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Appendix N

Bushfire Assessment and Management Plan

BUSHFIRE HAZARD ASSESSMENT AND MANAGEMENT PLAN

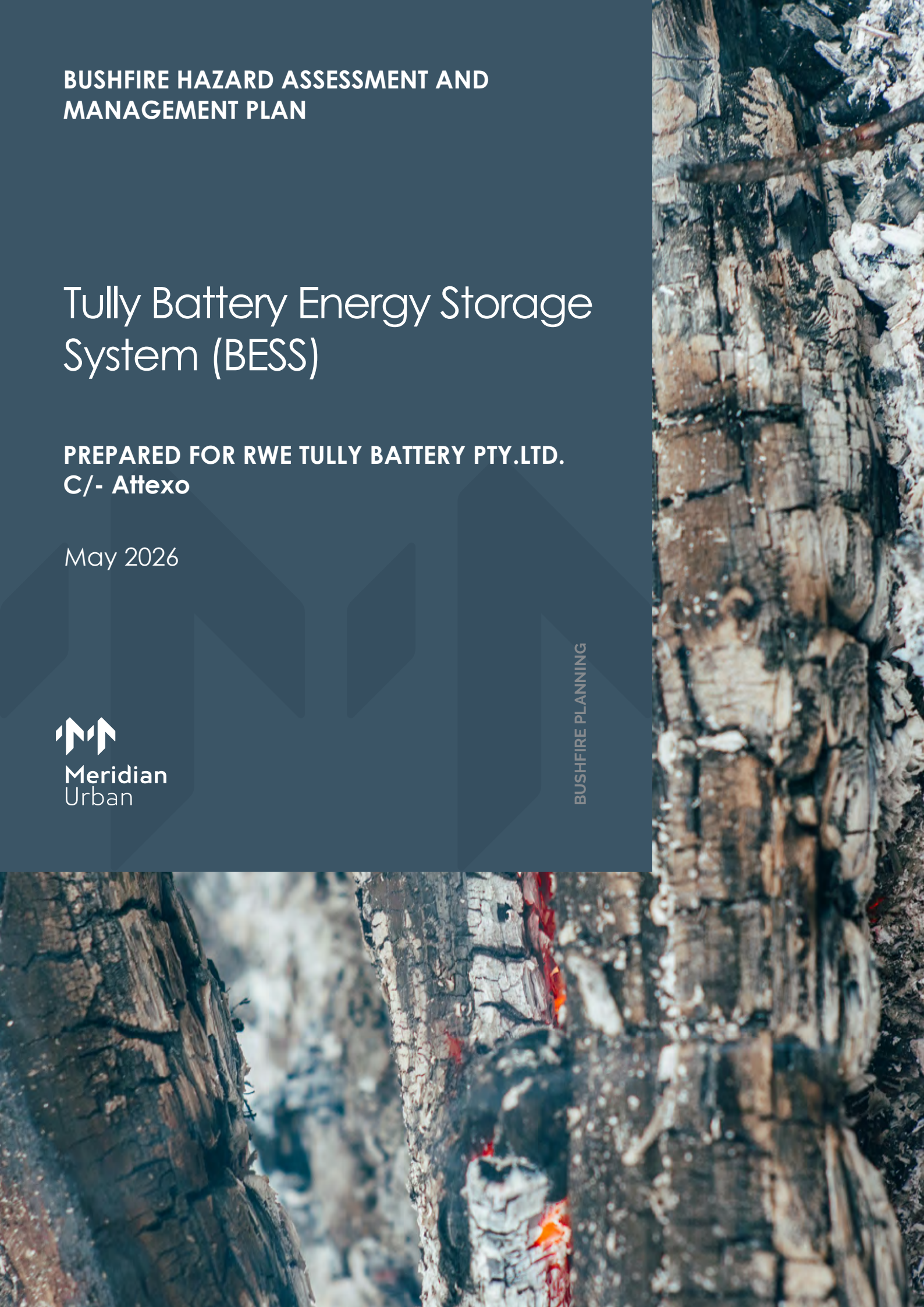
Tully Battery Energy Storage System (BESS)

PREPARED FOR RWE TULLY BATTERY PTY.LTD.
C/- Attexo

May 2026

Meridian Urban

BUSHFIRE PLANNING



ACKNOWLEDGEMENT OF COUNTRY

Meridian Urban acknowledges the Traditional Custodians of the lands and waters where we live and work.

As resilience practitioners we have a responsibility in listening to and elevating Indigenous voices through our practice, and meaningfully engaging in processes of reconciliation. We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers, and pay our respect to Elders past and present.

Meridian Urban's 'Reflect' Reconciliation Action Plan (RAP) details our commitments to advancing cultural change, active participation and inclusive and informed approaches, with a focus on increasing economic and social equity for Aboriginal and Torres Strait Islander peoples and supporting First Nations self-determination. A copy of our RAP can be viewed online at meridianurban.com.

Meridian Urban

QUALITY STATEMENT

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REVISION SCHEDULE

Rev No.	Date	Description	Prepared by	Reviewed by	Approved by
A	30/06/2025	Final	AA	LG	LG
B	11/09/2025	Final (updated layout)	AA	LG	LG
C	18/09/2025	Final (minor amendments)	AA	LG	LG
D	12/03/2025	Update (response to State Code 27)	AA	LG	LG
E	11/05/2026	Final (minor amendments)	AA	LG	LG

FPAA NSW BPAD Accreditation No. 33131

Member Planning Institute of Australia
Member Fire Protection Association of Australia
Member International Association of Wildland Fire
Member Natural Hazard Mitigation Association (USA)
Member of Association of Fire Ecology

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

DISCLAIMER

This document has been prepared for RWE TULLY BATTERY Pty. Ltd. C/- Attexo. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This report is prepared for the benefit of the named Client only. No third party may rely upon any advice or work completed by Meridian Urban in relation to the services, including this report, except to the extent expressly agreed in writing by Meridian Urban.

It is acknowledged and agreed that the site may be subject to a degree of bushfire hazard. The client acknowledges and agrees that Meridian Urban has not created or contributed to the creation or existence of this hazard and the Client indemnifies Meridian Urban for claims arising out of or resulting from a bushfire event except to the extent attributable to the negligence of Meridian Urban.

The Client agrees that the Consultant shall have no liability in respect of any damage or loss incurred as a result of bushfire.

Tully Battery Energy Storage System (BESS)

Bushfire hazard assessment and management plan

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1 Introduction

Meridian Urban has been commissioned by RWE TULLY BATTERY PTY. LTD. C/- Attexo to provide a bushfire hazard assessment and associated bushfire management plan for a proposed Battery Energy Storage System (BESS) at Tully, in the Cassowary Coast Local Government Area.

This report supports a development application made under the *Planning Regulation 2017* to the Chief Executive, Department of State Development, Infrastructure and Planning

Part of the site is mapped as Bushfire Prone Area (High potential bushfire intensity and potential impact buffer) in both the Cassowary Coast Regional Council Planning Scheme (planning scheme) and the interactive mapping system that supports the State Planning Policy 2017 (SPP 2017).

This bushfire hazard assessment and management plan includes assessment against the relevant assessment benchmarks being the State Development Assessment Provisions (SDAP), State Code 27: Battery storage facility development. The assessment has also had regard to the planning scheme, SPP 2017 Natural hazards, risk and resilience (bushfire) State interest, and the SPP 2017 guidance material - Bushfire Resilient Communities Technical Reference Guide prepared by Queensland Fire and Emergency Services (QFES) (now Queensland Fire Department – QFD). Further guidance has also been sought from interstate and national material

2 Site and Locality Context

This section of the report provides a description of the site and the locality.

2.1 Overview of the Site Details

Table 1 - Site Details

Site Address	Sandy Creek Road, Tully
RP Description	Lot 1 on RP852238 Lot 1 on RP735276 Lot 1 on RP716718 **(Figure 1)**
Lot Area	Lot 1 on RP852238 – 20.6ha Lot 1 on RP735276 – 8.094ha Lot 1 on RP716718 – 2.704ha Total – 31.4ha
Development Footprint	Approximately 9ha **(Figure 1)**
Local Government	Cassowary Coast Regional Council
Tenure	Freehold Easements for high voltage powerlines across the rear of the site
Current Land Use	Cattle grazing, dwelling houses and ancillary structures
Local Brigade	Tully Auxiliary Station

Figure 1 – Project Layout Plan
(Source: Queensland Globe 2025 and RWE)

2.2 Description of the Site

The proposed BESS will be located on the western half of Lot 1 on RP852238. Lot 1 is relatively flat with a gentle slope from the west down to an unnamed tributary of Tully River (Sandy Creek) toward the eastern, rear boundary of the lot.

The site contains little vegetation, with only scattered vegetation following drainage / waterway corridors at the rear of the site.

The site has frontage to Sandy Creek Road along its western boundary and is not currently connected to a reticulated water supply.

A high voltage powerline traverses the rear of the site, connecting with a substation fronting Tully Gorge Road to the north of the site (Lot 1 on RP716718).

2.3 Description of the Locality

The site is approximately 4km (via Tully Gorge Road) to the south-west of the centre of the Tully township and approximately 145km south of Cairns via the Bruce Highway.

The immediate land surrounding the project site is predominately used for farming purposes, with the exception of the existing Tully substation, referred to above, and a new substation immediately to the north-east.

To the north and north-west of the site, across Tully Gorge Road, is a large expanse of heavily vegetated and elevated area, forming part of the Tully Gorge National Park and the Japoon National Park.

Sandy Creek Road provides access to the surrounding farming land and Tully Gorge Road provides access to Tully Gorge and the National Park area.

Refer to **Figure 2** for the context of the site in the locality.

Figure 2 - The Locality

(Source: Qld Globe, 2025)

3 Proposed Development

The proposed development is for a Battery Energy Storage System (BESS) and associated infrastructure on Lot 1 on RP852238. The BESS is intended to take electricity from the grid in periods of low demand, and feed back into the grid at periods of high demand.

The BESS is proposed on land in proximity to the existing Tully 132 kV substation (Lot 1 on RP716718) and a new Tully 275 kV substation (Lot 5 on SP140625). The BESS will be connected to the existing substation (Lot 1 on RP716718) via a transmission connection, consisting of overhead transmission line. The transmission connection traverses the adjoining Lot 1 on RP735276 to the north of the BESS site to connect with the substation.

The primary components of the Project relevant to this assessment are described below:

- **Battery Units:** Up to 188 battery units will cover a total area of up to 2.5 ha. The BESS will be connected to the adjacent switch rooms via underground cables.
- **Switching Station:** A switching station will be located to the north of the battery units and will include a 132/33 kV high-voltage transformer, associated switchgear, an auxiliary transformer, two 33 kV switch rooms, and, if required, harmonic filters.
- **Site Access and Internal Circulation:** Access to the site will be via the existing road network, including the Bruce Highway and Tully Gorge Road, with upgrades proposed to the two access point from Sandy Creek Road. The BESS facility will be secured by perimeter fencing. Internal access tracks will be provided around the battery units to facilitate operations, maintenance, and emergency response.
- **Grid Connection Infrastructure:** The Project will connect to the adjacent substation via an overhead transmission line extending north from the BESS area. The line will be supported approximately five (5) single-circuit 132 kV concrete poles, each approximately 27.5 metres in height.
- **Asset Protection Zone (APZ**): An Asset Protection Zone will be established and maintained around the battery infrastructure to mitigate bushfire risk and provide access for firefighting activities. The APZ has been informed by this assessment.
- **Fire Safety Measures:** Fire protection infrastructure will include, subject to detailed design, approximately 472,000 litres of on-site static water storage (including 40,000L dedicated for bushfire fighting purposes), together with a fire hydrant system designed in accordance with Australian Standard AS 2419.1.
- **Laydown and Operations Areas:** Temporary construction laydown areas and a permanent operations and maintenance (O&M) building will be established adjacent to Sandy Creek Road. This will include an O&M building, yard, parking areas, office facilities, and storage sheds.
- **Landscaping and Screening:** Landscape buffer planting will be established along the frontage and partially along the side boundaries of Lot 1 on RP852238 to provide visual screening and enhance integration with the surrounding landscape.

The BESS site is largely cleared of vegetation, with only scattered trees and shrubs will be removed during the construction phase of the project. The existing dwelling and structures on Lot 1 on RP852238 may be utilised as operations and management area at some point in the future, or they may be demolished.

The BESS will be operational 24 hours a day, every day of the year. The primary operation of the premises will be undertaken from a remote operations control centre, with physical monitoring and maintenance of the facility undertaken periodically. Planned maintenance activities will likely include:

- Monthly inspections (electricity, civil and environmental)
- Vegetation management (in line with various management plans)
- Other activities as defined in the O&M management plans

- During fire danger period weekly inspections of the APZ, access road, water supply, signage and building protection systems.

Corrective maintenance activities will likely include:

- Testing and replacement of faulty plant components (fuses, etc)
- Any other corrective actions within the O&M scope.

The proposed project layout plan is included in **Appendix A.**

4 Understanding Bushfire Hazard

Bushfires have long remained a fundamental characteristic of the Australian bush landscape. There remains a number of common factors which are associated with bushfire events, and these include the incidence of fire weather, availability of fuel along with its type, structure and continuity or fragmentation, and development at the bushland interface.

4.1 Bushfire Attack

Bushfire attack refers to the various methods in which bushfire may impact upon life and property and principally encompasses:

- Direct flame contact
- Ember and firebrand attack
- Radiant heat flux
- Fire-driven wind
- Smoke.

During the progression of a bushfire event, these methods either exclusively or in concert interact **(Figure 3)**. It is estimated that approximately 80 to 90 per cent of buildings lost to bushfire in Australia are located within 100m of the bushland interface, hence the relevance of statutory provisions and recommendations implemented across Australia which respond to various types of buildings within 100m of adjacent classifiable vegetation.

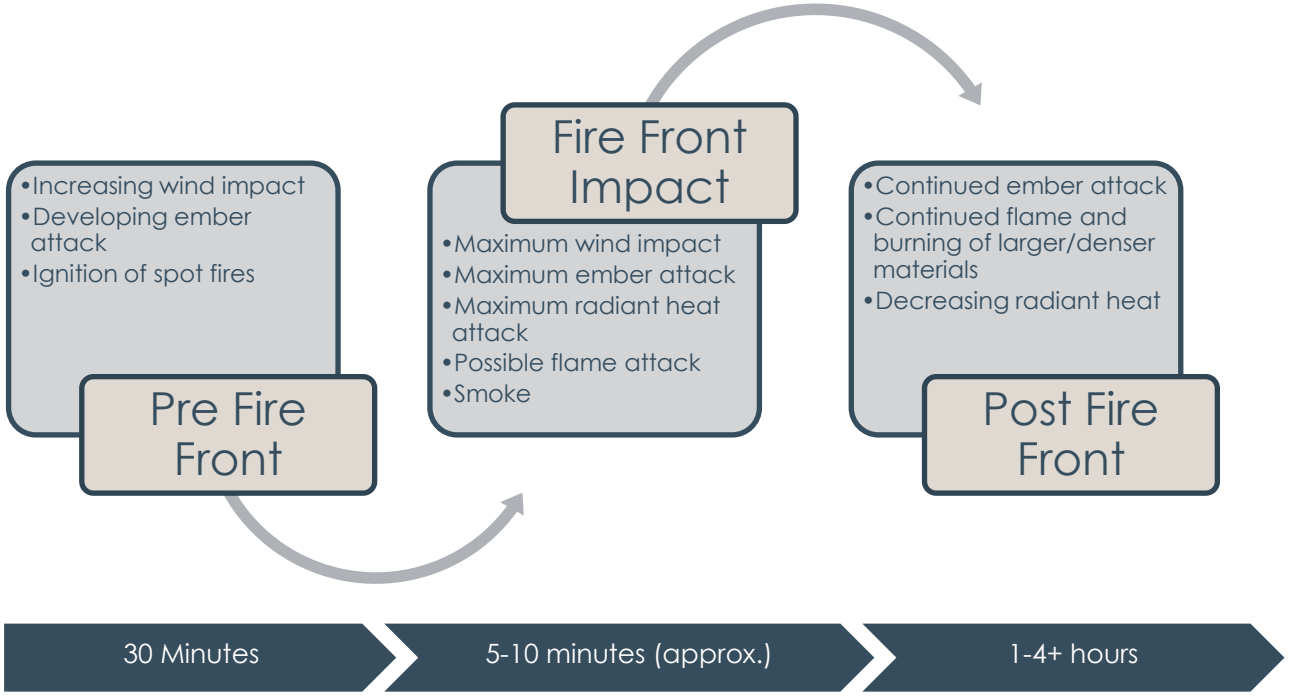


Figure 3 – The Typical Phases of Bushfire Attack

(Derived from Ramsay & Rudolph, 2003)

4.1.1 Direct Flame Contact

Direct flame attack refers to flame contact from the main fire front, where the flame which engulfs burning vegetation is one and the same as that which assumes contact with the building. It is estimated that only 10 to 20 per cent of buildings lost to bushfire occur as a direct result of flame attack based on research conducted by the CSIRO.

4.1.2 Ember and Firebrand Attack

The convective forces of bushfire raise burning embers into the atmosphere on prevailing winds and deposit them to the ground ahead of the fire front. Typically, ember attack occurs prior to the arrival of the fire front and continues during the impact of the fire front and for several hours afterwards, thus it is the longest lasting impact of bushfire attack. Firebrands occur in a very similar manner but relate to larger items of debris that may still be carried by the wind when alight, such as candle and ribbon barks.

In essence, building loss via ember attack relates largely to the vulnerabilities and peculiarities of each building, its distance from the classifiable vegetation and whether an occupant (or the like) is present to actively defend it. It is estimated by the CSIRO that approximately 80 to 90 per cent of buildings lost by bushfire are lost as a result of ember attack either in isolation or in combination with radiant heat impact.

4.1.3 Radiant Heat Flux

Exposure to radiant heat remains one of the leading threats to infrastructure assets associated with bushfire events **(Figure 4)**. Measured in kilowatts per m², radiant heat is the heat energy released from the fire front which radiates to the surrounding environment, deteriorating rapidly over distance. Radiant heat can pre-heat materials making them more susceptible to ignition, or can cause non-piloted ignition of certain materials if the energy transmitted reaches a threshold level. Radiant heat can also damage building materials, reducing the ability for the structure or asset to withstand.

Radiant heat flux (kW/m²)	Potential effects
Greater than 40	• unpiloted ignition of timber walls and fences • direct flame contact likely • extreme levels of radiant heat
29–40	• failure of toughened glass • direct flame contact possible, extreme levels of radiant heat • unpiloted ignition of some timber species after prolonged exposure (e.g. several minutes)[29]
19	• failure of screened float glass
16	• blistering of skin with > 5 seconds exposure
12.5	• failure of plain glass • piloted ignition of dry timber elements after prolonged exposure (e.g. several minutes)[30]
10	• fabrics inside a building could ignite spontaneously with long exposure • critical limit for emergency services – firefighters cannot operate • life threatening with < 1 minute exposure in protective clothing.
7	• fatal to an unprotected person after exposure for several minutes
4.7	• firefighter in protective clothing will feel pain (60 seconds exposure)
3	• firefighters can operate for a short period (10 minutes)
2	• pain is felt on bare skin after 1 minute exposure (non-fatal) • firefighters with protective clothing can withstand this exposure level for a few minutes however, they are likely to experience rise in core body temperature
1	• maximum for indefinite skin exposure
0.5	• direct sunlight at noon on a bright sunny day

Figure 4 – The Effects of Radiant Heat

(Source: Queensland Fire and Emergency Services, 2019)

4.1.4 Fire Driven Wind

The convective forces of bushfire typically result in strong to gale force fire-driven winds, which in itself can lead to damage. The typical effects of fire driven wind include the conveyance of embers, damage from branches and debris hitting the assets, as well as direct damage to vulnerable components. Fire driven wind is not a form of bushfire attack that is currently addressed by planning and building provisions, beyond those required for wind loads generally.

4.1.5 Smoke

Smoke emission remains a secondary effect of bushfire and is one which is typically not addressed by bushfire hazard assessment, or by planning and building provisions. Irrespective, it is important to note the potentially severe impact of smoke emission on the human respiratory system. It can lead to difficulties in breathing, severe coughing, blurred or otherwise compromised vision, and can prove fatal. It is also important to note that toxic smoke can occur during bushfire, particularly where buildings or materials are ignited.

4.2 Vegetation Communities

Fuel load and arrangement represents a considerable component in dictating to a large degree the behaviour of fire in terms of intensity, rate of spread and flame height, and typically relates top dead plant material less than 6mm thick, and live plan material thinner than 3mm. On this basis, it stands to reason that different vegetation groups yield very different fire behaviour and intensity by virtue of their characteristics and fuel load output. The characteristics are not necessarily related to ecological values but remain a function of the propensity for certain groups of vegetation to ignite and sustain fire due to fuel load and arrangement, it can guide estimates on how quickly fire might spread and the likely fire behaviour and intensity which may occur.

Vegetation type, density and arrangement can further influence fire behaviour and intensity. Vertical and horizontal continuity is also a significant element. Thus, vegetation forms a critical element of analysis throughout this report.

4.3 Topography and Aspect

Topography (effective slope) and to a lesser degree, aspect, are also factors which influence fire behaviour and intensity. Topography influences the rate of spread, doubling for every 10 degrees of upslope and slowing by half for every 10 degrees downslope, as a general rule. Aspect can also affect bushfire behaviour where areas with northerly and / or westerly aspects experience a higher level of solar access than those areas with a southern or eastern aspect. Notwithstanding, in times of drought and below average rainfall moisture levels in soil and vegetation in more sheltered areas with southerly and easterly aspects can also decrease substantially giving rise to significantly higher fuel abundance where the preceding fire regime has been less frequent or intense.

4.4 Fire Weather

It remains important to understand the influence of fire weather with regard to how it can affect bushfire risk levels on a daily, weekly or seasonal basis.

In Queensland hot-air fire wind is typically generated by west, north-west and south-westerlies which are prevalent during the fire season which for Far North Queensland generally extends from July to February, annually. However, intense fire conditions can occur on different wind and at different times of the year depending on monsoonal seasons, changes to relative humidity and preceding drought conditions.

Notwithstanding the above, it is noted bushfires do not always conform to widely-accepted characteristics. Other fire weather conditions must also be contemplated such as preceding

weather conditions such as low rainfall, heatwave, drought, air temperature and relative humidity. If the area has been subject to drought or low rainfall for a period of time, vegetation health tends to deteriorate with increased leaf drop, curing and drying. This contributes to increased ground fuel loads and general increased ignition susceptibility. Prolonged dry periods also reduce soil moisture content.

Air temperatures and extended periods of higher than average air temperatures also contribute to fire weather. In conjunction, low relative humidity (i.e. low air moisture content) is also a contributing factor to increased fire weather.

In concert, all of the above factors can impact on the ability for fire to propagate, and alter behaviour and intensity characteristics and as such, fire weather is a significant component of bushfire hazard. Whilst an assessment of vegetation types, fuel loads, effective slope and other factors can be readily undertaken, fire weather can fluctuate across days, weeks and seasons and can have a significant impact on the potential for bushfire threat as well as influence bushfire behaviour and intensity.

The Forest Behaviour Index (FBI) is a new method to readily advise the community of the likely ability of fire suppression based on fire weather, which is used to inform[1] the Fire Danger Rating (FDR) System at **Figure 5**. This has replaced the Forest Fire Danger Index (FFDI) insofar as it relates to fire danger ratings, but continues to be used for bushland hazard assessment, at the time this report was written.

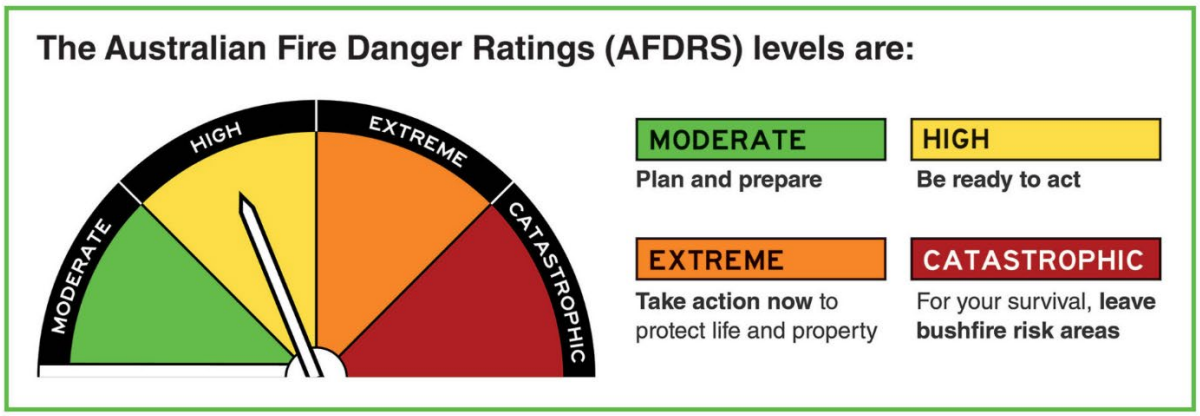


Figure 5 – Australian fire danger rating system

(Source: AFAC, 2022)

[1] Via the 'fire behaviour index'

5 Bushfire Regulatory Context

This section of the report sets out an overview of the regulatory context for the assessment of bushfire hazard relevant to the development and site.

This report supports a development application to the relevant assessing authority, being the Chief Executive, Department of State Development, Infrastructure and Planning, for a Development Permit for a Material change of use for an Battery storage facility and Major electricity infrastructure.

In this instance, the relevant assessment benchmarks are the State Development and Assessment Provisions (SDAP) (version 3.6, effective 1 May 2026), State Code 27: Battery storage facility development (State Code 27). State Code 27 is supported by Planning Guideline – State Code 27: Battery storage facility, which provides advice to applicants on how to respond to the code.

As impact assessable development, the application may also have regard to other matters. In this instance, the assessment has also had regard to:

- **Cassowary Coast Regional Council Planning Scheme 2015:**
  - Bushfire hazard code.
- **State Planning Policy 2017**:
  - Natural Hazards, Risk and Resilience State Interest, including:
    - State Interest Policies.
    - Assessment benchmarks.
    - Supporting Technical Reference Guide 'Bushfire Resilience Communities 2019.'

Guidance has also been sought from:

- Renewable Energy Facilities Design Guidelines and Model Requirements, prepared by the Victoria Country Fire Authority, Version 4 August 2023
- Large -scale battery energy storage systems, AFAC Guideline, version 1.0 5 February 2025 Doctrine ID: 3105

Commentary is also provided on any relevant Building Assessment Provisions that may be applicable to subsequent building applications, for information and guidance purposes only.

5.1 State Code 27

As noted above, State Code 27 is the applicable assessment benchmark for this assessment.

The provisions of the State Code relevant to bushfire hazard assessment and risk mitigation have identified and assessed in **Table 2**. This assessment relies on the outcomes of the bushfire hazard assessment and recommendations of the bushfire management plan as described in Sections 6 to 9 of this report.

Table 2 - Assessment of State Code 27

State Code Provisions	Compliance Statement
Purpose Statement	
1. avoids and/or appropriately integrates risk mitigation strategies and responsive design measures to address potential fire hazards, and other environmental risks,	**Complies –** As demonstrated by the response to PO13 to PO15 below, the proposed development avoids the mapped bushfire prone area. Notwithstanding, risk mitigation strategies and measures are recommended to

State Code Provisions	Compliance Statement
ensuring long-term safety and resilience for people, surrounding land uses and the environment.	address current and future potential bushfire hazard. These mitigation measures contribute toward achieving tolerable risk to people and property and to support the functioning of the infrastructure during and after a bushfire event.
3. does not result in unacceptable adverse impacts on individuals, communities, the environment, adjacent sensitive land uses and sensitive receptors, landscape values and infrastructure and services.	
Performance Outcomes	
Incident response	
PO5 Development is designed to facilitate effective and efficient emergency service access and response in the event of a fire, bushfire (including cleared fire fighting areas at the interface of hazardous vegetation), explosion, contamination leak or any other incident requiring an emergency service response.	**Complies –** The recommended mitigation measures set out in Section 9 are intended to support effective and efficient emergency service access and response in the event of a bushfire. These measures include: - The siting of the BESS site as far as possible from the hazardous vegetation and within areas not mapped as Bushfire Prone Area - The provision of further separation through asset protection zones - Use of the perimeter track around the BESS facility - Access and egress from the BESS site away from the hazardous vegetation - Static water supply Further incident response procedures for other types of fire are set out the Fire Safety Study (FSS) Safety and Emergency Management Plan (SEMP).
PO7 Development demonstrates that there is capacity to provide a reliable, sustainable and fit-for-purpose water supply.	**Complies –** Recommendations for dedicated static water supply for fire fighting purposes are set out in Section 9 of this report.
Natural hazards	
PO13 Development is located and sited to avoid natural hazard areas including high erosion risk areas and bushfire prone areas.	**Complies -** The majority of the BESS site is outside the mapped bushfire prone area, with only a portion of the western part of the facility within the Potential impact buffer (see mapping in Section 5.2 and 5.4). Notwithstanding the mapping, the area to the west of the site is not considered hazardous, as there is currently very limited vegetation cover in this area (the accuracy of the mapping is discussed further in Section 6 of this report). Similarly, the grid connection passes through an area of mapped High potential bushfire intensity towards the existing sub-station site. Again, this mapping is not accurate and this area is not considered hazardous as there is little to no vegetation. On this basis, the BESS site and grid connection is considered to be wholly outside a bushfire prone area.
PO14 Where development cannot be located and sited to avoid natural hazard areas (e.g. Bushfire prone areas, and high erosion risk areas), demonstrate that: • there is no suitable alternative location;	**Complies –** As per the response to PO13 above, the BESS and grid connection are located outside the bushfire prone area, therefore consideration of suitable alternative locations is not necessary in this instance. Notwithstanding, as the BESS site and part of the grid connection are within 150m of vegetation that (based on

State Code Provisions	Compliance Statement
• infrastructure can function effectively during and after a natural hazard event; and • mitigation measures are implemented to reduce the risk to people, property and the environment to a tolerable level	the verified regional ecosystems provided) has the potential to become hazardous as it reaches remnant status to the east. In this instance, a suite of mitigation measures are recommended to contribute toward achieving tolerable risk to people and property and to support the functioning of the infrastructure during and after a natural hazard event. These mitigation measures include: - The siting of the BESS site as far as possible from the hazardous vegetation and within areas not mapped as Bushfire Prone Area - The provision of further separation through asset protection zones - Use of the perimeter track around the BESS facility - Access and egress from the BESS site away from the hazardous vegetation - Static water supply
PO15 Bushfire hazard is identified and risk is mitigated through strategies for vegetation management, landscape management, water supply, provision of appropriate access, identification of safe assembly or evacuation routes and establishing cleared and maintained asset protection zones around infrastructure that is wholly contained on site.	**Complies –** This report includes a bushfire hazard assessment (Section 6) and corresponding risk mitigation measures recommended (Section 9).

5.1.1 State Code 27 Planning Guideline

To demonstrate compliance with PO13 – PO15, the Planning Guideline for State Code 27 recommends the site layout is informed by a Natural Hazard Risk Assessment. This report constitutes a Natural Hazard Risk Assessment, specifically for bushfire hazard.

A separate Natural Hazards and Extreme Weather Risk Assessment report has also been prepared by Meridian Urban to demonstrate compliance with PO13-PO15 for Natural Hazards more broadly and extreme weather events.

The guideline also recommends the preparation of a detailed bushfire management plan that includes:

- *a bushfire hazard assessment prepared by a suitably qualified person, that identifies the level of bushfire hazard and the location of hazardous vegetation*

  Response – Section 6 of this report includes a bushfire hazard assessment, prepared by a BPAD accredited bushfire consultant. The bushfire hazard assessment identifies the location of hazardous vegetation in proximity to the proposed BESS and associated infrastructure.

- *details of APZ based on bushfire hazard assessment and radiant heat flux achieved at the development footprint, buildings, structure and critical infrastructure*

  Response – Recommended asset protection zones have been calculated and are set out in Section 9.

- *location of evacuation routes and safety zones*

Response – Access and egress arrangements for the purposes of evacuation have been addressed in Section 9. Due to the context of the site, dedicated safety zones are not required.

- *fire-fighting requirements including infrastructure and water supply;*

  Response – Recommendations for static water supply for fire-fighting purposes are set out in Section 9.

- *evacuation procedures for construction workforce in the event of a bushfire emergency*

  Response – Recommendations for bushfire matters to be included in the site based evacuation procedures (to be prepared by others) are provided in Section 9.

- *emergency response procedures for landowners and surrounding communities*

  Response – Emergency response procedures for landowners and surrounding communities is addressed in the SEMP prepared by Riskcon Engineering.

- *mitigation strategies to achieve the development outcomes in Part E of the State Planning Policy July 2017 – Natural Hazards, Risk and Resilience*

  Response – A response to the SPP is provided in Section 5.5 above.

- *details of any sensitive land uses in proximity to the BSF (Battery storage facility) development.*

  Response – The purpose of the Bushfire Hazard Assessment (BHA) and Bushfire Management Plan (BMP) is to address the risk of bushfire hazard to the proposed BESS and associated infrastructure. Other types of fire (such as a fire within the BESS itself) and the potential for impacts on sensitive land uses are addressed by the Fire Safety Study prepared by Riskcon Engineering.

5.2 Planning Scheme

5.2.1 Relevant Planning Scheme

The site is within the Cassowary Coast Regional Council Planning Scheme 2015 area. The current version of the planning scheme version 4 effective 16 December 2019.

5.2.2 Bushfire Hazard Overlay Map

Part 8.1(7)(c) of the planning scheme identifies the Bushfire Hazard Overlay as an overlay for the planning scheme. The overlays are mapped in Schedule 2 (Mapping) of the planning scheme.

Figure 6 is an extract from the Bushfire hazard overlay map as it pertains to the site, as well as the area surrounding the development footprint out to 150m (shown indicatively with the blue dashed line).

Based on this Council mapping, the majority of the BESS site is outside the mapped bushfire hazard area, with only the far western portion of the footprint within the Potential impact buffer. The broader area contains patches of High potential bushfire intensity towards the north-east and east, associated with the vegetated waterway / drainage areas in this location. The transmission connection also crosses the Potential impact buffer area and a patch of High potential bushfire intensity to the north of the BESS site.

Land to the south-west, west and north-west is also mapped predominately Medium potential bushfire intensity area and Potential impact buffer.

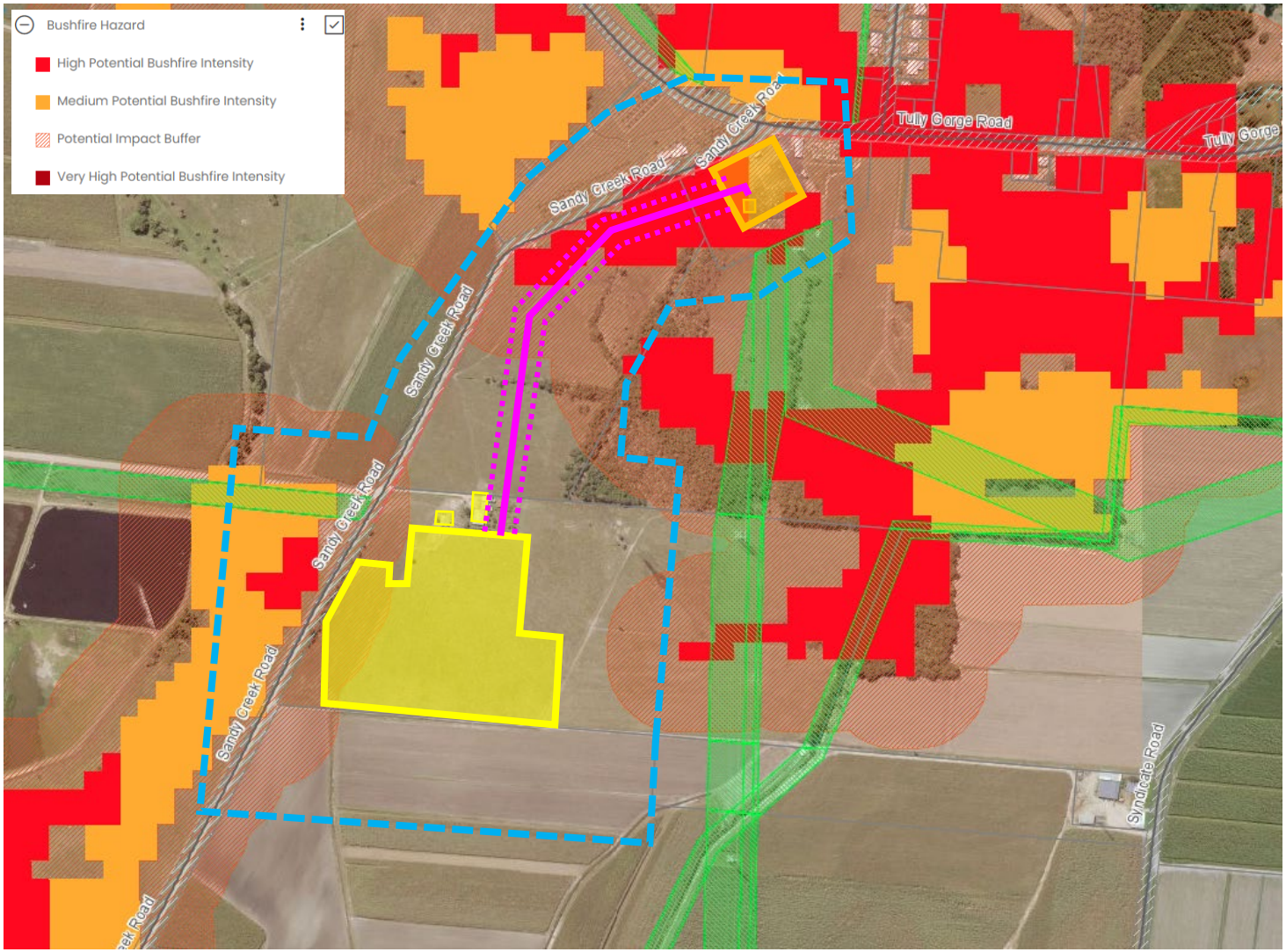


Figure 6 - Extract from the Bushfire Hazard Overlay Map
(Source: Cassowary Coast Planning Scheme 2015)

Bushfire hazard is also mapped as present across the wider locality **(Figure 7)**, particularly some of the elevated and vegetated land to the north and north-west of the site, which extends into the Tully Gorge National Park. Various patches are also present throughout the agricultural areas surrounding the site. The accuracy of this mapping is discussed later in Section 6.2 of this report.

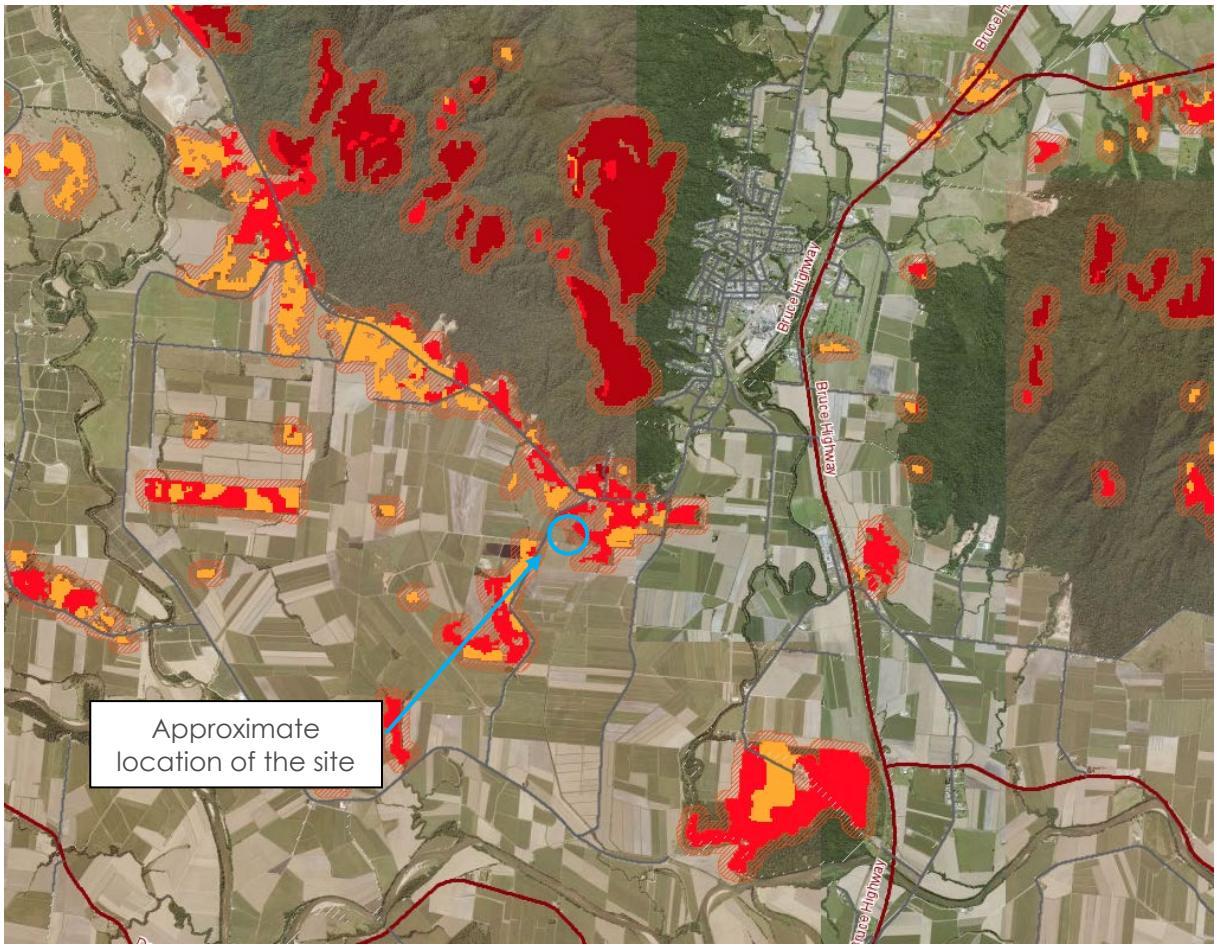


Figure 7 - Bushfire Hazard in the Wider Locality
(Source: Cassowary Coast Planning Scheme 2015)

5.2.3 Bushfire Hazard Code

Whilst not an assessment benchmark, the Chief Executive may have regard to the overlay in the planning scheme. Therefore, assessment of the whole development (including the BESS and grid connection) has been carried out against the Bushfire hazard code in **Appendix B.**

This assessment relies on the outcomes of the bushfire hazard assessment and recommendations of the bushfire management plan as described in Sections 6 to 8 of this report.

This assessment demonstrates the development complies with the Bushfire hazard code.

5.3 State Planning Policy 2017

Whilst not an assessment benchmark, assessment against the SPP has been provided as:

- the State Code 27 relies on the State Planning Policy (SPP) definition of natural hazards and supporting mapping of bushfire prone areas
- the planning guideline supporting State Code 27 refers directly to the mitigation strategies for natural hazards as set out in the SPP.

- the SPP is supported by guidance material directly related to the assessment of bushfire hazard and recommended risk mitigation measures.

Therefore, a complete assessment against the SPP 2017, including the guidance material, has also been carried out below.

5.3.1 State-wide Bushfire Prone Areas Map

The SPP 2017 is underpinned by the State-wide bushfire prone area mapping. An extract of that mapping relevant to the site is provided in **Figure 8.**

As is evident, the SPP Bushfire Prone Area mapping is consistent with the Bushfire Hazard Overlay mapping in the planning scheme.

Figure 8 - Extract of the SPP Bushfire Prone Areas Map

(Source: State Planning Policy Interactive Mapping System, 2025)

5.3.2 State Interest Policies and Assessment Benchmarks

For the purpose of this report the Natural Hazards, Risk and Resilience State Interest Policy statements (4),(5) and (6) and Assessment Benchmarks (3), (4), (5), (6) and (7) of the SPP have been assessed in **Table 3.** This assessment relies on the outcomes of the bushfire hazard assessment and recommendations of the bushfire management plan as described in **Sections 6 to 9** of this report.

Table 3 - SPP State interest policy compliance assessment

SPP Natural Hazards Assessment Benchmark	Compliance Statement
State interest policy (4) and Assessment benchmark (3) Development avoids natural hazard areas, or where it is not possible to avoid the natural hazard area, development mitigates the risks to people and property to an acceptable or tolerable level.	**Complies –** The majority of the BESS site is outside the mapped bushfire prone area, with only a portion of the western part of the facility within the Potential impact buffer. Notwithstanding the mapping, the area to the west of the site is not considered hazardous, as there is currently very limited vegetation cover in this area (the accuracy of the mapping is discussed further in Section 6 of this report). Similarly, the grid connection passes through an area of mapped High potential bushfire intensity towards the existing sub-station site. Again, this mapping is not accurate and this area is not considered hazardous as there is little to no vegetation. On this basis, the BESS site and grid connection is considered to be wholly outside a bushfire prone area. Notwithstanding, the BESS site and part of the grid connection are within 150m of vegetation that (based on the verified regional ecosystems provided) has the potential to become hazardous as it reaches remnant status to the east. In this instance, a suite of mitigation measures are recommended to contribute toward tolerable risk to people and property. These mitigation measures include: • The siting of the BESS site far as possible from the hazardous vegetation and within areas not mapped as Bushfire Prone Area • The provision of further separation through asset protection zones • Use of the perimeter track around the BESS facility • Access and egress from the BESS site away from the hazardous vegetation • Static water supply
State interest policy (5)(a) Assessment benchmark (4) Development supports and does not hinder disaster management response or recovery capacity and capabilities.	**Complies –** Disaster management response and recovery capacity and capabilities is supported by the proposed development through the provision of: • Sufficient water supply is to be available through on-site static water supply. • Separation between the vulnerable components of the proposed

SPP Natural Hazards Assessment Benchmark	Compliance Statement
	development (i.e. the BESS site) and the hazardous vegetation to provide access for emergency services. • Emergency management procedures to support operations.
State interest policy (5)(b) Assessment benchmark (5) Development directly, indirectly and cumulatively avoids an increase in the severity of the natural hazard and the potential for damage on the site or to other properties.	**Complies -** The proposal does not include any known changes to the vegetation hazard class adjacent to the development footprint (through rehabilitation or revegetation) that would increase the severity of bushfire or potential for damage on the site or other properties. Notwithstanding, the vegetation hazard assessment has been carried out assuming the adjoining regrowth vegetation to the east of the site is likely to reach remnant status.
State interest policy (5)(c) and Assessment benchmark (6) Risks to public safety and the environment from the location of hazardous materials and the release of these materials as a result of a natural hazard are avoided.	**Complies –** The risk to public safety and the environment from the storage of hazardous materials on site, namely the battery system itself, can be mitigated through the siting of these components as far as practicable from the hazardous vegetation, the provision of asset protection zones and suitable operational procedures for emergency events.
State interest policy (5)(d) Assessment benchmark (7) The natural processes and the protective function of landforms and the vegetation that can mitigate risks associated with the natural hazard are maintained or enhanced.	**Not applicable -** The natural processes and surrounding landforms will not be affected by the proposal in a way that would increase risk associated with bushfire hazard.
State interest policy (6) Community infrastructure is located and designed to maintain the required level of functionality during and immediately after a natural hazard event.	**Complies -** Community infrastructure in the context of bushfire hazard is not explicitly defined in the State Planning Policy. However, a definition is provided in the Example planning scheme assessment benchmarks guidance material that supports the SPP. Examples of community infrastructure for essential services include educational establishment, emergency services and hospital. Other infrastructure that may perform an important role and be required to function during and immediately after a bushfire hazard event may also be considered community infrastructure including showgrounds and sports facilities. The Cassowary Coast planning scheme (Bushfire hazard code PO4 and AO4.1) includes provisions about community infrastructure, which includes substation and power station. Whilst the BESS itself is not a major switch yard, power station or substation, as an energy storage system it

SPP Natural Hazards Assessment Benchmark	Compliance Statement
	functions similar to those uses and therefore the functionality of the facility during and immediately after a bushfire event should be considered. It is acknowledged that immediately after a bushfire event the operation of the facility will be at the direction of the operators and will be subject to a number of factors that sit outside a planning assessment (i.e. direction from emergency services, safety, protection of infrastructure, staffing etc.). Notwithstanding, it is considered that the various mitigation measures recommended in this report, including separation from hazardous vegetation, provision of water supply and operational procedures will support the functionality of the facility during and immediately after a bushfire event, as far as practicable through planning considerations. Compliance with Policy (6) is therefore achieved.

5.3.3 Bushfire Resilient Communities 2019

The 'Bushfire Resilient Communities – Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience – Bushfire' (October 2019)' (BRC) supports the SPP and associated SPP guidance material.

It provides technical guidance and the policy positions of Queensland Fire Department (QFD) and is relevant to making or assessing development applications. The technical guidance includes procedures for undertaking a Bushfire Hazard Assessment and preparing a Bushfire Management Plan.

Assessment against the relevant policy positions of BRC (as per Section 2 of that document) are provided below.

- ***Policy 4 – Disaster management capacity and capabilities are maintained to mitigate the risks to people and property to an acceptable and tolerable level.***

  Response: Refer to response to SPP assessment benchmark 4.

- ***Policy 6 – Vulnerable uses are not located in the bushfire prone area unless there is an overwhelming community need for the development of a new or expanded service, there is no suitable alternative location and site planning can appropriately mitigation the risk.***

  Response: Vulnerable uses in the context of bushfire hare not explicitly defined in BRC or the State Planning Policy. Similar to community infrastructure, they are defined in the Example planning scheme assessment benchmarks guidance material that supports the SPP. Again, that definition does not include a BESS.

  Notwithstanding, other uses could be considered vulnerable uses in the context of bushfire due to their vulnerabilities to the effects of bushfire, their economic or community value or their likelihood of explosion / combustion if exposed to radiant heat or ember attack. A BESS could be considered one such use. In this instance, this report has considered the BESS a vulnerable use.

As noted above, the BESS and grid connection are located outside the bushfire prone area, based on the verified vegetation classes and on-ground vegetation status. Adequate separation is also provided between the BES site and adjoining vegetation that may have the potential to become hazardous.

Sections 6-9 of this report further demonstrate that site planning can appropriately mitigate the risk to people and property associated with the use to a tolerable level.

- ***Policy 7 – Revegetation and rehabilitation avoids an increase in the exposure or severity of bushfire hazard.***

  Response: Refer to response to SPP assessment benchmark 5.

- ***Policy 8 – Development does not locate buildings or structures used for storage or manufacture of materials that are hazardous in the context of a bushfire within a bushfire prone area unless there is no suitable alternative location.***

  Response: Refer to response to SPP assessment benchmark 6.

- ***Policy 9 – The protective function of vegetation arrangements that can mitigate bushfire risk are maintained.***

  Response: Refer to response to SPP assessment benchmark 7.

- ***Policy 10 – Community infrastructure for essential services are not located in bushfire prone areas unless there is an overwhelming community need for the development of a new or expanded service and there is no suitable alternative location, and further, the infrastructure can be demonstrated to function effectively during and immediately after a bushfire event.***

  Response: See response to BRC Policy 6 and SPP Policy 6 above.

5.4 Building Assessment Provisions

Whilst this report supports a planning application, it is relevant to note that a subsequent building application may be required for parts of the proposal. Certain building applications are subject to additional requirements (building assessment provisions) where in a bushfire prone area. It is not within the scope of this report to address the building assessment provisions. The following advice is provided to assist with consideration of potential building assessment provisions.

5.4.1 Designated Bushfire Prone Area for Building Purposes

A planning scheme may designate all, or part, of its area as a designated bushfire prone area for the purposes of the assessment of building applications under the *Building Act 1975*. Designation will trigger certain building applications to be assessed against the building assessment provisions that apply to a building in bushfire prone areas, including the Building Code of Australia (BCA). The BCA is the document called the National Construction Code (NCC) (volume 1 and 2, including Qld appendixes).

The BCA / NCC bushfire provisions are applicable to Class 1 (dwelling), Class 2 (more than one dwelling), Class 3 (residential building providing long-term or transient accommodation), select Class 9 (health-care building, early childhood centre, primary or secondary school (or similar educational establishment) and residential care building) and associated Class 10a structures.

The Cassowary Coast Planning Scheme does not state that land identified in the Bushfire hazard overlay map is designated bushfire prone area for the purposes of the BCA.

Notwithstanding, the use is assumed to not involve a Class 1, Class 2, Class 3 or select Class 9 building. Therefore further commentary on the BCA is not provided.

6 Bushfire Hazard Assessment

6.1 Methodology

This Bushfire Hazard Assessment has been conducted in accordance with Part 5 of the Bushfire Resilient Communities guidance material supporting the implementation of the State Planning Policy, prepared by QFES (now QFD).

Section 5 of the Bushfire Resilient Communities Technical Reference Guideline articulates the process for undertaking a bushfire hazard assessment. The process includes the three stages illustrated below **(Figure 9)**. The reliability assessment is provided at Section 6.2 and the hazard assessment in Section 6.3. The separation and radiant heat discussions are provided at Section 9 of this report.

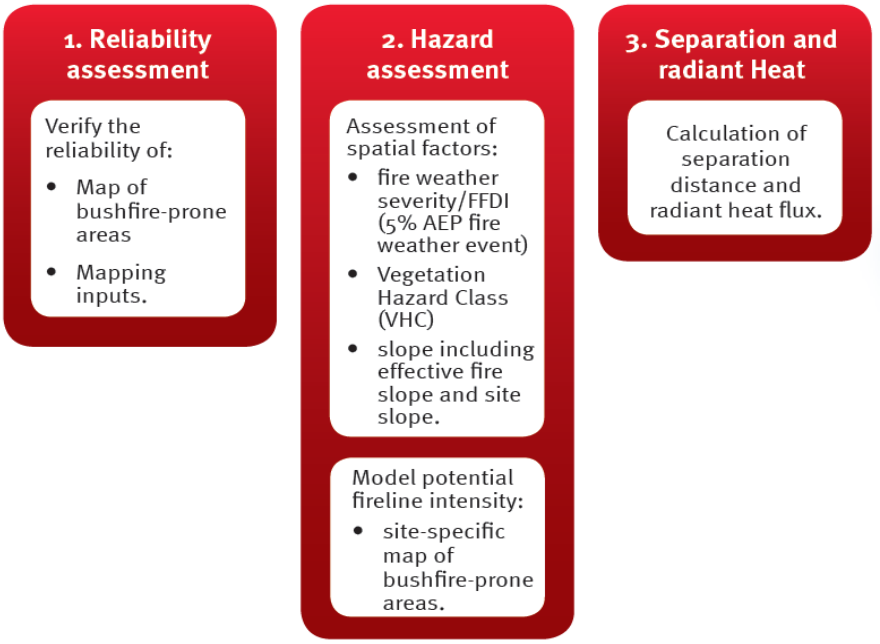


Figure 9 – Overview of the Bushfire Hazard Assessment process as per Bushfire Resilient Communities

(Source: Queensland Fire and Emergency Services, 2019)

A range of instruments and documents have been utilised to perform a desktop analysis. These instruments include:

- State-wide bushfire prone area mapping
- Proposal plans
- Verified regional ecosystem data provided by the project ecologist
- Aerial imagery (Queensland Globe)
- QFD Bushfire Resilient Communities MapViewer and guideline
- State Planning Policy July 2017
- Bushfire Resilient Communities Guideline
- Cassowary Coast Planning Scheme:
    - Bushfire hazard code

6.2 Reliability Assessment

Section 5.3 of the BRC allows for a reliability assessment to be undertaken as the first stage of a Bushfire Hazard Assessment to determine whether the site's observed characteristics are consistent with the inputs used to create the state-wide bushfire prone area mapping (and in this instance the planning scheme mapping) previously discussed in **Section 5.3** of this report.

Having regard to vegetation hazard classes, topography and fire weather severity inputs used to inform the current state-wide bushfire prone area mapping, the site's observed and verified characteristics (discussed at Section 6.3.2) **are not** considered 'generally consistent'[2] with the state-wide bushfire prone area mapping. Of particular note:

- the bushfire prone area to the north-west, west and south-west of the BESS site does not reflect the observed site's characteristics, most notably this area is largely cleared of vegetation and is better identified as VHC 38.5 Cropping and horticulture which has very low potential fuel loads and is not hazardous vegetation.
- some patches immediately adjacent to the BESS site within Lot 1 on RP852238 and Lot 1 on RP735276 are largely cleared of vegetation and have been verified as non-remnant vegetation. This area is unlikely to reach regrowth or remnant status due to the ongoing agricultural land uses, unless actively rehabilitated (which it is understood is not proposed as part of this project).
- areas of regrowth vegetation to the north-east of the BESS site that are currently excluded from the BPA mapping have the potential to become remnant vegetation due to their proximity to a waterway corridor and other remnant vegetation. For the purposes of this bushfire hazard assessment, these areas have been included as hazardous vegetation based on their verified REs.

This is covered in more detail in the following hazard assessment in Section 6.3.

6.3 Hazard Assessment

6.3.1 Fire Weather

The QFD Bushfire Resilient Communities MapViewer includes Forest Fire Danger Index (FFDI) mapping which is climate-adjusted for a 5 per cent annual exceedance probability (AEP) fire weather event as at 2050. BRC MapViewer identifies this area of Far North Queensland as subject to an **FFDI of 50.**

6.3.2 Vegetation Communities

Vegetation classification is important for a number of reasons, namely it is an indicator of the level of fire intensity and fire behaviour associated with specific types of vegetation and it also indicates the fuel loads which may exist in certain locations. The vegetation communities within 150m of the development footprint form the basis of this assessment, as per that required by the Bushfire Resilient Communities Guideline process for undertaking a bushfire hazard assessment.

Areas of non-remnant vegetation which have not yet reached maturity are assessed as mature communities, accounting for the future hazard profile of lands within 150m of the development footprint. This is particularly relevant to the areas to the north-east of the BESS site.

[2] Terminology as used by the Bushfire Resilient Communities reliability assessment methodology at Section 5.3.1 of that document.

Desktop Vegetation Assessment

Figure 10 below identifies the current extent of mapped vegetation communities, illustrated via VHC tiles mapping in the QFD BRC MapViewer. The BESS and grid connection footprint and immediate surrounds (within 150m) contain mapped:

- BVG 9-15 Eastern eucalypt woodlands to open forests (**VHC 9.1** Moist to dry eucalypt open forests on coastal lowlands and ranges)
- BVG 21 – 22 Melaleuca open woodlands on depositional plains:
    - **VHC 21.3** Shrubland associated with Melaleuca dry woodlands on sandplains or depositional plains)
    - **VHC 22.1** Melaleuca open forests on seasonally inundated lowland coastal swamps
- BVG 38 Cropping and horticulture (**VHC 38.5** Cropping and horticulture).

As is evident, areas of VHC 9.1 and 21.3 to the north-west, west and south-west of the BESS site are not reflective of the vegetation on the ground. This area is more appropriately VHC 38.5.

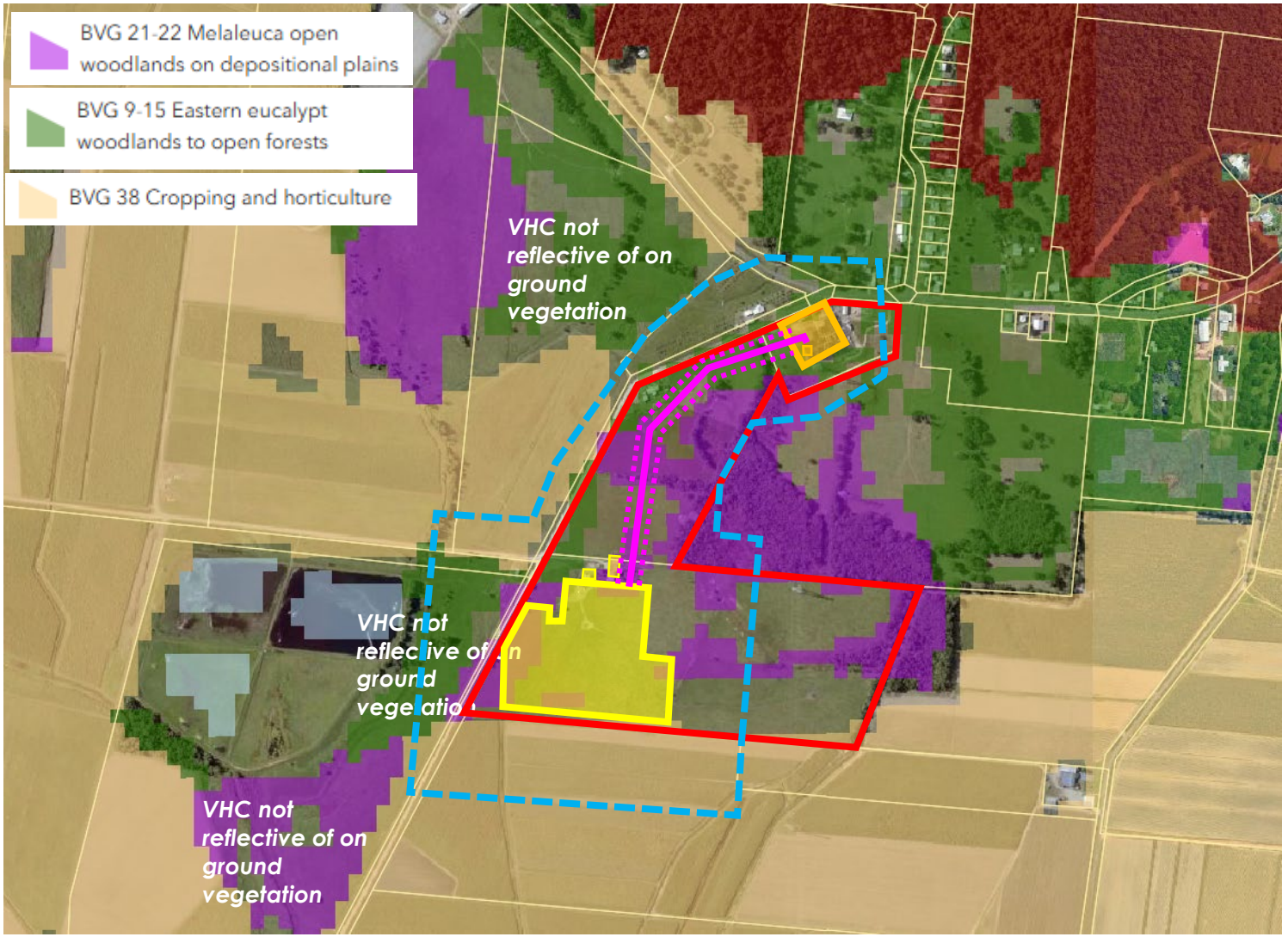


Figure 10 – BRC MapViewer Vegetation Hazard Class (VHC) Tiles

(Source: QFD, 2025)

The State Government regional ecosystem mapping for the site is shown in **Figure 11.** The regional ecosystems (all identified as regrowth vegetation) within 150m of the site include:

- 7.3.8d
- 7.3.5a
- 7.3.7a.

Notably, the regrowth regional ecosystems to the west of the site are beyond 150m from the BESS footprint. Those within 150m of the grid connection to the north-west of the existing Tully substation are unlikely to reach remnant status in the near future, due to the ongoing use of the land for agricultural and other purposes. These regional ecosystems have therefore been excluded from this assessment.

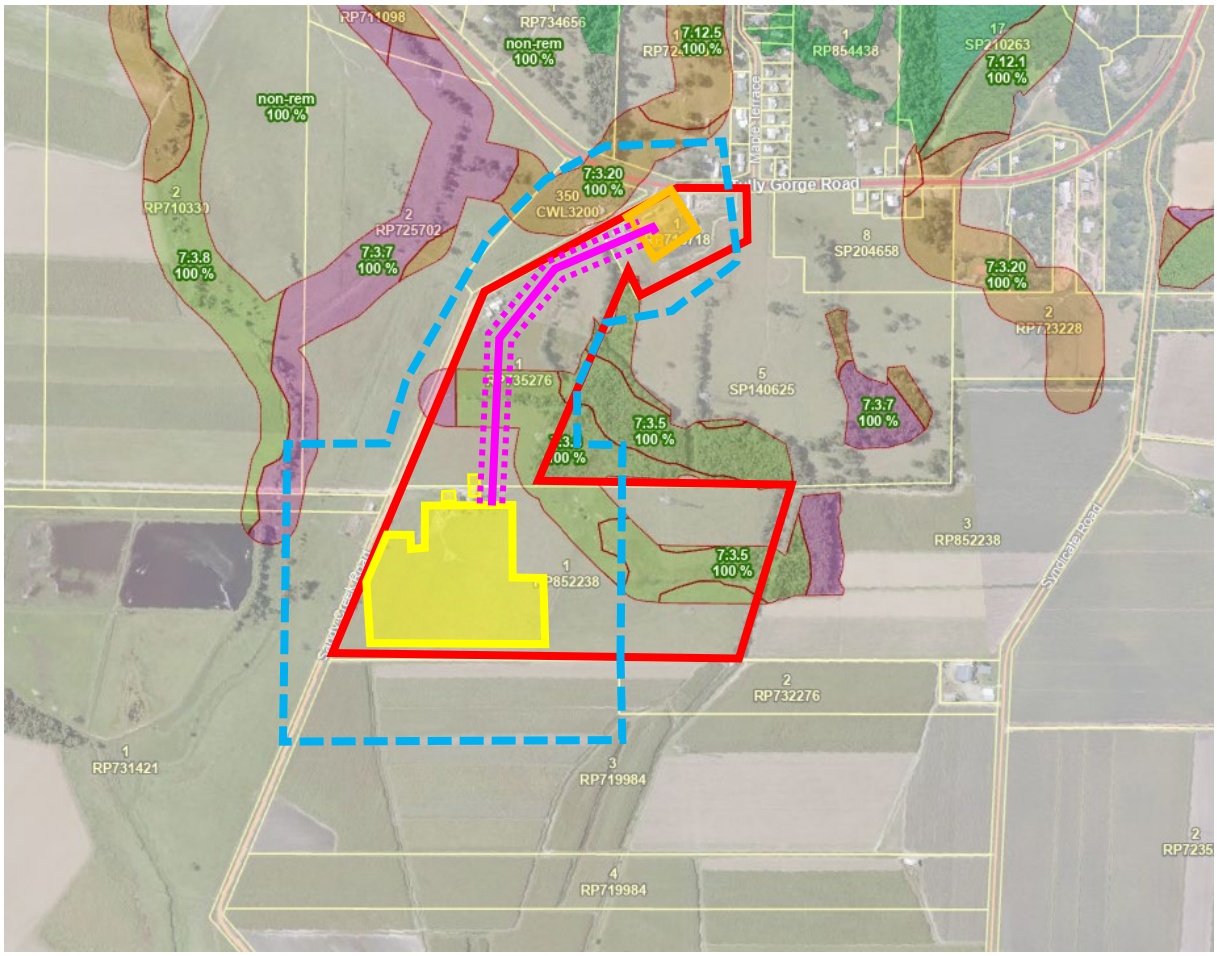


Figure 11 – Regional Ecosystem Mapping

(Source: Qld Globe, 2025)

Verified Vegetation Assessment

The regional ecosystems in immediate proximity to the BESS site have been verified by the project ecologist as shown in **Figure 12**. The verified regional ecosystems include:

- 7.3.5 (both remnant and regrowth areas)
- 7.3.7a (regrowth areas).

A considerable amount of the mapped area has been identified as non-remnant vegetation.

Where verification of vegetation has not occurred within the 150m buffer, it is assumed for the purposes of this assessment the regional ecosystems are consistent with the two RE's verified above or the State RE mapping.

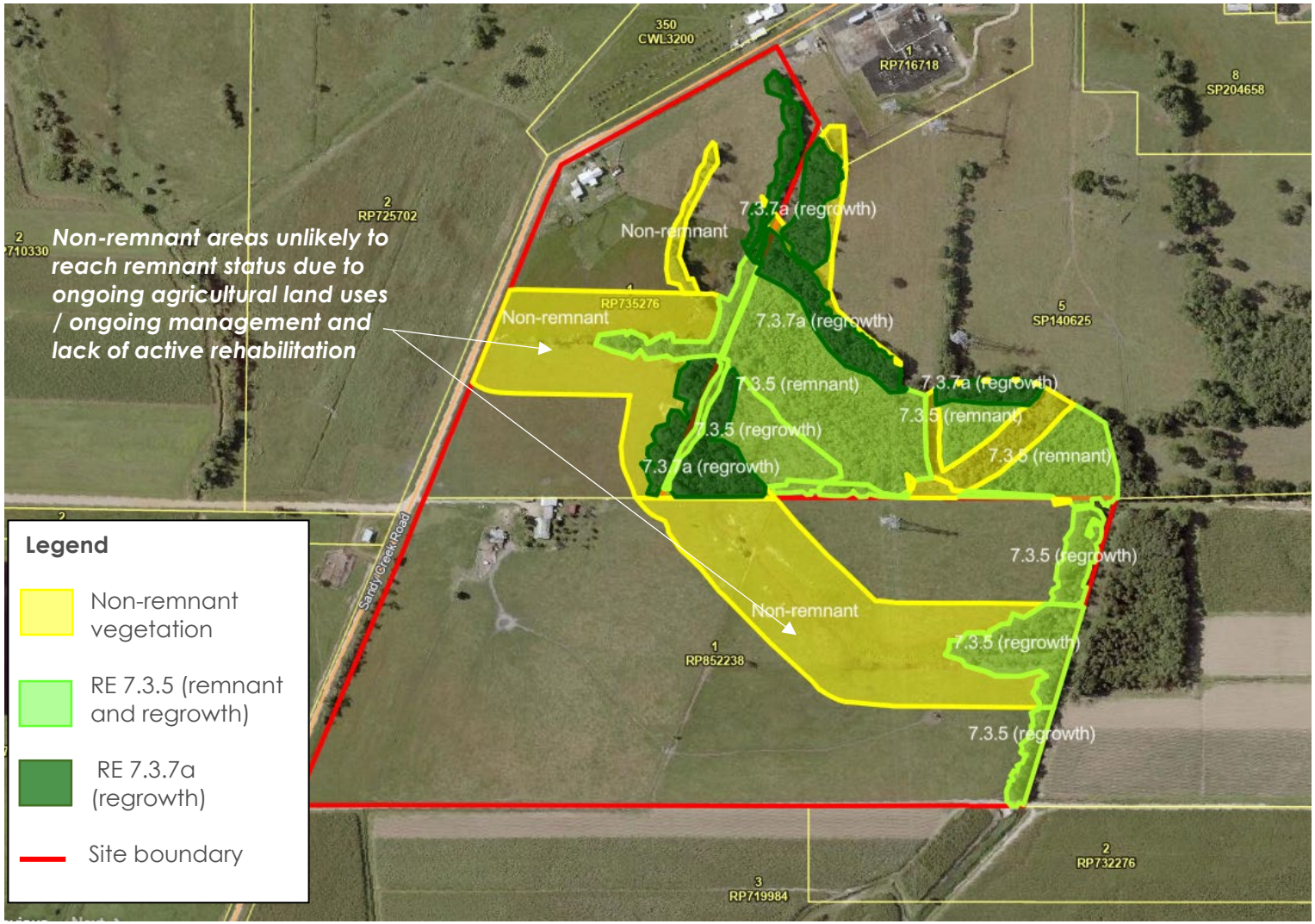


Figure 12 – Verified Regional Ecosystem Mapping

Source: Attexo

The Vegetation Hazard Class (VHC) conversion and associated potential fuel loads for the mapped and verified REs are set out in the table following **(Table 4)**, pursuant to Part 6 of the BRC.

Table 4 - Vegetation Communities within the site and within 150m of the BESS footprint (remnant and non-remnant)

RE	RE Description	RE Structure Code	VHC	VHC Description	Understorey (Surface + Near Surface) Potential Fuel Load (t/ha)	Total Potential Fuel Load (t/ha)
7.3.8d	Melaleuca viridiflora, Lophostemon suaveolens and Allocasuarina littoralis open shrubland, on poorly drained alluvial plains	Open Forest	21.3	Melaleuca dry open forests on sandplains or depositional plains	6.6	7.5
7.3.5a	Melaleuca quinquenervia open forest, woodland and shrubland, on poorly drained alluvial plains	Closed Forest	22.1	Melaleuca open forests on seasonally inundated lowland coastal swamps	23.4	28.4
7.3.5*	Melaleuca quinquenervia and/or Melaleuca cajuputi subsp. platyphylla closed forest to shrubland on poorly drained alluvial plains	Closed Forest	22.1	Melaleuca open forests on seasonally inundated lowland coastal swamps	23.4	28.4
7.3.7a*	Eucalyptus pellita and Corymbia intermedia open forest to woodland, on poorly drained alluvial plains and swamps	Open Forest	9.1	Moist to dry eucalypt open forests on coastal lowlands and ranges	21.0	24.2

*Regional ecosystems verified on site by the project ecologist.

The vegetation which potentially constitutes a hazard within 150m of the BESS footprint is confirmed to be dominated by a mix of remnant and non-remnant vegetation and is dominated by VHC 22.1, with some areas of VHC 9.1, when aligned with the verified regional ecosystem data. Areas currently mapped by BRC Mapviewer as VHC 21.3 have been verified as the potential to become VHC 9.1.

VHC 22.1 has the higher total potential fuel load of 28.4 t/ha. The remaining vegetation (VHC 9.1) has a total potential fuel load of 24.2 t/ha.

Photographs of VHCs have been provided by the project ecologist in **Figure 13** and **Figure 14**.

Figure 13 - RE 7.3.5

Figure 14 - RE 7.3.7a

Pursuant to the vegetation structural classes assessment of Part 6 of the Bushfire Resilient Communities Guideline, the vegetation (within 150m of the BESS footprint) is characterised broadly as Trees closed – mid dense, as per **Table 4.**

Table 5 - Assessment of Vegetation Structure in accordance with Part 6 of the BRC

RE	Life Form and Height	Vegetation structure class	Dominant life form	Density
7.3.5 7.3.7a	Trees Medium 10-30m	Trees closed – mid dense	Trees	Closed to mid-dense

6.3.3 Effective Slope and Site Slope

Effective slope relates to the topography beneath classified vegetation, as this influences fire speed and rate of spread – namely, that the speed of fire doubles for every 10 degrees incline.

An effective slope assessment has been conducted based on 1m contour data provided by Attexo and Qld Globe (for a distance of 150m from the BESS footprint) in **Figure 15**.

The effective slope assessment demonstrates the mapped hazardous vegetation to the **north-east** is approximately 1 degree downslope of the proposed BESS footprint.

The overall site slope (the slope within the BESS footprint itself) is approximately 1 degree from the northern extent down to the southern extent of the footprint.

It is noted that the overall site slope within the development footprint will likely be subject to some cut and fill to accommodate the new BESS.

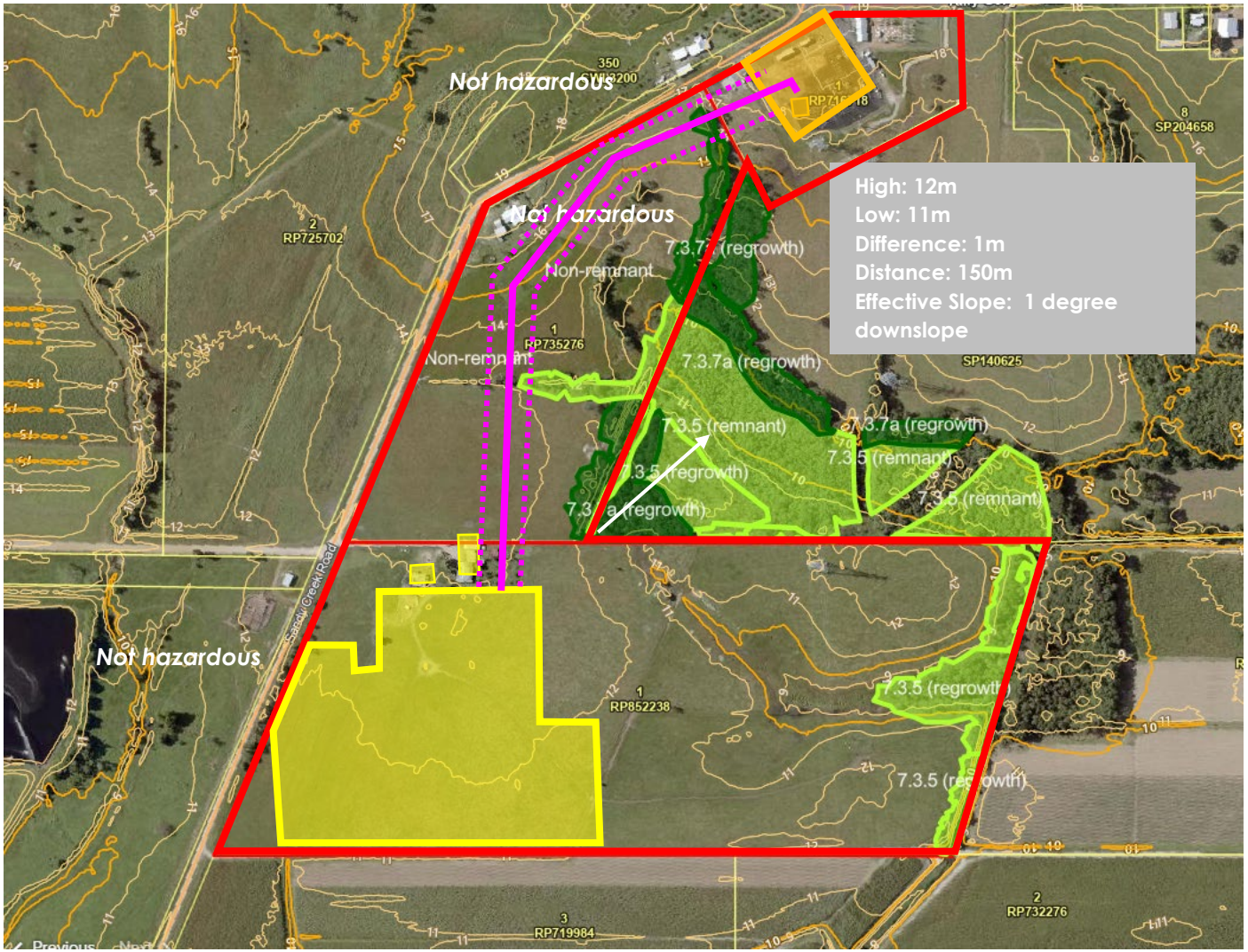


Figure 15 - Effective Slope Assessment

Source: Attexo and Qld Globe, 2025

6.3.4 Aspect

Aspect can affect bushfire behaviour where slopes with northerly and/or westerly aspects experience a higher level of solar access than those areas with a southern or eastern aspect. This generally translates to drier fuels with lower moisture content and increased dead/drying/curing material.

Notwithstanding, in times of drought and below average rainfall, moisture levels in soil and vegetation in more sheltered areas with southerly and easterly aspects can also decrease substantially giving rise to significantly higher fuel abundance where the preceding fire regime has been less frequent or intense. Thus, aspect is of only partial consequence in this respect and this is reflected by the current SPP mapping methodology and information made publicly available by QFD.

The nearby hazardous vegetation generally maintains a north-easterly aspect.

6.3.5 Fire History

In relation to historical fire activity in the area, ignitions have occurred in the general region.

A review of fire scar mapping using the Queensland Globe platform identifies wildfire or hazard reduction burns on the site and in the immediate area over the last 20 years, including an event to the north east in 2010 **(Figure 16).**

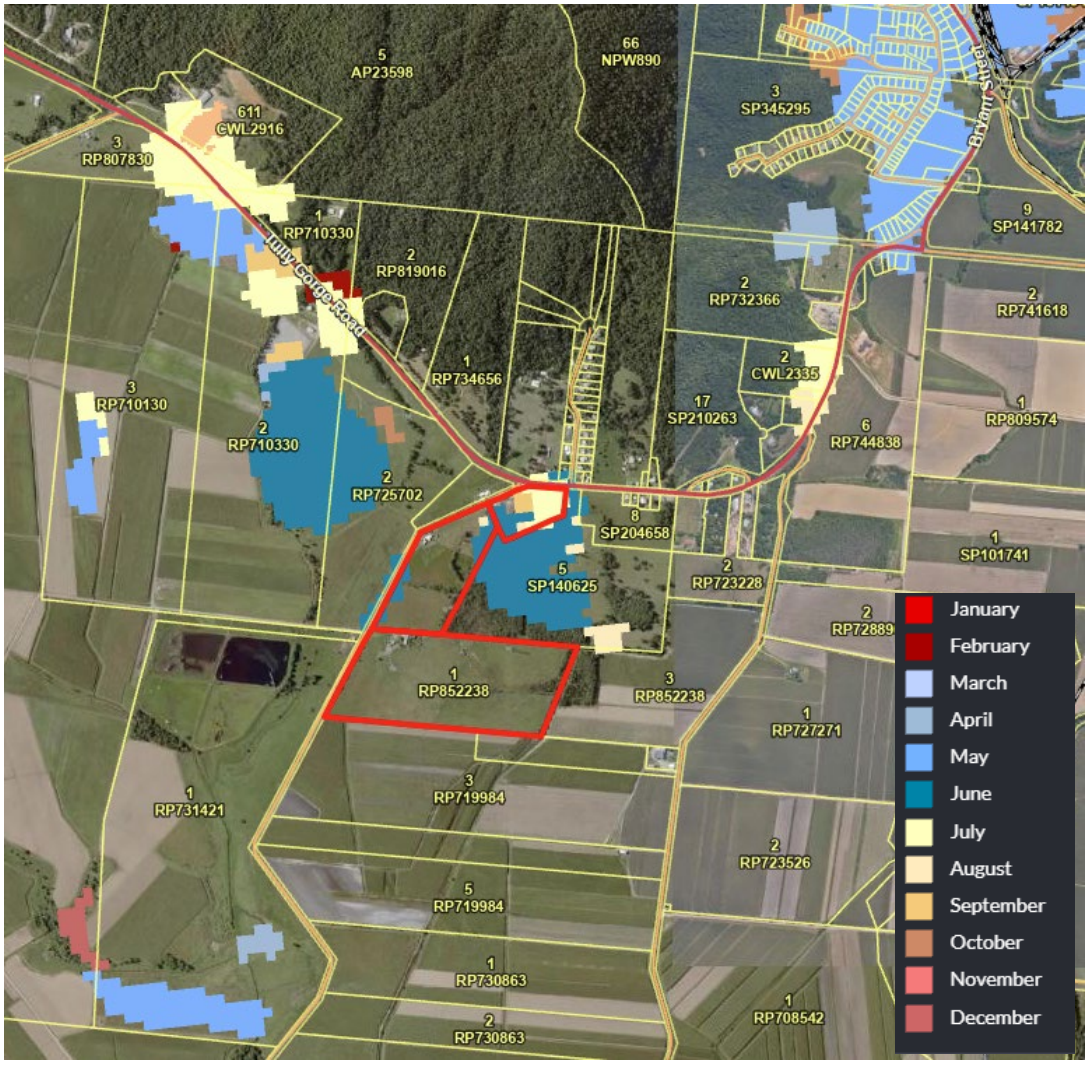


Figure 16 - Historical Fire Scar Mapping within the Site and Locality

(Source: Queensland Globe, 2025)

6.3.6 Ignition Sources

Likely ignition sources in the area include ignition from rural and agricultural activities including burning and harvesting of sugar cane, slashing and use of power tools. Other general ignitions may include roadside ignition (potentially caused by cigarette butts thrown from vehicles) and arcing powerlines, noting high voltage lines are located to the east of the BESS site. Ignitions may also occur from activities associated with the nearby substation activities.

Fire risk and ignitions associated with the BESS facility itself such as electrical hazards, chemical hazards, explosions and fire spread between batteries is an issue for a fire engineering safety plan and will not be addressed by this report.

7 Qualitative Assessment: Bushfire Behaviour Assessment, Extent of Hazard and Bushfire Intensity

This section of the report provides commentary on bushfire behaviour on and around the site and fireline intensity within proximity to the development footprint.

7.1 Fire runs and disruptions

In terms of fire runs, due to the nature of the surrounding landscape fire runs are more likely from the north-east of the BESS facility, from the direction of mapped hazardous vegetation. Grass fire however may occur from any direction, due to the extent of surrounding agricultural land.

The terrain in the immediate area is generally flat, with a gentle slope down to the north-east towards the waterway / drainage corridor. Consequently the vegetation in this area is slightly (1 degree) downslope of the BESS footprint. This downslope is unlikely to have a significant effect on fire behaviour.

Beyond this, the land further to the north is steeply sloping and heavily vegetated, however this vegetation is separated from the site by cleared areas and Tully Gorge Road, and is largely mapped as low bushfire intensity due to the vegetation communities in this area.

Wind conditions in any event are likely to have a substantial effect on fire behaviour.

7.2 Fireline intensity

It is appropriate to consider the potential fireline intensity of vegetation within 150m of the development footprint for each of the vegetation classes identified and using the highest effective slope metric observed.

There are two verified vegetation hazard classes identified within 150m the site: VHC 22.1 and VHC 9.1, with VHC 22.1 being the dominant VHC.

The corresponding fireline intensity, as informed by the VHC, fuel loads, fire weather (FFDI) and effective slope) are High potential bushfire intensity for VHC 22.1 (**Figure 17**) and Medium potential bushfire intensity for VHC 9.1 (**Figure 18**).

This is not entirely consistent with the State Bushfire Prone Area mapping due to inconsistencies with the type and extent of verified vegetation communities (as discussed in section 6 of this report).

RE code	RE Label	Vegetation Hazard Class	Potential Fuel Load (t/ha)	Fire Weather Severity (FFDI)	Maximum Landscape Slope (degrees)	Potential Fireline Intensity (kw/m) *	Potential Bushfire Intensity *
7.3.5	Melaleuca quinquenervia and/or Melaleuca cajuputi subsp. platyphylla closed forest to shrubland on poorly drained alluvial plains	22.1	28.4	50	1	26,790	High

Cells in yellow can be modified

* From: Leonard, J., Newnham, G., Opie, K., and Blanchi, R. (2014) A new methodology for state-wide mapping of bushfire prone areas in Queensland. CSIRO, Australia.

For further information or advice on the use of this tool contact sdu@qfes.qld.gov.au

Figure 17 - Fireline intensity verification - QFD Fireline Intensity Calculator prepared by CSIRO (RE 7.3.5 and VHC 22.1)

RE code	RE Label	Vegetation Hazard Class	Potential Fuel Load (t/ha)	Fire Weather Severity (FFDI)	Maximum Landscape Slope (degrees)	Potential Fireline Intensity (kw/m) *	Potential Bushfire Intensity *
7.3.7a	Eucalyptus pellita and Corymbia intermedia open forest to woodland, on poorly drained alluvial plains and swamps	9.1	24.2	50	1	19,452	Medium

Cells in yellow can be modified

* From: Leonard, J., Newnham, G., Opie, K., and Blanchi, R. (2014) A new methodology for state-wide mapping of bushfire prone areas in Queensland. CSIRO, Australia.

For further information or advice on the use of this tool contact sdu@qfes.qld.gov.au

Figure 18 - Fireline intensity verification - QFD Fireline Intensity Calculator prepared by CSIRO (RE 7.3.7a and VHC 9.1)

8 Bushfire Risk Analysis

In addition to examining potential bushfire behaviour, the consideration of bushfire risk is important. As per the Queensland Emergency Risk Management Framework (QERMF) prepared by QFD, this involves the consideration of:

- Likelihood
- Consequence
- Vulnerability.

The QERMF Framework is illustrated in **Figure 19.**

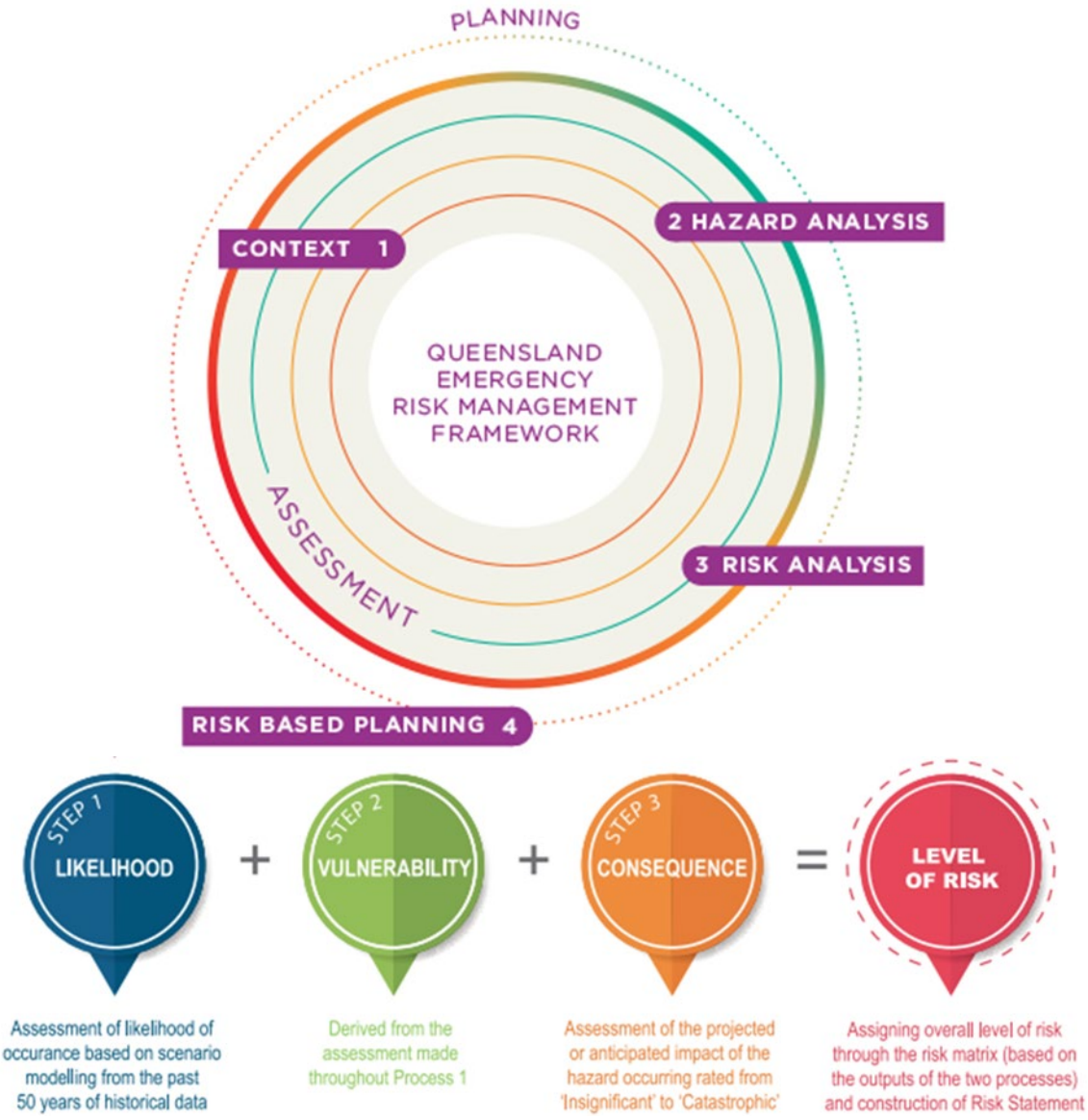


Figure 19 - QERMF Overview

From a risk vulnerability perspective, the proposed BESS facility and associated infrastructure is susceptible to radiant heat and flame contact. In addition, it also maintains a level of ignition probability.

Table 5 outlines the assessment of the untreated bushfire risk associated with the proposed facility.

Table 6 - Assessment of likelihood, vulnerability and consequence in accordance with the QERMF

LIKELIHOOD:	Likely
VULNERABILITY:	Low
CONSEQUENCE:	
People	Minor
Financial and economic	Minor
Community and social	Insignificant
Public administration	Insignificant
Environment	Minor

The QERMF provides a fit-for-purpose risk matrix which incorporates the assessment of vulnerability, in addition to likelihood and consequence factors. The QERMF risk matrix is provided in **Table 6.**

Table 7 - Risk matrix as per Appendix 4 of the QERMF

Likelihood (X)		Rare (1)					Unlikely (2)					Possible (3)					Likely (4)					Almost Certain (5)				
Vulnerability (Y)		V.Low (1)	Low (2)	Mod (3)	High (4)	Extr (5)	V.Low (1)	Low (2)	Mod (3)	High (4)	Extr (5)	V.Low (1)	Low (2)	Mod (3)	High (4)	Extr (5)	V.Low (1)	Low (2)	Mod (3)	High (4)	Extr (5)	V.Low (1)	Low (2)	Mod (3)	High (4)	Extr (5)
Consequence (Z)	INSIGNIFICANT (1)	VL1	VL2	VL3	L4	L5	VL2	VL3	L4	L5	L6	VL3	L4	L5	L6	M7	L4	L5	L6	M7	M8	L5	L6	M7	M8	H9
	MINOR (2)	VL2	VL3	L4	L5	L6	VL3	L4	L5	L6	M7	L4	L5	L6	M7	M8	L5	L6	M7	M8	H9	L6	M7	M8	H9	H10
	MODERATE (3)	VL3	L4	L5	L6	M7	L4	L5	L6	M7	M8	L5	L6	M7	M8	H9	L6	M7	M8	H9	H10	M7	M8	H9	H10	H11
	MAJOR (4)	L4	L5	L6	M7	M8	L5	L6	M7	M8	H9	L6	M7	M8	H9	H10	M7	M8	H9	H10	H11	M8	H9	H10	H11	E12
	CATASTROPHIC (5)	L5	L6	M7	M8	H9	L6	M7	M8	H9	H10	M7	M8	H9	H10	H11	M8	H9	H10	H11	E12	H9	H10	H11	E12	E13

Key: V.L= Very low; L = Low; M = Medium; H = High; E = Extreme

Scale: 1 (lowest) to 13 (highest)

Table 3 - Risk Matrix

Having regard to the assessment of likelihood (of impact), vulnerability and consequence for the proposed BESS facility and associated infrastructure (without treatment), the overall risk level is as follows:

OVERALL RISK:	**Low (L6)**

The bushfire management provisions contained in the following sections of this report provide a risk management approach to maintain a tolerable / low overall risk for the facility.

9 Bushfire Management and Mitigation

There are a number of options available to address and mitigate the risk to the proposed BESS and associated infrastructure. This includes opportunities to reduce the likelihood and severity of bushfire hazard affecting subject site through a suite of mitigation and management measures.

These measures include:

- Asset protection zones
- Building construction
- Access and egress
- Water supply and fire-fighting infrastructure
- Hazardous material storage
- Rehabilitation / revegetation
- Bushfire management during construction
- Operational procedures.

9.1 Asset Protection Zones

Stage 3 of the Bushfire Resilient Communities Technical Reference Guide for undertaking a bushfire hazard assessment requires an assessment of radiant heat exposure and required separation, or asset protection, to mitigate the use from potential bushfire hazard threat.

An asset protection zone (APZ) is an area which surrounds a building, structure or infrastructure and is intended to be maintained in perpetuity in a no or low fuel condition. An APZ can:

- limit radiant heat exposure, the transmissivity of which diminishes over distance
- avoids flame contact
- in some cases, provide working areas for fire-fighting and defence around facilities by reducing the impact of radiant heat
- provide access around facilities
- mitigate risk of ignition from the proposed facility.

9.1.1 APZ Calculation

Queensland does not currently have specific guidance for the recommended asset protection zone width for Battery Energy Storage Facilities. The Bushfire Resilient Communities technical reference guide recommends the adoption of a 1,200 flame temperate and 10kW/m^2 radiant heat threshold for vulnerable uses and essential infrastructure assets generally. As discussed previously in Section 5 of this report, a BESS facility and associated infrastructure may be considered essential infrastructure. Therefore, both the 1,200 flame temperate and the 10kW/m^2 radiant heat threshold has been recommended in this instance.

FLAMESOL calculations are provided in **Figure 20** and **Figure 21** to demonstrate the required separation (APZ) from the development footprint and hazardous vegetation to achieve a 10 kW/m^2 radiant heat flux level. This APZ distances are a function of fire weather, fuel load and topography. The highest fuel load (VHC 22.1) is adopted for the purposes of calculating the APZ.

Based on these calculations it is recommended that a **48.1m** wide APZ is provided along the northern and eastern sides of the BESS facility. A 10m wide APZ is also recommended along the

western and southern sides of the BES, including the temporary construction areas to accommodate for grass fire. The adjoining road reservation can form part of this APZ where necessary.

The recommended APZs are shown in the Bushfire Management Plan included in **Appendix C.**

FLAMESOL
FPA AUSTRALIA

Calculated March 18, 2025, 4:07 pm (MDc v.4.9)

VHC 22.1

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	50	Rate of spread	1.5 km/h
Vegetation Classification	Forest	Flame length	13.18 m
Understorey fuel load	23.4 t/ha	Flame angle	66 °, 72 °, 76 °, 79 °, 80 ° & 85 °
Total fuel load	28.4 t/ha	Elevation of receiver	5.74 m, 5.9 m, 5.87 m, 5.75 m, 5.65 m & 4.64 m
Vegetation height	n/a	Fire intensity	22,073 kW/m
Effective slope	1 °	Transmissivity	0.86, 0.842, 0.8169999999999999, 0.794, 0.782 & 0.728
Site slope	1 °	Viewfactor	0.414, 0.3074, 0.2072, 0.1407, 0.1142 & 0.0307
Flame width	100 m	Minimum distance to < 40 kW/m²	15.6 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	20.9 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	29.9 m
Flame temperature	1,200 K	Minimum distance to < 12.5 kW/m²	41.1 m
		Minimum distance to < 10 kW/m²	48.1 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

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

Figure 20 - Flamesol Calculation for VHC 22.1

FLAMESOL
FPA AUSTRALIA

Calculated March 18, 2025, 4:10 pm (MDc v.4.9)

VHC 9.1

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	50	Rate of spread	1.35 km/h
Vegetation Classification	Forest	Flame length	11.67 m
Understorey fuel load	21.0 t/ha	Flame angle	66 °, 72 °, 77 °, 80 °, 81 ° & 85 °
Total fuel load	24.2 t/ha	Elevation of receiver	5.09 m, 5.22 m, 5.21 m, 5.09 m, 4.99 m & 4.01 m
Vegetation height	n/a	Fire intensity	16,879 kW/m
Effective slope	1 °	Transmissivity	0.865, 0.848, 0.824, 0.8, 0.788 & 0.732
Site slope	1 °	Viewfactor	0.4121, 0.3059, 0.2059, 0.1393, 0.1132 & 0.0305
Flame width	100 m	Minimum distance to < 40 kW/m²	13.9 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	18.6 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	27 m
Flame temperature	1,200 K	Minimum distance to < 12.5 kW/m²	37.6 m
		Minimum distance to < 10 kW/m²	44.2 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

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

Figure 21 - Flamesol Calculation for VHC 9.1

With regard to the proposed overhead grid connection. It is recommended the infrastructure is located more than 14.6m from the nearest hazardous vegetation to the east. This is based on a 1,090K flame temperature and 29kW/m^2 radiant heat threshold **(Figure 22)**. The current infrastructure corridor of 20m will achieve adequate separation. It is assumed this corridor will be maintained in a low fuel state. The existing narrow vegetation corridors can be retained, however it is recommended these are not actively revegetated or rehabilitated in a manner that would increase the fuel load.

FLAMESOL
FPA AUSTRALIA

Calculated June 30, 2025, 4:35 pm (MDc v.4.9)

Electricity Infrastructure

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	50	Rate of spread	1.5 km/h
Vegetation Classification	Forest	Flame length	13.18 m
Understorey fuel load	23.4 t/ha	Flame angle	54 °, 64 °, 72 °, 77 °, 78 ° & 84 °
Total fuel load	28.4 t/ha	Elevation of receiver	5.14 m, 5.66 m, 5.89 m, 5.89 m, 5.81 m & 5.01 m
Vegetation height	n/a	Fire intensity	22,073 kW/m
Effective slope	1 °	Transmissivity	0.875, 0.857, 0.832, 0.80700000000000001, 0.794 & 0.73
Site slope	1 °	Viewfactor	0.5989, 0.4428, 0.2998, 0.2032, 0.1651 & 0.0449
Flame width	100 m	Minimum distance to < 40 kW/m²	10.8 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	14.6 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	21.4 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	30.4 m
		Minimum distance to < 10 kW/m²	36.2 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

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

Figure 22 - Flamesol Calculation for overhead electricity infrastructure

9.1.2 Activities within the APZ

All ongoing activities and permanent infrastructure and buildings associated with the BESS facility is not to occur within the APZ, including any fuel, water and materials storage.

Vehicle parking areas, perimeter roads / tracks may occur within the APZ.

The potential use of the existing dwellings / structures within the APZ for O&M area in the future (as shown on the proposal plan) is noted. These dwellings are adequately separated from the nearest hazardous vegetation to allow for this use. The proposed infrastructure corridor (40m) for the grid connection will also ensure those dwelling remain separated from hazardous vegetation.

9.1.3 Ground Treatments and Landscaping within the APZ

As the APZ area is already largely cleared of vegetation, no further understorey clearing is required. It is recommended that the APZ is maintained as mown grass, rock cover or bare earth.

Individual tree specimens can be retained, provided canopies are separated at maturity.

Any landscaping within the APZ should adopt the principles and species selection in accordance with the provisions set out in Section 8 of the Bushfire Resilient Communities technical reference guide. These principles include:

- *landscape design that reduces vulnerability to bushfire attack* – this includes layout of landscaped areas that avoid continuous vegetation
- *plant selection that avoids or minimises opportunities for ignition of landscaping features* (see Figure 20 on p.47-28 of BRC for the characteristics of low flammability species)
- *long-term landscaping management arrangements that reduce exposure to bushfire attack* (regular mowing, removing accumulated leaf litter and woody debris, clearing understorey vegetation).

The proposal includes landscaping / screening planting along the Sandy Creek Road frontage and part way along the side boundaries of Lot 1 on RP852238. This planting is considered acceptable given the separation from existing hazardous vegetation and the narrow width (2m to 5m). It is recommended that the species selection is in accordance with BRC (section 8) as noted above.

9.1.4 Fencing and Retaining Walls

Fencing materials can have a considerable impact on the propagation of fire. Likewise, some fencing materials can alleviate exposure to radiant heat.

Any fencing or barriers within the APZ must not be constructed from timber. Instead, fencing and barrier materials, including the proposed noise wall, must be fire resistant. Steel mesh fencing can be used.

In addition, any retaining walls required should be constructed of fire resistant or fire retardant material such as concrete, stone, masonry or the like and not constructed from timber.

9.2 Building Construction

It is noted the BESS facility and associated infrastructure includes both temporary and permanent buildings. It is assumed the buildings will not be a Class 1, Class 2, Class 3 or select Class 9 building and therefore are unlikely to have building construction requirements (i.e. BAL design requirements) imposed at building approval stage.

Given the intended location of the proposed buildings on the western side of the facility and away from nearby hazardous vegetation, no recommendations are made regarding any (voluntary) BAL construction standards for those buildings.

9.3 Access and Egress

Access and egress are significant in terms of a range of aspects of bushfire prevention and ability for firefighting. Road design must cater for emergency access and egress in times of potential bushfire emergency events.

It is understood that access to the facility is to be provided directly to Sandy Creek Road via a newly constructed / upgraded access points. The access points should be conditioned to be capable of providing access for firefighting and other emergency vehicles.

The site has direct access to a local road network of an adequate standard to accommodate emergency service vehicles, as well as evacuating personnel. That local network connects with the Bruce Highway (a state-controlled road) a short distance from the site and is not subject to a significant amount of exposure to bushfire hazard.

9.4 Water Supply and Fire-Fighting Infrastructure

It is understood that the site is currently connected to a reticulated water supply and the O&M building as a minimum will be connected to reticulated water supply. Notwithstanding, reticulated supply with sufficient pressure and capacity, particularly during a bushfire event, is not guaranteed. Therefore a dedicated static supply is recommended.

Queensland does not currently provide specific guidance for static water supply for bushfire fire-fighting purposes for a BESS facility. The recommendations provided below are informed and adopted from the general static water supply guidance provided by BRC and the Renewable Energy Facilities Design Guidelines and Model Requirements (v4, Aug 2023), prepared by the State of Victoria Country Fire Authority.

It is recommended the static water supply:

- provides for a minimum 40,000L dedicated solely for bushfire fighting purposes
- is located at the vehicle access point to the facility – in proximity to Sandy Creek Road access
- positioned at least 10 metres from any infrastructure (i.e. sub-station, switch rooms, battery containers)
- positioned so that any hoses and equipment is capable of reaching all external areas of the facility
- are either below ground or constructed of non-flammable materials such as concrete or steel that is not likely to fail when exposed to excessive heat
- provided with a 50mm male camlock fitting for emergency fire service use (or as otherwise instructed by QFD)
- is provided with clear access within 6 metres of the tank for a medium rigid vehicle (15 tonne fire appliance)
- is clearly identified by directional signage at the street frontage.

This is to be established during construction and maintained in perpetuity. A program must be put in place through operational strategies to ensure the tanks are checked and filled on a regular basis.

The above recommendations are in addition to any on-site static water supply requirements for operational purposes, such as building fire, electrical and chemical fires within the facility and do not override any other requirements set out in Australian Standards.

9.5 Hazardous Material Storage

If hazardous chemicals or materials are stored on the site, they should be:

- Stored furthest from the hazardous vegetation as possible – in this instance, ideally on the western side of the facility
- Stored in screened areas and screening is constructed of fire resistant materials
- Stored in areas separated from buildings and other use areas.

9.6 Rehabilitation / Revegetation

At this stage no details of any required or proposed rehabilitation / revegetation on the site has been provided. If any rehabilitation or revegetation occurs, the recommendations of this report may change.

9.7 Bushfire Management During Construction

The abovementioned bushfire management and mitigation measures are recommended during the operation of the facility and apply in perpetuity. Separate bushfire measures are recommended during the construction period of the project. Adoption of the measures provided below are expected to reduce, to a tolerable level, both the risk of bushfire ignition by construction and the threat that bushfire in the wider area poste to the site and people during construction.

The recommended bushfire protection measures during the construction phase include:

- Temporary buildings for construction should be located as close as possible to Sandy Creek Road access, to limit exposure and aid in efficient evacuation
- Temporary vehicle access for construction is provided directly to Sandy Creek Road and is of an adequate standard to accommodate emergency service vehicles
- Access to water supply for fire suppression and /or protection of structures or equipment is provided.

As the BESS site and recommended APZ is already largely cleared of vegetation, no specific recommendations are provided regarding the timing / staging of vegetation clearing during the construction phase.

The above recommendations should be incorporated into any construction emergency management plans for the site.

9.8 Operational Procedures

It is expected that various operational procedures including work place health and safety plans and evacuation plans will be implemented for the facility. Bushfire, including the relevant recommendations of this report and those additional recommendations set out below, must be included in these procedures.

9.8.1 Activities on Adjoining Land

It is recommended that the operator engages with adjoining property owners regarding harvesting of cane, including the burning of cane, in proximity to the property boundaries. It is recommended that burning or any activities that could cause potential ignitions does not occur in proximity to the site. If burning is required, the presence of the Rural Fire Brigade may

be required to reduce the risk of ignitions at the BESS site. Consultation should be carried out with the local brigade accordingly.

9.8.2 Evacuation Procedures

Evacuation of the facility post-construction is likely to be limited to a small number of persons.

Ideally, fire weather conditions and current warnings are considered prior to any staff attending the facility during the fire season. Operational plans will be required to identify evacuation requirements, which should consider evacuation to the township of Tully. Ideally, workers are not permitted on site on 'Extreme' and 'Catastrophic' fire danger days, and any other day where a fire event is occurring within approximately 20 kilometres of the site.

10 Conclusion & Recommendations

This report considers the bushfire hazard profile and mitigation measures required for a new Battery Energy Storage System (BESS) and associated infrastructure.

Based upon this detailed analysis, it is considered that the proposed development offers the ability to implement a suite of measures that contribute to mitigating the threat of bushfire hazard and reducing the risk to people and property to a tolerable level and that will support the functioning of the infrastructure during and after a natural hazard event. The development therefore complies with State Code 27.

The following recommendations are made by this report:

1. **Asset Protection Zone:** A **48.1m** wide APZ is provided along the northern and eastern sides of the BESS facility. A 10m wide APZ is also recommended along the western and southern sides of the BESS to accommodate for grass fire. The treatment and ongoing management of the APZ is set out in further detail in the report. The overhead grid connection should be located a minimum of 14.6m clear of any hazardous vegetation. The overhead grid connection can cross existing narrow vegetated corridors, however it is recommended these are not actively revegetated or rehabilitated in a manner that would increase the fuel load.

2. **Water supply:** A static water supply provides for a minimum of 40,000L dedicated solely for bushfire fighting purposes. The recommended location and design of the static water supply is set out in further detail in the report.

3. **Access and egress:** Direct access to the BESS facility is provided to Sandy Creek Road.

4. **Hazardous materials and chemical storage:** Are located away from the hazardous vegetation.

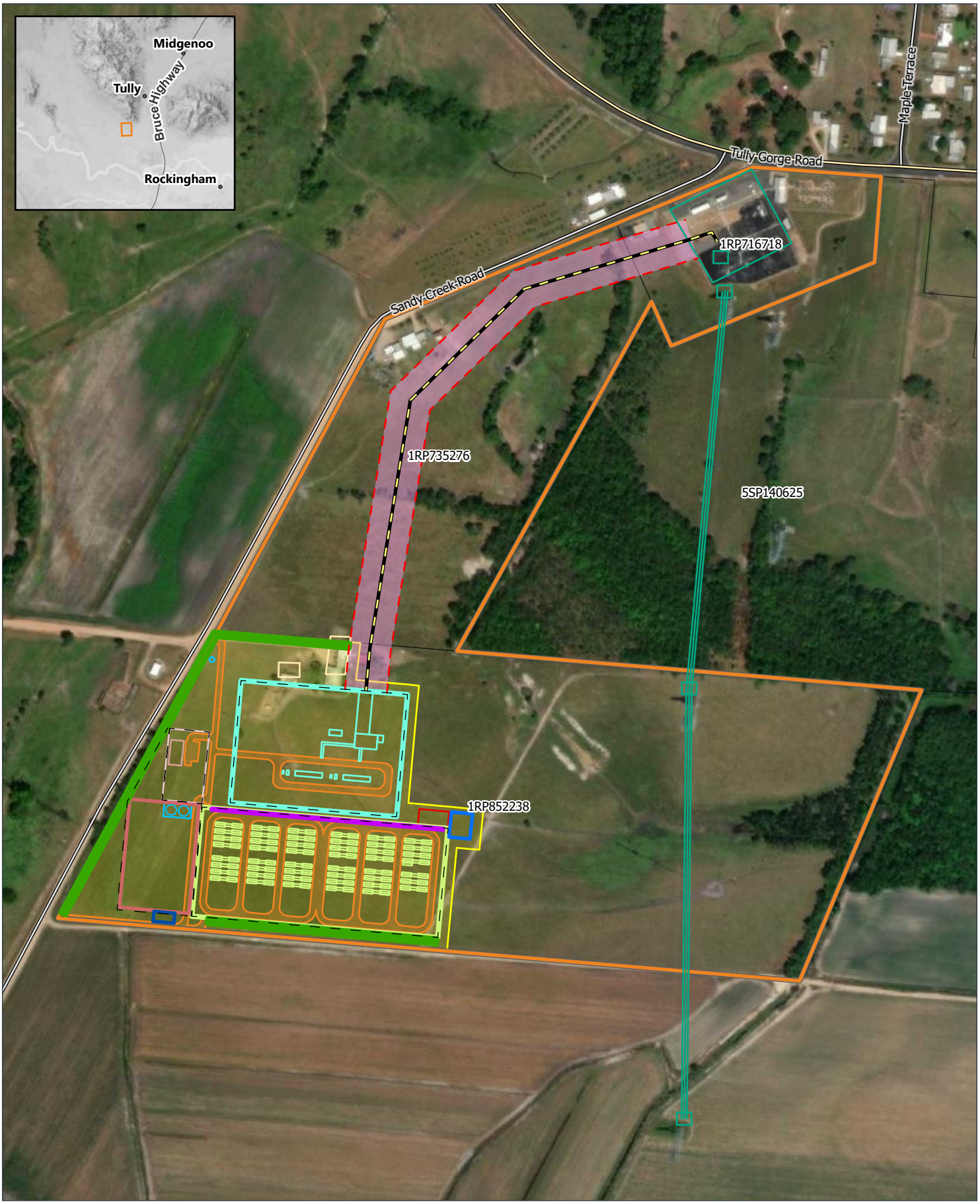
5. **Bushfire management during construction:** the recommended bushfire management measures are adopted during the construction phase of the project.

6. **Operational procedures:** incorporate the relevant bushfire recommendations of this report.

APPENDICES

Meridian Urban

Appendix A – Proposed Development Plan



Project Layout Plan

Figure 1

DWG No: RWE-002-014 [D]
DATE: 7/05/2026
DRAWN: KB,JM
REVIEWED EJ
SCALE (A4): 1:5,000

N

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GDA2020

- Project Area
- Development Footprint
- Proposed Access Track Footprint
- Proposed Transmission Line Corridor
- Proposed Transmission Line
- 20m Exclusion Zone
- Substation Area
- BESS Area
- Bioretention Basin A
- Bioretention Basin B
- Construction Laydown Area
- Noise Wall
- Landscaping Area
- Existing 132kV Line
- Existing Dwellings
- Water Storage
- O&M Building
- O&M Area
- Emergency Containment Storage
- Fence
- Main Road
- Local Road
- Cadastral Parcels

Appendix B - Assessment against the Bushfire Hazard Code

Bushfire Hazard Code

Overall Outcomes

Purpose and Overall Outcome	Response
2. The purpose of the code will be achieved through the following overall outcomes:	
(a) development is designed to: (i) avoid or minimise the risk of loss of life from bushfire;	**Complies –** This report demonstrates that the BESS facility and associated infrastructure appropriately avoids the bushfire prone area and various mitigation measures, including adequate separation, can be adopted to minimise risk to people and property to a tolerable level. These measures include appropriate access and fire-fighting infrastructure for emergency services.
(ii) minimise the damage to property from bushfire;	
(iii) assist emergency services in responding to any bushfire threat.	

Identified requirements and assessment benchmarks

Performance outcomes	Acceptable outcomes	Response
Avoidance		
PO1 Development avoids areas of very high, high or medium potential bushfire intensity where practicable.	**AO1.1** Development is not located in an area of very high, high or medium potential bushfire intensity. *Note—A site-specific bushfire hazard assessment will be necessary to demonstrate that a proposed development site is low bushfire risk despite being mapped as an area of very high, high or medium potential bushfire intensity.*	**Complies –** The BESS facility is located outside the mapped area of very high, high and medium potential bushfire intensity. The western portion of the BESS footprint is partially is affected by the Potential impact buffer, however as discussed in this report that mapping is not an accurate reflection of the site characteristics or vegetation present in this area. Similarly, the grid connection passes through an area of mapped High potential bushfire intensity, but again the mapping is not reflective of the on ground vegetation status.
Mitigation		
PO2 Development maintains the safety of people and property by mitigating the risk of bushfire through: (a) lot design;	**AO2.1** One water tank with fire brigade fittings is provided within 100 metres of each Class 1, 2, 3 or 4 building where the development: (a) involves new or existing buildings with a gross floor area greater than 50m2;	**Not applicable –** The proposal does not include any Class 1, 2, 3 or 4 buildings.

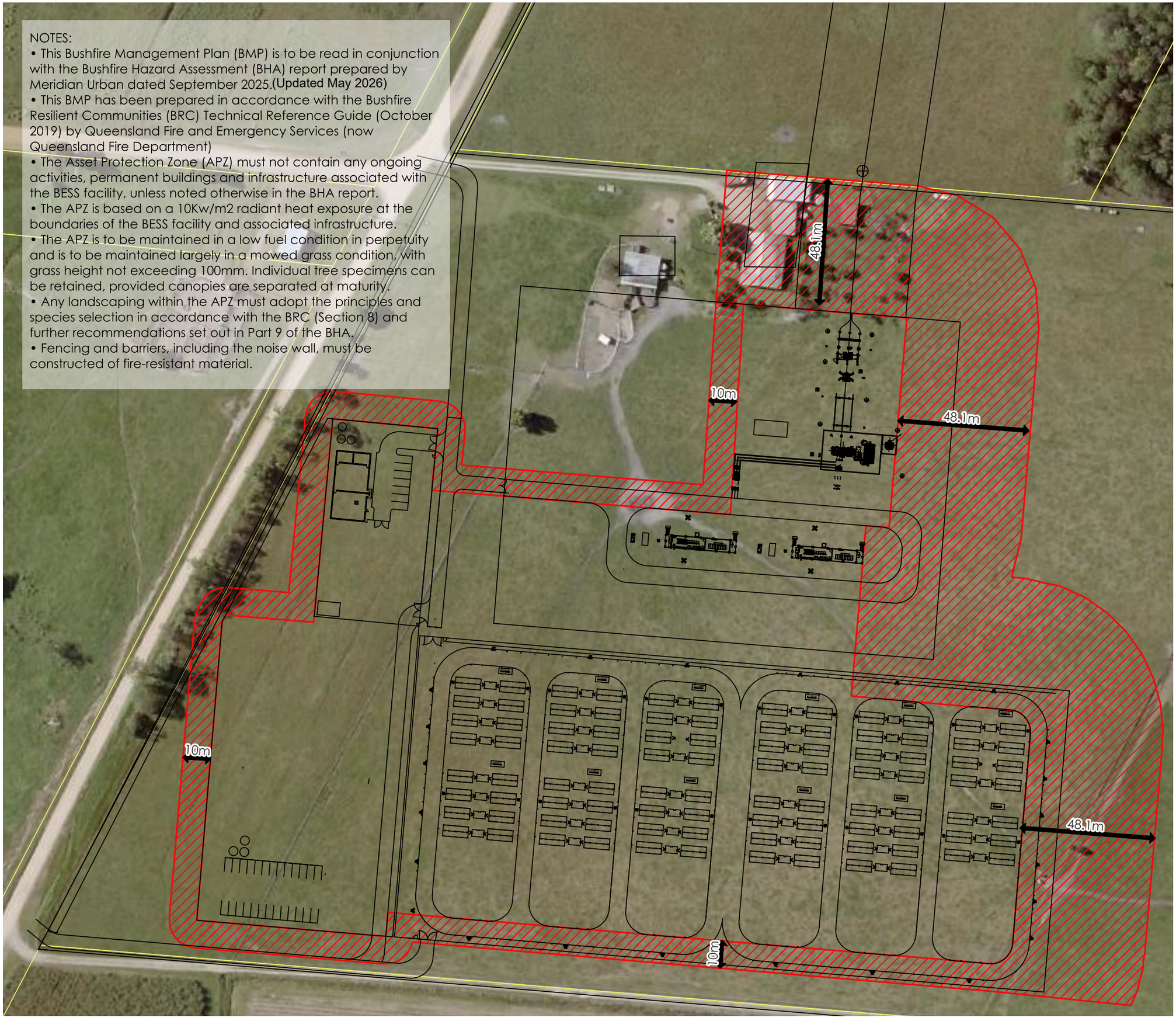
Performance outcomes	Acceptable outcomes	Response
(b) including firebreaks that provide adequate access for fire-fighting and other emergency vehicles; (c) providing adequate road access for safe evacuation and fire-fighting and other emergency vehicles; (d) providing an adequate and accessible water supply for fire-fighting purposes.	(b) is located in an area not serviced by a reticulated water supply; (c) where a water tank is provided for the purpose of household water supply.	
	AO2.2 Lots created for a residential activity are designed so that their size and shape allow for efficient emergency access to buildings for fire-fighting appliances (e.g. by avoiding long narrow lots with long access drives to buildings).	**Not applicable –** The proposal is not for a residential subdivision.
	AO2.3 Where development will result in multiple buildings or lots: (a) firebreaks are provided by a perimeter road that separates lots from areas of bushfire hazard and that road has: (i) a minimum cleared width of 20 metres; (ii) a constructed road width and weather standards complying with Planning Scheme Policy SC6.3 FNQROC Development Manual, or (b) fire maintenance trails are located as close as practicable to the boundaries of the lots and the adjoining bushfire hazard, and the fire maintenance trails: (i) have a minimum cleared width of 6 metres; (ii) have a formed width and gradient, and erosion control devices complying with Planning Scheme Policy SC6.3 FNQROC Development Manual; (iii) have vehicular access at each end;	**Response to AO2.3 and 2.4: Complies with PO2 –** The recommendations of this report include an asset protection zone around the perimeter of the facility to provide separation between the facility and nearby hazardous vegetation, as well as a separation to mitigate against grassfire. This separation has been determined in accordance with the methodology set out in BRC. The proposed APZ will also facilitate access for fire fighting vehicles. The facility also incorporates a perimeter road / track around the batteries.

Performance outcomes	Acceptable outcomes	Response
	(iv) provide passing bays and turning areas for fire-fighting vehicles; (v) are either located on public land or within an access easement that is granted in favour of the Queensland Fire and Rescue Service.	
	AO2.4 Where development will result in multiple buildings or lots, cleared firebreaks at least 6 metres wide are provided adjacent to vegetation within the site to allow the burning of sections and access for bushfire response.	
	AO2.5 New roads are designed and constructed as follows: (a) in accordance with Planning Scheme Policy SC6.3 FNQROC Development Manual; (b) to have a maximum gradient of 12.5%; (c) no cul-de-sacs are created, unless the road is a perimeter road isolating the development from a bushfire hazard.	**Not applicable –** No new roads are proposed or required as part of the development.
Firebreaks		
PO3 The establishment of firebreaks minimises impacts on areas of environmental significance.	**AO3.1** The establishment of a firebreak in accordance with PO2, AO2.3 and AO2.4 above must not involve the clearing of native vegetation unless a site-specific bushfire hazard assessment demonstrates that the bushfire hazard is very high, high or medium on that site.	**Complies –** The recommended APZ set out in this report does not require the clearing of native vegetation as it is located in existing cleared areas of the site.
Community Infrastructure		
PO4 Development for community infrastructure in the form of emergency services, an emergency shelter, air services, hospital, educational	**AO4.1** Development for community infrastructure as identified in PO4:	**Complies –** Whilst the definition of community infrastructure does not explicitly include a BESS facility, it does include a substation, which has a similar function. As noted in response to AO1.1 above, the

Performance outcomes	Acceptable outcomes	Response
establishment, substation, a power station, telecommunications facility or utility installation or stores of valuable records or items of historic or cultural significance, is able to function effectively during and immediately after bushfire events.	(a) is not located on land in an area of very high, high or medium potential bushfire intensity; or (b) does not involve any new building work other than extending the gross floor area of an existing building by less than 20m2; or (c) is designed to function effectively during and immediately after bushfire events. *Note—For AO4.1(a), a site-specific bushfire hazard assessment is necessary to demonstrate that although the site is mapped as an area of area of very high, high or medium potential bushfire intensity, the bushfire risk is low on that site.* *Note—To comply with AO4.1(c), the development application will need to include a comprehensive Bushfire Management Plan and the development must be able to comply with this Plan.*	BESS facility and associated infrastructure is located outside of verified areas of very high, high and medium potential bushfire intensity. A bushfire hazard assessment and bushfire management plan are provide in this report and demonstrate compliance with AO4.1.
Bushfire Management Plan		
PO5 Development complies with a bushfire management plan where the development: (a) is in an area of very high or high potential bushfire intensity; or (b) involves the manufacture or bulk storage of hazardous materials.	No acceptable outcome prescribed.	**Complies –** Whilst the development footprint is not within an area of very high or high potential bushfire intensity, a bushfire management plan has been prepared due to the proximity of the development to areas confirmed as high and medium potential bushfire intensity. That bushfire management plan is included in **Appendix C** and based on the recommendations set out in this report.

Appendix C – Bushfire Management Plan

NOTES:
- This Bushfire Management Plan (BMP) is to be read in conjunction with the Bushfire Hazard Assessment (BHA) report prepared by Meridian Urban dated September 2025.**(Updated May 2026)**
- This BMP has been prepared in accordance with the Bushfire Resilient Communities (BRC) Technical Reference Guide (October 2019) by Queensland Fire and Emergency Services (now Queensland Fire Department)
- The Asset Protection Zone (APZ) must not contain any ongoing activities, permanent buildings and infrastructure associated with the BESS facility, unless noted otherwise in the BHA report.
- The APZ is based on a 10Kw/m2 radiant heat exposure at the boundaries of the BESS facility and associated infrastructure.
- The APZ is to be maintained in a low fuel condition in perpetuity and is to be maintained largely in a mowed grass condition, with grass height not exceeding 100mm. Individual tree specimens can be retained, provided canopies are separated at maturity.
- Any landscaping within the APZ must adopt the principles and species selection in accordance with the BRC (Section 8) and further recommendations set out in Part 9 of the BHA.
- Fencing and barriers, including the noise wall, must be constructed of fire-resistant material.



RWE TULLY BATTERY ENERGY STORAGE SYSTEM (BESS)

Bushfire Management Plan

LEGEND

- BESS Site Layout
- Asset Protection Zone (10Kw/m2)
- Dimensions

0 25 50 m

Project No: 24-130 Map No: 1 of 1

Meridian Urban

Coordinate System: GDA 2020 MGA Zone 55
Printed at: A3
Creation Date: 19/03/2025

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