Figure 4: Tesla MEGAPACK 2 XL module (for example only)

The dimensions of the battery modules can change depending on the technology supplier. The battery module's dimensions can range from approximately 1.5 to three metres wide, 2.5 to three metres high and six to 12 metres in length. Inverters are used to convert the DC power to AC when discharging and vice versa when charging. The inverters are made from galvanised steel and may be located within the battery module itself or as separate units outdoors.

Once completed, the Great Lakes Battery power capacity will be up to 280 MW (to be built in two separate stages, each of up to 140 MW), covering approximately four hectares of land. Current battery technology comes with a 15–20-year warranty. The batteries retain most of their capacity at this time and will be able to operate beyond it depending on market conditions and other factors.

2 The Development Site and Site Access Details

This Section provides details of the Project location and site access, the land titles involved, and gives a brief overview of the development site.

2.1 Location of the Development Site

The Great Lakes Battery site is situated immediately adjacent to TasNetworks' Palmerston substation and is approximately 2.5 km east of Poatina village (Figure 5) and 17 km southwest of Cressy in the Northern Midlands Region of Tasmania. The site is located approximately one kilometre from Poatina Road and 1.5 km from Saundridge Road. The Palmerston substation is a critical component in the Tasmanian electrical system with ten transmission lines connecting into the substation. The Palmerston substation and transmission lines are a dominant feature in the landscape.

The battery site is approximately four hectares in size and will be constructed on the 'Woodside' property at 4740 Poatina Rd, Cressy on title 126579/2. This title is owned by David and Libby Archer and is approximately 754 ha in size and is farmed in conjunction with other land as part of a total estate of approximately 1,540 ha. The Archers practice dryland and irrigated mixed farming.

The battery site is situated to minimise disruption to cropping and to minimise the amount of electricity grid connection infrastructure required. The site is comprised of a triangular shaped paddock corner which is bound by transmission lines to the north and east, and TasNetwork's Palmerston substation to the north-east.

The access to the site from Poatina Road borders the title to the north (CT 105802/1, 1440 Saundridge Road) owned by the Scott-Young family. An additional 0.75 ha of land is required for the site access road (See Section 3.4 below).

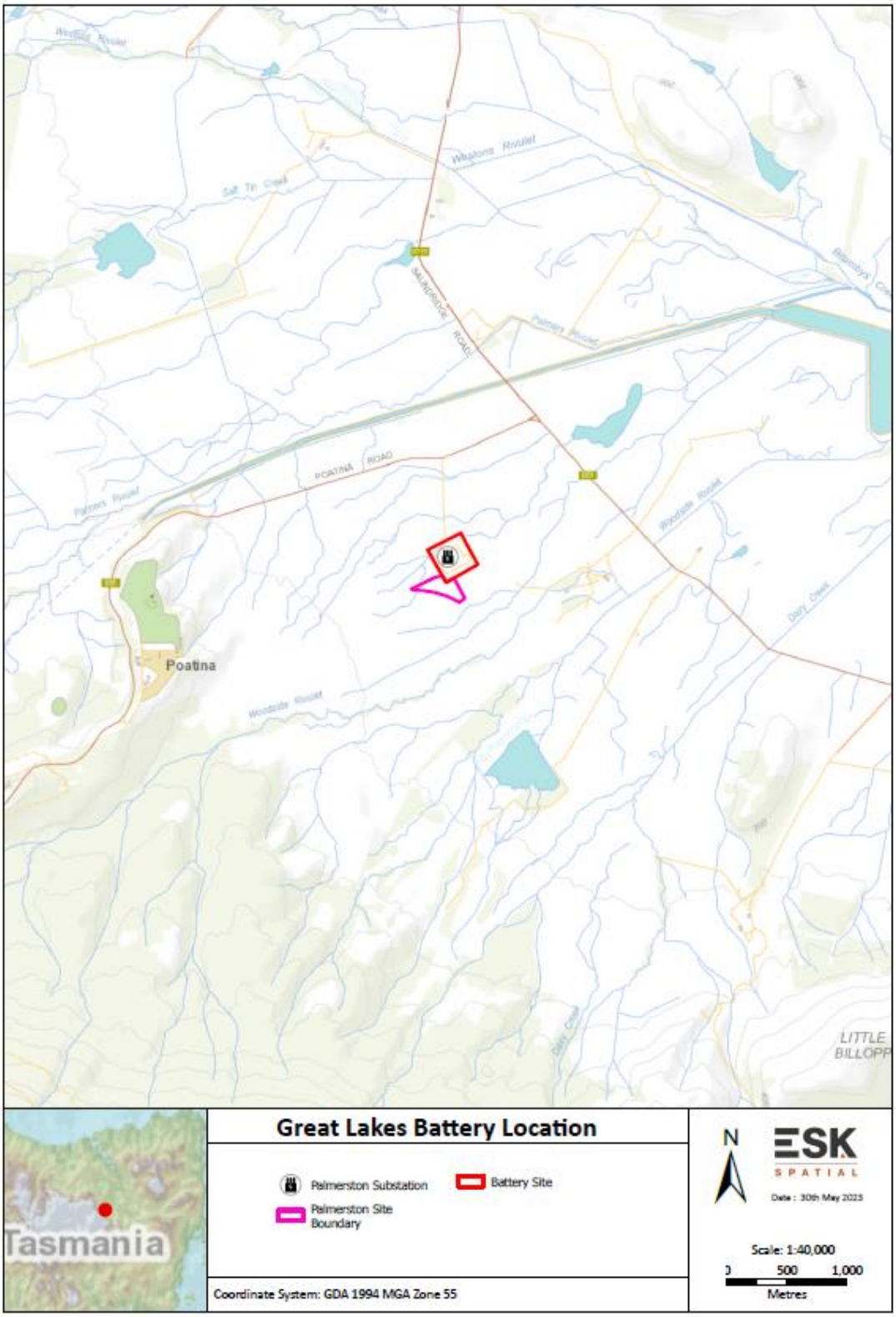


Figure 5: Great Lakes Battery site location

2.2 Title Information

The battery and a section of the new access road will be constructed on the following title:

- Property Identification (PID): 6753425
- Address: 4740 Poatina Road
- Title Reference: 126579/2

The existing Palmerston substation access road occupies Title 142369/2, and a section of the new access road will be constructed on TasNetworks' Palmerston substation titles 142369/1 and 142369/3 under a formal arrangement which will be negotiated with TasNetworks.

Figure 6 shows the Folio Plan from the List for these titles.

Copies of the Folio Plan and Folio Text for the above are included in Attachments 1 and 2.

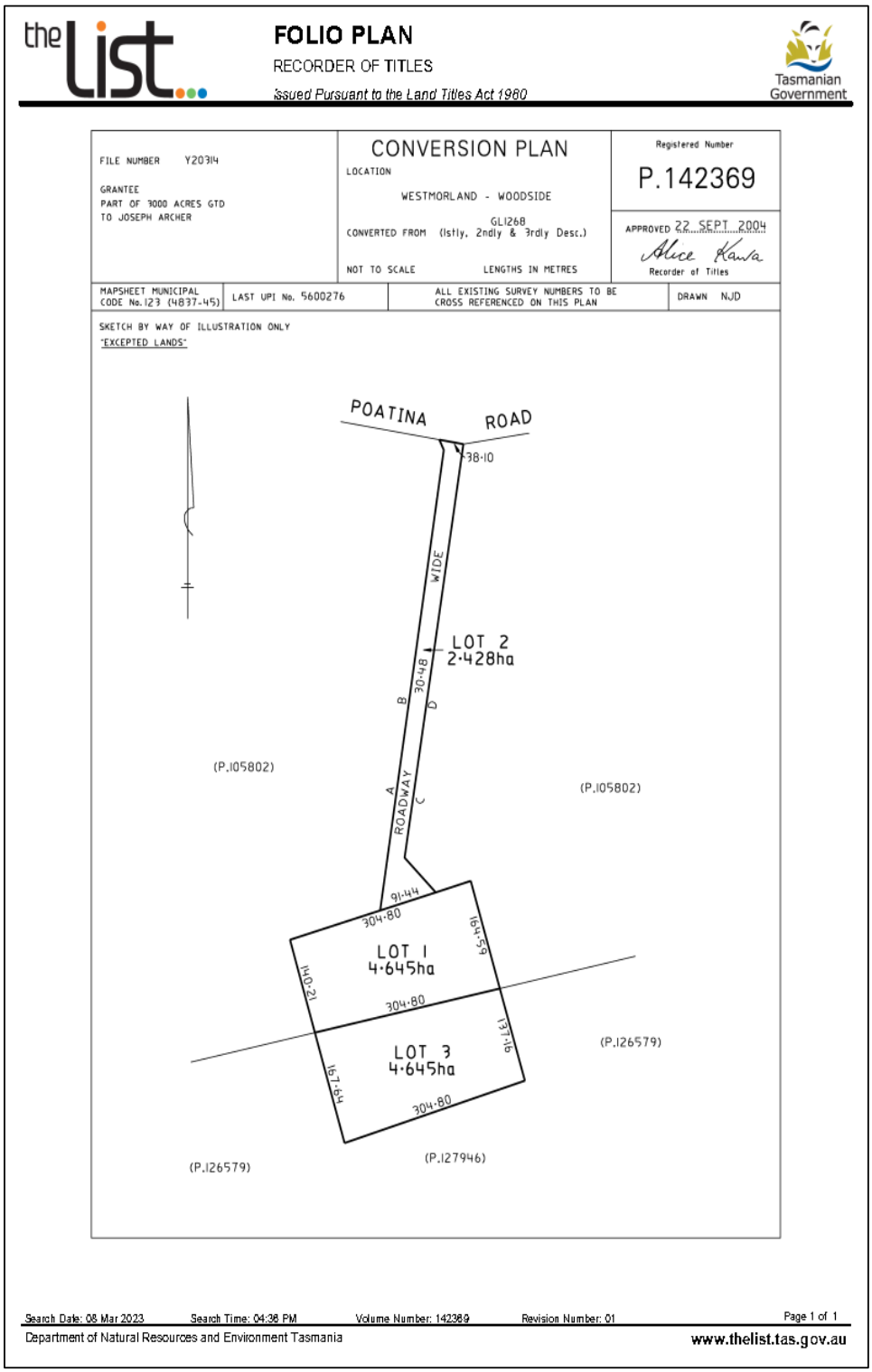


Figure 6: Folio Plan for existing access road and Palmerston substation

2.3 Site Description

The study area is situated on a flat to gently undulating floodplain which is primarily used as pastureland. The Project site slopes downward towards the north-east at approximately one to two degrees. Having been subject to an extended period of cropping, the site contains no native vegetation (see Section 5.7 Flora and Fauna). The vegetation structure across the study area primarily consists of introduced grasses, most notably Prairie Grass (*Bromus wildenowie*) and White Clover (*Trifolium repens*). Amongst the introduced grasses are weeds, such as the Scotch Thistle (*Onopordum acanthium*) and sparse stands of native rushes. The entire battery site has been intensively disturbed by agricultural practices.

The main access track leading into the study area has been sealed with bitumen to facilitate access to the Palmerston substation. The landscape is scattered with various structures including residential dwellings and farm sheds. The closest dwelling to the battery site is owned by the Archers and is located approximately 500 m to the east. There are another eleven dwellings located within a three-kilometre radius from the battery site including Poatina village which supports approximately 150 residents.

The underlying geology of the study area consists of sand, gravel and mud of alluvial, lacustrine and littoral origin. Soils within the study area are light to dark red/brown sandy loam. The Great Lakes Battery site is surrounded by named watercourses, unnamed tributaries, and numerous small drainage lines. More detail on the soils and watercourses of the area are included in the Preliminary Soil and Water Management Plan (Attachment 13).

The site is situated inland from Woodside Rivulet which is 670 m south of the study area and runs in a north-east to south-west direction. The battery site is also situated inland from Palmerston Rivulet which is approximately 655 m to the north and runs in a north-east to south-west direction. Both of these watercourses are tributaries associated with Brumby' s Creek which is situated four kilometres to the north-east of the battery site.

The development site and access roads (both existing and proposed) are relatively flat with a very slight north-easterly aspect and are at an approximate altitude of 180 m ASL.

2.4 Access to the Site

Figure 7 shows the access to the Project site from Poatina Road. Access will be achieved via the existing 680 m main north-south access road to the Palmerston substation (this road is operated by TasNetworks) and via a new 700 m section of access road which will be constructed specifically for the Project.

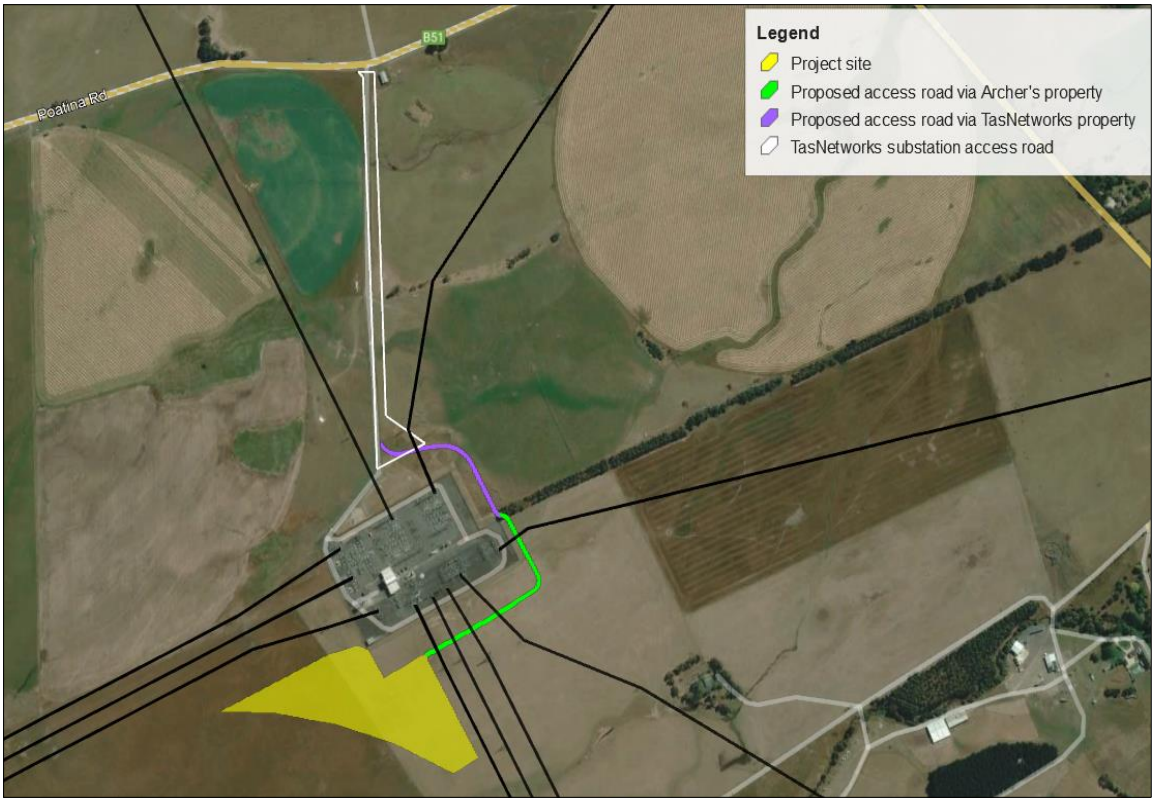


Figure 7: Site access. The black lines are transmission lines.

The TasNetworks road is sealed but needs remedial maintenance and resurfacing. This work will be done by Neoen to a standard that complies with the requirements outlined under *Access Roads, Section 6.1.1,* in *TasNetworks' Substation Civil Design and Construction Standard.* This standard specifies that access roads must:

a) provide connectivity between the public road and the main entrance of the substation yard;

b) be designed to accommodate the turning movement paths of the vehicles and machinery required to move the substation equipment to and from the Site;

c) comply with geometry requirements of the relevant road authority; and

d) allow for the general continuous flow of traffic to and from the yard.

A 250 m section of the new access road is also on TasNetworks land to the north and east of the substation (shown in purple on Figure 7).

The new access road is subject to agreement of a Right of Way licence agreement between Neoen and TasNetworks (which is expected but has not yet been finalised). Fencing of the access on TasNetworks' land is proposed to occur to reduce risks and impacts to livestock in the adjacent property at 1440 Saundridge Road.

The remainder of the new access road occupies land owned by the Archers (shown in green on Figure 7), immediately to the east and south of the substation.

The access road and any fencing will be constructed in accordance with the relevant TasNetworks standards for light vehicles, together with the requirements for heavy transport of concrete, battery modules and inverters, power cables, and kiosks for secondary switchgear. The following TasNetworks standards will guide the access road and fencing construction:

- Substation Civil Design and Construction Standard
- Security Fences and Gates Standard

Each stage of the Project will require a single large power transformer, and these will be the largest loads delivered to site (Figure 8). The proposed new access road will consider the minimum road standards required for transformer transport to allow the transformers to be replaced during the lifetime of the battery. The access road will be graded to an all-weather standard. The risk of transformer tip-over will be included within a risk assessment and the design and construction will address drainage, road width at curves and at soft shoulders to reduce transport risks.

There are ten overhead transmission lines connecting into the Palmerston substation (shown as black lines on Figure 7) and six of these overlap the proposed site access road. TasNetworks has advised that the statutory clearance for transmission line infrastructure is 7.6 metres. During the construction and operational phases of the Project, sufficient clearance will be required for vehicles and their loads to safely move underneath the existing transmission lines. Neoen will engage with TasNetworks during the construction planning stages to ensure that the access is constructed to ensure that sufficient clearances to the high-voltage lines are achieved.

Figure 8: Large power transformer transporter

3 Description of the Proposed Development

This Section details the main infrastructure to be installed on the battery site, and briefly describes site construction, operation, and decommissioning activities.

3.1 The Battery Storage System

The Great Lakes Battery will comprise up to 280 MW power capacity with up to 560 MWh of energy storage to be built in two stages of equal size. Neoen intends to actively progress the development of the first stage (up to 140 MW power capacity) once development approval is achieved. The development of the second stage is dependent on future electricity market factors.

The general layout of the Great Lakes Battery is shown on Figure 9. A 3D plan of the layout is shown on Figure 10. The overall 280 MW development will comprise:

- A security-fenced battery compound area of approximately four hectares. The fence will be approximately 2.8 m high.
- A 33 kV to 220 kV high voltage substation, comprising two main large power transformers and associated switchgear (i.e. isolators and circuit breakers) and an oil/water separation system.
- An underground 33 kV internal power collection system, which carries the power to and from the battery units to the battery site's two 33 kV switch rooms.
- Battery modules (i.e. containers or cabinets) comprising racks of battery cells. The number of racks within each module varies between suppliers. Should Tesla batteries be used, up to 72 modules may be installed for Stage 1 and another 72 will be installed for Stage 2. Should a different supplier be used, the number of battery modules will not deviate far from this number.
- Approximately 30 – 35 power converter units per stage. The power converter units connect the battery modules to the 33 kV collection system. Some suppliers combine the power converter units and the battery cells into the one module.
- An operations and maintenance facility building and a spare parts storage facility.
- A control building.
- Four 150,000 litre water storage tanks, a pump house and hydrant for firefighting.

- Site lighting.
- Two lightning protection masts, each 22 m high.
- A loading bay, car parking and a heavy vehicle turning circle area.
- Appropriate site drainage.
- A 25-metre-high gantry and two 220 kV overhead transmission lines connecting the HV transformers into Palmerston substation.
- Underground electrical cabling between the Great Lakes Battery and the Palmerston substation (if required, possibly as part of Stage 2).
- An eight-metre-wide access road (within the Archer's property) and access via the existing Palmerston substation access road and through TasNetworks property via a Right of Way.

Most of the development site will be gravelled hardstand, including the Asset Protection Zone inside the site perimeter. Vegetation screening will be established on four sides of the Project, along a five-metre-wide strip outside the perimeter security fence (see Section 4.6).

The Project is estimated to have the following floor area:

- Stage 1 = 6,076 m^2
- Stage 1 and Stage 2 combined = 8,639 m^2

These calculations are based on the floor area covered by the battery modules, the inverters, the substation (including the control room and the switch rooms) and the operations building.

Figure 9: General layout of the Great Lakes Battery

Figure 10: 3D model of the layout. The battery units for Stage 1 are shown in white, the units for Stage 2 are shown in yellow.

3.2 Site Substation and Transmission Network Connection

The Project site's high voltage substation compound will include two HV power transformers (one for each stage), two separate 33 kV switch rooms (one for each stage), a control room, auxiliary and earthing transformers, conductors and two lightning masts.

The compound will be approximately 50 by 60 m, situated on the northern boundary adjacent to the Palmerston substation, and separated from the battery site with a security fence and gate (Figure 9).

The maximum equipment height in the substation is expected to be 25 m (the substation gantry) with the majority of the other equipment, including transformers and switch rooms, standing approximately five metres high. The connection of Stage 1 will require liaison with TasNetworks to ensure that the final design meets the needs of both parties.

Stages 1 and 2 will be connected into Palmerston substation's 220 kV system. Stage 1 will be connected into the western section of the Palmerston substation via three 220 kV overhead conductors. Stage 2 will be connected into the eastern section of Palmerston substation via 220 kV overhead conductors, or possibly by a short section of 220 kV underground cable if overhead conductors are not able to be used due to physical constraints within Palmerston substation. The connection of Stage 2 will be considered in more detail in conjunction with TasNetworks at the time.

3.3 Procurement and Construction

Granting of Development Approval will allow the procurement process to commence and construction contracts to be finalised and awarded. Construction of Stage 1 is proposed to commence in July 2024 and is expected to take 12 to 18 months. Figure 11 presents an indicative timeline for Stage 1.

Construction will consist of six main phases involving the following activities:

- Phase 1 – Upgrade works to the existing Palmerston substation access road, construction of the proposed site access road, battery site earthworks and site drainage system, civil and concrete works.
- Phase 2 – Delivery of modular infrastructure and construction materials.

- Phase 3 – Installation of the foundations for the battery modules, inverters and transformers.
- Phase 4 – Installation of the battery modules, inverters and power collection system.
- Phase 5 – Construction of the control building, the switch room, the operations and maintenance building and the high voltage substation.
- Phase 6 – Fencing, general site clean-up and planting of the vegetation screening.

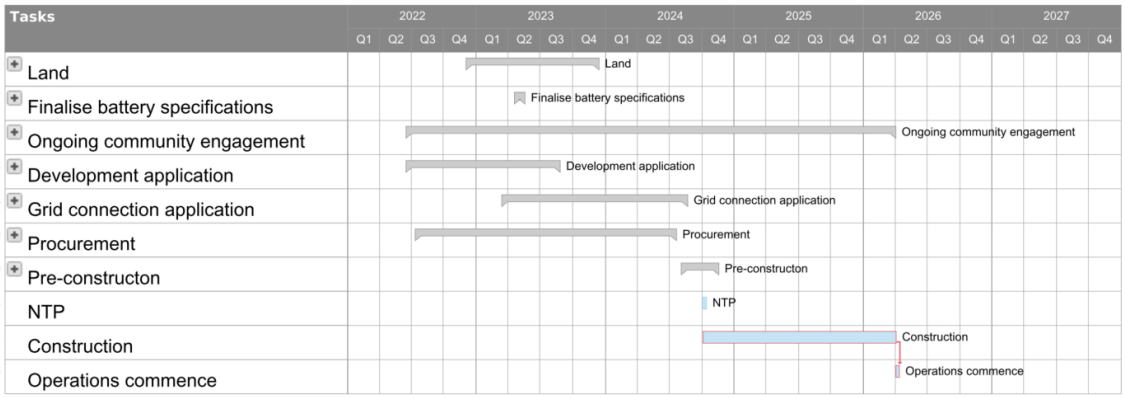


Figure 11: Indicative timeline for Stage 1

3.4 Operation

The operation of the Great Lakes Battery will be managed from Neoen's 24/7 Operational Control Centre (OCC) in Canberra, which operates Neoen's existing fleet of renewable energy assets across Australia. Collaboration between the OCC, Neoen's Asset Management team and local maintenance contractors will facilitate the daily operation of the battery. This work will involve, but will not be limited to, the following:

- Maintenance and management of equipment, site buildings and landscaping.
- General office activities.
- Receipt of goods.
- Waste removal.

It is anticipated that five to six locally-based employees would be required periodically for maintenance activities.

The Project will operate 24 hours a day, 7 days a week. The Project is expected to undergo approximately one charge and discharge cycle per day, averaging 365 full cycles per year. A cycle is defined by the full depth of discharge plus the full depth of charge. For a 140 MW facility this would mean a throughput of 280 MWh of energy per day, and up to 102 GWh could be exchanged through the battery annually. The level of cycling will depend on what specific services the battery is contracted to provide.

The level of maintenance activity will be very low and not dissimilar to the level of activity that the sub-station might generate. Directional lighting is proposed as part of the supporting infrastructure in the rare event that night-time inspections or maintenance work is required. However, this would only occur in an emergency. As such, the development is unlikely to have any discernible night-time impact on nearby residences.

3.5 Decommissioning

The equipment is expected to have an economic life of approximately 20 years. At the conclusion of this period, a decision will be made as to whether to decommission the Project permanently or whether to upgrade/replace the equipment under a new Development Approval. If the Project is permanently decommissioned this would involve:

- De-energising the equipment.
- Dismantling and removing the battery and all above ground electrical equipment.
- Removal of infrastructure to 500 mm below the ground.
- Rehabilitation of disturbed land to a form and cover suitable for subsequent rural use (including cropping) to a depth of 500 mm.

After removal, most of the material in the batteries is reclaimed or recycled with over 60% recovered for re-use.

All decommissioning and restoration activities would be carried out in compliance with Development Approval conditions.

4 Potential Environmental Impacts and Their Management

This Section provides details on potential environmental impacts associated with the Great Lakes Battery Project, and outlines mitigation measures where appropriate. The discussions on impacts are informed by specialist studies undertaken specifically for the Project. These studies are referenced within each section and the specialists' reports are included as Attachments to this document.

4.1 Background

Utility scale battery infrastructure is relatively small scale compared to some other forms of electricity infrastructure in terms of the footprint of the infrastructure as well as the size of the structures associated with the batteries.

Batteries have few operational impacts. Once installed, they generate little noise or traffic, they do not require the use of heavy machinery (other than for occasional road repair or replacement of large components), nor do they generate air-borne emissions or other forms of physical waste.

Batteries generate very minimal on-going impact issues for sensitive uses such as domestic residences. However, they may have impacts in relation to the following:

- Low level noise generation (limited to short distances).
- Possible visual impacts.
- Short term construction impacts (e.g. vehicles, noise and dust).

These impacts can be managed or mitigated through careful technical design and site orientation, and appropriately managed construction practices.

4.2 Noise Emissions

4.2.1 Operational Noise

An Environmental Noise Assessment (ENA) has been prepared by Marshall Day to assess the potential noise impacts associated with Stages 1 and 2 of the Project. The ENA is included as Attachment 3. The Northern Midlands Planning Scheme does not contain any provisions specifically relating to noise, but Council has recommended that Section 7 of the *Environmental Management and Pollution Control (Noise) Regulations 2016* (EMPC

Regulations) be used to inform the noise assessment. Section 7 of the EMPC Regulations states:

> *7. Fixed equipment*
>
> *(1) A person must not operate fixed equipment on any premises –*
>
> *(a) from 7.00 a.m. until 10.00 p.m., if the fixed equipment, when so operated, emits noise that is greater than 45dB(A); or*
>
> *(b) from 10.00 p.m. until 7.00 a.m., if the fixed equipment, when so operated, emits noise that is greater than 40dB(A).*
>
> *(2) A measurement of noise, emitted by fixed equipment on any premises, that is to be measured at residential premises –*
>
> *(a) is to be taken one metre from the external wall, of the residential premises, that is closest to the fixed equipment emitting the noise; or*
>
> *(b) if the distance between the external wall of the residential premises closest to the fixed equipment and the property boundary of the residential premises is less than one metre, is to be taken at that property boundary.*

Council has confirmed to Neoen that the specified noise levels of 45 dB(A) (7 am to 10 pm) and 40 dB(A) (10 pm to 7 am) apply to measurements taken at the external wall of the residential premises closest to the noise source.

Noise generating equipment associated with the operation of the Project is mainly limited to:

- the combined battery and inverter system;
- the MV transformers; and the
- the HV transformers.

Noise levels for the combined battery and inverter systems are dependent on the 'duty cycle' of their thermal fan systems. The duty cycle of a fan refers to the speed it is running at and the length of its running time. Generally, the higher the duty cycle, the faster the fan speed and louder the emitted noise. The fan duty cycle applied to effectively cool or heat the equipment depends on both the usage of the equipment (i.e. amount of charging/discharging) and the ambient temperature.

Based on site-specific information provided by Neoen and battery manufacturers for Stage 1, Marshall Day has used noise data associated with the battery and inverter equipment operating in a two-hour configuration with a duty cycle of 60% during the day, and 40% during the night. Marshall Day has used Australian Standard 60076-10:2009 for determining sound power levels for the transformers and has made conservative tonality adjustments for emissions from the battery and inverter systems.

The ENA shows that based on the design and operational details provided, predicted noise levels associated with the operation of Stage 1 comply with the day and night-time noise limits applicable to the nine noise sensitive receivers closest to the Great Lakes Battery.

Preliminary noise modelling based on the most likely operational scenario for Stage 1 and Stage 2 operating simultaneously shows compliance for all sensitive receivers except for the tenanted dwelling on the involved landowners (the Archers) property, where estimated noise levels at certain times (largely depending on operation and ambient temperatures) may reach 3 dB(A) above the overnight upper limit of 40dB (10 pm to 7 am).

The 3 dB(A) non-compliance for Stage 2 at the tenanted dwelling is based upon modelling that reflects a worst-case scenario, where all the following events would need to eventuate:

1. The battery technology supplier chosen, for both Stage 1 and Stage 2, would need to emit noise levels reflective of that upon which the noise modelling has been based. The technology modelled in the ENA is generally considered one of the louder, if not loudest, technology suppliers available. Neoen has deliberately modelled a loud technology to resemble a worst-case-scenario.
2. The battery would need to discharge or charge at close to full capacity on days where temperatures reach some of the hottest temperatures on record at the Project site.
3. The final Project capacity (MW) built remains unchanged from the maximum sizes proposed in this application.

This result indicates that additional noise controls may need to be incorporated into the Stage 2 Project design to achieve compliance at the tenanted dwelling receiver. Marshall Day note that a future detailed noise assessment should be conducted for Stage 2 once the final design of the Project is available. Potential noise control options for Stage 2 that may be considered by Neoen include:

- near field barriers to HV transformers to minimise noise contributions;
- perimeter barriers to the Project's eastern boundary;
- noise control packages provided by manufacturers; and
- alternative operating modes for individual equipment items.

Neoen has discussed the Stage 2 noise modelling results with the Archers who have indicated that they are not concerned by this outcome because the following has been agreed with Neoen:

1. If a particular technology supplier is chosen and the final Project size is such that the tenanted dwelling remains non-compliant, Neoen will look to develop a special agreement with the Archers for that dwelling in relation to noise emissions**.**
2. If this is unacceptable to the involved landowners in some way, Neoen will instead utilise any necessary noise reduction methods to ensure the noise emissions are below the Noise Regulations limits, including investigating the installation of noise mitigating infrastructure at the battery site or possible mitigation measures at the tenanted dwelling**.**

If a noise complaint is received in relation to the Project during its operational phase, the complaint will be investigated by the Operations and Maintenance provider and Neoen and appropriate action will be taken. A response will be provided to the complainant(s) as to the findings and any modifications undertaken to reduce the impact.

4.2.2 Construction noise

It is not possible to model construction noise, but the management and mitigation of construction noise emissions will be addressed and formalised in the Project's Construction Environmental Management Plan and via contractual obligations.

The following may be adopted:

- High noise impact construction activities (such as rock drills, rock breakers or blasting), will be restricted to daytime hours; only low noise impact construction activities will be carried out during night-time hours on an 'as needs basis'.
- No blasting will be allowed on Sundays or on Tasmanian Public Holidays.
- Plant, equipment and machinery will be serviced and maintained according to the manufacturers' specifications. Where manufacturer's requirements are not available then industry best practice maintenance will be applied.
- If construction-noise related complaints are received, the matter(s) will be investigated by the construction Contractor and Neoen and appropriate action will be taken. A response will be provided to the complainant(s) as to the findings and any modifications undertaken to reduce the impact.

4.3 Fire

All adjacent land to the east, south, west, and north-west on the Archer's title (CT 126579/2) is utilised for agricultural production, predominantly grazing. The vegetation associated with the grazing land is classed as grassland from a bushfire perspective. There is also a three-row shelter belt (native species) running in an east-west direction from the eastern side of the TasNetworks site, which cuts through the northern part of the new site access.

The adjacent TasNetworks' site is managed in a low fuel state. The nearby property to the north, at 1440 Saundridge Rd (CT 105802/1), is also utilised for grazing, with the vegetation classed as 'grassland' from a bushfire perspective.

The site access comes from Poatina Road in the north via land belonging to TasNetworks and is immediately adjacent to the north-eastern and south-eastern boundaries of the TasNetworks substation. Most of the battery site will be gravelled hardstand with a gravelled buffer between the hardstand area and the perimeter fence. A vegetation screen is also proposed around the external side of the perimeter fence.

The proposed development area is mapped as being bushfire-prone under the Tasmanian Planning Scheme - Northern Midlands. As part of the development, it is proposed to store up to 140,000 litres of oil on site in the large transformers. The oil (Nytro Libra) is not classed as

a flammable liquid, but rather a Class C2 combustible liquid. This category of combustible liquid does not meet the definition of a 'Hazardous Use' of the Bushfire-Prone Areas Code of the Planning Scheme. There are no other elements of the proposed development that trigger other aspects of the Bushfire-Prone Areas Code.

The Bushfire-Prone Areas Code does not apply to this development (Subsection 6 C13 Bushfire Prone Areas Code). A Bushfire Exemption Report has been prepared for this site by RMCG and is included as Attachment 4.

4.4 Impacts on Agricultural Land

The proposed lease area on the Archer's property is approximately four hectares. The battery development site and access are appropriately located to minimise the area of land being converted and associated impacts on adjacent agricultural operations. The loss of this land for the term of the lease is considered to have negligible impact on the agricultural operation of the Archer's property and the regional agricultural economy. In addition, the conversion is not permanent, and the land could be rehabilitated for dryland grazing in the future.

The Great Lakes Battery is compatible with the surrounding agricultural use and minimal setbacks with vegetation screening, as proposed, should suffice to minimise the risk that the battery will conflict or interfere with agricultural activities. A full assessment of the agricultural and primary industry aspects of the proposal are discussed in Section 6 and the supporting RMCG specialist Agricultural Report is included at Attachment 5.

4.5 Traffic

A full assessment of the traffic impact assessment is included in Section 6 under C3.0 Road and Railways Asset Code. A Traffic Impact Assessment and a Preliminary Traffic Management Plan have been prepared for the Project by specialist consultants and these are included as Attachments 6 and 7. Key outcomes from these studies are:

- Traffic volumes during construction will exceed the Acceptable Solution A1.4 of the use standard C3.5.1 and hence the Performance Criterion P1 is relied upon.
- Traffic volumes during operation will be minimal.
- Transport routes for delivery of components have been evaluated.

- No major obstructions to sight distance were identified.
- Mitigation measures are proposed to ensure traffic impacts are minimised and in compliance with relevant legislation.

4.6 Visual Impact

A Landscape Visual Impact Assessment (Attachment 8) was carried out by Inspiring Place and the assessment concluded that the visibility of the development is largely restricted topographically to near and midground views from Poatina village and on Poatina Road.

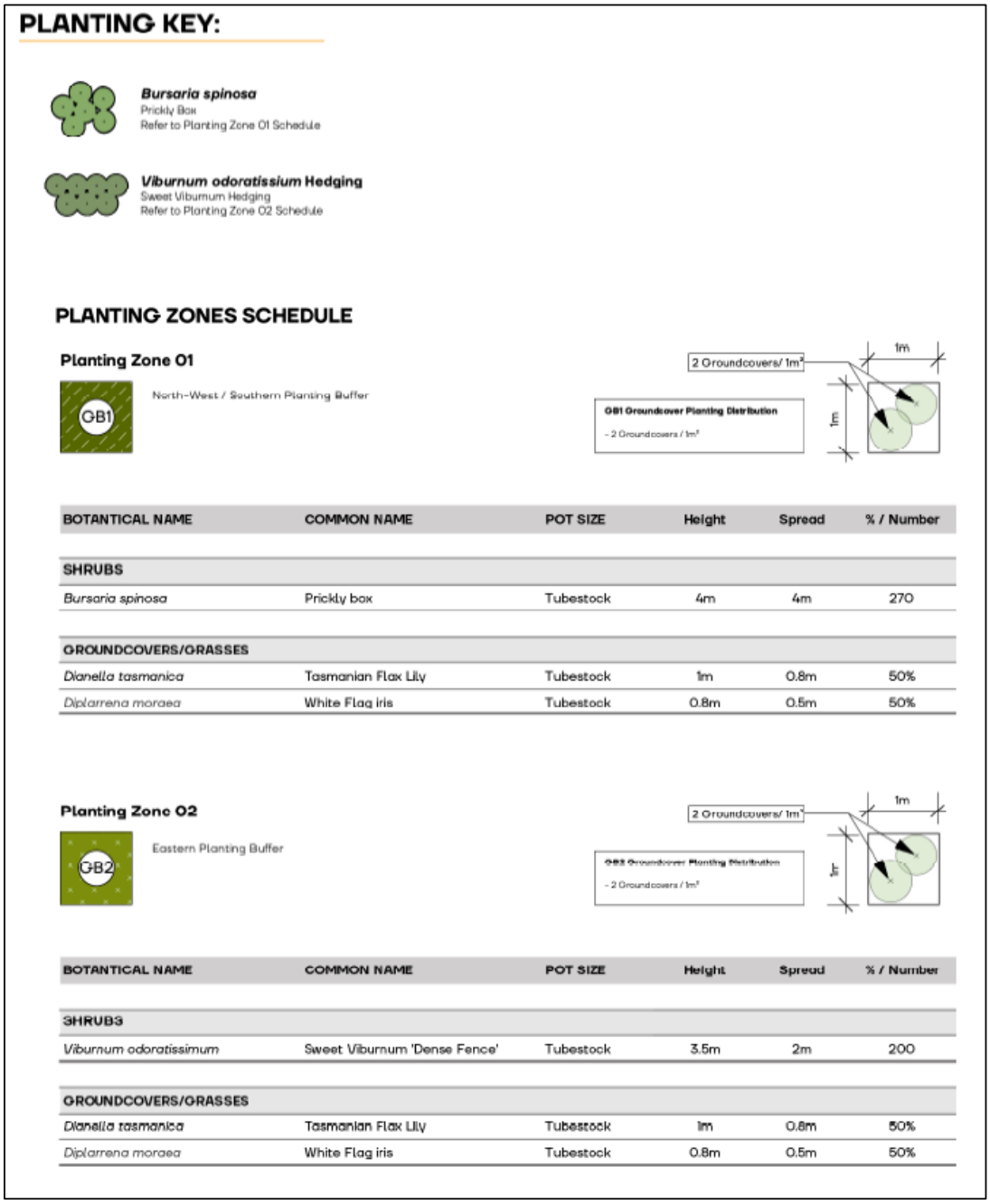
The sensitivity of these views was rated low given that views are mostly obscured by infrastructure or large hedgerows. Also, views from Poatina Road are fleeting and often not within the focal view as viewed from a vehicle. The landscape was found to have a moderate to high visual absorption capacity which helped to minimise the potential visual impacts that might have arisen in a more natural setting without the existing Palmerston substation and overhead transmission lines dominating the site.

Together, these factors suggested that the magnitude of visual impact of the development is low. Magnitude, in conjunction with estimated sensitivity and visual absorption capability, led Inspiring Place to conclude that the development would have a low significance of visual impact.

Attachment E of the Landscape Visual Impact Assessment (Attachment 8) presents a series of four photomontages taken from key locations around the site, giving a good overview of the battery development as it will appear in the landscape.

Inspiring Place has prepared a planting plan for native vegetation screening around the development (Figure 12, Figure 13). This plan has been prepared in consultation with the Archers. Once established, the species selected will provide good visual screening of the facility and have been specifically chosen for their low flammability.

Figure 12: Vegetation screening around the Project site



PLANTING KEY:

Bursaria spinosa
Prickly Box
Refer to Planting Zone 01 Schedule

***Viburnum odoratissium* Hedging**
Sweet Viburnum Hedging
Refer to Planting Zone 02 Schedule

PLANTING ZONES SCHEDULE

Planting Zone 01

GB1

North-West / Southern Planting Buffer

2 Groundcovers/ 1m²

GB1 Groundcover Planting Distribution
- 2 Groundcovers / 1m²

1m

1m

BOTANTICAL NAME	COMMON NAME	POT SIZE	Height	Spread	% / Number
SHRUBS					
Bursaria spinosa	Prickly box	Tubestock	4m	4m	270
GROUNDCOVERS/GRASSES					
Dianella tasmanica	Tasmanian Flax Lily	Tubestock	1m	0.8m	50%
Diplarrena moraea	White Flag iris	Tubestock	0.8m	0.5m	50%

Planting Zone 02

GB2

Eastern Planting Buffer

2 Groundcovers/ 1m²

GB2 Groundcover Planting Distribution
- 2 Groundcovers / 1m²

1m

1m

BOTANTICAL NAME	COMMON NAME	POT SIZE	Height	Spread	% / Number
SHRUBS					
Viburnum odoratissimum	Sweet Viburnum 'Dense Fence'	Tubestock	3.5m	2m	200
GROUNDCOVERS/GRASSES					
Dianella tasmanica	Tasmanian Flax Lily	Tubestock	1m	0.8m	50%
Diplarrena moraea	White Flag iris	Tubestock	0.8m	0.5m	50%

Figure 13: Vegetation screening planting zones schedule

The species along the eastern buffer (Planting Zone 02) will grow to approximately 3.5 metres high and have been selected to not interfere with the adjacent transmission line easement managed by TasNetworks. The species along the northern buffer (Planting Zone 01) may grow

to a height of approximately four metres. Since the landscape plan was completed, TasNetworks has noted that vegetation along this section should not exceed three metres in height. Consequently, Neoen will liaise further with TasNetworks prior to the planting commencing to ensure that any vegetation established meets both parties' needs.

4.7 Flora and Fauna

An assessment of the ecological impacts of the Great Lakes Battery has been undertaken by Stephen Casey Ecology and the results have been included in the response to C7.0 Natural Assets Code. The full report is included at Attachment 9.

There was a particular focus on identifying potential flora and fauna issues at the Project site, particularly in relation to State and Commonwealth listed species and to provide advice on mitigation of impacts on natural values.

4.7.1 Vegetation communities

Native vegetation has largely been cleared from the site and the land cropped and grazed for many years. The vegetation present is best categorised as agricultural land. No vegetation communities listed on either the Tasmanian *Nature Conservation Act* 2002 or the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 were recorded from the site.

4.7.2 Threatened species

Fauna habitat at the site is of very low quality due to the highly modified agricultural nature of the area. Some mammal species may occasionally utilise the site and some bird species may overfly the area but due to lack of habitat, no threatened fauna are likely to reside on the site.

No significant fauna or habitat is likely to be impacted by the proposed works.

4.7.3 Weeds and Diseases

Blackberry (*Rubus fruticosus*) and gorse (*Ulex europaeus*) were recorded in the shelterbelt on the eastern side of the substation, where the new access road is proposed. There are statutory management plans for these two declared weed species which outline management measures for these weed species in the Northern Midlands municipality. The management plans for all these species focus on containment and their spread from the municipality must be prevented.

In order to prevent the spread of blackberry and gorse, construction machinery will be cleaned prior to first entry to the site as well as when leaving. Any weed material and soil will be removed and disposed of appropriately to prevent the spread of weeds and diseases. Construction machinery shall be cleaned as described in the *DPIWE 2004 Washdown Guidelines for Weed and Disease Control Edition 1*[2].

No sign of disease was recorded from the site.

4.8 Aboriginal and European Cultural Heritage

4.8.1 Aboriginal Heritage

A full assessment of any potential impacts to Aboriginal heritage values at the Great Lakes Battery site was undertaken by Cultural Heritage Management Australia and the report is included as Attachment 10.

A search was carried out of the Aboriginal Heritage Register (AHR) to determine the extent of registered Aboriginal heritage sites within and in the general vicinity of the Great Lakes Battery area. The search shows that there are a total of 11 registered Aboriginal sites that are situated within a five-kilometre radius of the study area. Eight of these sites are classified as artefact scatters and the remaining three sites are classified as isolated artefacts. None of these registered sites is situated within the bounds of the Great Lakes Battery footprint area.

No Aboriginal heritage sites were identified and recorded during the field survey inspection of the Great Lakes Battery Project footprint. The field survey was able to confirm that there are no stone resources identified within the study area that would be suitable for stone artefact manufacturing. There are no sizeable rock outcrops occurring within the study area and therefore there is no potential for Aboriginal rock shelters to be present.

As discussed in section 6 of Attachment 10, surface visibility across the study area was variable, ranging between <10% to 90% and averaging at 25%. Given these constraints, it cannot be stated with certainty that there are no undetected Aboriginal heritage sites present in the development footprint. The survey assessment still did achieve effective coverage of an estimated 2,515m². This level of effective coverage is sufficient to provide a reasonable

[2] https://nre.tas.gov.au/Documents/Washdown-Guidelines-Edition-1.pdf

indication as to the potential extent, nature and distribution of Aboriginal cultural heritage sites in the study area.

The survey results strongly indicate that site and artefact densities across the study area are likely to be low to very low. If undetected sites are present, they are most likely to be isolated artefacts or small artefact scatters, representing sporadic Aboriginal activity.

Given that soil deposits across much of the study area were generally shallow to skeletal, there is a very limited potential for sub-surface artefact deposits to be present. It should be noted that there are no specific landscape features present within the study area, where it would be likely that an elevated site or artefact densities may be present, such as elevated and well-drained alluvial terraces, or small knolls or spurs fringing watercourses.

4.8.2 European heritage

A full assessment of the European Heritage impact was undertaken by Cultural Heritage Management Australia and is included at Attachment 11. A search was carried out of several historic registers and databases in order to determine the extent of historic sites and features in the vicinity of the Great Lakes Battery Project area. Agency databases searched included:

- The Australian National Heritage List (NHL)
- The Australian Heritage Database (AHD)
- Tasmanian Heritage Register (THR)
- The Register of the National Estate (RNE)

The search of the various historic heritage registers shows that there are two registered historic sites or places that are located within a two-kilometre radius of the Project site. However, neither of these registered places intersect with the Project site. The detailed search results are presented in Section 4.3 of Attachment 11.

No historic sites or suspected features were identified during the field survey assessment of the Project footprint. Given surface visibility constraints, it cannot be stated with absolute certainty that there are no undetected historic heritage sites present in the study area. However, the potential is assessed as being very low. If undetected features are present in the study area, they are likely to be features associated with pastoral or other agricultural activity. There is no evidence to indicate that more substantive historic heritage features such

as dwelling foundations would be present in the study area. The detailed survey results and discussions are presented in Section 5 of Attachment 11.

4.9 Flood Risk

While the proposed battery site is not within a flood prone hazard area as detailed in the Northern Midlands Local Provisions Schedule flood hazard code, the Proponent has commissioned a flood risk assessment as part of site suitability investigations. The flood risk assessment was carried out by WMA Water and is included as Attachment 12.

WMA Water noted that the contributing catchment area for the small watercourses in the Project area is approximately 1.5 km^2.

Results of the flood risk assessment show that the proposed site location is generally subject to shallow overland flow of 0.1 to 0.2 m during 1% AEP[3] (annual exceedance probability) events. No other significant inundation was observed in the vicinity of the study area. Most of the study area, including the proposed site location, was categorised as flood fringe (i.e. areas outside floodway and flood storage).

Figure 14 shows the areas mapped by WMA Water that are subject to shallow overland flow during a 1% AEP event. The red circled areas are the locations on the TasNetworks' substation access road that were overtopped in the 1% AEP event.

WMA water suggests that the proposed battery site can be potentially protected against the shallow flows by raising the main facilities above the estimated flood levels of 0.1.to 0.2 m plus a freeboard (e.g. 0.5 m).

Design and drainage considerations for the battery site and the access road will be addressed by best practice civil design, which will be informed by a geotechnical assessment of the development area post-approvals.

[3] A 1% AEP flood is a flood that has a 1% chance of occurring, or being exceeded, in any one year.

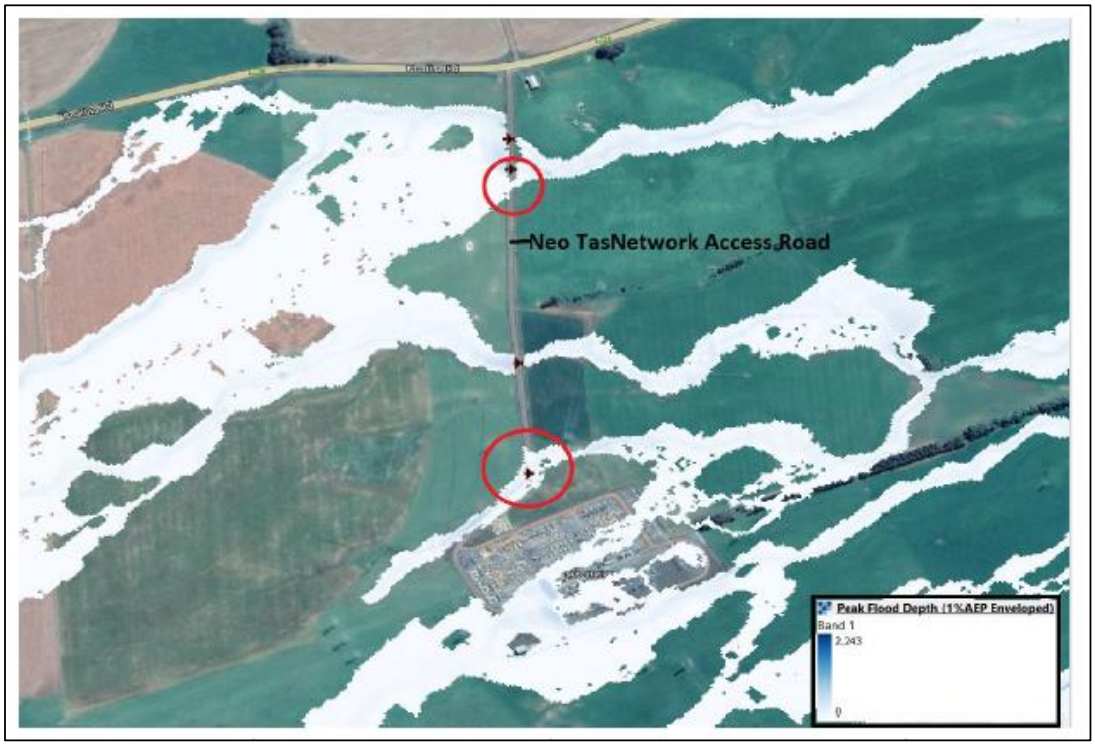


Figure 14: Areas subject to shallow overland flow (0.1 to 0.2m) during a 1% AEP event.

5 Planning Assessment Part A: Zoning

This Section provides details on the zoning of the Project site and responds to the standards applicable to the facility under the Tasmanian Planning Scheme - Northern Midlands.

5.1 Introduction

The Great Lakes Battery site is within the Agriculture Zone under the Tasmanian Planning Scheme - Northern Midlands (the Planning Scheme). In accordance with Table 21.2 of the Planning Scheme the Use is Utilities which is a discretionary use in this Zone.

The Agriculture Zone purpose aims to broadly capture and protect Tasmania's agricultural land that is currently supporting existing agriculture or with the potential to support agriculture, considering the significance of the land for agriculture at a local, regional and State level. The Zone aims to protect land for agriculture by minimising conflict from other non-agricultural uses and avoiding developments that prevent the return of the land to agricultural use. It also provides for use or development that supports the use of the land for agricultural use.

A detailed assessment of the agricultural/primary industry aspects of the Great Lakes Battery proposal are included at Attachment 5.

5.2 Relevant Standards

The following standards are relevant in this assessment:

- 21.3.1 Discretionary uses, Performance Criteria P1 and P2.
- 21.4.1 Building height A1.
- 21.4.2 Setbacks, A1, A2.

5.3 Response to Standards

5.3.1 Standard 21.3.1 Discretionary Uses, Performance Criteria P1

The proposed location is centrally located within the Tasmanian Central Highlands Renewable Energy Zone (REZ). It is anticipated that a battery in this location can play its part in supporting

the Tasmanian Government to achieve a smooth transition towards the goal of 200% renewable energy output by 2040.

The Palmerston substation was selected as the optimal connection for a large battery by Neoen for provision of network services to the Tasmanian region of the National Electricity Market (NEM) following discussions with TasNetworks. The substation is the hub of Tasmania's highest voltage network (220 kV) with direct connections to the State's three major load centres of Devonport, Launceston and Hobart. The battery will connect into the Palmerston substation at 220 kV. Its close proximity to the substation minimises costs and electrical losses by reducing the amount of electricity infrastructure required, such as transmission lines and cabling.

Batteries must be located near a transmission substation with both physical space to accommodate connection infrastructure as well as robust interconnectivity with the rest of the grid to allow it to charge and discharge without thermal limitations. In this way Performance Criteria P1 (b) is relevant as the opportunities to place large batteries are constrained to areas adjacent to accessible large substations such as the Palmerston substation. In addition, Performance Criteria P1 (f) is highly relevant given that the battery is a large-scale utility providing essential services to the Tasmanian high voltage network.

As outlined in the response to the zone purpose, the proposed battery Project minimises alienation of agricultural land while delivering a key service for Tasmania. It allows the diversification of the farm use and by necessity is located next to the substation which is also surrounded by agricultural land. Since all infrastructure is removeable and long-term impacts are unlikely given the nature of the infrastructure, the proposal entails no permanent loss of land and does not constrain or interfere with the current operation of the farm during the operational phase of the battery.

5.3.2 Standard 21.3.1 Discretionary Uses, Performance Criteria P2

Title CT 126579/2 is 754.1 ha and is farmed in conjunction with other land as part of the 'Woodside' property at 4740 Poatina Rd, Cressy. The Woodside property consists of approximately 1,540 ha of land and is utilised for mixed dryland and irrigated farming. The development site for the battery is approximately four hectares and an additional 0.75 ha is required for the new access road from the north. The development site is located on the

northern boundary of the title immediately adjacent to the TasNetworks owned Palmerston substation located at 4554 Poatina Rd, Cressy. The access to the site also borders the farming title to the north (CT 105802/1) located at 1440 Saundridge Rd, Cressy, owned by the Scott-Young family.

The development site and access are flat with a very slight north-easterly aspect at an altitude of approximately 180 m ASL. There are two drains which drain to the north-east eventually joining Woodside Rivulet to the east. Published Land Capability mapping at 1:100 000 scale shows the development site, access and surrounding land to be Class 4 Land Capability. An agricultural site assessment confirmed the Land Capability to be Class 4 with the main limitation being drainage.

Class 4 Land Capability is described as land that is well suited to grazing, but which is limited to occasional cropping or to a very restricted range of crops. Class 1-3 Land Capability is Prime Agricultural Land as defined under the Protection of Agricultural Land Policy 2009 (PAL Policy). Based on a site assessment undertaken by the agricultural consultants there is no Prime Agricultural Land associated with the site, access, or surrounding land (Attachment 5).

The development site and new access road area are limited to dryland grazing due to the existing infrastructure on, and surrounding, the development footprint. Whilst the land capability limitations are likely to be similar to land under irrigation to the south-west it is not feasible to irrigate the development site and access road because of the infrastructure limitations.

The agricultural consultant's report analysed the loss of income arising from the alienation of this agricultural land and concluded that an annual Gross Income of $8,800 is calculated. The report also advised that the loss of these four hectares of dryland pasture from the mixed farming operation (which has a total area of 1,540 ha) is considered to have a minimal impact on productivity from a farm business, local and regional perspective. It is less than 1% of the farm business land area and is likely to represent less than 1% of the farm business Gross Income. Furthermore, the conversion is not considered to be permanent, and the site will be rehabilitated to dryland pasture following decommissioning (Attachment 5).

The potential for any future non-agricultural use to confine or restrain existing adjacent agricultural use during construction and operation also needs to be considered. The battery will have limited noise emissions and based on experience in other agricultural settings it is

unlikely that there would be any impact on the adjacent dryland grazing to the north and west or the irrigated pasture and potential cropping to the south-west either during construction or during ongoing operation.

There are a range of activities associated with dryland grazing and irrigated cropping which could cause conflict with adjacent non-agricultural use. These include spray drift from chemicals which would include fungicide, herbicide, and insecticide, noise from equipment (including shooting for game control), irrigation spray drift, odours, burn offs, and dust. It is unlikely that any of these potential adjacent agricultural activities would create conflict with the Great Lakes Battery. A minimal perimeter setback, with vegetation screening as proposed, is considered appropriate for minimising the risk of constraining agricultural use in the vicinity.

Any conflict with agricultural use of adjacent areas will be minor and temporary as well as potentially reversible, and the predominant form of agricultural use adjacent to the site is grazing. There may be temporary, minor impacts on stock animals from the proposed works, in the form of noise from machinery and potentially dust. Landowners will be able to temporarily move stock animals away from proximity to work sites and thus avoid conflict. There is a very low population density in the area and therefore there is only limited potential for conflict between the proposed works and people undertaking agricultural activities or living in vicinity of the installation. Neoen has also put in place contractual agreements with the owners of Title CT 126579/2 (Woodside) which provide for cooperation and consultation on activities carried out in association with either agricultural activities or the construction and operation of the battery.

5.3.3 Standard 21.4.1 Building Height A1

The Great Lakes Battery will have two structures that exceed the Acceptable Solution A1 of 21.4.1 of the 12 m limits and so Performance Criteria 21.4.1 P1 must be relied on.

The height exceedances are as follows:

- the 220 kV high voltage transmission gantry and transmission lines leaving the substation on the battery site and crossing to the Palmerston substation.
- the lightning protection masts.

The preliminary design for the gantry and the 220 kV transmission lines that come out of the battery substation allow for 25 m in height (Figure 15) and will travel a short distance of approximately 100 m to the connection point at the Palmerston substation.

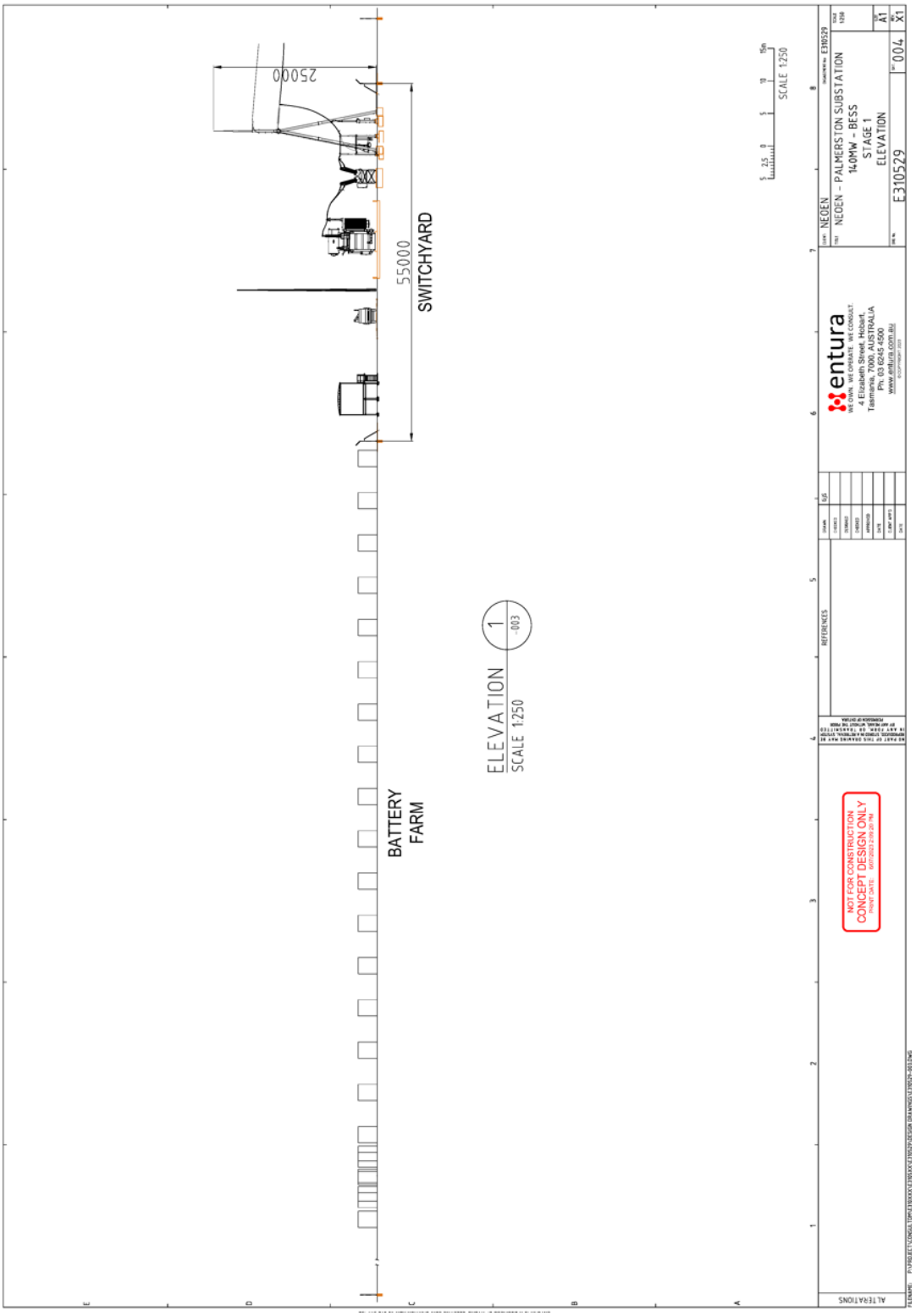


Figure 15: Elevation drawing showing gantry height

This height is a concept design and TasNetworks have flagged that the height of the gantry and transmission lines may need adjusting to suit a suitable connection into Palmerston substation. Neoen will liaise further with TasNetworks in the detailed design stage to ensure all infrastructure heights meet the needs of both parties involved.

The lightning protection masts are anticipated to be 22 m high and are tall thin poles as shown on Figure 16 (taken from the Capital Battery site in the Australian Capital Territory which is another Neoen project). Note that not all features of the battery site shown on this Figure will necessarily be included at the Great Lakes Battery site (e.g. the walls surrounding the site). As shown on Figure 9, it is expected that two of these masts will be installed in the high voltage substation area of the battery site.

Figure 16: Capital Battery showing tall thin lightning protection masts

Both features are essential for the operation of the Great Lakes Battery for transmission of energy and protection of the facility and are thus consistent with the requirements of Performance Criteria 21.4.1.P1. Based on the Landscape Visual Impact Assessment (LVIA) undertaken for the Project (Attachment 8) it is considered that these features do not cause an unreasonable impact on the adjoining properties given the proximity to the Palmerston substation and the thin nature of the lightning protection masts.

The LVIA was undertaken using an accepted, replicable method of analysis of the nature and scale of visual impacts and opportunities to reduce or eliminate any impacts (Attachment 8). Key components of this assessment were the development of photomontages from key viewpoints and seen view analysis maps for Stage I and Stage 2 of the development.

The assessment identified that the development will not be seen from many locations due to the local topography, viewing distance and existing vegetation within the landscape (Attachment 8, Map 4.3). It should be noted that there are no public views closer than one kilometre for this development (Attachment 8, Table 4.2) and the only places with views less than one kilometre are on private property on the Woodside property where the development is proposed. The views from the two residences are screened by existing vegetation.

In the midground (1-5 km) views of the battery will be seen from Poatina Village, from a residence on Poatina Road west and a few points along Poatina and Saundridge Roads. Some of the taller infrastructure, such as the lightning masts could theoretically be seen from 5-10 km away. The development will not be framed against the sky from Mount Blackwood but seen against the darker forms of the surrounding landscape.

It will be very difficult to see the Project from locations more than 10 km from the site. Between the screening from the local topography and substantial hedgerows (Attachment 8, Photograph 4.3) it will be very difficult to see the battery modules that form the bulk of the development given the low height of the modules. The taller components such as the lightning masts do not have the bulk to make them noticeable from a distance. It will be difficult to make out the infrastructure from this distance, particularly on grey days with reduced visibility and some capacity for the taller elements to blend with the background landscape.

Review of Tables 4.2 and 4.3 of Attachment 8 suggests that the development site has low sensitivity to change with only a couple of locations that have a moderate sensitivity. The following factors contribute to this rating:

- most of the near and midground views are screened or partially screened by local topography and vegetation;

- the view from Poatina village is already altered by the presence of the existing substation and transmission lines;
- the landscape is relatively flat and of moderate scenic quality, lacking features such as the iconic dolerite peaks and dramatic forms of landscapes found further west;
- the landscape is highly variable in terms of a patchwork of natural and built forms;
- views from the local road network are fleeting, rarely in a focal view, with roadside screening and topography reducing the duration of viewing. Furthermore, given surrounding landforms and viewing angles, the development will not be seen against the skyline from these roads; and
- one of the foreground views is from a nearby residence on Poatina Road looking towards the west that already has views to the substation, from which some views to the new infrastructure are expected or unavoidable.

The visual absorption capability of the site (that is the ability of the landscape to accommodate visual change) is considered to be moderate to high with the following factors contributing to this:

- the development is generally well screened by vegetation and local topography from many locations except for side views from Poatina Road and a clear view from Poatina village;
- the tallest parts of the development (the lightning masts at 22 m high and the gantry and 220 kV HV transmission lines at 25 m high) may be visible from roads and some residences, but the view will not be prominent because of the limited bulk of this infrastructure and the backdrop of the Great Western Tiers within the wider landscape topography;
- much of the development will be fleeting and difficult to see as it will mainly be outside the focal view when viewed from vehicles travelling on Poatina Road; and
- the varied colours of the landscape and the dominance of features such as the dark macrocarpa hedges mean a high visual absorption capability.

In terms of mitigation of visual impacts, the following inherent mitigation factors are relevant:

- use of GIS data to understand the seen views;
- the siting and integration of the development with existing infrastructure of the Palmerston substation;
- eliminating vegetation clearing by using a disturbed location;
- general low scale and height of infrastructure elements; and
- the preparation of a landscape plan for the site.

Other visual mitigation measures being considered by Neoen include:

- locating works and storage areas in the existing cleared areas;
- minimising the impacts of repeated access of construction vehicles and equipment delivery to avoid the loss of vegetative cover and erosion;
- use of materials of an appropriate finish to blend with the landscape and minimise potential for glint and glare.

In conclusion, the LVIA has considered the character, extent and significance of the visual values of the development site and its surrounds.

The visibility of the development was shown to be largely restrained topographically to near and midground views from Poatina village and on Poatina Road (Attachment 8, Section 4). The sensitivity of these views was rated low given that views are mostly obscured by infrastructure or large hedgerows. Also, views from the road are fleeting and often not within the focal view as viewed from a vehicle.

The landscape was found to have a moderate to high visual absorption capacity which helped to minimise the potential visual impacts that might have arisen in a more natural setting and without the existing substation and overhead transmission lines dominating the site.

Together, these factors suggested that the magnitude of impact of the development was low. Magnitude in conjunction with estimated sensitivity and visual absorption capability meant

the conclusion was reached that development would have a low significance of visual impact. Neoen has achieved significant benefits in limiting potential visual impacts by the proposed siting and integration of the development with the existing infrastructure of the Palmerston substation. The proposed landscape plan (Figures 12 and 13) shows planting of vegetation around the border of the site, which will help to reduce the visibility of the proposed development from many locations.

Overall, Neoen believes the Performance Criteria in Development Standard 21.4.1 P1 (a) to (f) have been met.

5.3.4 Standard 21.4.2 Setbacks A1

The Great Lakes Battery Project complies with the Acceptable Solution specified in the Development Standard 21.4.2 A1. Specifically, all buildings will have a setback from all lot boundaries of not less than 5 m (Figure 17).

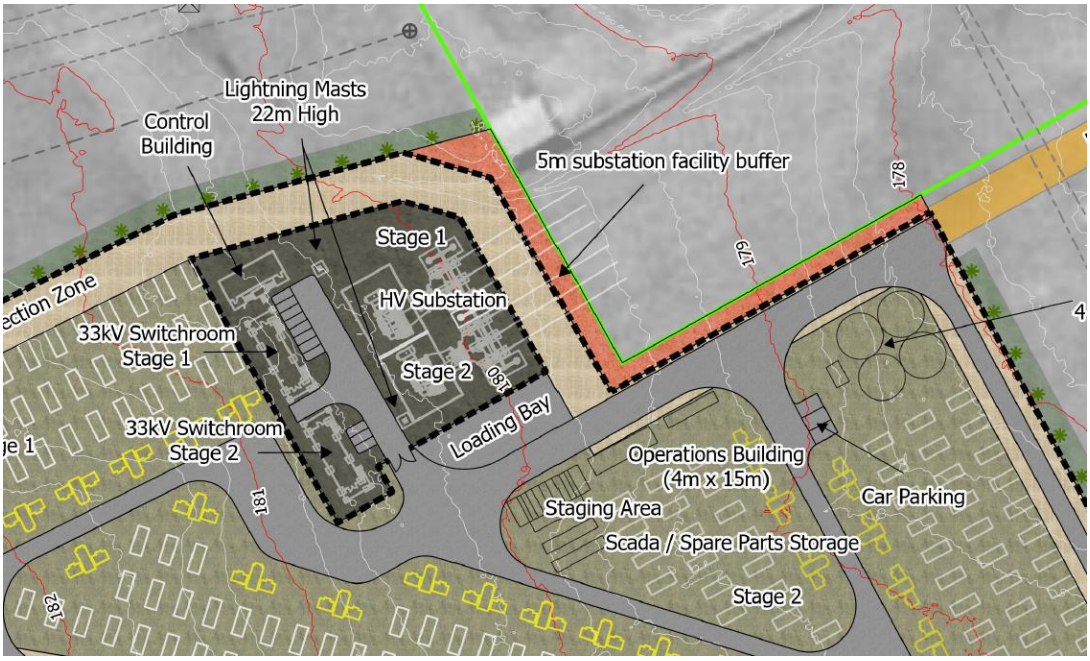


Figure 17: Setbacks to nearest boundary with TasNetworks' property

6 Planning Assessment Part B: Codes and Overlays

This Section provides details on the Codes and Overlays applicable to the development site and responds to the standards which apply to the facility under the Tasmanian Planning Scheme - Northern Midlands.

6.1 Relevant Codes and Overlays

Northern Midlands Council planning staff have provided advice on the application of the Northern Midlands Planning Scheme Codes and Overlays and this has been used to guide the response to the Planning Scheme below.

Each of the subsections within Section 6 are set out as follows:

- Introduction to explain the intent of the Code and its relevance to the Great Lakes Battery Project.
- A summary of the relevant standards requiring a response.
- A response to these standards.

6.1.1 C1.0 Signs Code

Introduction

The Signs Code provides for advertising and the display of information on signs with requirements to protect pedestrian and vehicle safety and ensuring signs do not adversely impact visual amenity.

Relevant Standards

- C1.6.1 Design and siting of signs
- Table C1.6 Sign Standards

Response to Standards

The following signs will be used at the Great Lakes Battery Project:

- Mandatory signage advising who the Principal Contractor is, address, contact details. This sign will be positioned at a prominent location such as the entrance to the site or site office.
- 'Keep Out' or similar signs at all access gates and along perimeter fencing if required.
- Construction signs.
- Critical safety commitments.

- Muster points.
- Speed limits.
- Fire extinguishers.
- First aid kits.
- Site office.
- Overhead lines.
- Emergency contacts.
- Protective equipment.
- Security notice CCTV in use 24 hours.
- Danger High Voltage equipment in use.
- Authorised personnel only.
- Individual battery module labelling.
- Road and Parking signage.

No other signs are planned to be used for the Great Lakes Battery Project.

The signs listed above are categorised as regulatory signs under Table C1.3 of the Tasmanian Planning Scheme – Northern Midlands. In accordance with C1.4.1 these signs are exempt from the code.

6.1.2 C2.0 Parking and Sustainable Transport Code

Introduction

The Parking and Sustainable Transport Code provides the requirements for car parking, access and commercial vehicle facilities for all uses. The development standards provide for the physical and spatial requirements such as the layout of parking areas.

Relevant Standards

- C2.6.1 Construction of parking areas.
- C2.6.2 Design, and layout of parking areas.
- C2.6.3 Number of accesses for vehicles.

Please note that Use Standard C2.5.1 Car Parking numbers does not apply as there are no requirements for car parking spaces for a Utilities Use in an Agriculture Zone (refer Table C2.1). Use Standards C2.5.4 and Development Standard C2.6.6 Loading Bays do not apply

given that the Great Lakes Battery is not a use class listed in C2.2.3. In addition, Development Standard C2.6.5 does not apply because this is a work site and pedestrian access will not be permitted.

As well as the standards in the Planning Scheme the access road and loading bays will be constructed to meet the requirements of the TasNetworks' standard *Substation Civil Design and Construction Standard R590634 Version 1.0, June 2018*.

Response to Standards

C2.6.1 Construction of parking areas

Car parking, access ways, manoeuvring and circulation spaces will meet the relevant requirements of Acceptable Solution C2.6.1 A1, that is parts (a) and (b). The proposed additional accessways, car parking spaces and drive through lanes are proposed to be constructed of either crushed rock aggregate, concrete or asphalt with appropriate drainage. Figure 9 shows the location of carparking and the access ways. Access roads, turning circles, and manoeuvring have been designed to allow the transport of major battery components such as 100 tonne transformer loads. These access roads and parking will be gravelled. Drainage will comply with the requirements of this Development Standard and the TasNetworks' *Substation Civil Design and Construction Standard R590634 Version 1.0, June 2018*. Water will be drained to an on-site stormwater system.

Internal access roads will be provided to enable vehicular access around the site during construction and operation. These roads will be designed to industry standard.

C2.6.2 Design and layout of parking areas

The parking areas have been designed to comply with the requirements specified in Development Standard Acceptable Solution C2.6.2 A1.1 and A1.2. Table 1 provides a more detailed response to each of the requirements of Acceptable Solutions A1.1 and A1.2.

Table 1: Clause C2.6.2 Acceptable Solution Assessment

Planning Scheme Requirement	Comments
A1.1. Parking, access ways, manoeuvring and circulation spaces.	
Have a gradient in accordance with *Australian Standard AS 2890 - Parking facilities, Parts 1-6.*	Satisfied: The car park will be relatively flat, with grades not exceeding 1:16.
Provide for vehicles to enter and exit the site in a forward direction where providing for more than 4 parking spaces.	Satisfied: All vehicles can enter and exit the car park in a forward direction.
Have an access width not less than the requirements in Table C2.2.	Satisfied: The accessway widths are appropriate for a site with three car spaces, with a width of approximately 6 m for the first 100 m, narrowing to a width of approximately 4 m for the remainder of the site. Furthermore, the access way widths are no less than 4.2 m at changes of direction.
Have car parking space dimensions which satisfy the requirements in Table C2.3.	Satisfied: Car parking spaces have been designed in exceedance of the Planning Scheme requirements to provide comfortable parking for all vehicle types. In this regard, all spaces have a minimum width of 3.5 m and a length of over 6 m.
Have a combined access and manoeuvring width adjacent to parking spaces not less than the requirements in Table C2.3 where there are 3 or more car parking spaces.	Satisfied: The accessway adjacent to the car spaces has a width of no less than 4.8 m.
Have a vertical clearance of not less than 2.1 m above the parking surface level.	Satisfied: All car parking is provided as open-air parking and as such there are no overhead obstructions.
Excluding a single dwelling, be delineated by line marking or other clear physical means.	Satisfied: All parking will be line-marked.
A1.2. Parking spaces provided for use by persons with a disability.	
Be located as close as practicable to the main entry point to the building. Be incorporated into the overall car park design. Be designed and constructed in accordance with Australian/New Zealand Standard	N/A: As no car parking is required for the development there is no requirement to provide accessible parking.

Planning Scheme Requirement	Comments
AS/NZS 2890.6:2009 Parking facilities, Off-street parking for people with disabilities.	

C2.6.3 Number of accesses for vehicles.

The proposal seeks to utilise the existing Palmerston substation access road which is accessed via Poatina Road. As noted in Section 2.4, the road will be repaired in line with the standards set out in TasNetworks requirements for access roads as outlined within their Substation Civil Design and Construction Standard. Furthermore, the proposed access road will connect to the substation access road and wrap around the east of the substation, providing access to the Project site. This proposed access road will be constructed in accordance with the transformer road requirements outlined within the same TasNetworks document. As such, the proposal complies with the Acceptable Solution within the Planning Scheme as no new accesses are proposed to the public road network.

6.1.3 C3.0 Road and Railways Asset Code

Introduction

The code seeks to protect the functions of roads based on a strategic road hierarchy and protect road and rail corridors from incompatible uses. It applies to proposals such as Great Lakes Battery that will increase traffic generation.

Relevant Standards

- C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction.
- Table C3.1 Acceptable increase in annual average daily traffic to and from the site (total ingress and egress).

In addition to the above, the relevant components of the TasNetworks standard *'Substation Civil Design and Construction Standard R590634, Version 1.0, June 2018*' will be complied with, particularly Section 6, Roads and Surfacing.

Response to Standards

C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction

The construction of stage 1 of the Great Lakes Battery, from mobilisation to practical completion, is scheduled to occur over approximately 12 - 18 months. Stage 2, if it proceeds, will be constructed over a similar length of time. During the Stage 1 works, construction activity and workforce will peak over a six-month period.

Across the construction period, the site will receive rigid trucks, including Heavy Rigid Vehicles (HRVs) and Medium Rigid Vehicles (MRVs). Additionally, the Great Lakes Battery will need to facilitate loading by semi-trailers, B-doubles and truck and dog combinations on an ad-hoc basis. There will also be many construction-related light vehicles accessing the site.

A Traffic Impact Assessment (TIA) (Attachment 6) and Preliminary Traffic Management Plan (TMP) (Attachment 7) have been undertaken for the Project. The TIA shows that the volume of traffic during construction exceeds the limits specified in Use Standard C3.5.1 Acceptable Solution A1.4 and Table C3.1. Thus, reliance is made on the TIA and the TMP to meet the requirements of Performance Criteria P1 of the Tasmanian Planning Scheme – Northern Midlands including the commitments for mitigating any impacts on the road networks.

It is worth noting that during the operation phase of the Great Lakes Battery, traffic generated by the site will be very low and infrequent. Accordingly, the operational traffic will not exceed the acceptable limits listed in the Planning Scheme.

The TIA and TMP detail the potential safety and physical impacts on the road networks including increased traffic volumes, the types and numbers of vehicles accessing the site, details of the proposed access routes and alternatives and any speed restrictions.

The roads to be used by construction related traffic and the current traffic volumes are listed in the Preliminary TMP (Attachment 7). Information on traffic generation estimates, crash history, and traffic management measures are also included in the Preliminary TMP.

The majority of construction vehicles will travel to the site from the north via Poatina Road, with the majority of construction vehicles traveling from the greater Launceston area.

Site access is proposed to be along the existing Palmerston substation road and then along a new access that will connect to the existing road. The new access will wrap around the north-east and south-east perimeter of the substation. This new access will be designed in

accordance with TasNetworks requirements for transformer roads, as outlined within their Substation Civil Design and Construction Standard.

The site access point will be via a gate at the north of the Project site. Based on this arrangement, construction vehicles will be able to queue along the new access road if required, therefore ensuring no impact to the Palmerston substation road or the broader public road network.

Traffic volumes in the vicinity of the Project site, including heavy vehicles as a percentage of total traffic, have been identified in the TIA (Attachment 6). Information on site access, sight distances, loading and parking are also included in the TIA.

AS/NZ Standard 2890.1 requires a minimum sight distance of 153 m for a frontage road with a speed of 100 km/h such as Poatina Road. Sightlines were assessed during the site visit, which indicated no major obstructions to sight distance such that the requirements are exceeded at the proposed site egress point in both directions. In this regard, to the west of the site access, sight distance exceeds 300 m while to the east of the site access, sight distance exceeds 800 m.

Neoen will ensure that all necessary permits associated with transporting components will be obtained such as National Heavy Vehicle Regulator (NHVR) permits and Department of State Growth approvals. Additionally, Neoen will be undertaking the mitigation measures identified in the TIA and TMP including:

- Road dilapidation survey to be undertaken with the OverSize/OverMass haulage operator.
- A construction Traffic Management Plan to address broader impacts to road infrastructure and safe clearance of TasNetworks transmission lines.

In summary, based on the findings of the TIA and the TMP and subject to the measures listed above, the Project meets the requirements of the Tasmanian Planning Scheme - Northern Midlands.

6.1.4 C4.0 Electricity Transmission Infrastructure Protection Code

Introduction

The Electricity Transmission Infrastructure Protection Code seeks to protect major electricity transmission infrastructure assets, future assets and corridors, as well as ensuring use and development near this infrastructure does not adversely affect its safe and reliable operation. The works required to connect the battery to the grid will potentially be undertaken in one or more of the Protection or Buffer areas within the code.

Relevant Standards

- C4.5.2 Dust or other airborne particulates within an electricity transmission corridor
- C4.5.3 Dust or other airborne particulates within a substation facility buffer area
- C4.6.1 Buildings or works within an electricity transmission corridor
- C4.6.2 Buildings or works within a substation facility buffer area

In addition to the above, the relevant requirements of the TasNetworks standard '*Substation Civil Design and Construction Standard R590634 Version 1.0, June 2018*' will be adhered to.

Response to Standards

- C4.5.2 Dust or other airborne particulates within an electricity transmission corridor
- C4.5.3 Dust or other airborne particulates within a substation facility buffer area

Air quality during construction

During construction, the primary air quality risk will be dust generated from site clearing, cut and fill activities and from wind erosion of stored materials and exposed surfaces potentially resulting in impacts at surrounding sensitive receivers. The intensity of dust-generating activities during construction is expected to be greatest during bulk earthworks until such time as the battery compound hardstand is established.

Dust can be created from vehicle movement on unsealed roads during dry weather. There will also be exhaust emissions from plant and equipment used during construction.

The following mitigation measures will be implemented during construction:

- Daily construction activities will consider the expected weather conditions for each workday and where necessary modify or suspend activities during dry and windy weather.

- Approaches to minimise exposed surfaces, such as stockpiles and cleared areas, including partial covering of stockpiles will be adopted where practicable.
- Dust-minimising measures on exposed surfaces will be implemented, such as watering of exposed soil surfaces, soil fixatives, dust mesh, water trucks and sprinklers to minimise dust generation.
- Site entry and exit points will be clearly defined to minimise tracking of soil on surrounding roads.
- Heavy vehicles entering and leaving the site will be covered to prevent material escaping during transport, where there is a risk of this occurring.
- Vehicles and construction equipment operating onsite will be kept well maintained and will be turned off when not operating.
- The handling of spoil will be minimised when excavating and loading vehicles.
- Disturbed areas at the site will be stabilised with gravel or similar or rehabilitated as soon as practicable.
- A formal internal access road would be provided on the site during construction to limit the need for vehicles to travel on unsealed surfaces.
- Any trenching works will take place progressively along the transmission line corridor and all disturbed areas will be progressively backfilled and stabilised, limiting the potential for dust impacts.

The air quality impacts during the construction phase of the Great Lakes Battery Project can be managed to ensure that impacts on the Palmerston substation and its associated transmission infrastructure are minimal.

Air quality during operation

During operation, localised dust may potentially be generated from vehicles travelling to carry out routine inspection works and maintenance activities. To minimise dust generation, the internal access road will be constructed using a hardstand material. The impacts on the transmission line corridors and the Palmerston substation from dust through the operational phase is expected to be negligible.

Response to Standards

- C4.6.1 Buildings or works within an electricity transmission corridor
- C4.6.2 Buildings or works within a substation facility buffer area

The battery site is not within the Inner Protection Area of the electricity transmission corridor however the new access road crosses the Inner Protection Area in two places (Figure 18). As such the Development Application relies on satisfying Performance Criteria C4.6.1 P1 as described below.

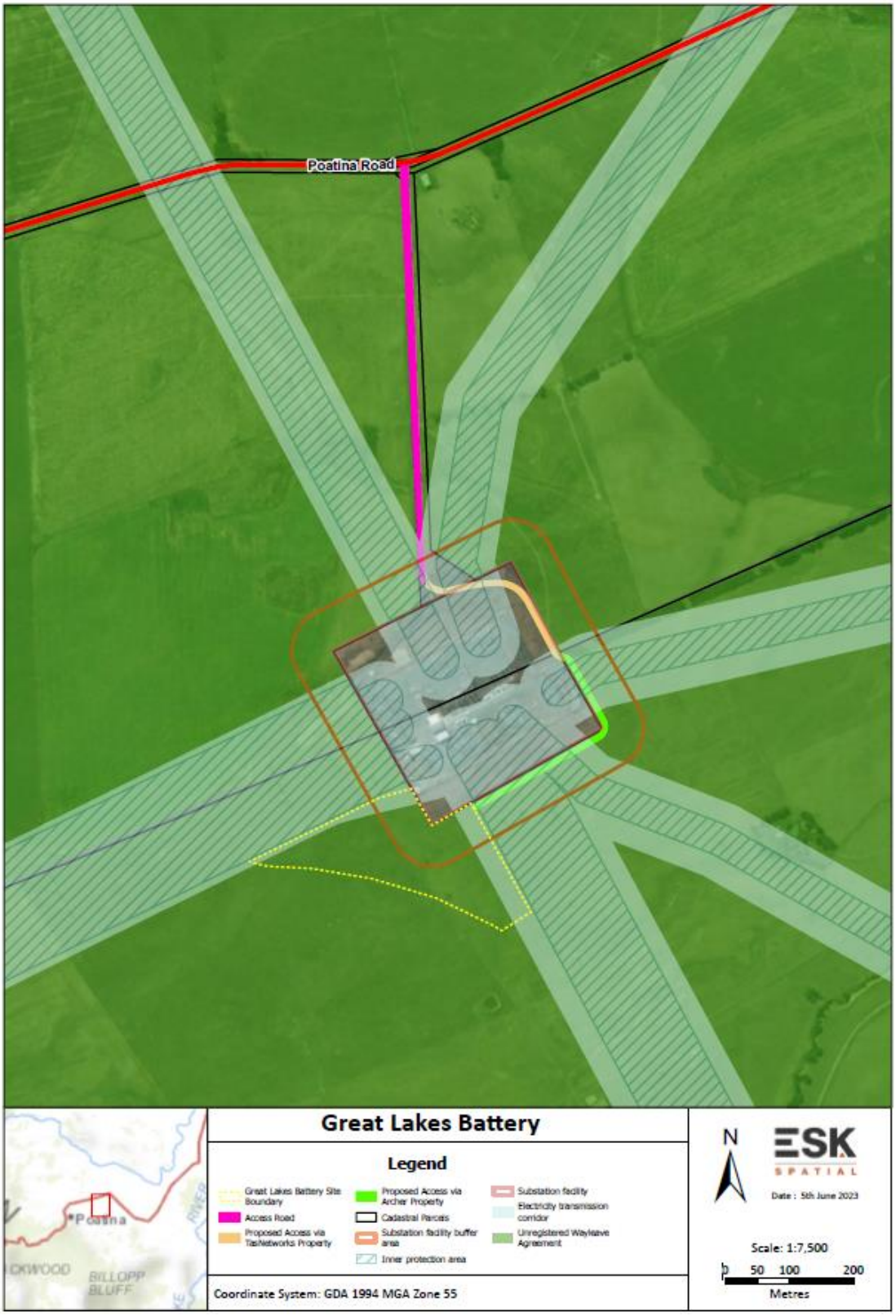


Figure 18: Great Lakes Battery site, roads and Electricity Transmission Corridor

It is intended that the Great Lakes Battery will be constructed in accordance with the Asset Development Agreement (ADA) requirements negotiated with TasNetworks to ensure the design of the battery and access road will not create any safety or security issues for TasNetworks, nor create any risks to the battery site. The ADA will specify:

- Safety Standards: The agreement will outline the safety requirements and standards that the Great Lakes Battery must adhere to during the development and construction phases. This ensures that the Project is executed in a manner that prioritizes the safety of workers, the public and the infrastructure.
- Access to Infrastructure: The agreement will specify the terms and conditions for the Great Lakes Battery access to TasNetworks' existing infrastructure, including the transmission line easements and Palmerston substation.
- Design and Construction Guidelines: The agreement will provide design and construction guidelines to ensure that the Great Lakes Battery's infrastructure aligns with TasNetworks' standards and requirements. This helps in maintaining compatibility, reliability, and safety of the overall network.
- Compliance with Regulations: The agreement will require Great Lakes Battery to comply with relevant regulations, permits, and industry standards related to safety, environmental impact, and construction practices.

In addition to the above, discussions have been undertaken with TasNetworks on the potential impacts of the new access road and they have advised the relevant requirements of the TasNetworks *Substation Civil Design and Construction Standard R590634 version 1.0, June 2018* which need to be complied with:

- Section 2 - General requirements for civil infrastructure including environmental impact assessment.
- Section 5 - Site Clearance, excavation and earthworks.
- Section 6 - Road and surfacing.

6.1.5 C5.0 Telecommunications Code

This code does not apply as this development is not a telecommunication facility within the Tasmanian Planning Scheme – Northern Midlands.

6.1.6 C6.0 Local Historic Heritage Code

The Woodside property is listed on the Tasmanian Heritage Register (No. 5072) but the listing boundaries in the listing statement for the site do not intersect with the Great Lakes Battery Project footprint.

In accordance with Clause C6.2.3 of the Tasmanian Planning Scheme – Northern Midlands the code does not apply to a registered place entered on the Tasmanian Heritage Register unless for the lopping, pruning, removal or destruction of a significant tree as defined in the Code. These actions are not contemplated as part of the Great Lakes Battery Project and so this code does not apply.

6.1.7 C7.0 Natural Assets Code

Introduction

The Natural Assets Code aims to minimise impacts on the natural values of inland water bodies (watercourses, wetlands and lakes) and coastal areas and identified priority vegetation and threatened fauna species. The battery site and access road include areas that intersect the waterway and coastal protection area overlay.

Relevant Standards

- C7.6.1 Buildings and works within a waterway and coastal protection area or a future coastal refugia, Performance Criteria P1.1 and P3.
- The relevant requirements of Section 8 Site Drainage, of the TasNetworks standard *Substation Civil Design and Construction Standard R590634 Version 1.0, June 2018*.

Response to Standards

The following two specialist studies are relied on to respond to the requirements of this standard:

- Palmerston Utility Scale Battery Project[4], Ecological Assessment (Attachment 9).
- Preliminary Soil and Water Management Plan, Great Lakes Battery (Attachment 13)

A Preliminary Soil and Water Management Plan has been prepared for the Great Lakes Battery site and access road that outlines how the Performance Criteria in P1.1 will be met. In summary, soil and water issues will be addressed throughout the construction and operation stages of the Project, as well as providing details of standard management measures that may be adopted at the site. It should be noted that more specific management measures will be detailed in the Construction Environmental Management Plan (CEMP) and the Operational Environmental Management Plan (OEMP) which will be prepared for the Project when geotechnical investigations, detailed engineering design and construction planning is undertaken post-approvals. This information will inform the civil engineering design of the battery area and the new access road and will detail the appropriate management of soils to minimise erosion and water issues.

The Preliminary Soil and Water Management Plan details potential mitigation measures to be undertaken by Neoen in the construction of the site and road access. In summary, the objectives of managing soil and water during construction are to minimise erosion, limit sediment transfer and prevent impacts on water quality and nearby watercourses. These objectives are consistent with those stipulated under Performance Criteria P1.1 and Performance Criteria P3 of the Tasmanian Planning Scheme -Northern Midlands.

The Project aims to be compliant with all applicable legislation, regulations, standards, codes licenses and the State Policy on Water Quality Management 1997 and will prepare detailed civil design drawings for the battery site and the access road that include drainage, erosion and sediment control measures.

Additionally, the upgrade works on the existing TasNetworks substation access road carried out as part of the Project will consider the requirements of *TasNetworks' Standard* –

[4] The Great Lakes Battery Project was known as the 'Palmerston Utility Scale Battery Project' at the time this assessment was done.

Substation Civil Design and Construction Standard R590634, Version 1.0, June 2018, particularly in relation to site clearance, excavation and earthworks (Section 5 of the standard), Roads and surfacing (Section 6 of the standard) and Site drainage (Section 8 of the standard).

An ecological assessment has been undertaken for the Project (Attachment 8). The study had a particular focus on identifying potential flora and fauna issues at the Project site, particularly in relation to State and Commonwealth listed species and to provide advice on mitigation of impacts on natural values.

The study noted that native vegetation has largely been cleared from the site and the land cropped and grazed for many years. The vegetation present is best categorised as agricultural land. No vegetation communities listed on either the *Nature Conservation Act* 2002 or the *Environment Protection and Biodiversity Conservation Act* 1999 were recorded from the site.

Fauna habitat at the site is of very low quality due to the agricultural nature of the area. Some mammal species may occasionally utilise the site and some bird species may overfly the area but due to lack of habitat, no threatened fauna are likely to reside on the site. Due to the highly modified nature of the study area and small scale of the works there is little chance that there will be an impact on any significant fauna values. The study concluded that no significant fauna or habitat is likely to be impacted by the proposed works.

6.1.8 C8.0 Scenic Protection Code

The Scenic Protection Code does not apply to the Great Lakes Battery as it does not lie within a Scenic Protection Area overlay or a Scenic Corridor overlay of the Tasmanian Planning Scheme – Northern Midlands. Notwithstanding, Neoen has undertaken a Landscape Visual Impact Assessment (LVIA) given the potential significant public interest in this aspect of the development (Attachment 8).

The LVIA has considered the character, extent, and significance of the visual values of the development site and its surrounds. The visibility of the development was shown to be largely restrained topographically to near and midground views from Poatina village and on Poatina Road (Section 4). The sensitivity of these views was rated low given that views are mostly

obscured by infrastructure or large hedgerows. Also, views from the road are fleeting and often not within the focal view as viewed from a vehicle.

The landscape was found to have a moderate to high visual absorption capacity which helped to minimise the potential visual impacts that might have arisen in a more natural setting and without the existing substation and overhead transmission lines dominating the site. Together, these factors suggested that the magnitude of impact of the development was low. Magnitude in conjunction with estimated sensitivity and visual absorption capability meant the conclusion was reached that development would have a low significance of visual impact.

Further detail on potential impacts and mitigation measures to protect landscapes is provided in subsection 21.4.1 Building Height A1 above.

6.1.9 C9.0 Attenuation Code

The Attenuation Code does not apply because this activity is not a sensitive use, a subdivision or one of the activities listed in Table C9.1 or Table C9.2 of the Tasmanian Planning Scheme – Northern Midlands.

6.1.10 C10.0 Coastal Erosion Hazard Code

The Coastal Erosion Hazard Code does not apply to this activity as it is not located within a coastal erosion hazard area of the Tasmanian Planning Scheme – Northern Midlands.

6.1.11 C11.0 Coastal Inundation Hazard Code

The Coastal Inundation Hazard Code does not apply to this activity as it is not located within a coastal inundation hazard area of the Tasmanian Planning Scheme – Northern Midlands.

6.1.12 C12.0 Flood-Prone Areas Hazard Code

The Flood-Prone Areas Hazard Code does not apply to this activity as it is not located within a flood-prone area of the Tasmanian Planning Scheme – Northern Midlands.

6.1.13 C13.0 Bushfire Prone Areas Code

The Bushfire-Prone Areas Hazard Code seeks to reduce risks to human life and property and minimise costs to the community arising from bushfire hazards. Bushfire-Prone Areas are mapped in an overlay prepared by the Tasmanian Fire Service.

The proposed development area is mapped as being bushfire-prone under the Tasmanian Planning Scheme - Northern Midlands. As part of the development, it is proposed to store up to 140,000 litres of oil on site in the HV transformers. The oil (Nytro Libra) is not classed as a flammable liquid, but rather a Class C2 combustible liquid. This category of combustible liquid does not meet the definition of a 'Hazardous Use' of the Bushfire-Prone Areas Code of the Planning Scheme.

There are no other elements of the proposed development that trigger other aspects of the Bushfire-Prone Areas Code. Therefore, the Bushfire-Prone Areas Code does not apply to this development (Subsection 6 C13 Bushfire Prone Areas Code).

A Bushfire Exemption Report has been prepared for this site and is at Attachment 4.

The impact of bushfire will be assessed under the *Building Act 2016* and the *Building Regulations 2016*. Under the National Construction Code, the site office building is best described as Class 5 and the storage building as Class 7b. The storage building will be used to store spare componentry that is used when a fault or maintenance is required.

6.1.14 C14 Potentially Contaminated Land Code

The Potentially Contaminate Land Code does not apply to this activity as it is not a sensitive use as defined in C12.2.1 and Table C14.1 of the Tasmanian Planning Scheme - Northern Midlands.

6.1.15 C15.0 Landslip Hazard Code

The Landslip Hazard Code does not apply to this activity as there are no high, medium-active, medium or low landslip overlay areas in the vicinity of the Great Lakes Battery site within the Tasmanian Planning Scheme - Northern Midlands.

6.1.16 C16.0 Safeguarding of Airports Code

The Safeguarding of Airports Code incorporating the Airport Noise Exposure area overlay and the Airport Obstacle Limitation area overlay do not apply to this site within the Tasmanian Planning Scheme - Northern Midlands.

7 Planning Assessment Part C: Other Regulatory and Policy Instruments

This Section provides details of other legislative requirements that have been considered during the development of the Great Lakes Battery Project.

7.1 Assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999)

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) provides for the protection of matters of national environmental significance and the conservation of Australia's biodiversity. There are nine 'triggers' that may initiate Commonwealth involvement in a project. These are:

- listed threatened species and communities.
- listed migratory species.
- Ramsar wetlands of international importance.
- Commonwealth marine environment.
- world heritage properties.
- national heritage places.
- the Great Barrier Reef Marine Park.
- nuclear actions.
- a water resource, in relation to coal seam gas development and large coal mining development.

The results of the ecological assessment (Attachment 9) notes that no vegetation communities or flora listed on the *Environment Protection and Biodiversity Conservation Act 1999* were recorded from the site. No significant fauna or habitat is likely to be impacted by the proposed works.

A referral to the Commonwealth Government under the *Environment Protection and Biodiversity Conservation Act* 1999 is considered unnecessary given the results of the flora and fauna assessment and the highly modified nature of the Project area.

7.2 Assessment under the *Environmental Management and Pollution Control Act 1994* (EMPCA 1994)

Discussions were held with representatives of the Tasmanian EPA in February 2022 to establish the EPA's view on the application of the *Environmental Management and Pollution Control Act 1994* (EMPCA) to the Project. The EPA advised that based on the information provided on the proposal it would be extremely unlikely that the Director would see it necessary to call the Project in under Section 24 of EMPCA. The EPA noted that areas of interest to the EPA, such as noise and visual considerations will be assessed as part of a Development Application to the Northern Midlands Council.

7.3 Assessment under Tasmanian State Policies

The State policies relevant to the Project are the State Policy on the Protection of Agricultural Land and the State Policy on Water Quality Management.

7.3.1 State Policy on the Protection of Agricultural Land 2009

The State Policy on the Protection of Agricultural Land 2009 aims to conserve and protect agricultural land so that it remains available for the sustainable development of agriculture, recognising the particular importance of prime agricultural land. As assessment of the impact of the Project on the agricultural potential of the area is set out in Section 5.3.2 above.

The land on which the Project will be constructed is Class 4 land, which is marginal for cropping but can support grazing. The area of grazing land to be 'lost' (temporarily) to the development footprint is approximately 4 hectares, and this will not have an impact on the present agricultural use. Neoen considers that the Great Lakes Battery Project is consistent with the Policy because it will not interfere with the current agricultural use of the site.

7.3.2 State Policy on Water Quality Management 1997

The State Policy on Water Quality Management 1997 provides a framework for the development of ambient water quality objectives and the management and regulation of point and diffuse sources of emissions to surface waters.

The Great Lakes Battery Project will adopt best practice environmental management during construction and operation and will not impact on nearby waterways or aquatic ecosystems. Management of civil works shall ensure sediments do not migrate to adjacent waterways and there will be no negative impact to groundwater.

Implementation measures outlined in the Preliminary Soil and Water Management Plan (Attachment 13) will ensure that water quality is maintained through the proposed development. In addition, best practice environmental management is to be implemented to ensure that pollutant discharge is avoided wherever possible or reduced as much as practicable. Neoen considers that the proposed development will comply with the State Policy on Water Quality Management.

8 Stakeholder Consultation

This Section details the specific stakeholder consultation initiatives that have been undertaken as part of the Great Lakes Battery Project. Neoen will continue to prioritise ongoing stakeholder engagement throughout the lifetime of the Project until decommissioning.

8.1 Neighbour Engagement

All neighbours and/or property owners within a three-kilometre radius of the proposed development were contacted by phone and/or email and an opportunity was provided for the Neoen Project team to provide a briefing on the Project. Face to face meetings have been held with some of the neighbours, while others have been communicated with by email or phone. Information was provided by members of the Neoen Project team and maps and Project pamphlets were made available to members of the public. Feedback on various aspects of the Project was received.

An in-person meeting was held between Neoen and two representatives from Fusion Poatina on Tuesday 9 May 2023. Fusion is a Christian youth and community organisation that bought the village of Poatina in 1995 and still owns most of the dwellings in the village. According to 2016 census data, the village has a population of 96 people. The battery Project and potential community benefit-sharing ideas were explored with Fusion representatives. Several other residents of Poatina village subsequently attended the community open information day on 31 May 2023 where more detailed information on the Project and community benefit sharing were discussed. Photomontages were displayed to show residents what the battery Project will look like when viewed from the village.

Follow-up meetings are planned with some neighbours on a range of matters including the potential visual impact and the results of the noise monitoring studies.

8.2 Community Information Booklet

A community information booklet has been prepared and distributed to neighbours, other interested stakeholders and members of the community (Figure 19). The booklet is included as Attachment 14 and provides information regarding:

- Neoen's operations both globally and locally.
- Details on some of Neoen's other battery projects.
- Some of the ways in which Neoen's projects deliver cheaper energy.
- Neoen's 'own and operate' model and Operation and Control Centre.
- Facts and figures about battery technology and specifically, the Great Lakes Battery Project.
- The functions and benefits of battery technology.
- Renewable energy zones.
- The Project location, the site layout and 3D modelled drawings.
- The typical lifecycle of a battery project.
- Community benefit sharing ideas, including links to surveys for community members to complete and share ideas and/or ask questions.
- Neoen's learning hub which is an electricity and renewable energy educational platform.
- Frequently asked questions and answers covering the topics of storage, health and culture, and noise.

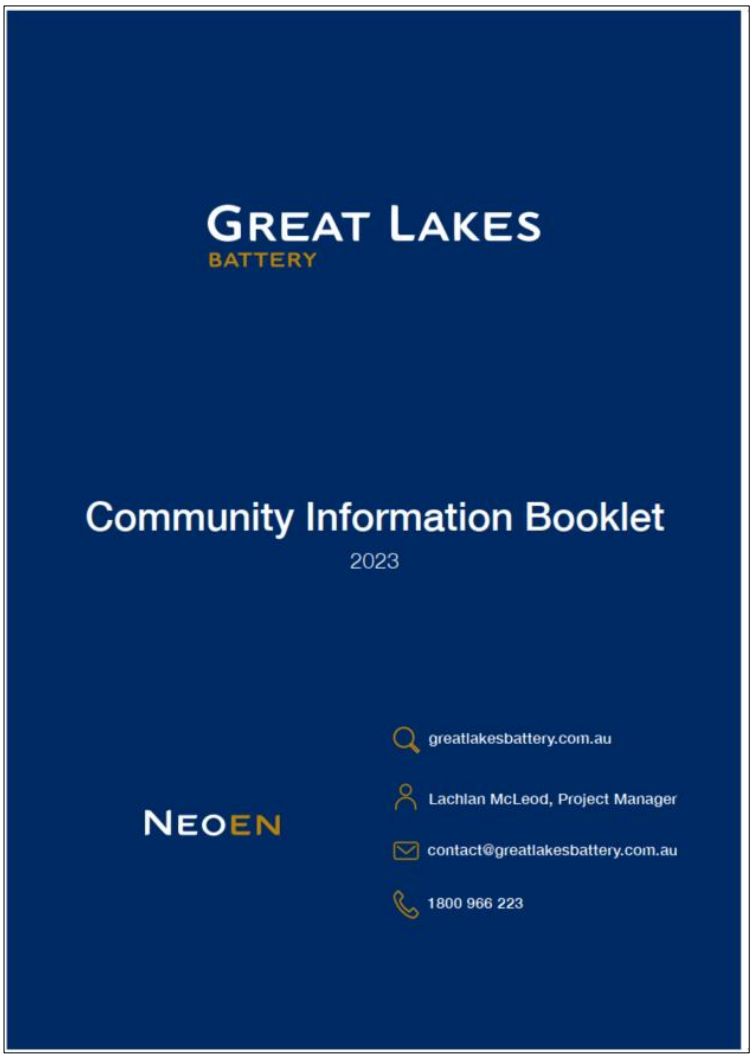


Figure 19: Cover of the Community Information Booklet

8.3 Community Information Open Day

A community information open day was held at the Cressy Community Centre, 67 Main St Cressy, on Wednesday 31 May 2023 from 2 pm to 7 pm. The session was advertised in the local Northern Midlands Courier Newspaper on 11 and 25 May, and multiple local business owners across Cressy, Longford, and Poatina kindly displayed posters advertising the event. The community information open day poster is shown in Figure 20.

Figure 20: Great Lakes community information session invitation

The community information open day allowed attendees to walk around a room that displayed about 20 A1 corflute posters that helped demonstrate who Neoen are, as well as explain key aspects of the Project. Several Neoen staff were available to engage with attendees to discuss various aspects of Neoen and the Project, as well as answer any questions. Photomontages were also displayed that demonstrated what the Project will look like from several public vantage points. Two of these photomontages can be seen in Figure 21. Note that these photomontages do not show the vegetation screening at full growth.

Figure 21: Photomontages of the Project from different public vantage points

More than 20 people attended including some of the close neighbours and a number of residents from Poatina village (Figure 22). Ideas were shared on potential community benefits and people were encouraged to write down their ideas for community benefit sharing. Ideas noted included renewable energy education, recreation initiatives, and small business ideas. In addition, attendees were encouraged to complete an online survey for the Project and to consider registering their interest for working on the Project by completing the 'work with us' survey.

Figure 22: Community information session

In general, the attendees expressed a positive view on the Project and many people were curious about the battery technology and the reasons for its installation. Other areas of interest were the broader renewable energy situation in Tasmania including the impact of Project Marinus and some of the Project details such as the timeline. One neighbour expressed concern about potential damage to public roads during construction and delivering heavy loads.

The community benefit sharing survey collected several responses from some of the attendees, where some responses on the day can be seen in

Figure 23. People were also encouraged to go online and share their ideas for community benefit sharing via the Project website. The website also includes an “express your interest to work” survey that allows people to register their interest in working on the Project. Where possible, Neoen encourages its contractors to hire local people for the construction and operation of the Project, subject to the availability of skills.

Figure 23: Responses from community members at the community information open day

Lana Best, Editor at the Northen Midlands Courier interviewed community members during the open day, as well as Thomas Jenkins (Tasmanian State Leader at Neoen) about the Great Lakes Battery Project. Lana subsequently published an article (Figure 24) about the community information open day.

Battery powers community talks

POATINA residents made up a large proportion of community members who attended an information session on the Great Lakes Battery project - a battery that could connect into Australia's national electricity grid and provide 280MW of power capacity and store up to 560 MWh of energy.

The Great Lakes Battery will be located near the existing Palmerston substation, approximately 2.5km north-east of Poatina.

Representatives from project developer Neoen set up an extensive information display in the Cressy Community Centre and a steady stream of people dropped in on May 31.

PLUGGING IN: Talking about renewable energy and the potential for a 'big battery' at Poatina are Neoen project manager Lachlan McLeod, Poatina residents Steve Cooper, Tara Falconer, Hannah Cooper and Suzanne McKane and Neoen state leader Tom Jenkins.

The Great Lakes Battery will be located within the Central Highlands Regional Energy Zone and could have a role to play in supporting the State Government to achieve a smooth transition towards its goal of 200 per cent renewable energy output.

"At this early stage in the project's development no decision has been made about which, of a number of leading battery technologies, will be used," Neoen state leader Tom Jenkins said. "Whichever battery technology is chosen, the Great Lakes Battery will provide stability for the region by dispatching stored energy to the grid during peak times of demand."

Neoen has a strong track record in delivering big batteries in Australia and around the world, with its 150MW Hornsdale Power Reserve, more commonly known as the 'Tesla Big Battery', being the world's first big battery.

Once construction begins, the battery will take around 18 months to complete and the battery and its infrastructure will cover up to 4 hectares of land.

With a life span of at least 20 years, the battery will store energy in times of high production and release energy in times of high demand, similar to how a battery on a home solar system works. It will also help to stabilise the grid with an emergency response mode to prevent blackouts.

It is expected the Great Lakes Battery will create a significant number of construction plus full-time ongoing positions as well as provide opportunities for local suppliers, businesses, schools and community groups.

Figure 24: Article published in Northern Midlands Courier

8.4 Project Website

Neoen has set up a Project website which can be found at https://greatlakesbattery.com.au/.

The website also includes opportunities for consultation including:

- A community feedback survey
- Registering interest to receive more information on the Project.
- Registering interest to work with Neoen on the construction of the Project.
- A learning hub to support local schools with information on renewable energy.

8.5 Northern Midlands Council Planning Staff

Multiple meetings and communications have taken place with Council planning staff with the aim of clarifying the requirements of the Tasmanian Planning Scheme - Northern Midlands and for guidance on completing a Development Application for the Great Lakes Battery Project.

8.6 Aboriginal Heritage Tasmania

Lyndon O'Neil and Dustin O'Neil from Healthy Country Services and Consulting visited and walked over the Project site on Thursday 29 June 2023. Lyndon is trained in Healthy Country Planning and sits on the Tasmanian Aboriginal Heritage Council.

Post this site visit, Healthy Country Services and Consulting has provided a formal review of the Project site and commented on matters related to caring for Country. This review has been included as Attachment 15.

8.7 TasNetworks

The Project team has been in discussions and negotiations with TasNetworks in relation to the network connection to Palmerston substation since the start of 2021 and these discussions are continuing. Project staff have also had several meetings and site visits with TasNetworks staff to ensure that the Project does not interfere with the operation of the Palmerston substation or the surrounding areas.

9 Conclusion

The Great Lakes Battery Project has been designed having regard to:

- the nature of the development and the impacts that it may generate;
- the site features and site locality, including the proximity to sensitive uses;
- the relevant Planning Scheme requirements including zoning, use and development standards, relevant codes and overlays; and
- assessment of potential environmental impacts (including agricultural land use, visual impact, noise, flooding, ecology, Aboriginal and European Heritage and traffic).

The potential impacts that have been identified are minimal in nature and unlikely to have significant impacts on the involved landowners or the nearest neighbours.

The Project complies with the Tasmanian Planning Scheme - Northern Midlands planning discretions and relevant Performance Criteria.

Attachment 1

Folio Plans

Attachment 2

Folio Texts

Attachment 3

Environmental Noise Assessment

Attachment 4

Bushfire Exemption Report

Attachment 5

Agricultural Report

Attachment 6

Traffic Impact Assessment

Attachment 7

Preliminary Traffic Management Plan

Attachment 8

Landscape Visual Impact Assessment

Attachment 9

Ecological Assessment

Attachment 10

Aboriginal Heritage Assessment

Attachment 11

Historic Heritage Assessment

Attachment 12

Flood Risk Assessment

Attachment 13

Preliminary Soil and Water Management Plan

Attachment 14

Great Lakes Battery Community Information Booklet

Attachment 15

Healthy Country Services and Consulting Report

FOLIO PLAN

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

FILE NUMBER W 4488 (LOTS 3,4,5,6&7) W 4482 (LOT 2)

GRANTEE WHOLE OF LOT 724, 640 ACRES, GRANTED TO JOSEPH ARCHER, & PART OF LOT 91 1600 ACRES, GRANTED TO JOSEPH ARCHER, & PART OF 1000 ACRES GRANTED TO JOSEPH ARCHER. & PART OF 3000 ACRES GTD TO JOSEPH ARCHER & PART OF LOT 27 2000 ACRES GTD TO WILLIAM EFFINGHAM LAWRENCE.

CONVERSION PLAN

LOCATION WESTMORLAND - WOODSIDE & RINGWOOD

CONVERTED FROM (P.977 D.O.) 60/3555 (LOTS 3-7) 42/2359 (LOT 2)

NOT TO SCALE LENGTHS IN METRES

REGISTERED NUMBER

P 126579

APPROVED 0 8 JAN 1997

Recorder of Titles

MAPSHEET MUNICIPAL CODE No. 123 (4836) (4837) (5037)

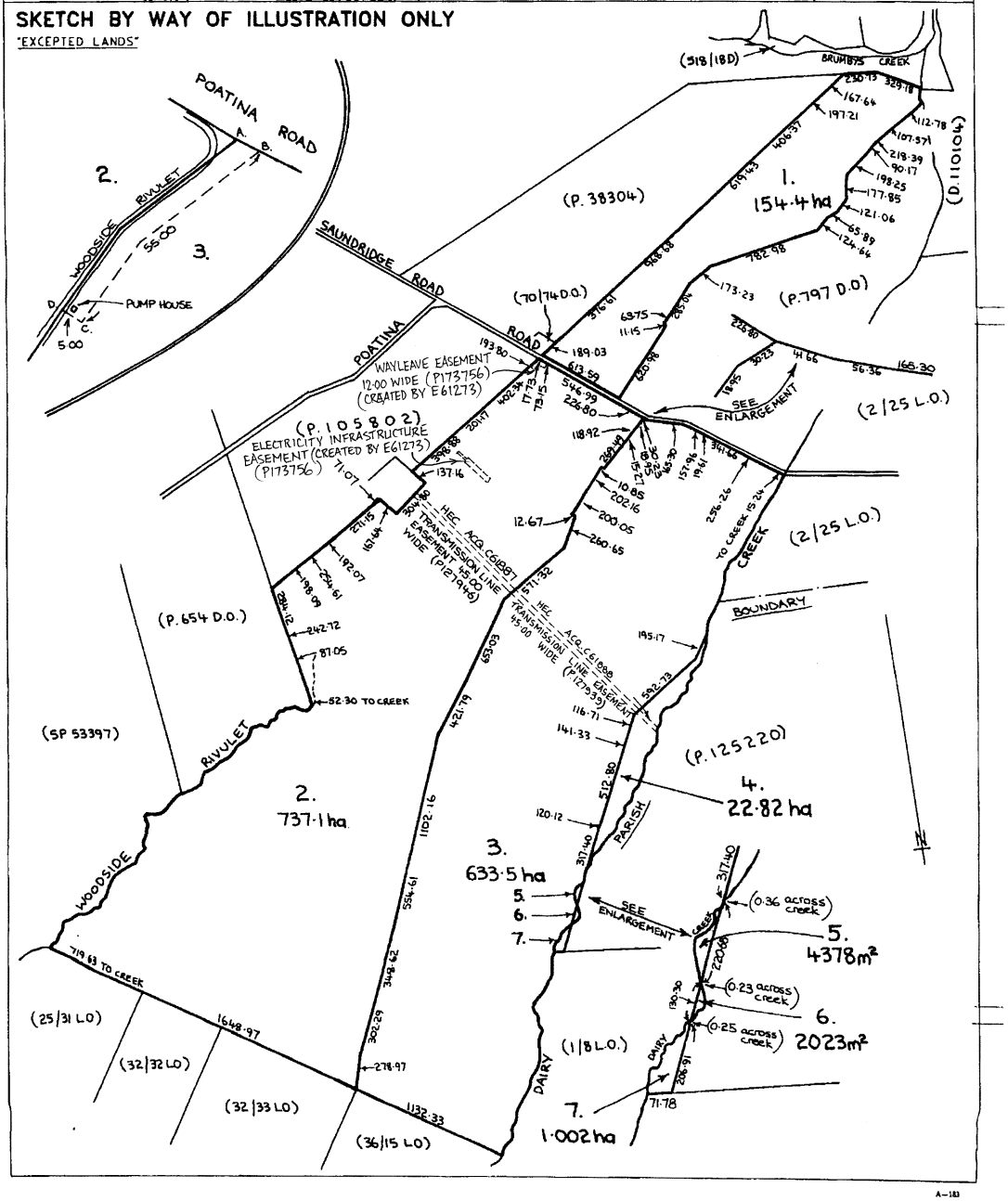
LAST UPI No. 5600324 - 0327, 5600277, 5600282, 5600283, 5600391

ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN

DRAWN D.B.

SKETCH BY WAY OF ILLUSTRATION ONLY

"EXCEPTED LANDS"



FOLIO PLAN

RECORDER OF TITLES

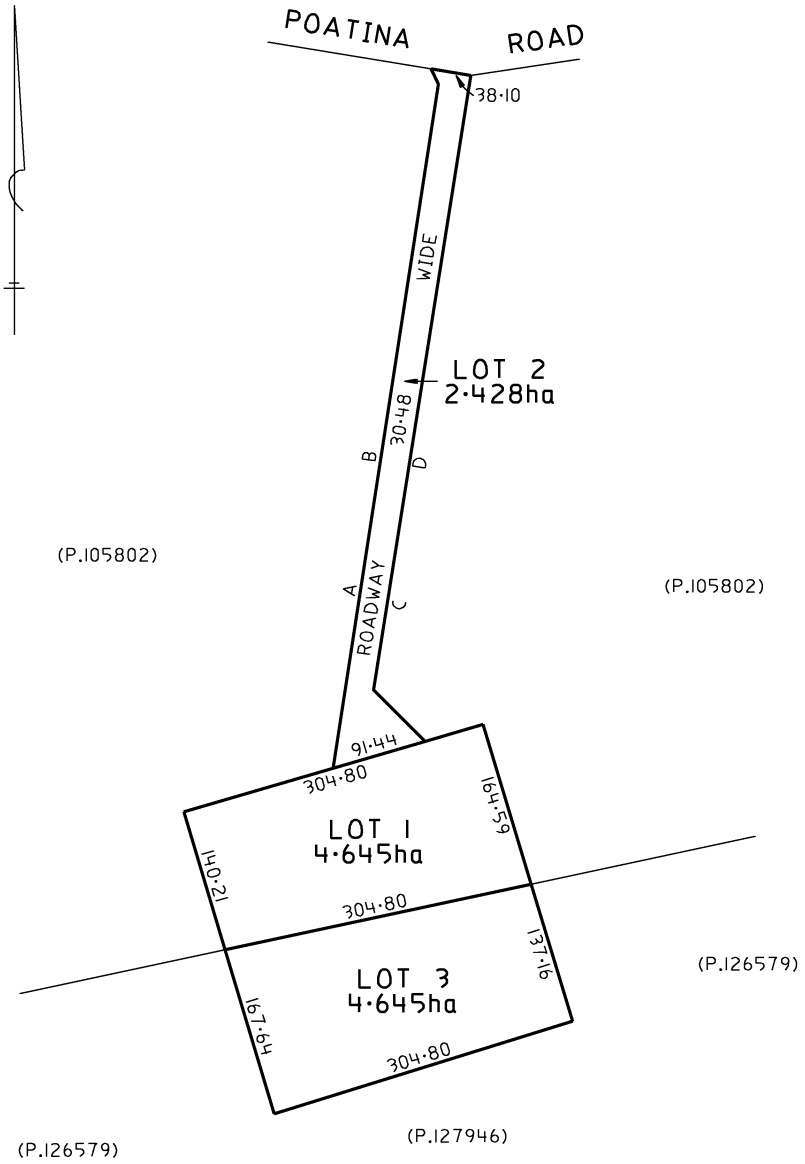
Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

FILE NUMBER Y20314 GRANTEE PART OF 3000 ACRES GTD TO JOSEPH ARCHER	CONVERSION PLAN LOCATION WESTMORLAND - WOODSIDE GL1268 CONVERTED FROM (1stly, 2ndly & 3rdly Desc.) NOT TO SCALE LENGTHS IN METRES	Registered Number P.142369 APPROVED 22 SEPT 2004 Alice Kawa Recorder of Titles
MAPSHEET MUNICIPAL CODE No. 123 (4837-45)	LAST UPI No. 5600276	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN / DRAWN NJD

SKETCH BY WAY OF ILLUSTRATION ONLY

"EXCEPTED LANDS"



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GREAT LAKES BIG BATTERY – STAGE 1 ENVIRONMENTAL NOISE ASSESSMENT

Rp 001 20220441 | 7 July 2023

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Project: **GREAT LAKES BIG BATTERY – STAGE 1**

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Report No.: **Rp 001 20220441**

Document Control

Status:	Rev:	Comments:	Date:	Author:	Reviewer:
Final	-	-	7 July 2023	B. Kalt	A. Stoker

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1.0 INTRODUCTION

Neoen Australia Pty Ltd (NEOEN) proposes to develop a new battery energy storage system (BESS) in Poatina, Tasmania, identified as Great Lakes Big Battery.

Marshall Day Acoustics (MDA) have been commissioned by Joule Logic Pty Ltd (Joule Logic) on behalf of NEOEN to undertake an environmental noise assessment of Stage 1 of the BESS. Investigations for an additional Stage 2 are ongoing with assessment outcomes intended to be documented at a later date.

This report contains details of the proposed site location, relevant environmental noise criteria and a preliminary noise assessment to establish feasibility of the proposed site from an acoustic perspective.

A glossary of relevant acoustic terminology used within this report has been included in Appendix A.

2.0 PROJECT AND SITE DESCRIPTION

2.1 Site description

The BESS is proposed in Poatina, south-west of the existing Palmerston Substation.

The site is bounded by land used for agriculture and the existing substation.

Potentially noise affected receivers within 3 km of the project location have been provided by NEOEN and are detailed in Table 1. These receivers have been considered for this assessment and typically comprise dwellings and other noise sensitive premises.

Table 1: Nearest identified noise-affected premises

Reference	Address	Spatial relationship to BESS
R1	1397 Saundridge Road, Cressy	1.9 km north
R2	4792 Poatina Road, Cressy	1.6 km east
R3	Woodside, 4740 Poatina Road, Cressy Primary property	1.2 km east
R4	Woodside, 4740 Poatina Road, Cressy Secondary tenancy	450 m east
R5	1381 Saundridge Road, Cressy	2.1 km north
R6	4693 Poatina Road, Cressy	1.5 km north-east
R7	1393 Saundridge Road, Cressy	2.1 km north
R8	4336 Poatina Road, Cressy	1.7 km west
R9	Woodside Park Enterprises Pty Ltd, 4792 Poatina Road, Cressy	2 km east

An aerial photo of the site and surrounding area with annotated receiver locations is provided in Figure 1.

Noise from the existing Palmerston Substation has not been considered in this assessment.

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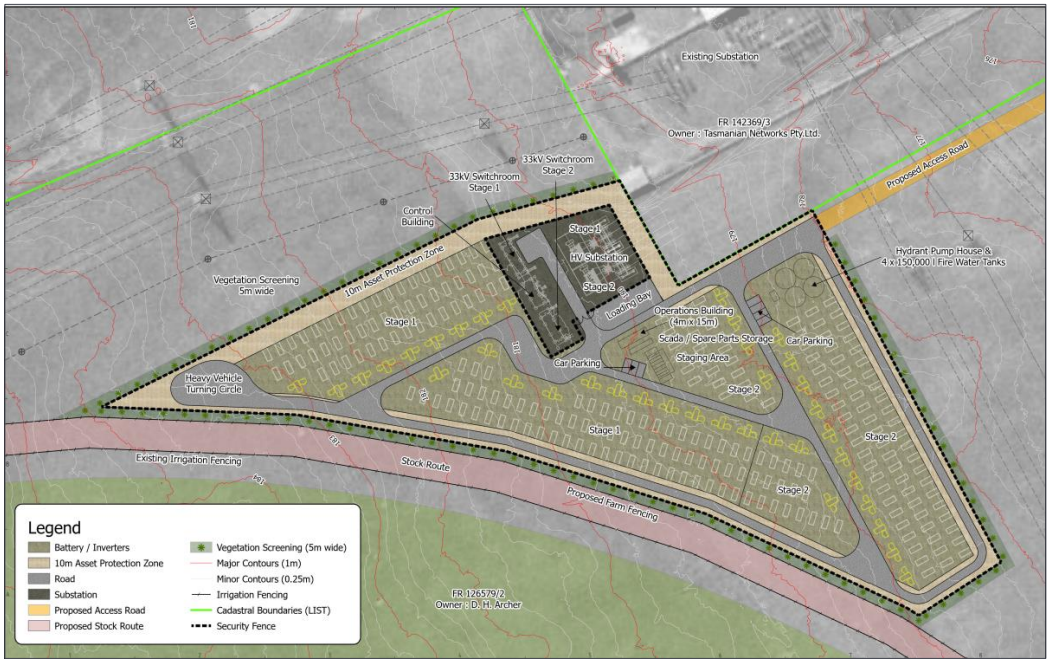
Figure 1: Project boundary and receiver locations

2.2 Project description

The project design, equipment selections and spatial layout is still in development. An indicative layout provided by NEOEN on 17 May 2023 is reproduced in Figure 2.

The provided layout considers generic equipment positions only, with preliminary equipment counts and positions. It includes both Stage 1 and Stage 2. Only Stage 1 has been considered for this assessment, comprising approximately 140MW of battery capacity.

Figure 2: Indicative site layout



In order to provide detail sufficient for the purposes of the noise assessment, NEOEN has provided supplementary information regarding the conceptual design of the Stage 1 BESS.

Table 2 shows the proposed equipment quantities provided by NEOEN via email dated 15 June 2023.

Table 2: Proposed BESS Equipment for Stage 1

Item	Quantity
Combined battery and inverter system	72
MV transformer 22 kV	17
HV Transformer 33/220 kV	1

The position of these equipment items has not been specifically defined by NEOEN however a generic layout has been developed within the Stage 1 footprint. This generic layout has been confirmed by NEOEN to be representative and has been used for the assessment. The layout is shown in Appendix B.

3.0 NOISE CRITERIA

The development application (DA) will be submitted to Northern Midlands Council (Council).

The Northern Midlands Planning Scheme consists of the following:

- The State Planning Provisions
- The Local Provisions Schedule

Council confirmed that the above documents do not include any relevant noise considerations that would apply to the project, as advised by Joule Logic.

Instead, Council recommended that Section 7 of the *Environmental Management and Pollution Control (Noise) Regulations 2016* (EMPC Regulations) be used to inform the noise assessment.

Section 7 of the EMPC Regulations provides noise limits for fixed equipment, typically related to domestic uses, and is reproduced below.

> *7. Fixed equipment*
>
> *(1) A person must not operate fixed equipment on any premises –*
>
> *(a) from 7.00 a.m. until 10.00 p.m., if the fixed equipment, when so operated, emits noise that is greater than 45dB(A); or*
>
> *(b) from 10.00 p.m. until 7.00 a.m., if the fixed equipment, when so operated, emits noise that is greater than 40dB(A).*
>
> *Penalty: Fine not exceeding 50 penalty units and, in the case of a continuing offence, a further fine not exceeding 5 penalty units for each day during which the offence continues.*
>
> *(2) A measurement of noise, emitted by fixed equipment on any premises, that is to be measured at residential premises –*
>
> *(a) is to be taken one metre from the external wall, of the residential premises, that is closest to the fixed equipment emitting the noise; or*
>
> *(b) if the distance between the external wall of the residential premises closest to the fixed equipment and the property boundary of the residential premises is less than one metre, is to be taken at that property boundary.*

In the absence of specific context provided by the EMPC Regulations, Council has confirmed that 45 dB(A) and 40 dB(A), as indicated by Condition 7.1 a, and Condition 7.1 b, should be interpreted as being 45 dB L_{Aeq} and 40 dB L_{Aeq} respectively.

Where L_{Aeq} metrics are used it is necessary to define the time period over which the equivalent continuous sound pressure level is evaluated. In the absence of specific guidance provided by the EMPC Regulations, an evaluation period of 30 minutes has been selected. This aligns with common practice adopted in Victorian legislation and guidance. This approach should be confirmed by Council.

On the above basis, the noise limits shown in Table 3 have been used for the assessment.

Table 3: Project specific noise limits

Period	Applicable time of day	Noise limit, dB $L_{Aeq\ 30\ min}$
Day	0700 – 2200 hrs	45
Night	2200 – 0700 hrs	40

4.0 NOISE ASSESSMENT

4.1 Noise modelling method

A 3-dimensional computer model was created in the environmental noise modelling program SoundPLANnoise v9.0 to predict noise levels from the proposed development. The noise model has been used to calculate noise levels at the nearest noise-affected premises in accordance with ISO-9613-2:1996 *Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation* (ISO 9613-2). The noise model enables the calculation of noise levels over a wide area, and accounts for key considerations including site arrangement, terrain, and atmospheric conditions.

The ISO 9613-2 standard specifies an engineering method for calculating noise at a known distance from a variety of sources under meteorological conditions that are favourable to sound propagation.

To calculate far-field noise levels according to the ISO 9613-2, the noise levels of each source are firstly characterised in the form of octave band frequency levels. A series of octave band attenuation factors are then calculated for a range of effects including:

- Geometric divergence
- Air absorption
- Reflecting obstacles
- Screening
- Ground reflections.

The octave band attenuation factors are then applied to the noise data to determine the corresponding octave band and total calculated noise level at relevant receiver locations.

The conceptual location of proposed equipment items within Stage 1 of the BESS is shown in Appendix B. Details of the exact arrangement are subject to final detailed design. Note that alternative arrangement of equipment, or changes to equipment selections may lead to predicted noise levels and compliance outcomes that differ to those presented in this report.

Topography for the site has been sourced from publicly available data from Geoscience Australia (Elvis: https://elevation.fsdf.org.au, accessed 12 May 2023).

Further information with respect to the noise modelling method is provided in Appendix C.

4.2 Noise data

Based on information provided by NEOEN, noise generating equipment associated with the BESS project is understood to be limited to:

- Combined battery and inverter system
- MV Transformers
- HV Transformers

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4.2.1 Combined battery and inverter system

Noise levels for the combined battery and inverter system are dependent on the duty cycle of the thermal fan systems. Measured octave band and third octave band sound pressure levels and derived sound power levels for the equipment at various duty cycles have been provided by the manufacturer.

Based on information provided by NEOEN and the manufacturer, noise data associated with the equipment operating in a 2h configuration with a duty cycle of 60% during the day, and 40% during the night has been used. This has been confirmed by NEOEN and the manufacturer to present no operational constraints to the BESS.

The noise level data used in the assessment is shown in Table 4.

Table 4: Combined battery and inverter system sound power levels

Item	Octave band centre frequency, Hz, dB L_W									
	63[1]	125	250	500	1000	2000	4000	8000	16000	dBA
40% duty cycle	--	90	91	85	84	83	80	71	59	90
60% duty cycle	--	91	97	90	89	88	86	78	64	96

[1] Manufacturer data does not extend to 63 Hz and has not been included in the assessment

4.2.2 Transformers

At this stage of the project, specific details of the transformer makes and models are yet to be finalised. NEOEN has advised that a HV transformer rated at 180 MVA would be required. The MV transformers would be rated at 8.3 MVA.

In lieu of measured sound power level data for a specific transformer selection, reference has been made to Australian Standard AS 60076-10:2009 *Power transformers – Part 10: Determination of sound levels* (AS 60076-10:2009) which provides a method for estimating transformer sound power levels. The sound power levels include the noise from ancillary plant such as cooling plant.

The noise level data used for the transformers is shown in Table 5. Octave band data has been sourced from similar measurements previously conducted by MDA and normalised to the overall level calculated using AS 60076-10:2009. The MDA derived octave band data may differ to that of the specific technology utilised on site.

In following the above procedure, noise data for the transformers is limited to overall sound power level and associated octave band spectra only.

Table 5: Transformer sound power levels

Item	Octave band centre frequency, Hz, dB L_w							
	63	125	250	500	1000	2000	4000	dBA
MV transformer	78	86	83	78	70	63	57	79
HV transformer	96	105	102	96	88	81	76	98

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4.3 Tonality

Council has indicated the EMPC Regulations to be an appropriate source of noise criteria applicable to the project, as detailed in Section 3.0. The EMPC Regulations do not provide any specific guidance with respect to the assessment of tonality associated with noise sources in a proposed development.

Information provided on the Tasmania EPA website indicates that

> *Any measurement of noise or test of a noise source for the purposes of the Regulations should be made in accordance with the Noise Measurement Procedures Manual.*

The Department of Environment, Parks, Heritage and the Arts (DEPHA) published a document entitled *Noise Measurement Procedures Manual (Second Edition, July 2008)* (the NMPM) which notes the following:

> *Where a sound contains intrusive or dominant characteristics, the measured sound pressure level must be adjusted where measurements are made for the purposes of any Environment Protection Policy on Noise*

The document sets out a procedure for applying a tonality adjustment to measured sound pressure levels. It is evident that direct evaluation of tonality, via measurement at noise sensitive receivers is not feasible for a development that is yet to be constructed. Further, an assessment of tonality under the NMPM is only feasible where one-third octave spectra is available. The NMPM states:

> *Where the one-third octave scheme is not applicable or if the one-third octave spectrum can not be measured, an adjustment of 5 dB is to be added if the sound under investigation is audibly tonal.*

On this basis, an adjustment of 5 dB has been applied to the noise contributions from the MV transformers and HV transformers, as only octave band spectra are available.

Conversely, one third octave spectra has been made available by the manufacturer for the combined battery and inverter systems. Review of the data indicates tonal character at source at 250 Hz for 40 % duty and 315 Hz for 60 % duty.

In order to provide a representative assessment of tonality for combined battery and inverter systems, propagation calculations have been conducted using the noise modelling method detailed in Section 4.1, providing one third octave spectra results at the noise sensitive receivers. These predictions have then been treated as effective measurements, with tonality adjustments derived from predictions.

Validation of the ISO 9613-2 method is limited to octave band data, therefore when using one-third octave band noise data the modelling software assumes the same attenuation factors for the adjacent two bands. This is a limitation of the method and may result in a minor variation in the results where one-third octave band data is used. This approach should be reviewed by Council for technical suitability.

On the above basis, tonality adjustments have been applied to combined battery and inverter system noise contributions at the noise sensitive receivers, ranging from 1 dB to 4 dB for 40 % duty and 3 dB to 5 dB for 60 % duty depending on the receiver location.

The predicted noise levels detailed in the following section include the tonality adjustments as described above.

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4.4 Predicted noise levels

The cumulative predicted noise levels from all noise sources associated with the BESS at each of the receiver locations are shown in Table 6.

Predicted noise levels during the day period are based on a duty of 60 % for the combined battery and inverter systems.

Predicted noise levels during the night period are based on a duty of 40 % for the combined battery and inverter systems.

The predicted noise levels include the tonality adjustments detailed in Section 4.3. No additional noise control measures are included.

Table 6: Predicted noise levels, dB $L_{Aeq\ 30\ min}$

Receiver	Day operation (60 % duty)	Night operation (40 % duty)
R1	34	27
R2	35	28
R3	38	32
R4	45	38
R5	32	26
R6	35	29
R7	31	25
R8	34	28
R9	33	27
Noise limit, dB $L_{Aeq\ 30\ min}$	45 (Day)	40 (Night)
Compliance	Yes	Yes

Predicted noise levels at noise sensitive receivers associated with the operation of the BESS, as described in this report, are indicated to comply with the day and night-time noise limits.

5.0 CONCLUSION

NEOEN is submitting a DA for a new BESS in Poatina, identified as Great Lakes Big Battery.

At this early stage, detailed information with respect to project design and operation is not known, however, in order to provide a demonstration of feasibility, a conceptual scenario for assessment has been developed based on information provided by NEOEN.

Based on the developed concept, a preliminary environmental noise assessment of the proposed operations has been carried out. This assessment has considered:

- Sound power levels for combined battery and inverter systems and associated transformers, based on the concepts documented in this report
- Noise limits provided in the EMPC Regulations, as advised by Northern Midlands Council
- Noise modelling of the site and surrounding environment, accounting for typical worst-case atmospheric conditions which favour the propagation of sound towards noise-affected premises.

The assessment has demonstrated that noise levels associated with the proposed development concept can achieve the noise limits, with the combined battery and inverter systems operating at 60% duty cycle during the day (0700 – 2200 hrs), and 40% duty cycle at night (2200 – 0700 hrs).