

Bushfire Attack Level (BAL) Assessment Report

Site details	
Address: Stage 5A Claravale The Brook Estate	
Suburb: Hilbert	State: Western Australia
Local Government Area: City of Armadale	
Description of Building Works: Class 1a dwellings	

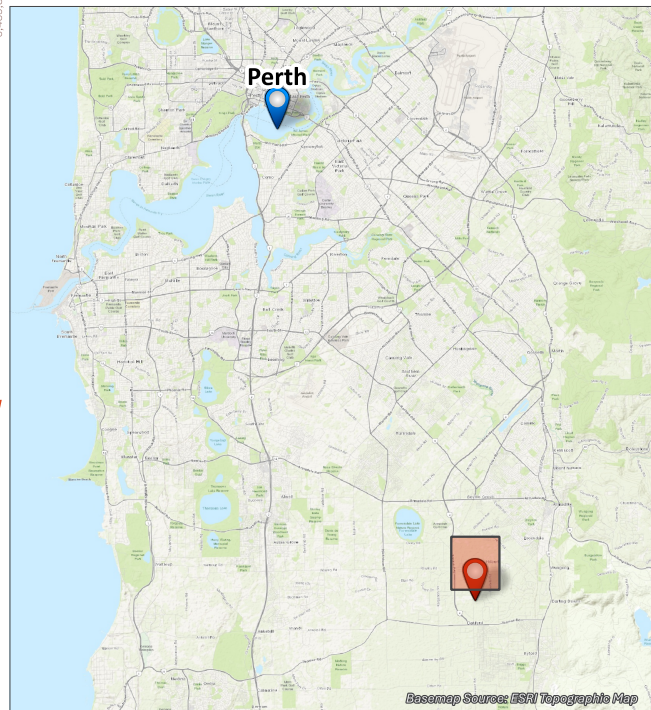
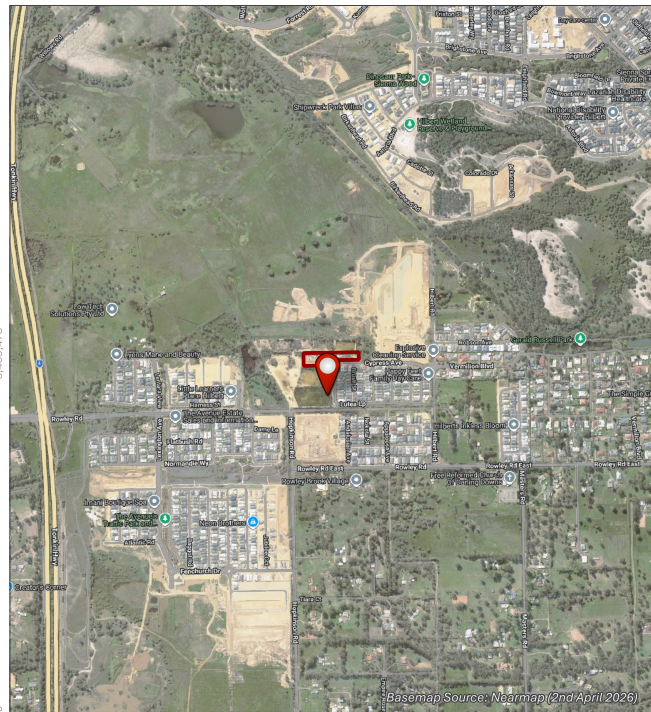
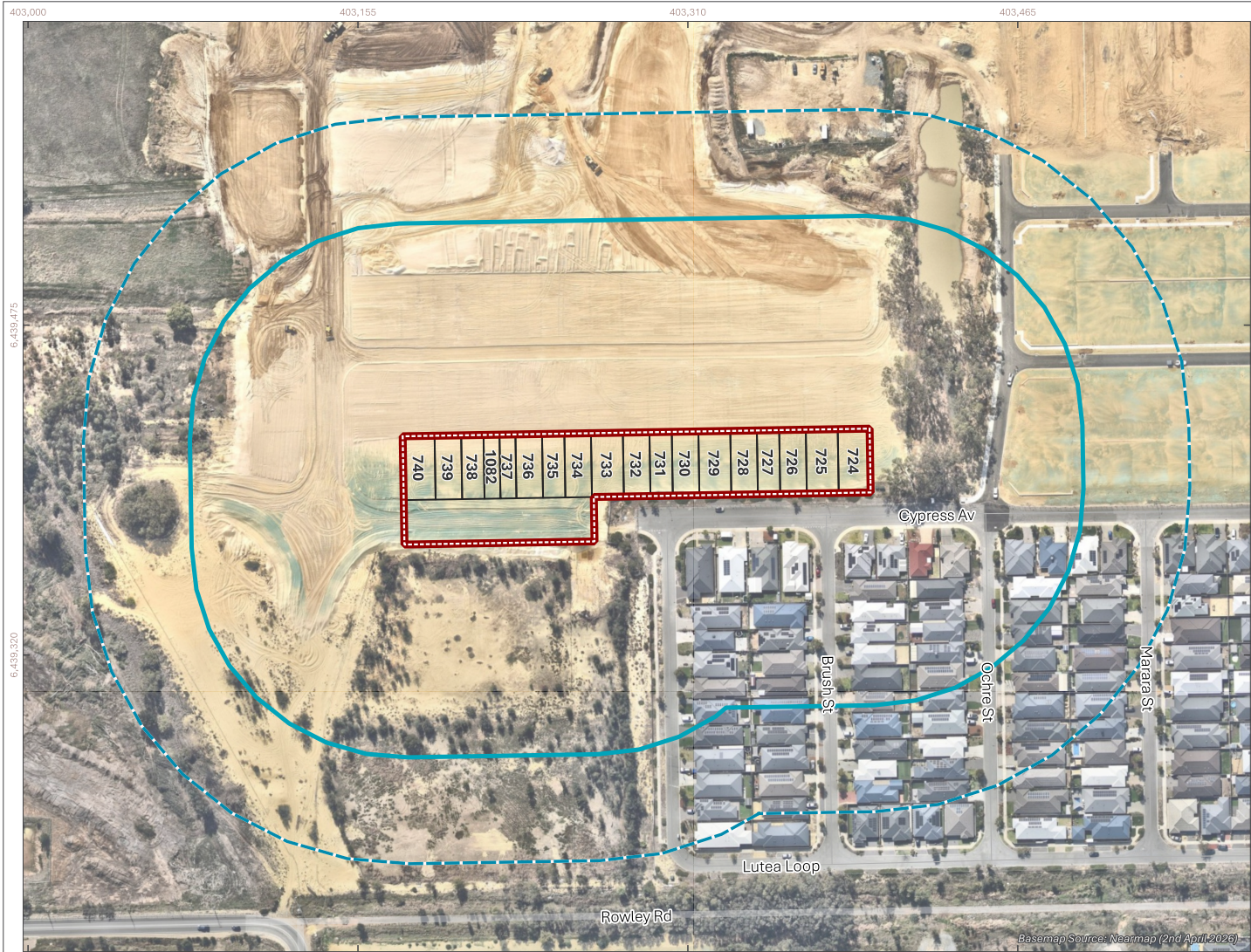
Report details			
Project number	A23.118	Report version	0
Assessment date	14/08/2026	Report date	27/08/2026
Author	Callan Baker Graduate Bushfire Consultant	Review	Daniel Panickar BPAD L3 - 37802 

Site Assessment and Site Plan

The assessment of 18 lots (subject lots) within Stage 5A of Claravale The Brook Estate in Hilbert (subject site) was undertaken on 14/08/2026 for the purpose of determining the Bushfire Attack Level (BAL) in accordance with *Australian Standard AS 3959: 2018 Construction of Buildings in Bushfire Prone Areas* (AS 3959: 2018; SA, 2018) Simplified Procedure (Method 1). An overview of the subject site is presented in Figure 1.

Vegetation Classification

All vegetation within 100 m of the subject site was classified in accordance with Clause 2.2.3 of AS 3959: 2018. Each distinguishable vegetation class with the potential to determine the BAL is identified in Table 1 and presented in Figure 2.



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0 25 50 75 100 m

COORDINATE REFERENCE SYSTEM:
GDA2020 / MGA zone 50

SCALE: PROJECT NUMBER:
1:3,100 A23.118

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North Arrow

Figure 1.1: Site Overview

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Table 1: Vegetation Classification

Plot 1	Class F Rainforest
Photo 1 Existing trees which have been retained as part of the approved Landscape Plan (Appendix A) for the subject site. This vegetation has been classified in accordance with its assumed mature state informed by the Landscape Plan. The Class F Rainforest classification was agreed upon between the bushfire planning practitioner and the City of Armadale (the City) given the City’s desire for the vegetation in the Public Open Space (POS) reserve to be classified as Class B Woodland or Class A Forest. Given the linear nature of the reserve, Class B Woodland and Class A Forest likely overestimate bushfire risk posed to surrounding lots and, as such, Class F Rainforest has been adopted as a more realistic model of bushfire behaviour associated with the proposed vegetation. Although Class A Rainforest vegetation does not typically occur with Western Australia, this methodology aligns with the Rural Fire Service’s <i>Planning for Bush Fire Protection</i> (RFS, 2019). This approach is detailed further in the rainforest technical note (Appendix B).	
Plot 1	Class F Rainforest
Photo 2 Existing trees which have been retained as part of the approved Landscape Plan (Appendix A) for the subject site. This vegetation has been classified in accordance with its assumed mature state informed by the Landscape Plan. The Class F Rainforest classification was agreed upon between the bushfire planning practitioner and the City of Armadale (the City) given the City’s desire for the vegetation in the Public Open Space (POS) reserve to be classified as Class B Woodland or Class A Forest. Given the linear nature of the reserve, Class B Woodland and Class A Forest likely overestimate bushfire risk posed to surrounding lots and, as such, Class F Rainforest has been adopted as a more realistic model of bushfire behaviour associated with the proposed vegetation. Although Class A Rainforest vegetation does not typically occur with Western Australia, this methodology aligns with the Rural Fire Service’s <i>Planning for Bush Fire Protection</i> (RFS, 2019). This approach is detailed further in the rainforest technical note (Appendix B).	

Plot 2**Excluded - clause 2.2.3.2 (a)**

Photo 3 This area of classifiable vegetation is located beyond 100 m from the subject lots and has therefore been excluded under clause 2.2.3.2 (a) of AS 3959:2018.

**Plot 3****Excluded - clause 2.2.3.2 (e)****Photo 4**

Road access to the site via Cypress Avenue. This area is completely devoid of vegetation. This plot has been excluded under clause 2.2.3.2 (e) of AS 3959:2018.

**Plot 3****Excluded - clause 2.2.3.2 (e)****Photo 5**

Areas southwest of the subject site cleared for development and is devoid of vegetation. This plot has been excluded under clause 2.2.3.2 (e) of AS 3959:2018.



Plot 3**Excluded - clause 2.2.3.2 (e)****Photo 6**

Houses with associated low-threat gardens and roads which are devoid of vegetation adjacent to the subject lots. This plot has been excluded under clause 2.2.3.2 (e) of AS 3959:2018.

**Plot 4****Excluded - clause 2.2.3.2 (f)****Photo 7**

This area of vegetation has been retained west of the subject site. This vegetation is of a small patch size and low fuel load and considered to pose a low threat of bushfire to the subject site.

These vegetated areas have been excluded in accordance with Clause 2.2.3.2 (f) of AS 3959: 2018.





Figure 1.2: Pre-Development Vegetation Classification

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0 20 40 60 80 m

COORDINATE REFERENCE SYSTEM:
GDA2020 / MGA zone 50

SCALE: **1:2,900** PROJECT NUMBER: **A23.118**

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-  Subject Site
-  Buffer 100m
-  Buffer 150m
-  Classification Determined by the Landscape Plan

-  Photo location
- Contours (DPIRD-072)**
-  2m

Vegetation Classification

-  Class F - Rainforest
-  Excluded AS 3959: 2018 2.2.3.2 (a)
-  Excluded AS 3959: 2018 2.2.3.2 (e)
-  Excluded AS 3959: 2018 2.2.3.2 (f)

Relevant Fire Danger Index

The Fire Danger Index for this site has been determined in accordance with Table 2.1 of AS 3959: 2018 and is presented in Table 2.

Table 2: Fire Danger Index (FDI)

Relevant Fire Danger Index			
FDI 40 ☐	FDI 50 ☐	FDI 80 ☒	FDI 100 ☐
Table 2.4.5	Table 2.4.4	Table 2.4.3	Table 2.4.2

Potential Bushfire Impacts

The potential bushfire impact to the subject site / proposed development from each of the identified vegetation plots are identified below in Table 3.

Table 3: Method 1 BAL Calculation (BAL Contours)

Plot	Vegetation classification	Effective slope	Separation distances required (m)				
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
1	Class F Rainforest	All upslopes and flat land (0 degrees)	<6	6 - <9	9 - <13	13 - <19	19 - <100
2	Excluded - clause 2.2.3.2 (a)	-	No separation distances required - BAL-LOW				
3	Excluded - clause 2.2.3.2 (e)	-	No separation distances required - BAL-LOW				
4	Excluded - clause 2.2.3.2 (f)	-	No separation distances required - BAL-LOW				

Determined Bushfire Attack Level (BAL)

The determined Bushfire Attack Level (highest BAL) for the proposed works has been determined in accordance with Clause 2.2.6 of AS 3959: 2018. Relevant data from the subject site assessment is shown in Figure 3 and Table 4.

Table 4: BAL Assessment Summary

Affected Lot	BAL Rating	Construction sections to be consulted in AS 3959: 2018
724	BAL-12.5	3 and 5
725	BAL-12.5	3 and 5
726	BAL-12.5	3 and 5
727	BAL-12.5	3 and 5
728	BAL-12.5	3 and 5
729	BAL-12.5	3 and 5
731	BAL-LOW	4
732	BAL-LOW	4
733	BAL-LOW	4
734	BAL-LOW	4
735	BAL-LOW	4
736	BAL-LOW	4
737	BAL-LOW	4
738	BAL-LOW	4
739	BAL-LOW	4
740	BAL-LOW	4
1082	BAL-LOW	4

Note: This BAL rating is based on the information current at the date of this document and is valid for 12 months.

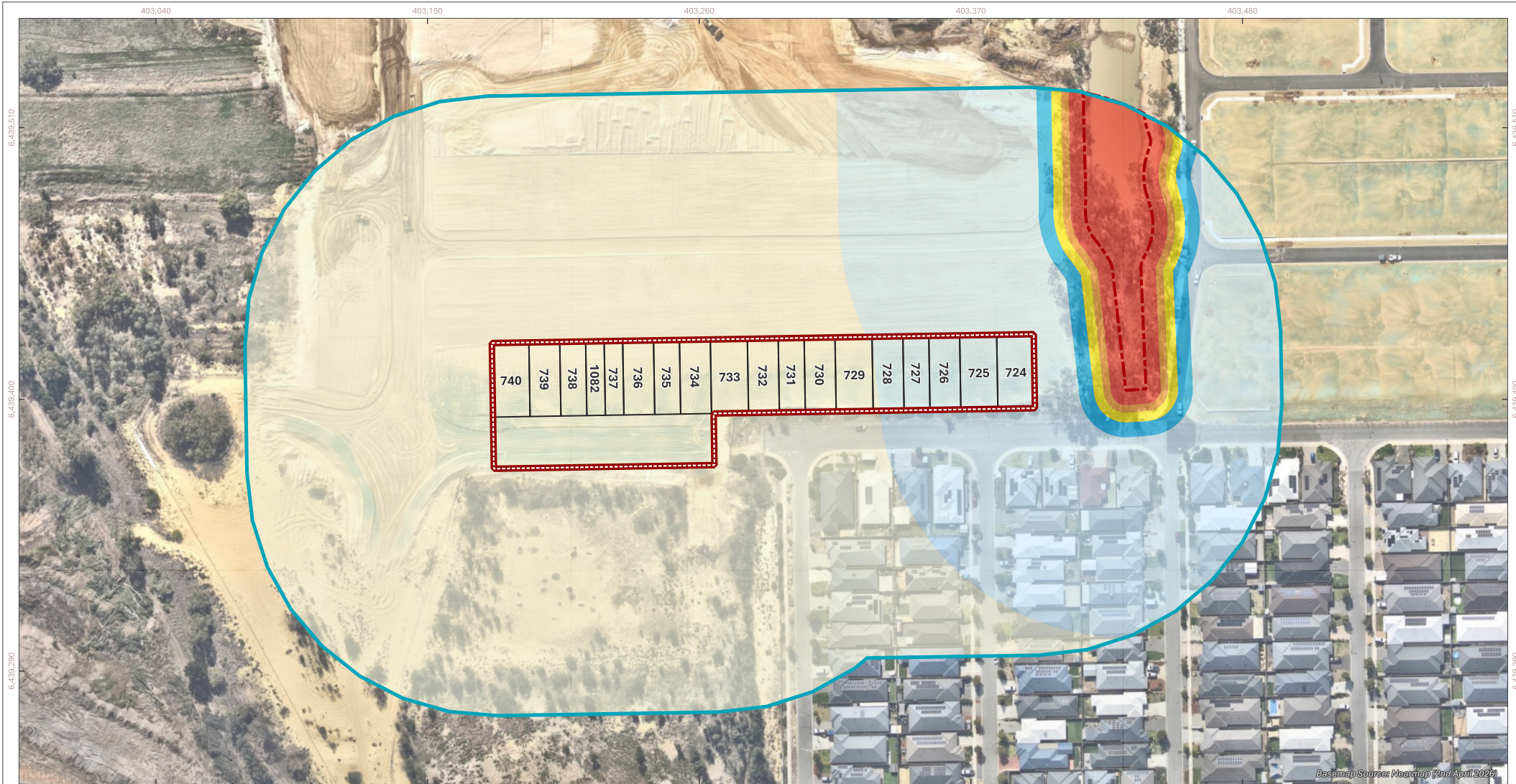


Figure 1.3: Bushfire Attack Level (BAL) Contours

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0 15 30 45 60 m

COORDINATE REFERENCE SYSTEM:
GDA2020 / MGA zone 50

SCALE: 1:2,200 PROJECT NUMBER: A23.118

DRAWN BY / REVIEWED BY: SM / CB 26/8/2026

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- Subject Site
- Buffer 100m
- Lot boundary
- Bushfire hazard interface

Bushfire Attack Level (BAL)

- BAL-FZ
- BAL-40
- BAL-29
- BAL-19
- BAL-12.5
- BAL-LOW

Appendix A: Landscape Plan

Appendix B

Rainforest Classification

Drainage basin areas are intended to be planted with a mixture of native species as per the landscape plan in Appendix A. This structure could be considered low threat vegetation; however the City of Armadale has expressed the desire to plant trees within these areas in the future. As such, a detailed review of the structure, shape and size of these basins has been considered below.

The revegetated areas of the basins form a sinuous pattern in the landscape, presenting as a living stream that runs parallel to proposed lots. The restricted size and parallel orientation of the basins to proposed lots will likely limit bushfire behavior and associated risk to proposed built assets. Therefore, the vegetation classification of the basins needs to consider this reduced bushfire threat.

Western Australia does not currently have a consistent approach to classifying small areas of remnant bushland and narrow vegetation corridors outside of AS 3959: 2018. However, NSW RFS (2019) and ACT Government (2023) outline a clear and well-thought-out simplified methodology for assessing these areas. This simplified approach provides an acceptable method for assessing remnant vegetation (defined as a parcel of vegetation with a size of less than 1 ha or a shape that provides a potential fire run that could threaten buildings not exceeding 50 m). The second definition relates to riparian corridors etc. that are <50 m wide. These areas are considered a low hazard and can be classified as Class F Rainforest under AS 3959: 2018. CFA (2017) supports this ‘low hazard’ categorisation and states, *‘riparian land can be expected to have only a limited influence on bushfire spread at a landscape scale. In addition, if spotting is limited, a fire burning in a forested riparian area is expected to be slower and therefore less likely to contribute to fire spread at a landscape scale than a fire burning in grass or crops.’*

The Class F Rainforest classification in AS 3959: 2018 uses the same rate of spread model as is used for Class A Forest and Class B Woodland classifications, with a modified (reduced) fuel load that results in a slower rate of spread and consequently, lower radiant heat flux impacts. Given the restricted size and parallel orientation of the basins to proposed lots, a Class F Rainforest classification in line with the approach outlined in NSW RFS (2019) and ACT Government (2023) is considered appropriate for use at The Brook, Claravale.

Appendix C:

Additional Information / Advisory Notes

This assessment was undertaken as per AS 3959: 2018. It is important that the current version of AS 3959, is consulted for construction purposes.

This BAL rating is based on the information current at the date of this letter and is valid for 12 months from the date of this letter.

Bushfire Attack Level (BAL) as set out in the *Australian Standard 3959 Construction of Buildings in Bushfire-Prone Areas* (AS 3959), as referenced in the Building Code of Australia.

Bushfire Attack Level (BAL)	Classified vegetation within 100 m of the subject site and radiant heat flux exposure thresholds	Description of predicted bush fire attack and levels of exposure	Construction Section as per AS 3959
BAL-LOW		There is insufficient risk to warrant specific construction requirements.	4
BAL-12.5	$\leq 12.5 \text{ kW/m}^2$	Ember attack	3 and 5
BAL-19	$> 12.5 \text{ kW/m}^2 \leq 19 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux.	3 and 6
BAL-29	$> 19 \text{ kW/m}^2 \leq 29 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux	3 and 7
BAL-40	$> 29 \text{ kW/m}^2 \leq 40 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux with the increased likelihood of exposure to flames.	3 and 8
BAL-FZ	$> 40 \text{ kW/m}^2$	Direct exposure to flames from fire front in addition to radiant heat flux and ember attack	3 and 9

Source: "AS 3959: 2018 Construction of buildings in bushfire-prone areas" published by Standards Australia, Sydney.