

August 2023

A copy of this document is to be provided to future residential occupants, and to be passed on to property owners with sale of land. Ongoing property maintenance will mitigate the risk of localised ignitions and consequential fire.

Bushfire Hazard Assessment Report & Bushfire Management Plan 62-84 & 86-108 Talinga Drive, Park Ridge QLD

Proposed Reconfiguring of Lot

89 proposed Residential Lots

Development Application



Prepared for
QUANTUM INVESTMENT PTY LTD

DISCLAIMER

The author has taken care in the preparation of this report, attended the site, accessed and reviewed available information and taken reasonable steps to ensure that the information provided is accurate and reflects the conditions on and around the site on the date of assessment.

The site is located within a bushfire prone area and these risks cannot be completely eliminated. The unpredictable nature and behaviour of fire, particularly in extreme fire weather conditions are the main factors, together with impacts of human actions.

The author of this report makes no representations or warranties and accepts no liability, including, without limitation, liability in negligence, for any expenses, damages and losses to property or life caused by fire, or any damages that may be construed from the contents of this report in any way or for any reason.

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1.0 PROPERTY DETAILS

ADDRESS	62-84 and 86-108 Talinga Drive, Park Ridge QLD 4125
LOT	Lot 3 and Lot 4 RP 131003
SITE AREA	40,900m ² and 40,850m ²
LOCAL AUTHORITY	City of Logan
ZONING	EC Emerging Community Zone in Logan Planning Scheme 2015
BUSHFIRE HAZARD OVERLAY	Medium Potential Bushfire Intensity & Potential Impact Buffer Area in Logan Planning Scheme 2015 and SPP Bushfire prone areas mapping
TYPE OF WORK	Reconfiguring of Lot, proposed 89 Residential Lot subdivision Development Application
SITE SPECIFIC BUSHFIRE HAZARD	Medium Potential Bushfire Intensity, Potential Impact Buffer Area and Low Hazard Area. BAL-12.5 Lots and BAL-LOW Lots

1.1 INTRODUCTION AND SUMMARY

This site specific Bushfire Hazard Assessment and Management Plan has been commissioned by *Quantum Investment Pty Ltd*, to support an application for Development Approval to Logan City Council. The application is for the Reconfiguring of a Lot and residential development. The subject site is located at 62-84 and 86-108 Talinga Drive, Park Ridge (*the site*). The 2 adjacent lots lie on the north side of Talinga Drive. The proposed development comprises 89 residential lots and associated roadways and infrastructure (refer Attachment 4 Proposed Site Layout). Existing vegetation at the proposed residential lots is to be removed as part of the development of the site. The eastern side of the site has a drainage corridor that adjoins an area of bushland on land to the north. The drainage corridor on the site and areas east are proposed to be revegetated to form a connecting environmental corridor to the existing remnant vegetation areas north. A 23m wide future roadway is proposed in the north-south direction, connecting Talinga Drive to future development on land north. The road reserve is located between proposed residential lots and rehabilitated eastern vegetation areas, providing safe separation from potential bushfire sources and facilitating access for bushfire management and suppression activities. Drainage basins are located along the future roadway and contribute to a low fuel Asset Protection Zone between residential lots and the environmental corridor.

The application is made under Logan Planning Scheme 2015. The property is zoned Emerging Community Zone, reflecting the changing uses and development in the locality. The site is identified as designated bushfire prone land. Logan Planning Scheme 2015 v9.0 Bushfire Hazard Overlay and SPP Bushfire prone areas mapping identify the site as having Medium Potential Bushfire Intensity patches, surrounding clearings in the Potential Impact Buffer Area and Low Hazard area near the west of the site. Hazard mapping is



reviewed and is found to have errors, extending across cleared land and managed cultivated orchard or garden areas.

The site and surrounding area have been assessed to determine the bushfire hazard. A review of bushfire hazard matters and calculation of Asset Protection Zones has been undertaken. Measures have been adopted in the design to minimise the bushfire risk. The proposed subdivision layout mitigates bushfire risk at new residential lots to safe and acceptable levels, facilitates safe access for firefighters and takes measures to avoid increasing the bushfire risk to surrounding areas. Entrapment in a bushfire event is not a foreseen risk for the proposal and egress options from the site are away from bushfire sources.

The site specific Bushfire Hazard Assessment has been prepared in accordance with:

- Bushfire Resilient Communities -Technical Reference Guide for the State Planning Policy (State of Queensland, QFES);*
- *A new methodology for State-wide mapping of bushfire prone areas of Queensland*, CSIRO (Leonard et al), expert document and adopted methodology of SPP;
- Logan Planning Scheme *SC6.2.6 Planning Scheme Policy – Management of bushfire hazard*;
- Potential Fireline Intensity calculations with Redi-portal data inputs
- Small patch and narrow corridor vegetation filtering in accordance with *Steps* described in SPP guidance material, *Estimating the potential bushfire hazard of vegetation patches and corridors (Leonard & Opie 2017)* and per Queensland Government, *QFES Bushfire Resilient Communities -Technical Reference Guide for the SPP* (December 2019).
- *AS 3959-2018 Construction of buildings in bushfire prone areas* and definitions of classified vegetation contained therein
- Compliance with the assessment criteria of Logan Planning Scheme 2015, *8.2.3 Bushfire Hazard Overlay Code* is demonstrated.
- A Bushfire Management Plan is proposed to mitigate the Bushfire Hazard to an acceptable level of risk and for ongoing maintenance in perpetuity.

1.2 SITE AND SURROUNDS

An existing dwelling and associated structures are located on each lot. The uses on the site are rural residential/low density living and semi-rural activities of small-scale animal husbandry. The locality has a mix of rural residential living, low density residential development, retirement village units, commercial uses and cropping/agriculture. The surrounding landscape is a mosaic of cleared land with patches of retained native vegetation, as well as larger areas of remnant vegetation. The lot and near surrounds have shallow grade fall. Reticulated water supply and electricity are to be available at the site. Talinga Drive is a sealed roadway, accessible to emergency services vehicles off the main State road, Mount Lindesay Highway.



1.3 BUSHFIRE HAZARD

An inspection of the site and surrounding areas of impact was undertaken in April 2023, to provide a site specific assessment of the bushfire hazard, taking into account surrounding areas of impact. The methodology for classification of hazardous vegetation for SPP Bushfire prone areas, described in Leonard & Opie (CSIRO 2017) and *QFES Bushfire Resilient Communities SPP State interest Technical Reference Guide* (October 2019) is adopted. Narrow corridors of trees, up to 50m wide, are not classified for hazard per *Step 3*. Canopy trees with managed understorey and low surface fuels are not classified for hazard in accordance with AS 3959-2018 definitions.

Vegetation on the site ranges from:

1. Western areas of Lot 3 are cleared land with low tree cover, mowed grass and managed land areas with low threat vegetation;
2. Unmanaged vegetation, moist to dry eucalypt forest structure vegetation on the eastern side of Lot 3. The area is proposed to be cleared;
3. Cultivated and mixed urban class vegetation, including orchard on western side of Lot 4, surrounding the existing Dwelling and other structures;
4. Cleared land on Lot 4 with low surface fuels, ranging to cleared rural land with nil to low overall tree cover and continuous grassland under pasture. The area includes the waterway.
5. Narrow corridor of perimeter vegetation at Talinga Drive frontage and east boundary, less than 50m wide and clear of understorey vegetation.

The areas of the site are to be cleared, developed and rehabilitation vegetation is proposed at the Drainage Corridor (*Zone 3 Drainage Corridor -reconstruction*) and at land extending towards the east boundary (*Zone 4 Assisted regeneration*). The Zone 3 and Zone 4 revegetated areas are considered in mature state for the assessment. All existing forest class areas within the site (Lot 3) are proposed to be cleared prior to commencement of Stage 1 development and are considered as cleared low threat vegetation, for the purpose of the Bushfire Hazard Assessment.

-Surrounding land west, south and east of the site is managed land with existing dwellings, low overall tree cover and small patches or narrow corridors of trees, not classified for hazard. The areas are low threat vegetation. The rear (north) boundary areas of surrounding land east at 110-114 and 116-120 Talinga Drive has a section of classified forest vegetation connected to the adjacent forest area north. Areas closer to dwellings have low surface fuels and mixed urban class vegetation.

-Adjoining land north of the site (3798-3810 Mount Lindesay Highway) is rural land with nil to low tree cover and continuous grassland, regularly mowed. The area is a low threat vegetation category.



Vegetation classified for hazard in the impact assessment area around the site

-Classified hazardous vegetation is identified north-east of the site on adjoining land at 101-111 Park Ridge Road. The vegetation extends into the north, near-boundary areas of 110-114 and 116-120 Talinga Drive. The vegetation is forest class with melaleuca and eucalypt vegetation, ranging to tall casuarina scrub. The vegetation ranges to woodland structure, with clearings in parts.

The Vegetation Hazard Classes include:

-VHC 22.1 *Melaleuca open forest on seasonally inundated lowland coastal swamps* near boundary areas

-VHC 9.1 *Moist to dry eucalypt open forests on coastal lowlands and ranges* near boundary areas

-VHC 9.2 *Moist to dry eucalypt woodlands on coastal lowlands and ranges*

-VHC 16.1 *Eucalyptus dominated forest on drainage lines and alluvial plains (at further setback north)*

The vegetation is assessed as forest class extending to the full perimeter of the lot, for the purpose of fuel load inputs for Asset Protection Zone calculations.

1.4 VEGETATION CLASSIFICATION

A search of mapped Regional Ecosystems in the vicinity has found a corridor of remnant vegetation is mapped on the site and surrounding areas of impact. Refer Attachment 10 for mapping.

Regional ecosystem	12.9-10.4
Vegetation Management Act class	Least concern
Wetlands	Not a Wetland
Biodiversity status	No concern at present
Short description	Eucalyptus racemosa subsp. racemosa woodland on sedimentary rocks
Structure code	Woodland
VMA structure category	Sparse
Description	Eucalyptus racemosa subsp. racemosa woodland to open forest. Other species can include Angophora leiocarpa, Eucalyptus seeana, E. siderophloia, Corymbia intermedia, E. tindaliae, with Lophostemon suaveolens, Melaleuca quinquenervia, E. tereticornis common on lower slopes. Occurs on Cainozoic and Mesozoic sediments +/- remnant Tertiary surfaces. Not a Wetland. (BVG1M: 9g).
Supplementary description	Ryan, T.S. (ed.) (2012); Bean et al. (1998), D8, H34, H14



Regional ecosystem	12.3.5
Vegetation Management Act class	Least concern
Wetlands	Palustrine
Biodiversity status	No concern at present
Short description	Melaleuca quinquenervia open forest on coastal alluvium
Structure code	Open Forest
VMA structure category	Mid-dense
Description	Melaleuca quinquenervia open forest to woodland. Understorey depends upon duration of water logging; sedges and ferns, especially Blechnum indicum, in wetter microhabitats and grasses and shrubs in drier microhabitats. Ground layer species include the grasses Leersia hexandra and Imperata cylindrica, the sedges/rushes, Machaerina rubiginosa, Gahnia sieberiana, Lepironia articulata, Schoenus brevifolius and Schoenus scabripes and the fern Lygodium microphyllum. Other tree species that may be present as scattered individuals or clumps include Lophostemon suaveolens, Eucalyptus robusta, E. tereticornis, E. bancroftii, E. latisinensis, Corymbia intermedia, Melaleuca salicina, Livistona australis, Casuarina glauca, Endiandra sieberi. Melastoma malabathricum subsp. malabathricum, Glochidion sumatranum and Melicope elleryana are often in understorey. Occurs on Quaternary alluvium in coastal areas. Palustrine. (BVG1M: 22a). Vegetation communities in this regional ecosystem include: 12.3.5a: [RE not in use]²: This vegetation community is now mapped as 12.3.20. Melaleuca quinquenervia, Casuarina glauca +/- Eucalyptus tereticornis, E. siderophloia open forest. Occurs on lowest terraces of Quaternary alluvial plains in coastal areas. Palustrine. (BVG1M: 22a).
Supplementary description	Ryan, T.S. (ed.) (2012); Bean et al. (1998), C2



Regional ecosystem	12.3.11
Vegetation Management Act class	Of concern
Wetlands	Contains Palustrine
Biodiversity status	Of concern
Short description	Eucalyptus tereticornis +/- Eucalyptus siderophloia, Corymbia intermedia open forest on alluvial plains usually near coast
Structure code	Open Forest
VMA structure category	Mid-dense
Description	Eucalyptus tereticornis +/- E. siderophloia and Corymbia intermedia open forest to woodland. Corymbia tessellaris, Lophostemon suaveolens and Melaleuca quinquenervia frequently occur and often form a low tree layer. Other species present in scattered patches or low densities include Angophora leiocarpa, E. exserta, E. grandis, E. latisinensis, E. tindaliae, E. racemosa and Melaleuca sieberi. Corymbia trachyphloia and/or C. citriodora subsp. variegata may dominate on areas of Pleistocene alluvia. Eucalyptus seeana may be present south of Landsborough and Livistona decora may occur in scattered patches or low densities in the Glenbar SF and Wongi SF areas. Occurs on Quaternary alluvial plains and drainage lines along coastal lowlands. Rainfall usually exceeds 1000mm/y. Contains Palustrine. (BVG1M: 16c).
Supplementary description	Ryan, T.S. (ed.) (2012); Bean et al. (1998), E9, D8a



2.0 BUSHFIRE HAZARD ASSESSMENT

A site specific Bushfire Hazard Assessment was undertaken for the subject site, that is designated bushfire prone land. Surrounding areas of impact are taken into consideration.

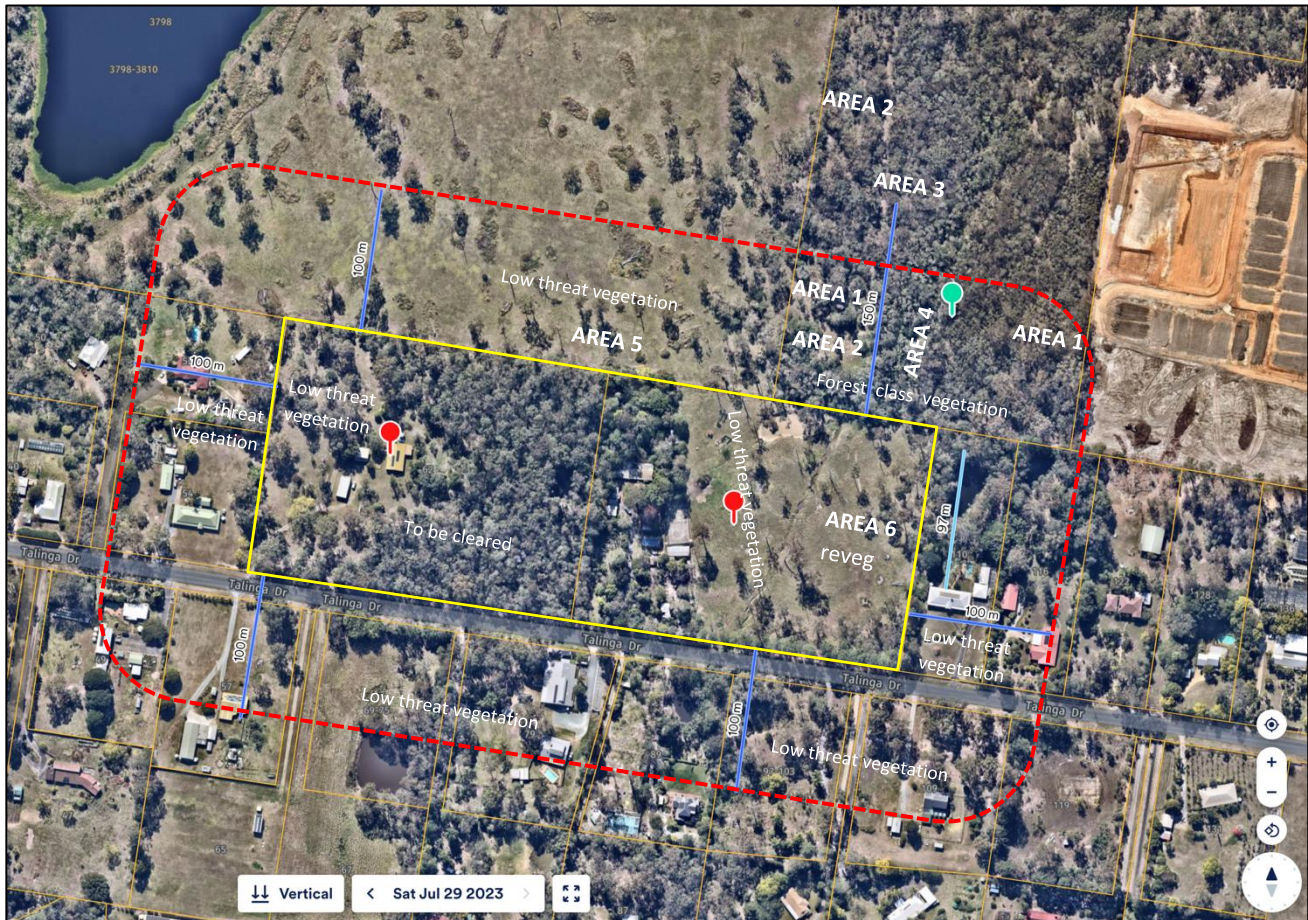
METHODOLOGY

The methodology of assessment of the bushfire hazard entailed:

- Site inspection and field verification of the site and surrounds
- Determination of composition and structure of the vegetation
- Determination of slope at site and surrounds using *Nikon Forestry Pro* rangefinder and review of topographic mapping (Logan Planning Scheme interactive mapping)
- Review of State Regional Ecosystem mapping, remnant vegetation and broad vegetation communities
- Review of SPP mapping for Bushfire prone areas maps and Logan Planning Scheme, Bushfire Hazard Overlay mapping
- Review of QFES/Catalyst Redi-portal data base, including Vegetation Hazard Class (VHC), Potential Fuel Loads (PFL)
- Potential Fireline Intensity equations per Bushfire Hazard Assessment methodology in accordance with Leonard et al 2014, *A new methodology for State-wide mapping of bushfire prone areas in Queensland*, CSIRO and
- Mapping methodology further described in *Bushfire Resilient Communities -Technical reference guide for the State Planning Policy*, State of Queensland, QFES 2019



SITE AND SURROUNDING ASSESSMENT AREA

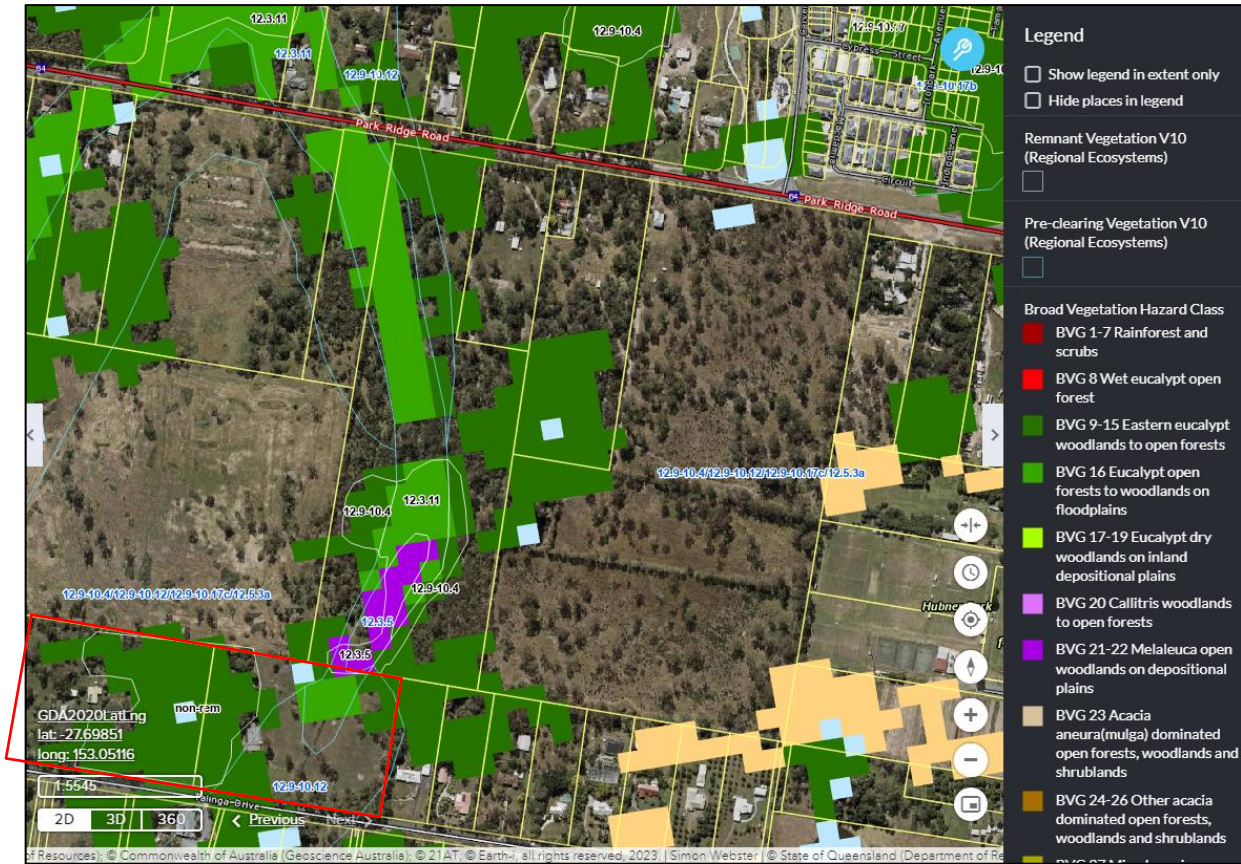


Bushfire Hazard Assessment Areas

Area	Vegetation Hazard Class (VHC) per membership of Fire Regime Group (SPP Technical Manual)	Potential Fuel Load (Redi-portal FL Weighted VHC)	Site specific slope effect
1	VHC 9.1 <i>Moist to dry eucalypt open forests on coastal lowlands and ranges</i>	24.2 t/ha	Downslope 2.5°
2	VHC 9.2 <i>Moist to dry eucalypt woodland on coastal lowlands & ranges</i>	17.2 t/ha	Downslope 2.5°
3	VHC 16.1 <i>Eucalyptus dominated forest on drainage lines & alluvial plains</i>	16 t/ha	Upslope -2°
4	VHC 22.1 <i>Melaleuca open forests on seasonally inundated lowland coastal swamps</i>	28.4 t/ha	Downslope 2.5°
5	VHC 40.4 <i>Continuous low grass or tree cover in rural areas</i>	5 t/ha	Downslope 2.5° and Upslope 2°
6	Zone 3 and 4 site rehabilitation vegetation and assisted regeneration	16t/ha	Upslope -2°
FFDI	1:20 year site specific FFDI per Redi-Portal data		55



VEGETATION ON SITE AND SURROUNDS



Surrounding classified vegetation

Regional Ecosystem	RE Short description	RE Structure	VHC	Potential Fuel Load (PFL)
12.3.11	Eucalyptus tereticornis +/- Eucalyptus siderophloia, Corymbia intermedia open forest on alluvial plains usually near coast	open forest	16.1	16t/ha
12.3.5	Melaleuca quinquenervia open forest on coastal alluvium	open forest	22.1	28.4t/ha
12.5.3a	Mixed woodland usually containing Corymbia intermedia, Eucalyptus racemosa subsp. racemosa and at least the presence of E. seeana, on remnant Tertiary surfaces	woodland	9.2	17.2t/ha
12.9-10.12	Mixed woodland usually containing Corymbia intermedia, Angophora leiocarpa and at least the presence of Eucalyptus seeana on sedimentary rocks	woodland	9.2	17.2t/ha
12.9-10.17c	Eucalyptus carnea and/or E. tindaliae and/or E. helidonica open forest on Cainozoic and Mesozoic sediments	open forest	9.1	24.2t/ha
12.9-10.4	Eucalyptus racemosa subsp. racemosa woodland on sedimentary rocks	woodland	9.2	17.2t/ha



BUSHFIRE HAZARD ASSESSMENT PER *Technical Reference Guide for the SPP*

POTENTIAL FIRELINE INTENSITY EQUATIONS FOR CLASSIFIED VEGETATION NORTH-EAST

Potential Fireline Intensity (PFI) Equation 1 SPP Technical manual

$$PFI = (0.62 PFL)^2 * FFDI * EXP (0.069 * slope \text{ degrees})$$

PFI Potential Fireline Intensity

VHC Vegetation Hazard Class (*Bushfire Resilient Communities- Technical Reference Guide for the SPP*)
80th percentile potential fuel load, remnant & non-remnant.

Area 1: Moist to dry Eucalypt Open Forest on coastal lowlands and ranges VHC 9.1

PFL Potential Fuel Load VHC 9.1 24.2 t/ha per VHC Redi-Portal

FFDI 20 year FFDI site specific data 55 Catalyst data
Slope Degrees 2.5⁰ Downslope

$$PFI = (0.62 * 24.2)^2 * 55 * EXP (0.069 * 2.5)$$

PFI = 23,730 kW/m High (20,000 - 40,000 kW/m)

Area 2: Moist to dry Eucalypt Woodland on coastal lowlands and ranges VHC 9.2

PFL Potential Fuel Load VHC 9.2 17.2 t/ha per Fuel Load weighted VHC
Slope Degrees 2.5⁰ Downslope

$$PFI = (0.62 * 17.2)^2 * 55 * EXP (0.069 * 2.5)$$

PFI = 11,987 kW/m Medium Hazard (4,000 to 20,000kW/m)

Area 3: Eucalyptus dominated forest on drainage lines & alluvial plains VHC 16.1

PFL Potential Fuel Load VHC 16.1 16 t/ha per Fuel Load weighted VHC Redi-Portal
Slope Degrees -2.5⁰ Upslope

$$PFI = (0.62 * 16)^2 * 55 * EXP (-0.069 * 2.5)$$

PFI = 7,346 kW/m Medium Hazard (4,000 to 20,000kW/m)

Area 4: Melaleuca open forests on seasonally inundated lowland coastal swamps VHC 22.1

PFL Potential Fuel Load VHC 22.1 28.4 t/ha per Fuel Load weighted VHC
Slope Degrees 2.5⁰ Downslope to flat land

$$PFI = (0.62 * 28.4)^2 * 55 * EXP (0.069 * 2.5)$$

PFI = 32,682 kW/m High Hazard (20,000 to 40,000kW/m)



Area 5: North of site Rural land; continuous low grass or tree cover VHC 40.4

PFL Potential Fuel Load VHC 40.4 5 t/ha per VHC
 Slope Degrees 2.5° Downslope

$$PFI = (0.62 \times 5)^2 \times 55 \times \text{EXP} (0.069 \times 2.5)$$

PFI = 1,013 kW/m Low Hazard (less than 4,000 kW/m)

Area 6: Rehabilitation Vegetation at waterway & eastern areas of site

PFL Potential Fuel Load VHC 16 t/ha in rehabilitated mature state with supplementary planting
 (surface, near surface and elevated fuels)

FFDI 20 year FFDI site specific data 55 Catalyst data
 Slope Degrees 2° Upslope

$$PFI = (0.62 \times 16)^2 \times 55 \times \text{EXP} (-0.069 \times 2)$$

PFI = 7,604 kW/m Medium Hazard (4,000 to 20,000kW/m)

Table 2: Potential bushfire hazards classes

Hazard Class	Potential Fireline intensity
1. Very High	40,000+ kW/m
2. High	20,000 – 40,000 kW/m
3. Medium	4,000 – 20,000 kW/m
4. Grass Fire Hazard	Generally less than 4,000 kW/m
5. Low Hazard	0–4,000 kW/m

SPP Technical Manual

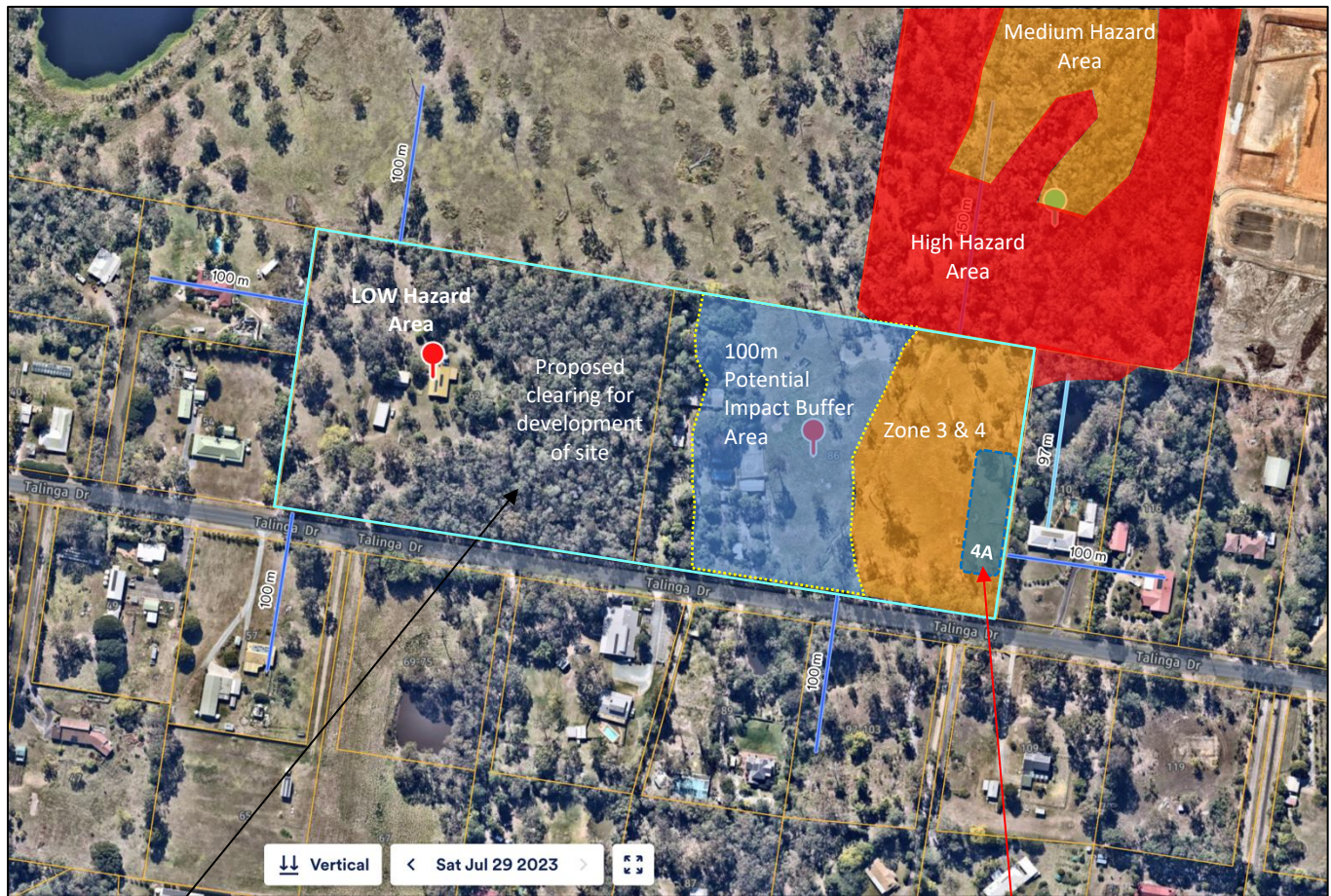


Summary of Bushfire Hazard Assessment Areas & Potential Fireline Intensity

Area	Vegetation Hazard Class (VHC) per membership of Fire Regime Group (SPP Technical Manual)	Potential Fuel Load (Redi-portal FL Weighted VHC)	Site specific slope effect	Potential Bushfire Hazard Class (kW/m)
1	VHC 9.1 <i>Moist to dry eucalypt open forests on coastal lowlands and ranges</i>	24.2 t/ha	Downslope 2.5 ⁰	23,730 High
2	VHC 9.2 <i>Moist to dry eucalypt woodland on coastal lowlands & ranges</i>	17.2 t/ha	Downslope 2.5 ⁰	11,987 Medium
3	VHC 16.1 <i>Eucalyptus dominated forest on drainage lines & alluvial plains</i>	16 t/ha	Upslope -2 ⁰	7,346 Medium
4	VHC 22.1 <i>Melaleuca open forests on seasonally inundated lowland coastal swamps</i>	20.8 t/ha	Downslope 2.5 ⁰	32,682 High
5	VHC 40.4 <i>Continuous low grass or tree cover in rural areas</i>	5 t/ha	Downslope 2.5 ⁰	1,013 Low Hazard
6	Proposed Rehabilitation Vegetation including waterway	16 t/ha	Upslope 2 ⁰	7,604 Medium
FFDI	1:20 year site specific FFDI per Redi-Portal data			55



FIGURE 2.1 SITE SPECIFIC BUSHFIRE HAZARD MAPPING



*Proposed clearing to be implemented at commencement of Stage 1 Development; vegetation not classified for hazard

*Zone 3 Drainage Corridor (*reconstruction*), Rehabilitation vegetation considered at mature state;

*Zone 4 Environmental Open Space (*Assisted regeneration*) vegetation considered at mature state; existing grasses as understorey fuels.

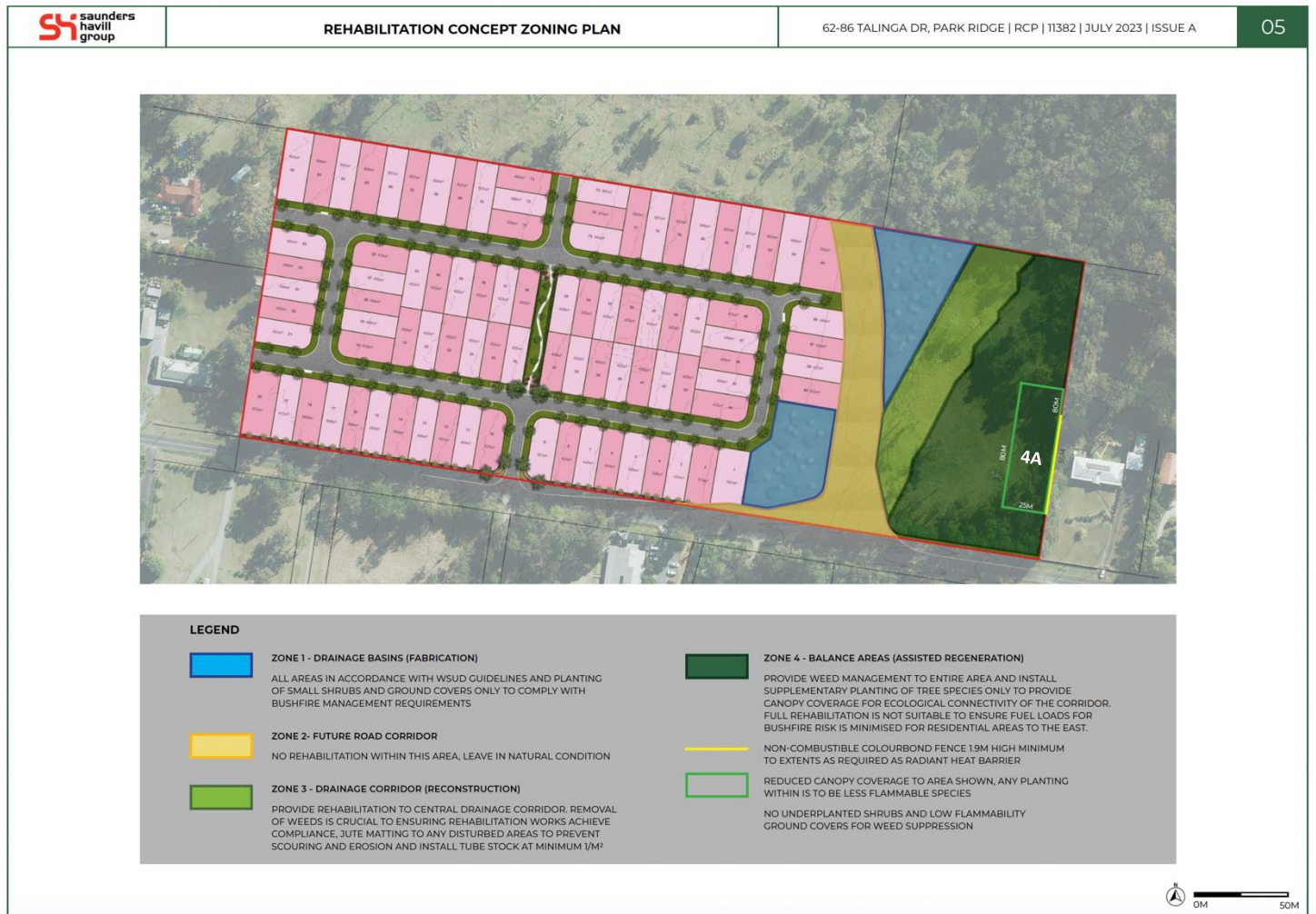
*Zone 4A Eastern boundary 25m wide x 80m zone to have low surface fuels and lower density tree allocation (not underplanted with shrubs to avoid ladder fuels), to avoid increase of bushfire risk to neighbouring dwelling. Low threat vegetation and Potential Impact Buffer Area.

Zone 4A acts as an APZ to protect adjoining residential east of the site.

- High Potential Bushfire Hazard
- Medium Potential Bushfire Hazard
- Potential Impact Buffer Area
- Low Hazard Area



Figure 2.2 Rehabilitation Vegetation Areas (per Saunders Havill Rehabilitation Concept Plan)




3.0 Assessment Criteria Logan Planning Scheme 2015, 8.2.3 Bushfire Hazard Overlay Code

Performance outcomes	Acceptable outcomes	Comments
For accepted development (subject to requirements) and assessable development		
Location, design and siting of development		Compliance/comments
PO1 Development is designed to: - minimise risk of bushfire hazard; - provide safe premises; - create efficient emergency access for fire-fighting and other emergency vehicles. Note - Planning scheme policy 6 - Management of bushfire hazard provides guidelines on how to achieve this outcome.	AO1 Development: - does not increase the number of persons living in, or lots in, the Bushfire hazard area identified on Bushfire hazard overlay map OM-03.00; or - is on a site that a bushfire hazard assessment prepared in accordance with the methodology in Planning scheme policy 6 - Management of bushfire hazard determines is of low bushfire hazard.	A Bushfire Hazard Assessment and Management Plan has been undertaken for the proposed development. The assessment is in accordance with criteria of Planning Scheme Policy 6 and current State Planning Policy, Technical Reference Guide. The current Bushfire Overlay mapping is reviewed and corrected for mapping errors. Potential Bushfire sources are identified. Existing hazardous vegetation at proposed new lots (centre of site) is to be removed at Stage 1 works, to mitigate the bushfire risk and avoid potential ignitions during operational works and construction. No other classified vegetation is located on the site. Vegetation is assessed at full Potential Fuel Load for vegetation types on adjoining land north-east of the site. Eastern areas of the lot are assessed in rehabilitated mature state for Zone 3 and Zone 4 (Assisted regeneration). Zone 4 is composed of canopy trees and open understorey, to reduce near-surface and elevated fuel loads. Zone 4A rehabilitation vegetation includes lower flammability species and reduced canopy coverage, with no shrubby understorey, to act as a firebreak for the adjoining residential lot east. Zone 4A includes a boundary Colorbond steel fence 1.9m min. high (extent per Figure 2.2), to act as a radiant heat barrier to mitigate the bushfire risk to the adjacent existing dwelling. The layout provides suitable Asset Protection Zones (APZ) comprising Zone 1 Drainage basin + Zone 2 Future Roadway Corridor 23m wide. These provide safe setback to hazardous vegetation in the surrounds. The layout minimizes the bushfire risk at residential lots and provides efficient access for emergency services to the vegetation interface areas that are potential bushfire sources.



PO2 Development is sited and constructed to minimise the bushfire hazard and maximise the protection of life and property from bushfire. Editor's note - Planning scheme policy 6 - Management of bushfire hazard contains guidance on the preparation of bushfire management plans.	AO2 Development is located and constructed: - where there is no bushfire management plan approved by an existing development approval: - such that the bushfire attack level is less than or equal to BAL-29; - away from the most likely direction of a fire front; - so that elements of the development least susceptible to fire are sited closest to the bushfire hazard; - such that asset protection zones are sited on land with a slope less than 18 degrees; - such that asset protection zones are entirely within the boundaries of the private property of the development site; or - where an approved bushfire management plan directs development to be located. Note - BAL = Bushfire attack level is the radiant heat flux a building will experience during a bushfire and is a measure of heat energy impacting on a surface expressed as kW/m². BAL is calculated from the following factors; vegetation type, fuel loads, distance to vegetation, Forest Fire danger Index (FDI), flame length, fire behaviour/intensity and slope. BAL is used to determine the required construction level of a building and the size of asset protection zones (inner and outer radiation zones). Further information on calculating the BAL can be obtained from AS3959-2009. Editor's note - Asset protection zones are not located on slopes greater than 18 degrees to ensure maintenance is practical, soil stability is not compromised and the potential for crown/canopy fires is reduced.	Complies. The proposed development plan provides suitable low fuel APZ between residential lots and potential bushfire sources. This Bushfire Hazard Assessment and Management Plan considers existing vegetation and future vegetation in mature state. The future 23m wide roadway (Zone 2) provides a permanent low fuel buffer area, providing separation to classified vegetation in the surrounds. Zone 1 Detention drainage basins with low threat vegetation are also located to increase the separation to bushfire sources and minimize the bushfire risk to new dwelling sites. The maximum Bushfire Attack Level at proposed new lots is BAL-12.5. The majority of proposed new lots are in a Low Hazard Area. Refer Figure 4.1 The slope of APZ is less than 5 degrees, generally 2 degrees. Revegetation at the site comprises 3 zones: -Zone 3 Waterway drainage corridor full rehabilitation vegetation to narrow corridor. The narrow width of the corridor limits the potential flame width and forward spread of a potential fire front. -Zone 4 Environmental Open Space: assisted regeneration with supplementary trees to provide canopy coverage for ecological connectivity; open understorey with existing grasses to mitigate bushfire risk to existing and future residential areas. -Zone 4A 25m wide x 80m zone with reduced tree canopy cover, lower flammability species selection, open understorey (no shrubs underplanted) with low flammability ground covers. This provides a lower fuel fire break, directly adjoining existing residential east, to avoid increasing the bushfire risk to surrounding land areas. Non-combustible fencing in Colorbond steel sheet is proposed to act as radiant heat shield and barrier to adjoining existing residential lot east.
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PO3 Reconfiguring a lot ensures that lots are designed to minimise bushfire hazard and provide safe sites for people, property and buildings.	AO3 Lots: a. are suitable for people, property and buildings by: i. having a bushfire attack level less than or equal to BAL-29; or ii. containing a development envelope area that has a bushfire attack level less than or equal to BAL-29; b. provide asset protection zones that: i. are located on land with a slope less than 18 degrees; ii. are located on the same lot.	Complies The proposed layout for the residential lots is designed to minimise bushfire hazard and provide safe setback to areas of potential bushfire sources. The maximum Bushfire Attack Level at new lots is BAL-12.5. Most new lots are BAL-LOW, beyond 100m of hazardous classified vegetation APZ is less than 18 degrees (generally 2 to 3 degrees). All APZ areas are contained within the site
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Vehicular access and fire maintenance trails		
PO4 Access for fire management and evacuation is provided by access that: - separates premises from adjoining vegetation; - is safely accessible by fire fighting vehicles; - has regular vehicular access points for bushfire management, response and evacuation; - has regular vehicle passing and turning areas for bushfire management, response and evacuation; - allows access at all times for fire fighting vehicles; - allows for maintenance, burning off and bushfire response; - has vehicular links to an alternative through road; - is readily maintained. Editor's note - Planning scheme policy 6 - Management of bushfire hazard provides details on alternative solutions for providing fire management access and evacuation	AO4 Access for fire management and evacuation is provided by vehicular access in the form of a perimeter road: - with a minimum reserve width of 20 metres; - located between the premises and adjoining vegetation; - with a maximum gradient of 12.5 percent; - constructed to otherwise comply with section 3.4 - Movement infrastructure standards of Planning scheme policy 5 - Infrastructure; - that has a layout that does not include a cul-de-sac.	Complies Roads are interconnecting to provide alternative egress options. Western sides of the site are a Low Hazard area. Perimeter roads provide access for fire management and suppression activities, with safe access/egress from the site. Future perimeter roadway reserve is 23m wide, providing separation from residential lots to surrounding unmanaged vegetation and rehabilitated environmental corridor. Future perimeter roadway reserve will remain as existing cleared open land, prior to construction of roadway. Roadways and site have shallow grade fall. Cul-de-sacs are not proposed. The road layout provides linkages for streets to connect to future developed land, including to surrounding land north and west (Low Hazard area). <i>Refer specialist report for road details.</i>

Water supply		
PO5 Development has access to adequate water supply for firefighting purposes.	AO5 Development: - is connected to a reticulated water supply scheme that has sufficient flow and pressure characteristics for firefighting purposes at all times with a minimum pressure and flow of 10 litres per second at 200kPa; or - has an on-site water storage in accordance with Table 8.2.3.3.2 - Water storage for firefighting, dedicated or retained for firefighting purposes that is made of fire resistant materials and is: - a separate tank; or - a reserve section in the bottom part of the main water supply tank. Editor's note - The requirement in AO5 is: - in addition to the requirement for potable water supply/storage in AO2 in Table 9.4.3.3.1 - Infrastructure code: accepted development (subject to requirements) and assessable development.; - reflected in AO5 in Table 9.4.3.3.1 - Infrastructure code: accepted development	Complies. Reticulated water supply is to be available at all proposed residential lots. No on-site water storage tanks are required for firefighting purpose. Adequate water pressure and flow rate is to be confirmed with water authority prior to sealing of lots. Fire hydrants are to be located at street areas in accordance with relevant Standards and water authority requirements. Accessible fire hydrants are recommended to be located at areas along the eastern perimeter future new road that interfaces with the vegetation reserve, for ease of use by firefighters in suppression activities.



	(subject to requirements) and assessable development.	
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For assessable development		
Community infrastructure		
PO6 Community infrastructure is not located in a bushfire hazard area or is able to function effectively during and immediately after a bushfire event.	AO6 Community infrastructure is: a. not located in a Bushfire hazard area identified on Bushfire hazard overlay map OM-03.00; or b. located to ensure that: i. the core services provided by the community infrastructure is able to function effectively during bushfire events; ii. access to the community infrastructure is not compromised by bushfire events; iii. the safe storage of valuable records, public records and items of cultural or historic significance is able to be maintained during a bushfire event.	Not Applicable No community infrastructure is proposed for the site.

Hazardous materials		
PO7 Public safety and the environment are not adversely affected by the adverse impacts of bushfire on hazardous materials including fuels, explosives and flammable chemicals manufactured or stored in bulk on premises.	AO7 Hazardous materials: a. storage is in compliance with AS1940 - The storage and handling of flammable and combustible liquids; b. manufacturing does not occur in a Bushfire hazard area on Bushfire hazard overlay map OM-03.00.	No hazardous materials or flammable chemicals are proposed to be manufactured, stored or handled on the site, including at Low Hazard Areas.

Table 8.2.3.3.2 - Water storage for fire fighting

Column 1 Lot size / use type	Column 2 Water requirement
For each residential lot:	
(a) less than 1,000m ²	5,000 litres
(b) between 1,000m ² and less than 1 hectare	10,000 litres
(c) greater than 1 hectare	20,000 litres
Multiple dwelling	5,000 litres per dwelling up to a maximum of 20,000 litres
A use other than Multiple dwelling	5,000 litres or the prevailing rural fire brigade standard



4.0 BUSHFIRE ATTACK LEVEL (BAL)

The subject lots have been assessed in accordance with methodology of AS 3959-2018, *Construction of buildings in bushfire prone areas*. The Bushfire Attack Level (BAL) has been determined per Table 2.7 and Method 2 calculation.

Step 1	FDI (Clause 2.2.2)	40 (per Table 2.1 Queensland)(AFAC)
	Flame Temperature	1090 K
	Heat of combustion	18,600 kJ/kg
Step 2	Vegetation Classification (Clause 2.2.3)	Group A Forest (VHC 9.1, VHC 22.1, VHC 16.1) Group B Woodland (Zone 3 narrow waterway corridor & Zone 4 rehabilitation vegetation east with low surface fuels)

Method 2 calculations are also used to calculate a suitable Asset Protection Zone (APZ).

Assessed vegetation within 100 metres in all directions (360°) from Lots

Vegetation classification	North-East	South	East	West
Group A Forest				
Group B Woodland				
Group C Shrubland				
Group D Scrub				
Group E Mallee/Mulga				
Group F Rainforest				
Group G Grassland				
Exclusions per 2.2.3.2		(a, f) 		(a, f) 

Step 3: Distance of the site from classified vegetation (Clause 2.2.4, per Figure 2.1)

Distance to classified vegetation	Distance in metres			
	30.8 NE minimum setback	>100	23 road reserve (17.6 minimum setback for BAL-12.5)	>100



Step 4: Effective slope of land under the classified vegetation (Clause 2.2.5, per Figure 2.2)

Effective slope	North-East	South	East	West
Slope under the classified vegetation	Downslope 2.5 ⁰	n/a	Upslope -2 ⁰	n/a

Step 5: Determination of Bushfire Attack Level (BAL)

	North-East	South	East	West
BAL value for each face	BAL- 12.5 maximum Refer Method 2 calculation	BAL- LOW	BAL- 12.5 maximum	BAL- LOW

The highest BAL category found applies, in accordance with AS 3959-2018.

All Lots 100m or greater from classified vegetation are BAL-LOW. [Refer Figure 4.1.](#)

Per Appendix G of AS 3959-2018, the Bushfire Attack Level (BAL) is

BAL-12.5

There is a risk of ember attack. The construction elements are expected to be exposed to a heat flux not greater than 12.5 kW/m².

BAL-LOW

There is insufficient risk to warrant any specific construction requirements **but there is still some risk.**

Step 6: Determine the appropriate construction requirements, per Table 3.1

Bushfire Attack Level (BAL)	Classified vegetation within 100 m of the site and heat flux exposure thresholds	Description of predicted bushfire attack and levels of exposure	Construction to comply with section per AS 3959-2018
BAL-12.5	≤12.5 kW/m ²	Ember attack	3 and 5
BAL- LOW	See Clause 2.2.3.2	There is insufficient risk to warrant specific construction requirements	4

BAL-12.5 Construction to comply with Sections 3 and Section 5 of AS 3959-2018 for deemed-to-satisfy provisions of the Building Code of Australia.

BAL-LOW Per Section 4 of AS 3959-2018, No special construction requirements.



(MDc v.4.9)

86 TALINGA DRIVE; DIRECTION NE

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	40	Rate of spread	1.42 km/h
Vegetation classification	Forest	Flame length	13.46 m
Understorey fuel load	25 t/ha	Flame angle	54.5 °, 64.5 °, 73.5 °, 77.5 °, 79.5 ° & 85.5 °
Total fuel load	35 t/ha	Elevation of receiver	5 m, 5.43 m, 5.5 m, 5.22 m, 5.02 m & 2.81 m
Vegetation height	n/a	Fire intensity	25,785 kW/m
Effective slope	2.5 °	Transmissivity	0.874, 0.857, 0.831, 0.806, 0.793 & 0.729
Site slope	2.5 °	Viewfactor	0.5987, 0.4446, 0.2995, 0.2033, 0.1655 & 0.0449
Flame width	100 m	Minimum distance to BAL- 40	10.9 m
Windspeed	n/a	Minimum distance to BAL- 29	14.7 m
Heat of combustion	18,600 kJ/kg	Minimum distance to BAL- 19	21.7 m
Flame temperature	1,090 K	Minimum distance to 12.5 kW/m ²	30.8 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



TALINGA DRIVE; DIRECTION EAST (Rehabilitation vegetation). (MDc v.4.9)

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	40	Rate of spread	0.62 km/h
Vegetation classification	Woodland (modified fuel loads & narrow corridor)	Flame length	7.07 m
Understorey fuel load	15 t/ha	Flame angle	55.5 °, 66.5 °, 75.5 °, 80.5 °, 82.5 ° & 87.5 °
Total fuel load	25 t/ha	Elevation of receiver	2.65 m, 2.89 m, 2.9 m, 2.71 m, 2.56 m & 0.87 m
Vegetation height	n/a	Fire intensity	8,101 kW/m
Effective slope	-2 °	Transmissivity	0.887, 0.876, 0.859, 0.839, 0.827 & 0.754
Site slope	2.5 °	Viewfactor	0.5873, 0.4345, 0.2901, 0.1953, 0.1584 & 0.0435
Flame width	100 m	Minimum distance to BAL-40	5.8 m
Windspeed	n/a	Minimum distance to BAL-29	7.9 m
Heat of combustion	18,600 kJ/kg	Minimum distance to BAL-19	11.9 m
Flame temperature	1,090 K	Minimum distance to BAL-12.5	17.6 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



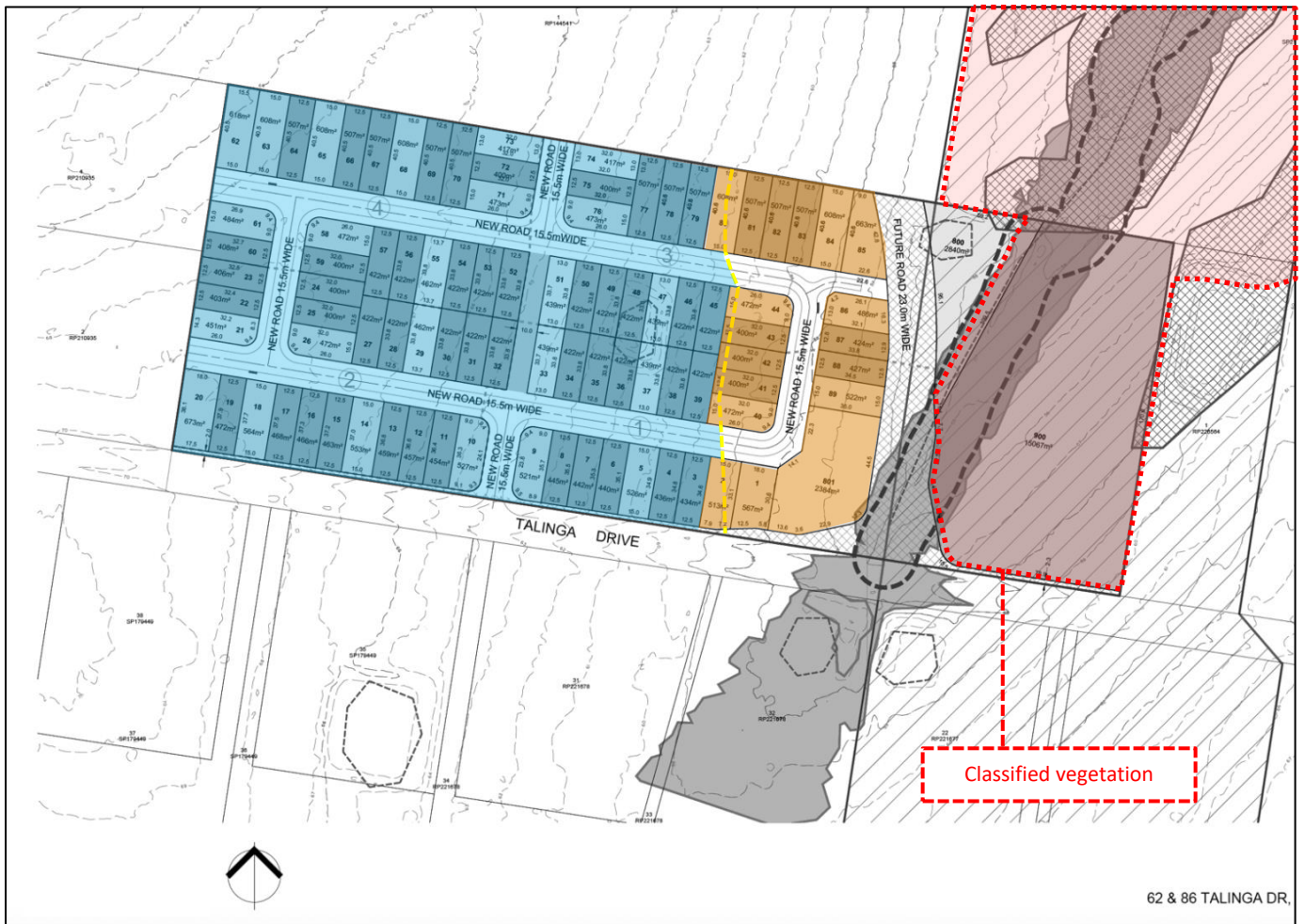
TABLE 4.1 Bushfire Attack Level Assessment		
LOT	BAL ASSESSMENT Unrestricted siting	Construction requirements per AS 3959-2018 Section
1	BAL-12.5 all parts of Lot	Section 3 and Section 5
2	BAL-12.5	Section 3 and Section 5
3	BAL-LOW all parts of Lot	Nil per Section 4
4	BAL-LOW all parts of Lot	Nil per Section 4
5	BAL-LOW all parts of Lot	Nil per Section 4
6	BAL-LOW all parts of Lot	Nil per Section 4
7	BAL-LOW all parts of Lot	Nil per Section 4
8	BAL-LOW all parts of Lot	Nil per Section 4
9	BAL-LOW all parts of Lot	Nil per Section 4
10	BAL-LOW all parts of Lot	Nil per Section 4
11	BAL-LOW all parts of Lot	Nil per Section 4
12	BAL-LOW all parts of Lot	Nil per Section 4
13	BAL-LOW all parts of Lot	Nil per Section 4
14	BAL-LOW all parts of Lot	Nil per Section 4
15	BAL-LOW all parts of Lot	Nil per Section 4
16	BAL-LOW all parts of Lot	Nil per Section 4
17	BAL-LOW all parts of Lot	Nil per Section 4
18	BAL-LOW all parts of Lot	Nil per Section 4
19	BAL-LOW all parts of Lot	Nil per Section 4
20	BAL-LOW all parts of Lot	Nil per Section 4
21	BAL-LOW all parts of Lot	Nil per Section 4
22	BAL-LOW all parts of Lot	Nil per Section 4
23	BAL-LOW all parts of Lot	Nil per Section 4
24	BAL-LOW all parts of Lot	Nil per Section 4
25	BAL-LOW all parts of Lot	Nil per Section 4
26	BAL-LOW all parts of Lot	Nil per Section 4
27	BAL-LOW all parts of Lot	Nil per Section 4
28	BAL-LOW all parts of Lot	Nil per Section 4
29	BAL-LOW all parts of Lot	Nil per Section 4
30	BAL-LOW all parts of Lot	Nil per Section 4
31	BAL-LOW all parts of Lot	Nil per Section 4
32	BAL-LOW all parts of Lot	Nil per Section 4
33	BAL-LOW all parts of Lot	Nil per Section 4
34	BAL-LOW all parts of Lot	Nil per Section 4
35	BAL-LOW all parts of Lot	Nil per Section 4
36	BAL-LOW all parts of Lot	Nil per Section 4
37	BAL-LOW all parts of Lot	Nil per Section 4
38	BAL-LOW all parts of Lot	Nil per Section 4
39	BAL-LOW all parts of Lot	Nil per Section 4
40	BAL-12.5	Section 3 and Section 5
41	BAL-12.5	Section 3 and Section 5
42	BAL-12.5	Section 3 and Section 5
43	BAL-12.5	Section 3 and Section 5
44	BAL-12.5	Section 3 and Section 5
45	BAL-LOW all parts of Lot	Nil per Section 4
46	BAL-LOW all parts of Lot	Nil per Section 4



47	BAL-LOW all parts of Lot	Nil per Section 4
48	BAL-LOW all parts of Lot	Nil per Section 4
49	BAL-LOW all parts of Lot	Nil per Section 4
50	BAL-LOW all parts of Lot	Nil per Section 4
51	BAL-LOW all parts of Lot	Nil per Section 4
52	BAL-LOW all parts of Lot	Nil per Section 4
53	BAL-LOW all parts of Lot	Nil per Section 4
54	BAL-LOW all parts of Lot	Nil per Section 4
55	BAL-LOW all parts of Lot	Nil per Section 4
56	BAL-LOW all parts of Lot	Nil per Section 4
57	BAL-LOW all parts of Lot	Nil per Section 4
58	BAL-LOW all parts of Lot	Nil per Section 4
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73	BAL-LOW all parts of Lot	Nil per Section 4
74	BAL-LOW all parts of Lot	Nil per Section 4
75	BAL-LOW all parts of Lot	Nil per Section 4
76	BAL-LOW all parts of Lot	Nil per Section 4
77	BAL-LOW all parts of Lot	Nil per Section 4
78	BAL-LOW all parts of Lot	Nil per Section 4
79	BAL-LOW all parts of Lot	Nil per Section 4
80	BAL-12.5	Section 3 and Section 5
81	BAL-12.5 all parts of Lot	Section 3 and Section 5
82	BAL-12.5 all parts of Lot	Section 3 and Section 5
83	BAL-12.5 all parts of Lot	Section 3 and Section 5
84	BAL-12.5 all parts of Lot	Section 3 and Section 5
85	BAL-12.5 all parts of Lot	Section 3 and Section 5
86	BAL-12.5 all parts of Lot	Section 3 and Section 5
87	BAL-12.5 all parts of Lot	Section 3 and Section 5
88	BAL-12.5 all parts of Lot	Section 3 and Section 5
89	BAL-12.5 all parts of Lot	Section 3 and Section 5



FIGURE 4.1 Bushfire Attack Level Assessment



- BAL-12.5 Assessment
- BAL-LOW Assessment
- 100m Potential Impact Buffer Area extent



SECTION CONCLUSION

Existing vegetation at the proposed residential lots is considered in cleared condition at Stage 1 works, as part of the development of the site.

The Bushfire Attack Level (BAL) for proposed dwellings located within proposed Lots is per Table 4.1 Bushfire Attack Level Assessment & Figure 4.1.

No restriction on siting within the Lot for the relevant BAL assessment.

BAL-12.5 Construction to comply with Section 3 and Section 5 of AS 3959-2018 for deemed-to-satisfy provisions of Building Code of Australia.

All Class 10a associated Garage and Carport structures are required to comply with this Standard for the BAL assessment.

BAL-LOW Per Section 4 of AS 3959-2018, No special construction requirements for deemed to satisfy provisions of the Building Code of Australia.

Vegetation of the BAL-12.5 lots to be maintained in managed condition, in perpetuity, per Bushfire Management Plan- Vegetation Management guidelines. This will mitigate bushfire risk and localised ignitions, which may cause consequential fire and house losses.



5.0 CONCLUSION

A Bushfire Hazard Assessment has been completed to identify current and future bushfire risks, considering future revegetated areas in mature state. The proposed layout utilises perimeter roadway clearings and drainage detention basins to provide suitable separation between proposed residential lots and potential bushfire sources. A Bushfire Management Plan has been prepared and the proposed layout adopts measures to reduce the bushfire risk.

Bushfire risk mitigation measures are proposed, including revegetated environmental corridor with reduced understorey fuels and lower flammability species at Zone 4A. The risk to adjoining existing established residential dwellings is taken into consideration and measures are taken to avoid an increase of bushfire risk to surrounding land.

The maximum Bushfire Attack Level (BAL) at proposed new residential lots is BAL-12.5. This is substantially lower risk than the threshold maximum of BAL-29. The majority of proposed residential Lots will be in a Low Hazard area, after development of the Site at Stage 1 works. The level of retained bushfire risk is considered an acceptable level of risk for the residential low density subdivision development. Construction to BAL-12.5 per AS 3959-2018 is considered to provide suitable resilience for building structures to withstand the predicted level of potential bushfire attack. The proposal complies with all Acceptable Outcomes in Logan Planning Scheme, Bushfire Overlay Code. The overall level of bushfire risk at the proposed development of the site is considered a suitable level of risk for the general residential use. No vulnerable uses or difficult to evacuate uses are proposed for the site.

The proposed Reconfiguring of Lot is recommended to be supported, with recommended bushfire mitigation measures adopted. Entrapment in a bushfire event is not a foreseen risk for the proposal and egress options from the site are away from bushfire sources.



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Date of site assessment	13 April 2023
Assessors name	Halyna Tkacz of Brisbane Bushfire Consulting Pty. Ltd. Bushfire Consultant and Architect
Assessors contact details	Tel 0490 494 111 Email: mail@brisbanebushfire.com.au

Statement: I am a suitably qualified Bushfire Consultant in the State of Queensland and I have inspected the site and surrounds, accessed available information and taken reasonable steps to ensure the information provided in this assessment is accurate and reflects the conditions on and around the site and allotment on the date of this assessment, as well as proposed revegetation.

Signed:

Halyna Tkacz

Halyna Tkacz on behalf of Brisbane Bushfire Consulting Pty. Ltd.

*Qualified Bushfire Consultant in the State of Queensland & Registered Architect
Graduate Certificate in Bushfire Protection, Western Sydney University, School of Computing, Engineering and Mathematics.
Bachelor of Architecture (Honours 1st Class), University of Melbourne
BOAQ Reg No 4362 Designated person under the Building Act 1975 (Qld)*

Date: August 2023



6.0 BUSHFIRE MANAGEMENT PLAN

6.1 RESIDENT POPULATION

89 No. proposed residential Lots. No vulnerable or difficult to evacuate uses are proposed for the site. Childcare Centre use, aged care and similar uses are not proposed. No public buildings with congregations are proposed.

6.2 BUSHFIRE SUPPRESSION AND ACCESS/EGRESS

Access and egress roadways to the site are addressed in detail in other Specialist reports.

- All roadways are sealed public roadways, accessible to emergency services vehicles at shallow grade
- Fire hydrants are to be located per relevant standards and water authority requirements
- Fire Hydrant access point to be located near Lot 85/86 and link to *Future Roadway*
- Fire hydrants to be located along 23m wide Future Roadway for efficient fire suppression
- Any gates between developed lots and eastern vegetated environmental corridor to have 4m wide clearance for emergency services access
- Future Roadway 23m wide zone to remain as very low tree cover area and low threat vegetation, prior to road construction.
- Access and egress from the site is away from the direction of primary bushfire attack. Low Hazard areas are located western parts of the site.

6.3 CLEARING AND ASSET PROTECTION ZONE (APZ)

All clearing of existing vegetation at proposed residential lots is to be implemented at Stage 1, prior to commencement of works, where construction activities may contribute to ignitions at the site.

APZ is to be maintained as low threat vegetation zone in perpetuity. The APZ comprises:

- FUTURE ROADWAY* 23m wide (retained as very low tree/shrub cover)
- Drainage detention basins

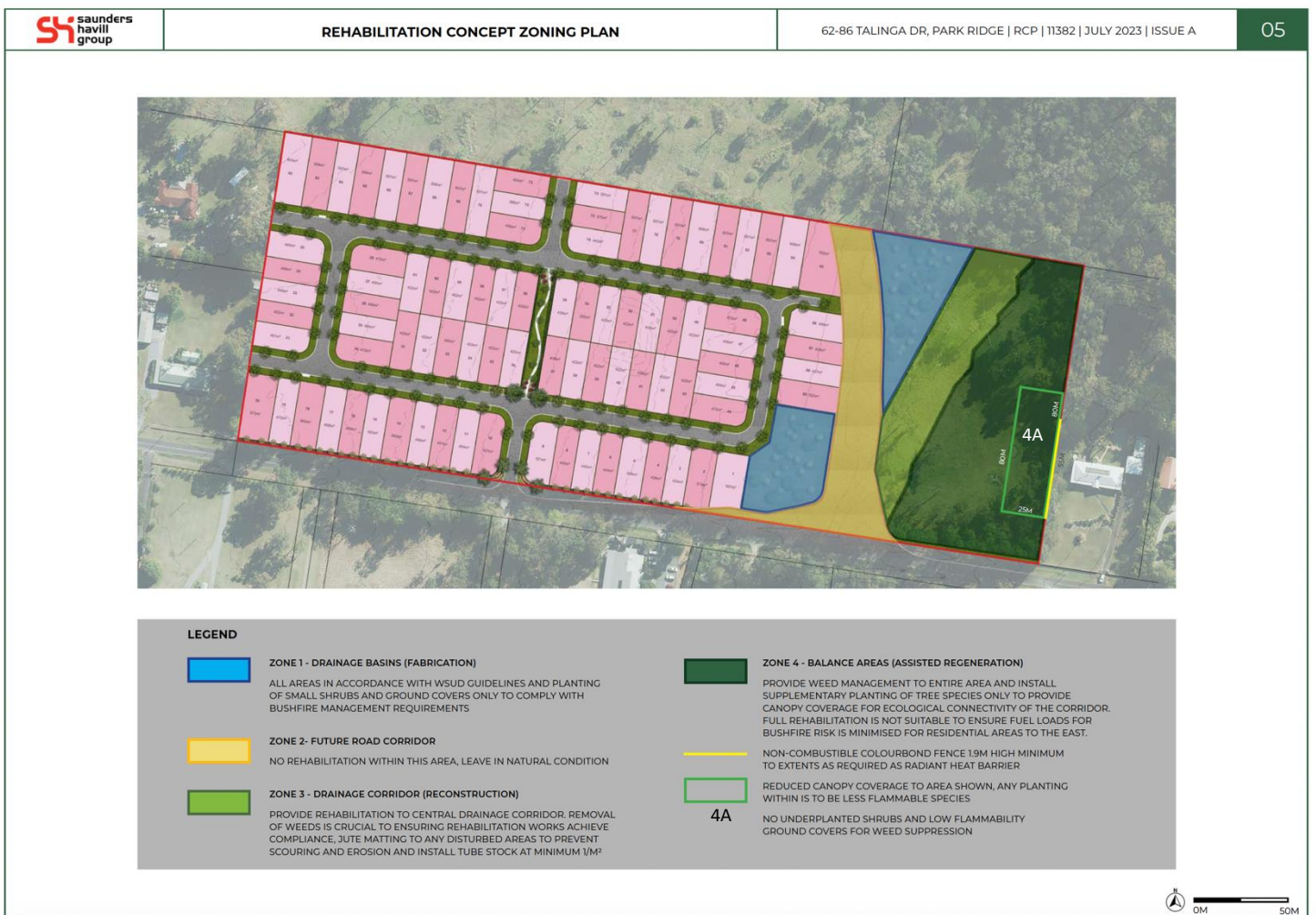


6.4 VEGETATION MANAGEMENT GUIDELINES FOR ENVIRONMENTAL CORRIDOR (Refer Figure 2.2)

Zone details per Saunders Havill Rehabilitation Concept Zoning Plan and Landscape Concept Plan

Zone 4A 25m wide reduced fuel loads, adjoining existing residential area

- Non-combustible Colorbond steel sheet fencing 1.9 high minimum, that acts as radiant heat barrier to existing Dwelling on adjoining lot at 110-114 Talinga Drive
- 25% overall canopy cover
- Canopy perimeter to be 5m clear of east boundary
- Low flammability species
- No underplanted shrubs and low flammability ground covers for weed suppression
- Periodic review of the fuel loads is recommended to Zone 4A.



6.5 VEGETATION MANAGEMENT GUIDELINES FOR BAL-12.5 LOTS

-Maintain residential lots in generally managed condition all year round, in perpetuity, to mitigate bushfire risk and for protection of property.

-No stored flammable items within 10m of building perimeter, such as wood piles. Do not store flammable items in any subfloor or roofed verandah areas.

-All leaves, sticks and vegetation debris must be removed at regular intervals from ground, roof areas, sills and corners, fence lines; minimal fine fuel (sticks, leaves, bark) at ground level, 2cm ground cover

-Avoid combustible wood mulches within 6m of building. Stones, granitic material or similar non-combustible mulch to be used

-Grass must be maintained at no more than 10 cm in height

-For perimeter lots: hedging with dense leaf cover and high moisture content species can act as protective vegetation around the dwelling to filter embers and protect from wind attack and radiant heat. Setback from building should be minimum 1.5 times mature hedge height. Low flammability species selection with suitable leaf density (eg. Lilly pilly).

-Any new plantings to be setback from building by 1.5 times mature plant height

-Do not place pots or plant under windows or near eaves areas, timber screens etc to avoid ignitions and consequential fire

-Gas bottles to be stored in area of lesser risk, shielded from bushland areas. Valves to be located facing away from building.

-Remove door mats if fire is in the area or the house is unattended. Door mats are known to trap embers and cause house losses.



https://www.qra.qld.gov.au/sites/default/files/2020-08/0591_bushfire_guidelines_fact_sheet_v3_lr.pdf

Maintain your home and have a bushfire survival plan

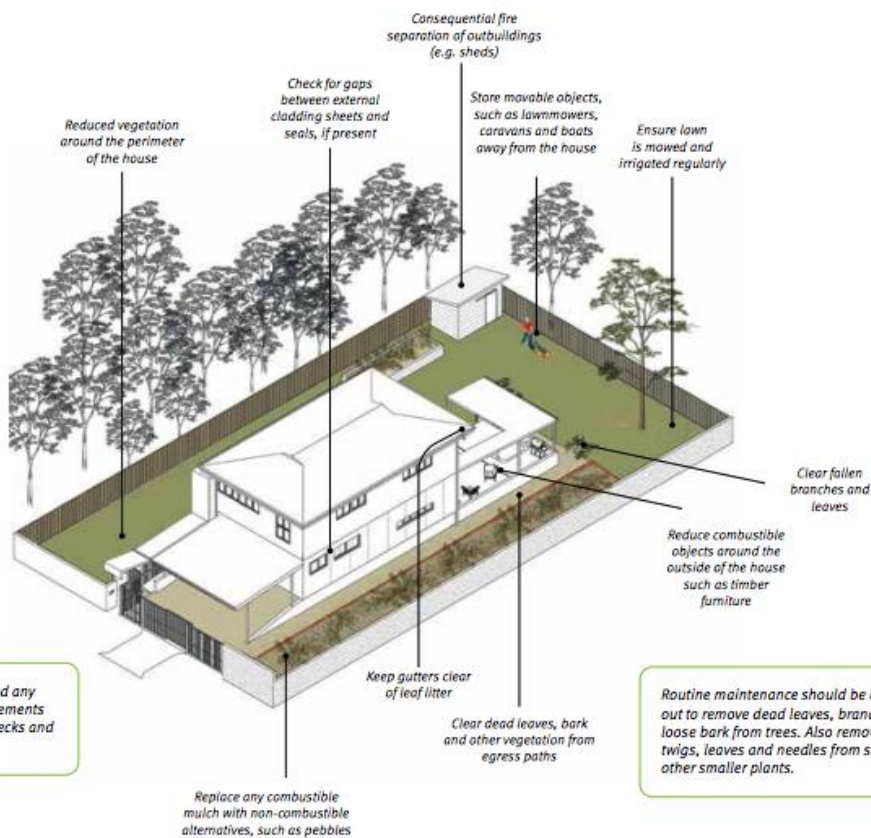
All Queenslanders living in bushfire prone areas must have a bushfire survival plan that steps through agreed decisions the household will make in the event of a bushfire.

Another important step is to undertake routine inspections and maintenance of the house and garden. The diagram below provides an overview of things to look out for in and around the home on a regular basis.

A bushfire survival plan sets out how you will respond during a bushfire such as:

- Will you stay and defend?
- Will you evacuate early?
- If you leave, what will you take with you?

Complete your bushfire survival plan online at www.ruralfire.qld.gov.au



Queenslanders are disaster resilient when...



More information



Visit www.qra.qld.gov.au/Resilient-Homes

Building resilient homes is another way Queenslanders are working together to be the most disaster resilient state in Australia.



6.6 WATER SUPPLY

-Water supply to be adequate pressure and flow rate, in accordance with water authority requirements, relevant standards and Logan Planning Scheme 2015 criteria, to avoid requirement for static water supply tanks dedicated for firefighting. Confirm adequacy of water supply with utilities provider.

-BAL-12.5 lots: all exposed and above ground water supply pipes to be metal, per AS 3959-2018

6.7 GAS SUPPLY

-Gas services to be installed to ensure the location will not contribute to ignition of surrounding vegetation. Installation per relevant Australian Standards, all metal pipes and fittings to be used above ground.

-BAL-12.5 perimeter lots: Gas cylinders to be located in shielded area of least risk. Valves to be positioned away from buildings.

Statement: I am a suitably qualified Bushfire Consultant in the State of Queensland and I have inspected the site and surrounds, accessed available information and taken reasonable steps to ensure the information provided in this assessment is accurate and reflects the conditions on and around the site and allotment on the date of this assessment.

Signed:

Halyna Tkacz

Halyna Tkacz on behalf of Brisbane Bushfire Consulting Pty. Ltd.

*Qualified Bushfire Consultant in the State of Queensland & Registered Architect
Graduate Certificate in Bushfire Protection, Western Sydney University, School of Computing, Engineering and Mathematics.*

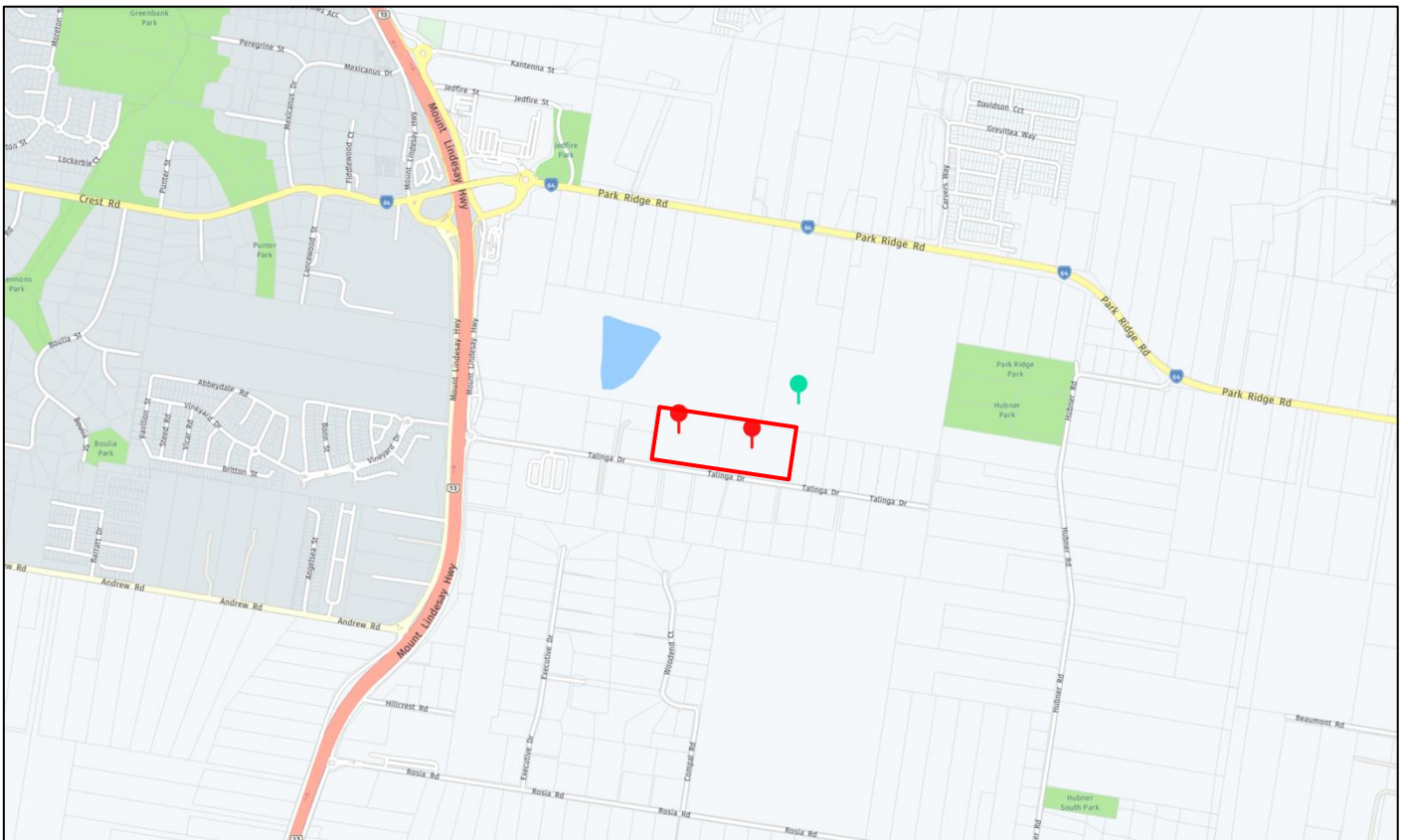
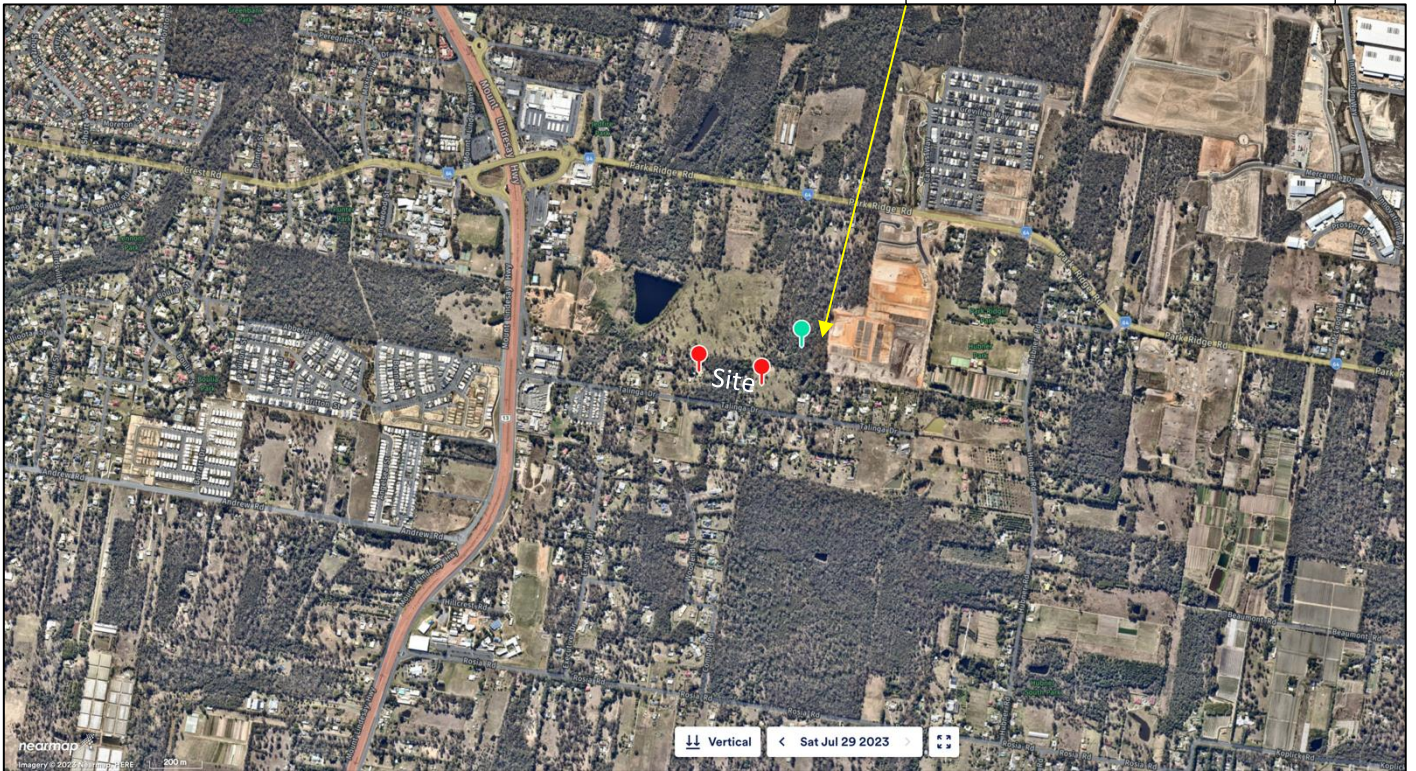
*Bachelor of Architecture (Honours 1st Class), University of Melbourne
BOAQ Reg No 4362 Designated person under the Building Act 1975 (Qld)*

Date: August 2023

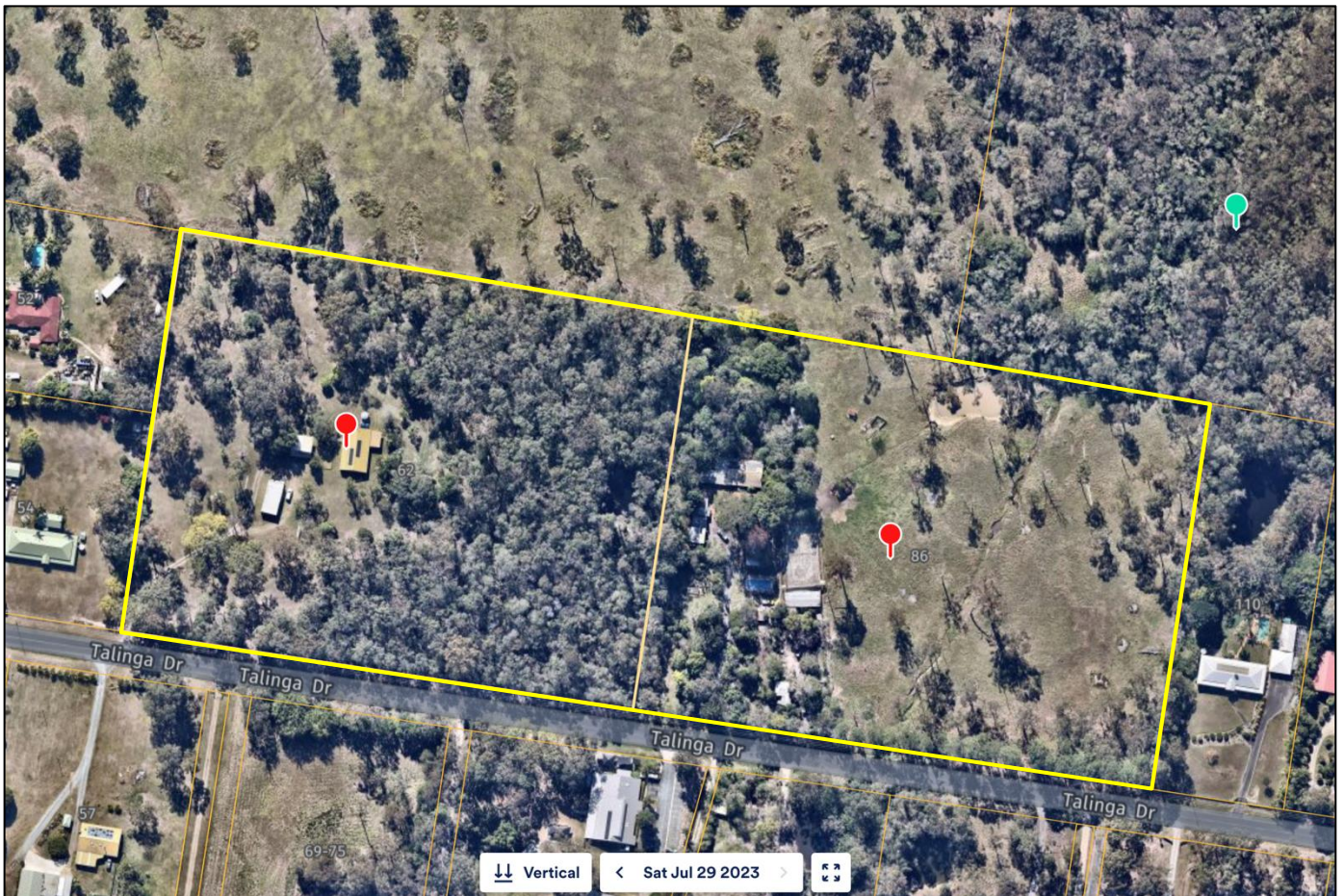


ATTACHMENT 1. LOCALITY AERIAL VIEW & MAP

Classified vegetation



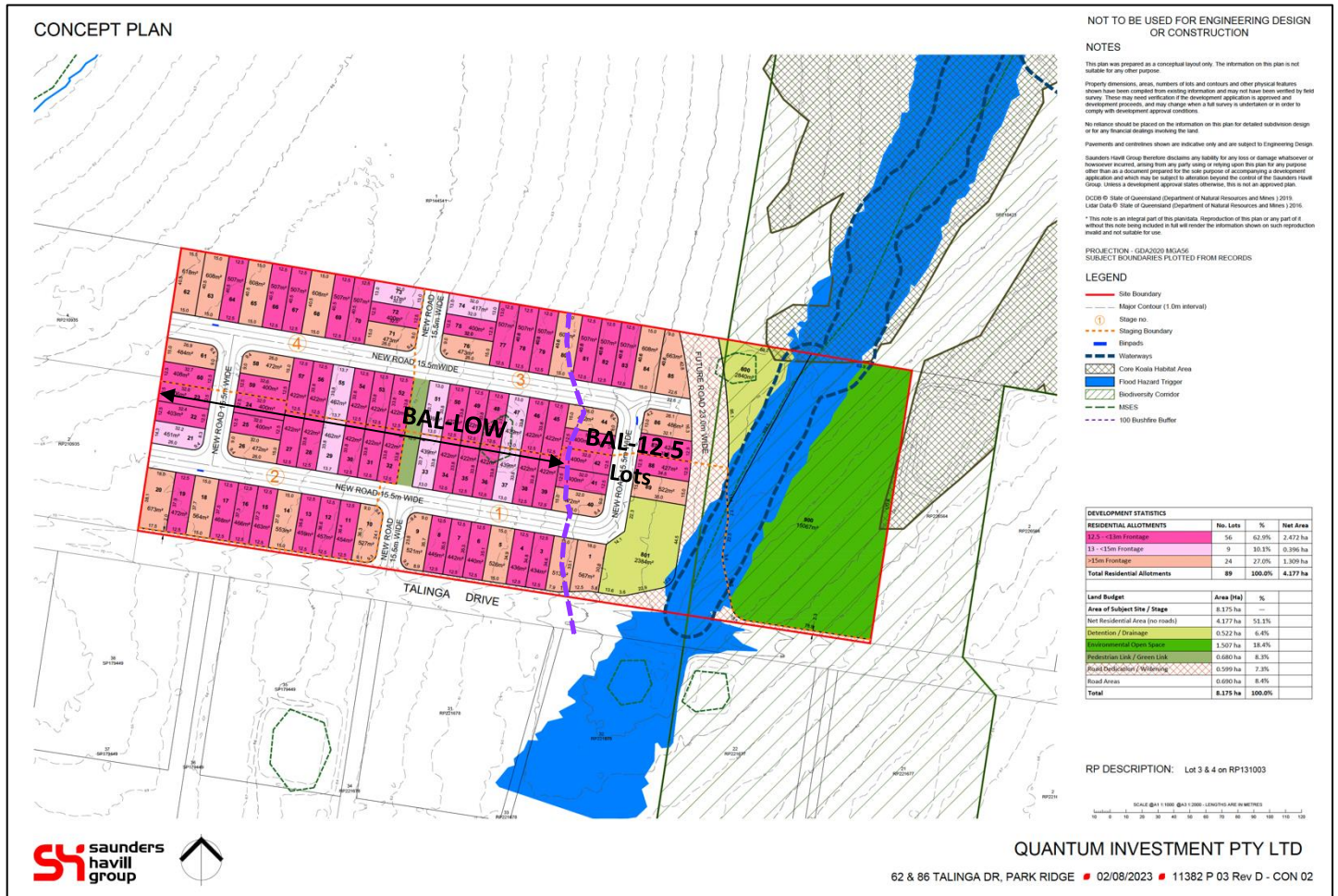
ATTACHMENT 2. AERIAL DETAIL OF SUBJECT LOTS



ATTACHMENT 3: SITE AND SURROUNDING ASSESSMENT/ IMPACT AREA



ATTACHMENT 4: PROPOSED SITE LAYOUT & 100m BUSHFIRE BUFFER



ATTACHMENT 5 AERIAL & SITE PLAN OVERLAY



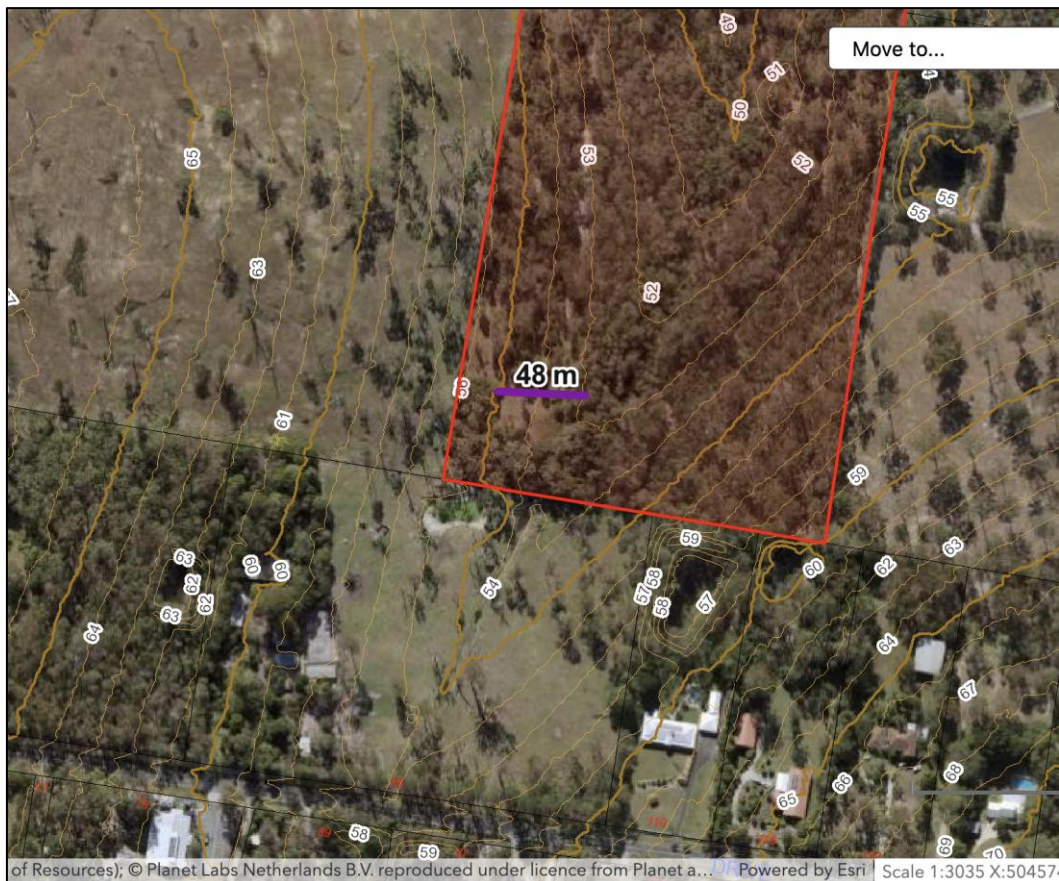
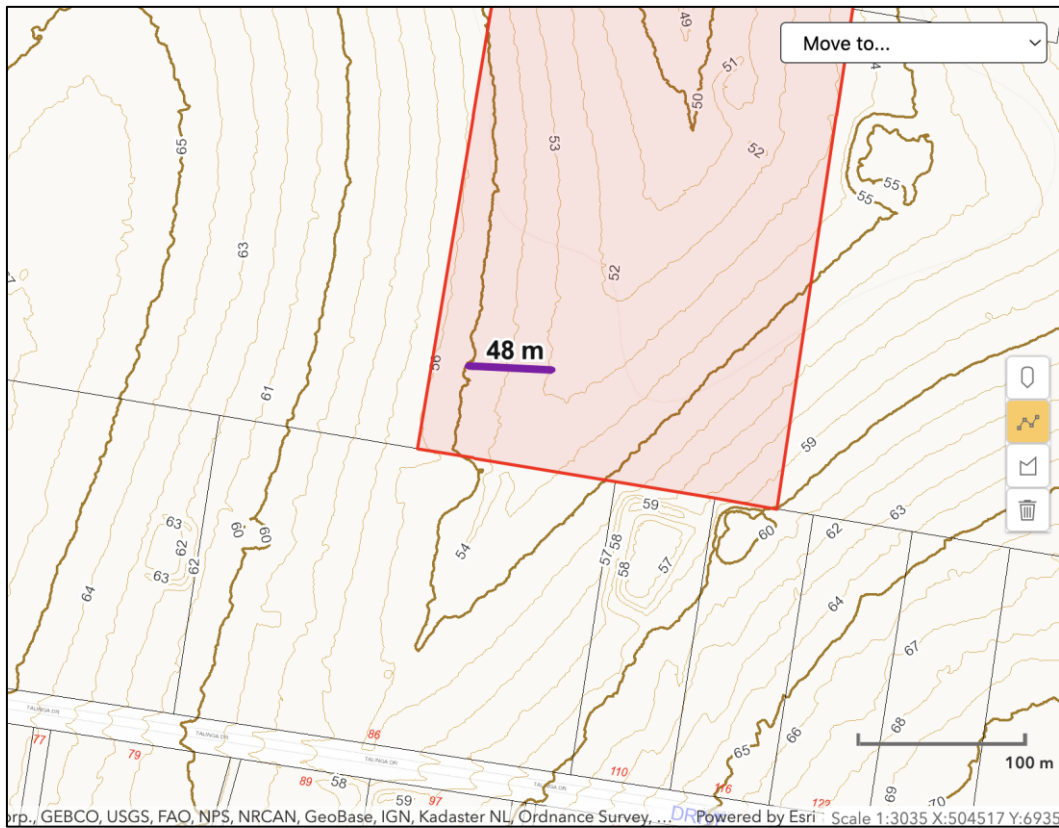
ATTACHMENT 6 SITE PLAN -BUSHFIRE ATTACK LEVELS



- BAL-12.5 Lots
- BAL-LOW Lots
- 100m Potential Impact Buffer Area extent

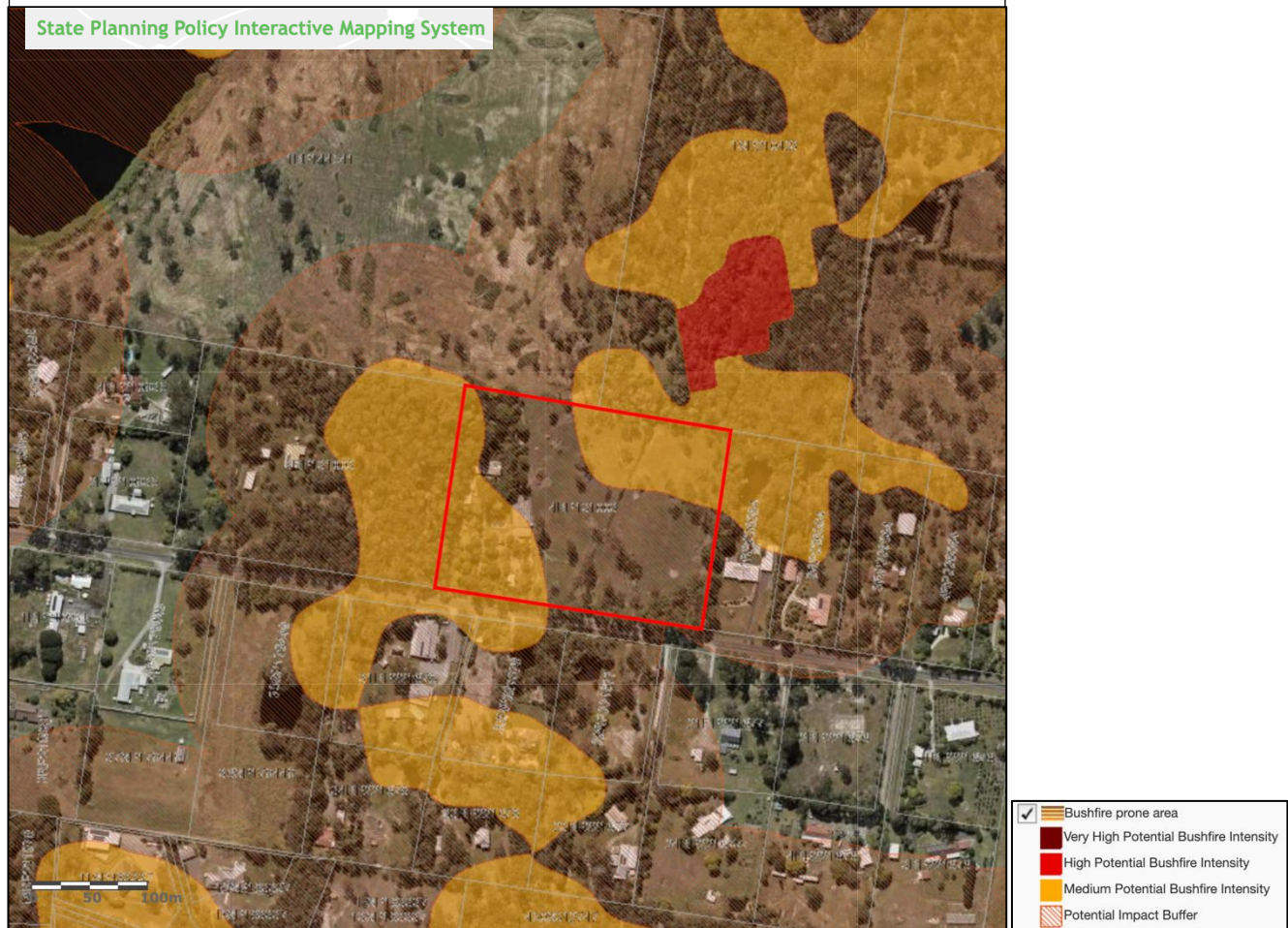


ATTACHMENT 7: CONTOURS AT SITE & SURROUNDS

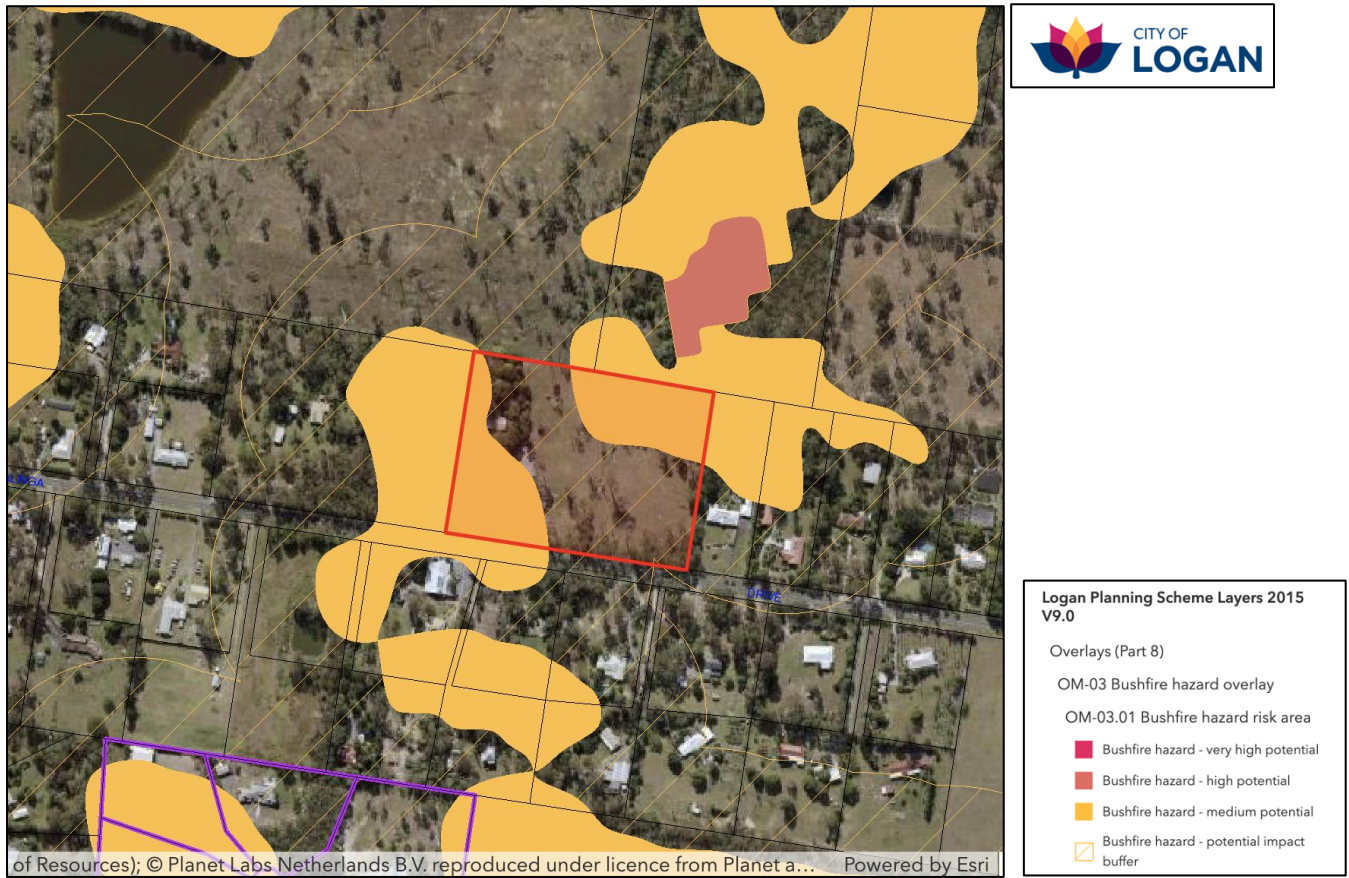


ATTACHMENT 8: Bushfire Hazard Overlay Mapping

<https://spp.dsdp.esriaustraliaonline.com.au/geoviewer/map/planmaking>



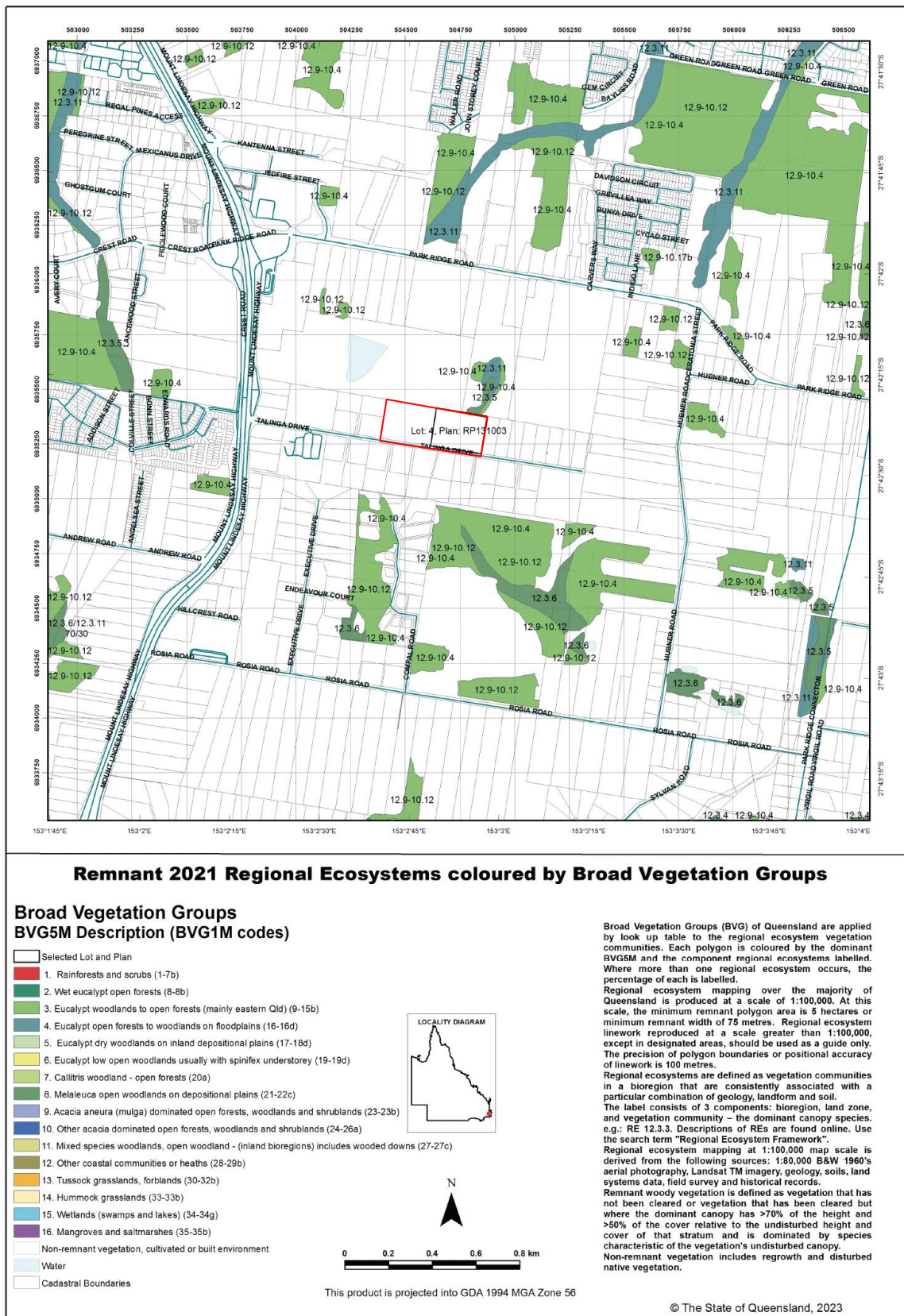
BUSHFIRE HAZARD OVERLAY



ATTACHMENT 9 CATALYST REDI MAP VEGETATION HAZARD CLASS GROUPS



ATTACHMENT 10: Regional Ecosystem Mapping



ATTACHMENT 11 PHOTOS OF SITE AND SURROUNDS

Managed land areas and low threat vegetation at western side of site (62-84 Talinga Drive)	Existing Dwelling and managed gardens at 62-84 Talinga Drive
	
Low threat vegetation along north boundary of 62-84 Talinga Drive	Adjoining land north of 62-84 Talinga Drive. Low tree cover and managed land; low threat vegetation
	
Adjoining land north of 62-84 Talinga Drive	Existing eucalypt forest on 62-84 Talinga. Vegetation to be removed as part of development of proposed residential lots
	



Existing vegetation at eastern side of 62-84 Talinga Drive	Existing vegetation at eastern side of 62-84 Talinga Drive
	
Dam near east boundary of 62-84 Talinga Drive	Cleared and managed land areas with low threat vegetation south of Talinga Drive within 100m
	
View to west boundary from 86-108 Talinga Drive; eucalypt forest to be cleared	View across 86-108 Talinga Drive site towards east boundary. Existing low tree cover and low threat vegetation
	



86-108 Talinga Drive. Interface of north boundary with classified vegetation corridor on adjoining land (NE)	Low threat vegetation on adjoining land north of 86-108 Talinga Drive
	
Adjoining land north and interface with vegetation on 101-111 Park Ridge Road	Classified vegetation corridor on adjoining land at 101-111 Park Ridge Road. (Viewed from 86-108 Talinga Drive)
	
View across drainage corridor on 86-108 Talinga Drive, towards east boundary	Rear of adjoining land at 110-114 Talinga Drive
	



View from east to west across 86-108 Talinga Drive site	Existing dwelling at 110-114 Talinga Drive. Managed land around dwelling
	
110-114 Talinga Drive managed land at north of existing dwelling	View across site to rear yard of 110-114 Talinga Drive. Retained canopy trees with open understorey and low surface fuels
	

End report.

