Approved Bushfire Hazard Assessment - Addendum 5

4 Dalma Street, Ormeau Hills

Formerly Lot 4 on RP883725

Gold Coast City Council, Qld

Prepared by:

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Project Reference: **21674**

Version / Date: **V54/11 November 2021**

Amendment Details: Addition of Approved Site Plan (dated 25/03/2021)

Prepared for:

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Proviso

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It should be noted that the recommendations within this advice have been formulated based on site conditions at the time of assessment and utilising current best-practise hazard and impact assessment methodologies, and have been developed to reduce the potential severity of impacts on the development in the event of a bushfire emergency rather than prevent impacts altogether. No guarantee is provided or assumed that the area will not be affected by bushfire at some time.

Introduction

Wollemi Eco-Logical has been engaged to prepare an addendum to the Bushfire Hazard Assessment for the subject site, prepared by Wollemi Eco-Logical (dated 20th January 2016), and subsequently approved by Council. This addendum (#5) is required due to an amended subdivision layout plan being prepared for the subject site, and will detail any changes to apparent Bushfire Hazard posed, and to detail Bushfire Attack Level for the development, consistent with the Australian Standard – *Construction of Buildings in Bushfire Prone Areas* (AS3959-2009.

Subject Site

The subject site is located at 4 Dalma Street, Ormeau Hills and is formally described as Lot 4 on RP883725. The subject site covers an area of 5.708 ha is represented in **Figure 1.**

Figure 1: Subject Site

Proposed Development

It is understood a Reconfiguration of a Lot (1 into 102 + 2 drainage Lots) for the purpose of residential subdivision has been approved on the subject site. The amended development layout subject to this addendum relates to former Lot 66, now Lots 101 and 102. The approved subdivision layout plan is provided in **Figure 2**.

Plan of Development Table

	25m (or less) Depth		27m+ Depth		30m+ Depth	
	Ground	First	Ground	First	Ground	First
Dwelling Setbacks						
Front (Living)	3.0m		3.0m		3.0m	
Front (Portico)	3.0m	N/A	3.0m	N/A	3.0m	N/A
Front (Garage)	5.5m	N/A	5.5m	N/A	5.5m	N/A
Rear	1.5m		1.5m		3.0m	
Side (Built to Boundary)	Optional wall up to 9m long					
Side (Non Built to Boundary)	As per Side Setbacks Table					
Corner Allotment Setbacks						
Secondary Frontage	2.0m		2.0m		2.0m	
Rear	1.5m		1.5m		3.0m	
Minimum Private Open Space	16m² (no dimension <4m)					
Minimum Vehicle Accommodation	Minimum of 2 car parking spaces provided on-site of which 1 space is to be covered and enclosed. Single, tandem or double garage acceptable.					
Site Coverage (Maximum)	50% where Lots ≥450m² OR 60% where Lots <450m²					
Building Height	Maximum of two (2) storeys (or 9m)					

Development Control Notes

- Building setbacks are to be measured from the outermost projection.
- Site cover shall not exceed 60% for lots less than 450m² or 50% for lots equal to or greater than 450m².
- Site cover does not include eaves, verandahs, or overhangs.
- Eaves shall be a minimum of 450mm wide over all habitable rooms.
- All dwellings are to front the street and display visible pedestrian entrance viewed from the street.
- Private open space has a maximum gradient not exceeding one (1) in ten (10). Access to private open space must be provided off internal living areas for all dwellings.
- Only one driveway per dwelling, to comply with GCCC guidelines at the time of construction. Driveway locations shown are indicative only and are subject to OPW approval.
- All garages are to be setback a minimum of 0.5m behind the main building line.
- Garages in alignment with the main building line may be approved if the dwelling incorporates a verandah or portico which projects forward from the main face of the dwelling.
- Any built to boundary wall shall be for non–habitable rooms (i.e. garage, storage) only.
- Walls built to boundary shall have an average height of 3.0m, with a maximum of 3.5m at any one point.
- For corner allotments the secondary frontage of the site is deemed to be the frontage which fronts the lower order road or, if both roads are of the same order, the second frontage is the frontage of greater dimension.
- Dwellings on corner allotments are to address both street frontages.
- Porches and verandahs that are less than 3.6m high may encroach no more than 2m into the front setback.
- Privacy considerations:
  - Habitable room windows do not directly face:
    - A habitable room window of another building within 10m; or
    - an access way, footpath, or communal open space area within 3m.
  - OR
  - Habitable room windows:
    - Have a fixed obscure glazing in any part of the window below 1.5m above floor level; or
    - Have privacy screens that cover a minimum of 50% window view.
  - Note: 'directly face' means an angle within 45° either horizontally or vertically.

Landscaping for Small Lots

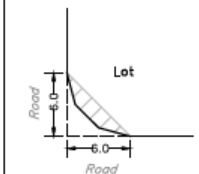
- For all dwellings on lots sized less than 400m², the frontage setback area must include a garden area of minimum 10m² which contains a minimum 1 tree in 45 litre bag size and shrub and groundcover planting. Garden preparation, edging, staking, mulching and installation methods must be as per Council's City Plan Policy – Landscape Work. Where a 3 metre separation between the tree and building foundations is not possible, root barrier must be installed to manufacturer's specifications.

Side Setbacks Table

Road Frontage (in metres)	Side Boundary Clearances (in metres)	
	4.5 or less	4.5 to 7.5
14.501-15.0	1.425	1.9
14.001-14.5	1.0	1.8
13.501-14.0	1.0	1.7
13.001-13.5	1.0	1.6
13.0 or less	1.0	1.5

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL
Application No: MIN/2020/658
Dated: 25 March 2021
Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

Special siting requirements for corner allotments



NOTE:
Structures in shaded area shall not exceed 2.0m in height

LEGEND
- Site Boundary
- Lots <20m–25m+ depth
- Lots 27m+ depth
- Lots 30m+ depth
- Drainage Lot

Issue	Revision	Int	Date
B	To match proposal plan Rev G	AV	5.07.18
C	To match proposal plan Rev L	AV	6/12/18
D	To match proposal plan Rev P	AV	8.02.19
E	To match proposal plan Rev S	AV	29/03/19
F	To match proposal plan Rev T	AV	21/10/19
G	To match proposal plan Rev V	AV	8.03.21

This plan has been prepared by DTS as a proposal plan and should not be used for any other purpose. The information contained on this plan is approximate only, has not been verified and may be subject to change. The intellectual property on this plan remains the property of DTS.

Locality Plan
Scale 1:2000

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Plan of Development
Lot 4 Dalma Street, Ormeau Hills

SCALE 1:2000
20 0 20 40 60 80 100

Description	Lot 4 on RP883725	Project	BNE180307
Local Authority	Gold Coast City Council	File	B180307Sk1.dwg
Client	Goodrock Property Pty Ltd	Date	8/03/2021
		Drawing	A3 5568
		Revision	G
		Sheet	1 of 3

Figure 2: Proposed Development

Current Bushfire Hazard Mapping

A review of Gold Coast City Councils (GCCC) Bushfire Hazard Overlay Mapping, revealed the site is mapped as containing patched of High and Medium Potential Bushfire Hazard, and Potential Impact Buffer areas (**Figure 3**).

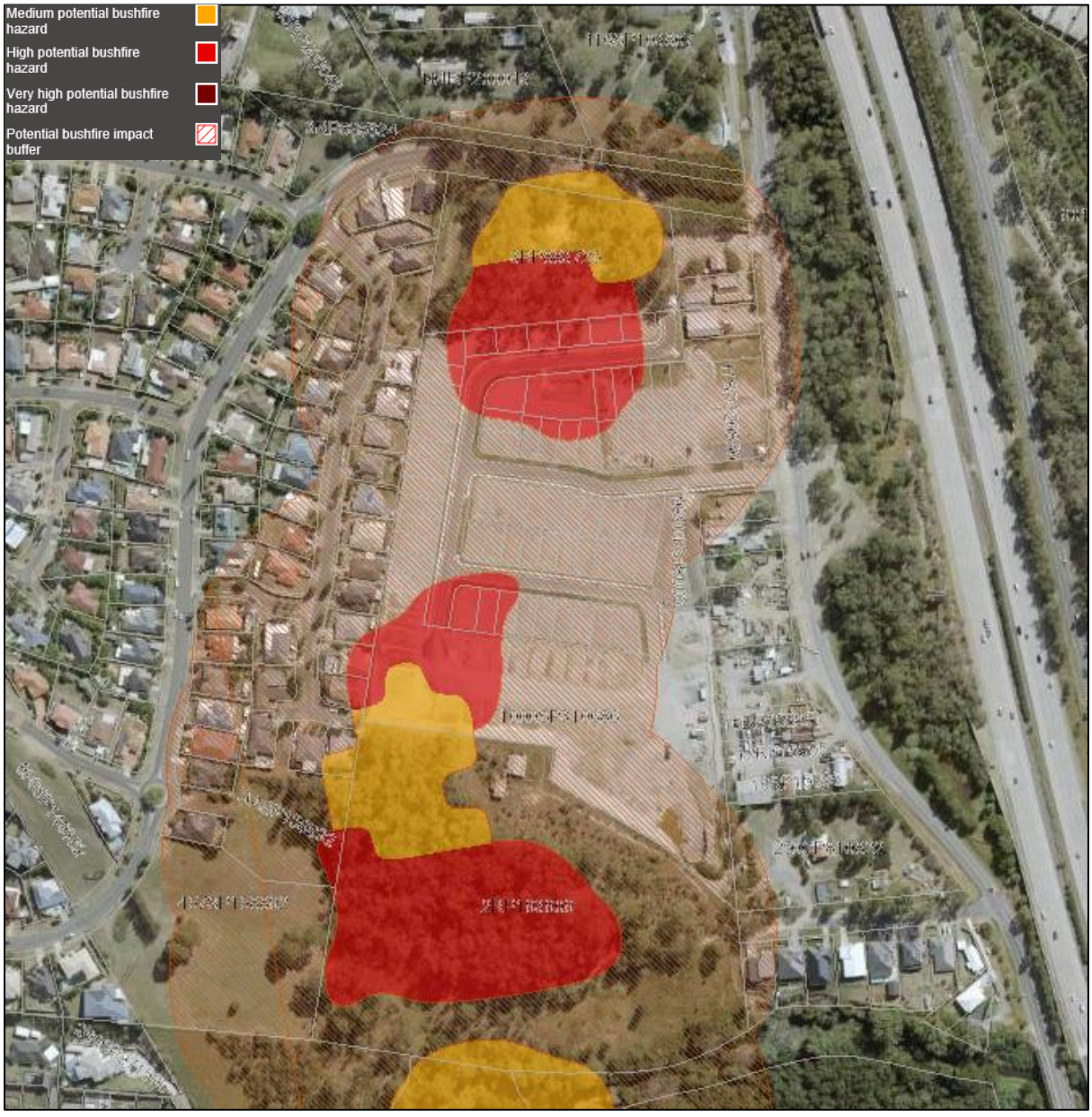

Figure 3: Bushfire Hazard Overlay Mapping

Potential Bushfire Hazard

It is understood the majority of site vegetation is to be removed as part of the proposed development, and subsequently is not considered further in this assessment.

Previous quantitative assessment of Bushfire Hazard undertaken in January 2016, and applying the methodology as detailed in the State Planning Policy 1/03 Guideline – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide (SPP 1/03 Guideline), determined a Medium Potential Bushfire Hazard

posed to the subject site by adjacent vegetation to the northwest and to the south. A further qualitative assessment subsequently determined that the potential for a bushfire (i.e. wildfire) to impact on the proposed development was consequently considered to be Low, due to limited patch extent and limited fire-runs to the subject site. No change to this bushfire hazard assessment outcome is considered necessary due the nature of potentially hazardous vegetation adjacent the site.

It is however, deemed appropriate to re-assess the required Bushfire Attack Level assessment in accordance with the *Australian Standard-3959 (2018) - Construction of buildings in bushfire-prone areas* due to the amended site layout plan, and recent refinements in the application of the AS3959-2018 since the approved assessment has occurred. The result is a re-assessment of the Bushfire Attack Level (BAL) and building construction standards, for the proposed development. This is detailed in the following section with regard to assessable vegetation observed to the west and south of the proposed Lots 101 & 102.

Bushfire Attack Level Assessment

Australian Standard 3959 (2009) Construction of buildings in bushfire-prone areas provides minimum construction standards for new dwellings in designated Bushfire Prone Areas. The construction standards are intended to improve the performance of buildings subjected to burning debris, radiant heat or flame contact. The AS3959- 2018 methodology prescribes Bushfire Attack Levels (BAL's) to the facades of proposed buildings to which corresponding construction safety standards are applied. AS3959-2018 defines Bushfire Attack Levels as:

> *'A means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kilowatts per metre squared, which is the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire.'*

In accordance with the Australian Standard – *Construction of Buildings in Bushfire-prone Areas* (AS 3959, 2018), an assessment of the required construction standards for the proposed development has been undertaken based on the potential Bushfire Hazard to the west and south of the proposed Lots 101 & 102.

It is noted that the vegetation to the northwest has been classified as Low Threat as per the Exclusions for Low Threat Vegetation in the AS-3959, being '*less than 1ha and not within 100m of other areas of vegetation being classified*'. Potentially hazardous vegetation to the south is approximately 2ha in area, and is consequently assessed in **Table 1** below.

This assessment has been based on the following assumptions:

- A Fire Danger Index (FDI) of 53 (QFES 2021);
- Proposed development will be located in the layout as represented in **Figure 2**.
- Adjacent assessable vegetation community to the south has been classified as Woodland as per the AS 3959 – 2009;
- Fuel load calculations (Method 2 BAL) for potentially hazardous vegetation to the west and south of the proposed Lots 101 & 102 has been determined as reflective of '*Class 9.2 Moist to dry eucalypt woodland on coastal lowlands and ranges*' with fuel load of 17.2t/ha.

- Effective slope under potentially hazardous vegetation is downslope at a <5 degrees to the west and south of the proposed Lots 101 & 102.
- For the purpose of this assessment, setback of the proposed development to potentially hazardous vegetation to the south is understood to be maintained at ~18m.
- Additional parameters applied are detailed in the following table.

Table 1 - Determination of Site BAL – Potentially Hazardous Vegetation to the South Lots 101 & 102

Calculated November 11, 2021, 8:25 am (MDc v.4.9)

Dalma Street, Ormeau Hills - west and south of the proposed Lots 101 & 102

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	53	Rate of spread	1.33 km/h
Vegetation classification	Woodland	Flame length	10.76 m
Understorey fuel load	14.9 t/ha	Flame angle	55 °, 65 °, 73 °, 77 °, 78 ° & 85 °
Total fuel load	17.2 t/ha	Elevation of receiver	3.94 m, 4.25 m, 4.24 m, 3.99 m, 3.79 m & 1.99 m
Vegetation height	n/a	Fire intensity	11,890 kW/m
Effective slope	5 °	Transmissivity	0.88, 0.865, 0.844, 0.823, 0.8120000000000001 & 0.75
Site slope	3 °	Viewfactor	0.5943000000000001, 0.4369, 0.2938, 0.1985, 0.1614 & 0.0436
Flame width	60 m	Minimum distance to < 40 kW/m²	8.699999999999999 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	11.8 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	17.1 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	23.9 m

In accordance with AS 3959 (2018), the required Bushfire Attack Level for the proposed development on the subject site has been determined. Based on this assessment, the proposed development is potentially subject to a Maximum Bushfire Attack Level (BAL) of **BAL-19.**

Subsequently, the required BAL's for construction within individual Lots of the proposed development have been determined, and are summarised as follows:

- **BAL-19**: Lots 101 & 102 (refer Sections 3 & 6 in the AS3959-2018);

The nominated construction standards should be reviewed by an experienced consultant/designer at the time of detailed building design. Should the proposed site layout or vegetation setbacks identified above change, this may alter the determination of the required BAL.

Conclusion

An addendum to the approved Bushfire Hazard Assessment for the proposed development has been undertaken based on a revised subdivision layout plan.

An amendment to the previously determined Bushfire Attack Level requirements of the proposed development has been undertaken with respect to Lots within 100m of the assessable vegetation to the west and south of proposed Lots 101 & 102. BAL ratings for individual Lots has been provided.

Important Note:

It should be noted that this Bushfire Attack Level Assessment (BAL) has been determined based on site conditions at the time of writing, the identified setbacks being achieved, and utilising current best-practice assessment methodologies as detailed. These methodologies are not able to factor in and predict catastrophic bushfire events. Bushfires are intrinsically unpredictable, and no guarantee is able to be provided or should be assumed that the area will not be affected by bushfire at some time.

Bushfires are an intrinsic part of Australia's environment, are often unpredictable, and have potentially extremely serious consequences. Regardless of the results of this assessment, owners should be aware of the unpredictability of Bushfire in the landscape, and the need to be bushfire aware and prepared for extreme events.

All Queenslanders should be familiar with the official Bushfire Warnings system and have a completed Bushfire Survival Plan. Print ready guides for preparing a Bushfire Survival Plan and to assist in the interpretation of the official Bushfire Warnings system are available for download from the Rural Fire Service Queensland website – https://ruralfire.qld.gov.au/bushfires/.

There are three formal Bushfire Warning levels:

Advice

Monitor conditions and review your bushfire survival plan.

Watch and act

Conditions are changing. Start taking action and follow your bushfire survival plan.

Emergency Warnings

You are in danger. Act on your bushfire survival plan now.