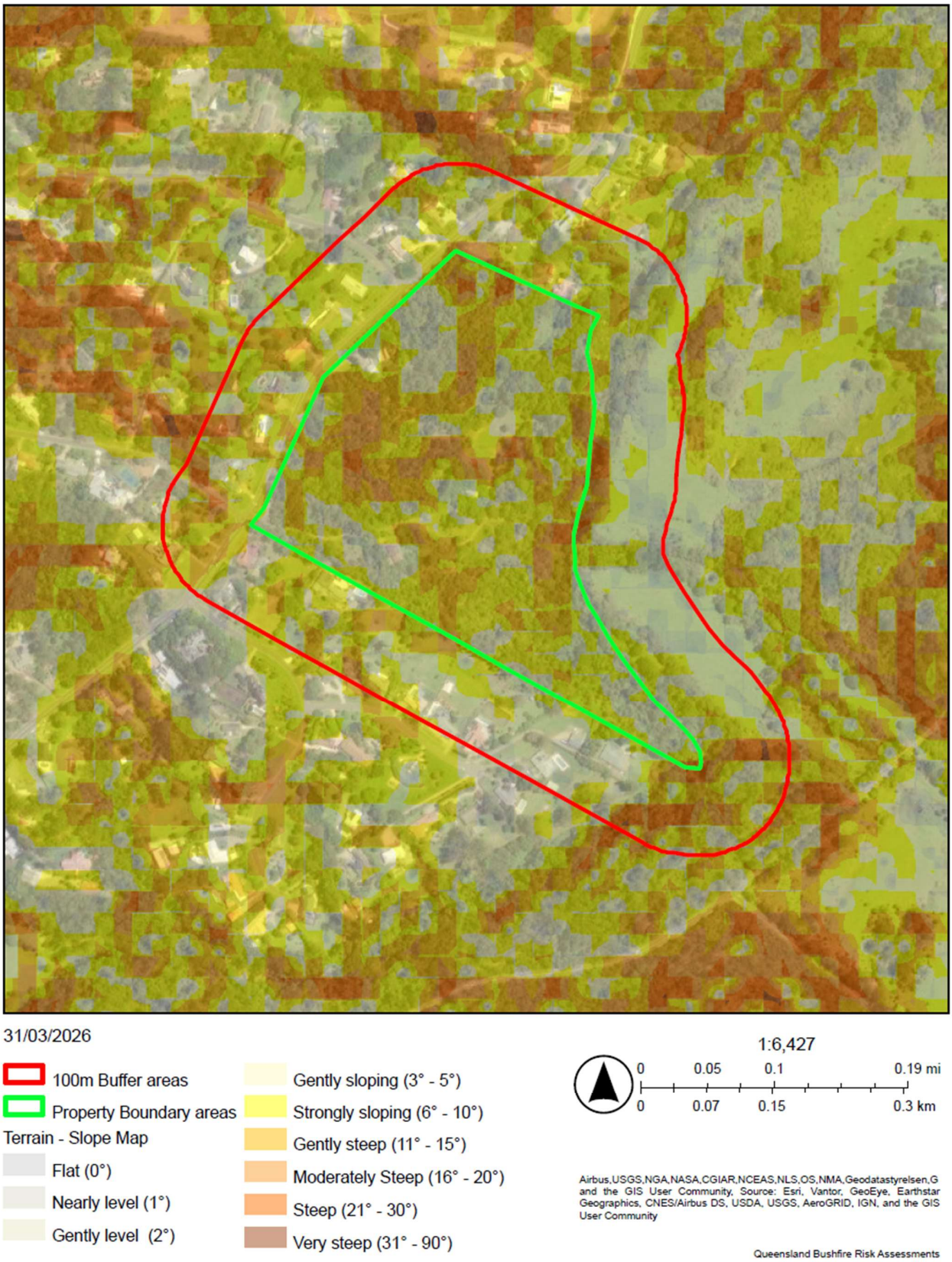


Vegetation Hazard Class	Description
8.1	Wet eucalypt tall open forest
9.1	Moist to dry eucalypt open forests on coastal lowlands and ranges
9.2	Moist to dry eucalypt woodland on coastal lowlands and ranges
40.4	Continuous low grass or tree cover
41.4	Discontinuous low grass or tree cover
42.6	Nil to very low vegetation cover
43.6	Water bodies or very low vegetation cover

Site Overview (Fig. 5)

BRC MapViewer online mapping system indicating vegetation hazard classes.

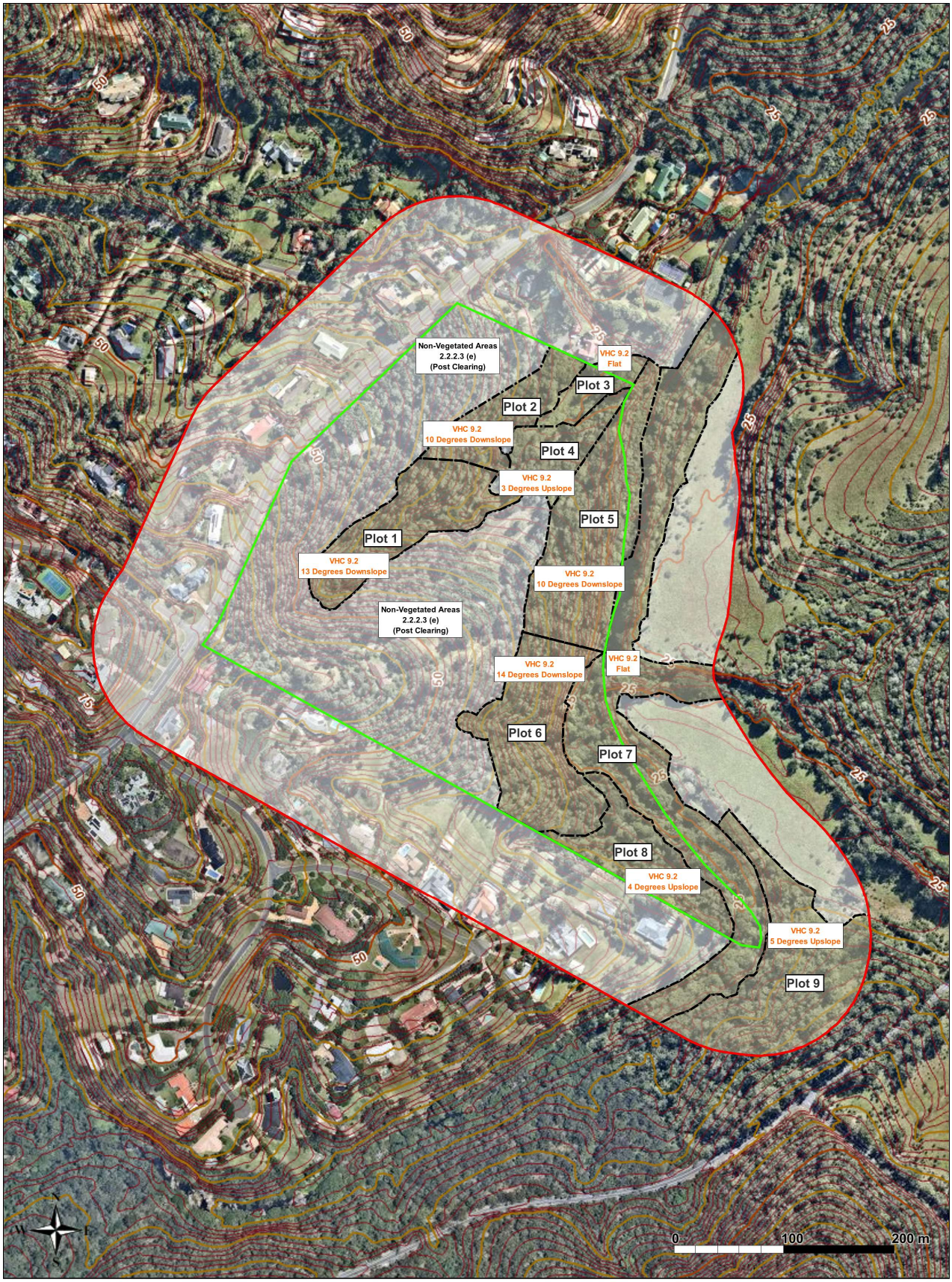
98 Glenmore Drive - Terrain Slope Map



Site Overview (Fig. 6)
Terrain slope map detailing surrounding landscape slopes.



Site Overview (Fig. 7)
Google Earth illustrating a 3D visual of the property.



Legend

100m Buffer
100m Buffer

BAL Map
B. Woodland

Excluded

BAL Map (Fig. 8)

Aerial image showing classifiable vegetation within a 100-metre radius of the development.

General Description:

The property number 98 is located on the eastern side of Glenmore Drive in a rural residential zoned area. The property currently has pre-existing infrastructure located onsite in the way of dwellings and sheds. The proposed development will subdivide the property into 16 residential lots each with their own dedicated building envelope. The property has multiple rolling gullies, ridges and waterways with slopes reaching up to 14^0 at the steepest point. The property has a general easterly aspect as it slopes down towards the eastern boundary into Bonogin Creek.

Much of the site is to be removed of vegetation to make way for the proposed new lots and building envelopes with vegetation predominantly along the waterways being retained within ecological buffers. The vegetation within the property is predominantly not mapped as a bushfire hazard and does not have a dedicated vegetation hazard class as the site has been historically managed. Aerial imagery from the end of 2013/beginning of 2014 shows the site to be predominantly clear of vegetation, meaning that the bulk of the vegetation onsite is regrowth due to ceased management of the property. Vegetation within the proposed ecological buffers has been dedicated as VHC 9.2 as these areas are assumed to regenerate to the pre-clear regional ecosystem of 12.11.24 (broad vegetation group 9).

The Queensland Globe state mapping system shows the regional ecosystems 12.11.3, 12.11.24, 12.11.25 and 12.3.2 to be located within 100 metres of the property. The BRC MapViewer online mapping system shows the vegetation hazard classes 8.1, 9.1, 9.2, 40.4, 41.4, 42.6 and 43.6 to be located within 100 metres of the property.

Upon the conduction of a site inspection, nine plots of classifiable vegetation were found within 100 metres of the property.

Plots 1-4:
Classifiable vegetation classed as (VHC 9.2) moist to dry eucalypt woodland on coastal lowlands and ranges consisting of bloodwood, brush box, grey gum, wattle and ironbark top storey, wattle, regrowth eucalyptus species, casuarina, escaped garden ornamentals and rainforest species mid storey, with an assorted grass, weeds and leaf litter ground cover. These plots of vegetation are located within close proximity to the proposed new lots and building envelopes. The mid storey of escaped garden ornamentals and rainforest species is more common close to the mapped waterways within the property.

Plots 5-6:
Classifiable vegetation classed as (VHC 9.2) moist to dry eucalypt woodland on coastal lowlands and ranges consisting of ironbark, hoop pine, wattle and bloodwood top storey, regrowth eucalyptus species, wattle, rainforest species and escaped garden ornamentals mid storey, with an assorted grass, leaf litter and weeds ground cover. These plots of vegetation are located predominantly in the eastern portion of the property close to the southern development and Bonogin Creek. There are also some small portions of predominantly regrowth tea tree without much canopy vegetation close to Bonogin Creek in the east.

Plots 7-9:
Classifiable vegetation classed as (VHC 9.2) moist to dry eucalypt woodland on coastal lowlands and ranges consisting of rainforest species, brush box and camphor laurel top storey, rainforest species, regrowth brush box, camphor laurel and escaped garden ornamentals mid storey, a weed shrub layer, with a bracken fern, Singapore daisy and leaf litter ground cover. These plots of vegetation are located along Bonogin Creek and beyond the property boundaries to the south/southeast/east and include elevated levels of vegetation that prefers a wet ground cover.

Excluded areas within 100 metres of the property consist of roads and dwellings or areas with a managed ground cover deemed to be low threat.

Adjoining properties are smaller in size and are developed. Access to the new lots will be via a new road network from Glenmore Drive in combination with private driveways. Reticulated water is available to the site and will be further spread throughout the property to allow reticulated water access for all proposed new lots. Therefore, water storage for firefighting purposes will not be a requirement for this proposal.

AS3959-2018 BAL Calculations Method 2 – Minimum Setback Distances

2.2.2	Fire Danger Index – QLD	**54** *Variable FDI retrieved from the BRC MapViewer online mapping system.*
2.2.3	Classified Vegetation Types	**VHC 9.2 – moist to dry eucalypt woodland on coastal lowlands and ranges** Understorey Fuel Load: 14.9 t/ha Total Fuel Load: 17.2 t/ha
		Exclusion Clause – 2.2.3.2 *e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.* *f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.*
		National Construction Code Queensland Variation Clause H7D4 *The requirements of (a) do not apply when, in accordance with AS 3959, the classified vegetation is Group F rainforest (excluding wet sclerophyll forest types), mangrove communities and grasslands under 300mm high.*
2.2.4	Distance From Classified Vegetation	**Plot 1: VHC 9.2**
		Plot 2: VHC 9.2
		Plot 3: VHC 9.2
		Plot 4: VHC 9.2
		Plot 5: VHC 9.2
		Plot 6: VHC 9.2
		Plot 7: VHC 9.2
		Plot 8: VHC 9.2
		Plot 9: VHC 9.2
2.2.5	Effective Slopes	**Plot 1: VHC 9.2** – 13^0 Downslope
		Plot 2: VHC 9.2 – 10^0 Downslope
		Plot 3: VHC 9.2 – Flat
		Plot 4: VHC 9.2 – 3^0 Upslope
		Plot 5: VHC 9.2 – 10^0 Downslope
		Plot 6: VHC 9.2 – 14^0 Downslope
		Plot 7: VHC 9.2 – Flat
		Plot 8: VHC 9.2 – 4^0 Upslope
		Plot 9: VHC 9.2 – 5^0 Upslope
2.2.6	Bushfire Attack Level	**Minimum setbacks for Bushfire Attack Levels shown below.**
2.2.7	Construction Requirements	**Dependent on Bushfire Attack Level.**

Plot 1:

FLAMESOL
FPA AUSTRALIA

Calculated February 4, 2026, 3:55 pm (MDc v.4.9)

Plot 1: VHC 9.2

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	54	Rate of spread	2.36 km/h
Vegetation Classification	Woodland	Flame length	17.45 m
Understorey fuel load	14.9 t/ha	Flame angle	52 °, 62 °, 70 °, 74 °, 75 ° & 82 °
Total fuel load	17.2 t/ha	Elevation of receiver	6.87 m, 7.7 m, 8.199999999999999 m, 8.380000000000001 m, 8.42 m & 8.640000000000001 m
Vegetation height	n/a	Fire intensity	21,040 kW/m
Effective slope	13 °	Transmissivity	0.867, 0.846, 0.8179999999999999, 0.792, 0.779 & 0.721
Site slope	0 °	Viewfactor	0.6041, 0.4491, 0.3044, 0.2069, 0.1683 & 0.0455
Flame width	100 m	Minimum distance to < 40 kW/m²	14.3 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	19.2 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	27.5 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	38.1 m
		Minimum distance to < 10 kW/m²	44.7 m

Bushfire Attack Level	Separation Required
BAL – FZ	0 Metres
BAL – 40	15 Metres
BAL – 29	20 Metres
BAL – 19	28 Metres
BAL – 12.5	39 Metres
BAL – Low	>100 Metres

Plot 2:

FLAMESOL
FPA AUSTRALIA

Calculated February 4, 2026, 3:56 pm (MDc v.4.9)

Plot 2: VHC 9.2

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	54	Rate of spread	1.92 km/h
Vegetation Classification	Woodland	Flame length	14.57 m
Understorey fuel load	14.9 t/ha	Flame angle	53 °, 63 °, 71 °, 75 °, 77 ° & 82 °
Total fuel load	17.2 t/ha	Elevation of receiver	5.82 m, 6.49 m, 6.89 m, 7.03 m, 7.1 m & 7.21 m
Vegetation height	n/a	Fire intensity	17,106 kW/m
Effective slope	10 °	Transmissivity	0.872, 0.853, 0.827, 0.802, 0.788 & 0.727
Site slope	0 °	Viewfactor	0.6011, 0.4465, 0.3015, 0.2044, 0.1666 & 0.0451
Flame width	100 m	Minimum distance to < 40 kW/m²	12 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	16.1 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	23.5 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	33.1 m
		Minimum distance to < 10 kW/m²	39.1 m

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Bushfire Attack Level	Separation Required
BAL – FZ	0 Metres
BAL – 40	13 Metres
BAL – 29	17 Metres
BAL – 19	24 Metres
BAL – 12.5	34 Metres
BAL – Low	>100 Metres

Plot 3:

FLAMESOL
FPA AUSTRALIA

Calculated February 4, 2026, 3:57 pm (MDc v.4.9)

Plot 3: VHC 9.2

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	54	Rate of spread	0.96 km/h
Vegetation Classification	Woodland	Flame length	8.33 m
Understorey fuel load	14.9 t/ha	Flame angle	54 °, 64 °, 73 °, 78 °, 79 ° & 85 °
Total fuel load	17.2 t/ha	Elevation of receiver	3.37 m, 3.74 m, 3.98 m, 4.07 m, 4.09 m & 4.15 m
Vegetation height	n/a	Fire intensity	8,580 kW/m
Effective slope	0 °	Transmissivity	0.884, 0.872, 0.853, 0.831, 0.819 & 0.747
Site slope	0 °	Viewfactor	0.587, 0.4336, 0.2915, 0.1968, 0.1604 & 0.0438
Flame width	100 m	Minimum distance to < 40 kW/m²	7 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	9.5 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	14.1 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	20.7 m
		Minimum distance to < 10 kW/m²	25 m

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Bushfire Attack Level	Separation Required
BAL – FZ	0 Metres
BAL – 40	8 Metres
BAL – 29	10 Metres
BAL – 19	15 Metres
BAL – 12.5	21 Metres
BAL – Low	>100 Metres

Plot 4:

FLAMESOL
FPA AUSTRALIA

Calculated February 4, 2026, 3:59 pm (MDc v.4.9)

Plot 4: VHC 9.2

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	54	Rate of spread	0.78 km/h
Vegetation Classification	Woodland	Flame length	7.16 m
Understorey fuel load	14.9 t/ha	Flame angle	54 °, 64 °, 73 °, 78 °, 80 ° & 85 °
Total fuel load	17.2 t/ha	Elevation of receiver	2.89 m, 3.22 m, 3.42 m, 3.5 m, 3.52 m & 3.56 m
Vegetation height	n/a	Fire intensity	6,975 kW/m
Effective slope	-3 °	Transmissivity	0.887, 0.876, 0.859, 0.839, 0.827 & 0.753
Site slope	0 °	Viewfactor	0.5872000000000001, 0.4312, 0.2899, 0.1948, 0.1583 & 0.0435
Flame width	100 m	Minimum distance to < 40 kW/m²	6 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	8.199999999999999 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	12.2 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	18 m
		Minimum distance to < 10 kW/m²	22 m

Bushfire Attack Level	Separation Required
BAL – FZ	0 Metres
BAL – 40	7 Metres
BAL – 29	9 Metres
BAL – 19	13 Metres
BAL – 12.5	19 Metres
BAL – Low	>100 Metres

Plot 5:

FLAMESOL
FPA AUSTRALIA

Calculated February 4, 2026, 4:00 pm (MDc v.4.9)

Plot 5: VHC 9.2

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	54	Rate of spread	1.92 km/h
Vegetation Classification	Woodland	Flame length	14.57 m
Understorey fuel load	14.9 t/ha	Flame angle	53 °, 63 °, 71 °, 75 °, 77 ° & 82 °
Total fuel load	17.2 t/ha	Elevation of receiver	5.82 m, 6.49 m, 6.89 m, 7.03 m, 7.1 m & 7.21 m
Vegetation height	n/a	Fire intensity	17,106 kW/m
Effective slope	10 °	Transmissivity	0.872, 0.853, 0.827, 0.802, 0.788 & 0.727
Site slope	0 °	Viewfactor	0.6011, 0.4465, 0.3015, 0.2044, 0.1666 & 0.0451
Flame width	100 m	Minimum distance to < 40 kW/m²	12 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	16.1 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	23.5 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	33.1 m
		Minimum distance to < 10 kW/m²	39.1 m

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Bushfire Attack Level	Separation Required
BAL – FZ	0 Metres
BAL – 40	13 Metres
BAL – 29	17 Metres
BAL – 19	24 Metres
BAL – 12.5	34 Metres
BAL – Low	>100 Metres

Plot 6:

FLAMESOL
FPA AUSTRALIA

Calculated February 4, 2026, 4:01 pm (MDc v.4.9)

Plot 6: VHC 9.2

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	54	Rate of spread	2.53 km/h
Vegetation Classification	Woodland	Flame length	18.55 m
Understorey fuel load	14.9 t/ha	Flame angle	52 °, 62 °, 69 °, 73 °, 75 ° & 81 °
Total fuel load	17.2 t/ha	Elevation of receiver	7.31 m, 8.19 m, 8.66 m, 8.869999999999999 m, 8.960000000000001 m & 9.16 m
Vegetation height	n/a	Fire intensity	22,543 kW/m
Effective slope	14 °	Transmissivity	0.865, 0.843, 0.8149999999999999, 0.789, 0.776 & 0.719
Site slope	0 °	Viewfactor	0.6041, 0.4507, 0.3063, 0.2078, 0.169 & 0.0456
Flame width	100 m	Minimum distance to < 40 kW/m²	15.2 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	20.3 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	28.9 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	39.9 m
		Minimum distance to < 10 kW/m²	46.7 m

Bushfire Attack Level	Separation Required
BAL – FZ	0 Metres
BAL – 40	16 Metres
BAL – 29	21 Metres
BAL – 19	29 Metres
BAL – 12.5	40 Metres
BAL – Low	>100 Metres

Plot 7:

FLAMESOL
FPA AUSTRALIA

Calculated February 4, 2026, 4:02 pm (MDc v.4.9)

Plot 7: VHC 9.2

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	54	Rate of spread	0.96 km/h
Vegetation Classification	Woodland	Flame length	8.33 m
Understorey fuel load	14.9 t/ha	Flame angle	54 °, 64 °, 73 °, 78 °, 79 ° & 85 °
Total fuel load	17.2 t/ha	Elevation of receiver	3.37 m, 3.74 m, 3.98 m, 4.07 m, 4.09 m & 4.15 m
Vegetation height	n/a	Fire intensity	8,580 kW/m
Effective slope	0 °	Transmissivity	0.884, 0.872, 0.853, 0.831, 0.819 & 0.747
Site slope	0 °	Viewfactor	0.587, 0.4336, 0.2915, 0.1968, 0.1604 & 0.0438
Flame width	100 m	Minimum distance to < 40 kW/m²	7 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	9.5 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	14.1 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	20.7 m
		Minimum distance to < 10 kW/m²	25 m

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Bushfire Attack Level	Separation Required
BAL – FZ	0 Metres
BAL – 40	8 Metres
BAL – 29	10 Metres
BAL – 19	15 Metres
BAL – 12.5	21 Metres
BAL – Low	>100 Metres

Plot 8:

FLAMESOL
FPA AUSTRALIA

Calculated February 4, 2026, 4:03 pm (MDc v.4.9)

Plot 8: VHC 9.2

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	54	Rate of spread	0.73 km/h
Vegetation Classification	Woodland	Flame length	6.82 m
Understorey fuel load	14.9 t/ha	Flame angle	54 °, 64 °, 73 °, 78 °, 80 ° & 85 °
Total fuel load	17.2 t/ha	Elevation of receiver	2.76 m, 3.06 m, 3.26 m, 3.33 m, 3.36 m & 3.4 m
Vegetation height	n/a	Fire intensity	6,510 kW/m
Effective slope	-4 °	Transmissivity	0.888, 0.877, 0.861, 0.841, 0.829 & 0.755
Site slope	0 °	Viewfactor	0.5883, 0.4316, 0.288, 0.1945, 0.1577 & 0.0434
Flame width	100 m	Minimum distance to < 40 kW/m²	5.7 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	7.8 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	11.7 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	17.2 m
		Minimum distance to < 10 kW/m²	21.1 m

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Bushfire Attack Level	Separation Required
BAL – FZ	0 Metres
BAL – 40	6 Metres
BAL – 29	8 Metres
BAL – 19	12 Metres
BAL – 12.5	18 Metres
BAL – Low	>100 Metres

Plot 9:

FLAMESOL
FPA AUSTRALIA

Calculated February 4, 2026, 4:03 pm (MDc v.4.9)

Plot 9: VHC 9.2

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	54	Rate of spread	0.68 km/h
Vegetation Classification	Woodland	Flame length	6.5 m
Understorey fuel load	14.9 t/ha	Flame angle	54 °, 64 °, 73 °, 78 °, 80 ° & 85 °
Total fuel load	17.2 t/ha	Elevation of receiver	2.63 m, 2.92 m, 3.11 m, 3.18 m, 3.2 m & 3.24 m
Vegetation height	n/a	Fire intensity	6,076 kW/m
Effective slope	-5 °	Transmissivity	0.889, 0.879, 0.863, 0.843, 0.832 & 0.758
Site slope	0 °	Viewfactor	0.5915, 0.4335, 0.2895, 0.1935, 0.1575 & 0.0433
Flame width	100 m	Minimum distance to < 40 kW/m²	5.4 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	7.4 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	11.1 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	16.5 m
		Minimum distance to < 10 kW/m²	20.2 m

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

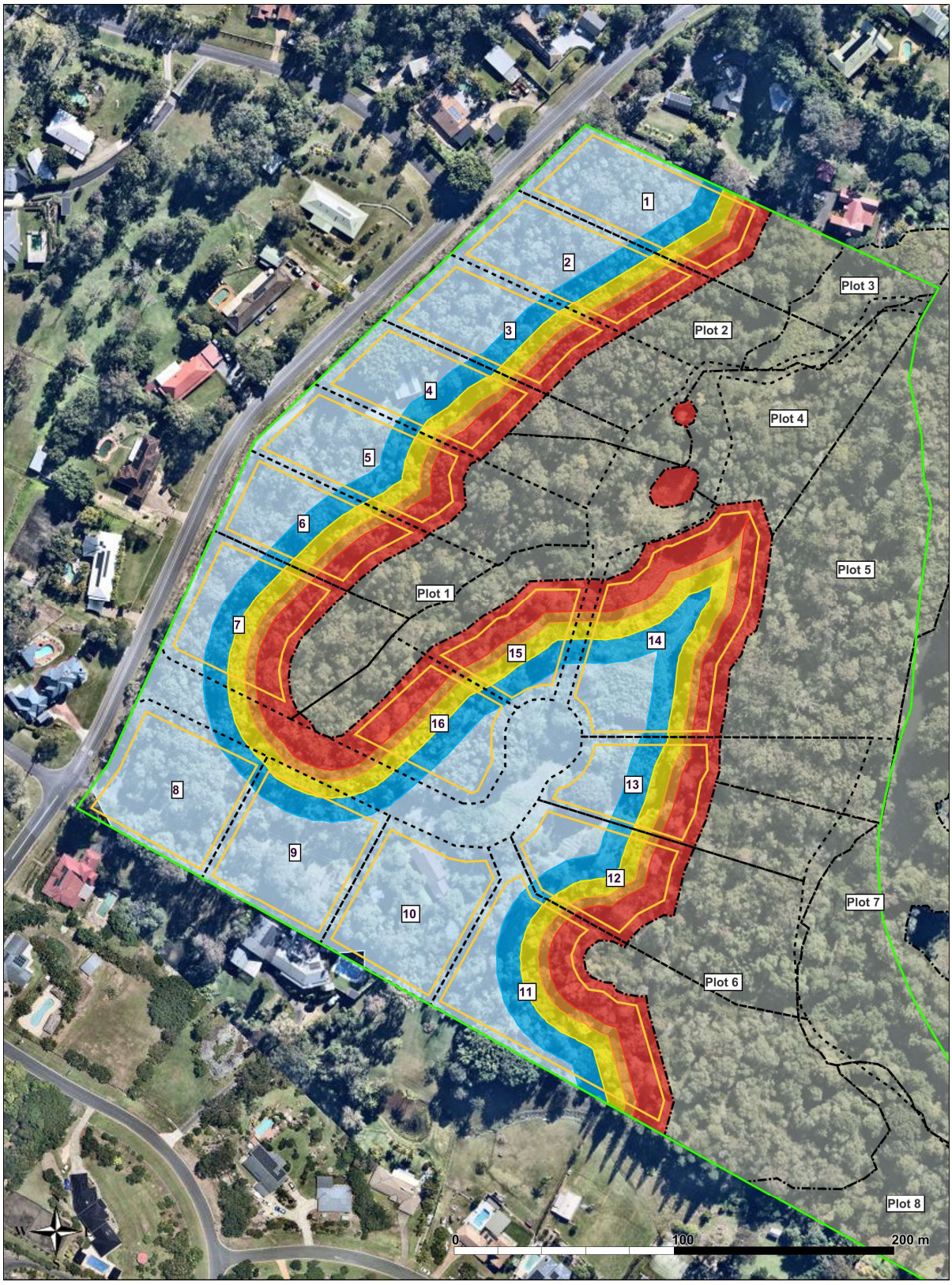
Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

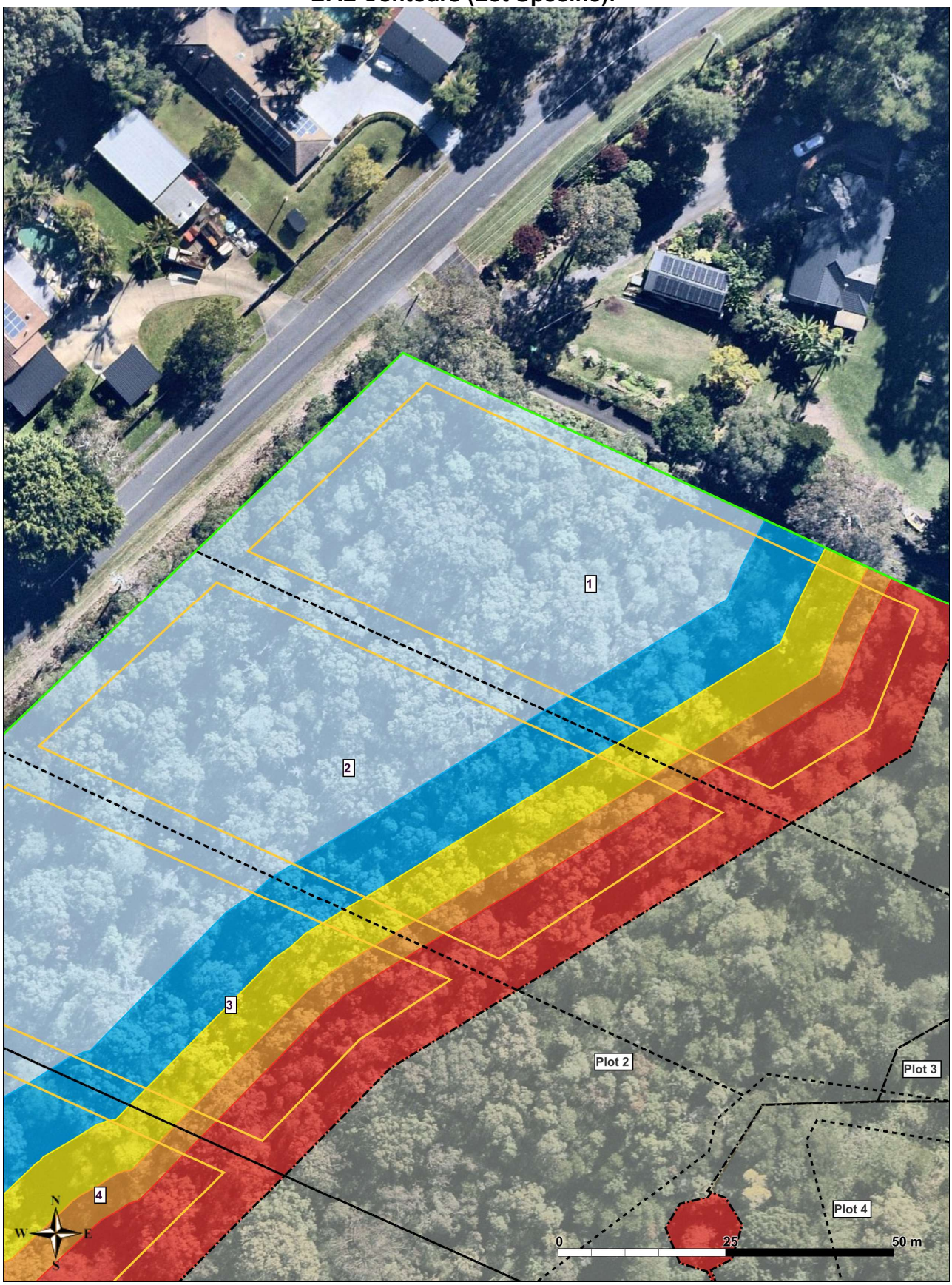
Bushfire Attack Level	Separation Required
BAL – FZ	0 Metres
BAL – 40	6 Metres
BAL – 29	8 Metres
BAL – 19	12 Metres
BAL – 12.5	17 Metres
BAL – Low	>100 Metres

BAL Contours:



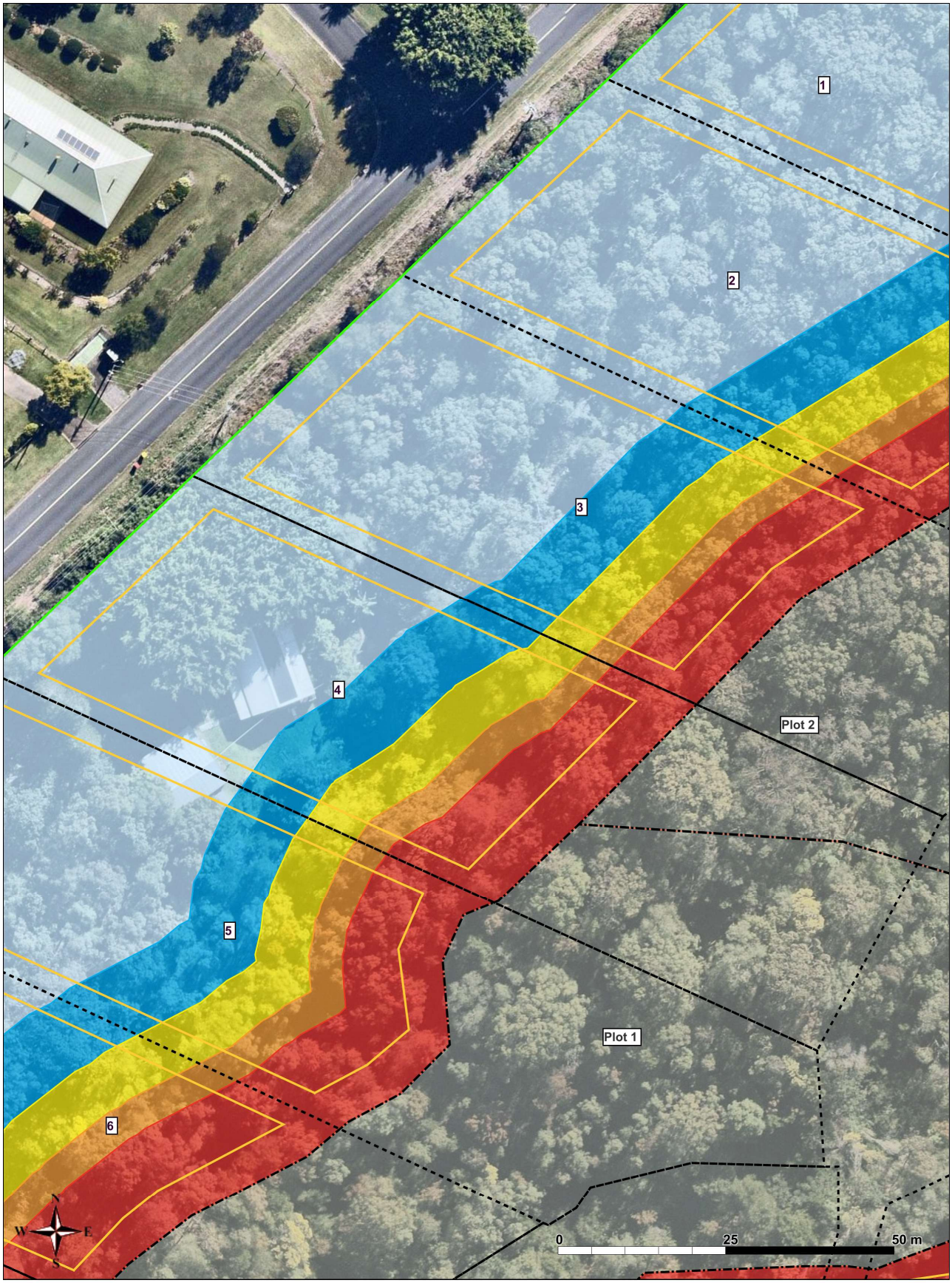
For setback distances from classifiable vegetation, refer to the minimum setbacks section above for the applicable plot.

BAL Contours (Lot Specific):



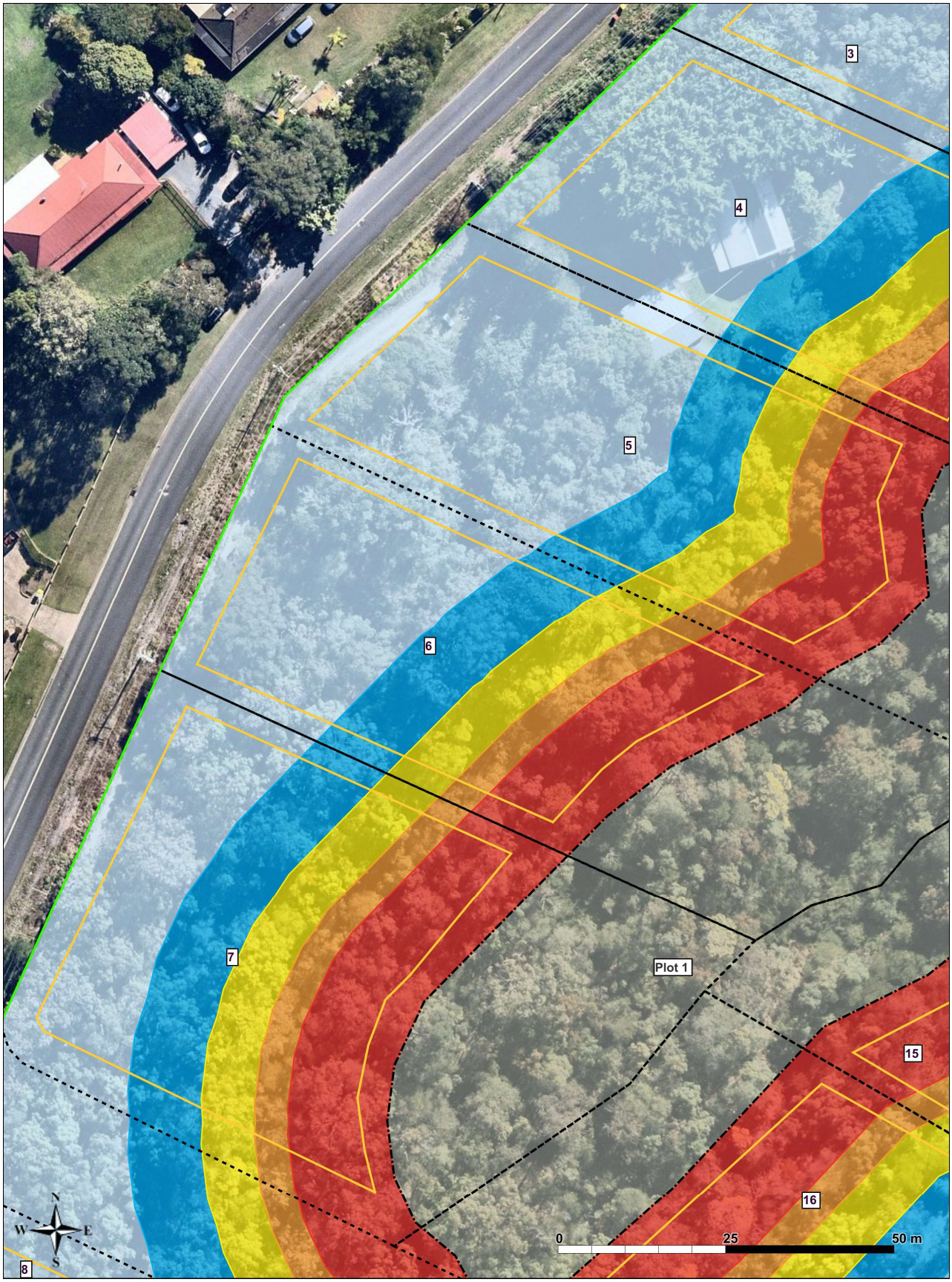
Legend

BAL Map for Contours	**BAL Contours**	BAL-19	BAL-40
B. Woodland	BAL-12.5	BAL-29	BAL-FZ



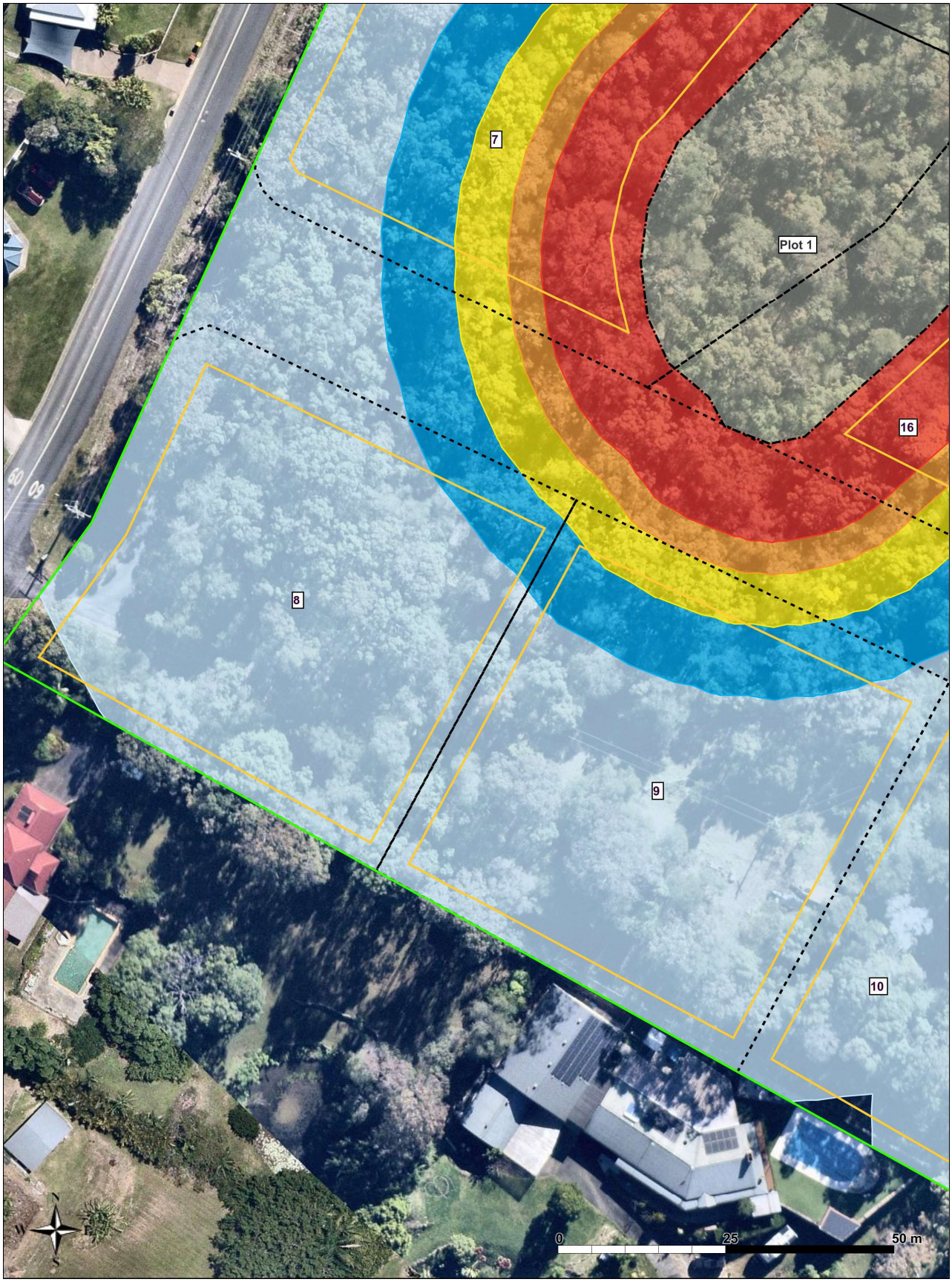
Legend

BAL Map for Contours	**BAL Contours**	BAL-19	BAL-40
B. Woodland	BAL-12.5	BAL-29	BAL-FZ



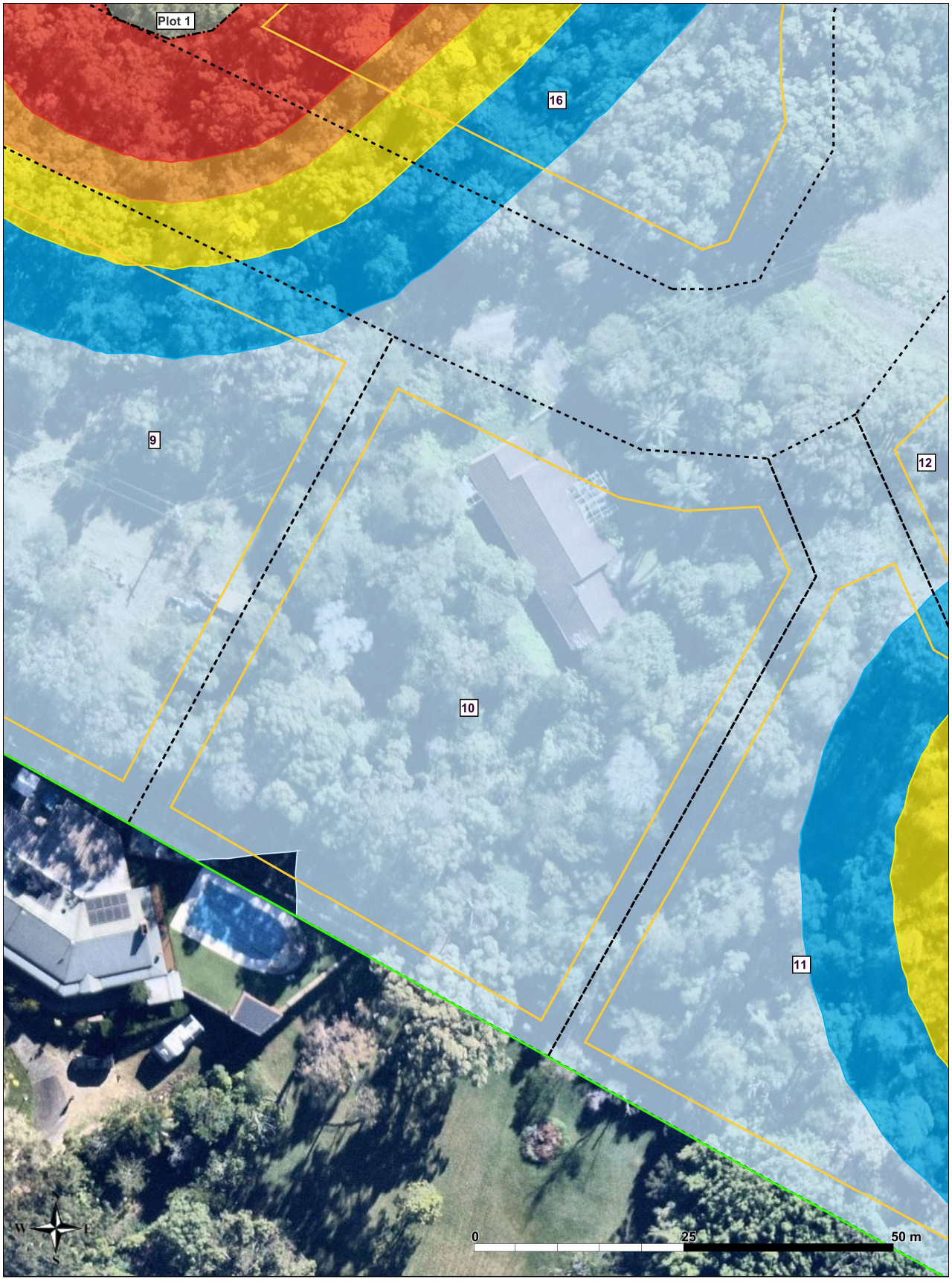
Legend

BAL Map for Contours	**BAL Contours**	BAL-19	BAL-40
B. Woodland	BAL-12.5	BAL-29	BAL-FZ



Legend

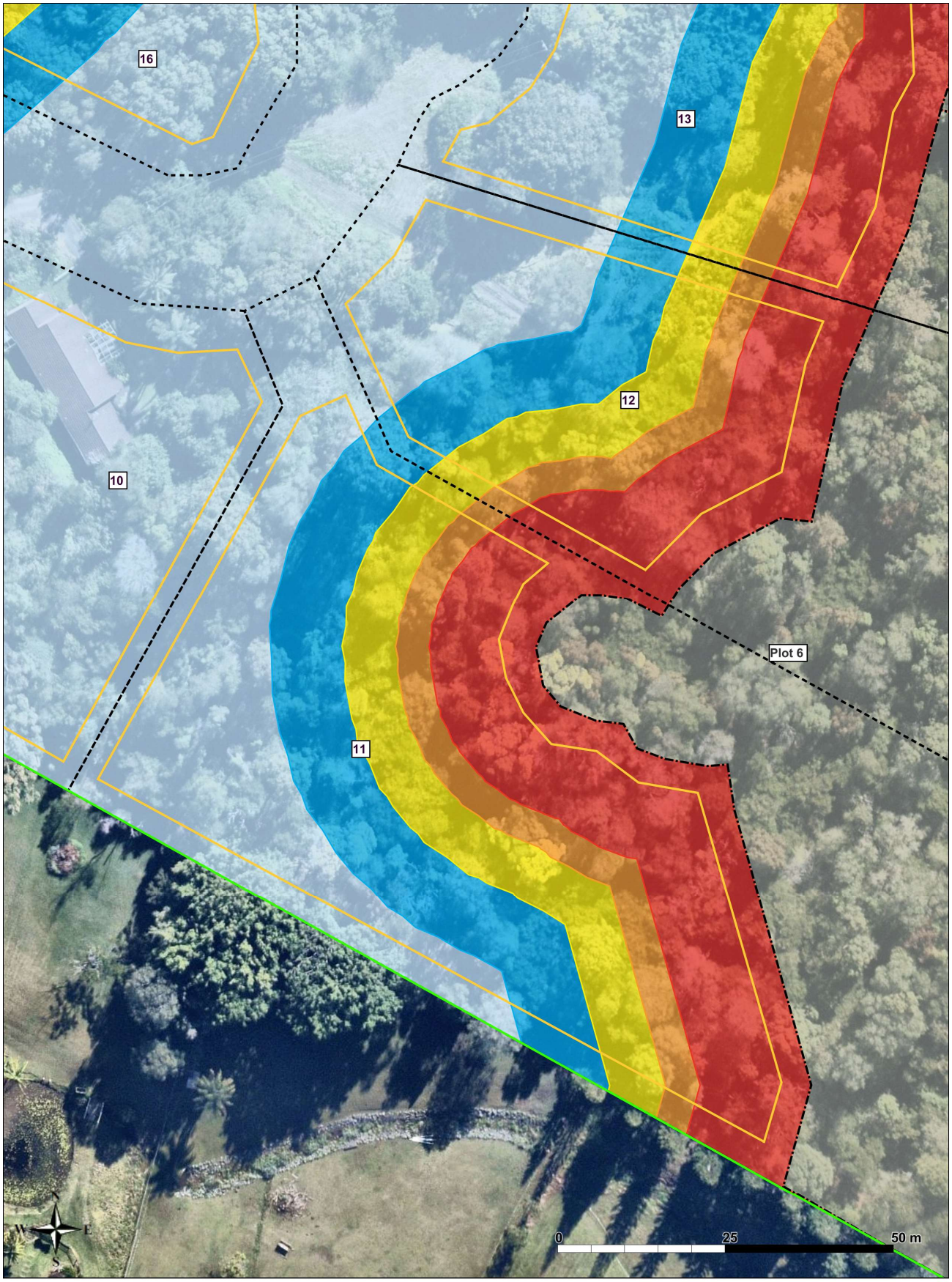
BAL Map for Contours	**BAL Contours**	BAL-19	BAL-40
B. Woodland	BAL-12.5	BAL-29	BAL-FZ



Legend

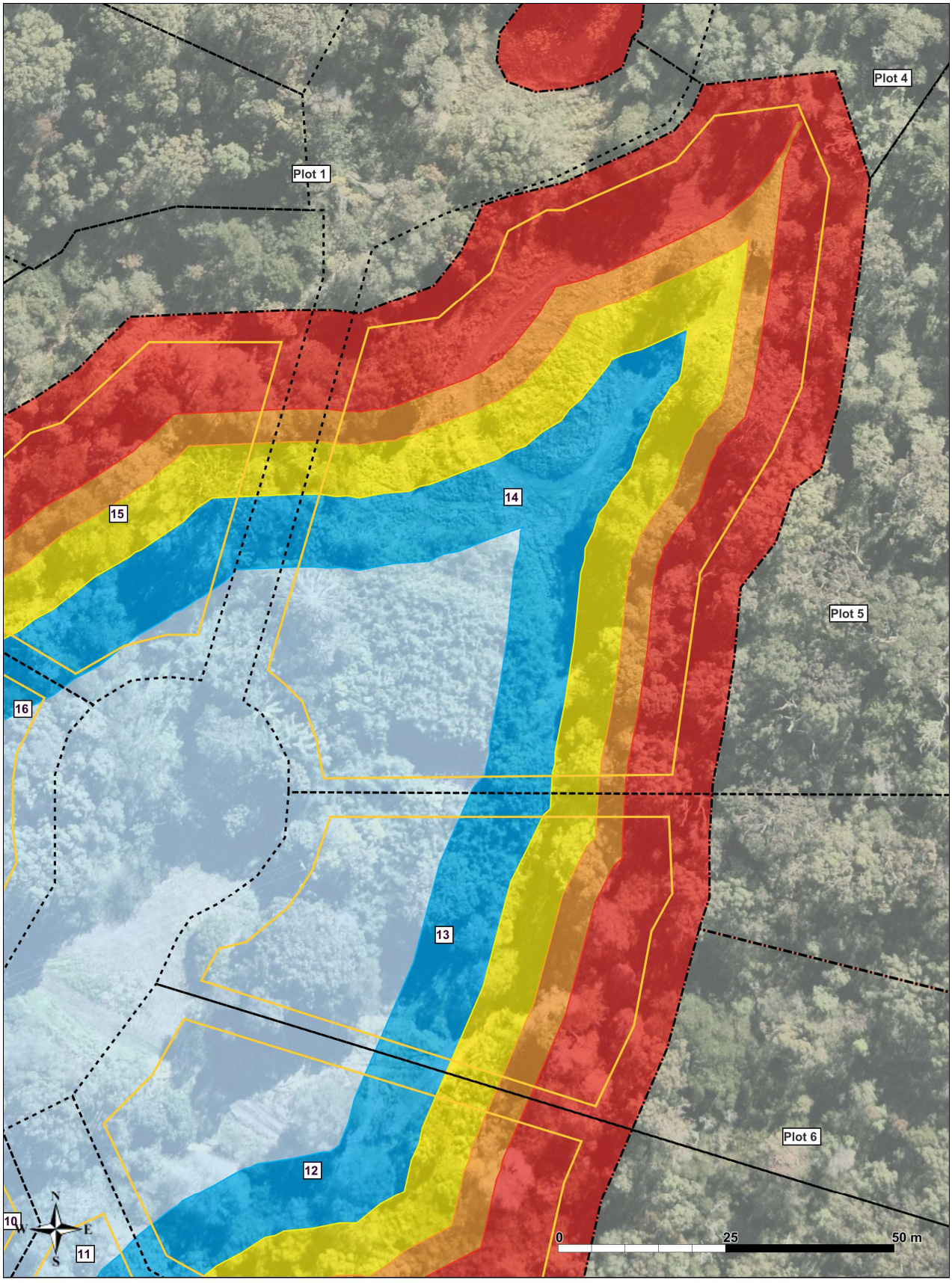
BAL Map for Contours
B. Woodland

BAL Contours
BAL-12.5
BAL-19
BAL-29
BAL-40
BAL-FZ



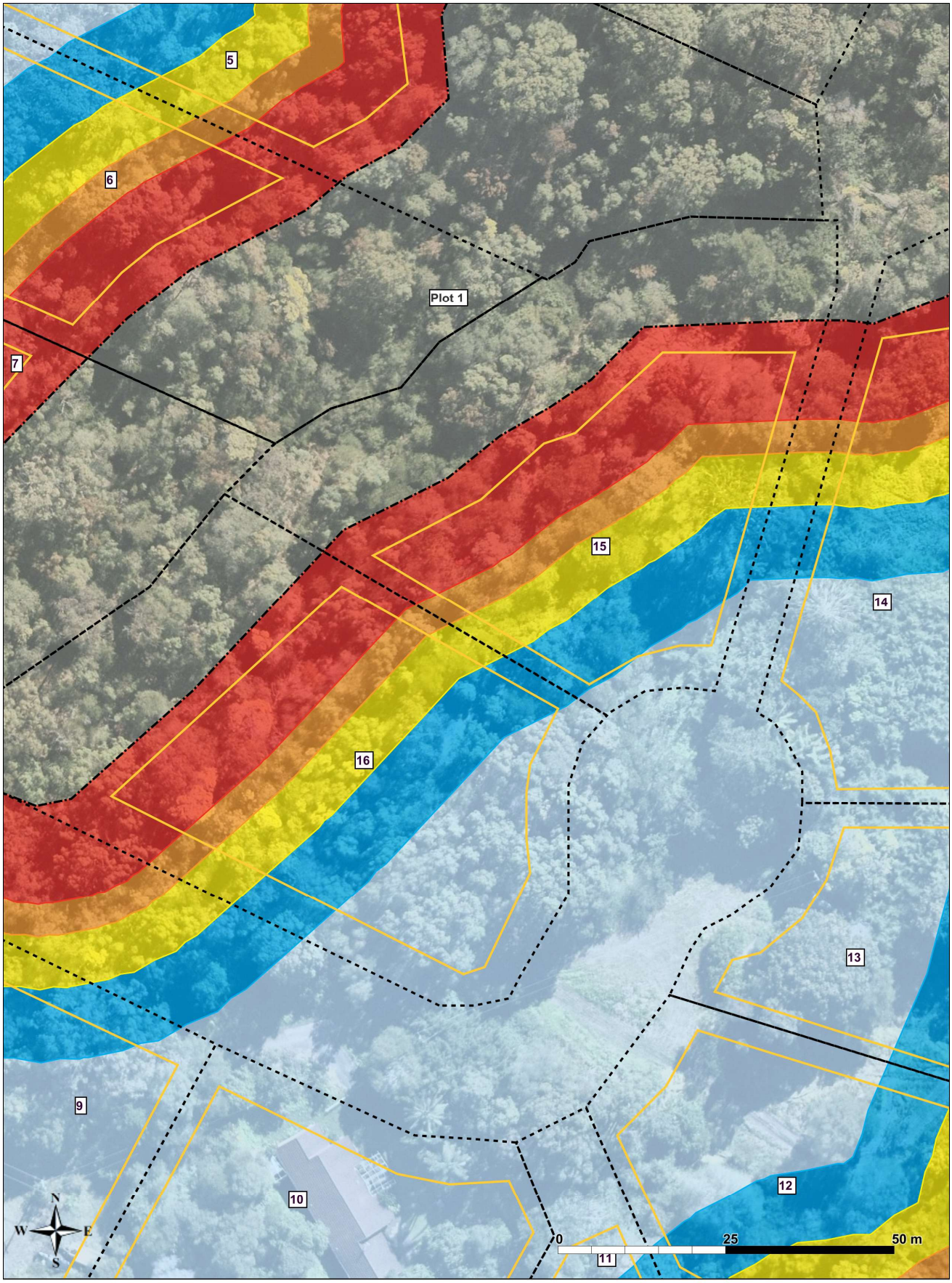
Legend

BAL Map for Contours	**BAL Contours**	BAL-19	BAL-40
B. Woodland	BAL-12.5	BAL-29	BAL-FZ



Legend

BAL Map for Contours	BAL Contours		
B. Woodland	BAL-12.5	BAL-19	BAL-40
		BAL-29	BAL-FZ



Legend

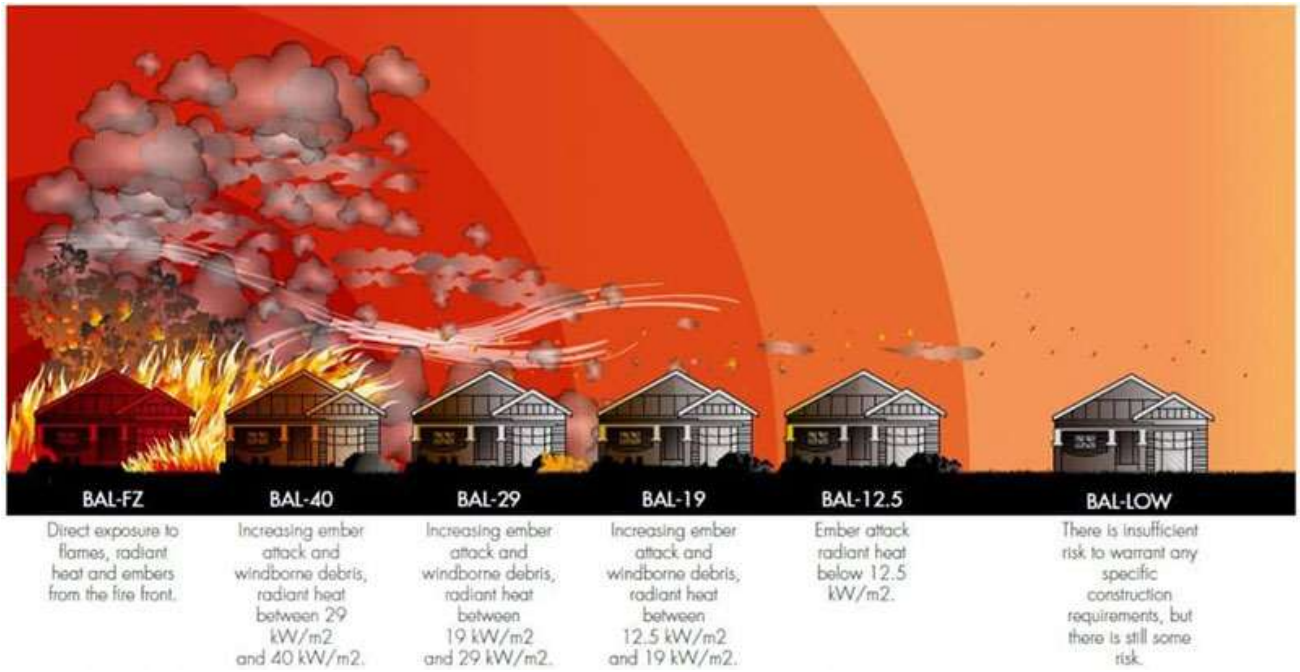
BAL Map for Contours
B. Woodland

BAL Contours
BAL-12.5
BAL-19
BAL-29
BAL-40
BAL-FZ

Bushfire Attack Levels and Corresponding Sections for Specific Construction Requirements

Bushfire Attack Level (BAL)	Classified vegetation within 100m of the site and heat flux exposure thresholds	Description of predicted bushfire attack and levels of exposure	Construction Section
BAL – Low	See clause 2.2.3.2	There is insufficient risk to warrant specific construction requirements	4
BAL – 12.5	≤12.5 kW/m^2	Ember attack	3 and 5
BAL – 19	>12.5 kW/m^2 ≤19 kW/m^2	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux	3 and 6
BAL – 29	>19 kW/m^2 ≤29 kW/m^2	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux	3 and 7
BAL – 40	>29 kW/m^2 ≤40 kW/m^2	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux with increased likelihood of direct contact with flames	3 and 8
BAL – Flame Zone	> 40 kW/m^2	Direct exposure to flames from fire front in addition to heat flux and ember attack	3 and 9

Table 3.1, AS3959-2018.



Recommendations:

1. **Access to Water for Firefighting Purposes:**

   Reticulated water access will be made available throughout the property to the proposed new lots; therefore, water storage for firefighting purposes will not be a requirement for this proposal. It is recommended that at least one fire hydrant is installed in the cul-de-sac near lots 13-16 to ensure these new lots have access to fire hydrants.

2. **Vehicular Access:**

   The proposed internal road network will be considered compliant and can adequately provide access for firefighting and emergency appliances. The proposed internal road width is 7.5m with a cul-de-sac. Proposed lots one through seven will be accessible from Glenmore Drive and will not utilise the proposed internal road network. New access driveways from the proposed road network and Glenmore Drive into the new lots are required to comply with the below criteria.

   a. a minimum cleared width of 6m and a height of 4.8m;
   b. a minimum formed width of 4m;
   c. a maximum gradient of 12.5% constructed to an all-weather standard; and
   d. culverts and/or bridges with a minimum load bearing of 15 tonnes (if applicable).

   Passing bays will not be required along any future driveways into the proposed new lots due to the short distance from Glenmore Drive or the proposed internal road network.

   Hard stand turning areas are not required to be implemented within any of the proposed new lots due to the reticulated water and fire hydrant access along the new internal road or Glenmore Drive.

3. **Vegetation Management:**

   Radiation Zones are a requirement for this proposal.

   Inner Radiation Zones:
   Inner radiation zones are required to be implemented for 10 metres in all directions from the edge of future building envelopes within the future lots. Inner radiation zones constitute the clearing of vegetation to bare earth where only non-combustible high moisture content species and a managed ground cover are permitted. These radiation zones are required to be maintained in perpetuity to ensure that the environmental protection area does not expand and create new areas of hazardous vegetation outside of the currently mapped environmental protection area.

   Radiation zones are only permitted to be implemented within the respective lot boundaries and cannot encroach into the environmental protection area.

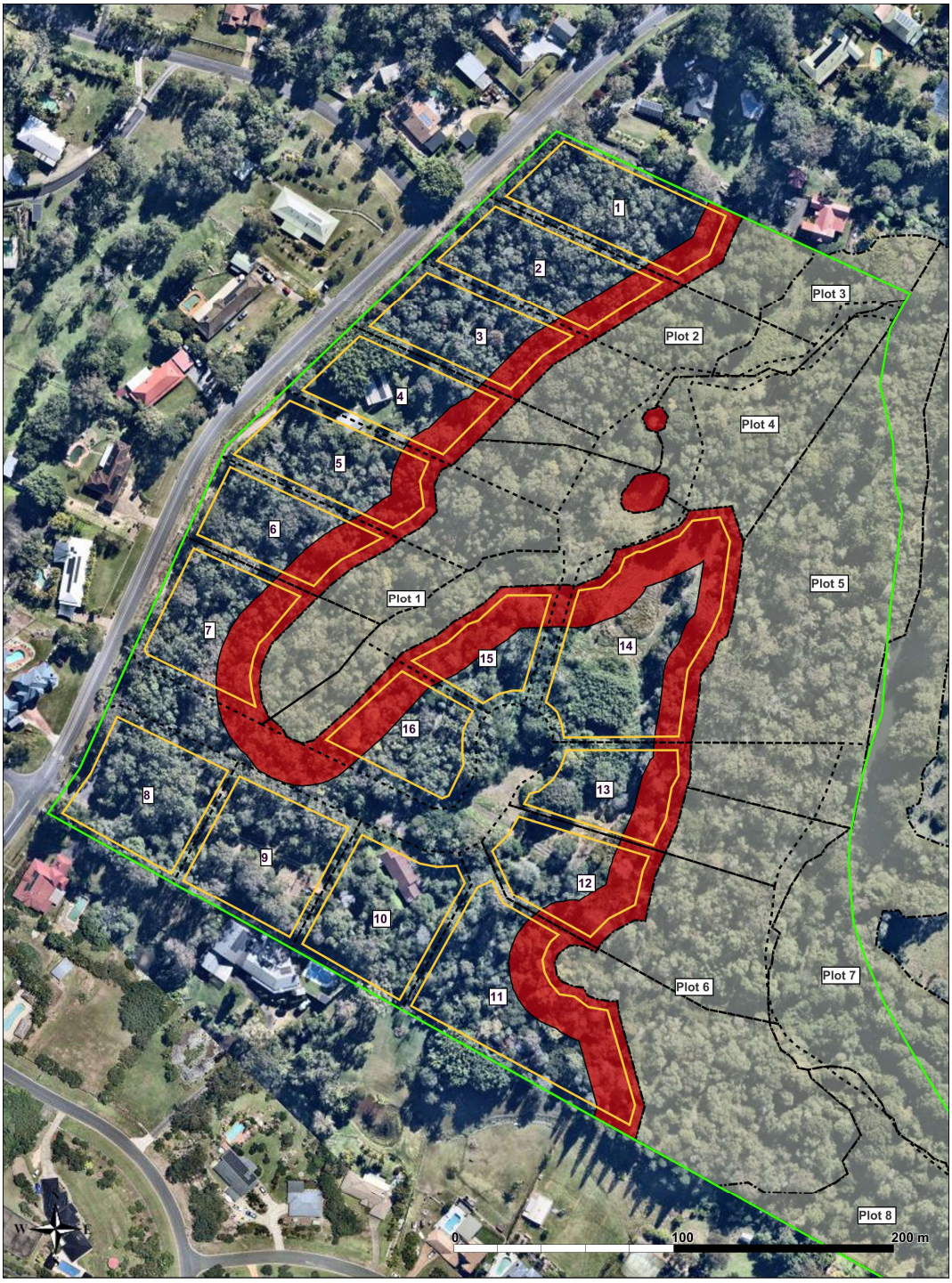
All areas within the building envelopes and inner radiation zones should be managed to a maximum height of 150mm. Where possible and ecologically viable, non-combustible high moisture content species should be utilised when planting within the property.

4. **Acceptable Bushfire Risk (≤29kW/m^2 of Potential Radiant Heat Flux):**

All habitable structures within the proposed subdivision must meet a maximum radiant heat flux exposure of ≤29kW/m^2. Class 10 or other non-habitable structures can be erected with a radiant heat flux exposure greater than 29kW/m^2 but must be individually assessed for Bushfire Attack Level. To ensure that all future structures within the proposed building envelopes achieve an acceptable level of bushfire risk, non-habitable areas must be implemented to restrict the footprints of future habitable structures. The required non-habitable area setbacks are listed below, measured from the edge of the environmental protection area (some lots may be exposed to multiple plots of vegetation but the furthest setback for each affected lot has been listed).

- Lots 1-3: 17m
- Lots 4-7: 20m
- Lots 11-13: 21m
- Lots 14-16: 20m

Imagery below illustrates the non-habitable areas throughout the proposed development.



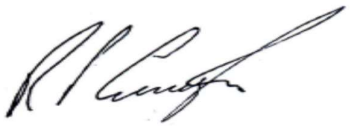
Legend

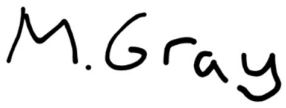
BAL Map for Contours
B. Woodland

Non-Habitable Areas
Non-Habitable Areas

Based on the above non-habitable areas, each proposed new lot does have sufficient space that achieves an acceptable level of bushfire risk where a Class 1 dwelling could be sited.

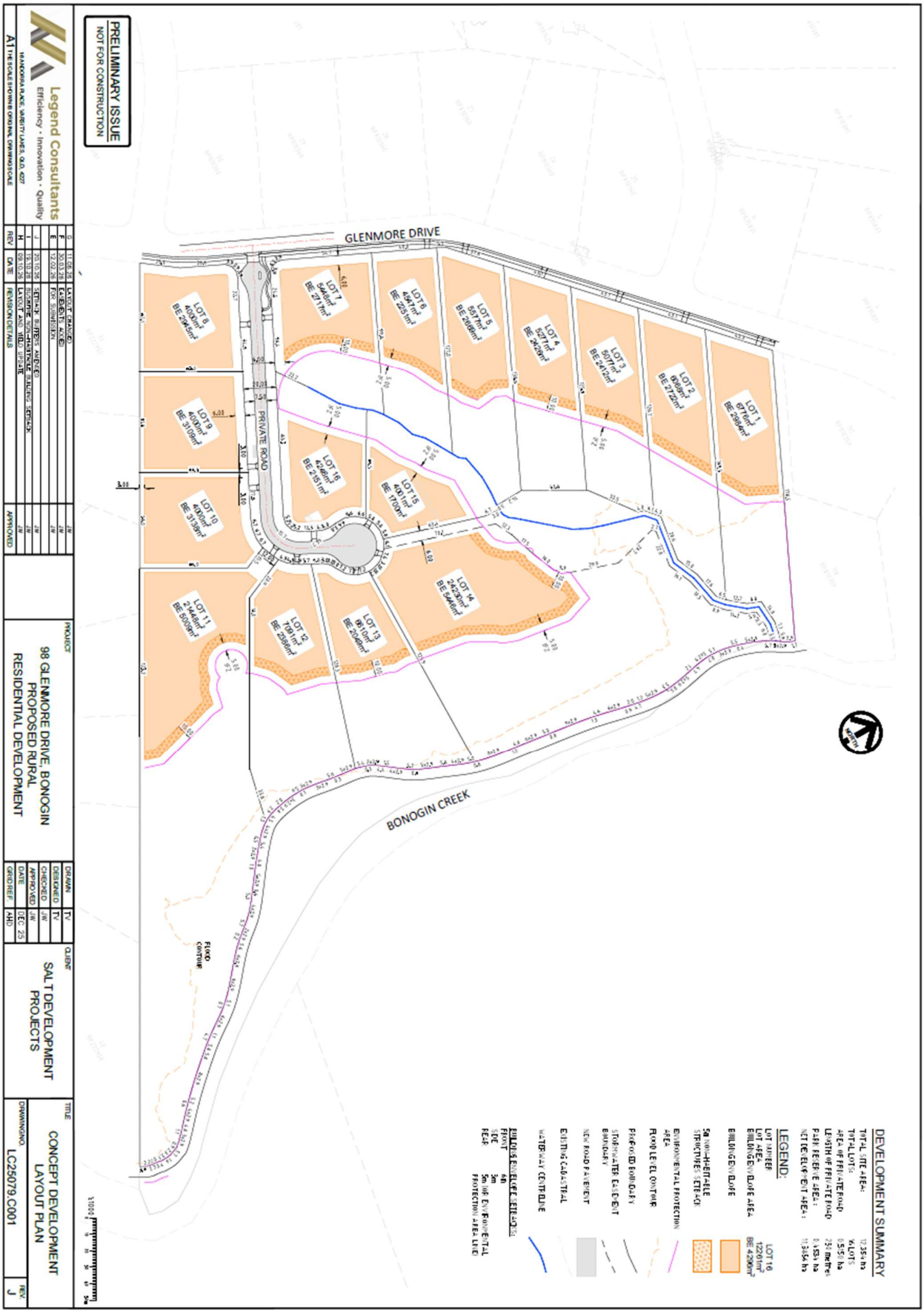
5. It is recommended that an alert be placed on the Title or Council Rate searches noting that an approved Bushfire Risk Assessment is in existence, is made available to ensuing owners, and must be complied with by ensuing owners.





Ray Cavanough and Max Gray

Appendix 1 – Site Plan



Appendix 2 – Photos of Main Aspects



1. Excluded areas across Glenmore Drive.



2. Excluded areas across Glenmore Drive.



3. Vegetation to be removed to make way for proposed lots.



4. Vegetation to be removed to make way for proposed lots.



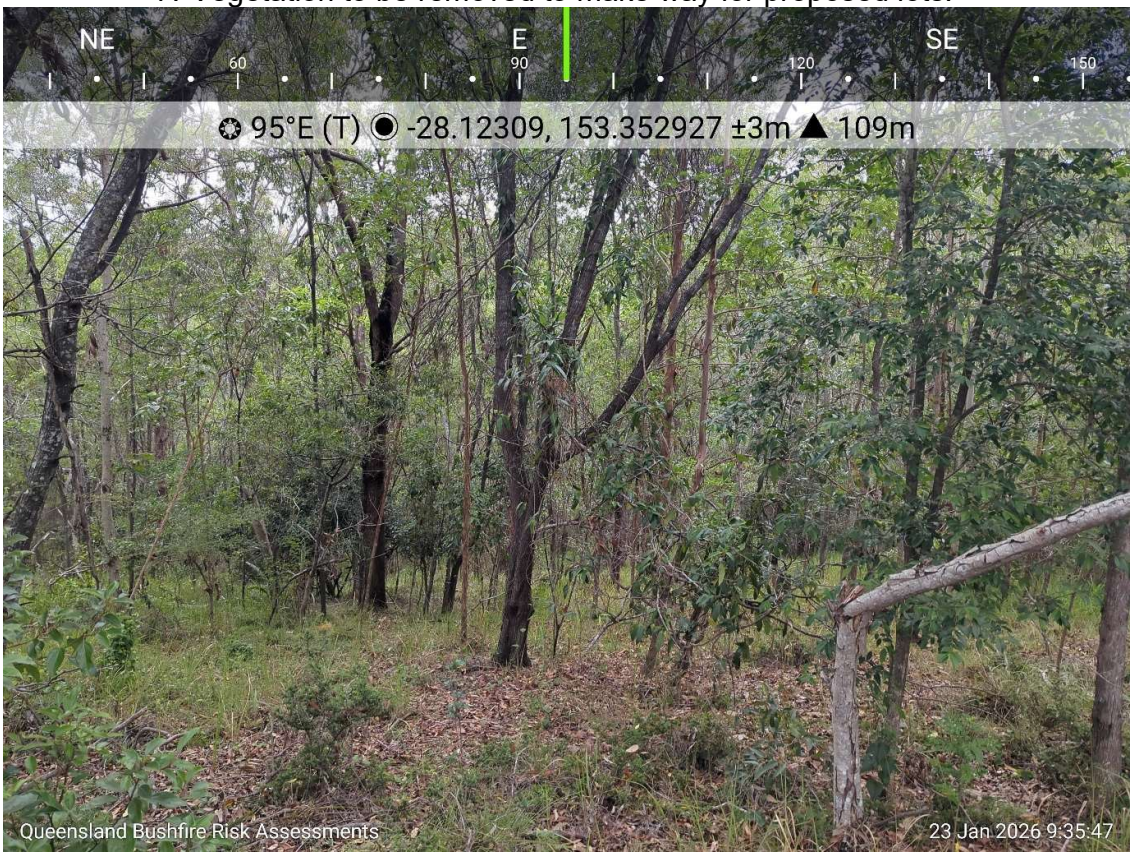
5. Vegetation to be removed to make way for proposed lots.



6. Vegetation to be removed to make way for proposed lots.



7. Vegetation to be removed to make way for proposed lots.



8. Vegetation to be removed to make way for proposed lots.



9. Vegetation to be removed to make way for proposed lots.



10. Vegetation to be removed to make way for proposed lots.



11. Vegetation to be removed to make way for proposed lots.



12. Vegetation to be removed to make way for proposed lots.



13. Vegetation to be removed to make way for proposed lots.



14. Vegetation to be removed to make way for proposed lots.



15. Vegetation to be removed to make way for proposed lots.



16. Vegetation to be removed to make way for proposed lots.



17. Vegetation to be removed to make way for proposed lots.



18. Vegetation to be removed to make way for proposed lots.



19. Vegetation to be removed to make way for proposed lots.



20. Vegetation to be removed to make way for proposed lots.



21. Vegetation to be removed to make way for proposed lots.



22. Vegetation to be removed to make way for proposed lots.



23. Vegetation to be removed to make way for proposed lots.



24. Vegetation to be removed to make way for proposed lots.



25. Vegetation to be removed to make way for proposed lots.



26. Vegetation to be removed to make way for proposed lots.



27. Vegetation to be removed to make way for proposed lots.



28. Vegetation to be removed to make way for proposed lots.



29. Vegetation to be removed to make way for proposed lots.



30. Vegetation to be removed to make way for proposed lots.



31. Classifiable vegetation plot 2 (VHC 9.2).



32. Classifiable vegetation plot 2 (VHC 9.2).



33. Classifiable vegetation plot 2 (VHC 9.2).



34. Classifiable vegetation plot 2 (VHC 9.2).



35. Classifiable vegetation plot 3 (VHC 9.2).



36. Classifiable vegetation plot 3 (VHC 9.2).



37. Classifiable vegetation plot 3 (VHC 9.2).



38. Classifiable vegetation plot 3 (VHC 9.2).



39. Classifiable vegetation plot 4 (VHC 9.2).



40. Classifiable vegetation plot 4 (VHC 9.2).



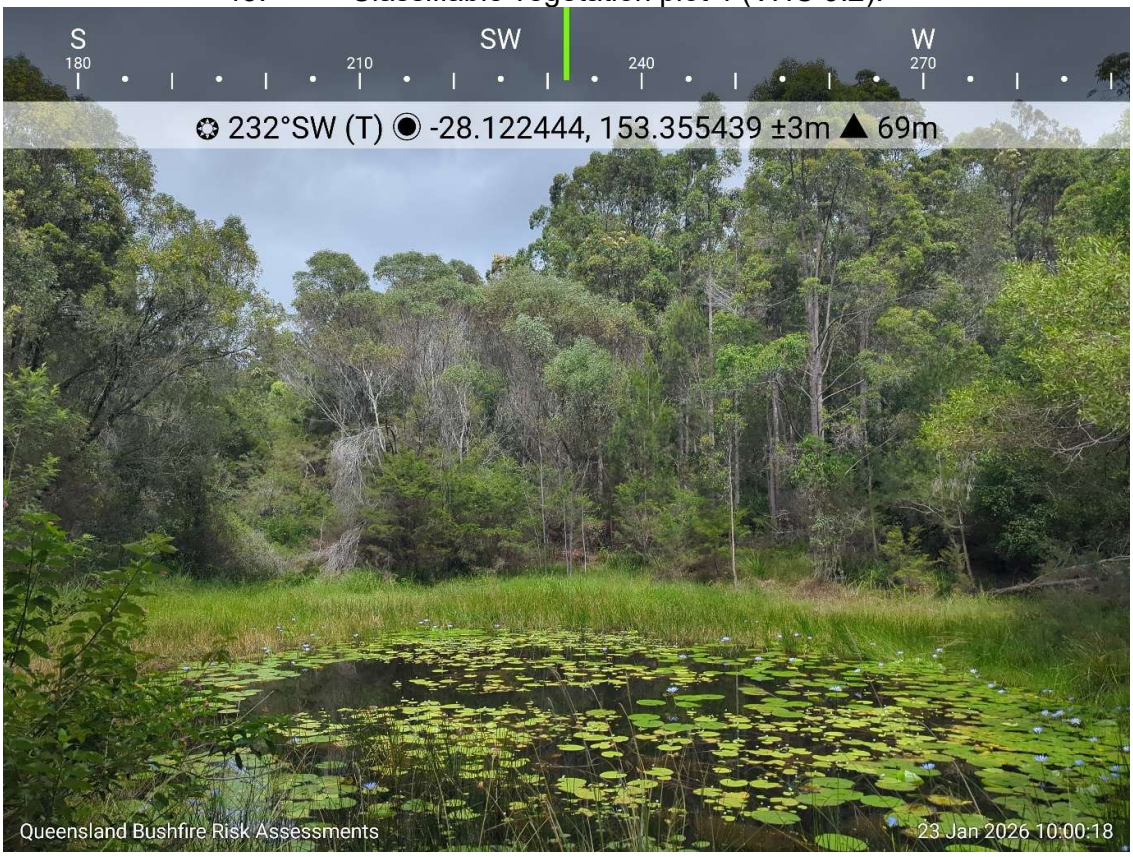
41. Classifiable vegetation plot 4 (VHC 9.2).



42. Classifiable vegetation plot 4 (VHC 9.2).



43. Classifiable vegetation plot 4 (VHC 9.2).



44. Classifiable vegetation plot 4 (VHC 9.2).



45. Vegetation to be removed for the proposed development.



46. Vegetation to be removed for the proposed development.



47. Classifiable vegetation plot 5 (VHC 9.2).



48. Classifiable vegetation plot 5 (VHC 9.2).



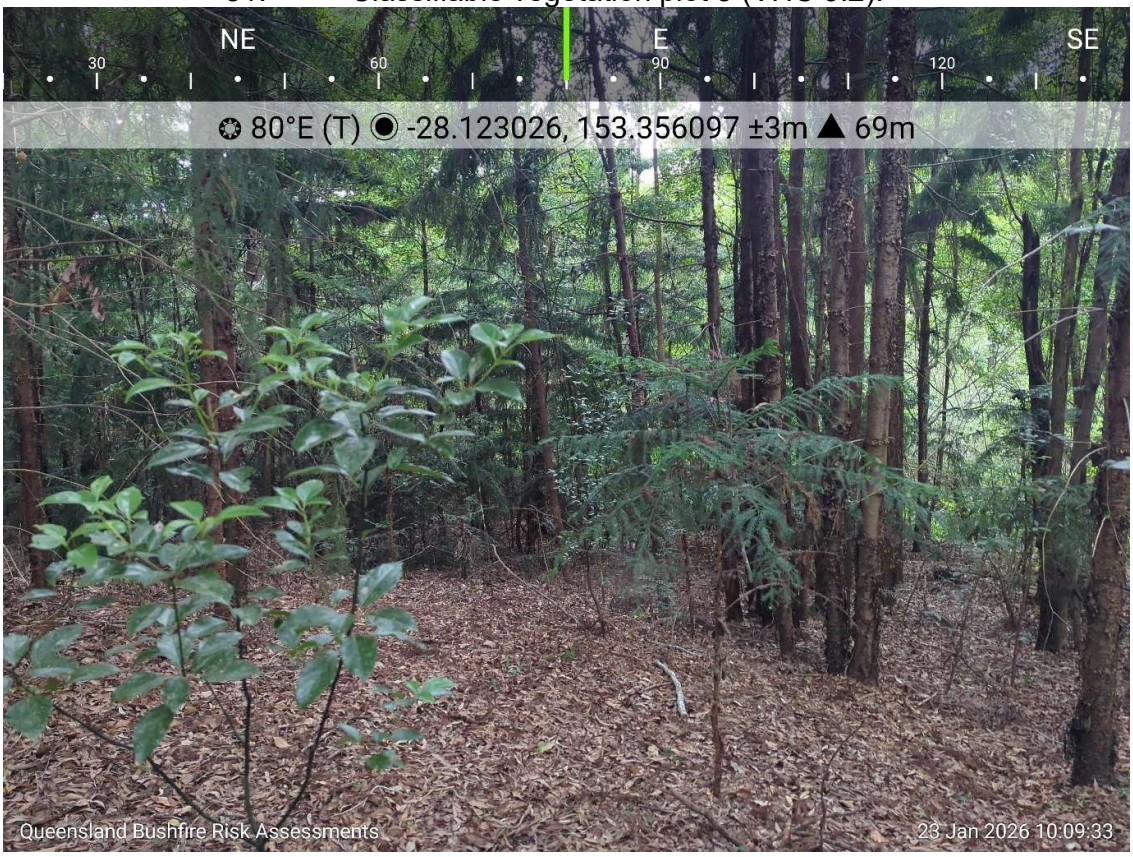
49. Classifiable vegetation plot 5 (VHC 9.2).



50. Classifiable vegetation plot 5 (VHC 9.2).



51. Classifiable vegetation plot 5 (VHC 9.2).



52. Classifiable vegetation plot 5 (VHC 9.2).



53. Classifiable vegetation plot 5 (VHC 9.2).



54. Classifiable vegetation plot 5 (VHC 9.2).



55. Vegetation across Bonogin Creek.



56. Classifiable vegetation plot 5 (VHC 9.2).



57. Classifiable vegetation plot 5 (VHC 9.2).



58. Classifiable vegetation plot 5 (VHC 9.2).



59. Classifiable vegetation plot 6 (VHC 9.2).



60. Classifiable vegetation plot 6 (VHC 9.2).



61. Classifiable vegetation plot 6 (VHC 9.2).



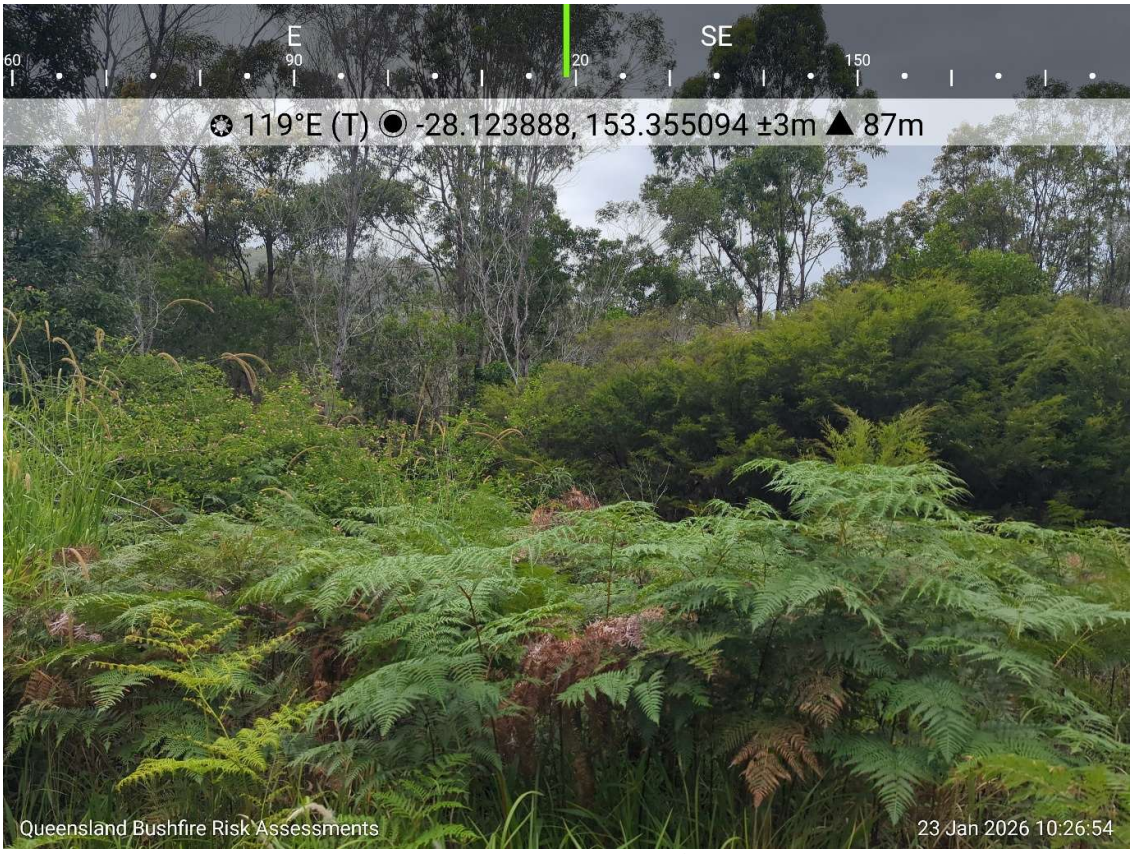
62. Vegetation to be removed to make way for the proposed development.



63. Vegetation to be removed to make way for the proposed development.



64. Vegetation to be removed to make way for the proposed development.



65. Vegetation to be removed to make way for the proposed development.



66. Vegetation to be removed to make way for the proposed development.



67. Vegetation to be removed to make way for the proposed development.



68. Vegetation to be removed to make way for the proposed development.



69. Vegetation to be removed to make way for the proposed development.



70. Vegetation to be removed to make way for the proposed development.



71. Vegetation to be removed to make way for the proposed development.



72. Vegetation to be removed to make way for the proposed development.



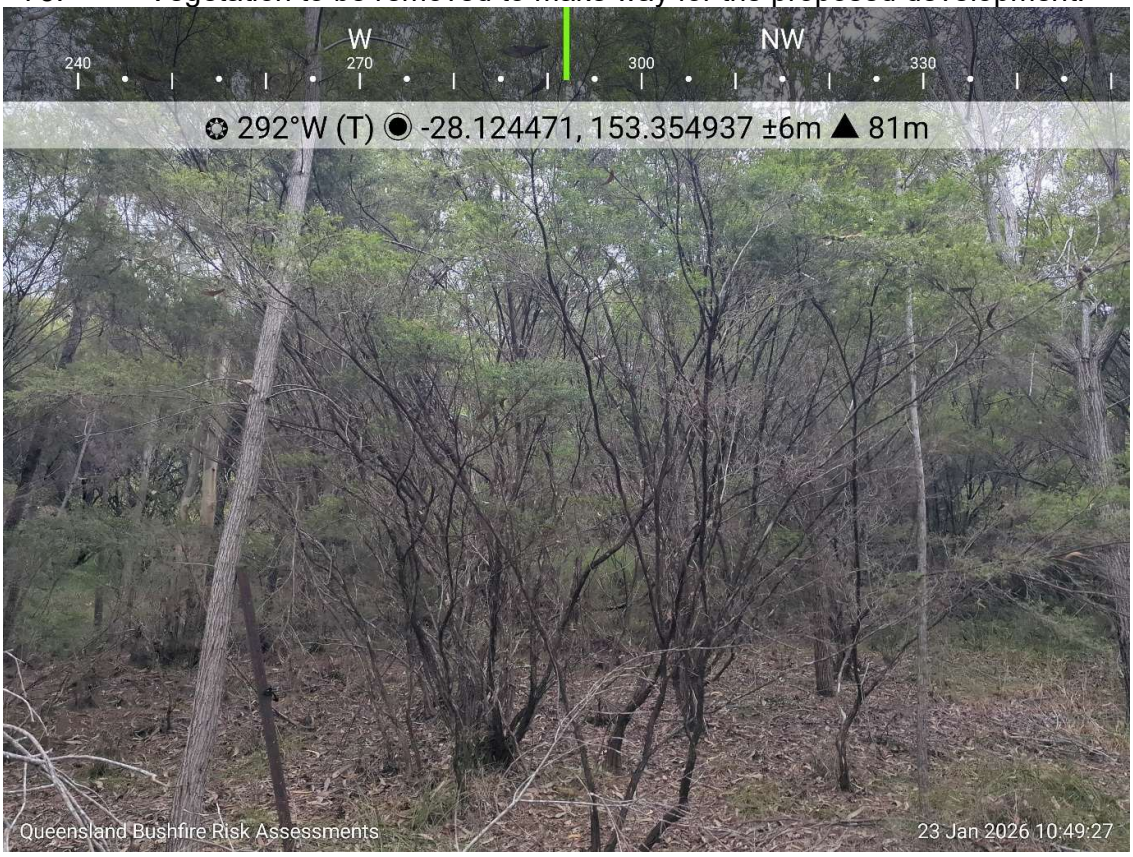
73. Vegetation to be removed to make way for the proposed development.



74. Vegetation to be removed to make way for the proposed development.



75. Vegetation to be removed to make way for the proposed development.



76. Vegetation to be removed to make way for the proposed development.



77. Vegetation to be removed to make way for the proposed development.



78. Vegetation to be removed to make way for the proposed development.



79. Vegetation to be removed to make way for the proposed development.



80. Vegetation to be removed to make way for the proposed development.



81. Classifiable vegetation plot 6 (VHC 9.2).



82. Classifiable vegetation plot 6 (VHC 9.2).



83. Classifiable vegetation plot 6 (VHC 9.2).



84. Classifiable vegetation plot 6 (VHC 9.2).



85. Classifiable vegetation plot 6 (VHC 9.2).



86. Classifiable vegetation plot 6 (VHC 9.2).



87. Classifiable vegetation plot 6 (VHC 9.2).



88. Classifiable vegetation plot 6 (VHC 9.2).



89. Classifiable vegetation plot 6 (VHC 9.2).



90. Classifiable vegetation plot 6 (VHC 9.2).



91. Classifiable vegetation plot 6 (VHC 9.2).



92. Classifiable vegetation plot 6 (VHC 9.2).



93. Classifiable vegetation plot 8 (VHC 9.2).



94. Classifiable vegetation plot 8 (VHC 9.2).



95. Classifiable vegetation plot 8 (VHC 9.2).



96. Classifiable vegetation plot 6 (VHC 9.2).



97. Classifiable vegetation plot 8 (VHC 9.2).



98. Classifiable vegetation plot 8 (VHC 9.2).



99. Classifiable vegetation plot 6 (VHC 9.2).



100. Classifiable vegetation plot 6 (VHC 9.2).



101. Vegetation to be removed for the proposed development.



102. Vegetation to be removed for the proposed development.



103. Vegetation to be removed for the proposed development.



104. Vegetation to be removed for the proposed development.



105. Vegetation to be removed for the proposed development.



106. Vegetation to be removed for the proposed development.



107. Vegetation to be removed for the proposed development.



108. Vegetation to be removed for the proposed development.



109. Vegetation to be removed for the proposed development.



110. Vegetation to be removed for the proposed development.



111. Vegetation to be removed for the proposed development.



112. Vegetation to be removed for the proposed development.



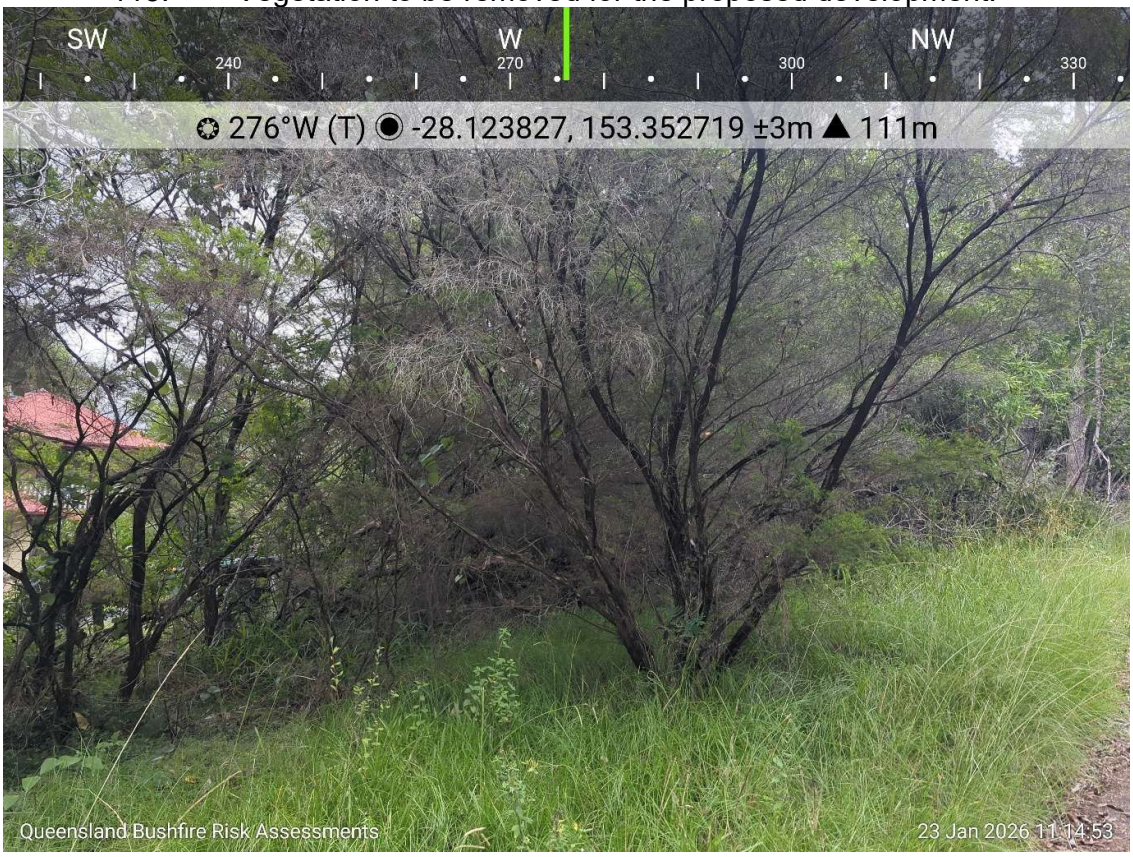
113. Vegetation to be removed for the proposed development.



114. Vegetation to be removed for the proposed development.

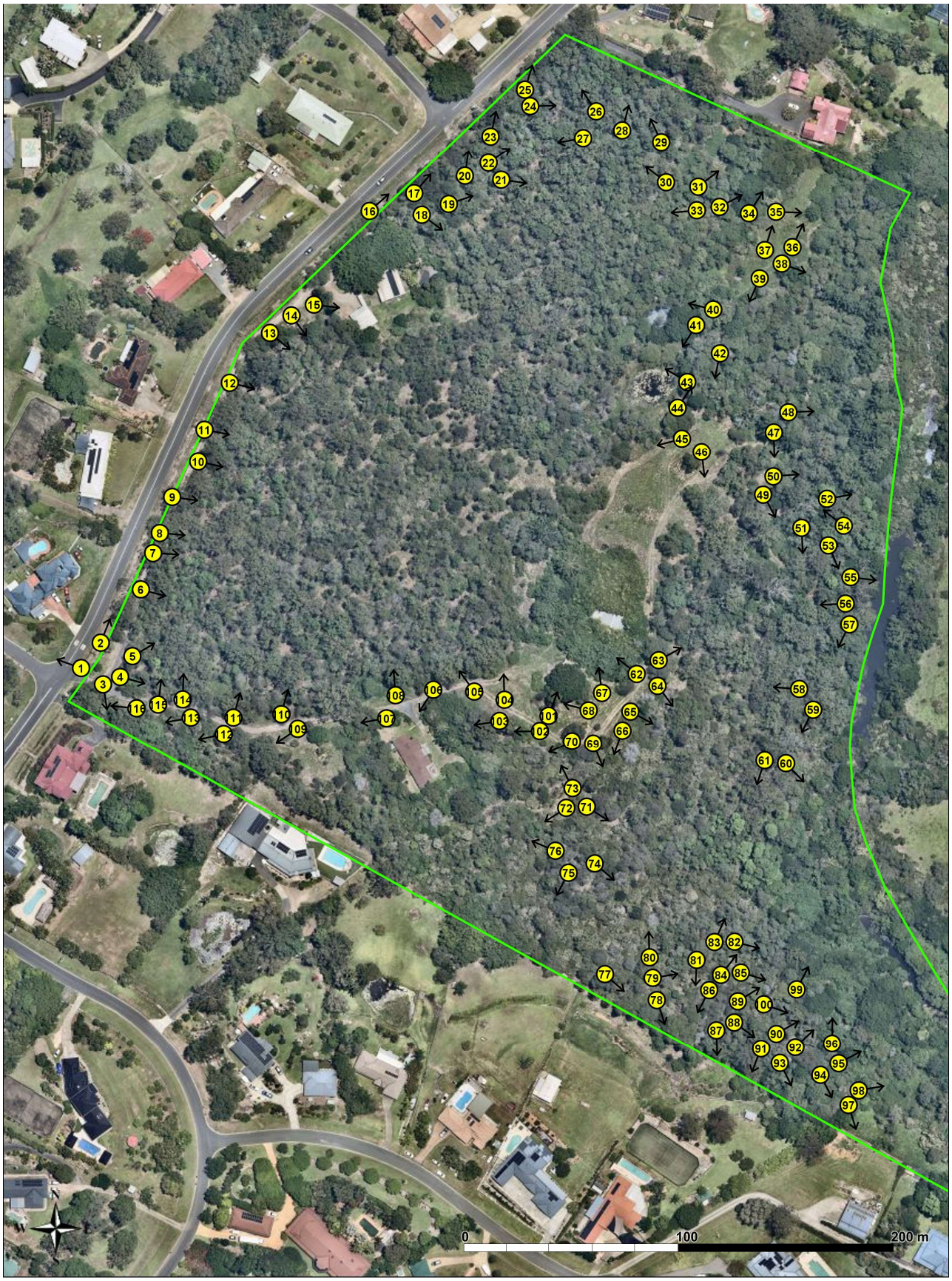


115. Vegetation to be removed for the proposed development.



116. Vegetation to be removed for the proposed development.

Photo Points



Legend

Photopoints

Appendix 3 – Bushfire Hazard Overlay Code

8.2.3.3 Specific benchmarks for assessment

Table 8.2.3-2: Bushfire hazard overlay code – for assessable development

Performance outcomes	Acceptable outcomes	Does the proposal meet the acceptable outcome? if not, justify how the proposal meets either the performance outcome or overall outcome
PO1 In a bushfire hazard area, the fire mitigation methods used at the site are adequate for the bushfire hazard of the individual site, having regard to: (a) vegetation type; (b) slope; (c) aspect; (d) bushfire history; (e) conservation values of the site; (f) ecological restoration, including forest succession; (g) ongoing maintenance; (h) climate change; and (i) on site and off-site[1] fire hazard implications. [1]**Note: This includes potential hazard from land up to 10kms away from the site. For example, how might large tracts of forest away from the site impact on the bushland that surrounds the site.**	**AO1** A written assessment by a suitably qualified and experienced bushfire management consultant confirms that the site is not in a bushfire hazard area. OR The development complies with an approved Bushfire management plan prepared in accordance with **SC6.3 City Plan policy – Bushfire management plans**. OR The development complies with an existing approved Bushfire management plan as referenced within the approved reconfiguration of a lot. **Note: Prior to:** **(a) plan sealing for a Reconfiguration of a lot; or** **(b) the issue of a Building final or Certificate of classification for Building work; or** **(c) the commencement of use where building work is not proposed.** **Whichever comes first, the applicant must submit to Council, certification from an appropriately qualified and experienced person that the development has been completed in accordance with, and complies with the approved Bushfire management plan and that all risk treatments are functioning in accordance with the approved plan.**	**The proposed development is accompanied by a bushfire management plan prepared by Queensland Bushfire Risk Assessments dated the 31/03/26.**

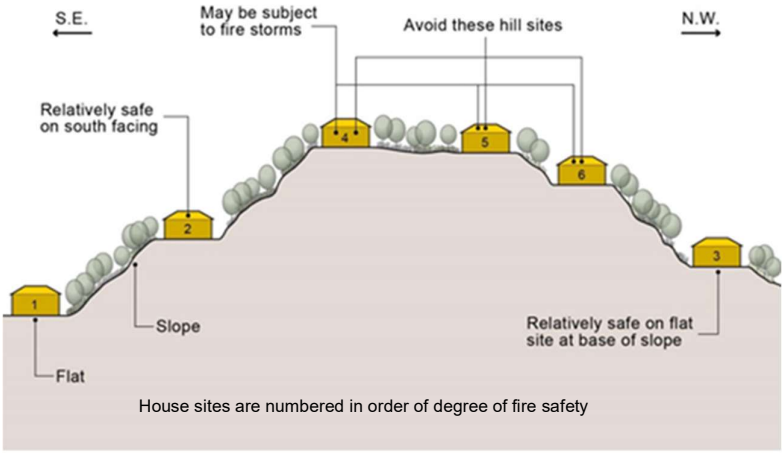
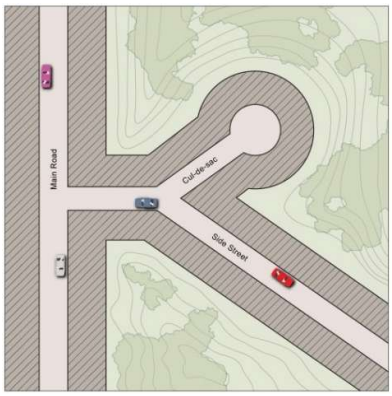
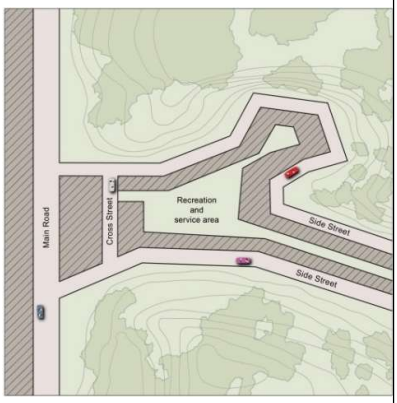


Figure 8.2.3-1
Bushfire hazard overlay – Preferred house site location in bushfire hazard areas. Image adapted from QDHLGP (1993) Bushfire Hazard Planning in Queensland.

PO2 In a bushfire hazard area, development: (a) does not result in a high concentration of people living, working or congregating in a bushfire hazard area; (b) does not result in the bulk manufacture or storage of hazardous materials; and (c) 'essential' community infrastructure is able to function effectively during and immediately after a bushfire event.	**AO2** The following land uses are not located in a bushfire hazard area: (a) Child care centre; (b) Community care centre; (c) Community use; (d) Development involving the manufacture or storage of hazardous material in bulk; (e) Educational establishment; (f) Hospital; (g) Residential care facility; (h) Retirement facility; (i) Rooming accommodation; (j) Sport and recreation uses; (k) Tourist attraction; (l) Tourist park; and (m) Utility installation (waste management facilities). AND In a bushfire hazard area permitted essential community infrastructure is designed to function effectively during and immediately after bushfire events, as demonstrated in a Bushfire management plan. **Note: A Bushfire management plan prepared by a suitably qualified person and in accordance with SC6.3 City Plan policy – Bushfire management plans is Council's preferred method for addressing this acceptable outcome.**	**Compliant** The proposed development does not fall under a use detailed in AO2; however, the proposed development will result in a higher concentration of residents at the property. The accompanying bushfire risk assessment has demonstrated that the proposed development meets an acceptable level of bushfire risk and can effectively function in the event of a bushfire.
PO3 In a bushfire hazard area, developments, including lot layout are designed to avoid bushfire hazard and provide safe sites for people, property and buildings. Editor's note – The development should be located: (a) away from the most likely direction of a fire front (refer Figure 8.2.3-1: Preferred house site location in bushfire hazard areas); and (b) so that elements of the development least susceptible to fire are sited closest to the bushfire hazard.	**AO3** Development, Lots and/or building envelopes are not located within bushfire hazard areas. OR The development is located in accordance with the approved Bushfire management plan as referenced within the approved reconfiguration of a lot. OR The development is designed to adequately demonstrate that the risk to life and property is minimised to achieve acceptable levels and ensure ongoing site management.	**Compliant** All proposed lots and building envelopes can house a dwelling that meets 29kW/m^2 of potential radiant heat flux or less with the implementation of non-habitable areas. Details regarding these requirements are located under the recommendations section of this report.

	AO3.2 The development design incorporates bushfire radiation zone/s that: (a) use existing or natural fire breaks & minimise the need to clear native vegetation; (b) do not impact matters of environmental significance; (c) are located entirely within the boundaries of the private property of the development site; and (d) incorporates landscaping species that are less likely to exacerbate a bushfire event.	**Compliant** The proposed development includes inner radiation zones to ensure areas between the environmental protection area and building envelopes does not become overgrown and develop into a bushfire hazard.
PO4 In a bushfire hazard area, when designing for bushfire hazard mitigation the lot layout must avoid impacts on matters of environmental significance.	**AO4** Development design, Lot size, and layout avoids impact on matters of environmental significance and minimises impacts such as fragmentation, habitat loss and edge effects for any matters of environmental significance.	**Compliant** The proposed development does not have impacts on matters of environmental significance due to a lack of conditioned vegetation management for bushfire mitigation.

PO5 Development uses fencing that: (a) does not contribute to the spread of bushfire; (b) facilitates the safe movement of fauna; and (c) provides access for fire-fighting purposes.	**AO5** Fences are constructed: (a) using non-combustible or fire retardant materials within 20m of any building used for accommodation; (b) that do not impede the safe movement of fauna (where applicable); and (c) has gates that can be freely accessed for fire-fighting purposes (if applicable).	**Compliant** No fencing has been recommended as a part of this proposal. Any fencing constructed within the property is recommended to consist of a non-combustible material such as concrete, masonry or Colorbond steel.
PO6 In a bushfire hazard area, vehicular access (including internal roads) is designed to mitigate against bushfire hazard by ensuring adequate access for: (a) fire-fighting and other emergency vehicles, and (b) the evacuation of residents and emergency personnel, during a bushfire event.	**AO6.1** The development design incorporates a perimeter road that: (a) is located between the boundary of the lots and/or buildings and the adjacent natural area and/or bushfire hazard area; (b) has a minimum cleared width of 20m; (c) has a constructed minimum road width of 6m; (d) has a maximum gradient of 12.5%; (e) is constructed to an all-weather standard; and (f) is constructed to ensure all culverts and bridges have a minimum load bearing of 15 tonnes (if applicable). (refer **Figure 8.2.3-2b**).	**Compliant** The proposed internal road network design is considered adequate for providing access for firefighting and other emergency vehicles. The proposed road network will also allow swift evacuation to Glenmore Drive away from the property.
	AO6.2 The road design is capable of providing access for fire-fighting and other emergency vehicles, in accordance with **SC6.11 City Plan policy – Land development guidelines, Section 2 – Transport network standards**.	**Compliant** The proposed internal road network is capable of providing access for firefighting appliances and other emergency vehicles.
	AO6.3 The road design does not include dead end roads (refer **Figure 8.2.3-2a**).	**Compliant** The proposed internal road network includes a turning circle in the way of a cul-de-sac. No other turning areas are required to be implemented within the proposed new lots due to the new road network and Glenmore Drive plus the reticulated water access and proposed fire hydrants.

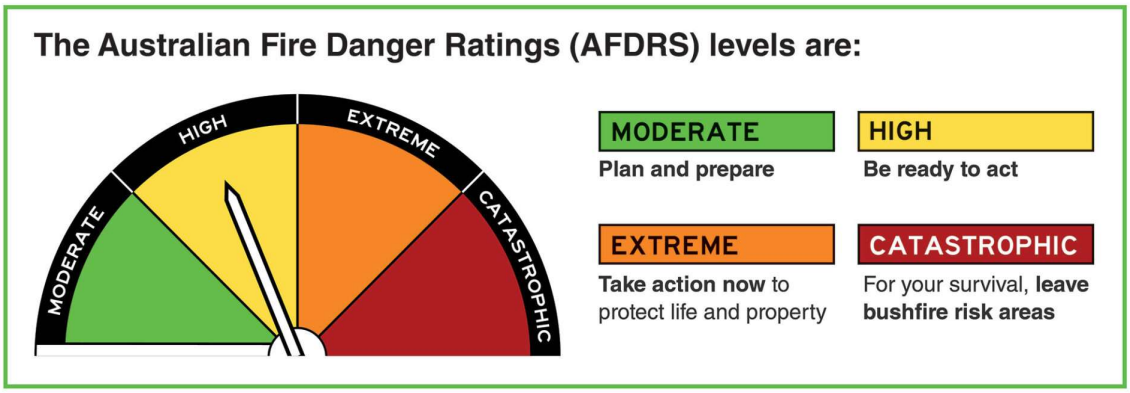
Figures 8.2.3-2a and 8.2.3-2b: Examples of acceptable and unacceptable road layout designs in bushfire hazard areas  **Figure 8.2.3-2a** Unacceptable design – along a ridge top in a bushfire hazard area – the ridge top development has no fire control lines and obstructs fire fighters.  **Figure 8.2.3-2b** Acceptable design – Ring road system provides a fire control line and access for fire fighters with all lots located on the inside of the ring-road.		
PO7 In a bushfire hazard area, the development layout is designed to avoid the requirement to clear vegetation to achieve risk reduction.		**AO7** The Bushfire management plan details the required extent of vegetation clearing and landscaping and where required modify development design and/or lot layout to minimise clearing of vegetation. **Note:** **For guidance on how to prepare a Bushfire management plan refer to SC6.3 City Plan Policy – Bushfire management plans.**	**Compliant** No vegetation is required to be removed for bushfire mitigation purposes due to ecological buffers within the proposed subdivision (radiation zones can only be implemented to the edges of these ecological buffers).
PO8 For areas to be dedicated to Council as open space, management strategies to mitigate bushfire risk must be identified.		**AO8** The Bushfire management plan contains a separate section detailing management strategies for areas to be dedicated to Council that can be included within the Open space management plan. **Note:** **For guidance on how to prepare a Bushfire management plan refer to SC6.3 City Plan Policy – Bushfire management plans.**	**Not applicable** There are no sections of open space dedicated to Council as a part of this proposal.
PO9 In a bushfire hazard area, fire trails must be provided to: (a) enable access for fire fighters, residents and equipment; (b) contribute to (where required) bushfire radiation zone(s); (c) mitigate against bushfire hazard; and (d) allow access for hazard reduction management programs. **Note: fire trails should be located, constructed and maintained with due regard for landscape and ecological values and should not result in soil disturbance or erosion.**		**AO9.1** Fire trails are located on public land (including public open space areas) to facilitate access for fire brigades. OR Fire trails located on private property are located as close as possible to the property boundaries and the adjoining bushfire hazard area, and an access easement is granted in favour of City of Gold Coast and Queensland Fire and Emergency Services. **Note:** **Design and construction of all fire trails located on land to be**	**Compliant** Due to the proposed internal road network and direct access to Glenmore Drive, fire trails have not been recommended as a part of this proposal.

	dedicated to the City as Conservation Estate are in accordance with SC6.3 City Plan policy – Bushfire management plans, Section 3.5(f). For other fire trails, AO9.2 – AO9.6 apply.	
	AO9.2 The fire trail has: (a) a minimum cleared width of 6m; (b) a minimum of 4.8m vertical clearance; (c) a cross fall of no greater than 10 degrees; (d) a minimum formed width of 4m; (e) a maximum gradient of 12.5%, with adequate drainage to prevent soil erosion and minimise ongoing trail maintenance; and (f) culverts and/or bridges with a minimum load bearing of 8 tonnes (if applicable).	**Not applicable**
	AO9.3 Vehicular links are provided along the fire trail either to existing fire trails or roads, and these links are designed having regard to the topography of the site, fire fighter safety and the need to regularly access water supplies. **Note: where possible, these links should be at intervals of approximately 200m**	**Not applicable**
	AO9.4 The fire trail has vehicular access at each end, and links either to existing fire trails or public roads.	**Not applicable**
	AO9.5 The fire trail provides turning areas for fire-fighting appliances. The turning bay can be either: (a) a turning circle; (b) a 'T' shaped turning bay; or (c) a 'Y' shaped turning bay.	**Not applicable**
	AO9.6 The fire trail provides areas for vehicles to pass or turn at intervals of not more than 200m and with a maximum grade of 5% (1 in 20).	**Not applicable**
PO10 In a bushfire hazard area, the development maintains the safety of people and property by ensuring that the water supply is reliable and has sufficient flow and pressure	**AO10.1** The development is proposed in a bushfire hazard area, and reticulated water is supplied in accordance with **SC6.11 City Plan policy – Land**	**Compliant** The property has access to reticulated water and fire hydrants along Glenmore Drive. The reticulated water access will be further implemented throughout the site including the installation of fire

requirements for fire-fighting purposes at all times.	**development guidelines, Section 6 – Water supply and sewerage reticulation standards**.	hydrants. Therefore, water storage for firefighting purposes will not be a requirement for this proposal.
	AO10.2 Development involving new or existing buildings with a gross floor area of greater than 50m^2, each lot has a reliable reticulated water supply that has sufficient flow and pressure characteristics for fire-fighting purposes at all times. It must have a minimum pressure and flow of 10 litres a second at 200 kPa.	**Compliant** The proposed development will have access to an adequate reticulated water supply.
PO11 In a bushfire hazard area, the development maintains the safety of people and property by ensuring that an adequate water supply for fire-fighting purposes is provided.	**AO11.1** For development with a combined GFA less than 500m^2 where one or more buildings are proposed, dedicated fire-fighting water storage is provided to protect each individual building. Each dedicated fire-fighting water storage must have a volume of water not less than 10,000 litres for each building, be provided within 10m of each building and be: (a) a separate tank that is either below ground level or of non -flammable construction; or (b) a reserve section in the bottom part of the main water supply tank that is either below ground level or of non -flammable construction. **Note: dedicated fire-fighting water storage is in addition to water supply for household use and does not include swimming pools, creeks and dams.**	**Not applicable**
	AO11.2 For development that proposes one or more buildings with a combined GFA greater than 500m^2 there is no acceptable outcome provided.	**Not applicable**
PO12 In a bushfire hazard area, all fire-fighting water storage tanks, including domestic water supply tanks, are fitted with the standard rural fire brigade fittings.	**AO12** The outlet pipe is 50mm in diameter, fitted with a 50mm male camlock (standard rural fire brigade fitting) and an isolating valve.	**Not applicable**
PO13 In a bushfire hazard area, water storage provided for fire-fighting purposes is safely located and accessible at all times.	**AO13.1** The water supply outlet is located at least 9m from any potential fire hazards, such as venting gas bottles and combustible structures.	**Not applicable**
	AO13.2 A safe and accessible hard stand area capable of	**Not applicable**

	accommodating a fire fighting vehicle is provided not more than 3m from the water supply outlet.	
PO14 Development in a bushfire hazard area must provide adequate fire-fighting water storage. This infrastructure must be provided on public land so as to be readily accessible to fire brigades for hazard reduction and fire-fighting purposes.	**AO14.1** Where public water supplies (e.g. fire hydrants or public water storage) do not exist, water supply tanks are provided for fire-fighting purposes on public land within the development. The water tanks must: (a) Be installed on land dedicated to Council; (b) hold a volume of at least 22,500 litres per every 20 dwellings; (c) be of concrete construction; and (d) have an outlet pipe of 50mm in diameter, fitted with a 50mm male camlock (standard rural fire brigade fitting) and an isolating valve.	**Not applicable**
	AO14.2 Development on public land provides a safe and accessible hardstand area capable of accommodating a fire fighting vehicle not more than 3m from the water supply outlet.	**Not applicable**
PO15 Development does not cause: (a) an unacceptable risk to people, property and the environment due to the impact of bushfire on hazardous chemicals; (b) excess danger or difficulty to emergency services for emergency response or evacuation.	**AO15** Development involving the storage, handling or manufacture of hazardous chemicals is not located within a Bushfire hazard area.	**Compliant (with conditions)** The proposed development is not permitted to store or manufacture hazardous chemicals within the site.
PO16 In a bushfire hazard area, new residents/occupants of a development in a bushfire hazard area are informed about: (a) the potential bushfire hazard on their site; (b) their responsibility for fire management; (c) the measures required for ongoing fire hazard mitigation; and (d) emergency procedures during a bushfire or on bad fire weather days. **Editor's note - Further information on bushfire preparation can be found at www.ruralfire.qld.gov.au**	**AO16** A copy of the Bushfire management plan, complete with the Queensland Fire and Emergency Services cover sheet and any other addendums is provided to each resident/occupant for their information. **Note: the QFES cover sheet is attached to the approved Bushfire management plan and a notification will be placed on the property's rates notice.**	**Compliant (with conditions)** The bushfire management plan must be made available to all residents of the site and a notice must be placed on the Council rate search.

Appendix 4 – The Australian Fire Danger Rating System (AFDRS)



The Australian Fire Danger Rating System is a simplified way for members of the public to understand the potential day-to-day bushfire risk based on many factors including up-to-date state fuel data, spatial and satellite data and weather data. The four levels as shown above are:

- Moderate,
- High,
- Extreme and
- Catastrophic.

Each danger level should be treated differently and requires homeowners to be actively aware of each level day to day.

MODERATE	HIGH	EXTREME	CATASTROPHIC
Plan and prepare. Most fires can be controlled.	Be ready to act. Fires can be dangerous.	Take action now to protect your life and property. Fires will spread quickly and be extremely dangerous.	For your survival, leave bushfire risk areas If a fire starts and takes hold, lives are likely to be lost.
Stay up to date and be ready to act if there is a fire	There's a heightened risk. Be alert for fires in your area. Decide what you will do if a fire starts. If a fire starts, your life and property may be at risk. The safest option is to avoid bushfire risk areas.	These are dangerous fire conditions. Check your bushfire plan and ensure that your property is fire ready. If a fire starts, take immediate action. If you and your property are not prepared to the highest level, go to a safer location well before the fire impacts. Reconsider travel through bushfire risk areas.	These are the most dangerous conditions for a fire. Your life may depend on the decisions you make, even before there is a fire. Stay safe by going to a safer location early in the morning or the night before. Homes cannot withstand fires in these conditions. You may not be able to leave, and help may not be available.

Shown above is a breakdown of each risk level from the Australian Fire Danger Rating System website (https://afdrs.com.au/). It's important to understand that as the levels rise, there is a requirement for fire wardens and employees to heighten their bushfire awareness and prepare adequately.

Updated fire danger ratings can be found at the below websites and should be checked every four days at a minimum to stay aware of what potential fire weather is ahead.

Bureau of Meteorology – Queensland Fire Danger Ratings
http://www.bom.gov.au/qld/forecasts/fire-danger-ratings.shtml

The above website provided by the Bureau of Meteorology breaks down Queensland into 15 sections and provides an FBI (Fire Behaviour Index) rating of which each danger rating has a range. The ranges are as follows.

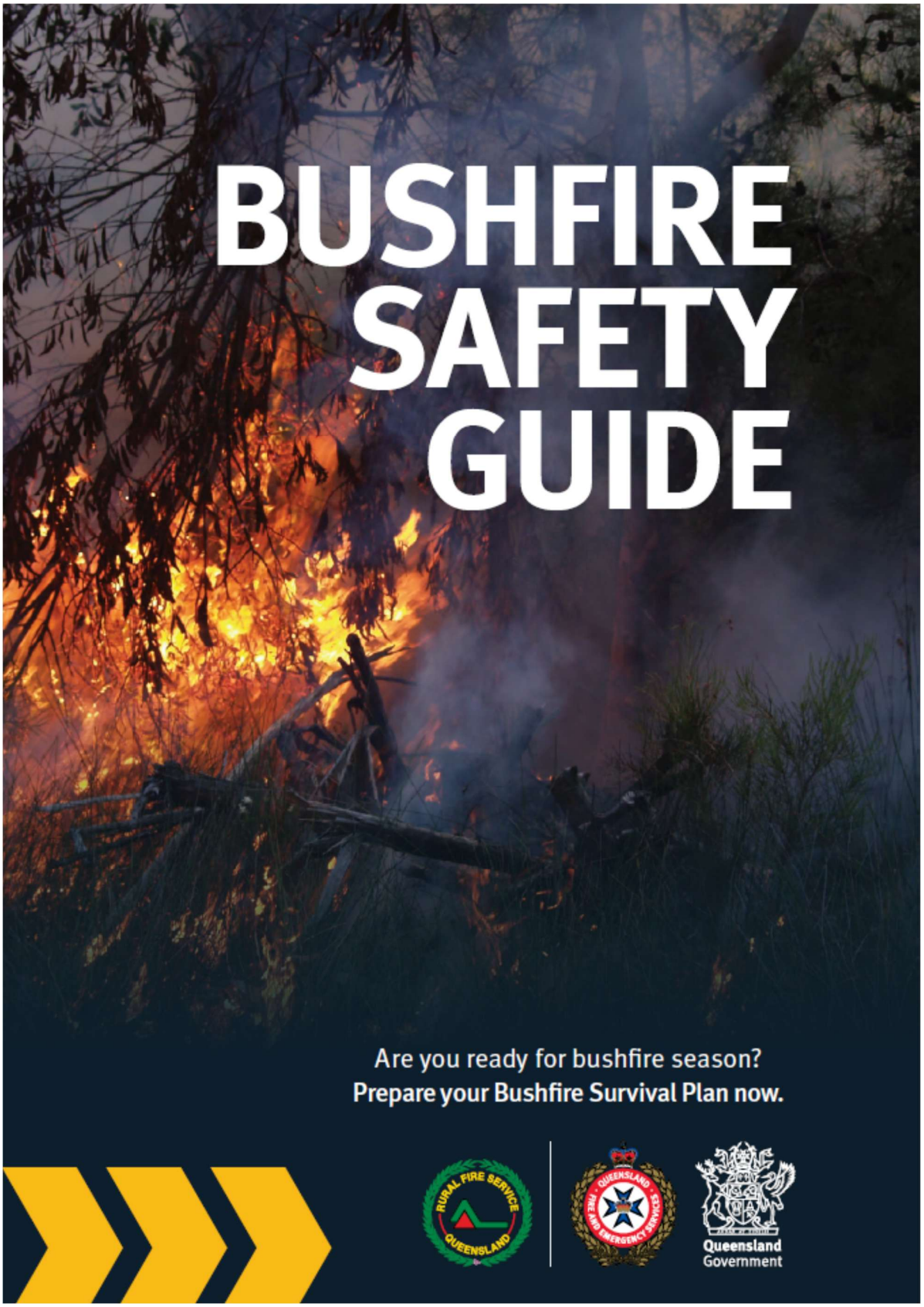
- No Rating (<12)
- Moderate (12-23)
- High (24-49)
- Extreme (50-99)
- Catastrophic (>=100)

Queensland Fire and Emergency Services – Fire Danger Ratings
https://www.qfes.qld.gov.au/prepare/bushfire/fire-danger-ratings

The above QFES website provides some more information on the fire danger ratings as well as an interactive map for each section of Queensland. This can act as a great visual alternative to the Bureau of Meteorology which is presented as a table of figures.

Overall, homeowners, fire wardens and community members should pay special attention to the current fire danger ratings in order to be readily prepared for bushfire weather. Correspondence with the local rural fire brigade may be helpful in order to stay ready and prepared for potential bushfires.

Appendix 5 – Queensland Fire and Emergency Services Bushfire Safety Guide





Bushfires can affect you no matter where you live in Queensland.

Bushfires move fast, can be highly destructive and pose a serious threat to life, property, and the environment.

Queensland Fire and Emergency Services (QFES) are committed to protecting lives and properties, however in a state as big as Queensland, a fire crew may not be available to assist every home.

It's important you have a plan in place and know exactly what you can do to protect yourself, your family, and your property.

During a bushfire, your safety depends on your preparations and the decisions you make.

The first step is to understand your level of risk to help you make informed decisions that are right for you and your family.

When is bushfire season?

Fire season in Queensland often begins in July and runs through until October, but can extend into February. However, bushfires in Queensland can occur at any time.

These times can vary each year depending on the condition of local bushland, long-term climate conditions, and short-term weather events. The impacts of climate change are creating extended fire seasons that include higher temperatures with more frequent hot days, and increased fire danger across the state.

KNOW YOUR RISK

Is your property at risk?

All Queenslanders need to be prepared for bushfire. You don't have to live in the bush to be threatened by bushfires, just close enough to be affected by burning material, embers, and smoke.

If you answer yes to any of the questions below you are at a heightened risk of bushfire.

- Do you live within a few kilometres of bushland?
- Does your local area have a history of bushfire?
- Do you have trees and shrubs within 20 metres of your home?
- Do you live along the coast near scrub?
- Do you live on a farm or near paddocks?

Visit the QFES website at www.qfes.qld.gov.au and use the post code checker to see the bushfire potential in your neighbourhood.

It's not just fire

Bushfires can lead to loss of life and cause serious damage to property and infrastructure, but the fire itself is only one part of the danger.

- Fire embers (small pieces of burning bark, leaves and twigs) can be caught in the wind and travel many kilometres from where the bushfire is burning and cause spot fires to start.
- The radiant heat from a large bushfire can be felt more than 100 metres away and can melt or crack objects such as glass windows, allowing embers into buildings and vehicles.
- Radiant heat can also be deadly to people and animals, causing dehydration and even heatstroke.
- Toxic fumes and heavy smoke from bushfires can make seeing and breathing difficult.



Is your home at risk?

Use the risk factors checklist to assess the vulnerability to your home in the event of a bushfire. Consider what changes you could make to your home to reduce your risk. The more boxes you tick, the more prepared your home may be.

Does your home have:

- ☐ Non-combustible exterior walls.
- ☐ Sealed roof ridge capping.
- ☐ Enclosed eaves.
- ☐ An enclosed underfloor.
- ☐ Metal screened vents.
- ☐ Non-combustible window trimmings.
- ☐ Non-combustible deck or verandah.

If firefighters need to access your property, does it have:

- ☐ Access route clear of overhanging trees.
- ☐ Access route clear of overhead powerlines.
- ☐ Unrestricted driveway access (gates can be opened without restriction).
- ☐ Room for large vehicles to reverse in (Approximately four metres wide).
- ☐ Turning or passing areas for large vehicles.
- ☐ Heavy vehicle access on cattle grids and bridges.
- ☐ Two-wheel drive vehicle access.
- ☐ An alternative way out for vehicles.

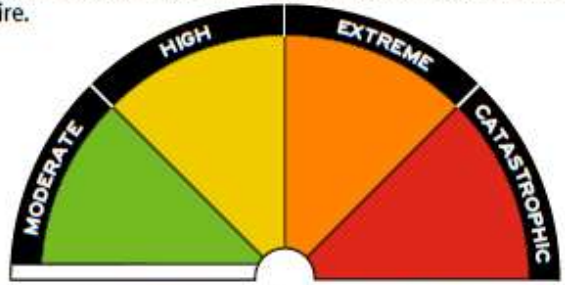
Do you have accessible water supply:

- ☐ Reticulated water supply.
- ☐ Tank supply suitable for firefighter access - 50mm male camlock fitting with shut-off valve.
- ☐ Accessible open water supply such as a dam or pool.
- ☐ Firefighting pump and hose connected to a water supply.

Know your Fire Danger Ratings

A Fire Danger Rating (FDR) describes the potential level of danger should a bushfire start. They are important because they provide you with information so you can take action to protect yourself, your family, and your home from the potentially dangerous impacts of bushfire.

They do not indicate the chance of a fire occurring, although this is a common misconception. Ratings are calculated using a combination of weather forecasting and information about vegetation that could fuel a fire.



Find your local FDR forecast by visiting the QFES website at www.qfes.qld.gov.au.

Moderate — **PLAN AND PREPARE**

Plan and prepare.
Most fire can be controlled.

High — **BE READY TO ACT**

Be ready to act.
Fires can be dangerous.

Extreme — **TAKE ACTION NOW**

Take action now to protect your life and property.
Fires will spread quickly and be extremely dangerous.

Catastrophic — **LEAVE BUSHFIRE RISK AREA**

For your survival, leave bushfire risk areas.
If a fire starts and takes hold, lives are likely to be lost.



WILL YOU LEAVE EARLY?

One of the most important things to do before bushfire season is to decide what you will do if a bushfire threatens your home or property.

Leave early? Or stay and defend?

Discuss with your family if you are capable and prepared to stay and defend your home or if leaving is the best choice for your family.

You need to consider:

- **Your health.**
  Fire conditions may aggravate conditions, such as breathing conditions that may make it difficult to defend your property for an extended period of time.
- **Your physical abilities.**
  You may need to defend your home for several hours in extreme heat and smoke which may require intense physical activity.
- **Your mobility.**
  You will need to move around your property with ease, potentially in dark, windy, and noisy conditions.
- **Your mental health.**
  The impact of bushfire can be traumatic and you will need to be mentally prepared.
- **Your ability** to make critical and informed decisions under stressful conditions.

Your decisions

You have decided to leave early. You need to prepare for the season ahead and make your Bushfire Survival Plan with your family. The decisions you make now will help you be prepared in the event your home and family are impacted by bushfire.

- What will be your trigger to leave? This could be a Fire Danger Rating. Don't rely on an official warning to leave. Bushfires can start quickly and threaten lives and homes within minutes.
- Do you or your family members have any disabilities or medical conditions that you need to take into consideration?
- Will you leave early that morning or the night before?
- Where will you go? Can you stay with family and friends or at a hotel in a safe location?
- Who will you tell? You should let your family, friends, and neighbours know where you have relocated to in case you need to be contacted.
- What route will you take and what is your back up route if a fire is already in the area?
- What will you take with you?
- What are you going to do with your pets or livestock?
- Who else do you need to talk to about where you are going?
- How will you stay informed about warnings and updates?
- What do you need to do to prepare your home before you leave?
- What will you do if there is a fire in the area and you cannot leave? Make sure you have a contingency plan.

If you plan to leave early, then you must leave your home well before a bushfire threatens and travelling by road becomes hazardous.



YOUR BUSHFIRE EVACUATION KIT

You must prepare a Bushfire Evacuation Kit to ensure you and your family have important items and equipment ready to relocate until you can return to your home.

Include items such as:



Jeans or long pants (natural fibres)



Hat



Long sleeve shirt (natural fibres)



Drinking water



Medication and prescriptions



Boots

Radio (battery operated)





Safety glasses



Batteries



Important documents (e.g. insurance papers)



Wallets and purses



Passports and birth certificates

Mobile phone and charger







Pet supplies



Family photos and valuables



Torch (battery operated)



Blankets (natural fibres)



Children's toys

LEAVE EARLY



If you decide to stay at your home during a fire, you need to be well prepared.

WILL YOU STAY?

Defending your home through a bushfire is a demanding task. You need to be mentally and physically ready and you need to have a plan.

What to expect

A bushfire is a terrifying and stressful experience. Understanding what to expect and planning what you will do will help you cope.

- It will be hot and dark. The sky may turn orange.
- Strong gusty winds and intense heat will make you tired quickly.
- Thick, heavy smoke will sting your eyes.
- Smoke will make it hard to breathe easily.
- Strong winds will push you around.
- The roaring sound of the wind and fire approaching will make it hard to hear.
- Embers will rain down causing spot fires all around you.
- Power, water and internet may be cut off.
- You may be isolated.
- The fire could impact you very fast, so you need to remain calm and stay focused.
- You may hear explosions nearby.
- While the fire front may pass quite quickly, it could be hours before the danger is over and you can rest.

Your decisions

You need to discuss your options with your family and prepare your Bushfire Survival Plan so that your whole household knows their roles. Some things that you need to consider are:

- How will you stay informed about warnings and updates?
- Is your property able to withstand the impact of a bushfire? What can you do to better prepare you home?
- Do you have any experience with or knowledge of defending a property during a bushfire?
- Do you have the supplies you need to defend your home, and know how to use them?
- Do you have an independent water supply or will you rely on water mains?
- How many people will be defending the property in the event of a bushfire? It is unsafe to defend a property on your own - if you are injured you may not be able to seek medical assistance and there may be too many locations that need attention for just one person.
- Do you or your family members have any disabilities or medical conditions that you need to take into consideration?
- Will someone else be responsible for looking after others (young, elderly, or disabled)? If you are defending the property, it is preferable that someone else is available to provide supervision or assistance to dependents.
- Is there anyone outside your neighbourhood that you need to help or check up on?
- What are you going to do with your pets or livestock? Will you have someone dedicated to looking after your animals so that you can focus on defending your property?
- What will you do if it's too dangerous to stay? Where will you go? Do you have any family or friends you can stay with? What will you take? Make sure you have a contingency plan.



If you choose to or are forced to stay at your property it is essential you are prepared for the oncoming bushfire.

Before the fire front arrives:

- ☐ Ensure vehicles have sufficient fuel and move them to a safe location.
- ☐ Relocate garden furniture, door mats and other outdoor items indoors.
- ☐ Block downpipes at the top and fill gutters with water if possible.
- ☐ Wet down the sides of buildings, decks and plants close to your home in the likely path of the bushfire.
- ☐ Move animals and livestock to a well-grazed or ploughed area.
- ☐ Turn on garden sprinklers for 30 minutes to soak the ground.
- ☐ Close windows, doors, and vents. Shut blinds.
- ☐ Take down curtains and move furniture away from windows.
- ☐ Seal gaps under doors and windows with wet towels.
- ☐ Fill containers with water, e.g. sinks, bathtub, buckets, bins.
- ☐ Bring pets inside, contain them in one room and provide them with plenty of water.
- ☐ Tune in to warnings to monitor local radio, websites or social media for updates.
- ☐ Put on protective clothing.
- ☐ Drink lots of water.
- ☐ Notify friends and family of your intent to stay.

As the fire front arrives:

- ☐ Disconnect hose and fittings and bring inside.
- ☐ Go inside for shelter.
- ☐ Drink lots of water.
- ☐ Shelter in your house on the opposite side from the approaching fire, in a room with multiple escape points.
- ☐ Patrol and check for embers inside, particularly in the roof space.
- ☐ Check on family and pets.
- ☐ Maintain a means of escape.
- ☐ Continually monitor conditions.
- ☐ Stay tuned to information channels.



After the fire front passes:

- ☐ Stay tuned to information channels.
- ☐ Contact friends and family to tell them you are safe.
- ☐ Continue to check for small spot fires and burning embers:
  - » Inside your roof space.
  - » Under the house.
  - » On verandahs and decks.
  - » In roof lines and gutters.
  - » Under floorboards.
  - » In wood piles.
  - » In garden beds.



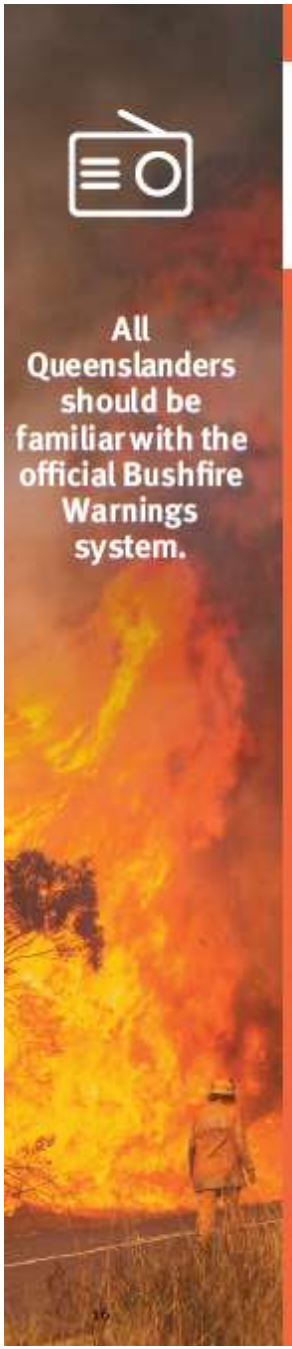
YOUR BUSHFIRE EMERGENCY KIT

If you choose or are forced to stay at your home, a Bushfire Emergency Kit will equip you to extinguish small fires and provide you with basic protection from heat, smoke, and flames. Make sure you have enough supplies for everyone staying.

 Hat	 Safety glasses
 Smoke mask	 Long sleeve shirt (natural fibres)
 Water bottle	 Gloves
 Jeans or long pants (natural fibres)	 Boots

- Batteries
- Blankets (natural fibres)
- Bucket
- Drinking water
- Fire extinguisher
- First aid kit
- Hoses
- Knapsack sprayer
- Ladder
- Medication and prescriptions
- Mop
- Mobile phone and charger
- Radio (battery operated)
- Shovel
- Torch
- Towels





TUNE IN TO WARNINGS

When there's a bushfire in your area, it's up to you to take notice, stay informed, make decisions, and act. Tune into local media including radio, official social media feeds and websites. Don't assume you will receive an official warning as a fire approaches.

- Current Bushfires Map
  www.qfes.qld.gov.au/Current_Incidents
- Find your local ABC radio station
  www.abc.net.au/newsradio
- Find your local commercial radio
  www.commercialradio.com.au
- QFES Facebook
  @QldFireandEmergencyServices
- QFES Twitter
  @QldFES
- QFES website
  www.qfes.qld.gov.au

Call Triple Zero (000) if your life or property is under threat.

ADVICE

If you get an Advice warning, you'll be asked to **STAY INFORMED** or **AVOID SMOKE**. You should:

- Stay inside and close windows and doors.
- Keep respiratory medication close by.
- Follow your bushfire survival plan now or learn how to make one on the QFES website.
- Stay informed and decide what you will do if the bushfire gets closer.

WATCH and ACT

A Watch and Act warning will advise you to **PREPARE TO LEAVE** or **NOT SAFE TO RETURN**. You should:

- Follow your bushfire survival plan now.
- Prepare now so you can leave quickly if the bushfire gets close.
- If you find it hard to move quickly, leaving now is your safest option.
- Keep medications close by.
- Move flammable items away from your house if you can.
- Do not fly drones near the fire or in the warning area.
- Help others if it's safe to do so.
- If you left the area, it is not safe to return.
- Stay informed by listening to warnings.

EMERGENCY WARNING

An Emergency warning will prompt you to **LEAVE IMMEDIATELY** or **SEEK SHELTER IMMEDIATELY**. You should:

- Wear protective clothing and stay hydrated.
- Keep medications close by.
- Listen to warnings.
- If you can't leave safely or a SEEK SHELTER warning is issued for your area:
  - Seek shelter inside a brick building in a room with multiple escape points on the opposite side from the approaching fire.
  - As the fire approaches and passes, the safest place will change, so be ready to move quickly.
  - Close windows and doors. Seal any gaps with wet towels.
  - Check for embers inside, particularly in the roof space. Put them out quickly.
  - Keep pets inside with you.



PREPARE

Preparation is the key to survival.

Use this checklist as a guide to start preparing your home before the start of bushfire season.

Structure:

- ☐ Clear gutters and roof of leaves, twigs, bark and other debris. Consider installing gutter guards.
- ☐ Enclose open areas under decks and floors.
- ☐ Install steel wire mesh screens on windows, doors, vents, and weep holes.
- ☐ Point LPG cylinder relief valves away from your house.
- ☐ Check and maintain firefighting pumps, generators, and water systems.
- ☐ Seal gaps in external roof and cladding.
- ☐ Remove flammable items away from your home (such as woodpiles, mulch, boxes, hanging baskets, and outdoor furniture).

Vegetation:

- ☐ Reduce vegetation along access paths.
- ☐ Mow your lawn regularly.
- ☐ Remove excess flammable materials such as long dry grass, dead leaves, and branches.
- ☐ Trim low-lying branches around your home to a height of two metres from the ground.

Access:

- ☐ Display house number at road.
- ☐ Ensure adequate space for fire trucks to access your home (at least four metres wide and high with turn-around area).

Personal:

- ☐ Gather sufficient personal protective clothing and equipment for all persons and store so that they are readily accessible.
- ☐ Prepare your evacuation kit or emergency kit.
- ☐ Stock your first aid kit.
- ☐ Check insurance policies are adequate for home and vehicles.
- ☐ Review and update your Bushfire Survival Plan as a family each year.
- ☐ Make a contingency plan.
- ☐ Note your Neighbourhood Safer Place, if available.

An unprepared property is not only at risk itself but may also present an increased danger for your neighbours.





CREATE YOUR BUSHFIRE SURVIVAL PLAN TODAY

Make your Bushfire Survival Plan together as a family, tear out and display it for everyone to note. Share your plan with your family and friends.

Bushfire is a very real risk across Queensland, so make sure you are prepared now.

Don't wait until it's too late.

Include a contingency plan

Bushfires are unpredictable and plans can fail. A contingency plan that identifies your alternate options may save your life if you are caught in a fire. You need to consider:

- What will you do if you are away from home (work, school, shopping)?
- What if your pet is scared and you cannot find them?
- What if you are home alone?
- What if you have guests staying with you?
- What will you do if your travel route is cut off?
- What will you do if you are trapped in your home?
- Where will you go if you had planned to stay but it is now unsafe and you need to leave?

OUR BUSHFIRE SURVIVAL PLAN

Date: _____

OUR DETAILS

Names: Contact Number:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Address: _____

_____

Lot / Plan No. _____

EMERGENCY DETAILS *(name / phone / policy / account)*

Fire, Police, Ambulance: 000

Insurance Provider: _____

Local Council: _____

Electricity Provider: _____

Gas Provider: _____

Water Supplier: _____

Phone Company: _____

Internet Provider: _____

Bank: _____

Doctor: _____

Vet: _____

Work: _____

School: _____

Neighbours: _____

_____

_____

Other: _____

_____

LEAVING

Who will leave early?

What will be your trigger to leave?

Where will you go?

How will you get there?

☐ Do you have your evacuation kit ready?

What else will you take?

What is your plan for your pets or livestock?

STAYING

Who will stay?

What is the plan for livestock and pets?

Before there is a fire, how will you get yourself and your property ready?

As the fire approaches, what steps will you take so you and your home can withstand the fire?

As the fire front arrives, where will you safely monitor the fire from inside your home?

After the fire has passed, what areas of your property will you check for spot fires and burning embers?

CONTINGENCY PLAN

What will you do if things don't go to plan?

Neighbourhood Safer Place - a last resort

A Neighbourhood Safer Place (NSP) is a last resort option. It is an identified local open space or building where people may gather to seek shelter from a bushfire. Before bushfire season, you should:

- Make sure you know if a NSP is available in your local government area. NSPs are not available in every area.
- Note the travel time and distance to your local NSP.
- Include your NSP details in your Bushfire Survival Plan contingency plan.

The main purpose of a NSP is to provide some level of protection to communities from the effects of a bushfire. Your NSP will not guarantee safety in all circumstances, and the following limitations need to be considered if you plan to use one as a last resort:

- Firefighters may not be present if they are involved in the operational response at other locations.
- Support personnel may not be present at the NSP.
- NSPs do not cater for animals or pets.
- NSPs do not provide meals or amenities.
- NSPs may not provide shelter from the elements, particularly flying embers.

If you have special needs you should think about what assistance you may require. A NSP may not be a suitable location for your evacuation. You will need to make appropriate arrangements with friends, family, or carers.

Visit the QFES website at www.qfes.qld.gov.au to find out about NSPs in your local government area.

If you're unsure about your level of risk or require assistance, call 13 QGOV (13 74 68) to book a Property Advice Visit.

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Some Fire-Resistant Native Trees and Shrubs

(www.bushfire.nsw.gov.au)

Scientific Name:	Common Name:
Acacia cyclops	West Australian Coastal Wattle
Acacia glandulicarpa	Hairy Pod Wattle
Acacia howittii	Sticky Wattle
Acacia iteaphylla	Gawler Range Wattle
Acacia melanoxylon	Blackwood
Acacia pravissima	Ovens Wattle
Acacia prominens	Golden Rain Wattle
Acacia vestita	Cedar Wattle
Acacia terminalis	Hairy Wattle
Acmena smithii	Lilly Pilly
Agonis juniperina	Juniper Myrtle
Angophora costata	Apple Jack
Atriplex spp.	Saltbush
Brachychiton populneus	Kurrajong
Casuarina cristata	Belah
Casuarina cunninghamiana	River She Oak
Eucalyptus maculata	Spotted Gum
Ficus macrophylla	Moreton Bay Fig
Hakea salicifolia	Willow Hakea
Hakea suaveolens	Sweet Hakea
Heterodendrum oleifolium	Cattlebush
Lagunaria patersonii	Pyramid Tree
Melaleuca lanceolata	Moonah
Melia azedarach	White Cedar
Myoporum insulare	Boobialla
Pittosporum undulatum	Sweet Pittosporum
Tristania conferta	Brush Box

It should be noted that there is a large variety of non-native or introduced plants available that are also hard to burn. When using non-native plants care must be taken that they are not introduced into situations where they may become an environmental weed; therefore, these plants are not listed here.



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Bushfire Compliance Reports for South East Queensland

Statement of Competency for Ray Cavanough and Max Gray

Queensland Bushfire Risk Assessments has been operating for 20 years**,** carrying out assessments across the Gold Coast, Logan, Beaudesert, Brisbane, Redlands, and Pine Rivers areas. The business has also worked in collaboration with local government authorities on a range of fire management and planning projects**,** contributing to community safety and the effective implementation of bushfire mitigation strategies.

Ray Cavanough

Ray Cavanough has been involved with bushfire management and control for 39 years, including 6 years as a rural fire brigade member in western Queensland before joining the Springbrook Rural Fire Brigade in 1981. From 1981 to the present, Ray has spent 6 years as First Officer (Officer in Charge) of the Springbrook Rural Fire Brigade, 7 years as Logistics and Training Officer, and is currently President of the brigade.

Ray is a Level 2 Firefighter and a Specialist Instructor, with extensive experience as Incident Controller for several major fires during 1994, 1996, 2000, and 2002. He has completed numerous courses on bushfire management and behaviour, weather influences, structural fires, breathing apparatus, vegetation fuel loadings, fire control, and backburning operations.

He has also contributed to the Gold Coast City Council Bushfire Management Strategy, hazard reduction programs, and community awareness initiatives. Ray's risk assessments and bushfire plans include camping and motocross recreational parks, small subdivisions, and numerous dwelling sites.

Ray is a member of the Rural Fires Association Queensland, a professional group that regularly consults and provides submissions to state and local government on bushfire management planning schemes.

Max Gray

Max Gray has worked under the direct supervision and mentorship of Ray Cavanough for the past 7 years, assisting in the preparation of bushfire management plans in accordance with AS3959-2018. His experience spans data collection, site inspections, assessment of vegetation types, slope analysis, and separation distances for residential and subdivision developments across South East Queensland.

Max is currently completing a Bachelor of Building Surveying (Honours), equipping him with a strong understanding of the interaction between planning, construction standards, and bushfire resilience.

In addition to his technical and academic experience, Max serves as the Secretary for the Rural Fires Association Queensland (RFAQ), contributing to the coordination of consultant engagement, policy review, and communication between members and government agencies on bushfire management and planning matters.

Through his ongoing professional, academic, and association involvement, Max has developed strong technical competency in applying bushfire assessment methodologies, interpreting planning and building legislation, and preparing clear, compliant bushfire reports. His combination of hands-on experience and formal education supports a high standard of professional practice within Queensland Bushfire Risk Assessments.