

## Planning Assessment Report

Miriam Vale Battery Energy Storage System and Substation



31 May 2024

Prepared for: Private Energy Partners Pty Ltd (a subsidiary of  
Quinbrook Infrastructure Partners Pty Ltd)



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# 1. Introduction

## 1.1 Purpose of the Report

This Planning Assessment Report (Report) has been prepared by Attexo Group Pty Ltd (Attexo) on behalf of Private Energy Partners Pty Ltd (the Applicant) to provide supporting information for a development application to GRC under the *Planning Act 2016* (Planning Act). The application seeks approval from the Assessment Manager (GRC) for:

- Development permit for Material Change of Use for an Undefined Use (Battery Energy Storage System (BESS)); and
- Development permit for Material Change of Use for a Substation.

This Report evaluates the Miriam Vale BESS Project (the Project) against the *Our Place Our Plan Gladstone Regional Council Planning Scheme* (Version 2, July 2017) (GRC Planning Scheme) and relevant State planning provisions. Further details regarding the statutory framework relevant to the proposed development are provided in **Section 6**.

## 1.2 Project Overview

Private Energy Partners is proposing to develop a BESS with a discharge capacity of up to 500 megawatts (MW) and store up to 2,000 megawatt hours (MWh) of energy. This means during the evening energy demand peak, the BESS can discharge up to 500 MW for four hours before needing to be recharged.

The Project will be connected to the electricity network via a substation to be constructed adjacent to the BESS within the site and then to the existing 275 kilovolt (kV) Calliope River-Gin Gin transmission line.

The Project is located at 292 Cawthrays Road, Colosseum, approximately 6 kilometres (km) southwest of Miriam Vale and 60 km southwest of Gladstone (refer to **Figure 4.1**). The subject lot (Lot 132 on FD32) for the Project (Project area) is approximately 94.41 hectares (ha) (excluding internal access tracks) and is wholly located within the GRC local government area. A detailed Project description is included in **Section 5**; however, in brief the Project includes:

- an up to 500 MW battery energy storage system;
- an internal substation on the 275 kV Calliope River-Gin Gin transmission line;
- internal access tracks;
- control building including site office, operation and maintenance facilities, workshop;
- informal car parking;
- security fencing around the site perimeter and vegetation screening;
- water tank(s) with a minimum capacity of 40,000 litres (L); and
- temporary construction ancillary facilities including laydown area.

A copy of the Site Layout Plan is provided in **Appendix C**.

## 1.3 Proponent Details

The proponent for the Project is Private Energy Partners, a subsidiary of Quinbrook Infrastructure Partners.

Quinbrook Infrastructure Partners (QIP) has over 25 years of investment in renewable energy infrastructure, with over USD\$8.2B invested in renewable energy and power infrastructure across more than 200 investments. QIP is a specialist employee-owned company that focuses on value-adding investments in key markets including Australia across project origination, development and asset management. QIP is a leader in the Environment, Social and Governance (ESG) space, boasting many internationally recognised awards.

Operating as QIP's dedicated project development arm, Private Energy Partners has been active in the development, construction and operation of projects within the energy sector for over 40 years in Australia, the US and Europe.



Private Energy Partners works across the technology landscape encompassing distributed scale solar PV, onshore wind, battery storage, biomass, fugitive methane recovery, demand response, grid support and flexibility, community energy networks, industrial decarbonisation and critical minerals supporting the renewable energy industry's equipment manufacturing supply chain. Private Energy Partners has a keen interest in the opportunities for supporting the growth of the critical minerals and equipment manufacturing industries in Central Queensland and has been in recent discussions with Gladstone Regional Council about tangible opportunities in this space. Private Energy Partners is committed to long-term investment in communities and has a strong focus on ensuring positive relationships are maintained throughout the development, construction, operation and decommissioning stages of its projects.

## 1.4 Application Details

Duly completed forms are included in **Appendix A** and the particulars of the Development Application are included in **Table 1.1**.

Table 1.1: Application details

Site and Application Details		
Applicant	Private Energy Partners Pty Ltd (a subsidiary of Quinbrook Infrastructure Partners Pty Ltd) 4/167 Eagle Street, Brisbane, QLD, 4000 ACN 604 402 637	Development Application Form refer to <b>Appendix A</b>
Site Address	292 Cawthrays Road, Colosseum, QLD, 4677	Refer to the Project Layout Plan at <b>Figure 5-1</b> and in <b>Appendix C</b>
Real Property Descriptions	<ul style="list-style-type: none"><li>Lot 132 on FD32</li><li>Lot 136 on FL40301 (access track only)</li><li>Lot 139 on FL40301 (access track only)</li></ul>	
Project Area	<ul style="list-style-type: none"><li>94.41 hectares (ha) (excluding access tracks)</li><li>224.07 ha (including access tracks)</li></ul>	
Project Development Footprint	<ul style="list-style-type: none"><li>10.92 ha (excluding access tracks)</li><li>12.52 ha (including access tracks)</li></ul>	
Registered Owner	<ul style="list-style-type: none"><li>Wayne Bayliss</li><li>Karl &amp; Debbie Hills</li></ul>	Refer to Owner's Consent in <b>Appendix B</b>
Easements and Encumbrances	<ul style="list-style-type: none"><li>The 275 kV Calliope River to Gin Gin Transmission Line runs north to south through Lot 132 on FD32.</li><li>A 22 kV overhead Ergon (Energy Queensland) line runs along the eastern boundary of Lot 132 on FD32 and connects to a substation south of Burgess Road.</li></ul> <p>The Development Application will be referred to Powerlink Queensland and Energy Queensland for advice.</p>	
Project Description	Private Energy Partners is seeking to develop a BESS, substation and associated infrastructure	
Local Government Area	Gladstone Regional Council	
Assessment Manager	Gladstone Regional Council	
Zone	Rural Zone	
Use Definition	'Undefined Use' for Battery Energy Storage System	



Site and Application Details		
	<p>'Substation' means premises forming part of a transmission grid or supply network under the <i>Electricity Act 1994</i>, and used for:</p> <ul style="list-style-type: none"> <li>• converting or transforming electrical energy from one voltage to another · regulating voltage in an electrical circuit</li> <li>• controlling electrical circuits · switching electrical current between circuits</li> <li>• a switchyard, or</li> <li>• communication facilities for 'operating works' as defined under the <i>Electricity Act 1994</i> or for workforce operational and safety communications.</li> </ul>	
Approval sought	<p>Development permit for the following:</p> <ul style="list-style-type: none"> <li>• Material Change of Use for an Undefined Use (BESS)</li> <li>• Material Change of Use for a Substation.</li> </ul>	
Level of Assessment	Impact Assessment	
Assessment benchmarks	<p>The assessment benchmarks for the development application include:</p> <ul style="list-style-type: none"> <li>• GRC Planning Scheme <ul style="list-style-type: none"> <li>– Strategic Framework – Rural Zone Code</li> <li>– Overlay codes – Agricultural Land, Biodiversity, Bushfire Hazard</li> <li>– Development Design Code</li> <li>– Landscaping Code.</li> </ul> </li> </ul>	Refer to <b>Section 6.3</b>
State Development Assessment Provisions	Nil	Refer to <b>Section 6</b>
Referral Agencies	<p>In accordance with Schedule 10 of the <i>Planning Regulation 2017</i> the following referral agencies have been identified:</p> <ul style="list-style-type: none"> <li>• Powerlink Australia – Material change of use of a premises near a substation site or subject to an easement (275 kV Calliope River to Gin Gin Transmission Line) – Schedule 10, Part 9, Div 2, Table 2.</li> <li>• Energy Queensland - Material change of use of a premises near a substation site or subject to an easement (22 kV overhead transmission line outside of an easement) – Schedule 10, Part 9, Div 2, Table 2.</li> </ul>	Refer to <b>Section 6.2</b>
Contact Person	<p>Ryan Aria – Senior Development Manager Private Energy Partners Level 4, 167 Eagle Street, Brisbane, QLD, 4000 E: <a href="mailto:rar@private-energypartners.com">rar@private-energypartners.com</a> or M: 0476 160 546</p>	

## 1.5 Pre-lodgement Meeting and Advice

A pre-lodgement meeting was held between GRC, Private Energy Partners and Attexo on 6 November 2023. **Table 1.2** provides a summary of the key considerations raised by GRC during the meeting, together with reference as to where the item has been addressed in this Report.



Table 1.2: Pre-lodgement meeting summary notes

Issue	Response	Report Reference
<b>Rural Zone Code</b> <ul style="list-style-type: none"> <li>Design and amenity provisions (Performance Outcomes 12 to 16).</li> <li>Demonstrate how the proposal maintains the rural character and intent of the Rural Zone (Performance Outcome 10).</li> <li>Protection of ecological values, habitat corridors and soil and water quality (Performance Outcome 16).</li> <li>An agronomist report assessing impacts to the Agricultural Land Classification</li> <li>Protection of soil quality.</li> </ul>	<p>The potential impacts of the development on the rural amenity of the locality have been considered and an assessment of the requirements of the Rural Zone Code as related to impacts on rural amenity are provided in the GRC Code Assessment Tables.</p>	<p>Refer to <b>Section 6.4.2</b> and <b>Appendix I</b></p>
<b>Biodiversity Overlay Code</b> <ul style="list-style-type: none"> <li>Detailed Environmental and Ecological Assessment to confirm the extent and nature of values required.</li> </ul>	<p>An Ecological Assessment Report (EAR) has been prepared.</p> <p>The EAR provides an assessment against the requirements of the Biodiversity Overlay Code.</p>	<p>Refer to <b>Section 7.5</b>, <b>Appendix F</b> and <b>Appendix I</b></p>
<b>Bushfire Hazard Overlay Code</b> <ul style="list-style-type: none"> <li>A site-specific bushfire hazard assessment</li> </ul>	<p>A Bushfire Hazard Assessment and Management Plan has been prepared which addresses the requirements of the Bushfire Hazard Overlay Code.</p>	<p>Refer to <b>Section 7.6</b>, <b>Appendix G</b> and <b>Appendix I</b>.</p>
<b>Stormwater</b> <ul style="list-style-type: none"> <li>A Stormwater Management Plan to address non-worsening between pre- and post-development states regarding stormwater quality.</li> </ul>	<p>A Stormwater Management Plan and Flooding Impact Assessment has been completed addressing the relevant requirements of the Planning Scheme.</p>	<p>Refer to <b>Section 7.1</b>, <b>Appendix D</b> and <b>Appendix I</b>.</p>
<b>Traffic and Access</b> <ul style="list-style-type: none"> <li>A Traffic Impact Assessment (TIA) for construction traffic for the development of the access point(s). Where appropriate, the TIA is to specify treatments and actions to manage the impacts of the increased traffic.</li> </ul>	<p>A TIA has been completed.</p> <p>Access is proposed from an unsealed road under Council's jurisdiction. Due to the negligible volumes of traffic generated for the construction and operation of the Project, road upgrades are not considered necessary for the Project.</p>	<p>Refer to <b>Section 7.2</b>, <b>Appendix E</b> and <b>Appendix I</b></p>
<b>Landscaping Code</b>	<p>Landscaping requirements have been considered.</p>	<p>Refer to <b>Appendix I</b>.</p>
<b>Other</b> <ul style="list-style-type: none"> <li>The layout plan should adequately illustrate the development footprint that avoids areas of Planning Scheme overlay constraints (e.g. Agricultural Classification / Biodiversity), shows location of buildings and structures,</li> </ul>		<p>Refer to layout plans included in <b>Appendix C</b>.</p>

Issue	Response	Report Reference
proposed access / egress locations, bushfire breaks and trails, watercourses, landscaping screen areas, protected vegetation and nominated setbacks from bushfire breaks and protected vegetation		

## 1.6 Additional Approvals

This application solely relates to aspects of a Material Change of Use for an Undefined Use (BESS) and a Substation. A subsequent Operational Works permit through GRC may be required for earthworks and access works prior to the development commencing.

### 1.6.1 Commonwealth

The Project has the potential to impact on Matters of National Environmental Significance (MNES) (listed threatened species and threatened ecological communities) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A referral was lodged to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 15 March 2024 for a determination as to whether the Project constitutes a controlled action for which approval is required under the EPBC Act. The referral did not consider the potential impacts to MNES to be significant, owing to the historical degradation of the Project area.

### 1.6.2 Queensland Government

There are a number of waterways which have been ground-truthed by Attexo as waterways for waterway barrier works (WWBW) within the Project area and the broader surrounds, including the internal access areas. There are no components of the Project that are defined as waterway barrier works, as the Project infrastructure including access tracks are not proposed within any ground-truthed waterways.

Any works constructed within the bed and banks of a waterway for the Project will be done so in consideration of the Accepted Development Requirements for Operational Work that is Constructing or Raising Waterway Barrier Works (ADR). In the event any water crossing cannot meet the specifications within the ADR, a separate development permit will be sought.

## 1.7 Supporting Information

The following technical reports are provided to support this Development Application:

- Development Application Form (**Appendix A**)
- Owner's Consent (**Appendix B**)
- Development Plans (**Appendix C**)
- Flooding Impact Assessment and Stormwater Assessment (**Appendix D**)
- Traffic Impact Assessment (**Appendix E**)
- Ecological Assessment Report (**Appendix F**)
- Bushfire Management Plan (**Appendix G**)
- Preliminary Erosion and Sediment Control Plan (**Appendix H**)
- GRC Planning Scheme Code Assessment (**Appendix I**)
- Noise Impact Assessment (**Appendix J**)

## 2. Project Justification

The Project will contribute up to 2,000 MWh storage capacity to the National Electricity Market and has the potential to provide electricity for four hours in the evening peak before needing to recharge.

Modelling undertaken for the Queensland Energy and Jobs Plan identified a requirement of up to 3,000 MW of grid-scale energy storage across Queensland, which will largely be comprised of battery energy storage facilities.

The Queensland Super Grid Infrastructure Blueprint identifies the importance of battery storage systems in storing renewable energy generated through wind and solar when its readily available and discharging it when it is needed, also referred to as ‘firming’. Batteries are ideal for providing intra-day storage as they can absorb ‘excess’ solar energy from the grid throughout the day, store it, and discharge it later to meet demand. At times of surplus solar produced during daylight hours, the battery will store energy for up to four hours during the daylight for use at peak evening energy use periods.

The Project is located in the Central Queensland Renewable Energy Zone (REZ) – see **Figure 2.1**. REZs are critical to ensuring Queenslanders have access to affordable energy in the long term, as well as creating regional job opportunities, and lowering Queensland emissions. REZs will deliver a steady pipeline of approximately 4,000 direct ongoing renewable energy construction jobs. The Project is expected to generate up to 150 jobs during construction and up to 4 jobs during operation (direct and indirect).

The 1,680 MW Gladstone Coal Fired Power Station is earmarked for closure in 2035; this will require approximately 5,000 MW of renewable energy to replace the baseload electricity generation.

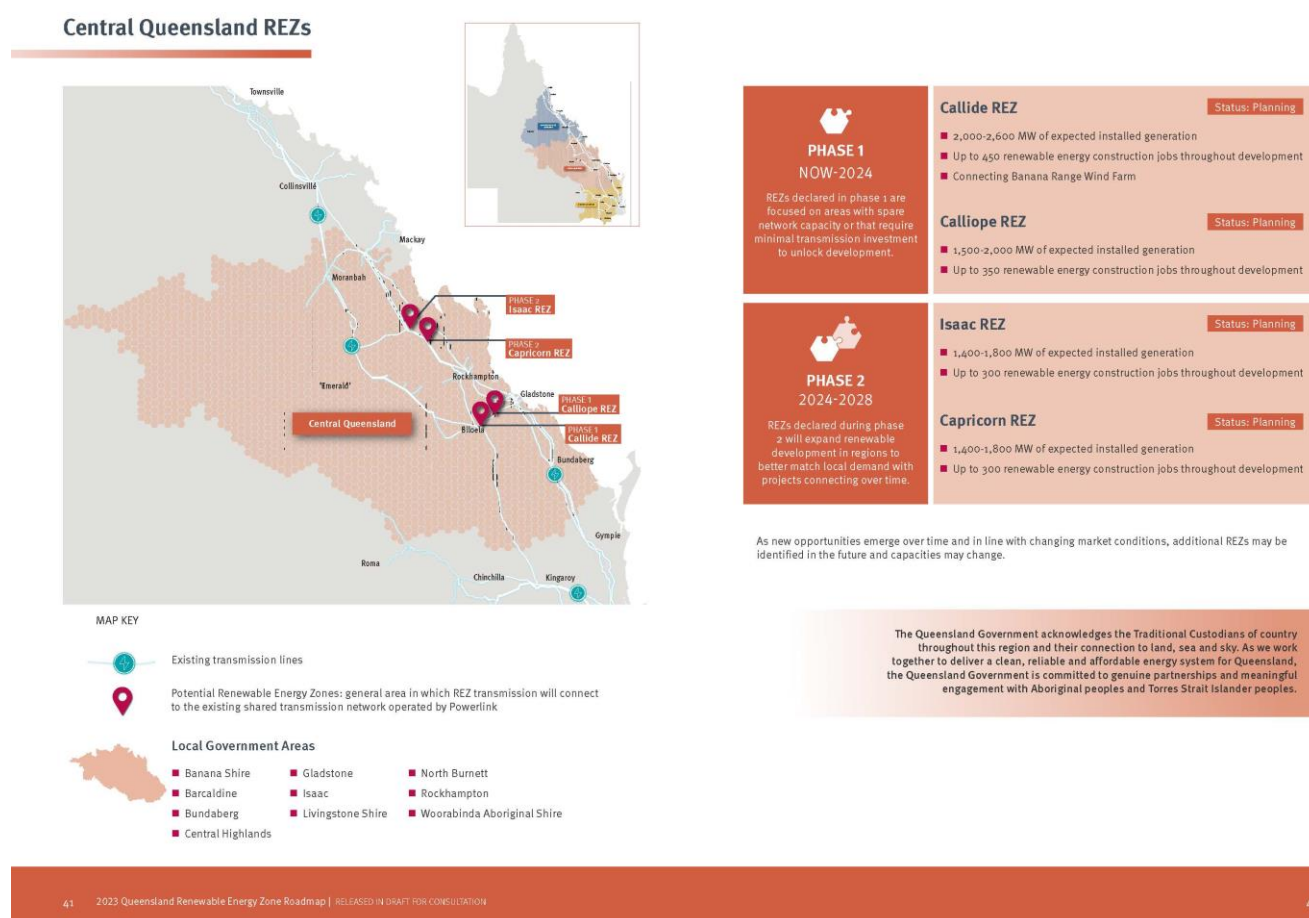


Figure 2.1: Central Queensland Renewable Energy Zone

The Project is proposed to connect to the existing Powerlink 275 kV Calliope River to Gin Gin transmission line (refer to **Figure 5.2**).

Specific benefits of the Project include:

- Power demand – The load in Gladstone is expected to increase from 9 TWh/yr to 12 TWh/yr over the next decade, not including 10 GW (up to 88 TWh/yr) of potential new load connections in Gladstone. For reference, refer to the [Powerlink TAPR](#).
- Renewable requirements – Both the Queensland and Australian governments have committed to at least 80 per cent renewable energy by 2030-35.
  - The Project will help to achieve the Queensland Energy and Jobs Plan
- Jobs – Around 150 jobs are expected to be generated during the 18-24 month construction period and up to 4 jobs during operation (direct and indirect).
- Considerable investment is expected in the local region during the construction period. Private Energy Partners is committed to maximising opportunities for local workers and businesses.
- The Project is aligned with:
  - The Gladstone 2023/24 Strategic Priorities to enhance the Gladstone region and transition the region from Queensland's industrial powerhouse to a renewable energy "superpower";
  - The Gladstone Economic Transition Roadmap (2022-2032);
  - Supporting the green industry and decarbonisation within Gladstone;
  - Supporting critical minerals projects in and around Gladstone such Central Queensland Metal's magnetite project and Private Energy Partners' Gladstone Green Iron Project;
  - Local community engagement and benefit sharing principles;
  - First Nations engagement; and
  - The aims of various government-owned corporations.

Through Quinbrook's business model of developing, building, owning and operating assets, the Project is expected to bring broad benefits to the Gladstone region that will make a tangible contribution to the local economy, workforce, supply chains, social infrastructure and communities. The Project aligns with the Gladstone Regional Council's expectations for proponents (as outlined in the [New Project Guidelines](#)), and the economic goals of the Council which include major project investment and social impact management.



### 3. Stakeholder and Community Engagement

Meaningful engagement with stakeholders and community members is of utmost importance to, and a core principle of, Private Energy Partners (fully affiliated with Quinbrook Infrastructure Partners). A comprehensive stakeholder and community engagement plan has been prepared for the Project and is actively maintained by Private Energy Partners.

Private Energy Partners is committed to working collaboratively with the community and other stakeholders throughout early development, construction, operation, and asset management of the Project.

Private Energy Partners builds upon its existing relationships in regional Queensland communities to form deep trust and engagement with local communities, Traditional Owners, and other key stakeholders.

A number of actions have been undertaken, or are currently underway, for the engagement activities associated with the Project. These include:

- Updating and engaging landowners during the development phase of the Project.
- Engaging with the PCCC (the relevant Indigenous party) from the initial stages of the Project.
- Requesting meetings with the Mayor and Councillors before submitting the Development Application.
- Understanding Gladstone Regional Council's planning team's expectations for the Development Application.
- Identifying adjacent landowners for the Project and informing them in advance.
- Engaging with neighbors.
- Communicating with the Gladstone Economic team to align with high-priority projects in Gladstone.
- Completing stakeholder engagement work to date.
- Planning community consultation dates and venues.
- Selecting and awarding a local consultancy to support the Project in achieving social licensing and communicating effectively with all stakeholders.
- Establishing networks and engagement across the Gladstone region.
- Engagement processes regarding the Project via the following:
  - [Gladstone Engineering Alliance](#)
  - [Connecting Industry](#)
  - [Gladstone Chamber of Commerce and Industry](#)

Private Energy Partners (fully affiliated with Quinbrook Infrastructure Partners) truly respects community engagement and ensures it remains a principal focus in all of its endeavors.



## 4. Site Description

### 4.1 Overview

The proposed development involves the development of an up to 500 MW BESS, substation and associated infrastructure within the following parcels:

Table 4.1: Lots subject to the development application

Lot description	Area (ha)
Lot 132 on FD32	94.41
Lot 136 on FL40301	64.56
Lot 139 on FL40301	65.1
<b>Total Area</b>	<b>224.07</b>

No Project infrastructure other than access tracks are proposed on Lot 136 on FL40301 and 139 on FL40301. These land parcels will allow for internal access to the BESS and substation development footprint from the new access located on Burgess Road.

This Report refers to the Project area as the land parcel containing the BESS, substation and associated infrastructure excluding access tracks being Lot 132 on FD32. Where relevant, specific reference has been made to the land parcels providing internal access only.

The boundaries of the lots listed in **Table 4.1** are shown in the Project site location plan in **Figure 4.1** and on the Site layout plans in **Appendix C** along with the location of the proposed BESS and substation development footprint and associated infrastructure.





Project Site Location

- Cities and Towns
- Highway
- Main Road
- Watercourses
- Proposed BESS, Substation and Switchyard Development Footprint
- Property Boundary

MIRIAM VALE BESS



GDA2020 MGA Zone 56

Data Source: World Topographic Map; Department of Resources, Dept of Environment and Science, Esri, TomTom, Garmin, FAO, NOAA, USGS  
World Imagery: Earthstar Geographics  
World Hillshade: Esri, USGS

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## 4.2 Site Context

The land the subject of the Development Application and surrounding areas are of a rural nature and currently used primarily for grazing. The Project area has largely been historically cleared and/or thinned with the exception of limited areas of remaining of historical plantation trees (Tasmanian Blue Gum - *Eucalyptus globulus*).

Bulburin National Park is located approximately 9 km west of the Project area and Mount Colosseum National Park is located approximately 9 km to the southeast.

### 4.2.1 Easement, Encumbrances and Infrastructure

The Project area adjoins several unconstructed road parcels, these include:

- two unconstructed road parcels which run along the northern and southern boundary of Lot 132 on FD3. These road parcels would connect to Cawthrays Road if formed
- partially constructed road parcel providing access to the Project area off Cawthrays Road.

The Powerlink 275 kV Calliope River-Gin Gin Transmission Line runs north to south through the centre of the Project area.

An Ergon 22 kV overhead transmission line (OHTL) runs parallel to Powerlink's transmission line easement along the eastern boundary of the Project area and connects to an existing substation south of Burgess Road. As advised by Energy Queensland, an exclusion zone buffer of 20 m (10 m either side of the OHTL centreline) has been incorporated into the Project design to ensure an acceptable distance from the transmission infrastructure is maintained during construction and operation of the Project.

### 4.2.2 Topography and Watercourses

The BESS and substation site is situated on flat rural landscape with an elevation of 60 m Australian Height Datum (AHD) across the Project area. The internal access tracks also traverse a relatively flat landscape which ranges between 80 m AHD to 70 m AHD. No areas of significant slope (greater than 15 percent) are included in the development footprint.

The Project area is mapped as including water features identified by the Department of Agriculture and Fisheries (DAF) under the Queensland waterways for waterway barrier works spatial data layer. These water features flow in a northeasterly direction and are unnamed tributaries (stream order 1). Field verification of these waterways was undertaken by Attexo in 2023; this is further discussed in **Section 7.5**.

Several man-made farm dams occur throughout the Project area.

### 4.2.3 Vegetation

An Ecological Assessment Report (EAR) has been completed for the proposed development and is provided at **Appendix F**.

The Project area has been historically cleared of remnant vegetation and/or significantly thinned. Current site conditions reflect the clearing history with more than 90 percent of the site consisting of open grassland utilised for pastoral activities. Several scattered patches of historical plantation trees (Tasmanian Blue Gum - *Eucalyptus globulus*) remain present within the Project area.

The Project area supports non-remnant vegetation as such no regulated vegetation is evident on site. Ground-truthing of vegetation identified four weed species listed under the *Biosecurity Act 2014* across the Project area. Some of these weeds are also listed as Weeds of National Significance (WoNS) or important weeds of the GRC Local Government Area (LGA). The prevalent weed species across the Project area are listed in **Table 4.2**.

Table 4.2: Prevalent weed species observes within the Project area

Weed Species	Biosecurity Act Category	WoNS	LGA Listed Weed	GRC Priority
Lantana ( <i>Lantana camara</i> )	Restricted Invasive Plant – Cat 3	Yes	No	Local Control
Giant Rats Tail Grass ( <i>Sporobolus pyramidalis</i> )	Restricted Invasive Plant – Cat 3	No	Yes	Containment
Balloon Cotton Bush ( <i>Gomphocarpus physocarpus</i> )	-	No	No	-
Devil's Fig ( <i>Solanum torvum</i> )	-	No	No	-

#### 4.2.4 Road Frontages

Access to the site from the Bruce Highway is via Blackman Gap Road and Burgess Road. An alternative access to the north-east section of the site from the Bruce Highway is via Blackman Gap Road and Cawthrays Road.

#### 4.2.5 Heritage Values

No significant sites of Aboriginal cultural heritage are registered on local, State or Commonwealth registers for the Project area. Despite the lack of recorded cultural heritage sites of significance, there remains the potential that Aboriginal cultural values or sites are present. The proposed development is to be undertaken in accordance with the Cultural Heritage Duty of Care Guidelines.

The Project area subject to this Development Application does not adjoin a Native Title determination.

## 5. Proposed Development

### 5.1 Overview

The Project involves the construction of an up to 500 MW BESS with up to four hours of energy storage (up to 2,000 MWh) and substation, with associated infrastructure (control building, switchyard etc.).

The proposed layout of the development is down in the Project Layout Plan in **Figure 5.2** and on the Site Layouts Plans in **Appendix C**.

The detailed design, specific BESS unit layout and storage and discharge capacity have not been finalised at this stage. These design decisions will not have a material impact on the development footprint in terms of the environmental and planning considerations.

The Project functions independently of an energy generation project as it would store excess electricity directly from the grid and distribute it back into the network during times of peak demand and higher energy prices. The Project can also add significant benefit to energy generation projects and that may be developed in close proximity as it would allow for the dispatch of energy according to market demand, overcome potential issues associated with intermittent output and contribute to increased network strength in the region. The Project can also support other mineral facility projects near Miriam Vale by meeting their peak demand.

### 5.2 Built Form and Concept Design

The Project has been designed to ensure minimal environmental impacts, in keeping with the sustainable nature of the development for supporting renewable energy projects and reducing greenhouse gas emissions. Accordingly, the existing environment; existing rural land use on-site and off-site; proximity to existing electricity infrastructure; stormwater management; and noise impact have all been considered in the design development.

The Project's infrastructure comprises of a number of interlinked and integral components for the operation of the equipment, storage and distribution of electricity. These components include:

- BESS with a discharge capacity of up to 500 MW with up to four hours of storage (up to 2,000 MWh) of energy,
- an internal collector substation containing transformers, protection equipment, switchgear and other related equipment,
- control building including site office, operation and maintenance facilities, workshop etc.,
- internal collector lines,
- internal access tracks.

Each of these components are shown on the proposed plans, provided at **Appendix C** and explained in further detail below.

#### 5.2.1 Battery Energy Storage System

The BESS will cover an area of approximately 4.26 ha and includes battery units, associated infrastructure, grid connection, access roads and security fencing.

The BESS assembly would be mounted on a pad formation and include bunded containment. The BESS will include one or more inverters which convert DC current to grid compliant AC current. The battery inverters and transformer will be connected to the collector substation via underground or overhead cables.

Any commercially available battery storage technology with suitable outdoor rated housing could be used including, but not limited to lithium iron, lead acid, sodium sulphur and sodium or nickel hydride. Accepted industry practice would be observed for handling the respective battery components during installation, maintenance, replacement and recycling. **Figure 5.1** depicts a typical BESS installation.



Figure 5.1: Typical battery storage unit

Source: Private Energy Partners

## 5.2.2 Internal Collector Substation

The Project will facilitate interconnection of the BESS into the existing 275 kV Calliope River-Gin Gin transmission line (electricity network) via a new substation and switchyard to be built on site. The substation and switchyard detailed design are currently being developed; however, the indicative footprint is approximately 4 ha. The transformer will be the largest single piece of plant on the site. The likely final transformer design will be an oil-filled unit, and appropriate bunding will be in place to contain the oil in the unlikely event of a leak.

## 5.2.3 Parking and Access

Access to the facility will be via the existing local road network - Burgess Road and Blackman Gap Road. The proposed access point to the development from the local road network are illustrated in **Figure 5-2** and on the layout plans within **Appendix C**. Sufficient parking to meet the needs of the development will be provided at the Project site.

## 5.2.4 Fencing

The BESS development area and substation area will be fenced for safety and security purposes.

The main temporary components of the Project comprise a construction compound including a laydown area (40 m x 28 m) which will be temporarily fenced during construction.

## 5.2.5 Ancillary Services

### 5.2.5.1 Water Supply and Sewer

The Project area is not connected to reticulated water or sewerage infrastructure. During the construction and operational phases, the development will not require any connection to sewer mains. Rainwater harvesting will be used for potable supplies where possible. A Portable Hire Toilet service will be used during the construction phase. A Home Sewerage Treatment Plant (HSTP) servicing up to four people will be used during the operational phase. Fresh water may need to be trucked in during drought periods and for use as dust suppression during construction.



#### 5.2.5.2 Electricity and Telecommunications

Both domestic electrical and telecommunications infrastructure are available on this site. It is not proposed that the development will require connection to electrical services.

#### 5.2.5.3 Maintenance Storage Shed

The maintenance storage shed footprint will be approximately 9 m x 18 m and stand approximately 4.5 m high depending on final design and plant requirements. The maintenance storage shed will consist of a steel structure. This will be used to house ancillary equipment primarily for the ongoing maintenance of the operational Project.

#### 5.2.5.4 Control Building (Workshop / Site Office)

The control building will contain both the site office and workshop/warehouse facilities and will consist of a steel structure. The onsite workshop footprint will be approximately 9 m x 9 m and stand approximately 4.5 m high depending on final design and plant requirements.

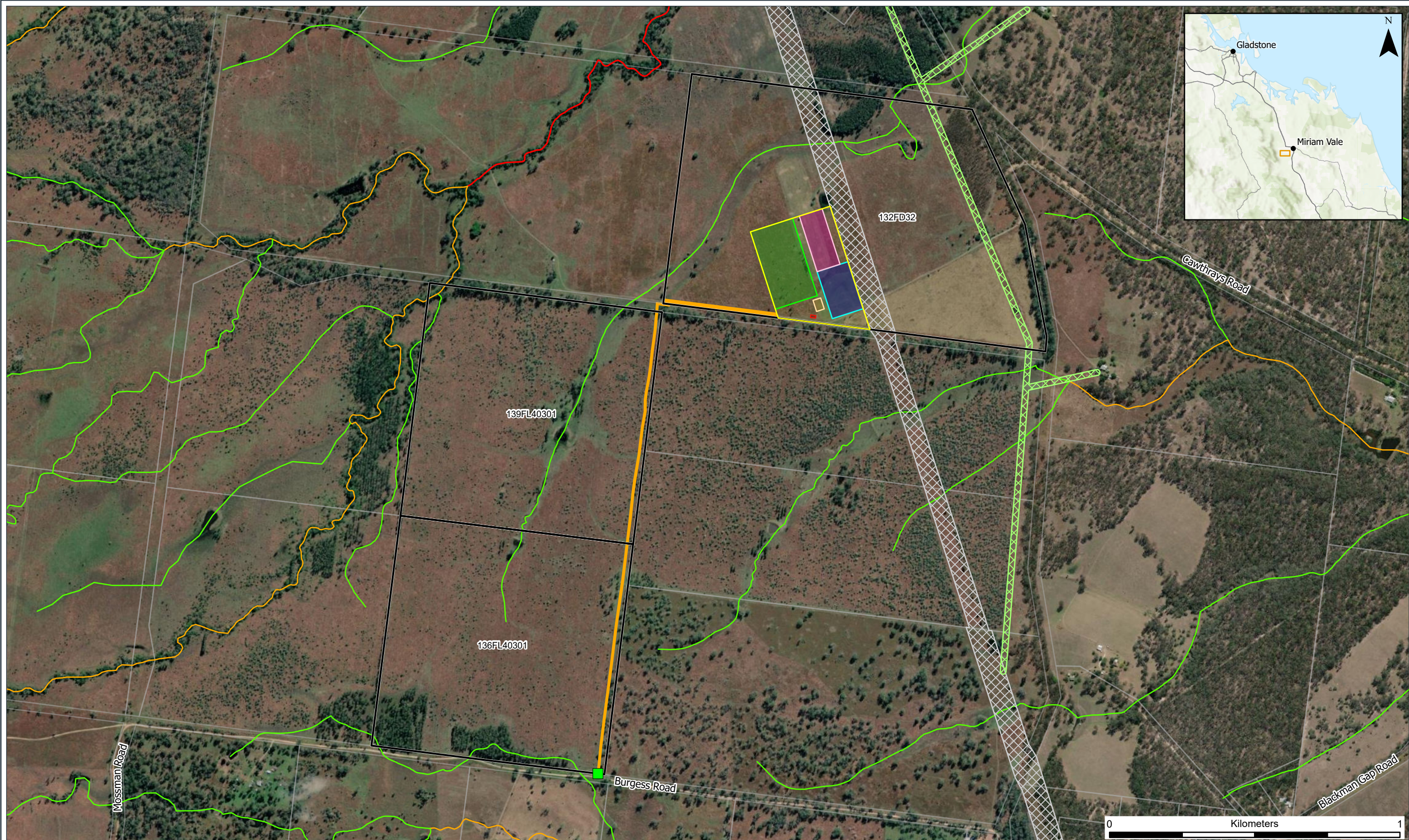
The warehouse/ workshop facilities will include:

- O&M workshop facilities
- Spare parts
- First aid kit, safety equipment and personnel protective equipment
- Emergency solar blankets and firefighting equipment.

The site office located adjacent to the workshop shed will contain:

- IT systems and primary interface with the site SCADA system.
- Staff amenities including bathrooms and kitchen.
- First aids kits, etc.
- Potable water supply
  - Anticipated somewhere in the range of 10,000 litres (L) stored in a tank (concrete or metal) and filled via rainwater and delivered water.
- Static water supply for firefighting/bushfire management (in addition to the above water supply)
  - Anticipated somewhere in the range of 30,000 L will be stored in tanks (concrete or metal) across the Project area for firefighting requirements.
- HSTP.
- Power provided either from a direct connection to the local distribution network (11 kV) or via the auxiliary supply of the HV transformer.
- Informal parking facilities.
- Adequate rubbish waste/facilities will be established via on site skip bin, which will be emptied weekly or as required. No permanent or long-term storage of rubbish or waste will be on site.





## Project Layout

- |                                       |   |                                      |  |                             |                 |
|---------------------------------------|---|--------------------------------------|--|-----------------------------|-----------------|
| Burgess Road Access Point             | Moderate                                      | Proposed BESS                        | Proposed Switchyard Development Area       | Powerlink Corridor Easement | Lot Type Parcel |
| Local Road                            | Low   | Proposed Internal Access Track       | Proposed Laydown Area                      | OHTL Exclusion Zone         |                 |
| Waterways for Waterway Barrier Works: | Proposed BESS, Substation and Switchyard Area | Proposed Substation Development Area | Proposed Maintenance and Storage Shed Area | Property Boundary           |                 |
| High                                  |   |                                      |  |                             |                 |

MIRIAM VALE BESS

Attexó

REVIEWED: MW

DRAWN: FM

SCALE (A3): 1:12,500

DATE: 17/04/2024

DWG No: PRI-001\_018[A]

FIGURE 5-2



## 5.3 Vegetation Clearing

The proposed development does not involve the clearing of any regulated vegetation.

## 5.4 Waterways

Site verification of waterways undertaken by Attexo in October 2023 identified the waterway mapped by the State of Queensland as Green – Low Risk to not possess the physical and hydrological attributes necessary for a waterway under the Fisheries Act. As there was no observable difference between the surrounding pasture and the mapped water feature, the waterway was deemed likely to be a shallow drainage line that provides no aquatic habitat value under present conditions. This waterway area has not been included in the Development Footprint, nor have set buffers been incorporated into the Project design.

## 5.5 Construction

Due to the preliminary nature of the design, the final construction methods have not yet been confirmed. The final design, engineering and construction will be undertaken by the EPC contractor who will ensure the Project is designed and constructed in accordance with relevant standards, with the infrastructure to be signed off by a qualified Registered Professional Engineer of Queensland (RPEQ) prior to operation.

The likely construction process for the Project involves the following activities:

1. Site access and establishment, including temporary construction facilities and laydown areas
2. Civil works: clearing of the site, earthworks, limited grading, compaction, stormwater drainage and sediment controls
3. Construction of the BESS, substation and ancillary infrastructure including installation of the foundation, underground cabling and containerised storage units;
4. Commissioning of BESS which includes testing of all equipment and commissioning tests required under the electrical connection agreement. Commissioning activities to be undertaken prior to construction.

Where cut and fill is proposed, a separate Development Application for Operational Works will be sought (if required).

It is expected that during peak construction period, there will be a workforce of approximately 150 people on the Project site.

### 5.5.1 Hours of Construction

Most construction work, including trenching and deliveries, will be undertaken during standard construction hours: Monday to Saturday, 6:30am to 6:30pm.

The following construction activities may be undertaken outside of standard construction hours:

- Distribution of materials within the site;
- Commissioning and testing activities; and
- Other quiet works including survey work, office work and general mechanical assembly.

The above activities are proposed in consideration of the closest neighbour being approximately 800 m from the proposed construction site and no noise impacts are expected.

Any other construction activities outside of standard construction hours, including deliveries and use of heavy-duty mechanical equipment, would only be undertaken in consultation with GRC and in consideration of audible noise impact on nearby residents.





## 5.5.2 Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) will be developed and implemented to manage potential environmental impacts from the construction. The CEMP will address key activities likely to have an environmental impact and implement strategies to protect and manage water quality, waste, soils (including erosion and sedimentation), air quality and noise. The CEMP will be finalised during detailed design, will respond to relevant approval conditions and can be provided to GRC upon completion.

All contractors involved in the Project will be required to comply with the CEMP.

## 5.5.3 Construction Traffic

A Traffic Impact Assessment (TIA) has been prepared by PSA Consulting for the Project and is included as **Appendix E**.

Details of the construction workforce are yet to be confirmed. It is assumed that the Project's workforce will primarily be sourced from the local region, with workers accommodated locally in the townships of Gladstone, Calliope and surrounds. The region has a noted skilled workforce that will be well-suited to the roles associated with construction and operation of the BESS and substation. Furthermore, the current commencement of construction of the Aldoga Solar Farm (and BESS) in the GRC region will provide opportunities for workers to move from that construction project to the Miriam Vale Project in a complementary manner where timelines allow. At the very least, it is expected that there will be a large proportion of appropriately-skilled and experienced local workers to support the Project. It should be noted that rental stock in Gladstone has previously supported large-scale construction projects such as those associated with the CSG industry approximately 10 years ago. It is expected that this same rental stock will be largely available to support the Project, and other renewable energy projects planned for the region in the coming years.

During construction, the development is estimated to generate approximately 232 vehicle trips per day. Of these trips, the construction workforce is estimated to generate 200 daily trips (100 AM<sup>1</sup> peak period and 100 PM<sup>2</sup> peak period) and heavy vehicles (i.e. bulk material haulage) are estimated to generate 32 daily trips (16 AM peak period and 16 PM peak period). The construction workforce is expected to commute using private vehicles as no existing active or public transport networks are accessible within the Project's vicinity. Alternatively, buses/coaches may be utilised to transport the construction workforce; however, further investigation is required.

Given the remote location and size of the proposed development, it is anticipated that there is a sufficient area to provide non-formalised car-parking spaces in accordance with GRC's 'Minimum On-site Parking Rates' (refer to Table SC6.10.2.1 of the GRC Planning Scheme). As such, no formal car parking is proposed for the construction workforce.

## 5.5.4 Construction Timeline

Construction of the Project is anticipated to begin in July 2025 and is expected to take between 18 to 24 months.

# 5.6 Operation

## 5.6.1 Hours of Operation

Target commercial operations are anticipated to commence in late 2027. The BESS and substation will be in operation, including remote monitoring, 24 hours a day, every day of the year.

## 5.6.2 Operational Workforce

The Project will support up to 4 jobs throughout the operational life of the Project.

The direct operational workforce will consist of periodic asset management staff for monitoring, testing and maintenance as well as deliveries, waste removal and other general site maintenance.

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<sup>1</sup> Between 7:00am and 8:00am

<sup>2</sup> Between 4:00pm and 5:00pm



### 5.6.3 Maintenance Tasks

Planned maintenance activities will likely include:

- Weekly and monthly inspections (electrical, civil and environmental);
- Vegetation management (in line with various management plans); and
- Other activities as defined in the O&M management plans.

Corrective maintenance activities will likely include:

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

### 5.6.4 Waste

Waste from operations will be generated from the operations and maintenance building. Waste will be general rubbish including putrescible waste, and recyclable material which will be placed into bins and collected for disposal.

### 5.6.5 Decommissioning

Typically, the asset life of a BESS is up to 20 years. Following the 20-year period, a determination will be made whether to:

- Replace the BESS with new infrastructure; or
- Decommission the infrastructure and rehabilitate the site.

Decommissioning will be addressed as part of the CEMP but would typically consist of removal of all above-ground infrastructure for recycling or disposal and revegetation of all disturbed land. The land will be returned to its pre-existing condition, or an improved state, to allow for its continued agricultural use.

The potential of the Project to operate past the original life span will depend on the market conditions.

## 6. Statutory Framework

This section assesses the Development Application against the relevant assessment benchmarks.

### 6.1 Planning Act 2016

The Planning Act provides for an efficient, effective, transparent, integrated, coordinated and accountable system of land use planning, development assessment and related matters that facilitates the achievement of ecological sustainability includes:

- State planning policies setting out planning and development assessment policies about matters of State interest for particular regions of the state;
- Regional plans setting out integrated planning and development assessment policies for all of a local government area;
- Planning schemes setting out integrated planning and development assessment policies to protect all or part of a local government area from adverse impacts in urgent or emergent circumstances;
- Planning scheme policies; and
- A development assessment system, including State Assessment and Referral Agency (SARA), for implementing planning instruments and other policies and requirements about development.

The Planning Act regulates and manages development in Queensland, providing a framework for the preparation and implementation of planning instruments. It requires the coordination and integration of State, regional and local planning outcomes. A development permit is required under the Planning Act prior to commencing assessable development.

The relevant planning instruments for the proposal are:

- Central Queensland Regional Plan 2013 (CQ Regional Plan);
- State Planning Policy 2017 (SPP); and
- GRC Planning Scheme 2017.

#### 6.1.1 Assessment Manager

Schedule 8, Table 2, Item 1 (b)(i) of the Planning Regulation states that where development is made assessable by a local categorising instrument the local government is the assessment manager. As such, the assessment manager for this application is GRC.

#### 6.1.2 Use Definition and Level of Assessment

The GRC Planning Scheme defines the proposed BESS as a 'Undefined Use' however there is no definition for an 'Undefined Use'.

Recent amendments to the Planning Regulation have provided for the development of BESS' including the addition of a use definition for a 'Battery Storage Facility'. In accordance with the Planning Regulation a 'Battery Storage Facility' means:

*Premises for the operation of 1 or more battery storage devices.*

In accordance with the GRC Planning Scheme a 'Substation' means:

*Premises forming part of a transmission grid or supply network under the Electricity Act 1994, and used for:*

- *converting or transforming electrical energy from one voltage to another*
- *regulating voltage in an electrical circuit*
- *controlling electrical circuits*
- *switching electrical current between circuits*

- a switchyard, or
- communication facilities for 'operating works' as defined under the Electricity Act 1994 or for workforce operational and safety communications.

The development also includes a range of ancillary infrastructure which do not constitute separately defined uses, including internal collector lines, switchyard, access tracks, etc.

The proposed BESS, substation and ancillary infrastructure are located within the Rural Zone. In accordance with Table 5.5.16 – Rural zone, of Part 5 of the GRC Planning Scheme, the proposed use is subject to an Impact Assessment process.

## 6.2 Referral Agencies

The Planning Regulation sets out the requisite referral agencies for development applications. In accordance with Schedule 10 of the Planning Regulation, the following referrals apply:

Table 6.1: Referral Agency

Schedule 10	Referral topic and reason	Referral Agency
Part 9, Division 2, Table 2	Material change of use of premises near a substation site or subject to an easement	Powerlink Australia and Energy Queensland (advice only)

The BESS and substation layout has been designed to avoid field-verified waterways under the *Fisheries Act 1994*.

## 6.3 Assessment Benchmarks

The Planning Act sets out the matters (assessment benchmarks) against which an assessment manager must assess assessable development. **Table 6.2** lists the assessment benchmarks considered as part of the development.

Table 6.2: Assessment Benchmarks

Document	Assessment Benchmarks	Report Reference
<i>GRC Planning Scheme</i>	<ul style="list-style-type: none"> <li>• Strategic Framework</li> <li>• Rural Zone Code</li> <li>• Overlay codes: <ul style="list-style-type: none"> <li>– Biodiversity</li> <li>– Bushfire Hazard</li> </ul> </li> <li>• Development Design Code</li> <li>• Landscaping Code</li> </ul>	Assessment against the relevant assessment benchmarks is set out in <b>Section 6.3</b> , with the relevant code tables provided in <b>Appendix I</b> .
<i>SPP 2017</i>	As per Part 2.1 of the GRC Planning Scheme 2017, the Minister has identified that the SPP is reflected in the Planning Scheme.	Assessment against the SPP is not required.
<i>CQ Regional Plan 2013</i>	As noted in section 2.2 of the GRC Planning Scheme 2017, the Minister has identified that the planning scheme, specifically the strategic framework, appropriately advances the CQ Regional Plan 2013, as it applies to the Planning Scheme.	No further assessment of the regional plan is required.
<i>SDAP</i>	The SDAP Version 3.0 is prescribed under the Planning Act, and provides assessable benchmarks, being State Codes, for assessment of a development by either the assessment manager (i.e., Gladstone Regional Council) or a referral	No further assessment of the SDAP is required.

Document	Assessment Benchmarks	Report Reference
	agency where applicable under the Planning Regulation. No State Codes are applicable to the Project.	

## 6.4 Gladstone Regional Council Planning Scheme

The following development provisions apply to the subject site as outlined in the GRC Planning Scheme.

### 6.4.1 Strategic Framework

The strategic framework sets the policy direction for the GRC Planning Scheme and forms the basis for ensuring appropriate development occurs within the planning scheme area for the life of the planning scheme. The strategic framework is structured with the overarching strategic intent, and with six themes that represent the policy intent of the scheme. **Table 6.3** provides a response to the relevant strategic outcomes in the strategic framework.

Table 6.3: Strategic Outcomes Assessment

Strategic Outcome	Response
<b>Gateway to the World</b>	
12. Agricultural and rural land uses are a valuable economic and social resource and are conserved and sustained. Fragmentation of this resource is not supported.	<p>The BESS supports the strategic outcome as it will provide a significant economic contribution to the region through its energy storage and construction phase.</p> <p>The proposed BESS and substation traverses approximately 1.19 ha of agricultural land (Class B). Agricultural uses of the balance of the land outside of the development footprint and surrounding areas can continue to be utilised for agricultural purposes (i.e. grazing).</p> <p>For further discussion on potential impacts on rural agricultural land, refer to <b>Section 7.4</b>.</p>
<b>Our Environment and Heritage</b>	
1. Sustainable development allows our communities to meet their present needs while not compromising the ability of future generations to meet their needs.	The Project can store excess energy generated from renewable sources like solar or excess energy from the electricity grid during periods of high supply and release it when demand is high or when renewable generation is low. This ensures a stable and sustainable energy supply for the community without relying heavily on fossil fuels. The Project enables communities to meet their present energy needs while minimizing negative impacts on the environment and ensuring that future generations have access to clean and reliable energy sources.
2. Natural places including areas with national, and state environmental significance are protected through appropriate planning and development practices.	The subject site includes an area of Matters of State Environmental Significance (MSES) – Regulated Vegetation (intersecting a defined watercourse). The Project has been designed to avoid this area and any regulated vegetation clearing. The EAR in <b>Appendix F</b> describes this in further detail.

Strategic Outcome	Response
<b>Gateway to the World</b>	
3. Natural places and valuable features of our natural environment are linked through regional and local environmental corridors. The major urban area of Gladstone is separated from those of Boyne Island / Tannum Sands and Calliope by a greenbelt free of any urban development that delineates these urban areas and preserves significant environmental and landscape amenity values.	<p>The Project does not require the clearing of remnant vegetation.</p> <p>The Project will have negligible impact on the landscape and visual amenity of the surrounding area as discussed in <b>Section 7.3</b>.</p>
5. The environmental values and quality of the region's waters and waterways are protected	The Project has been designed to avoid development within waterways on site.
9. Development avoids areas affected by natural hazards where these risks can't be mitigated to an acceptable or tolerable level through development design and location measures. Sensitive uses are located in areas free from natural hazards or where the risks from natural hazards are acceptable.	<p>The subject site is affected by bushfire hazards; however, the Project is not considered a sensitive use. The BESS includes design measures such as air-conditioning, to ensure natural hazards are not enhanced.</p> <p>A Bushfire Management Plan (BMP) is provided at <b>Appendix G</b> and stipulates mitigation measures that will be implemented during the construction and operational phases of the Project.</p>
<b>Our Rural and Coastal Townships and Places</b>	
4. Fragmentation of rural lands in the Rural zone does not occur.	<p>The Project is situated on 1.19 ha of Class B Agricultural Land, with the closest area of Class A Agricultural Land over 70 km from the Project area.</p> <p>For further discussion on potential impacts on rural agricultural land, refer to <b>Section 7.4</b>.</p>

## 6.4.2 Rural Zone

The proposed BESS and substation are located within the Rural Zone (no precinct) of the GRC Planning Scheme, with the purpose of the zone to:

1. ensure appropriately sized lots, being predominantly very large lots, display rural and landscape character and provide for a wide range of rural uses including cropping, intensive horticulture, intensive animal industries, animal husbandry, grazing, animal keeping and other primary production activities.
2. provide opportunities for non-rural uses that are compatible with agricultural and rural activities, and the landscape character of the rural area where they do not compromise the long-term use of the land for rural purposes.
3. protect or manage significant natural features, resources, and processes, including the capacity for primary production and extractive industry in designated areas.
4. ensure rural uses are not adversely impacted by inappropriate land uses and development.
5. ensure areas of Agricultural Land Classification Class A and B agricultural land are protected for agricultural uses and from fragmentation, alienation or diminished agricultural productivity.
6. the potential for conflict between agricultural and other uses on Agricultural Land Classification Class A and B are minimised.

The proposed BESS, substation and associated infrastructure is consistent with the purpose of the Rural Zone as it represents a non-rural use that is generally compatible with existing agricultural and rural activities, and the landscape character of the locality.

An assessment of the relevant overall outcomes sought by the Rural Zone and the Project are addressed in **Table 6.4**.

Table 6.4: Overall Outcomes Assessment

Overall Outcome	Response
<p>2.1</p> <p><i>Areas for primary production are conserved and fragmentation is avoided through maintaining appropriate lot sizes, being predominately large lots to support sustainable rural agricultural activities.</i></p>	<p>The Project does not require reconfiguration or amalgamation of lots.</p>
<p>2.2</p> <p><i>The viability of both existing and future rural uses and activities are protected from the intrusion of incompatible uses.</i></p>	<p>The Project is compatible with the surrounding agricultural land uses. Class B Agricultural Land is present within the Project area and development footprint.</p> <p>The BESS and substation will be contained within a fenced fill pad area and will not be accessible for grazing; however, majority of these areas are located outside of classified agricultural land. The land surrounding the development footprint will continue to be available for grazing or other agriculture capabilities.</p> <p>The Project will value-add and diversify economic opportunities in the region that will support growth in the region.</p>
<p>2.5</p> <p><i>Development does not result in the fragmentation of Agricultural Land Classification Class A and B agricultural land. This applies to reconfiguring a lot except where it has been assessed that there is an overriding need in the public interest for a related material change of use and the reconfiguring of a lot is consistent with the material change of use.</i></p>	<p>The Development Footprint contains 2.79 ha of Class B Agricultural Land which will be permanently removed. Agricultural uses may continue to occur on the Project site surrounding the development footprint.</p> <p>The closest area of Class A Agricultural Land is approximately 70 km to the west of the site and would not be impacted by the Project.</p> <p>A more detailed assessment of the Project's impact on Class B Agricultural Land is provided in <b>Section 7.4</b>. The agricultural assessment suggests that due to the lack of water supply availability and the range of limitation subclasses impacting land use choice across the Project area, irrigated cropping uses are not suitable for the site nor were any single dryland cropping uses suitable for the area mapped as Class B land within the Project area and its surrounds.</p>
<p>2.6</p> <p><i>Development located adjacent to Agricultural Land Classification Class A and B agricultural land incorporates an adequate separation area to prevent any impact from the agricultural use on the amenity or use on the occupants of the development.</i></p>	<p>The BESS and substation represent a non-rural use that is generally compatible with existing agricultural land and will not impact on surrounding agricultural uses outside of the Project area.</p> <p>The Development Footprint has been designed across 2.79 ha of Class B Agricultural Land. Agricultural uses may continue to occur on the Project site surrounding the development footprint.</p>



Overall Outcome	Response
	<p>The closest area of Class A Agricultural Land is approximately 70 km to the west of the site and would not be impacted by the Project.</p> <p>A more detailed assessment of the project's impact on Class B Agricultural Land is provided in <b>Section 7.4</b>.</p>
<p>2.9</p> <p><i>Natural features such as creeks, gullies, waterways, wetlands and bushland are retained, managed and separated from adjacent development where possible</i></p>	<p>The Project does not involve the clearing of any regulated vegetation and is appropriately setback from mapped MSES.</p> <p>The built form will complement the natural setting of the Project area and ensure agricultural production on adjacent lots is not hindered.</p> <p>A more detailed assessment of the Project's impact on biodiversity matters is provided in <b>Section 7.5</b> and at <b>Appendix F</b>.</p>
<p>2.10</p> <p><i>Rural land uses incorporate sustainable practices to prevent soil erosion, protect the quality of land resources and water catchments, and maintain habitat values of waterways and native timber and forest areas.</i></p>	<p>The Project will not result in significance adverse flooding impacts to neighbouring properties and any increase in flood levels will be wholly contained within the Project site.</p> <p>The layout of the BESS and substation has been designed to ensure these areas are above the 0.5% Annual Exceedance Probability (AEP) flood event. Additional mitigation will be further investigated to divert runoff from the upstream catchment around the proposed fill and prevent permanent ponding of water against the fill pad. Additional specific on-ground erosion (including dust), drainage and sediment controls and strategies will be determined and implemented as part of site-specific construction erosion and sediment control plans.</p> <p>A more detailed assessment of the Project's flooding impacts is provided at <b>Section 7.1</b> and at <b>Appendix D</b>.</p>

A detailed assessment against the Performance Outcomes and Acceptable Outcomes of the Rural Zone Code is provided in **Appendix I**.

### 6.4.3 Overlays

A summary of the applicable overlay codes is provided below in **Table 6.5**. A full assessment against the relevant overlay code benchmarks of the following is provided in **Appendix I**.

Table 6.5: Overlays

Overlay	Sub-category	Response
Agricultural Land Classification	Agricultural Land Classification B	Discussion on potential impacts of the Project on rural agricultural land is provided in <b>Section 7.4</b> .
Biodiversity	Matters of State Environmental Significance (MSES) – regulated vegetation:	MSES values across the Project area relate to areas of regulated vegetation (defined watercourses). The clearing of regulated vegetation has been avoided through the design of the Project.

Overlay	Sub-category	Response
	<ul style="list-style-type: none"> <li>Defined watercourse</li> </ul>	An Ecological Assessment Report is provided in <b>Appendix F</b> .
Bushfire Hazard	Very high, high and medium hazard area Potential Impact Buffer	<p>Medium hazard areas and associated potential impact buffers are generally associated with the scattered patches of historical plantation (Tasmanian Blue Gum) within the site.</p> <p>The Development Footprint has been strategically designed to avoid the areas of higher bushfire risk. A Bushfire Management Plan is provided in <b>Appendix G</b>, including the identification of internal boundary fire trails and APZ.</p>

#### 6.4.4 Assessment Benchmarks

Table 6.6: GRC Planning Scheme Code Responses

Planning Scheme Code	Location of Response
<b>Zone Code</b>	
Rural Zone Code	Appendix I – Gladstone Regional Council Planning Scheme Code Responses
<b>Development Code</b>	
Development Design Code	Appendix I – Gladstone Regional Council Planning Scheme Code Responses
Landscaping Code	Appendix I – Gladstone Regional Council Planning Scheme Code Responses
<b>Overlay Code</b>	
Biodiversity Overlay Code	Appendix I – Gladstone Regional Council Planning Scheme Code Responses
Bushfire Hazard Overlay Code	Appendix I – Gladstone Regional Council Planning Scheme Code Responses

## 7. Assessment of Proposed Development

### 7.1 Surface Water

Refer to the 'Flood Impact Assessment and Stormwater Management Plan' prepared by WaterTechnology (**Appendix D**).

#### 7.1.1 Flood

A detailed hydraulic model was developed to assess flood behaviour within the Project area. Due to the broad study area and the requirement to map all flow paths within the study area, a rain on grid model was developed. The model results show that overland flooding is typified by slow-moving shallow sheet flow with sections of deeper, faster moving water confined to designated watercourses and defined flow paths. The model results have found that the proposed BESS and substation sites would be within a minor flow path and may require elevation above the recommended flood immunity event level (0.5% AEP for a substation as per the GRC Planning Scheme).

The flood mapping produced for this investigation demonstrates that there may be a localised increase to floods levels along the southern (upstream) border of the proposed fill pad, within the paper road reserve, due to the barrier created by the raising of the site. There may also be some local reductions in flood depth to the northeast (downstream) side of the proposed fill pad. The need for potential mitigation measures should be discussed with GRC as the Project moves through more detailed design phases.

#### 7.1.2 Stormwater Management

The Stormwater Management Plan (SMP) includes the proposed BESS and substation site. For operational stormwater management, modelling for the SMP estimates that the hardstand area for the BESS, substation and other facilities will require a combination of swales and bioretention basins. Detailed design would be required to further understand stormwater management requirements. This will, at a conceptual level, ensure that the Project appropriately manages water quality through the operational phase.

The SMP also identifies principles and measures for the management of water quality during the construction phase.

### 7.2 Traffic and Access

Refer to the 'Traffic Impact Assessment' prepared by PSA Consulting (**Appendix E**).

A detailed intersection analysis is considered unnecessary for the Project as the maximum traffic volumes generated are estimated to be substantially less than those outlined in the Department of Transport and Main Road's *QLD Road Planning Design Manual, Chapter 13 – Intersections* (or found at Table 6 of the TIA). In addition, any traffic impacts are considered to be minor and restricted to within the relatively short construction period as traffic generated during the operation of the Project will be insignificant.

The new egress and ingress access point proposed on Burgess Road will require a Basic Left Turn (BAL) and Basic Right Turn (BAR) treatment in accordance with the *Austrroads' Guide to Road Design Part 4: Intersections and Crossing*. The proposed site access complies with the required Safe Intersection Sight Distance (SISD) for a design speed of 110 km/hr, with a SISD of 193 m eastbound and westbound. Based on the swept path analysis of the largest vehicle anticipated to travel to and from the Project site, being a 19 m semi-trailer, no disruptions are anticipated to the current operation of the road network, particularly Burgess Road.

As the development will generate low traffic volumes during typical road network AM and PM peak hour periods<sup>3</sup>, the TIA has confirmed that there will no discernible impact to the existing operation of the local and state road network and therefore road upgrades are not deemed necessary.

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<sup>3</sup> 7:00am to 8:00am, and 4:00pm and 5:00pm

The safety assessment undertaken for the TIA demonstrated that there is not expected to be any worsening of the safety of the Blackman Gap and Burgess Road intersection.

## 7.3 Landscape and Visual Amenity

The Project is situated within and nearby to landscape character types including farmland, bushland, hilly forest and Township (Miriam Vale) – these have a medium to high sensitivity to landscape and visual change. Given intervening terrain and vegetation, the Project area has low visual prominence in the surrounding region demonstrated through a photomontage from Cawthrays Road which is the most visible publicly accessible viewpoint to the site (**Figure 7.2**).

Figure 7.1: Existing view looking southwest from Cawthrays Road



Figure 7.2: Photomontage of Project<sup>4</sup>



The Project will not have a notable impact on the landscape and visual amenity associated with the rural surroundings. As per the requirements of the GRC Planning Scheme, the Project will visually integrate with natural topographic features to avoid adverse impacts to key scenic view lines from prominent locations.

Site-specific mitigation measures may assist in reducing visual impact during the construction and operational phases of the project, including but not limited to:

- Construction:
  - Landscaping and rehabilitation work on disturbed areas to be undertaken as soon as possible using locally endemic vegetation species in rehabilitation that are known to be well adapted to the area and soils.
  - Native vegetation near Project site boundary to be cordoned off to minimise the risk of accidental disturbance.
  - Restricting lighting of compounds and worksites to low impact lighting
  - Storing materials and machinery neatly during the works, and where possible behind solid hoardings
  - Maintaining access roads to site compounds and work areas as free of dust and mud as far as reasonably practicable.
  - Access tracks should be constructed from locally sourced gravel that matches the colour of the existing site surface as far as practicable.
  - Removing all construction materials to a suitable location upon completion of construction. Construction equipment and infrastructure should be demobilised from site as soon as practicable and all unnecessary project flagging and signage should be removed and disposed of at the completion of construction.

<sup>4</sup> The BESS and substation wire frame has been shown in front of foreground vegetation to indicate its location. It will not be visible from the viewpoint due to the presence of this vegetation.

- Operation:
  - Design and siting of above ground structures to achieve the best fit with the existing contours, vegetation and earthworks to assist with screening and integrating the Project within the existing landscape
  - Screening planting and encouraging natural regeneration around the Project site, whilst maintaining views of key landscape features. In these instances, low growing shrubby vegetation would be preferred over tall trees.
  - Considering the form and finish of structures, including minimising the size of structures where possible, using darker, earthen colours which match the surroundings and less reflective materials.

## 7.4 Agricultural Land Assessment

Approximately 2.79 ha of the development footprint (including internal access track) is mapped as Class B Agricultural Land within the GRC Planning Scheme. It is considered that only seven dryland cropping land uses from the Queensland regional suitability framework are relevant to the Project area and surrounding Class B Agricultural Land (including pineapple, soybean, spotted gum and improved pasture). However, due to the range of limitations impacting land use choice, no single dryland cropping use is considered likely to be suitable across the whole Project area mapped as Class B Agricultural Land within the Project area. To make full use of Class B land, several different crops would need to be planted due to the varying limitations across the site, which is not practicable or economically realistic.

Owing to the unlikely availability of an irrigation water supply, the Project area is not considered appropriate for any of the irrigation cropping land uses listed in **Table 7.1**.

Table 7.1 Land uses in the Coastal Burnett area regional sustainability framework

Dryland		Irrigate
<ul style="list-style-type: none"> <li>• Pineapple-Dryland</li> <li>• Radiata Pine-Dryland</li> <li>• Soybean-Dryland</li> <li>• Gympie messmate-Dryland</li> <li>• Spotted gum-dryland</li> <li>• Sugarcane-Dryland</li> <li>• Macadamia-Dryland</li> <li>• Improved Pasture-Dryland</li> </ul>	<ul style="list-style-type: none"> <li>• Asparagus-Spray Irrigated</li> <li>• Navy Bean-Furrow/row Irrigated</li> <li>• Strawberry-Trickle Irrigated</li> <li>• Potato-Spray Irrigated</li> <li>• Peanut-Furrow/row Irrigated</li> <li>• Avocado-Microsprinkler Irrigated</li> <li>• Navy Bean-Spray Irrigated</li> <li>• Sweet Potato-Spray Irrigated</li> <li>• Peanut-Spray Irrigated</li> <li>• Banana-Trickle Irrigated</li> <li>• Beans-Spray Irrigated</li> <li>• Pineapple-Spray Irrigated</li> <li>• Capsicum-Trickle Irrigated</li> <li>• Citrus-Microsprinkler Irrigated</li> <li>• Sorghum (forage)-Furrow/row Irrigated</li> <li>• Cruciferae-Trickle Irrigated</li> <li>• Sorghum (forage)-Spray Irrigated</li> <li>• Cucurbit-Furrow/row Irrigated</li> <li>• Cucurbit-Spray Irrigated</li> </ul>	<ul style="list-style-type: none"> <li>• Soybean-Furrow/row Irrigated</li> <li>• Grapes-Trickle Irrigated</li> <li>• Soybean-Spray Irrigated</li> <li>• Stone Fruit-Microsprinkler Irrigated</li> <li>• Improved Pastures-Spray Irrigated</li> <li>• Lucerne-Spray Irrigated</li> <li>• Sugarcane-Furrow Irrigated</li> <li>• Lychee-Microsprinkler Irrigated</li> <li>• Sugarcane-Spray Irrigated</li> <li>• Sweet corn-Furrow/row Irrigated</li> <li>• Macadamia-Microsprinkler Irrigated</li> <li>• Sweet corn-Spray Irrigated</li> <li>• Maize-Furrow/row Irrigated</li> <li>• Tomato-Trickle Irrigated</li> <li>• Maize-Spray Irrigated</li> <li>• Turf-Spray Irrigated</li> <li>• Mango-Microsprinkler Irrigated</li> <li>• Zucchini-Trickle Irrigated</li> </ul>

It is considered that the development will not have a permanent or significant impact on the productivity, viability or use of agricultural land at the site or adjoining properties. The development will not result in fragmentation or

alienation of agricultural land and during the operation of the Project, agricultural uses may continue to occur within the balance of the Project area outside of the fenced development footprint.

Any potential impacts associated with the Project are unlikely to be significant as the risks to agricultural values can be managed throughout the life of the Project by the implementation of appropriate mitigation and management measures.

Despite there being limitations to the types of cropping suitable within the Project area, the loss of potential agricultural production throughout the life of the Project (~40 years) is unavoidable. However, the Project will result in significant benefits to land holders and to the wider region representing an alternative productive land use.

The Project may result in potential impacts on Class B agricultural land including:

- The construction and operation phases of the Project have the potential to cause the proliferation of existing invasive weeds and the introduction of additional species. Further infestation of agricultural weeds could potentially impede agricultural production.
- The reduction in available cropping land throughout the life of the Project, as cropping will be excluded from the Project area during the construction and operational phase of the Project. However, the Project will not have a significant impact on cropping land availability in Queensland with approximately 84% of land in Queensland used for agriculture (DAF, 2022) and only 2.79 ha being excluded by the Project.

No significant impacts in relation to soil or pasture are anticipated with the implementation of relevant management measures during the various phases of the Project as presented below.

- Specific measures for the minimisation and management of potential impacts on the agricultural land will be developed and implemented as part of the following management plans:
  - Erosion and Sediment Control Plan (ESCP) in accordance with the Best Practice Erosion and Sediment Control (Aust IECA, 2008) guideline for the construction and decommissioning phases of the Project to minimise soil erosion.
  - Soil management measures for the Project to preserve topsoil resources at the site and minimise impacts to soil resources to be incorporated into a Construction Environmental Management Plan (CEMP) or similar.
  - Weed and pest management measures during all phases of the development to be incorporated into a CEMP or similar.
  - A Rehabilitation Plan to address any identified impacts to soil and to ensure that re-established pasture is at least comparable to active grazing land outside the lease areas at the site at the time of decommissioning.

## 7.5 Biodiversity

The Project's potential impacts on ecological values of the site are discussed within the EAR prepared by Attexo (**Appendix F**).

There will be no clearing of regulated vegetation for the Project. Most of the Project area (about 90%) consists of open grassland that has historically been cleared for pastoral and plantation activities (refer to Figure 5.1 of **Appendix F**). These grasslands are mapped as non-remnant and contain smaller patches of immature regrowth *Corymbia* and *Acacia* shrubland.

Several patches of historical plantation trees (Tasmanian Blue Gum – *E. globulus*) are still present within the Project area (about 10%). These plantation forests are isolated from other large tracts of remnant vegetation and were also established in previously cleared, cultivated or pasture improved areas and do not support the structural or species diversity which would be expected in remnant vegetation types. Several weed species were also found to be abundant within these plantation areas including, Lantana and Giant Rat Tail Grass.

A comprehensive Biosecurity Management Plan will be developed and implemented as part of the Environmental Management Framework for the construction and ongoing operation of the Project. The management plan will include species-specific weed prevention, management and monitoring measures to control invasive weed species.



## Compliance with the Biodiversity Overlay Code

The Project is to be assessed against the GRC Planning Scheme's biodiversity overlay code due to the presence of MSES – Regulated Vegetation (intersecting a defined watercourse) within the broader Project area.

The Project does not comply with the minimum width MSES buffers stipulated in Acceptable Outcome 2 (AO) outlined in **Table 7.2**.

Table 7.2: Assessment Benchmarks for the Biodiversity overlay code (Table 8.2.3.3)

Performance Outcomes	Acceptable Outcomes
<b>Environmental protection and buffering</b>	
<p>PO2</p> <p>Development is setback from and provides an adequate vegetated buffer to significant vegetation, habitats and areas containing MSES in order to:</p> <ol style="list-style-type: none"> <li>1. protect these areas and their values from threatening processes</li> <li>2. avoid edge effects such as undesirable microclimate effects and threats from non-native or pest fauna or flora, and</li> <li>3. maintain and enhance ecological connectivity.</li> </ol> <p><i>Note—Any setbacks or other areas required for bushfire management, safety, recreation, maintenance or any other purpose are provided in addition to a vegetated buffer provided for ecological and environmental protection purposes.</i></p> <p><i>Note—An alternative buffer width may be proposed where buffers for significant species and ecological communities, including areas of habitat for listed threatened and migratory species, are based on best practice and current scientific knowledge of individual species requirements and supported by an ecological assessment. Other legislation, including the Nature Conservation Act and EPBC Act may establish other requirements with which applicants must comply.</i></p>	<p>AO2</p> <p>A buffer extending from the outside edge of an area of MSES is provided and has a minimum width of:</p> <ol style="list-style-type: none"> <li>1. 200m where located outside an urban area, or</li> <li>2. 50m where located within an urban area.</li> </ol>

No formal buffers currently exist to protect the mapped MSES within the Project area from threatening processes and edge effects associated with the ongoing agricultural uses on the site. This is evidenced through the generally degraded nature of these areas.

The Project is located outside an urban area and AO2 suggests a minimum buffer of 200 m extending from the outside edge of the MSES area. The Project proposes to meet the PO through the application of reduced buffers.

Waterway assessments undertaken by Attexo concluded at the watercourse through Lot 132 FD32 mapped as Stream Order 1 (or Low Risk – Green), which overlay with the area of mapped MSES, there was no observable difference between the surrounding pasture and the mapped water feature. It was considered that this area is only a shallow drainage line that provides no aquatic habitat for any significant flora or fauna species under present conditions. Based on the information obtained and given the lack of defining physical and hydrological waterway attributes, no waterways are present within the Project area.

Despite the abovementioned conclusion, the development footprint is still setback approximately 130 m from the MSES and is deemed an acceptable alternative buffer distance to 200 m. In addition to buffers, to further protect areas of MSES and areas of high ecological value from threatening processes, a biosecurity management plan and a broader Environmental Management Framework will be developed and implemented prior to construction works. These management plans will require actions such as weed and pest eradication and fencing.

The EAR for the Project is included as **Appendix F**. A comprehensive response to the biodiversity overlay code provided in **Appendix I**.



## 7.6 Bushfire

Bushfire poses a risk to the Project area due to its proximity to surrounding farmland and the Bulburin National Park which contains large continuous tracts of woodland and grassland vegetation. Fires could start because of sparks from the operation of equipment and machinery associated with agricultural activities and planned fuel hazard reduction or biodiversity conservation outcomes. The construction and operation of the Project also poses a fire risk due to electrical faults, use of tracked earthmoving machinery on rocky ground, vehicle parking/driving in long grass areas and workers smoking.

A Bushfire Management Plan has been prepared by Land and Environment Consultants (**Appendix G**) to include management control measures that have been considered during the design of the Project and to be implemented during the construction and operation phases of the Project to manage and mitigate impacts. These control measures will reduce the risk of bushfire hazards to an acceptable level and include:

- the establishment and maintenance of asset protection zones (APZ) that must be cleared of weeds and woody vegetation and have a minimal earth or grass surface, which include:
  - a minimum 20 m APZ around the perimeter of the Project's infrastructure
  - a 10 m wide temporary APZ around temporary infrastructure during the construction phase.
- BESS, switching station and substation must have a mineral earth surface and maintained free of weeds, woody regrowth and grass.
- internal access roads will be constructed and maintained in accordance with relevant design specifications for Category 1 fire-fighter vehicles by the New South Wales Rural Fire Service (NSW RFS 2016)
- provision of 10,000 L of water storage (metal or concrete tanks) and supply for firefighting purposes
- appropriate disposal of vegetation waste from clearing works (i.e. mulching)
- installation of reflective wayfinding signage to identify Project infrastructure, water storage tanks and no-through roads.
- all buildings and structures will comply with the relevant Queensland and national building codes and standards including fire detection and first attack fire-fighting equipment and safe access and egress.

An Emergency Management Plan (EMP) will be developed prior to construction in consultation with relevant emergency service providers and stakeholders, including Queensland Fire and Emergency Services, to include measures to respond to risk of bushfire as outlined in the BMP (**Appendix G**). A fire-fighter operations plan will also be developed and provided to the Rural Fire Brigade detailing key information require for firefighting purposes within the Project area (i.e. water supply tanks, location of infrastructure, operational guidelines for fire control, key contact information, etc.).

## 7.7 Noise

Refer to the 'Noise Impact Assessment' prepared by Wood PLC (**Appendix J**).

The findings of the noise assessment indicate that under worst-case noise modelling assumptions, noise emissions associated with the operation of the BESS and substation are not expected to exceed the nominated noise level criteria at any noise sensitive receiver (NSR). The highest predicted noise level is at the NSR located approximately 800 m east of the development footprint, is expected to be 1.2 dB(A) below the night-time noise level criteria.

It should be noted that the BESS technology to be implemented for the Project has not been finalised. As such, it is recommended that testing be undertaken to ensure that the final equipment selected meet the specifications set out in the noise assessment. Noise monitoring will also be undertaken during the operation of the BESS and substation to confirm noise levels received at NSRs are below the noise level criteria, in particular night-time noise.

## 7.8 Erosion and sedimentation

Refer to the 'Preliminary Erosion and Sedimentation Control Plan' (P-ESCP) prepared by Attexo (**Appendix H**).

Erosion (dust) and sediment transport have the potential to impact on environmental values identified for the Project, as described in Table 3-8 of the P-ESCP. These impacts include, but are not limited to:

- Increased opportunity for transport of pollutants via soil particles resulting in reduced water quality;
- Injury or mortality to aquatic organisms (flora and fauna) associated with reduced overall water quality, light penetration and smothering by sediment resulting in suffocation;
- Loss of habitat due to dust generation and subsequent smothering of plants; and
- Loss of productive topsoils resulting reduction of agricultural productivity.

The P-ESCP has identified key principles to effectively minimise erosion and sedimentation risk as part of the planning and design process for the Project. These principles will be considered during the detailed design work which will be completed by an EPC contractor, and include:

- Design, situate and co-locate infrastructure to make best use of existing topography to aid drainage and minimise disturbance and erosion.
- Ensure sufficient data is available (e.g. soil characteristics, rainfall and contour data etc.) to inform suitable ESC measures.
- Consider local constraints (soils, topography and hydrology, etc.) when determining the location of ESC measures and stockpiles.
- Develop staged ESCPs to be effective during all construction phases.
- Consider soil characteristics in the development of ESCPs, in particular the avoidance and / or treatment of dispersive soils and soils prone to dust generation.
- Avoid the use of structures that pond water and can cause tunnel erosion.
- Use back-push diversion banks in lieu of channels where practicable for temporary flow diversion.
- Ameliorate dispersive soils, particularly in cable trenches and on fill embankments, where there is a high risk of tunnel erosion.

Additional specific on-ground erosion (including dust), drainage and sediment controls and strategies will be determined and implemented as part of site-specific construction ESCPs and CEMPs. ESCPs will be developed for all stages of the construction phase in accordance with all relevant guidelines established by the P-ESCP. An ESC monitoring and maintenance program(s) will also be developed by the EPC contractor prior to the commencement of construction works to ensure all ESC monitoring and maintenance controls are in place and appropriate reporting requirements have been established. This is to ensure any ESC related incidents are logged, responded to, and addressed in a timely manner to reduce the potential for significant impact.

## 8. Conclusion

Attexo Group has been engaged by Private Energy Partners to seek a development permit for the establishment of a battery energy storage system (BESS), substation and associated infrastructure at 292 Cawthrays Road, Colosseum, within the GRC local government area. The Project is situated across three land parcels, with two land parcels only used for internal access from the new access point off Burgess Road. The total development footprint of the BESS and substation site is approximately 10.92 ha (excluding access tracks) or 12.52 ha (including access tracks).

The Project has the potential to contribute up to 2,000 MWh storage capacity to the National Electricity Market and has the potential to provide electricity for four hours in the evening peak before needing to recharge.

This Development Application seeks:

- Development permit for Material Change of Use for an Undefined Use (Battery Energy Storage System); and
- Development permit for Material Change of Use for a Substation.

This Planning Report and supporting documentation provides an assessment of the Project against the *Our Place Our Plan Gladstone Regional Council Planning Scheme* (Version 2, July 2017), which demonstrates the Project represents a suitable land use outcome for the site which will benefit the local community and region. It is therefore requested that the Project receives a development permit subject to reasonable and relevant conditions.



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**Appendix A**  
DA Form 1



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**Appendix B**  
Owner's Consent



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**Appendix C**  
Development Plans



## **Appendix D**

### Stormwater Management Plan





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**Appendix E**  
Traffic Impact  
Assessment



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**Appendix F**  
Ecological  
Assessment Report



## **Appendix G**

### Bushfire Management Plan



## **Appendix H**

### Preliminary Erosion and Sediment Control Plan





## **Appendix I**

GRC Planning  
Scheme Code  
Assessment



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**Appendix J**  
Noise Assessment