

Richard Noble  
Bushfire Attack Level (BAL) Compliance Report  
20 lots within Stages 8 and 9 Vivente Estate  
Hammond Park, WA

14 February 2022  
61728/ 143,127 (Rev 0)

JBS&G Australia Pty Ltd T/A Strategen-JBS&G

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- Appendix A BAL certificates
- Appendix B Vegetation plot photos and description

## 1. Introduction

### 1.1 Site summary

Table 1 provides a summary of the project area 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	20 proposed residential lots within Stage 8 and 9 at Vivente Estate, Hammond Park WA, 6164
Local government area	City of Cockburn
Description of building works	Construction of single residential dwellings (Class 1a building and associated Class 10a buildings) within each lot

### 1.2 Purpose of report

This Bushfire Attack Level (BAL) compliance report has been prepared for 20 proposed residential lots within Stages 8 and 9 Vivente Estate (hereafter referred to as the project area), comprising 4 lots within Stage 8 and 16 lots within Stage 9.

The project area is designated as bushfire prone on the Map of Bush Fire Prone Areas (DFES 2021, see Plate 1). As such, bushfire risk considerations and BAL assessment are applicable to all proposed lots within the project area and are required to support future building permit applications.

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 has been prepared in consideration of the previous BAL contour assessments documented in the Bushfire Management Plans (BMPs) prepared to accompany the Local Structure Plan (LSP) (Strategen 2015) and LSP amendment (Strategen-JBS&G 2020) for 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).

The BAL assessment outlined in this report is the most up to date Strategen-JBS&G assessment relating to the project area and therefore supersedes any previous Strategen/Strategen-JBS&G assessments undertaken within the project area, including those documented in the following previously prepared reports:

- Fire Management Plan for Barfield Road Local Structure Plan, prepared by Strategen (2015)
- Bushfire Management Plan Amendment for Vivente Estate Structure Plan, including Stages 9 and 10, prepared by Strategen-JBS&G (2020)
- BAL compliance report prepared for Stages 9 and 12 Vivente Estate which excluded the 20 Stage 8 & 9 lots that are the subject of this report (Strategen-JBS&G 2021).

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## 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 20 January 2022 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 photos and a description of the vegetation classifications and exclusions are contained in Appendix B and depicted in Figure 1.

Site observations indicate that the vegetation classifications generally align with the post-development vegetation classifications determined within the endorsed BMPs, except for:

- previously classified Class B Woodland vegetation, as identified in the Structure Plan FMP (Strategen 2015) and Structure Plan Amendment BMP (Strategen-JBS&G 2020), has been reclassified as Class D Scrub in accordance with revisions made to the classification criteria of AS 3959:2018
- roadside clearing along the eastern verge of Barfield Road (refer to drone Photo 1c in Appendix B), which has reduced the level of Class D Scrub along this interface compared to that previously mapped previously within the BMPs.
- implementation of a 20 m wide cleared buffer to the east of the project area in accordance with clearing permit (CPS 7145/1), which has reduced the level of Class D Scrub along this interface compared to that mapped previously within the BMPs.

In addition, low staging threat buffers have been implemented along the north interface (14 m wide) and south interface (16 m) of the project area.

The predominant vegetation classification within the assessment area is Class D Scrub which is identified to the north, east and south of the project area. Class G Grassland is identified within a previously cleared area within the broader Class D Scrub to the north of Stage 9.

All remaining land situated within 150 m of the project area is excluded from classification as a result of subdivisional works, the abovementioned roadside clearing, provision of low threat buffers and ongoing staged development within Vivente Estate and surrounding land. The following exclusions were observed:

- the project area is in a cleared, non-vegetated state in preparation for development and is excluded from classification under Clauses 2.2.3.2 (e) and (f)
- existing non-vegetated and low threat managed land surrounding the project area, including land cleared for future development, existing residential development and low threat managed landscaped areas and staging buffers, excluded under Clauses 2.2.3.2 (e) and (f)
- a narrow strip of vegetation fronting Rowley Road that is less than 20 m wide and not within 20 m of other areas of classified vegetation or the site, excluded under Clause 2.2.3.2 (d)

On-site POS has been excluded under Clause 2.2.3.2 (f) as low threat vegetation due to the fragmentation of the vegetation cells and lack of fuel carrying capacity within the vegetation, as previously adopted by the City and DFES under the approved BMPs for Vivente Estate.

#### 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 20 January 2022 in accordance with AS 3959. Results were cross-referenced with DPIRD 2 m contour data and are depicted in Figure 1.

Site observations show that effective slope under the classified vegetation aligns with the effective slopes identified within the endorsed BMPs with that being an effective slope of flat/upslope (i.e. 0 degrees).

### 2.1.3 Summary of inputs

Figure 1 illustrates the current post-development vegetation classifications and exclusions observed during the 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 D Scrub	Flat/upslope (0°)	Scrub vegetation predominantly 2–6 m in height with a continuous horizontal fuel profile. As shown in Appendix B, Banksia Woodland is the predominant vegetation type.
2	Class G Grassland	Flat/upslope (0°)	Unmanaged grassland vegetation greater than 100 mm in height within a previously cleared area.
3	Excluded – Clause 2.2.3.2 [d]	N/A	Narrow strip of native vegetation less than 20 m wide and not within 20 m of other areas of classified vegetation or the project area.
4	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Existing non-vegetated areas (i.e. roads, buildings, cleared vacant lots, driveways, footpaths) and low threat managed vegetation (i.e. mowed grass, slashed staging buffers, managed gardens/POS, etc). Includes central vegetated POS which has been assessed as low threat due to fragmentation and lack of fuel carrying capacity.





- Legend**
- Project area
  - 100m assessment area
  - 150m assessment area
  - Cadastral boundary
  - Low threat buffer
    - 14m wide
    - 16m wide
  - Vegetation classification
    - Class D Scrub
    - Class G Grassland
    - Clause 2.2.3.2 (d)
    - Clause 2.2.3.2 (e) & (f)
  - Stage boundaries
  - Proposed lots
  - Indicative future subdivisions on adjacent stages
  - Photo point directions
  - Topographic contours (mAH)
  - Roads (MRWA)



Job No: 61728

Client: Richard Noble

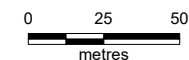
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Date 27/01/2022

Drawn By: cthatcher

Checked By: JC

Scale 1:2,500 at A4



Coord. Sys. GDA 1994 MGA Zone 50

**Stages 8 and 9, Vivente Hammond Park, 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 confirmed during site assessment and results are detailed in Table 3 and illustrated in Figure 2.

**Table 3: BAL contour assessment results**

Lot	Bushfire prone	Vegetation plot	Vegetation classification	Effective slope	Separation distance	Highest BAL	Setback required to achieve lower BAL*	Potential new BAL with setback*
Stage 8								
850	Yes	1	Class D Scrub	Flat/upslope (0°)	14m	BAL-29	5m north (side) setback	BAL-19
851		1	Class D Scrub	Flat/upslope (0°)	28m	BAL-12.5	N/A	
884		1	Class D Scrub	Flat/upslope (0°)	31m	BAL-12.5	N/A	
885		1	Class D Scrub	Flat/upslope (0°)	16m	BAL-29	3m south (side) setback	BAL-19
Stage 9								
852	Yes	1	Class D Scrub	Flat/upslope (0°)	14m	BAL-29	5m rear (north) setback	BAL-19
853		1	Class D Scrub	Flat/upslope (0°)	14m	BAL-29	5m rear (north) setback	BAL-19
854		1	Class D Scrub	Flat/upslope (0°)	14m	BAL-29	5m rear (north) setback	BAL-19
855		1	Class D Scrub	Flat/upslope (0°)	14m	BAL-29	5m rear (north) setback	BAL-19
856		1	Class D Scrub	Flat/upslope (0°)	14m	BAL-29	5m rear (north) setback	BAL-19
857		1	Class D Scrub	Flat/upslope (0°)	14m	BAL-29	5m rear (north) setback	BAL-19
858		1	Class D Scrub	Flat/upslope (0°)	14m	BAL-29	5m rear (north) setback	BAL-19
859		1	Class D Scrub	Flat/upslope (0°)	14m	BAL-29	5m rear (north) setback	BAL-19
876		1	Class D Scrub	Flat/upslope (0°)	16m	BAL-29	3m rear (south) setback	BAL-19
877		1	Class D Scrub	Flat/upslope (0°)	16m	BAL-29	3m rear (south) setback	BAL-19
878		1	Class D Scrub	Flat/upslope (0°)	16m	BAL-29	3m rear (south) setback	BAL-19
879		1	Class D Scrub	Flat/upslope (0°)	16m	BAL-29	3m rear (south) setback	BAL-19
880		1	Class D Scrub	Flat/upslope (0°)	16m	BAL-29	3m rear (south) setback	BAL-19
881		1	Class D Scrub	Flat/upslope (0°)	16m	BAL-29	3m rear (south) setback	BAL-19
882		1	Class D Scrub	Flat/upslope (0°)	16m	BAL-29	3m rear (south) setback	BAL-19

Lot	Bushfire prone	Vegetation plot	Vegetation classification	Effective slope	Separation distance	Highest BAL	Setback required to achieve lower BAL*	Potential new BAL with setback*
883		1	Class D Scrub	Flat/upslope (0°)	16m	<b>BAL-29</b>	3m rear (south) setback	BAL-19
<b>NOTES:</b> *The new BAL rating can only be confirmed once the building plan for the relevant lot has been prepared to demonstrate compliance with the recommended setback.								

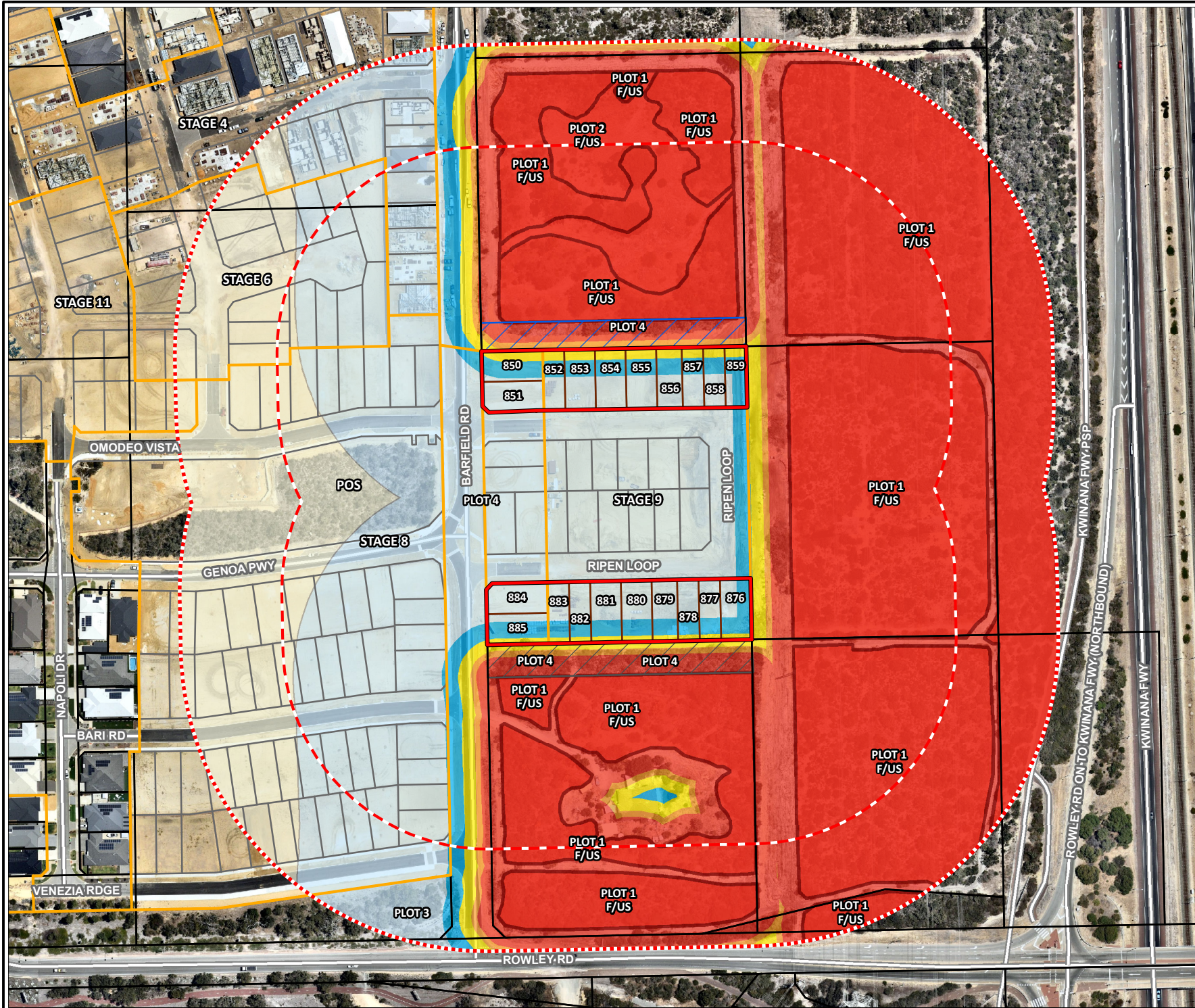
### 2.2.2 BAL certificates

BAL certificates are provided in Appendix A in accordance with the BAL contour assessment results detailed in Table 3 and Figure 2.

Should a lower BAL be realistically achievable through an appropriate building setback, then the landowner can refer to the recommended setbacks listed in Table 3.

The lower BAL may be achieved if the recommended building setback is reflected on the building plan for that lot and a revised BAL certificate can be issued at that time.





- Legend**
- Project area
  - 100m assessment area
  - 150m assessment area
  - Cadastral boundary
  - Low threat buffer
    - 14m wide
    - 16m wide
  - BAL contours
    - BAL FZ
    - BAL 40
    - BAL 29
    - BAL 19
    - BAL 12.5
    - BAL Low
  - Stage boundaries
  - Proposed lots
  - Indicative future subdivisions on adjacent stages
  - Roads (MRWA)



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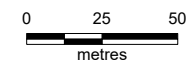
Version: A

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Checked By: CT

Scale 1:2,500 at A4



Coor. Sys. GDA 1994 MGA Zone 50

**Stages 8 and 9, Vivente Hammond Park, WA**

**BAL CONTOUR MAP**

**FIGURE 2**



### 3. Conclusion and recommendations

This BAL compliance report has been prepared for 4 residential lots within Stage 8 and 16 residential lots within Stage 9 Vivente Estate to provide a final BAL check and certification use at the building permit stage.

Assessment results are consistent with current on-ground conditions confirmed during the site assessment. Strategen-JBS&G can confirm that the existing BMPs over the project area have been implemented throughout the duration of subdivisional works for the relevant Stages 8 and 9 lots and adjacent land to achieve the BAL outcomes as intended.

18 lots can achieve a lower BAL if the setbacks are implemented, as set out in Table 3. Should it be determined through demonstration on individual building plans that compliance with the recommended building setbacks has been achieved and subsequently a lower BAL rating has been attained (as per Table 3), then the lower BAL rating should apply and be reflected in an updated BAL certificate prepared at that time.

In the absence of any change in development design or post-development classified vegetation extent, 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. Should the extent of classified vegetation change or new vegetation be introduced within 100 m of proposed development, then the BAL ratings should be reassessed at the building permit stage to ensure accuracy with on-ground conditions.

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

## 4. References

Department of Fire and Emergency Services (DFES) 2021, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: <https://maps.slip.wa.gov.au/landgate/bushfireprone/>, [20/01/2022].

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.

Strategen Environmental (Strategen) 2015, *Fire Management Plan: Barfield Road Local Structure Plan*, Strategen, Bunbury.

Strategen-JBS&G 2020, *Bushfire Management Plan: Vivente Estate Structure Plan Amendment, including Stages 9 and 10*, Strategen-JBS&G, Bunbury.

Strategen-JBS&G 2020, *Bushfire Attack Level Compliance Report: Stages 9 and 12 Vivente Estate*, Strategen-JBS&G, Bunbury.

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.

### Reliance on data

In preparing the report, Strategen-JBS&G has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise expressly stated in the report, Strategen-JBS&G has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Strategen-JBS&G has also not attempted to determine whether any material matter has been omitted from the data. Strategen-JBS&G will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to Strategen-JBS&G. The making of any assumption does not imply that Strategen-JBS&G has made any enquiry to verify the correctness of that assumption.

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 A BAL certificates

## Appendix B Vegetation plot photos and description



Photo ID: 1a



Photo ID: 1b



Photo ID: 1c

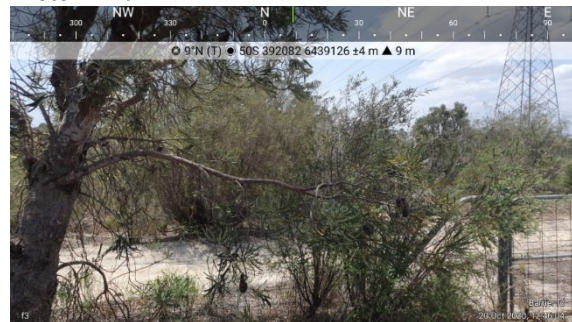


Photo ID: 1d



Photo ID: 1e

Plot number		Plot 1
Vegetation classification	Pre-development	Class D Scrub
	Post-development	Class D Scrub
Description / justification		Scrub vegetation predominantly 2–6 m in height with a continuous horizontal fuel profile consisting predominantly of banksia/sheoak





**Photo ID:** 2a (Nearmap imagery captured 24/10/21)

<b>Plot number</b>		Plot 2
<b>Vegetation classification</b>	<b>Pre-development</b>	Class G Grassland
	<b>Post-development</b>	Class G Grassland
<b>Description / justification</b>		Unmanaged grassland vegetation greater than 100 mm in height.



**Photo ID: 3a** (Google Street View, captured November 2021)



**Photo ID: 3b** (Google Street View, captured November 2021)

<b>Plot number</b>		Plot 3
<b>Vegetation classification</b>	<b>Pre-development</b>	Excluded – Clause 2.2.3.2 [d]
	<b>Post-development</b>	Excluded – Clause 2.2.3.2 [d]
<b>Description / justification</b>		Strips of vegetation less than 20m in width (regardless of length) and not within 20m of the site of each other or other areas of vegetation being classified vegetation.



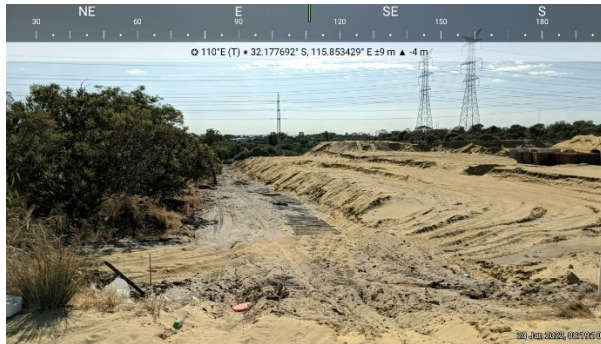


Photo ID: 4a

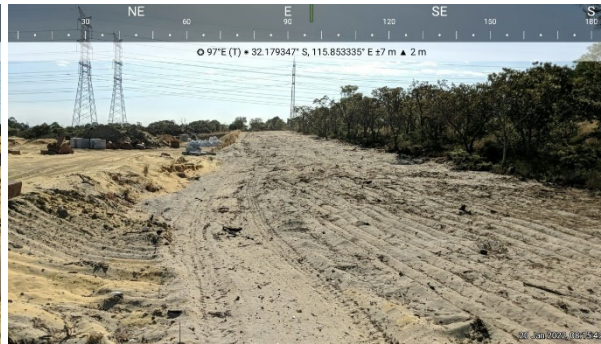


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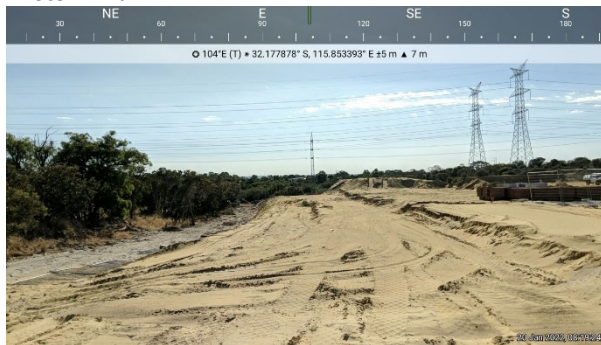


Photo ID: 4c



Photo ID: 4d

Plot number		Plot 4
Vegetation classification	Pre-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
	Post-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
Description / justification		Existing non-vegetated areas (i.e. roads, buildings, cleared vacant lots, driveways, footpaths) and low threat managed vegetation (i.e. mowed grass, slashed staging buffers, managed gardens/POS, etc). Includes central vegetated POS which has been assessed as low threat due to fragmentation and lack of fuel carrying capacity.

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**Document Status**

Report version	Rev No.	Purpose	Author	Reviewed and Approved for Issue	
				Name	Date
Final Report	Rev 0	Issued for use: to accompany future lot sale and building permit applications	Jasmin Culverwell	Louisa Robertson (BPAD 36748, Level 3)	14 February 2022

