WESTERN ENVIRONMENTAL

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Tuesday, 14 October 2025

*Our Ref: A25.115-BADV_1_FINAL*

Moonies Hill New Energy Pty Ltd
5 Barnfield Road
CLAREMONT WA 6010

Attn: Dr Sarah Rankin

**SUBJECT: BUSHFIRE PLANNING TECHNICAL NOTE: KOJONUP WIND FARM**

## Purpose

Western Environmental Approvals Pty Ltd (WEPL) have been engaged to provide bushfire planning advice in respect to the Kojonup Wind Farm (KWF) project. This technical note has been prepared to demonstrate that the proposed development adequately considers and addresses bushfire risk and can therefore be recommended for approval by the Shire of Kojonup (the Shire).

## Project Description

Moonies Hill New Energy Pty Ltd are seeking to progress a development application for the construction of the KWF which is located in Jingalup, 10km southwest of the Kojonup townsite. The KWF will comprise of 33 wind turbine generators with incidental battery energy storage system (BESS), substation, site office, operations and maintenance (O&M) building, batching plant and internal access roads, as shown on the proposed layout plan in **Attachment A**.

## Map of Bushfire Prone Areas

Portions of the subject site are designated as bushfire prone on the *Western Australian Map of Bush Fire Prone Areas* (DFES, 2024), as shown in Figure 1. The designation of an area as bushfire prone reflects the potential for bushfire attack given the presence of unmanaged vegetation within the area.

## Bushfire Planning Framework

### State Planning Policy 3.7 – Bushfire

*State Planning Policy 3.7 – Bushfi*re (SPP 3.7; WAPC, 2024a) and the *Planning for Bushfire Guidelines* (the Guidelines; WAPC, 2024b) only apply to habitable buildings proposed in bushfire prone areas. As such, the site office is the only habitable building within a bushfire prone area that requires assessment against SPP 3.7 and the Guidelines. All other components of the proposed development area exempt given:

- The wind turbine generators, BESS, substation and batching plant are considered non-habitable.
- The O&M building is considered habitable however is outside of the bushfire prone area.

In accordance with SPP 3.7, development applications for habitable buildings within a bushfire prone area shall be accompanied by a Bushfire Management Plan (BMP) prepare in accordance with the Guidelines. The BMP for the office building shall address the relevant bushfire protection criteria of the Guidelines which cover the following four elements:

- Element 1: Location
- Element 2: Siting and design
- Element 3: Vehicular access
- Element 4: Water supply.

Each element is achieved through compliance with the acceptable solutions or an outcomes-based approach. The preliminary assessment in **Attachment B** demonstrates that the proposed office building is capable of achieving compliance with the bushfire protection criteria through the acceptable solutions and that an outcomes-based approach is unlikely to be required.

Considering the office building is the only habitable building which triggers the requirement for a BMP and the project is in the preliminary design stage, it would be more appropriate to prepare a BMP prior to occupancy when the design and location of the office building is finalised. The requirement for a BMP can be provided through a condition of development approval.

### Planning and Development (Local Planning Scheme) Regulations 2015

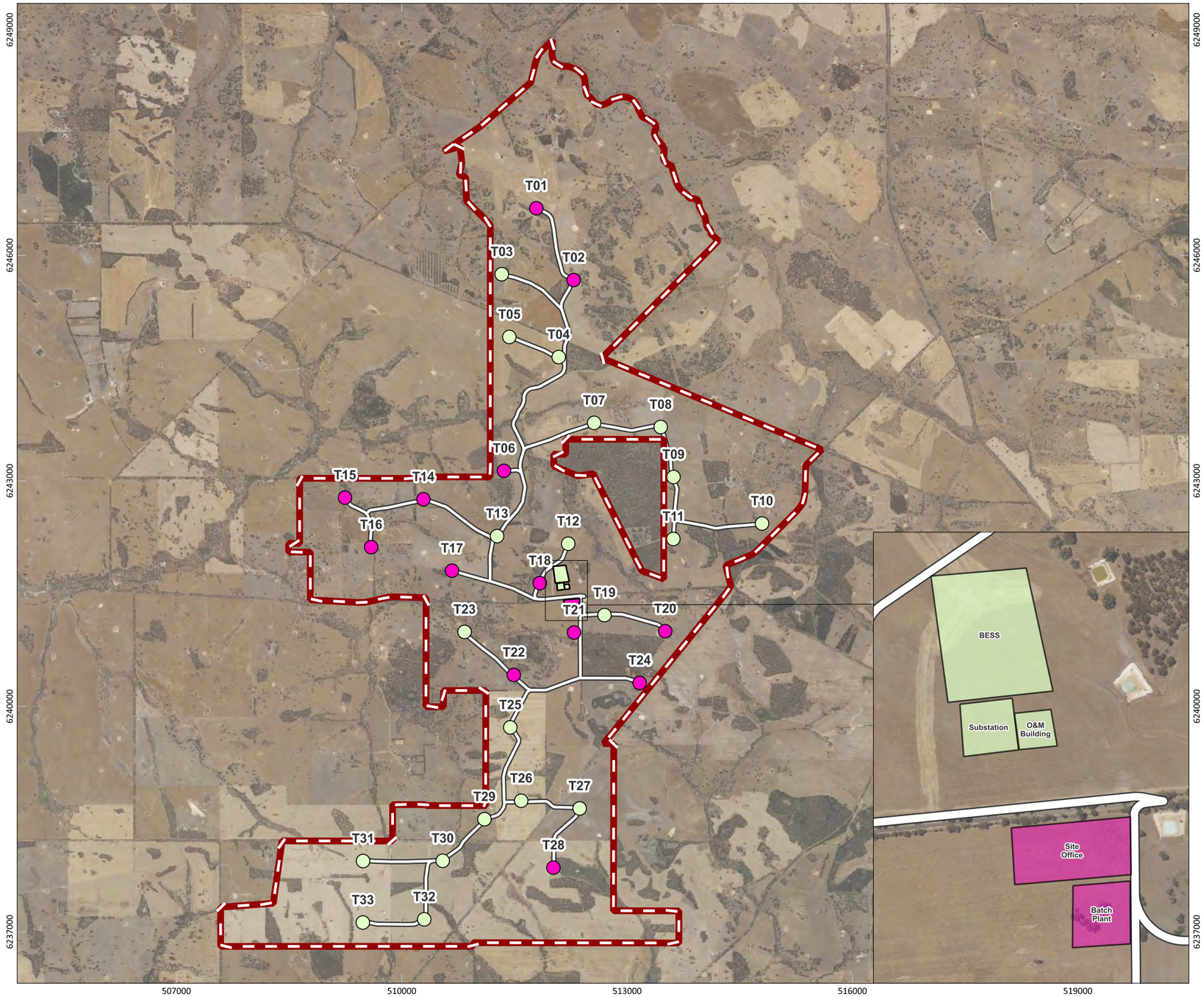
The Deemed Provisions of the *Planning and Development (Local Planning Scheme) Regulations 2015* (the Regulations) outlines the following matter which the Shire is to have due regard to when assessing development applications:

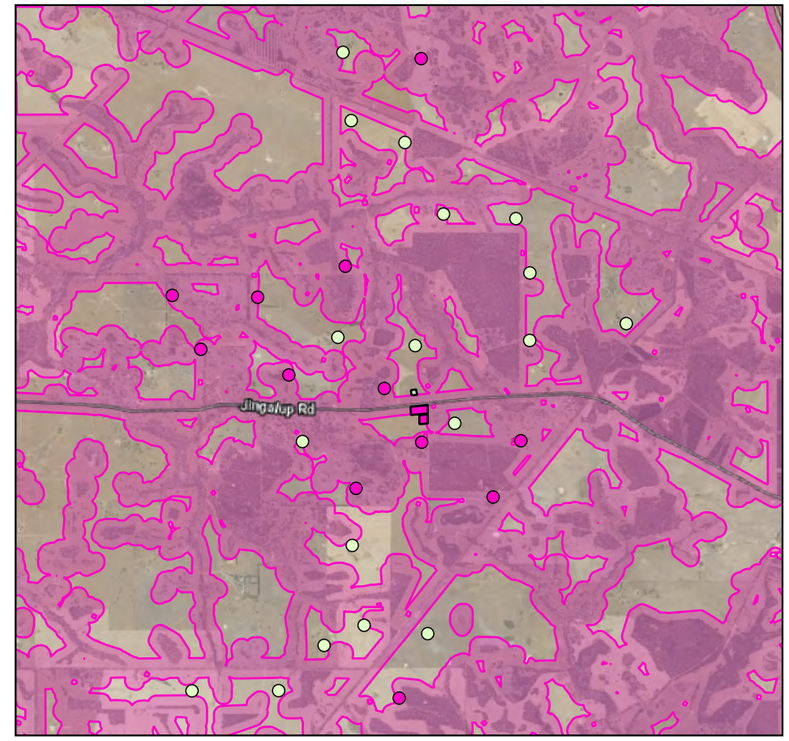
*The suitability of land for the development taking into account the possible risk of flooding, tidal inundation, subsidence, landslip, bush fire, soil erosion, land degradation or any other risk.*

While the majority of the proposed development is exempt from an assessment against SPP 3.7 and the Guidelines, the development application still needs to demonstrate that bushfire risk can be adequately managed in accordance with the Deemed Provisions. A preliminary desktop assessment was undertaken for the purpose of demonstrating that the bushfire risk to the proposed development can be adequately managed.

### Position Statement: Renewable Energy Facilities

Further to the above, *Position Statement: Renewable Energy Facilities* (WAPC, 2022) provide assessment measures for the assessment of renewable energy facilities, including the requirement for a 10m clearance to combustible vegetation in the form of an Asset Protection Zone (APZ). This requirement has been applied to the preliminary desktop assessment.





# Figure 1: Site Overview

N

0 1 2 3 km

| | |
|---|---|
| PROJECT/REPORT NAME | Bushfire Compliance Memo<br>Kojanup Wind Farm |
| SCALE | 1:60,000 |
| SHEET SIZE | A3 COLOUR |
| CLIENT | Moonies Hill New Energy Pty Ltd |
| COORDINATE REFERENCE SYSTEM | GDA2020 / MGA zone 50 |
| PROJECT NUMBER | A25.115 |
| VERSION | 0 |
| DATA SOURCE | LANDGATE AERIAL IMAGERY |
| DRAWN BY / REVIEWED BY | SM/DW |
| DATE | 14/10/2025 |

Legend

- Subject Site
- Wind Turbine (Within Bushfire Prone Area)
- Wind Turbine (Outside Bushfire Prone Area)
- Incidental Development (Within Bushfire Prone Area)
- Incidental Development (Outside Bushfire Prone Area)
- Access Track

| No | Description | Drawn | Approved | Date |
|---|---|---|---|---|
| A | Original issue | SM | DW | 14/10/2025 |

NOTES:

Cadastral boundary (LGATE-002). Base map ESRI Topo. Townsites (LGATE-248).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## Preliminary Bushfire Assessment

A preliminary desktop assessment of the wind turbines and incidental infrastructure which are designated as bushfire prone was undertaken for the purpose of determining the Bushfire Attack Level (BAL) in accordance with Method 1 of *Australian Standard 3959: 2018 Construction of buildings in bushfire prone areas* (AS 3959: 2018). A detailed site assessment will be undertaken in the event a BMP is required as a condition of the development approval.

In addition, a Method 2 BAL assessment has been undertaken in accordance with the methodology in AS 3959: 2018 to ensure infrastructure in the BESS and substation development envelopes will be sited in areas subject to a radiant heat impact does not exceed 10kW/m$^2$ (see **Attachment C** for method 2 BAL calculations). While these development envelopes are not designated as bushfire prone, the assets are considered high-risk and need to be considered. The 10kW/m$^2$ threshold is widely adopted as being sufficient to significantly reduce the risk of radiant heat from the surrounding vegetation igniting the proposed high-risk assets. Ultimately, this also implies that the resultant separation distances between the proposed BESS and classified vegetation will reduce the likelihood of bushfire ignition resulting from the functioning of the BESS.

### Vegetation Classification

All vegetation within 100m of the assessed wind turbines and development envelopes for the incidental infrastructure was classified in accordance with Clause 2.2.3 of AS 3959: 2018 based on publicly available aerial imagery, Google Streetview and the Landscape and Visual Impact Assessment (EPCAD, 2025).

Each distinguishable vegetation class with the potential to determine the BAL is identified in Table 1. The extent of each vegetation class varies for each assessment area, as shown in Figures 2 to 16.

**Table 1: Vegetation Classification**

| Vegetation Classification | Effective Slope |
|---|---|
| Class A Forest | Downslope 0-5 degrees |
| Class A Forest | Flat / Upslope |
| Class G Grassland | Downslope 0-5 degrees |
| Class G Grassland | Flat / Upslope |

### Relevant Fire Danger Index

The Fire Danger Index (FDI) 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 ☐ |

| Relevant Fire Danger Index | | | |
|---|---|---|---|
| *Table 2.4.5* | *Table 2.4.4* | *Table 2.4.3* | *Table 2.4.2* |

### Potential Bushfire Impacts

The separation distances in Table 3 have been sourced from Table 2.5 of AS 3959: 2018 and the Method 2 calculations in **Attachment C**. The separation distances are reflected in the form of BAL contours on Figures 2 – 15 to demonstrate the potential bushfire impacts to the assessed assets.

**Table 3: Method 1 BAL Calculation (BAL Contours)**

| Vegetation classification | Effective slope | Separation distances required (m) | | | | | |
|---|---|---|---|---|---|---|---|
| | | BAL-FZ | BAL-40 | BAL-29 | BAL-19 | BAL-12.5 | 10kW/m$^2$ |
| Class A Forest | Downslope >0 to 5 degrees | <20 | 20 - <27 | 27 - <37 | 37 - <50 | 50 - <100 | 59.2 m |
| Class A Forest | All upslopes and flat land (0 degrees) | <16 | 16 - <21 | 21 - <31 | 31 - <42 | 42 - <100 | 48.9 m |
| Class G Grassland | Downslope >0 to 5 degrees | <7 | 7 - <9 | 9 - <14 | 14 - <20 | 20 - <50 | 24.6 m |
| Class G Grassland | All upslopes and flat land (0 degrees) | <6 | 6 - <8 | 8 - <12 | 12 - <17 | 17 - <50 | 21.2 m |

### Determined Bushfire Attack Level (BAL)

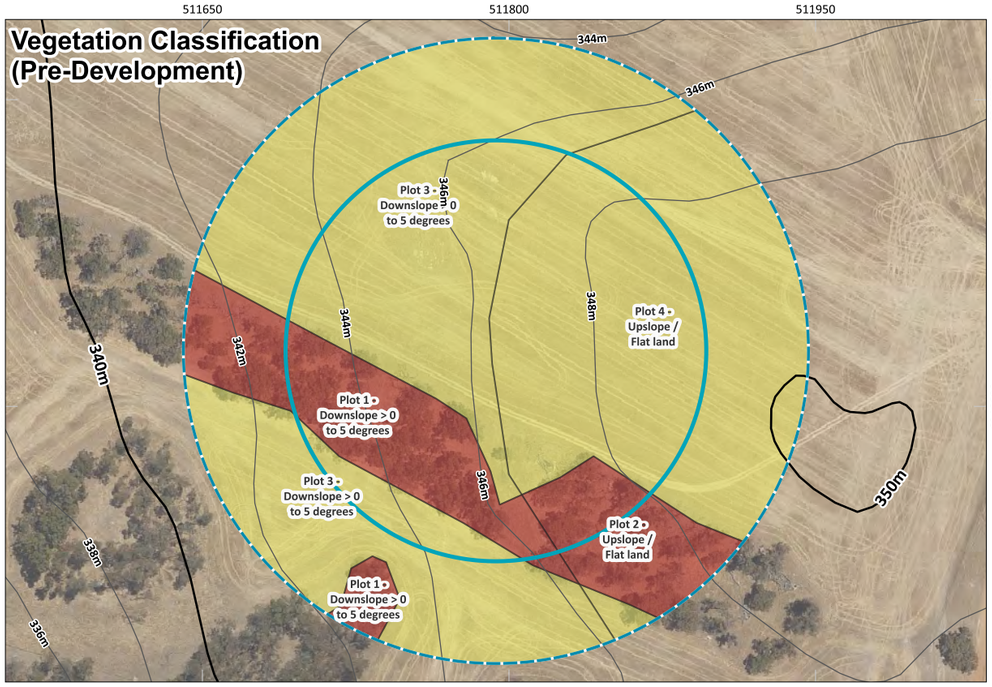
The assessed wind turbines and incidental infrastructure will all be subject to a rating of BAL-FZ (flame zone) given the subject site is currently vegetated and site works are yet to occur. However, the radiant heat impact will be reduced following completion of clearing, site works and construction of hardstand areas.

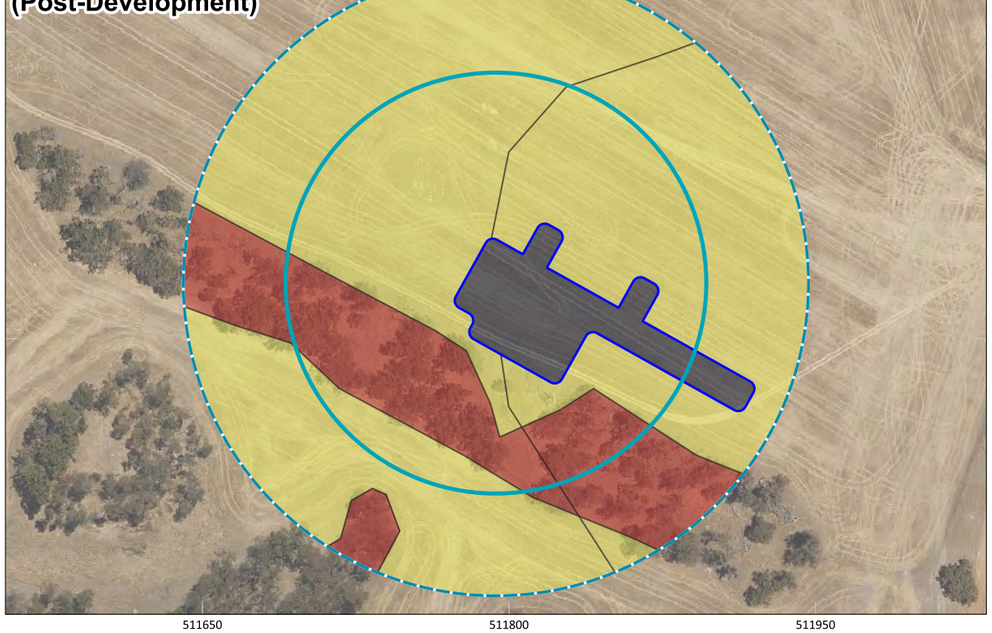
### Achievable Bushfire Attack Level (BAL) – Wind Turbines

In accordance with the *Position Statement: Renewable Energy Facilities* (WAPC, 2022), a 10m wide APZ shall be established around each wind turbine which has been identified as bushfire prone. Accordingly, the BAL Contour Maps in Figures 2 – 14 include a 10m wide APZ around each wind turbine to demonstrate that each wind turbine can achieve a radiant heat impact not exceeding 29kW/m$^2$ (BAL-29). The achievable BAL rating for each assessed wind turbine is summarised in Table 4.

**Table 4: BAL Assessment Summary – Wind Turbines**

| Proposed Asset | Vegetation Most Affecting BAL Rating | Separation Distance | BAL Rating |
|---|---|---|---|
| Turbine T01 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |
| Turbine T02 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |
| Turbine T06 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |
| Turbine T14 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |
| Turbine T15 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |
| Turbine T16 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |
| Turbine T17 | Class G Grassland (Flat / Upslope) | 10 m | BAL-29 |
| Turbine T18 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |
| Turbine T20 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |
| Turbine T21 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |
| Turbine T22 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |
| Turbine T24 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |
| Turbine T28 | Class G Grassland (Downslope 0-5 degrees) | 10 m | BAL-29 |





# Figure 2: Vegetation Classification and Bushfire Attack Level (BAL) Contours- T01

| | | |
|---|---|---|
| N; 0 15 30 45 60 m | PROJECT/REPORT NAME: Bushfire Compliance Memo<br>Kojanup Wind Farm | |
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | CLIENT: Moonies Hill New Energy Pty Ltd |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

**Legend**

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

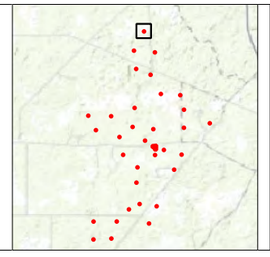
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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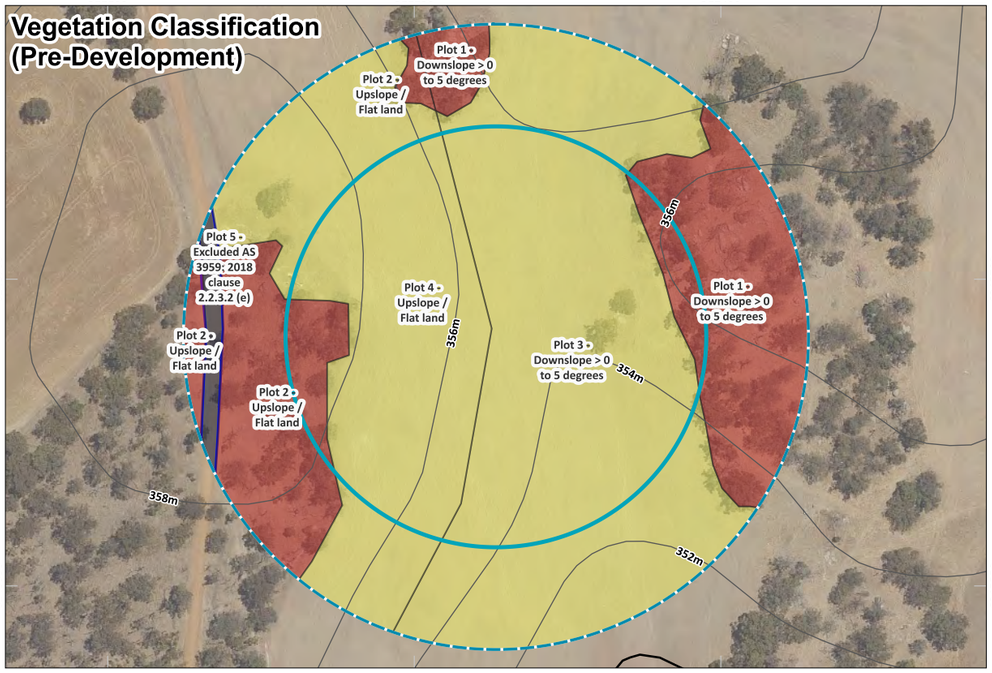
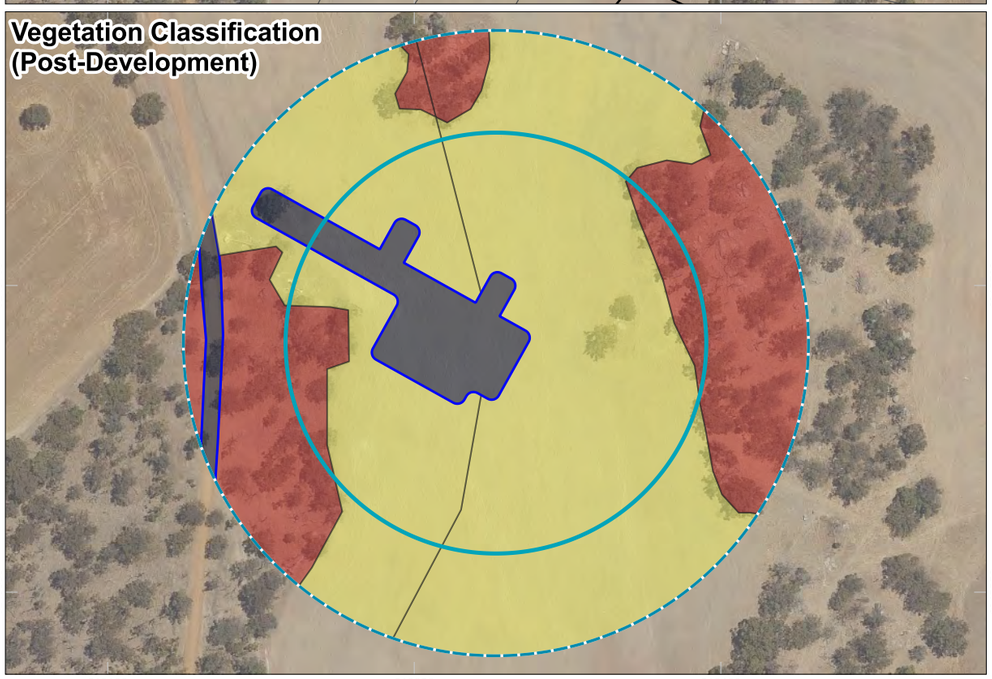


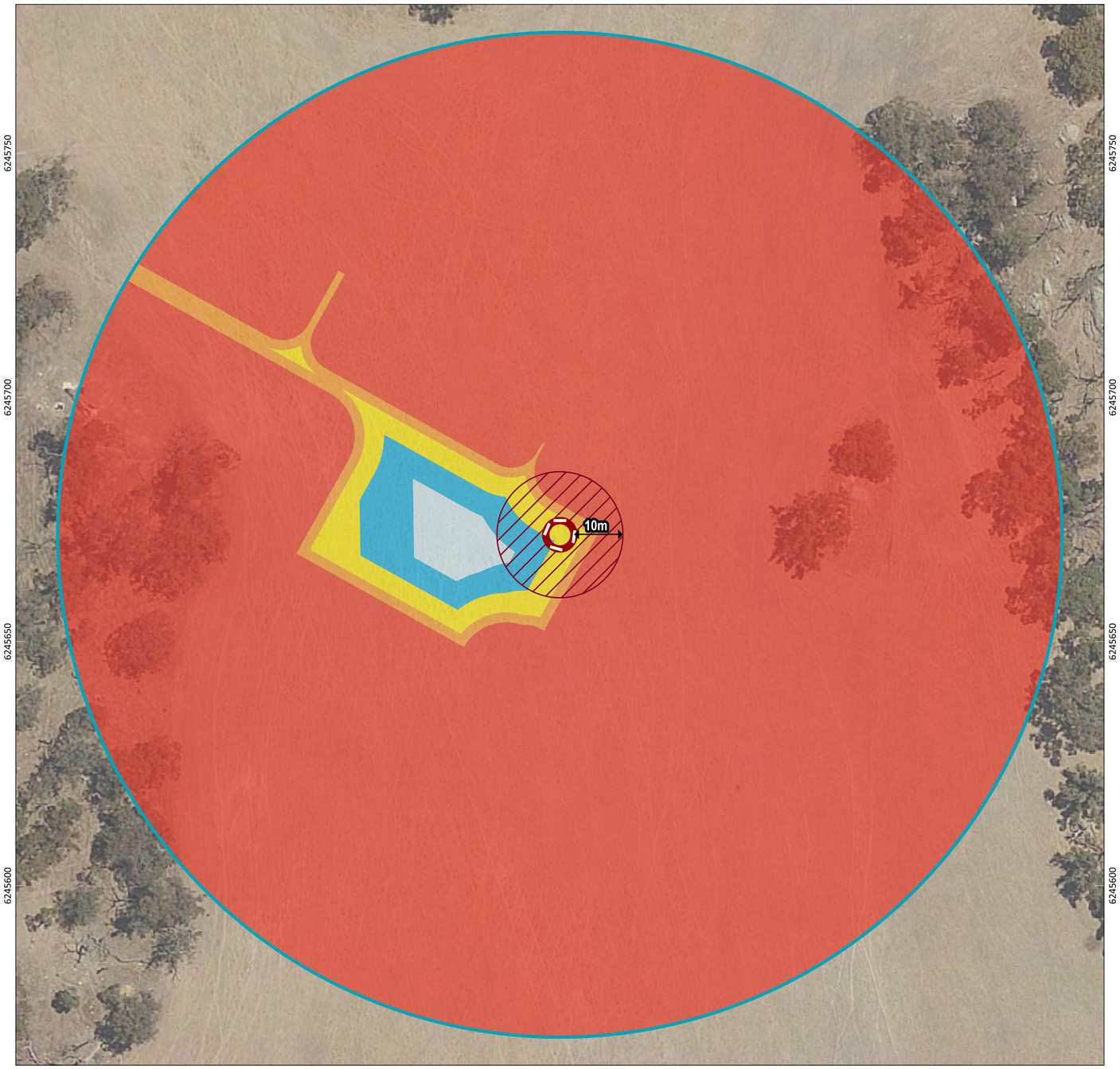




Figure 3: Vegetation Classification and Bushfire Attack Level (BAL) Contours- T02

N

0 15 30 45 60 m

| | | |
|---|---|---|
| PROJECT/REPORT NAME: Bushfire Compliance Memo<br>Kojanup Wind Farm | | |
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | CLIENT: Moonies Hill New Energy Pty Ltd |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

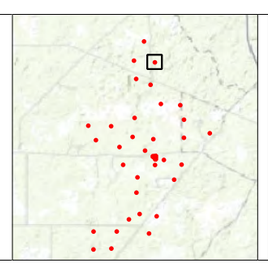
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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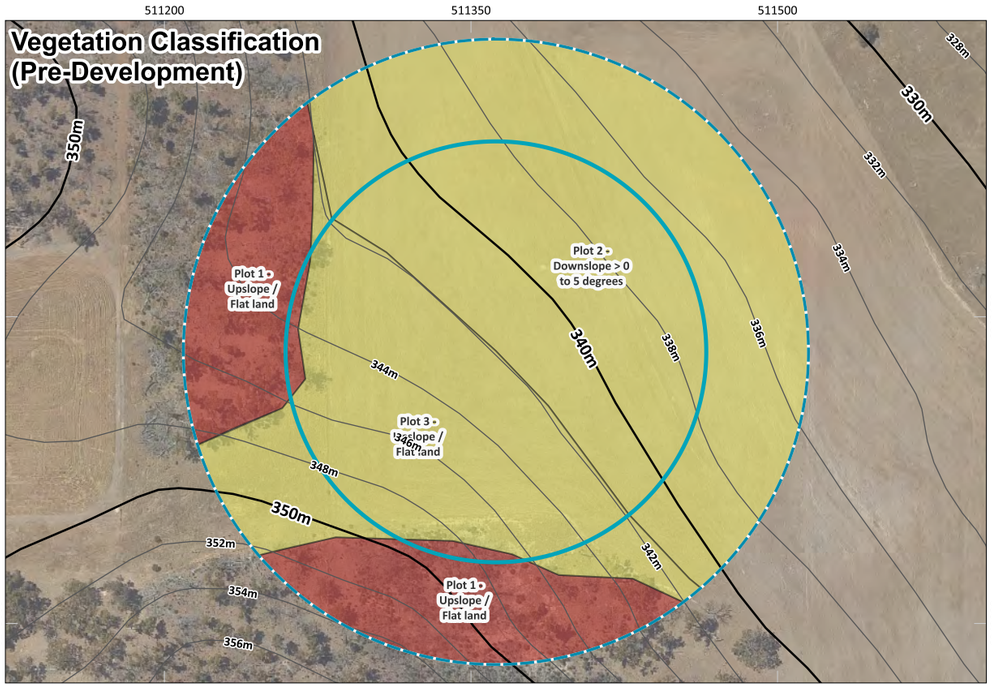
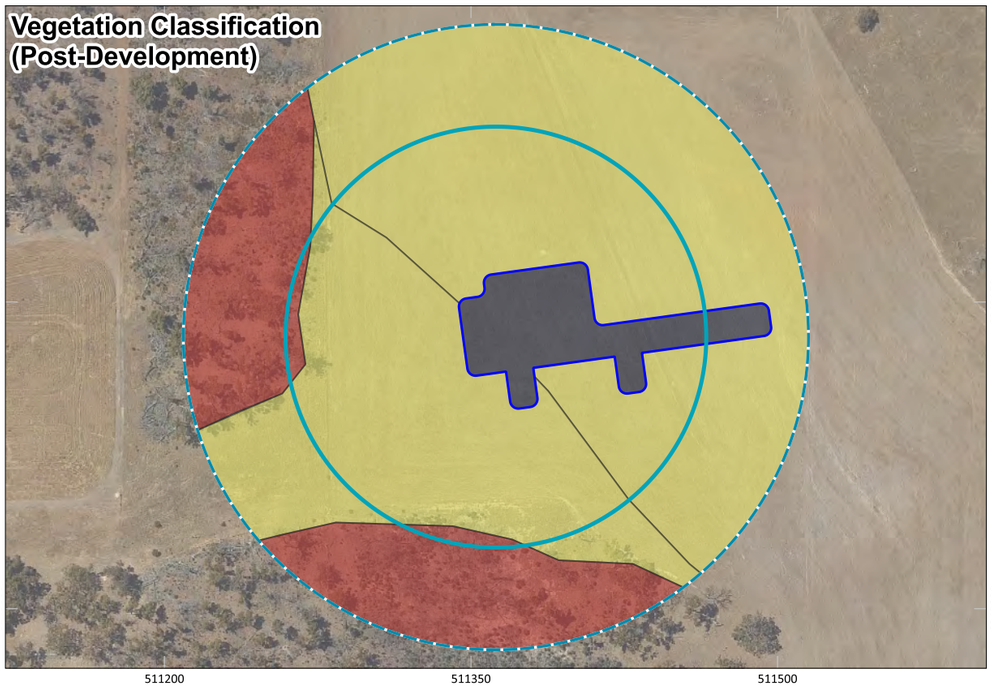
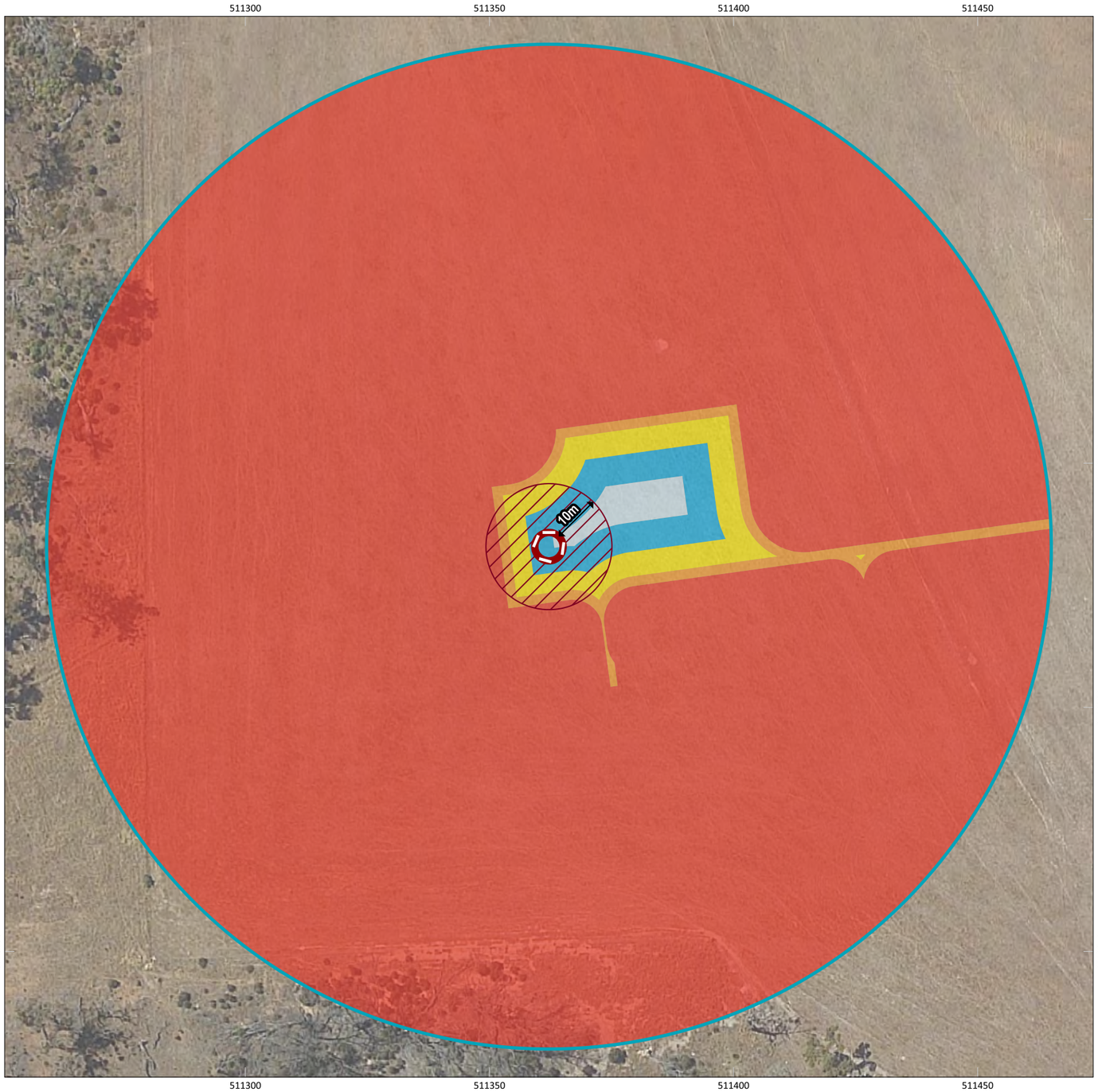



# Figure 4: Vegetation Classification and Bushfire Attack Level (BAL) Contours- T06

N

0 15 30 45 60 m

| | | | |
|---|---|---|---|
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | PROJECT/REPORT NAME: Bushfire Compliance Memo Kojanup Wind Farm | |
| | | CLIENT: Moonies Hill New Energy Pty Ltd | |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

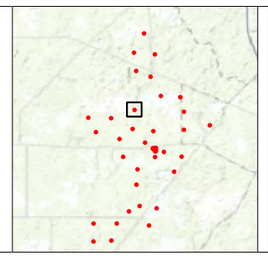
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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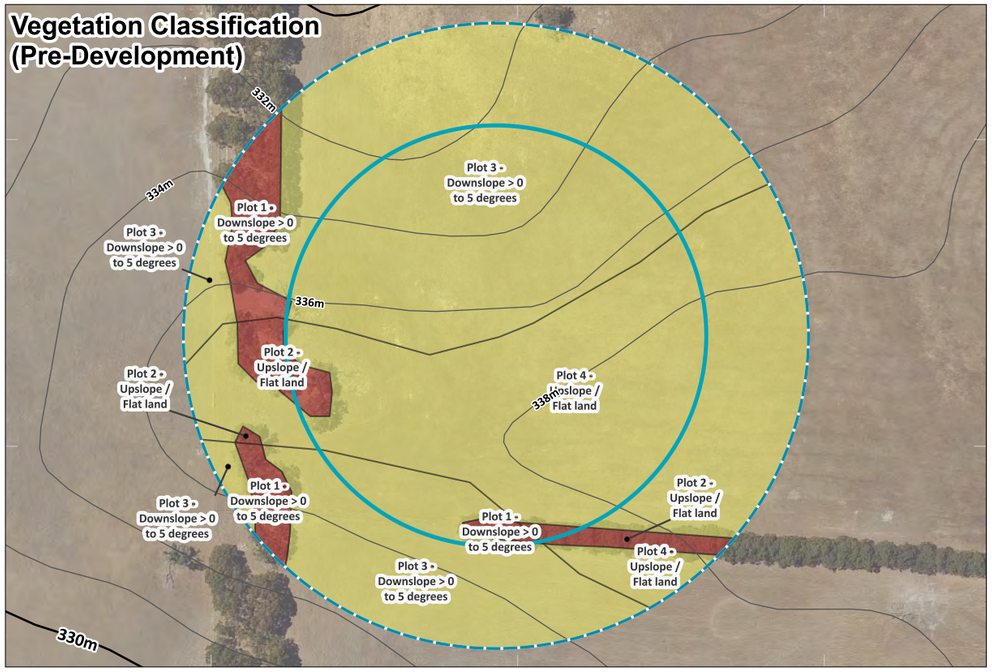
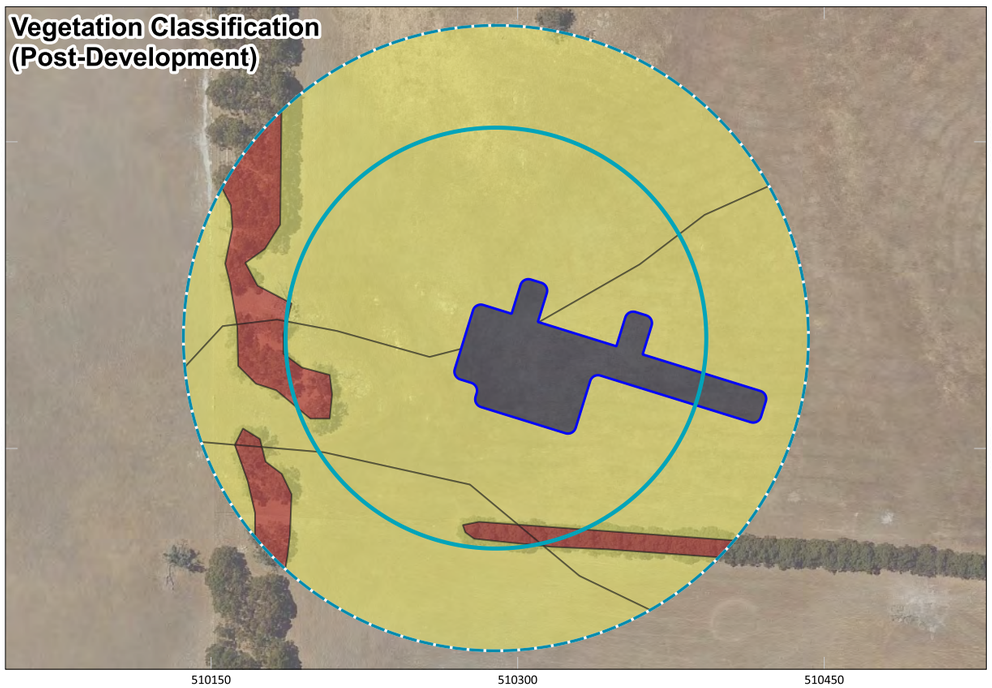
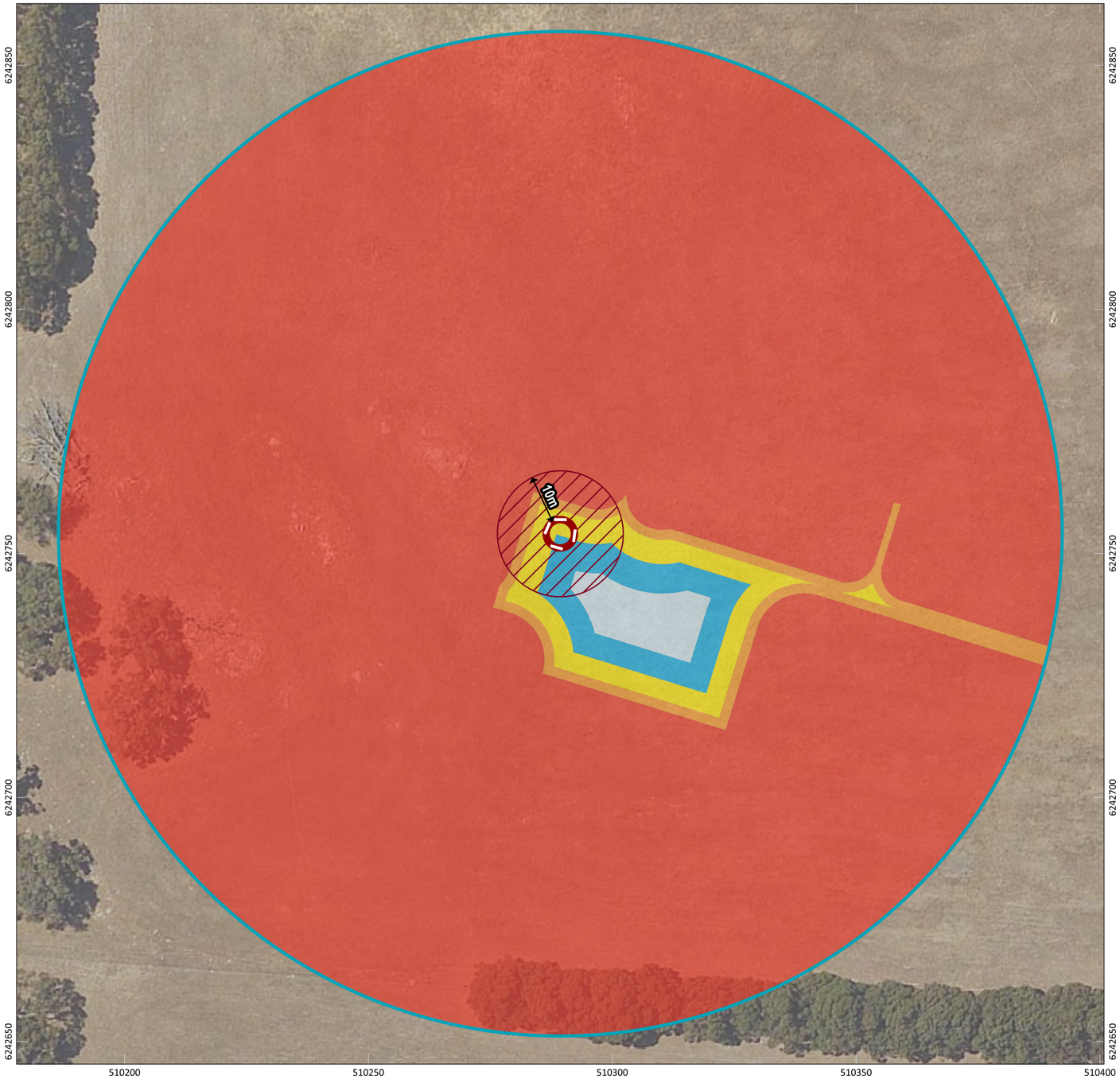



# Figure 5: Vegetation Classification and Bushfire Attack Level (BAL) Contours- T14

N

0 15 30 45 60 m

| | | |
|---|---|---|
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

PROJECT/REPORT NAME: Bushfire Compliance Memo
Kojanup Wind Farm

CLIENT: Moonies Hill New Energy Pty Ltd

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

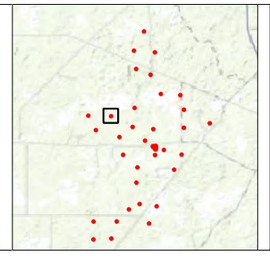
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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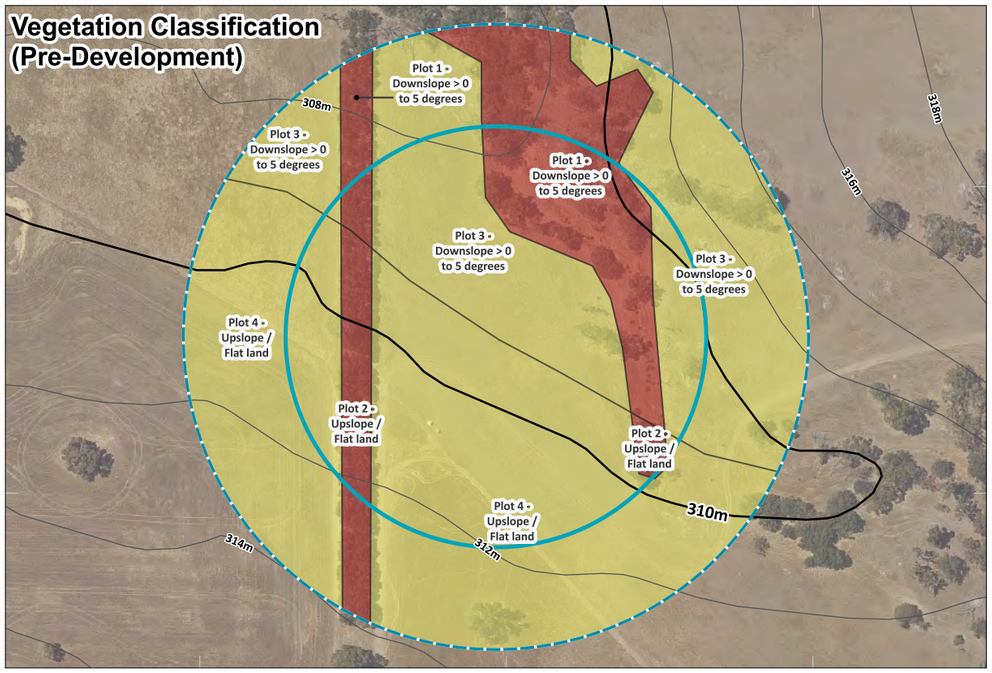
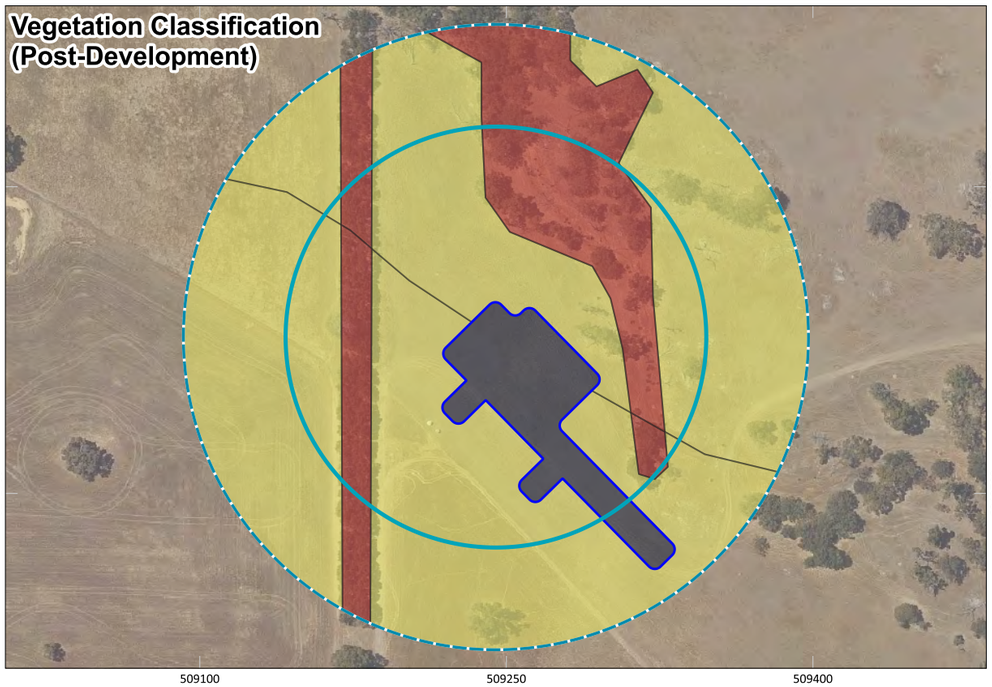


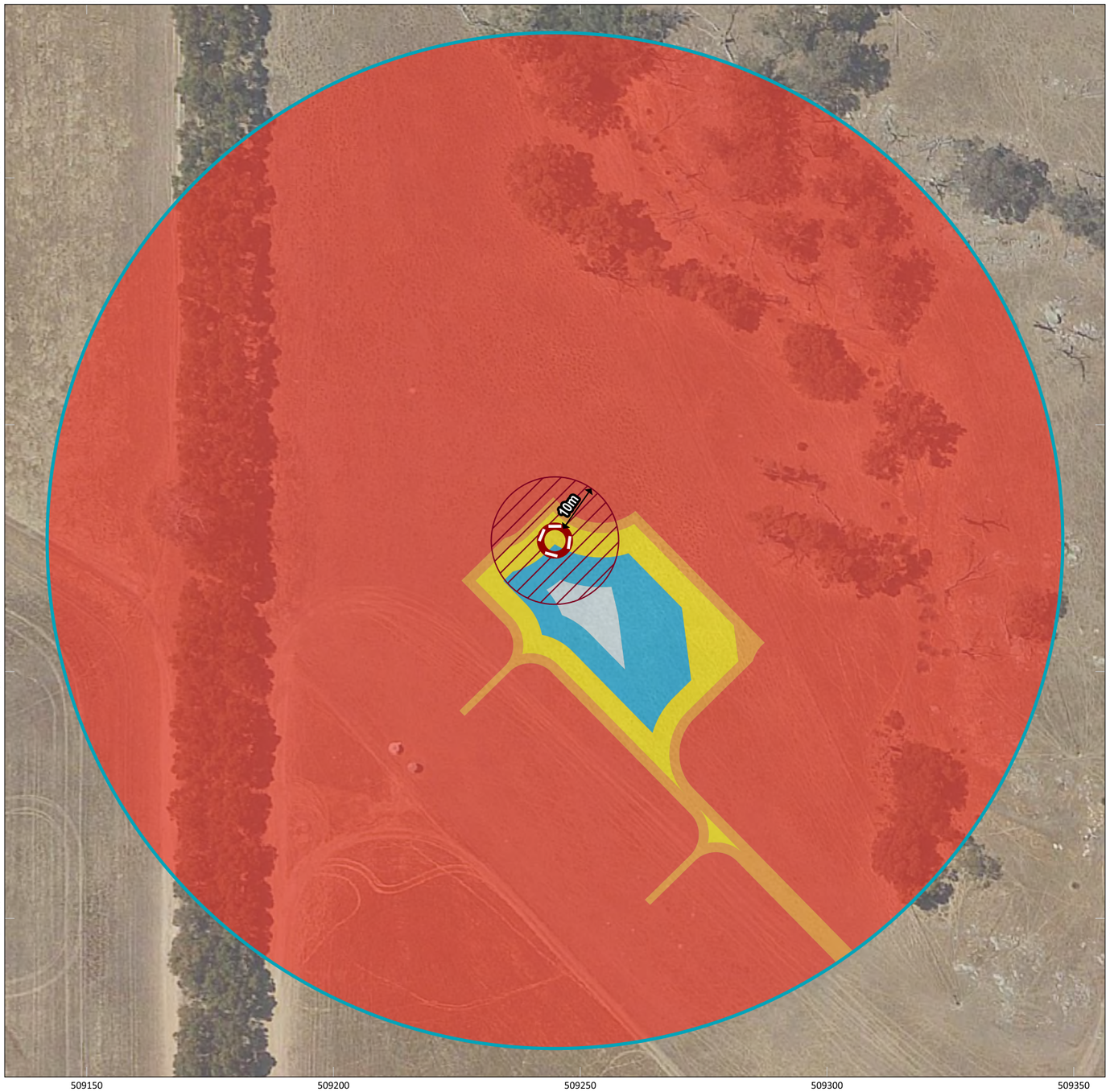




Figure 6: Vegetation Classification and Bushfire Attack Level (BAL) Contours- T15

N

0 15 30 45 60 m

| | | |
|---|---|---|
| PROJECT/REPORT NAME: Bushfire Compliance Memo<br>Kojanup Wind Farm | | |
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | CLIENT: Moonies Hill New Energy Pty Ltd |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

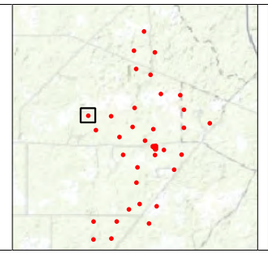
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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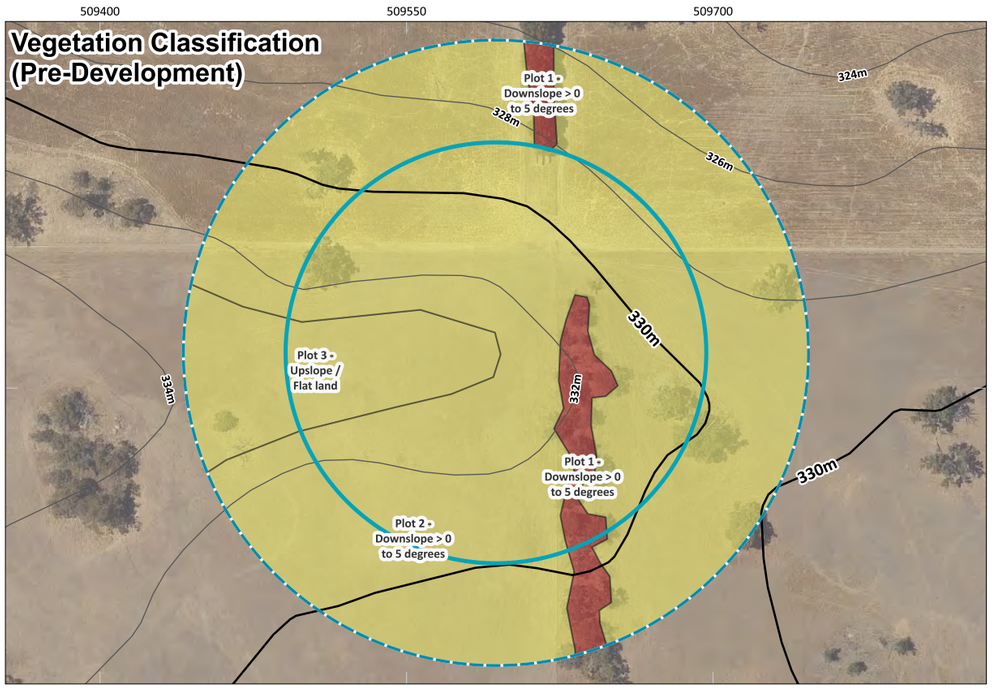
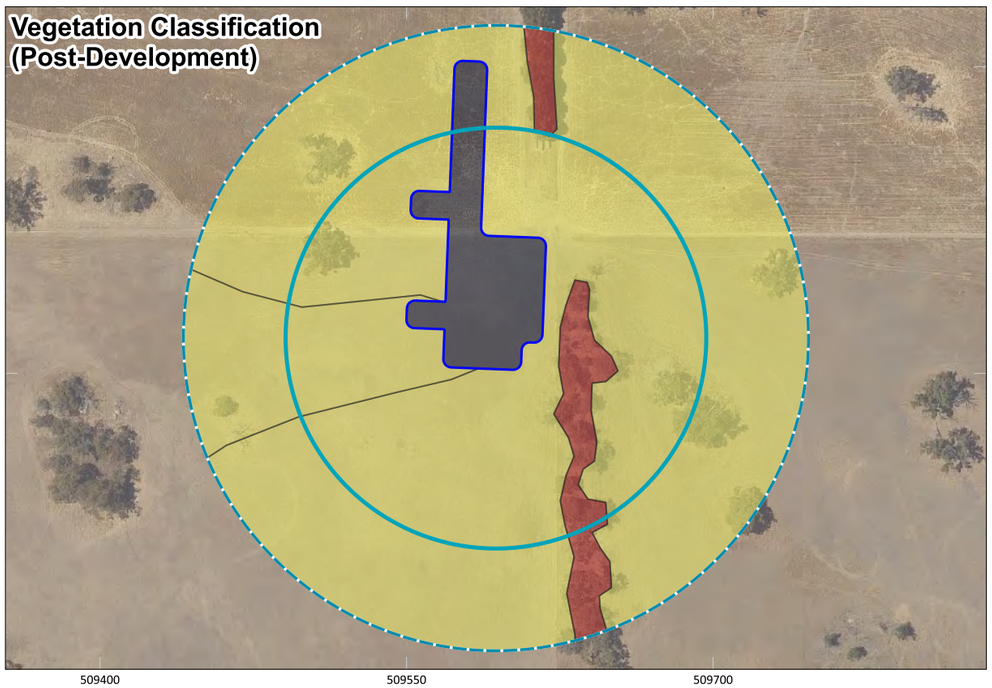
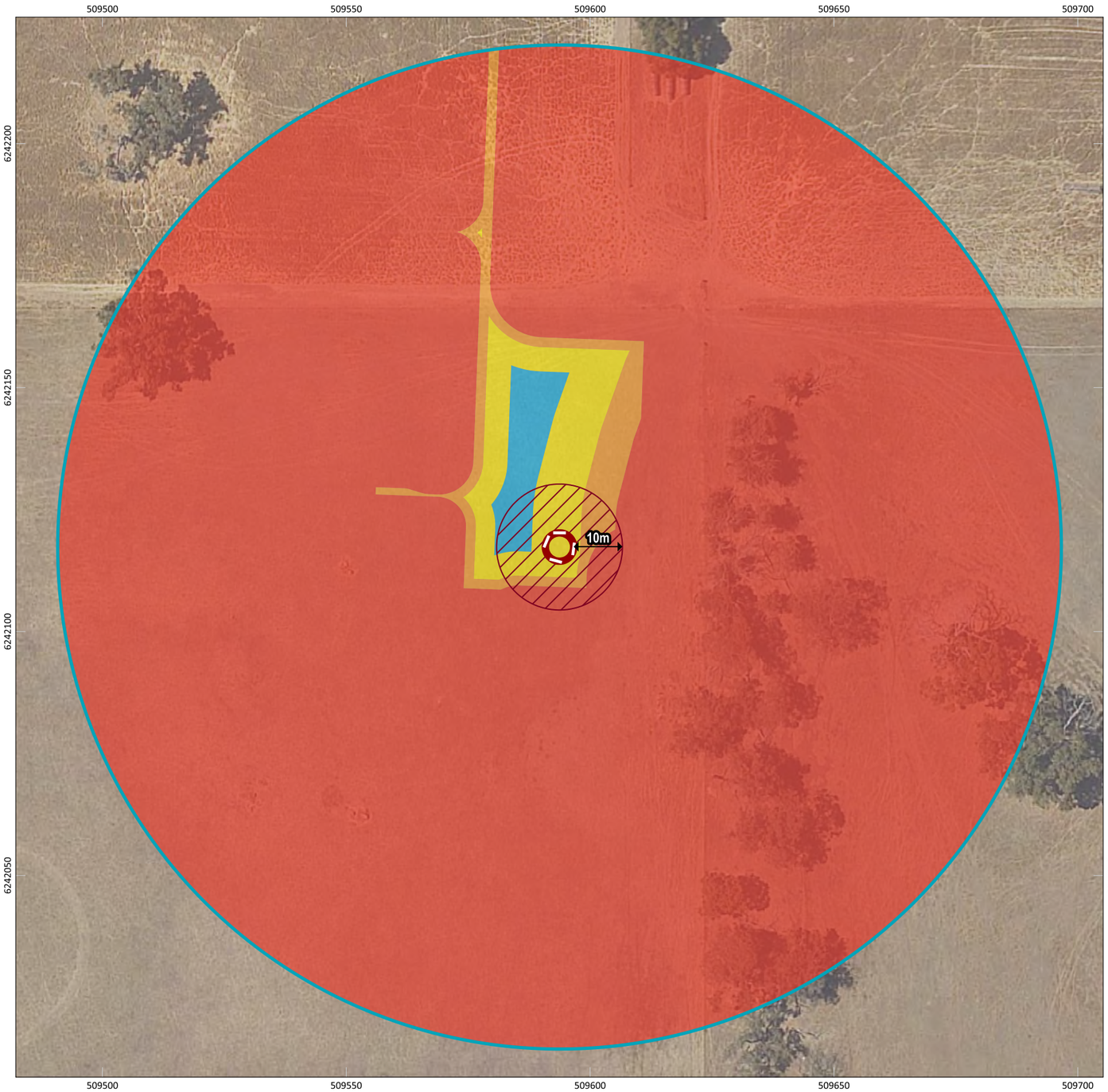



# Figure 7: Vegetation Classification and Bushfire Attack Level (BAL) Contours- T16

N

0 15 30 45 60 m

| | | |
|---|---|---|
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

PROJECT/REPORT NAME: Bushfire Compliance Memo
Kojanup Wind Farm

CLIENT: Moonies Hill New Energy Pty Ltd

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

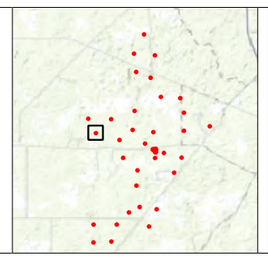
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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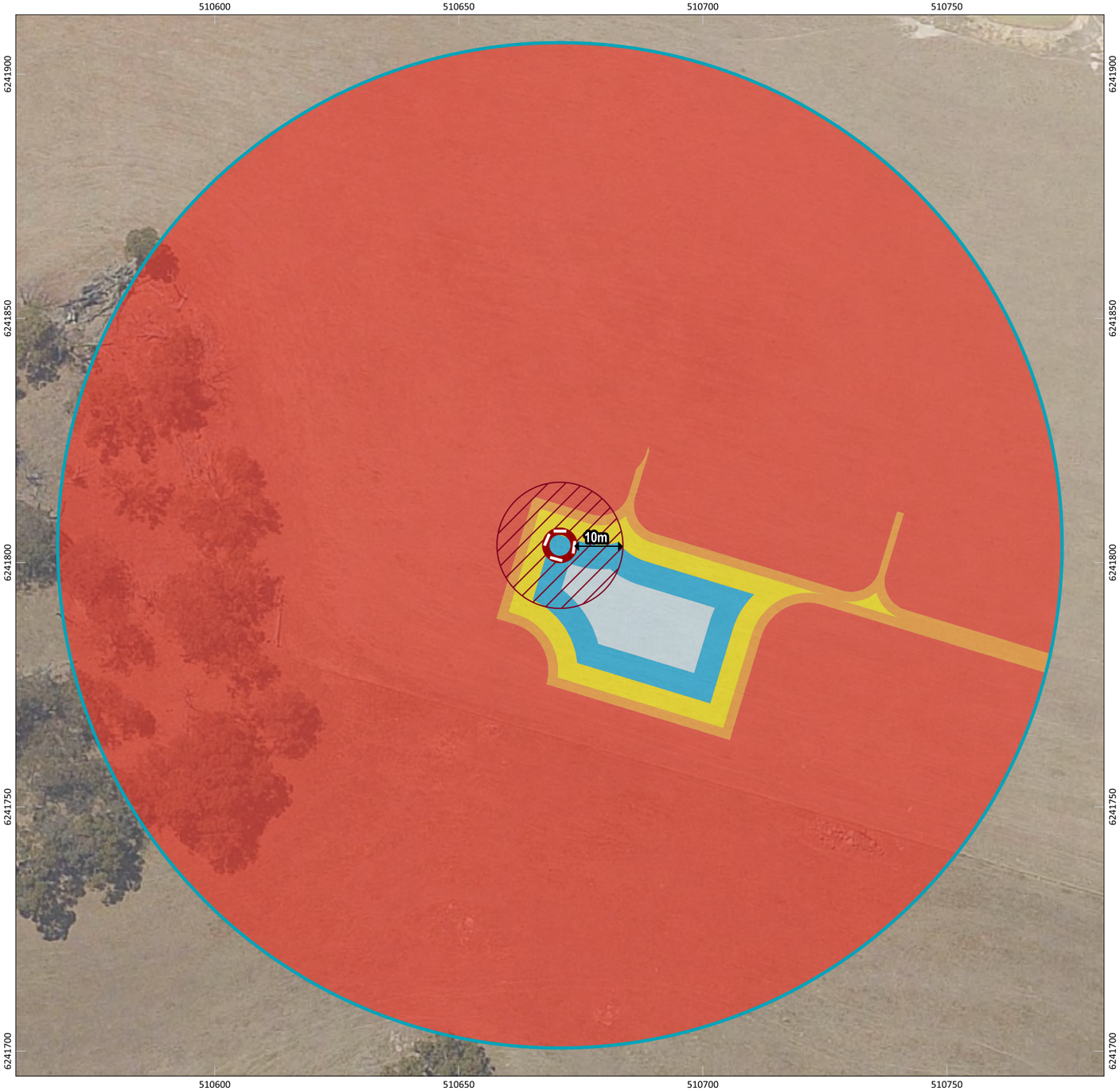



# Figure 8: Vegetation Classification and Bushfire Attack Level (BAL) Contours- T17

N

0 15 30 45 60 m

| | | | |
|---|---|---|---|
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | PROJECT/REPORT NAME: Bushfire Compliance Memo Kojanup Wind Farm | |
| | | CLIENT: Moonies Hill New Energy Pty Ltd | |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

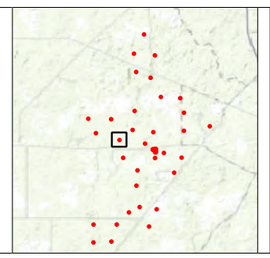
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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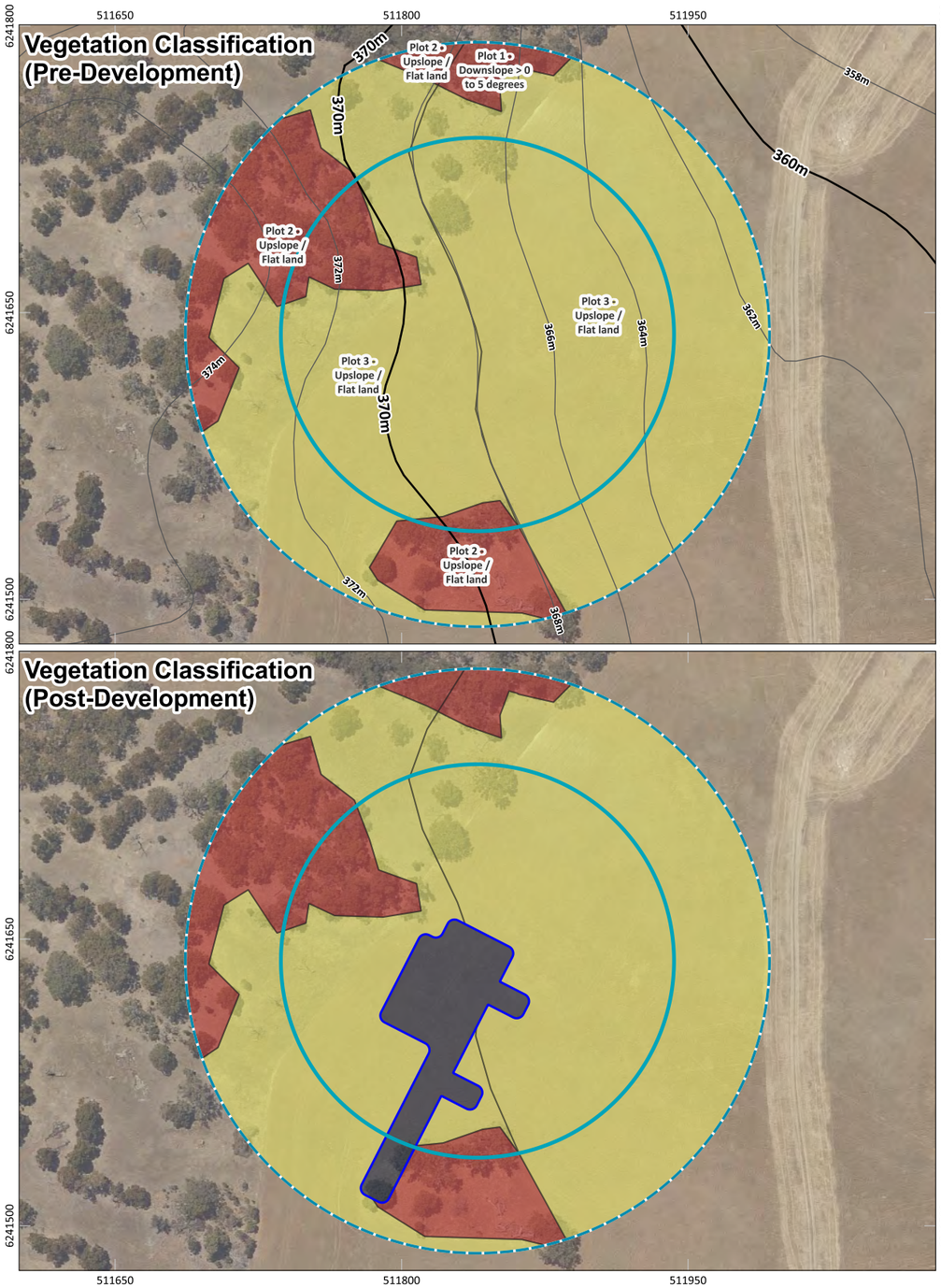
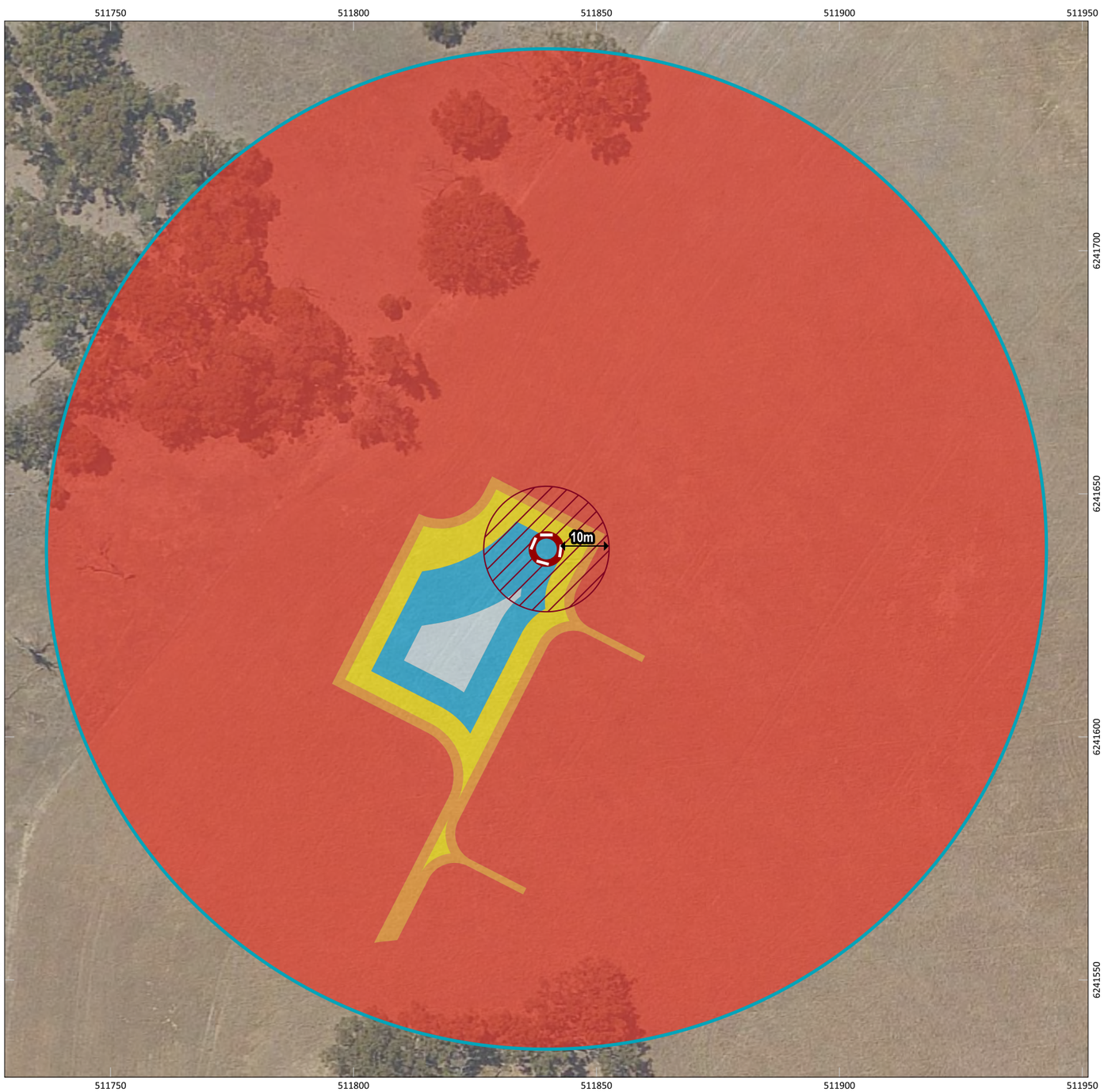









# Figure 9: Vegetation Classification and Bushfire Attack Level (BAL) Contours- T18

N

0 15 30 45 60 m

| | |
|---|---|
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | PROJECT NUMBER: A25.115 / VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | DRAWN BY / REVIEWED BY: SM/DW / DATE: 14/10/2025 |

PROJECT/REPORT NAME: Bushfire Compliance Memo
Kojanup Wind Farm

CLIENT: Moonies Hill New Energy Pty Ltd

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

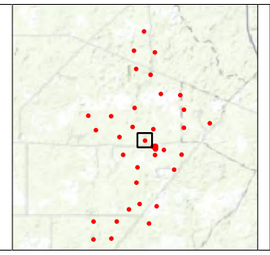
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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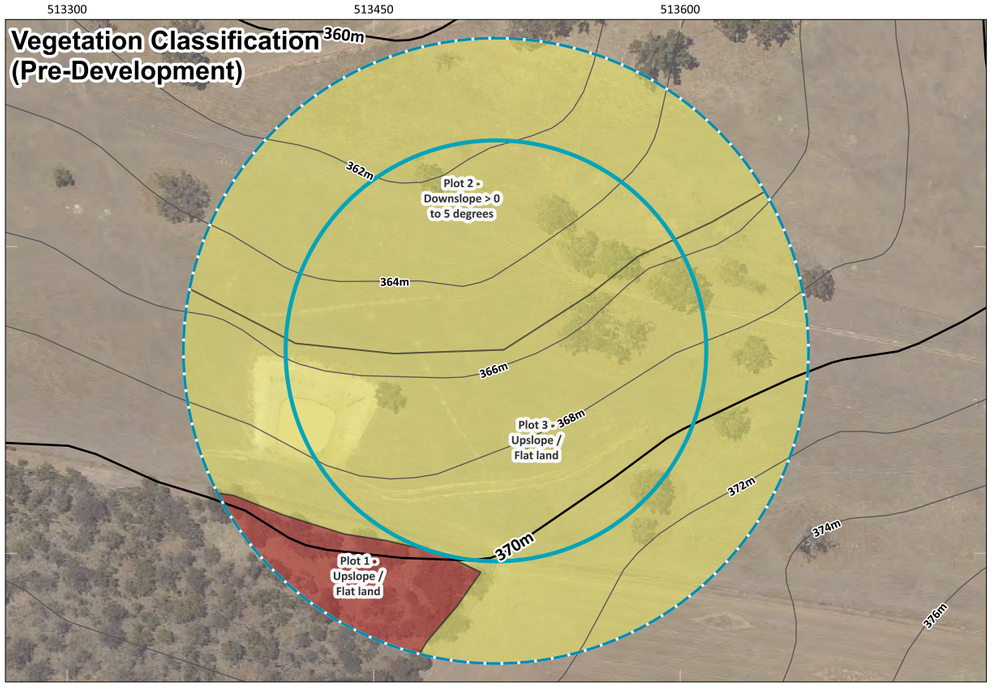


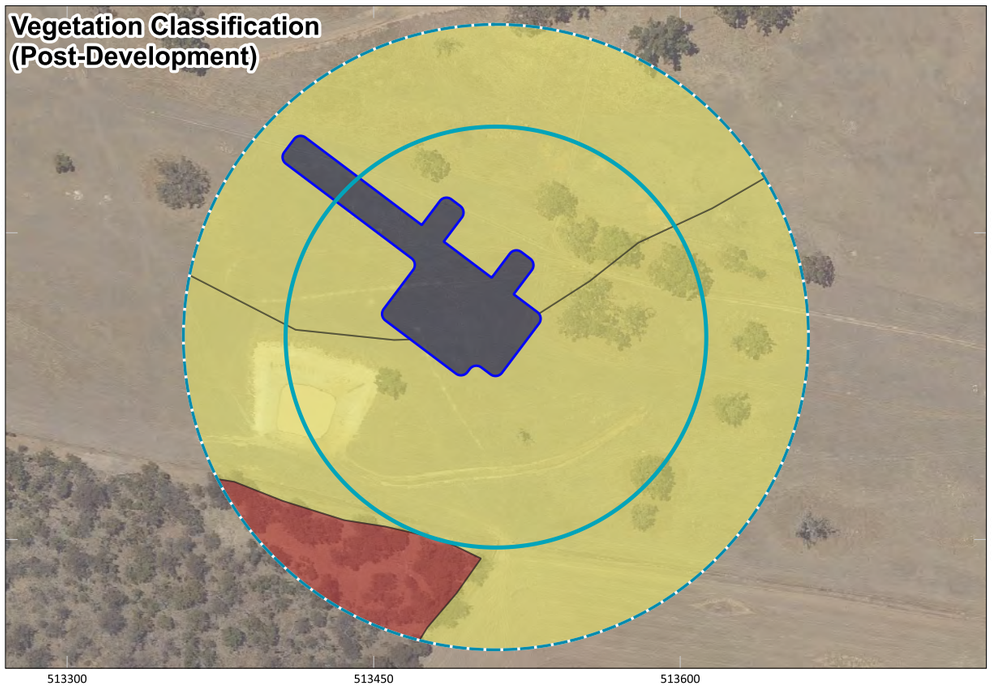


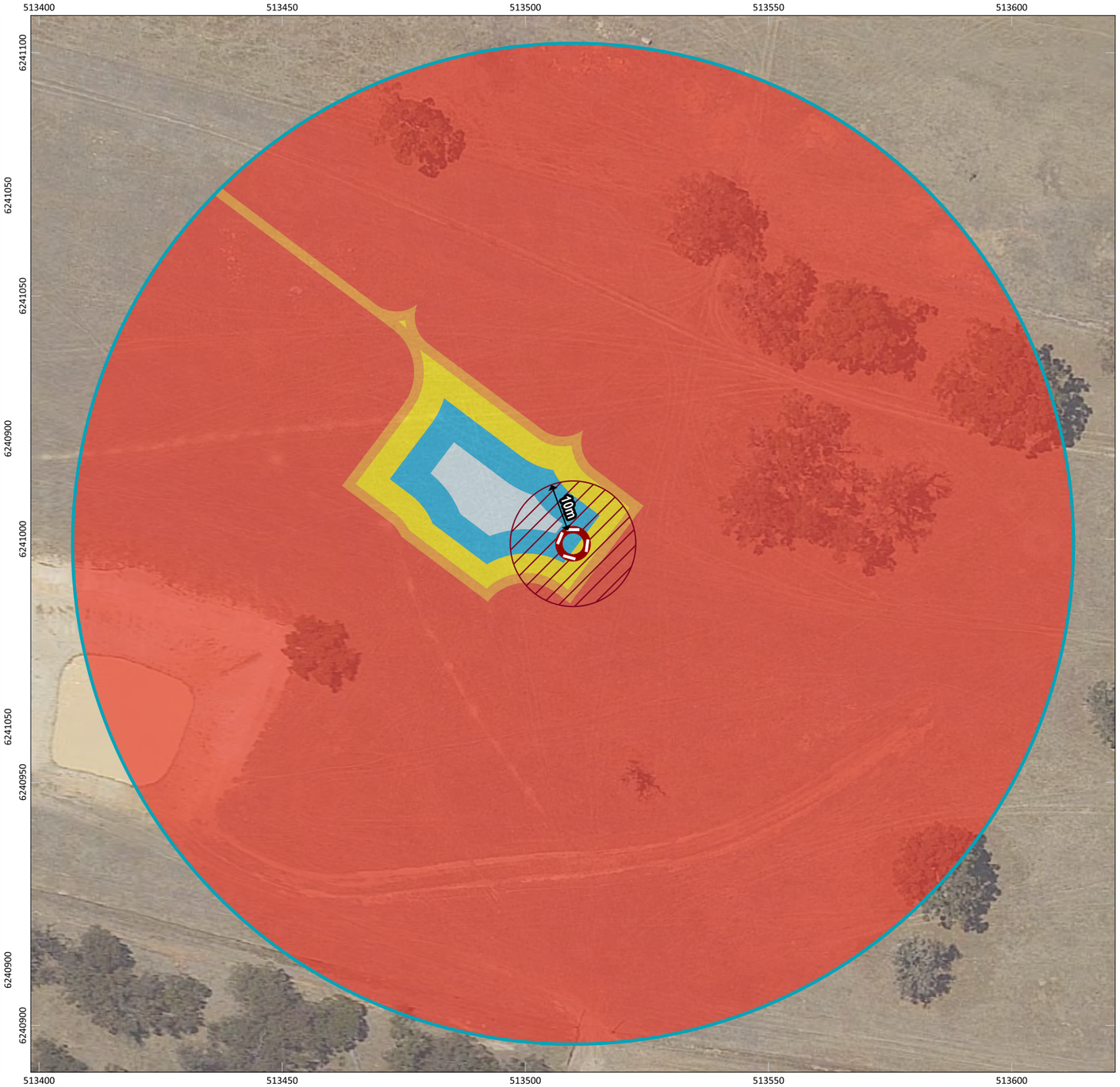


# Figure 10: Vegetation Classification and Bushfire Attack Level (BAL) Contours- T20

N

0 15 30 45 60 m

| | | |
|---|---|---|
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

PROJECT/REPORT NAME: Bushfire Compliance Memo
Kojanup Wind Farm

CLIENT: Moonies Hill New Energy Pty Ltd

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)

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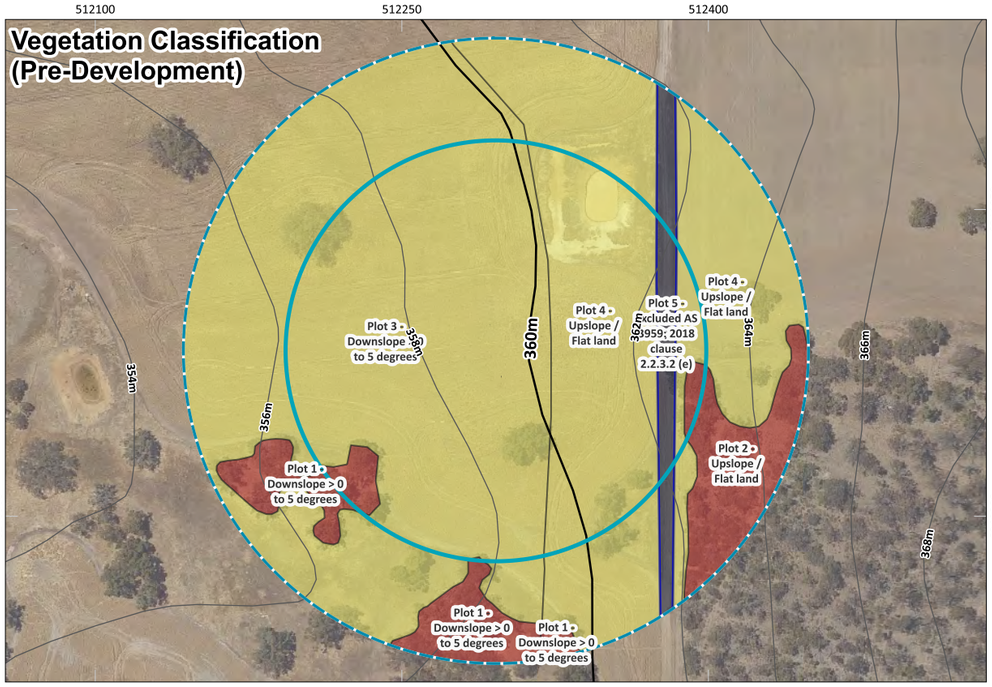
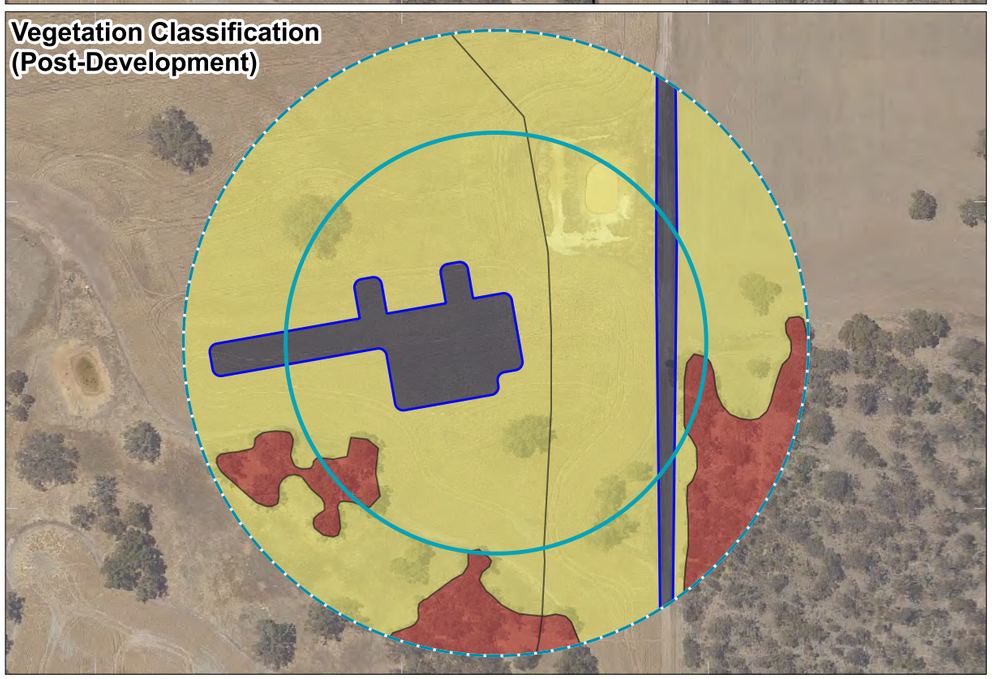


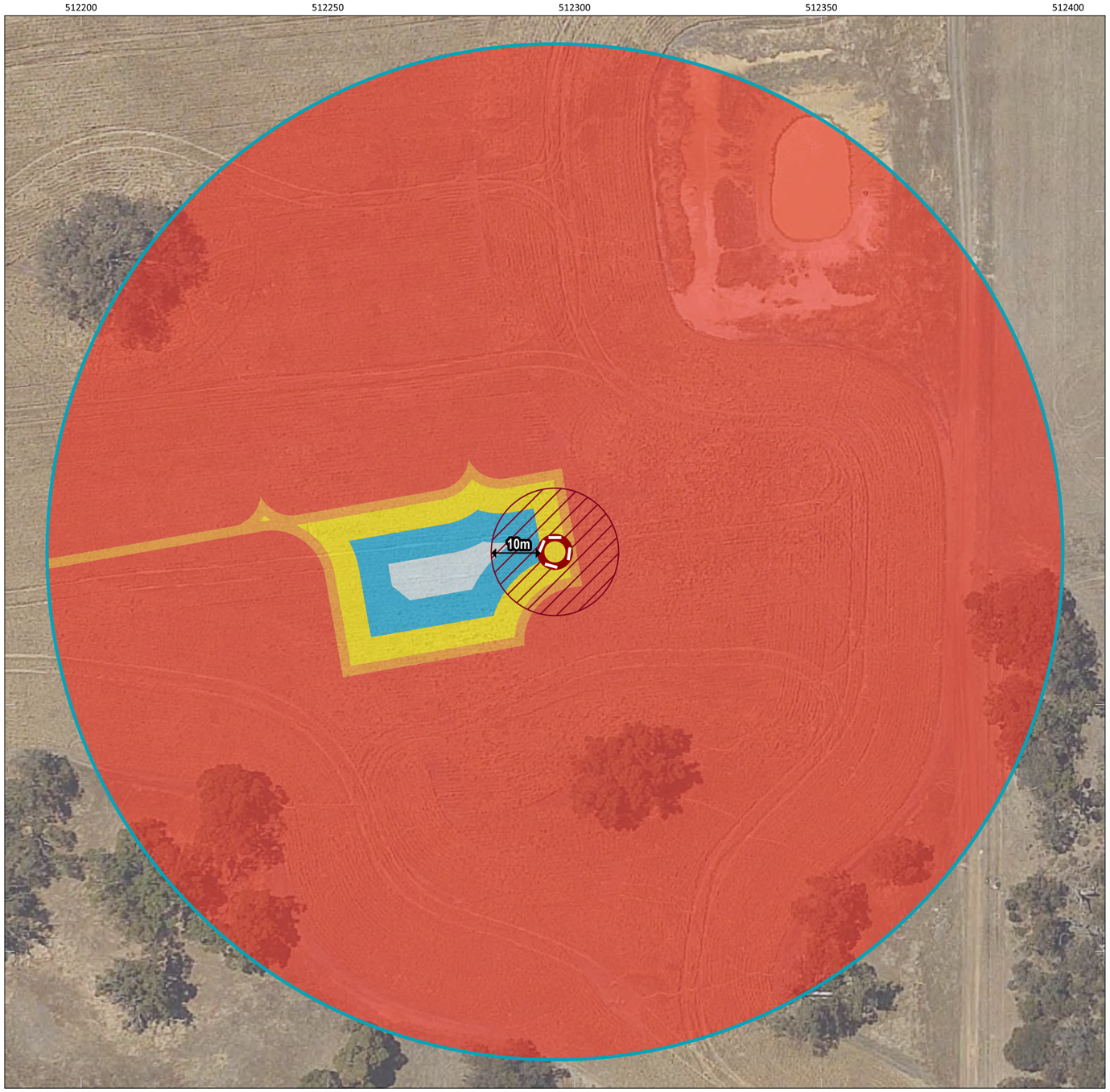




**Figure 11:** Vegetation Classification and Bushfire Attack Level (BAL) Contours- T21

0 15 30 45 60 m

N

| | | |
|---|---|---|
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

PROJECT/REPORT NAME: Bushfire Compliance Memo
Kojanup Wind Farm

CLIENT: Moonies Hill New Energy Pty Ltd

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

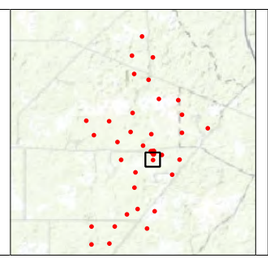
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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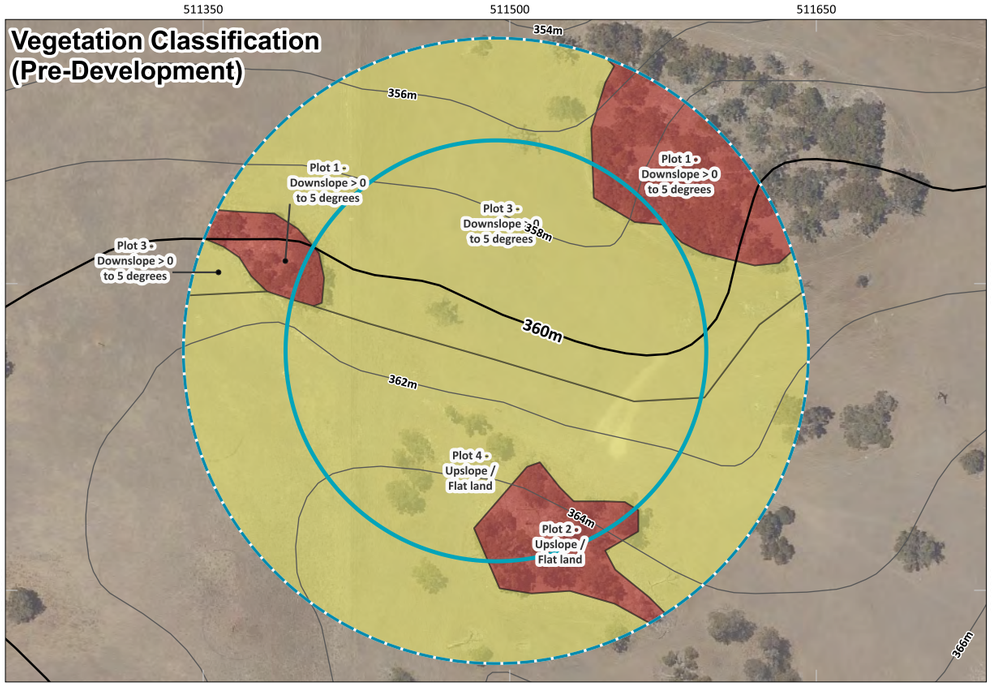
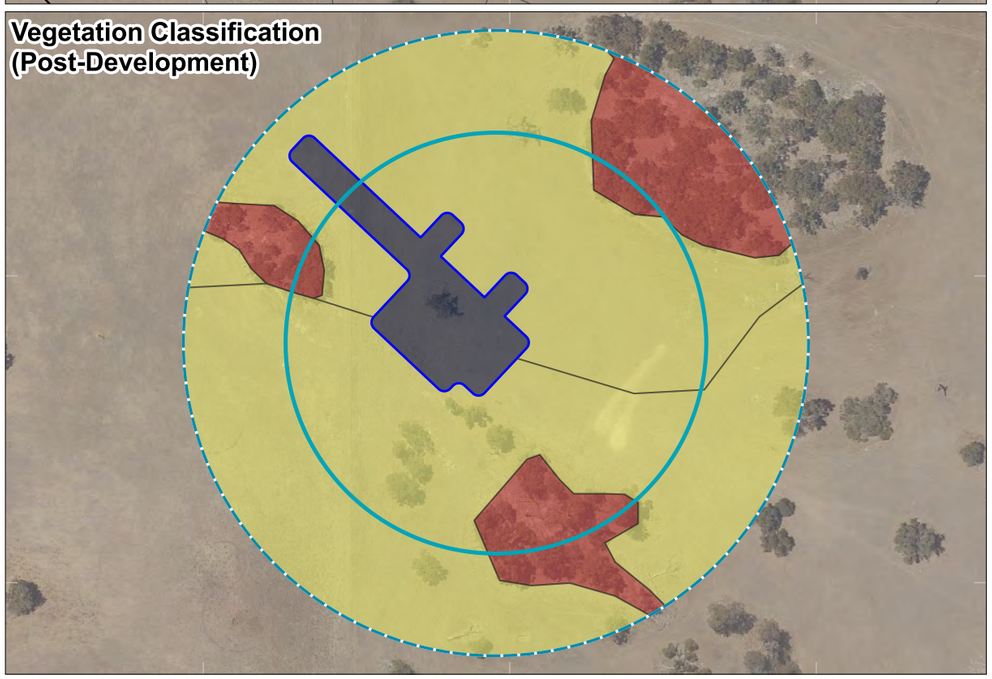


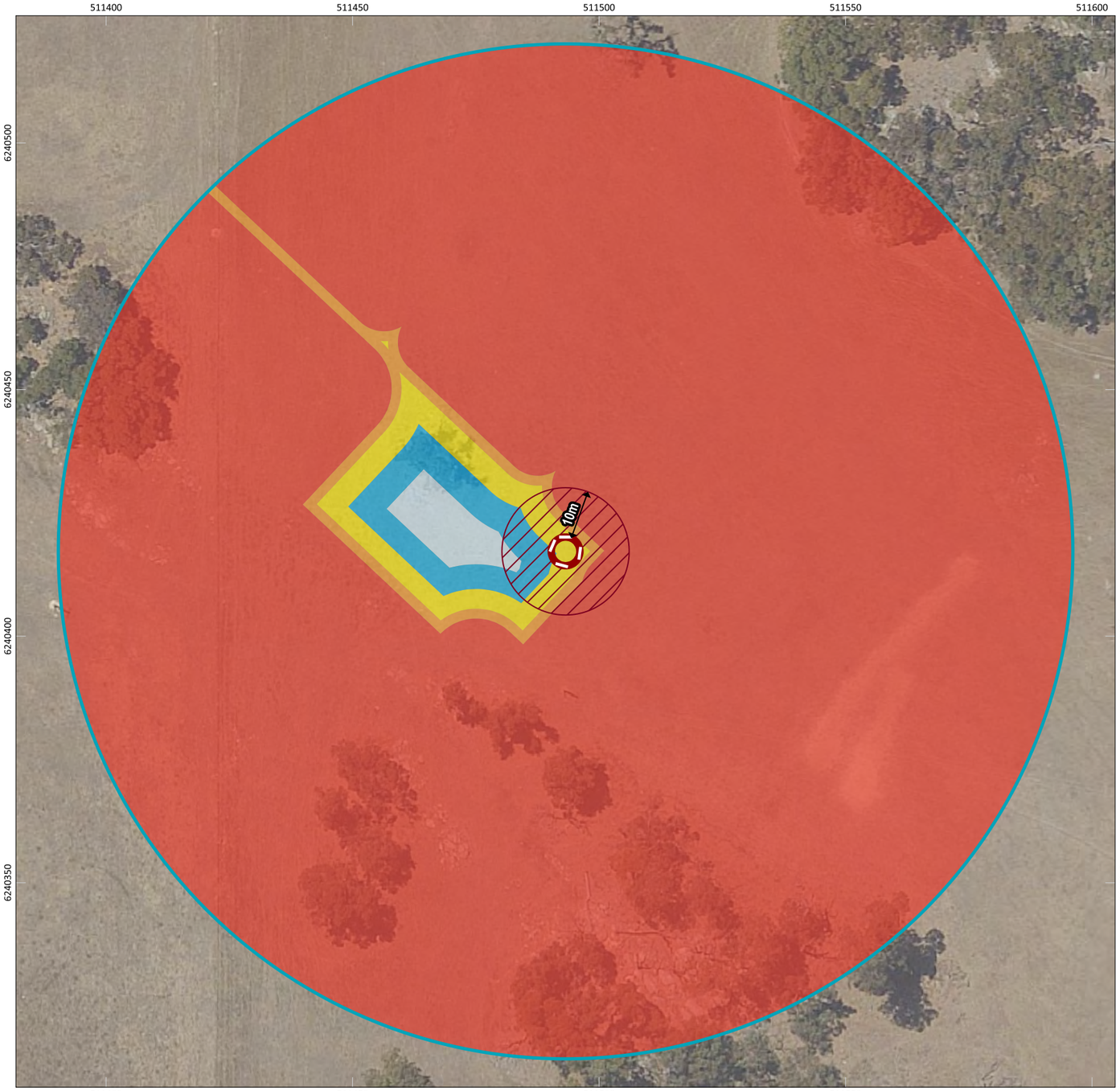




**Figure 12:** Vegetation Classification and Bushfire Attack Level (BAL) Contours- T22

| | | |
|---|---|---|
| N; 0 15 30 45 60 m | PROJECT/REPORT NAME: Bushfire Compliance Memo Kojanup Wind Farm | |
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | CLIENT: Moonies Hill New Energy Pty Ltd |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

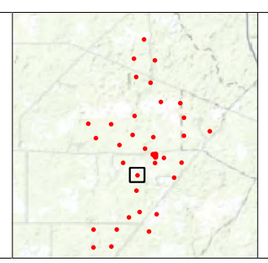
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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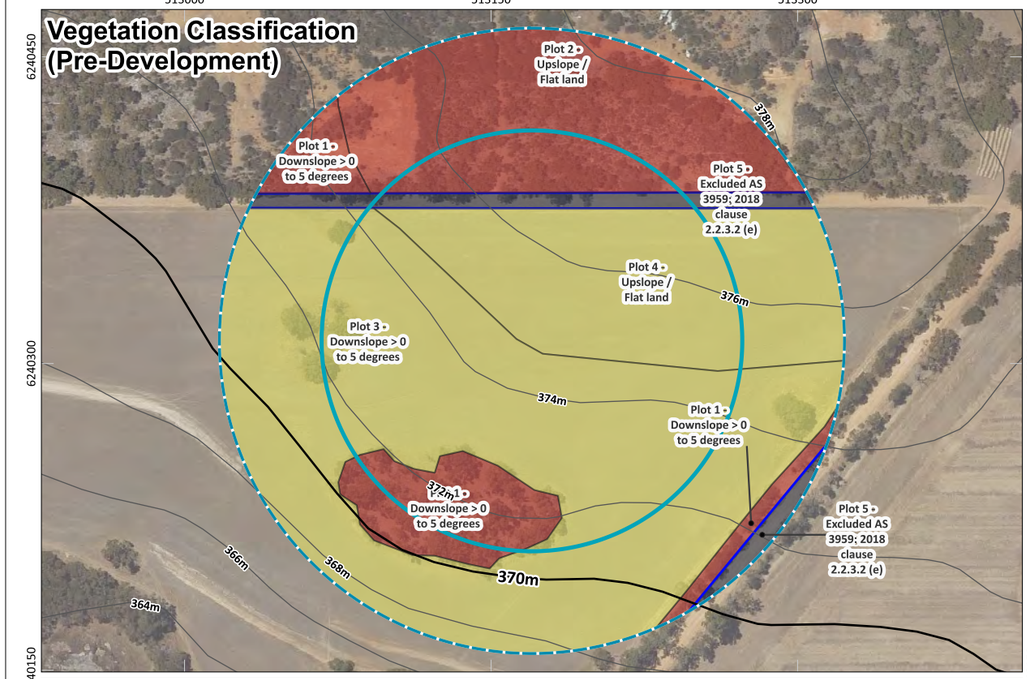
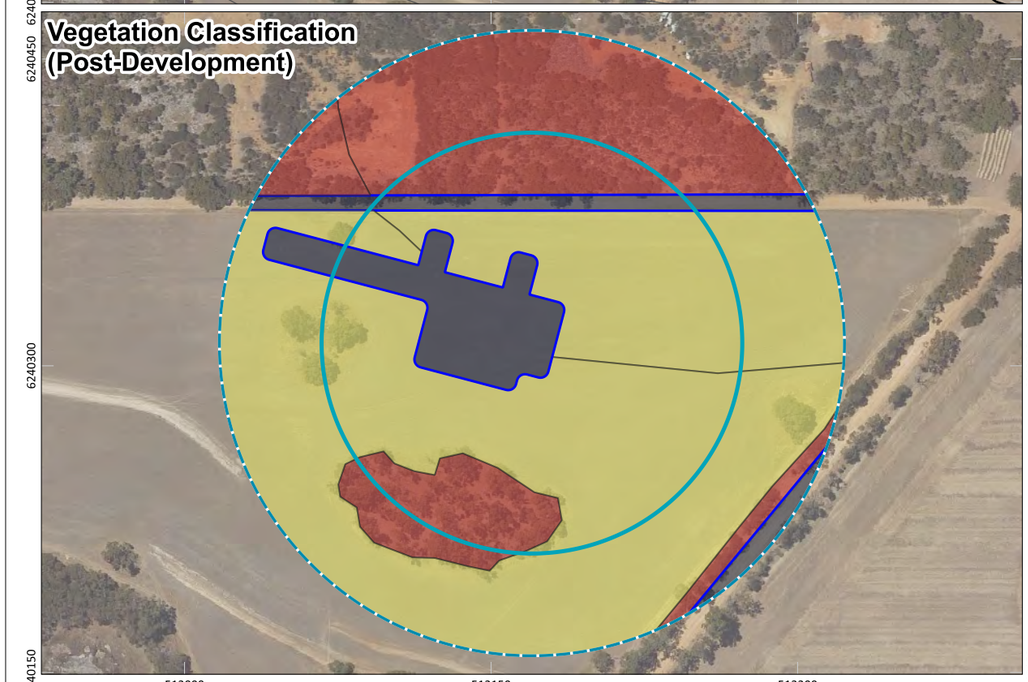


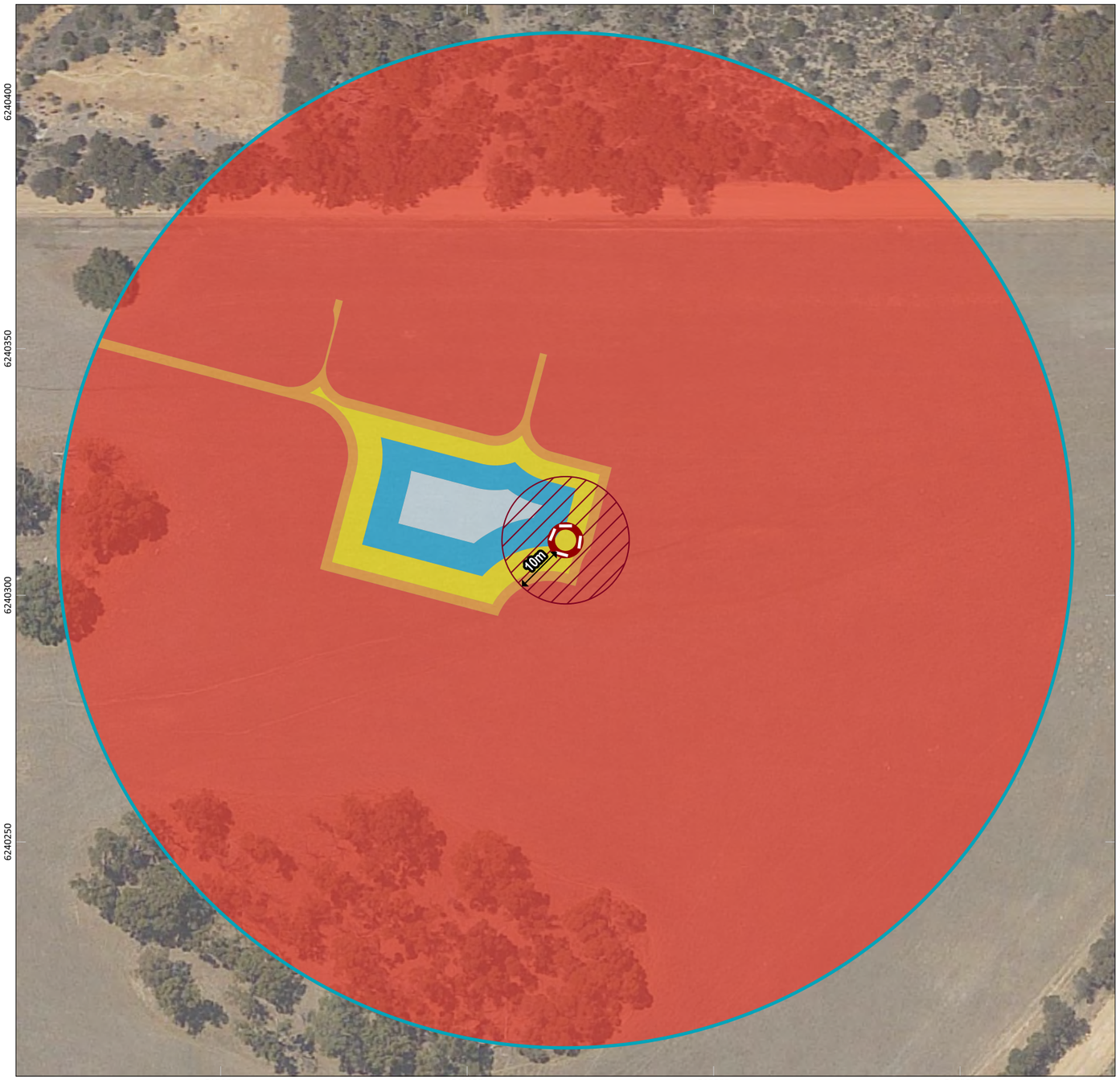




**Figure 13:** Vegetation Classification and Bushfire Attack Level (BAL) Contours- T24

0 15 30 45 60 m

N

| | | |
|---|---|---|
| PROJECT/REPORT NAME: Bushfire Compliance Memo<br>Kojanup Wind Farm | | |
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | CLIENT: Moonies Hill New Energy Pty Ltd |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

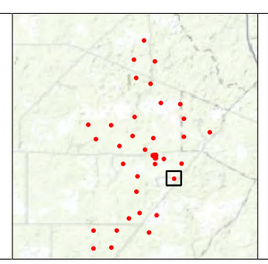
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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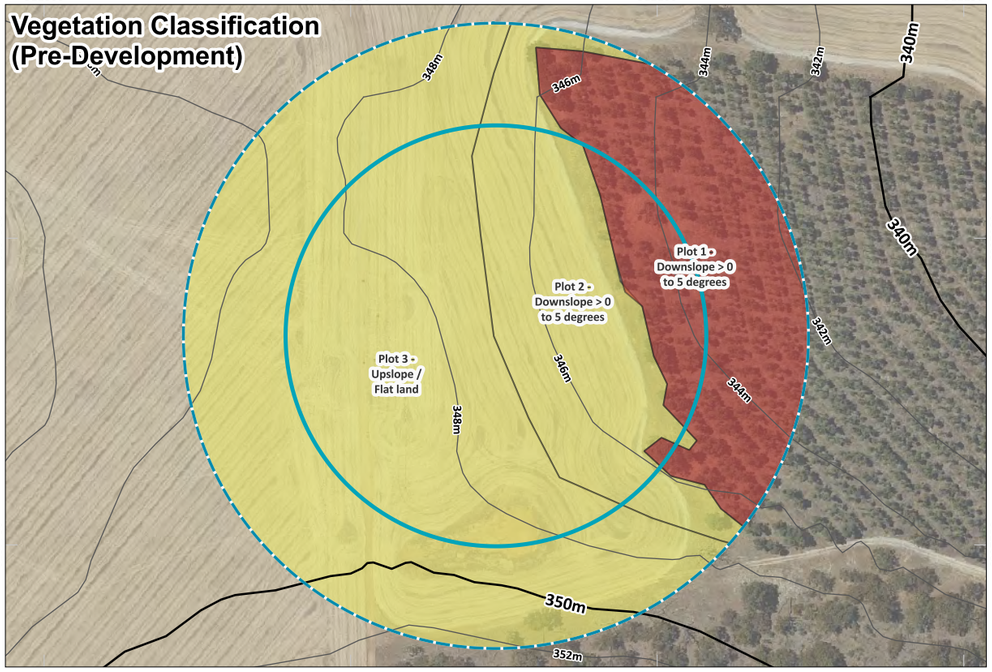
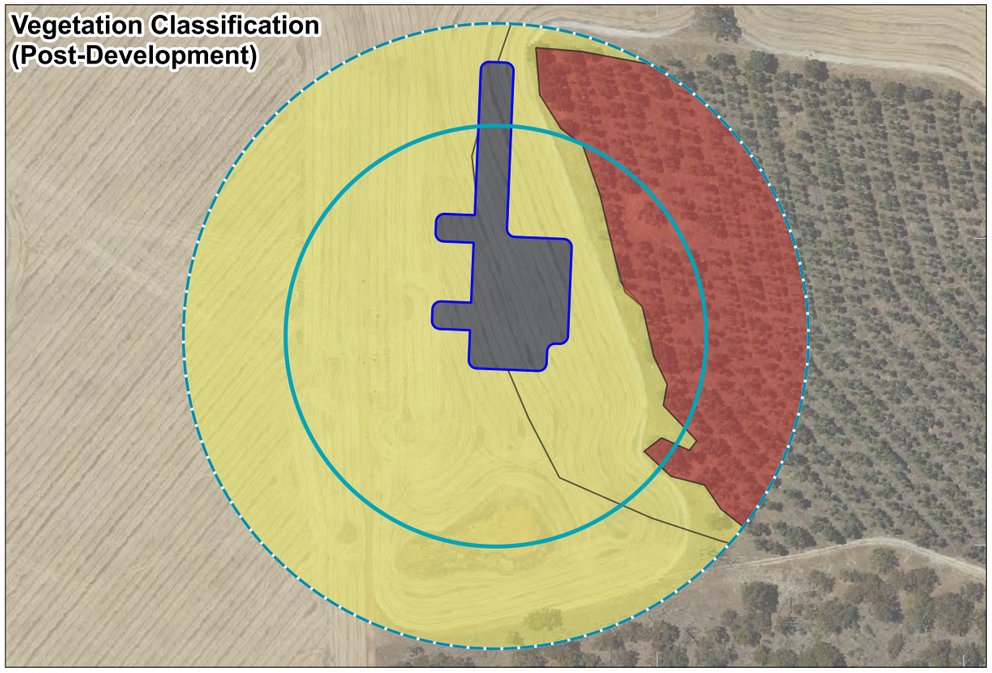




# Figure 14: Vegetation Classification and Bushfire Attack Level (BAL) Contours- T28

0 15 30 45 60 m

N

| | |
|---|---|
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | |

| | | |
|---|---|---|
| PROJECT/REPORT NAME: Bushfire Compliance Memo<br>Kojanup Wind Farm | | |
| CLIENT: Moonies Hill New Energy Pty Ltd | | |
| PROJECT NUMBER: A25.115 | VERSION: 0 | |
| DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 | |

Legend

- Proposed Wind Turbine
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

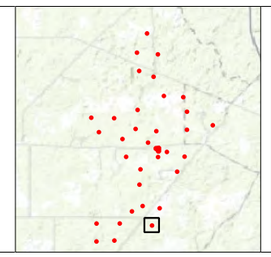
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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### Achievable Bushfire Attack Level (BAL) – Development Envelopes

Development envelopes for the office, O&M building, BESS, substation and batching plant have been included on the development plans given the exact location and design of the buildings and infrastructure is yet to be determined.

The BAL Contour Map in Figure 15 is based on all vegetation within the bushfire prone development envelopes being cleared and remaining non-vegetated in perpetuity. Habitable buildings will need to be setback from vegetation surrounding to the development envelopes to ensure the radiant heat impact does not exceed 29kW/$m^2$ (BAL-29), as detailed in Table 5.

In addition, infrastructure within the BESS and substation development envelopes will need to be setback from vegetation surrounding the development envelopes to ensure the radiant heat impact does not exceed 10kW/$m^2$, as shown on Figure 15 and detailed in Table 5.

**Table 5: BAL Assessment Summary – Incidental Development**

| Development Envelope | Vegetation Most Affecting BAL Rating | Separation Distance (Setback) | Radiant Heat Impact |
|---|---|---|---|
| Office | Class A Forest (Flat / Upslope) | 21 m | 29kW/$m^2$ (BAL-29) |
| Batching Plant | Class G Grassland (Flat / Upslope) | 8 m | 29kW/$m^2$ (BAL-29) |
| BESS | Class G Grassland (Downslope 0-5 degrees) | 24.6 m | 10kW/$m^2$ |
| Substation | Class G Grassland (Flat / Upslope) | 21.2 m | 10kW/$m^2$ |



**Figure 15:** Vegetation Classification and Bushfire Attack Level (BAL) Contours- Site Office and Batch Plant

N

0 50 100 150 200 m

| | | |
|---|---|---|
| SCALE: 1:3,000 | SHEET SIZE: A3 COLOUR | |
| COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50 | PROJECT NUMBER: A25.115 | VERSION: 0 |
| DATA SOURCE: LANDGATE AERIAL IMAGERY | DRAWN BY / REVIEWED BY: SM/DW | DATE: 14/10/2025 |

PROJECT/REPORT NAME: Bushfire Compliance Memo
Kojanup Wind Farm

CLIENT: Moonies Hill New Energy Pty Ltd

Legend

- Incidental Development Envelope
- Buffer 100m
- Buffer 150m
- Incidental Development
- 10kW/m2 setback

2m Contours (DPIRD-072)

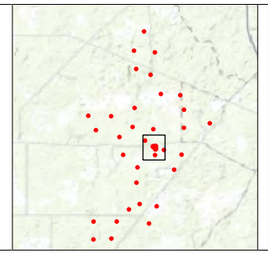
- 2m
- 10m

Bushfire Attack Level (BAL)

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

Vegetation Classification

- Class A - Forest
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (e)



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## Additional Considerations

### Design Guidelines and Model Requirements for Renewable Energy Facilities

SPP 3.7 and the Guidelines do not currently provide a comprehensive framework for the assessment of renewable energy facilities in bushfire prone areas. As outlined previously, SPP 3.7 and the Guidelines only apply to habitable buildings and therefore non-habitable renewable energy facilities are considered exempt from assessment under the bushfire planning framework.

In the absence of a bushfire assessment framework specific to renewable energy facilities in Western Australia, the Country Fire Authority (CFA) *Design Guidelines and Model Requirements for Renewable Energy Facilities Version 4* (CFA Guidelines; State of Victoria, 2023) have been applied to similar renewable energy projects throughout Western Australia. The Department of Planning, Lands and Heritage (DPLH) and the Department of Fire and Emergency Services (DFES) have previously supported this approach for renewable energy facilities. In light of this, the Shire may require the BMP to also include an assessment of the wind turbines and BESS against the CFA Guidelines.

If an assessment against the CFA Guidelines is required, consultation with the Shire and the local fire brigade is recommended to determine which of the requirements should be incorporated into the proposed development.

## Conclusion

This technical note demonstrates that the proposed KWF appropriately identifies the bushfire risk as part of the preliminary design stage and outlines how these risks can be managed through APZs and the preparation of a BMP though a condition of the development approval. The technical note also provides guidance on the complexities associated with renewable energy facilities in the context of the bushfire planning framework and outlines how this is currently being addressed through the use of guiding documents from other states and territories.

The information provided in this technical note is considered sufficient to address the bushfire related matters under the Deemed Provisions of the Regulations and enable the development application to be supported by the Shire.

## References


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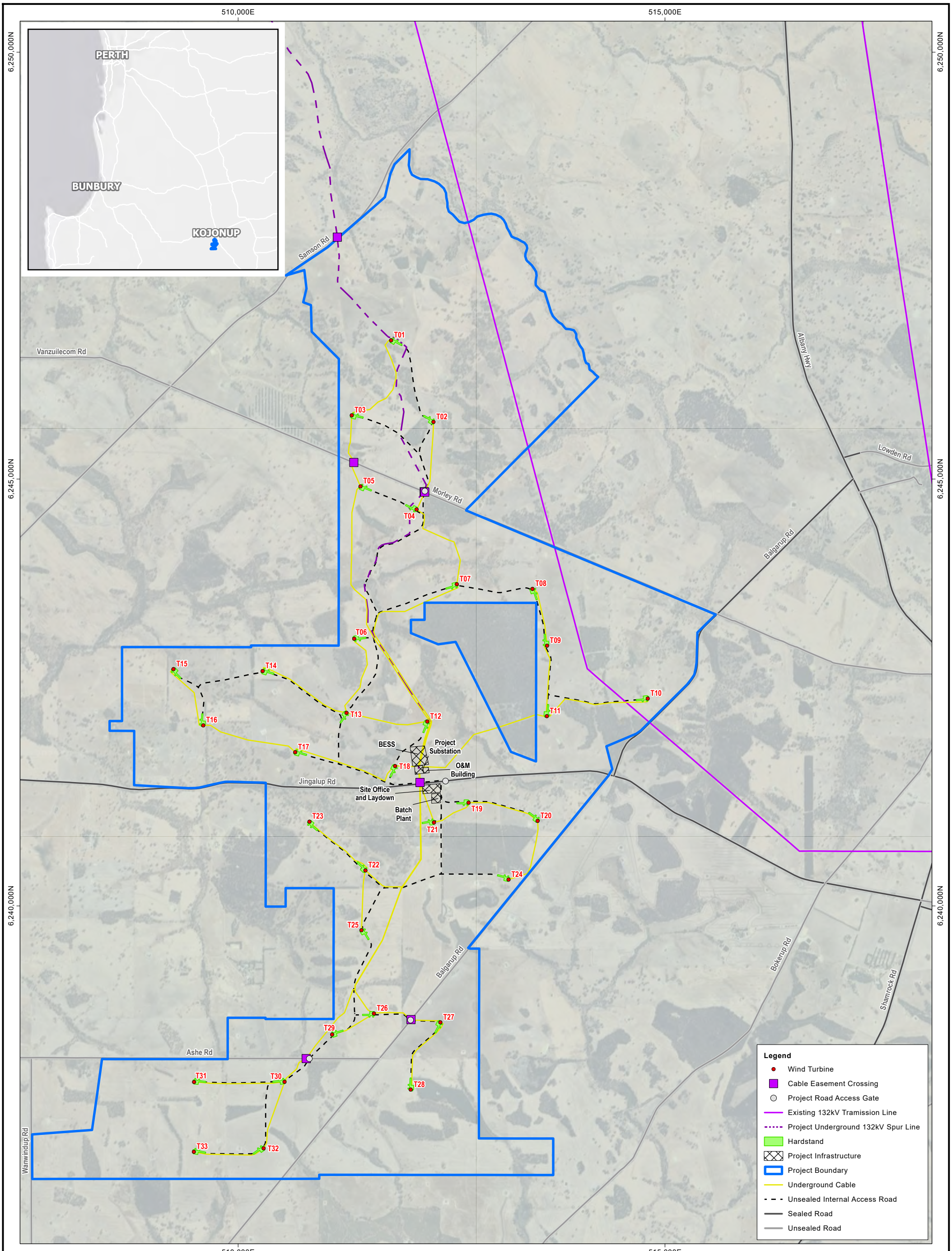
# Attachment A
# Proposed Layout Plan

Imagery: © OpenStreetMap (and) contributors, CC-BY-SA, Esri, HERE, Garmin, USGS




0 450 900m

Scale: 1:40,000
GDA 1994 MGA Zone 50

KWF KOJONUP WIND FARM

# Kojonup Wind Farm
# Project Layout

| | | | |
|---|---|---|---|
| CAD Ref: a1868_F046_01 | | | Author: Kojonup Wind Farm Pty Ltd |
| Date: September 2025 | Rev: A | A3 | Drawn: CAD Resources ~ www.cadresources.com.au |

# Attachment B
# Preliminary Assessment Against the Bushfire Protection Criteria

## Bushfire Protection Criteria 7: Development – Commercial and Industrial

### Element 1: Location

Element 1 does not apply to development applications.

### Element 2: Siting and design

#### A2.1a Siting and design

The proposed office building can be located in an area within the development envelope that achieves a radiant heat impact not exceeding 29kW/$m^2$ (BAL-29), as shown on Figure 16.
The proposed office building is capable of complying with A2.1a.

#### A2.1b Siting in an area with a radiant heat impact exceeding 29kW/$m^2$ (BAL-40 or BAL-FZ)

Not applicable – as above, the proposed office building will be located in an area that achieve a radiant heat impact not exceeding 29kW/$m^2$ (BAL-29), as shown on Figure 15.

#### A2.2 Asset Protection Zone (APZ)

The development envelope will be cleared of vegetation and remain non-vegetated which will comply with the APZ technical requirements.

The proposed office building is capable of complying with A2.2.

#### A2.3 Clearing of native vegetation

Not applicable – The proposed office building is located in an open paddock.

#### A2.4 Storage of hazardous, flammable and/or combustible materials

The office building is unlikely to include the storage of hazardous, flammable and/or combustible materials. However, if there are hazardous, flammable and/or combustible materials stored within or adjacent the office building, they will need to be stored in a non-combustible container and located an area that achieves a radiant heat impact not exceeding 29kW/$m^2$ (BAL-29), as shown on Figure 15.

The proposed office building is capable of complying with A2.4.

### Element 3: Vehicular access

#### A3.1 Private driveways

The internal access roads providing access to the proposed office building will have a minimum trafficable width of 6m with a turnaround area provided within 30m of the building.

The proposed office building is capable of complying with A3.1.

### Element 4: Water supply

#### A4.1 Water supply

The subject site is located within a non-reticulated water area. A non-combustible water tank with a minimum capacity of 10,000 litres per 1,500sqm of habitable floor space will be provided within close proximity to the office building within the development envelope.
The proposed office building is capable of complying with A4.1.

# Attachment C
# Method 2 Calculations

## Minimum Distance Calculator - AS3959-2018 (Method 2)

| Inputs | | Outputs | |
|---|---|---|---|
| Fire Danger Index | 80 | Rate of spread | 3.38 km/h |
| Vegetation Classification | Forest | Flame length | 26.22 m |
| Understorey fuel load | 25 t/ha | Flame angle | 51 °, 59 °, 66 °, 70 °, 72 ° & 79 ° |
| Total fuel load | 35 t/ha | Elevation of receiver | 10.19 m, 11.24 m, 11.97 m, 12.32 m, 12.47 m & 12.87 m |
| Vegetation height | n/a | Fire intensity | 61,280 kW/m |
| Effective slope | 5 ° | Transmissivity | 0.853, 0.828, 0.797, 0.772, 0.76 & 0.706 |
| Site slope | 0 ° | Viewfactor | 0.6132, 0.4593, 0.3124, 0.2126, 0.1726 & 0.0465 |
| Flame width | 100 m | Minimum distance to < 40 kW/m² | 21.2 m |
| Windspeed | n/a | Minimum distance to < 29 kW/m² | 27.7 m |
| Heat of combustion | 18,600 kJ/kg | Minimum distance to < 19 kW/m² | 38.4 m |
| Flame temperature | 1,090 K | Minimum distance to < 12.5 kW/m² | 51.3 m |
| | | Minimum distance to < 10 kW/m² | 59.2 m |

## Minimum Distance Calculator - AS3959-2018 (Method 2)

| Inputs | | Outputs | |
|---|---|---|---|
| Fire Danger Index | 80 | Rate of spread | 2.4 km/h |
| Vegetation Classification | Forest | Flame length | 19.8 m |
| Understorey fuel load | 25 t/ha | Flame angle | 52 °, 61 °, 69 °, 73 °, 74 ° & 81 ° |
| Total fuel load | 35 t/ha | Elevation of receiver | 7.8 m, 8.65 m, 9.24 m, 9.460000000000001 m, 9.51 m & 9.77 m |
| Vegetation height | n/a | Fire intensity | 43,400 kW/m |
| Effective slope | 0 ° | Transmissivity | 0.863, 0.841, 0.8110000000000001, 0.786, 0.773 & 0.716 |
| Site slope | 0 ° | Viewfactor | 0.6085, 0.4531, 0.3066, 0.2086, 0.1696 & 0.0458 |
| Flame width | 100 m | Minimum distance to < 40 kW/m² | 16.1 m |
| Windspeed | n/a | Minimum distance to < 29 kW/m² | 21.5 m |
| Heat of combustion | 18,600 kJ/kg | Minimum distance to < 19 kW/m² | 30.6 m |
| Flame temperature | 1,090 K | Minimum distance to < 12.5 kW/m² | 41.9 m |
| | | Minimum distance to < 10 kW/m² | 48.9 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

## Minimum Distance Calculator - AS3959-2018 (Method 2)

| Inputs | | Outputs | |
|---|---|---|---|
| Grassland Fire Danger Index | 110 | Rate of spread | 20.19 km/h |
| Vegetation Classification | Grassland | Flame length | 8.16 m |
| Understorey fuel load | 4.5 t/ha | Flame angle | 54 °, 64 °, 73 °, 78 °, 80 ° & 85 ° |
| Total fuel load | 4.5 t/ha | Elevation of receiver | 3.3 m, 3.67 m, 3.9 m, 3.99 m, 4.02 m & 4.06 m |
| Vegetation height | n/a | Fire intensity | 46,945 kW/m |
| Effective slope | 5 ° | Transmissivity | 0.885, 0.872, 0.854, 0.832, 0.82 & 0.748 |
| Site slope | 0 ° | Viewfactor | 0.5915, 0.4337, 0.2918, 0.1968, 0.1599 & 0.0438 |
| Flame width | 100 m | Minimum distance to < 40 kW/m² | 6.8 m |
| Windspeed | n/a | Minimum distance to < 29 kW/m² | 9.300000000000001 m |
| Heat of combustion | 18,600 kJ/kg | Minimum distance to < 19 kW/m² | 13.8 m |
| Flame temperature | 1,090 K | Minimum distance to < 12.5 kW/m² | 20.3 m |
| | | Minimum distance to < 10 kW/m² | 24.6 m |

Rate of Spread - Noble et al. 1980

Flame length - Purton, 1982

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

## Minimum Distance Calculator - AS3959-2018 (Method 2)

| Inputs | | Outputs | |
|---|---|---|---|
| Grassland Fire Danger Index | 110 | Rate of spread | 14.3 km/h |
| Vegetation Classification | Grassland | Flame length | 6.87 m |
| Understorey fuel load | 4.5 t/ha | Flame angle | 54 °, 64 °, 73 °, 78 °, 80 ° & 85 ° |
| Total fuel load | 4.5 t/ha | Elevation of receiver | 2.78 m, 3.08 m, 3.28 m, 3.36 m, 3.38 m & 3.42 m |
| Vegetation height | n/a | Fire intensity | 33,247 kW/m |
| Effective slope | 0 ° | Transmissivity | 0.887, 0.877, 0.861, 0.841, 0.829 & 0.755 |
| Site slope | 0 ° | Viewfactor | 0.5823, 0.4291, 0.29, 0.1946, 0.158 & 0.0434 |
| Flame width | 100 m | Minimum distance to < 40 kW/m² | 5.8 m |
| Windspeed | n/a | Minimum distance to < 29 kW/m² | 7.9 m |
| Heat of combustion | 18,600 kJ/kg | Minimum distance to < 19 kW/m² | 11.7 m |
| Flame temperature | 1,090 K | Minimum distance to < 12.5 kW/m² | 17.3 m |
| | | Minimum distance to < 10 kW/m² | 21.2 m |

Rate of Spread - Noble et al. 1980

# Attachment D
# BAL Ratings Explained

The bushfire assessment was undertaken in accordance with 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.

A description of each Bushfire Attack Level (BAL) is provided in the below table, as per AS 3959: 2018.

| Bushfire Attack Level (BAL) | Classified vegetation within 100 m of the 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** | ≤12.5 kW/m$^2$ | Ember attack | 3 and 5 |
| **BAL-19** | >12.5 kW/m$^2$ ≤19 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 kW/m$^2$ ≤29 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 kW/m$^2$ ≤40 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 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.