

Richard Noble
Bushfire Attack Level (BAL) Compliance Report
Stage 6 Cygnia Cove (Cygnus Parade), Waterford

11 March 2020
58235/127,528 (Rev 0)
JBS&G Australia Pty Ltd T/A Strategen-JBS&G

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Appendices

- Appendix A BAL certificates
- Appendix B Proposed low threat landscaping areas
- Appendix C Vegetation plot photos and description

1. Introduction

1.1 Site/development summary

Table 1 provides a summary of the site and proposed development. The development layout and subject lots are shown in Figure 1 and Figure 2.

Table 1: Site/development summary

Site details	
Address details	Stage 6 Cygnia Cove (including Lots 263–269 and 276–282), Cygnus Parade, Waterford WA 6152
Local government area	City of South Perth
Description of building works	Construction of a single residential dwelling (Class 1a building and associated Class 10a building/s) within each lot

1.2 Purpose of report

This Bushfire Attack Level (BAL) compliance report has been prepared for 14 residential lots within Stage 6 Cygnia Cove (hereafter referred to as the project area). This report provides a post-subdivisional works update of the Bushfire Attack Level (BAL) ratings for individual lots within the project area and has been prepared for the benefit of the developer, future lot purchasers and decision makers. BAL certificates for each individual lot (contained in Appendix A) have been prepared based on the final site compliance check and are appended to this report for use at the building permit stage.

The BAL assessment outlined in this report is the most up to date assessment from Strategen-JBS&G relating to the project area and has been prepared in consideration of the previous Strategen (2018) BAL contour assessment documented in the Bushfire Management Plan (BMP) prepared to accompany the subdivision application stage of the development. The approach for preparation of this BAL compliance report is consistent with Section 4.2 and Appendix 3 of *Guidelines for Planning in Bushfire Prone Areas* (the Guidelines; WAPC 2017).

A portion of the proposed development is designated as bushfire prone on the *Map of Bush Fire Prone Areas* (DFES 2020, see Plate 1).

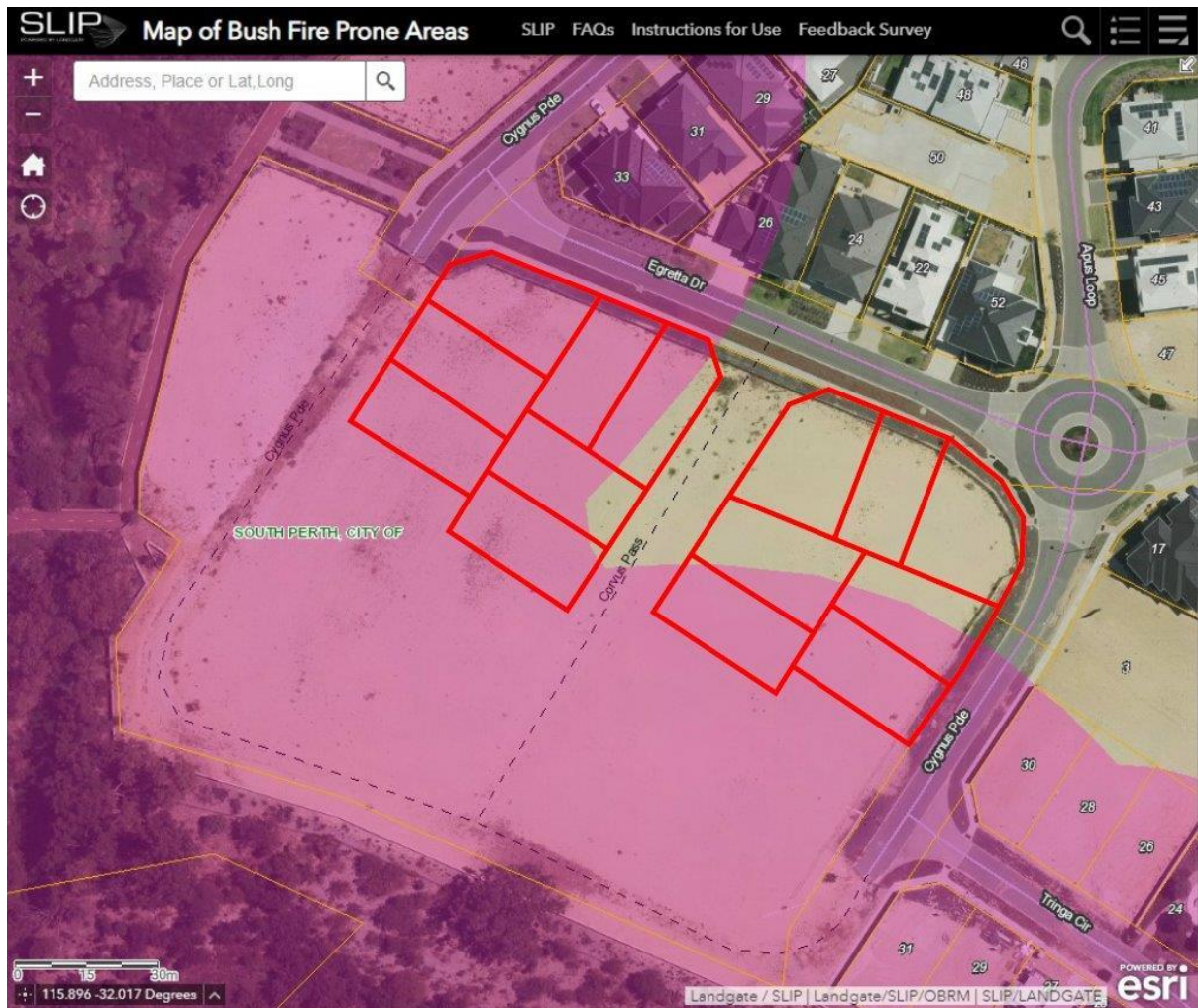


Plate 1: Map of Bush Fire Prone Areas (DFES 2020)

2. Bushfire assessment results

2.1 Assessment inputs

2.1.1 Vegetation classification

Strategen-JBS&G assessed classified vegetation and exclusions within the 150 m assessment area through on-ground verification on 10 February 2020 in accordance with AS 3959—2018 *Construction of Buildings in Bushfire-Prone Areas* (AS 3959; SA 2018) and the *Visual Guide for Bushfire Risk Assessment in Western Australia* (DoP 2016). Georeferenced site photos and a description of the vegetation classifications and exclusions are contained in Appendix C and depicted in Figure 1.

Site observations indicate that the vegetation classifications differ from post-development vegetation classifications determined by the endorsed BMP (Strategen 2018), which is a result of understorey regrowth from a seedbank that was not identified during the original inspection in September 2018. The adjustment in vegetation classifications has not resulted in any increase to the BAL ratings for the subject lots. The following plots of classified vegetation exist within the adjacent 150 m of land surrounding the project area:

- Class B woodland to the west of the project area consisting of eucalypts with a grassy understorey and lack of shrubby middle layer
- Class D scrub to the south and west of the project area consisting of melaleuca with acacia and sparse sheoak. The majority of this plot is scrub regrowth which, at maturity, will have a continuous vertical fuel profile less than 6 m in height. Established portions of this plot comprise a dense melaleuca thicket to the east of the project area.
- Class G grassland to the south, southeast and northwest of the project area consisting of unmanaged wetland grasses greater than 10 cm in height.

Areas within the 150 m assessment area that are excluded from classification include the following:

- non-vegetated areas (i.e. footpaths, buildings, roads, mulched verges, water bodies, playgrounds, driveways, cleared vacant lots) excluded under Clause 2.2.3.2 (e); and low threat managed vegetation (i.e. manicured lawns, street trees, managed gardens, ground cover verge planting) excluded under Clause 2.2.3.2 (f).

Strategen-JBS&G understands that all proposed landscaping and streetscaping (refer to areas marked green in Appendix B) will be implemented and maintained to achieve exclusion under Clause 2.2.3.2 (f), consistent with the assumptions made in the endorsed BMP, comprising the following:

- low groundcovers/dense woodchip mulch with a plant height of less than 10 cm at maturity
- sparse streetscape trees, isolated clumps of shrub planting and groundcovers, irrigated and interspersed with heavy mulch.

2.1.2 Effective slope

Strategen-JBS&G assessed effective slope under classified vegetation within the 150 m assessment area through on-ground verification on 10 February 2020 in accordance with AS 3959. Results were cross-referenced with DPIRD 2 m contour data and are depicted in Figure 1.

Site observations indicate that effective slope under the classified vegetation aligns with the effective slopes identified within the endorsed BMP (Strategen 2018). All classified vegetation occurs on land that is either flat or upslope in relation to the project area.

2.1.3 Summary of inputs

Figure 1 illustrates the current post-development vegetation classifications and exclusions observed during the site inspection. The vegetation classifications/exclusions and effective slope are summarised in Table 2.

Table 2: Summary of vegetation classifications, exclusions and effective slope

Vegetation plot	Vegetation classification	Effective slope	Comments
1	Class B Woodland	Flat/upslope (0°)	Woodland vegetation dominated by eucalypts with a grassy understorey and lack of shrubby middle layer.
2	Class D Scrub	Flat/upslope (0°)	Scrub vegetation dominated by melaleuca with acacia and sparse sheoak. The majority of this plot is scrub regrowth which, at maturity, will have a continuous vertical fuel profile less than 6 m in height. Established portions of this plot comprise a dense melaleuca thicket to the east of the project area.
3	Class G Grassland	Flat/upslope (0°)	Unmanaged wetland grasses greater than 10 cm in height.
4	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Non-vegetated areas (i.e. footpaths, buildings, roads, mulched verges, water bodies, playgrounds, driveways, cleared vacant lots) and low threat managed vegetation (i.e. manicured lawns, street trees, managed gardens, ground cover verge planting).



Legend:

- Project area
- 100m assessment area
- 150m assessment area
- Cadastral boundary
- Proposed lot boundaries
- Topographic contours (mAHd)
- Photo point and direction

- Vegetation classification**
- Class B Woodland
 - Class D Scrub
 - Class G Grassland
 - Clause 2.2.3.2 (e) & (f)
 - Roads (MRWA)

Scale 1:2,500 at A4



Coord. Sys. GDA 1994 MGA Zone 50



Job No: 58235

Client: Richard Noble

Version: A

Drawn By: jcrute

Date: 28-Feb-2020

Checked By: CT

**Stage 6 Cygnia Cove
Waterford, WA**

**VEGETATION CLASSIFICATION
AND EFFECTIVE SLOPE**

FIGURE 1



2.2 Assessment outputs

2.2.1 Bushfire Attack Level (BAL) contour assessment

Strategen-JBS&G has undertaken a BAL contour assessment in accordance with Method 1 of AS 3959 for the project area (Figure 2). The Method 1 procedure incorporates the following factors:

- state-adopted FDI 80 rating
- vegetation classification
- effective slope
- distance maintained between proposed development areas and the classified vegetation.

The BAL contours are based on the current on-ground site conditions. The results of the BAL contour assessment are detailed in Table 3 and illustrated in Figure 2.

Three of the lots within the project area, outlined below, are not situated within a designated bushfire prone area (as per the state Map of Bush Fire Prone Areas; see Plate 1) and therefore do not require formal bushfire risk/BAL consideration at the building stage, nor formal assessment or application under AS3959. As such, BAL assessment does not apply to the following lots and BAL certificates have not been prepared:

- Lot 265 Cygnus Parade and Lots 266–267 Egretta Drive.

Table 3: BAL contour assessment results

Method 1 BAL determination						
Lot	Designated bushfire prone	Vegetation plot	Vegetation classification	Effective slope	Separation distance	Highest BAL
263	Yes	2	Class D Scrub	Flat/upslope (0°)	62 m	BAL-12.5
264	Yes	2	Class D Scrub	Flat/upslope (0°)	77 m	BAL-12.5
265	No	Lot is not located within a designated bushfire prone area and therefore no further BAL assessment or bushfire risk consideration is required as part of the building stage				N/A
266	No					N/A
267	No					N/A
268	Yes	2	Class D Scrub	Flat/upslope (0°)	73 m	BAL-12.5
269	Yes	2	Class D Scrub	Flat/upslope (0°)	59 m	BAL-12.5
276	Yes	2	Class D Scrub	Flat/upslope (0°)	58 m	BAL-12.5
277	Yes	2	Class D Scrub	Flat/upslope (0°)	73 m	BAL-12.5
278	Yes	2	Class D Scrub	Flat/upslope (0°)	88 m	BAL-12.5
279	Yes	1	Class B Woodland	Flat/upslope (0°)	86 m	BAL-12.5
280	Yes	1	Class B Woodland	Flat/upslope (0°)	80 m	BAL-12.5
281	Yes	1	Class B Woodland	Flat/upslope (0°)	67 m	BAL-12.5
282	Yes	1	Class B Woodland	Flat/upslope (0°)	53 m	BAL-12.5

2.2.2 BAL certificates

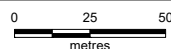
BAL certificates for the subject lots designated as bushfire prone are provided in Appendix A in accordance with the BAL contour assessment results detailed in Table 3. BAL certificates have not been provided for Lots 265, 266 and 267 as these lots are not designated as bushfire prone.



Legend:

 Project area	BAL contours
 100m assessment area	 BAL FZ
 150m assessment area	 BAL 40
 Cadastral boundary	 BAL 29
 Classified vegetation	 BAL 19
 Proposed lot boundaries	 BAL 12.5
 Roads (MRWA)	 BAL Low
● Existing street hydrant	

Scale 1:2,500 at A4



Coord. Sys. GDA 1994 MGA Zone 50



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Stage 6 Cygnia Cove
Waterford, WA

BAL CONTOUR MAP

FIGURE 2



3. Conclusion and recommendations

This BAL compliance report has been prepared for 14 residential lots within Stage 6 Cygnia Cove Estate to provide a final BAL check for individual lots for use at the building permit stage.

Assessment results are consistent with current on-ground conditions. Strategen-JBS&G considers that the BAL contour assessment and BAL certificates outlined in this report are accurate to inform individual lot building permit applications.

Ongoing requirements of the current City of South Perth annual firebreak notice should continue to be implemented as required, particularly with regards to ongoing fuel management of vacant land.

4. References

Department of Fire and Emergency Services (DFES) 2020, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from:
<https://maps.slip.wa.gov.au/landgate/bushfireprone/>, [09/03/2020].

Department of Planning (DoP) 2016, *Visual guide for bushfire risk assessment in Western Australia*, Department of Planning, Perth.

Standards Australia (SA) 2018, *Australian Standard AS 3959–2018 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.

Western Australian Planning Commission (WAPC) 2017, *Guidelines for Planning in Bushfire Prone Areas*, Version 1.3 August 2017, Western Australian Planning Commission, Perth.

5. Limitations

Scope of services

This report ("the report") has been prepared by Strategen-JBS&G in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Strategen-JBS&G. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

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The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. Strategen-JBS&G disclaims responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law of Western Australia as at the date of this report.

Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

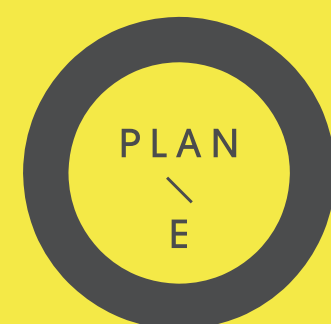
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Appendix B Proposed low threat landscaping areas



LEGEND:

- PROPOSED 200L TREE PLANTING
- EXISTING TREES TO BE RETAINED & PROTECTED DURING CONSTRUCTION.
- GARDEN BED: GROUNDCOVERS
IRRIGATED
MULCH: 75MM IMPORTED MULCH
IMPORTED SOIL
- GARDEN BED: SHRUB PLANTING
IRRIGATED
MULCH: 75MM IMPORTED MULCH
IMPORTED SOIL
- MULCH ONLY:
TYPE: IMPORTED MULCH
DEPTH: 75MM
SUPPLY & INSTALL
- STREET LIGHTS BY OTHERS



SUGGESTED TREE SPECIES OPTIONS



EUCALYPTUS VICTRIX



MELALEUCA LEUCADENDRA

SUGGESTED SHRUB SPECIES OPTIONS



CALLISTEMON HYBRID
'RED ROCKET'



ADENANTHOS SERICEUS
'PENCIL PERFECT'

SUGGESTED GROUNDCOVER SPECIES OPTIONS



BANKSIA PETIOLARIS



JUNIPERUS CONFERTA



HEMIANDRA PUNGENS

Appendix C Vegetation plot photos and description

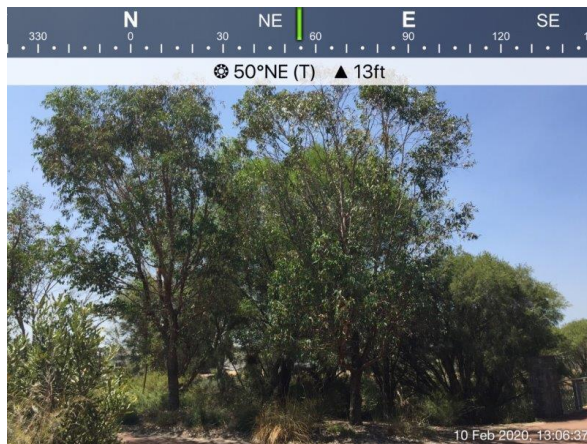


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Photo ID: 1b



Photo ID: 1c

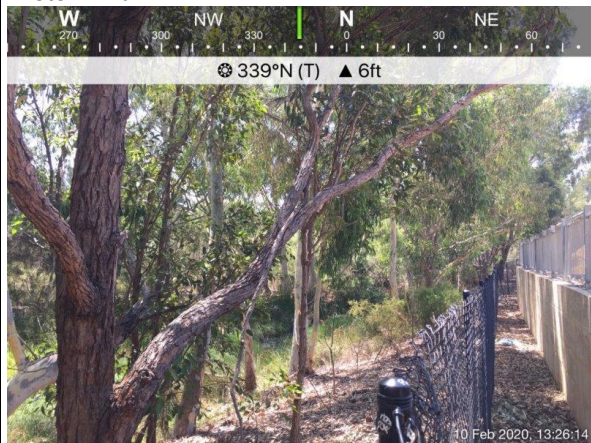


Photo ID: 1d



Photo ID: 1e

Plot number	Plot 1
Vegetation classification	Class B Woodland
Description / justification	Woodland vegetation dominated by eucalypts with a grassy understorey and lack of shrubby middle layer.



Photo ID: 2a



Photo ID: 2b



Photo ID: 2c



Photo ID: 2d



Photo ID: 2e

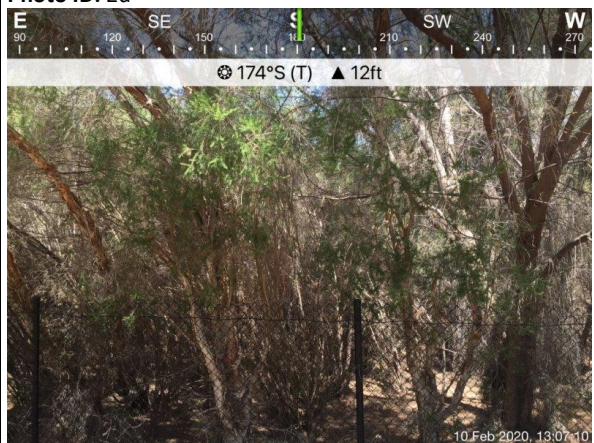


Photo ID: 2f



Photo ID: 2g



Photo ID: 2h



Photo ID: 2i

Plot number	Plot 2
Vegetation classification	Class D Scrub
Description / justification	Scrub vegetation dominated by melaleuca with acacia and sparse sheoak. The majority of this plot is scrub regrowth which, at maturity, will have a continuous vertical fuel profile less than 6 m in height. Established portions of this plot comprise a dense melaleuca thicket to the east of the project area.



Photo ID: 3a



Photo ID: 3b

Plot number	Plot 3
Vegetation classification	Class G Grassland
Description / justification	Unmanaged wetland grasses greater than 10 cm in height.

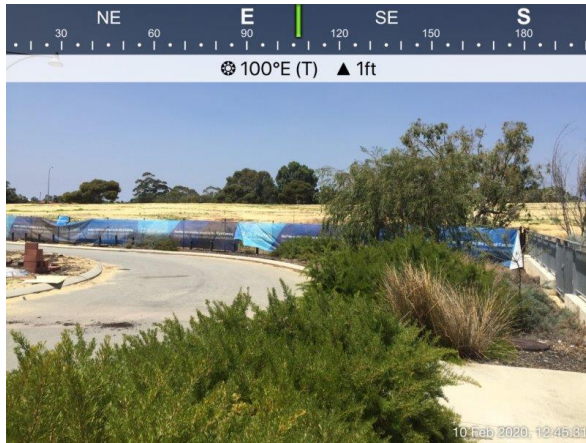


Photo ID: 4a



Photo ID: 4b



Photo ID: 4c



Photo ID: 4d



Photo ID: 4e

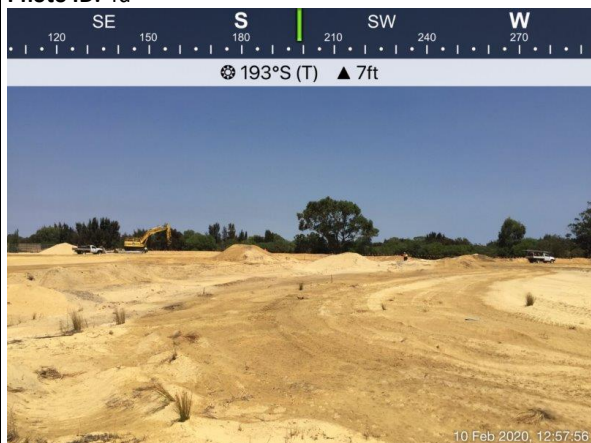


Photo ID: 4f



Photo ID: 4g



Photo ID: 4h



Photo ID: 4i

Plot number	Plot 4
Vegetation classification	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
Description / justification	Non-vegetated areas (i.e. footpaths, buildings, roads, mulched verges, water bodies, playgrounds, driveways, cleared vacant lots) and low threat managed vegetation (i.e. manicured lawns, street trees, managed gardens, ground cover verge planting).

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Document Status

Report version	Rev No.	Purpose	Author	Reviewed and Approved for Issue	
				Name	Date
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