Premise

FIRM POWER

Scoping Report

AWABA BATTERY STORAGE ENERGY STORAGE SYSTEM

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1. INTRODUCTION

1.1 Overview

Firm Power is proposed to develop an approximately 50 Megawatt AC (MW_{AC}) Battery Energy Storage System (BESS) on land adjacent to the Ausgrid Awaba substation. The proposed is located in NSW, approximately 4 kilometres east of the town of Toronto. The project is to be known as the Awaba BESS.

The subject site is known as 12 Toronto Street, Toronto (Lot 8 DP821188; hereafter referred to as 'the site') in the Lake Macquarie City Council (LMCC) Local Government Area (LGA) (refer to **Figure 1**). The site has an area of approximately 5.64 hectares and the proposed project has a development footprint of approximately 0.64 hectares.

This scoping report has been prepared by Premise to support a request to Department Planning, Industry and Environment (DPIE) for the Secretary's Environmental Assessment Requirements (SEARs).

The Awaba BESS includes:

- Installation of containerised lithium-ion batteries with a capacity of up to 50 MW and 200 MW-hours, with associated power conversion systems, switchgear and a control building;
- Underground or overhead 33kV sub-transmission lines to connect the BESS to the Awaba substation;
- Cabling and collector units, site office, storage area, internal access tracks, on-site parking, security fencing, lighting and temporary construction laydown area; and
- Utilisation of existing site access arrangements from Awaba Road.

The proposed BESS, associated infrastructure and development footprint will align with, and be contained within, the development area shown in **Figure 5**. The layout of the BESS and associated infrastructure will be detailed in the Environmental Impact Statement (EIS) for the project.

Whilst the site address is Toronto Street, site access is gained from Awaba Road and an approximately 70-metre-long driveway. The central portion of the site includes Awaba substation, which occupies approximately 0.88 hectares. 132 kV powerlines traverse the site from the southwestern side of the substation and 33 kV powerlines traverse the site from the north-eastern side of the substation. The Newstan-Eraring Private Coal Road transects the south-eastern extent of the site. The site also includes patches of native vegetation.

The proposed development area would be either leased from Ausgrid via a lease of premises or would be subdivided from the host lot to provide for a long-term lease of land. If required, the subdivision would form part if this development application.

It is expected that augmentation work within the substation would be required to facilitate connection of the BESS. Whether these would be managed as an ancillary component of the project and addressed in the EIS, or managed directly by Ausgrid via Part 5 of the *Environmental Planning and Assessment Act 1979* is to be confirmed as the project progresses.

The project is State Significant Development (SSD) under the *State Environmental Planning Policy (State and Regional Development) 2011* and the applicable consent authority for the proposal is the NSW Minister for Planning or the Minister's delegate.

The SEARs will inform the preparation of an Environmental Impact Statement (EIS) in support of a State Significant Development (SSD) application submitted under Part 4 of the *Environmental Planning and Assessment Act 1979* (the Act).

1.2 Applicant

Firm Power is an Australian owned grid flexibility company dedicated to delivering solutions that provide stability to a clean energy driven power system.

Firm Power's address is Suite 203, 213 Miller St, North Sydney NSW, 2060 and ABN is 18 631 500 519.

Firm Power is committed to using advanced technology to ensure energy supply and demand can be dynamically balanced, creating a more flexible electricity grid and allowing for continued renewable energy integration and power price reduction.

As expert project developers, Firm Power collaborates with project investors and vigorously screens technology, integration, and delivery partners to ensure that the solutions provided are of the highest quality.

Firm Power has recently received approval from the Western Sydney Regional Planning Panel for the Western Sydney Smart Battery, a 20MW battery to be located adjacent to the Penrith Zone Substation.

1.3 Planning Framework

The proposed BESS is defined as electricity generating works under the *Lake Macquarie Local Environmental Plan 2013* (LMLEP):

> *a building or place used for the purpose of—*
>
> *(a) making or generating electricity, or*
>
> *(b) electricity storage.*

The proposed development is SSD on the following grounds:

1. Section 4.36(2) of the *Environmental Planning and Assessment Act 1979* (the Act) provides that a State Environmental Planning Policy may declare any development, or any class or description of development, to be State significant development.
2. Section 8(1) of *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional Development SEPP) provides that development is declared to be State significant for the purposes of the Act if:
   a. *the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act:*

      Comment: The proposed development satisfies Section 8(1)(a) of the State and Regional Development SEPP on the grounds that it is permitted with consent under the SP2 Infrastructure – Electricity Transmission or Distribution Network zoning applying to the site under Clause 2.3 Zone objectives and Land Use Table – Zone SP2 Infrastructure of *Lake Macquarie Local Environmental Plan* (LMLEP) 2013 (relevant land use underlined): Aquaculture; Environmental facilities; Environmental protection works; Extensive agriculture; Flood mitigation works; Roads; Sewage reticulation systems; Sewage treatment plants; Water recycling facilities; Water supply systems; <u>The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose</u>.

   b. *the development is specified in Schedule 1 or 2 of the SEPP.*

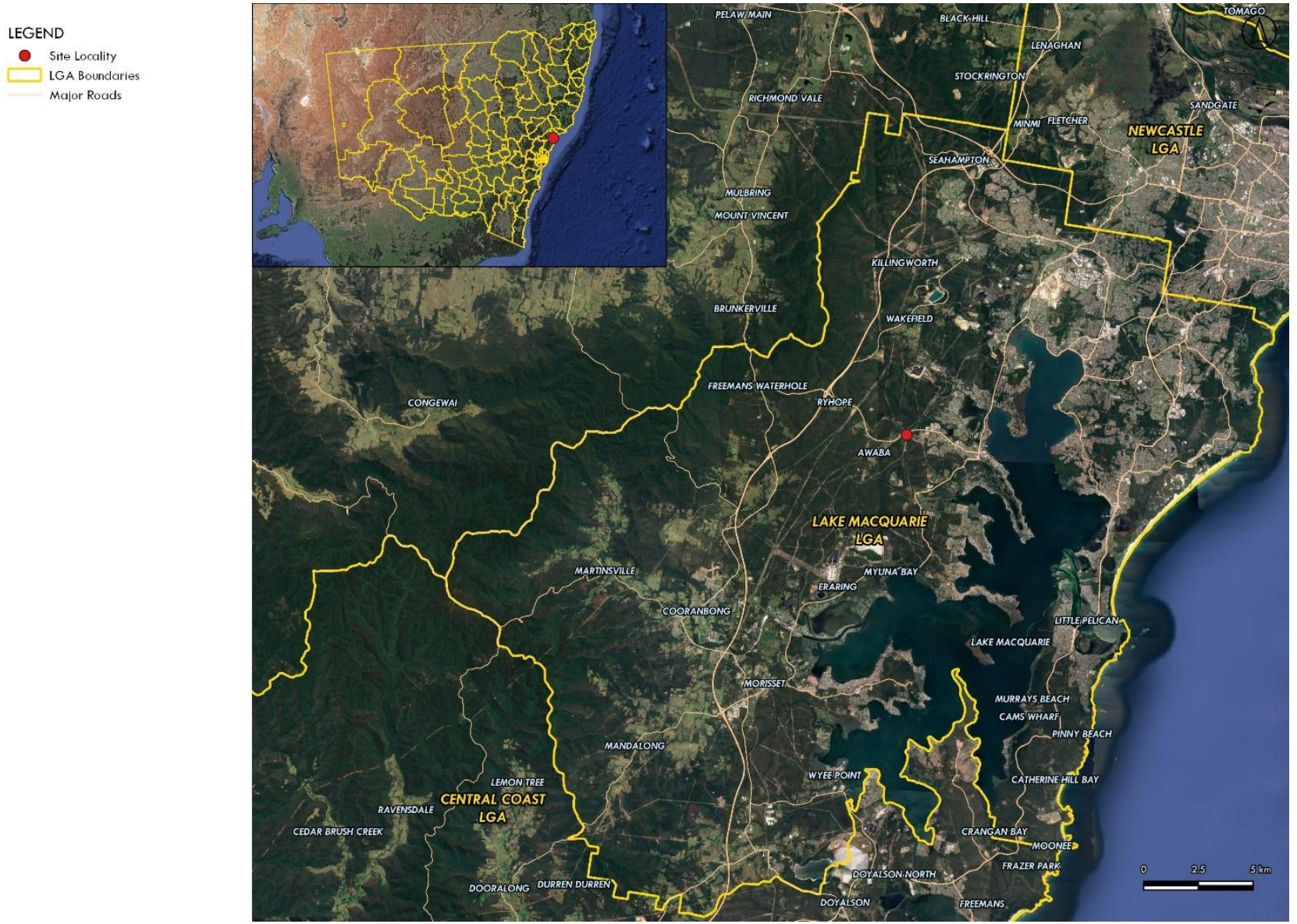
      Comment: The proposed development satisfies Section 8(1)(b) of the State and Regional Development SEPP on the grounds that it is for the purposes of electricity generating works that has a capital investment value of more than $30 million in accordance with Section 20 of Schedule 1 of the SEPP.

1.4 Report Structure

The report is structured as follows:

- **Section 1** provides an introduction to the development site, its location, the proposed project, and the planning framework.
- **Section 2** details the development's strategic and local context and provides an analysis of the site.
- **Section 3** provides a description of the proposed development and alternative options considered.
- **Section 4** provides an assessment of the preferred option against the planning framework.
- **Section 5** provides details of completed and proposed engagement.
- **Section 6** provides a summary of the assessment of project impacts

Figure 1 – Regional context



2. STRATEGIC CONTEXT

2.1 Policy

2.1.1 NSW 2021 PLAN (NSW GOVERNMENT 2011) AND RENEWABLE ENERGY ACTION PLAN (NSW GOVERNMENT 2013)

The NSW 2021 plan, released in 2011, sets state-wide priorities for action and guides resource allocation. Goal 22 of this plan seeks to protect the natural environment and includes a specific target to increase renewable energy. The plan states:

> *We will contribute to the national renewable energy target by promoting energy security through a more diverse energy mix, reducing coal dependence, increasing energy efficiency and moving to lower emission energy sources. Specific initiatives include:*
>
> - *Building the Moree solar power plant in partnership with the Commonwealth Government under the Solar Flagship Program*
> - *Establishing a Joint Industry Government Taskforce to develop a Renewable Energy Action Plan for NSW to identify opportunities for investment in renewable energy sources.*

Since release of the 2021 plan, the NSW Government has overseen the development of the *NSW Renewable Energy Action Plan (REAP).* The vision of the plan is a *'secure, affordable and clean future for NSW'*. Goal 1 of the REAP is to attract renewable energy investment, including to *'support mid-scale solar PV to enable an uptake of solar technologies where they are most cost effective'.*

The proposed BESS sits comfortably within this state-led objective and is consistent with the goal and intent of the REAP. Large scale battery systems represent a fundamental component of the REAP, facilitating greater flexibility in electrical generation and stabilising the grid such that further deployment of renewables can be made possible.

Through assisting the expansion of renewable forms of electrical generation, the proposed BESS further supports the *NSW Government's Climate Change Policy Framework* (NSW, 2016). This framework is committed to effective action on climate change, outlining long term objectives to achieve net-zero emissions by 2050 and to make New South Wales more resilient to a changing climate. The achievement of net zero emissions by 2050 is reliant on transitions towards more sustainable and renewable forms electrical production.

The project supports this objective by improving the reliability and stability of the electrical grid. The ability of the proposed BESS system to balance electrical demand and supply assists the management of variations in electrical demand and supply which are expected to increase with transitions to more sustainable and renewable forms of electrical production. The proposed development is consequently consistent with the objective of the *NSW Government's Climate Change Policy Framework* (NSW, 2016), supporting transitions toward lower emissions and improving the resilience of NSW to a changing climate.

2.1.2 NSW ELECTRICITY STRATEGY (NSW GOVERNMENT 2019)

The NSW Electricity Strategy 2019 is a state-wide plan to ensure a reliable, affordable and sustainable electricity future.

The purpose of the NSW Electricity Strategy is to:

Improve the efficiency and competitiveness of the NSW electricity market and encourage investment in new price reducing generation and energy saving technology.

The strategy is underpinned by four important principles including:

- *New market-driven electricity generation should drive down prices and help protect the environment. This is because firmed renewables are the cheapest form of new reliable generation and cheaper than the current wholesale price*
- *As electricity is an essential service, state and Commonwealth governments are ultimately responsible for reliable electricity*
- *Government action should limit costs to households, businesses and taxpayers*
- *Government action should be consistent with the nature of the national electricity system and NSW policy objectives.*

In relevance to meeting the State's Energy Security Target the electricity strategy also states that: *NSW is projected to experience its tightest reserve conditions in 2023-2024 after the Liddell power station closes in April 2023.*

The proposed BESS project supports the objectives of NSW Electricity Strategy, improving the reliability and affordability of electricity through its ability to balance electrical supply and demand. Large-scale energy storage is a core component of the NSW Electricity Strategy due to its ability to enhance the dispatchability of renewable energy generation and provide firming capacity to the broader NSW market.

2.1.3 NSW ELECTRICITY INFRASTRUCTURE ROADMAP (DPIE 2020)

The NSW Electricity Infrastructure Roadmap 2020 is a state-wide plan to transition the existing electricity sector to be cheaper, cleaner and more reliable. Enabled by the Electricity Infrastructure Investment Act 2020 (NSW) the roadmap compliments the objectives of the NSW Electricity Strategy 2019 through planning a reliable affordable and sustainable electricity future. The roadmap builds on the NSW Transmission Infrastructure Strategy 2018 and supports the implementation of the Australian Energy Market Operators Integrated System Plan, setting out a plan to deliver five Renewable Energy Zones (REZ) in the Central-West Orana, New England, South-West, Hunter-Central Coast and Illawarra regions. Establishing REZ's will be vital for delivering affordable and reliable energy generation, helping to replace the states existing power stations as they reach the end of their operation and scheduled closure.

The roadmap identifies five foundational pillars:

- *1. Driving investment in regional NSW: supporting our regions as the State's economic and energy powerhouse.*
- *2. Delivering energy storage infrastructure: supporting stable, long-term energy storage in NSW.*
- *3. Delivering Renewable Energy Zones: coordinating regional transmission and renewable generation in the right places for local communities*
- *4. Keeping the grid secure and reliable: backing the system with gas, batteries or other reliable sources as needed.*
- *5. Harnessing opportunities for industry: empowering new and revitalised industries with cheap, reliable and low emissions electricity.*

The NSW government is still in the early stages of planning REZs in the Hunter Central Coast and Illawarra regions. These areas have some of the best natural energy resources, strong investor interest and are close to existing high voltage power lines

The proposed BESS development, however, is expected to support the implementation of Renewable Energy zones in NSW and within the Hunter Central Coast region.

Through providing large-energy storage with the ability to balance electrical supply and demand, the development aligns with the objectives of the roadmap, enhancing the dispatchability of renewable energy generation in NSW and improving the affordability and reliability of the NSW market.

2.1.4 ENERGY SECURITY SAFEGUARD (NSW GOVERNMENT 2020)

The Energy Security Safeguard is part of the NSW Electricity Strategy and legislation to establish the Safeguard was passed by Parliament in May 2020 with an objective to improve the affordability, reliability and sustainability of energy through the creation of financial incentives for energy activities.

Under the Electricity Supply Amendment (Peak Demand Reduction Scheme) Regulation 2021, the Government will establish a new Peak Demand Reduction Scheme (PDRS) to support activities that reduce demand at peak times, including flexible demand response.

Coupled with the Energy Saving Scheme (ESS), the PDRS is expected to deliver a net economic benefit for New South Wales of $1.2 billion.

The proposed BESS project supports the objectives of the Energy Security Safeguard by providing capacity to reduce peak demand during summer periods and assists NSW in meeting its peak demand reduction targets, especially with the scheduled closure of Liddell Power Station in 2023.

2.1.5 HUNTER REGIONAL PLAN 2036 (DPE 2016)

The *Hunter Regional Plan 2036* is the NSW Government's strategy for guiding land use planning decisions for the Hunter Region for the next 20 years. The plan has acknowledged the growing importance of Greater Newcastle and set the following core vision for the region as '*The leading regional economy in Australia with a vibrant new metropolitan city at its heart'*, supported by four regionally focussed goals and associated directions. The following directions are relevant to the proposed development:

- *Goal 1 – The leading regional economy in Australia*
  - *Direction 12 – Diversify and grow the energy sector*
  - *Direction 13 - Plan for greater land use compatibility*
- *Goal 2 – A biodiversity rich natural environment*
  - *Direction 14 – Protect and connect natural areas*
  - *Direction 15 – Sustain water quality and security*
  - *Direction 16 – Increase resilience to hazards and climate change*
- *Goal 3 – Thriving communities*
  - *Direction 19 – Identify and protect the region's heritage*
- *Goal 4 – Greater housing choice and jobs*
  - *Direction 26 – Deliver infrastructure to support growth and communities*

The project supports renewable energy generation in the region and is considered to be generally consistent with Goal 1, and particularly Direction 12, of the Regional Plan.

2.1.6 LAKE MACQUARIE LOCAL STRATEGIC PLANNING STATEMENT (LMC 2020)

In accordance with Section 3.9 of the Act, Lake Macquarie Council adopted the *Lake Macquarie Local Strategic Planning Statement* (LSPS) in March 2020. The LSPS establishes seven Planning Priorities with supporting Actions. The following Actions are relevant to the proposed development:

- *Planning Priority 7: A City of Resilience – Where the People and Places are Responsive and Proactive to Change*
  - *Action 7.6: Update the Energy Resilience Strategy for the City to identify strategies for an energy resilient future, including updating the action plan to support smart grid demonstration projects and investigating renewable energy opportunities.*
  - *Action 7.9: 9 Develop and implement local adaptation plans to address current and emerging climate change risks.*
  - *Action 7.12: Work with State Government and landowners to re-use power stations as they reach the end of their economic life and explore opportunities for alternative energy production to make use of existing electricity infrastructure onsite and provide ongoing energy generation for the City and State.*

The project will support planning priority 7 through the provision of improved resilience and reliability within the energy network.

2.2 Local Context

As shown in **Figure 2**, Toronto Town Centre is located approximately four kilometres to the east of the site and is one of the many growing centres situated around Lake Macquarie. Toronto accommodates a residential population of 5,602 persons with facilities including retail and commercial services, government services, aged care and public and private recreation amenities.

The township of Awaba is located about one kilometre west of the site. Awaba comprises a collection of developed and undeveloped residential allotments and a small public school, with the majority of development located on the northern and western side of the Main Northern Railway Line.

The site is well connected to major transport routes. The Pacific Motorway is approximately five kilometres to the north-west which facilitates access to Newcastle approximately 33 kilometres to the north-east, Sydney approximately 145 kilometres to the south and Brisbane approximately 780 kilometres to the north via Port Macquarie, Coffs Harbour, Grafton, Byron Bay and the Gold Coast.

Access to the site from the Pacific Motorway is via Cessnock Road, which includes an overpass over the Main Northern Railway Line, and Awaba Road (Cessnock Road turns into Awaba Road just west of the site). Awaba Station on the Main Northern Railway Line enables connections to Sydney to the south and the Queensland border to the north via Newcastle, Maitland, Singleton, Scone and Armidale.

As shown in **Figure 2**, numerous high voltage transmission lines traverse the landscape. These transmission lines form part of the transmission and distribution networks. The project would connect to the distribution network via the Awaba Substation.

The Newstan-Eraring Private Coal Road traverses the south-eastern portion of the site. This road connects the Centennial Coal Company site (located approximately four kilometres north of the site) with the Awaba Colliery (located approximately 3.5 kilometres to the south-west of the site). The Eraring Power Station is located about 7 km southwest of the site.

There are three (3) residences within 500 m of the site, the closest of which are 364 Awaba Road, Awaba (located about 40 m west of the site boundary) and 17 Toronto Street, Toronto (located about 320 m southeast of the site boundary and separated from the site by Toronto Street) – refer **Figure 3**.

Between 500 m and 1 km of the site, there are a further four residences located on larger lots to the north and west of the site, plus an additional number of residences located in higher density allotments on the outskirts of Awaba and Toronto residential areas – refer **Figure 3**.

As shown in **Figure 4,** the site is zoned SP2 – Infrastructure under the LMLEP, with land immediately surrounding the site being a mixture of SP2, E2 – Environmental Conservation, RU2 – Rural Landscape, IN2 – Light Industrial and RE1 – Public Recreation. The site would be wholly located on SP2 zoned land.

There are three residences within 500 m of the site, the closest of which are 364 Awaba Road, Awaba (located about 40 m west of the site boundary) and 17 Toronto Street, Toronto (located about 320 m east of the site boundary and separated from the site by Toronto Street) – refer **Figure 3**.

Between 500 m and 1 km of the site, there are four residences located on larger lots to the north and west of the site, plus approximately 61 residences located within 1 km of the site, located on higher density allotments on the outskirts of the Awaba and Toronto residential areas on land zoned R2 Low Density Residential – refer **Figure 3 and 4**.

Other major nearby uses include a crane rental agency approximately 400 metres to the east at the western edge of the Toronto industrial area and rural residential lots approximately 300 metres to the west at the north-eastern end of Awaba.

All other immediately surrounding land is a mixture of densely vegetated or cleared, undeveloped land.

National parks in the vicinity of the site include Sugarloaf State conservation area, located north of the site and the Pacific Motorway and Watagons National Park, located west of the site and the Pacific Motorway.

Figure 2 – Local context

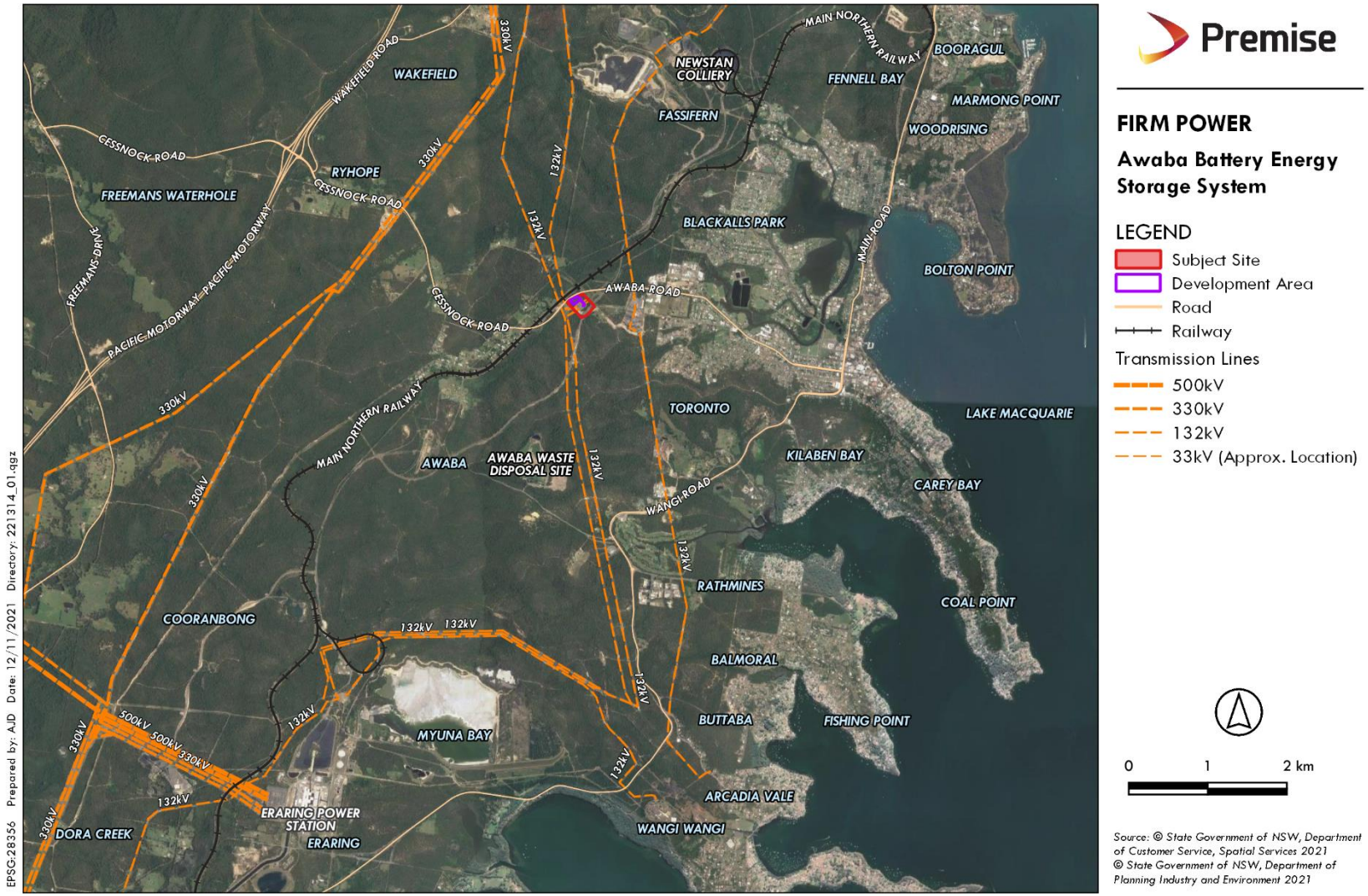
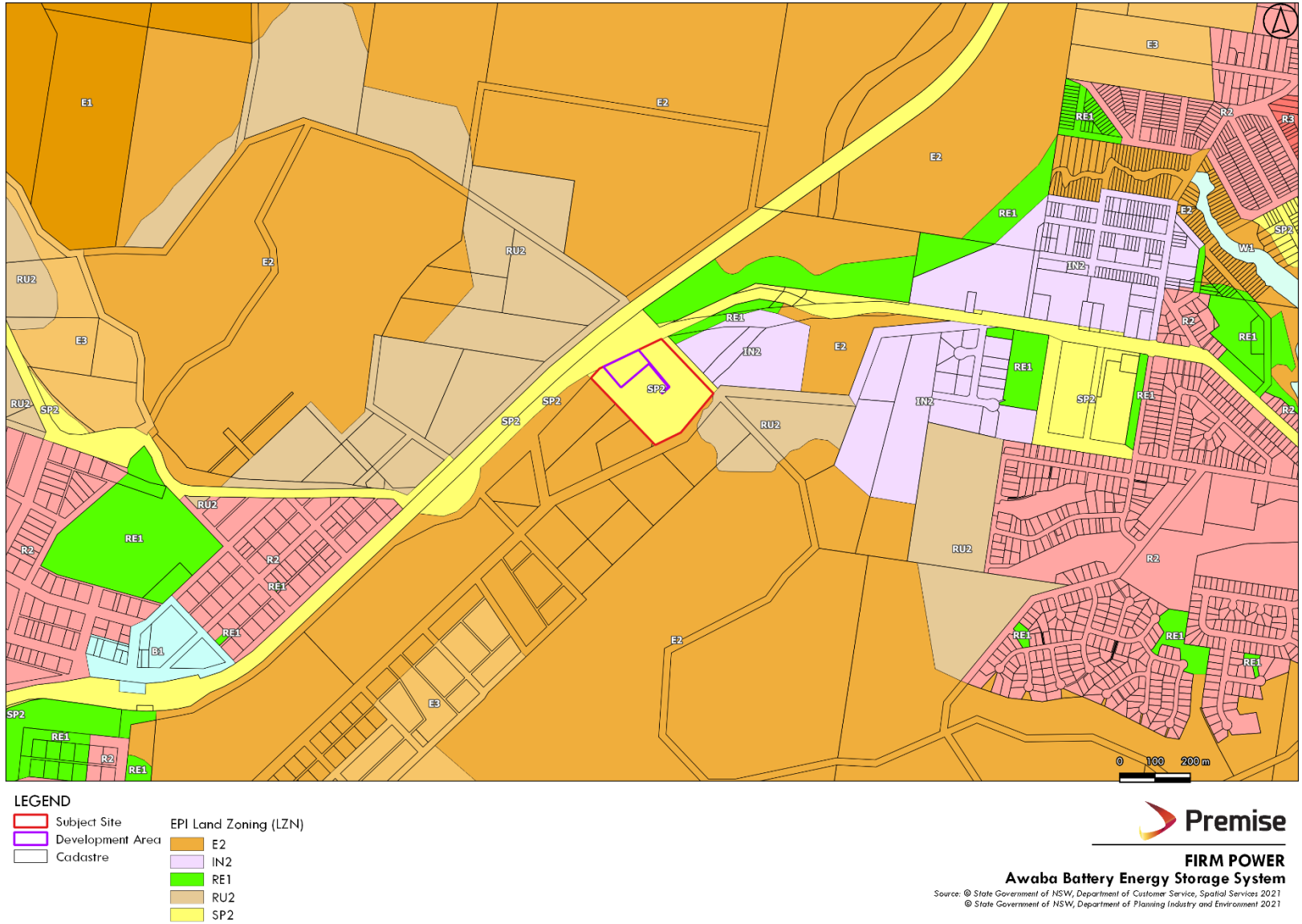


Figure 3 – Development site

Figure 4 – Zoning



2.3 Site Description

2.3.1 OVERVIEW

The subject site has an area of approximately 5.64 hectares. The central portion of the site includes Awaba substation, which occupies approximately 0.88 hectares. 132 kV powerlines traverse the site from the southwestern side of the substation and 33 kV powerlines traverse the site from the north-eastern side of the substation. The Newstan-Eraring Private Coal Road transects the south-eastern extent of the site (see in **Figure 5**).

Whilst the street address is Toronto Street, this is an unformed road to the south-east of the site, and formalised property access is gained from Awaba Road Road in the north-west of the site. Awaba Road connects to the town of Toronto in the east while Cessnock Road connects to the Pacific Motorway approximately 4.5 kilometres to the north-west.

The site rises from the northern corner (RL 9 metres) to the south-eastern (RL 17 metres) and south-western (RL 18 metres) boundaries.

The site also includes patches of native vegetation and two mapped second order streams that drain to Stony Creek, located north of the site.

The proposed development occupies an area of approximately 0.64 hectares within the site (see in **Figure 5**).

2.3.2 ACCESS

As shown in **Figure 5**, vehicular access to the site is provided by Awaba Road (Classified Road 220) is a public, arterial road running along the lot's north-western boundary with a single lane in both directions. Awaba Road connects to the Pacific Motorway in the west via Cessnock Road and with Wangi Road in the east. Awaba Road is a sealed road, has a sign posted speed limit of 80km/hr and provides access to the Toronto area. Lake Macquarie Council is the roads authority for Awaba Road, noting that some of the maintenance functions of the roads authority are adopted by Transport for NSW (TfNSW) due to the classified road status. Site access for the proposed BESS would rely on the existing connection to Awaba Road.

Newstan-Eraring Private Coal Road is privately owned road developed in around 1985 and originally developed to link the Newstan Colliery with the Awaba State coal mine. It is currently operated and managed by Centennial/Newstan. The road:

- Transects the south-eastern portion of the site;
- Features a single lane in each direction;
- Connects the Centennial Coal Company site approximately four kilometres to the north with the Awaba Colliery approximately 3.5 kilometres to the south-west;
- Connects to the public road network via gated entries at Awaba Road approximately 185 metres to the north-east, at the Centennial Coal Company site and at the Awaba Colliery; and
- Does not provide any access/egress to/from the site.

No access to or from the Newstan-Eraring Private Coal Road is proposed as part of this project.

2.3.3 EXISTING IMPROVEMENTS

As shown in **Figure 5**, existing improvements within the site include:

- Substation occupying approximately 0.88 hectares centrally within the site;

- Approximately 70-metre-long driveway running centrally from the site's Awaba Road frontage to the electrical substation;
  - With a gated entry setback 30m from Awaba Road; and
  - A shared access point outside of the site for a neighbouring resident located to the south-west.
- Newstan-Eraring Private Coal Road transecting the site's south-eastern portion of the site.
- Existing 132 kV powerlines connect to the southwestern side of Awaba substation, transecting the south-western extent of the site with a southwest to northeast alignment;
- Existing 33 kV powerlines connect to the north-eastern side of Awaba substation, transecting the north-eastern extent of the site with a southwest to northeast alignment.

2.3.4 HERITAGE

As shown in **Figure 6**:

- The site is not identified as being or adjoining an item of Aboriginal or European heritage significance or within a heritage conservation area under the LMLEP; and
- The site and the majority of the development footprint is identified as being within a Sensitive Aboriginal Landscape Area under LMLEP.

AHIMS Basic Search on 30 July 2021 did not identify any Aboriginal sites or places recorded or declared in or within 50 metres of the site- refer **Appendix H.**

Nearest items of heritage significance as listed under LMLEP are set out in **Table 1**.

Table 1 – Nearest items of heritage significance listed under LMLEP

Item No.:	Description:	Location:	Significance:	Distance (Direction) from Site:
7	Gatekeeper's Cottage	154 Wilton Road	Local	2 kilometres (south-west)
189	Great Northern Railway	Line passes through Lake Macquarie City from Garden Suburb to Wyee	Local	60 metres (north-west)
236	Former Awaba Union Church	20 Gosford Street	Local	1.6 kilometres (south-west)
174	Toronto Cemetery	354 Awaba Road	Local	1.6 kilometres (east)
A1	Railway station cottage	Off Adelaide Street	Local	2 kilometres (south-west)
A6	Newstan Colliery	Fassifern Road	Local	7.7 kilometres (north-east)

2.3.5 MINING

A review of available mapping has identified that the site is located within the West Lake Mine Subsidence district and mapped as being affected by Mine Subsidence Development (Guideline 5).

Pre-application engagement with the Subsidence Advisory NSW has occurred- refer **Section 5.1** and **Appendix F.**

The entirety of the site is located within the current coal mining title CCL727, held by Centennial Newstan Pty Limited.

As per **Table 5**, Firm Power have engaged with Centennial Newstan who have not indicated any in-principle objections to the project.

2.3.6 HYDROGEOLOGY

2.3.6.1 Groundwater

No groundwater boreholes are located in the immediate vicinity of the site.

The closest identified boreholes include:

- GW202326 (Monitoring Bore) with a drill depth of 2 metres, located approximately 500 metres to the south-west.
- GW201480 (Monitoring Bore) with a drill depth of 11.60 metres, located approximately 700 metres to the east.
- GW202331 (Monitoring Bore) with a drill depth of 2.8 metres, located approximately 1 kilometre to the north.

2.3.6.2 Soil Landscape

As shown in **Figure 7**, the site is located within the Doyalson soil landscape. Limitations to development in the Doyalson landscape include:

- Landscape limitations:
  - Erosion hazard;
  - Seasonal waterlogging (localised);
  - High run-on (footslopes);
  - Mine subsidence district); and
  - Foundation hazard (localised).
- Soil limitations (do4 – Strongly pedal clay):
  - Very low fertility;
  - Low permeability;
  - Strongly acid;
  - Stoniness (localised);
  - Sodicity; and
  - High potential aluminium toxicity.

2.3.6.3 Acid Sulfate Soils

As shown in **Figure 8**, two classes of acid sulfate soils are mapped under LMLEP as occurring within the site:

- Class 4 Acid Sulfate Soils occur in the northern corner of the site.
- Class 5 Acid Sulfate Soils occur on the remaining area of the site.
- The proposed development footprint is mapped contains both Class 5 and Class 4 Acid Sulphate Soils.

Works described in **Table 2** trigger the requirement for an Acid Sulfate Soils Management Plan under Clause 7.1 of LMLEP in areas identified as Class 4 and 5.

Table 2 – Works triggering the requirement for an acid sulfate soils management plan

Class of land	Works
4	Works more than 2 metres below the natural ground surface. Works by which the watertable is likely to be lowered more than 2 metres below the natural ground surface.
5	Works within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum and by which the watertable is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land.

2.3.6.4 Contamination

A search of the NSW Contaminated Land Record was undertaken for contaminated sites within the Lake Macquarie LGA on 04/11/2021. 73 notices relating to 9 sites were identified but none of these are within the suburbs of Awaba or Toronto.

The online List of NSW contaminated sites notified to the EPA as of 11/10/2021 was searched for the suburbs of Awaba and Toronto. 1 site was identified in Awaba, The Awaba Colliery at Wilton Road, and 5 sites were identified in Toronto, including: the BP Toronto Service Station at 132 Cary Street, Toronto Hotel at 74 victory Parade, Caltex Service Station at 147 Cary Street and an unnamed site under assessment at 155B Brighton Avenue, Toronto. The closest identified site, the Awaba Colliery, is situated approximately 2.6 km to the south-west of the development.

2.3.6.5 Surface Water

As shown in **Figure 9**, a negligible portion of the site is identified as being within the Flood Planning Area under LMLEP. The Stony Creek Flood Study (Cardno 2010) provides the following with respect to the site:

- Source of flooding: Catchment
- Flood level (5%): not applicable
- Flood level (1%): not applicable
- Probable maximum flood (PMF): not applicable
- Flood planning level: 8.65 metres AHD

As shown in **Figure 9**, the site is bisected by two second order streams draining to Stony Creek to the north however these do not encroach within the proposed 0.64 ha development footprint. It should be noted that the proposed development footprint does not contain areas mapped as a flood planning area.

2.3.7 VEGETATION

Preliminary advice with respect to impacts to biodiversity forming part of this Scoping Report (EMM 2021; refer **Appendix B)**, **Figure 10** demonstrates that the following extant vegetation is located within the site:

- Coastal Plains Smooth-barked Apple Woodland (10,916 m^2);
- Riparian Melaleuca Swamp Woodland (8,475 m^2); and
- Coastal Plains Scribbly Gum Woodland (3,084 m^2).

Vegetation occurring within the site is not identified under the Biodiversity Values Map given effect under Section 7.1(1)(b) of the *Biodiversity Conservation Regulation* 2017 (the BC Regulation) via Section 7.4(1) of the *Biodiversity Conservation Act* 2016 (the BC Act).

The project will require the clearing of vegetation in the north-western extent of the site to accommodate the proposed BESS.

Site survey by EMM indicates that the site two distinct vegetation groups (refer **Appendix B**), being:

- Plant Community Type 1627 (Smooth-barked Apple-Turpentine – Sydney Peppermint heathy woodland on sandstone ranges of the Central Coast); and
- Exotic grassland.

PCT 1627 can be further split into areas of high quality and an area with maintained (mown) understorey. The high quality area is located in the north-western extent of the site, with the lower quality section in the north-eastern extent. The proposed BESS location would be within the areas characterised as containing lower quality section and the exotic grassland section. Two hollow bearing trees are located within the proposed BESS footprint and would be impacted, with another three elsewhere in the site (not impacted).

The section of PCT 1627 with a maintained understorey features mature canopy species including Scribbly Gum (*Eucalyptus racemosa*), Sydney Peppermint (*Eucalyptus piperita* subsp. *piperita*), Smooth-barked Apple (*Angophora costata*) and Red Bloodwood (*Corymbia gummifera*). A shrub layer is absent apart from very sparse *Acacia* sp. regrowth at the study area boundaries. Groundcover in this area comprises native and exotic grasses and forbs.

The higher quality section of PCT 1627 has a similar canopy structure and composition to the maintained vegetation zone; however, has an established shrub and ground stratum. The canopy composition in the higher quality section is similar to the lower quality section, but also contains an additional Scribbly Gum species (*Eucalyptus haemastoma*). Prickly-leaved Paperbark (*Melaleuca nodosa*) and *Melaleuca sieberi* occur along the edges of this section.

The project would require the clearing of vegetation within the lower quality area of PCT 1627 and the area of exotic grassland. A Biodiversity Development Assessment Report (BDAR) would be prepared – refer **Section 6.6**).

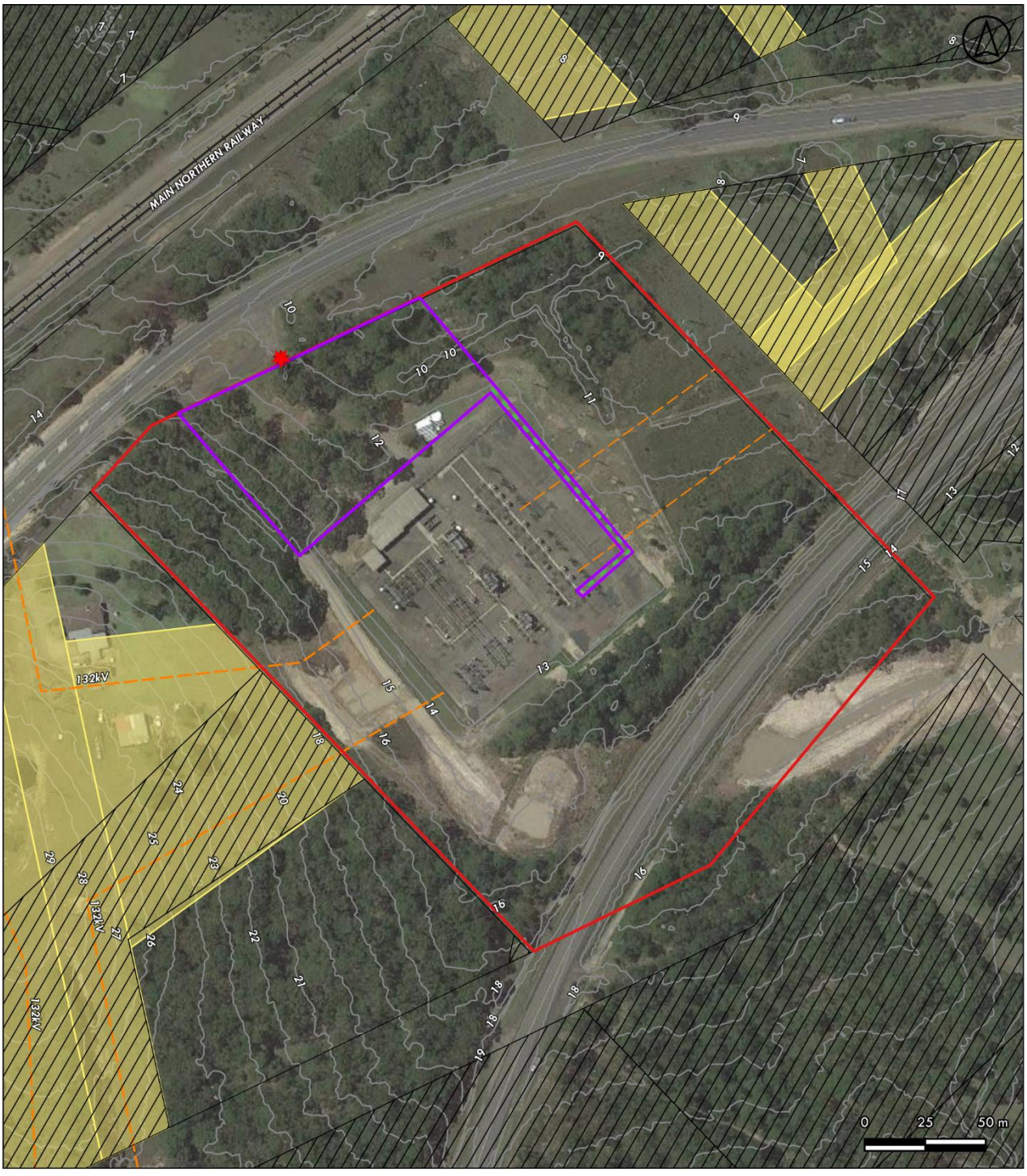
2.3.8 BUSHFIRE

The site is impacted by mapped bushfire prone land (refer **Figure 11**), noting:

- Vegetation in the southern corner of the site is identified as Category 1.
- Vegetation in the northern-western portion of the site and on the western side of Newstan-Eraring Private Coal Road is identified as Category 2;
- Vegetation on the eastern side of Newstan-Eraring Private Coal Road is identified as Category 3; and
- The remainder of the site is predominantly identified as Vegetation Buffer.

It should be noted that the proposed development footprint is situated within the north-western portion of the site and as such is substantially distanced from Category 1 mapped bushfire prone land. The proposed development footprint is mapped as containing Vegetation Category 2 land and associated vegetation buffers.

Figure 5 – Site analysis and proposed development



LEGEND

- Subject Site
- Development Area
- Cadastre
- Crown Land
- Road
- Railway

Transmission Lines

- 132kV
- 33kV (Approximate Location)
- Easement
- Contours (1m Interval)
- Property Access

FIRM POWER

Awaba Battery Energy Storage System

Source: © State Government of NSW, Department of Customer Service, Spatial Services 2021

Figure 6 – Heritage

Figure 7 – Soils Landscapes

Figure 8 – Acid sulfate soils

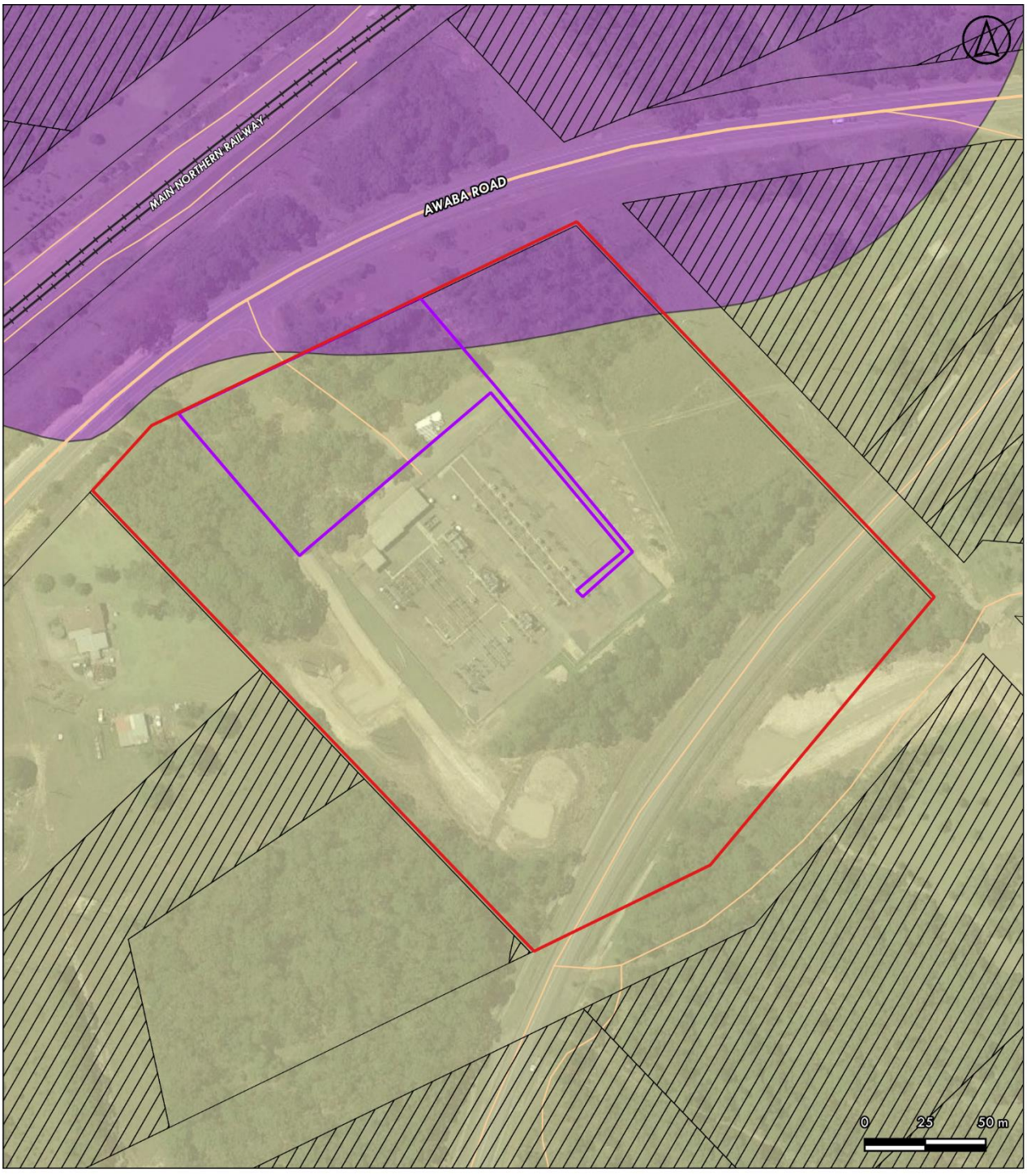


Figure 9 – Flooding

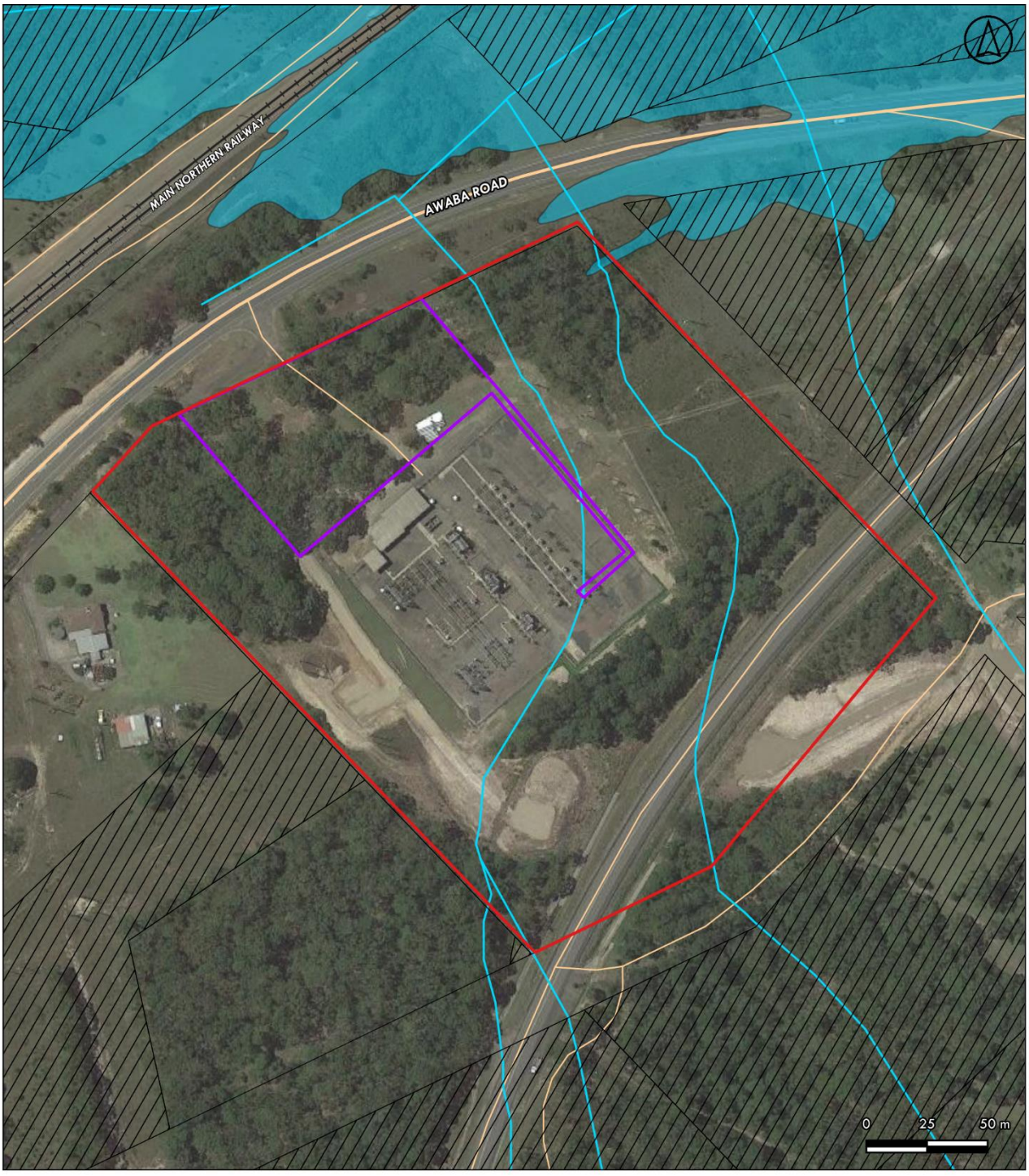


Figure 10 – Vegetation

Figure 11 – Bushfire prone land

3. PROJECT DESCRIPTION

3.1 Project Objectives

The Awaba BESS will be designed to provide grid flexibility services and will support the efficiency of the existing electrical network. The BESS would function to purchase power from the grid while prices are low and sell back while prices are higher. Through regulating the availability of energy, the development will have the capacity to store unutilised energy during low demand and enhance the total supply of energy during high demand. This will benefit the existing electrical grid, improving the efficiency of electrical generation and providing consumers with a more consistent and reliable supply of energy.

The BESS facility will utilise lithium-ion technology batteries installed in prefabricated enclosures similar in size to standard shipping containers. During periods of low demand, power will generally flow from the Ausgrid substation 33kV switchyard to the BESS facility via up to two new 33kV circuits. The power conversion systems rectify the power into a form that is suitable for storage in the facility's batteries. During periods of high demand, the stored energy in the batteries will generally flow back through these systems and the 33kV circuits to the Ausgrid substation and ultimately the broader grid.

The BESS, through its connection to the substation, would possess the ability to store power and release it to the network at times of peak demand or critical need. It would also have the capacity to charge or discharge when power system services are required to maintain the stability of the broader electricity grid. The BESS strengthens the power network by providing greater flexibility in grid management.

3.2 Proposed Development Overview

The project comprises a BESS and associated infrastructure that will occupy an area of approximately 0.64 ha. The BESS will have a capacity of up to 50 MW and 200 MWh. The BESS will connect to the adjacent Awaba substation via a new underground or overhead transmission line and will store energy from the grid.

The key project infrastructure includes:

- containerised lithium-ion type batteries with associated power conversion systems, switchgear and a control building;
- 33kV underground or overhead sub-transmission lines to connect the BESS to Awaba substation; and
- cabling and collector units, site office, storage area, internal access tracks, on-site parking, security fencing, lighting and temporary construction laydown area.

The proposed BESS, associated infrastructure and development footprint will align with, and be contained within, the development area shown in **Figure 5**. The layout of the BESS and associated infrastructure will be detailed in the Environmental Impact Statement (EIS) for the project.

No external transmission lines or off-site connection works are proposed by this development. The development will include an approximately 100-metre long, 33 kV underground or overhead sub-transmission lines to connect to Ausgrid's Awaba Substation and utilise its existing grid connection.

The project would utilise the existing site access from Awaba Road.

The construction period is expected to take 8 months. The batteries would be manufactured offsite and delivered ready for installation following completion of site preparation, including levelling the site and constructing a bench on which to install the BESS. It is anticipated that infrastructure would be delivered to the site via the Port of Newcastle or Port Botany, with vehicles accessing the site via the routes shown in **Figure 12**.

It is anticipated the BESS would be operational for a period of approximately 20 years after which time the BESS would be removed and the site would be decommissioned, including the removal of all above ground

infrastructure and the remediation of the site. It is conceivable that the infrastructure may be upgraded rather than decommissioned and the lifespan extended. The BESS would operate 24 hours a day, seven days a week.

The project is expected to generate up to 30 Full time Equivalent (FTE) jobs during construction and up to 1-2 FTE jobs during operation.

The area of the BESS would be leased for the duration of the development from Ausgrid, either via a long term lease managed via a subdivision of the land, or through a lease of premises, subject to the limits in place at the time of commissioned. If subdivision is required to facilitate the leasing arrangements, this would be addressed by the SSD application.

3.3 Proposed Development Details

The primary components associated with the installation of the BESS are as follows:

- Off-site manufacture of the BESS equipment;
- Vegetation clearing to provide a developable site;
- Levelling the site and constructing a bench on which to install the BESS unit;
- Installation of the BESS;
- Connecting the BESS to the substation via 33 kV circuits/sub-transmission lines;
- Constructing an earthing system for the BESS within the subject property;
- Ancillary high voltage equipment, such as circuit breakers, switching equipment, filters, transformers and other electrical protection equipment;
- Auxiliary power, protection, indication and control systems;
- Fencing and gates as required to provide security around the BESS facility;
- Outdoor sensor lighting to provide illumination, when needed, at night;
- Storage enclosures for storing equipment;
- Communication room for housing communication equipment;
- HVAC equipment for providing cooling and ventilation;
- Commissioning;

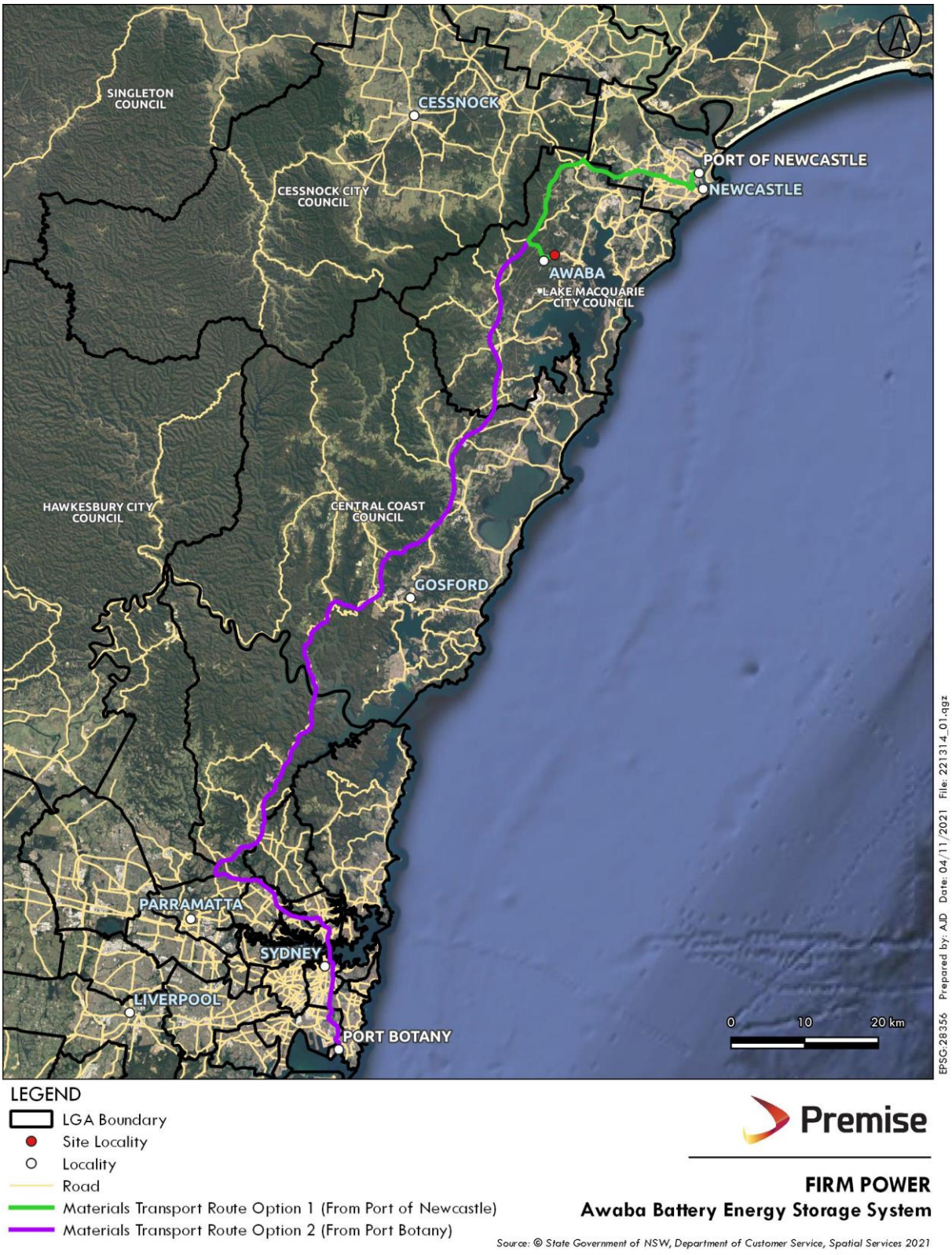
Upon decommissioning of the BESS, the following indicative steps would occur:

- The above ground equipment would un-bolted from the concrete slab and removed by crane onto transporters and taken away from site to an appropriate recycling or waste facility;
- Underground services would be cut back to below ground level and capped;
- The site would then be landscaped to a safe, clean and stable state;
- A decommissioning arrangement has been established with Ausgrid to provide assurance for the decommissioning components described above.

As noted, the site is expected to remain operational for approximately twenty years although this could be extended through upgrade/replacement of infrastructure subject to technological improvements/innovation. Although the site will be monitored and controlled remotely during operation, some routine maintenance will be periodically performed on-site. On-site maintenance activities will only require limited personnel. Ongoing site operation and maintenance will generally involve:

- Monitoring, testing and maintenance of onsite equipment
- Receipt of goods,
- Removal of waste and;
- Other general site maintenance (e.g., care of groundcover).

Figure 12 – Materials transport route



3.4 Justification for the Preferred Option

Development options considered as part of this Scoping Report and to be considered in greater detail in the EIS are described in **Table 3** below.

Table 3 – Development Options

Alternatives:		Description:
Option 1	Base Case, 'Do Nothing'	Option 1 would involve not installing and operating a BESS at the site or elsewhere.
Option 2	Alternative Site	Option 2 would involve installing and operating a BESS at an alternative site
Option 3	BESS Technology and Provider Alternatives	Option 3 would involve using alternative technology at the site.
Option 4	BESS at 12 Toronto Street, Toronto, in alternative portion of the site	Option 4 would involve developing the BESS within an alternative area of the site
Option 5	BESS at 12 Toronto Street, Toronto, 'Preferred Option'	Option 5 would involve the installation and operation of a BESS at the site.

Of the above, Option 5 is the preferred option, and this is discussed in further detail in the following sections.

3.4.1 OPTION 1

Option 5 is preferred over Option 1 on the grounds that the latter is:

- Inconsistent with the strategic context set by State and local policy, including:
  - Goal 22 of the NSW 2021 Plan (NSW Government 2011) which seeks to *"promot[e] energy security through a more diverse energy mix, reduc[e] coal dependence, increase[e] energy efficiency and mov[e] to lower emission energy sources";*
  - Goal 1 of the *NSW REAP* (NSW Government 2013) which seeks to attract renewable energy investment;
  - Objectives of the Energy Security Safeguard legislation to improve the affordability, reliability and sustainability of energy by addressing the shortfall in firm capacity during times of peak demand;
  - Investment in the preparation of the Hunter REZ in accordance with the *NSW Electricity Strategy and Electricity Infrastructure Roadmap* (DPIE 2020) as a critical region for renewable energy due to strong investor interest and availability of existing infrastructure due to the area's history of supplying electricity for the network;
  - Direction 12 of the *Hunter Regional Plan* (DPE 2016) which seeks to *"diversify and grow the energy sector;*
  - Planning Priority 7 of the *Lake Macquarie LSPS* (LMC 2020) which seeks to improve Lake Macquarie's energy resilience, investigate renewable energy opportunities, address current and emerging climate change risks and *"explore opportunities for alternative energy production to make use of existing electricity infrastructure onsite and provide ongoing energy generation for the City and State"*.
- Fails to enable the regulation of electricity supply which improves its efficiency, consistency and reliability for consumers as it becomes increasingly variable due to the transition from traditional to more sustainable, renewable sources in the region.

3.4.2 OPTION 2

Option 5 is preferred over Option 2 as the latter would result in increased costs and environmental impacts associated with the acquisition of a suitable property (Firm Power has entered into an agreement to lease the a portion of the site of the proposed BESS) and construction of increased lengths of connecting infrastructure (likely to include earthworks and vegetation removal), as compared to the site of the proposed development

in which the length of connecting infrastructure is expected to be minimal due to the proximity to the existing Ausgrid substation.

By locating the BESS project adjacent to Ausgrid's substation, the project is also sympathetic to the existing power infrastructure setting and the current use of the land.

Premise is in the process of preparing SSD applications on behalf of Firm Power for BESS at other suitable sites containing Ausgrid substations.

3.4.3 OPTION 3

Option 5 is preferred over Option 3 as:

- The former provides the most reliable way, using current technology, to regulate electricity supply in a network which is expected to become increasingly variable due to the transition from traditional to more sustainable, renewable sources in the region; and
- The latter may not be suitable to the site due to its limited area or other reasons, requiring the seeking out and acquisition of an alternative site and construction of connecting infrastructure.

3.4.4 OPTION 4

- Option 5 is preferred over Option 4 as:
  - existing 132kv lines extend to the southwest from the Awaba substation;
  - existing 33kV lines extend to the northeast from the Awaba substation; and
  - the Newstan-Eraring Private Coal Road transecting the south-eastern portion of the site.

Noting the above, option 5 (the preferred option) is the only available area within the site for the BESS.

4. STATUTORY CONTEXT

The key statutory requirements for the project are set out in **Table 4**.

Table 4 – Statutory requirements for a project

Matter:	Guidance:	Comment:
Power to grant consent	Identify the legal pathway under which consent is to be sought, why the pathway applies, and who the consent authority is likely to be.	Section 4.5 of the EP&A Act provides that the consent authority is the Independent Planning Commission (if the development is of a kind for which the Commission is declared the consent authority by an environmental planning instrument) or the Minister (if the development is not of that kind). Section 4.36(2) of the EP&A Act provides that a State Environmental Planning Policy may declare any development, or any class or description of development, to be State significant development. Section 8(1) of the State and Regional Development SEPP provides that development is declared to be State

significant for the purposes of the EP&A Act if:

- the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the EP&A Act; and
- The development is specified in Schedule 1 or 2 of the SEPP.

The consent authority for the proposed development is likely to be the Minister:

- On the grounds that the proposed development satisfies:
  - Section 8(1)(a) of the State and Regional Development SEPP on the grounds that it is permitted with consent under Section 34(1)(b) of the Infrastructure SEPP; and
  - Section 8(1)(b) of the State and Regional Development SEPP on the grounds that it is for the purposes of electricity generating works that has a capital investment value of more than $30 million in accordance with Section 20 of Schedule 1 of the SEPP.
- Unless, in accordance with Section 8A of the State and Regional Development SEPP in which case the consent authority is the Independent Planning Commission:
  - The council of the area in which the development is to be carried out (NCC) has duly made a submission by way of objection under the mandatory requirements for community participation in Schedule 1 of the EP&A Act;
  - At least 50 unique submissions (other than from a council) have duly been made by way of objection under the mandatory requirements for community participation in Schedule 1 to the Act; and
  - The development application is made by a person who has disclosed a reportable political donation under section 10.4 to the Act in connection with the development application.

Permissibility	Identify the relevant provisions affecting the permissibility of the project, including any land use zones. If there are inconsistencies in these provisions, identify the inconsistencies and explain which provisions prevail to the extent of any inconsistency. If the project is partly or wholly prohibited, identify any provisions or actions being taken that would allow the project to be considered on its merits (e.g., making a concurrent amendment to the relevant)17.	Electricity generating works, including any development that is ordinarily incidental or ancillary to that purpose, are permitted with consent under the SP2 Infrastructure – Electricity Transmission or Distribution Network zone applying to the site under the relevant local environmental Plan, the *Lake Macquarie Local Environmental Plan* (LMLEP) 2014.
Other approvals	Identify any other approvals that are required to carry out the project and why they are required. These approvals should be grouped into the following categories: • Consistent approvals: approvals that cannot be refused if the project is approved and must be substantially consistent with the approval • EPBC Act approval, and whether a bilateral agreement applies • Other approvals: approvals that are not expressly integrated into the SSD assessment under the EP&A Act (e.g., water access licenses under the Water Management Act 2000, leases under the National Parks and Wildlife Act 1974). Also identify the approvals that would have been required if the project was not an SSD project.	The following consistent approvals are required: • A licence under Section 48 of the *Protection of the Environment Operations Act* 1997 (the POEO Act) to perform an activity listed under Schedule 1 of the POEO Act, including the general electricity works with capacity to generate more than 30 megawatts of electrical power as specified in Section 17, Schedule 1 of the POEO Act. • If a new connection to a classified road (Awaba Road) or any of the other listed activities under Section 138 of the *Roads Act* 1993 (the Roads Act) is proposed, consent under Section 138 of the Roads Act is required with the concurrence of Transport for New South Wales (TfNSW). Commonwealth approvals are not required for the following reasons: • A search for potential matters of national environmental significance (MNES) that may trigger the need for referral to the Australian Department of Agriculture, Water and the Environment (DAWE) via the online Protected Matters Search Tool (PMST), conducted with a 10-kilometre buffer of the site on 10/09/2021 (refer **Appendix B**): – Did not identify any World Heritage Properties or National Heritage places protected by the *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act);
Pre-conditions to exercising the power to grant consent	Identify pre-conditions to exercising the power to grant consent for the project that may be relevant to setting the SEARs. These will include mandatory conditions that must be satisfied before the consent authority may grant consent (e.g., under the Sydney Drinking Water SEPP, a consent authority must be satisfied before granting consent that the carrying out of the proposed development would have a neutral or beneficial effect on water quality).	

		– Did not identify any Wetlands of International Importance – Identified Two listed threatened ecological communities, 36 listed threatened species and 16 migratory species with the potential to occur in proximity to the site but are unlikely to occur due to the substantially altered landscape and lack of extant vegetation. • A review of National Native Title Tribunal's Native Title Register did not identify any Native Title claims or applications, or Indigenous Land Use Agreements at or near the site under the *Native Title Act* 1993 (the Native Title Act).
Mandatory matters for consideration	Identify matters that the consent authority is required to consider in deciding whether to grant consent to any development application for the project that may be relevant to setting the SEARs.	Pursuant to Section 1.7 of the EP&A Act, the *Biodiversity Conservation Act* 2016 (the BC Act) is a mandatory matter for consideration. Section 7.9 of the BC Act provides that any application under Part of the EP&A Act for State significant development must be accompanied by a biodiversity development assessment report (BDAR) unless the Planning Agency Head and Environment Agency Head determine that the development is not likely to have any significant impact on biodiversity values. Although noting the requirement for further biodiversity surveys, the results of a preliminary Biodiversity Assessment and surveys conducted by EMM (**Appendix B**) has identified that referral to the Commonwealth is not warranted. The initial assessment determines that: • *Due to the relatively small area of vegetation clearance proposed for the project (0.47 ha), Firm Power can elect to prepare a 'streamlined assessment – small area module' BDAR in accordance with the BAM.* Only targeted threatened surveys for species listed as at risk of SAII under the BAM would be performed and a streamlined assessment-small area module BDAR would be prepared – refer **Appendix B**.

		Pursuant to Section 4.15 of the EP&A Act, the following mandatory matters for consideration apply: • Relevant environmental planning instruments, including: – *State Environmental Planning Policy No 33 – Hazardous and Offensive Development*; – State Environmental Planning Policy (Coastal Management) 2018 – *State Environmental Planning Policy No. 55 Remediation of Land*; – *State Environmental Planning Policy (Infrastructure) 2007*; – *State Environmental Planning Policy (State and Regional Development) 2011*; – *State Environmental Planning Policy (Koala Habitat Protection) 2021*; – *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017*; and – *Lake Macquarie Local Environmental Plan 2014*. • The relevant development control plan, being the *Lake Macquarie Development Control Plan 2014* (noting that the application of development control plans is excluded from SSD under Section 11 of the State and Regional Development SEPP); • The likely impacts of the development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality; • The suitability of the site for the development; and • The public interest.

5. ENGAGEMENT

5.1 Scoping Stage Engagement

To inform preparation of the scoping report, Firm Power has carried out preliminary engagement with surrounding landowners, community groups and regulatory bodies.

Preliminary engagement strategies have aimed to:

- Build an awareness of the project and proposed development
- Establish communication channels with the local community
- Respond to any questions or concerns the community may have and ensure these are considered during development of the project.

Firm Power has implemented the following forms of engagement:

- Letters and notification issued to landowners surrounding the development, community groups and regulatory bodies.
- A project Infoline and mailbox
- A project website.
- Doorknocking.

Non associated residential receivers were identified through analysis of mapping utilising GIS software. It was noted that there are four (4) non-associated receivers located within 500 metres of the project, however the number of receivers were expanded to also include receivers at a greater distance but with an assessed potential of having some (albeit limited) visibility of the project. The engagement strategy targeted eight (8) non-associated landowners located in proximity to the proposed development, along with relevant regulatory bodies and community groups.

Details of engagement are outlined in the register provided at **Appendix E** and summarised below in **Table 5**.

The dedicated project website, Infoline and email address will remain active and open to the public throughout the project's operation, and the team will respond to enquiries and questions as they arise.

Table 5 – Engagement summary

Stakeholder Group	Method	Purpose of Engagement and Consideration within EIS Assessment.
Department Planning, Industry and Environment	Pre-scoping meeting on the 2 September 2021	Firm Power introduced the project to the Department and sought advice on areas of critical assessment. DPIE staff identified the following expectations: • Targeted consultation with receivers within 500 metres; agreed that this was not necessary outside of this range, but that general consultation with groups with be required in place of targeted efforts **(Section 5)**; • Ensure the broader area is familiar with the project **(Section 5)**; • Provide details on required leasing/subdivision arrangements **(Section 1.1)**; • Confirm whether EPBC referral required **(Section 6.6)**; • Provide mapping in scoping reports confirming any constraints such as sensitive biodiversity, Aboriginal heritage sites etc (none nearby); • Provide details of engagement with Ausgrid, TfNSW, Council, non-associated receivers (**Table 5**);

Stakeholder Group	Method	Purpose of Engagement and Consideration within EIS Assessment.
		• Include details of engagement advice to non-associated receivers (**Table 5**).
Ausgrid	Web based portal	Connection enquiry including advice regarding preliminary design of the BESS facility and preliminary response in accordance with chapter 5 of the National Electricity Rules. The purpose of the enquiry is to confirm there is thermal capacity in the system to facilitate the transfer of power to and from the BESS, preliminary review of system strength, available connection points and determine next steps. Ausgrid confirmed there is sufficient thermal capacity for the BESS to operate at proposed transfer limits under normal operating conditions, no adverse system strength issues identified and connection points are available. Projects can progress to detailed response to enquiry.
	• In Person meetings • Phone/VC • Emails	Ongoing discussions with respect to the lease agreement to confirm that an option could be secured by Firm Power to develop on the land and to identify potential need to subdivide Ausgrid confirmed the option had been issued to Firm Power to secure the land to develop the proposed project.
	Web based portal	System planning advice (Ausgrid terminology for investigate works) was sought from Ausgrid to investigate connection options further and to determine preferred arrangement and understand scope of works, cost and program to facilitate the connection. Ausgrid confirmed that upgrades to the substation will be required and preliminary scope determined. This will be further refined through the connection process.
	Web based portal	Detailed response to connection enquiry in accordance with chapter 5 of the National Electricity Rules. The purpose of the engagement was to seek information from Ausgrid to allow appropriate modelling and studies to be performed to allow an application to connect to be lodged. Ausgrid provided information as requested and in accordance with the National Electricity rules.
Lake Macquarie Council	Via Email	Firm Power has carried out initial engagement with Lake Macquarie Council Mayors office and planning team to determine Council's view of the project and identify any issues that would need to be addressed in preparation

Stakeholder Group	Method	Purpose of Engagement and Consideration within EIS Assessment.
		of the EIS. As a result of the enquiry, a phone meeting was held with Council staff – refer below.
	Via Phone	Phone conversation between Nick Rose of Firm Power and Council officer on the 3 August 2021 to determine Council's initial view of the project and identify any issues to be addressed. The following keys points were discussed: 1. Council try to be supportive of infrastructure projects that stimulate economic and sustainable activity in the council. Council is keen to see dispatchable battery projects in the grid. 2. Firm Power explained the need to clear the land and Council indicated it wouldn't be prohibited, but correct process would need to be followed. 3. Council would expect appropriate decommissioning to be performed at the end of life to mitigate against land contamination. 4. Council recommended we approach Mine Subsidence Advisory Board early in the project. 5. Following the meeting Nick Rose sent Bryn further information on the project via email.
Subsidence Advisory NSW	Via Email	Engagement with the Subsidence Advisory NSW dated the 9 August 2021 to determine any approval or assessment requirements associated with the project. SA_NSW provided comment on the mapping of the site within the West Lake Mine Subsidence District and a subsidence development area. SA NSW note that although the site may be mined in the future it is not currently undermined and it is considered as within the existing substation area. Engagement has confirmed that no additional subsidence requirements apply – refer **Appendix G**.
Centennial/Newstan	Via telephone	Engagement was completed with Centennial/Newstan on 27 Sep 2021 about the Awaba Project due to the existence of a mining title in relation to the land and to identify the initial views of Centennial/Newstan with respect to the project. Centennial/Newstan was informed of the project and sent an email on 27 Sep 2021 with the proposed footprint of the site. No issues of concern raised.
Regulatory Bodies • The Local Aboriginal Land Council; • NSW Rural Fire Service;	Via email	Engagement advice was issued via email to 7 regulatory bodies between the 27 and 29 September, inviting comments to be sent to the project's email address with respect to the project, to inform them of the project and to inform preparation of this scoping report.

Stakeholder Group	Method	Purpose of Engagement and Consideration within EIS Assessment.
• Fire and Rescue NSW; • Transport for NSW; • Natural Resource Access Regulator; • Department Primary Industries (Fisheries) • Environment Protection Authority		At the time of writing, no response from these organisations has been received.
Local Community • Landcare • Hunter Community Environment Centre • Wilderness Society • Lake Macquarie Sustainable Neighbourhood Alliance • Coal Point Progress Association • Dora Creek Community Hall • Hunter Environmental Institute (HEI); and • Transition Newcastle	Via Email	Engagement advice was issued via email to 8 community groups between the 27 and 29 September 2021 providing details about the project; to inform them of the project and to inform preparation of this scoping report. At the time of writing, no response from these organisations has been received.
Community and interested parties	Dedicated Project website: https://www.firmpower.com.au/awaba	The project website was launched in September 2021. The website provides an overview of the project and Firm Power, detailing the development application process and providing a form allowing visitors encouraging visitors to leave feedback. At the time of writing no feedback or responses have been received via this online form.
Nearby receivers	Notification Letter	A notification letter outlining the project was posted to eight identified landholders proximal to the project on the 22 September 2021. The purpose of the letter was to introduce the project. The letter outlined the development application process and invited recipients to provide feedback regarding the project. Contact details for a dedicated 1800 number, project email address and website were provided. A copy of this notification is provided in **Appendix C.** At the time of writing this report, no emails or phone calls have been received.

Stakeholder Group	Method	Purpose of Engagement and Consideration within EIS Assessment.
	Doorknocking	On behalf of Firm Power, a Premise staff member travelled to the site on the 26 October 2021 to discuss the project with available surrounding non-associated landowners. A brief outline of the project and likely impacts were discussed. A second information letter, summarising the details of the project, was hand delivered to identified receiver locations during this visit. Of the eight residential receivers in proximity of the site, Premise was able to speak to four of these. Letters were left at those properties where nobody was home. Of the four residents spoken to, three confirmed no fundamental objections and confirmed they understood the details of the project and how to engage. The comments from the fourth receiver are discussed in the cell below.
Non-associated receiver	Response to Doorknocking	Concerns/queries 1. safety of the battery and EMF 2. would like timeline updates Firm Power response provided by email on the 3 November 2021: 1. *There are strict guidelines to ensure that the batteries operate safely. As part of the development application for the project, we'll assess any potential hazards and risks to ensure that the project is designed to meet the relevant Australian Standards and guidelines, including those that specify EMF limits and health and safety requirements. This assessment will then feed into the design of the project. Typical design safety measures include separation distances between the batteries and surrounding residences, infrastructure controls (such as fire-fighting equipment), and technology controls (such automatic shutdown of the batteries).* 2. *In the coming months we'll complete a range of studies that will feed into the project design and development application. The first step is submitting a scoping report to the NSW Department of Planning, Industry and Environment – which we expect to do in the coming weeks. We'd be happy to let you know when we submit this report as it will provide an outline of the project, our community consultation plans, and it will identify the key matters for assessment when we prepare our Environmental Impact Statement.*

A record of engagement is provided in **Appendix E**.

Those matters raised will be further addressed through ongoing engagement throughout the EIS process and addressed through detailed analysis in the preparation of the EIS.

5.2 EIS Engagement

Engagement will continue to be undertaken in accordance with the following guidelines:

- *Undertaking Engagement Guidelines for State Significant Projects* (DPIE, 2021);
- *Community and Stakeholder Engagement Draft Environmental Impact Assessment Guidance Series* (DP&E, 2017)
- *Community Consultative Committee Guidelines State Significant Projects* (DP&E, 2019) – if a Community Consultative Committee is required.

Proposed engagement purpose and method during preparation of the EIS stage is outlined in **Table 6**.

Table 6 – Proposed EIS consultation

Stakeholder	Purpose	Method
AusGrid	• To confirm project details, potential subdivision and substation upgrade requirements	• Face to face/videoconference • Briefing letters/emails
Federal Member for Hunter, Joel Fitzgibbon MP	• Project details/progress • Consultation to inform social impact assessment (SIA)	• Face to face/videoconference • Briefing letters/emails
State Member for Lake Macquarie, Greg Piper MP	• Project details/progress • Consultation to inform social impact assessment (SIA)	• Face to face/videoconference • Briefing letters/emails
Awabakal Local Aboriginal Land Council	• Project details/progress • Identify cultural values and connection to place	• Consultation in accordance with *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010) • Newsletters/fact sheets • Website feedback form or 1800 number
Department of Planning, Infrastructure and Environment	• Project details/progress • Engagement during EIS preparation • Respond to matters arising throughout assessment	• Face to face/videoconference • Email and phone • Briefing letters/emails
Heritage Council of NSW	• Project details/progress • Engagement during EIS preparation Respond to matters arising throughout assessment	• Face to face/videoconference • Email and phone Briefing letters/emails
Subsidence Advisory NSW	• Project details/progress	• Face to face/videoconference

Stakeholder	Purpose	Method
	• Engagement during EIS preparation • Respond to matters arising throughout assessment	• Email and phone • Briefing letters/emails
Rural Fire Service	• Project details/progress • Engagement during EIS preparation Respond to matters arising throughout assessment	• Face to face/videoconference • Email and phone • Briefing letters/emails
Transport for NSW	• Project details/progress • Engagement during EIS preparation • Discuss site access requirements • Respond to matters arising throughout assessment	• Face to face/videoconference • Email and phone • Briefing letters/emails
Lake Macquarie City Council	• Project details/progress • Consultation to inform social impact assessment (SIA) • Updates on outcomes of assessment reporting	• Face to face/videoconference • Email and phone • Briefing letters/emails
Centennial Coal Company	• Project details/progress • Engagement during EIS preparation	• Face to face/videoconference • Email and phone • Briefing letters/emails
Awaba and Toronto community groups	• Project details/progress • Consultation to inform social impact assessment (SIA) • Updates on outcomes of assessment reporting • Opportunities to provide feedback during application preparation • Details of how residual impacts would be mitigated	• Face to face/videoconference • Email and phone • Newsletters and factsheets • Website information/forms • 1800 number
Ongoing engagement with nearby unassociated residential receivers	• Project details/progress • Consultation to inform social impact assessment (SIA) • Updates on outcomes of assessment reporting • Opportunities to provide feedback during application preparation	• Face to face/videoconference • Email and phone • Newsletters and factsheets • Website information/forms 1800 number

Stakeholder	Purpose	Method
	• Details of how residual impacts would be mitigated	

6. PROPOSED ASSESSMENT OF IMPACTS

6.1 Introduction

An initial review of information has been completed to provide a summary of matters requiring assessment at EIS preparation stage and the level of assessment required for each issue. By reference to the DPIE Scoping Report Guidelines (DPIE 2021a), a number of factors have been considered through this process, including:

- the scale and nature of the likely impact of the project and the sensitivity of the receiving environment;
- whether the project is likely to generate cumulative impacts with other relevant future projects in the area; and
- the ability to avoid, minimise and/or offset the impacts of the project, to the extent known at the scoping phase.

The following sections provide details on specific assessment areas. A summary table is provided at **Appendix A** categorising these areas as per the Scoping Report Guidelines. The level of assessment identified for each impact is summarised as follows:

- Detailed:
  - Social impacts
- Standard
  - Land Use
  - Heritage
  - Hydrogeology
  - Biodiversity
  - Bushfire
  - Access and traffic
  - Visual impacts
  - Noise and Vibration
  - Air quality
  - Waste
  - Hazard

6.2 Social Impact

The site is located within the LMCC LGA which has a population of 197,371 (ABS, 2016). The LGA has an unemployment rate of 6.9%, marginally greater than the 2016 NSW average of 6.3%. The largest industry of employment is the health care and social assistance sector which supports 8709 jobs including: 4046 at Hospitals, 2369 at Aged Care and 2294 at Other social Assistance Services (ABS, 2016).

The Awaba statistical area has a population of 402 people and an unemployment rate of 6.3%. Major industries of employment include Hospitals, Coal Mining, Supermarket and Grocery Stores, Other Social assistance Services and Secondary Education.

The Toronto Statistical area has a population of 5602 people and an unemployment rate of 9.9%. Major industries of employment include Aged Care Residential Services, other social assistance Services, Hospitals, Supermarket and Grocery Stores and Coal Mining.

A Social Impact Assessment will be provided as part of the EIS in accordance with the *Social Impact Assessment Guidelines for State Significant Precincts 2021* (DPIE 2021). The Social Impact Assessment will be proportionate with the scale, complexity and likely impacts and benefits of the project. A Social Impact Assessment Scoping Worksheet has been prepared in accordance with the Guideline and is provided in **Appendix I**.

6.3 Land Use

6.3.1 MINING

As noted in **Section 2.3.5** the entirety of the site is located within West Lake Mine Subsidence district, mapped as being affected by Mine Subsidence Development (Guideline 5) and is within a current coal mining title CCL727, held by Centennial Newstan Pty Limited.

Pre-application engagement with the Subsidence Advisory NSW has occurred confirming that the site is not currently undermined, and it is considered as within the existing substation area. Engagement has confirmed that no additional subsidence requirements apply - refer **Section 5.1** and **Appendix F**.

As per **Table 5**, Firm Power have engaged with Centennial Newstan who have not indicated any in-principle objections to the project.

Ongoing engagement would occur with Centennial/Newstan throughout EIS preparation to keep them information of the project and to ensure that the project is designed in a manner that would not lead to any impact to mining activities.

6.3.2 OTHER USES

The compatibility of the proposed project with the surrounding land uses, including consideration of the surrounding land uses zones and existing uses would be completed, including a Land Use Conflict Risk Assessment in accordance with the Department of Industry's *Land Use Conflict Risk Assessment Guide*.

6.4 Heritage

The site is not identified as being or adjoining an item of Aboriginal or European heritage or within a heritage conservation area under the LMLEP. However, the site is identified as being within a Sensitive Aboriginal Landscape Area under LMLEP. AHIMS Basic Search on 17 August 2021 (**Appendix H**) did not identify any Aboriginal sites or places recorded or declared in or within 200 metres of the site.

Nevertheless, there is potential for:

- Fleeting visual impact when viewed from trains travelling along the locally heritage listed Great Northern Railway approximately 60 metres to the north-west of the site; and
- The occurrence of items of heritage significance in the portion of the site presently occupied by extant vegetation in which the proposed BESS is to be installed.

Accordingly, a Heritage Impact Assessment is to be provided as part of the EIS, identifying potential impacts and necessary management and mitigation measures.

6.5 Hydrogeology

The proposed development is unlikely to impact groundwater due to not requiring extraction of groundwater, recorded depth to groundwater at the nearest groundwater borehole (GW202326) 500 metres to the south-west of the site and minimal anticipated depth of construction. Methods by which stormwater would be managed would be outlined as part of the EIS.

The suitability of the ground conditions for the proposed development and any potential for contamination are to be addressed in a Geotechnical Report, Acid Sulfate Soils Management Plan and Preliminary (Site) Contamination Investigation to be provided as part of the EIS. Management of soil and water impacts during construction would be addressed in a Construction Management Plan.

Although the proposed development is situated outside of the mapped flood planning area (LMLEP) and the proximity area of the Coastal Management SEPP, an assessment of flood impacts and stormwater management is to be provided as part of the EIS, ensuring that the proposed BESS has a neutral or beneficial effect on water quality and quantity.

6.6 Biodiversity

Preliminary ground-truthing investigations by EMM (refer **Appendix B**) identified that the proposed BESS will result in impacts on PCT 1627 Smooth-barked Apple – Turpentine – Sydney Peppermint heathy woodland on sandstone ranges of the Central Coast. The site does not contain land identified on the Biodiversity Values Map.

The will require a Biodiversity Development Assessment Report (BDAR) assessing impacts to biodiversity in accordance with the NSW *Biodiversity Conservation Act 2016*.

EMM's report, however, notes that the clearing of vegetation required for the installation of the proposed BESS is approximately 0.47 hectares and therefore does not exceed the 0.5-hectare threshold associated with the sites minimum lot size (**Appendix B**).

Accordingly, if deemed appropriate, a streamlined assessment-small area module BDAR will be prepared, in accordance with the BAM, to accompany the development assessment application. Under this assessment method targeted surveys will only be performed for species listed as at risk of Serious and irreversible Impact (SAII) under the BAM.

The results of a preliminary Biodiversity Assessment and surveys conducted by EMM (**Appendix B**) has identified that referral to the Commonwealth is not warranted.

It should be noted that vegetation to be removed:

- Is unlikely to form part of an ecological as it is isolated from other vegetation in the area by Awaba Road, the Great Northern Railway and cleared lands; and
- Results in significant bushfire risk to neighbouring residential properties, with particular reference to the dwelling house at 364 Awaba Road.

6.7 Bushfire

Vegetation within the site is identified as a mixture of Category 1, 2 and 3 under RFS bushfire mapping whilst the remainder of the site is identified Vegetation Buffer.

The proposed BESS has the potential to generate radiant heat and may have the potential to result in impacts to bushfire threat levels.

An assessment of impacts would be addressed within the body of the EIS and would ensure that project parameters and the requirements of RFS and F&RNSW are clearly understood, and that appropriate mitigation measures are put in place.

A bushfire assessment would be incorporated into the EIS.

6.8 Access and Traffic

Anticipated vehicular movements generated during the installation phase and subsequent operation phase of the proposed BESS and the capacity of the surrounding road network to accommodate those movements are to be addressed in the Traffic Impact Assessment to be provided as part of the EIS.

Materials are anticipated to be transported to the site from Port Botany or the Port of Newcastle via the route shown in **Figure 12.** The construction vehicle haulage route would be considered further in the Traffic Impact Assessment to be provided as part of the EIS.

6.9 Visual Impact

The proposed BESS may be visible from surrounding residences and motorists travelling along Awaba Road and train passengers travelling along the locally heritage listed Great Northern Railway. Accordingly, a Visual Impact Assessment is to be provided as part of the EIS.

6.10 Noise and Vibration

Noise and vibration impacts are expected to occur during both construction and operation of the project. In relation to construction activities this would include preparatory earthworks, delivery, and assembly of the BESS infrastructure. During operation this would include operation of the BESS and noise from associated vehicles.

The potential noise and vibration impact of the construction and operation BESS on nearby sensitive receivers would be considered in a Noise and Vibration Impact Assessment to be provided as part of the EIS. The Noise and Vibration Impact Assessment will be prepared in accordance with the:

- NSW Interim Construction Noise Guideline (DECC 2009);
- NSW Noise Policy for Industry (EPA 2017);
- NSW Road Noise Policy (DECCW 2011); and
- Assessing Vibration: A Technical Guideline (DECC 2006).

6.11 Air Quality

Air quality impacts arising from dust generation and vehicle emissions during construction are to be assessed as part of the Air Quality Impact Assessment to be provided as part of the EIS and managed in accordance with a Construction Management Plan.

6.12 Waste

The likely waste generation associated with the proposed BESS, to be assessed as part of the Waste Management Plan and managed in accordance with a Construction Management Plan to be provided as part of the EIS, would mainly occur during the construction stage and may include green waste from cleared vegetation, construction materials, general waste from site personnel and spoil. Waste generated during the operation of the proposed BESS is expected to be minimal. Most battery components are expected to be readily recyclable at end of life.

6.13 Hazard

Lithium batteries are identified as Class 9 under the *Australian Dangerous Goods Code* (National Transport Commission 2020). Under the *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* (Department of Planning 2011) given effect under Section 8 of *State Environmental Planning Policy No 33 – Hazardous and Offensive Development*, Class 9 goods do not exceed the screening thresholds as they "pose little threat to people or property" (Department of Planning 2011, p. 33). Nevertheless, a perception exists that a BESS may alter the EMF within a locality and thereby cause harm to residents and the environment. Accordingly, a Preliminary Hazard Analysis (PHA) is to be provided as part of the EIS.

6.14 Cumulative Impact

A review of public record information for large scale projects with the potential to generate cumulative impacts within 10 kilometres of the site identifies:

- There are no known existing BESS developments;
- Nearest BESS developments at various stages of approval are set out in **Table 7**; and,
- Other large scale projects with the potential for acting cumulatively with the proposal, and located in proximity to the site, include a range of mining operations and the Awaba Waste Recycling Centre.

The proposed development is sufficiently separated from the nearest proposed BESS developments and non-BESS SSD developments as to not result in any cumulative impacts. There is the potential for cumulative visual and noise impacts of the project and the Awaba substation.

Further analysis of the potential for cumulative impacts would be addressed in detail in the EIS in accordance with *Guidelines for State Significant Projects* (DPIE 2021), including the potential for cumulative impacts associated with the adjacent substation.

Table 7 – Nearest major projects within 10 kilometres of the site

Location:	Stage:	Distance (Direction) from Site:
Mandalong Mine Extension (SSD)	Determination	1.4 kilometres (south-west)
Newstan Mine Extension Project (SSD)	Response to Submissions	2.8 kilometres (north-east)
Newstan Colliery (Part 4)	Determination	2.9 kilometres (north-east)
Teralba Quarry (SSD)	Determination	5.4 kilometres (north-east)
Northern Coal Services Project (SSD)	Determination	5.5 kilometres (south-west
Eraring Power Station-Ash Dam Expansions (SSD)	Determination	6.3 kilometres (south-west)
Marmong Point Marina (SSD)	Determination	6.3 kilometres (north-east)
Myuna Coal Mine (SSD)	Determination	6.3 kilometres (south-east)
Awaba Colliery Mining Project (SSD)	Determination	6.3 kilometres (south-east)
Eraring Battery Energy Storage System (SSD)	Prepare EIS	7.1 kilometres (south-west)
Westside Coal Mine Extension (Part 4)	Determination	7.4 kilometres (north)
Concrush Resource Recovery Facility Expansion (SSD)	Determination	8.8 kilometres (north-east)

Teralba Waste Facility (Mod 1-Terablba Recycling Facility)	Determination	9.2 kilometres (north- east)
Alesco Senior College Argenton (SSD)	Determination	10 kilometres (north-east)
Boral Material Recycling Facility (Part 4)	Determination	10 kilometres (south-west)
Lake Macquarie Yacht Club Upgrade (SSD)	Determination	10 kilometres (south-east)

7. REFERENCES

Table 8 - References

References
Lake Macquarie City Council (LMCC). *Lake Macquarie City Local Strategic Planning Statement: Shaping the Future*. Retrieved from: https://www.lakemac.com.au/files/assets/public/hptrim/land-use-and-planning-planning-local-environment-plans-lep-local-strategic-planning-statement/local-strategic-planning-statement-post-exhibition-to-publication/adopted-lake-macquarie-local-strategic-planning-statement-9-march-2020.pdf
NSW Department of Planning and Environment (DP&E). 2016. *Hunter Regional Plan 2036*. Retrieved from: https://www.planning.nsw.gov.au/-/media/Files/DPE/Plans-and-policies/hunter-regional-plan-2036-2016-10-18.pdf?la=en
NSW Department of Planning and Environment (DP&E). (2016). *Community Consultative Committee Guidelines*.
NSW Department of Planning and Environment (DP&E). (2017). *Guideline for Engaging Stakeholders*.
NSW Department of Planning, Industry and Environment (DPIE). (2021). *Undertaking Engagement Guidelines for State Significant Projects* https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/Policy-and-legislation/GD1265-RAF-Engagement-Guidelines-final.pdf
NSW Department of Planning, Industry and Environment (DPIE). 2020. *NSW Electricity Infrastructure Roadmap: Building an Energy Superpower Detailed Report*. Retrieved from: https://www.energy.nsw.gov.au/sites/default/files/2020-12/NSW%20Electricity%20Infrastructure%20Roadmap%20-%20Detailed%20Report.pdf
NSW EPA. (n.d.). *Contaminated Land Record.* Retrieved from: http://www.epa.nsw.gov.au/prclmapp/searchregister.aspx
NSW EPA. (n.d.). *List of NSW contaminated sites notified to EPA.* Retrieved from: http://www.epa.nsw.gov.au/clm/publiclist.htm
NSW Government. 2011. *NSW 2021: A Plan to Make NSW Number One*. Retrieved from: https://www.ipc.nsw.gov.au/sites/default/files/file_manager/NSW2021_WEBVERSION.pdf
NSW Government. 2013. *NSW Renewable Energy Action Plan*. Retrieved from: https://energy.nsw.gov.au/sites/default/files/2018-09/nsw-renewable-energy-action-plan_2013.pdf
NSW Government. 2016. *NSW Government's Climate Change Policy Framework.* Retrieved from: https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/nsw-climate-change-policy-framework-160618.pdf
NSW Government. 2019. *NSW Electricity Strategy.* Retrieved from: https://www.energy.nsw.gov.au/sites/default/files/2019-11/NSW%20Electricity%20Strategy%20-%20Final%20detailed%20strategy_0.pdf

NSW Office of Environment and Heritage (OEH). (n.d). Aboriginal Heritage Information Management System (AHIMS) Retrieved from: http://www.environment.nsw.gov.au/licences/AboriginalHeritageInformationManagementSystem.htm . [Accessed 17 August 2021].

NSW Office of Environment and Heritage (OEH). (n.d.). *State Heritage Register.* Retrieved from: http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx#amapsearch [Accessed 17 August 2021].

APPENDIX A

SCOPING REPORT SUMMARY TABLE

Level of Assessment	Matter	CIA	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
Detailed	Social Impact	Y	Specific	Social Impact Assessment Guidelines for State Significant Projects (Department of Planning Industry and Environment, 2021) Environmental Planning and Impact Assessment Practice Note: Socio-economic Assessment (Roads and Maritime Services, 2013).	6.2
Standard	Land Use	N	Specific	Surface Development Guideline 5 – Active Mining Areas – Moderate Predicted Subsidence Impact (Subsidence Advisory NSW, 2018) Development Application – Merit Assessment Policy (Subsidence Advisory NSW, 2018)	6.3
Standard	Heritage	N	Specific	NSW Skeletal Remains: Guidelines for Management of Human Remains (Heritage Office, 1998) Criteria for the Assessment of Excavation Directors (NSW Heritage Council, 2011).	6.4
Standard	Hydrogeology	Y	Specific	Acid Sulphate Soils Assessment Guidelines (Department of Planning, 2008) Managing Land Contamination: Planning Guidelines SEPP 55 – Remediation of Land (Department of Urban Affairs and Planning and Environment Protection Authority, 1998) Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) Managing Urban Stormwater: Soils and Construction Volume 2 (Department of Environment and Climate Change, 2008) Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (Department of Environment and Climate Change, 2008) Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC / ARMCANZ, 2000) Using the ANZECC Guidelines and Water Quality Objectives in NSW (Department of Environment and Conservation, 2006) Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004) and Volume 2 (A. Installation of Services; B. Waste Landfills; C. Unsealed Roads; D. Main Roads; E. Mines and Quarries) (DECC 2008)	6.5

				NSW Government's Floodplain Development Manual (2005)	
Standard	Biodiversity	Y	Specific	Refer to **Section 6.4** of the Scoping Report.	6.6
Standard	Bushfire	N	Specific	Planning for Bushfire Protection 2019	6.7
Standard	Access and Traffic	Y	Specific	Guide to Traffic Management – Part 3 Traffic Studies and Analysis (Austroads, 2013) Guide to Traffic Generating Developments Version 2.2 (RTA, 2002)	6.8
Standard	Visual Impact	Y	General	Refer to **Section 6.7** of the Scoping Report.	6.9
Standard	Noise and Vibration	Y	General	Construction Noise Strategy (Transport for NSW, 2012) Interim Construction Noise Guideline (Department of Environment, Climate Change and Water, 2009) NSW Industrial Noise Policy (Environment Protection Authority, 2000) NSW Road Noise Policy (Environment Protection Authority, 2011) Assessing Vibration: A Technical Guideline (Department of Environment and Conservation, 2006) German Standard DIN 4150-3: Structural Vibration – Effects of Vibration on Structures Environmental Noise Management Assessing Vibration: A Technical Guideline (Department of Environment and Conservation, 2006) Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration (Australian and New Zealand Environment Council, 1990).	6.10
Standard	Air Quality	Y	General	The Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA 2016) NSW's Sustainable Design Guidelines (Version 3.0) (Transport for NSW, 2013) Greenhouse Gas Inventory Guide for Construction Projects (Transport for NSW, 2012).	6.11
Standard	Waste	N	General	Waste Classification Guidelines (DECCW, 2009)	6.12
Standard	Hazard	N	General	Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (DoP 2011)	6.13

	International Standard (ISO / IEC 31010) Risk Management – Risk Assessment Technique Australian Code for the Transport of Dangerous Goods by Road and Rail (7th edition) (National Transport Commission, 2007) Storage and Handling of Dangerous Goods Code of Practice (WorkCover, 2005).

APPENDIX B

PRELIMINARY BIODIVERSITY ASSESSMENT

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24 September 2021

Simon Ingram
Director
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via email: simon@firmpower.com.au

Re: Sooty Owl habitat assessment, bat habitat assessment, and targeted flora surveys - Awaba BESS

1 Introduction

1.1 Project description

Firm Power is currently designing a Battery Energy Storage System (BESS) at Awaba power substation. The design includes construction of BESS components (switchgear, control building, storage, auxiliary transformer, power conversion system and battery container system) access road, a carpark and fencing (the project). These surface impacts, and associated clearing of vegetation, are contained within a compound area between the existing substation and Awaba Road (the site).

1.2 Legislative requirements

1.2.1 NSW *Biodiversity Conservation Act 2016*

The project will be State Significant Development (SSD) under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), with impacts to biodiversity requiring assessment under the NSW *Biodiversity Conservation Act 2016* (BC Act). Therefore, the application for development consent is to be accompanied by a Biodiversity Assessment Development Report (BDAR), prepared in accordance with the Biodiversity Assessment Method (DPIE 2020a) (the BAM).

Due to the relatively small area of vegetation clearance proposed for the project (0.47 ha), Firm Power can elect to prepare a 'streamlined assessment – small area module' BDAR in accordance with the BAM. This will avoid the need for targeted threatened species surveys, other than for species listed as at risk of Serious and Irreversible Impact (SAII) under the BAM. Targeted surveys must be undertaken for SAII species identified to have potential to occur within the site.

1.2.2 Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

Those species that are listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as having potential to occur within the site, based on the habitat present, must also be assessed for the project.

EMM Consulting Pty Ltd (EMM) prepared a biodiversity constraints advice letter (dated 14 May 2021) that confirmed the vegetation within the study area does not align with any EPBC Act listed threatened ecological communities (TECs), and that further work was required to reliably determine if any EPBC Act listed threatened species occur within the site and whether the project will result in a significant impact to these species.

1.3 Targeted survey requirements

1.3.1 NSW BC Act requirements

Based on the Plant Community Types (PCTs) mapped and EMM'S habitat assessment at the site, the SAII entities that have potential to occur and require targeted survey, as well as their required survey timing under the BAM, are listed in Table 1.1.

Table 1.1 SAII entities that require targeted survey, and BAM survey timing (grey shaded months)

Scientific name	Common name	BAM required survey month											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flora species													
Astrotricha crassifolia	Thick-leaf Star-hair												
Caladenia tessellata	Thick Lip Spider Orchid												
Diuris bracteata													
Fauna species													
Chalinolobus dwyeri	Large-eared Pied Bat												
Tyto tenebricosa	Sooty Owl												
Vespadelus troughtoni	Eastern Cave Bat												
Mixophyes balbus	Stuttering Frog												

A meeting was held with Firm Power to discuss the survey requirements and timing for the above listed species and, consequently, EMM provided a scope for habitat assessment for Sooty Owl and the two bat species as well as targeted survey for *Diuris bracteata,* so that the August-September timeframe was not missed.

EMM then contacted the Biodiversity Conservation Division (BCD) of the Department of Planning, Industry and Environment (DPIE) to obtain information on the flowering period of reference populations of all three flora species listed within Table 1.1. Reference populations are used to determine flowering of the target species in order to ensure targeted surveys are undertaken at the correct time.

Advice from the BCD and the subject matter expert indicated that late-August to early September was suitable for *Diuris bracteata.* The BCD are still gathering information from the species experts on Thick-leaf Stair-hair and Thick Lip Spider Orchid and have indicated more information will be provided in the first week of October 2021.

1.3.2 Commonwealth EPBC Act requirements

An EPBC Act Protected Matters Search Tool (PMST) report for the project (Appendix A) identifies species listed under the EPBC Act that have potential to occur within the site, comprising:

- 36 listed threated species; and
- 16 listed migratory species.

EMM has undertaken further analysis of the threatened flora species listed within the PMST, in order to target any flora species, where possible, during the same survey effort for *Diuris bracteata*. The EPBC Act listed flora species, an assessment of their likelihood of occurrence in the site and therefore need for survey, as well as their required survey timing (in accordance with BAM survey timing), is provided in Table 1.2.

Table 1.2 EPBC Act listed flora species, likelihood of occurrence based on habitat present, and survey timing (using BAM) (grey shaded months)

Scientific name	Common name	BAM required survey month												Likelihood of occurrence	Survey required?
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Acacia bynoeana	Bynoe's Wattle													Potential – records in locality, habitat suitable.	Yes
Angophora inopina	Charmhaven Apple													Potential – records in locality, habitat suitable.	Yes
Caladenia tessellata	Thick Lip Spider Orchid													Potential – habitat possibly suitable.	Yes
Cryptostylis hunteriana	Leafless Tongue-orchid													Potential – records in locality, habitat suitable.	Yes
Cynanchum elegans	White-flowered Wax Plant													Potential – records in locality, habitat suitable.	Yes
Euphrasia arguta														None – not known from region.	No
Grevillea parviflora subsp. parviflora	Small-flower Grevillea													Potential – records in locality, habitat suitable.	Yes
Melaleuca biconvexa	Biconvex Paperbark													Potential – records in locality, habitat possibly suitable (lower sections of site).	Yes
Persicaria elatior	Tall Knotweed													Potential – habitat possibly suitable (lower sections of site)	Yes
Rhizanthella slateri	Eastern Underground Orchid													Potential – habitat possibly suitable.	Yes
Rhodamnia rubescens	Scrub Turpentine													Potential – records in locality, habitat possibly suitable (lower sections of site).	Yes
Rhodomyrtus psidioides	Native Guava													None – habitat not suitable (occurs in littoral rainforest or wet sclerophyll forest)	No
Syzygium paniculatum	Magenta Lilly Pilly													None – habitat not suitable (occurs in littoral rainforest or wet sclerophyll forest	No
Tetratheca juncea	Black-eyed Susan													Potential – records in locality, habitat suitable.	Yes

This summary indicates that 11 flora species listed as threatened under the EPBC Act require further survey and assessment. Of these, only two species cannot be surveyed for during September (Leafless Tongue-orchid and Tall Knotweed).

2 Method

2.1 Microbats

Both the Large-eared Pied Bat and the Eastern Cave Bat are 'species credit species' under the BAM. This means they cannot be reliably predicted to occur on the site based on the vegetation and other landscape features alone. Further, impacts on breeding habitat of these species potentially constitutes a SAII. Therefore, at least some level of survey is required in accordance with *'Species credit' threatened bats and their habitats survey* (OEH 2018), based on the habitat within the site, with survey requirement growing in complexity if certain breeding habitat is found in proximity to the site.

The following survey methods were undertaken:

- broad landscape assessment, using aerial photo interpretation and Geographic Information System (GIS) within a 2 km buffer of the site, looking for rocky areas containing caves, overhangs, escarpments, outcrops, crevices, boulder piles, old mines, tunnels, old buildings or sheds; and
- a site inspection within the site and for a 100 m buffer of the site, for the above listed roosting features.

2.2 Sooty Owl

The Sooty Owl is a dual 'species/ecosystem credit species', where breeding habitat (both hollows and caves) must be considered, with impacts upon cave breeding habitat constituting an SAII.

Therefore, the following survey method was undertaken:

- a site inspection within the site and for a 100 m buffer of the site, for caves and hollow-bearing trees, containing hollows larger than 20 cm diameter.

2.3 Targeted flora

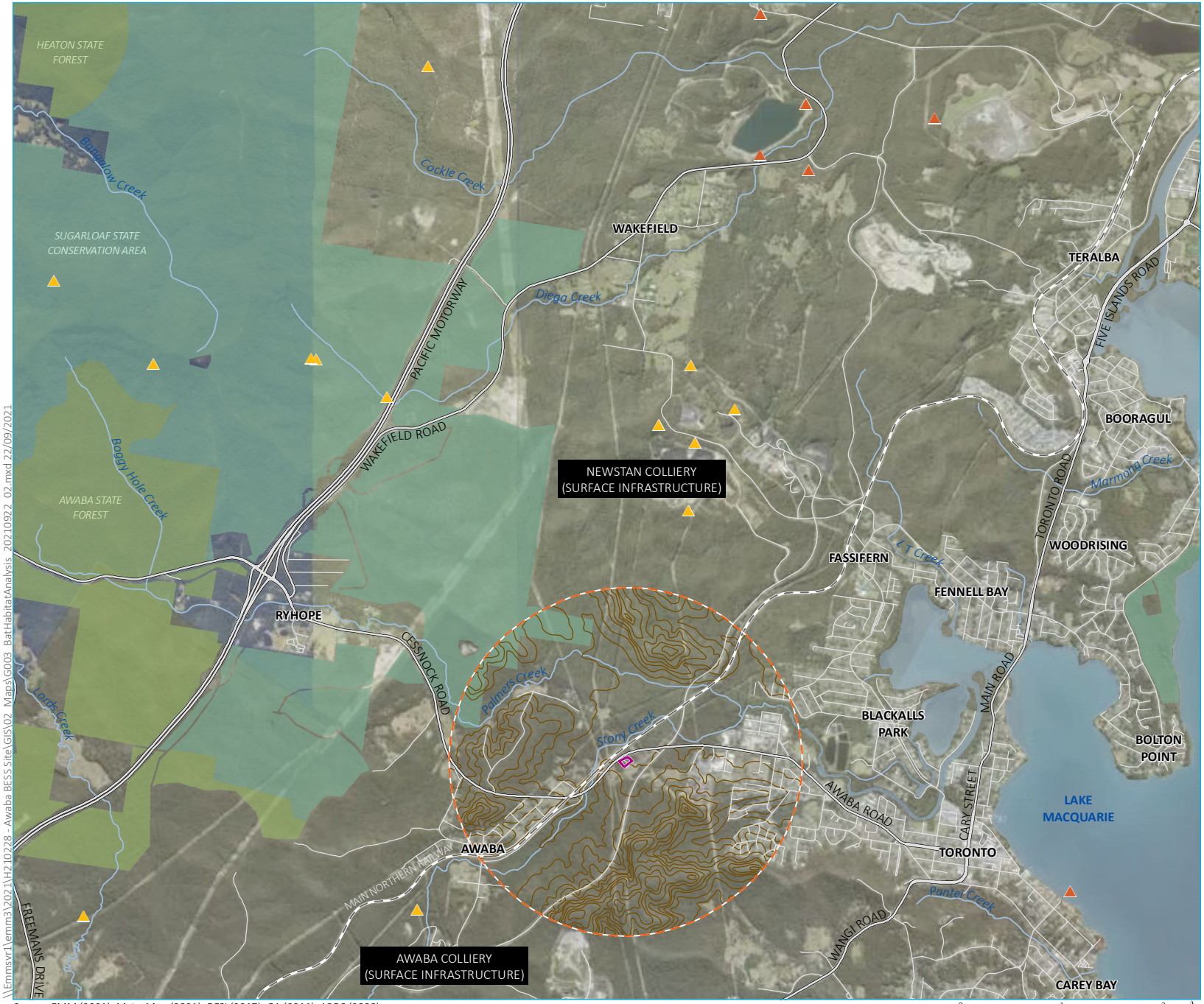
The targeted flora surveys for *Diuris bracteata*, plus the EPBC Act listed flora species considered as having potential to occur (Table 1.2), comprised the following survey method:

- parallel field traverse survey across the site, with two ecologists searching along a grid of 5 m spaced parallel traverses, across areas of suitable habitat, in accordance with *Surveying threatened plants and their habitat: NSW survey guide for the Biodiversity Assessment Method* (DPIE 2020b). Traverses were recorded on a GPS.

3 Results

3.1 Microbats

The desktop analysis did not detect any caves, overhangs, escarpments or outcrops within 2 km of the site. However, Lake Macquarie has a history of coal mining, and there are two historical underground coal mines in proximity to the site; namely the Newstan Colliery and the Awaba Colliery; whose underground workings may intersect the 2 km buffer (Figure 3.1). Therefore, it is possible that there are old ventilation shafts and mine adits which have suitable openings for bats within the area that are unable to be detected via GIS analysis. There are no records of the Large-eared Pied Bat or Eastern Cave Bat within a 2 km buffer of the site. There are numerous records of the Large-eared Pied Bat, and six records of the Eastern Cave Bat, within the broader locality of the site (Figure 3.1).



KEY

- Study area
- Study area 2 km buffer
- 10 m contours within 2km

BioNet record

- Eastern Cave Bat
- Large-eared Pied Bat

Existing environment

- Rail line
- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

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Source: EMM (2021); MetroMap (2021); DFSI (2017); GA (2011); ASGC (2006)

0 1 2 km

GDA 1994 MGA Zone 56

N

Bat habitat analysis

Awaba Battery Energy Storage System (BESS)
Habitat Assessment and Targeted Flora Surveys
Figure 3.1

EMM
creating opportunities

The onsite habitat assessment detected two culverts in proximity to the site, one located approximately 120 m to the north-east of the site and under the rail line (Figure 3.2 and Photograph 3.1), and a small drainage culvert approximately 30 m to the east of the existing substation (Figure 3.2 and Photograph 3.2). No bats were observed to be roosting in the culverts, and habitat was considered to be unsuitable, due to the absence of cracks to hide in (the rail line culvert) and smooth rounded surface with no shelter (the drainage culvert).

Photograph 3.1 Culvert under the rail line

Photograph 3.2 Small culvert east of the existing substation

The existing sub-station brick building and storage containers (Figure 3.2 and Photograph 3.3) were inspected (from the outside) and considered unsuitable as roosting or breeding habitat for the two species.

Photograph 3.3 Storage containers and substation buildings

No other suitable roosting or breeding habitat for the Large-eared Pied Bat or Eastern Cave Bat were recorded within 100 m of the site.

3.2 Sooty Owl

No caves or hollows suitable for Sooty Owl breeding were detected within 100 m of the site.

3.3 Targeted flora

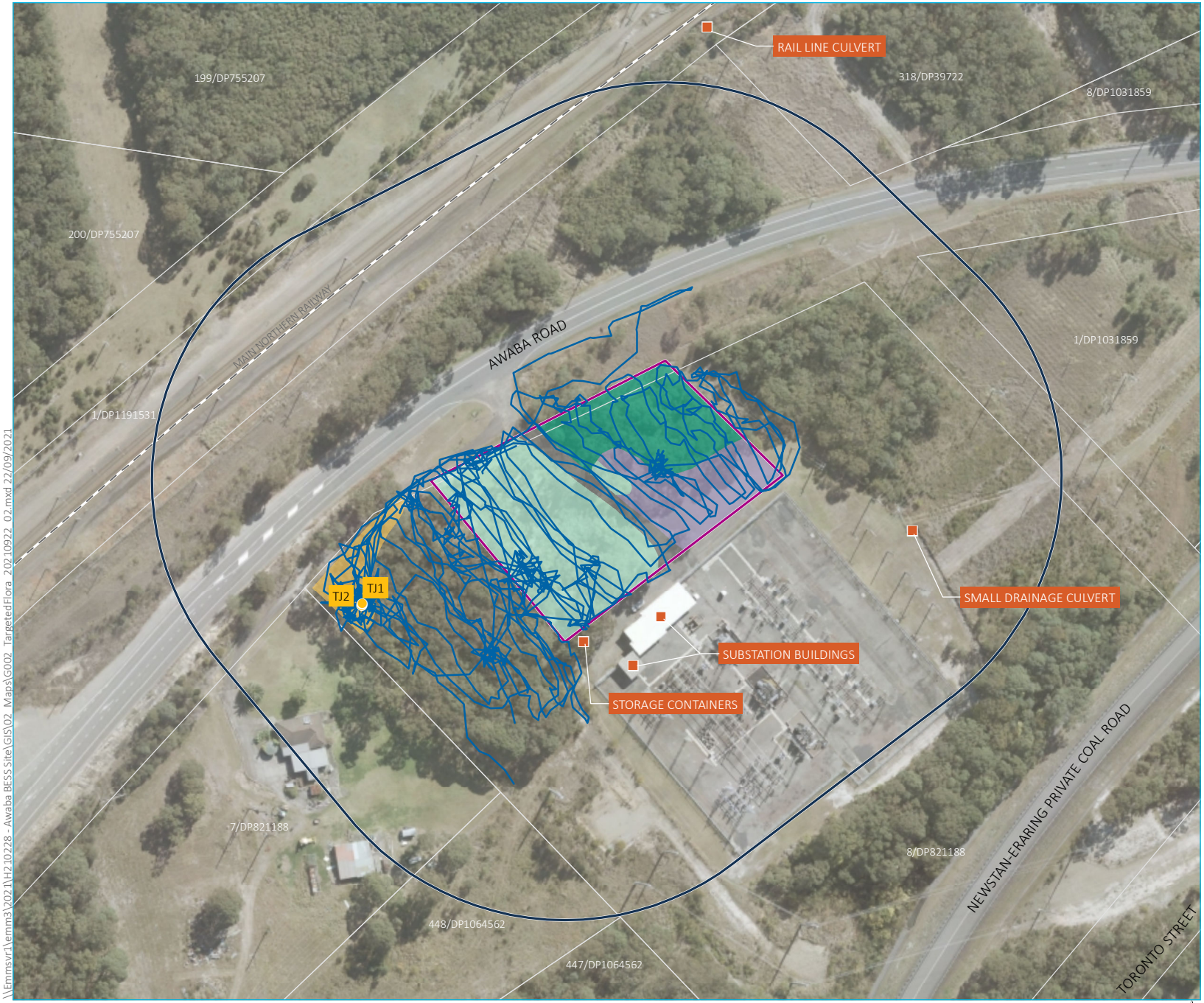
Targeted flora tracks are shown on Figure 3.2.

The SAII species *Diuris bracteata* was not detected on or adjacent to the site. The two other SAII flora species requiring consideration, Thick-lip Spider Orchid and Thick-leaf Star-hair, were also not detected on or adjacent to the site, noting that the BCD are yet to send updates on the flowering of applicable reference sites for these two species.

No EPBC Act listed flora species were recorded on the site.

Two Black-eyed Susan (*Tetratheca juncea*) plants, listed under the BC Act (but not as entities at risk of SAII) and under the EPBC Act (vulnerable listing), were recorded approximately 40 m to the south-west of the site (Figure 3.2).

Photograph 3.4 Black-eyed Susan (*Tetratheca juncea)* recorded to the south-west of the site



KEY

- Study area
- Habitat assessment area
- Targeted flora transect
- Rail line
- Cadastral boundary
- Culverts and buildings inspected for roosting bats
- *Tetratheca juncea*
- *Tetratheca juncea* habitat

Vegetation mapping and condition

- Exotic grassland
- Cleared

PCT 1627 Smooth-barked Apple - Turpentine - Sydney Peppermint heathy woodland on sandstone ranges of the Central Coast

- High
- Maintained understorey

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Source: EMM (2021); MetroMap (2021); DFSI (2017); GA (2011)

0 25 50 m

GDA 1994 MGA Zone 56

N

Habitat assessment and targeted flora results

Awaba Battery Energy Storage System (BESS)
Habitat Assessment and Targeted Flora Surveys
Figure 3.2

EMM
creating opportunities

4 Discussion and next steps

4.1 Microbats

As no breeding habitat for Large-eared Pied Bat and the Eastern Cave Bat was detected within the site, or within a 100 m buffer of the site, the project will not result in any impacts to breeding habitat for either species. Therefore, the project will not result in a SAII to either species.

As there are records of the Large-eared Pied Bat and the Eastern Cave Bat in the locality, as well as the possibility of ventilation shafts associated with the historical coal mining within 2 km of the site, it is hard to rule these species out from foraging at the site. In this case, all suitable foraging habitat on the subject land must be mapped as a species polygon (aligning with the PCTs on the site which the species are associated with), resulting in an offset liability for both species, as shown in Table 4.1. The table also includes the PCT offset liability.

Table 4.1 Indicative credit requirements and price (payment into the BCT)

	Area (ha)	No. credits required to be offset	Price per credit (payment into the BCT)*	Total price (ex GST)
1627- Smooth-barked Apple – Turpentine - Sydney Peppermint heathy woodland on sandstone ranges of the Central Coast	0.47	9	$5,562.48	$50,062.30
Large-eared Pied Bat	0.47	18	$974.69	$17,544.42
Eastern Cave Bat	0.47	18	$974.69	$17,544.42
Subtotal (excl. GST)				$85,151.14
Grand total (incl. GST)				**$93,666.25**

Notes: * This includes dynamic coefficient, market coefficient, risk premium, administration cost and methodology adjustment factor, as calculated by the NSW Department of Planning, Industry and the Environment (DPIE). Price per credit is based upon the price given at the time of the BAM calculator output and can change, with updates to price currently being made by the BCT on a 3-monthly basis. As the market matures, prices may increase. More competitive credit prices may be sought from the market.

It is possible that Firm Power could remove the offset liability resulting from the foraging habitat, if a mine working plan for the area was obtained, to potentially rule out ventilation shafts within 2 km. Firm Power would need to weigh up the effort involved, versus the offset liability for foraging habitat of both species, and also the likelihood of the ventilation shafts being within 2 km.

In addition, EMM has sent a request to the BCD, to confirm if foraging habitat is required to be considered at all, as the SAII relates to the breeding habitat only (which is not in, or within 100 m of the site). If foraging habitat does not need to be considered (due to it not being the component at risk of SAII), then the offset cost in the above table may not apply for the two bat species. EMM will advise when we hear from the BCD on this matter.

As an aside, EMM's Environmental Community and Approvals (ECAD) team have highlighted that the approval process may require Firm Power to consult with the mine subsidence board to understand depth to workings and potential constraints to the development application.

4.2 Sooty Owl

As no caves or hollows suitable for Sooty Owl breeding were detected within 100 m of the site, this species can be ruled out from any further consideration.

4.3 Stuttering Frog

The site survey allowed EMM to consider the lower lying areas of the site and its suitability as Stuttering Frog habitat. EMM has concluded the habitat is not suitable to this species, therefore can be ruled out from any further consideration.

4.4 Targeted flora

4.4.1 BC Act listed flora species

The survey for SAII species, resulted in the following:

- *Diuris bracteata* surveys are considered adequate and the species has been ruled out from any further consideration; and
- Thick-leaf Stair-hair and Thick Lip Spider Orchid were not detected; however, EMM are awaiting further advice on from the BCD on both species (early October), and a second survey effort may be required, based on the advice received.

Black-eyed Susan is not listed as a species at risk of a SAII; however, it must be considered if detected on the site. Under the BAM, a species polygon must be drawn, as shown in Figure 3.2. As the species polygon does not occur within the site, there is no requirement for offsets under the BC Act. Any potential indirect impacts to the species, resulting from construction of the project, must be managed as part of a Construction, Environmental Management Plan (CEMP). The operation of the project is unlikely to indirectly impact this species, considering the existing substation at the site.

4.4.2 EPBC Act listed flora species

The targeted flora survey timing was suitable for the majority of the EPBC Act listed flora species listed as requiring survey in Table 1.2, and therefore they have been ruled out from any further consideration, with the exception of:

- Leafless Tongue-orchid, which requires survey in November to December. EMM is monitoring the flowering of a local refence population of this species for another local project. We suggest a targeted survey during November to December, when the reference population flowers; and
- Tall Knotweed, which requires targeted survey from December to May.

Black-eyed Susan is listed as vulnerable under the EPBC Act, therefore, the development application must consider if the project will have a significant impact upon the species, in accordance with:

- *Matters of National Environmental Significance – Significant Impact Guidelines 1.1* (DoE 2013); and
- *EPBC Act Referral guidelines for the vulnerable Black-eyed Susan, Tetratheca juncea* (DSEWPaC 2011).

Any action that is considered significant must be referred to the commonwealth Department of Agriculture, Water and the Environment (DAWE). Based on a high-level review against DSEWPaC (2011), given the distance of the project from the identified Black-eyed Susan plants (>40 m) it is considered the project would have a low risk of significant impact on the species, and referral is unlikely to be required.

Based on surveys undertaken to date, referral of the project to the Commonwealth is not warranted. However, further surveys are required. If these surveys identify presence of EPBC Act listed flora species on the site referral of the project to the Commonwealth may be required. This will be considered following completion of additional survey work.

5 Recommendations

The following tasks have not yet been undertaken and are required for the project:

- analysis of the likelihood of occurrence of the fauna species listed in the PMST report (Appendix A), and survey or assumed presence (if required);
- targeted survey for SAII BAM candidate species Thick-leaf Stair-hair and Thick Lip Spider Orchid (upon confirmation from BCD on flowering of reference populations) or assumed presence (with offset liability);
- targeted survey for EPBC Act listed species Leafless Tongue Orchid (November) and Tall Knotweed (same time as Stuttering Frog);
- one more BAM vegetation integrity plot in the higher quality PCT 1627 (only one plot was undertaken for the constraints assessment). This additional plot may change the credit requirement, so it is recommended to do this to confirm final credit requirements for the PCT;
- once all targeted surveys are completed, preparation of the streamlined assessment – small area module BDAR, in accordance with the BAM, for submission with the development application;
- the BDAR should include a section that provides an assessment of the project impacts (if any) on EPBC Act listed Matters of National Environmental Significance (MNES) that have the potential to be impacted by the project, including Black-eyed Susan;
- based on a high-level review against DSEWPaC (2011), given the distance of the project from the identified Black-eyed Susan plants (>40 m) it is considered the project would have a low risk of significant impact on the species, and referral is unlikely for impact to this species; and
- if additional surveys identify presence of EPBC Act listed species on the site, referral of the project to the Commonwealth may be required. This will be considered following completion of additional survey work.

6 Closing

If you have any questions, please do not hesitate to contact me.

Yours sincerely,

Erin Lowe
Senior Ecologist
elowe@emmconsulting.com.au

References

DoE 2013, Matters of National Environmental Significance – Significant Impact Guidelines 1.1, Commonwealth Department of Environment.

DPIE 2020a, Biodiversity Assessment Method, NSW Department of Planning, Industry and Environment.

DPIE 2020b, Surveying threatened plants and their habitat: NSW survey guide for the Biodiversity Assessment Method, NSW Department of Planning, Industry and Environment.

DSEWPaC 2011, EPBC Act Referral guidelines for the vulnerable Black-eyed Susan, Tetratheca juncea, Australian Government Department of Sustainability, Environment, Water, Population and Communities.

OEH 2018, 'Species credit' threatened bats and their habitats survey, NSW Office of Environment and Heritage.

Appendix A

EPBC Act PMST report

Australian Government

Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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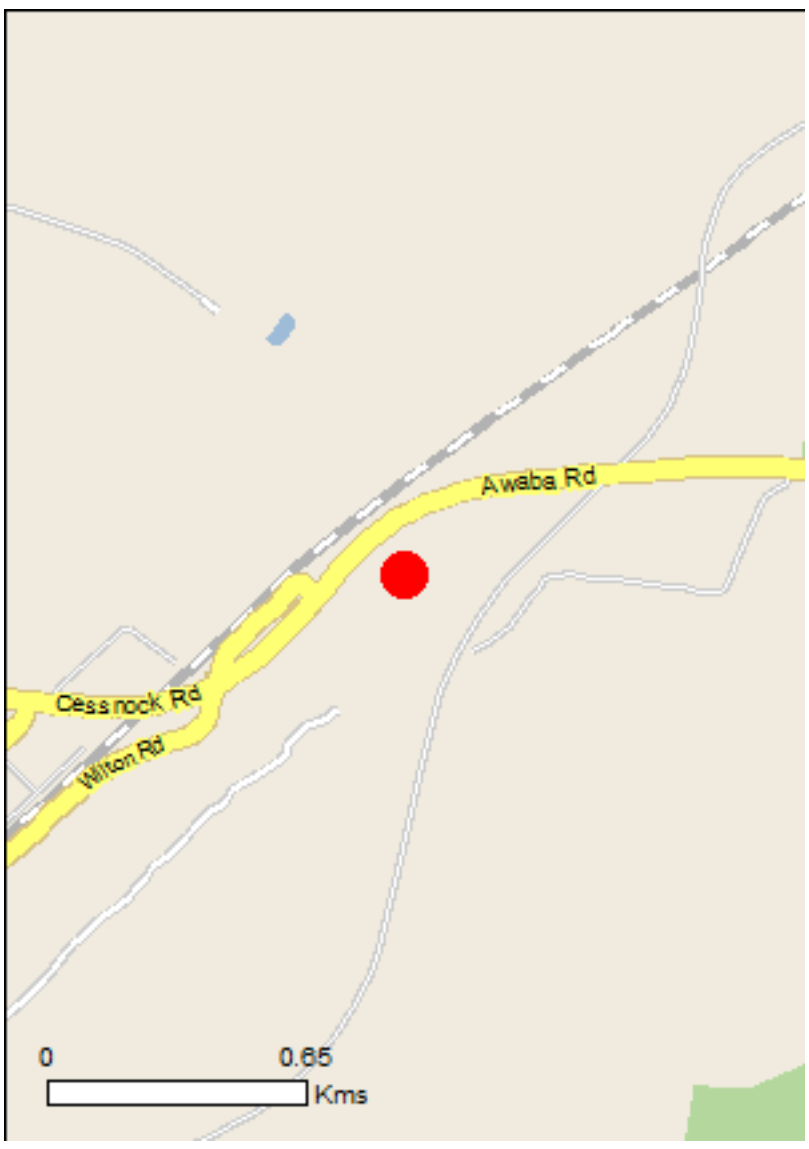
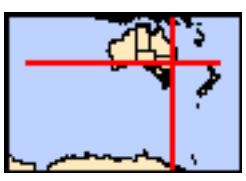


Coordinates

Buffer: 0.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	36
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	21
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	1
Invasive Species:	39
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Thinornis cucullatus cucullatus Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat may occur within area
Frogs		
Heleioporus australiacus Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat may occur within area
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Plants		
Acacia bynoeana Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat likely to occur within area
Angophora inopina Charmhaven Apple [64832]	Vulnerable	Species or species habitat likely to occur within area
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area
Euphrasia arguta [4325]	Critically Endangered	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Grevillea parviflora subsp. parviflora Small-flower Grevillea [64910]	Vulnerable	Species or species habitat likely to occur within area
Melaleuca biconvexa Biconvex Paperbark [5583]	Vulnerable	Species or species habitat may occur within area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat likely to occur within area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat likely to occur within area
Tetratheca juncea Black-eyed Susan [21407]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		

Name	Threatened	Type of Presence
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Thinornis rubricollis rubricollis Hooded Plover (eastern) [66726]	Vulnerable*	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Feral deer		
Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis		
Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus		
House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus		
Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus		
Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus		
Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes		
Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides		
Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia		
Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus		
Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides		
Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera		
Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera		
Boneseed [16905]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata		
Bitou Bush [16332]		Species or species habitat likely to occur within area
Cytisus scoparius		
Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Eichhornia crassipes		
Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista monspessulana		
Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana		
Broom [67538]		Species or species habitat may occur within area

Name	Status	Type of Presence
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-33.00542 151.55682

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

Department of Agriculture Water and the Environment
GPO Box 858
Canberra City ACT 2601 Australia
+61 2 6274 1111

APPENDIX C

LOCAL COMMUNITY ENGAGEMENT LETTER

FIRM POWER
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Wednesday, October 27, 2021

Dear Resident,

A BATTERY ENERGY STORAGE SYSTEM PROPOSAL FOR MUSWELLBROOK

We last wrote to you on 22 September 2021 about the above proposed project.

Firm Power is planning to build a Battery Energy Storage System BESS in Muswellbrook, on approximately 2.5 hectares of land located at 20-24 Sandy Creek Road adjacent to the existing Ausgrid Muswellbrook Substation. Following a review of project constraints and in consultation with Ausgrid, the initial capacity of the BESS system has changed from 100 megawatt (MW) to 150 MW. The BESS will be used to store and provide power to the local energy grid. The proposed facility now has a BESS investigation area approximately 1.3 hectares larger than the original footprint.

A representative of Firm Power visited today to discuss the project with you; sorry we missed you.

We visited to make sure that you received our first letter and to confirm that you understand how to get in touch with us about the project.

Since we last wrote to you, we have met with the Department Planning, Industry and Environment have agreed that the project is a State Significant Project and that we can proceed to prepare a scoping report.

We are targeting issuing the scoping report to the Department in early November. The scoping report supports a request for the Secretary's Environmental Assessment Requirements (SEARs), which will specify what approvals are required for this proposal. The Department will publish the SEARs on their website once they have reviewed our request.

When the SEARs have been received, we will hold information sessions for the local community where you will be able to talk to members of our team, ask questions and provide your feedback.

In the meantime, if you have any questions or wish to provide feedback, please do not hesitate to contact us. You can contact us on 1800 749 338, by email at muswellbrook@firmpower.com.au or visit our website at https://www.firmpower.com.au/muswellbrook.

We understand the importance of keeping the local community informed and we look forward to talking to you more about this exciting project.

Kind Regards,

NRose

Nick Rose
GENERAL MANAGER

Suite 6, Level 6, 201 Kent St Sydney NSW 2000
W www.firmpower.com.au
E info@firmpower.com.au

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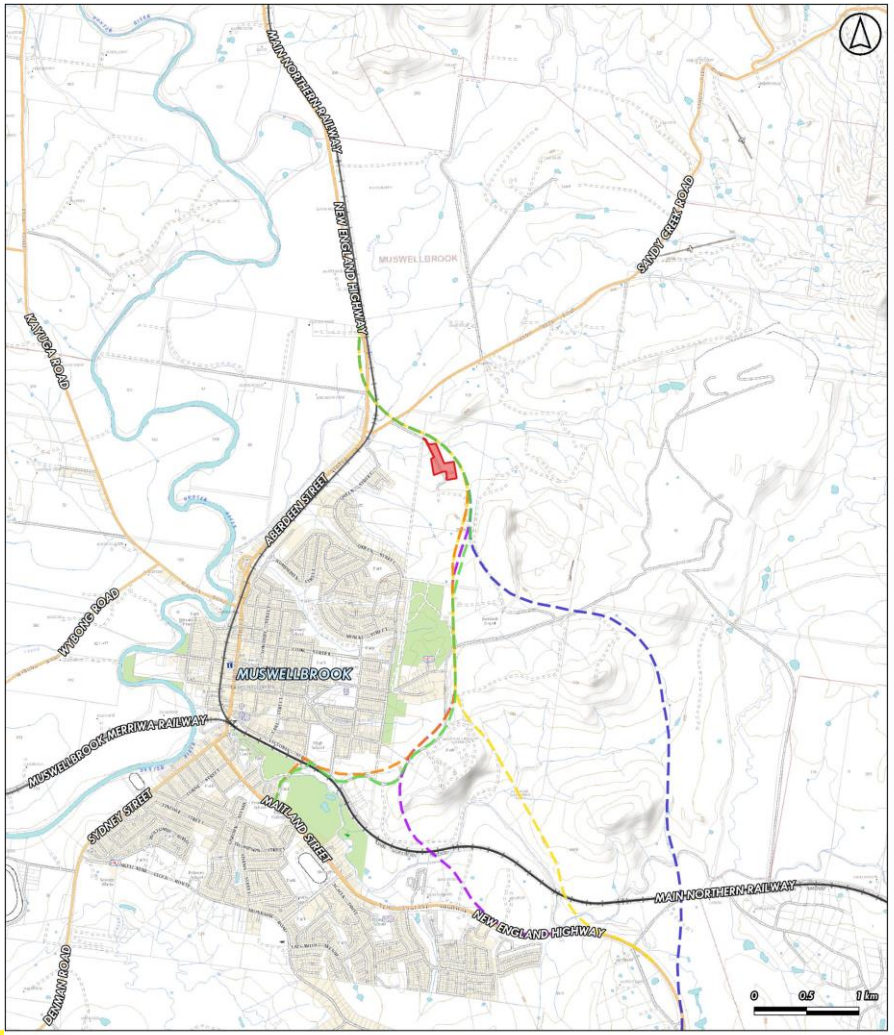

LEGEND

- BESS Development Site
- Proposed Bypass Route
- Proposed Bypass Route
- Proposed Bypass Route
- Proposed Bypass Route
- Proposed Bypass Route

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Wednesday, September 22, 2021

Dear Resident,

A BATTERY ENERGY STORAGE SYSTEM PROPOSAL FOR AWABA

We are writing to tell you about a proposal for a Battery Energy Storage System (BESS) in your local area that is being developed by Firm Power.

Firm Power is an Australian owned grid flexibility company dedicated to delivering solutions that provide stability to a clean energy driven power system. Firm Power is committed to ensuring that energy supply and demand can be dynamically balanced, creating a more flexible electricity grid and allowing for continued renewable energy integration and power price reduction. Firm Power aim to ensure that their projects benefit the community, the environment and the economy.

Firm Power is proposing to build a Battery Energy Storage System BESS in Awaba, on approximately 0.5 hectares of land located at 12 Toronto Street adjacent to the existing Ausgrid Awaba Substation. The proposed BESS System includes a 50-megawatt (MW) stand-alone battery that will be used to store and provide power to the local energy grid.

The proposal is in the early stages and we want to work closely with the community as we develop this important project. As we progress through each stage of local and state government approval processes, we will provide more detailed information about the project and invite you to ask questions and provide feedback on the proposal.

We will soon be making a request to the Department of Planning, Industry and Environment for the Secretary's Environmental Assessment Requirements (SEARs), which will specify what approvals are required for this proposal. The Department will publish the SEARs on their website once they have reviewed our request.

When the SEARs have been received, we will hold information sessions for the local community where you will be able to talk to members of our team, ask questions and provide your feedback.

In the meantime, you can contact us on 1800 268 475 by email at awaba@firmpower.com.au or visit our website at https://www.firmpower.com.au/awaba.

We understand the importance of keeping the local community informed and we look forward to talking to you more about this exciting project.

Kind Regards,

NRose

Nick Rose
GENERAL MANAGER

Suite 6, Level 6, 201 Kent St Sydney NSW 2000
W www.firmpower.com.au
E info@firmpower.com.au

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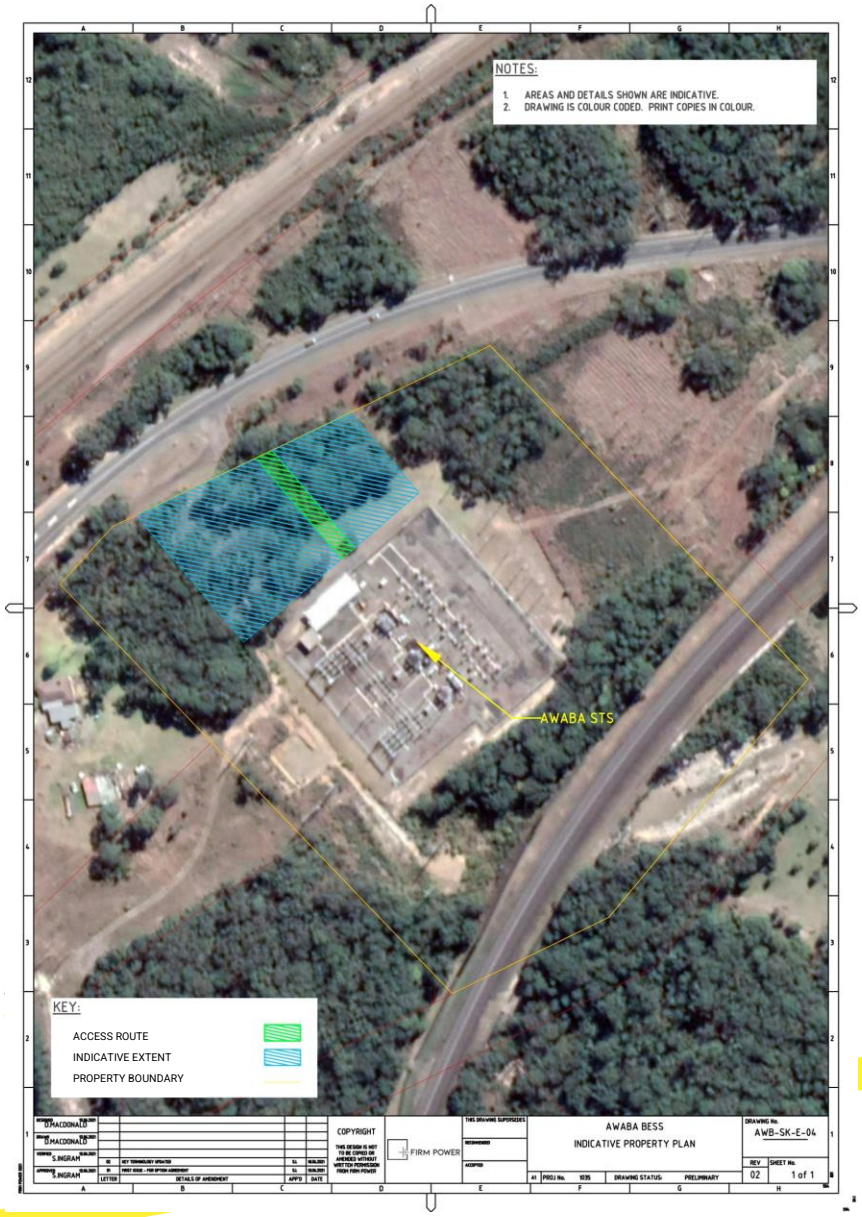

LEGEND

BESS Development Site

APPENDIX D

REGULATORY BODY AND COMMUNITY GROUP ENGAGEMENT LETTERS

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Friday, September 24, 2021

To whom it may concern,

A BATTERY ENERGY STORAGE SYSTEM PROPOSAL FOR AWABA

We are writing to tell you about a proposal for a Battery Energy Storage System (BESS) that is being developed by Firm Power.

Firm Power is an Australian owned grid flexibility company dedicated to delivering solutions that provide stability to a clean energy driven power system. Firm Power is committed to ensuring that energy supply and demand can be dynamically balanced, creating a more flexible electricity grid and allowing for continued renewable energy integration and power price reduction. Firm Power aim to ensure that their projects benefit the community, the environment and the economy.

Firm Power is proposing to build a Battery Energy Storage System (BESS) in Awaba, on approximately 0.5 hectares of land located at 12 Toronto Street adjacent to the existing Ausgrid Awaba Substation. The proposed BESS System includes a 50-megawatt (MW) stand-alone battery that will be used to store and provide power to the local energy grid. The indicative extent of the development is located to the North-west of the existing Ausgrid Awaba Substation.

The proposal is in the early stages and we want to work closely with you as we develop this important project.

We will soon be making a request to the Department of Planning, Industry and Environment for the Secretary's Environmental Assessment Requirements (SEARs), which will specify what approvals are required for this proposal. The Department will publish the SEARs on their website once they have reviewed our request.

When the SEARs have been received, further engagement with key stakeholders will occur.

If you have any comments regarding this project, please respond in writing to awaba@firmpower.com.au.

Kind Regards,

NRose

Nick Rose
GENERAL MANAGER

Suite 6, Level 6, 201 Kent St Sydney NSW 2000
W www.firmpower.com.au
E info@firmpower.com.au

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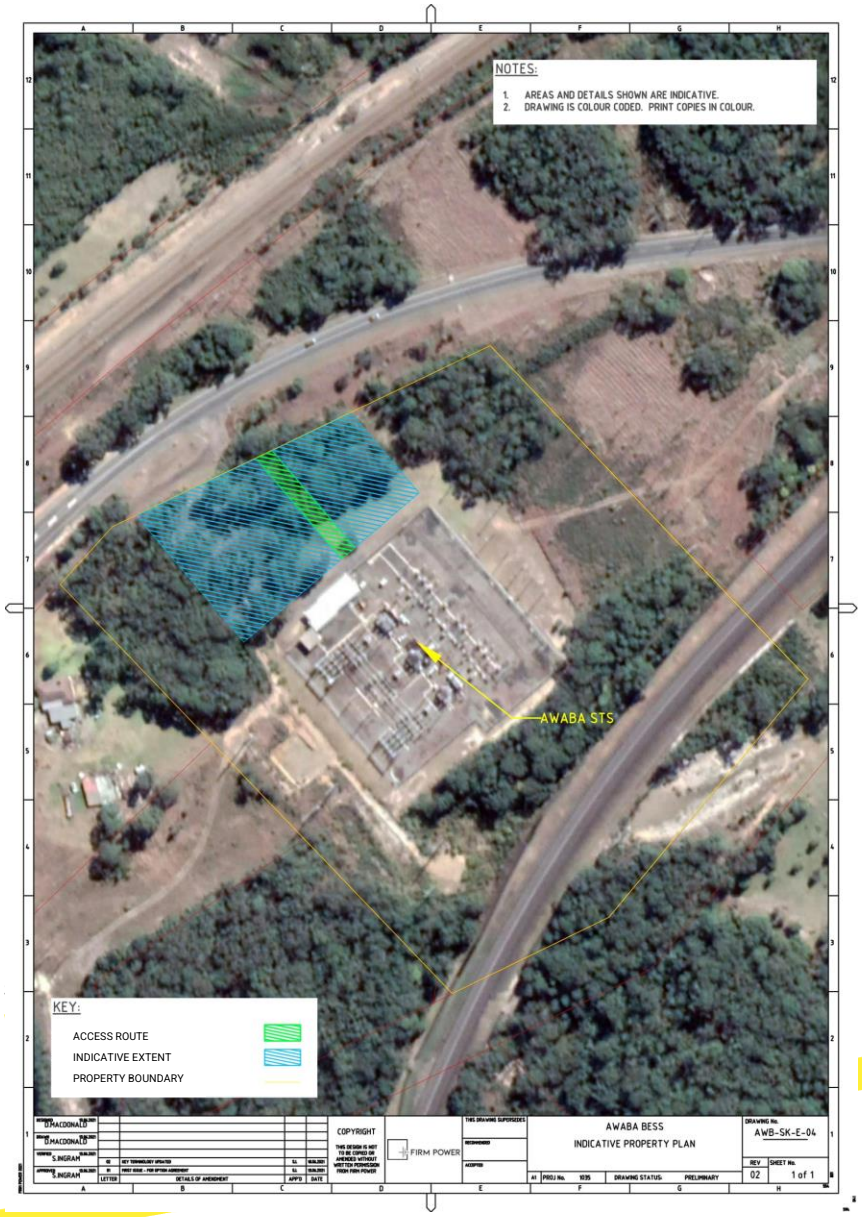

FIRM POWER
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Friday, September 24, 2021

To whom it may concern,

A BATTERY ENERGY STORAGE SYSTEM PROPOSAL FOR AWABA

We are writing to tell you about a proposal for a Battery Energy Storage System (BESS) that is being developed by Firm Power.

Firm Power is an Australian owned grid flexibility company dedicated to delivering solutions that provide stability to a clean energy driven power system. Firm Power is committed to ensuring that energy supply and demand can be dynamically balanced, creating a more flexible electricity grid and allowing for continued renewable energy integration and power price reduction. Firm Power aim to ensure that their projects benefit the community, the environment and the economy.

Firm Power is proposing to build a Battery Energy Storage System (BESS) in Awaba, on approximately 0.5 hectares of land located at 12 Toronto Street adjacent to the existing Ausgrid Awaba Substation. The proposed BESS System includes a 50-megawatt (MW) stand-alone battery that will be used to store and provide power to the local energy grid.

A review of the DPIE Water Management (General) Regulation 2018-hydroline spatial data has identified that the proposed development is situated on land containing mapped watercourses (Strahler 2nd Order). The site is also within proximity of several other tributaries of Stony Creek. Stony Creek transects Cessnock Road to the south-west and runs eastward along the northern side of Awaba Road. Tributaries surrounding the development generally flow north before turning eastwards to connect to Stony Creek.

The indicative extent of the development is located to the North-west of the existing Ausgrid Awaba Substation. Although the project is state significant development (SSD) and therefore not subject to requirements of a CAA, it should be noted that development is not anticipated to result in any significant impacts to surface or ground water.

The proposal is in the early stages and we want to work closely with NRAR as we develop this important project.

We will soon be making a request to the Department of Planning, Industry and Environment for the Secretary's Environmental Assessment Requirements (SEARs), which will specify what approvals are required for this proposal. The Department will publish the SEARs on their website once they have reviewed our request.

When the SEARs have been received, further engagement with key stakeholders will occur.

If you have any comments regarding this project, please respond in writing to awaba@firmpower.com.au.

Kind Regards,

NRose

Nick Rose
GENERAL MANAGER

Suite 6, Level 6, 201 Kent St Sydney NSW 2000
W www.firmpower.com.au
E info@firmpower.com.au

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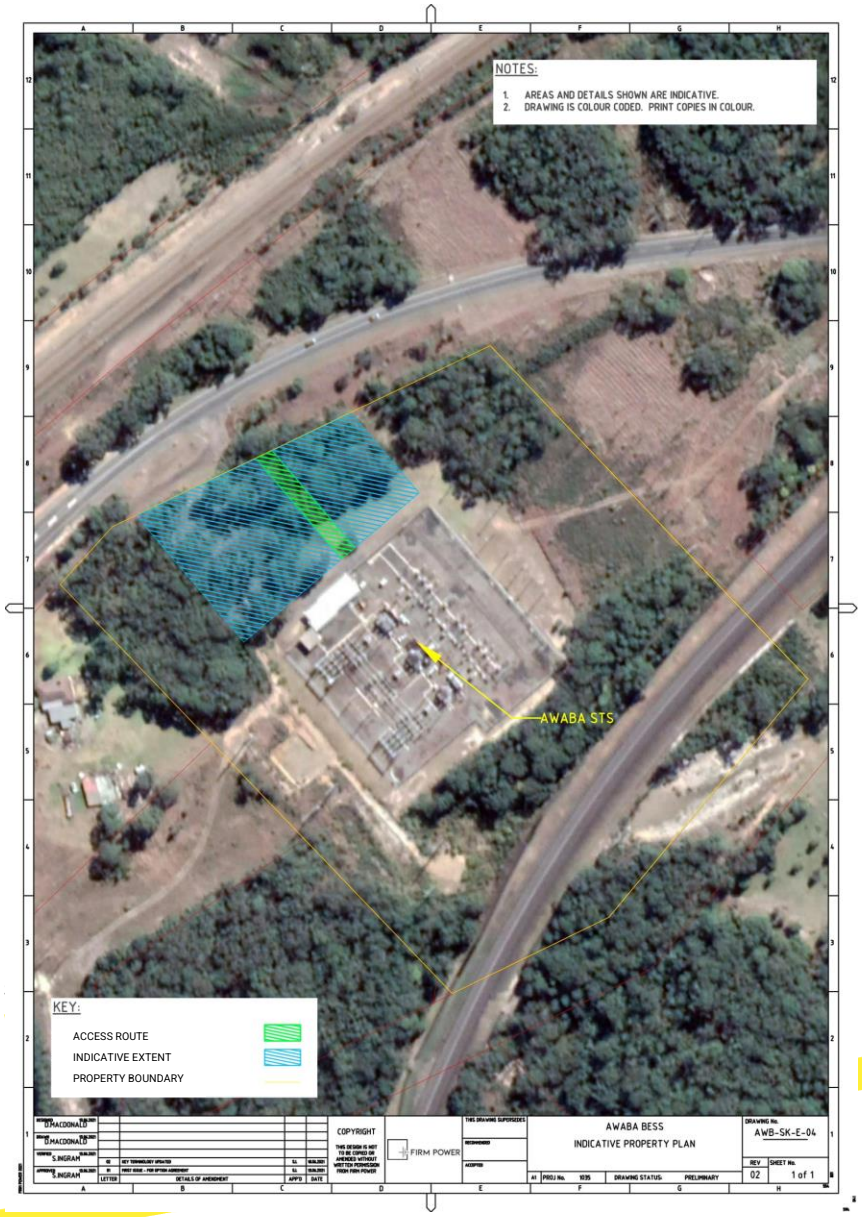

LEGEND

BESS Development Site

APPENDIX E

ENGAGEMENT REGISTER

Community Groups and Regulators

Name	Email	Phone Number	Reason for Engagement	Send Date	Format
Head OFFICE NSW ALC	workplace@alc.org.au	0296894444	Within LALC area	27/09/2021	Email
Biraban Local Aboriginal Land Council	ceo@birabanlalc.com.au	02 4950 4806	Within LALC area	27/09/2021	Email
RFS NSW (General Enquiries)	webmaster@rfs.nsw.gov.au		Proximity to bushfire prone land.	27/09/2021	Email
RFS NSW (Planning and Environment Services Service)	customerservice.centre@rfs.nsw.gov.au	1300679737	Proximity to bushfire prone land.	27/09/2021	Email
Fire and Rescue NSW (General enquiries)	info@fire.nsw.gov.au	0292652999	Proximity to bushfire prone land.	27/09/2021	Email
Fire and Rescue NSW Advised Department	firesafety@fire.nsw.gov.au		Proximity to bushfire prone land.	27/09/2021	Email
TfNSW Advised Department	development.sydney@transport.nsw.gov.au		Potential to impact transport Network.	27/09/2021	Email
Natural Resource Access Regulator (NRAR)	landuse.enquiries@dpie.nsw.gov.au		Proximity to waterfront land.	28/09/2021	Email
DPI (Fisheries) (General Enquiries)	information-advisory@dpi.nsw.gov.au	1300550474	Proximity of mapped key fish habitat.	27/09/2021	Email
DPI (Fisheries) 2 (Port Stephens Fisheries Institute)	(called 24/09,27/09 and 28/09)	02 4982 1232	Proximity of mapped key fish habitat.	-	-
Environmental Protection Authority (EPA) NSW	info@epa.nsw.gov.au		Due Diligence. No real requirements. BESS projects do not constitute licensed works.	27/09/2021	Email
Landcare groups (council advised)	lro@lakemac.nsw.gov.au		Council Advised	27/09/2021	Email
Landcare groups	hunterregionlandcare@gmail.com		Local Group with interest in environment	27/09/2021	Email
Hunter Community Environment Centre	coordinator@hcec.org.au	0249625316	Local Community Identified via Nature Conservation Council	27/09/2021	Email
Wilderness Society	info@wilderness.org.au		Local Community Identified via Nature Conservation Council	27/09/2021	Email
Sustainable Neighbourhood Alliance/Group	admin@sustainableneighbourhoods.org.au		Council Advised	27/09/2021	Email
Coal Point Progress Association	cppa.hall.bookings@gmail.com	0438596741	Council Advised	27/09/2021	Email
Dora Creek Community Hall group	dora.creek.hall@gmail.com		Council Advised	27/09/2021	Email
Hunter Environmental Institute (HEI)	hunterenvironstitute@gmail.com		Regional Group with interest in environment	29/09/2021	Email
Hunter Environmental Institute (HEI) 2 cc'd	huntercentralcoast@environment.nsw.gov.au		Regional Group with interest in environment	29/09/2021	Email
Transition Newcastle	info@transitionnewcastle.org.au		Local Community Identified via Nature Conservation Council	29/09/2021	Email

Local non-associated landowners

Receptor	Type	Direction	Distance from Site (m)	Address	Locality	Send Date	Send Format
1	Dwelling	South West	50	364 AWABA ROAD	AWABA	22/09/2021	Post
2	Dwelling	South East	170	7 FASSIFERN ROAD	AWABA	22/09/2021	Post
3	Dwelling	East	280	17 TORONTO STREET	TORONTO	22/09/2021	Post
4	Dwelling	West	400	35 KILABEN STREET	AWABA	22/09/2021	Post
5	Dwelling	North West	500	72 CRANFORD ROAD	AWABA	22/09/2021	Post
6	Dwelling	West	530	25 KILABEN STREET	AWABA	22/09/2021	Post
7	Dwelling	North West	580	71 CRANFORD ROAD	AWABA	22/09/2021	Post
8	Dwelling	South West	610	12 KILABEN STREET	AWABA	22/09/2021	Post

APPENDIX F

COUNCIL CORRESPONDENCE

David Walker

From: Bryn Hernandez <[redacted]>
Sent: Wednesday, 28 July 2021 5:52 PM
To: nick@firmpower.com.au
Subject: Battery Project - Awaba

Hi Nick,

Reaching out on behalf of LMCC, based on your initial e-mail to Thomasen. As my e-mail to Thomasen (below) suggests; I think one we have spoken it makes sense to bring in our planning team to ensure that you are receiving the right feedback and advice from Council for your project.

Perhaps we could look at lining something up next week?

Kind Regards
Bryn

Bryn Hernandez
Senior Asset Optimisation Officer – Asset Improvement

LAKE MACQUARIE CITY

T [redacted]
E [redacted]
lakemac.com.au

From: Thomasen Knight
Sent: Wednesday, 28 July 2021 4:07 PM
To: Bryn Hernandez <bhernandez@lakemac.nsw.gov.au>
Subject: RE: Battery Project - Awaba

Excellent, thanks Bryn 😊.

Thomasen Knight
Sustainability Engagement Off

LAKE MACQUARIE CITY

T [redacted]
E [redacted]
lakemac.com.au

From: Bryn Hernandez
Sent: Wednesday, 28 July 2021 12:21 PM
To: Thomasen Knight <[redacted]>
Cc: Daniel Hartin <[redacted]>; Kerry Brown <[redacted]>; Chris Harle [redacted]
Subject: Re: Battery Project - Awaba

Thanks Thomasen,

I'll probably bring in someone from DAC as well once initial contact has been made.

We will own the action to get in touch with Nick.

Cheers
Bryn

Sent from my iPhone

Bryn Hernandez
Senior Asset Optimisation Officer – Asset Improvement
T [redacted]
E [redacted]
lakemac.com.au

On 28 Jul 2021, at 10:07 am, Thomasen Knight <[redacted]> wrote:

Hi Bryn and Daniel,

Please see email below re large scale battery project being developed in our LGA. Probably best for your team to make first contact?

Cheers,
Thom

Thomasen Knight
Sustainability Engagement Off
T [redacted]
E [redacted]
lakemac.com.au

From: nick@firmpower.com.au <nick@firmpower.com.au>
Sent: Tuesday, 27 July 2021 12:19 PM
To: Thomasen Knight <[redacted]>
Cc: Simon Ingram <simon@firmpower.com.au>
Subject: Battery Project - Awaba

Hi Thomasen,

I'm reaching out to introduce you to a large scale battery project Firm Power are developing in the Lake Macquarie council area. We are in the early stages of our development but would welcome the opportunity to introduce you to the project and keep you informed of our approach.

If this is of interest please don't hesitate to contact me.

I look forward to getting in touch.

Regards,
Nick

Nick Rose

General Manager
Firm Power Pty Ltd

M: +61 (0) 418 259 692
E: nick@firmpower.com.au
W: www.firmpower.com.au

Disclaimer

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TO/
Cr Kay Fraser
Lord Mayor, City of Lake Macquarie
Box 1906, Hunter Regional Mail Centre
NSW 2310

Thursday, September 23, 2021

RE: Awaba Big Battery

Dear Lord Mayor,

I would like to introduce you to an exciting project Firm Power are developing in the Lake Macquarie Council area. The Awaba Battery Energy System is a proposed 50MW stand-alone battery, covering approximately 0.5 hectares of land located at 12 Toronto St - adjacent to the existing Ausgrid Substation. The battery is designed to help smooth the energy profile of the grid and provide stabilising services when needed. Energy storage is a key part of the energy transition and ultimately will aid the deployment of more renewable energy projects in the electricity grid.

Firm Power is an Australian owned grid flexibility company dedicated to delivering solutions that provide stability to a clean energy driven power system. Firm Power is committed to ensuring that energy supply and demand can be dynamically balanced, creating a more flexible electricity grid and allowing for continued renewable energy integration and power price reduction. Firm Power aim to ensure that their projects benefit the community, the environment and the economy.

Firm Power was recently awarded a grant under the NSW Emerging Energy Program to develop a battery energy storage system in Western Sydney as a way of deferring network investment to meet peak summer loads (see here for further details: https://energy.nsw.gov.au/renewables/clean-energy-initiatives/emerging-energy-program).

Due to the capital investment value of the project we will be following the State Significant Planning Pathway, under which we will soon be making a request to the Department of Planning, Industry and Environment for the Secretary's Environmental Assessment Requirements (SEARs), which will specify what approvals are required for this proposal.

Firm Power have been utilising local consultants in the early stages of our projects and are committed to using local labour where possible. This project will support your 4th pledge under Council's Cities Power Partnership by increasing battery storage in the area to support sustainable infrastructure and renewable energy.

Given your sustainability ambitions for Lake Macquarie, we hope the Awaba Battery Energy System project will resonate with you and the local community. As you are a key stakeholder in this project, we are committed to keeping you informed as we progress our development. Please do not hesitate to contact me directly if you would like to know more or would like to profile the project in any way.

Yours Faithfully,

Nick Rose
GENERAL MANAGER

Suite 6, Level 6, 201 Kent St Sydney NSW 2000
W www.firmpower.com.au
E info@firmpower.com.au
M 0418 259 692

APPENDIX G

SUBSIDENCE ADVISORY NSW CORRESPONDENCE

Hi David, see advice below:

[redacted]

[redacted]

Lot 8 DP821188, 12 Toronto Street, Toronto - **EOTH21-00241**

Not undermined. May be mined in future.
Within existing substation. No additional Subsidence requirements.
Submit final plans for stamping when ready

[redacted]

[redacted]

Kind Regards,

Paul Gray| Senior Building Assessment Officer
Subsidence Advisory NSW
Better Regulation Division | Department of Customer Service
P:[redacted]
E: subsidencedevelopment@customerservice.nsw.gov.au | www.subsidenceadvisory.nsw.gov.au

From: subsidenceadvisory <subsidenceadvisory@customerservice.nsw.gov.au>
Sent: Friday, 6 August 2021 2:55 PM
To: Paul Gray
Cc: subsidenceadvisory <subsidenceadvisory@customerservice.nsw.gov.au>
Subject: FW: [#221313] Pre-lodgement advice - 3 x SSD battery energy storage system projects

Hi Paul,

Please see the below email and the attached. I have created enquiries and assigned to you, details below.

[redacted]

Lot 8 DP821188, 12 Toronto Street, Toronto - **EOTH21-00241**
[redacted]

Please Cc Advisory in your response and we will save it against each enquiry.

Regards,
Soma

From: David Walker <David.Walker@premise.com.au>
Sent: Friday, 6 August 2021 9:17 AM
To: subsidenceadvisory <subsidenceadvisory@customerservice.nsw.gov.au>
Subject: [#221313] Pre-lodgement advice - 3 x SSD battery energy storage system projects

Good morning

Premise acts for Firm Power who are in the process of commencing the process of seeking approval for three proposed battery energy storage systems, to be located at the following locations:

[redacted]

2. Awaba BESS - 50 MW/100 MWh – Lot 8 DP821188, 12 Toronto Street, Toronto

[redacted]

We note that:

[redacted]

2. The Awaba site is located West Lake mine subsidence district; and is also mapped as being affected mine subsidence development area.

[redacted]

The three applications will each be lodged with Dept Planning, Industry and Environment as State Significant Development and will be supported by preparation of individual site specific EIS's.

Prior to preparing EIS's for site, the applicant will seek the Secretary's Environmental Assessment Requirements and engage with DPIE via a pre scoping meeting.

The purpose of this email is to be confirm the requirements of Subsidence Advisory NSW in the making of the applications.

Please confirm whether specific information with respect to potential impacts around subsidence are required to be provided in the preparation of the initial SEARs request and scoping report.

Please contact the undersigned with any questions.

Kind regards

DAVID WALKER
Town Planning Discipline Lead

Premise

T 02 6393 5000 **| M** 0437 621 057
E David.Walker@premise.com.au
A 154 Peisley St, Orange NSW 2800

APPENDIX H

AHIMS SEARCH RESULT

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : 221313

Client Service ID : 608842

Premise Australia Pty Ltd

154 Peisley Street
Orange New South Wales 2800

Attention: David Walker

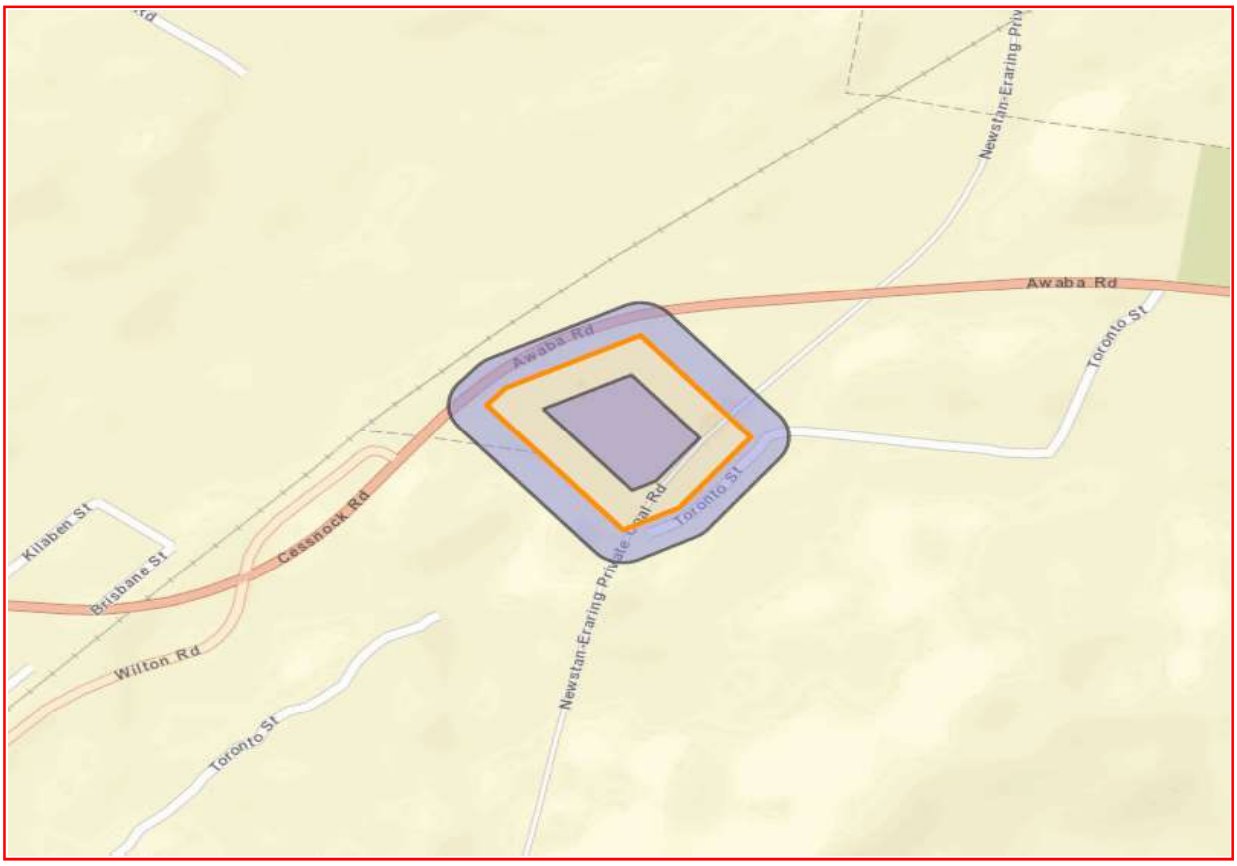
Email: david.walker@premise.com.au

Date: 30 July 2021

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 8, DP:DP821188, Section : - with a Buffer of 50 meters, conducted by David Walker on 30 July 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

APPENDIX I

SOCIAL IMPACT SCOPING WORKSHEET

Social Impact Assessment (SIA) Worksheet

Project name: Awaba Battery Energy Storage System

Date: Nov-21

CATEGORIES OF SOCIAL IMPACTS	POTENTIAL IMPACTS ON PEOPLE		PREVIOUS INVESTIGATION OF IMPACT		CUMULATIVE IMPACTS		ELEMENTS OF IMPACTS - Based on preliminary investigation					ASSESSMENT LEVEL FOR EACH IMPACT				PROJECT REFINEMENT	MITIGATION / ENHANCEMENT MEASURES
what **social impact categories** could be affected by the project activities	What impacts are likely, and what concerns/aspirations have people expressed about the impact? Summarise how each relevant stakeholder group might experience the impact. NB. Where there are multiple stakeholder groups affected differently by an impact, or more than one impact from the activity, please add an additional row.	Is the impact expected to be **positive or negative**	Has this impact previously been investigated (on this or other project/s)?	If "yes - this project," briefly describe the previous investigation. If "yes - other project," identify the other project and investigation	Will this impact combine with others from this project (think about when and where), and/or with impacts from other projects (cumulative)?	If yes, identify which other impacts and/or projects	Will the project activity (without mitigation or enhancement) cause a material social impact in terms of its: You can also consider the various magnitudes of these characteristics					Level of assessment for each social impact	What methods and data sources will be used to investigate this impact?			Has the project been refined in response to preliminary impact evaluation or stakeholder feedback?	What **mitigation / enhancement measures** are being considered?
							extent i.e. number of people potentially affected?	**duration** of expected impacts? **(i.e. construction vs operational phase)**	**intensity** of expected impacts i.e. scale or degree of change?	**sensitivity** or vulnerability of people potentially affected?	**level of concern/interest** of people potentially affected?		Secondary data	Primary Data - Consultation	Primary Data - Research		
surroundings	**Increased noise to receivers during construction**	negative	**Yes - other project**	Broken Hill and Hume BESS projects	No		Yes	Yes	Yes	**Yes**	**Unknown**	Detailed	Required	Broad engagement	Targeted engagement	No	Management through appropriate on site controls during construction
surroundings	**Increased noise to receivers during operation**	negative	**Yes - other project**	Broken Hill and Hume BESS projects	Yes	There is the potential for cumulative impacts with existing substation	Unknown	Unknown	Unknown	Unknown	**Unknown**	Detailed	Required	Broad engagement	Targeted engagement	No	Adopt standard measures (working within standard hours etc). Conduct noise impact assessment and adopt suitable mitigation/management measures.
surroundings	Changes to the landscape and visual amenity	negative	**Yes - other project**	Broken Hill and Hume BESS projects	Yes	There is the potential for cumulative impacts with existing substation	No	Yes	Unknown	Unknown	**Yes**	Detailed	Required	Broad engagement	Targeted engagement	Yes	Visibility of site and context of receiving environment considered in site selection. Visual impacts to be assessed in detail in assessment and the need for, or extent of, visual mitigation measues identified
health and wellbeing	Changes in air quality during construction	negative	**Yes - other project**	Broken Hill and Hume BESS projects	No		Yes	Yes	Yes	**Yes**	**Unknown**	Standard	Required	Broad engagement	Targeted engagement	**No**	To be determined during assessment
access	Increased traffic during construction causing short term disruption	negative	**Yes - other project**	Broken Hill and Hume BESS projects	Unknown		No	No	No	**No**	**Unknown**	Standard	Required	Limited	Not required	No	Management through appropriate on site controls during construction
access	Increased traffic during operation causing disruption	negative	**Yes - other project**	Broken Hill and Hume BESS projects	No		No	No	No	**No**	**Unknown**	Standard	Required	Limited	Not required	No	Management through appropriate on site controls during construction
health and wellbeing	Changes to landscape and visual amenity	Negative	**Yes - other project**	Broken Hill and Hume BESS projects	Yes	The existing substation	Yes	Yes	Yes	**Yes**	**Unknown**	Detailed	Required	Broad engagement	Targeted engagement	No	Project refinement as required to avoid impact where possible
culture	Potential for impacts to unknown items or sites of Aboriginal heritage	negative	**Yes - other project**	Broken Hill and Hume BESS projects	Yes	Beresfield BESS	Yes	Yes	Yes	**Yes**	**Unknown**	Detailed	Required	Broad engagement	Targeted engagement	No	Project refinement as required to avoid impact where possible
way of life	Reduction in power prices in the locality	Positive	**Yes - other project**	Broken Hill and Hume BESS projects	Yes	Beresfield BESS	Yes	Yes	Yes	**Yes**	**Unknown**	Detailed	Required	Broad engagement	Targeted engagement	No	None required
livelihoods	Increased employment opportunities during construction phase	Positive	**Yes - other project**	Broken Hill and Hume BESS projects	Yes	Beresfield BESS	Yes	Yes	Yes	**Yes**	**Unknown**	Detailed	Required	Broad engagement	Targeted engagement	No	Buy/use local resources where possible
livelihoods	Increased employment opportunities during operational phase	Positive	**Yes - other project**	Broken Hill and Hume BESS projects	Yes	Beresfield BESS	Yes	Yes	Yes	**Yes**	**Unknown**	Detailed	Required	Broad engagement	Targeted engagement	No	Buy/use local resources where possible
way of life	Concern about introduction of project into locality and nature of changes	negative	**Yes - other project**	Broken Hill and Hume BESS projects	No		Yes	Yes	Yes	**Yes**	**Unknown**	Detailed	Required	Broad engagement	Targeted engagement	No	To be determined during assessment

Premise